



MTS/IEEE **OCEANS '15** Washington, DC

October 19 - 22

Sea Change: Dive into Opportunity

SESSIONS

AUTHORS

**STUDENT
POSTERS**

SEARCH

PROGRAM

MTS 
marine technology society

IEEE
Oceanic
Engineering Society 

Proceedings of **OCEANS'15 MTS/IEEE Washington** Conference & Exhibition

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Student Posters

Quantifying California Current Plankton Samples with Efficient Machine Learning Techniques

Jeffrey Ellen¹; Hongyu Li²; Mark Ohman³

¹University of California San Diego

²University of California, San Diego

³Scripps Institution of Oceanography/UC San Diego

Co-Prime Comb Signals for Active Sonar

Jonathan Soli; Granger Hickman

Duke University

An inertial system for the production of electricity and hydrogen from seawave energy

Antonella Colucci; Valeria Boscaino; Giovanni Cipriani; Domenico Curto; Vincenzo Franzitta; Vincenzo Di Dio; Marco Trapanese; Alessia Viola

University of Palermo

Seafloor video compression using adaptive hybrid wavelets and directional filter banks

Yang Zhang¹; Qingzhong Li²; Shahriar Negahdaripour³

¹Ocean University of China & University of Miami

²Ocean University of China

³University of Miami

Higher Order Statistics Based Direction of Arrival Estimation with Single Acoustic Vector Sensor in the Under-determined Case

Ashish Agarwal; Arun Kumar; Monika Agarwal

Indian Institute of Technology, Delhi

Acoustic Doppler Compensation using Feedforward Retiming for Underwater Coherent Transmission

Xiao Liu; Jean-Francois Bousquet

Dalhousie University

Correlation bias analysis - A novel method of sinus cardinal model for least squares estimation in cross-correlation

Thanh Huy Nguyen¹; Myriam Chabah²; Christophe Sintès¹

¹Telecom Bretagne

²Thales Underwater Systems SAS

Real-time Fish Localization with Binarized Normed Gradients

Xiu Li; Jing Hao; Hongwei Qin; Liansheng Chen

Graduate School at Shenzhen, Tsinghua University

Bathymetric Factor Graph SLAM with Sparse Point Cloud Alignment

Vittorio Bichucher¹; Jeffrey Walls¹; Katherine Skinner²; Ryan Eustice¹; Paul Ozog¹

¹University of Michigan - Perceptual Robotics Laboratory

²University of Michigan - Deep Robot Optical Perception

Identifying Structural Anomalies in Image Reconstructions of Underwater Ship Hulls

Paul Ozog; Ryan Eustice
University of Michigan

Hydrodynamic Analysis of A Rim-driven Thruster Based on RANS Method

Minjian Cai; Canjun Yang
Zhejiang University

Underwater Robot Localization in the Presence of Dramatic Appearance Changes

Jie Li; Ryan Eustice; Matthew Johnson-Roberson
University of Michigan

Autonomous Surface Vehicle 3D Seafloor Reconstruction from Monocular Images and Sonar Data

Eduardo Iscar Ruland; Matthew Johnson-Roberson
University of Michigan

Detection and Segmentation of Underwater Archaeological Sites Surveyed with Stereo-Vision Platforms

Katherine Skinner; Matthew Johnson-Roberson
University of Michigan

Sparse-Representation-Based Adaptive Interference Suppression

Yishu Shi¹; Suiling Ren²; Ying Chen¹; Fengxiang Ge¹

¹Beijing Normal University

²State Key Laboratory of Acoustics, Institute of Acoustics, Chinese Academy of Sciences

A Wideband Noise-like Transmitter Approach for Underwater Lidar using Diode Lasers and Passive Fiber Optic Processor

Luke Rumbaugh¹; David Illig¹; Mahesh Banavar¹; Brandon Cochenour²; William Jemison¹

¹Clarkson University

²NAWC Pax River

Wind direction retrieval from rain-contaminated X-band nautical radar images

Weimin Huang; Yali Wang
Memorial University of Newfoundland

The adaptive robust tracking control of deep-sea hydraulic manipulator based on backstepping design

Xiaoxu Cao; Linyi Gu; Gaosheng Luo; Yaoyao Wang
Zhejiang University

A Process to Simulate GNSS-R Delay-Doppler Map of Tsunami-dominant Sea Surface

Qingyun Yan; Weimin Huang
Memorial University of Newfoundland

Acoustic Telemetry and Communication 1

Tuesday, 13:30 - 15:00

Chair:

Milica Stojanovic, *Northeastern University*

Tracking Tagged Fish Using a Wave Glider

Ryan Carlon

Liquid Robotics Inc

A Communications and Relative Navigation Architecture for Underwater Vehicle Coordination

Thomas Furfaro; Joao Alves

NATO STO Centre for Maritime Research and Experimentation

Medium Access Control Mechanism for Multi-hop Underwater Acoustic Networks Utilizing Time Reversal

Ruiqin Zhao; Xiaohong Shen; Yong Wang; Zhe Jiang; Weigang Bai; Haiyan Wang

Northwestern Polytechnical University

Estimation and Compensation of Doppler Scale under Varying Sampling Period, Channel, and Channel Taps in UAC OFDM Systems

Sadia Ahmed

University of South Florida

Joint Power and Rate Control with Constrained Resources for Underwater Acoustic Channels

Rameez Ahmed; Milica Stojanovic

Northeastern University

Sonar Imaging 1

Tuesday, 13:30 - 15:00

Chair:

Sayuri Matsumoto, *Port and Airport Research Institute*

Experimentation for development of Underwater Acoustic Video Camera: in experiment dock

Kazuki ABUKAWA¹; Sayuri MATSUMOTO¹; Taketsugu HIRABAYASHI¹; Kazuhiro SHIRAI¹; Tomoo SATO¹; Hiroshi IIDA²; Mitsuhiko Nanri³; Muneo YOSHIE¹; Kageyoshi KATAKURA¹; Koji TAKAHASHI¹

¹*Port and Airport Research Institute*

²*TOA Corporation*

³*Hitachi, Ltd.*

A Rapid Weighted Median Filter based on Saliency Region for Underwater Image Denoising

Rui Nian¹; Xuefei Liu¹; Bo He¹; Amaury Lendasse²

¹*Ocean University of China*

²*The University of Iowa*

Real-Time Noise Reduction for Sonar Video Image Using Recursive Filtering

Hyeonwoo Cho; Juhyun Pyo; Jeonghwe Gu; Hangil Jeo; Son-Cheol Yu

POSTECH

Automatic object detection and segmentation from underwater images via saliency-based region merging

Yafei Zhu; Xinxin Qiu; Xiaoqing Sun; Haiyong Zheng; Bing Zheng

Ocean University of China

Study to reduce size and weight of underwater acoustic imaging system

Sayuri Matsumoto¹; Kageyoshi Katakura¹; Takenobu Tsuchiya²; Nobuyuki Endoh²

¹*Port and Airport Research Institute*

²*Kanagawa University*

Access, Custody, and Retrieval of Data

Tuesday, 13:30 - 15:00

Chair:

Vembu Subramanian, *SECOORA*

Physical Layer Design Towards VHF Data Exchange (VDE) Link

Ronald Raulefs; Tore Stenbock; Armin Dammann; Simon Plass

DLR (German Aerospace Center)

Ship To Shore: ROV Dive Logging and Data Acquisition

Reyna Jenkyns; Jonathan Cheng; Shane Kershtien; Meghan Tomlin; Daisy Qi; Ron Schouten; Tim Lavallee

Ocean Networks Canada

An end-to-end Workflow for Assessing Sea Surface Temperature, Salinity and Water Level Predicted by Coastal Ocean Models.

Vembu Subramanian¹; Filipe Fernandes²; Richard Signell³; Debra Hernandez¹

¹*SECOORA*

²*Centro Universitário Monte Serrat, Santos*

³*USGS*

A participative tool for sharing, annotating and archiving submarine video data

Yann Marcon¹; Renzo Kottmann²; Volker Ratmeyer³; Antje Boetius¹

¹*Alfred Wegener Institute for Polar and Marine Research*

²*Max-Planck Institute for Marine Microbiology*

³*MARUM Center for Marine Environmental Sciences*

Development of a smartphone application for disaster response

hyoungseong park; sungjin hong

National Disaster Management Institute

Sonar Signal Processing 1

Tuesday, 13:30 - 15:00

Co-Chairs:

Tim Claussen, *University of Kiel, Germany*

Zhao Li, *Harbin Engineering University*

Compensation of Vehicle Motion Influence in a Long Baseline System Field Trial

Zhao Li¹; Stan Dosso²; Dajun Sun¹

¹*Harbin Engineering University*

²*University of Victoria*

Distributed Array of Cooperating Acoustic Sensors using Local Time-Frequency Coherence Analysis

Cornel Ioana; Ion Candel; Angela Digulescu-Popescu

Grenoble INP, GIPSA-lab

Underwater acoustic localization approach to an arbitrary distributed multi-elements array

Jie Ding¹; Dajun Sun²; Cuie Zheng²

¹*Harbin Engineering University*

²*Science and Technology on Underwater Acoustic Laboratory*

Self-Tuning Active Sonar Signal Processing for a Towed Hydrophone Array During a Turn

Kolja Pikora¹; Frank Ehlers²

¹*Kiel University*

²*Technical Centre for Ships and Naval Weapons*

Applying MIMO concept to time reversal method on target resolving in shallow water

Jingning Jiang; Xiang Pan; Zheng Zheng

Zhejiang University

Autonomous Underwater Vehicles 1: Gliders 1

Tuesday, 13:30 - 15:00

Chair:

Clinton Haldeman, *Center for Ocean Observing Leadership*

Implementation of Energy Harvesting System for Powering Thermal Gliders for Long Duration Ocean Research

Clinton Haldeman¹; Oscar Schofield¹; Douglas Webb²; Jack Jones³; Thomas Valdez³

¹*Center for Ocean Observing Leadership*

²*Teledyne Webb Research*

³*Jet Propulsion Laboratory*

Simulating a Shape Memory Alloy Buoyancy Heat Engine for Undersea Gliders

Alex Angilella¹; Timothy Miller²; Farhan Gandhi¹

¹*Rensselaer Polytechnic Institute*

²*The Penn State Applied Research Lab*

Glider Advancements in Efficiency: Enhancing Factors Necessary for Ocean-Wide Flights

Liam Ramsay¹; Caleb Lintz²; Josh Kohut¹; Oscar Schofield¹; Travis Miles¹; Scott Glenn¹;

Andrenette Morrison¹

¹*Rutgers University*

²*US Naval Academy*

Model Comparison for Transatlantic Ocean Glider Flight: Student Analysis of Modern Circumnavigation

Andrenette Morrison¹; Kelsey Ashbrook²; Stephanie Lee²; Erin Payne²; Olivia Czerewko²; Martin Arroyo²; Travis Miles¹; Josh Kohut¹; Scott Glenn¹; Oscar Schofield¹

¹*Rutgers University*

²*US Naval Academy*

Sliding PD Control Performance on Autonomous Underwater Glider

Luis Garcia-Valdovinos; Tomas Salgado-Jimenez; Isabel Andrade; Manuel Bandala

CIDESI

Vehicle Performance 1

Tuesday, 13:30 - 15:00

Chair:

Andrew Bouchard, *NSWC PCD (Code X22)*

Control of an Underwater Vehicle in Irregular Waves

Thomas Battista; Craig Woolsey
Virginia Tech

A search game for optimizing information collection in UUV mission planning

John Baylog; Thomas Wettergren
NUWC NPT

A Real-time Vertical Plane Flight Anomaly Detection System for a Long Range Autonomous Underwater Vehicle

Ben Yair Raanan¹; James Bellingham²; Yanwu Zhang¹; Brian Kieft¹; M. Stanway¹; Rob McEwen¹; Brett Hobson¹
¹*MBARI*
²*WHOI*

Verification of Autonomous Systems: Challenges of the Present and Areas for Exploration

Andrew Bouchard; Richard Tatum
NSWC PCD (Code X22)

Chinese manned submersible JIAOLONG's scientific cruise in 2014-2015

Xiangyang LI¹; Cong YE²; Chunsheng WANG³; Chunhui TAO³; Xiang XIAO⁴
¹*China Ocean Mineral Resources R&D Association (COMRA)*
²*China Ship Scientific Research Center*
³*The Second Institute of Oceanography, State Oceanic Administration*
⁴*Shanghai Jiaotong University*

Current Measurement Technology 1

Tuesday, 13:30 - 15:00

Chair:

Albert Williams, *WHOI*

Current Measurement Expeditions: Deep-sea, Shelf-edge, Near-surface, Shallow-water, and Under-ice

Albert Williams

WHOI

Estimating flow velocities of the water column using the motion response of an Autonomous Underwater Vehicle (AUV)

Supun Randeni Pathiranachchilage; Alexander Forrest; Remo Cossu; Zhi Leong; Dev Ranmuthugala

Australian Maritime College (University of Tasmania)

Real-time Ocean Surface Current Measurements in the Gulf of Mexico

Seth Zuckerman¹; Steven Anderson¹; Grant Stuart²; Cortis Cooper³

¹*Arete Associates*

²*Fugro GEOS*

³*Chevron Energy Technology Corp.*

Prediction of Tidal Water Currents from Active Sonar Returns

Anna Slowikowski; Kevin Gormally

The Johns Hopkins University Applied Physics Laboratory

An Overview of Airborne Oceanic Survey Capabilities of the NOAA Aircraft Operations Center

Steven Paul; Richard Henning

NOAA

Naval Architecture

Tuesday, 13:30 - 15:00

Co-Chairs:

Sarah Mouring, *U.S. Naval Academy*

Hans Bjelland, *SINTEF Fisheries and Aquaculture*

The Undersea Constellation: The Leading Edge of the Joint Information Environment

Rachel Volner; George Galdorisi

SPAWAR Systems Center Pacific

Behavior of Perforated Metal-to-Composite Joints Subjected to Tensile Loading

Sarah Mouring¹; Luke Louca²; Reuben Brambleby²

¹*U.S. Naval Academy*

²*Imperial College*

Exposed aquaculture in Norway: Technologies for robust operations in rough conditions

Hans Bjelland¹; Martin Føre¹; Pål Lader¹; David Kristiansen¹; Ingunn Holmen¹; Dariusz Fathi²; Esten Grøtli³; Frode Oppedal⁴; Ingrid Utne⁵; Ingrid Schjølberg⁵; Arne Fredheim¹

¹*SINTEF Fisheries and Aquaculture*

²*MARINTEK*

³*SINTEF ICT*

⁴*Institute of Marine Research*

⁵*Norwegian University of Science and Technology*

A computer simulation model for compliant beam bio-mimetic fish

R. Sharma; G. Govindarajan

IIT Madras, Chennai, India

Uncertainties in ship-based estimation of waves and responses

Najmeh Montazeri¹; Jørgen Jensen²; Ulrik Nielsen²

¹*Technical University of Denmark*

²*Technical University of Denmark & Centre for Autonomous Marine Operations and Systems (AMOS), NTNU*

Sound Propagation and Scattering 1

Tuesday, 13:30 - 15:00

Co-Chairs:

Roger Gauss, *Naval Research Laboratory*

Yong Chai, *Institute of Acoustics, Chinese Academy of Sciences*

A barrel-stave projector with active material shell

Yong Chai; XiPing Mo; YaoZong Pan; YongPing Liu; Yunqiang Zhang

Institute of Acoustics, Chinese Academy of Sciences

Moment-Based Method to Statistically Categorize Rock Outcrops Based on their Topographical Features

Roger Gauss¹; Joseph Fialkowski¹; David Calvo¹; Richard Menis¹; Derek Olson²; Anthony Lyons³

¹*Naval Research Laboratory*

²*Applied Research Laboratory*

³*University of New Hampshire*

A Physical Statistical Sonar Clutter Model for Spatially-Dispersed Scatterers

Joseph Fialkowski; Roger Gauss

Naval Research Laboratory

Scale-model scattering experiments using 3D printed representations of ocean bottom features

David Calvo¹; Michael Nicholas¹; Joseph Fialkowski¹; Roger Gauss¹; Derek Olson²; Anthony Lyons³

¹*Naval Research Laboratory*

²*The Pennsylvania State University*

³*University of New Hampshire*

Steered Nonlinear Field Computation and Measurement

Jianjun Zhu; Haisen Li; Baowei Chen; Jingxin Ma

Harbin Engineering University

Acoustic Telemetry and Communication 2

Tuesday, 15:30 - 17:15

Chair:

Simon Freeman, *NRL*

High Data Rates in the High Frequency Acoustic Channel

Craig Benson; Michael Frater

UNSW, Canberra

High-frequency, highly directional short-range underwater acoustic communications

Simon Freeman; Lloyd Emokpae; Geoffrey Edelmann

NRL

Stochastic Replay of SIMO Underwater Acoustic Communication Channels

Francois-Xavier Socheleau; Antony Pottier; Christophe Laot

Telecom Bretagne

Sonar Imaging 2

Tuesday, 15:30 - 17:15

Chair:

David Calvo, *Naval Research Laboratory*

Development of the Underwater Search Supporting Technique Using the High-resolution Imaging Sonar

Kazuoki Kuramoto¹; Akira Asada²; Kazuhiro Hantani³

¹*Japan Coast Guard Academy*

²*Institute of Industrial Science, The University of Tokyo*

³*TOYO Corporation*

Real-Time Underwater Target Classification Method for Multi-resolution imaging Sonar of the AUV

Lei Gao; Kai Sun; Yao zhang; Hongli Xu

State Key Laboratory of Robotics Shenyang Institute of Automation CAS

3D Acoustic imagery generation by interferometric analysis of long baseline using Interferometric Real Aperture Sonar.

Mitsuhiro Kojima¹; Akira Asada¹; Katsunori Mizuno¹; Fuyuki Katase¹; Aritoshi Mio²; Satoshi Tsukioka³; Shinobu Omika³; Tamaki Ura⁴

¹*Tokyo University*

²*NTT DATA CCS*

³*JAMSTEC*

⁴*Kyushu Institute of Technology*

Assessment of mine hunting performance evaluation parameters across multiple side-looking sonar systems and frequencies

Marc Geilhufe¹; Warren Connors²; Stig Synnes¹; Øivind Midtgaard¹; Torstein Sæbø¹; Roy Hansen¹; Samantha Dugelay²

¹*Norwegian Defence Research Establishment (FFI)*

²*Centre for Maritime Research and Experimentation (CMRE)*

Thin Fresnel zone plate lenses for underwater acoustics: modeling and experiments

David Calvo; Abel Thangawng; Michael Nicholas; Christopher Layman

Naval Research Laboratory

Data Visualization 1

Tuesday, 15:30 - 17:15

Co-Chairs:

Avijit Gangopadhyay, *SMAST/UMass Dartmouth*

Hassan Moustahfid, *NOAA/U.S. IOOS*

Integrated Management and Visualization of Animal Telemetry Observations: Serving data from a wide variety of platforms used in animal telemetry.

Hassan Moustahfid¹; Randall Kochevar²; Michael Weise³; Barbara Block²

¹NOAA/U.S. IOOS

²Stanford University, Biology Department, Hopkins Marine Station

³US NAVY/ONR

Tuning interpolation methods for environmental line/transect surveys

You LI; Maria Rendas

Laboratoire d'Informatique, Signaux et Systèmes de Sophia-Antipolis (I3S)

Streamlining the Evaluation of Potential Marine Debris Targets for Disaster Response

Thomas Butkiewicz; Andrew Stevens

Center for Coastal and Ocean Mapping - University of New Hampshire

ICT application of real-time monitoring and estimation system for set-net fishery

Ramadhona Saville¹; Katsumori Hatanaka¹; Masaaki Wada²

¹Tokyo University of Agriculture

²Future University Hakodate

Toward an automated detection of the Gulf Stream North Wall from concurrent satellite images

Avijit Gangopadhyay¹; Jeffrey Rezendes²; Kevin Lyndon²; Ramprasad Balasubramanian²; Iren Valova²

¹SMAST/UMass Dartmouth

²UMass Dartmouth

Multiple target tracking in seabed surveys using the PHD filter

Tommaso Fabbri¹; Francesco Di Corato²; Davide Fenucci¹; Daniele Meucci¹; Andrea Caiti¹

¹Dipartimento di Ingegneria dell'Informazione - Università di Pisa

²Magneti Marelli S.p.A - ADAS Technologies

Sonar Signal Processing 2

Tuesday, 15:30 - 17:15

Co-Chairs:

Kolja Pikora, *Kiel University*

Cornel Ioana, *Grenoble INP, GIPSA-lab*

A Method for Automatic Detection of Underwater Objects using Forward-looking Imaging Sonar

Jeonghwe Gu; Son-Cheol Yu; Juhyun Pyo; Hangil Joe; Byeongjin Kim; Juhwan Kim; Hyeonwoo Cho
Pohang University of Science and Technology

A Fast Sonar-based Benthic Object Recognition Model via Extreme Learning Machine

Rui Nian¹; Wenqiang Cai¹; Bo He¹; Amaury Lendasse²

¹*Ocean University of China*

²*University of Iowa*

High-speed sensing for object detection in underwater bi-static acoustic paths

Cornel Ioana¹; Angela Digulescu¹; Cindy Bernard¹; Elena Lungu²; Ion Candel¹; Cornel Ioana¹

¹*Grenoble Institute of Technology*

²*SIGINTEC*

A Real-time Cognitive Sonar System for Diver Detection

Tim Claussen; Duc Nguyen; Ulrich Heute; Gerhard Schmidt

University of Kiel, Germany

Reconstruction of acoustic fields based on the least squares for short vertical linear array

Qi Wang; Hang Chen; Yingmin Wang; Guolei Zhu

School of Marine Science and Technology

Autonomous Underwater Vehicles 2: Gliders 2

Tuesday, 15:30 - 17:15

Chair:

Travis Miles, *Rutgers University*

Glider Performance During Hurricane Gonzalo (BIOS, Bermuda)

David Aragon¹; Ruth Curry²; Travis Miles¹; Scott Glenn³

¹*Rutgers University*

²*Bermuda Institute of Ocean Sciences*

³*Rutgers University - Department of Marine and Coastal Sciences*

Coastal Ocean Mixing and Advection During Hurricane Sandy and Arthur

Travis Miles; Greg Seroka; Scott Glenn

Rutgers University

Testing a pneumatic underwater glider in shallow water

Artur Wolek¹; Tejaswi Gode¹; Craig Woolsey¹; Jake Quenzer²; Kristi Morgansen²

¹*Virginia Tech*

²*University of Washington*

Adaptive Control for Hybrid Underwater Gliders

Luis Garcia-Valdovinos¹; Tomas Salgado-Jimenez¹; Jorge Torres²; Eduardo Campos³; Ottmar Uriza¹

¹*CIDESI*

²*CINVESTAV-DF*

³*UPP*

Impact of folding propeller spinning position for the transit performance of a hybrid-driven underwater glider

Zhier Chen; Jiancheng Yu; Aiqun Zhang

Shenyang Institute of Automation, CAS

Vehicle Performance 2

Tuesday, 15:30 - 17:15

Chair:

Thomas Consi, *University of Wisconsin-Milwaukee*

FlatFish - A compact subsea-resident inspection AUV

Jan Albiez¹; Sylvain Joyeux¹; Christopher Gaudig²; Jens Hilljegerdes²; Sven Kroffke²; Christian Schoo²; Sascha Arnold²; Geovane Mimoso¹; Pedro Alcantara¹; Rafael Saback¹; Joao Britto¹; Diego Cesar¹; Gustavo Neves¹; Thomio Watanabe¹; Patrick Paranhos¹; Marco Reis¹; Frank Kirchner²

¹*Brazilian Institute for Robotics*

²*DFKI Robotics Innovation Center*

The Shrimpfish as a Model for a Novel, Highly Maneuverable AUV

Thomas Consi; William Mueller; Nicholas Leep; Jeremy Keifenheim; Stephen Houdek
University of Wisconsin-Milwaukee

Sea Trial and Free-fall Hydrodynamic Research of a 7000-meter Lander

Jun Chen¹; Qifeng Zhang¹; Aiqun Zhang²; Lisheng He²; Qi Chen¹

¹*Shenyang Institute of Automation, CAS*

²*Sanya Institute of Deep-sea Science and Engineering (CAS)*

Designing Implodable Underwater Systems to Minimize Implosion Pulse Severity

L. Gish

US Naval Academy

A hybrid underwater profiler used for persistent monitoring

Yushi Zhu; Canjun Yang; Xiaole Xu; Qing Li; Jun Wang; Minjian Cai

Zhejiang University

Marine Law, Policy, Management, Education

Tuesday, 15:30 - 17:15

Chair:

Theresa Baus, *Naval Undersea Warfare Center, Newport, RI Division*

A Geospatial Inventory and Preliminary Valuation of Human Uses of Rhode Island Coastal Ponds: A Mixed Methods Approach

Emily Patroliia; Robert Thompson; Tracey Dalton

University of Rhode Island

Expediting Cost-Effective Solutions Through Government Technology Transfer and Commercialization

Theresa Baus

Naval Undersea Warfare Center, Newport, RI Division

Detection of false AIS messages for the improvement of maritime situational awareness

Clément Iphar¹; Aldo Napoli¹; Cyril Ray²

¹*MINES ParisTech*

²*French Naval Academy Research Institute*

A methodology to improve the assessment of vulnerability on the maritime supply chain of energy

Martin Tanguy; Aldo Napoli

MINES ParisTech

Marine Resilience and Resources

Tuesday, 15:30 - 17:15

Chair:

Rachel Volner, *SPAWAR Systems Center Pacific*

Autonomous Underwater Vehicle Operations in the Arctic

James McFarlane; Linda Mackay

International Submarine Engineering Ltd.

Ocean Governance with Data and Information Management

Masanori Muto

Mitsubishi Research Institute

Wetlands as a nature-based coastal defense: a numerical modeling and field data integration approach to quantify storm surge attenuation for the Mid-Atlantic region

Jana Haddad; Anne-Eléonore Paquier; Seth Lawler; Celso Ferreira

George Mason University

Development of Disaster Forecasting Technologies through Real-Time Disaster Analysis

sungjin hong; hyoungseong park; dongseag KIM

National Disaster Management Institute

Cables and Connectors 1

Tuesday, 15:30 - 17:15

Chair:

Jeffrey Kurt, *R&R System Solutions*

Getting The Cable You Want

Jeffrey Kurt; Alfred Richardson; Jack Runfolo
R&R System Solutions

Data Management - A Step Forward in Cable Protection

Catherine Creese
US Navy

Opening Opportunities in Subsea Communications

Michael Greene
Teledyne Oil & Gas

High Fiber Count Optical Penetrator

Ruth Simpson; Matt Holt; James Corbett
General Dynamics Mission Systems

DGO-1: A Metal Coating/Surface Treatment Resistant to Cathodic Delamination

Thomas Ramotowski; Adam Duszakiewicz; Matthew Rice
U.S. Navy

Creative Adaptation Of Interconnect Technology

David Jenkins; Richard Miller
Ametek SCP

Sound Propagation and Scattering 2

Tuesday, 15:30 - 17:15

Co-Chairs:

Joseph Fialkowski, *Naval Research Laboratory*

Paul Etter, *Northrop Grumman Corporation*

calculation of a vessel scattering acoustic field by using prolate spheroid model

Jingxin Ma; Jianjun Zhu; Haisen Li; Xiaodong Wang

harbin engineering university

The Development of a Finite Volume Method for Modeling Sound in Coastal Ocean Environment

Wen Long; Ki Won Jung; Zhaoqing Yang; Andrea Copping; Zhiqun Deng

PNNL

Acoustic Bathymetric Mapping in very Shallow Water Reservoir

Andrea Petroni¹; Stefano Pergoloni¹; Mauro Biagi²; Stefania Colonnese¹; Roberto Cusani¹; Gaetano Scarano¹

¹*Sapienza, University of Rome*

²*University of Rome, Sapienza*

Using Varying Channel Impulse Response to Determine Water Pollution

Sadia Ahmed

University of South Florida

Evolving Trends and Challenges in Applied Underwater Acoustic Modeling

Paul Etter; Charlie Haas; Deepak Ramani

Northrop Grumman Corporation

Acoustic Telemetry and Communication 3

Wednesday, 08:30 - 10:00

Chair:

Lee Freitag, *WHOI*

Long Range Acoustic Communications and Navigation in the Arctic

Lee Freitag; Keenan Ball; Jim Partan; Peter Koski; Sandipa Singh

WHOI

MIMO TDS-OFDM for Underwater Acoustic Communication with Turbo Equalization

Jinxing Hao¹; Jintao Wang¹; Yahong Zheng²; Jian Song¹

¹*Dept. of Electronic Engineering, Tsinghua University*

²*Dept. of Electrical & Computer Eng., Missouri University of Science and Technology*

UWA Massive MIMO Communications

Amir Aminjavaheri; Behrouz Farhang-Boroujeny

University of Utah

An OFDM based Channel Aware Access Protocol for Underwater Acoustic Networks of Submarine Pipeline Monitoring

Yuzhi Zhang; Haiyan Wang; Xiaohong Shen; Ruiqin Zhao

Northwestern Polytechnical University

Sonar Imaging 3

Wednesday, 08:30 - 10:00

Chair:

James Prater, *Naval Surface Warfare Center Panama City Division*

Determination of Sonar Image Resolution from Image Statistics

James Prater¹; Jonathan King¹; Daniel Brown²

¹*Naval Surface Warfare Center Panama City Division*

²*Applied Research Laboratory at the Pennsylvania State University*

Improvement of synthetic aperture sonar with multi-channel projector

Takao Sawa¹; Takafumi Kasaya¹; Kunihiro Nakatsuka²; Nobuhiro Tanaka³; Yasuo Furushima¹

¹*JAMSTEC*

²*SAS*

³*Aiichi industries*

Multi-legged ROV Crabster and an acoustic camera for survey of underwater cultural heritages - Preliminary performance experiments in sea

Jin-Yeong Park; Hyungwon Shim; Hyuk Baek; Seongyeol Yoo; Bong-Huan Jun; Pan-Mook Lee
KRISO

Using an Interferometric Synthetic Aperture Sonar to Inspect the Skagerrak World War II chemical munitions dump site

Torstein Sæbø; Roy Hansen; Ole Lorentzen
Norwegian Defence Research Establishment (FFI)

Application of Scanning Sonar using Multi-legged Underwater Robot's Degree of Freedom

Hyuk Baek; Seong-yeol Yoo; Bong-Huan Jun
KRISO

Vehicle Navigation 1

Wednesday, 08:30 - 10:00

Chair:

Michael Stanway, *Monterey Bay Aquarium Research Institute*

Preliminary Feasibility Study of Cooperative Navigation of Underwater Vehicles with Range and Range-Rate Observations

Zachary Harris; Louis Whitcomb

Johns Hopkins University

Biangunilateration using azimuth, elevation, and depth difference to localize submerged assets

Michael Stanway

Monterey Bay Aquarium Research Institute

Toward Autonomous Mapping with AUVs - Line-to-Line Terrain Navigation

Ove Hagen; Kjetil Ånonsen; Torstein Sæbø

Norwegian Defence Research Establishment (FFI)

Autonomous Acoustic-Aided Optical Localization for Data Transfer

Johanna Hansen¹; Dehann Fourie²; James Kinsey¹; Clifford Pontbriand¹; Jon Ware¹; Norman Farr¹; Carl Kaiser¹; Maurice Tivey¹

¹WHOI

²MIT-WHOI Joint Program in Oceanography/Applied Ocean Science & Engineering

Feasibility of low-power one-way travel time inverted ultra short baseline navigation

Michael Jakuba¹; James Kinsey¹; James Partan¹; Sarah Webster²

¹WHOI

²Applied Physics Lab

Panel on the Future of Long Duration Maritime Autonomy

Wednesday, 08:30 - 10:00

A Panel on the Future of Long Duration Maritime Autonomy

Matthew Bays

Naval Surface Warfare Center, Panama City Division

Autonomous Underwater Vehicles 3

Wednesday, 08:30 - 10:00

Chair:

Matthew Bays, *Naval Surface Warfare Center, Panama City Division*

Tracking and remote monitoring of an autonomous underwater vehicle using an unmanned surface vehicle in the Trondheim fjord

Petter Norgren¹; Martin Ludvigsen¹; Thomas Ingebretsen²; Vegard Hovstein²

¹*Dept. of Marine Technology, Norwegian University of Science and Technology (NTNU)*

²*Maritime Robotics AS*

Design and Validation of a Micro-AUV for 3-D Sampling of Coherent Ocean Features

David Heermance¹; Dhanushka Kularatne²; Jose Hernandez Sosa³; M. Hsieh²; Ryan Smith¹

¹*Fort Lewis College*

²*Drexel University*

³*ULPGC - SIANI Research Institute, Campus de Tafira*

"UMS Mission Management for Mixed--vehicle Fleets for Oceanographic Applications"

Jon Wood; Christopher Haworth; Katie Rittoo

SeeByte

Robust Adaptive Control of Underwater Vehicles for Precision Operations

Nicholas Valladarez; Noel Du Toit

Naval Postgraduate School

Non-linear Decision Making for Robust Navigation in Role Based Autonomy

Robert Thome; Christopher Fedor; John Sustersic; Ucheoma Ukah

Penn State University Applied Research Lab

Oceanographic Instrumentation and Sensors 1

Wednesday, 08:30 - 10:00

Co-Chairs:

Kathleen ONeil, *NOAA National Data Buoy Center*

Hank Lobe, *Severn Marine Technologies*

Eyes on the Ocean - Applying Operational Technology to Enable Science

Kathleen ONeil¹; Lex LeBlanc¹; Javier Vázquez²

¹*NOAA National Data Buoy Center*

²*NVision National Data Buoy Center*

SCOOP - NDBC's New Ocean Observing System

Craig Kohler; Lex LeBlanc; James Elliott

National Data Buoy Center

Recent Advances in Biofouling Protection for Oceanographic Instrumentation

Hank Lobe

Severn Marine Technologies

MantaRay: A Novel Autonomous Sampling Instrument for In Situ Measurements of Environmental Microplastic Particle Concentrations

Ethan Edson; Mark Patterson

Northeastern University

The Web-enabled Awareness Research Network (WARN) Project Detection Methods for Earthquakes and Tsunamis

Bob Crosby¹; Andreas Rosenberger²; Benoit Pirenne¹

¹*Ocean Networks Canada*

²*Arescon*

Oceanography and Meteorology

Wednesday, 08:30 - 10:00

Chair:

Steve Holt, SGT, Inc.

US Tsunami Warning System: Capabilities, Gaps and Future Vision

Michael Angove¹; Christa Rabenold²; Marie Eble³; Stuart Weinstein⁴; Paul Whitmore⁵

¹NOAA/National Weather Service

²NOAA/NWS

³NOAA/PMEL

⁴NOAA/PTWC

⁵NOAA/NTWC

Mapping of the Mid-Atlantic Cold Pool with GliderPalooza-2013

Wendell Brown¹; Oscar Schofield²; Josh Kohut²; John Wilkin²; William Boicourt³

¹University of Massachusetts Dartmouth

²Rutgers, State University of New Jersey

³University of Maryland

Characterization of mesoscale eddies and detection of sub-mesoscale eddies derived from satellite imagery and HF radar off the coast of southwestern Puerto Rico

Luis Pomales-Velázquez; Julio Morell; Sylvia Rodríguez-Abudo; Miguel Canals; Jorge Capella; Carlos García

CariCOOS/University of Puerto Rico at Mayagüez

CariCOOS: Improving High-Resolution Numerical Weather Prediction for the Northeast Caribbean Region

Luis Aponte-Bermúdez¹; Ernesto Rodriguez²; Julio Morell³; Héctor Rodríguez-Romero³

¹University of Puerto Rico at Mayagüez

²National Weather Service

³University of Puerto Rico at Mayaguez

CariCOOS: Real-time data validation of high-resolution wind forecast

Jaynise Perez¹; Luis Aponte-Bermúdez¹; Ernesto Rodriguez²; Julio Morell¹

¹University of Puerto Rico at Mayagüez

²National Weather Service

Emerging Arctic Challenges 1

Wednesday, 08:30 - 10:00

Co-Chairs:

Robert Heitsenrether, NOAA\NOS\CO-OPS

Jonathan Berkson, U.S. Coast Guard

Marine Science and Technology Support of U.S. Coast Guard Arctic Operations

Jonathan Berkson¹; Kenneth Boda²; Eric Peace³; Richard Hansen⁴

¹U.S. Coast Guard

²US Coast Guard Cutter POLAR STAR

³US Coast Guard

⁴US Coast Guard R&D Center

Development of a Real-Time Offshore Water Level Measurement System to Support Safe Navigation Along Alaska's Arctic Coasts

Robert Heitsenrether¹; Eric Breuer²; Winston Hensley²; Warren Krug²

¹NOAA\NOS\CO-OPS

²NOAA/NOS/CO-OPS

The Observation of Sea-ice in the Six Chinese National Arctic Expedition Using Polar-ARV

Junbao Zeng; Shuo Li; Yiping Li; Xiaohui Wang; Qi Chen

Shenyang Institute of Automation, CAS

Autonomous Shallow Water Bathymetric Measurements using Unmanned Surface Vehicles for Safe Navigation and Environmental Assessment

Mae Seto; Anna Crawford

Defence R&D Canada

Coastal Radars 1

Wednesday, 08:30 - 10:00

Co-Chairs:

Jeff Paduan, *Naval Postgraduate School*

Hugh Roarty, *Rutgers University*

The Second-Order Bistatic High Frequency Radar Scattering Cross Section of the Ocean Surface for the Case of Floating Platform

Yue Ma; Weimin Huang; Eric Gill

Memorial University of Newfoundland

Coherent Marine Radar Measurements of Ocean Wave Frequency Spectra

Dennis Trizna

Imaging Science Research, Inc

High Frequency Radar Measurement Resiliency with Bistatics

Hugh Roarty¹; Don Barrick²; Chad Whelan²; Lucas Marxen¹; Joe Gradone¹; Chloe Baskin¹

¹*Rutgers University*

²*CODAR Ocean Sensors*

Wave measurements from HF radar

Robert Forney; Hugh Roarty; Scott Glenn

Rutgers University - Department of Marine and Coastal Sciences

Self-Organized Synchronization Based on a Chirp-Sequence Waveform for an HF Ocean Radar Network

Anna Dzvonkovskaya¹; Thomas Helzel¹; Leif Petersen¹; Eric Gill²

¹*HELZEL Messtechnik GmbH*

²*Memorial University of Newfoundland*

Acoustics 1

Wednesday, 08:30 - 10:00

Co-Chairs:

Lloyd Emokpae, *Naval Research Lab*

Mae Seto, *Defence R&D Canada*

A magnetostrictive underwater transducer directly driven by iron-gallium alloy (Galfenol) without bias magnetic field

Yaozong Pan; Xiping Mo; Yingming Li; Yong Chai; Yongping Liu; Yunqiang Zhang

Institute of Acoustics, Chinese Academy of Sciences

Design of High Frequency Acoustic Transducer Calibration System Based on Near-field Acoustical Holography

Bing Liu¹; Wen-jian Chen¹; Jing-wei Yin¹; Jia-hao Guo¹; Yue-bing Wang²

¹*Harbin Engineering University*

²*China Jiliang University*

Effect of Array Tilt on Estimates of Vertical Ambient Noise Spectrum

Mehdi Farrokhrooz; Kathleen Wage

George Mason University

Moving Targets Detection and Tracking Based on Sparse and Low-rank Decomposition

Ying Chen¹; Fengxiang Ge¹; Suiling Ren²; Yishu Shi¹

¹*Beijing Normal University*

²*State Key Laboratory of Acoustics, Institute of Acoustics, Chinese Academy of Sciences*

Acoustic Telemetry and Communication 4

Wednesday, 10:30 - 12:00

Chair:

Mauro Biagi, *University of Rome, Sapienza*

Adaptive PPM Acoustic Detection in very Shallow Water Reservoir

Andrea Petroni¹; Stefano Pergoloni²; Mauro Biagi¹; Stefania Colonnese²; Roberto Cusani¹; Gaetano Scarano¹

¹*University of Rome, Sapienza*

²*Sapienza, University of Rome*

A Transceiver Architecture for Ultrasonic OFDM with Adaptive Doppler Compensation

MINHHAI TRAN¹; Rie Saitome¹; Taisaku Suzuki¹; Tomohisa Wada²

¹*Graduate School of Engineering and Science, Univ. of the Ryukyus*

²*Department of Information Engineering, University of the Ryukyus*

Research on Multi-channel Time Frequency Shift Keying for Underwater Acoustic Communication

Deqing Wang; Yurong Lin; Wei Su; Xiaoyi Hu; Yongjun Xie; Xialin Jiang

Xiamen University

Underwater Communication via Frequency Shift Keying in Particle Velocity Channels: Experimental Results

Erjian Zhang; Ali Abdi

NJIT

Complementary Code Keying Modulation and Frequency Domain Equalization for Single-Carrier Underwater Acoustic Communications

Xialin Jiang; Wei Su; Deqing Wang; En Cheng

Xiamen University

Remotely Operated Vehicles 1

Wednesday, 10:30 - 12:00

Chair:

Benjamin Greenspon, *Phoenix International*

ROV Control System Upgrade

Benjamin Greenspon
Phoenix International

Depth Control of ROVs Using Time Delay Estimation with Nonsingular Terminal Sliding Mode

Yaoyao Wang; Linyi Gu; Gaosheng Luo; Xiaodong Li; Jiawang Chen; Feng Zhou; Xiaoxu Cao
Zhejiang University

Mobile Control Center: a new approach to deploy ROV-oriented education and training

Felippe Miorim; Giorgio Francesco de Tomi; Fernando Rocha
Escola Politécnica da Universidade de São Paulo

Development of a Low-Cost Remotely Operated Vehicle for Ocean Exploration

Shuo Pang¹; Runlong Miao²
¹*Embry-Riddle Aeronautical University*
²*Harbin Engineering University*

Development of a Borehole Deployable Remotely Operated Vehicle for Investigation of Sub-Ice Aquatic Environments

Justin Burnett¹; Frank Rack²; Britney Schmidt³; Bob Zook²
¹*University of Nebraska at Lincoln*
²*ANDRILL Science Management Office - UNL*
³*Georgia Institute of Technology*

Vehicle Navigation 2

Wednesday, 10:30 - 12:00

Co-Chairs:

Louis Whitcomb, *Johns Hopkins University*

Eric Wolbrecht, *University of Idaho*

AUV State Estimation and Navigation to Compensate for Ocean Currents

Joseph Osborn; Samuel Qualls; John Canning; Michael Anderson; Dean Edwards; Eric Wolbrecht
University of Idaho

Design and investigation of dead reckoning system with accommodation to navigation sensor errors for autonomous underwater vehicle

Alexander Scherbatyuk¹; Vladimir Filaretov²; Alexey Zhirabok²; Alexander Zuev³; Igor Tuphanov²; Alexander Protsenko²

¹*IMTP FEB RAS*

²*Far Eastern Federal University*

³*Institute of Automation and Control Processes*

Improving Autonomous Navigation and Positioning for Commercial AUV Operations

Richard Mills; Oyvind Hegrenaes
Kongsberg Maritime AS

Preliminary Results with a Low-Cost Fiber-Optic Gyrocompass System

Andrew Spielvogel; Louis Whitcomb
Johns Hopkins University

Design of underwater precise navigation system using low-cost sensors

Kihun Kim¹; Chris Lim²; Sea-Moon Kim¹; Chong-Moo Lee¹; Hyun-Taek Choi¹

¹*KRISO*

²*Aquadron*

Optical Communications

Wednesday, 10:30 - 12:00

Co-Chairs:

Joe Czika

Marco Lanzagorta, *US Naval Research Laboratory*

Quantum Sensing in the Maritime Environment

Marco Lanzagorta¹; Jeffrey Uhlmann²; Salvador Venegas-Andraca³

¹*US Naval Research Laboratory*

²*University of Missouri - Columbia*

³*Tecnologico de Monterrey*

Quantum Communications in the Maritime Environment

Jeffrey Uhlmann¹; Marco Lanzagorta²; Salvador Venegas-Andraca³

¹*University of Missouri - Columbia*

²*US Naval Research Laboratory*

³*Tecnologico de Monterrey*

Maritime Applications of Quantum Computing

Salvador Venegas-Andraca¹; Marco Lanzagorta²; Jeffrey Uhlmann³

¹*Tecnológico de Monterrey, Escuela de Ciencias e Ingeniería.*

²*US Naval Research Laboratory*

³*University of Missouri - Columbia*

Autonomous Underwater Vehicles 4

Wednesday, 10:30 - 12:00

Co-Chairs:

Chris Moore, *Phoenix International*

Duane Thompson, *Monterey Bay Aquarium Research Institute*

Artemis AUV Payload Development

Peter McKibbin; Chris Moore

Phoenix International

MBARI AUV Operations in the Gulf of California

Duane Thompson; David Caress; Hans Thomas; Doug Conlin

Monterey Bay Aquarium Research Institute

A Novel Path Planning Method Based on Extreme Learning Machine for Autonomous Underwater Vehicle

Diya Dong¹; Bo He¹; Yang Liu¹; Rui Nian¹; Tianhong Yan²

¹*Ocean University of China*

²*China Jiliang University*

Automated Scheduling and Mission Visualization for Mine Countermeasure Operations

Matthew Bays; Richard Tatum; Lee Cofer; James Perkins

Naval Surface Warfare Center, Panama City Division

Asynchronous UKF-based Localization of an Underwater Robotic Vehicle for Aquaculture Inspection Operations

Svetlana Potyagaylo; Christos Constantinou; George Georgiades; Savvas Loizou

Cyprus University of Technology

Oceanographic Instrumentation and Sensors 2

Wednesday, 10:30 - 12:00

Co-Chairs:

Ian Walsh, *Sea-Bird Scientific*

David Murphy, *Sea-Bird Electronics*

An in-situ chemical sensor system for cabled ocean observatory applications at hydrothermal vents

Chunyang Tan¹; Kang Ding¹; William Seyfried¹; Giora Proskurowski²

¹*University of Minnesota*

²*University of Washington*

A Long-term Temperature and Depth Logger for Ocean Mooring System

Xiaoyang Xu¹; Chuan Tian²; Zhongwen Guo¹; Daniel Deng²; Wei Zhao¹

¹*Ocean University of China*

²*Pacific Northwest National Laboratory*

Development of an in-situ total phosphorus analyzer

Christopher Fuller; Elysia Taylor; James Bonner; Russell Nelson; William Kirkey; Stephanie Cappelli

Clarkson University

Robust tools to detect subsurface oil: fluorescence sensors

Ian Walsh; John Koegler; Corey Koch; Thomas Mitchell

Sea-Bird Scientific

Measuring pH in the Deep Ocean with Honeywell Durafet Transistors

David Murphy¹; Ken Johnson²; Hans Jannash²; Dan Quittman¹

¹*Sea-Bird Electronics*

²*MBARI*

Data Visualization 2

Wednesday, 10:30 - 12:00

Chair:

Derrick Snowden, *US Integrated Ocean Observing System Office/NOAA*

Using Geospatial and Information Science to Facilitate the Discovery and Access of Ocean Science Data

Michael Rasser¹; Jonathan Blythe¹; David Stein²; Lindsay Goodwin³

¹*Bureau of Ocean Energy Management*

²*NOAA Office for Coastal Management*

³*The Baldwin Group*

Capacity Analysis for Broadband Communications on Sea

Ronald Raulefs; Wei Wang; Angel Rodriguez; Armin Dammann

DLR (German Aerospace Center)

Infrastructure and tools for serving, accessing, and analyzing ocean information from the Integrated Ocean Observing System

Derrick Snowden¹; Richard Signell²; Filipe Fernandes³; Vembu Subramanian³; Kathleen Bailey¹;

Kelly Knee⁴; Emilio Mayorga⁵

¹*US Integrated Ocean Observing System Office/NOAA*

²*United States Geological Survey*

³*Southeast Coastal Ocean Observing Regional Association*

⁴*RPS/Applied Science Associates*

⁵*University of Washington*

Dynamic amplification of drag-dominated structures in irregular seas

Jan-Tore Horn; Jorgen Amdahl

Norwegian University of Science and Technology

The sensitivity analysis in accordance with the resolution of the satellite sea surface temperature data

Soyeon Kim¹; Pil-Hun Chang²; Morang Huh³; Sinil Yang³; Jaiho Oh³; Byunghwan Lim²

¹*National Institute of Meteorological Research*

²*NIMR*

³*PKNV*

Emerging Arctic Challenges 2

Wednesday, 10:30 - 12:00

Co-Chairs:

Christian Meinig, NOAA/PMEL

Edward Cokelet, NOAA/PMEL

Innovative Technology Development for Arctic Exploration

Jessica Cross¹; Calvin Mordy²; Heather Tabisola²; Christian Meinig³; Edward Cokelet³; Phyllis Stabeno³

¹University of Alaska, Fairbanks and NOAA Pacific Marine Environmental Laboratory

²Joint Institute for the Study of Atmosphere and Ocean

³NOAA Pacific Marine Environmental Laboratory

The use of Saildrones to examine spring conditions in the Bering Sea: Vehicle specification and mission performance

Christian Meinig¹; Richard Jenkins²; Noah Lawrence-Slavas¹; Heather Tabisola³

¹NOAA/PMEL

²Saildrone Inc.

³NOAA/JISAO

The use of Saildrones to examine spring conditions in the Bering Sea: Instrument comparisons, sea ice meltwater and Yukon River plume studies

Edward Cokelet¹; Richard Jenkins²; Christian Meinig¹; Noah Lawrence-Slavas¹; Calvin Mordy³; Phyllis Stabeno¹; Heather Tabisola³; Jessica Cross⁴

¹NOAA/PMEL

²Saildrone Inc.

³NOAA/JISAO

⁴NOAA/UAF

Design and Antarctic Testing of the Icefin Vehicle

Anthony Spears¹; Michael West²; Matthew Meister¹; Catherine Walker¹; Jacob Buffo¹; Thomas Collins²; Ayanna Howard¹; Britney Schmidt¹

¹Georgia Institute of Technology

²GTRI

Coastal Radar 2

Wednesday, 10:30 - 12:00

Co-Chairs:

Teresa Updyke, *Old Dominion University*

Jack Harlan, *NOAA IOOS*

The Integrated Ocean Observing System HF Radar Network: Ten Year Status

Jack Harlan¹; Eric Terrill²; Lisa Hazard²; Mark Otero²; Hugh Roarty³

¹*NOAA IOOS*

²*Scripps Institution of Oceanography*

³*Rutgers University*

Assessing HF radar capabilities to resolve mesoscale eddy interactions with littoral waters

Sylvia Rodriguez-Abudo; Miguel Canals; Julio Morell; Pedro MAtos; Carlos Garcia; Luis Pomales; Jorge Capella

University of Puerto Rico

Extreme and Non-Tidal Events in the Chesapeake Bay High Frequency Radar Surface Currents Record

Teresa Updyke; Larry Atkinson

Old Dominion University

Spatial circulation patterns over Palmer Deep Canyon and their effects on Adélie Penguin Foraging

Katherine Todoroff¹; Josh Kohut¹; Peter Winsor²; Hank Statscewich²

¹*Rutgers University*

²*University of Alaska Fairbanks*

Multi-Static Benefits to Operational HF Radar Networks

Chad Whelan; Maxwell Hubbard

CODAR Ocean Sensors

Increasing the Coverage of an Island-Based HF Radar Network

Ethan Handel¹; Hugh Roarty¹; Scott Glenn¹; Carlos Garcia-Moreno²; Miguel Canals²; Julio Morell-Rodriguez²; Jorge Corredor²

¹*Rutgers University*

²*University of Puerto Rico at Mayaguez*

Acoustics 2

Wednesday, 10:30 - 12:00

Co-Chairs:

Sichun LI, *College of Underwater Acoustic Engineering, Harbin Engineering University*

Joseph Fialkowski, *Naval Research Laboratory*

Geoacoustic Inversion based on Covariance-weighted Bartlett Estimator

Zheng Zheng; Jingning Jiang; Xiang Pan

Zhejiang University

Experimental Study for Feature Extraction of Diver with Atmospheric Diving Suit

Sichun LI; Weicun ZHOU; Bo HU; Zhao LIU

College of Underwater Acoustic Engineering, Harbin Engineering University

Analysis, Verification and Optimization of AUV Navigation Using Underwater Acoustic Models

Salman Ijaz Siddiqui; Martin Ludvigsen; Hefeng Dong

Norwegian University of Science and Technology

On-line Adaptation of Underwater Acoustic Transmission Rates to Optimize Communications for Collaborative AUV Missions

Mae Seto¹; Dainis Nams²; John Leonard³

¹*Defence R&D Canada*

²*Geospectrum Technologies*

³*MIT*

Experimental design for sediment characterization in the southern New England Continental Shelf

Gopu Potty; James Miller

University of Rhode Island

Acoustic Telemetry and Communication 5

Wednesday, 13:30 - 15:00

Chair:

Yen Da Chen, *Lunghwa University of Science and Technology*

An Extended DFR Protocol based on Geographical Information for Underwater Sensor Networks

Sungwon Lee; Dongkyun Kim
Kyungpook National University

Tracking Channel Variations in A Time-Varying Doubly-Spread Underwater Acoustic Channel

S. H. Huang¹; Tsih Yang²; Wen Xu²

¹*Ocean College, Zhejiang University*

²*Dept. of Information Science and Electronic Engineering, Zhejiang University*

Performance Analysis of ARQ Protocols in Multiuser Underwater Acoustic Networks

Ajun Lin; Huifang CHEN; Lei XIE
Zhejiang University

A Self-Adaptive Cooperative Routing Protocol for Underwater Acoustic Sensor Networks

Yen Chen¹; De Wu²; Wei Chen²; Kuei Shih²

¹*Lunghwa University of Science and Technology*

²*Tamkang University*

Remotely Operated Vehicles 2

Wednesday, 13:30 - 15:00

Co-Chairs:

Kate McGarry, *VideoRay LLC*

Erick Estrada, *VideoRay LLC*

Development of Underwater Inspection System for Dam Inspection

Soji Shimono¹; Osam Matsubara¹; Shigeki Toyama²; Uichi Nishizawa²; Shin Kato³; Hitoshi Arisumi³

¹*Q.I Incorporated*

²*Tokyo University of Agriculture and Technology*

³*National Institute of Advanced Industrial Science and Technology (AIST)*

Toward Robust Localization and Mapping for Shallow Water ROV Inspections

Nathaniel Goldfarb; Jinkun Wang; Shi Bai; Shi Bai

Stevens Institute of Technology

Closing the gap between industrial robots and underwater manipulators

Satja Sivcev; Joseph Coleman; David Adley; Gerard Dooly; Edin Omerdic; Daniel Toal

University of Limerick

Lost at Sea: Locating and Recovering Lost Underwater Scientific Packages with Mini ROVs

Erick Estrada¹; Craig Thorngren²

¹*VideoRay LLC*

²*Submerged Recovery and Inspection Services*

Basic mapping of the inspection process in offshore oil production facilities

Fernando Rocha; Giorgio de Tomi

USP

Vehicle Navigation 3

Wednesday, 13:30 - 15:00

Chair:

Ivan Bertaska, *Florida Atlantic University*

Autonomous collision avoidance for unmanned surface ship using onboard monocular vision

Jeonghong Park; Younghoon Cho; Byunghyun Yoo; Jinwhan Kim

KAIST

Method for steering a vessel with towed equipment

Helene Tonchia

Helene Tonchia

Depth Adaptive Hydrographic Survey Behavior for Autonomous Surface Vessels

Damian Manda¹; May-Win Thein²; Andy Armstrong³

¹*University of New Hampshire and NOAA*

²*University of New Hampshire*

³*NOAA*

Fully Automatic Boom Towing By Unmanned Ships: Experimental Study

JOSE GIRON-SIERRA; ALINA GHEORGHITA; JUAN JIMENEZ

UNIVERSIDAD COMPLUTENSE DE MADRID

Supervisory Switching Control of an Unmanned Surface Vehicle

Ivan Bertaska; Karl von Ellenrieder

Florida Atlantic University

Sonar Signal Processing 3

Wednesday, 13:30 - 15:00

Co-Chairs:

Jose Diaz-Santos, *Naval Surface Warfare Center, Dahlgren, VA*

Takashi KUBOTA, *National Institute of Technology, Oshima College*

Accurate Underwater Localization Using LBL Positioning System

Yunfeng Han; Cuie Zheng; Dajun Sun

Harbin Engineering University

Functional Link Based Adaptive Filters for underwater acoustic detection signal

Haiyang Yao; Haiyan Wang; Xiaohong Shen; Yongsheng Yan; Ruiqin Zhao

Northwestern Polytechnical University

LPI Waveform Design Using Chirplet Graphs

Bijan Mobasseri; Amro Lulu

Villanova University

Experimental Results of Combined Method of Conventional and Coherent Doppler Sonar

Peng LIU¹; Nobuyoshi KOUGUCHI¹; Takashi KUBOTA²

¹*Kobe University*

²*National Institute of Technology, Oshima College*

Stable Underwater Image Segmentation in High Quality via MRF model

Rui Nian¹; Yiru Wang¹; Liqin Fu¹; Kexin Liu¹; Amaury Lendasse²

¹*Ocean University of China*

²*University of Iowa*

Autonomous Underwater Vehicles 5

Wednesday, 13:30 - 15:00

Chair:

Justin Manley, *Juliet Marine Systems*

Moth-inspired plume tracing via autonomous underwater vehicle with only a pair of separated chemical sensors

Yu Tian; Wei Li; Fumin Zhang

Shenyang Institute of Automation, CAS

Synchronous Rendezvous Technique for Multi-Vehicle Mine Countermeasure Operations

Veronika Yordanova; Hugh Griffiths

University College London

Self Assembling Robots in an Underwater Environment

Varadarajan Ganesan; Mandar Chitre

Tropical Marine Science Institute, National University of Singapore

Utility-Based Adaptive Path Planning For Subsea Search

Harun Yetkin; Collin Lutz; Daniel Stilwell

Virginia Polytechnic Institute and State University

Cooperative Localization for Multi-AUVs Based on Time-Of-Flight of Acoustic Signal Using Moving Horizon Estimation

Lichuan Zhang; Shaofeng Xu; Demin Xu; Mingyong Liu

Northwestern Polytechnical University

Oceanographic Instrumentation and Sensors 3

Wednesday, 13:30 - 15:00

Chair:

Elizabeth Creed, *Kongsberg Underwater Technology, Inc.*

Oceanographic Instrument Simulator

Amy Chen¹; Bridget Benson¹; Vladimir Prodanov¹; Chad Keczy²; Matthew Mitchell¹; Richard Bae¹

¹*California Polytechnic State University, San Luis Obispo*

²*Monterey Bay Aquarium Research Institute*

Deployment and recovery of a full-ocean depth mooring at Challenger Deep, Mariana Trench

Robert Dziak¹; Joseph Haxel²; Chris Meinig¹; Haruyoshi Matsumoto²; Nicholas Delich¹; James Osse¹; Mark Wetzler³

¹*NOAA/PMEL*

²*CIMRS/Oregon State University*

³*NOAA*

A technology to measure deep turbulence mixing by an expendable microstructure profiler

Hua Li¹; Brett Prairie²

¹*JFE Advantech Co., Ltd*

²*Rockland Scientific International Inc.*

Integration of a RSI microstructure sensing package into a Seaglider

Elizabeth Creed¹; William Ross¹; Rolf Lueck²; Peter Stern²; William Douglas²; Fabian Wolk²; Rob Hall³

¹*Kongsberg Underwater Technology, Inc.*

²*Rockland Scientific, Inc.*

³*University of East Anglia*

Near real-time transmission of reduced data from a moored multi-frequency sonar by low bandwidth telemetry

Rene Chave; David Lemon; Jan Buermans

ASL Environmental Sciences Inc.

Ocean Energy 1 - Waves

Wednesday, 13:30 - 15:00

Chair:

Maggie Merrill, *Marine Marketing Services*

Experimental Testing of a 1/25th Scale Three Barge Wave Energy Converter Model

Sarah Mouring¹; Alexander Yachanin²; Patrick Hudson³

¹*U.S. Naval Academy*

²*Stanford University*

³*Moment Engineering, Inc.*

Approaching Maximum Power Conversion with Exergy-Based Wave by Wave Control of a Wave Energy Device

Umesh Korde¹; Rush Robinett²; David Wilson³

¹*SD School of Mines and Technology*

²*Michigan Technological University*

³*Sandia National Laboratories*

Comparison of Methods for Estimating Short Term Extreme Response of Wave Energy Converters

Carlos Michelen; Ryan Coe

Sandia National Laboratories

Energy Extraction from A Slider Crank Wave Energy Converter under Irregular Wave Conditions

Yuanrui Sang¹; Bora Karayaka¹; Yanjun Yan¹; James Zhang²; Eduard Muljadi³; Yi-Hisiang Yu³

¹*Western Carolina University*

²*Kettering University*

³*National Renewable Energy Laboratory*

OWC Wave Power Plants Capture Chamber Modelling

Aitor Garrido¹; Erlantz Otaola¹; Izaskun Garrido¹; Jon Lekube¹; Pedro Liria²; Julien Mader²

¹*University of the Basque Country*

²*AZTI-Tecnalia*

Emerging Arctic Challenges 3

Wednesday, 13:30 - 15:00

Co-Chairs:

Sylvia Cole, *WHOI*

Sean Kery, *CSC*

Observations on the Modeling of Ice Flow Interactions with Seakeeping Software

Sean Kery¹; Logan Wilt²

¹CSC

²CSC Advanced Marine Center

Vector Data Extraction from Forward-Looking Sonar Imagery for Hydrographic Survey and Hazard to Navigation Detection

R Glenn Wright¹; Cheryl Zimmerman²

¹World Maritime University

²FarSounder, Inc.

Inertial Navigation at High Latitude: Trials and Test Results

Yves Paturel; Jean-Baptiste Lacambre; Frédéric Patin; Christopher Moynagh

IXBLUE

Processing of velocity observations from Ice-Tethered Profilers

Sylvia Cole; Fredrik Thwaites; Richard Krishfield; John Toole

WHOI

Buoy Technology

Wednesday, 13:30 - 15:00

Chair:

Rick Cole, *RDSEA International, Inc.*

Development of Smartphone-embedded Telemetry Drifting Buoy for Tracking Drifting Oil Patches in the Coastal Water and Field Test

Isamu FUJITA; Yoshitaka MATSUZAKI

PARI, JAPAN

The Chesapeake Bay Interpretive Buoy System and the Winter of 2015: Problems and Solutions

Katie Kirk¹; Doug Wilson²; Nikiforos Delatolas¹

¹*Earth Resources Technology*

²*Caribbean Wind LLC.*

The PRAWLER, a vertical moored profiler powered by wave energy

Timothy Osse¹; Chris Meinig²; Scott Stalin²; Hugh Milburn²

¹*NOAA/PMEL/JISAO*

²*NOAA/PMEL*

Technological Advances in Floating LiDAR Reduce Costs and Increase Efficiencies for Offshore Wind Development

Graham Howe; Chris Ng

AXYS Technologies

A Security and Surveillance Application of the Innovative Monitoring Underwater Buoy Systems (MUnBuS) on the Protected Marine Area (AMP) of Capo Gallo (PA-IT).

Vincenzo Franzitta¹; Francesco Maria Raimondi²; Marco Trapanese¹; Vincenzo Di Dio¹; Pierluca Martorana¹

¹*University of Palermo*

²*UNIVERSITY O PALERMO*

Acoustics 3

Wednesday, 13:30 - 15:00

Co-Chairs:

Frederick Whoriskey, *Dalhousie University*

Joe Haxel, *CIMRS/NOAA*

The Ocean Tracking Network: A global partnership uses electronic tagging technologies to track the movements of aquatic animals, answer science questions, stimulate new technology development and assist with sustainable development of the ocean.

Frederick Whoriskey
Dalhousie University

iTAG: Developing a Cloud Based, Collaborative Animal Tracking Network in the Gulf of Mexico

Robert Currier¹; Barbara Kirkpatrick¹; Chris Simoniello¹; Susan Lowerre-Barbieri²; Joel Bickford²

¹Texas A&M/GCOOS-RA

²Florida Fish and Wildlife Conservation Commission

Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies

Haru Matsumoto¹; Joe Haxel¹; Holger Klinck²; Alex Turpin¹; Selene Fregosi¹; Dave Mellinger¹; Karolin Klinck²; Anatoli Erofeev³; Jack Barth³; Simone Bauman-Pickering⁴; Matt Fowler¹; Chris Jones⁵; Robert Dziak⁶; Kipp Shearman³

¹CIMRS/NOAA

²Bioacoustics Research Program, Cornell University

³CEOAS, Oregon State University

⁴Scripps Institution of Oceanography

⁵Embedded Ocean Systems

⁶PMEL/NOAA

Development of an automatic discrimination method of the bio-sonar clicks of Irrawaddy dolphin (*Orcaella brevirostris*) from various types of boat noises

Harumi Sugimatsu¹; Junichi Kojima²; Tamaki Ura³; Rajendar Bahl⁴; Sabro Tomuro⁵

¹Institute of Industrial Science, The University of Tokyo

²KDDI R&D Laboratories Inc.

³Kyushu Institute of Technology

⁴Indian Institute of Technology, Delhi

⁵TOA OIL KOGYOSHO Co., Ltd.

Detection and characterization of hydroacoustic whale signals using seafloor cable seismic networks offshore Japan

Hiroko Sugioaka¹; Rintaro Yoshida²; Masanori Kyo¹; Hiroko Yamada²; Hidehiro Kato²

¹JAMSTEC

²Tokyo University of Marine Science and Technology

Acoustic Telemetry and Communication 6

Wednesday, 15:30 - 17:15

Chair:

Craig Hamm, *Maritime Way Scientific Ltd*

Closed loop bi-directional broadband Doppler compensation and channel equalization for single carrier high-speed underwater acoustic communication

Youwen Zhang¹; Lu Liu²; Dajun Sun¹; Xin Liu²; Hongyu Cui²; Zhisheng Li³

¹HEU

²Harbin Engineering University

³91550 Unit of PLA

Toward hardware-driven simulation of underwater acoustic propagation and communication with Arctic ice, wind waves, and currents

Craig Hamm¹; Stephane Blouin²; Martin Taillefer³

¹Maritime Way Scientific Ltd

²DRDC, Atlantic Research Centre

³Maritime Way Scientific Ltd.

Spoofing Detection Games in Underwater Sensor Networks

Yan Li; Liang Xiao; Qiangda Li; Wei Su

Dept. of Communication Engineering, Xiamen University

Forward-Backward Block-wise Channel Tracking in High-speed Underwater Acoustic Communication

Peng Chen¹; Yue Rong¹; Sven Nordholm¹; Zhiqiang He²

¹Curtin University

²Beijing University of Posts and Telecommunications

Characterization and Receiver Design for Underwater Acoustic Channels with Large Doppler Spread

Qin Lu¹; Yi Huang¹; Zhaohui Wang²; Shengli Zhou¹

¹University of Connecticut

²Michigan Technological University

Remotely Operated Vehicles 3

Wednesday, 15:30 - 17:15

Chair:

Gaurav Sharma, *Teledyne SeaBotix*

Power Management of 10-Thruster ROV Using an Auto-Configurable Algorithm

Gaurav Sharma; Leverett Bezanson; Michael Poole

Teledyne SeaBotix

Preliminary Water Tank Test of a Multi-legged Underwater Robot for Seabed Explorations

Seong-yeol Yoo; Bong-Huan Jun; Hyungwon Shim; Jin-Yeong Park; Hyuk Baek; Bang-hyun Kim; Gyeong-Mok Lee; Hangoo Kang; Woo-Young Jeong; Se-Hoon Baek; Pan-Mook Lee

KRISO

HMD as a new Tool for Telepresence in Underwater Operations and Closed-Loop Control of ROVs

Mauro Candeloro; Eirik Valle; Michel Miyazaki; Roger Skjetne; Martin Ludvigsen; Asgeir Sørensen

NTNU

The Observer-based Neural Network Adaptive Robust Control for Underwater Hydraulic Manipulator

Yihong Xu; Yaoyao Wang; Xiaoxu Cao; Linyi Gu

Zhejiang University

Experience on Underwater Artifact Search Using Underwater Walking Robot Crabster CR200

Bong Huan Jun¹; Yong-hwa Jung²; Pan-Mook Lee¹

¹*KRISO*

²*National Research Institute of Maritime Cultural Heritage*

Positioning Controller of a Remotely Operated Vehicle Using RWNN-based Adaptive Robust Controllers

Guoqing Xia¹; Chengcheng Pang¹; Ju Liu¹; Jingjing Xue²

¹*College of Automation, Harbin Engineering University*

²*Harbin Engineering University*

Vehicle Navigation 4

Wednesday, 15:30 - 17:15

Chair:

Benjamin Kinnaman, *Greensea Systems, Inc.*

Development of passive acoustic landmark using image sonar for AUV's localization

Juhyun Pyo; Son-Cheol Yu; Hyeonwoo Cho; Jeonghwe Gu; Hangil Joe; Juhwan Kim; Byeong-Jin Kim

Pohang University of Science and Technology

Practical Feature-Based Navigation Using Forward Looking Sonar for ROV Positioning

Benjamin Kinnaman; Marybeth Gilliam

Greensea Systems, Inc.

Experimental Results of Real-time Sonar-based Underwater Localization Using Landmarks

Yeongjun Lee; Jinwoo Choi; Hyun-Teak Choi

KRISO

Bundle Adjustment from Sonar Images and SLAM Application for Seafloor Mapping

Shin Youngsik¹; Lee Youngjun²; Choi Hyun-Taek²; Kim Ayoung¹

¹*KAIST*

²*KRISO*

Sonar Signal Processing 4

Wednesday, 15:30 - 17:15

Co-Chairs:

Bijan Mobasser, *Villanova University*

Hari Vishnu, *Acoustic Research Laboratory, NUS*

Robust Weak Signal Detection and Bearing Estimation

Feng XIAO¹; Feng-Xiang Ge²

¹*Systems Engineering Research Institute of CSSC*

²*Beijing Normal University*

A vector sensing scheme for underwater acoustics based on particle velocity measurements

Unnikrishnan Kuttan Chandrika; Hari Vishnu

Acoustic Research Laboratory, NUS

Matched field processing under posterior probability constraints

Guolei Zhu; Yingmin Wang; Qi Wang

Northwestern Polytechnical University

An improved whitening transformation for snapshot-deficient scenarios

Jose Diaz-Santos¹; Kathleen Wage²

¹*Naval Surface Warfare Center, Dahlgren, VA*

²*ECE Department, George Mason University*

Autonomous Underwater Vehicles 6

Wednesday, 15:30 - 17:15

Chair:

James McMahon, *Naval Research Laboratory*

Autonomous Underwater Vehicle Mine Countermeasures via the Physical Traveling Salesman Problem

James McMahon¹; Erion Plaku²

¹*Naval Research Laboratory*

²*Catholic University of America*

Integrated Command, Control and Communication for Autonomous Underwater Vehicles

Clancy Emanuel; Daanish Zaidi; Shalabh Gupta; Shengli Zhou

University of Connecticut

Cooperative Navigation and Control: the EU MORPH project

António Pascoal; Pedro Caldeira Abreu

Instituto Superior Técnico

A hierarchical network based on multiple AUVs and sonobuoys

XUAN LI; XIAOCHUAN MA; SHEFENG YAN

Institute of Acoustics, Chinese Academy of Sciences

Trajectory tracking algorithm for autonomous vehicles using adaptive reinforcement learning

Mariano De Paula; Gerardo Acosta

CIFICEN/CONICET

Oceanographic Instrumentation and Sensors 4: Waves

Wednesday, 15:30 - 17:15

Chair:

Mark Bushnell, *CoastalObsTechServices*

Observations of Predictive Skill for Real-Time Deterministic Sea Waves from the WaMoS II

Tyson Hilmer¹; Eric Thornhill²

¹*OceanWaveS GmbH*

²*Defence Research and Development Canada*

Analysis of Rain Effects on Wave Height Estimation from X-Band Nautical Radar Images

Xinlong Liu; Weimin Huang; Eric Gill

Memorial University of Newfoundland

NDBC Wave Measurement Initiatives

Rodney Riley; Richard Bouchard

National Data Buoy Center

Wave Height Measurement Using a Short-range FMCW Radar for Unmanned Surface Craft

Jian Cui; Ralf Bachmayer; Weimin Huang; Brad deYoung

Memorial University

Deep Water Wave Measurements from Subsurface Buoys - Methods to Improve Data Quality by Correcting for Sensor Motion Bias

Jon Wood¹; Eugene Terray²; John Schanzle³

¹*Ocean Data Technologies, Inc.*

²*WHOI*

³*JAS Research, Inc.*

Ocean Energy 2

Wednesday, 15:30 - 17:15

Chair:

Maggie Merrill, *Marine Marketing Services*

Thermal Safety Management of Lithium-Ion Battery Energy Storage Systems for Use in Ocean-going and Subsea Applications

Vijay Somandepalli; Kevin Marr

Exponent

Integrated dynamic modeling of a point absorber wave energy converter in regular and irregular waves

Taofeek Orekan; Peng Zhang

University of Connecticut

Spent Flow Discharge Apparatus for Instream Hydro Power Turbine

George McBride

Downeast Turbine (formerly PfISH Turbines)

Development of Energy-harvesting Unit and Propulsion Unit for a Robotic Buoy System

Hangil Joe; Son-Cheol Yu; Juhyun Pyo; Hyeonwoo Cho; Jeonghwe Gu; Juhwan Kim; Byeong-Jin Kim

Pohang University of Science and Technology

Marine Life and Ecosystems

Wednesday, 15:30 - 17:15

Chair:

Thomas Consi, *University of Wisconsin-Milwaukee*

A Study on Seaweed Beds in Eutrophic Regions assuming CO₂ Dissolving and Fixation

Chika Suzuki¹; Muneyuki Ishikawa²; Yuki Kamimoto³; Ryoichi Ichino³

¹*Kobe University*

²*Former: Nagoya University*

³*Nagoya University*

Spectral response of marine submerged aquatic vegetation: a case study in Western Australia coast

Tin Hoang Cong; Rodrigo Garcia; Michael O'Leavy; Ravi Fotedar

Curtin University

Evolution of Biomineralization Proteins in Cnidaria: Sequencing a Stony-Coral Skeletal Protein from the Soft Coral, *Lobophytum crassum*

Taylor Dodge¹; Jeana Drake¹; Paul Falkowski²; Liesl Hotaling³

¹*Department of Marine and Coastal Sciences, Rutgers University*

²*Rutgers University*

³*Eidos Education*

An Unmanned Aerial Vehicle for the Localization of Radio-Tagged Fish

Thomas Consi; Joseph Patzer; Brady Moe; Samuel Bingham; Kristopher Rockey

University of Wisconsin-Milwaukee

A Study on the Growth Characteristics of Green Algae Blooms in the Yellow Sea using Categorical Analysis

Yingli Tang¹; Shijun He¹; Hairong Qi²; Peimin He¹; Haiyang He³

¹*Shanghai Ocean University*

²*University of Tennessee*

³*East China University of Science and Technology*

Marine Education and Outreach

Wednesday, 15:30 - 17:15

Co-Chairs:

Liesl Hotaling, *Eidos Education*

Scot Glenn, *Rutgers University*

SENSE IT: transitioning from research to retail with an ocean sensing educational program

Liesl Hotaling

Eidos Education

Reaching Out to Underserved Communities

Corey Garza

California State University, Monterey Bay

NOAA is Open for Business

Paula Keener; Louisa Koch

NOAA

The Ocean is Our Classroom: A 4-Year Research Track for Undergraduate Exploration, Research and Discovery in Oceanography

Scot Glenn; Josh Kohut; Oscar Schofield; Grace Saba; Travis Miles

Rutgers University

Communicating Oil Spill Science - Using C-IMAGE for interdisciplinary education and outreach

Sherryl Gilbert; Liesl Hotaling; Benjamin Prueitt; Teresa Greely; Steven Murawski; David Hollander

University of South Florida

The power of seeing: Experiences using video as a deep-sea engagement and education tool

Maia Hoeberechts; Dwight Owens; David Riddell; Andrew Robertson

Ocean Networks Canada

NOAA Hosts Boy Scouts of America Oceanography Merit Badge Events

Robert Heitsenrether¹; Margarita O'Hargan²

¹NOAA/NOS/CO-OPS

²NOAA/NOS/CO-OPS

Space Systems

Wednesday, 15:30 - 17:15

Chair:

Ron Abileah, *jOmegak*

Robotic Exercises 2014 - Multi-robot field trials

Mario Monteiro Marques¹; Alfredo Martins²; Aníbal Matos³; Nuno Cruz³; José Miguel Almeida²; José Carlos Alves³; Victor Lobo¹; Eduardo Silva²

¹Portuguese Navy Research Center

²INESC TEC / ISEP

³INESC TEC / FEUP

Joint Packet Detection and Decoding for Maritime Data Exchange Systems

Dmitri Truhachev; David McNutt

Dalhousie University

Video from Earth Orbiting Satellites (for Oceanographers)

Ron Abileah¹; Stefano Vignudelli²

¹*jOmegak*

²*Consiglio Nazionale delle Ricerche (CNR)*

Semi-automated land/water segmentation of multi-spectral imagery

Benjamin Cook; Stephanie Graceffo

Arete Associates

Real-Time AIS Tracking from Space Expands Opportunities for Long-Term Global Ocean Observing and Maritime Domain Awareness

Donna Kocak¹; Peggy Browning²

¹*HARRIS Corporation*

²*exactEarth Ltd*

Potential of Maritime Monitoring by Using Space-born Synthetic Aperture Radar

Masanori Watagawa¹; Ei-ichi Kobayashi²; Masao Furusho²

¹*PASCO*

²*Kobe University*

Acoustic Telemetry and Communication 7

Thursday, 08:30 - 10:00

Chair:

Zhaohui Wang, *Michigan Technological University*

Adaptive Transmission Scheduling in Time-Varying Underwater Acoustic Channels

Zhaohui Wang; Chaofeng Wang; Wensheng Sun

Michigan Technological University

Sparse linear equalizers for turbo equalizations in underwater acoustic communication

Yanbo Wu; Min Zhu; Xinguo Li

Institute of Acoustics, Chinese Academy of Sciences

The design and analysis of UEP LT codes with Correlation Chain feedback in underwater acoustic networks

danfeng Zhao; Jiaxi Si; guiyang Lun; Ben Wang

Harbin Engineering University

A Joint Linear-Analog Network Coding Based Protocol for Data Transfer in Underwater Acoustic Networks

Xiaobo Zhao; Xiaohong Shen; Haiyan Wang; Weigang Bai; Ruiqin Zhao

Northwestern Polytechnical University

Soft Direct-Adaptive Turbo Equalization for MIMO Underwater Acoustic Communications

Duan Weimin; Rosa Zheng

Missouri University of Science & Technology

Classification and Pattern Recognition 1

Thursday, 08:30 - 10:00

Co-Chairs:

Alexandre Baussard, *Lab-STICC / ENSTA Bretagne*

Rui Nian, *Ocean University of China*

Marine Animal Classification Using Combined CNN and Hand-designed Image Features

Zheng Cao¹; Jose Principe¹; Bing Ouyang²; Fraser Dalgleish²; Anni Vuorenkoski²

¹*University of Florida*

²*Harbor Branch Oceanographic Institute*

An artificial intelligence recognition algorithm for Yangtze finless porpoise

Hongjian Song¹; Feng Xu¹; Bangyou Zheng²; Juan Yang¹; Xudong An¹; Zeyu Pan¹

¹*Institute of Acoustics, Chinese Academy of Sciences*

²*Tongling River Dolphin National Natural Reserve*

Automatic searching of fish from underwater images via shape matching

Ruchen Wang; Jialun Dai; Haiyong Zheng; Bing Zheng; Guangrong Ji

Ocean University of China

Fast Accurate Fish Detection and Recognition of Underwater Images with Fast R-CNN

Xiu Li; Min Shang; Hongwei Qin; Liansheng Chen

Tsinghua University

Underwater Image Sparse Representation based on Bag-of-Words and Compressed Sensing

Rui Nian¹; Congcong Shi¹; Bo He¹; Yue Shen¹; Amaury Lendasse²

¹*Ocean University of China*

²*University of Iowa*

Vehicle Navigation 5

Thursday, 08:30 - 10:00

Chair:

James Kinsey, *WHOI*

Distortion-Robust Distributed Magnetometer for Underwater Pose Estimation in Confined UUVs

Leif Christensen; Christopher Gaudig; Frank Kirchner
DFKI Robotics Innovation Center

Sonar and Video Fusion for Vehicle Trajectory Estimation in Under-ice Environments

Anthony Spears¹; Michael West²; Thomas Collins²; Ayanna Howard¹
¹*Georgia Institute of Technology*
²*GTRI*

Using the Motion Perceptibility Measure to Classify Points of Interest for Visual-based AUV Guidance in a Reef Ecosystem

María de Lourdes Labastida Valdés¹; Luz Abril Torres Mendez¹; Seth Hutchinson²
¹*CINVESTAV Campus Saltillo*
²*University of Illinois at Urbana-Champaign*

Research on the Navigation Error Compensation Method for a class of Deep-sea vehicle

Kaizhou Liu¹; Guanqun Wang²; Yang Zhao¹; Shengguo Cui¹; Yan Huang¹; Xiaohui Wang¹
¹*Shenyang Institute of Automation, CAS*
²*Northeastern University*

Integration and Algorithm Development for Forward Looking Imaging Sonars on Hybrid and Autonomous Underwater Robots

Stefano Suman; Carl Kaiser; Michael Jakuba; James Kinsey
WHOI

Hydrodynamics

Thursday, 08:30 - 10:00

Chair:

Sean Kery, CSC

Hydraulic Experiment of the Slit Caisson Breakwater with Embedded Resonant Channels

JeongSeok Kim¹; WooSun Park²; JoongWoo Lee³; JiHye Seo²

¹KMOU / KRISO

²Korea Institute of Ocean Science and Technology, KIOST

³KMOU

Thrust Magnitude and Efficiency Studies for Multiple Robotic Flapping Fins

Jason Geder; Ravi Ramamurti; Marius Pruessner

Naval Research Laboratory

Conceptual View of Refraction and Transmission of a Tsunami Wave at a Step in Bathymetry

Malcolm Heron¹; Anna Dzvonkovskaya²

¹James Cook University

²HELZEL Messtechnik GmbH

Multiple Damage Types on Carbon Steel and Silica Glass during Ultrasonic Cavitation Erosion

Mengru Fu; Han Ge

Zhejiang University

Hydrodynamics Related to Shipwreck Taphonomy

Sean Kery¹; Jillana Stauffer²

¹CSC

²CSC Advanced Marine Center

Autonomous Underwater Vehicles 7

Thursday, 08:30 - 10:00

Chair:

Anthony Rodgers, Orca Maritime Inc

Optimal Design for Consensus of Second Order Multi-agent Systems with Damping Term

Jiajia Zhou; Peng Shi; Xinqian Bian; Lanyong Zhang; Wei Zhang

Harbin Engineering University

A Computationally-Efficient 2D Imaging Sonar Model for Underwater Robotics Simulations in Gazebo

Kevin DeMarco; Michael West; Ayanna Howard

Georgia Institute of Technology

Data-Driven Comparison of Spatio-Temporal Monitoring Techniques

Jeffrey Caley; Geoffrey Hollinger

Oregon State University

Transitioning Unmanned Underwater Vehicle Technology from Commercial Use to Naval Mine Countermeasures Operations

David Clegg¹; Anthony Rodgers²

¹*Orca Maritime Inc.*

²*Orca Maritime Inc*

Experiments with Obstacle and Terrain Avoidance of Autonomous Underwater Vehicle

Hongli Xu

Shenyang Institute of Automation, CAS

Systems and Observatories 1

Thursday, 08:30 - 10:00

Chair:

Oscar Schofield, *Rutgers University, COOL*

Strategy for sustainability of the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

Ingrid Puillat¹; Patrick Farcy¹; Dominique Durand²; George Petihakis³; Pascal Morin⁴; Magali Kriegger⁵; Wilhelm Petersen⁶; Joaquin Tintore⁷; Kai Sorensen⁸; Stefania Sparnocchia⁹; Henning Wehde¹⁰

¹*Ifremer Centre de Brest*

²*IRIS*

³*HCMR*

⁴*CNRS and IPEV*

⁵*CNRS*

⁶*Helmholtz Zentrum Geesthacht*

⁷*CSIC-IMEDEA and SOCIB*

⁸*NIVA*

⁹*CNR-ISMAR*

¹⁰*IMR*

Gliders as a maturing technology: Using gliderpalooza as means to develop an integrated glider community

Oscar Schofield¹; Clayton Jones²; Scott Glenn¹; Travis Miles¹; Grace Saba¹; Uli Kremer¹; Doug Webb²

¹*Rutgers University, COOL*

²*Teledyne Webb Research*

Data Quality Control Practices for Ocean Networks Canada Observatories-Challenges and Opportunities

Dilumie Abeyesirigunawardena; Marlene Jeffries; Alice Bui; Michael Morley; Maia Hoeberechts
Ocean Networks Canada

A Mapping Approach for Marine Observatory Relying on Enterprise Architecture

Charbel Aoun

TELECOM and ENSTA Bretagne

Reference Selection for an Active Ultrasound Wild Salmon Monitoring System

Gabriel VASILE¹; Guy D'URSO²; Eric DE OLIVEIRA²; Jérôme Guillet²; Elena LUNGU³

¹*CNRS*

²*Electricite de France*

³*SIGINTEC*

Marine Environment 1

Thursday, 08:30 - 10:00

Chair:

Tomokazu Saruhashi, JAMSTEC

New ways for research and development using a deep-sea hydrothermal vent system in the Okinawa Trough

Tomokazu Saruhashi; Masanori Kyo; Tatsuo Nozaki; Ikuo Sawada; Takahiro Yokoyama; Noriaki Sakurai; Keita Akiyama
JAMSTEC

ROV-based acquisition system for water quality measuring

Franco Hidalgo; Jose Mendoza; Francisco Cuellar
Pontificia Universidad Catolica del Peru

Underwater Atomic Force Microscope - Towards in situ nanoscale measurement in deep sea -

Shuhei Nishida¹; Naoki Matsubara¹; Tatsuhiro Fukuba²; Masanori Kyo²; Teruo Fujii¹
¹Institute of Industrial Science, The University of Tokyo
²JAMSTEC

Generation 137Cs surface distribution maps using dense measurement transects of a towed gamma ray spectrometer

Kosuke Murata¹; Blair Thornton¹; Kazunori Nagano¹; Seiki Ohnishi²
¹The University of Tokyo
²National Maritime Research Institute

Phytoplankton Observations on the Outer Banks

Thursday, 08:30 - 10:00

Co-Chairs:

Archie Morrison, *Woods Hole Group*

Hilary Morrison, *Marine Biological Laboratory*

Identification of Phytoplankton Constituents of a 2014 Algal Bloom off the Outer Banks

Parks Kelly; Samuel Weybright

First Flight High School

Geographic Diversity of Phytoplankton Populations along the Outer Banks 2005 to 2013

Jodi Awtrey

First Flight High School

Seasonal Changes in Phytoplankton Biodiversity on the Outer Banks 2005 to 2013

Nathan Butcher; Dylan Owens; Joseph Sawin; Lake Lige

First Flight High School

Oceanographic Instrumentation and Sensors 5

Thursday, 08:30 - 10:00

Chair:

Michael Zuba, *University of Connecticut*

Localization of large scale underwater sensor networks based on recursive position estimation

Cuie Zheng; Yunfeng Han; Dajun Sun

Harbin Engineering University

Identification of Manganese Crusts in 3D Visual Reconstructions to Filter Geo-registered Acoustic Sub-surface Measurements

Umesh Neettiyath¹; Takumi Sato¹; Mehul Sangekar¹; Adrian Bodenmann¹; Blair Thornton¹; Tamaki Ura²; Akira Asada¹

¹*Institute of Industrial Science, The University of Tokyo*

²*Center for Socio-Robotic Synthesis, Kyushu Institute of Technology*

Glider Measurements of Phytoplankton Physiology in Penguin Foraging Zones.

Christina Haskins; Oscar Schofield

Rutgers University

UPAL: Underwater Passive Aquatic Listener

Michael Zuba¹; Emmanouil Anagnostou¹; Jeffrey Nystuen²; Marios Anagnostou³

¹*University of Connecticut*

²*University of Washington*

³*HoRST*

Selection of multi-angles combination in precise turbidity measurement

Hongbo Liu; Hong Song; Shuyue Zhan; Hui Huang; Jing Xu; Hangzhou Wang; Ying Chen

Zhejiang University

Numerical Modeling and Simulation 1

Thursday, 08:30 - 10:00

Chair:

Steve Holt, SGT, Inc.

Modern simulation tools for real time numerical simulation of ocean-related processes

Mikhail Lavrentyev¹; Alexey Romanenko²; Elder Goryunov²; Konstantin Lysakov¹

¹*Institute of Automation and Electrometry*

²*Novosibirsk State University*

Design and Analysis of a One-Dimensional Sea Surface Simulator Using the Sum-of-Sinusoids Principle

Meisam Naderi; Matthias Pätzold

University of Agder

A Reconfigurable Web-based Simulation Environment for AUV

Alexander Pavin¹; Alexander Inzartsev¹; Grigoriy Eliseenko²; Oleg Lebedko¹; Mikhail Panin¹

¹*Far Eastern Federal University*

²*IMTP FEB RAS*

Validation and Sensitivity Experiments Comparing the Physical Parameterization of Numerical Wave Model

Goeun Son; Jong-Sook Park; Byunghwan Lim

National Institute of Meteorological Research

Coupled global wind and tide driven coastal water levels and currents in Puerto Rico and the U.S. Virgin Islands

Juan Gonzalez-Lopez¹; J.J. Westerink¹; M. Canals²; J.M. Morell²

¹*University of Notre Dame*

²*University of Puerto Rico at Mayaguez*

Automatic Control 1

Thursday, 10:30 - 12:00

Chair:

Rui Nian, *Ocean University of China*

Motion control of Thruster-driven Underwater Vehicle based on Model predictive control

Xing Jin¹; Kaizhou Liu²; Guang Yuan³; Yingbin Feng²; Yan Huang²; Yang Zhao²; Shengguo Cui²

¹*Changsha Research Institute of Mining and Metallurgy Co. Ltd*

²*Shenyang Institute of Automation, CAS*

³*School of Information Science & Engineering, Northeastern University*

A Practical Path Tracking Method for Autonomous Underwater Gilders using Iterative Algorithm

Yan Huang; JianCheng Yu; Wentao Zhao; Wenming Jin; Yeteng Luo; Yan Li

Shenyang Institute of Automation, CAS

Model Identification of Unmanned Underwater Vehicle via Adaptive Technique and Artificial Fiducial Markers

João Britto¹; Diego Cesar¹; Rafael Saback¹; Sascha Arnold²; Christopher Gaudig²; Jan Albiez¹

¹*College of Technology SENAI CIMATEC and German Research Center for Artificial Intelligence (DFKI)*

²*German Research Center for Artificial Intelligence*

Target Following for an Autonomous Underwater Vehicle Using Regularized ELM-based Reinforcement Learning

Tingting Sun¹; Bo He¹; Rui Nian¹; Tianhong Yan²

¹*School of Information Science and Engineering, Ocean University of China*

²*School of Mechatronic Engineering, China Jiliang University*

Classification and Pattern Recognition 2

Thursday, 10:30 - 12:00

Co-Chairs:

Zheng Cao, *University of Florida*

Tim Nattkemper, *Bielefeld University*

Automated Point Cloud Correspondence Detection for Underwater Mapping Using AUVs

Marcus Hammond; Ashley Clark; Aditya Mahajan; Sumant Sharma; Stephen Rock
Stanford University

Rapid image processing and classification in underwater exploration using advanced high performance computing

Tim Nattkemper¹; Timm Schoening¹; Björn Steinbrink²; Daniel Bruen²

¹*Bielefeld University*

²*Saltation*

Bayesian texture classification using steerable Riesz wavelets: Application to sonar images

Alexandre Baussard

Lab-STICC / ENSTA Bretagne

Underwater Object Recognition in Photo Images

Alexander Pavin

Far Eastern Federal University

Analysis of underwater signals with non-linear time-frequency structures using warping-based compressive sensing algorithm

Cindy Bernard¹; Cornel Ioana¹; Irena Orovic²; Srdjan Stankovic²

¹*Gipsa-lab*

²*Faculty of Electrical Engineering*

Environmental Intelligence 1

Thursday, 10:30 - 12:00

Co-Chairs:

Gerhard Kuska, MARACOOS

Miguel Canals, *University of Puerto Rico*

SmartAtlantic - The Benefits of Real Time Metocean Data in Port Operations

Max Bottoni¹; Chad MacIsaac¹; Andrew Rae²

¹AXYS Technologies

²Atlantic Canadian Marine Pilots Association

Assessing HF Radar Data in the New York Harbor: Comparisons with Wind, Stream Gauge and Ocean Model Data Sources

Joe Gradone¹; Hugh Roarty¹; Colin Evans¹; Scott Glenn¹; Ethan Handel¹; Chloe Baskin¹; Gregory Dusek²; Christopher Paternostro²

¹Rutgers University

²NOAA

Enabling Ocean Enterprise Development through IOOS: Building on Foundational Mid-Atlantic IOOS Support with Focused Partnerships, Leveraging, and Innovation

Gerhard Kuska; Carolyn Thoroughgood

MARACOOS

A nearshore breaker prediction system for Puerto Rico and the United States Virgin Islands in support of beach safety and drowning prevention

Miguel Canals; Julio Morell

University of Puerto Rico

Cooperative development of dynamic habitat models informed by the Integrated Ocean Observing System (IOOS) informs fisheries management decision making in the coastal ocean

Josh Kohut¹; John Manderson²; Laura Palamara¹; Enrique Curchitser¹; Greg DiDomenico³

¹Rutgers University

²NOAA

³Garden State Seafood Association

Marine Environment Imaging and Vision 1

Thursday, 10:30 - 12:00

Chair:

Anthony Spears, *Georgia Institute of Technology*

Estimating Coral Reef Slope or Camera Pitch from Video

Meryl Regine Algodon; Aaron Hilomen; Maricor Soriano

National Institute of Physics

Development and evaluation of a forward-looking acoustic camera for opaque media tested at 125°C / 720 bar

Rune Hauge¹; Eivind Mosland¹; David Peddie²; Jon Hellevang¹; Gaute Lied¹; Inge Klepsvik¹; Frank Ådland¹; Geir Pedersen¹; Erling Kolltveit¹

¹*Christian Michelsen Research AS*

²*Offshore Sensing AS*

Automatic Texture and Anomaly Mapping in Under-ice Video Datasets

Anthony Spears¹; Michael West²; Thomas Collins²; Ayanna Howard¹

¹*Georgia Institute of Technology*

²*GTRI*

Image Restoration Method for Deep-sea Tripod Observation Systems in the South China Sea

Huimin Lu¹; Yujie Li¹; Jianru Li²; Xin Li³; Zhifei Liu²; Seiichi Serikawa¹

¹*Kyushu Institute of Technology*

²*Tongji University*

³*Shanghai Jiaotong University*

Preliminary Results in using a Joint Contrast Enhancement and Turbulence Mitigation Method for Underwater Optical Imaging

Kristofor Gibson

SSC Pacific

Town Hall on Promoting OceanSTEM and Blue Economy

Systems and Observatories 2

Thursday, 10:30 - 12:00

Chair:

Ingrid Puillat, *Ifremer Centre de Brest*

Verification and Validation of a Prediction Tool for a Helicopter-Towed Submerged Body

Jaye Falls¹; Sarah Mouring¹; Ananth Sridharan²

¹*United States Naval Academy*

²*University of Maryland*

Efficient Surface-level Gateway Deployment Using Underwater Sensing And Processing Networks

Hesham Alhumyani; Reda Ammar; Ayman Alharbi; Sherif Tolba

University of Connecticut

An Introduction to Subsea Electromagnetic Interference Mitigation Strategies and Challenges

Scott Williams¹; Scott McLean²

¹*OceanWorks International*

²*Ocean Networks Canada Innovation Centre*

Harmonization in the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

George Petihakis¹; Wilhelm Petersen²; Rajesh Nair³; Marco Faimali⁴; Giovanni Pavanello⁴; Kada Boukema⁵; Laurent Delauney⁵; Patrick Farcy⁵; Patrick Farcy⁵; Naomi Greenwood⁶

¹*HCMR*

²*Helmholtz Zentrum Geesthacht*

³*Istituto Nazionale di Oceanografia e di Geofisica Sperimentale- OGS*

⁴*CNR-ISMAR*

⁵*Ifremer Centre de Brest*

⁶*CEFAS*

Marine Environment 2

Thursday, 10:30 - 12:00

Chair:

Michael Redmayne, *CARIS USA*

Pore pressure monitoring of surficial coastal sediments on wave-resolving scale with regard to liquefaction risk prediction at offshore wind and marine hydrokinetic energy converters

Nina Stark; Brandon Quinn
Virginia Tech

Preliminary Evaluation for Klein HydroChart 3500 Interferometry Bathymetry Sonar to Apply to NOAA Sea Floor Mapping Procedure

Yuhui Ai; Straud Armstrong; Dean Fleury
Klein Associates Inc, L3 Communications

Finding seamounts with altimetry-derived gravity data

Seung-Sep Kim¹; Paul Wessel²

¹*Chungnam National University*

²*University of Hawaii at Manoa*

Autonomous onboard hydrographic data processing

Michael Redmayne
CARIS USA

The molecular organic geochemical records of the ANT28-D5-06 sediment core in the Northern Weddell Sea and their petroleum geology significance

HAN Xibin; ZHAO Jun; CHU Fengyou; PAN Jianming; TANG Linggang; BIAN Yeping
Second Institute of Oceanography, SOA

Remote Sensing 1

Thursday, 10:30 - 12:00

Chair:

Vinod Ramnath, *Teledyne Optech Inc*

Backscatter suppression via blind signal separation for a 532 nm chaotic lidar

David Illig; Luke Rumbaugh; Mahesh Banavar; Erik Bollt; William Jemison

Clarkson University

Tailoring of RF Coded Optical Pulses for Underwater 3D Imaging: A Comparison of Modulated Pulse Lidar to Traditional Short Pulse Lidar

Justin Nash; Robert Lee; Linda Mullen

Naval Air Systems Command

CZMIL (Coastal Zone Mapping and Imaging Lidar) Bathymetric Performance in Diverse Littoral Zones

Vinod Ramnath; Viktor Feygels; Hemanth Kalluri; Brant Smith

Teledyne Optech Inc

Autonomous Takeoff & Landing of Small UAV from the USV

Vladimir Djapic¹; Christopher Prijic²; Frank Bogart³

¹*SPAWAR Systems Center Pacific*

²*UC Irvine*

³*UCSD*

Optics, Imaging, Vision, E-M Systems 1

Thursday, 10:30 - 12:00

Chair:

Fraser Dagleish, *Harbor Branch Oceanographic Institute*

A Potential method to detect the orientation of the suspended rod-shaped particles using the polarized-light scattering

Ran Liao; Yong Wang; Hui Ma

Tsinghua University

Basic Experiments on Measurement of Salinity using a Heterodyne Double-pass Interferometer

Kenichi Asakawa¹; Akito Araya²; Yasuhisa Ishihara¹

¹JAMSTEC

²ERI, *The University of Tokyo*

Image Quality Analysis for a Multiple Overlapping Field of View Serial Laser Imager

Nicholas Rasoletti¹; Fraser Dagleish²; Pierre-Philippe Beaujean³

¹*Florida Atlantic University*

²*Harbor Branch Oceanographic Institute*

³*Florida Atlantic University, Seatech*

Development of Optical Inspection Technology for Deep-Sea Floor using Fluorescent Observation Method

Masahiko Sasano¹; Yasuharu Nakajima¹; Joji Yamamoto¹; Yasuo Furushima²

¹*National Maritime Research Institute*

²JAMSTEC

Preliminary Study of Determination of Dinophysis Concentration Using Hyperspectral Imaging

Ye Shen; Hui Huang; Hong Song; Shuyue Zhan; Jun Han; Ying Chen

Zhejiang University

Numerical Modeling and Simulation 2

Thursday, 10:30 - 12:00

Chair:

Fearghal O'Donncha, *IBM Research - Ireland*

Multi-scale Analysis of Turbulence Dissipation in the South China Sea

Jingyuan He; Dengke Li; Hua Yang; Dalei Song

Ocean University of China

Parallelisation of Hydro-environmental Model for Simulating Marine Current Devices

Fearghal O'Donncha¹; Scott James²; Noreen O'Brien¹; Emanuele Ragnoli¹

¹*IBM Research - Ireland*

²*Baylor University*

The Relationship between Upper-Ocean Variability and the Madden-Julian Oscillation in Extended-Range Simulations

Xiaodong Hong; James Doyle; Carolyn Reynolds; Paul May

Naval Research Laboratory

Unmixing: A New Direction from Classical Tidal Harmonic Analysis?

Hairong Qi¹; Yu Li²; Shijun He²

¹*University of Tennessee*

²*Shanghai Ocean University*

The Investigation on Calculating and Measuring Flow Noise from Underwater Jets

Yongwei LIU; DeJiang SHANG; Qi LI; DaJing SHANG; Yan XIAO

Acoustic Science and Technology Laboratory, Harbin Engineering University

Automatic Control 2

Thursday, 13:30 - 15:15

Chair:

Esten Ingar Grøtli, *SINTEF ICT*

SEATONOMY - Design, development and validation of marine autonomous systems and operations

Esten Ingar Grøtli¹; Tor Arne Reinen¹; Knut Grythe¹; Aksel Andreas Transeth¹; Marialena Vagia¹; Magnus Bjerkeng¹; Per Rundtop²; Eirik Svendsen²; Ørnulf Rødseth³; Grim Eidnes⁴

¹*SINTEF ICT*

²*SINTEF Fisheries and Aquaculture*

³*MARINTEK*

⁴*SINTEF Materials and Chemistry*

Formation Control of Unmanned Surface Vehicles with Vision Sensor Constraints

Jian Wang; Jing-yang Liu; Hong Yi

State Key Laboratory of Ocean Engineering, Shanghai Jiao Tong University

Adaptive roll stabilization of ship by U-tanks based on a novel control strategy

Honghan Zhang¹; Xinqian Bian²; Jiajia Zhou¹; Tao Chen¹; Xun Zhang¹

¹*Harbin Engineering University*

²*College of Automation, Harbin Engineering University*

Waypoint Tracking Control of a Multi-legged Underwater Robot Crabster

Wooyoung Jeong; Bong-Huan Jun; Seongyeol Yoo; Hyungwon Shim; Jin-young Park

KRISO

Constrained Model Predictive Control Design for Dynamic Positioning of a Supply Ship

Guoqing Xia; Ju Liu; Chengcheng Pang; Jingjing Xue

Harbin Engineering University

Offshore Wind and Marine Renewable Energy 1

Thursday, 13:30 - 15:15

Co-Chairs:

Harvey Seim, *University of North Carolina at Chapel Hill*

Mike Muglia, *UNC Coastal Studies Institute*

An observational, spatially explicit, stability-based estimate of the wind resource offshore of North Carolina

Harvey Seim¹; Natalie Thomas²; Sara Haines¹

¹*University of North Carolina at Chapel Hill*

²*University of Maryland College Park*

Public Acceptance of Offshore Wind Energy: Relationships among General and Specific Attitudes

David Bidwell

University of Rhode Island

Direct Interconnection of offshore airborne wind energy systems

Mahdi Ebrahimisalari; Joseph Coleman; Daniel Toal; Gerard Dooly

University of Limerick

Impact of stability on the wind climate of coastal North Carolina

Megan Schutt; Harvey Seim

University of North Carolina at Chapel Hill

Sea Breeze, Coastal Upwelling Modeling to Support Offshore Wind Energy Planning and Operations

Greg Seroka¹; Erick Fredj²; Travis Miles¹; Rich Dunk¹; Josh Kohut¹; Scott Glenn¹

¹*Rutgers University*

²*The Jerusalem College of Technology*

Vehicle Design and Performance

Thursday, 13:30 - 15:15

Chair:

Mike Malchiodi, *Johns Hopkins Applied Physics Lab*

Motion Compensator for Acoustic Device Mounted on Autonomous Surface Vehicle

Yoshiaki Hirakawa¹; Takashi Yoda¹; Takehiko Takayama¹; Tadahiro Hyakudome²; Takeshi Nakatani²

¹*Yokohama National University*

²*JAMSTEC*

The design and application of a new vertical-axis ship propeller

Liu Shuyu¹; Huang haocai¹; Leng jianxing¹; Chen Lixin²; Huang Jialin²

¹*Zhejiang University*

²*Hangzhou Modern Ship Design and Research Company*

Numerical Analysis of the Motion and Load Responses of a 400000 DWT Ore Carrier in Waves

Christiaan Adenya; Hui-Long Ren; Chuan-Dong Qing

Harbin Engineering University

Identification of the Inertial Model for Innovative Semi-Immergible USV (SI-USV) Drone for Marine and Lakes Operations.

Vincenzo Franzitta; Francesco Maria Raimondi; Marco Trapanese; Vincenzo Di Dio

University of Palermo

Trend modelling of wave parameters and application in onboard prediction of ship responses

Najmeh Montazeri¹; Ulrik Nielsen²; Jørgen Jensen²

¹*Technical University of Denmark*

²*Technical University of Denmark & Centre for Autonomous Marine Operations and Systems (AMOS), NTNU*

Environmental Intelligence 2

Thursday, 13:30 - 15:15

Co-Chairs:

Mark Bushnell, *CoastalObsTechServices*

Luis Camilli, *Marine Advanced Research*

Designing Ocean Drones for Maritime Security: The use of integrated sensing modalities to enhance situational awareness

Luis Camilli

Marine Advanced Research

Development of a Mobile Ecogenomic Sensor

Douglas Pargett; James Birch; Christina Preston; John Ryan; Yanwu Zhang; Christopher Scholin
MBARI

Getting up close and personal: the need to immerse autonomous vehicles in coral reefs

Lyndon Llewellyn; Scott Bainbridge

Australian Institute of Marine Science

Air-Sea Forcing of Coastal Ocean Sea Surface Temperature

Bianca Mintz¹; Jeffery Hanson²; Kent Hathaway²

¹*University of Hawaii at Manoa*

²*US Army Corps of Engineers*

Quality Assurance of Real-Time Oceanographic Data - Status and Implementation Efforts

Mark Bushnell

CoastalObsTechServices

Marine Environment Imaging and Vision 2

Thursday, 13:30 - 15:15

Chair:

Aaron Marburg, *Applied Physics Laboratory*

Multistatic optical imaging system compatible with AUV platforms

Derek Alley; Brandon Cochenour; Linda Mullen
NAVAIR

A Novel Adaptive Restoration for Underwater Image Quality Degradation

Rui Nian¹; Shuqi Qiu¹; Jia Yu¹; Bo He¹; Amaury Lendasse²

¹*Ocean University of China*

²*University of Iowa*

Extrinsic Calibration of an RGB Camera to a 3D Imaging Sonar

Aaron Marburg; Andy Stewart
Applied Physics Laboratory

Combining background subtraction and three-frame difference to detect moving object from underwater video

Jialun Dai; Ruchen Wang; Haiyong Zheng; Bing Zheng; Guangrong Ji
Ocean University of China

Water Detection System for a Multi-rotor Autonomous Aerial Vehicle

Ricardo Pombeiro¹; Ricardo Mendonça¹; Francisco Marques¹; Paulo Rodrigues¹; André Lourenço¹; Eduardo Pinto¹; Pedro Santana²; José Barata¹

¹*CTS-UNINOVA*

²*ISCTE- IUL*

Autonomous Underwater Vehicles 8

Thursday, 13:30 - 15:15

Chair:

Steve Holt, *SGT, Inc.*

Research on Recognition Method of UUV Vision Based on PSO-BP Network

Detao Meng; Wei Zhang; Zhicheng Liang; Yi Guo; Jiajia Zhou; Yunfeng Han

Harbin Engineering University

A Comparison of Hydrodynamic Damping Models using Least Squares and Adaptive Identifier Methods for Autonomous Underwater Vehicles

Scott Gibson¹; Brian McCarter²; Daniel Stilwell¹; Wayne Neu¹

¹*Virginia Tech*

²*Naval Oceanographic Office*

Bilateral teleoperation of a commercial small-sized underwater vehicle for academic purposes

Luis Garcia-Valdovinos; Tomas Salgado-Jimenez; Mariela Serna; Manuel Bandala

CIDESI

Wireless Power and Data Transfer System for Station-Based Autonomous Underwater Vehicles

Makoto Ogihara; Tadashi Ebihara; Koichi Mizutani; Naoto Wakatsuki

University of Tsukuba

Fuzzy Adaptive Sliding Mode Controller for Path Following of an Autonomous Underwater Vehicle

Zhicheng Liang; Wei Zhang; Yi Guo; Detao Meng; Jiajia Zhou; Yunfeng Han

Harbin Engineering University

Systems and Observatories 3

Thursday, 13:30 - 15:15

Co-Chairs:

Ulrik Nielsen, *Technical University of Denmark*

Astrid H. Brodtkorb, *AMOS - NTNU*

The Deep Ocean Dropcam: A Highly Deployable Benthic Survey Tool

Alan Turchik; Eric Berkenpas; Bradley Henning; Charles Shepard

National Geographic Society

Sea state estimation using model-scale DP measurements

Astrid H. Brodtkorb¹; Ulrik Nielsen²; Asgeir J. Sørensen¹

¹*AMOS - NTNU*

²*DTU MECHANICAL ENGINEERING*

A Pneumatic-driven Airdropped Portable Underwater Profiler for Rapid Deployment

Xiaole Xu; Canjun Yang; yushi zhu

Zhejiang University

New Concepts for Shipboard Sea State Estimation

Ulrik Nielsen¹; Mikkel Bjerregård¹; Roberto Galeazzi¹; Thor Fossen²

¹*Technical University of Denmark*

²*AMOS - NTNU*

Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

Ruth Perry¹; Pak Leung²; Walt McCall³; Kevin Martin⁴; Ryan Vandermeulen⁴; Neha Sharma⁵; Stephan Howden⁴; Hyun-Sook Kim⁶; Rex Hervey³; Barbara Kirkpatrick⁷; Stephanie Watson⁷; Matthew Howard⁷; Michael Vogel²; Kent Satterlee¹; Louis Brzuzy¹

¹*Shell Exploration & Production Company*

²*Shell Global Solutions Inc.*

³*NOAA National Data Buoy Center*

⁴*University of Southern Mississippi*

⁵*Horizon Marine Inc.*

⁶*NOAA NCEP EMC*

⁷*Gulf of Mexico Coastal Ocean Observing System*

Offshore Structures 1

Thursday, 13:30 - 15:15

Chair:

John Flory, *Tension Technology International*

Fatigue Load and Life Estimation of Composite Turbine Blades under Random Ocean Current

Takuya Suzuki¹; Hassan Mahfuz²; Marco Canino²

¹*IHI Corporation*

²*Florida Atlantic University*

Numerical Analysis of the Dynamics of Inter-Linked SPAR structures using Conenctors for Possible Wind Farm Application

Hyun-Sung Kim; Seok Won Hong; Yun-Ho Kim; Byoung-Wan Kim; Sa-Young Hong

KRISO

Numerical analysis on dynamic responses of hybrid sandwich structures with V-type corrugated cores subjected to water impact

Hao Wu; Jun Liu; Pan Zhang; Menghao He; Yuansheng Cheng

Huazhong University of Science and Technology

About 75 Years of Synthetic Fiber Rope History

John Flory; John Hearle; Hank McKenna; Michael Parsey

Tension Technology International

NX-2G : autonomous BBOBS-NX for a highly mobile broadband seismic and tilt observation at the seafloor

Hajime Shiobara¹; Hiroko Sugioka²; Aki Ito²; Masanao Shinohara¹

¹*University of Tokyo*

²*JAMSTEC*

Remote Sensing 2

Thursday, 13:30 - 15:15

Chair:

Ruiyao Chen, *University of Central Florida*

Underwater Source Localization in a Tank with Two Parallel Moving Hydrophone Arrays

Sea-Moon Kim; Sehyun Oh; Sung-Hoon Byun

KRISO

Fuzzy Clustering Based Source Direction Estimation Method Using Acoustic Energy Measurements with UWSN

Haitao Dong¹; Haiyan Wang¹; Yuzhi Zhang¹; Haiyang Yao²

¹*School of Marine Science and Technology, Northwestern Polytechnical University*

²*Northwestern Polytechnical University*

Continued Development of Broadband Passive Bearing Estimation

Dale Green; Steven McManus

Teledyne Benthos

Discriminative Sparsity for SONAR ATR

John McKay¹; Raghu Raj²; Vishal Monga¹; Jason Isaacs³

¹*Pennsylvania State University*

²*Naval Research Laboratory*

³*Naval Surface Warfare Center*

Optics, Imaging, Vision, E-M Systems 2

Thursday, 13:30 - 15:15

Chair:

Clifford Pontbriand, *WHOI*

Wireless Data Harvesting Using the AUV Sentry and WHOI Optical Modem

Clifford Pontbriand¹; Norman Farr¹; Dehann Fourie²; Johanna Hansen¹; James Kinsey¹; Leo-Paul Pelletier¹; Jonathan Ware¹

¹*WHOI*

²*MIT-WHOI Joint Program in Oceanography/Applied Ocean Science & Engineering*

A design of underwater wireless laser communication system based on PPM modulating method

Bing Zheng; Jingpeng Liu; Lifeng zhao; Zhaoyang Gong
Ocean University of China

Application of Laser-Induced Breakdown Spectroscopy for In-situ Measurement of Metal Grade for Seafloor Mineral Processing

Yasuharu Nakajima¹; Blair Thornton²; Takumi Sato²

¹*National Maritime Research Institute*

²*The University of Tokyo*

Numerical Modeling and Simulation 3

Thursday, 13:30 - 15:15

Co-Chairs:

Alexander Pavin, *Far Eastern Federal University*

Aijun Song, *University of Alabama*

Simulation Method of Water and Underwater Body Interaction with Smoothed Particle Hydrodynamics

Zhisheng Li¹; Lu Liu²

¹91550 Unit of PLA

²Harbin Engineering University

Interference Cancellation in In-Band Full-Duplex Underwater Acoustic Systems

Li Li¹; Aijun Song²; Leonard Cimini¹; Xianggen Xia¹; ChienChung Shen¹

¹University of Delaware

²University of Alabama

Distributed Simulation Framework for Investigation of Autonomous Underwater Vehicles' Real-Time Behavior

Sergey Melman¹; Valery Bobkov²; Alexander Inzartsev³; Alexander Pavin¹

¹Far Eastern Federal University

²IACP FEB RAS

³IMTP FEB RAS

Automatic Control 3

Thursday, 15:30 - 17:15

Chair:

Esten Ingar Grøtli, *SINTEF ICT*

Development of a Dynamic Model for a Constant Tension Winch

Qi Chen¹; Wei Li¹; Xiaohui Wang¹; Jiancheng Yu¹; Jafarzadeh Saeed²; Yan Li¹; Shuo Li¹; Wei Zhang¹; Genshe Chen³

¹*Shenyang Institute of Automation, CAS*

²*California State University Bakersfield*

³*I-Fusion Technologies, Inc*

Adaptive Wind Feedforward Control of an Unmanned Surface Vehicle for Station Keeping

HUAJIN QU; Karl Ellenrieder

Florida Atlantic University

Trajectory Controller for Autonomous Surface Vehicle Under Sea Waves

Boris Braginsky; Hugo Guterman

Ben-Gurion University of the Negev

Autonomous job analysis: A method for the design of autonomous marine operations

Esten Ingar Grøtli¹; Marialena Vagia¹; Sigurd Fjerdingen¹; Magnus Bjerkeng¹; Aksel A. Transeth¹; Eirik Svendsen²; Per Rundtop²

¹*SINTEF ICT*

²*SINTEF Fisheries and Aquaculture*

Robustness of Visual-Servo Against Air Bubble Disturbance of Underwater Vehicle System Using Three-Dimensional Marker and Dual-Eye Camera

Myo Myint¹; Kenta YONEMORI¹; Akira YANO¹; Yukihiro SAKA²; Shintaro ISHIYAMA¹; Mamoru MINAMI¹

¹*Okayama University*

²*Kowa Corporation*

Command Filtered Backstepping Control for Dynamic Positioning Ships

Xingchao Shao; Guoqing Xia; Jingjing Xue

Harbin Engineering University

Offshore Wind and Marine Renewable Energy 2

Thursday, 15:30 - 17:15

Chair:

Lindsay Dubbs, *UNC Coastal Studies Institute and UNC Chapel Hill*

Observation and regional model based Gulf Stream marine hydrokinetic energy resource estimates for North Carolina

Mike Muglia¹; Caroline Lowcher²; Patterson Taylor¹; Ruoying He³; Harvey Seim⁴; John Bane⁴; Billy Edge¹

¹*UNC Coastal Studies Institute*

²*UNC Coastal Studies Intstitute*

³*NC State University*

⁴*UNC chapel Hill*

An examination of pelagic Sargassum community primary productivity and nutrient cycling in the face of Gulf Stream based energy

Lindsay Dubbs¹; Michael Piehler¹; Jonathan Colby²

¹*UNC Coastal Studies Institute and UNC Chapel Hill*

²*Verdant Power*

Smart Inspection ROV for Use in Challenging Conditions

Romano Capocci; Edin Omerdic; Gerard Dooly; Joseph Coleman; Daniel Toal
University of Limerick

Near Wake Flow Field Measurements of a Marine Current Turbine

Ethan Lust¹; Luksa Luznik¹; Karen Flack¹; Julio Barros²

¹*US Naval Academy*

²*U.S. Naval Academy*

Electromagnetic Spring for Sliding Wave Energy Converter

Hsiang Chen¹; Donald DelBalzo²

¹*Wave Energy Technologies*

²*University of New Orleans*

Effects of waves on BEM theory in a marine tidal turbine environment

Jeremiah Fulton; Luksa Luznik; Karen Flack; Ethan Lust

US Naval Academy

Vehicle Design

Thursday, 15:30 - 17:15

Chair:

Karl von Ellenrieder, *Florida Atlantic University*

Development of an autonomous surface vehicle for monitoring underwater vehicles

Takeshi Nakatani; Tadahiro Hyakudome; Takao Sawa; Yoshiyuki Nakano; Yoshitaka Watanabe;
Tatsuya Fukuda; Hiroshi Matsumoto; Ryotaro Suga; Hiroshi Yoshida
JAMSTEC

Development of a USV-Based Bridge Inspection System

Karl von Ellenrieder
Florida Atlantic University

An Open-Source Watertight Unmanned Aerial Vehicle for Water Quality Monitoring

Paulo Rodrigues¹; Francisco Marques¹; Eduardo Pinto¹; Ricardo Pombeiro¹; André Lourenço¹;
Ricardo Mendonça¹; Pedro Santana²; José Barata¹
¹CTS-UNINOVA
²ISCTE- IUL

Development of Standard Test Methods for Evaluation of ROV/AUV Performance for Emergency Response Applications

Adam Jacoff¹; Kamel Saidi¹; Robert Von Loewenfeldt²; Yukio Koibuchi³
¹NIST
²SLED
³University of Tokyo

Modeling for the Crabster's leg with hydrodynamics force

Hangoo Kang; Seong-yeol Yoo; Hyungwon Shim; Bong-Huan Jun
KRISO

Optics, Imaging, Vision, E-M Systems 3

Thursday, 15:30 - 17:15

Chair:

Steve Holt, *SGT, Inc.*

Forward scattering characterization of beams with orbital angular momentum for underwater communication systems

Kaitlyn Morgan¹; Brandon Cochenour²; Eric Johnson¹

¹*Clemson University*

²*Naval Air Warfare Center*

Underwater Electric Potential Measurements using AUVs

Samuel Qualls; Joseph Osborn; Michael Anderson; Eric Wolbrecht; James Frenzel; Dean Edwards; John Canning

University of Idaho

Littoral Seafloor Sensing and Characterization Using Marine Electromagnetics, Optical Imagery, and Remotely and Autonomously Operated Platforms

Gregory Schultz¹; Joe Keranen²; Arthur Gleason³; Nuno Gracias⁴

¹*White River Technologies*

²*White River Technologies*

³*University of Miami*

⁴*University of Girona*

Probability Density Function Analysis for Optimization of Underwater Optical Communication Systems

Marius Bernotas; Charles Nelson

United States Naval Academy

Marine Environment Imaging and Vision 3

Thursday, 15:30 - 17:15

Chair:

Gerard Dooly, *University of Limerick*

Real-Time Reconstruction of Underwater Environments: from 2D to 3D

Matija Rossi¹; David Scaradozzi²; Pierre Drap³; Pietro Recanatini²; Gerard Dooly¹; Edin Omerdic¹; Daniel Toal¹

¹*University of Limerick*

²*Universita Politecnica delle Marche*

³*CNRS*

When Underwater Imagery Analysis Meets Deep Learning: a Solution at the Age of Big Visual Data

Hongwei Qin; Xiu Li; Zhixiong Yang; Min Shang
Tsinghua University

Improved Supervised Classification of Underwater Military Munitions Using Height Features Derived from Optical Imagery

Arthur Gleason¹; Nuno Gracias²; ASM Shihavuddin³; Gregory Schultz⁴; Brooke Gintert¹

¹*University of Miami*

²*University of Girona*

³*Institut de Biologie de l'Ecole Normale Supérieure*

⁴*White River Technologies*

A Shadow -Removal based Saliency Map for Point Feature Detection of Underwater Objects

Rui Nian¹; Liqin Fu¹; Yiru Wang¹; Zhebin Zhang¹; Amaury Lendasse²

¹*Ocean University of China*

²*The University of Iowa*

Time of Flight Measurements for Optically Illuminated Underwater Targets Using Compressive Sensing and Sparse Recovery

Robert Lee¹; Linda Mullen¹; Piya Pal²; David Illig³

¹*Naval Air Systems Command*

²*University of Maryland*

³*Clarkson University*

Autonomous Underwater Vehicles 9

Thursday, 15:30 - 17:15

Chair:

Doug Wilson, *Caribbean Wind LLC.*

Modeling Perceptual-motor Behaviors to Enable Intuitive Navigation Paths in an AUV

Carlos Erasto Romero-Martínez¹; Luz Abril Torres-Méndez²; Edgar Alonso Martínez García³

¹CINVESTAV Campus Saltillo

²Robotics and Advanced Manufacturing Group, CINVESTAV Campus Saltillo

³Institute of Engineering and Technology, Universidad Autónoma de Cd. Juárez

Tracking and Sampling of a Phytoplankton Patch by an Autonomous Underwater Vehicle in Drifting Mode

Yanwu Zhang¹; Brian Kieft¹; Robert McEwen¹; M. Stanway¹; James Bellingham²; John Ryan¹; Brett Hobson¹; Douglas Pargett¹; James Birch¹; Christopher Scholin¹

¹Monterey Bay Aquarium Research Institute

²WHOI

AUV-derived geographical photomosaics - using multibeam bathymetry to correct image placement

Max Woolsey¹; Allison Woolsey²; Samuel Hulme³

¹NIUST

²University of Mississippi

³Moss Landing Marine Laboratories

A Novel Calibration Method for Acoustic Vector Sensor when the Phase is Inconsistent

Yao Zhang¹; Guan-nan Li²; Lei Gao²; Hai-tao Gu¹

¹State Key Laboratory of Robotics Shenyang Institute of Automation CAS

²Shenyang Institute of Automation, CAS

Systems and Observatories 4

Thursday, 15:30 - 17:15

Chair:

Gabriel VASILE, CNRS

Prospects of the future squid fishing based on the big data

Masaaki Wada

Future University Hakodate

Prototype Development of an Underwater Sound Measurement Module Using Four Hydrophones

Sehyun Oh¹; Sung-Hoon Byun¹; Sea-Moon Kim¹; So-Young Sung¹; Kihun Kim¹; Chong-Moo Lee¹; Il-Young Che²

¹KRISO

²KIGAM

Virtual Platform of a Remotely Operated Vehicle

Jin Zhang¹; Wei Li¹; Jiancheng Yu¹; Yan Li¹; Shuo Li¹; Genshe Chen²

¹Shenyang Institute of Automation, CAS

²I-Fusion Technologies, Inc

Calibration of an Active Ultrasound Bedload Monitoring System for Underwater Environments

Gabriel VASILE¹; Guy D'URSO²; Rayna Charlatchka²; Elena LUNGU³

¹CNRS

²Electricite de France

³SIGINTEC

The Research of Analysis Strategy of Transmission Performance in Subsea Observatories

Kai Sun; ZhiGang Li; XiaoHui Wang; HongLi Xu; Lei Gao

Shenyang Institute of Automation, CAS

Offshore Structures 2

Thursday, 15:30 - 17:15

Chair:

Peter Kampmann, *German Research Center for Artificial Intelligence*

Geometrically Motivated Inverse Kinematics for an Arm with 7 Degrees of Freedom

Richard Tatum; Drew Lucas; Josh Weaver; Jim Perkins

NSWCPCD

Deepwater Synthetic Aperture Sonar and the Search for MH370

Pete LeHardy; Peter McKibbin

Phoenix International

An active node isolating method based on discrete-voltage intervention for seafloor observation network

Zhifeng Zhang; Yanhu Chen; Feifei Xu; Canjun Yang; Bo Jin; Feng Zhang

Zhejiang University

Research on key technologies of junction boxes for Chinese experimental seafloor observatory network

Jun Wang; Dejun Li; Canjun Yang; Zhifeng Zhang; Bo Jin; Yanhu Chen

Zhejiang University

Equipping industrial deep-sea manipulators with a sense of touch

Peter Kampmann¹; Timo Stoffregen¹; Frank Kirchner²

¹*German Research Center for Artificial Intelligence*

²*German Research Center for Artificial Intelligence and University of Bremen*

ABDI, Ali

- ☐ Underwater Communication via Frequency Shift Keying in Particle Velocity Channels: Experimental Results

ABEYSIRIGUNAWARDENA, Dilumie

- ☐ Data Quality Control Practices for Ocean Networks Canada Observatories-Challenges and Opportunities

ABILEAH, Ron

- ☐ Video from Earth Orbiting Satellites (for Oceanographers)

ABUKAWA, Kazuki

- ☐ Experimentation for development of Underwater Acoustic Video Camera: in experiment dock

ACOSTA, Gerardo

- ☐ Trajectory tracking algorithm for autonomous vehicles using adaptive reinforcement learning

ADENYA, Christiaan

- ☐ Numerical Analysis of the Motion and Load Responses of a 400000 DWT Ore Carrier in Waves

ÅDLAND, Frank

- ☐ Development and evaluation of a forward-looking acoustic camera for opaque media tested at 125°C / 720 bar

ADLEY, David

- ☐ Closing the gap between industrial robots and underwater manipulators

AGARWAL, Ashish

- ☐ Higher Order Statistics Based Direction of Arrival Estimation with Single Acoustic Vector Sensor in the Under-determined Case

AGARWAL, Monika

- ☐ Higher Order Statistics Based Direction of Arrival Estimation with Single Acoustic Vector Sensor in the Under-determined Case

AHMED, Rameez

- ☐ Joint Power and Rate Control with Constrained Resources for Underwater Acoustic Channels

AHMED, Sadia

- ☐ Estimation and Compensation of Doppler Scale under Varying Sampling Period, Channel, and Channel Taps in UAC OFDM Systems
- ☐ Using Varying Channel Impulse Response to Determine Water Pollution

AI, Yuhui

- ☐ Preliminary Evaluation for Klein HydroChart 3500 Interferometry Bathymetry Sonar to Apply to NOAA Sea Floor Mapping Procedure

AKIYAMA, Keita

- ☐ New ways for research and development using a deep-sea hydrothermal vent system in the Okinawa Trough

ALBIEZ, Jan

- ☐ FlatFish - A compact subsea-resident inspection AUV
- ☐ Model Identification of Unmanned Underwater Vehicle via Adaptive Technique and Artificial Fiducial Markers

ALCANTARA, Pedro

- ☐ FlatFish - A compact subsea-resident inspection AUV

ALGODON, Meryl Regine

- ☐ Estimating Coral Reef Slope or Camera Pitch from Video

ALHARBI, Ayman

- ☐ Efficient Surface-level Gateway Deployment Using Underwater Sensing And Processing Networks

ALHUMYANI, Hesham

- ☐ Efficient Surface-level Gateway Deployment Using Underwater Sensing And Processing Networks

ALLEY, Derek

- ☐ Multistatic optical imaging system compatible with AUV platforms

ALVES, Joao

- ☐ A Communications and Relative Navigation Architecture for Underwater Vehicle Coordination

AMDAHL, Jorgen

- ☐ Dynamic amplification of drag-dominated structures in irregular seas

AMINJAVAHERI, Amir

- ☐ UWA Massive MIMO Communications

AMMAR, Reda

- ☐ Efficient Surface-level Gateway Deployment Using Underwater Sensing And Processing Networks

AN, Xudong

- ☐ An artificial intelligence recogniton algorithm for Yangtze finless porpoise

ANAGNOSTOU, Emmanouil

- ☐ UPAL: Underwater Passive Aquatic Listener

ANAGNOSTOU, Marios

- ☐ UPAL: Underwater Passive Aquatic Listener

ANDERSON, Michael

- ☐ AUV State Estimation and Navigation to Compensate for Ocean Currents
- ☐ Underwater Electric Potential Measurements using AUVs

ANDERSON, Steven

- ☐ Real-time Ocean Surface Current Measurements in the Gulf of Mexico

ANDRADE, Isabel

- ☐ Sliding PD Control Performance on Autonomous Underwater Glider

ANGILELLA, Alex

- ☐ Simulating a Shape Memory Alloy Buoyancy Heat Engine for Undersea Gliders

ANGOVE, Michael

- ☐ US Tsunami Warning System: Capabilities, Gaps and Future Vision

ÅNONSEN, Kjetil

- ☐ Toward Autonomous Mapping with AUVs - Line-to-Line Terrain Navigation

AOUN, Charbel

- ☐ A Mapping Approach for Marine Observatory Relying on Enterprise Architecture

APONTE-BERMÚDEZ, Luis

- ☐ CariCOOS: Real-time data validation of high-resolution wind forecast
- ☐ CariCOOS: Improving High-Resolution Numerical Weather Prediction for the Northeast Caribbean Region

ARAGON, David

- ☐ Glider Performance During Hurricane Gonzalo (BIOS, Bermuda)

ARAYA, Akito

- ☐ Basic Experiments on Measurement of Salinity using a Heterodyne Double-pass Interferometer

ARISUMI, Hitoshi

- ☐ Development of Underwater Inspection System for Dam Inspection

ARMSTRONG, Andy

- ☐ Depth Adaptive Hydrographic Survey Behavior for Autonomous Surface Vessels

ARMSTRONG, Straud

- ☐ Preliminary Evaluation for Klein HydroChart 3500 Interferometry Bathymetry Sonar to Apply to NOAA Sea Floor Mapping Procedure

ARNOLD, Sascha

- ☐ Model Identification of Unmanned Underwater Vehicle via Adaptive Technique and Artificial Fiducial Markers
- ☐ FlatFish - A compact subsea-resident inspection AUV

ARROYO, Martin

- ☐ Model Comparison for Transatlantic Ocean Glider Flight: Student Analysis of Modern Circumnavigation

ASADA, Akira

- ☐ Development of the Underwater Search Supporting Technique Using the High-resolution Imaging Sonar
- ☐ Identification of Manganese Crusts in 3D Visual Reconstructions to Filter Geo-registered Acoustic Sub-surface Measurements
- ☐ 3D Acoustic imagery generation by interferometric analysis of long baseline using Interferometric Real Aperture Sonar.

ASAKAWA, Kenichi

- ☐ Basic Experiments on Measurement of Salinity using a Heterodyne Double-pass Interferometer

ASHBROOK, Kelsey

- ☐ Model Comparison for Transatlantic Ocean Glider Flight: Student Analysis of Modern Circumnavigation

ATKINSON, Larry

- ☐ Extreme and Non-Tidal Events in the Chesapeake Bay High Frequency Radar Surface Currents Record

AWTREY, Jodi

- ☐ Geographic Diversity of Phytoplankton Populations along the Outer Banks 2005 to 2013

AYOUNG, Kim

- ☐ Bundle Adjustment from Sonar Images and SLAM Application for Seafloor Mapping

BACHMAYER, Ralf

- ☐ Wave Height Measurement Using a Short-range FMCW Radar for Unmanned Surface Craft

BAE, Richard

- ☐ Oceanographic Instrument Simulator

BAEK, Hyuk

- ☐ Multi-legged ROV Crabster and an acoustic camera for survey of underwater cultural heritages - Preliminary performance experiments in sea
- ☐ Preliminary Water Tank Test of a Multi-legged Underwater Robot for Seabed Explorations
- ☐ Application of Scanning Sonar using Multi-legged Underwater Robot's Degree of Freedom

BAEK, Se-Hoon

- ☐ Preliminary Water Tank Test of a Multi-legged Underwater Robot for Seabed Explorations

BAHL, Rajendar

- ☐ Development of an automatic discrimination method of the bio-sonar clicks of Irrawaddy dolphin (*Orcaella brevirostris*) from various types of boat noises

BAI, Shi

- ☐ Toward Robust Localization and Mapping for Shallow Water ROV Inspections

BAI, Weigang

- ☐ Medium Access Control Mechanism for Multi-hop Underwater Acoustic Networks Utilizing Time Reversal
- ☐ A Joint Linear-Analog Network Coding Based Protocol for Data Transfer in Underwater Acoustic Networks

BAILEY, Kathleen

- ☐ Infrastructure and tools for serving, accessing, and analyzing ocean information from the Integrated Ocean Observing System

BAINBRIDGE, Scott

- ☐ Getting up close and personal: the need to immerse autonomous vehicles in coral reefs

BALASUBRAMANIAN, Ramprasad

- ☐ Toward an automated detection of the Gulf Stream North Wall from concurrent satellite images

BALL, Keenan

- ☐ Long Range Acoustic Communications and Navigation in the Arctic

BANAVAR, Mahesh

- ☐ A Wideband Noise-like Transmitter Approach for Underwater Lidar using Diode Lasers and Passive Fiber Optic Processor
- ☐ Backscatter suppression via blind signal separation for a 532 nm chaotic lidar

BANDALA, Manuel

- ☐ Sliding PD Control Performance on Autonomous Underwater Glider
- ☐ Bilateral teleoperation of a commercial small-sized underwater vehicle for academic purposes

BANE, John

- ☐ Observation and regional model based Gulf Stream marine hydrokinetic energy resource estimates for North Carolina

BARATA, José

- ☐ An Open-Source Watertight Unmanned Aerial Vehicle for Water Quality Monitoring
- ☐ Water Detection System for a Multi-rotor Autonomous Aerial Vehicle

BARRICK, Don

- ☐ High Frequency Radar Measurement Resiliency with Bistatics

BARROS, Julio

- ☐ Near Wake Flow Field Measurements of a Marine Current Turbine

BARTH, Jack

- ☐ Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies

BASKIN, Chloe

- ☐ High Frequency Radar Measurement Resiliency with Bistatics
- ☐ Assessing HF Radar Data in the New York Harbor: Comparisons with Wind, Stream Gauge and Ocean Model Data Sources

BATTISTA, Thomas

- ☐ Control of an Underwater Vehicle in Irregular Waves

BAUMAN-PICKERING, Simone

- ☐ Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies

BAUS, Theresa

- ☐ Expediting Cost-Effective Solutions Through Government Technology Transfer and Commercialization

BAUSSARD, Alexandre

- ☐ Bayesian texture classification using steerable Riesz wavelets: Application to sonar images

BAYLOG, John

- ☐ A search game for optimizing information collection in UUV mission planning

BAYS, Matthew

- ☐ Automated Scheduling and Mission Visualization for Mine Countermeasure Operations
- ☐ A Panel on the Future of Long Duration Maritime Autonomy

BEAUJEAN, Pierre-Philippe

- ☐ Image Quality Analysis for a Multiple Overlapping Field of View Serial Laser Imager

BELLINGHAM, James

- ☐ Tracking and Sampling of a Phytoplankton Patch by an Autonomous Underwater Vehicle in Drifting Mode
- ☐ A Real-time Vertical Plane Flight Anomaly Detection System for a Long Range Autonomous Underwater Vehicle

BENSON, Bridget

- ☐ Oceanographic Instrument Simulator

BENSON, Craig

- ☐ High Data Rates in the High Frequency Acoustic Channel

BERKENPAS, Eric

- ☐ The Deep Ocean Dropcam: A Highly Deployable Benthic Survey Tool

BERKSON, Jonathan

- ☐ Marine Science and Technology Support of U.S. Coast Guard Arctic Operations

BERNARD, Cindy

- ☐ High-speed sensing for object detection in underwater bi-static acoustic paths
- ☐ Analysis of underwater signals with non-linear time-frequency structures using warping-based compressive sensing algorithm

BERNOTAS, Marius

- ☐ Probability Density Function Analysis for Optimization of Underwater Optical Communication Systems

BERTASKA, Ivan

- ☐ Supervisory Switching Control of an Unmanned Surface Vehicle

BEZANSON, Leverett

- ☐ Power Management of 10-Thruster ROV Using an Auto-Configurable Algorithm

BIAGI, Mauro

- ☐ Adaptive PPM Acoustic Detection in very Shallow Water Reservoir
- ☐ Acoustic Bathymetric Mapping in very Shallow Water Reservoir

BIAN, Xinqian

- ☐ Optimal Design for Consensus of Second Order Multi-agent Systems with Damping Term
- ☐ Adaptive roll stabilization of ship by U-tanks based on a novel control strategy

BICHUCHER, Vittorio

- ☐ Bathymetric Factor Graph SLAM with Sparse Point Cloud Alignment

BICKFORD, Joel

- ☐ iTAG: Developing a Cloud Based, Collaborative Animal Tracking Network in the Gulf of Mexico

BIDWELL, David

- ☐ Public Acceptance of Offshore Wind Energy: Relationships among General and Specific Attitudes

BINGHAM, Samuel

- ☐ An Unmanned Aerial Vehicle for the Localization of Radio-Tagged Fish

BIRCH, James

- ☐ Development of a Mobile Ecogenomic Sensor
- ☐ Tracking and Sampling of a Phytoplankton Patch by an Autonomous Underwater Vehicle in Drifting Mode

BJELLAND, Hans

- ☐ Exposed aquaculture in Norway: Technologies for robust operations in rough conditions

BJERKENG, Magnus

- ☐ Autonomous job analysis: A method for the design of autonomous marine operations
- ☐ SEATONOMY - Design, development and validation of marine autonomous systems and operations

BJERREGÅRD, Mikkel

- ☐ New Concepts for Shipboard Sea State Estimation

BLOCK, Barbara

- ☐ Integrated Management and Visualization of Animal Telemetry Observations: Serving data from a wide variety of platforms used in animal telemetry.

BLOUIN, Stephane

- ☐ Toward hardware-driven simulation of underwater acoustic propagation and communication with Arctic ice, wind waves, and currents

BLYTHE, Jonathan

- ☐ Using Geospatial and Information Science to Facilitate the Discovery and Access of Ocean Science Data

BOBKOV, Valery

- ☐ Distributed Simulation Framework for Investigation of Autonomous Underwater Vehicles' Real-Time Behavior

BODA, Kenneth

- ☐ Marine Science and Technology Support of U.S. Coast Guard Arctic Operations

BODENMANN, Adrian

- ☐ Identification of Manganese Crusts in 3D Visual Reconstructions to Filter Geo-registered Acoustic Sub-surface Measurements

BOETIUS, Antje

- ☐ A participative tool for sharing, annotating and archiving submarine video data

BOGART, Frank

- ☐ Autonomous Takeoff & Landing of Small UAV from the USV

BOICOURT, William

- ☐ Mapping of the Mid-Atlantic Cold Pool with GliderPalooza-2013

BOLLT, Erik

- ☐ Backscatter suppression via blind signal separation for a 532 nm chaotic lidar

BONNER, James

- ☐ Development of an in-situ total phosphorus analyzer

BOSCAINO, Valeria

- ☐ An inertial system for the production of electricity and hydrogen from seawave energy

BOTTONI, Max

- ☐ SmartAtlantic - The Benefits of Real Time Metocean Data in Port Operations

BOUCHARD, Andrew

- ☐ Verification of Autonomous Systems: Challenges of the Present and Areas for Exploration

BOUCHARD, Richard

- ☐ NDBC Wave Measurement Initiatives

BOUKERMA, Kada

- ☐ Harmonization in the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

BOUSQUET, Jean-Francois

- ☐ Acoustic Doppler Compensation using Feedforward Retiming for Underwater Coherent Transmission

BRAGINSKY, Boris

- ☐ Trajectory Controller for Autonomous Surface Vehicle Under Sea Waves

BRAMBLEBY, Reuben

- ☐ Behavior of Perforated Metal-to-Composite Joints Subjected to Tensile Loading

BREUER, Eric

- ☐ Development of a Real-Time Offshore Water Level Measurement System to Support Safe Navigation Along Alaska's Arctic Coasts

BRITTO, Joao

- ☐ FlatFish - A compact subsea-resident inspection AUV

BRITTO, João

- ☐ Model Identification of Unmanned Underwater Vehicle via Adaptive Technique and Artificial Fiducial Markers

BRODTKORB, Astrid H.

- ☐ Sea state estimation using model-scale DP measurements

BROWN, Daniel

- ☐ Determination of Sonar Image Resolution from Image Statistics

BROWN, Wendell

- ☐ Mapping of the Mid-Atlantic Cold Pool with GliderPalooza-2013

BROWNING, Peggy

- ☐ Real-Time AIS Tracking from Space Expands Opportunities for Long-Term Global Ocean Observing and Maritime Domain Awareness

BRUEN, Daniel

- ☐ Rapid image processing and classification in underwater exploration using advanced high performance computing

BRZUZY, Louis

- ☐ Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

BUERMANS, Jan

- ☐ Near real-time transmission of reduced data from a moored multi-frequency sonar by low bandwidth telemetry

BUFFO, Jacob

- ☐ Design and Antarctic Testing of the Icefin Vehicle

BUI, Alice

- ☐ Data Quality Control Practices for Ocean Networks Canada Observatories-Challenges and Opportunities

BURNETT, Justin

- ☐ Development of a Borehole Deployable Remotely Operated Vehicle for Investigation of Sub-Ice Aquatic Environments

BUSHNELL, Mark

- ☐ Quality Assurance of Real-Time Oceanographic Data - Status and Implementation Efforts

BUTCHER, Nathan

- ☐ Seasonal Changes in Phytoplankton Biodiversity on the Outer Banks 2005 to 2013

BUTKIEWICZ, Thomas

- ☐ Streamlining the Evaluation of Potential Marine Debris Targets for Disaster Response

BYUN, Sung-Hoon

- ☐ Underwater Source Localization in a Tank with Two Parallel Moving Hydrophone Arrays
- ☐ Prototype Development of an Underwater Sound Measurement Module Using Four Hydrophones

CAI, Minjian

- ☐ Hydrodynamic Analysis of A Rim-driven Thruster Based on RANS Method
- ☐ A hybrid underwater profiler used for persistent monitoring

CAI, Wenqiang

- ☐ A Fast Sonar-based Benthic Object Recognition Model via Extreme Learning Machine

CAITI, Andrea

- ☐ Multiple target tracking in seabed surveys using the PHD filter

CALDEIRA ABREU, Pedro

- ☐ Cooperative Navigation and Control: the EU MORPH project

CALEY, Jeffrey

- ☐ Data-Driven Comparison of Spatio-Temporal Monitoring Techniques

CALVO, David

- ☐ Thin Fresnel zone plate lenses for underwater acoustics: modeling and experiments
- ☐ Scale-model scattering experiments using 3D printed representations of ocean bottom features
- ☐ Moment-Based Method to Statistically Categorize Rock Outcrops Based on their Topographical Features

CAMILLI, Luis

- ☐ Designing Ocean Drones for Maritime Security: The use of integrated sensing modalities to enhance situational awareness

CAMPOS, Eduardo

- ☐ Adaptive Control for Hybrid Underwater Gliders

CANALS, M.

- ☐ Coupled global wind and tide driven coastal water levels and currents in Puerto Rico and the U.S. Virgin Islands

CANALS, Miguel

- ☐ Increasing the Coverage of an Island-Based HF Radar Network
- ☐ Assessing HF radar capabilities to resolve mesoscale eddy interactions with littoral waters
- ☐ Characterization of mesoscale eddies and detection of sub-mesoscale eddies derived from satellite imagery and HF radar off the coast of southwestern Puerto Rico
- ☐ A nearshore breaker prediction system for Puerto Rico and the United States Virgin Islands in support of beach safety and drowning prevention

CANDEL, Ion

- ☐ High-speed sensing for object detection in underwater bi-static acoustic paths
- ☐ Distributed Array of Cooperating Acoustic Sensors using Local Time-Frequency Coherence Analysis

CANDELOORO, Mauro

- ☐ HMD as a new Tool for Telepresence in Underwater Operations and Closed-Loop Control of ROVs

CANINO, Marco

- ☐ Fatigue Load and Life Estimation of Composite Turbine Blades under Random Ocean Current

CANNING, John

- ☐ Underwater Electric Potential Measurements using AUVs
- ☐ AUV State Estimation and Navigation to Compensate for Ocean Currents

CAO, Xiaoxu

- ☐ The adaptive robust tracking control of deep-sea hydraulic manipulator based on backstepping design
- ☐ The Observer-based Neural Network Adaptive Robust Control for Underwater Hydraulic Manipulator
- ☐ Depth Control of ROVs Using Time Delay Estimation with Nonsingular Terminal Sliding Mode

CAO, Zheng

- ☐ Marine Animal Classification Using Combined CNN and Hand-designed Image Features

CAPELLA, Jorge

- ☐ Characterization of mesoscale eddies and detection of sub-mesoscale eddies derived from satellite imagery and HF radar off the coast of southwestern Puerto Rico
- ☐ Assessing HF radar capabilities to resolve mesoscale eddy interactions with littoral waters

CAPOCCI, Romano

- ☐ Smart Inspection ROV for Use in Challenging Conditions

CAPPELLI, Stephanie

- ☐ Development of an in-situ total phosphorus analyzer

CARESS, David

- ☐ MBARI AUV Operations in the Gulf of California

CARLON, Ryan

- ☐ Tracking Tagged Fish Using a Wave Glider

CARLOS ALVES, José

- ☐ Robotic Exercises 2014 - Multi-robot field trials

CESAR, Diego

- ☐ Model Identification of Unmanned Underwater Vehicle via Adaptive Technique and Artificial Fiducial Markers
- ☐ FlatFish - A compact subsea-resident inspection AUV

CHABAH, Myriam

- ☐ Correlation bias analysis - A novel method of sinus cardinal model for least squares estimation in cross-correlation

CHAI, Yong

- ☐ A barrel-stave projector with active material shell
- ☐ A magnetostrictive underwater transducer directly driven by iron-gallium alloy (Galferol) without bias magnetic field

CHANG, Pil-Hun

- ☐ The sensitivity analysis in accordance with the resolution of the satellite sea surface temperature data

CHARLATCHKA, Rayna

- ☐ Calibration of an Active Ultrasound Bedload Monitoring System for Underwater Environments

CHAVE, Rene

- ☐ Near real-time transmission of reduced data from a moored multi-frequency sonar by low bandwidth telemetry

CHE, Il-Young

- ☐ Prototype Development of an Underwater Sound Measurement Module Using Four Hydrophones

CHEN, Amy

- ☐ Oceanographic Instrument Simulator

CHEN, Baowei

- ☐ Steered Nonlinear Field Computation and Measurement

CHEN, Genshe

- ☐ Virtual Platform of a Remotely Operated Vehicle
- ☐ Development of a Dynamic Model for a Constant Tension Winch

CHEN, Hang

- ☐ Reconstruction of acoustic fields based on the least squares for short vertical linear array

CHEN, Hsiang

- ☐ Electromagnetic Spring for Sliding Wave Energy Converter

CHEN, Huifang

- ☐ Performance Analysis of ARQ Protocols in Multiuser Underwater Acoustic Networks

CHEN, Jiawang

- ☐ Depth Control of ROVs Using Time Delay Estimation with Nonsingular Terminal Sliding Mode

CHEN, Jun

- ☐ Sea Trial and Free-fall Hydrodynamic Research of a 7000-meter Lander

CHEN, Liansheng

- ☐ Fast Accurate Fish Detection and Recognition of Underwater Images with Fast R-CNN
- ☐ Real-time Fish Localization with Binarized Normed Gradients

CHEN, Peng

- ☐ Forward-Backward Block-wise Channel Tracking in High-speed Underwater Acoustic Communication

CHEN, Qi

- ☐ Development of a Dynamic Model for a Constant Tension Winch
- ☐ Sea Trial and Free-fall Hydrodynamic Research of a 7000-meter Lander
- ☐ The Observation of Sea-ice in the Six Chinese National Arctic Expedition Using Polar-ARV

CHEN, Tao

- ☐ Adaptive roll stabilization of ship by U-tanks based on a novel control strategy

CHEN, Wei

- ☐ A Self-Adaptive Cooperative Routing Protocol for Underwater Acoustic Sensor Networks

CHEN, Wen-jian

- ☐ Design of High Frequency Acoustic Transducer Calibration System Based on Near-field Acoustical Holography

CHEN, Yanhu

- ☐ An active node isolating method based on discrete-voltage intervention for seafloor observation network
- ☐ Research on key technologies of junction boxes for Chinese experimental seafloor observatory network

CHEN, Yen

- ☐ A Self-Adaptive Cooperative Routing Protocol for Underwater Acoustic Sensor Networks

CHEN, Ying

- ☐ Sparse-Representation-Based Adaptive Interference Suppression
- ☐ Moving Targets Detection and Tracking Based on Sparse and Low-rank Decomposition
- ☐ Selection of multi-angles combination in precise turbidity measurement
- ☐ Preliminary Study of Determination of Dinophysis Concentration Using Hyperspectral Imaging

CHEN, Zhier

- ☐ Impact of folding propeller spinning position for the transit performance of a hybrid-driven underwater glider

CHENG, En

- ☐ Complementary Code Keying Modulation and Frequency Domain Equalization for Single-Carrier Underwater Acoustic Communications

CHENG, Jonathan

- ☐ Ship To Shore: ROV Dive Logging and Data Acquisition

CHENG, Yuansheng

- ☐ Numerical analysis on dynamic responses of hybrid sandwich structures with V-type corrugated cores subjected to water impact

CHITRE, Mandar

- ☐ Self Assembling Robots in an Underwater Environment

CHO, Hyeonwoo

- ☐ A Method for Automatic Detection of Underwater Objects using Forward-looking Imaging Sonar
- ☐ Development of passive acoustic landmark using image sonar for AUV's localization
- ☐ Real-Time Noise Reduction for Sonar Video Image Using Recursive Filtering
- ☐ Development of Energy-harvesting Unit and Propulsion Unit for a Robotic Buoy System

CHO, Younghoon

- ☐ Autonomous collision avoidance for unmanned surface ship using onboard monocular vision

CHOI, Hyun-Taek

- ☐ Design of underwater precise navigation system using low-cost sensors

CHOI, Hyun-Teak

- ☐ Experimental Results of Real-time Sonar-based Underwater Localization Using Landmarks

CHOI, Jinwoo

- ☐ Experimental Results of Real-time Sonar-based Underwater Localization Using Landmarks

CHRISTENSEN, Leif

- ☐ Distortion-Robust Distributed Magnetometer for Underwater Pose Estimation in Confined UUVs

CIMINI, Leonard

- ☐ Interference Cancellation in In-Band Full-Duplex Underwater Acoustic Systems

CIPRIANI, Giovanni

- ☐ An inertial system for the production of electricity and hydrogen from seawave energy

CLARK, Ashley

- ☐ Automated Point Cloud Correspondence Detection for Underwater Mapping Using AUVs

CLAUSSEN, Tim

- ☐ A Real-time Cognitive Sonar System for Diver Detection

CLEGG, David

- ☐ Transitioning Unmanned Underwater Vehicle Technology from Commercial Use to Naval Mine Countermeasures Operations

COCHENOUR, Brandon

- ☐ A Wideband Noise-like Transmitter Approach for Underwater Lidar using Diode Lasers and Passive Fiber Optic Processor
- ☐ Multistatic optical imaging system compatible with AUV platforms
- ☐ Forward scattering characterization of beams with orbital angular momentum for underwater communication systems

COE, Ryan

- ☐ Comparison of Methods for Estimating Short Term Extreme Response of Wave Energy Converters

COFER, Lee

- ☐ Automated Scheduling and Mission Visualization for Mine Countermeasure Operations

COKELET, Edward

- ☐ The use of Saildrones to examine spring conditions in the Bering Sea: Instrument comparisons, sea ice meltwater and Yukon River plume studies
- ☐ Innovative Technology Development for Arctic Exploration

COLBY, Jonathan

- ☐ An examination of pelagic Sargassum community primary productivity and nutrient cycling in the face of Gulf Stream based energy

COLE, Sylvia

- ☐ Processing of velocity observations from Ice-Tethered Profilers

COLEMAN, Joseph

- ☐ Closing the gap between industrial robots and underwater manipulators
- ☐ Smart Inspection ROV for Use in Challenging Conditions
- ☐ Direct Interconnection of offshore airborne wind energy systems

COLLINS, Thomas

- ☐ Design and Antarctic Testing of the Icefin Vehicle
- ☐ Automatic Texture and Anomaly Mapping in Under-ice Video Datasets
- ☐ Sonar and Video Fusion for Vehicle Trajectory Estimation in Under-ice Environments

COLONNESE, Stefania

- ☐ Adaptive PPM Acoustic Detection in very Shallow Water Reservoir
- ☐ Acoustic Bathymetric Mapping in very Shallow Water Reservoir

COLUCCI, Antonella

- ☐ An inertial system for the production of electricity and hydrogen from seawave energy

CONLIN, Doug

- ☐ MBARI AUV Operations in the Gulf of California

CONNORS, Warren

- ☐ Assessment of mine hunting performance evaluation parameters across multiple side-looking sonar systems and frequencies

CONSI, Thomas

- ☐ The Shrimpfish as a Model for a Novel, Highly Maneuverable AUV
- ☐ An Unmanned Aerial Vehicle for the Localization of Radio-Tagged Fish

CONSTANTINOU, Christos

- ☐ Asynchronous UKF-based Localization of an Underwater Robotic Vehicle for Aquaculture Inspection Operations

COOK, Benjamin

- ☐ Semi-automated land/water segmentation of multi-spectral imagery

COOPER, Cortis

- ☐ Real-time Ocean Surface Current Measurements in the Gulf of Mexico

COPPING, Andrea

- ☐ The Development of a Finite Volume Method for Modeling Sound in Coastal Ocean Environment

CORBETT, James

- ☐ High Fiber Count Optical Penetrator

CORREDOR, Jorge

- ☐ Increasing the Coverage of an Island-Based HF Radar Network

COSSU, Remo

- ☐ Estimating flow velocities of the water column using the motion response of an Autonomous Underwater Vehicle (AUV)

CRAWFORD, Anna

- ☐ Autonomous Shallow Water Bathymetric Measurements using Unmanned Surface Vehicles for Safe Navigation and Environmental Assessment

CREED, Elizabeth

- ☐ Integration of a RSI microstructure sensing package into a Seaglider

CREESE, Catherine

- ☐ Data Management - A Step Forward in Cable Protection

CROSBY, Bob

- ☐ The Web-enabled Awareness Research Network (WARN) Project Detection Methods for Earthquakes and Tsunamis

CROSS, Jessica

- ☐ The use of Saildrones to examine spring conditions in the Bering Sea: Instrument comparisons, sea ice meltwater and Yukon River plume studies
- ☐ Innovative Technology Development for Arctic Exploration

CRUZ, Nuno

- ☐ Robotic Exercises 2014 - Multi-robot field trials

CUELLAR, Francisco

- ☐ ROV-based acquisition system for water quality measuring

CUI, Hongyu

- ☐ Closed loop bi-directional broadband Doppler compensation and channel equalization for single carrier high-speed underwater acoustic communication

CUI, Jian

- ☐ Wave Height Measurement Using a Short-range FMCW Radar for Unmanned Surface Craft

CUI, Shengguo

- ☐ Research on the Navigation Error Compensation Method for a class of Deep-sea vehicle
- ☐ Motion control of Thruster-driven Underwater Vehicle based on Model predictive control

CURCHITSER, Enrique

- ☐ Cooperative development of dynamic habitat models informed by the Integrated Ocean Observing System (IOOS) informs fisheries management decision making in the coastal ocean

CURRIER, Robert

- ☐ iTAG: Developing a Cloud Based, Collaborative Animal Tracking Network in the Gulf of Mexico

CURRY, Ruth

- ☐ Glider Performance During Hurricane Gonzalo (BIOS, Bermuda)

CURTO, Domenico

- ☐ An inertial system for the production of electricity and hydrogen from seawave energy

CUSANI, Roberto

- ☐ Adaptive PPM Acoustic Detection in very Shallow Water Reservoir
- ☐ Acoustic Bathymetric Mapping in very Shallow Water Reservoir

CZEREWKO, Olivia

- ☐ Model Comparison for Transatlantic Ocean Glider Flight: Student Analysis of Modern Circumnavigation

D'URSO, Guy

- ☐ Calibration of an Active Ultrasound Bedload Monitoring System for Underwater Environments
- ☐ Reference Selection for an Active Ultrasound Wild Salmon Monitoring System

DAI, Jialun

- ☐ Automatic searching of fish from underwater images via shape matching
- ☐ Combining background subtraction and three-frame difference to detect moving object from underwater video

DALGLEISH, Fraser

- ☐ Marine Animal Classification Using Combined CNN and Hand-designed Image Features
- ☐ Image Quality Analysis for a Multiple Overlapping Field of View Serial Laser Imager

DALTON, Tracey

- ☐ A Geospatial Inventory and Preliminary Valuation of Human Uses of Rhode Island Coastal Ponds: A Mixed Methods Approach

DAMMANN, Armin

- ☐ Physical Layer Design Towards VHF Data Exchange (VDE) Link
- ☐ Capacity Analysis for Broadband Communications on Sea

DE OLIVEIRA, Eric

- ☐ Reference Selection for an Active Ultrasound Wild Salmon Monitoring System

DE PAULA, Mariano

- ☐ Trajectory tracking algorithm for autonomous vehicles using adaptive reinforcement learning

DE TOMI, Giorgio

- ☐ Basic mapping of the inspection process in offshore oil production facilities

DE TOMI, Giorgio Francesco

- ☐ Mobile Control Center: a new approach to deploy ROV-oriented education and training

DELATOLAS, Nikiforos

- ☐ The Chesapeake Bay Interpretive Buoy System and the Winter of 2015: Problems and Solutions

DELAUNEY, Laurent

- ☐ Harmonization in the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

DELBALZO, Donald

- ☐ Electromagnetic Spring for Sliding Wave Energy Converter

DELICH, Nicholas

- ☐ Deployment and recovery of a full-ocean depth mooring at Challenger Deep, Mariana Trench

DEMARCO, Kevin

- ☐ A Computationally-Efficient 2D Imaging Sonar Model for Underwater Robotics Simulations in Gazebo

DENG, Daniel

- ☐ A Long-term Temperature and Depth Logger for Ocean Mooring System

DENG, Zhiquan

- ☐ The Development of a Finite Volume Method for Modeling Sound in Coastal Ocean Environment

DEYOUNG, Brad

- ☐ Wave Height Measurement Using a Short-range FMCW Radar for Unmanned Surface Craft

DI CORATO, Francesco

- ☐ Multiple target tracking in seabed surveys using the PHD filter

DI DIO, Vincenzo

- ☐ An inertial system for the production of electricity and hydrogen from seawave energy
- ☐ Identification of the Inertial Model for Innovative Semi-Immergible USV (SI-USV) Drone for Marine and Lakes Operations.
- ☐ A Security and Surveillance Application of the Innovative Monitoring Underwater Buoy Systems (MUnBuS) on the Protected Marine Area (AMP) of Capo Gallo (PA-IT).

DIAZ-SANTOS, Jose

- ☐ An improved whitening transformation for snapshot-deficient scenarios

DIDOMENICO, Greg

- ☐ Cooperative development of dynamic habitat models informed by the Integrated Ocean Observing System (IOOS) informs fisheries management decision making in the coastal ocean

DIGULESCU, Angela

- ☐ High-speed sensing for object detection in underwater bi-static acoustic paths

DIGULESCU-POPESCU, Angela

- ☐ Distributed Array of Cooperating Acoustic Sensors using Local Time-Frequency Coherence Analysis

DING, Jie

- ☐ Underwater acoustic localization approach to an arbitrary distributed multi-elements array

DING, Kang

- ☐ An in-situ chemical sensor system for cabled ocean observatory applications at hydrothermal vents

DJAPIC, Vladimir

- ☐ Autonomous Takeoff & Landing of Small UAV from the USV

DODGE, Taylor

- ☐ Evolution of Biomineralization Proteins in Cnidaria: Sequencing a Stony-Coral Skeletal Protein from the Soft Coral, Lobophytum crassum

DONG, Diya

- ☐ A Novel Path Planning Method Based on Extreme Learning Machine for Autonomous Underwater Vehicle

DONG, Haitao

- ☐ Fuzzy Clustering Based Source Direction Estimation Method Using Acoustic Energy Measurements with UWSN

DONG, Hefeng

- ☐ Analysis, Verification and Optimization of AUV Navigation Using Underwater Acoustic Models

DOOLY, Gerard

- ☐ Smart Inspection ROV for Use in Challenging Conditions
- ☐ Closing the gap between industrial robots and underwater manipulators
- ☐ Real-Time Reconstruction of Underwater Environments: from 2D to 3D
- ☐ Direct Interconnection of offshore airborne wind energy systems

DOSSO, Stan

- ☐ Compensation of Vehicle Motion Influence in a Long Baseline System Field Trial

DOUGLAS, William

- ☐ Integration of a RSI microstructure sensing package into a Seaglider

DOYLE, James

- ☐ The Relationship between Upper-Ocean Variability and the Madden-Julian Oscillation in Extended-Range Simulations

DRAKE, Jeana

- ☐ Evolution of Biomineralization Proteins in Cnidaria: Sequencing a Stony-Coral Skeletal Protein from the Soft Coral, Lobophytum crassum

DRAP, Pierre

- ☐ Real-Time Reconstruction of Underwater Environments: from 2D to 3D

DU TOIT, Noel

- ☐ Robust Adaptive Control of Underwater Vehicles for Precision Operations

DUBBS, Lindsay

- ☐ An examination of pelagic Sargassum community primary productivity and nutrient cycling in the face of Gulf Stream based energy

DUGELAY, Samantha

- ☐ Assessment of mine hunting performance evaluation parameters across multiple side-looking sonar systems and frequencies

DUNK, Rich

- ☐ Sea Breeze, Coastal Upwelling Modeling to Support Offshore Wind Energy Planning and Operations

DURAND, Dominique

- ☐ Strategy for sustainability of the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

DUSEK, Gregory

- ☐ Assessing HF Radar Data in the New York Harbor: Comparisons with Wind, Stream Gauge and Ocean Model Data Sources

DUSZKIEWICZ, Adam

- ☐ DGO-1: A Metal Coating/Surface Treatment Resistant to Cathodic Delamination

DZIAK, Robert

- ☐ Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies
- ☐ Deployment and recovery of a full-ocean depth mooring at Challenger Deep, Mariana Trench

DZVONKOVSKAYA, Anna

- ☐ Conceptual View of Refraction and Transmission of a Tsunami Wave at a Step in Bathymetry
- ☐ Self-Organized Synchronization Based on a Chirp-Sequence Waveform for an HF Ocean Radar Network

EBIHARA, Tadashi

- ☐ Wireless Power and Data Transfer System for Station-Based Autonomous Underwater Vehicles

EBLE, Marie

- ☐ US Tsunami Warning System: Capabilities, Gaps and Future Vision

EBRAHIMISALARI, Mahdi

- ☐ Direct Interconnection of offshore airborne wind energy systems

EDELMANN, Geoffrey

- ☐ High-frequency, highly directional short-range underwater acoustic communications

EDGE, Billy

- ☐ Observation and regional model based Gulf Stream marine hydrokinetic energy resource estimates for North Carolina

EDSON, Ethan

- ☐ MantaRay: A Novel Autonomous Sampling Instrument for In Situ Measurements of Environmental Microplastic Particle Concentrations

EDWARDS, Dean

- ☐ AUV State Estimation and Navigation to Compensate for Ocean Currents
- ☐ Underwater Electric Potential Measurements using AUVs

EHLERS, Frank

- ☐ Self-Tuning Active Sonar Signal Processing for a Towed Hydrophone Array During a Turn

EIDNES, Grim

- ☐ SEATONOMY - Design, development and validation of marine autonomous systems and operations

ELISEENKO, Grigoriy

- ☐ A Reconfigurable Web-based Simulation Environment for AUV

ELLEN, Jeffrey

- ☐ Quantifying California Current Plankton Samples with Efficient Machine Learning Techniques

ELLENRIEDER, Karl

- ☐ Adaptive Wind Feedforward Control of an Unmanned Surface Vehicle for Station Keeping

ELLIOTT, James

- ☐ SCOOP - NDBC's New Ocean Observing System

EMANUEL, Clancy

- ☐ Integrated Command, Control and Communication for Autonomous Underwater Vehicles

EMOKPAE, Lloyd

- ☐ High-frequency, highly directional short-range underwater acoustic communications

ENDOH, Nobuyuki

- ☐ Study to reduce size and weight of underwater acoustic imaging system

ENGLOT, Brendan

- ☐ Toward Robust Localization and Mapping for Shallow Water ROV Inspections

EROFEEV, Anatoli

- ☐ Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies

ESTRADA, Erick

- ☐ Lost at Sea: Locating and Recovering Lost Underwater Scientific Packages with Mini ROVs

ETTER, Paul

- ☐ Evolving Trends and Challenges in Applied Underwater Acoustic Modeling

EUSTICE, Ryan

- ☐ Bathymetric Factor Graph SLAM with Sparse Point Cloud Alignment
- ☐ Underwater Robot Localization in the Presence of Dramatic Appearance Changes
- ☐ Identifying Structural Anomalies in Image Reconstructions of Underwater Ship Hulls

EVANS, Colin

- ☐ Assessing HF Radar Data in the New York Harbor: Comparisons with Wind, Stream Gauge and Ocean Model Data Sources

FABBRI, Tommaso

- ☐ Multiple target tracking in seabed surveys using the PHD filter

FAIMALI, Marco

- ☐ Harmonization in the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

FALKOWSKI, Paul

- ☐ Evolution of Biomineralization Proteins in Cnidaria: Sequencing a Stony-Coral Skeletal Protein from the Soft Coral, Lobophytum crassum

FALLS, Jaye

- ☐ Verification and Validation of a Prediction Tool for a Helicopter-Towed Submerged Body

FARCY, Patrick

- ☐ Harmonization in the Joint European Research Infrastructure Network for Coastal Observatories -JERICO
- ☐ Strategy for sustainability of the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

FARHANG-BOROUJENY, Behrouz

- ☐ UWA Massive MIMO Communications

FARR, Norman

- ☐ Autonomous Acoustic-Aided Optical Localization for Data Transfer
- ☐ Wireless Data Harvesting Using the AUV Sentry and WHOI Optical Modem

FARROKHROOZ, Mehdi

- ☐ Effect of Array Tilt on Estimates of Vertical Ambient Noise Spectrum

FATHI, Dariusz

- ☐ Exposed aquaculture in Norway: Technologies for robust operations in rough conditions

FEDOR, Christopher

- ☐ Non-linear Decision Making for Robust Navigation in Role Based Autonomy

FENG, Yingbin

- ☐ Motion control of Thruster-driven Underwater Vehicle based on Model predictive control

FENGYOU, CHU

- ☐ The molecular organic geochemical records of the ANT28-D5-06 sediment core in the Northern Weddell Sea and their petroleum geology significance

FENUCCI, Davide

- ☐ Multiple target tracking in seabed surveys using the PHD filter

FERNANDES, Filipe

- ☐ An end-to-end Workflow for Assessing Sea Surface Temperature, Salinity and Water Level Predicted by Coastal Ocean Models.
- ☐ Infrastructure and tools for serving, accessing, and analyzing ocean information from the Integrated Ocean Observing System

FERREIRA, Celso

- ☐ Wetlands as a nature-based coastal defense: a numerical modeling and field data integration approach to quantify storm surge attenuation for the Mid-Atlantic region

FEYGELS, Viktor

- ☐ CZMIL (Coastal Zone Mapping and Imaging Lidar) Bathymetric Performance in Diverse Littoral Zones

FIALKOWSKI, Joseph

- ☐ Scale-model scattering experiments using 3D printed representations of ocean bottom features
- ☐ Moment-Based Method to Statistically Categorize Rock Outcrops Based on their Topographical Features
- ☐ A Physical Statistical Sonar Clutter Model for Spatially-Dispersed Scatterers

FILARETOV, Vladimir

- ☐ Design and investigation of dead reckoning system with accommodation to navigation sensor errors for autonomous underwater vehicle

FJERDINGEN, Sigurd

- ☐ Autonomous job analysis: A method for the design of autonomous marine operations

FLACK, Karen

- ☐ Near Wake Flow Field Measurements of a Marine Current Turbine
- ☐ Effects of waves on BEM theory in a marine tidal turbine environment

FLEURY, Dean

- ☐ Preliminary Evaluation for Klein HydroChart 3500 Interferometry Bathymetry Sonar to Apply to NOAA Sea Floor Mapping Procedure

FLORY, John

- ☐ About 75 Years of Synthetic Fiber Rope History

FØRE, Martin

- ☐ Exposed aquaculture in Norway: Technologies for robust operations in rough conditions

FORNEY, Robert

- ☐ Wave measurements from HF radar

FORREST, Alexander

- ☐ Estimating flow velocities of the water column using the motion response of an Autonomous Underwater Vehicle (AUV)

FOSSEN, Thor

- ☐ New Concepts for Shipboard Sea State Estimation

FOTEDAR, Ravi

- ☐ Spectral response of marine submerged aquatic vegetation: a case study in Western Australia coast

FOURIE, Dehann

- ☐ Wireless Data Harvesting Using the AUV Sentry and WHOI Optical Modem
- ☐ Autonomous Acoustic-Aided Optical Localization for Data Transfer

FOWLER, Matt

- ☐ Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies

FRANZITTA, Vincenzo

- ☐ Identification of the Inertial Model for Innovative Semi-Immergible USV (SI-USV) Drone for Marine and Lakes Operations.
- ☐ A Security and Surveillance Application of the Innovative Monitoring Underwater Buoy Systems (MUnBuS) on the Protected Marine Area (AMP) of Capo Gallo (PA-IT).
- ☐ An inertial system for the production of electricity and hydrogen from seawave energy

FRATER, Michael

- ☐ High Data Rates in the High Frequency Acoustic Channel

FREDHEIM, Arne

- ☐ Exposed aquaculture in Norway: Technologies for robust operations in rough conditions

FREDJ, Erick

- ☐ Sea Breeze, Coastal Upwelling Modeling to Support Offshore Wind Energy Planning and Operations

FREEMAN, Simon

- ☐ High-frequency, highly directional short-range underwater acoustic communications

FREGOSI, Selene

- ☐ Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies

FREITAG, Lee

- ☐ Long Range Acoustic Communications and Navigation in the Arctic

FRENZEL, James

- ☐ Underwater Electric Potential Measurements using AUVs

FU, Liqin

- ☐ A Shadow -Removal based Saliency Map for Point Feature Detection of Underwater Objects
- ☐ Stable Underwater Image Segmentation in High Quality via MRF model

FU, Mengru

- ☐ Multiple Damage Types on Carbon Steel and Silica Glass during Ultrasonic Cavitation Erosion

FUJII, Teruo

- ☐ Underwater Atomic Force Microscope - Towards in situ nanoscale measurement in deep sea -

FUJITA, Isamu

- ☐ Development of Smartphone-embedded Telemetry Drifting Buoy for Tracking Drifting Oil Patches in the Coastal Water and Field Test

FUKUBA, Tatsuhiko

- ☐ Underwater Atomic Force Microscope - Towards in situ nanoscale measurement in deep sea -

FUKUDA, Tatsuya

- ☐ Development of an autonomous surface vehicle for monitoring underwater vehicles

FULLER, Christopher

- ☐ Development of an in-situ total phosphorus analyzer

FULTON, Jeremiah

- ☐ Effects of waves on BEM theory in a marine tidal turbine environment

FURFARO, Thomas

- ☐ A Communications and Relative Navigation Architecture for Underwater Vehicle Coordination

FURUSHIMA, Yasuo

- ☐ Development of Optical Inspection Technology for Deep-Sea Floor using Fluorescent Observation Method
- ☐ Improvement of synthetic aperture sonar with multi-channel projector

FURUSHO, Masao

- ☐ Potential of Maritime Monitoring by Using Space-born Synthetic Aperture Radar

GALDORISI, George

- ☐ The Undersea Constellation: The Leading Edge of the Joint Information Environment

GALEAZZI, Roberto

- ☐ New Concepts for Shipboard Sea State Estimation

GANDHI, Farhan

- ☐ Simulating a Shape Memory Alloy Buoyancy Heat Engine for Undersea Gliders

GANESAN, Varadarajan

- ☐ Self Assembling Robots in an Underwater Environment

GANGOPADHYAY, Avijit

- ☐ Toward an automated detection of the Gulf Stream North Wall from concurrent satellite images

GAO, Lei

- ☐ Real-Time Underwater Target Classification Method for Multi-resolution imaging Sonar of the AUV
- ☐ A Novel Calibration Method for Acoustic Vector Sensor when the Phase is Inconsistent
- ☐ The Research of Analysis Strategy of Transmission Performance in Subsea Observatories

GARCIA, Carlos

- ☐ Assessing HF radar capabilities to resolve mesoscale eddy interactions with littoral waters

GARCÍA, Carlos

- ☐ Characterization of mesoscale eddies and detection of sub-mesoscale eddies derived from satellite imagery and HF radar off the coast of southwestern Puerto Rico

GARCIA, Rodrigo

- ☐ Spectral response of marine submerged aquatic vegetation: a case study in Western Australia coast

GARCIA-MORENO, Carlos

- ☐ Increasing the Coverage of an Island-Based HF Radar Network

GARCIA-VALDOVINOS, Luis

- ☐ Sliding PD Control Performance on Autonomous Underwater Glider
- ☐ Bilateral teleoperation of a commercial small-sized underwater vehicle for academic purposes
- ☐ Adaptive Control for Hybrid Underwater Gliders

GARRIDO, Aitor

- ☐ OWC Wave Power Plants Capture Chamber Modelling

GARRIDO, Izaskun

- ☐ OWC Wave Power Plants Capture Chamber Modelling

GARZA, Corey

- ☐ Reaching Out to Underserved Communities

GAUDIG, Christopher

- ☐ FlatFish - A compact subsea-resident inspection AUV
- ☐ Model Identification of Unmanned Underwater Vehicle via Adaptive Technique and Artificial Fiducial Markers
- ☐ Distortion-Robust Distributed Magnetometer for Underwater Pose Estimation in Confined UUVs

GAUSS, Roger

- ☐ Scale-model scattering experiments using 3D printed representations of ocean bottom features
- ☐ A Physical Statistical Sonar Clutter Model for Spatially-Dispersed Scatterers
- ☐ Moment-Based Method to Statistically Categorize Rock Outcrops Based on their Topographical Features

GE, Feng-Xiang

- ☐ Robust Weak Signal Detection and Bearing Estimation

GE, Fengxiang

- ☐ Sparse-Representation-Based Adaptive Interference Suppression
- ☐ Moving Targets Detection and Tracking Based on Sparse and Low-rank Decomposition

GE, Han

- ☐ Multiple Damage Types on Carbon Steel and Silica Glass during Ultrasonic Cavitation Erosion

GEDER, Jason

- ☐ Thrust Magnitude and Efficiency Studies for Multiple Robotic Flapping Fins

GEILHUFE, Marc

- ☐ Assessment of mine hunting performance evaluation parameters across multiple side-looking sonar systems and frequencies

GEORGIADES, George

- ☐ Asynchronous UKF-based Localization of an Underwater Robotic Vehicle for Aquaculture Inspection Operations

GHEORGHITA, ALINA

- ☐ Fully Automatic Boom Towing By Unmanned Ships: Experimental Study

GIBSON, Kristofor

- ☐ Preliminary Results in using a Joint Contrast Enhancement and Turbulence Mitigation Method for Underwater Optical Imaging

GIBSON, Scott

- ☐ A Comparison of Hydrodynamic Damping Models using Least Squares and Adaptive Identifier Methods for Autonomous Underwater Vehicles

GILBERT, Sherryl

- ☐ Communicating Oil Spill Science - Using C-IMAGE for interdisciplinary education and outreach

GILL, Eric

- ☐ Analysis of Rain Effects on Wave Height Estimation from X-Band Nautical Radar Images
- ☐ The Second-Order Bistatic High Frequency Radar Scattering Cross Section of the Ocean Surface for the Case of Floating Platform
- ☐ Self-Organized Synchronization Based on a Chirp-Sequence Waveform for an HF Ocean Radar Network

GILLIAM, Marybeth

- ☐ Practical Feature-Based Navigation Using Forward Looking Sonar for ROV Positioning

GINTERT, Brooke

- ☐ Improved Supervised Classification of Underwater Military Munitions Using Height Features Derived from Optical Imagery

GIRON-SIERRA, JOSE

- ☐ Fully Automatic Boom Towing By Unmanned Ships: Experimental Study

GISH, L.

- ☐ Designing Implodable Underwater Systems to Minimize Implosion Pulse Severity

GLEASON, Arthur

- ☐ Littoral Seafloor Sensing and Characterization Using Marine Electromagnetics, Optical Imagery, and Remotely and Autonomously Operated Platforms
- ☐ Improved Supervised Classification of Underwater Military Munitions Using Height Features Derived from Optical Imagery

GLENN, Scot

- ☐ The Ocean is Our Classroom: A 4-Year Research Track for Undergraduate Exploration, Research and Discovery in Oceanography

GLENN, Scott

- ☐ Assessing HF Radar Data in the New York Harbor: Comparisons with Wind, Stream Gauge and Ocean Model Data Sources
- ☐ Increasing the Coverage of an Island-Based HF Radar Network
- ☐ Wave measurements from HF radar
- ☐ Sea Breeze, Coastal Upwelling Modeling to Support Offshore Wind Energy Planning and Operations
- ☐ Coastal Ocean Mixing and Advection During Hurricane Sandy and Arthur
- ☐ Glider Advancements in Efficiency: Enhancing Factors Necessary for Ocean-Wide Flights
- ☐ Gliders as a maturing technology: Using gliderpalooza as means to develop an integrated glider community
- ☐ Model Comparison for Transatlantic Ocean Glider Flight: Student Analysis of Modern Circumnavigation
- ☐ Glider Performance During Hurricane Gonzalo (BIOS, Bermuda)

GODE, Tejaswi

- ☐ Testing a pneumatic underwater glider in shallow water

GOLDFARB, Nathaniel

- ☐ Toward Robust Localization and Mapping for Shallow Water ROV Inspections

GONG, Zhaoyang

- ☐ A design of underwater wireless laser communication system based on PPM modulating method

GONZALEZ-LOPEZ, Juan

- ☐ Coupled global wind and tide driven coastal water levels and currents in Puerto Rico and the U.S. Virgin Islands
- ☐

GOODWIN, Lindsay

- ☐ Using Geospatial and Information Science to Facilitate the Discovery and Access of Ocean Science Data

GORMALLY, Kevin

- ☐ Prediction of Tidal Water Currents from Active Sonar Returns

GORYUNOV, Elder

- ☐ Modern simulation tools for real time numerical simulation of ocean-related processes

GOVINDARAJAN, G.

- ☐ A computer simulation model for compliant beam bio-mimetic fish

GRACEFFO, Stephanie

- ☐ Semi-automated land/water segmentation of multi-spectral imagery

GRACIAS, Nuno

- ☐ Littoral Seafloor Sensing and Characterization Using Marine Electromagnetics, Optical Imagery, and Remotely and Autonomously Operated Platforms
- ☐ Improved Supervised Classification of Underwater Military Munitions Using Height Features Derived from Optical Imagery

GRADONE, Joe

- ☐ Assessing HF Radar Data in the New York Harbor: Comparisons with Wind, Stream Gauge and Ocean Model Data Sources
- ☐ High Frequency Radar Measurement Resiliency with Bistatics

GREELY, Teresa

- ☐ Communicating Oil Spill Science - Using C-IMAGE for interdisciplinary education and outreach

GREEN, Dale

- ☐ Continued Development of Broadband Passive Bearing Estimation

GREENE, Michael

- ☐ Opening Opportunities in Subsea Communications

GREENSPON, Benjamin

- ☐ ROV Control System Upgrade

GREENWOOD, Naomi

- ☐ Harmonization in the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

GRIFFITHS, Hugh

- ☐ Synchronous Rendezvous Technique for Multi-Vehicle Mine Countermeasure Operations

GRØTLI, Esten

- ☐ Exposed aquaculture in Norway: Technologies for robust operations in rough conditions

GRØTLI, Esten Ingar

- ☐ SEATONOMY - Design, development and validation of marine autonomous systems and operations
- ☐ Autonomous job analysis: A method for the design of autonomous marine operations

GRYTHER, Knut

- ☐ SEATONOMY - Design, development and validation of marine autonomous systems and operations

GU, Hai-tao

- ☐ A Novel Calibration Method for Acoustic Vector Sensor when the Phase is Inconsistent

GU, Jeonghwe

- ☐ A Method for Automatic Detection of Underwater Objects using Forward-looking Imaging Sonar
- ☐ Development of passive acoustic landmark using image sonar for AUV's localization
- ☐ Real-Time Noise Reduction for Sonar Video Image Using Recursive Filtering
- ☐ Development of Energy-harvesting Unit and Propulsion Unit for a Robotic Buoy System

GU, Linyi

- ☐ Depth Control of ROVs Using Time Delay Estimation with Nonsingular Terminal Sliding Mode
- ☐ The adaptive robust tracking control of deep-sea hydraulic manipulator based on backstepping design
- ☐ The Observer-based Neural Network Adaptive Robust Control for Underwater Hydraulic Manipulator

GUILLET, Jérôme

- ☐ Reference Selection for an Active Ultrasound Wild Salmon Monitoring System

GUO, Jia-hao

- ☐ Design of High Frequency Acoustic Transducer Calibration System Based on Near-field Acoustical Holography

GUO, Yi

- ☐ Research on Recognition Method of UUV Vision Based on PSO-BP Network
- ☐ Fuzzy Adaptive Sliding Mode Controller for Path Following of an Autonomous Underwater Vehicle

GUO, Zhongwen

- ☐ A Long-term Temperature and Depth Logger for Ocean Mooring System

GUPTA, Shalabh

- ☐ Integrated Command, Control and Communication for Autonomous Underwater Vehicles

GUTERMAN, Hugo

- ☐ Trajectory Controller for Autonomous Surface Vehicle Under Sea Waves

HAAS, Charlie

- ☐ Evolving Trends and Challenges in Applied Underwater Acoustic Modeling

HADDAD, Jana

- ☐ Wetlands as a nature-based coastal defense: a numerical modeling and field data integration approach to quantify storm surge attenuation for the Mid-Atlantic region

HAGEN, Ove

- ☐ Toward Autonomous Mapping with AUVs - Line-to-Line Terrain Navigation

HAINES, Sara

- ☐ An observational, spatially explicit, stability-based estimate of the wind resource offshore of North Carolina

HALDEMAN, Clinton

- ☐ Implementation of Energy Harvesting System for Powering Thermal Gliders for Long Duration Ocean Research

HALL, Rob

- ☐ Integration of a RSI microstructure sensing package into a Seaglider

HAMM, Craig

- ☐ Toward hardware-driven simulation of underwater acoustic propagation and communication with Arctic ice, wind waves, and currents

HAMMOND, Marcus

- ☐ Automated Point Cloud Correspondence Detection for Underwater Mapping Using AUVs

HAN, Jun

- ☐ Preliminary Study of Determination of Dinophysis Concentration Using Hyperspectral Imaging

HAN, Yunfeng

- ☐ Localization of large scale underwater sensor networks based on recursive position estimation
- ☐ Accurate Underwater Localization Using LBL Positioning System
- ☐ Research on Recognition Method of UUV Vision Based on PSO-BP Network
- ☐ Fuzzy Adaptive Sliding Mode Controller for Path Following of an Autonomous Underwater Vehicle

HANDEL, Ethan

- ☐ Increasing the Coverage of an Island-Based HF Radar Network
- ☐ Assessing HF Radar Data in the New York Harbor: Comparisons with Wind, Stream Gauge and Ocean Model Data Sources

HANSEN, Johanna

- ☐ Autonomous Acoustic-Aided Optical Localization for Data Transfer
- ☐ Wireless Data Harvesting Using the AUV Sentry and WHOI Optical Modem

HANSEN, Richard

- ☐ Marine Science and Technology Support of U.S. Coast Guard Arctic Operations

HANSEN, Roy

- ☐ Using an Interferometric Synthetic Aperture Sonar to Inspect the Skagerrak World War II chemical munitions dump site
- ☐ Assessment of mine hunting performance evaluation parameters across multiple side-looking sonar systems and frequencies

HANSON, Jeffery

- ☐ Air-Sea Forcing of Coastal Ocean Sea Surface Temperature

HANTANI, Kazuhiro

- ☐ Development of the Underwater Search Supporting Technique Using the High-resolution Imaging Sonar

HAO, Jing

- ☐ Real-time Fish Localization with Binarized Normed Gradients

HAO, Jinxing

- ☐ MIMO TDS-OFDM for Underwater Acoustic Communication with Turbo Equalization

HAOCAI, Huang

- ☐ The design and application of a new vertical-axis ship propeller

HARLAN, Jack

- ☐ The Integrated Ocean Observing System HF Radar Network: Ten Year Status

HARRIS, Zachary

- ☐ Preliminary Feasibility Study of Cooperative Navigation of Underwater Vehicles with Range and Range-Rate Observations

HASKINS, Christina

- ☐ Glider Measurements of Phytoplankton Physiology in Penguin Foraging Zones.

HATANAKA, Katsumori

- ☐ ICT application of real-time monitoring and estimation system for set-net fishery

HATHAWAY, Kent

- ☐ Air-Sea Forcing of Coastal Ocean Sea Surface Temperature

HAUGE, Rune

- ☐ Development and evaluation of a forward-looking acoustic camera for opaque media tested at 125°C / 720 bar

HAWORTH, Christopher

- ☐ "UMS Mission Management for Mixed--vehicle Fleets for Oceanographic Applications"

HAXEL, Joe

- ☐ Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies

HAXEL, Joseph

- ☐ Deployment and recovery of a full-ocean depth mooring at Challenger Deep, Mariana Trench

HAZARD, Lisa

- ☐ The Integrated Ocean Observing System HF Radar Network: Ten Year Status

HE, Bo

- ☐ Underwater Image Sparse Representation based on Bag-of-Words and Compressed Sensing
- ☐ A Novel Adaptive Restoration for Underwater Image Quality Degradation
- ☐ A Novel Path Planning Method Based on Extreme Learning Machine for Autonomous Underwater Vehicle
- ☐ Target Following for an Autonomous Underwater Vehicle Using Regularized ELM-based Reinforcement Learning
- ☐ A Rapid Weighted Median Filter based on Saliency Region for Underwater Image Denoising
- ☐ A Fast Sonar-based Benthic Object Recognition Model via Extreme Learning Machine

HE, Haiyang

- ☐ A Study on the Growth Characteristics of Green Algae Blooms in the Yellow Sea using Categorical Analysis

HE, Jingyuan

- ☐ Multi-scale Analysis of Turbulence Dissipation in the South China Sea

HE, Lisheng

- ☐ Sea Trial and Free-fall Hydrodynamic Research of a 7000-meter Lander

HE, Menghao

- ☐ Numerical analysis on dynamic responses of hybrid sandwich structures with V-type corrugated cores subjected to water impact

HE, Peimin

- ☐ A Study on the Growth Characteristics of Green Algae Blooms in the Yellow Sea using Categorical Analysis

HE, Ruoying

- ☐ Observation and regional model based Gulf Stream marine hydrokinetic energy resource estimates for North Carolina

HE, Shijun

- ☐ A Study on the Growth Characteristics of Green Algae Blooms in the Yellow Sea using Categorical Analysis
- ☐ Unmixing: A New Direction from Classical Tidal Harmonic Analysis?

HE, Zhiqiang

- ☐ Forward-Backward Block-wise Channel Tracking in High-speed Underwater Acoustic Communication

HEARLE, John

- ☐ About 75 Years of Synthetic Fiber Rope History

HEERMANCE, David

- ☐ Design and Validation of a Micro-AUV for 3-D Sampling of Coherent Ocean Features

HEGRENAES, Oyvind

- ☐ Improving Autonomous Navigation and Positioning for Commercial AUV Operations

HEITSENRETH, Robert

- ☐ Development of a Real-Time Offshore Water Level Measurement System to Support Safe Navigation Along Alaska's Arctic Coasts
- ☐ NOAA Hosts Boy Scouts of America Oceanography Merit Badge Events

HELLEVANG, Jon

- ☐ Development and evaluation of a forward-looking acoustic camera for opaque media tested at 125°C / 720 bar

HELZEL, Thomas

- ☐ Self-Organized Synchronization Based on a Chirp-Sequence Waveform for an HF Ocean Radar Network

HENNING, Bradley

- ☐ The Deep Ocean Dropcam: A Highly Deployable Benthic Survey Tool

HENNING, Richard

- ☐ An Overview of Airborne Oceanic Survey Capabilities of the NOAA Aircraft Operations Center

HENSLEY, Winston

- ☐ Development of a Real-Time Offshore Water Level Measurement System to Support Safe Navigation Along Alaska's Arctic Coasts

HERNANDEZ SOSA, Jose

- ☐ Design and Validation of a Micro-AUV for 3-D Sampling of Coherent Ocean Features

HERNANDEZ, Debra

- ☐ An end-to-end Workflow for Assessing Sea Surface Temperature, Salinity and Water Level Predicted by Coastal Ocean Models.

HERON, Malcolm

- ☐ Conceptual View of Refraction and Transmission of a Tsunami Wave at a Step in Bathymetry

HERVEY, Rex

- ☐ Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

HEUTE, Ulrich

- ☐ A Real-time Cognitive Sonar System for Diver Detection

HICKMAN, Granger

- ☐ Co-Prime Comb Signals for Active Sonar

HIDALGO, Franco

- ☐ ROV-based acquisition system for water quality measuring

HILLJGERDES, Jens

- ☐ FlatFish - A compact subsea-resident inspection AUV

HILMER, Tyson

- ☐ Observations of Predictive Skill for Real-Time Deterministic Sea Waves from the WaMoS II

HILOMEN, Aaron

- ☐ Estimating Coral Reef Slope or Camera Pitch from Video

HIRABAYASHI, Taketsugu

- ☐ Experimentation for development of Underwater Acoustic Video Camera: in experiment dock

HIRAKAWA, Yoshiaki

- ☐ Motion Compensator for Acoustic Device Mounted on Autonomous Surface Vehicle

HOANG CONG, Tin

- ☐ Spectral response of marine submerged aquatic vegetation: a case study in Western Australia coast

HOBSON, Brett

- ☐ A Real-time Vertical Plane Flight Anomaly Detection System for a Long Range Autonomous Underwater Vehicle
- ☐ Tracking and Sampling of a Phytoplankton Patch by an Autonomous Underwater Vehicle in Drifting Mode

HOEBERECHTS, Maia

- ☐ The power of seeing: Experiences using video as a deep-sea engagement and education tool
- ☐ Data Quality Control Practices for Ocean Networks Canada Observatories-Challenges and Opportunities

HOLLANDER, David

- ☐ Communicating Oil Spill Science - Using C-IMAGE for interdisciplinary education and outreach

HOLLINGER, Geoffrey

- ☐ Data-Driven Comparison of Spatio-Temporal Monitoring Techniques

HOLMEN, Ingunn

- ☐ Exposed aquaculture in Norway: Technologies for robust operations in rough conditions

HOLT, Matt

- ☐ High Fiber Count Optical Penetrator

HONG, Sa-Young

- ☐ Numerical Analysis of the Dynamics of Inter-Linked SPAR structures using Conenctors for Possible Wind Farm Application

HONG, Seok Won

- ☐ Numerical Analysis of the Dynamics of Inter-Linked SPAR structures using Conenctors for Possible Wind Farm Application

HONG, sungjin

- ☐ Development of a smartphone application for disaster response
- ☐ Development of Disaster Forecasting Technologies through Real-Time Disaster Analysis

HONG, Xiaodong

- ☐ The Relationship between Upper-Ocean Variability and the Madden-Julian Oscillation in Extended-Range Simulations

HORN, Jan-Tore

- ☐ Dynamic amplification of drag-dominated structures in irregular seas

HOTALING, Liesl

- ☐ SENSE IT: transitioning from research to retail with an ocean sensing educational program
- ☐
- ☐ Evolution of Biomineralization Proteins in Cnidaria: Sequencing a Stony-Coral Skeletal Protein from the Soft Coral, Lobophytum crassum
- ☐ Communicating Oil Spill Science - Using C-IMAGE for interdisciplinary education and outreach

HOUDEK, Stephen

- ☐ The Shrimpfish as a Model for a Novel, Highly Maneuverable AUV

HOVSTEIN, Vegard

- ☐ Tracking and remote monitoring of an autonomous underwater vehicle using an unmanned surface vehicle in the Trondheim fjord

HOWARD, Ayanna

- ☐ A Computationally-Efficient 2D Imaging Sonar Model for Underwater Robotics Simulations in Gazebo
- ☐ Automatic Texture and Anomaly Mapping in Under-ice Video Datasets
- ☐ Design and Antarctic Testing of the Icefin Vehicle
- ☐ Sonar and Video Fusion for Vehicle Trajectory Estimation in Under-ice Environments

HOWARD, Matthew

- ☐ Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

HOWDEN, Stephan

- ☐ Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

HOWE, Graham

- ☐ Technological Advances in Floating LiDAR Reduce Costs and Increase Efficiencies for Offshore Wind Development

HSIEH, M.

- ☐ Design and Validation of a Micro-AUV for 3-D Sampling of Coherent Ocean Features

HU, Bo

- ☐ Experimental Study for Feature Extraction of Diver with Atmospheric Diving Suit

HU, Xiaoyi

- ☐ Research on Multi-channel Time Frequency Shift Keying for Underwater Acoustic Communication

HUANG, Hui

- ☐ Preliminary Study of Determination of Dinophysis Concentration Using Hyperspectral Imaging
- ☐ Selection of multi-angles combination in precise turbidity measurement

HUANG, S. H.

- ☐ Tracking Channel Variations in A Time-Varying Doubly-Spread Underwater Acoustic Channel

HUANG, Weimin

- ☐ The Second-Order Bistatic High Frequency Radar Scattering Cross Section of the Ocean Surface for the Case of Floating Platform
- ☐ Analysis of Rain Effects on Wave Height Estimation from X-Band Nautical Radar Images
- ☐ A Process to Simulate GNSS-R Delay-Doppler Map of Tsunami-dominant Sea Surface
- ☐ Wind direction retrieval from rain-contaminated X-band nautical radar images
- ☐ Wave Height Measurement Using a Short-range FMCW Radar for Unmanned Surface Craft

HUANG, Yan

- ☐ Research on the Navigation Error Compensation Method for a class of Deep-sea vehicle
- ☐ Motion control of Thruster-driven Underwater Vehicle based on Model predictive control
- ☐ A Practical Path Tracking Method for Autonomous Underwater Gilders using Iterative Algorithm

HUANG, Yi

- ☐ Characterization and Receiver Design for Underwater Acoustic Channels with Large Doppler Spread

HUBBARD, Maxwell

- ☐ Multi-Static Benefits to Operational HF Radar Networks

HUDSON, Patrick

- ☐ Experimental Testing of a 1/25th Scale Three Barge Wave Energy Converter Model

HUH, Morang

- ☐ The sensitivity analysis in accordance with the resolution of the satellite sea surface temperature data

HULME, Samuel

- ☐ AUV-derived geographical photomosaics - using multibeam bathymetry to correct image placement

HUTCHINSON, Seth

- ☐ Using the Motion Perceptibility Measure to Classify Points of Interest for Visual-based AUV Guidance in a Reef Ecosystem

HYAKUDOME, Tadahiro

- ☐ Development of an autonomous surface vehicle for monitoring underwater vehicles
- ☐ Motion Compensator for Acoustic Device Mounted on Autonomous Surface Vehicle

HYUN-TAEK, Choi

- ☐ Bundle Adjustment from Sonar Images and SLAM Application for Seafloor Mapping

ICHINO, Ryoichi

- ☐ A Study on Seaweed Beds in Eutrophic Regions assuming CO₂ Dissolving and Fixation

IIDA, Hiroshi

- ☐ Experimentation for development of Underwater Acoustic Video Camera: in experiment dock

ILLIG, David

- ☐ Backscatter suppression via blind signal separation for a 532 nm chaotic lidar
- ☐ Time of Flight Measurements for Optically Illuminated Underwater Targets Using Compressive Sensing and Sparse Recovery
- ☐ A Wideband Noise-like Transmitter Approach for Underwater Lidar using Diode Lasers and Passive Fiber Optic Processor

INGEBRETSEN, Thomas

- ☐ Tracking and remote monitoring of an autonomous underwater vehicle using an unmanned surface vehicle in the Trondheim fjord

INZARTSEV, Alexander

- ☐ Distributed Simulation Framework for Investigation of Autonomous Underwater Vehicles' Real-Time Behavior
- ☐ A Reconfigurable Web-based Simulation Environment for AUV

IOANA, Cornel

- ☐ Distributed Array of Cooperating Acoustic Sensors using Local Time-Frequency Coherence Analysis
- ☐ Analysis of underwater signals with non-linear time-frequency structures using warping-based compressive sensing algorithm
- ☐ High-speed sensing for object detection in underwater bi-static acoustic paths
- ☐ High-speed sensing for object detection in underwater bi-static acoustic paths

IPHAR, Clément

- ☐ Detection of false AIS messages for the improvement of maritime situational awareness

ISAACS, Jason

- ☐ Discriminative Sparsity for SONAR ATR

ISCAR RULAND, Eduardo

- ☐ Autonomous Surface Vehicle 3D Seafloor Reconstruction from Monocular Images and Sonar Data

ISHIHARA, Yasuhisa

- ☐ Basic Experiments on Measurement of Salinity using a Heterodyne Double-pass Interferometer

ISHIKAWA, Muneyuki

- ☐ A Study on Seaweed Beds in Eutrophic Regions assuming CO2 Dissolving and Fixation

ISHIYAMA, Shintaro

- ☐ Robustness of Visual-Servo Against Air Bubble Disturbance of Underwater Vehicle System Using Three-Dimensional Marker and Dual-Eye Camera

ITO, Aki

- ☐ NX-2G : autonomous BBOBS-NX for a highly mobile broadband seismic and tilt observation at the seafloor

JACOFF, Adam

- ☐ Development of Standard Test Methods for Evaluation of ROV/AUV Performance for Emergency Response Applications

JAKUBA, Michael

- ☐ Feasibility of low-power one-way travel time inverted ultra short baseline navigation
- ☐ Integration and Algorithm Development for Forward Looking Imaging Sonars on Hybrid and Autonomous Underwater Robots

JAMES, Scott

- ☐ Parallelisation of Hydro-environmental Model for Simulating Marine Current Devices

JANNASH, Hans

- ☐ Measuring pH in the Deep Ocean with Honeywell Durafet Transistors

JEFFRIES, Marlene

- ☐ Data Quality Control Practices for Ocean Networks Canada Observatories-Challenges and Opportunities

JEMISON, William

- ☐ Backscatter suppression via blind signal separation for a 532 nm chaotic lidar
- ☐ A Wideband Noise-like Transmitter Approach for Underwater Lidar using Diode Lasers and Passive Fiber Optic Processor

JENKINS, David

- ☐ Creative Adaptation Of Interconnect Technology

JENKINS, Richard

- ☐ The use of Saildrones to examine spring conditions in the Bering Sea: Vehicle specification and mission performance
- ☐ The use of Saildrones to examine spring conditions in the Bering Sea: Instrument comparisons, sea ice meltwater and Yukon River plume studies

JENKYNS, Reyna

- ☐ Ship To Shore: ROV Dive Logging and Data Acquisition

JENSEN, Jørgen

- ☐ Uncertainties in ship-based estimation of waves and responses
- ☐ Trend modelling of wave parameters and application in onboard prediction of ship responses

JEO, Hangil

- ☐ Real-Time Noise Reduction for Sonar Video Image Using Recursive Filtering

JEONG, Woo-Young

- ☐ Preliminary Water Tank Test of a Multi-legged Underwater Robot for Seabed Explorations

JEONG, Wooyoung

- ☐ Waypoint Tracking Control of a Multi-legged Underwater Robot Crabster

JI, Guangrong

- ☐ Automatic searching of fish from underwater images via shape matching
- ☐ Combining background subtraction and three-frame difference to detect moving object from underwater video

JIALIN, Huang

- ☐ The design and application of a new vertical-axis ship propeller

JIANG, Jingning

- ☐ Applying MIMO concept to time reversal method on target resolving in shallow water
- ☐ Geoacoustic Inversion based on Covariance-weighted Bartlett Estimator

JIANG, Xialin

- ☐ Research on Multi-channel Time Frequency Shift Keying for Underwater Acoustic Communication
- ☐ Complementary Code Keying Modulation and Frequency Domain Equalization for Single-Carrier Underwater Acoustic Communications

JIANG, Zhe

- ☐ Medium Access Control Mechanism for Multi-hop Underwater Acoustic Networks Utilizing Time Reversal

JIANMING, PAN

- ☐ The molecular organic geochemical records of the ANT28-D5-06 sediment core in the Northern Weddell Sea and their petroleum geology significance

JIANXING, Leng

- ☐ The design and application of a new vertical-axis ship propeller

JIMENEZ, JUAN

- ☐ Fully Automatic Boom Towing By Unmanned Ships: Experimental Study

JIN, Bo

- ☐ Research on key technologies of junction boxes for Chinese experimental seafloor observatory network
- ☐ An active node isolating method based on discrete-voltage intervention for seafloor observation network

JIN, Wenming

- ☐ A Practical Path Tracking Method for Autonomous Underwater Gilders using Iterative Algorithm

JIN, Xing

- ☐ Motion control of Thruster-driven Underwater Vehicle based on Model predictive control

JOE, Hangil

- ☐ Development of Energy-harvesting Unit and Propulsion Unit for a Robotic Buoy System
- ☐ A Method for Automatic Detection of Underwater Objects using Forward-looking Imaging Sonar
- ☐ Development of passive acoustic landmark using image sonar for AUV's localization

JOHNSON, Eric

- ☐ Forward scattering characterization of beams with orbital angular momentum for underwater communication systems

JOHNSON, Ken

- ☐ Measuring pH in the Deep Ocean with Honeywell Durafet Transistors

JOHNSON-ROBERSON, Matthew

- ☐ Detection and Segmentation of Underwater Archaeological Sites Surveyed with Stereo-Vision Platforms
- ☐ Underwater Robot Localization in the Presence of Dramatic Appearance Changes
- ☐ Autonomous Surface Vehicle 3D Seafloor Reconstruction from Monocular Images and Sonar Data

JONES, Chris

- ☐ Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies

JONES, Clayton

- ☐ Gliders as a maturing technology: Using gliderpalooza as means to develop an integrated glider community

JONES, Jack

- ☐ Implementation of Energy Harvesting System for Powering Thermal Gliders for Long Duration Ocean Research

JOYEUX, Sylvain

- ☐ FlatFish - A compact subsea-resident inspection AUV

JUN, Bong Huan

- ☐ Experience on Underwater Artifact Search Using Underwater Walking Robot Crabster CR200

JUN, Bong-Huan

- ☐ Multi-legged ROV Crabster and an acoustic camera for survey of underwater cultural heritages - Preliminary performance experiments in sea
- ☐ Preliminary Water Tank Test of a Multi-legged Underwater Robot for Seabed Explorations
- ☐ Waypoint Tracking Control of a Multi-legged Underwater Robot Crabster
- ☐ Application of Scanning Sonar using Multi-legged Underwater Robot's Degree of Freedom
- ☐ Modeling for the Crabster's leg with hydrodynamics force

JUN, ZHAO

- ☐ The molecular organic geochemical records of the ANT28-D5-06 sediment core in the Northern Weddell Sea and their petroleum geology significance

JUNG, Ki Won

- ☐ The Development of a Finite Volume Method for Modeling Sound in Coastal Ocean Environment

JUNG, Yong-hwa

- ☐ Experience on Underwater Artifact Search Using Underwater Walking Robot Crabster CR200

KAISER, Carl

- ☐ Integration and Algorithm Development for Forward Looking Imaging Sonars on Hybrid and Autonomous Underwater Robots
- ☐ Autonomous Acoustic-Aided Optical Localization for Data Transfer

KALLURI, Hemanth

- ☐ CZMIL (Coastal Zone Mapping and Imaging Lidar) Bathymetric Performance in Diverse Littoral Zones

KAMIMOTO, Yuki

- ☐ A Study on Seaweed Beds in Eutrophic Regions assuming CO₂ Dissolving and Fixation

KAMPMANN, Peter

- ☐ Equipping industrial deep-sea manipulators with a sense of touch

KANG, Hangoo

- ☐ Preliminary Water Tank Test of a Multi-legged Underwater Robot for Seabed Explorations
- ☐ Modeling for the Crabster's leg with hydrodynamics force

KARAYAKA, Bora

- ☐ Energy Extraction from A Slider Crank Wave Energy Converter under Irregular Wave Conditions

KASAYA, Takafumi

- ☐ Improvement of synthetic aperture sonar with multi-channel projector

KATAKURA, Kageyoshi

- ☐ Experimentation for development of Underwater Acoustic Video Camera: in experiment dock
- ☐ Study to reduce size and weight of underwater acoustic imaging system

KATASE, Fuyuki

- ☐ 3D Acoustic imagery generation by interferometric analysis of long baseline using Interferometric Real Aperture Sonar.

KATO, Hidehiro

- ☐ Detection and characterization of hydroacoustic whale signals using seafloor cable seismic networks offshore Japan

KATO, Shin

- ☐ Development of Underwater Inspection System for Dam Inspection

KEYY, Chad

- ☐ Oceanographic Instrument Simulator

KEENER, Paula

- ☐ NOAA is Open for Business

KEIFENHEIM, Jeremy

- ☐ The Shrimpfish as a Model for a Novel, Highly Maneuverable AUV

KELLY, Parks

- ☐ Identification of Phytoplankton Constituents of a 2014 Algal Bloom off the Outer Banks

KERANEN, Joe

- ☐ Littoral Seafloor Sensing and Characterization Using Marine Electromagnetics, Optical Imagery, and Remotely and Autonomously Operated Platforms

KERSHTIEN, Shane

- ☐ Ship To Shore: ROV Dive Logging and Data Acquisition

KERY, Sean

- ☐ Observations on the Modeling of Ice Flow Interactions with Seakeeping Software
- ☐ Hydrodynamics Related to Shipwreck Taphonomy

KIEFT, Brian

- ☐ Tracking and Sampling of a Phytoplankton Patch by an Autonomous Underwater Vehicle in Drifting Mode
- ☐ A Real-time Vertical Plane Flight Anomaly Detection System for a Long Range Autonomous Underwater Vehicle

KIM, Bang-hyun

- ☐ Preliminary Water Tank Test of a Multi-legged Underwater Robot for Seabed Explorations

KIM, Byeong-Jin

- ☐ Development of Energy-harvesting Unit and Propulsion Unit for a Robotic Buoy System
- ☐ Development of passive acoustic landmark using image sonar for AUV's localization

KIM, Byeongjin

- ☐ A Method for Automatic Detection of Underwater Objects using Forward-looking Imaging Sonar

KIM, Byoung-Wan

- ☐ Numerical Analysis of the Dynamics of Inter-Linked SPAR structures using Conenctors for Possible Wind Farm Application

KIM, Dongkyun

- ☐ An Extended DFR Protocol based on Geographical Information for Underwater Sensor Networks

KIM, dongseag

- ☐ Development of Disaster Forecasting Technologies through Real-Time Disaster Analysis

KIM, Hyun-Sook

- ☐ Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

KIM, Hyun-Sung

- ☐ Numerical Analysis of the Dynamics of Inter-Linked SPAR structures using Conenctors for Possible Wind Farm Application

KIM, JeongSeok

- ☐ Hydraulic Experiment of the Slit Caisson Breakwater with Embedded Resonant Channels

KIM, Jinwhan

- ☐ Autonomous collision avoidance for unmanned surface ship using onboard monocular vision

KIM, Juhwan

- ☐ Development of Energy-harvesting Unit and Propulsion Unit for a Robotic Buoy System
- ☐ A Method for Automatic Detection of Underwater Objects using Forward-looking Imaging Sonar
- ☐ Development of passive acoustic landmark using image sonar for AUV's localization

KIM, Kihun

- ☐ Design of underwater precise navigation system using low-cost sensors
- ☐ Prototype Development of an Underwater Sound Measurement Module Using Four Hydrophones

KIM, Sea-Moon

- ☐ Prototype Development of an Underwater Sound Measurement Module Using Four Hydrophones
- ☐ Design of underwater precise navigation system using low-cost sensors
- ☐ Underwater Source Localization in a Tank with Two Parallel Moving Hydrophone Arrays

KIM, Seung-Sep

- ☐ Finding seamounts with altimetry-derived gravity data

KIM, Soyeon

- ☐ The sensitivity analysis in accordance with the resolution of the satellite sea surface temperature data

KIM, Yun-Ho

- ☐ Numerical Analysis of the Dynamics of Inter-Linked SPAR structures using Conenctors for Possible Wind Farm Application

KING, Jonathan

- ☐ Determination of Sonar Image Resolution from Image Statistics

KINNAMAN, Benjamin

- ☐ Practical Feature-Based Navigation Using Forward Looking Sonar for ROV Positioning

KINSEY, James

- ☐ Feasibility of low-power one-way travel time inverted ultra short baseline navigation
- ☐ Wireless Data Harvesting Using the AUV Sentry and WHOI Optical Modem
- ☐ Autonomous Acoustic-Aided Optical Localization for Data Transfer
- ☐ Integration and Algorithm Development for Forward Looking Imaging Sonars on Hybrid and Autonomous Underwater Robots

KIRCHNER, Frank

- ☐ Equipping industrial deep-sea manipulators with a sense of touch
- ☐ Distortion-Robust Distributed Magnetometer for Underwater Pose Estimation in Confined UUVs
- ☐ FlatFish - A compact subsea-resident inspection AUV

KIRK, Katie

- ☐ The Chesapeake Bay Interpretive Buoy System and the Winter of 2015: Problems and Solutions

KIRKEY, William

- ☐ Development of an in-situ total phosphorus analyzer

KIRKPATRICK, Barbara

- ☐ iTAG: Developing a Cloud Based, Collaborative Animal Tracking Network in the Gulf of Mexico
- ☐ Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

KLEPSVIK, Inge

- ☐ Development and evaluation of a forward-looking acoustic camera for opaque media tested at 125°C / 720 bar

KLINCK, Holger

- ☐ Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies

KLINCK, Karolin

- ☐ Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies

KNEE, Kelly

- ☐ Infrastructure and tools for serving, accessing, and analyzing ocean information from the Integrated Ocean Observing System

KOBAYASHI, Ei-ichi

- ☐ Potential of Maritime Monitoring by Using Space-born Synthetic Aperture Radar

KOCAK, Donna

- ☐ Real-Time AIS Tracking from Space Expands Opportunities for Long-Term Global Ocean Observing and Maritime Domain Awareness

KOCH, Corey

- ☐ Robust tools to detect subsurface oil: fluorescence sensors

KOCH, Louisa

- ☐ NOAA is Open for Business

KOCHEVAR, Randall

- ☐ Integrated Management and Visualization of Animal Telemetry Observations: Serving data from a wide variety of platforms used in animal telemetry.

KOEGLER, John

- ☐ Robust tools to detect subsurface oil: fluorescence sensors

KOHLER, Craig

- ☐ SCOOP - NDBC's New Ocean Observing System

KOHUT, Josh

- ☐ Mapping of the Mid-Atlantic Cold Pool with GliderPalooza-2013
- ☐ Cooperative development of dynamic habitat models informed by the Integrated Ocean Observing System (IOOS) informs fisheries management decision making in the coastal ocean
- ☐ Spatial circulation patterns over Palmer Deep Canyon and their effects on Adélie Penguin Foraging
- ☐ Sea Breeze, Coastal Upwelling Modeling to Support Offshore Wind Energy Planning and Operations
- ☐ Model Comparison for Transatlantic Ocean Glider Flight: Student Analysis of Modern Circumnavigation
- ☐ Glider Advancements in Efficiency: Enhancing Factors Necessary for Ocean-Wide Flights
- ☐ The Ocean is Our Classroom: A 4-Year Research Track for Undergraduate Exploration, Research and Discovery in Oceanography

KOIBUCHI, Yukio

- ☐ Development of Standard Test Methods for Evaluation of ROV/AUV Performance for Emergency Response Applications

KOJIMA, Junichi

- ☐ Development of an automatic discrimination method of the bio-sonar clicks of Irrawaddy dolphin (*Orcaella brevirostris*) from various types of boat noises

KOJIMA, Mitsuhiro

- ☐ 3D Acoustic imagery generation by interferometric analysis of long baseline using Interferometric Real Aperture Sonar.

KOLLTVEIT, Erling

- ☐ Development and evaluation of a forward-looking acoustic camera for opaque media tested at 125°C / 720 bar

KORDE, Umesh

- ☐ Approaching Maximum Power Conversion with Exergy-Based Wave by Wave Control of a Wave Energy Device

KOSKI, Peter

- ☐ Long Range Acoustic Communications and Navigation in the Arctic

KOTTMANN, Renzo

- ☐ A participative tool for sharing, annotating and archiving submarine video data

KOUGUCHI, Nobuyoshi

- ☐ Experimental Results of Combined Method of Conventional and Coherent Doppler Sonar

KREMER, Uli

- ☐ Gliders as a maturing technology: Using gliderpalooza as means to develop an integrated glider community

KRIEGGER, Magali

- ☐ Strategy for sustainability of the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

KRISHFIELD, Richard

- ☐ Processing of velocity observations from Ice-Tethered Profilers

KRISTIANSEN, David

- ☐ Exposed aquaculture in Norway: Technologies for robust operations in rough conditions

KROFFKE, Sven

- ☐ FlatFish - A compact subsea-resident inspection AUV

KRUG, Warren

- ☐ Development of a Real-Time Offshore Water Level Measurement System to Support Safe Navigation Along Alaska's Arctic Coasts

KUBOTA, Takashi

- ☐ Experimental Results of Combined Method of Conventional and Coherent Doppler Sonar

KULARATNE, Dhanushka

- ☐ Design and Validation of a Micro-AUV for 3-D Sampling of Coherent Ocean Features

KUMAR, Arun

- ☐ Higher Order Statistics Based Direction of Arrival Estimation with Single Acoustic Vector Sensor in the Under-determined Case

KURAMOTO, Kazuoki

- ☐ Development of the Underwater Search Supporting Technique Using the High-resolution Imaging Sonar

KURT, Jeffrey

- ☐ Getting The Cable You Want

KUSKA, Gerhard

- ☐ Enabling Ocean Enterprise Development through IOOS: Building on Foundational Mid-Atlantic IOOS Support with Focused Partnerships, Leveraging, and Innovation

KUTTAN CHANDRIKA, Unnikrishnan

- ☐ A vector sensing scheme for underwater acoustics based on particle velocity measurements

KYO, Masanori

- ☐ New ways for research and development using a deep-sea hydrothermal vent system in the Okinawa Trough
- ☐ Detection and characterization of hydroacoustic whale signals using seafloor cable seismic networks offshore Japan
- ☐ Underwater Atomic Force Microscope - Towards in situ nanoscale measurement in deep sea -

LABASTIDA VALDÉS, María de Lourdes

- ☐ Using the Motion Perceptibility Measure to Classify Points of Interest for Visual-based AUV Guidance in a Reef Ecosystem

LACAMBRE, Jean-Baptiste

- ☐ Inertial Navigation at High Latitude: Trials and Test Results

LADER, Pål

- ☐ Exposed aquaculture in Norway: Technologies for robust operations in rough conditions

LANZAGORTA, Marco

- ☐ Maritime Applications of Quantum Computing
- ☐ Quantum Communications in the Maritime Environment
- ☐ Quantum Sensing in the Maritime Environment

LAOT, Christophe

- ☐ Stochastic Replay of SIMO Underwater Acoustic Communication Channels

LAVALLEE, Tim

- ☐ Ship To Shore: ROV Dive Logging and Data Acquisition

LAVRENTYEV, Mikhail

- ☐ Modern simulation tools for real time numerical simulation of ocean-related processes

LAWLER, Seth

- ☐ Wetlands as a nature-based coastal defense: a numerical modeling and field data integration approach to quantify storm surge attenuation for the Mid-Atlantic region

LAWRENCE-SLAVAS, Noah

- ☐ The use of Saildrones to examine spring conditions in the Bering Sea: Instrument comparisons, sea ice meltwater and Yukon River plume studies
- ☐ The use of Saildrones to examine spring conditions in the Bering Sea: Vehicle specification and mission performance

LAYMAN, Christopher

- ☐ Thin Fresnel zone plate lenses for underwater acoustics: modeling and experiments

LEBEDKO, Oleg

- ☐ A Reconfigurable Web-based Simulation Environment for AUV

LEBLANC, Lex

- ☐ SCOOP - NDBC's New Ocean Observing System
- ☐ Eyes on the Ocean - Applying Operational Technology to Enable Science

LEE, Chong-Moo

- ☐ Design of underwater precise navigation system using low-cost sensors
- ☐ Prototype Development of an Underwater Sound Measurement Module Using Four Hydrophones

LEE, Gyeong-Mok

- ☐ Preliminary Water Tank Test of a Multi-legged Underwater Robot for Seabed Explorations

LEE, JoongWoo

- ☐ Hydraulic Experiment of the Slit Caisson Breakwater with Embedded Resonant Channels

LEE, Pan-Mook

- ☐ Preliminary Water Tank Test of a Multi-legged Underwater Robot for Seabed Explorations
- ☐ Multi-legged ROV Crabster and an acoustic camera for survey of underwater cultural heritages - Preliminary performance experiments in sea
- ☐ Experience on Underwater Artifact Search Using Underwater Walking Robot Crabster CR200

LEE, Robert

- ☐ Time of Flight Measurements for Optically Illuminated Underwater Targets Using Compressive Sensing and Sparse Recovery
- ☐ Tailoring of RF Coded Optical Pulses for Underwater 3D Imaging: A Comparison of Modulated Pulse Lidar to Traditional Short Pulse Lidar

LEE, Stephanie

- ☐ Model Comparison for Transatlantic Ocean Glider Flight: Student Analysis of Modern Circumnavigation

LEE, Sungwon

- ☐ An Extended DFR Protocol based on Geographical Information for Underwater Sensor Networks

LEE, Yeongjun

- ☐ Experimental Results of Real-time Sonar-based Underwater Localization Using Landmarks

LEEP, Nicholas

- ☐ The Shrimpfish as a Model for a Novel, Highly Maneuverable AUV

LEHARDY, Pete

- ☐ Deepwater Synthetic Aperture Sonar and the Search for MH370

LEKUBE, Jon

- ☐ OWC Wave Power Plants Capture Chamber Modelling

LEMON, David

- ☐ Near real-time transmission of reduced data from a moored multi-frequency sonar by low bandwidth telemetry

LENDASSE, Amaury

- ☐ A Rapid Weighted Median Filter based on Saliency Region for Underwater Image Denoising
- ☐ Underwater Image Sparse Representation based on Bag-of-Words and Compressed Sensing
- ☐ A Fast Sonar-based Benthic Object Recognition Model via Extreme Learning Machine
- ☐ A Novel Adaptive Restoration for Underwater Image Quality Degradation
- ☐ Stable Underwater Image Segmentation in High Quality via MRF model
- ☐ A Shadow -Removal based Saliency Map for Point Feature Detection of Underwater Objects

LEONARD, John

- ☐ On-line Adaptation of Underwater Acoustic Transmission Rates to Optimize Communications for Collaborative AUV Missions

LEONG, Zhi

- ☐ Estimating flow velocities of the water column using the motion response of an Autonomous Underwater Vehicle (AUV)

LEUNG, Pak

- ☐ Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

LI, Dejun

- ☐ Research on key technologies of junction boxes for Chinese experimental seafloor observatory network

LI, Dengke

- ☐ Multi-scale Analysis of Turbulence Dissipation in the South China Sea

LI, Guan-nan

- ☐ A Novel Calibration Method for Acoustic Vector Sensor when the Phase is Inconsistent

LI, Haisen

- ☐ Steered Nonlinear Field Computation and Measurement
- ☐ calculation of a vessel scattering acoustic field by using prolate spheroid model

LI, Hongyu

- ☐ Quantifying California Current Plankton Samples with Efficient Machine Learning Techniques

LI, Hua

- ☐ A technology to measure deep turbulence mixing by an expendable microstructure profiler

LI, Jianru

- ☐ Image Restoration Method for Deep-sea Tripod Observation Systems in the South China Sea

LI, Jie

- ☐ Underwater Robot Localization in the Presence of Dramatic Appearance Changes

LI, Li

- ☐ Interference Cancellation in In-Band Full-Duplex Underwater Acoustic Systems

LI, Qi

- ☐ The Investigation on Calculating and Measuring Flow Noise from Underwater Jets

LI, Qiangda

- ☐ Spoofing Detection Games in Underwater Sensor Networks

LI, Qing

- ☐ A hybrid underwater profiler used for persistent monitoring

LI, Qingzhong

- ☐ Seafloor video compression using adaptive hybrid wavelets and directional filter banks

LI, Shuo

- ☐ The Observation of Sea-ice in the Six Chinese National Arctic Expedition Using Polar-ARV
- ☐ Development of a Dynamic Model for a Constant Tension Winch
- ☐ Virtual Platform of a Remotely Operated Vehicle

LI, Sichun

- ☐ Experimental Study for Feature Extraction of Diver with Atmospheric Diving Suit

LI, Wei

- ☐ Virtual Platform of a Remotely Operated Vehicle
- ☐ Development of a Dynamic Model for a Constant Tension Winch
- ☐ Moth-inspired plume tracing via autonomous underwater vehicle with only a pair of separated chemical sensors

LI, Xiangyang

- ☐ Chinese manned submersible JIAOLONG's scientific cruise in 2014-2015

LI, Xiaodong

- ☐ Depth Control of ROVs Using Time Delay Estimation with Nonsingular Terminal Sliding Mode

LI, Xin

- ☐ Image Restoration Method for Deep-sea Tripod Observation Systems in the South China Sea

LI, Xinguo

- ☐ Sparse linear equalizers for turbo equalizations in underwater acoustic communication

LI, Xiu

- ☐ When Underwater Imagery Analysis Meets Deep Learning: a Solution at the Age of Big Visual Data
- ☐ Fast Accurate Fish Detection and Recognition of Underwater Images with Fast R-CNN
- ☐ Real-time Fish Localization with Binarized Normed Gradients

LI, XUAN

- ☐ A hierarchical network based on multiple AUVs and sonobuoys

LI, Yan

- ☐ Virtual Platform of a Remotely Operated Vehicle
- ☐ Spoofing Detection Games in Underwater Sensor Networks
- ☐ A Practical Path Tracking Method for Autonomous Underwater Gilders using Iterative Algorithm
- ☐ Development of a Dynamic Model for a Constant Tension Winch

LI, Yingming

- ☐ A magnetostrictive underwater transducer directly driven by iron-gallium alloy (Galferol) without bias magnetic field

LI, Yiping

- ☐ The Observation of Sea-ice in the Six Chinese National Arctic Expedition Using Polar-ARV

LI, You

- ☐ Tuning interpolation methods for environmental line/transect surveys

LI, Yu

- ☐ Unmixing: A New Direction from Classical Tidal Harmonic Analysis?

LI, Yujie

- ☐ Image Restoration Method for Deep-sea Tripod Observation Systems in the South China Sea

LI, Zhao

- ☐ Compensation of Vehicle Motion Influence in a Long Baseline System Field Trial

LI, ZhiGang

- ☐ The Research of Analysis Strategy of Transmission Performance in Subsea Observatories

LI, Zhisheng

- ☐ Simulation Method of Water and Underwater Body Interaction with Smoothed Particle Hydrodynamics
- ☐ Closed loop bi-directional broadband Doppler compensation and channel equalization for single carrier high-speed underwater acoustic communication

LIANG, Zhicheng

- ☐ Research on Recognition Method of UUV Vision Based on PSO-BP Network
- ☐ Fuzzy Adaptive Sliding Mode Controller for Path Following of an Autonomous Underwater Vehicle

LIAO, Ran

- ☐ A Potential method to detect the orientation of the suspended rod-shaped particles using the polarized-light scattering

LIED, Gaute

- ☐ Development and evaluation of a forward-looking acoustic camera for opaque media tested at 125°C / 720 bar

LIGE, Lake

- ☐ Seasonal Changes in Phytoplankton Biodiversity on the Outer Banks 2005 to 2013

LIM, Byunghwan

- ☐ Validation and Sensitivity Experiments Comparing the Physical Parameterization of Numerical Wave Model
- ☐ The sensitivity analysis in accordance with the resolution of the satellite sea surface temperature data

LIM, Chris

- ☐ Design of underwater precise navigation system using low-cost sensors

LIN, Ajun

- ☐ Performance Analysis of ARQ Protocols in Multiuser Underwater Acoustic Networks

LIN, Yurong

- ☐ Research on Multi-channel Time Frequency Shift Keying for Underwater Acoustic Communication

LINGGANG, TANG

- ☐ The molecular organic geochemical records of the ANT28-D5-06 sediment core in the Northern Weddell Sea and their petroleum geology significance

LINTZ, Caleb

- ☐ Glider Advancements in Efficiency: Enhancing Factors Necessary for Ocean-Wide Flights

LIRIA, Pedro

- ☐ OWC Wave Power Plants Capture Chamber Modelling

LIU, Bing

- ☐ Design of High Frequency Acoustic Transducer Calibration System Based on Near-field Acoustical Holography

LIU, Hongbo

- ☐ Selection of multi-angles combination in precise turbidity measurement

LIU, Jing-yang

- ☐ Formation Control of Unmanned Surface Vehicles with Vision Sensor Constraints

LIU, Jingpeng

- ☐ A design of underwater wireless laser communication system based on PPM modulating method

LIU, Ju

- ☐ Constrained Model Predictive Control Design for Dynamic Positioning of a Supply Ship
- ☐ Positioning Controller of a Remotely Operated Vehicle Using RWNN-based Adaptive Robust Controllers

LIU, Jun

- ☐ Numerical analysis on dynamic responses of hybrid sandwich structures with V-type corrugated cores subjected to water impact

LIU, Kaizhou

- ☐ Research on the Navigation Error Compensation Method for a class of Deep-sea vehicle
- ☐ Motion control of Thruster-driven Underwater Vehicle based on Model predictive control

LIU, Kexin

- ☐ Stable Underwater Image Segmentation in High Quality via MRF model

LIU, Lu

- ☐ Closed loop bi-directional broadband Doppler compensation and channel equalization for single carrier high-speed underwater acoustic communication
- ☐ Simulation Method of Water and Underwater Body Interaction with Smoothed Particle Hydrodynamics

LIU, Mingyong

- ☐ Cooperative Localization for Multi-AUVs Based on Time-Of-Flight of Acoustic Signal Using Moving Horizon Estimation

LIU, Peng

- ☐ Experimental Results of Combined Method of Conventional and Coherent Doppler Sonar

LIU, Xiao

- ☐ Acoustic Doppler Compensation using Feedforward Retiming for Underwater Coherent Transmission

LIU, Xin

- ☐ Closed loop bi-directional broadband Doppler compensation and channel equalization for single carrier high-speed underwater acoustic communication

LIU, Xinlong

- ☐ Analysis of Rain Effects on Wave Height Estimation from X-Band Nautical Radar Images

LIU, Xuefei

- ☐ A Rapid Weighted Median Filter based on Saliency Region for Underwater Image Denoising

LIU, Yang

- ☐ A Novel Path Planning Method Based on Extreme Learning Machine for Autonomous Underwater Vehicle

LIU, YongPing

- ☐ A barrel-stave projector with active material shell
- ☐ A magnetostrictive underwater transducer directly driven by iron-gallium alloy (Galfenol) without bias magnetic field

LIU, Yongwei

- ☐ The Investigation on Calculating and Measuring Flow Noise from Underwater Jets

LIU, Zhao

- ☐ Experimental Study for Feature Extraction of Diver with Atmospheric Diving Suit

LIU, Zhifei

- ☐ Image Restoration Method for Deep-sea Tripod Observation Systems in the South China Sea

LIXIN, Chen

- ☐ The design and application of a new vertical-axis ship propeller

LLEWELLYN, Lyndon

- ☐ Getting up close and personal: the need to immerse autonomous vehicles in coral reefs

LOBE, Hank

- ☐ Recent Advances in Biofouling Protection for Oceanographic Instrumentation

LOBO, Victor

- ☐ Robotic Exercises 2014 - Multi-robot field trials

LOIZOU, Savvas

- ☐ Asynchronous UKF-based Localization of an Underwater Robotic Vehicle for Aquaculture Inspection Operations

LONG, Wen

- ☐ The Development of a Finite Volume Method for Modeling Sound in Coastal Ocean Environment

LORENTZEN, Ole

- ☐ Using an Interferometric Synthetic Aperture Sonar to Inspect the Skagerrak World War II chemical munitions dump site

LOUCA, Luke

- ☐ Behavior of Perforated Metal-to-Composite Joints Subjected to Tensile Loading

LOURENÇO, André

- ☐ An Open-Source Watertight Unmanned Aerial Vehicle for Water Quality Monitoring
- ☐ Water Detection System for a Multi-rotor Autonomous Aerial Vehicle

LOWCHER, Caroline

- ☐ Observation and regional model based Gulf Stream marine hydrokinetic energy resource estimates for North Carolina

LOWERRE-BARBIERI, Susan

- ☐ iTAG: Developing a Cloud Based, Collaborative Animal Tracking Network in the Gulf of Mexico

LU, Huimin

- ☐ Image Restoration Method for Deep-sea Tripod Observation Systems in the South China Sea

LU, Qin

- ☐ Characterization and Receiver Design for Underwater Acoustic Channels with Large Doppler Spread

LUCAS, Drew

- ☐ Geometrically Motivated Inverse Kinematics for an Arm with 7 Degrees of Freedom

LUDVIGSEN, Martin

- ☐ Analysis, Verification and Optimization of AUV Navigation Using Underwater Acoustic Models
- ☐ Tracking and remote monitoring of an autonomous underwater vehicle using an unmanned surface vehicle in the Trondheim fjord
- ☐ HMD as a new Tool for Telepresence in Underwater Operations and Closed-Loop Control of ROVs

LUECK, Rolf

- ☐ Integration of a RSI microstructure sensing package into a Seaglider

LULU, Amro

- ☐ LPI Waveform Design Using Chirplet Graphs

LUN, guiyang

- ☐ The design and analysis of UEP LT codes with Correlation Chain feedback in underwater acoustic networks

LUNGU, Elena

- ☐ Reference Selection for an Active Ultrasound Wild Salmon Monitoring System
- ☐ Calibration of an Active Ultrasound Bedload Monitoring System for Underwater Environments
- ☐ High-speed sensing for object detection in underwater bi-static acoustic paths

LUO, Gaosheng

- ☐ The adaptive robust tracking control of deep-sea hydraulic manipulator based on backstepping design
- ☐ Depth Control of ROVs Using Time Delay Estimation with Nonsingular Terminal Sliding Mode

LUO, Yeteng

- ☐ A Practical Path Tracking Method for Autonomous Underwater Gilders using Iterative Algorithm

LUST, Ethan

- ☐ Near Wake Flow Field Measurements of a Marine Current Turbine
- ☐ Effects of waves on BEM theory in a marine tidal turbine environment

LUTZ, Collin

- ☐ Utility-Based Adaptive Path Planning For Subsea Search

LUZNIK, Luksa

- ☐ Effects of waves on BEM theory in a marine tidal turbine environment
- ☐ Near Wake Flow Field Measurements of a Marine Current Turbine

LYNDON, Kevin

- ☐ Toward an automated detection of the Gulf Stream North Wall from concurrent satellite images

LYONS, Anthony

- ☐ Moment-Based Method to Statistically Categorize Rock Outcrops Based on their Topographical Features
- ☐ Scale-model scattering experiments using 3D printed representations of ocean bottom features

LYSAKOV, Konstantin

- ☐ Modern simulation tools for real time numerical simulation of ocean-related processes

MA, Hui

- ☐ A Potential method to detect the orientation of the suspended rod-shaped particles using the polarized-light scattering

MA, Jingxin

- ☐ calculation of a vessel scattering acoustic field by using prolate spheroid model
- ☐ Steered Nonlinear Field Computation and Measurement

MA, XIAOCHUAN

- ☐ A hierarchical network based on multiple AUVs and sonobuoys

MA, Yue

- ☐ The Second-Order Bistatic High Frequency Radar Scattering Cross Section of the Ocean Surface for the Case of Floating Platform

MACISAAC, Chad

- ☐ SmartAtlantic - The Benefits of Real Time Metocean Data in Port Operations

MACKAY, Linda

- ☐ Autonomous Underwater Vehicle Operations in the Arctic

MADER, Julien

- ☐ OWC Wave Power Plants Capture Chamber Modelling

MAHAJAN, Aditya

- ☐ Automated Point Cloud Correspondence Detection for Underwater Mapping Using AUVs

MAHFUZ, Hassan

- ☐ Fatigue Load and Life Estimation of Composite Turbine Blades under Random Ocean Current

MANDA, Damian

- ☐ Depth Adaptive Hydrographic Survey Behavior for Autonomous Surface Vessels

MANDERSON, John

- ☐ Cooperative development of dynamic habitat models informed by the Integrated Ocean Observing System (IOOS) informs fisheries management decision making in the coastal ocean

MARBURG, Aaron

- ☐ Extrinsic Calibration of an RGB Camera to a 3D Imaging Sonar

MARCON, Yann

- ☐ A participative tool for sharing, annotating and archiving submarine video data

MARQUES, Francisco

- ☐ An Open-Source Watertight Unmanned Aerial Vehicle for Water Quality Monitoring
- ☐ Water Detection System for a Multi-rotor Autonomous Aerial Vehicle

MARR, Kevin

- ☐ Thermal Safety Management of Lithium-Ion Battery Energy Storage Systems for Use in Ocean-going and Subsea Applications

MARTIN, Kevin

- ☐ Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

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MARTÍNEZ GARCÍA, Edgar Alonso

- ☐ Modeling Perceptual-motor Behaviors to Enable Intuitive Navigation Paths in an AUV

MARTINS, Alfredo

- ☐ Robotic Exercises 2014 - Multi-robot field trials

MARTORANA, Pierluca

- ☐ A Security and Surveillance Application of the Innovative Monitoring Underwater Buoy Systems (MUnBuS) on the Protected Marine Area (AMP) of Capo Gallo (PA-IT).

MARXEN, Lucas

- ☐ High Frequency Radar Measurement Resiliency with Bistatics

MATOS, Aníbal

- ☐ Robotic Exercises 2014 - Multi-robot field trials

MATOS, Pedro

- ☐ Assessing HF radar capabilities to resolve mesoscale eddy interactions with littoral waters

MATSUBARA, Naoki

- ☐ Underwater Atomic Force Microscope - Towards in situ nanoscale measurement in deep sea -

MATSUBARA, Osam

- ☐ Development of Underwater Inspection System for Dam Inspection

MATSUMOTO, Haru

- ☐ Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies

MATSUMOTO, Haruyoshi

- ☐ Deployment and recovery of a full-ocean depth mooring at Challenger Deep, Mariana Trench

MATSUMOTO, Hiroshi

- ☐ Development of an autonomous surface vehicle for monitoring underwater vehicles

MATSUMOTO, Sayuri

- ☐ Experimentation for development of Underwater Acoustic Video Camera: in experiment dock
- ☐ Study to reduce size and weight of underwater acoustic imaging system

MATSUZAKI, Yoshitaka

- ☐ Development of Smartphone-embedded Telemetry Drifting Buoy for Tracking Drifting Oil Patches in the Coastal Water and Field Test

MAY, Paul

- ☐ The Relationship between Upper-Ocean Variability and the Madden-Julian Oscillation in Extended-Range Simulations

MAYORGA, Emilio

- ☐ Infrastructure and tools for serving, accessing, and analyzing ocean information from the Integrated Ocean Observing System

MCBRIDE, George

- ☐ Spent Flow Discharge Apparatus for Instream Hydro Power Turbine

MCCALL, Walt

- ☐ Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

MCCARTER, Brian

- ☐ A Comparison of Hydrodynamic Damping Models using Least Squares and Adaptive Identifier Methods for Autonomous Underwater Vehicles

MCEWEN, Rob

- ☐ A Real-time Vertical Plane Flight Anomaly Detection System for a Long Range Autonomous Underwater Vehicle

MCEWEN, Robert

- ☐ Tracking and Sampling of a Phytoplankton Patch by an Autonomous Underwater Vehicle in Drifting Mode

MCFARLANE, James

- ☐ Autonomous Underwater Vehicle Operations in the Arctic

MCKAY, John

- ☐ Discriminative Sparsity for SONAR ATR

MCKENNA, Hank

- ☐ About 75 Years of Synthetic Fiber Rope History

MCKIBBIN, Peter

- ☐ Deepwater Synthetic Aperture Sonar and the Search for MH370
- ☐ Artemis AUV Payload Development



MCLEAN, Scott

- ☐ An Introduction to Subsea Electromagnetic Interference Mitigation Strategies and Challenges

MCMAHON, James

- ☐ Autonomous Underwater Vehicle Mine Countermeasures via the Physical Traveling Salesman Problem

MCMANUS, Steven

- ☐ Continued Development of Broadband Passive Bearing Estimation

MCNUTT, David

- ☐ Joint Packet Detection and Decoding for Maritime Data Exchange Systems

MEINIG, Chris

- ☐ Deployment and recovery of a full-ocean depth mooring at Challenger Deep, Mariana Trench
- ☐ The PRAWLER, a vertical moored profiler powered by wave energy

MEINIG, Christian

- ☐ The use of Saildrones to examine spring conditions in the Bering Sea: Instrument comparisons, sea ice meltwater and Yukon River plume studies
- ☐ The use of Saildrones to examine spring conditions in the Bering Sea: Vehicle specification and mission performance
- ☐ Innovative Technology Development for Arctic Exploration

MEISTER, Matthew

- ☐ Design and Antarctic Testing of the Icefin Vehicle

MELLINGER, Dave

- ☐ Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies

MELMAN, Sergey

- ☐ Distributed Simulation Framework for Investigation of Autonomous Underwater Vehicles' Real-Time Behavior

MENDONÇA, Ricardo

- ☐ Water Detection System for a Multi-rotor Autonomous Aerial Vehicle
- ☐ An Open-Source Watertight Unmanned Aerial Vehicle for Water Quality Monitoring

MENDOZA, Jose

- ☐ ROV-based acquisition system for water quality measuring

MENG, Detao

- ☐ Research on Recognition Method of UUV Vision Based on PSO-BP Network
- ☐ Fuzzy Adaptive Sliding Mode Controller for Path Following of an Autonomous Underwater Vehicle

MENIS, Richard

- ☐ Moment-Based Method to Statistically Categorize Rock Outcrops Based on their Topographical Features

MEUCCI, Daniele

- ☐ Multiple target tracking in seabed surveys using the PHD filter

MIAO, Runlong

- ☐ Development of a Low-Cost Remotely Operated Vehicle for Ocean Exploration

MICHELEN, Carlos

- ☐ Comparison of Methods for Estimating Short Term Extreme Response of Wave Energy Converters

MIDTGAARD, Øivind

- ☐ Assessment of mine hunting performance evaluation parameters across multiple side-looking sonar systems and frequencies

MIGUEL ALMEIDA, José

- ☐ Robotic Exercises 2014 - Multi-robot field trials

MILBURN, Hugh

- ☐ The PRAWLER, a vertical moored profiler powered by wave energy

MILES, Travis

- ☐ Coastal Ocean Mixing and Advection During Hurricane Sandy and Arthur
- ☐ Sea Breeze, Coastal Upwelling Modeling to Support Offshore Wind Energy Planning and Operations
- ☐ Glider Performance During Hurricane Gonzalo (BIOS, Bermuda)
- ☐ Model Comparison for Transatlantic Ocean Glider Flight: Student Analysis of Modern Circumnavigation
- ☐ Gliders as a maturing technology: Using gliderpalooza as means to develop an integrated glider community
- ☐ Glider Advancements in Efficiency: Enhancing Factors Necessary for Ocean-Wide Flights
- ☐ The Ocean is Our Classroom: A 4-Year Research Track for Undergraduate Exploration, Research and Discovery in Oceanography

MILLER, James

- ☐ Experimental design for sediment characterization in the southern New England Continental Shelf

MILLER, Richard

- ☐ Creative Adaptation Of Interconnect Technology

MILLER, Timothy

- ☐ Simulating a Shape Memory Alloy Buoyancy Heat Engine for Undersea Gliders

MILLS, Richard

- ☐ Improving Autonomous Navigation and Positioning for Commercial AUV Operations

MIMOSO, Geovane

- ☐ FlatFish - A compact subsea-resident inspection AUV

MINAMI, Mamoru

- ☐ Robustness of Visual-Servo Against Air Bubble Disturbance of Underwater Vehicle System Using Three-Dimensional Marker and Dual-Eye Camera

MINTZ, Bianca

- ☐ Air-Sea Forcing of Coastal Ocean Sea Surface Temperature

MIO, Aritoshi

- ☐ 3D Acoustic imagery generation by interferometric analysis of long baseline using Interferometric Real Aperture Sonar.

MIORIM, Felipe

- ☐ Mobile Control Center: a new approach to deploy ROV-oriented education and training

MITCHELL, Matthew

- ☐ Oceanographic Instrument Simulator

MITCHELL, Thomas

- ☐ Robust tools to detect subsurface oil: fluorescence sensors

MIYAZAKI, Michel

- ☐ HMD as a new Tool for Telepresence in Underwater Operations and Closed-Loop Control of ROVs

MIZUNO, Katsunori

- ☐ 3D Acoustic imagery generation by interferometric analysis of long baseline using Interferometric Real Aperture Sonar.

MIZUTANI, Koichi

- ☐ Wireless Power and Data Transfer System for Station-Based Autonomous Underwater Vehicles

MO, XiPing

- ☐ A barrel-stave projector with active material shell
- ☐ A magnetostrictive underwater transducer directly driven by iron-gallium alloy (Galferol) without bias magnetic field

MOBASSERI, Bijan

- ☐ LPI Waveform Design Using Chirplet Graphs

MOE, Brady

- ☐ An Unmanned Aerial Vehicle for the Localization of Radio-Tagged Fish

MONGA, Vishal

- ☐ Discriminative Sparsity for SONAR ATR

MONTAZERI, Najmeh

- ☐ Trend modelling of wave parameters and application in onboard prediction of ship responses
- ☐ Uncertainties in ship-based estimation of waves and responses

MONTEIRO MARQUES, Mario

- ☐ Robotic Exercises 2014 - Multi-robot field trials

MOORE, Chris

- ☐ Artemis AUV Payload Development

MORDY, Calvin

- ☐ The use of Saildrones to examine spring conditions in the Bering Sea: Instrument comparisons, sea ice meltwater and Yukon River plume studies
- ☐ Innovative Technology Development for Arctic Exploration

MORELL, J.M.

- ☐ Coupled global wind and tide driven coastal water levels and currents in Puerto Rico and the U.S. Virgin Islands

MORELL, Julio

- ☐ CariCOOS: Real-time data validation of high-resolution wind forecast
- ☐ Assessing HF radar capabilities to resolve mesoscale eddy interactions with littoral waters
- ☐ Characterization of mesoscale eddies and detection of sub-mesoscale eddies derived from satellite imagery and HF radar off the coast of southwestern Puerto Rico
- ☐ CariCOOS: Improving High-Resolution Numerical Weather Prediction for the Northeast Caribbean Region
- ☐ A nearshore breaker prediction system for Puerto Rico and the United States Virgin Islands in support of beach safety and drowning prevention

MORELL-RODRIGUEZ, Julio

- ☐ Increasing the Coverage of an Island-Based HF Radar Network

MORGAN, Kaitlyn

- ☐ Forward scattering characterization of beams with orbital angular momentum for underwater communication systems

MORGANSEN, Kristi

- ☐ Testing a pneumatic underwater glider in shallow water

MORIN, Pascal

- ☐ Strategy for sustainability of the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

MORLEY, Michael

- ☐ Data Quality Control Practices for Ocean Networks Canada Observatories-Challenges and Opportunities

MORRISON, Andrenette

- ☐ Model Comparison for Transatlantic Ocean Glider Flight: Student Analysis of Modern Circumnavigation
- ☐ Glider Advancements in Efficiency: Enhancing Factors Necessary for Ocean-Wide Flights

MOSLAND, Eivind

- ☐ Development and evaluation of a forward-looking acoustic camera for opaque media tested at 125°C / 720 bar

MOURING, Sarah

- ☐ Behavior of Perforated Metal-to-Composite Joints Subjected to Tensile Loading
- ☐ Experimental Testing of a 1/25th Scale Three Barge Wave Energy Converter Model
- ☐ Verification and Validation of a Prediction Tool for a Helicopter-Towed Submerged Body

MOUSTAHDID, Hassan

- ☐ Integrated Management and Visualization of Animal Telemetry Observations: Serving data from a wide variety of platforms used in animal telemetry.

MOYNAGH, Christopher

- ☐ Inertial Navigation at High Latitude: Trials and Test Results

MUELLER, William

- ☐ The Shrimpfish as a Model for a Novel, Highly Maneuverable AUV

MUGLIA, Mike

- ☐ Observation and regional model based Gulf Stream marine hydrokinetic energy resource estimates for North Carolina

MULJADI, Eduard

- ☐ Energy Extraction from A Slider Crank Wave Energy Converter under Irregular Wave Conditions

MULLEN, Linda

- ☐ Multistatic optical imaging system compatible with AUV platforms
- ☐ Tailoring of RF Coded Optical Pulses for Underwater 3D Imaging: A Comparison of Modulated Pulse Lidar to Traditional Short Pulse Lidar
- ☐ Time of Flight Measurements for Optically Illuminated Underwater Targets Using Compressive Sensing and Sparse Recovery

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MURATA, Kosuke

- ☐ Generation 137Cs surface distribution maps using dense measurement transects of a towed gamma ray spectrometer

MURAWSKI, Steven

- ☐ Communicating Oil Spill Science - Using C-IMAGE for interdisciplinary education and outreach

MURPHY, David

- ☐ Measuring pH in the Deep Ocean with Honeywell Durafet Transistors

MUTO, Masanori

- ☐ Ocean Governance with Data and Information Management

MYINT, Myo

- ☐ Robustness of Visual-Servo Against Air Bubble Disturbance of Underwater Vehicle System Using Three-Dimensional Marker and Dual-Eye Camera

NADERI, Meisam

- ☐ Design and Analysis of a One-Dimensional Sea Surface Simulator Using the Sum-of-Sinusoids Principle

NAGANO, Kazunori

- ☐ Generation 137Cs surface distribution maps using dense measurement transects of a towed gamma ray spectrometer

NAIR, Rajesh

- ☐ Harmonization in the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

NAKAJIMA, Yasuharu

- ☐ Development of Optical Inspection Technology for Deep-Sea Floor using Fluorescent Observation Method
- ☐ Application of Laser-Induced Breakdown Spectroscopy for In-situ Measurement of Metal Grade for Seafloor Mineral Processing

NAKANO, Yoshiyuki

- ☐ Development of an autonomous surface vehicle for monitoring underwater vehicles

NAKATANI, Takeshi

- ☐ Development of an autonomous surface vehicle for monitoring underwater vehicles
- ☐ Motion Compensator for Acoustic Device Mounted on Autonomous Surface Vehicle

NAKATSUKA, Kunihiko

- ☐ Improvement of synthetic aperture sonar with multi-channel projector

NAMS, Dainis

- ☐ On-line Adaptation of Underwater Acoustic Transmission Rates to Optimize Communications for Collaborative AUV Missions

NANRI, Mitsuhiko

- ☐ Experimentation for development of Underwater Acoustic Video Camera: in experiment dock

NAPOLI, Aldo

- ☐ Detection of false AIS messages for the improvement of maritime situational awareness
- ☐ A methodology to improve the assessment of vulnerability on the maritime supply chain of energy

NASH, Justin

- ☐ Tailoring of RF Coded Optical Pulses for Underwater 3D Imaging: A Comparison of Modulated Pulse Lidar to Traditional Short Pulse Lidar

NATTKEMPER, Tim

- ☐ Rapid image processing and classification in underwater exploration using advanced high performance computing

NEETTIYATH, Umesh

- ☐ Identification of Manganese Crusts in 3D Visual Reconstructions to Filter Geo-registered Acoustic Sub-surface Measurements

NEGAHDARIPOUR, Shahriar

- ☐ Seafloor video compression using adaptive hybrid wavelets and directional filter banks

NELSON, Charles

- ☐ Probability Density Function Analysis for Optimization of Underwater Optical Communication Systems

NELSON, Russell

- ☐ Development of an in-situ total phosphorus analyzer

NEU, Wayne

- ☐ A Comparison of Hydrodynamic Damping Models using Least Squares and Adaptive Identifier Methods for Autonomous Underwater Vehicles

NEVES, Gustavo

- ☐ FlatFish - A compact subsea-resident inspection AUV

NG, Chris

- ☐ Technological Advances in Floating LiDAR Reduce Costs and Increase Efficiencies for Offshore Wind Development

NGUYEN, Duc

- ☐ A Real-time Cognitive Sonar System for Diver Detection

NGUYEN, Thanh Huy

- ☐ Correlation bias analysis - A novel method of sinus cardinal model for least squares estimation in cross-correlation

NIAN, Rui

- ☐ A Rapid Weighted Median Filter based on Saliency Region for Underwater Image Denoising
- ☐ Underwater Image Sparse Representation based on Bag-of-Words and Compressed Sensing
- ☐ A Novel Adaptive Restoration for Underwater Image Quality Degradation
- ☐ A Fast Sonar-based Benthic Object Recognition Model via Extreme Learning Machine
- ☐ A Shadow -Removal based Saliency Map for Point Feature Detection of Underwater Objects
- ☐ Stable Underwater Image Segmentation in High Quality via MRF model
- ☐ A Novel Path Planning Method Based on Extreme Learning Machine for Autonomous Underwater Vehicle
- ☐ Target Following for an Autonomous Underwater Vehicle Using Regularized ELM-based Reinforcement Learning

NICHOLAS, Michael

- ☐ Thin Fresnel zone plate lenses for underwater acoustics: modeling and experiments
- ☐ Scale-model scattering experiments using 3D printed representations of ocean bottom features

NIELSEN, Ulrik

- ☐ New Concepts for Shipboard Sea State Estimation
- ☐ Uncertainties in ship-based estimation of waves and responses
- ☐ Sea state estimation using model-scale DP measurements
- ☐ Trend modelling of wave parameters and application in onboard prediction of ship responses

NISHIDA, Shuhei

- ☐ Underwater Atomic Force Microscope - Towards in situ nanoscale measurement in deep sea -

NISHIZAWA, Uichi

- ☐ Development of Underwater Inspection System for Dam Inspection

NORDHOLM, Sven

- ☐ Forward-Backward Block-wise Channel Tracking in High-speed Underwater Acoustic Communication

NORGREN, Petter

- ☐ Tracking and remote monitoring of an autonomous underwater vehicle using an unmanned surface vehicle in the Trondheim fjord

NOZAKI, Tatsuo

- ☐ New ways for research and development using a deep-sea hydrothermal vent system in the Okinawa Trough

NYSTUEN, Jeffrey

- ☐ UPAL: Underwater Passive Aquatic Listener

O'BRIEN, Noreen

- ☐ Parallelisation of Hydro-environmental Model for Simulating Marine Current Devices

O'DONNCHA, Fearghal

- ☐ Parallelisation of Hydro-environmental Model for Simulating Marine Current Devices

O'HARGAN, Margarita

- ☐ NOAA Hosts Boy Scouts of America Oceanography Merit Badge Events

O'LEAVY, Michael

- ☐ Spectral response of marine submerged aquatic vegetation: a case study in Western Australia coast

OGIHARA, Makoto

- ☐ Wireless Power and Data Transfer System for Station-Based Autonomous Underwater Vehicles

OH, Jaiho

- ☐ The sensitivity analysis in accordance with the resolution of the satellite sea surface temperature data

OH, Sehyun

- ☐ Underwater Source Localization in a Tank with Two Parallel Moving Hydrophone Arrays
- ☐ Prototype Development of an Underwater Sound Measurement Module Using Four Hydrophones

OHMAN, Mark

- ☐ Quantifying California Current Plankton Samples with Efficient Machine Learning Techniques

OHNISHI, Seiki

- ☐ Generation 137Cs surface distribution maps using dense measurement transects of a towed gamma ray spectrometer

OLSON, Derek

- ☐ Moment-Based Method to Statistically Categorize Rock Outcrops Based on their Topographical Features
- ☐ Scale-model scattering experiments using 3D printed representations of ocean bottom features

OMERDIC, Edin

- ☐ Real-Time Reconstruction of Underwater Environments: from 2D to 3D
- ☐ Smart Inspection ROV for Use in Challenging Conditions
- ☐ Closing the gap between industrial robots and underwater manipulators

OMIKA, Shinobu

- ☐ 3D Acoustic imagery generation by interferometric analysis of long baseline using Interferometric Real Aperture Sonar.

ONEIL, Kathleen

- ☐ Eyes on the Ocean - Applying Operational Technology to Enable Science

OPPEDAL, Frode

- ☐ Exposed aquaculture in Norway: Technologies for robust operations in rough conditions

OREKAN, Taofeek

- ☐ Integrated dynamic modeling of a point absorber wave energy converter in regular and irregular waves

OROVIC, Irena

- ☐ Analysis of underwater signals with non-linear time-frequency structures using warping-based compressive sensing algorithm

OSBORN, Joseph

- ☐ AUV State Estimation and Navigation to Compensate for Ocean Currents
- ☐ Underwater Electric Potential Measurements using AUVs

OSSE, James

- ☐ Deployment and recovery of a full-ocean depth mooring at Challenger Deep, Mariana Trench

OSSE, Timothy

- ☐ The PRAWLER, a vertical moored profiler powered by wave energy

OTAOLA, Erlantz

- ☐ OWC Wave Power Plants Capture Chamber Modelling

OTERO, Mark

- ☐ The Integrated Ocean Observing System HF Radar Network: Ten Year Status

OUYANG, Bing

- ☐ Marine Animal Classification Using Combined CNN and Hand-designed Image Features

OWENS, Dwight

- ☐ The power of seeing: Experiences using video as a deep-sea engagement and education tool

OWENS, Dylan

- ☐ Seasonal Changes in Phytoplankton Biodiversity on the Outer Banks 2005 to 2013

OZOG, Paul

- ☐ Identifying Structural Anomalies in Image Reconstructions of Underwater Ship Hulls
- ☐ Bathymetric Factor Graph SLAM with Sparse Point Cloud Alignment

PAL, Piya

- ☐ Time of Flight Measurements for Optically Illuminated Underwater Targets Using Compressive Sensing and Sparse Recovery

PALAMARA, Laura

- ☐ Cooperative development of dynamic habitat models informed by the Integrated Ocean Observing System (IOOS) informs fisheries management decision making in the coastal ocean

PAN, Xiang

- ☐ Geoacoustic Inversion based on Covariance-weighted Bartlett Estimator
- ☐ Applying MIMO concept to time reversal method on target resolving in shallow water

PAN, Yaozong

- ☐ A magnetostrictive underwater transducer directly driven by iron-gallium alloy (Galfenol) without bias magnetic field
- ☐ A barrel-stave projector with active material shell

PAN, Zeyu

- ☐ An artificial intelligence recognition algorithm for Yangtze finless porpoise

PANG, Chengcheng

- ☐ Positioning Controller of a Remotely Operated Vehicle Using RWNN-based Adaptive Robust Controllers
- ☐ Constrained Model Predictive Control Design for Dynamic Positioning of a Supply Ship

PANG, Shuo

- ☐ Development of a Low-Cost Remotely Operated Vehicle for Ocean Exploration

PANIN, Mikhail

- ☐ A Reconfigurable Web-based Simulation Environment for AUV

PAQUIER, Anne-Eléonore

- ☐ Wetlands as a nature-based coastal defense: a numerical modeling and field data integration approach to quantify storm surge attenuation for the Mid-Atlantic region

PARANHOS, Patrick

- ☐ FlatFish - A compact subsea-resident inspection AUV

PARGETT, Douglas

- ☐ Development of a Mobile Ecogenomic Sensor
- ☐ Tracking and Sampling of a Phytoplankton Patch by an Autonomous Underwater Vehicle in Drifting Mode

PARK, hyoungseong

- ☐ Development of a smartphone application for disaster response
- ☐ Development of Disaster Forecasting Technologies through Real-Time Disaster Analysis

PARK, Jeonghong

- ☐ Autonomous collision avoidance for unmanned surface ship using onboard monocular vision

PARK, Jin-Yeong

- ☐ Multi-legged ROV Crabster and an acoustic camera for survey of underwater cultural heritages - Preliminary performance experiments in sea
- ☐ Preliminary Water Tank Test of a Multi-legged Underwater Robot for Seabed Explorations

PARK, Jin-young

- ☐ Waypoint Tracking Control of a Multi-legged Underwater Robot Crabster

PARK, Jong-Sook

- ☐ Validation and Sensitivity Experiments Comparing the Physical Parameterization of Numerical Wave Model

PARK, WooSun

- ☐ Hydraulic Experiment of the Slit Caisson Breakwater with Embedded Resonant Channels

PARSEY, Michael

- ☐ About 75 Years of Synthetic Fiber Rope History

PARTAN, James

- ☐ Feasibility of low-power one-way travel time inverted ultra short baseline navigation

PARTAN, Jim

- ☐ Long Range Acoustic Communications and Navigation in the Arctic

PASCOAL, António

- ☐ Cooperative Navigation and Control: the EU MORPH project

PATERNOSTRO, Christopher

- ☐ Assessing HF Radar Data in the New York Harbor: Comparisons with Wind, Stream Gauge and Ocean Model Data Sources

PATIN, Frédéric

- ☐ Inertial Navigation at High Latitude: Trials and Test Results

PATROLIA, Emily

- ☐ A Geospatial Inventory and Preliminary Valuation of Human Uses of Rhode Island Coastal Ponds: A Mixed Methods Approach

PATTERSON, Mark

- ☐ MantaRay: A Novel Autonomous Sampling Instrument for In Situ Measurements of Environmental Microplastic Particle Concentrations

PATUREL, Yves

- ☐ Inertial Navigation at High Latitude: Trials and Test Results

PATZER, Joseph

- ☐ An Unmanned Aerial Vehicle for the Localization of Radio-Tagged Fish

PÄTZOLD, Matthias

- ☐ Design and Analysis of a One-Dimensional Sea Surface Simulator Using the Sum-of-Sinusoids Principle

PAUL, Steven

- ☐ An Overview of Airborne Oceanic Survey Capabilities of the NOAA Aircraft Operations Center

PAVANELLO, Giovanni

- ☐ Harmonization in the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

PAVIN, Alexander

- ☐ Underwater Object Recognition in Photo Images
- ☐ A Reconfigurable Web-based Simulation Environment for AUV
- ☐ Distributed Simulation Framework for Investigation of Autonomous Underwater Vehicles' Real-Time Behavior

PAYNE, Erin

- ☐ Model Comparison for Transatlantic Ocean Glider Flight: Student Analysis of Modern Circumnavigation

PEACE, Eric

- ☐ Marine Science and Technology Support of U.S. Coast Guard Arctic Operations

PEDDIE, David

- ☐ Development and evaluation of a forward-looking acoustic camera for opaque media tested at 125°C / 720 bar

PEDERSEN, Geir

- ☐ Development and evaluation of a forward-looking acoustic camera for opaque media tested at 125°C / 720 bar

PELLETIER, Leo-Paul

- ☐ Wireless Data Harvesting Using the AUV Sentry and WHOI Optical Modem

PEREZ, Jaynise

- ☐ CariCOOS: Real-time data validation of high-resolution wind forecast

PERGOLONI, Stefano

- ☐ Adaptive PPM Acoustic Detection in very Shallow Water Reservoir
- ☐ Acoustic Bathymetric Mapping in very Shallow Water Reservoir

PERKINS, James

- ☐ Automated Scheduling and Mission Visualization for Mine Countermeasure Operations

PERKINS, Jim

- ☐ Geometrically Motivated Inverse Kinematics for an Arm with 7 Degrees of Freedom

PERRY, Ruth

- ☐
- ☐ Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

PETERSEN, Leif

- ☐ Self-Organized Synchronization Based on a Chirp-Sequence Waveform for an HF Ocean Radar Network

PETERSEN, Wilhelm

- ☐ Harmonization in the Joint European Research Infrastructure Network for Coastal Observatories -JERICO
- ☐ Strategy for sustainability of the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

PETIHAKIS, George

- ☐ Strategy for sustainability of the Joint European Research Infrastructure Network for Coastal Observatories -JERICO
- ☐ Harmonization in the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

PETRONI, Andrea

- ☐ Adaptive PPM Acoustic Detection in very Shallow Water Reservoir
- ☐ Acoustic Bathymetric Mapping in very Shallow Water Reservoir

PIEHLER, Michael

- ☐ An examination of pelagic Sargassum community primary productivity and nutrient cycling in the face of Gulf Stream based energy

PIKORA, Kolja

- ☐ Self-Tuning Active Sonar Signal Processing for a Towed Hydrophone Array During a Turn

PINTO, Eduardo

- ☐ An Open-Source Watertight Unmanned Aerial Vehicle for Water Quality Monitoring
- ☐ Water Detection System for a Multi-rotor Autonomous Aerial Vehicle

PIRENNE, Benoit

- ☐ The Web-enabled Awareness Research Network (WARN) Project Detection Methods for Earthquakes and Tsunamis

PLAKU, Erion

- ☐ Autonomous Underwater Vehicle Mine Countermeasures via the Physical Traveling Salesman Problem

PLASS, Simon

- ☐ Physical Layer Design Towards VHF Data Exchange (VDE) Link

POMALES, Luis

- ☐ Assessing HF radar capabilities to resolve mesoscale eddy interactions with littoral waters

POMALES-VELÁZQUEZ, Luis

- ☐ Characterization of mesoscale eddies and detection of sub-mesoscale eddies derived from satellite imagery and HF radar off the coast of southwestern Puerto Rico

POMBEIRO, Ricardo

- ☐ Water Detection System for a Multi-rotor Autonomous Aerial Vehicle
- ☐ An Open-Source Watertight Unmanned Aerial Vehicle for Water Quality Monitoring

PONTBRIAND, Clifford

- ☐ Autonomous Acoustic-Aided Optical Localization for Data Transfer
- ☐ Wireless Data Harvesting Using the AUV Sentry and WHOI Optical Modem

POOLE, Michael

- ☐ Power Management of 10-Thruster ROV Using an Auto-Configurable Algorithm

POTTIER, Antony

- ☐ Stochastic Replay of SIMO Underwater Acoustic Communication Channels

POTTY, Gopu

- ☐ Experimental design for sediment characterization in the southern New England Continental Shelf

POTYAGAYLO, Svetlana

- ☐ Asynchronous UKF-based Localization of an Underwater Robotic Vehicle for Aquaculture Inspection Operations

PRAIRIE, Brett

- ☐ A technology to measure deep turbulence mixing by an expendable microstructure profiler

PRATER, James

- ☐ Determination of Sonar Image Resolution from Image Statistics

PRESTON, Christina

- ☐ Development of a Mobile Ecogenomic Sensor

PRIJIC, Christopher

- ☐ Autonomous Takeoff & Landing of Small UAV from the USV

PRINCIPE, Jose

- ☐ Marine Animal Classification Using Combined CNN and Hand-designed Image Features

PRODANOV, Vladimir

- ☐ Oceanographic Instrument Simulator

PROSKUROWSKI, Giora

- ☐ An in-situ chemical sensor system for cabled ocean observatory applications at hydrothermal vents

PROTSENKO, Alexander

- ☐ Design and investigation of dead reckoning system with accommodation to navigation sensor errors for autonomous underwater vehicle

PRUEITT, Benjamin

- ☐ Communicating Oil Spill Science - Using C-IMAGE for interdisciplinary education and outreach

PRUESSNER, Marius

- ☐ Thrust Magnitude and Efficiency Studies for Multiple Robotic Flapping Fins

PULLAT, Ingrid

- ☐ Strategy for sustainability of the Joint European Research Infrastructure Network for Coastal Observatories -JERICO
- ☐ Harmonization in the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

PYO, Juhyun

- ☐ Development of passive acoustic landmark using image sonar for AUV's localization
- ☐ Real-Time Noise Reduction for Sonar Video Image Using Recursive Filtering
- ☐ A Method for Automatic Detection of Underwater Objects using Forward-looking Imaging Sonar
- ☐ Development of Energy-harvesting Unit and Propulsion Unit for a Robotic Buoy System

QI, Daisy

- ☐ Ship To Shore: ROV Dive Logging and Data Acquisition

QI, Hairong

- ☐ A Study on the Growth Characteristics of Green Algae Blooms in the Yellow Sea using Categorical Analysis
- ☐ Unmixing: A New Direction from Classical Tidal Harmonic Analysis?

QIN, Hongwei

- ☐ When Underwater Imagery Analysis Meets Deep Learning: a Solution at the Age of Big Visual Data
- ☐ Real-time Fish Localization with Binarized Normed Gradients
- ☐ Fast Accurate Fish Detection and Recognition of Underwater Images with Fast R-CNN

QING, Chuan-Dong

- ☐ Numerical Analysis of the Motion and Load Responses of a 400000 DWT Ore Carrier in Waves

QIU, Shuqi

- ☐ A Novel Adaptive Restoration for Underwater Image Quality Degradation

QIU, Xinxin

- ☐ Automatic object detection and segmentation from underwater images via saliency-based region merging

QU, HUAJIN

- ☐ Adaptive Wind Feedforward Control of an Unmanned Surface Vehicle for Station Keeping

QUALLS, Samuel

- ☐ Underwater Electric Potential Measurements using AUVs
- ☐ AUV State Estimation and Navigation to Compensate for Ocean Currents

QUENZER, Jake

- ☐ Testing a pneumatic underwater glider in shallow water

QUINN, Brandon

- ☐ Pore pressure monitoring of surficial coastal sediments on wave-resolving scale with regard to liquefaction risk prediction at offshore wind and marine hydrokinetic energy converters

QUITTMAN, Dan

- ☐ Measuring pH in the Deep Ocean with Honeywell Durafet Transistors

RAANAN, Ben Yair

- ☐ A Real-time Vertical Plane Flight Anomaly Detection System for a Long Range Autonomous Underwater Vehicle

RABENOLD, Christa

- ☐ US Tsunami Warning System: Capabilities, Gaps and Future Vision

RACK, Frank

- ☐ Development of a Borehole Deployable Remotely Operated Vehicle for Investigation of Sub-Ice Aquatic Environments

RAE, Andrew

- ☐ SmartAtlantic - The Benefits of Real Time Metocean Data in Port Operations

RAGNOLI, Emanuele

- ☐ Parallelisation of Hydro-environmental Model for Simulating Marine Current Devices

RAIMONDI, Francesco Maria

- ☐ Identification of the Inertial Model for Innovative Semi-Immergible USV (SI-USV) Drone for Marine and Lakes Operations.
- ☐ A Security and Surveillance Application of the Innovative Monitoring Underwater Buoy Systems (MUnBuS) on the Protected Marine Area (AMP) of Capo Gallo (PA-IT).

RAJ, Raghu

- ☐ Discriminative Sparsity for SONAR ATR

RAMAMURTI, Ravi

- ☐ Thrust Magnitude and Efficiency Studies for Multiple Robotic Flapping Fins

RAMANI, Deepak

- ☐ Evolving Trends and Challenges in Applied Underwater Acoustic Modeling

RAMNATH, Vinod

- ☐ CZMIL (Coastal Zone Mapping and Imaging Lidar) Bathymetric Performance in Diverse Littoral Zones

RAMOTOWSKI, Thomas

- ☐ DGO-1: A Metal Coating/Surface Treatment Resistant to Cathodic Delamination

RAMSAY, Liam

- ☐ Glider Advancements in Efficiency: Enhancing Factors Necessary for Ocean-Wide Flights

RANDENI PATHIRANACHCHILAGE, Supun

- ☐ Estimating flow velocities of the water column using the motion response of an Autonomous Underwater Vehicle (AUV)

RANMUTHUGALA, Dev

- ☐ Estimating flow velocities of the water column using the motion response of an Autonomous Underwater Vehicle (AUV)

RASOLETTI, Nicholas

- ☐ Image Quality Analysis for a Multiple Overlapping Field of View Serial Laser Imager

RASSER, Michael

- ☐ Using Geospatial and Information Science to Facilitate the Discovery and Access of Ocean Science Data

RATMEYER, Volker

- ☐ A participative tool for sharing, annotating and archiving submarine video data

RAULEFS, Ronald

- ☐ Capacity Analysis for Broadband Communications on Sea
- ☐ Physical Layer Design Towards VHF Data Exchange (VDE) Link

RAY, Cyril

- ☐ Detection of false AIS messages for the improvement of maritime situational awareness

RECANATINI, Pietro

- ☐ Real-Time Reconstruction of Underwater Environments: from 2D to 3D

REDMAYNE, Michael

- ☐ Autonomous onboard hydrographic data processing

REINEN, Tor Arne

- ☐ SEATONOMY - Design, development and validation of marine autonomous systems and operations

REIS, Marco

- ☐ FlatFish - A compact subsea-resident inspection AUV

REN, Hui-Long

- ☐ Numerical Analysis of the Motion and Load Responses of a 400000 DWT Ore Carrier in Waves

REN, Suiling

- ☐ Sparse-Representation-Based Adaptive Interference Suppression
- ☐ Moving Targets Detection and Tracking Based on Sparse and Low-rank Decomposition

RENDAS, Maria

- ☐ Tuning interpolation methods for environmental line/transect surveys

REYNOLDS, Carolyn

- ☐ The Relationship between Upper-Ocean Variability and the Madden-Julian Oscillation in Extended-Range Simulations

REZENDES, Jeffrey

- ☐ Toward an automated detection of the Gulf Stream North Wall from concurrent satellite images

RICE, Matthew

- ☐ DGO-1: A Metal Coating/Surface Treatment Resistant to Cathodic Delamination

RICHARDSON, Alfred

- ☐ Getting The Cable You Want

RIDDELL, David

- ☐ The power of seeing: Experiences using video as a deep-sea engagement and education tool

RILEY, Rodney

- ☐ NDBC Wave Measurement Initiatives

RITTOO, Katie

- ☐ "UMS Mission Management for Mixed--vehicle Fleets for Oceanographic Applications"

ROARTY, Hugh

- ☐ Wave measurements from HF radar
- ☐ Assessing HF Radar Data in the New York Harbor: Comparisons with Wind, Stream Gauge and Ocean Model Data Sources
- ☐ High Frequency Radar Measurement Resiliency with Bistatics
- ☐ Increasing the Coverage of an Island-Based HF Radar Network
- ☐ The Integrated Ocean Observing System HF Radar Network: Ten Year Status

ROBERTSON, Andrew

- ☐ The power of seeing: Experiences using video as a deep-sea engagement and education tool

ROBINETT, Rush

- ☐ Approaching Maximum Power Conversion with Exergy-Based Wave by Wave Control of a Wave Energy Device

ROCHA, Fernando

- ☐ Basic mapping of the inspection process in offshore oil production facilities
- ☐ Mobile Control Center: a new approach to deploy ROV-oriented education and training

ROCK, Stephen

- ☐ Automated Point Cloud Correspondence Detection for Underwater Mapping Using AUVs

ROCKEY, Kristopher

- ☐ An Unmanned Aerial Vehicle for the Localization of Radio-Tagged Fish

RODGERS, Anthony

- ☐ Transitioning Unmanned Underwater Vehicle Technology from Commercial Use to Naval Mine Countermeasures Operations

RODRIGUES, Paulo

- ☐ An Open-Source Watertight Unmanned Aerial Vehicle for Water Quality Monitoring
- ☐ Water Detection System for a Multi-rotor Autonomous Aerial Vehicle

RODRIGUEZ, Angel

- ☐ Capacity Analysis for Broadband Communications on Sea

RODRIGUEZ, Ernesto

- ☐ CariCOOS: Real-time data validation of high-resolution wind forecast
- ☐ CariCOOS: Improving High-Resolution Numerical Weather Prediction for the Northeast Caribbean Region

RODRIGUEZ-ABUDO, Sylvia

- ☐ Assessing HF radar capabilities to resolve mesoscale eddy interactions with littoral waters

RODRÍGUEZ-ABUDO, Sylvia

- ☐ Characterization of mesoscale eddies and detection of sub-mesoscale eddies derived from satellite imagery and HF radar off the coast of southwestern Puerto Rico

RODRÍGUEZ-ROMERO, Héctor

- ☐ CariCOOS: Improving High-Resolution Numerical Weather Prediction for the Northeast Caribbean Region

RØDSETH, Ørnulf

- ☐ SEATONOMY - Design, development and validation of marine autonomous systems and operations

ROMANENKO, Alexey

- ☐ Modern simulation tools for real time numerical simulation of ocean-related processes

ROMERO-MARTÍNEZ, Carlos Erasto

- ☐ Modeling Perceptual-motor Behaviors to Enable Intuitive Navigation Paths in an AUV

RONG, Yue

- ☐ Forward-Backward Block-wise Channel Tracking in High-speed Underwater Acoustic Communication

ROSENBERGER, Andreas

- ☐ The Web-enabled Awareness Research Network (WARN) Project Detection Methods for Earthquakes and Tsunamis

ROSS, William

- ☐ Integration of a RSI microstructure sensing package into a Seaglider

ROSSI, Matija

- ☐ Real-Time Reconstruction of Underwater Environments: from 2D to 3D

RUMBAUGH, Luke

- ☐ Backscatter suppression via blind signal separation for a 532 nm chaotic lidar
- ☐ A Wideband Noise-like Transmitter Approach for Underwater Lidar using Diode Lasers and Passive Fiber Optic Processor

RUNDTOP, Per

- ☐ Autonomous job analysis: A method for the design of autonomous marine operations
- ☐ SEATONOMY - Design, development and validation of marine autonomous systems and operations

RUNFOLA, Jack

- ☐ Getting The Cable You Want

RYAN, John

- ☐ Tracking and Sampling of a Phytoplankton Patch by an Autonomous Underwater Vehicle in Drifting Mode
- ☐ Development of a Mobile Ecogenomic Sensor

SABA, Grace

- ☐ The Ocean is Our Classroom: A 4-Year Research Track for Undergraduate Exploration, Research and Discovery in Oceanography
- ☐ Gliders as a maturing technology: Using gliderpalooza as means to develop an integrated glider community

SABACK, Rafael

- ☐ Model Identification of Unmanned Underwater Vehicle via Adaptive Technique and Artificial Fiducial Markers
- ☐ FlatFish - A compact subsea-resident inspection AUV

SÆBØ, Torstein

- ☐ Toward Autonomous Mapping with AUVs - Line-to-Line Terrain Navigation
- ☐ Using an Interferometric Synthetic Aperture Sonar to Inspect the Skagerrak World War II chemical munitions dump site
- ☐ Assessment of mine hunting performance evaluation parameters across multiple side-looking sonar systems and frequencies

SAEED, Jafarzadeh

- ☐ Development of a Dynamic Model for a Constant Tension Winch

SAIDI, Kamel

- ☐ Development of Standard Test Methods for Evaluation of ROV/AUV Performance for Emergency Response Applications

SAKA, Yukihiro

- ☐ Robustness of Visual-Servo Against Air Bubble Disturbance of Underwater Vehicle System Using Three-Dimensional Marker and Dual-Eye Camera

SAKURAI, Noriaki

- ☐ New ways for research and development using a deep-sea hydrothermal vent system in the Okinawa Trough

SALGADO-JIMENEZ, Tomas

- ☐ Bilateral teleoperation of a commercial small-sized underwater vehicle for academic purposes
- ☐ Sliding PD Control Performance on Autonomous Underwater Glider
- ☐ Adaptive Control for Hybrid Underwater Gliders

SANG, Yuanrui

- ☐ Energy Extraction from A Slider Crank Wave Energy Converter under Irregular Wave Conditions

SANGEKAR, Mehul

- ☐ Identification of Manganese Crusts in 3D Visual Reconstructions to Filter Geo-registered Acoustic Sub-surface Measurements

SANTANA, Pedro

- ☐ An Open-Source Watertight Unmanned Aerial Vehicle for Water Quality Monitoring
- ☐ Water Detection System for a Multi-rotor Autonomous Aerial Vehicle

SAOTOME, Rie

- ☐ A Transceiver Architecture for Ultrasonic OFDM with Adaptive Doppler Compensation

SARUHASHI, Tomokazu

- ☐ New ways for research and development using a deep-sea hydrothermal vent system in the Okinawa Trough

SASANO, Masahiko

- ☐ Development of Optical Inspection Technology for Deep-Sea Floor using Fluorescent Observation Method

SATO, Takumi

- ☐ Identification of Manganese Crusts in 3D Visual Reconstructions to Filter Geo-registered Acoustic Sub-surface Measurements
- ☐ Application of Laser-Induced Breakdown Spectroscopy for In-situ Measurement of Metal Grade for Seafloor Mineral Processing

SATO, Tomoo

- ☐ Experimentation for development of Underwater Acoustic Video Camera: in experiment dock

SATTERLEE, Kent

- ☐ Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

SAVILLE, Ramadhona

- ☐ ICT application of real-time monitoring and estimation system for set-net fishery

SAWA, Takao

- ☐ Development of an autonomous surface vehicle for monitoring underwater vehicles
- ☐ Improvement of synthetic aperture sonar with multi-channel projector

SAWADA, Ikuo

- ☐ New ways for research and development using a deep-sea hydrothermal vent system in the Okinawa Trough

SAWIN, Joseph

- ☐ Seasonal Changes in Phytoplankton Biodiversity on the Outer Banks 2005 to 2013

SCARADOZZI, David

- ☐ Real-Time Reconstruction of Underwater Environments: from 2D to 3D

SCARANO, Gaetano

- ☐ Adaptive PPM Acoustic Detection in very Shallow Water Reservoir
- ☐ Acoustic Bathymetric Mapping in very Shallow Water Reservoir

SCHANZLE, John

- ☐ Deep Water Wave Measurements from Subsurface Buoys - Methods to Improve Data Quality by Correcting for Sensor Motion Bias

SCHERBATYUK, Alexander

- ☐ Design and investigation of dead reckoning system with accommodation to navigation sensor errors for autonomous underwater vehicle



SCHJØLBERG, Ingrid

- ☐ Exposed aquaculture in Norway: Technologies for robust operations in rough conditions

SCHMIDT, Britney

- ☐ Design and Antarctic Testing of the Icefin Vehicle
- ☐ Development of a Borehole Deployable Remotely Operated Vehicle for Investigation of Sub-Ice Aquatic Environments

SCHMIDT, Gerhard

- ☐ A Real-time Cognitive Sonar System for Diver Detection

SCHOENING, Timm

- ☐ Rapid image processing and classification in underwater exploration using advanced high performance computing

SCHOFIELD, Oscar

- ☐ Mapping of the Mid-Atlantic Cold Pool with GliderPalooza-2013
- ☐ Glider Measurements of Phytoplankton Physiology in Penguin Foraging Zones.
- ☐ Model Comparison for Transatlantic Ocean Glider Flight: Student Analysis of Modern Circumnavigation
- ☐ Gliders as a maturing technology: Using gliderpalooza as means to develop an integrated glider community
- ☐ The Ocean is Our Classroom: A 4-Year Research Track for Undergraduate Exploration, Research and Discovery in Oceanography
- ☐ Implementation of Energy Harvesting System for Powering Thermal Gliders for Long Duration Ocean Research
- ☐ Glider Advancements in Efficiency: Enhancing Factors Necessary for Ocean-Wide Flights

SCHOLIN, Christopher

- ☐ Development of a Mobile Ecogenomic Sensor
- ☐ Tracking and Sampling of a Phytoplankton Patch by an Autonomous Underwater Vehicle in Drifting Mode

SCHOO, Christian

- ☐ FlatFish - A compact subsea-resident inspection AUV

SCHOUTEN, Ron

- ☐ Ship To Shore: ROV Dive Logging and Data Acquisition

SCHULTZ, Gregory

- ☐ Littoral Seafloor Sensing and Characterization Using Marine Electromagnetics, Optical Imagery, and Remotely and Autonomously Operated Platforms
- ☐ Improved Supervised Classification of Underwater Military Munitions Using Height Features Derived from Optical Imagery

SCHUTT, Megan

- ☐ Impact of stability on the wind climate of coastal North Carolina

SEIM, Harvey

- ☐ Impact of stability on the wind climate of coastal North Carolina
- ☐ An observational, spatially explicit, stability-based estimate of the wind resource offshore of North Carolina
- ☐ Observation and regional model based Gulf Stream marine hydrokinetic energy resource estimates for North Carolina

SEO, JiHye

- ☐ Hydraulic Experiment of the Slit Caisson Breakwater with Embedded Resonant Channels

SERIKAWA, Seiichi

- ☐ Image Restoration Method for Deep-sea Tripod Observation Systems in the South China Sea

SERNA, Mariela

- ☐ Bilateral teleoperation of a commercial small-sized underwater vehicle for academic purposes

SEROKA, Greg

- ☐ Sea Breeze, Coastal Upwelling Modeling to Support Offshore Wind Energy Planning and Operations
- ☐ Coastal Ocean Mixing and Advection During Hurricane Sandy and Arthur

SETO, Mae

- ☐ Autonomous Shallow Water Bathymetric Measurements using Unmanned Surface Vehicles for Safe Navigation and Environmental Assessment
- ☐ On-line Adaptation of Underwater Acoustic Transmission Rates to Optimize Communications for Collaborative AUV Missions

SEYFRIED, William

- ☐ An in-situ chemical sensor system for cabled ocean observatory applications at hydrothermal vents

SHANG, DaJing

- ☐ The Investigation on Calculating and Measuring Flow Noise from Underwater Jets

SHANG, DeJiang

- ☐ The Investigation on Calculating and Measuring Flow Noise from Underwater Jets

SHANG, Min

- ☐ When Underwater Imagery Analysis Meets Deep Learning: a Solution at the Age of Big Visual Data
- ☐ Fast Accurate Fish Detection and Recognition of Underwater Images with Fast R-CNN

SHAO, Xingchao

- ☐ Command Filtered Backstepping Control for Dynamic Positioning Ships

SHARMA, Gaurav

- ☐ Power Management of 10-Thruster ROV Using an Auto-Configurable Algorithm

SHARMA, Neha

- ☐ Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

SHARMA, R.

- ☐ A computer simulation model for compliant beam bio-mimetic fish

SHARMA, Sumant

- ☐ Automated Point Cloud Correspondence Detection for Underwater Mapping Using AUVs

SHEARMAN, Kipp

- ☐ Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies

SHEN, ChienChung

- ☐ Interference Cancellation in In-Band Full-Duplex Underwater Acoustic Systems

SHEN, Xiaohong

- ☐ Medium Access Control Mechanism for Multi-hop Underwater Acoustic Networks Utilizing Time Reversal
- ☐ A Joint Linear-Analog Network Coding Based Protocol for Data Transfer in Underwater Acoustic Networks
- ☐ An OFDM based Channel Aware Access Protocol for Underwater Acoustic Networks of Submarine Pipeline Monitoring
- ☐ Functional Link Based Adaptive Filters for underwater acoustic detection signal

SHEN, Ye

- ☐ Preliminary Study of Determination of Dinophysis Concentration Using Hyperspectral Imaging

SHEN, Yue

- ☐ Underwater Image Sparse Representation based on Bag-of-Words and Compressed Sensing

SHEPARD, Charles

- ☐ The Deep Ocean Dropcam: A Highly Deployable Benthic Survey Tool

SHI, Congcong

- ☐ Underwater Image Sparse Representation based on Bag-of-Words and Compressed Sensing

SHI, Peng

- ☐ Optimal Design for Consensus of Second Order Multi-agent Systems with Damping Term

SHI, Yishu

- ☐ Sparse-Representation-Based Adaptive Interference Suppression
- ☐ Moving Targets Detection and Tracking Based on Sparse and Low-rank Decomposition

SHIH, Kuei

- ☐ A Self-Adaptive Cooperative Routing Protocol for Underwater Acoustic Sensor Networks

SHIHAVUDDIN, ASM

- ☐ Improved Supervised Classification of Underwater Military Munitions Using Height Features Derived from Optical Imagery

SHIM, Hyungwon

- ☐ Preliminary Water Tank Test of a Multi-legged Underwater Robot for Seabed Explorations
- ☐ Multi-legged ROV Crabster and an acoustic camera for survey of underwater cultural heritages - Preliminary performance experiments in sea
- ☐ Waypoint Tracking Control of a Multi-legged Underwater Robot Crabster
- ☐ Modeling for the Crabster's leg with hydrodynamics force

SHIMONO, Soji

- ☐ Development of Underwater Inspection System for Dam Inspection

SHINOHARA, Masanao

- ☐ NX-2G : autonomous BBOBS-NX for a highly mobile broadband seismic and tilt observation at the seafloor

SHIOBARA, Hajime

- ☐ NX-2G : autonomous BBOBS-NX for a highly mobile broadband seismic and tilt observation at the seafloor

SHIRAI, Kazuhiro

- ☐ Experimentation for development of Underwater Acoustic Video Camera: in experiment dock

SHUYU, Liu

- ☐ The design and application of a new vertical-axis ship propeller

SI, Jiaxi

- ☐ The design and analysis of UEP LT codes with Correlation Chain feedback in underwater acoustic networks

SIDDIQUI, Salman Ijaz

- ☐ Analysis, Verification and Optimization of AUV Navigation Using Underwater Acoustic Models

SIGNELL, Richard

- ☐ Infrastructure and tools for serving, accessing, and analyzing ocean information from the Integrated Ocean Observing System
- ☐ An end-to-end Workflow for Assessing Sea Surface Temperature, Salinity and Water Level Predicted by Coastal Ocean Models.

SILVA, Eduardo

- ☐ Robotic Exercises 2014 - Multi-robot field trials

SIMONIELLO, Chris

- ☐ iTAG: Developing a Cloud Based, Collaborative Animal Tracking Network in the Gulf of Mexico

SIMPSON, Ruth

- ☐ High Fiber Count Optical Penetrator

SINGH, Sandipa

- ☐ Long Range Acoustic Communications and Navigation in the Arctic

SINTES, Christophe

- ☐ Correlation bias analysis - A novel method of sinus cardinal model for least squares estimation in cross-correlation

SIVCEV, Satja

- ☐ Closing the gap between industrial robots and underwater manipulators

SKINNER, Katherine

- ☐ Detection and Segmentation of Underwater Archaeological Sites Surveyed with Stereo-Vision Platforms
- ☐ Bathymetric Factor Graph SLAM with Sparse Point Cloud Alignment

SKJETNE, Roger

- ☐ HMD as a new Tool for Telepresence in Underwater Operations and Closed-Loop Control of ROVs

SLOWIKOWSKI, Anna

- ☐ Prediction of Tidal Water Currents from Active Sonar Returns

SMITH, Brant

- ☐ CZMIL (Coastal Zone Mapping and Imaging Lidar) Bathymetric Performance in Diverse Littoral Zones

SMITH, Ryan

- ☐ Design and Validation of a Micro-AUV for 3-D Sampling of Coherent Ocean Features

SNOWDEN, Derrick

- ☐ Infrastructure and tools for serving, accessing, and analyzing ocean information from the Integrated Ocean Observing System

SOCHELEAU, Francois-Xavier

- ☐ Stochastic Replay of SIMO Underwater Acoustic Communication Channels

SOLI, Jonathan

- ☐ Co-Prime Comb Signals for Active Sonar

SOMANDEPALLI, Vijay

- ☐ Thermal Safety Management of Lithium-Ion Battery Energy Storage Systems for Use in Ocean-going and Subsea Applications

SON, Goeun

- ☐ Validation and Sensitivity Experiments Comparing the Physical Parameterization of Numerical Wave Model

SONG, Aijun

- ☐ Interference Cancellation in In-Band Full-Duplex Underwater Acoustic Systems

SONG, Dalei

- ☐ Multi-scale Analysis of Turbulence Dissipation in the South China Sea

SONG, Hong

- ☐ Preliminary Study of Determination of Dinophysis Concentration Using Hyperspectral Imaging
- ☐ Selection of multi-angles combination in precise turbidity measurement

SONG, Hongjian

- ☐ An artificial intelligence recogniton algorithm for Yangtze finless porpoise

SONG, Jian

- ☐ MIMO TDS-OFDM for Underwater Acoustic Communication with Turbo Equalization

SØRENSEN, Asgeir

- ☐ HMD as a new Tool for Telepresence in Underwater Operations and Closed-Loop Control of ROVs

SØRENSEN, Asgeir J.

- ☐ Sea state estimation using model-scale DP measurements

SORENSEN, Kai

- ☐ Strategy for sustainability of the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

SORIANO, Maricor

- ☐ Estimating Coral Reef Slope or Camera Pitch from Video

SPARNOCCHIA, Stefania

- ☐ Strategy for sustainability of the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

SPEARS, Anthony

- ☐ Sonar and Video Fusion for Vehicle Trajectory Estimation in Under-ice Environments
- ☐ Automatic Texture and Anomaly Mapping in Under-ice Video Datasets
- ☐ Design and Antarctic Testing of the Icefin Vehicle

SPIELVOGEL, Andrew

- ☐ Preliminary Results with a Low-Cost Fiber-Optic Gyrocompass System

SRIDHARAN, Ananth

- ☐ Verification and Validation of a Prediction Tool for a Helicopter-Towed Submerged Body

STABENO, Phyllis

- ☐ The use of Saildrones to examine spring conditions in the Bering Sea: Instrument comparisons, sea ice meltwater and Yukon River plume studies
- ☐ Innovative Technology Development for Arctic Exploration

STALIN, Scott

- ☐ The PRAWLER, a vertical moored profiler powered by wave energy

STANKOVIC, Srdjan

- ☐ Analysis of underwater signals with non-linear time-frequency structures using warping-based compressive sensing algorithm

STANWAY, M.

- ☐ Tracking and Sampling of a Phytoplankton Patch by an Autonomous Underwater Vehicle in Drifting Mode
- ☐ A Real-time Vertical Plane Flight Anomaly Detection System for a Long Range Autonomous Underwater Vehicle

STANWAY, Michael

- ☐ Biangulilateration using azimuth, elevation, and depth difference to localize submerged assets

STARK, Nina

- ☐ Pore pressure monitoring of surficial coastal sediments on wave-resolving scale with regard to liquefaction risk prediction at offshore wind and marine hydrokinetic energy converters

STATSCEWICH, Hank

- ☐ Spatial circulation patterns over Palmer Deep Canyon and their effects on Adélie Penguin Foraging

STAUFFER, Jillana

- ☐ Hydrodynamics Related to Shipwreck Taphonomy

STEIN, David

- ☐ Using Geospatial and Information Science to Facilitate the Discovery and Access of Ocean Science Data

STEINBRINK, Björn

- ☐ Rapid image processing and classification in underwater exploration using advanced high performance computing

STENBOCK, Tore

- ☐ Physical Layer Design Towards VHF Data Exchange (VDE) Link

STERN, Peter

- ☐ Integration of a RSI microstructure sensing package into a Seaglider

STEVENS, Andrew

- ☐ Streamlining the Evaluation of Potential Marine Debris Targets for Disaster Response

STEWART, Andy

- ☐ Extrinsic Calibration of an RGB Camera to a 3D Imaging Sonar

STILWELL, Daniel

- ☐ Utility-Based Adaptive Path Planning For Subsea Search
- ☐ A Comparison of Hydrodynamic Damping Models using Least Squares and Adaptive Identifier Methods for Autonomous Underwater Vehicles

STOFFREGEN, Timo

- ☐ Equipping industrial deep-sea manipulators with a sense of touch

STOJANOVIC, Milica

- ☐ Joint Power and Rate Control with Constrained Resources for Underwater Acoustic Channels

STUART, Grant

- ☐ Real-time Ocean Surface Current Measurements in the Gulf of Mexico

SU, Wei

- ☐ Complementary Code Keying Modulation and Frequency Domain Equalization for Single-Carrier Underwater Acoustic Communications
- ☐ Research on Multi-channel Time Frequency Shift Keying for Underwater Acoustic Communication
- ☐ Spoofing Detection Games in Underwater Sensor Networks

SUBRAMANIAN, Vembu

- ☐ An end-to-end Workflow for Assessing Sea Surface Temperature, Salinity and Water Level Predicted by Coastal Ocean Models.
- ☐ Infrastructure and tools for serving, accessing, and analyzing ocean information from the Integrated Ocean Observing System

SUGA, Ryotaro

- ☐ Development of an autonomous surface vehicle for monitoring underwater vehicles

SUGIMATSU, Harumi

- ☐ Development of an automatic discrimination method of the bio-sonar clicks of Irrawaddy dolphin (*Orcaella brevirostris*) from various types of boat noises

SUGIOKA, Hiroko

- ☐ NX-2G : autonomous BBOBS-NX for a highly mobile broadband seismic and tilt observation at the seafloor
- ☐ Detection and characterization of hydroacoustic whale signals using seafloor cable seismic networks offshore Japan

SUMAN, Stefano

- ☐ Integration and Algorithm Development for Forward Looking Imaging Sonars on Hybrid and Autonomous Underwater Robots

SUN, Dajun

- ☐ Compensation of Vehicle Motion Influence in a Long Baseline System Field Trial
- ☐ Localization of large scale underwater sensor networks based on recursive position estimation
- ☐ Closed loop bi-directional broadband Doppler compensation and channel equalization for single carrier high-speed underwater acoustic communication
- ☐ Underwater acoustic localization approach to an arbitrary distributed multi-elements array
- ☐ Accurate Underwater Localization Using LBL Positioning System

SUN, Kai

- ☐ Real-Time Underwater Target Classification Method for Multi-resolution imaging Sonar of the AUV
- ☐ The Research of Analysis Strategy of Transmission Performance in Subsea Observatories

SUN, Tingting

- ☐ Target Following for an Autonomous Underwater Vehicle Using Regularized ELM-based Reinforcement Learning

SUN, Wensheng

- ☐ Adaptive Transmission Scheduling in Time-Varying Underwater Acoustic Channels

SUN, Xiaoqing

- ☐ Automatic object detection and segmentation from underwater images via saliency-based region merging

SUNG, So-Young

- ☐ Prototype Development of an Underwater Sound Measurement Module Using Four Hydrophones

SUSTERSIC, John

- ☐ Non-linear Decision Making for Robust Navigation in Role Based Autonomy

SUZUKI, Chika

- ☐ A Study on Seaweed Beds in Eutrophic Regions assuming CO₂ Dissolving and Fixation

SUZUKI, Taisaku

- ☐ A Transceiver Architecture for Ultrasonic OFDM with Adaptive Doppler Compensation

SUZUKI, Takuya

- ☐ Fatigue Load and Life Estimation of Composite Turbine Blades under Random Ocean Current

SVENDSEN, Eirik

- ☐ SEATONOMY - Design, development and validation of marine autonomous systems and operations
- ☐ Autonomous job analysis: A method for the design of autonomous marine operations

SYNNES, Stig

- ☐ Assessment of mine hunting performance evaluation parameters across multiple side-looking sonar systems and frequencies

TABISOLA, Heather

- ☐ The use of Saildrones to examine spring conditions in the Bering Sea: Instrument comparisons, sea ice meltwater and Yukon River plume studies
- ☐ The use of Saildrones to examine spring conditions in the Bering Sea: Vehicle specification and mission performance
- ☐ Innovative Technology Development for Arctic Exploration

TAILLEFER, Martin

- ☐ Toward hardware-driven simulation of underwater acoustic propagation and communication with Arctic ice, wind waves, and currents

TAKAHASHI, Koji

- ☐ Experimentation for development of Underwater Acoustic Video Camera: in experiment dock

TAKAYAMA, Takehiko

- ☐ Motion Compensator for Acoustic Device Mounted on Autonomous Surface Vehicle

TAN, Chunyang

- ☐ An in-situ chemical sensor system for cabled ocean observatory applications at hydrothermal vents

TANAKA, Nobuhiro

- ☐ Improvement of synthetic aperture sonar with multi-channel projector

TANG, Yingli

- ☐ A Study on the Growth Characteristics of Green Algae Blooms in the Yellow Sea using Categorical Analysis

TANGUY, Martin

- ☐ A methodology to improve the assessment of vulnerability on the maritime supply chain of energy

TAO, Chunhui

- ☐ Chinese manned submersible JIAOLONG's scientific cruise in 2014-2015

TATUM, Richard

- ☐ Geometrically Motivated Inverse Kinematics for an Arm with 7 Degrees of Freedom
- ☐ Automated Scheduling and Mission Visualization for Mine Countermeasure Operations
- ☐ Verification of Autonomous Systems: Challenges of the Present and Areas for Exploration

TAYLOR, Elysia

- ☐ Development of an in-situ total phosphorus analyzer

TAYLOR, Patterson

- ☐ Observation and regional model based Gulf Stream marine hydrokinetic energy resource estimates for North Carolina

☐

TERRAY, Eugene

- ☐ Deep Water Wave Measurements from Subsurface Buoys - Methods to Improve Data Quality by Correcting for Sensor Motion Bias

TERRILL, Eric

- ☐ The Integrated Ocean Observing System HF Radar Network: Ten Year Status

THANGAWNG, Abel

- ☐ Thin Fresnel zone plate lenses for underwater acoustics: modeling and experiments

THEIN, May-Win

- ☐ Depth Adaptive Hydrographic Survey Behavior for Autonomous Surface Vessels

THOMAS, Hans

- ☐ MBARI AUV Operations in the Gulf of California

THOMAS, Natalie

- ☐ An observational, spatially explicit, stability-based estimate of the wind resource offshore of North Carolina

THOME, Robert

- ☐ Non-linear Decision Making for Robust Navigation in Role Based Autonomy

THOMPSON, Duane

- ☐ MBARI AUV Operations in the Gulf of California

THOMPSON, Robert

- ☐ A Geospatial Inventory and Preliminary Valuation of Human Uses of Rhode Island Coastal Ponds: A Mixed Methods Approach

THORNGREN, Craig

- ☐ Lost at Sea: Locating and Recovering Lost Underwater Scientific Packages with Mini ROVs

THORNHILL, Eric

- ☐ Observations of Predictive Skill for Real-Time Deterministic Sea Waves from the WaMoS II

THORNTON, Blair

- ☐ Application of Laser-Induced Breakdown Spectroscopy for In-situ Measurement of Metal Grade for Seafloor Mineral Processing
- ☐ Identification of Manganese Crusts in 3D Visual Reconstructions to Filter Geo-registered Acoustic Sub-surface Measurements
- ☐ Generation 137Cs surface distribution maps using dense measurement transects of a towed gamma ray spectrometer

THOROUGHGOOD, Carolyn

- ☐ Enabling Ocean Enterprise Development through IOOS: Building on Foundational Mid-Atlantic IOOS Support with Focused Partnerships, Leveraging, and Innovation

THWAITES, Fredrik

- ☐ Processing of velocity observations from Ice-Tethered Profilers

TIAN, Chuan

- ☐ A Long-term Temperature and Depth Logger for Ocean Mooring System

TIAN, Yu

- ☐ Moth-inspired plume tracing via autonomous underwater vehicle with only a pair of separated chemical sensors

TINTORÉ, Joaquin

- ☐ Strategy for sustainability of the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

TIVEY, Maurice

- ☐ Autonomous Acoustic-Aided Optical Localization for Data Transfer

TOAL, Daniel

- ☐ Closing the gap between industrial robots and underwater manipulators
- ☐ Smart Inspection ROV for Use in Challenging Conditions
- ☐ Real-Time Reconstruction of Underwater Environments: from 2D to 3D
- ☐ Direct Interconnection of offshore airborne wind energy systems

TODOROFF, Katherine

- ☐ Spatial circulation patterns over Palmer Deep Canyon and their effects on Adélie Penguin Foraging

TOLBA, Sherif

- ☐ Efficient Surface-level Gateway Deployment Using Underwater Sensing And Processing Networks

TOMLIN, Meghan

- ☐ Ship To Shore: ROV Dive Logging and Data Acquisition

TOMURO, Sabro

- ☐ Development of an automatic discrimination method of the bio-sonar clicks of Irrawaddy dolphin (*Orcaella brevirostris*) from various types of boat noises

TONCHIA, Helene

- ☐ Method for steering a vessel with towed equipment

TOOLE, John

- ☐ Processing of velocity observations from Ice-Tethered Profilers

TORRES MENDEZ, Luz Abril

- ☐ Using the Motion Perceptibility Measure to Classify Points of Interest for Visual-based AUV Guidance in a Reef Ecosystem

TORRES, Jorge

- ☐ Adaptive Control for Hybrid Underwater Gliders

TORRES-MÉNDEZ, Luz Abril

- ☐ Modeling Perceptual-motor Behaviors to Enable Intuitive Navigation Paths in an AUV

TOYAMA, Shigeki

- ☐ Development of Underwater Inspection System for Dam Inspection

TRAN, MINHAI

- ☐ A Transceiver Architecture for Ultrasonic OFDM with Adaptive Doppler Compensation

TRANSETH, Aksel A.

- ☐ Autonomous job analysis: A method for the design of autonomous marine operations

TRANSETH, Aksel Andreas

- ☐ SEATONOMY - Design, development and validation of marine autonomous systems and operations

TRAPANESE, Marco

- ☐ A Security and Surveillance Application of the Innovative Monitoring Underwater Buoy Systems (MUnBuS) on the Protected Marine Area (AMP) of Capo Gallo (PA-IT).
- ☐ An inertial system for the production of electricity and hydrogen from seawave energy
- ☐ Identification of the Inertial Model for Innovative Semi-Immergible USV (SI-USV) Drone for Marine and Lakes Operations.

TRIZNA, Dennis

- ☐ Coherent Marine Radar Measurements of Ocean Wave Frequency Spectra

TRUHACHEV, Dmitri

- ☐ Joint Packet Detection and Decoding for Maritime Data Exchange Systems

TSUCHIYA, Takenobu

- ☐ Study to reduce size and weight of underwater acoustic imaging system

TSUKIOKA, Satoshi

- ☐ 3D Acoustic imagery generation by interferometric analysis of long baseline using Interferometric Real Aperture Sonar.

TUPHANOV, Igor

- ☐ Design and investigation of dead reckoning system with accommodation to navigation sensor errors for autonomous underwater vehicle

TURCHIK, Alan

- ☐ The Deep Ocean Dropcam: A Highly Deployable Benthic Survey Tool

TURPIN, Alex

- ☐ Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies

UHLMANN, Jeffrey

- ☐ Quantum Sensing in the Maritime Environment
- ☐ Quantum Communications in the Maritime Environment
- ☐ Maritime Applications of Quantum Computing

UKAH, Ucheoma

- ☐ Non-linear Decision Making for Robust Navigation in Role Based Autonomy

UPDYKE, Teresa

- ☐ Extreme and Non-Tidal Events in the Chesapeake Bay High Frequency Radar Surface Currents Record

URA, Tamaki

- ☐ Development of an automatic discrimination method of the bio-sonar clicks of Irrawaddy dolphin (*Orcaella brevirostris*) from various types of boat noises
- ☐ Identification of Manganese Crusts in 3D Visual Reconstructions to Filter Geo-registered Acoustic Sub-surface Measurements
- ☐ 3D Acoustic imagery generation by interferometric analysis of long baseline using Interferometric Real Aperture Sonar.

URIZA, Ottmar

- ☐ Adaptive Control for Hybrid Underwater Gliders

UTNE, Ingrid

- ☐ Exposed aquaculture in Norway: Technologies for robust operations in rough conditions

VAGIA, Marialena

- ☐ Autonomous job analysis: A method for the design of autonomous marine operations
- ☐ SEATONOMY - Design, development and validation of marine autonomous systems and operations

VALDEZ, Thomas

- ☐ Implementation of Energy Harvesting System for Powering Thermal Gliders for Long Duration Ocean Research

VALLADAREZ, Nicholas

- ☐ Robust Adaptive Control of Underwater Vehicles for Precision Operations

VALLE, Eirik

- ☐ HMD as a new Tool for Telepresence in Underwater Operations and Closed-Loop Control of ROVs

VALOVA, Iren

- ☐ Toward an automated detection of the Gulf Stream North Wall from concurrent satellite images

VANDERMEULEN, Ryan

- ☐ Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

VASILE, Gabriel

- ☐ Reference Selection for an Active Ultrasound Wild Salmon Monitoring System
- ☐ Calibration of an Active Ultrasound Bedload Monitoring System for Underwater Environments

VÁZQUEZ, Javier

- ☐ Eyes on the Ocean - Applying Operational Technology to Enable Science

VENEGAS-ANDRACA, Salvador

- ☐ Maritime Applications of Quantum Computing
- ☐ Quantum Communications in the Maritime Environment
- ☐ Quantum Sensing in the Maritime Environment

VIGNUDELLI, Stefano

- ☐ Video from Earth Orbiting Satellites (for Oceanographers)

VIOLA, Alessia

- ☐ An inertial system for the production of electricity and hydrogen from seawave energy

VISHNU, Hari

- ☐ A vector sensing scheme for underwater acoustics based on particle velocity measurements

VOGEL, Michael

- ☐ Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

VOLNER, Rachel

- ☐ The Undersea Constellation: The Leading Edge of the Joint Information Environment

VON ELLENRIEDER, Karl

- ☐ Supervisory Switching Control of an Unmanned Surface Vehicle
- ☐ Development of a USV-Based Bridge Inspection System

VON LOEWENFELDT, Robert

- ☐ Development of Standard Test Methods for Evaluation of ROV/AUV Performance for Emergency Response Applications

VUORENKOSKI, Anni

- ☐ Marine Animal Classification Using Combined CNN and Hand-designed Image Features

WADA, Masaaki

- ☐ Prospects of the future squid fishing based on the big data
- ☐ ICT application of real-time monitoring and estimation system for set-net fishery

WADA, Tomohisa

- ☐ A Transceiver Architecture for Ultrasonic OFDM with Adaptive Doppler Compensation

WAGE, Kathleen

- ☐ Effect of Array Tilt on Estimates of Vertical Ambient Noise Spectrum
- ☐ An improved whitening transformation for snapshot-deficient scenarios

WAKATSUKI, Naoto

- ☐ Wireless Power and Data Transfer System for Station-Based Autonomous Underwater Vehicles

WALKER, Catherine

- ☐ Design and Antarctic Testing of the Icefin Vehicle

WALLS, Jeffrey

- ☐ Bathymetric Factor Graph SLAM with Sparse Point Cloud Alignment

WALSH, Ian

- ☐ Robust tools to detect subsurface oil: fluorescence sensors

WANG, Ben

- ☐ The design and analysis of UEP LT codes with Correlation Chain feedback in underwater acoustic networks

WANG, Chaofeng

- ☐ Adaptive Transmission Scheduling in Time-Varying Underwater Acoustic Channels

WANG, Chunsheng

- ☐ Chinese manned submersible JIAOLONG's scientific cruise in 2014-2015

WANG, Deqing

- ☐ Complementary Code Keying Modulation and Frequency Domain Equalization for Single-Carrier Underwater Acoustic Communications
- ☐ Research on Multi-channel Time Frequency Shift Keying for Underwater Acoustic Communication

WANG, Guanqun

- ☐ Research on the Navigation Error Compensation Method for a class of Deep-sea vehicle

WANG, Haiyan

- ☐ A Joint Linear-Analog Network Coding Based Protocol for Data Transfer in Underwater Acoustic Networks
- ☐ Medium Access Control Mechanism for Multi-hop Underwater Acoustic Networks Utilizing Time Reversal
- ☐ An OFDM based Channel Aware Access Protocol for Underwater Acoustic Networks of Submarine Pipeline Monitoring
- ☐ Functional Link Based Adaptive Filters for underwater acoustic detection signal
- ☐ Fuzzy Clustering Based Source Direction Estimation Method Using Acoustic Energy Measurements with UWSN

WANG, Hangzhou

- ☐ Selection of multi-angles combination in precise turbidity measurement

WANG, Jian

- ☐ Formation Control of Unmanned Surface Vehicles with Vision Sensor Constraints

WANG, Jinkun

- ☐ Toward Robust Localization and Mapping for Shallow Water ROV Inspections

WANG, Jintao

- ☐ MIMO TDS-OFDM for Underwater Acoustic Communication with Turbo Equalization

WANG, Jun

- ☐ Research on key technologies of junction boxes for Chinese experimental seafloor observatory network
- ☐ A hybrid underwater profiler used for persistent monitoring

WANG, Qi

- ☐ Reconstruction of acoustic fields based on the least squares for short vertical linear array
- ☐ Matched field processing under posterior probability constraints

WANG, Ruchen

- ☐ Automatic searching of fish from underwater images via shape matching
- ☐ Combining background subtraction and three-frame difference to detect moving object from underwater video

WANG, Wei

- ☐ Capacity Analysis for Broadband Communications on Sea

WANG, Xiaodong

- ☐ calculation of a vessel scattering acoustic field by using prolate spheroid model

WANG, Xiaohui

- ☐ The Observation of Sea-ice in the Six Chinese National Arctic Expedition Using Polar-ARV
- ☐ Development of a Dynamic Model for a Constant Tension Winch
- ☐ The Research of Analysis Strategy of Transmission Performance in Subsea Observatories
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- ☐ The Observer-based Neural Network Adaptive Robust Control for Underwater Hydraulic Manipulator

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- ☐ Matched field processing under posterior probability constraints

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- ☐ Characterization and Receiver Design for Underwater Acoustic Channels with Large Doppler Spread
- ☐ Adaptive Transmission Scheduling in Time-Varying Underwater Acoustic Channels

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- ☐ Potential of Maritime Monitoring by Using Space-born Synthetic Aperture Radar

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- ☐ Gliders as a maturing technology: Using gliderpalooza as means to develop an integrated glider community

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- ☐ Experimental Study for Feature Extraction of Diver with Atmospheric Diving Suit

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- ☐ Design and investigation of dead reckoning system with accommodation to navigation sensor errors for autonomous underwater vehicle



Sea Change: Dive into Opportunity

Program Guide

October 19-22
National Harbor, Maryland



**IEEE Oceanic
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Sea Change: Dive into Opportunity

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Washington, DC

NOTES

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All OCEANS related functions are being held at the Gaylord National.
Please note that this is the preliminary technical session schedule; dates, times, and session assignments may change.

		Prince George AB	Azalea 1	Azalea 2	Azalea 3	Annapolis 1	Annapolis 2	Annapolis 3	Annapolis 4	Magnolia 1	Magnolia 2	Magnolia 3	Camellia 1	
Monday														
	7:00am		Registration, Prince George AB Foyer											
	5:30pm		Icebreaker Reception, Polomac Terrace											
	7:00am		Registration, Prince George AB Foyer											
Tuesday	8:00am		Plenary Session, Woodrow Wilson Ballroom											
	10:00am		Morning Break, Exhibit Hall, Prince George AB											
			Exhibit Hall Opens											
	12:00pm		IEEE/OES Awards Luncheon, Woodrow Wilson Ballroom											
	1:30pm		Sonar Signal Processing 1	Autonomous Underwater Vehicles 1: Gliders 1	Vehicle Performance 1	Acoustic Telemetry and Communication 1	Sonar Imaging 1	Driving Technological Innovation through Ocean XPRIZES : XPRIZE	Access, Custody, and Retrieval of Data	Current Measurement Technology 1	Naval Architecture	Sound Propagation and Scattering 1	Marine Law, Policy Management, Education	
	3:00pm		Afternoon Break, Exhibit Hall, Prince George AB											
	3:30pm		Sonar Signal Processing 2	Autonomous Underwater Vehicles 2: Gliders 2	Vehicle Performance 2	Acoustic Telemetry and Communication 2	Sonar Imaging 2	Ignite! A lightning round of innovations, discoveries, and applications in Blue Tech!: US IOOS and the Maritime Alliance	Data Visualization 1	Marine Resilience and Resources	Cables and Connectors 1	Sound Propagation and Scattering 2	Oceanography and Meteorology	
	5:30pm	Exhibits Reception, Exhibit Hall, Prince George AB												

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Wednesday	7:00am	Exhibition & Student Posters	Registration, Prince George AB Foyer										
	8:30am		Panel on the Future of Long Duration Maritime Autonomy	Autonomous Underwater Vehicles 3	Oceanographic Instrumentation and Sensors 1	Acoustic Telemetry and Communication 3	Sonar Imaging 3	Marine Planning & Data-Related Tools: Key Aspects of the National Ocean Policy	Vehicle Navigation 1	Emerging Arctic Challenges 1	Coastal Radars 1	Acoustics 1	Data Visualization 2
	10:00am		Morning Break, Exhibit Hall, Prince George AB										
	10:30am		Optical Communications	Autonomous Underwater Vehicles 4	Oceanographic Instrumentation and Sensors 2	Acoustic Telemetry and Communication 4	Remotely Operated Vehicles 1	Town Hall Session on Marine Technology and Services in the Blue Economy: US IOOS/The Maritime Alliance	Vehicle Navigation 2	Emerging Arctic Challenges 2	Coastal Radar 2	Acoustics 2	Ocean Energy 1 - Waves
	12:00pm		MTS Awards Luncheon, Woodrow Wilson Ballroom										
	1:30pm		Sonar Signal Processing 3	Autonomous Underwater Vehicles 5	Oceanographic Instrumentation and Sensors 3	Acoustic Telemetry and Communication 5	Remotely Operated Vehicles 2	Identifying Common Themes in National Ocean Policies to Advance Global Ocean Science Collaboration through the IOC	Vehicle Navigation 3	Emerging Arctic Challenges 3	Buoy Technology	Acoustics 3	Ocean Energy 2
	3:00pm		Afternoon Break, Exhibit Hall, Prince George AB										
	3:30pm		Sonar Signal Processing 4	Autonomous Underwater Vehicles 6	Oceanographic Instrumentation and Sensors 4: Waves	Acoustic Telemetry and Communication 6	Remotely Operated Vehicles 3	OCEANS '25 (and beyond) - Envisioning the Future of Marine Technology and Ocean Engineering	Vehicle Navigation 4	Marine Life and Ecosystems	Marine Education and Outreach	Space Systems	Marine Environment 1
	7:00pm		Oceans '14 Reception Gala, Potomac Ballroom										
7:00am	Registration, Prince George AB Foyer												
Thursday	8:30am		Hydrodynamics	Autonomous Underwater Vehicles 7	Systems and Observatories 1	Acoustic Telemetry and Communication 7	Classification and Pattern Recognition 1	The Importance of Collaborative Science and Technological Advances for Ocean Science and Offshore Energy Development	Vehicle Navigation 5	Phytoplankton Observations on the Outer Banks	Oceanographic Instrumentation and Sensors 5	Numerical Modeling and Simulation 1	Marine Environment 2
	10:00am		Morning Break, Exhibit Hall, Prince George AB										
	10:30am		Marine Environment Imaging and Vision 1	Town Hall on Promoting OceanSTEM and Blue Economy Workforce Development	Systems and Observatories 2	Automatic Control 1	Classification and Pattern Recognition 2	Policy and Planning for Responsible Offshore East Coast Development - Technological Considerations	Environmental Intelligence 1	Remote Sensing 1	Optics, Imaging, Vision, E-M Systems 1	Numerical Modeling and Simulation 2	Offshore Structures 1
	12:00pm		Exhibitor's Luncheon, Exhibit Hall, Prince George AB										
	1:30pm		Marine Environment Imaging and Vision 2	Autonomous Underwater Vehicles 8	Systems and Observatories 3	Automatic Control 2	Offshore Wind and Marine Renewable Energy 1	Vehicle Design and Performance	Environmental Intelligence 2	Remote Sensing 2	Optics, Imaging, Vision, E-M Systems 2	Numerical Modeling and Simulation 3	Offshore Structures 2
	3:00pm		Afternoon Break, Exhibit Hall, Prince George AB										
	3:30pm		Marine Environment Imaging and Vision 3	Autonomous Underwater Vehicles 9	Systems and Observatories 4	Automatic Control 3	Offshore Wind and Marine Renewable Energy 2	Vehicle Design	Optics, Imaging, Vision, E-M Systems 3				

Sea Change: Dive into Opportunity

Welcome from the General Co-Chairs

Welcome to OCEANS '15 in DC!



Rusty Mirick

After ten years, the OCEANS North America conference and exposition returns to the exciting and historic Washington, DC area, bringing together scientists, engineers, educators, industry leaders and policy makers. It is our sincere wish that these four days will be your best OCEANS ever. OCEANS '15 is packed with technical presentations, tutorials, workshops, networking opportunities

and an exhibition highlighting state-of-the-art developments in technologies related to exploring, monitoring, protecting, and wisely using the world's marine resources. You join over 2,100 attendees, and together represent a truly broad international constituency of attendees.

On behalf of the Marine Technology Society and the IEEE Oceanic Engineering Society, the OCEANS '15 MTS/IEEE Washington, DC Local Organizing Committee is honored to host your participation in this prestigious event. This year's theme, "Sea Change: Dive into Opportunity," shines a spot light on some of today's most critical global issues and frames how our community can help society develop solutions to address these challenges and benefit from new opportunities.

We're extremely fortunate that Rep. Sam Farr and Dr. Rick Spinrad, two remarkable figures in the ocean community, have joined us and serve as Honorary Co-Chairs. Their knowledge and experience in marine technology and policy have positively impacted the pre-planning that resulted in what we hope you find to be an outstanding program.

The Gaylord National Resort and Convention Center, with modern facilities located directly on National Harbor is the perfect venue to attract a strong local attendance from ocean-related industry, US government agencies, academia, the military, and students. If you are an infrequent visitor to the metropolitan Washington DC region, we urge you to take the opportunity this week to explore the many historic and cultural landmarks and activities in and around the US Capital.



Jim Barbera

Welcome and thank you for attending!

Rusty Mirick and Jim Barbera
General Co-Chairs

Honorary Co-Chairman

Honorable Sam Farr (CA-20)



As honorary Co-chair of OCEANS '15 MTS/IEEE, I am pleased to welcome you to Washington, DC. As a lifelong resident of the Monterey Bay region in California—the most magnificent meeting of land and sea – I know firsthand the enormous societal and economic benefits the oceans bring to local communities and the Nation.

I am honored to be the Co-chair of the House Ocean Caucus, which shares common goals with the Oceans '15 Conference: building awareness, exchanging information and ideas, and exploring the most important issues related to our oceans. The innovation on display here is a testament to ingenuity and entrepreneurship, and is essential for our developing understanding of and efforts to preserve the oceans.

With the establishment of Exclusive Economic Zones (EEZ), our coastal States – where 81% of the United States population lives – assumed an enormous responsibility for managing the oceans; our greatest natural resource. Spanning 3.4 million square nautical miles, the U.S. EEZ is not only the largest in the world, but also nearly 1.3 times larger than the terrestrial landmass of all 50 States combined. Not surprisingly, the oceans serve as the foundation for our Nation's security, commerce, culture and recreation. The ocean-dependent economy employed 2.9 million people and contributed \$343 billion dollars to the US GDP in 2012. These statistics underscore the importance of the House Ocean Caucus, whose goal is ensuring that ocean concerns remain a part of policy discussions in US Congress.

Reliable information is essential to these discussions. Here at OCEANS '15, you have a great opportunity to present and gain exposure to the latest research and technological developments at the hundreds of technical sessions, panel discussions, and exhibit booths. I commend the Marine Technology Society and the IEEE Oceanic Engineering Society for their long-standing commitment to providing this important forum.

I wish you a very enjoyable and informative experience here in the Nation's Capital, and look forward to seeing you next year at OCEANS '16 MTS/IEEE Monterey, in my home district in California.

Sea Change: Dive into Opportunity

Honorary Co-Chairman

Honorary Co-Chairman



Dr. Rick Spinrad
Chief Scientist, National Oceanic and
Atmospheric Administration

I am pleased to welcome you to OCEANS '15 Washington, DC. The OCEANS conferences bring together scientists, engineers, educators, industry leaders and policy makers to share information

that can help solve some of the most important coastal and ocean challenges facing society today. NOAA recently released the "2012 Report on the U.S. Ocean and Great Lakes Economy," which stated that the U.S. ocean economy outpaced the domestic economy between 2011 and 2012, with an increase of \$22 billion in gross domestic product, from \$321 billion to \$343 billion. Adjusted for inflation, this increase equates to a 10.5 percent rate of growth—more than four times as fast as the U.S. economy as a whole.

This remarkable growth in the Blue Economy emphasizes how important it is to balance economic benefits with responsible stewardship. Increasing our understanding of the oceans through research, monitoring and observation is fundamental to our ability to provide that stewardship. Delivering the data to support that understanding is one of NOAA's principal missions. At OCEANS '15, we have the opportunity to share the results of our efforts and engage with other professionals and students to discuss how this information can be used to insure a healthy and sustainable ocean ecosystem.

I invite you to attend the Ignite! special session on Tuesday and the Town Hall on Wednesday sponsored by the U.S. IOOS (Integrated Ocean Observing System) and the Maritime Alliance. And, don't miss the NOAA booth in the Exhibit Hall.

NOAA is proud to be part of this exciting OCEANS week and hope that you will have a rewarding and stimulating experience.

Conference Information

Conference Registration

Onsite registration for OCEANS '15 will be available at the Gaylord National in the Prince George AB Foyer, just outside the Exhibit Hall. Registration hours are as follows:

Day	Time
Monday, October 19	7:00 am – 7:00 pm
Tuesday, October 20	7:00 am – 7:00 pm
Wednesday, October 21	7:00 am – 5:30 pm
Thursday, October 22	7:00 am – 12:00 pm

Tutorials & Workshops (Monday, October 19)

Tutorials are an add-on to the main OCEANS conference and you may register for a Tutorial or Workshop without registering for the full conference. Please check in at the registration desk to confirm.

Time
8:00 am – 5:00 pm (full day tutorial)
8:00 am – 12:00 pm (half day tutorial, morning)
1:00 pm – 5:00 pm (half day tutorial, afternoon)
9:00 am – 4:00 pm (full day workshop)
8:30 am – 12:30 pm (half day workshop, morning)
1:00 pm – 5:00 pm (half day workshop, afternoon)

Exhibit Hall Hours

The OCEANS '15 Exhibit Hall is located at the Gaylord National in the Prince George AB Exhibit Hall, and will be open during the hours listed below.

Day	Time
Tuesday, October 20	10:00 am – 7:00 pm
Wednesday, October 21	9:00 am – 5:00 pm
Thursday, October 22	9:00 am – 3:30 pm

Opening Ceremony and Plenary Session

OCEANS '15 will open with the Plenary Session, highlighted by keynote presentations. This session will take place on **Tuesday, October 20 at 8:00 am**, and will be followed by the official opening of the OCEANS '15 Exhibit Hall at 10:00 am.

Sea Change: Dive into Opportunity

Plenary Speakers

Rear Admiral Tim Gallaudet, USN
Oceanographer of the Navy

Dr. Richard Spinrad
Chief Scientist, National Oceanic and Atmospheric Administration

Technical Session Hours

Technical Sessions are scheduled for Tuesday, October 20, Wednesday, October 21 and Thursday, October 22 during the following hours:

Time
8:30 am – 10:00 am
10:30 am – 12:00 pm
1:30 pm – 3:00 pm
3:30 pm – 5:15 pm

Student Poster Hours

The posters will be on display in the Exhibition area throughout the OCEANS Conference. Students will be at their posters for contest judging and to interact with interested delegates during each coffee break and during the Exhibitor Reception.

Day	Time
Tuesday, October 20	10:00 am – 7:00 pm
Wednesday, October 21	9:00 am – 5:00 pm
Thursday, October 22	9:00 am – 3:30 pm

Coffee Breaks

Coffee breaks will be served at 10:00 am and 3:00 pm daily (Tuesday, Wednesday, and Thursday) in the Exhibit Hall located in Prince George Exhibit Hall AB.

Luncheons

Luncheon	Day/Time
IEEE/OES Awards Luncheon	Tuesday, October 20, 12:00 pm – 1:20 pm
MTS Awards Luncheon	Wednesday, October 21, 12:00 pm – 1:20 pm
Exhibitors' Luncheon	Thursday, October 22, 12:15 pm – 1:20 pm

Social Events

Ice Breaker Reception

Gaylord National – Potomac Terrace

Monday, October 19 – 5:30 to 7:00 pm

Take an opportunity to pick up registration materials early then join us for the official kick off of the OCEANS '15 conference. Wander out to the Potomac Terrace that affords stunning views of the river and Old Town Alexandria, Virginia and have a cocktail while catching up with old and new colleagues!

IEEE/OES Awards Luncheon

Gaylord National – Woodrow Wilson Ballroom

Tuesday, October 20 – 12:00 to 1:20 pm

Enjoy lunch while catching up with IEEE/OES and honoring their award winners.

Exhibitor Reception

Gaylord National – Prince George Exhibit Hall AB

Tuesday, October 20 – 5:00 to 7:00 pm

Spend quality time with the Exhibitors while enjoying the end of the first full conference day with a great selection of food stations and beverage options.

MTS Awards Luncheon

Gaylord National – Woodrow Wilson Ballroom

Wednesday, October 21 – 12:00 to 1:20 pm

Take a break to hear the MTS State of the Society address, recognize their award winners, and learn the results of the Society elections.

Capital Casino Night

Gaylord National – Potomac Ballroom

Wednesday, October 21 – 7:00 to 10:00 pm

Top off the OCEANS '15 conference with an exciting evening of great food and fun. The OCEANS '15 Conference Committee invites you to enjoy all your favorite casino games brought right to you! Test your skills, your strategy, and your bluff by joining other conference attendees at Texas Hold'em, Blackjack, Roulette, Craps, and more! Plus, you can enjoy interactive entertainment including a strolling magician that will use a combination of magic, psychology, hypnosis and suggestion, demonstrating the untapped powers of the mind!

Lunch with the Exhibitors

Gaylord National – Prince George Exhibit Hall AB

Thursday, October 22 – 12:15 to 1:20 pm

Pick up your box lunch after the Student Poster Competition Award Ceremony, visit with the Exhibitors, and make plans to attend OCEANS '16 MTS/IEEE Monterey!

Sea Change: Dive into Opportunity

Internet Access

Wireless is provided throughout the Exhibit Hall for your convenience. There is an internet café and cellular phone charging station located inside the Exhibit Hall.

Username: **oceans15**

Passkey: **mtsieeeeees**

Unauthorized Audio/Video Recording

Unauthorized Audio/Video Recording of tutorial, plenary, or technical sessions is not permitted.

Messages

A message board is available near the Information Desk in the Woodrow Wilson Foyer.

Non Discrimination Policy

IEEE and MTS is committed to the principle that all persons shall have equal access to programs, facilities, services, and employment without regard to personal characteristics not related to ability, performance, or qualifications as determined by IEEE policy and/or applicable laws. For more information on the IEEE policy visit, http://www.ieee.org/about/corporate/governance/p9-26.html?WT.mc_id=hpf_pol

Local Information

Conference Venue

The Gaylord National anchors the 300 acre National Harbor waterfront entertainment district, located 8 miles south of Washington DC. The Gaylord National Resort & Convention Center offers visitors to the nation's capital region everything they are looking for in a convention destination, vacation getaway or business trip.

Discover the first-class destination which includes fine dining and casual restaurants, unique shopping experiences, an indoor pool and 20,000 square foot spa and fitness center. And, for late-night excitement, an express elevator speeds you to the two-story rooftop Pose Ultra-Lounge.

This 19-story glass atrium welcomes you with sweeping views of the Potomac River, Washington DC and Old Town Alexandria in the distance.

Gaylord National Resort & Convention Center

201 Waterfront Street

National Harbor, Maryland 20745 USA

Hotel Information – Airports – Transportation

Hotel Parking

On-site parking, fee: 6 USD hourly, 24 USD daily

Valet parking, fee: 35 USD daily

Ronald Reagan Washington National Airport - DCA

Hotel direction: 8 miles

The Gaylord does not provide shuttle service.

Alternate transportation: SuperShuttle; fee: 19 USD (one way); reservation required

Estimated taxi fare: 25 USD (one way)

Washington Dulles International Airport - IAD

Hotel direction: 35 miles

The Gaylord does not provide shuttle service.

Alternate transportation: SuperShuttle; fee: 44 USD (one way); reservation required

Estimated taxi fare: 70 USD (one way)

Baltimore/Washington International Thurgood Marshall Airport - BWI

Hotel direction: 42 miles

Alternate transportation: SuperShuttle; fee: 45 USD (one way); reservation required

Estimated taxi fare: 70 USD (one way)

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Other Transportation

Bus Station

[Franklin St & S Pitt St Station](#) 3.8 miles

Subway Station

[Braddock Road Station](#) 4.8 miles

[Branch Ave Metro](#) 8 miles

Train Station

[Amtrak Station ALX](#) 5.6 miles

Car Rentals

[Hertz](#) (on property)

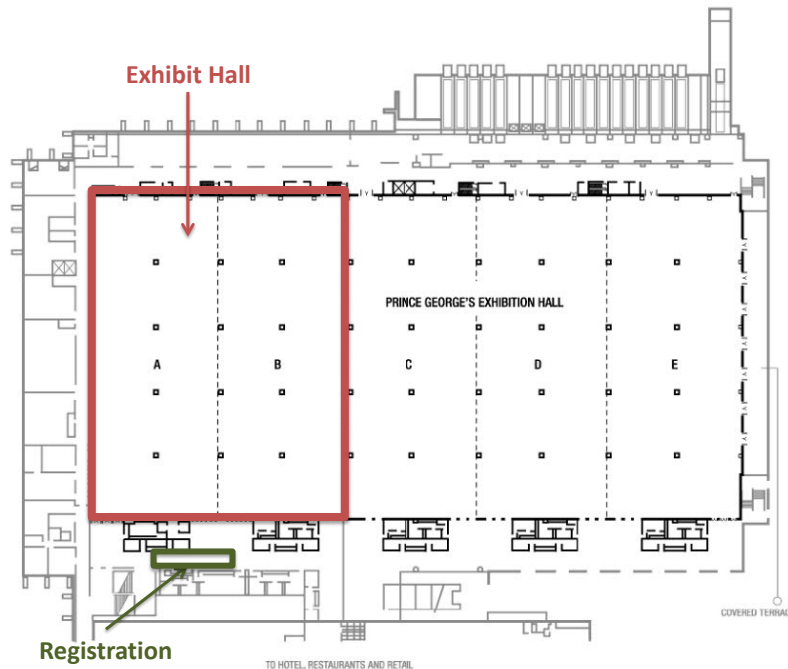
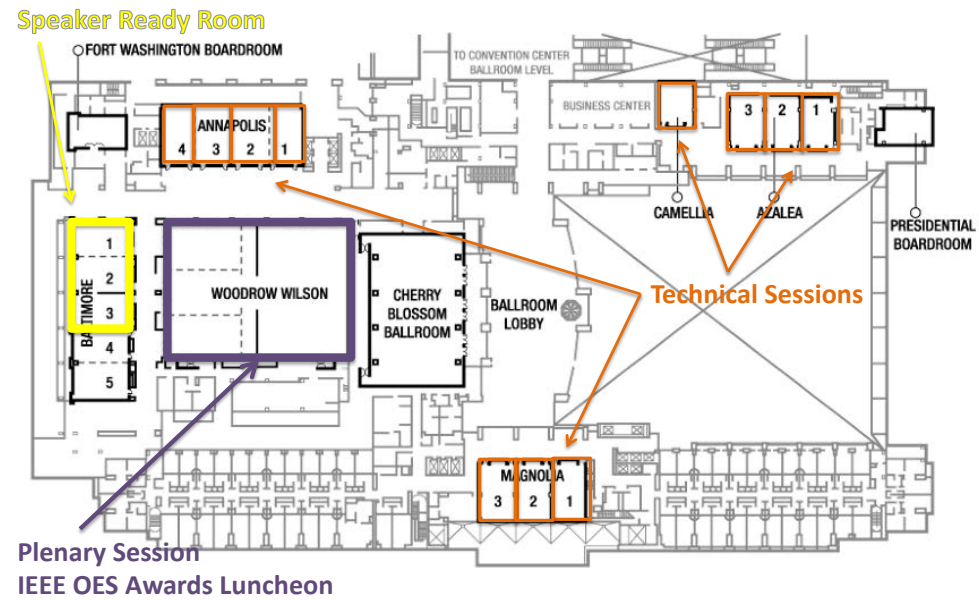
201 Waterfront Street

National Harbor, Maryland 20745

Phone: +1-301-567-4160

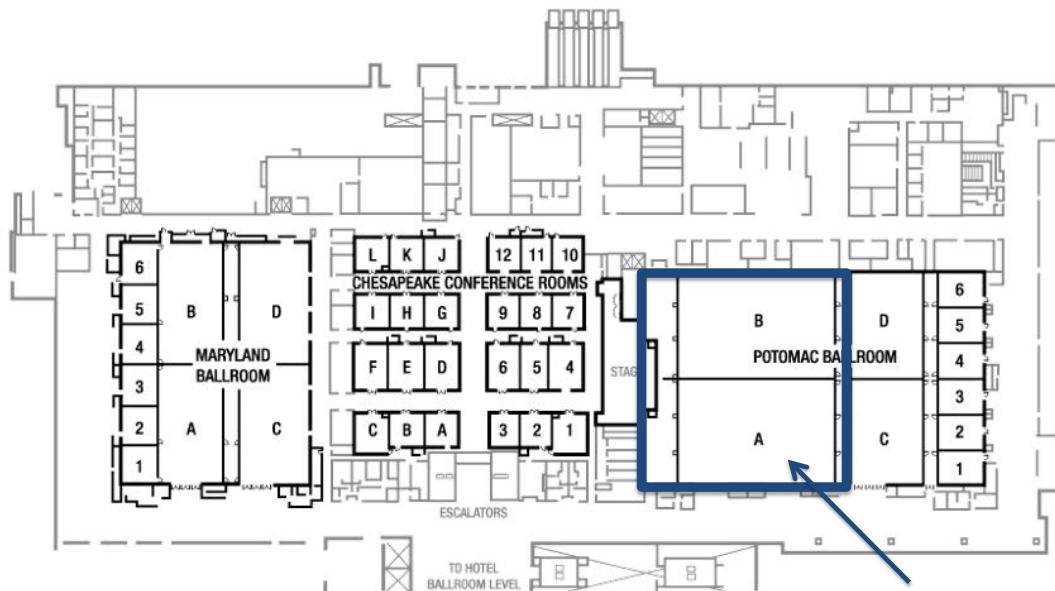
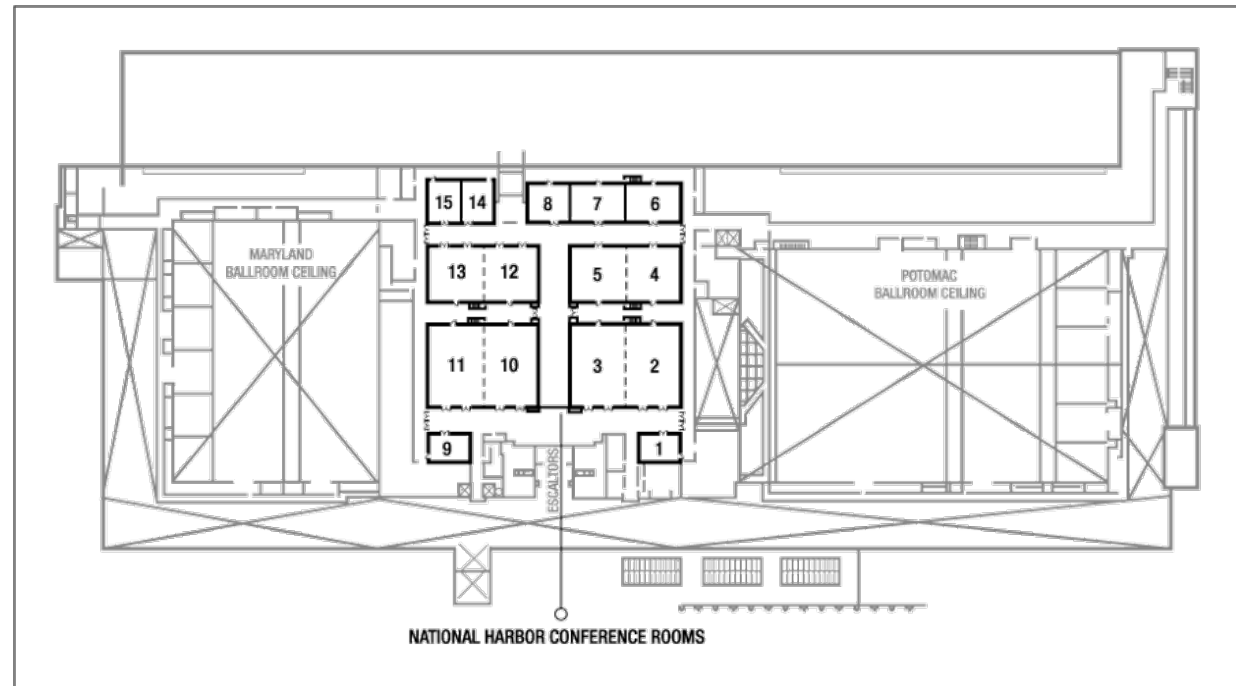
This image shows a full page of blank, lined paper. It features approximately 20 evenly spaced horizontal blue lines across its entire width, providing a guide for handwriting or typing. The background is a clean, solid white color.

WW Ballroom



Prince George

National Harbor



Potomac

OCEANS '15 Gala Reception

Sea Change: Dive into Opportunity

Plenary Speaker



**Rear Admiral
Tim Gallaudet, USN**

Oceanographer of the Navy

The son of a Naval Intelligence officer, Rear Admiral Gallaudet received a bachelor's degree in oceanography from the U.S. Naval Academy in 1989. He received master's and doctoral degrees in oceanography from Scripps Institution of Oceanography in 1991 and 2001 respectively.

A Naval Oceanographer, Rear Adm. Gallaudet's afloat tours included Oceanographic Unit Five aboard USNS Harkness, USS Peleliu, USS Kitty Hawk, and temporary assignments to the staff of Commander Sixth Fleet aboard USS LaSalle and USNS Bowditch. During these tours, Rear Adm. Gallaudet served in Operations Southern Watch, Provide Promise, Sharp Guard, Deny Flight, Enduring Freedom, and Iraqi Freedom. While on USNS Bowditch, he participated in the first operational launch and recovery of an undersea glider from a Naval Oceanographic Survey (T-AGS) ship.

Ashore, Gallaudet served with the Naval European Meteorology and Oceanography Center, Rota, Spain; the Naval European Meteorology and Oceanography Detachment, Souda Bay, Greece; the Naval Oceanographic Office, and the staffs of the Commander, Naval Meteorology and Oceanography Command and the Oceanographer of the Navy. He was the plank-owner commanding officer of the Naval Oceanography Special Warfare Center and the Superintendent of the U.S. Naval Observatory. He also served on the staff of the Chief of Naval Operations as the deputy oceanographer of the Navy, before assuming command of the Naval Meteorology and Oceanography Command in June 2014.

Gallaudet wears several decorations, which are all the direct result of the professionalism, loyalty and excellence of the Sailors and officers who served with him. His receipt of the 2003 Commander, Naval Air Forces Leadership Award is one such example.

Plenary Speaker



Dr. Richard Spinrad

**Chief Scientist, National
Oceanic and Atmospheric
Administration**

An internationally recognized scientist and executive with more than 30 years of experience, Dr. Spinrad is the senior scientist for the agency, driving policy and program direction for science and technology priorities. Until this appointment, Dr. Spinrad served as vice president for research at Oregon State University (OSU) in Corvallis, Oregon, and from 2003 until 2010, was the head of NOAA's Office of Oceanic and Atmospheric Research and the head of the National Ocean Service.

As Assistant Administrator for research for NOAA, Dr. Spinrad directed the agency's programs in oceanography, atmospheric science, and climate. He directly supervised several of NOAA's high-profile research efforts, including supervising ocean exploration, the National Sea Grant College Program, and the Climate Program Office, as well as seven NOAA laboratories around the United States.

Among his accomplishments, Dr. Spinrad was a co-lead of the White House Committee that developed the nation's first set of ocean research priorities and oversaw the revamping of NOAA's research enterprise. He also served as the Department of Commerce representative to the Office of Science and Technology Policy committee addressing scientific integrity.

He spent two years as NOAA's Assistant Administrator for Oceanic Services and Coastal Zone Management, directing the agency's navigation and coastal services, including the National Geodetic Survey, the Office of National Marine Sanctuaries, and the Office of Coastal Resource Management. As part of his duties, he represented U.S. interests in the establishment of a global tsunami warning system.

Prior to joining NOAA, Dr. Spinrad served as a research director with the U.S. Navy (Office of Naval Research and Oceanographer of the Navy), where he was awarded the U.S. Navy Distinguished Civilian Service Award (highest award given by the U.S. Navy to a civilian). He has held faculty appointments at three universities, directed a major national non-profit organization, presided over a private company, and worked as a research scientist. He also developed the National Ocean Sciences Bowl for high school students.

Sea Change: Dive into Opportunity

Dr. Spinrad served as the U.S. Permanent Representative to the United Nations' Intergovernmental Oceanographic Commission. He is the recipient of Presidential Rank Awards from Presidents George W. Bush and Barack H. Obama. Dr. Spinrad is the past-President of the Oceanography Society and was President-Elect of the Marine Technology Society. He is also a Fellow of the American Meteorological Society, the Marine Technology Society and the Institute of Marine Engineering, Science and Technology.

Dr. Spinrad received his B.A. in earth and planetary sciences from The Johns Hopkins University in Baltimore, Maryland. He received his M.S. and Ph.D. both in oceanography from Oregon State University.

Special Sessions, Town Halls, and Panels

Monday, October 19

2:00 – 4:00 pm

Career Panel for Students

Oceans 2015 has assembled a career panel whose purpose is to acquaint students with some of the many career options in the oceans field. Representatives from Government, Industry, and Academia will give brief overviews of what they do and then there will be an opportunities to talk in small groups or one-on-one.

Tuesday, October 20

1:30 – 3:00 pm

Driving Technological Innovation through Ocean XPRIZES: XPRIZE

Prizes break down market failures by creating platforms for technological breakthroughs through the spirit of competition. The ocean community can solve many of the ocean's grand challenges using large-scale incentivized prizes to attract the world's brightest thinkers and entrepreneurs to solve specified problems. Prizes push the needle for advancement through discrete timelines for research and development, and they offer competitors a global stage to display new products. This panel hosted by XPRIZE, the leader in incentivized prizes for innovative technologies, will discuss prize theory and the necessity for disruptive technologies within the ocean field. Along with participating teams, the panel will examine the successful outcomes of the Wendy Schmidt Ocean Health XPRIZE, and the innovative pH and ocean sensor technologies developed during this competition.

3:30 – 5:00 pm

Ignite! A lightning round of innovations, discoveries, and applications in Blue Tech!
US IOOS and the Maritime Alliance

Blue technology is evolving at an astonishing pace with new information coming out every day. In this lively, fast-paced, 90-minute session, the Maritime Alliance and U.S. IOOS has gathered experts and hands-on users from federal, regional, and international agencies and associations to show you the newest advances from the tech world, how they're working in real-world marine applications, and how they're propelling marine intelligence to the next level. Led by a moderator, each 5-minute presentation is designed to bring you the info you need to *Ignite* your passion for blue tech. Take notes and be curious--there's time for questions at the end!



Wednesday, October 21

8:30 – 10:00 am

Panel on the Future of Long Duration Maritime Autonomy: Matthew Bays

Sea Change: Dive into Opportunity

The use of autonomous and unmanned systems for complex operations spanning several days to months is becoming increasingly prevalent in the maritime domain. The systems are motivating research in long-term observation, acoustic sensing, and even field experiments in trans-Atlantic autonomous navigation. Additionally, long-duration autonomy is a key component to several current and former Office of Naval Research (ONR) programs. We have organized a panel session for OCEANS 2015 on long- duration maritime autonomy. The panelists will discuss the current status of long-duration maritime autonomy, and the future as seen from their perspective. The panelists come from four of the primary stakeholders in maritime autonomy research: government sponsor, academia, government laboratory, and industry. Additionally, the panelists bring differing levels of experience within the maritime autonomy domain, from junior faculty instilled with the latest cutting- edge research techniques to senior government personnel with decades of experience within research, development, test and evaluation (RDT&E) and acquisition programs involving autonomy. These differing points of view will give unique insights into the history and future of long-duration maritime autonomy. The panel is expected to last for a one- hour technical session, and will consist of a combination of pre-constructed questions, audience questions, and open discussion amongst the panelists.

8:30 – 10:00 am

Marine Planning & Data-Related Tools: Key Aspects of the National Ocean Policy: Beth Kerttula, National Ocean Council

The National Ocean Council Director, Ms. Beth Kerttula will moderate a panel of National Ocean Council leaders including Co-Chairs of the two interagency policy committees (IPC), the Ocean Science & Technology IPC and the Ocean Resource Management IPC, and a Federal Co-Lead from one of the National Ocean Policy regions. The panelists will deliver brief remarks that will lead into a panel discussion including a question and answer session from the audience.

10:30 am – 12:00 pm **Town Hall Session on Marine Technology and Services in the Blue Economy:** US IOOS/The Maritime Alliance

At the juncture of Blue Technology and Blue Economy, the outlook has never been brighter. Co-sponsored by U.S. IOOS and The Maritime Alliance, this 90-minute Town Hall offers public and private perspectives on new developments and technologies that are allowing us to work with the ocean in unprecedented ways, propelling the economic value of the seas forward, and making a huge impact on the global economy. These advances, in tandem with data and scientific knowledge gained from ocean monitoring and observing, will help us strike a balance between economic growth and responsible stewardship as well as communicate our message --our Blue Voice--on a national and international level.



Moderator and Opening Remarks:

Sherri Goodman, President & CEO, The Consortium for Ocean Leadership

Panelists:

1. Government, DOT Perspective: Michael Rodriguez– Deputy Administrator MARAD (accepted – pending approval)
2. TBD
3. Marine Technology Cluster: Laurie Jugan, Director Marine Sector Cluster in Mississippi
4. Marine Cluster and Maritime Law: Harlan Doliner – President, Marine Ocean Technology Network (MOTN)
5. Blue Voice: Fred Terral, President, CEO & Executive Creative Director, Brand Architecture, LLC

This follows the MTS/IEEE Oceans14 Town Hall meeting on Industry Partnership and the MTS/IEEE Oceans '15 **Ignite! A lightning round of innovations, discoveries, and applications in BlueTech** Session on Tuesday, October 20, 2015. This event also preludes **Promoting OceanSTEM and Blue Economy Workforce Development** on Thursday, October 22 also at Oceans '15 and the 7th Annual **BlueTech and Blue Economy Summit** November 9-10, 2015 in San Diego.

1:30 – 3:00 pm

Identifying Common Themes in National Ocean Policies to Advance Global Ocean Science Collaboration through the Intergovernmental Oceanographic Commission (IOC): Craig N. McLean, NOAA

The global ocean is widely recognized as a key engine of planetary equilibrium and sustainable development that is positioned at the center of national ocean science and economic policy. With growing expectations of benefits and challenges from the oceans comes a requirement for scientific understanding to inform policy and governance. Ocean policy should encourage balancing development and growth with science-based conservation and sustainable management of ocean and coastal resources and ecosystems. The advancement of science, technology and innovation is critical to ensure that the international community has access to sound and useful data and information to guide decision-making. This panel will highlight best practices that have shown proven results for international collaboration fostering sustainable management and sound ocean governance in addition to comparing content in the National Ocean Policies of multiple nations to identify where commonalities exist in order to leverage work together on an international level. As no one nation can shoulder the grand challenges and opportunities the oceans present, the panel will assess how the Intergovernmental Oceanographic Commission (IOC) can be used as a framework and platform to strategically focus nations on a global ocean science agenda leveraging multi-national collaboration into the 21st century.

Sea Change: Dive into Opportunity

3:30 – 5:00 pm

OCEANS '25 (and beyond) - Envisioning the Future of Marine Technology and Ocean Engineering: MTS/IEEE OCEANS '15 Technical Committee

As OCEANS returns to Washington DC for the first time since 2005, we look ahead at what OCEANS '25 might bring. A panel of leaders with insightful and authoritative visions in diverse aspects of marine technology and ocean engineering will discuss future needs, trends, and likely accomplishments in their fields and in the community.

Thursday, October 22

8:30 – 10:00 am

Policy and Planning for Responsible Offshore East Coast Development – Technological Considerations: Hank Lobe (Sonardyne/Severn Tech.), Ruth Perry (Shell Exploration and Prod. Co.)

The outer continental shelf (OCS) off the east coast United States is presently the subject of policy, planning and environmental assessments in anticipation of wind energy development and oil and gas exploration. Technology can provide valuable information to policy and planning and is how prudent development can be done responsibly. The purpose of the panel discussion is to discuss role of technology in the addressing concerns associated with east coast energy development. The panel members will consist of: US government policy experts, oil and gas technology experts the oceanographic scientific communities.

10:30 am – 12:00 pm **The Importance of Collaborative Science and Technological Advances for Ocean Science and Offshore Energy Development:** Ruth Perry (Shell Exploration and Prod. Co.), Hank Lobe (Sonardyne/Severn Tech.)

A number of important and critical oceanographic instruments, data products and platform technologies have been shared between scientific interests, defense interests and the offshore oil and gas industry. In some cases the technologies have been developed for the oil and gas industry and then transitioned for use by the science community. There are other instances where technologies have been developed for scientific applications and transitioned for use by the offshore oil and gas industry. Regardless, collaborative science inquiry and collaborations is necessary to responsible energy development. The panel discussion will focus on specific examples of the technology use, transitions noted, and successful models of public- private collaborations. An important part of the discussion will be the cost sharing of technology development as well as the economic efficiencies of cost sharing and leveraging of technology applications.

10:30 am – 12:00 pm Town Hall on Promoting OceanSTEM and Blue Economy Workforce Development: Liesl Hotelling, MTS VP Education (co-sponsored by NOAA and The Maritime Alliance)

The Blue Economy workforce will require an interdisciplinary understanding of the ocean and the ability to integrate science concepts, engineering methods, and sociopolitical considerations. Resolving complex ocean issues related to economic stability, environmental health, and national security will require a workforce with diverse skills and backgrounds. To address necessary technology skills, engage underrepresented audiences, and broaden the nation's technological talent base, all students must be provided with more opportunities to learn practically rather than theoretically—through self-motivated discovery, as opposed to didactic lecturing—and in collaborative learning environments using technology-based problem solving.



In order to tackle these needs effectively, players from the research, business, military and education communities will need to partner to provide skills development opportunities at all stages of careers, from PhD candidates to technicians. To be inclusive, these opportunities must also encourage transnational, inter-sectoral and interdisciplinary mobility.

As the BlueTech/Blue Economy grows in areas across the United States, how will we cultivate a workforce to support the sector?

During this session, we will explore several topics:

- clarifying the definition of a STEM capable workforce
- new, innovative and dynamic education and training pathways
- the voice of the employers
- the role of K-12 education
- developments in university education and their impact on STEM workforce readiness

Tutorials

Monday, October 19

Tutorials are half-day or full-day presentations that are meant to complement the technical program of OCEANS '15 DC by describing the fundamental elements of a technology and/or rudiments of a subject in a classroom setting.

T1. Applied Bayesian Signal Processing

Instructor: James V. Candy
Time: 8:00am – 12:00pm
Location: Magnolia 1

T2. Bayesian Multiple Target Tracking

Instructor: Lawrence D. Stone and Kristine L. Bell
Time: 1:00pm – 5:00pm
Location: Magnolia 1

T3. MIMO in the Water

Instructor: Mauro Biagi
Time: 1:00pm – 5:00pm
Location: Magnolia 3

T4. Statistical properties and time-frequency analyses of environmental time series

Instructor: Ingrid Puillat and Dhouha Kbaier
Time: 8:00am – 5:00pm
Location: Magnolia 2

T5. The Emerging Oceanic Natural Gas Hydrate Resource: Opportunities for Technology Development to Enable Commercialization

Instructor: Michael D. Max and Arthur H. Johnson
Time: 8:00am – 12:00pm
Location: Magnolia 3

T6. Technological Forecasting for Science & Technology Intelligence: Predicting the Future History of Technology

Instructor: Richard P. Mignogna
Time: 8:00am – 5:00pm
Location: Annapolis 1

T7. Systems Engineering

Instructor: Bob Rassa
Time: 8:00am – 12:00pm
Location: Annapolis 2

Sea Change: Dive into Opportunity

Workshops

Monday, October 19

Workshops are half-day or full-day presentations that will take place on Monday, October 19, as indicated below. Workshops are free of charge, however participants must register in advance. Please stop by the registration desk located in the Prince George Foyer to register.

W1. Catalyzing Ocean Services in a World of Abundant Ocean Data

Presenter: XPRIZE

Time: 9:00 AM – 4:00 PM

Location: Annapolis 4

How can we light a fire to transform ocean data into valuable products? This engaging workshop facilitated by XPRIZE, the world's leader in incentivized prize competitions, will bring together leaders in the nascent ocean services industry, government, and technology to brainstorm solutions for organizing and broadcasting the increasing amount of ocean data gathered each day. The goal of the workshop is to generate actions to catalyze the further growth of a potentially multi-billion dollar industry in ocean data products and services. Keynote speakers will include Dr. Rick Spinrad and Dr. Ralph Rayner.

W2. The Evolution of Subsea Vehicles

Presenter: Dr. James R. McFarlane, International Submarine Engineering Ltd.

Time: 8:30 am – 12:30 pm

Location: Annapolis 3

The workshop discusses how subsea systems - starting with the manned submersible in the 1960s - made their way into the offshore petroleum market, followed closely by ROVs in the 1970s and AUVs in the 1980s. Subsequent markets were infiltrated with robotic systems that answered the demand, increased the safety, and still answer each market's technical and challenging requirements.

Field work and discoveries are also covered, including the Dive of the Trieste, and the recovery of PISCES III and its crew, as well as the introduction of the tethered vehicles, and development of some of the military's MCM vehicles. The section on ROV uses covers swath imaging, salvage, science applications, maintenance and survey.

Leading the only team that has developed and performed autonomous vehicle operations under the Arctic ice, Dr. McFarlane will describe the unique challenges and technical outcomes of the THESEUS AUV, and subsequent outcomes by ISE's Arctic Explorer AUV.

W3. Latest Advancements in Underwater Imaging Technology

Presenter: Fraser Dalgleish and Frank Caimi

Time: 8:30 am – 12:30 pm

Location: Camelia

This half day workshop, hosted jointly by the MTS Underwater Imaging Committee and IEEE OES will include a handful of invited presentations describing the latest underwater imaging technologies, either under development or available as commercial products. The attendees, who will include representatives from academia, industry and government, will be engaged in discussion to identify areas of importance and potential markets for future imaging technologies.

W4. Advancing environmental sensor technology and platform integration for improved ocean observations

Presenter: Jake Sobin

Time: 1:00 pm – 5:00 pm

Location: Annapolis 3

While the changing climate leaves many uncertainties, what we do know is the effect on the oceans. It is clear that innovative solutions for environmental monitoring are needed more than ever. On the scientific research front, dissolved gas sensors are being used in the field of climate studies, air-sea exchange and ocean acidification, CO₂ sequestration applications (CCS), aquaculture, and limnology. This workshop will focus on the advancement of sensor technology and platform integration for improved ocean observations. The workshop will highlight the different sensors technologies available for dissolved gas measurements, while also focusing on sensor carriers (platforms). In addition, the program will feature case studies and a hands-on sensor demonstration. Presenters from this workshop will be offered the opportunity to publish a scientific note in the MTS Journal. This opportunity is open to all workshop/tutorial presenters. Presenters in the technical program will be given the opportunity to expand upon their papers by publishing a manuscript for this special issue.

NOTES

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Sea Change: Dive into Opportunity

Student Posters

Location: Prince George Hall A

Quantifying California Current Plankton Samples with Efficient Machine Learning Techniques

Jeffrey Ellen, *University of California San Diego*

Hongyu Li, *University of California, San Diego*

Mark Ohman, *Scripps Institution of Oceanography/UC San Diego*

Co-Prime Comb Signals for Active Sonar

Jonathan Soli, *Duke University*

Granger Hickman, *Duke University*

An inertial system for the production of electricity and hydrogen from seawave energy

Antonella Colucci, *University of Palermo*

Valeria Boscaïno, *University of Palermo*

Giovanni Cipriani, *University of Palermo*

Domenico Curto, *University of Palermo*

Vincenzo Franzitta, *University of Palermo*

Vincenzo Di Dio, *University of Palermo*

Marco Trapanese, *University of Palermo*

Alessia Viola, *University of Palermo*

Seafloor video compression using adaptive hybrid wavelets and directional filter banks

Yang Zhang, *Ocean University of China & University of Miami*

Qingzhong Li, *Ocean University of China*

Shahriar Negahdaripour, *University of Miami*

Higher Order Statistics Based Direction of Arrival Estimation with Single Acoustic Vector Sensor in the Under-determined Case

Ashish Agarwal, *Indian Institute of Technology, Delhi*

Arun Kumar, *Indian Institute of Technology, Delhi*

Monika Agarwal, *Indian Institute of Technology, Delhi*

Acoustic Doppler Compensation using Feedforward Retiming for Underwater Coherent Transmission

Xiao Liu, *Dalhousie University*

Jean-Francois Bousquet, *Dalhousie University*

Correlation bias analysis - A novel method of sinus cardinal model for least squares estimation in cross-correlation

Thanh Huy Nguyen, *Telecom Bretagne*

Myriam Chabah, *Thales Underwater Systems SAS*

Christophe Sintes, *Telecom Bretagne*

Real-time Fish Localization with Binarized Normed Gradients

Xiu Li, *Graduate School at Shenzhen, Tsinghua University*

Jing Hao, *Graduate School at Shenzhen, Tsinghua University*

Hongwei Qin, *Graduate School at Shenzhen, Tsinghua University*

Liansheng Chen, *Graduate School at Shenzhen, Tsinghua University*

Bathymetric Factor Graph SLAM with Sparse Point Cloud Alignment**Vittorio Bichucher**, *University of Michigan - Perceptual Robotics Laboratory*Jeffrey Walls, *University of Michigan - Perceptual Robotics Laboratory*Katherine Skinner, *University of Michigan - Deep Robot Optical Perception*Ryan Eustice, *University of Michigan - Perceptual Robotics Laboratory*Paul Ozog, *University of Michigan - Perceptual Robotics Laboratory***Identifying Structural Anomalies in Image Reconstructions of Underwater Ship Hulls****Paul Ozog**, *University of Michigan*Ryan Eustice, *University of Michigan***Hydrodynamic Analysis of A Rim-driven Thruster Based on RANS Method****Minjian Cai**, *Zhejiang University*Canjun Yang, *Zhejiang University***Underwater Robot Localization in the Presence of Dramatic Appearance Changes****Jie Li**, *University of Michigan*Ryan Eustice, *University of Michigan*Matthew Johnson-Roberson, *University of Michigan***Autonomous Surface Vehicle 3D Seafloor Reconstruction from Monocular Images and Sonar Data****Eduardo Iscar Ruland**, *University of Michigan*Matthew Johnson-Roberson, *University of Michigan***Detection and Segmentation of Underwater Archaeological Sites Surveyed with Stereo-Vision Platforms****Katherine Skinner**, *University of Michigan*Matthew Johnson-Roberson, *University of Michigan***Sparse-Representation-Based Adaptive Interference Suppression****Yishu Shi**, *Beijing Normal University*Suiling Ren, *State Key Laboratory of Acoustics, Institute of Acoustics, Chinese Academy of Sciences*Ying Chen, *Beijing Normal University*Fengxiang Ge, *Beijing Normal University***A Wideband Noise-like Transmitter Approach for Underwater Lidar using Diode Lasers and Passive Fiber Optic Processor****Luke Rumbaugh**, *Clarkson University*David Illig, *Clarkson University*Mahesh Banavar, *Clarkson University*Brandon Cochenour, *NAWC Pax River*William Jemison, *Clarkson University*

Sea Change: Dive into Opportunity

Wind direction retrieval from rain-contaminated X-band nautical radar images

Weimin Huang, *Memorial University of Newfoundland*

Yali Wang, *Memorial University of Newfoundland*

The adaptive robust tracking control of deep-sea hydraulic manipulator based on backstepping design

Xiaoxu Cao, *Zhejiang University*

Linyi Gu, *Zhejiang University*

Gaosheng Luo, *Zhejiang University*

Yaoyao Wang, *Zhejiang University*

A Process to Simulate GNSS-R Delay-Doppler Map of Tsunami-dominant Sea Surface

Qingyun Yan, *Memorial University of Newfoundland*

Weimin Huang, *Memorial University of Newfoundland*

Posters are available for viewing during Exhibit Hours:

Tuesday, October 20
10:00 am – 7:00 pm

Wednesday, October 21
9:00 am – 5:00 pm

Thursday, October 22
9:00 am – 3:30 pm

Thursday, October 22
Presentation of Awards
12:00 p.m. - 1:00 p.m.

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Sea Change: Dive into Opportunity

Technical Program

Sonar Signal Processing 1

Tuesday, October 20 (1:30 PM - 3:00 PM)

Location: Azalea 1

Co-Chairs:

Tim Claussen, University of Kiel, Germany

Zhao Li, Harbin Engineering University

(1:30 PM) Compensation of Vehicle Motion Influence in a Long Baseline System Field Trial

Zhao Li, Harbin Engineering University

Stan Dosso, University of Victoria

Dajun Sun, Harbin Engineering University

(1:50 PM) Distributed Array of Cooperating Acoustic Sensors using Local Time-Frequency Coherence Analysis

Cornel Ioana, Grenoble INP, GIPSA-lab

Ion Candel, Grenoble INP, GIPSA-lab

Angela Digulescu-Popescu, Grenoble INP, GIPSA-lab

(2:10 PM) Underwater acoustic localization approach to an arbitrary distributed multi-elements array

Jie Ding, Harbin Engineering University

Dajun Sun, Science and Technology on Underwater Acoustic Laboratory

Cuie Zheng, Science and Technology on Underwater Acoustic Laboratory

(2:30 PM) Self-Tuning Active Sonar Signal Processing for a Towed Hydrophone Array During a Turn

Kolja Pikora, Kiel University

Frank Ehlers, Technical Centre for Ships and Naval Weapons

(2:50 PM) Applying MIMO concept to time reversal method on target resolving in shallow water

Jingning Jiang, Zhejiang University

Xiang Pan, Zhejiang University

Zheng Zheng, Zhejiang University

Autonomous Underwater Vehicles 1: Gliders 1**Tuesday, October 20 (1:30 PM - 3:00 PM)****Location: Azalea 2****Chair:****Clinton Haldeman, Center for Ocean Observing Leadership****(1:30 PM) Implementation of Energy Harvesting System for Powering Thermal Gliders for Long Duration Ocean Research****Clinton Haldeman, Center for Ocean Observing Leadership***Oscar Schofield, Center for Ocean Observing Leadership**Douglas Webb, Teledyne Webb Research**Jack Jones, Jet Propulsion Laboratory**Thomas Valdez, Jet Propulsion Laboratory***(1:50 PM) Simulating a Shape Memory Alloy Buoyancy Heat Engine for Undersea Gliders****Alex Angilella, Rensselaer Polytechnic Institute***Timothy Miller, The Penn State Applied Research Lab**Farhan Gandhi, Rensselaer Polytechnic Institute***(2:10 PM) Glider Advancements in Efficiency: Enhancing Factors Necessary for Ocean-Wide Flights****Liam Ramsay, Rutgers University***Caleb Lintz, US Naval Academy**Josh Kohut, Rutgers University**Oscar Schofield, Rutgers University**Travis Miles, Rutgers University**Scott Glenn, Rutgers University**Andrenette Morrison, Rutgers University***(2:30 PM) Model Comparison for Transatlantic Ocean Glider Flight: Student Analysis of Modern Circumnavigation****Andrenette Morrison, Rutgers University***Kelsey Ashbrook, US Naval Academy**Stephanie Lee, US Naval Academy**Erin Payne, US Naval Academy**Olivia Czerewko, US Naval Academy**Martin Arroyo, US Naval Academy**Travis Miles, Rutgers University**Josh Kohut, Rutgers University**Scott Glenn, Rutgers University**Oscar Schofield, Rutgers University***(2:50 PM) Sliding PD Control Performance on Autonomous Underwater Glider****Luis Garcia-Valdovinos, CIDESI***Tomas Salgado-Jimenez, CIDESI**Isabel Andrade, CIDESI**Manuel Bandala, CIDESI*

Sea Change: Dive into Opportunity

Vehicle Performance 1

Tuesday, October 20 (1:30 PM - 3:00 PM)

Location: Azalea 3

Chair:

Andrew Bouchard, NSWCD PCD (Code X22)

(1:30 PM) Control of an Underwater Vehicle in Irregular Waves

Thomas Battista, Virginia Tech

Craig Woolsey, Virginia Tech

(1:50 PM) A search game for optimizing information collection in UUV mission planning

John Baylog, NUWC NPT

Thomas Wettergren, NUWC NPT

(2:10 PM) A Real-time Vertical Plane Flight Anomaly Detection System for a Long Range Autonomous Underwater Vehicle

Ben Yair Raanan, MBARI

James Bellingham, WHOI

Yanwu Zhang, MBARI

Brian Kieft, MBARI

M. Stanway, MBARI

Rob McEwen, MBARI

Brett Hobson, MBARI

(2:30 PM) Verification of Autonomous Systems: Challenges of the Present and Areas for Exploration

Andrew Bouchard, NSWCD PCD (Code X22)

Richard Tatum, NSWCD PCD (Code X22)

Chinese manned submersible JIAOLONG's scientific cruise in 2014-2015

Xiangyang Li, China Ocean Mineral Resources R&D Association (COMRA)

Cong YE, China Ship Scientific Research Center

Chunsheng WANG, The Second Institute of Oceanography, State Oceanic Administration

Chunhui TAO, The Second Institute of Oceanography, State Oceanic Administration

Xiang XIAO, Shanghai Jiaotong University

Acoustic Telemetry and Communication 1**Tuesday, October 20 (1:30 PM - 3:00 PM)****Location: Annapolis 1****Chair:****Milica Stojanovic, Northeastern University****(1:30 PM) Tracking Tagged Fish Using a Wave Glider****Ryan Carlon, Liquid Robotics Inc****(1:50 PM) A Communications and Relative Navigation
Architecture for Underwater Vehicle Coordination****Thomas Furfaro, NATO STO Centre for Maritime Research and
Experimentation****Joao Alves, NATO STO Centre for Maritime Research and
Experimentation****(2:10 PM) Medium Access Control Mechanism for Multi-hop
Underwater Acoustic Networks Utilizing Time Reversal****Ruiqin Zhao, Northwestern Polytechnical University****Xiaohong Shen, Northwestern Polytechnical University****Yong Wang, Northwestern Polytechnical University****Zhe Jiang, Northwestern Polytechnical University****Weigang Bai, Northwestern Polytechnical University****Haiyan Wang, Northwestern Polytechnical University****(2:30 PM) Estimation and Compensation of Doppler Scale under
Varying Sampling Period, Channel, and Channel Taps in UAC
OFDM Systems****Sadia Ahmed, University of South Florida****(2:50 PM) Joint Power and Rate Control with Constrained
Resources for Underwater Acoustic Channels****Rameez Ahmed, Northeastern University****Milica Stojanovic, Northeastern University**

Sea Change: Dive into Opportunity

Sonar Imaging 1

Tuesday, October 20 (1:30 PM - 3:00 PM)

Location: Annapolis 2

Chair:

Sayuri Matsumoto, Port and Airport Research Institute

(1:30 PM) Experimentation for development of Underwater Acoustic Video Camera: in experiment dock

Kazuki ABUKAWA, Port and Airport Research Institute

Sayuri MATSUMOTO, Port and Airport Research Institute

Taketsugu HIRABAYASHI, Port and Airport Research Institute

Kazuhiro SHIRAI, Port and Airport Research Institute

Tomoo SATO, Port and Airport Research Institute

Hiroshi IIDA, TOA Corporation

Mitsuhiko Nanri, Hitachi, Ltd.

Muneo YOSHIE, Port and Airport Research Institute

Kageyoshi KATAKURA, Port and Airport Research Institute

Koji TAKAHASHI, Port and Airport Research Institute

(1:50 PM) A Rapid Weighted Median Filter based on Saliency Region for Underwater Image Denoising

Rui Nian, Ocean University of China

Xuefei Liu, Ocean University of China

Bo He, Ocean University of China

Amaury Lendasse, The University of Iowa

(2:10 PM) Real-Time Noise Reduction for Sonar Video Image Using Recursive Filtering

Hyeonwoo Cho, POSTECH

Juhyun Pyo, POSTECH

Jeonghwe Gu, POSTECH

Hangil Jeo, POSTECH

Son-Cheol Yu, POSTECH

(2:30 PM) Automatic object detection and segmentation from underwater images via saliency-based region merging

Yafei Zhu, Ocean University of China

Xinxin Qiu, Ocean University of China

Xiaoqing Sun, Ocean University of China

Haiyong Zheng, Ocean University of China

Bing Zheng, Ocean University of China

(2:50 PM) Study to reduce size and weight of underwater acoustic imaging system

Sayuri Matsumoto, Port and Airport Research Institute

Kageyoshi Katakura, Port and Airport Research Institute

Takenobu Tsuchiya, Kanagawa University

Nobuyuki Endoh, Kanagawa University

Access, Custody, and Retrieval of Data**Tuesday, October 20 (1:30 PM - 3:00 PM)****Location: Annapolis 4****Chair:****Vembu Subramanian, SECOORA****Physical Layer Design Towards VHF Data Exchange (VDE) Link****Ronald Raulefs, DLR (German Aerospace Center)**

Tore Stenbock, DLR (German Aerospace Center)

Armin Dammann, DLR (German Aerospace Center)

Simon Plass, DLR (German Aerospace Center)

(1:50 PM) Ship To Shore: ROV Dive Logging and Data Acquisition**Reyna Jenkyns, Ocean Networks Canada**

Jonathan Cheng, Ocean Networks Canada

Shane Kershtien, Ocean Networks Canada

Meghan Tomlin, Ocean Networks Canada

Daisy Qi, Ocean Networks Canada

Ron Schouten, Ocean Networks Canada

Tim Lavallee, Ocean Networks Canada

(2:10 PM) An end-to-end Workflow for Assessing Sea Surface Temperature, Salinity and Water Level Predicted by Coastal Ocean Models.**Vembu Subramanian, SECOORA**

Filipe Fernandes, Centro Universitário Monte Serrat, Santos

Richard Signell, USGS

Debra Hernandez, SECOORA

A participative tool for sharing, annotating and archiving submarine video data**Yann Marcon, Alfred Wegener Institute for Polar and Marine Research**

Renzo Kottmann, Max-Planck Institute for Marine Microbiology

Volker Ratmeyer, MARUM Center for Marine Environmental Sciences

Antje Boetius, Alfred Wegener Institute for Polar and Marine Research

(2:50 PM) Development of a smartphone application for disaster response**hyoungseong park, National Disaster Management Institute**

sungjin hong, National Disaster Management Institute

Sea Change: Dive into Opportunity

Current Measurement Technology 1

Tuesday, October 20 (1:30 PM - 3:00 PM)

Location: Magnolia 1

Chair:
Albert Williams, WHOI

(1:30 PM) Current Measurement Expeditions: Deep-sea, Shelf-edge, Near-surface, Shallow-water, and Under-ice
Albert Williams, WHOI

(1:50 PM) Estimating flow velocities of the water column using the motion response of an Autonomous Underwater Vehicle (AUV)
Supun Randeni Pathiranachchilage, Australian Maritime College (University of Tasmania)
Alexander Forrest, Australian Maritime College (University of Tasmania)
Remo Cossu, Australian Maritime College (University of Tasmania)
Zhi Leong, Australian Maritime College (University of Tasmania)
Dev Ranmuthugala, Australian Maritime College (University of Tasmania)

(2:10 PM) Real-time Ocean Surface Current Measurements in the Gulf of Mexico
Seth Zuckerman, Arete Associates
Steven Anderson, Arete Associates
Grant Stuart, Fugro GEOS
Cortis Cooper, Chevron Energy Technology Corp.

(2:30 PM) Prediction of Tidal Water Currents from Active Sonar Returns
Anna Slowikowski, The Johns Hopkins University Applied Physics Laboratory
Kevin Gormally, The Johns Hopkins University Applied Physics Laboratory

(2:50 PM) An Overview of Airborne Oceanic Survey Capabilities of the NOAA Aircraft Operations Center
Steven Paul, NOAA
Richard Henning, NOAA

Naval Architecture

Tuesday, October 20 (1:30 PM - 3:00 PM)

Location: Magnolia 2

Co-Chairs:

Sarah Mouring, U.S. Naval Academy

Hans Bjelland, SINTEF Fisheries and Aquaculture

(1:30 PM) The Undersea Constellation: The Leading Edge of the Joint Information Environment

Rachel Volner, SPAWAR Systems Center Pacific

George Galdorisi, SPAWAR Systems Center Pacific

(1:50 PM) Behavior of Perforated Metal-to-Composite Joints Subjected to Tensile Loading

Sarah Mouring, U.S. Naval Academy

Luke Louca, Imperial College

Reuben Brambleby, Imperial College

(2:10 PM) Exposed aquaculture in Norway: Technologies for robust operations in rough conditions

Hans Bjelland, SINTEF Fisheries and Aquaculture

Martin Føre, SINTEF Fisheries and Aquaculture

Pål Lader, SINTEF Fisheries and Aquaculture

David Kristiansen, SINTEF Fisheries and Aquaculture

Ingunn Holmen, SINTEF Fisheries and Aquaculture

Dariusz Fathi, MARINTEK

Esten Grøtli, SINTEF ICT

Frode Oppedal, Institute of Marine Research

Ingrid Utne, Norwegian University of Science and Technology

Ingrid Schjøllberg, Norwegian University of Science and Technology

Arne Fredheim, SINTEF Fisheries and Aquaculture

(2:30 PM) A computer simulation model for compliant beam bio-mimetic fish

R. Sharma, IIT Madras, Chennai, India

G. Govindarajan, IIT Madras, Chennai, India

(2:50 PM) Uncertainties in ship-based estimation of waves and responses

Najmeh Montazeri, Technical University of Denmark

Jørgen Jensen, Technical University of Denmark & Centre for Autonomous Marine Operations and Systems (AMOS), NTNU

Ulrik Nielsen, Technical University of Denmark & Centre for Autonomous Marine Operations and Systems (AMOS), NTNU

Ulrik Nielsen, Technical University of Denmark & Centre for Autonomous Marine Operations and Systems (AMOS), NTNU

Sea Change: Dive into Opportunity

Sound Propagation and Scattering 1

Tuesday, October 20 (1:30 PM - 3:00 PM)

Location: Magnolia 3

Co-Chairs:

Roger Gauss, Naval Research Laboratory

Yong Chai, Institute of Acoustics, Chinese Academy of Sciences

(1:30 PM) A barrel-stave projector with active material shell

Yong Chai, Institute of Acoustics, Chinese Academy of Sciences

XiPing Mo, Institute of Acoustics, Chinese Academy of Sciences

YaoZong Pan, Institute of Acoustics, Chinese Academy of Sciences

YongPing Liu, Institute of Acoustics, Chinese Academy of Sciences

Yunqiang Zhang, Institute of Acoustics, Chinese Academy of Sciences

(1:50 PM) Moment-Based Method to Statistically Categorize Rock Outcrops Based on their Topographical Features

Roger Gauss, Naval Research Laboratory

Joseph Fialkowski, Naval Research Laboratory

David Calvo, Naval Research Laboratory

Richard Menis, Naval Research Laboratory

Derek Olson, Applied Research Laboratory

Anthony Lyons, University of New Hampshire

(2:10 PM) A Physical Statistical Sonar Clutter Model for Spatially-Dispersed Scatterers

Joseph Fialkowski, Naval Research Laboratory

Roger Gauss, Naval Research Laboratory

(2:30 PM) Scale-model scattering experiments using 3D printed representations of ocean bottom features

David Calvo, Naval Research Laboratory

Michael Nicholas, Naval Research Laboratory

Joseph Fialkowski, Naval Research Laboratory

Roger Gauss, Naval Research Laboratory

Derek Olson, The Pennsylvania State University

Anthony Lyons, University of New Hampshire

(2:50 PM) Steered Nonlinear Field Computation and Measurement

Jianjun Zhu, Harbin Engineering University

Haisen Li, Harbin Engineering University

Baowei Chen, Harbin Engineering University

Jingxin Ma, Harbin Engineering University

Sonar Signal Processing 2

Tuesday, October 20 (3:30 PM - 5:15 PM)

Location: Azalea 1

Co-Chairs:

Kolja Pikora, Kiel University

Cornel Ioana, Grenoble INP, GIPSA-lab

(3:30 PM) A Method for Automatic Detection of Underwater Objects using Forward-looking Imaging Sonar

Jeonghwe Gu, Pohang University of Science and Technology

Son-Cheol Yu, Pohang University of Science and Technology

Juhyun Pyo, Pohang University of Science and Technology

Hangil Joe, Pohang University of Science and Technology

Byeongjin Kim, Pohang University of Science and Technology

Juhwan Kim, Pohang University of Science and Technology

Hyeonwoo Cho, Pohang University of Science and Technology

(3:50 PM) A Fast Sonar-based Benthic Object Recognition Model via Extreme Learning Machine

Rui Nian, Ocean University of China

Wenqiang Cai, Ocean University of China

Bo He, Ocean University of China

Amaury Lendasse, University of Iowa

High-speed sensing for object detection in underwater bi-static acoustic paths

Cornel Ioana, Grenoble Institute of Technology

Angela Digulescu, Grenoble Institute of Technology

Cindy Bernard, Grenoble Institute of Technology

Elena Lungu, SIGINTEC

Ion Candel, Grenoble Institute of Technology

Cornel Ioana, Grenoble Institute of Technology

(4:30 PM) A Real-time Cognitive Sonar System for Diver Detection

Tim Claussen, University of Kiel, Germany

Duc Nguyen, University of Kiel, Germany

Ulrich Heute, University of Kiel, Germany

Gerhard Schmidt, University of Kiel, Germany

(4:50 PM) Reconstruction of acoustic fields based on the least squares for short vertical linear array

Qi Wang, School of Marine Science and Technology

Hang Chen, School of Marine Science and Technology

Yingmin Wang, School of Marine Science and Technology

Guolei Zhu, School of Marine Science and Technology

Sea Change: Dive into Opportunity

Autonomous Underwater Vehicles 2: Gliders 2

Tuesday, October 20 (3:30 PM - 5:15 PM)

Location: Azalea 2

Chair:

Travis Miles, Rutgers University

(3:30 PM) Glider Performance During Hurricane Gonzalo (BIOS, Bermuda)

David Aragon, Rutgers University

Ruth Curry, Bermuda Institute of Ocean Sciences

Travis Miles, Rutgers University

Scott Glenn, Rutgers University - Department of Marine and Coastal Sciences

(3:50 PM) Coastal Ocean Mixing and Advection During Hurricane Sandy and Arthur

Travis Miles, Rutgers University

Greg Seroka, Rutgers University

Scott Glenn, Rutgers University

(4:10 PM) Testing a pneumatic underwater glider in shallow water

Artur Wolek, Virginia Tech

Tejaswi Gode, Virginia Tech

Craig Woolsey, Virginia Tech

Jake Quenzer, University of Washington

Kristi Morgansen, University of Washington

(4:30 PM) Adaptive Control for Hybrid Underwater Gliders

Luis Garcia-Valdovinos, CIDESI

Tomas Salgado-Jimenez, CIDESI

Jorge Torres, CINVESTAV-DF

Eduardo Campos, UPP

Ottmar Uriza, CIDESI

(4:50 PM) Impact of folding propeller spinning position for the transit performance of a hybrid-driven underwater glider

Zhier Chen, Shenyang Institute of Automation, CAS

Jiancheng Yu, Shenyang Institute of Automation, CAS

Aiqun Zhang, Shenyang Institute of Automation, CAS

Vehicle Performance 2

Tuesday, October 20 (3:30 PM - 5:15 PM)

Location: Azalea 3

Chair:

Thomas Consi, University of Wisconsin-Milwaukee

(3:30 PM) FlatFish - A compact subsea-resident inspection AUV

Jan Albiez, Brazilian Institute for Robotics

Sylvain Joyeux, Brazilian Institute for Robotics

Christopher Gaudig, DFKI Robotics Innovation Center

Jens Hilljegerdes, DFKI Robotics Innovation Center

Sven Kroffke, DFKI Robotics Innovation Center

Christian Schoo, DFKI Robotics Innovation Center

Sascha Arnold, DFKI Robotics Innovation Center

Geovane Mimoso, Brazilian Institute for Robotics

Pedro Alcantara, Brazilian Institute for Robotics

Rafael Saback, Brazilian Institute for Robotics

Joao Britto, Brazilian Institute for Robotics

Diego Cesar, Brazilian Institute for Robotics

Gustavo Neves, Brazilian Institute for Robotics

Thomio Watanabe, Brazilian Institute for Robotics

Patrick Paranhos, Brazilian Institute for Robotics

Marco Reis, Brazilian Institute for Robotics

Frank Kirchner, DFKI Robotics Innovation Center

(3:50 PM) The Shrimpfish as a Model for a Novel, Highly Maneuverable AUV

Thomas Consi, University of Wisconsin-Milwaukee

William Mueller, University of Wisconsin-Milwaukee

Nicholas Leep, University of Wisconsin-Milwaukee

Jeremy Keifenheim, University of Wisconsin-Milwaukee

Stephen Houdek, University of Wisconsin-Milwaukee

(4:10 PM) Sea Trial and Free-fall Hydrodynamic Research of a 7000-meter Lander

Jun Chen, Shenyang Institute of Automation, CAS

Qifeng Zhang, Shenyang Institute of Automation, CAS

Aiqun Zhang, Sanya Institute of Deep-sea Science and Engineering (CAS)

Lisheng He, Sanya Institute of Deep-sea Science and Engineering (CAS)

Qi Chen, Shenyang Institute of Automation, CAS

(4:30 PM) Designing Implodable Underwater Systems to Minimize Implosion Pulse Severity

L. Gish, US Naval Academy

(4:50 PM) A hybrid underwater profiler used for persistent monitoring

Yushi Zhu, Zhejiang University

Canjun Yang, Zhejiang University

Xiaole Xu, Zhejiang University

Qing Li, Zhejiang University

Jun Wang, Zhejiang University

Minjian Cai, Zhejiang University

Sea Change: Dive into Opportunity

Acoustic Telemetry and Communication 2

Tuesday, October 20 (3:30 PM - 5:15 PM)

Location: Annapolis 1

Chair:

Simon Freeman, NRL

(3:30 PM) High Data Rates in the High Frequency Acoustic Channel

Craig Benson, UNSW, Canberra

Michael Frater, UNSW, Canberra

(3:50 PM) High-frequency, highly directional short-range underwater acoustic communications

Simon Freeman, NRL

Lloyd Emokpae, NRL

Geoffrey Edelmann, NRL

(4:10 PM) Stochastic Replay of SIMO Underwater Acoustic Communication Channels

Francois-Xavier Socheleau, Telecom Bretagne

Antony Pottier, Telecom Bretagne

Christophe Laot, Telecom Bretagne

Sea Change: Dive into Opportunity

Sonar Imaging 2

Tuesday, October 20 (3:30 PM - 5:15 PM)

Location: Annapolis 2

Chair:

David Calvo, Naval Research Laboratory

(3:30 PM) Development of the Underwater Search Supporting Technique Using the High-resolution Imaging Sonar

Kazuoki Kuramoto, Japan Coast Guard Academy

Akira Asada, Institute of Industrial Science, The University of Tokyo

Kazuhiro Hantani, TOYO Corporation

(3:50 PM) Real-Time Underwater Target Classification Method for Multi-resolution imaging Sonar of the AUV

Lei Gao, State Key Laboratory of Robotics Shenyang Institute of Automation CAS

Kai Sun, State Key Laboratory of Robotics Shenyang Institute of Automation CAS

Yao zhang, State Key Laboratory of Robotics Shenyang Institute of Automation CAS

Hongli Xu, State Key Laboratory of Robotics Shenyang Institute of Automation CAS

(4:10 PM) 3D Acoustic imagery generation by interferometric analysis of long baseline using Interferometric Real Aperture Sonar.

Mitsuhiro Kojima, Tokyo University

Akira Asada, Tokyo University

Katsunori Mizuno, Tokyo University

Fuyuki Katase, Tokyo University

Aritoshi Mio, NTT DATA CCS

Satoshi Tsukioka, JAMSTEC

Shinobu Omika, JAMSTEC

Tamaki Ura, Kyushu Institute of Technology

(4:30 PM) Assessment of mine hunting performance evaluation parameters across multiple side-looking sonar systems and frequencies

Marc Geilhufe, Norwegian Defence Research Establishment (FFI)

Warren Connors, Centre for Maritime Research and Experimentation (CMRE)

Stig Synnes, Norwegian Defence Research Establishment (FFI)

Øivind Midtgaard, Norwegian Defence Research Establishment (FFI)

Torstein Sæbø, Norwegian Defence Research Establishment (FFI)

Roy Hansen, Norwegian Defence Research Establishment (FFI)

Samantha Dugelay, Centre for Maritime Research and Experimentation (CMRE)

(4:50 PM) Thin Fresnel zone plate lenses for underwater acoustics: modeling and experiments

David Calvo, Naval Research Laboratory

Abel Thangawng, Naval Research Laboratory

Michael Nicholas, Naval Research Laboratory

Christopher Layman, Naval Research Laboratory

Sea Change: Dive into Opportunity

Data Visualization 1

Tuesday, October 20 (3:30 PM - 5:15 PM)

Location: Annapolis 4

Co-Chairs:

Avijit Gangopadhyay, SMAST/UMass Dartmouth

Hassan Moustahfid, NOAA/U.S. IOOS

(3:30 PM) Integrated Management and Visualization of Animal Telemetry Observations: Serving data from a wide variety of platforms used in animal telemetry.

Hassan Moustahfid, NOAA/U.S. IOOS

Randall Kochevar, Stanford University, Biology Department, Hopkins Marine Station

Michael Weise, US NAVY/ONR

Barbara Block, Stanford University, Biology Department, Hopkins Marine Station

(3:50 PM) Tuning interpolation methods for environmental line/ transect surveys

You Li, Laboratoire d'Informatique, Signaux et Systèmes de Sophia-Antipolis (I3S)

Maria Rendas, Laboratoire d'Informatique, Signaux et Systèmes de Sophia-Antipolis (I3S)

(4:10 PM) Streamlining the Evaluation of Potential Marine Debris Targets for Disaster Response

Thomas Butkiewicz, Center for Coastal and Ocean Mapping - University of New Hampshire

Andrew Stevens, Center for Coastal and Ocean Mapping - University of New Hampshire

(4:30 PM) ICT application of real-time monitoring and estimation system for set-net fishery

Ramadhona Saville, Tokyo University of Agriculture

Katsumori Hatanaka, Tokyo University of Agriculture

Masaaki Wada, Future University Hakodate

(4:50 PM) Toward an automated detection of the Gulf Stream North Wall from concurrent satellite images

Avijit Gangopadhyay, SMAST/UMass Dartmouth

Jeffrey Rezendes, UMass Dartmouth

Kevin Lyndon, UMass Dartmouth

Ramprasad Balasubramanian, UMass Dartmouth

Iren Valova, UMass Dartmouth

(5:10 PM) Multiple target tracking in seabed surveys using the PHD filter

Tommaso Fabbri, Dipartimento di Ingegneria dell'Informazione - Università di Pisa

Francesco Di Corato, Magneti Marelli S.p.A - ADAS Technologies

Davide Fenucci, Dipartimento di Ingegneria dell'Informazione - Università di Pisa

Daniele Meucci, Dipartimento di Ingegneria dell'Informazione - Università di Pisa

Andrea Caiti, Dipartimento di Ingegneria dell'Informazione - Università di Pisa

Sea Change: Dive into Opportunity

Marine Resilience and Resources

Tuesday, October 20 (3:30 PM - 5:15 PM)

Location: Magnolia 1

Chair:

Rachel Volner, SPAWAR Systems Center Pacific

(3:30 PM) Autonomous Underwater Vehicle Operations in the Arctic

James McFarlane, *International Submarine Engineering Ltd.*

Linda Mackay, *International Submarine Engineering Ltd.*

(3:50 PM) Ocean Governance with Data and Information Management

Masanori Muto, *Mitsubishi Research Institute*

(4:10 PM) Wetlands as a nature-based coastal defense: a numerical modeling and field data integration approach to quantify storm surge attenuation for the Mid-Atlantic region

Jana Haddad, *George Mason University*

Anne-Eléonore Paquier, *George Mason University*

Seth Lawler, *George Mason University*

Celso Ferreira, *George Mason University*

(4:30 PM) Development of Disaster Forecasting Technologies through Real-Time Disaster Analysis

sungjin hong, *National Disaster Management Institute*

hyoungseong park, *National Disaster Management Institute*

dongseag KIM, *National Disaster Management Institute*

Sea Change: Dive into Opportunity

Cables and Connectors 1

Tuesday, October 20 (3:30 PM - 5:15 PM)

Location: Magnolia 2

Chair:

Jack Runfolo, R&R System Solutions

(3:30 PM) Getting The Cable You Want

Jeffrey Kurt, R&R System Solutions

Alfred Richardson, R&R System Solutions

Jack Runfolo, R&R System Solutions

(3:50 PM) Data Management - A Step Forward in Cable Protection

Catherine Creese, US Navy

(4:10 PM) Opening Opportunities in Subsea Communications

Michael Greene, Teledyne Oil & Gas

(4:30 PM) High Fiber Count Optical Penetrator

Ruth Simpson, General Dynamics Mission Systems

Matt Holt, General Dynamics Mission Systems

James Corbett, General Dynamics Mission Systems

(4:50 PM) DGO-1: A Metal Coating/Surface Treatment Resistant to Cathodic Delamination

Thomas Ramotowski, U.S. Navy

Adam Duszkievicz, U.S. Navy

Matthew Rice, U.S. Navy

(5:10 PM) Creative Adaptation Of Interconnect Technology

David Jenkins, Ametek SCP

Richard Miller, Ametek SCP

Sea Change: Dive into Opportunity

Sound Propagation and Scattering 2

Tuesday, October 20 (3:30 PM - 5:15 PM)

Location: Magnolia 3

Co-Chairs:

Joseph Fialkowski, Naval Research Laboratory
Paul Etter, Northrop Grumman Corporation

(3:30 PM) calculation of a vessel scattering acoustic field by using prolate spheroid model

Jingxin Ma, *harbin engineering university*
Jianjun Zhu, *Harbin Engineering University*
Haisen Li, *Harbin Engineering University*
Xiaodong Wang, *Harbin Engineering University*

The Development of a Finite Volume Method for Modeling Sound in Coastal Ocean Environment

Wen Long, *PNNL*
Ki Won Jung, *PNNL*
Zhaoqing Yang, *PNNL*
Andrea Copping, *PNNL*
Zhiqun Deng, *PNNL*

(4:10 PM) Acoustic Bathymetric Mapping in very Shallow Water Reservoir

Andrea Petroni, *Sapienza, University of Rome*
Stefano Pergoloni, *Sapienza, University of Rome*
Mauro Biagi, *University of Rome, Sapienza*
Stefania Colonnese, *Sapienza, University of Rome*
Roberto Cusani, *Sapienza, University of Rome*
Gaetano Scarano, *Sapienza, University of Rome*

(4:30 PM) Using Varying Channel Impulse Response to Determine Water Pollution

Sadia Ahmed, *University of South Florida*

(4:50 PM) Evolving Trends and Challenges in Applied Underwater Acoustic Modeling

Paul Etter, *Northrop Grumman Corporation*
Charlie Haas, *Northrop Grumman Corporation*
Deepak Ramani, *Northrop Grumman Corporation*

Sea Change: Dive into Opportunity

Marine Law, Policy, Management, Education

Tuesday, October 20 (3:30 PM - 5:15 PM)

Location: Camelia 1

Chair:

Theresa Baus, Naval Undersea Warfare Center, Newport, RI Division

(3:30 PM) A Geospatial Inventory and Preliminary Valuation of Human Uses of Rhode Island Coastal Ponds: A Mixed Methods Approach

Emily Patroila, University of Rhode Island

Robert Thompson, University of Rhode Island

Tracey Dalton, University of Rhode Island

(3:50 PM) Expediting Cost-Effective Solutions Through Government Technology Transfer and Commercialization

Theresa Baus, Naval Undersea Warfare Center, Newport, RI Division

(4:10 PM) Intellectual Property Considerations for the Blue Technology Economy

Ian Schick, Pillsbury Winthrop Shaw Pittman LLP

(4:30 PM) Detection of false AIS messages for the improvement of maritime situational awareness

Clément Iphar, MINES ParisTech

Aldo Napoli, MINES ParisTech

Cyril Ray, French Naval Academy Research Institute

(4:50 PM) A methodology to improve the assessment of vulnerability on the maritime supply chain of energy

Martin Tanguy, MINES ParisTech

Aldo Napoli, MINES ParisTech

Washington, DC

NOTES

This image shows a full page of blank, lined paper. It features approximately 20 evenly spaced horizontal blue lines across its entire width, providing a guide for handwriting or typing. The background is a clean, solid white color.

Sea Change: Dive into Opportunity

Panel on the Future of Long Duration Maritime Autonomy

Wednesday, October 21 (8:30 AM - 10:00 AM)

Location: Azalea 1

(8:30 AM) A Panel on the Future of Long Duration Maritime Autonomy
Matthew Bays, *Naval Surface Warfare Center, Panama City Division*

Autonomous Underwater Vehicles 3

Wednesday, October 21 (8:30 AM - 10:00 AM)

Location: Azalea 2

Chair:

Matthew Bays, *Naval Surface Warfare Center, Panama City Division*

(8:30 AM) Tracking and remote monitoring of an autonomous underwater vehicle using an unmanned surface vehicle in the Trondheim fjord

Petter Norgren, *Dept. of Marine Technology, Norwegian University of Science and Technology (NTNU)*

Martin Ludvigsen, *Dept. of Marine Technology, Norwegian University of Science and Technology (NTNU)*

Thomas Ingebretsen, *Maritime Robotics AS*

Vegard Hovstein, *Maritime Robotics AS*

(8:50 AM) Design and Validation of a Micro-AUV for 3-D Sampling of Coherent Ocean Features

David Heermance, *Fort Lewis College*

Dhanushka Kularatne, *Drexel University*

Jose Hernandez Sosa, *ULPGC - IANIGLA Research Institute, Campus de Tafira*

M. Hsieh, *Drexel University*

Ryan Smith, *Fort Lewis College*

(9:10 AM) "UMS Mission Management for Mixed-vehicle Fleets for Oceanographic Applications"

Jon Wood, *SeeByte*

Christopher Haworth, *SeeByte*

Katie Rittoo, *SeeByte*

(9:30 AM) Robust Adaptive Control of Underwater Vehicles for Precision Operations

Nicholas Valladares, *Naval Postgraduate School*

Noel Du Toit, *Naval Postgraduate School*

Non-linear Decision Making for Robust Navigation in Role Based Autonomy

Robert Thome, *Penn State University Applied Research Lab*

Christopher Fedor, *Penn State University Applied Research Lab*

John Sustersic, *Penn State University Applied Research Lab*

Ucheoma Ukah, *Penn State University Applied Research Lab*

Oceanographic Instrumentation and Sensors 1

Wednesday, October 21 (8:30 AM - 10:00 AM)

Location: Azalea 3

Co-Chairs:

Kathleen O'Neil, NOAA National Data Buoy Center

Hank Lobe, Severn Marine Technologies

(8:30 AM) Eyes on the Ocean - Applying Operational Technology to Enable Science

Kathleen O'Neil, NOAA National Data Buoy Center

Lex LeBlanc, NOAA National Data Buoy Center

Javier Vázquez, NVision National Data Buoy Center

(8:50 AM) SCOOP - NDBC's New Ocean Observing System

Craig Kohler, National Data Buoy Center

Lex LeBlanc, National Data Buoy Center

James Elliott, National Data Buoy Center

(9:10 AM) Recent Advances in Biofouling Protection for Oceanographic Instrumentation

Hank Lobe, Severn Marine Technologies

(9:30 AM) MantaRay: A Novel Autonomous Sampling Instrument for In Situ Measurements of Environmental Microplastic Particle Concentrations

Ethan Edson, Northeastern University

Mark Patterson, Northeastern University

(9:50 AM) The Web-enabled Awareness Research Network (WARN) Project Detection Methods for Earthquakes and Tsunamis

Bob Crosby, Ocean Networks Canada

Andreas Rosenberger, Arescon

Benoit Pirenne, Ocean Networks Canada

Sea Change: Dive into Opportunity

Acoustic Telemetry and Communication 3

Wednesday, October 21 (8:30 AM - 10:00 AM)

Location: Annapolis 1

Chair:

Lee Freitag, WHOI

(8:30 AM) Long Range Acoustic Communications and Navigation in the Arctic

Lee Freitag, WHOI

Keenan Ball, WHOI

Jim Partan, WHOI

Peter Koski, WHOI

Sandipa Singh, WHOI

(8:50 AM) MIMO TDS-OFDM for Underwater Acoustic Communication with Turbo Equalization

Jinxing Hao, Dept. of Electronic Engineering, Tsinghua University

Jintao Wang, Dept. of Electronic Engineering, Tsinghua University

Yahong Zheng, Dept. of Electrical & Computer Eng., Missouri University of Science and Technology

Jian Song, Dept. of Electronic Engineering, Tsinghua University

(9:10 AM) UWA Massive MIMO Communications

Amir Aminjavaheri, University of Utah

Behrouz Farhang-Boroujeny, University of Utah

(9:30 AM) An OFDM based Channel Aware Access Protocol for Underwater Acoustic Networks of Submarine Pipeline Monitoring

Yuzhi Zhang, Northwestern Polytechnical University

Haiyan Wang, Northwestern Polytechnical University

Xiaohong Shen, Northwestern Polytechnical University

Ruiqin Zhao, Northwestern Polytechnical University

Sonar Imaging 3**Wednesday, October 21 (8:30 AM - 10:00 AM)****Location: Annapolis 2****Chair:****James Prater, Naval Surface Warfare Center Panama City Division****(8:30 AM) Determination of Sonar Image Resolution from Image Statistics****James Prater, Naval Surface Warfare Center Panama City Division****Jonathan King, Naval Surface Warfare Center Panama City Division****Daniel Brown, Applied Research Laboratory at the Pennsylvania State University****Improvement of synthetic aperture sonar with multi-channel projector****Takao Sawa, JAMSTEC****Takafumi Kasaya, JAMSTEC****Kunihiko Nakatsuka, SAS****Nobuhiro Tanaka, Aiichi industries****Yasuo Furushima, JAMSTEC****(9:10 AM) Multi-legged ROV Crabster and an acoustic camera for survey of underwater cultural heritages - Preliminary performance experiments in sea****Jin-Yeong Park, KRISO****Hyungwon Shim, KRISO****Hyuk Baek, KRISO****Seongyeol Yoo, KRISO****Bong-Huan Jun, KRISO****Pan-Mook Lee, KRISO****(9:30 AM) Using an Interferometric Synthetic Aperture Sonar to Inspect the Skagerrak World War II chemical munitions dump site****Torstein Sæbø, Norwegian Defence Research Establishment (FFI)****Roy Hansen, Norwegian Defence Research Establishment (FFI)****Ole Lorentzen, Norwegian Defence Research Establishment (FFI)****(9:50 AM) Application of Scanning Sonar using Multi-legged Underwater Robot's Degree of Freedom****Hyuk Baek, KRISO****Seong-yeol Yoo, KRISO****Bong-Huan Jun, KRISO**

Sea Change: Dive into Opportunity

Marine Planning & Data-Related Tools: Key Aspects of the National Ocean Policy

Wednesday, October 21 (8:30 AM - 10:00 AM)

Location: Annapolis 3

(8:30 AM) Marine Planning & Data-Related Tools: Key Aspects of the National Ocean Policy

Beth Kerttula, *National Ocean Council*

Hilary Goodwin, *ECS Contractor, in support of*

Vehicle Navigation 1

Wednesday, October 21 (8:30 AM - 10:00 AM)

Location: Annapolis 4

Chair:

Michael Stanway, Monterey Bay Aquarium Research Institute

(8:30 AM) Preliminary Feasibility Study of Cooperative Navigation of Underwater Vehicles with Range and Range-Rate Observations

Zachary Harris, Johns Hopkins University

Louis Whitcomb, Johns Hopkins University

(8:50 AM) Biangunilateration using azimuth, elevation, and depth difference to localize submerged assets

Michael Stanway, Monterey Bay Aquarium Research Institute

(9:10 AM) Toward Autonomous Mapping with AUVs - Line-to-Line Terrain Navigation

Ove Hagen, Norwegian Defence Research Establishment (FFI)

Kjetil Ånonsen, Norwegian Defence Research Establishment (FFI)

Torstein Sæbø, Norwegian Defence Research Establishment (FFI)

(9:30 AM) Autonomous Acoustic-Aided Optical Localization for Data Transfer

Johanna Hansen, WHOI

**Dehann Fourie, MIT-WHOI Joint Program in Oceanography/
Applied Ocean Science & Engineering**

James Kinsey, WHOI

Clifford Pontbriand, WHOI

Jon Ware, WHOI

Norman Farr, WHOI

Carl Kaiser, WHOI

Maurice Tivey, WHOI

(9:50 AM) Feasibility of low-power one-way travel time inverted ultra short baseline navigation

Michael Jakuba, WHOI

James Kinsey, WHOI

James Partan, WHOI

Sarah Webster, Applied Physics Lab

Emerging Arctic Challenges 1

Wednesday, October 21 (8:30 AM - 10:00 AM)

Location: Magnolia 1

Co-Chairs:

Robert Heitsenrether, NOAA\NOS\CO-OPS

Jonathan Berkson, U.S. Coast Guard

(8:30 AM) Marine Science and Technology Support of U.S. Coast Guard Arctic Operations

Jonathan Berkson, U.S. Coast Guard

Kenneth Boda, US Coast Guard Cutter POLAR STAR

Eric Peace, US Coast Guard

Richard Hansen, US Coast Guard R&D Center

(8:50 AM) Development of a Real-Time Offshore Water Level Measurement System to Support Safe Navigation Along Alaska's Arctic Coasts

Robert Heitsenrether, NOAA\NOS\CO-OPS

Eric Breuer, NOAA/NOS/CO-OPS

Winston Hensley, NOAA/NOS/CO-OPS

Warren Krug, NOAA/NOS/CO-OPS

(9:10 AM) The Observation of Sea-ice in the Six Chinese National Arctic Expedition Using Polar-ARV

Junbao Zeng, Shenyang Institute of Automation, CAS

Shuo Li, Shenyang Institute of Automation, CAS

Yiping Li, Shenyang Institute of Automation, CAS

Xiaohui Wang, Shenyang Institute of Automation, CAS

Qi Chen, Shenyang Institute of Automation, CAS

(9:30 AM) Autonomous Shallow Water Bathymetric Measurements using Unmanned Surface Vehicles for Safe Navigation and Environmental Assessment

Mae Seto, Defence R&D Canada

Anna Crawford, Defence R&D Canada

Sea Change: Dive into Opportunity

Coastal Radars 1

Wednesday, October 21 (8:30 AM - 10:00 AM)

Location: Magnolia 2

Co-Chairs:

Jeff Paduan, Naval Postgraduate School

Hugh Roarty, Rutgers University

(8:30 AM) The Second-Order Bistatic High Frequency Radar Scattering Cross Section of the Ocean Surface for the Case of Floating Platform

Yue Ma, Memorial University of Newfoundland

Weimin Huang, Memorial University of Newfoundland

Eric Gill, Memorial University of Newfoundland

(8:50 AM) Coherent Marine Radar Measurements of Ocean Wave Frequency Spectra

Dennis Trizna, Imaging Science Research, Inc

(9:10 AM) High Frequency Radar Measurement Resiliency with Bistatics

Hugh Roarty, Rutgers University

Don Barrick, CODAR Ocean Sensors

Chad Whelan, CODAR Ocean Sensors

Lucas Marxen, Rutgers University

Joe Gradone, Rutgers University

Chloe Baskin, Rutgers University

(9:30 AM) Wave measurements from HF radar

Robert Forney, Rutgers University - Department of Marine and Coastal Sciences

Hugh Roarty, Rutgers University - Department of Marine and Coastal Sciences

Scott Glenn, Rutgers University - Department of Marine and Coastal Sciences

(9:50 AM) Self-Organized Synchronization Based on a Chirp-Sequence Waveform for an HF Ocean Radar Network

Anna Dzvonskovskaya, HELZEL Messtechnik GmbH

Thomas Helzel, HELZEL Messtechnik GmbH

Leif Petersen, HELZEL Messtechnik GmbH

Eric Gill, Memorial University of Newfoundland

Acoustics 1

Wednesday, October 21 (8:30 AM - 10:00 AM)

Location: Magnolia 3

Co-Chairs:

Lloyd Emokpae, Naval Research Lab

Mae Seto, Defence R&D Canada

(8:30 AM) A magnetostrictive underwater transducer directly driven by iron-gallium alloy (Galfenol) without bias magnetic field
Yaozong Pan, *Institute of Acoustics, Chinese Academy of Sciences*

Xiping Mo, *Institute of Acoustics, Chinese Academy of Sciences*

Yingming Li, *Institute of Acoustics, Chinese Academy of Sciences*

Yong Chai, *Institute of Acoustics, Chinese Academy of Sciences*

Yongping Liu, *Institute of Acoustics, Chinese Academy of Sciences*

Yunqiang Zhang, *Institute of Acoustics, Chinese Academy of Sciences*

(8:50 AM) Design of High Frequency Acoustic Transducer Calibration System Based on Near-field Acoustical Holography

Bing Liu, *Harbin Engineering University*

Wen-jian Chen, *Harbin Engineering University*

Jing-wei Yin, *Harbin Engineering University*

Jia-hao Guo, *Harbin Engineering University*

Yue-bing Wang, *China Jiliang University*

Effect of Array Tilt on Estimates of Vertical Ambient Noise Spectrum

Mehdi Farrokhrooz, *George Mason University*

Kathleen Wage, *George Mason University*

(9:30 AM) Moving Targets Detection and Tracking Based on Sparse and Low-rank Decomposition

Ying Chen, *Beijing Normal University*

Fengxiang Ge, *Beijing Normal University*

Suiling Ren, *State Key Laboratory of Acoustics, Institute of Acoustics, Chinese Academy of Sciences*

Yishu Shi, *Beijing Normal University*

Sea Change: Dive into Opportunity

Oceanography and Meteorology

Wednesday, October 21 (8:30 AM - 10:00 AM)

Location: Camelia 1

Chair:

Steve Holt, SGT, Inc.

(8:30 AM) US Tsunami Warning System: Capabilities, Gaps and Future Vision

Michael Angove, NOAA/National Weather Service

Christa Rabenold, NOAA/NWS

Marie Eble, NOAA/PMEL

Stuart Weinstein, NOAA/PTWC

Paul Whitmore, NOAA/NTWC

(8:50 AM) Mapping of the Mid-Atlantic Cold Pool with GliderPalooza-2013

Wendell Brown, University of Massachusetts Dartmouth

Oscar Schofield, Rutgers, State University of New Jersey

Josh Kohut, Rutgers, State University of New Jersey

John Wilkin, Rutgers, State University of New Jersey

William Boicourt, University of Maryland

(9:10 AM) Characterization of mesoscale eddies and detection of sub-mesoscale eddies derived from satellite imagery and HF radar off the coast of southwestern Puerto Rico

Luis Pomales-Velázquez, CariCOOS/University of Puerto Rico at Mayagüez

Julio Morell, CariCOOS/University of Puerto Rico at Mayagüez

Sylvia Rodríguez-Abudo, CariCOOS/University of Puerto Rico at Mayagüez

Miguel Canals, CariCOOS/University of Puerto Rico at Mayagüez

Jorge Capella, CariCOOS/University of Puerto Rico at Mayagüez

Carlos García, CariCOOS/University of Puerto Rico at Mayagüez

(9:30 AM) CariCOOS: Improving High-Resolution Numerical Weather Prediction for the Northeast Caribbean Region

Luis Aponte-Bermúdez, University of Puerto Rico at Mayagüez

Ernesto Rodríguez, National Weather Service

Julio Morell, University of Puerto Rico at Mayaguez

Héctor Rodríguez-Romero, University of Puerto Rico at Mayaguez

(9:50 AM) CariCOOS: Real-time data validation of high-resolution wind forecast

Jaynise Perez, University of Puerto Rico at Mayagüez

Luis Aponte-Bermúdez, University of Puerto Rico at Mayagüez

Ernesto Rodríguez, National Weather Service

Julio Morell, University of Puerto Rico at Mayagüez

Optical Communications

Wednesday, October 21 (10:30 AM - 12:00 PM)

Location: Azalea 1

Co-Chairs:

Joe Czika

Marco Lanzagorta, US Naval Research Laboratory

(10:30 AM) Quantum Sensing in the Maritime Environment

Marco Lanzagorta, US Naval Research Laboratory

Jeffrey Uhlmann, University of Missouri - Columbia

Salvador Venegas-Andraca, Tecnológico de Monterrey

(10:50 AM) Quantum Communications in the Maritime Environment

Jeffrey Uhlmann, University of Missouri - Columbia

Marco Lanzagorta, US Naval Research Laboratory

Salvador Venegas-Andraca, Tecnológico de Monterrey

(11:10 AM) Maritime Applications of Quantum Computing

Salvador Venegas-Andraca, Tecnológico de Monterrey, Escuela de Ciencias e Ingeniería.

Marco Lanzagorta, US Naval Research Laboratory

Jeffrey Uhlmann, University of Missouri - Columbia

Sea Change: Dive into Opportunity

Autonomous Underwater Vehicles 4

Wednesday, October 21 (10:30 AM - 12:00 PM)

Location: Azalea 2

Co-Chairs:

Chris Moore, Phoenix International

Duane Thompson, Monterey Bay Aquarium Research Institute

(10:30 AM) Artemis AUV Payload Development

Peter McKibbin, Phoenix International

Chris Moore, Phoenix International

(10:50 AM) MBARI AUV Operations in the Gulf of California

Duane Thompson, Monterey Bay Aquarium Research Institute

David Caress, Monterey Bay Aquarium Research Institute

Hans Thomas, Monterey Bay Aquarium Research Institute

Doug Conlin, Monterey Bay Aquarium Research Institute

(11:10 AM) A Novel Path Planning Method Based on Extreme Learning Machine for Autonomous Underwater Vehicle

Diya Dong, Ocean University of China

Bo He, Ocean University of China

Yang Liu, Ocean University of China

Rui Nian, Ocean University of China

Tianhong Yan, China Jiliang University

(11:30 AM) Automated Scheduling and Mission Visualization for Mine Countermeasure Operations

Matthew Bays, Naval Surface Warfare Center, Panama City Division

Richard Tatum, Naval Surface Warfare Center, Panama City Division

Lee Cofer, Naval Surface Warfare Center, Panama City Division

James Perkins, Naval Surface Warfare Center, Panama City Division

(11:50 AM) Asynchronous UKF-based Localization of an Underwater Robotic Vehicle for Aquaculture Inspection Operations

Svetlana Potyagaylo, Cyprus University of Technology

Christos Constantinou, Cyprus University of Technology

George Georgiades, Cyprus University of Technology

Savvas Loizou, Cyprus University of Technology

Oceanographic Instrumentation and Sensors 2**Wednesday, October 21 (10:30 AM - 12:00 PM)****Location: Azalea 3****Co-Chairs:****Ian Walsh, Sea-Bird Scientific****David Murphy, Sea-Bird Electronics****(10:30 AM) An in-situ chemical sensor system for cabled ocean observatory applications at hydrothermal vents****Chunyang Tan, University of Minnesota****Kang Ding, University of Minnesota****William Seyfried, University of Minnesota****Giora Proskurowski, University of Washington****(10:50 AM) A Long-term Temperature and Depth Logger for Ocean Mooring System****Xiaoyang Xu, Ocean University of China****Chuan Tian, Pacific Northwest National Laboratory****Zhongwen Guo, Ocean University of China****Daniel Deng, Pacific Northwest National Laboratory****Wei Zhao, Ocean University of China****(11:10 AM) Development of an in-situ total phosphorus analyzer****Christopher Fuller, Clarkson University****Elysia Taylor, Clarkson University****James Bonner, Clarkson University****Russell Nelson, Clarkson University****William Kirkey, Clarkson University****Stephanie Cappelli, Clarkson University****(11:30 AM) Robust tools to detect subsurface oil: fluorescence sensors****Ian Walsh, Sea-Bird Scientific****John Koegler, Sea-Bird Scientific****Corey Koch, Sea-Bird Scientific****Thomas Mitchell, Sea-Bird Scientific****(11:50 AM) Measuring pH in the Deep Ocean with Honeywell Durafet Transistors****David Murphy, Sea-Bird Electronics****Ken Johnson, MBARI****Hans Jannash, MBARI****Dan Quittman, Sea-Bird Electronics**

Sea Change: Dive into Opportunity

Acoustic Telemetry and Communication 4

Wednesday, October 21 (10:30 AM - 12:00 PM)

Location: Annapolis 1

Chair:

Mauro Biagi, University of Rome, Sapienza

(10:30 AM) Adaptive PPM Acoustic Detection in very Shallow Water Reservoir

Andrea Petroni, *University of Rome, Sapienza*

Stefano Pergoloni, *Sapienza, University of Rome*

Mauro Biagi, *University of Rome, Sapienza*

Stefania Colonnese, *Sapienza, University of Rome*

Roberto Cusani, *University of Rome, Sapienza*

Gaetano Scarano, *University of Rome, Sapienza*

(10:50 AM) A Transceiver Architecture for Ultrasonic OFDM with Adaptive Doppler Compensation

MINHHAI TRAN, *Graduate School of Engineering and Science, Univ. of the Ryukyus*

Rie Saotome, *Graduate School of Engineering and Science, Univ. of the Ryukyus*

Taisaku Suzuki, *Graduate School of Engineering and Science, Univ. of the Ryukyus*

Tomohisa Wada, *Department of Information Engineering, University of the Ryukyus*

(11:10 AM) Research on Multi-channel Time Frequency Shift Keying for Underwater Acoustic Communication

Deqing Wang, *Xiamen University*

Yurong Lin, *Xiamen University*

Wei Su, *Xiamen University*

Xiaoyi Hu, *Xiamen University*

Yongjun Xie, *Xiamen University*

Xialin Jiang, *Xiamen University*

(11:30 AM) Underwater Communication via Frequency Shift Keying in Particle Velocity Channels: Experimental Results

Erjian Zhang, *NJIT*

Ali Abdi, *NJIT*

Complementary Code Keying Modulation and Frequency Domain Equalization for Single-Carrier Underwater Acoustic Communications

Xialin Jiang, *Xiamen University*

Wei Su, *Xiamen University*

Deqing Wang, *Xiamen University*

En Cheng, *Xiamen University*

Remotely Operated Vehicles 1**Wednesday, October 21 (10:30 AM - 12:00 PM)****Location: Annapolis 2****Chair:****Benjamin Greenspon, Phoenix International****(10:30 AM) ROV Control System Upgrade****Benjamin Greenspon, Phoenix International****(10:50 AM) Depth Control of ROVs Using Time Delay Estimation with Nonsingular Terminal Sliding Mode****Yaoyao Wang, Zhejiang University***Linyi Gu, Zhejiang University**Gaosheng Luo, Zhejiang University**Xiaodong Li, Zhejiang University**Jiawang Chen, Zhejiang University**Feng Zhou, Zhejiang University**Xiaoxu Cao, Zhejiang University***(11:10 AM) Mobile Control Center: a new approach to deploy ROV-oriented education and training****Felippe Miorim, Escola Politécnica da Universidade de São Paulo***Giorgio Francesco de Tomi, Escola Politécnica da Universidade de São Paulo**Fernando Rocha, Escola Politécnica da Universidade de São Paulo***Development of a Low-Cost Remotely Operated Vehicle for Ocean Exploration****Shuo Pang, Embry-Riddle Aeronautical University***Runlong Miao, Harbin Engineering University***(11:50 AM) Development of a Borehole Deployable Remotely Operated Vehicle for Investigation of Sub-Ice Aquatic Environments****Justin Burnett, University of Nebraska at Lincoln***Frank Rack, ANDRILL Science Management Office - UNL**Britney Schmidt, Georgia Institute of Technology**Bob Zook, ANDRILL Science Management Office - UNL*

Sea Change: Dive into Opportunity

Vehicle Navigation 2

Wednesday, October 21 (10:30 AM - 12:00 PM)

Location: Annapolis 4

Co-Chairs:

Louis Whitcomb, Johns Hopkins University

Eric Wolbrecht, University of Idaho

(10:30 AM) AUV State Estimation and Navigation to Compensate for Ocean Currents

Joseph Osborn, *University of Idaho*

Samuel Qualls, *University of Idaho*

John Canning, *University of Idaho*

Michael Anderson, *University of Idaho*

Dean Edwards, *University of Idaho*

Eric Wolbrecht, *University of Idaho*

(10:50 AM) Design and investigation of dead reckoning system with accommodation to navigation sensor errors for autonomous underwater vehicle

Alexander Scherbatyuk, *IMTP FEB RAS*

Vladimir Filaretov, *Far Eastern Federal University*

Alexey Zhirabok, *Far Eastern Federal University*

Alexander Zuev, *Institute of Automation and Control Processes*

Igor Tuphanov, *Far Eastern Federal University*

Alexander Protsenko, *Far Eastern Federal University*

(11:10 AM) Improving Autonomous Navigation and Positioning for Commercial AUV Operations

Richard Mills, *Kongsberg Maritime AS*

Oyvind Hegrenaes, *Kongsberg Maritime AS*

(11:30 AM) Preliminary Results with a Low-Cost Fiber-Optic Gyrocompass System

Andrew Spielvogel, *Johns Hopkins University*

Louis Whitcomb, *Johns Hopkins University*

(11:50 AM) Design of underwater precise navigation system using low-cost sensors

Kihun Kim, *KRISO*

Chris Lim, *Aquadron*

Sea-Moon Kim, *KRISO*

Chong-Moo Lee, *KRISO*

Hyun-Taek Choi, *KRISO*

Emerging Arctic Challenges 2

Wednesday, October 21 (10:30 AM - 12:00 PM)

Location: Magnolia 1

Co-Chairs:

Christian Meinig, NOAA/PMEL

Edward Cokelet, NOAA/PMEL

(10:30 AM) Innovative Technology Development for Arctic Exploration

Jessica Cross, *University of Alaska, Fairbanks and NOAA Pacific Marine Environmental Laboratory*

Calvin Mordy, *Joint Institute for the Study of Atmosphere and Ocean*

Heather Tabisola, *Joint Institute for the Study of Atmosphere and Ocean*

Christian Meinig, *NOAA Pacific Marine Environmental Laboratory*

Edward Cokelet, *NOAA Pacific Marine Environmental Laboratory*

Phyllis Stabeno, *NOAA Pacific Marine Environmental Laboratory*

(10:50 AM) The use of Saildrones to examine spring conditions in the Bering Sea: Vehicle specification and mission performance

Christian Meinig, *NOAA/PMEL*

Richard Jenkins, *Saildrone Inc.*

Noah Lawrence-Slavas, *NOAA/PMEL*

Heather Tabisola, *NOAA/JISAO*

(11:10 AM) The use of Saildrones to examine spring conditions in the Bering Sea: Instrument comparisons, sea ice meltwater and Yukon River plume studies

Edward Cokelet, *NOAA/PMEL*

Richard Jenkins, *Saildrone Inc.*

Christian Meinig, *NOAA/PMEL*

Noah Lawrence-Slavas, *NOAA/PMEL*

Calvin Mordy, *NOAA/JISAO*

Phyllis Stabeno, *NOAA/PMEL*

Heather Tabisola, *NOAA/JISAO*

Jessica Cross, *NOAA/UAF*

(11:30 AM) Design and Antarctic Testing of the Icefin Vehicle

Anthony Spears, *Georgia Institute of Technology*

Michael West, *GTRI*

Matthew Meister, *Georgia Institute of Technology*

Catherine Walker, *Georgia Institute of Technology*

Jacob Buffo, *Georgia Institute of Technology*

Thomas Collins, *GTRI*

Ayanna Howard, *Georgia Institute of Technology*

Britney Schmidt, *Georgia Institute of Technology*

Sea Change: Dive into Opportunity

Coastal Radar 2

Wednesday, October 21 (10:30 AM - 12:00 PM)

Location: Magnolia 2

Co-Chairs:

Teresa Updyke, Old Dominion University

Jack Harlan, NOAA IOOS

(10:30 AM) The Integrated Ocean Observing System HF Radar Network: Ten Year Status

Jack Harlan, NOAA IOOS

Eric Terrill, Scripps Institution of Oceanography

Lisa Hazard, Scripps Institution of Oceanography

Mark Otero, Scripps Institution of Oceanography

Hugh Roarty, Rutgers University

(10:50 AM) Assessing HF radar capabilities to resolve mesoscale eddy interactions with littoral waters

Sylvia Rodriguez-Abudo, University of Puerto Rico

Miguel Canals, University of Puerto Rico

Julio Morell, University of Puerto Rico

Pedro MATos, University of Puerto Rico

Carlos Garcia, University of Puerto Rico

Luis Pomales, University of Puerto Rico

Jorge Capella, University of Puerto Rico

(11:10 AM) Extreme and Non-Tidal Events in the Chesapeake Bay High Frequency Radar Surface Currents Record

Teresa Updyke, Old Dominion University

Larry Atkinson, Old Dominion University

(11:30 AM) Spatial circulation patterns over Palmer Deep Canyon and their effects on Adélie Penguin Foraging

Katherine Todoroff, Rutgers University

Josh Kohut, Rutgers University

Peter Winsor, University of Alaska Fairbanks

Hank Statscewich, University of Alaska Fairbanks

(11:50 AM) Multi-Static Benefits to Operational HF Radar Networks

Chad Whelan, CODAR Ocean Sensors

Maxwell Hubbard, CODAR Ocean Sensors

(12:10 PM) Increasing the Coverage of an Island-Based HF Radar Network

Ethan Handel, Rutgers University

Hugh Roarty, Rutgers University

Scott Glenn, Rutgers University

Carlos Garcia-Moreno, University of Puerto Rico at Mayaguez

Miguel Canals, University of Puerto Rico at Mayaguez

Julio Morell-Rodriguez, University of Puerto Rico at Mayaguez

Jorge Corredor, University of Puerto Rico at Mayaguez

Acoustics 2**Wednesday, October 21 (10:30 AM - 12:00 PM)****Location: Magnolia 3****Co-Chairs:****Sichun LI, College of Underwater Acoustic Engineering, Harbin Engineering University****Joseph Fialkowski, Naval Research Laboratory****(10:30 AM) Geoacoustic Inversion based on Covariance-weighted Bartlett Estimator****Zheng Zheng, Zhejiang University***Jingning Jiang, Zhejiang University**Xiang Pan, Zhejiang University***(10:50 AM) Experimental Study for Feature Extraction of Diver with Atmospheric Diving Suit****Sichun LI, College of Underwater Acoustic Engineering, Harbin Engineering University***Weicun ZHOU, College of Underwater Acoustic Engineering, Harbin Engineering University**Bo HU, College of Underwater Acoustic Engineering, Harbin Engineering University**Zhao LIU, College of Underwater Acoustic Engineering, Harbin Engineering University***(11:10 AM) Analysis, Verification and Optimization of AUV Navigation Using Underwater Acoustic Models****Salman Ijaz Siddiqui, Norwegian University of Science and Technology***Martin Ludvigsen, Norwegian University of Science and Technology**Hefeng Dong, Norwegian University of Science and Technology***(11:30 AM) On-line Adaptation of Underwater Acoustic Transmission Rates to Optimize Communications for Collaborative AUV Missions****Mae Seto, Defence R&D Canada***Dainis Nams, Geospectrum Technologies**John Leonard, MIT***(11:50 AM) Experimental design for sediment characterization in the southern New England Continental Shelf****Gopu Potty, University of Rhode Island***James Miller, University of Rhode Island*

Sea Change: Dive into Opportunity

Data Visualization 2

Wednesday, October 21 (10:30 AM - 12:00 PM)

Location: Camelia 1

Chair:

**Derrick Snowden, US Integrated Ocean Observing System Office/
NOAA**

(10:30 AM) Using Geospatial and Information Science to Facilitate the Discovery and Access of Ocean Science Data

Michael Rasser, Bureau of Ocean Energy Management
Jonathan Blythe, Bureau of Ocean Energy Management
David Stein, NOAA Office for Coastal Management
Lindsay Goodwin, The Baldwin Group

Capacity Analysis for Broadband Communications on Sea

Ronald Raulefs, DLR (German Aerospace Center)
Wei Wang, DLR (German Aerospace Center)
Angel Rodriguez, DLR (German Aerospace Center)
Armin Dammann, DLR (German Aerospace Center)

(11:10 AM) Infrastructure and tools for serving, accessing, and analyzing ocean information from the Integrated Ocean Observing System

Derrick Snowden, US Integrated Ocean Observing System Office/
NOAA

Richard Signell, United States Geological Survey
Filipe Fernandes, Southeast Coastal Ocean Observing Regional Association
Vembu Subramanian, Southeast Coastal Ocean Observing Regional Association
Kathleen Bailey, US Integrated Ocean Observing System Office/
NOAA
Kelly Knee, RPS/Applied Science Associates
Emilio Mayorga, University of Washington

(11:30 AM) Dynamic amplification of drag-dominated structures in irregular seas

Jan-Tore Horn, Norwegian University of Science and Technology
Jorgen Amdahl, Norwegian University of Science and Technology

The sensitivity analysis in accordance with the resolution of the satellite sea surface temperature data

Soyeon Kim, National Institute of Meteorological Research
Pil-Hun Chang, NIMR
Morang Huh, PKNU
Sinil Yang, PKNU
Jaiho Oh, PKNU
Byunghwan Lim, NIMR

Sonar Signal Processing 3

Wednesday, October 21 (1:30 PM - 3:00 PM)

Location: Azalea 1

Co-Chairs:

Jose Diaz-Santos, Naval Surface Warfare Center, Dahlgren, VA
Takashi KUBOTA, National Institute of Technology, Oshima College

(1:30 PM) Accurate Underwater Localization Using LBL Positioning System

Yunfeng Han, Harbin Engineering University

Cuie Zheng, Harbin Engineering University

Dajun Sun, Harbin Engineering University

(1:50 PM) Functional Link Based Adaptive Filters for underwater acoustic detection signal

Haiyang Yao, Northwestern Polytechnical University

Haiyan Wang, Northwestern Polytechnical University

Xiaohong Shen, Northwestern Polytechnical University

Yongsheng Yan, Northwestern Polytechnical University

Ruiqin Zhao, Northwestern Polytechnical University

(2:10 PM) LPI Waveform Design Using Chirplet Graphs

Bijan Mobasser, Villanova University

Amro Lulu, Villanova University

(2:30 PM) Experimental Results of Combined Method of Conventional and Coherent Doppler Sonar

Peng LIU, Kobe University

Nobuyoshi KOUGUCHI, Kobe University

Takashi KUBOTA, National Institute of Technology, Oshima College

(2:50 PM) Stable Underwater Image Segmentation in High Quality via MRF model

Rui Nian, Ocean University of China

Yiru Wang, Ocean University of China

Liqin Fu, Ocean University of China

Kexin Liu, Ocean University of China

Amaury Lendasse, University of Iowa

Sea Change: Dive into Opportunity

Autonomous Underwater Vehicles 5

Wednesday, October 21 (1:30 PM - 3:00 PM)

Location: Azalea 2

Chair:

Justin Manley, Juliet Marine Systems

(1:30 PM) Moth-inspired plume tracing via autonomous underwater vehicle with only a pair of separated chemical sensors

Yu Tian, *Shenyang Institute of Automation, CAS*

Wei Li, *Shenyang Institute of Automation, CAS*

Fumin Zhang, *Shenyang Institute of Automation, CAS*

(1:50 PM) Synchronous Rendezvous Technique for Multi-Vehicle Mine Countermeasure Operations

Veronika Yordanova, *University College London*

Hugh Griffiths, *University College London*

(2:10 PM) Self Assembling Robots in an Underwater Environment

Varadarajan Ganesan, *Tropical Marine Science Institute, National University of Singapore*

Mandar Chitre, *Tropical Marine Science Institute, National University of Singapore*

(2:30 PM) Utility-Based Adaptive Path Planning For Subsea Search

Harun Yetkin, *Virginia Polytechnic Institute and State University*

Collin Lutz, *Virginia Polytechnic Institute and State University*

Daniel Stilwell, *Virginia Polytechnic Institute and State University*

Cooperative Localization for Multi-AUVs Based on Time-Of-Flight of Acoustic Signal Using Moving Horizon Estimation

Lichuan Zhang, *Northwestern Polytechnical University*

Shaofeng Xu, *Northwestern Polytechnical University*

Demin Xu, *Northwestern Polytechnical University*

Mingyong Liu, *Northwestern Polytechnical University*

Oceanographic Instrumentation and Sensors 3**Wednesday, October 21 (1:30 PM - 3:00 PM)****Location: Azalea 3****Chair:****Elizabeth Creed, Kongsberg Underwater Technology, Inc.****Oceanographic Instrument Simulator****Amy Chen**, California Polytechnic State University, San Luis Obispo

Bridget Benson, California Polytechnic State University, San Luis Obispo

Vladimir Prodanov, California Polytechnic State University, San Luis Obispo

Chad Kecy, Monterey Bay Aquarium Research Institute

Matthew Mitchell, California Polytechnic State University, San Luis Obispo

Richard Bae, California Polytechnic State University, San Luis Obispo

Deployment and recovery of a full-ocean depth mooring at**Challenger Deep, Mariana Trench**

Robert Dziak, NOAA/PMEL

Joseph Haxel, CIMRS/Oregon State University

Chris Meinig, NOAA/PMEL

Haruyoshi Matsumoto, CIMRS/Oregon State University

Nicholas Delich, NOAA/PMEL

James Osse, NOAA/PMEL

Mark Wetzler, NOAA

(2:10 PM) A technology to measure deep turbulence mixing by an expendable microstructure profiler**Hua Li**, JFE Advantech Co., Ltd

Brett Prairie, Rockland Scientific International Inc.

(2:30 PM) Integration of a RSI microstructure sensing package into a Seaglider**Elizabeth Creed**, Kongsberg Underwater Technology, Inc.

William Ross, Kongsberg Underwater Technology, Inc.

Rolf Lueck, Rockland Scientific, Inc.

Peter Stern, Rockland Scientific, Inc.

William Douglas, Rockland Scientific, Inc.

Fabian Wolk, Rockland Scientific, Inc.

Rob Hall, University of East Anglia

(2:50 PM) Near real-time transmission of reduced data from a moored multi-frequency sonar by low bandwidth telemetry**Rene Chave**, ASL Environmental Sciences Inc.

David Lemon, ASL Environmental Sciences Inc.

Jan Buermans, ASL Environmental Sciences Inc.

Sea Change: Dive into Opportunity

Acoustic Telemetry and Communication 5

Wednesday, October 21 (1:30 PM - 3:00 PM)

Location: Annapolis 1

Chair:

Yen Da Chen, Lunghwa University of Science and Technology

(1:30 PM) An Extended DFR Protocol based on Geographical Information for Underwater Sensor Networks

Sungwon Lee, Kyungpook National University

Dongkyun Kim, Kyungpook National University

(1:50 PM) Tracking Channel Variations in A Time-Varying Doubly-Spread Underwater Acoustic Channel

S. H. Huang, Ocean College, Zhejiang University

Tsih Yang, Dept. of Information Science and Electronic Engineering, Zhejiang University

Wen Xu, Dept. of Information Science and Electronic Engineering, Zhejiang University

(2:10 PM) Performance Analysis of ARQ Protocols in Multiuser Underwater Acoustic Networks

Ajun Lin, Zhejiang University

Huifang CHEN, Zhejiang University

Lei XIE, Zhejiang University

(2:30 PM) A Self-Adaptive Cooperative Routing Protocol for Underwater Acoustic Sensor Networks

Yen Chen, Lunghwa University of Science and Technology

De Wu, Tamkang University

Wei Chen, Tamkang University

Kuei Shih, Tamkang University

Remotely Operated Vehicles 2

Wednesday, October 21 (1:30 PM - 3:00 PM)

Location: Annapolis 2

Co-Chairs:

Kate McGarry, VideoRay LLC

Erick Estrada, VideoRay LLC

(1:30 PM) Development of Underwater Inspection System for Dam Inspection

Soji Shimono, Q.I Incorporated

Osam Matsubara, Q.I Incorporated

Shigeki Toyama, Tokyo University of Agriculture and Technology

Uichi Nishizawa, Tokyo University of Agriculture and Technology

Shin Kato, National Institute of Advanced Industrial Science and Technology (AIST)

Hitoshi Arisumi, National Institute of Advanced Industrial Science and Technology (AIST)

(1:50 PM) Toward Robust Localization and Mapping for Shallow Water ROV Inspections

Nathaniel Goldfarb, Stevens Institute of Technology

Jinkun Wang, Stevens Institute of Technology

Shi Bai, Stevens Institute of Technology

Shi Bai, Stevens Institute of Technology

(2:10 PM) Closing the gap between industrial robots and underwater manipulators

Satja Sivcev, University of Limerick

Joseph Coleman, University of Limerick

David Adley, University of Limerick

Gerard Dooly, University of Limerick

Edin Omerdic, University of Limerick

Daniel Toal, University of Limerick

(2:30 PM) Lost at Sea: Locating and Recovering Lost Underwater Scientific Packages with Mini ROVs

Erick Estrada, VideoRay LLC

Craig Thorngren, Submerged Recovery and Inspection Services

(2:50 PM) Basic mapping of the inspection process in offshore oil production facilities

Fernando Rocha, USP

Giorgio de Tomi, USP

Sea Change: Dive into Opportunity

Identifying Common Themes in National Ocean Policies to Advance Global Ocean Science Collaboration through the IOC

Wednesday, October 21 (1:30 PM - 3:00 PM)

Location: Annapolis 3

(1:30 PM) Identifying Common Themes in National Ocean Policies to Advance Global Ocean Science Collaboration through the Intergovernmental Oceanographic Commission (IOC)

Craig McLean, NOAA

TBD TBD, TBD

Vehicle Navigation 3

Wednesday, October 21 (1:30 PM - 3:00 PM)

Location: Annapolis 4

Chair:

Ivan Bertaska, Florida Atlantic University

(1:30 PM) Autonomous collision avoidance for unmanned surface ship using onboard monocular vision

Jeonghong Park, KAIST

Younghoon Cho, KAIST

Byunghyun Yoo, KAIST

Jinwhan Kim, KAIST

(1:50 PM) Method for steering a vessel with towed equipment

Helene Tonchia, Helene Tonchia

(2:10 PM) Depth Adaptive Hydrographic Survey Behavior for Autonomous Surface Vessels

Damian Manda, University of New Hampshire and NOAA

May-Win Thein, University of New Hampshire

Andy Armstrong, NOAA

(2:30 PM) Fully Automatic Boom Towing By Unmanned Ships: Experimental Study

JOSE GIRON-SIERRA, UNIVERSIDAD COMPLUTENSE DE MADRID

ALINA GHEORGHITA, UNIVERSIDAD COMPLUTENSE DE MADRID

JUAN JIMENEZ, UNIVERSIDAD COMPLUTENSE DE MADRID

(2:50 PM) Supervisory Switching Control of an Unmanned Surface Vehicle

Ivan Bertaska, Florida Atlantic University

Karl von Ellenrieder, Florida Atlantic University

Emerging Arctic Challenges 3

Wednesday, October 21 (1:30 PM - 3:00 PM)

Location: Magnolia 1

Co-Chairs:

Sylvia Cole, WHOI

Sean Kery, CSC

(1:30 PM) Observations on the Modeling of Ice Flow Interactions with Seakeeping Software

Sean Kery, CSC

Logan Wilt, CSC Advanced Marine Center

(1:50 PM) Vector Data Extraction from Forward-Looking Sonar Imagery for Hydrographic Survey and Hazard to Navigation Detection

R Glenn Wright, World Maritime University

Cheryl Zimmerman, FarSounder, Inc.

(2:10 PM) Inertial Navigation at High Latitude: Trials and Test Results

Yves Paturel, IXBLUE

Jean-Baptiste Lacambre, IXBLUE

Frédéric Patin, IXBLUE

Christopher Moynagh, IXBLUE

(2:30 PM) Processing of velocity observations from Ice-Tethered Profilers

Sylvia Cole, WHOI

Fredrik Thwaites, WHOI

Richard Krishfield, WHOI

John Toole, WHOI

Sea Change: Dive into Opportunity

Buoy Technology

Wednesday, October 21 (1:30 PM - 3:00 PM)

Location: Magnolia 2

Chair:

Rick Cole, RDSEA International, Inc.

(1:30 PM) Development of Smartphone-embedded Telemetry Drifting Buoy for Tracking Drifting Oil Patches in the Coastal Water and Field Test

Isamu FUJITA, PARI, JAPAN

Yoshitaka MATSUZAKI, PARI, JAPAN

(1:50 PM) The Chesapeake Bay Interpretive Buoy System and the Winter of 2015: Problems and Solutions

Katie Kirk, Earth Resources Technology

Doug Wilson, Caribbean Wind LLC.

Nikiforos Delatolas, Earth Resources Technology

(2:10 PM) The PRAWLER, a vertical moored profiler powered by wave energy

Timothy Osse, NOAA/PMEL/JISAO

Chris Meinig, NOAA/PMEL

Scott Stalin, NOAA/PMEL

Hugh Milburn, NOAA/PMEL

(2:30 PM) Technological Advances in Floating LiDAR Reduce Costs and Increase Efficiencies for Offshore Wind Development

Graham Howe, AXYS Technologies

Chris Ng, AXYS Technologies

A Security and Surveillance Application of the Innovative Monitoring Underwater Buoy Systems (MUnBuS) on the Protected Marine Area (AMP) of Capo Gallo (PA-IT).

Vincenzo Franzitta, University of Palermo

Francesco Maria Raimondi, UNIVERSITY OF PALERMO

Marco Trapanese, University of Palermo

Vincenzo Di Dio, University of Palermo

Pierluca Martorana, University of Palermo

Acoustics 3

Wednesday, October 21 (1:30 PM - 3:00 PM)

Location: Magnolia 3

Co-Chairs:

Frederick Whoriskey, Dalhousie University

Joe Haxel, CIMRS/NOAA

(1:30 PM) The Ocean Tracking Network: A global partnership uses electronic tagging technologies to track the movements of aquatic animals, answer science questions, stimulate new technology development and assist with sustainable development of the ocean.
Frederick Whoriskey, Dalhousie University

(1:50 PM) iTAG: Developing a Cloud Based, Collaborative Animal Tracking Network in the Gulf of Mexico

Robert Currier, Texas A&M/GCOOS-RA

Barbara Kirkpatrick, Texas A&M/GCOOS-RA

Chris Simonello, Texas A&M/GCOOS-RA

Susan Lowerre-Barbieri, Florida Fish and Wildlife Conservation Commission

Joel Bickford, Florida Fish and Wildlife Conservation Commission

(2:10 PM) Simultaneous operation of mobile and stationary acoustic recording systems off the Washington coast for cetacean studies

Haru Matsumoto, CIMRS/NOAA

Joe Haxel, CIMRS/NOAA

Holger Klinck, Bioacoustics Research Program, Cornell University

Alex Turpin, CIMRS/NOAA

Selene Fregosi, CIMRS/NOAA

Dave Mellinger, CIMRS/NOAA

Karolin Klinck, Bioacoustics Research Program, Cornell University

Anatoli Erofeev, CEOAS, Oregon State University

Jack Barth, CEOAS, Oregon State University

Simone Bauman-Pickering, Scripps Institution of Oceanography

Matt Fowler, CIMRS/NOAA

Chris Jones, Embedded Ocean Systems

Robert Dziak, PMEL/NOAA

Kipp Shearman, CEOAS, Oregon State University

(2:30 PM) Development of an automatic discrimination method of the bio-sonar clicks of Irrawaddy dolphin (*Orcaella brevirostris*) from various types of boat noises

Harumi Sugimatsu, Institute of Industrial Science, The University of Tokyo

Junichi Kojima, KDDI R&D Laboratories Inc.

Tamaki Ura, Kyushu Institute of Technology

Rajendar Bahl, Indian Institute of Technology, Delhi

Sabro Tomuro, TOA OIL KOGYOSHO Co., Ltd.

(2:50 PM) Detection and characterization of hydroacoustic whale signals using seafloor cable seismic networks offshore Japan

Hiroko Sugioka, JAMSTEC

Rintaro Yoshida, Tokyo University of Marine Science and Technology

Masanori Kyo, JAMSTEC

Hiroko Yamada, Tokyo University of Marine Science and Technology

Hidehiro Kato, Tokyo University of Marine Science and Technology

Sea Change: Dive into Opportunity

Ocean Energy 1 - Waves

Wednesday, October 21 (1:30 PM - 3:00 PM)

Location: Camelia 1

Chair:

Maggie Merrill, Marine Marketing Services

(1:30 PM) Experimental Testing of a 1/25th Scale Three Barge Wave Energy Converter Model

Sarah Mouring, U.S. Naval Academy

Alexander Yachanin, Stanford University

Patrick Hudson, Moment Engineering, Inc.

(1:50 PM) Approaching Maximum Power Conversion with Exergy-Based Wave by Wave Control of a Wave Energy Device

Umesh Korde, SD School of Mines and Technology

Rush Robinett, Michigan Technological University

David Wilson, Sandia National Laboratories

(2:10 PM) Comparison of Methods for Estimating Short Term Extreme Response of Wave Energy Converters

Carlos Michelen, Sandia National Laboratories

Ryan Coe, Sandia National Laboratories

(2:30 PM) Energy Extraction from A Slider Crank Wave Energy Converter under Irregular Wave Conditions

Yuanrui Sang, Western Carolina University

Bora Karayaka, Western Carolina University

Yanjun Yan, Western Carolina University

James Zhang, Kettering University

Eduard Muljadi, National Renewable Energy Laboratory

Yi-Hsiang Yu, National Renewable Energy Laboratory

OWC Wave Power Plants Capture Chamber Modelling

Aitor Garrido, University of the Basque Country

Erlantz Otaola, University of the Basque Country

Izaskun Garrido, University of the Basque Country

Jon Lekube, University of the Basque Country

Pedro Liria, AZTI-Tecnalia

Julien Mader, AZTI-Tecnalia

Sonar Signal Processing 4**Wednesday, October 21 (3:30 PM - 5:15 PM)****Location: Azalea 1****Co-Chairs:****Bijan Mobasser**, Villanova University**Hari Vishnu**, Acoustic Research Laboratory, NUS**Robust Weak Signal Detection and Bearing Estimation****Feng XIAO**, Systems Engineering Research Institute of CSSC**Feng-Xiang Ge**, Beijing Normal University**(3:50 PM) A vector sensing scheme for underwater acoustics based on particle velocity measurements****Unnikrishnan Kuttan Chandrika**, Acoustic Research Laboratory, NUS**Hari Vishnu**, Acoustic Research Laboratory, NUS**(4:10 PM) Matched field processing under posterior probability constraints****Guolei Zhu**, Northwestern Polytechnical University**Yingmin Wang**, Northwestern Polytechnical University**Qi Wang**, Northwestern Polytechnical University**(4:30 PM) An improved whitening transformation for snapshot-deficient scenarios****Jose Diaz-Santos**, Naval Surface Warfare Center, Dahlgren, VA**Kathleen Wage**, ECE Department, George Mason University

Sea Change: Dive into Opportunity

Autonomous Underwater Vehicles 6

Wednesday, October 21 (3:30 PM - 5:15 PM)

Location: Azalea 2

Chair:

James McMahon, *Naval Research Laboratory*

(3:30 PM) Autonomous Underwater Vehicle Mine Countermeasures via the Physical Traveling Salesman Problem

James McMahon, *Naval Research Laboratory*

Erion Plaku, *Catholic University of America*

Integrated Command, Control and Communication for Autonomous Underwater Vehicles

Clancy Emanuel, *University of Connecticut*

Daanish Zaidi, *University of Connecticut*

Shalabh Gupta, *University of Connecticut*

Shengli Zhou, *University of Connecticut*

(4:10 PM) Cooperative Navigation and Control: the EU MORPH project

António Pascoal, *Instituto Superior Técnico*

Pedro Caldeira Abreu, *Instituto Superior Técnico*

(4:30 PM) A hierarchical network based on multiple AUVs and sonobuoys

XUAN LI, *Institute of Acoustics, Chinese Academy of Sciences*

XIAOCHUAN MA, *Institute of Acoustics, Chinese Academy of Sciences*

SHEFENG YAN, *Institute of Acoustics, Chinese Academy of Sciences*

(4:50 PM) Trajectory tracking algorithm for autonomous vehicles using adaptive reinforcement learning

Mariano De Paula, *CIFICEN/CONICET*

Gerardo Acosta, *CIFICEN/CONICET*

Oceanographic Instrumentation and Sensors 4: Waves

Wednesday, October 21 (3:30 PM - 5:15 PM)

Location: Azalea 3

Chair:

Mark Bushnell, CoastalObsTechServices

(3:30 PM) Observations of Predictive Skill for Real-Time Deterministic Sea Waves from the WaMoS II

Tyson Hilmer, OceanWaveS GmbH

Eric Thornhill, Defence Research and Development Canada

(3:50 PM) Analysis of Rain Effects on Wave Height Estimation from X-Band Nautical Radar Images

Xinlong Liu, Memorial University of Newfoundland

Weimin Huang, Memorial University of Newfoundland

Eric Gill, Memorial University of Newfoundland

(4:10 PM) NDBC Wave Measurement Initiatives

Rodney Riley, National Data Buoy Center

Richard Bouchard, National Data Buoy Center

(4:30 PM) Wave Height Measurement Using a Short-range FMCW Radar for Unmanned Surface Craft

Jian Cui, Memorial University

Ralf Bachmayer, Memorial University

Weimin Huang, Memorial University

Brad deYoung, Memorial University

(4:50 PM) Deep Water Wave Measurements from Subsurface Buoys - Methods to Improve Data Quality by Correcting for Sensor Motion Bias

Jon Wood, Ocean Data Technologies, Inc.

Eugene Terray, WHOI

John Schanzle, JAS Research, Inc.

Sea Change: Dive into Opportunity

Acoustic Telemetry and Communication 6

Wednesday, October 21 (3:30 PM - 5:15 PM)

Location: Annapolis 1

Chair:

Craig Hamm, Maritime Way Scientific Ltd

(3:30 PM) Closed loop bi-directional broadband Doppler compensation and channel equalization for single carrier high-speed underwater acoustic communication

Youwen Zhang, HEU

Lu Liu, Harbin Engineering University

Dajun Sun, HEU

Xin Liu, Harbin Engineering University

Hongyu Cui, Harbin Engineering University

Zhisheng Li, 91550 Unit of PLA

(3:50 PM) Toward hardware-driven simulation of underwater acoustic propagation and communication with Arctic ice, wind waves, and currents

Craig Hamm, Maritime Way Scientific Ltd

Stephane Blouin, DRDC, Atlantic Research Centre

Martin Taillefer, Maritime Way Scientific Ltd.

(4:10 PM) Spoofing Detection Games in Underwater Sensor Networks

Yan Li, Dept. of Communication Engineering, Xiamen University

Liang Xiao, Dept. of Communication Engineering, Xiamen University

Qiangda Li, Dept. of Communication Engineering, Xiamen University

Wei Su, Dept. of Communication Engineering, Xiamen University

(4:30 PM) Forward-Backward Block-wise Channel Tracking in High-speed Underwater Acoustic Communication

Peng Chen, Curtin University

Yue Rong, Curtin University

Sven Nordholm, Curtin University

Zhiqiang He, Beijing University of Posts and Telecommunications

(4:50 PM) Characterization and Receiver Design for Underwater Acoustic Channels with Large Doppler Spread

Qin Lu, University of Connecticut

Yi Huang, University of Connecticut

Zhaohui Wang, Michigan Technological University

Shengli Zhou, University of Connecticut

Remotely Operated Vehicles 3

Wednesday, October 21 (3:30 PM - 5:15 PM)

Location: Annapolis 2

Chair:

Gaurav Sharma, Teledyne SeaBotix

(3:30 PM) Power Management of 10-Thruster ROV Using an Auto-Configurable Algorithm

Gaurav Sharma, Teledyne SeaBotix

Leverett Bezanson, Teledyne SeaBotix

Michael Poole, Teledyne SeaBotix

(3:50 PM) Preliminary Water Tank Test of a Multi-legged Underwater Robot for Seabed Explorations

Seong-yeol Yoo, KRISO

Gyeong-Mok Lee, KRISO

Bong-Huan Jun, KRISO

Hangoo Kang, KRISO

Hyungwon Shim, KRISO

Woo-Young Jeong, KRISO

Jin-Yeong Park, KRISO

Se-Hoon Baek, KRISO

Hyuk Baek, KRISO

Pan-Mook Lee, KRISO

Bang-hyun Kim, KRISO

(4:10 PM) HMD as a new Tool for Telepresence in Underwater Operations and Closed-Loop Control of ROVs

Mauro Candeloro, NTNU

Eirik Valle, NTNU

Michel Miyazaki, NTNU

Roger Skjetne, NTNU

Martin Ludvigsen, NTNU

Asgeir Sørensen, NTNU

(4:30 PM) The Observer-based Neural Network Adaptive Robust Control for Underwater Hydraulic Manipulator

Yihong Xu, Zhejiang University

Yaoyao Wang, Zhejiang University

Xiaoxu Cao, Zhejiang University

Linyi Gu, Zhejiang University

(4:50 PM) Experience on Underwater Artifact Search Using Underwater Walking Robot Crabster CR200

Bong Huan Jun, KRISO

Yong-hwa Jung, National Research Institute of Maritime Cultural Heritage

Pan-Mook Lee, KRISO

(5:10 PM) Positioning Controller of a Remotely Operated Vehicle Using RWNN-based Adaptive Robust Controllers

Guoqing Xia, College of Automation, Harbin Engineering University

Chengcheng Pang, College of Automation, Harbin Engineering University

Ju Liu, College of Automation, Harbin Engineering University

Jingjing Xue, Harbin Engineering University

Sea Change: Dive into Opportunity

OCEANS '25 (and beyond) - Envisioning the Future of Marine Technology and Ocean Engineering

Wednesday, October 21 (3:30 PM - 5:15 PM)

Location: Annapolis 3

(3:30 PM) Future of Marine Technology
Doug Wilson, *Caribbean Wind LLC.*

Vehicle Navigation 4

Wednesday, October 21 (3:30 PM - 5:15 PM)

Location: Annapolis 4

Chair:
Benjamin Kinnaman, *Greensea Systems, Inc.*

(3:30 PM) Development of passive acoustic landmark using image sonar for AUV's localization
Juhyun Pyo, *Pohang University of Science and Technology*
Son-Cheol Yu, *Pohang University of Science and Technology*
Hyeonwoo Cho, *Pohang University of Science and Technology*
Jeonghwe Gu, *Pohang University of Science and Technology*
Hangil Joe, *Pohang University of Science and Technology*
Juhwan Kim, *Pohang University of Science and Technology*
Byeong-Jin Kim, *Pohang University of Science and Technology*

(3:50 PM) Practical Feature-Based Navigation Using Forward Looking Sonar for ROV Positioning
Benjamin Kinnaman, *Greensea Systems, Inc.*
Marybeth Gilliam, *Greensea Systems, Inc.*

(4:10 PM) Experimental Results of Real-time Sonar-based Underwater Localization Using Landmarks
Yeongjun Lee, *KRISO*
Jinwoo Choi, *KRISO*
Hyun-Taek Choi, *KRISO*

(4:30 PM) Bundle Adjustment from Sonar Images and SLAM Application for Seafloor Mapping
Shin Youngsik, *KAIST*
Lee Youngjun, *KRISO*
Choi Hyun-Taek, *KRISO*
Kim Ayoung, *KAIST*

Marine Life and Ecosystems

Wednesday, October 21 (3:30 PM - 5:15 PM)

Location: Magnolia 1

Chair:

Thomas Consi, University of Wisconsin-Milwaukee

(3:30 PM) A Study on Seaweed Beds in Eutrophic Regions assuming CO₂ Dissolving and Fixation

Chika Suzuki, Kobe University

Muneyuki Ishikawa, Former:Nagoya University

Yuki Kamimoto, Nagoya University

Ryoichi Ichino, Nagoya University

(3:50 PM) Spectral response of marine submerged aquatic vegetation: a case study in Western Australia coast

Tin Hoang Cong, Curtin University

Rodrigo Garcia, Curtin University

Michael O'Leavy, Curtin University

Ravi Fotedar, Curtin University

(4:10 PM) Evolution of Biomineralization Proteins in Cnidaria: Sequencing a Stony-Coral Skeletal Protein from the Soft Coral, *Lobophytum crassum*

Taylor Dodge, Department of Marine and Coastal Sciences, Rutgers University

Jeana Drake, Department of Marine and Coastal Sciences, Rutgers University

Paul Falkowski, Rutgers University

Liesl Hotaling, Eidos Education

(4:30 PM) An Unmanned Aerial Vehicle for the Localization of Radio-Tagged Fish

Thomas Consi, University of Wisconsin-Milwaukee

Joseph Patzer, University of Wisconsin-Milwaukee

Brady Moe, University of Wisconsin-Milwaukee

Samuel Bingham, University of Wisconsin-Milwaukee

Kristopher Rockey, University of Wisconsin-Milwaukee

(4:50 PM) A Study on the Growth Characteristics of Green Algae Blooms in the Yellow Sea using Categorical Analysis

Yingli Tang, Shanghai Ocean University

Shijun He, Shanghai Ocean University

Hairong Qi, University of Tennessee

Peimin He, Shanghai Ocean University

Haiyang He, East China University of Science and Technology

Sea Change: Dive into Opportunity

Marine Education and Outreach

Wednesday, October 21 (3:30 PM - 5:15 PM)

Location: Magnolia 2

Co-Chairs:

Liesl Hotaling, Eidos Education

Scot Glenn, Rutgers University

(3:30 PM) SENSE IT: transitioning from research to retail with an ocean sensing educational program

Liesl Hotaling, Eidos Education

(3:50 PM) Reaching Out to Underserved Communities

Corey Garza, California State University, Monterey Bay

(4:10 PM) NOAA is Open for Business

Paula Keener, NOAA

Louisa Koch, NOAA

(4:30 PM) The Ocean is Our Classroom: A 4-Year Research Track for Undergraduate Exploration, Research and Discovery in Oceanography

Scot Glenn, Rutgers University

Josh Kohut, Rutgers University

Oscar Schofield, Rutgers University

Grace Saba, Rutgers University

Travis Miles, Rutgers University

(4:50 PM) Communicating Oil Spill Science - Using C-IMAGE for interdisciplinary education and outreach

Sherryl Gilbert, University of South Florida

Liesl Hotaling, University of South Florida

Benjamin Prueitt, University of South Florida

Teresa Greely, University of South Florida

Steven Murawski, University of South Florida

David Hollander, University of South Florida

(5:10 PM) The power of seeing: Experiences using video as a deep-sea engagement and education tool

Maia Hoeberechts, Ocean Networks Canada

Dwight Owens, Ocean Networks Canada

David Riddell, Ocean Networks Canada

Andrew Robertson, Ocean Networks Canada

(5:30 PM) NOAA Hosts Boy Scouts of America Oceanography Merit Badge Events

Robert Heitsenrether, NOAA\NOS\CO-OPS

Margarita O'Hargan, NOAA/NOS/CO-OPS

Space Systems

Wednesday, October 21 (3:30 PM - 5:15 PM)

Location: Magnolia 3

Chair:

Ron Abileah, jOmegak

(3:30 PM) Robotic Exercises 2014 - Multi-robot field trials

Mario Monteiro Marques, Portuguese Navy Research Center

Alfredo Martins, INESC TEC / ISEP

Aníbal Matos, INESC TEC / FEUP

Nuno Cruz, INESC TEC / FEUP

José Miguel Almeida, INESC TEC / ISEP

José Carlos Alves, INESC TEC / FEUP

Victor Lobo, Portuguese Navy Research Center

Eduardo Silva, INESC TEC / ISEP

(3:50 PM) Joint Packet Detection and Decoding for Maritime Data Exchange Systems

Dmitri Truhachev, Dalhousie University

David McNutt, Dalhousie University

(4:10 PM) Video from Earth Orbiting Satellites (for Oceanographers)

Ron Abileah, jOmegak

Stefano Vignudelli, Consiglio Nazionale delle Ricerche (CNR)

(4:30 PM) Semi-automated land/water segmentation of multi-spectral imagery

Benjamin Cook, Arete Associates

Stephanie Graceffo, Arete Associates

(4:50 PM) Real-Time AIS Tracking from Space Expands Opportunities for Long-Term Global Ocean Observing and Maritime Domain Awareness

Donna Kocak, HARRIS Corporation

Peggy Browning, exactEarth Ltd

(5:10 PM) Potential of Maritime Monitoring by Using Space-born Synthetic Aperture Radar

Masanori Watagawa, PASCO

Ei-ichi Kobayashi, Kobe University

Masao Furusho, Kobe University

Sea Change: Dive into Opportunity

Ocean Energy 2

Wednesday, October 21 (3:30 PM - 5:15 PM)

Location: Camelia 1

Chair:

Maggie Merrill, Marine Marketing Services

Thermal Safety Management of Lithium-Ion Battery Energy Storage Systems for Use in Ocean-going and Subsea Applications

Vijay Somandepalli, Exponent

Kevin Marr, Exponent

(3:50 PM) Integrated dynamic modeling of a point absorber wave energy converter in regular and irregular waves

Taofeek Orekan, University of Connecticut

Peng Zhang, University of Connecticut

(4:10 PM) Spent Flow Discharge Apparatus for Instream Hydro Power Turbine

George McBride, Downeast Turbine (formerly PflSH Turbines)

(4:30 PM) Development of Energy-harvesting Unit and Propulsion Unit for a Robotic Buoy System

Hangil Joe, Pohang University of Science and Technology

Son-Cheol Yu, Pohang University of Science and Technology

Juhyun Pyo, Pohang University of Science and Technology

Hyeonwoo Cho, Pohang University of Science and Technology

Jeonghwe Gu, Pohang University of Science and Technology

Juhwan Kim, Pohang University of Science and Technology

Byeong-Jin Kim, Pohang University of Science and Technology

NOTES

This image shows a full page of blank, lined paper. It features approximately 28 horizontal blue lines spaced evenly across the page, typical of standard notebook paper. The lines are thin and light blue, set against a plain white background. There are no margins, text, or other markings on the page.

Sea Change: Dive into Opportunity

Hydrodynamics

Thursday, October 22 (8:30 AM - 10:00 AM)

Location: Azalea 1

Chair:

Sean Kery, CSC

(8:30 AM) Hydraulic Experiment of the Slit Caisson Breakwater with Embedded Resonant Channels

JeongSeok Kim, KMOU / KRISO

WooSun Park, *Korea Institute of Ocean Science and Technology, KIOST*

JoongWoo Lee, *KMOU*

JiHye Seo, *Korea Institute of Ocean Science and Technology, KIOST*

(8:50 AM) Thrust Magnitude and Efficiency Studies for Multiple Robotic Flapping Fins

Jason Geder, Naval Research Laboratory

Ravi Ramamurti, *Naval Research Laboratory*

Marius Pruessner, *Naval Research Laboratory*

(9:10 AM) Conceptual View of Refraction and Transmission of a Tsunami Wave at a Step in Bathymetry

Malcolm Heron, James Cook University

Anna Dzvonkovskaya, *HELZEL Messtechnik GmbH*

Multiple Damage Types on Carbon Steel and Silica Glass during Ultrasonic Cavitation Erosion

Mengru Fu, Zhejiang University

Han Ge, *Zhejiang University*

(9:50 AM) Hydrodynamics Related to Shipwreck Taphonomy

Sean Kery, CSC

Jillana Stauffer, *CSC Advanced Marine Center*

Autonomous Underwater Vehicles 7**Thursday, October 22 (8:30 AM - 10:00 AM)****Location: Azalea 2****Chair:****Anthony Rodgers, Orca Maritime Inc****(8:30 AM) Optimal Design for Consensus of Second Order Multi-agent Systems with Damping Term****Jiajia Zhou**, Harbin Engineering University

Peng Shi, Harbin Engineering University

Xinqian Bian, Harbin Engineering University

Lanyong Zhang, Harbin Engineering University

Wei Zhang, Harbin Engineering University

(8:50 AM) A Computationally-Efficient 2D Imaging Sonar Model for Underwater Robotics Simulations in Gazebo**Kevin DeMarco**, Georgia Institute of Technology

Michael West, Georgia Institute of Technology

Ayanna Howard, Georgia Institute of Technology

(9:10 AM) Data-Driven Comparison of Spatio-Temporal Monitoring Techniques**Jeffrey Caley**, Oregon State University

Geoffrey Hollinger, Oregon State University

(9:30 AM) Transitioning Unmanned Underwater Vehicle Technology from Commercial Use to Naval Mine Countermeasures Operations

David Clegg, Orca Maritime Inc.

Anthony Rodgers, Orca Maritime Inc**(9:50 AM) Experiments with Obstacle and Terrain Avoidance of Autonomous Underwater Vehicle****Hongli Xu**, Shenyang Institute of Automation, CAS

Sea Change: Dive into Opportunity

Systems and Observatories 1

Thursday, October 22 (8:30 AM - 10:00 AM)

Location: Azalea 3

Chair:

Oscar Schofield, Rutgers University, COOL

(8:30 AM) Strategy for sustainability of the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

Ingrid Puillat, Ifremer Centre de Brest

Patrick Farcy, Ifremer Centre de Brest

Dominique Durand, IRIS

George Petihakis, HCMR

Pascal Morin, CNRS and IPEV

Magali Krieger, CNRS

Wilhelm Petersen, Helmholtz Zentrum Geesthacht

Joaquin Tintoré, CSIC-IMEDEA and SOCIB

Kai Sorensen, NIVA

Stefania Sparnocchia, CNR-ISMAR

Henning Wehde, IMR

(8:50 AM) Gliders as a maturing technology: Using gliderpalooza as means to develop an integrated glider community

Oscar Schofield, Rutgers University, COOL

Clayton Jones, Teledyne Webb Research

Scott Glenn, Rutgers University, COOL

Travis Miles, Rutgers University, COOL

Grace Saba, Rutgers University, COOL

Uli Kremer, Rutgers University, COOL

Doug Webb, Teledyne Webb Research

(9:10 AM) Data Quality Control Practices for Ocean Networks Canada Observatories-Challenges and Opportunities

Dilumie Abeyisirigunawardena, Ocean Networks Canada

Marlene Jeffries, Ocean Networks Canada

Alice Bui, Ocean Networks Canada

Michael Morley, Ocean Networks Canada

Maia Hoeberechts, Ocean Networks Canada

(9:30 AM) A Mapping Approach for Marine Observatory Relying on Enterprise Architecture

Charbel Aoun, TELECOM and ENSTA Bretagne

Reference Selection for an Active Ultrasound Wild Salmon Monitoring System

Gabriel VASILE, CNRS

Guy D'URSO, Electricite de France

Eric DE OLIVEIRA, Electricite de France

Jérôme Guillet, Electricite de France

Elena LUNGU, SIGINTEC

Acoustic Telemetry and Communication 7

Thursday, October 22 (8:30 AM - 10:00 AM)

Location: Annapolis 1

Chair:

Zhaohui Wang, Michigan Technological University

(8:30 AM) Adaptive Transmission Scheduling in Time-Varying Underwater Acoustic Channels

Zhaohui Wang, Michigan Technological University

Chaofeng Wang, Michigan Technological University

Wensheng Sun, Michigan Technological University

(8:50 AM) Sparse linear equalizers for turbo equalizations in underwater acoustic communication

Yanbo Wu, Institute of Acoustics, Chinese Academy of Sciences

Min Zhu, Institute of Acoustics, Chinese Academy of Sciences

Xinguo Li, Institute of Acoustics, Chinese Academy of Sciences

(9:10 AM) The design and analysis of UEP LT codes with Correlation Chain feedback in underwater acoustic networks

danfeng Zhao, Harbin Engineering University

Jiaxi Si, Harbin Engineering University

guiyang Lun, Harbin Engineering University

Ben Wang, Harbin Engineering University

(9:30 AM) A Joint Linear-Analog Network Coding Based Protocol for Data Transfer in Underwater Acoustic Networks

Xiaobo Zhao, Northwestern Polytechnical University

Xiaohong Shen, Northwestern Polytechnical University

Haiyan Wang, Northwestern Polytechnical University

Weigang Bai, Northwestern Polytechnical University

Ruiqin Zhao, Northwestern Polytechnical University

(9:50 AM) Soft Direct-Adaptive Turbo Equalization for MIMO Underwater Acoustic Communications

Duan Weimin, Missouri University of Science & Technology

Rosa Zheng, Missouri University of Science & Technology

Sea Change: Dive into Opportunity

Classification and Pattern Recognition 1

Thursday, October 22 (8:30 AM - 10:00 AM)

Location: Annapolis 2

Co-Chairs:

Alexandre Baussard, Lab-STICC / ENSTA Bretagne

Rui Nian, Ocean University of China

(8:30 AM) Marine Animal Classification Using Combined CNN and Hand-designed Image Features

Zheng Cao, *University of Florida*

Jose Principe, *University of Florida*

Bing Ouyang, *Harbor Branch Oceanographic Institute*

Fraser Dalgleish, *Harbor Branch Oceanographic Institute*

Anni Vuorenkoski, *Harbor Branch Oceanographic Institute*

(8:50 AM) An artificial intelligence recognition algorithm for Yangtze finless porpoise

Hongjian Song, *Institute of Acoustics, Chinese Academy of Sciences*

Feng Xu, *Institute of Acoustics, Chinese Academy of Sciences*

Bangyou Zheng, *Tongling River Dolphin National Natural Reserve*

Juan Yang, *Institute of Acoustics, Chinese Academy of Sciences*

Xudong An, *Institute of Acoustics, Chinese Academy of Sciences*

Zeyu Pan, *Institute of Acoustics, Chinese Academy of Sciences*

(9:10 AM) Automatic searching of fish from underwater images via shape matching

Ruchen Wang, *Ocean University of China*

Jialun Dai, *Ocean University of China*

Haiyong Zheng, *Ocean University of China*

Bing Zheng, *Ocean University of China*

Guangrong Ji, *Ocean University of China*

(9:30 AM) Fast Accurate Fish Detection and Recognition of Underwater Images with Fast R-CNN

Xiu Li, *Tsinghua University*

Min Shang, *Tsinghua University*

Hongwei Qin, *Tsinghua University*

Liansheng Chen, *Tsinghua University*

(9:50 AM) Underwater Image Sparse Representation based on Bag-of-Words and Compressed Sensing

Rui Nian, *Ocean University of China*

Congcong Shi, *Ocean University of China*

Bo He, *Ocean University of China*

Yue Shen, *Ocean University of China*

Amaury Lendasse, *University of Iowa*

Vehicle Navigation 5

Thursday, October 22 (8:30 AM - 10:00 AM)

Location: Annapolis 4

Chair:

James Kinsey, WHOI

(8:30 AM) Distortion-Robust Distributed Magnetometer for Underwater Pose Estimation in Confined UUVs

Leif Christensen, DFKI Robotics Innovation Center

Christopher Gaudig, DFKI Robotics Innovation Center

Frank Kirchner, DFKI Robotics Innovation Center

(8:50 AM) Sonar and Video Fusion for Vehicle Trajectory Estimation in Under-ice Environments

Anthony Spears, Georgia Institute of Technology

Michael West, GTRI

Thomas Collins, GTRI

Ayanna Howard, Georgia Institute of Technology

(9:10 AM) Using the Motion Perceptibility Measure to Classify Points of Interest for Visual-based AUV Guidance in a Reef Ecosystem

María de Lourdes Labastida Valdés, CINVESTAV Campus Saltillo

Luz Abril Torres Mendez, CINVESTAV Campus Saltillo

Seth Hutchinson, University of Illinois at Urbana-Champaign

(9:30 AM) Research on the Navigation Error Compensation Method for a class of Deep-sea vehicle

Kaizhou Liu, Shenyang Institute of Automation, CAS

Guanqun Wang, Northeastern University

Yang Zhao, Shenyang Institute of Automation, CAS

Shengguo Cui, Shenyang Institute of Automation, CAS

Yan Huang, Shenyang Institute of Automation, CAS

Xiaohui Wang, Shenyang Institute of Automation, CAS

(9:50 AM) Integration and Algorithm Development for Forward Looking Imaging Sonars on Hybrid and Autonomous Underwater Robots

Stefano Suman, WHOI

Carl Kaiser, WHOI

Michael Jakuba, WHOI

James Kinsey, WHOI

Sea Change: Dive into Opportunity

Phytoplankton Observations on the Outer Banks

Thursday, October 22 (8:30 AM - 10:00 AM)

Location: Magnolia 1

Co-Chairs:

Archie Morrison, Woods Hole Group

Hilary Morrison, Marine Biological Laboratory

(8:30 AM) Identification of Phytoplankton Constituents of a 2014 Algal Bloom off the Outer Banks

Parks Kelly, First Flight High School

Samuel Weybright, First Flight High School

(8:50 AM) Geographic Diversity of Phytoplankton Populations along the Outer Banks 2005 to 2013

Jodi Awtrey, First Flight High School

(9:10 AM) Seasonal Changes in Phytoplankton Biodiversity on the Outer Banks 2005 to 2013

Nathan Butcher, First Flight High School

Dylan Owens, First Flight High School

Joseph Sawin, First Flight High School

Lake Lige, First Flight High School

Oceanographic Instrumentation and Sensors 5

Thursday, October 22 (8:30 AM - 10:00 AM)

Location: Magnolia 2

Chair:

Michael Zuba, University of Connecticut

(8:30 AM) Localization of large scale underwater sensor networks based on recursive position estimation

Cuie Zheng, Harbin Engineering University

Yunfeng Han, Harbin Engineering University

Dajun Sun, Harbin Engineering University

(8:50 AM) Identification of Manganese Crusts in 3D Visual Reconstructions to Filter Geo-registered Acoustic Sub-surface Measurements

Umesh Neethiyath, Institute of Industrial Science, The University of Tokyo

Takumi Sato, Institute of Industrial Science, The University of Tokyo

Mehul Sangekar, Institute of Industrial Science, The University of Tokyo

Adrian Bodenmann, Institute of Industrial Science, The University of Tokyo

Blair Thornton, Institute of Industrial Science, The University of Tokyo

Tamaki Ura, Center for Socio-Robotic Synthesis, Kyushu Institute of Technology

Akira Asada, Institute of Industrial Science, The University of Tokyo

(9:10 AM) Glider Measurements of Phytoplankton Physiology in Penguin Foraging Zones.

Christina Haskins, Rutgers University

Oscar Schofield, Rutgers University

(9:30 AM) UPAL: Underwater Passive Aquatic Listener

Michael Zuba, University of Connecticut

Emmanouil Anagnostou, University of Connecticut

Jeffrey Nystuen, University of Washington

Marios Anagnostou, HoRST

Selection of multi-angles combination in precise turbidity measurement

Hongbo Liu, Zhejiang University

Hong Song, Zhejiang University

Shuyue Zhan, Zhejiang University

Hui Huang, Zhejiang University

Jing Xu, Zhejiang University

Hangzhou Wang, Zhejiang University

Ying Chen, Zhejiang University

Sea Change: Dive into Opportunity

Numerical Modeling and Simulation 1

Thursday, October 22 (8:30 AM - 10:00 AM)

Location: Magnolia 3

Chair:

Steve Holt, SGT, Inc.

(8:30 AM) Modern simulation tools for real time numerical simulation of ocean-related processes

Mikhail Lavrentyev, *Institute of Automation and Electrometry*

Alexey Romanenko, *Novosibirsk State University*

Elder Goryunov, *Novosibirsk State University*

Konstantin Lysakov, *Institute of Automation and Electrometry*

(8:50 AM) Design and Analysis of a One-Dimensional Sea Surface Simulator Using the Sum-of-Sinusoids Principle

Meisam Naderi, *University of Agder*

Matthias Pätzold, *University of Agder*

(9:10 AM) A Reconfigurable Web-based Simulation Environment for AUV

Alexander Pavin, *Far Eastern Federal University*

Alexander Inzartsev, *Far Eastern Federal University*

Grigoriy Eliseenko, *IMTP FEB RAS*

Oleg Lebedko, *Far Eastern Federal University*

Mikhail Panin, *Far Eastern Federal University*

(9:30 AM) Validation and Sensitivity Experiments Comparing the Physical Parameterization of Numerical Wave Model

Goeun Son, *National Institute of Meteorological Research*

Jong-Sook Park, *National Institute of Meteorological Research*

Byunghwan Lim, *National Institute of Meteorological Research*

(9:50 AM) Coupled global wind and tide driven coastal water levels and currents in Puerto Rico and the U.S. Virgin Islands

Juan Gonzalez-Lopez, *University of Notre Dame*

J.J. Westerink, *University of Notre Dame*

M. Canals, *University of Puerto Rico at Mayaguez*

J.M. Morell, *University of Puerto Rico at Mayaguez*

Marine Environment 1

Thursday, October 22 (8:30 AM - 10:00 AM)

Location: Camelia 1

Chair:

Tomokazu Saruhashi, JAMSTEC

(8:30 AM) New ways for research and development using a deep-sea hydrothermal vent system in the Okinawa Trough

Tomokazu Saruhashi, JAMSTEC

Masanori Kyo, JAMSTEC

Tatsuo Nozaki, JAMSTEC

Ikuo Sawada, JAMSTEC

Takahiro Yokoyama, JAMSTEC

Noriaki Sakurai, JAMSTEC

Keita Akiyama, JAMSTEC

(8:50 AM) ROV-based acquisition system for water quality measuring

Franco Hidalgo, Pontificia Universidad Catolica del Peru

Jose Mendoza, Pontificia Universidad Catolica del Peru

Francisco Cuellar, Pontificia Universidad Catolica del Peru

(9:10 AM) Underwater Atomic Force Microscope - Towards in situ nanoscale measurement in deep sea -

Shuhei Nishida, Institute of Industrial Science, The University of Tokyo

Naoki Matsubara, Institute of Industrial Science, The University of Tokyo

Tatsuhiro Fukuba, JAMSTEC

Masanori Kyo, JAMSTEC

Teruo Fujii, Institute of Industrial Science, The University of Tokyo

(9:30 AM) Generation 137Cs surface distribution maps using dense measurement transects of a towed gamma ray spectrometer

Kosuke Murata, The University of Tokyo

Blair Thornton, The University of Tokyo

Kazunori Nagano, The University of Tokyo

Seiki Ohnishi, National Maritime Research Institute

Sea Change: Dive into Opportunity

Marine Environment Imaging and Vision 1

Thursday, October 22 (10:30 AM - 12:00 PM)

Location: Azalea 1

Chair:

Anthony Spears, Georgia Institute of Technology

(10:30 AM) Estimating Coral Reef Slope or Camera Pitch from Video

Meryl Regine Algodon, *National Institute of Physics*

Aaron Hilomen, *National Institute of Physics*

Maricor Soriano, *National Institute of Physics*

(10:50 AM) Development and evaluation of a forward-looking acoustic camera for opaque media tested at 125°C / 720 bar

Rune Hauge, *Christian Michelsen Research AS*

Eivind Mosland, *Christian Michelsen Research AS*

David Peddie, *Offshore Sensing AS*

Jon Hellevang, *Christian Michelsen Research AS*

Gaute Lied, *Christian Michelsen Research AS*

Inge Klepsvik, *Christian Michelsen Research AS*

Frank Ådland, *Christian Michelsen Research AS*

Geir Pedersen, *Christian Michelsen Research AS*

Erling Koltveit, *Christian Michelsen Research AS*

(11:10 AM) Automatic Texture and Anomaly Mapping in Under-ice Video Datasets

Anthony Spears, *Georgia Institute of Technology*

Michael West, *GTRI*

Thomas Collins, *GTRI*

Ayanna Howard, *Georgia Institute of Technology*

Image Restoration Method for Deep-sea Tripod Observation Systems in the South China Sea

Huimin Lu, *Kyushu Institute of Technology*

Yujie Li, *Kyushu Institute of Technology*

Jianru Li, *Tongji University*

Xin Li, *Shanghai Jiaotong University*

Zhifei Liu, *Tongji University*

Seiichi Serikawa, *Kyushu Institute of Technology*

(11:50 AM) Preliminary Results in using a Joint Contrast Enhancement and Turbulence Mitigation Method for Underwater Optical Imaging

Kristofor Gibson, *SSC Pacific*

Town Hall on Promoting OceanSTEM and Blue Economy Workforce Development

Thursday, October 22 (10:30 AM - 12:00 PM)

Location: Azalea 2

(10:30 AM) Promoting OceanSTEM and Blue Economy Workforce Development

Liesl Hotaling, *Eidos Education*

Systems and Observatories 2

Thursday, October 22 (10:30 AM - 12:00 PM)

Location: Azalea 3

Chair:

Ingrid Puillat, *Ifremer Centre de Brest*

(10:30 AM) Verification and Validation of a Prediction Tool for a Helicopter-Towed Submerged Body

Jaye Falls, *United States Naval Academy*

Sarah Mouring, *United States Naval Academy*

Ananth Sridharan, *University of Maryland*

Efficient Surface-level Gateway Deployment Using Underwater Sensing And Processing Networks

Hesham Alhumyani, *University of Connecticut*

Reda Ammar, *University of Connecticut*

Ayman Alharbi, *University of Connecticut*

Sherif Tolba, *University of Connecticut*

(11:10 AM) An Introduction to Subsea Electromagnetic Interference Mitigation Strategies and Challenges

Scott Williams, *OceanWorks International*

Scott McLean, *Ocean Networks Canada Innovation Centre*

(11:30 AM) Harmonization in the Joint European Research Infrastructure Network for Coastal Observatories -JERICO

George Petihakis, *HCMR*

Wilhelm Petersen, *Helmholtz Zentrum Geesthacht*

Rajesh Nair, *Istituto Nazionale di Oceanografia e di Geofisica Sperimentale- OGS*

Marco Faimali, *CNR-ISMAR*

Giovanni Pavanello, *CNR-ISMAR*

Kada Boukema, *Ifremer Centre de Brest*

Laurent Delauney, *Ifremer Centre de Brest*

Patrick Farcy, *Ifremer Centre de Brest*

Patrick Farcy, *Ifremer Centre de Brest*

Naomi Greenwood, *CEFAS*

Sea Change: Dive into Opportunity

Automatic Control 1

Thursday, October 22 (10:30 AM - 12:00 PM)

Location: Annapolis 1

Chair:

Rui Nian, Ocean University of China

(10:30 AM) Motion control of Thruster-driven Underwater Vehicle based on Model predictive control

Xing Jin, Changsha Research Institute of Mining and Metallurgy Co. Ltd

Kaizhou Liu, Shenyang Institute of Automation, CAS

Guang Yuan, School of Information Science & Engineering, Northeastern University

Yingbin Feng, Shenyang Institute of Automation, CAS

Yan Huang, Shenyang Institute of Automation, CAS

Yang Zhao, Shenyang Institute of Automation, CAS

Shengguo Cui, Shenyang Institute of Automation, CAS

(10:50 AM) A Practical Path Tracking Method for Autonomous Underwater Gilders using Iterative Algorithm

Yan Huang, Shenyang Institute of Automation, CAS

JianCheng Yu, Shenyang Institute of Automation, CAS

Wentao Zhao, Shenyang Institute of Automation, CAS

Wenming Jin, Shenyang Institute of Automation, CAS

Yeteng Luo, Shenyang Institute of Automation, CAS

Yan Li, Shenyang Institute of Automation, CAS

(11:10 AM) Model Identification of Unmanned Underwater Vehicle via Adaptive Technique and Artificial Fiducial Markers

João Britto, College of Technology SENAI CIMATEC and German Research Center for Artificial Intelligence (DFKI)

Diego Cesar, College of Technology SENAI CIMATEC and

German Research Center for Artificial Intelligence (DFKI)

Rafael Saback, College of Technology SENAI CIMATEC and

German Research Center for Artificial Intelligence (DFKI)

Sascha Arnold, German Research Center for Artificial Intelligence

Christopher Gaudig, German Research Center for Artificial Intelligence

Jan Albiez, College of Technology SENAI CIMATEC and German Research Center for Artificial Intelligence (DFKI)

(11:30 AM) Target Following for an Autonomous Underwater Vehicle Using Regularized ELM-based Reinforcement Learning

Tingting Sun, School of Information Science and Engineering, Ocean University of China

Bo He, School of Information Science and Engineering, Ocean University of China

Rui Nian, School of Information Science and Engineering, Ocean University of China

Tianhong Yan, School of Mechatronic Engineering, China Jiliang University

Sea Change: Dive into Opportunity

Classification and Pattern Recognition 2

Thursday, October 22 (10:30 AM - 12:00 PM)

Location: Annapolis 2

Co-Chairs:

Zheng Cao, University of Florida

Tim Nattkemper, Bielefeld University

(10:30 AM) Automated Point Cloud Correspondence Detection for Underwater Mapping Using AUVs

Marcus Hammond, *Stanford University*

Ashley Clark, *Stanford University*

Aditya Mahajan, *Stanford University*

Sumant Sharma, *Stanford University*

Stephen Rock, Stanford University

(10:50 AM) Rapid image processing and classification in underwater exploration using advanced high performance computing

Tim Nattkemper, Bielefeld University

Timm Schoening, *Bielefeld University*

Björn Steinbrink, *Saltation*

Daniel Bruen, *Saltation*

(11:10 AM) Bayesian texture classification using steerable Riesz wavelets: Application to sonar images

Alexandre Baussard, Lab-STICC / ENSTA Bretagne

(11:30 AM) Underwater Object Recognition in Photo Images

Alexander Pavin, Far Eastern Federal University

Analysis of underwater signals with non-linear time-frequency structures using warping-based compressive sensing algorithm

Cindy Bernard, *Gipsa-lab*

Cornel Ioana, Gipsa-lab

Irena Orovic, *Faculty of Electrical Engineering*

Srdjan Stankovic, *Faculty of Electrical Engineering*

Sea Change: Dive into Opportunity

Policy and Planning for Responsible Offshore East Coast Development - Technological Considerations

Thursday, October 22 (10:30 AM - 12:00 PM)

Location: Annapolis 3

(10:30 AM) Policy and Planning for Responsible Offshore East Coast Development - Technological Considerations

Hank Lobe, *Severn Marine Technologies*

Ruth Perry, *Shell Exploration & Production Company*

Sea Change: Dive into Opportunity

Environmental Intelligence 1

Thursday, October 22 (10:30 AM - 12:00 PM)

Location: Annapolis 4

Co-Chairs:

Gerhard Kuska, MARACOOS

Miguel Canals, University of Puerto Rico

(10:30 AM) SmartAtlantic - The Benefits of Real Time Metocean Data in Port Operations

Max Bottoni, AXYS Technologies

Chad MacIsaac, AXYS Technologies

Andrew Rae, Atlantic Canadian Marine Pilots Association

(10:50 AM) Assessing HF Radar Data in the New York Harbor: Comparisons with Wind, Stream Gauge and Ocean Model Data Sources

Joe Gradone, Rutgers University

Hugh Roarty, Rutgers University

Colin Evans, Rutgers University

Scott Glenn, Rutgers University

Ethan Handel, Rutgers University

Chloe Baskin, Rutgers University

Gregory Dusek, NOAA

Christopher Paternostro, NOAA

(11:10 AM) Enabling Ocean Enterprise Development through IOOS: Building on Foundational Mid-Atlantic IOOS Support with Focused Partnerships, Leveraging, and Innovation

Gerhard Kuska, MARACOOS

Carolyn Thoroughgood, MARACOOS

(11:30 AM) A nearshore breaker prediction system for Puerto Rico and the United States Virgin Islands in support of beach safety and drowning prevention

Miguel Canals, University of Puerto Rico

Julio Morell, University of Puerto Rico

(11:50 AM) Cooperative development of dynamic habitat models informed by the Integrated Ocean Observing System (IOOS) informs fisheries management decision making in the coastal ocean

Josh Kohut, Rutgers University

John Manderson, NOAA

Laura Palamara, Rutgers University

Enrique Curchitser, Rutgers University

Greg DiDomenico, Garden State Seafood Association

Sea Change: Dive into Opportunity

Remote Sensing 1

Thursday, October 22 (10:30 AM - 12:00 PM)

Location: Magnolia 1

Chair:

Vinod Ramnath, Teledyne Optech Inc

(10:30 AM) Backscatter suppression via blind signal separation for a 532 nm chaotic lidar

David Illig, Clarkson University

Luke Rumbaugh, Clarkson University

Maresh Banavar, Clarkson University

Erik Bollt, Clarkson University

William Jemison, Clarkson University

(10:50 AM) Tailoring of RF Coded Optical Pulses for Underwater 3D Imaging: A Comparison of Modulated Pulse Lidar to Traditional Short Pulse Lidar

Justin Nash, Naval Air Systems Command

Robert Lee, Naval Air Systems Command

Linda Mullen, Naval Air Systems Command

(11:10 AM) CZMIL (Coastal Zone Mapping and Imaging Lidar) Bathymetric Performance in Diverse Littoral Zones

Vinod Ramnath, Teledyne Optech Inc

Viktor Feygels, Teledyne Optech Inc

Hemanth Kalluri, Teledyne Optech Inc

Brant Smith, Teledyne Optech Inc

(11:30 AM) Autonomous Takeoff & Landing of Small UAV from the USV

Vladimir Djapic, SPAWAR Systems Center Pacific

Christopher Prijic, UC Irvine

Frank Bogart, UCSD

Sea Change: Dive into Opportunity

Optics, Imaging, Vision, E-M Systems 1

Thursday, October 22 (10:30 AM - 12:00 PM)

Location: Magnolia 2

Chair:

Fraser Dalgleish, Harbor Branch Oceanographic Institute

(10:30 AM) A Potential method to detect the orientation of the suspended rod-shaped particles using the polarized-light scattering

Ran Liao, Tsinghua University

Yong Wang, Tsinghua University

Hui Ma, Tsinghua University

(10:50 AM) Basic Experiments on Measurement of Salinity using a Heterodyne Double-pass Interferometer

Kenichi Asakawa, JAMSTEC

Akito Araya, ERI, The University of Tokyo

Yasuhisa Ishihara, JAMSTEC

(11:10 AM) Image Quality Analysis for a Multiple Overlapping Field of View Serial Laser Imager

Nicholas Rasoletti, Florida Atlantic University

Fraser Dalgleish, Harbor Branch Oceanographic Institute

Pierre-Philippe Beaujean, Florida Atlantic University, Seatech

(11:30 AM) Development of Optical Inspection Technology for Deep-Sea Floor using Fluorescent Observation Method

Masahiko Sasano, National Maritime Research Institute

Yasuharu Nakajima, National Maritime Research Institute

Joji Yamamoto, National Maritime Research Institute

Yasuo Furushima, JAMSTEC

(11:50 AM) Preliminary Study of Determination of Dinophysis Concentration Using Hyperspectral Imaging

Ye Shen, Zhejiang University

Hui Huang, Zhejiang University

Hong Song, Zhejiang University

Shuyue Zhan, Zhejiang University

Jun Han, Zhejiang University

Ying Chen, Zhejiang University

Sea Change: Dive into Opportunity

Numerical Modeling and Simulation 2

Thursday, October 22 (10:30 AM - 12:00 PM)

Location: Magnolia 3

Chair:

Fearghal O'Donncha, IBM Research - Ireland

Multi-scale Analysis of Turbulence Dissipation in the South China Sea

Jingyuan He, *Ocean University of China*

Dengke Li, *Ocean University of China*

Hua Yang, *Ocean University of China*

Dalei Song, *Ocean University of China*

(10:50 AM) Parallelisation of Hydro-environmental Model for Simulating Marine Current Devices

Fearghal O'Donncha, *IBM Research - Ireland*

Scott James, *Baylor University*

Noreen O'Brien, *IBM Research - Ireland*

Emanuele Ragnoli, *IBM Research - Ireland*

(11:10 AM) The Relationship between Upper-Ocean Variability and the Madden-Julian Oscillation in Extended-Range Simulations

Xiaodong Hong, *Naval Research Laboratory*

James Doyle, *Naval Research Laboratory*

Carolyn Reynolds, *Naval Research Laboratory*

Paul May, *Naval Research Laboratory*

(11:30 AM) Unmixing: A New Direction from Classical Tidal Harmonic Analysis?

Hairong Qi, *University of Tennessee*

Yu Li, *Shanghai Ocean University*

Shijun He, *Shanghai Ocean University*

(11:50 AM) The Investigation on Calculating and Measuring Flow Noise from Underwater Jets

Yongwei LIU, *Acoustic Science and Technology Laboratory, Harbin Engineering University*

DeJiang SHANG, *Acoustic Science and Technology Laboratory, Harbin Engineering University*

Qi LI, *Acoustic Science and Technology Laboratory, Harbin Engineering University*

DaJing SHANG, *Acoustic Science and Technology Laboratory, Harbin Engineering University*

Yan XIAO, *Acoustic Science and Technology Laboratory, Harbin Engineering University*

Sea Change: Dive into Opportunity

Marine Environment 2

Thursday, October 22 (10:30 AM - 12:00 PM)

Location: Camelia 1

Chair:

Michael Redmayne, CARIS USA

(10:30 AM) Pore pressure monitoring of surficial coastal sediments on wave-resolving scale with regard to liquefaction risk prediction at offshore wind and marine hydrokinetic energy converters

Nina Stark, Virginia Tech

Brandon Quinn, Virginia Tech

(10:50 AM) Preliminary Evaluation for Klein HydroChart 3500 Interferometry Bathymetry Sonar to Apply to NOAA Sea Floor Mapping Procedure

Yuhui Ai, Klein Associates Inc, L3 Communications

Straud Armstrong, Klein Associates Inc, L3 Communications

Dean Fleury, Klein Associates Inc, L3 Communications

(11:10 AM) Finding seamounts with altimetry-derived gravity data

Seung-Sep Kim, Chungnam National University

Paul Wessel, University of Hawaii at Manoa

(11:30 AM) Autonomous onboard hydrographic data processing

Michael Redmayne, CARIS USA

(11:50 AM) The molecular organic geochemical records of the ANT28-D5-06 sediment core in the Northern Weddell Sea and their petroleum geology significance

HAN Xibin, Second Institute of Oceanography, SOA

ZHAO Jun, Second Institute of Oceanography, SOA

CHU Fengyou, Second Institute of Oceanography, SOA

PAN Jianming, Second Institute of Oceanography, SOA

TANG Linggang, Second Institute of Oceanography, SOA

BIAN Yeping, Second Institute of Oceanography, SOA

(12:10 PM) Practical application of a new unmanned survey vessel for aquatic habitat assessment and mapping

Preston Martin, NewFields Sediment Management and Marine Sciences

Eric Munday, BioSonics, Inc.

Sea Change: Dive into Opportunity

Marine Environment Imaging and Vision 2

Thursday, October 22 (1:30 PM - 3:15 PM)

Location: Azalea 1

Chair:

Aaron Marburg, Applied Physics Laboratory

(1:30 PM) Multistatic optical imaging system compatible with AUV platforms

Derek Alley, NAVAIR

Brandon Cochenour, NAVAIR

Linda Mullen, NAVAIR

(1:50 PM) A Novel Adaptive Restoration for Underwater Image Quality Degradation

Rui Nian, Ocean University of China

Shuqi Qiu, Ocean University of China

Jia Yu, Ocean University of China

Bo He, Ocean University of China

Amaury Lendasse, University of Iowa

(2:10 PM) Extrinsic Calibration of an RGB Camera to a 3D Imaging Sonar

Aaron Marburg, Applied Physics Laboratory

Andy Stewart, Applied Physics Laboratory

(2:30 PM) Combining background subtraction and three-frame difference to detect moving object from underwater video

Jialun Dai, Ocean University of China

Ruchen Wang, Ocean University of China

Haiyong Zheng, Ocean University of China

Bing Zheng, Ocean University of China

Guangrong Ji, Ocean University of China

(2:50 PM) Water Detection System for a Multi-rotor Autonomous Aerial Vehicle

Ricardo Pombeiro, CTS-UNINOVA

Ricardo Mendonça, CTS-UNINOVA

Francisco Marques, CTS-UNINOVA

Paulo Rodrigues, CTS-UNINOVA

André Lourenço, CTS-UNINOVA

Eduardo Pinto, CTS-UNINOVA

Pedro Santana, ISCTE- IUL

José Barata, CTS-UNINOVA

Sea Change: Dive into Opportunity

Autonomous Underwater Vehicles 8

Thursday, October 22 (1:30 PM - 3:15 PM)

Location: Azalea 2

Chair:

Steve Holt, SGT, Inc.

(1:30 PM) Research on Recognition Method of UUV Vision Based on PSO-BP Network

Detao Meng, *Harbin Engineering University*

Wei Zhang, *Harbin Engineering University*

Zhicheng Liang, *Harbin Engineering University*

Yi Guo, *Harbin Engineering University*

Jiajia Zhou, *Harbin Engineering University*

Yunfeng Han, *Harbin Engineering University*

(1:50 PM) A Comparison of Hydrodynamic Damping Models using Least Squares and Adaptive Identifier Methods for Autonomous Underwater Vehicles

Scott Gibson, *Virginia Tech*

Brian McCarter, *Naval Oceanographic Office*

Daniel Stilwell, *Virginia Tech*

Wayne Neu, *Virginia Tech*

(2:10 PM) Bilateral teleoperation of a commercial small-sized underwater vehicle for academic purposes

Luis Garcia-Valdovinos, *CIDESI*

Tomas Salgado-Jimenez, *CIDESI*

Mariela Serna, *CIDESI*

Manuel Bandala, *CIDESI*

(2:30 PM) Wireless Power and Data Transfer System for Station-Based Autonomous Underwater Vehicles

Makoto Ogihara, *University of Tsukuba*

Tadashi Ebihara, *University of Tsukuba*

Koichi Mizutani, *University of Tsukuba*

Naoto Wakatsuki, *University of Tsukuba*

(2:50 PM) Fuzzy Adaptive Sliding Mode Controller for Path Following of an Autonomous Underwater Vehicle

Zhicheng Liang, *Harbin Engineering University*

Wei Zhang, *Harbin Engineering University*

Yi Guo, *Harbin Engineering University*

Detao Meng, *Harbin Engineering University*

Jiajia Zhou, *Harbin Engineering University*

Yunfeng Han, *Harbin Engineering University*

Sea Change: Dive into Opportunity

Systems and Observatories 3

Thursday, October 22 (1:30 PM - 3:15 PM)

Location: Azalea 3

Co-Chairs:

Ulrik Nielsen, Technical University of Denmark

Astrid H. Brodtkorb, AMOS - NTNU

(1:30 PM) The Deep Ocean Dropcam: A Highly Deployable Benthic Survey Tool

Alan Turchik, National Geographic Society

Eric Berkenpas, National Geographic Society

Bradley Henning, National Geographic Society

Charles Shepard, National Geographic Society

(1:50 PM) Sea state estimation using model-scale DP measurements

Astrid H. Brodtkorb, AMOS - NTNU

Ulrik Nielsen, DTU MECHANICAL ENGINEERING

Asgeir J. Sørensen, AMOS - NTNU

(2:10 PM) A Pneumatic-driven Airdropped Portable Underwater Profiler for Rapid Deployment

Xiaole Xu, Zhejiang University

Canjun Yang, Zhejiang University

yushi zhu, Zhejiang University

(2:30 PM) New Concepts for Shipboard Sea State Estimation

Ulrik Nielsen, Technical University of Denmark

Mikkel Bjerregård, Technical University of Denmark

Roberto Galeazzi, Technical University of Denmark

Thor Fossen, AMOS - NTNU

(2:50 PM) Ocean Observing Collaboration to Improve Hurricane Forecasting and Modeling in the Gulf of Mexico

Ruth Perry, Shell Exploration & Production Company

Pak Leung, Shell Global Solutions Inc.

Walt McCall, NOAA National Data Buoy Center

Kevin Martin, University of Southern Mississippi

Ryan Vandermeulen, University of Southern Mississippi

Neha Sharma, Horizon Marine Inc.

Stephan Howden, University of Southern Mississippi

Hyun-Sook Kim, NOAA NCEP EMC

Rex Hervey, NOAA National Data Buoy Center

Barbara Kirkpatrick, Gulf of Mexico Coastal Ocean Observing System

Stephanie Watson, Gulf of Mexico Coastal Ocean Observing System

Matthew Howard, Gulf of Mexico Coastal Ocean Observing System

Michael Vogel, Shell Global Solutions Inc.

Kent Satterlee, Shell Exploration & Production Company

Louis Bruzy, Shell Exploration & Production Company

Sea Change: Dive into Opportunity

Automatic Control 2

Thursday, October 22 (1:30 PM - 3:15 PM)

Location: Annapolis 1

Chair:

Esten Ingar Grøtli, SINTEF ICT

(1:30 PM) SEATONOMY - Design, development and validation of marine autonomous systems and operations

Esten Ingar Grøtli, SINTEF ICT

Tor Arne Reinen, SINTEF ICT

Knut Grythe, SINTEF ICT

Aksel Andreas Transeth, SINTEF ICT

Marialena Vagia, SINTEF ICT

Magnus Bjerkeng, SINTEF ICT

Per Rundtop, SINTEF Fisheries and Aquaculture

Eirik Svendsen, SINTEF Fisheries and Aquaculture

Ørnulf Rødseth, MARINTEK

Grim Eidnes, SINTEF Materials and Chemistry

(1:50 PM) Formation Control of Unmanned Surface Vehicles with Vision Sensor Constraints

Jian Wang, State Key Laboratory of Ocean Engineering, Shanghai Jiao Tong University

Jing-yang Liu, State Key Laboratory of Ocean Engineering, Shanghai Jiao Tong University

Hong Yi, State Key Laboratory of Ocean Engineering, Shanghai Jiao Tong University

(2:10 PM) Adaptive roll stabilization of ship by U-tanks based on a novel control strategy

Honghan Zhang, Harbin Engineering University

Xinqian Bian, College of Automation, Harbin Engineering University

Jiajia Zhou, Harbin Engineering University

Tao Chen, Harbin Engineering University

Xun Zhang, Harbin Engineering University

(2:30 PM) Waypoint Tracking Control of a Multi-legged Underwater Robot Crabster

Wooyoung Jeong, KRISO

Bong-Huan Jun, KRISO

Seongyeol Yoo, KRISO

Hyungwon Shim, KRISO

Jin-young Park, KRISO

Constrained Model Predictive Control Design for Dynamic Positioning of a Supply Ship

Guoqing Xia, Harbin Engineering University

Ju Liu, Harbin Engineering University

Chengcheng Pang, Harbin Engineering University

Jingjing Xue, Harbin Engineering University

Sea Change: Dive into Opportunity

Offshore Wind and Marine Renewable Energy 1

Thursday, October 22 (1:30 PM - 3:15 PM)

Location: Annapolis 2

Co-Chairs:

Harvey Seim, University of North Carolina at Chapel Hill

Mike Muglia, UNC Coastal Studies Institute

(1:30 PM) An observational, spatially explicit, stability-based estimate of the wind resource offshore of North Carolina

Harvey Seim, University of North Carolina at Chapel Hill

Natalie Thomas, University of Maryland College Park

Sara Haines, University of North Carolina at Chapel Hill

(1:50 PM) Public Acceptance of Offshore Wind Energy:

Relationships among General and Specific Attitudes

David Bidwell, University of Rhode Island

(2:10 PM) Direct Interconnection of offshore airborne wind energy systems

Mahdi Ebrahimisalari, University of Limerick

Joseph Coleman, University of Limerick

Daniel Toal, University of Limerick

Gerard Dooly, University of Limerick

(2:30 PM) Impact of stability on the wind climate of coastal North Carolina

Megan Schutt, University of North Carolina at Chapel Hill

Harvey Seim, University of North Carolina at Chapel Hill

(2:50 PM) Sea Breeze, Coastal Upwelling Modeling to Support Offshore Wind Energy Planning and Operations

Greg Seroka, Rutgers University

Erick Fredj, The Jerusalem College of Technology

Travis Miles, Rutgers University

Rich Dunk, Rutgers University

Josh Kohut, Rutgers University

Scott Glenn, Rutgers University

Sea Change: Dive into Opportunity

Vehicle Design and Performance

Thursday, October 22 (1:30 PM - 3:15 PM)

Location: Annapolis 3

Chair:

Mike Malchiodi, Johns Hopkins Applied Physics Lab

(1:30 PM) Motion Compensator for Acoustic Device Mounted on Autonomous Surface Vehicle

Yoshiaki Hirakawa, Yokohama National University

Takashi Yoda, Yokohama National University

Takehiko Takayama, Yokohama National University

Tadahiro Hyakudome, JAMSTEC

Takeshi Nakatani, JAMSTEC

The design and application of a new vertical-axis ship propeller

Liu Shuyu, Zhejiang University

Huang haocai, Zhejiang University

Leng jianxing, Zhejiang University

Chen Lixin, Hangzhou Modern Ship Design and Research Company

Huang Jialin, Hangzhou Modern Ship Design and Research Company

(2:10 PM) Numerical Analysis of the Motion and Load Responses of a 400000 DWT Ore Carrier in Waves

Christiaan Adenya, Harbin Engineering University

Hui-Long Ren, Harbin Engineering University

Chuan-Dong Qing, Harbin Engineering University

Identification of the Inertial Model for Innovative Semi-Immergible USV (SI-USV) Drone for Marine and Lakes Operations.

Vincenzo Franzitta, University of Palermo

Francesco Maria Raimondi, University of Palermo

Marco Trapanese, University of Palermo

Vincenzo Di Dio, University of Palermo

(2:50 PM) Trend modelling of wave parameters and application in onboard prediction of ship responses

Najmeh Montazeri, Technical University of Denmark

Ulrik Nielsen, Technical University of Denmark & Centre for

Autonomous Marine Operations and Systems (AMOS), NTNU

Jørgen Jensen, Technical University of Denmark & Centre for

Autonomous Marine Operations and Systems (AMOS), NTNU

Sea Change: Dive into Opportunity

Environmental Intelligence 2

Thursday, October 22 (1:30 PM - 3:15 PM)

Location: Annapolis 4

Co-Chairs:

Mark Bushnell, CoastalObsTechServices

Luis Camilli, Marine Advanced Research

(1:30 PM) Designing Ocean Drones for Maritime Security: The use of integrated sensing modalities to enhance situational awareness

Luis Camilli, Marine Advanced Research

(1:50 PM) Development of a Mobile Ecogenomic Sensor

Douglas Pargett, MBARI

James Birch, MBARI

Christina Preston, MBARI

John Ryan, MBARI

Yanwu Zhang, MBARI

Christopher Scholin, MBARI

(2:10 PM) Getting up close and personal: the need to immerse autonomous vehicles in coral reefs

Lyndon Llewellyn, Australian Institute of Marine Science

Scott Bainbridge, Australian Institute of Marine Science

(2:30 PM) Air-Sea Forcing of Coastal Ocean Sea Surface Temperature

Bianca Mintz, University of Hawaii at Manoa

Jeffery Hanson, US Army Corps of Engineers

Kent Hathaway, US Army Corps of Engineers

(2:50 PM) Quality Assurance of Real-Time Oceanographic Data - Status and Implementation Efforts

Mark Bushnell, CoastalObsTechServices

Sea Change: Dive into Opportunity

Remote Sensing 2

Thursday, October 22 (1:30 PM - 3:15 PM)

Location: Magnolia 1

Chair:

Ruiyao Chen, University of Central Florida

(1:30 PM) Underwater Source Localization in a Tank with Two Parallel Moving Hydrophone Arrays

Sea-Moon Kim, KRISO

Sehyun Oh, KRISO

Sung-Hoon Byun, KRISO

Fuzzy Clustering Based Source Direction Estimation Method Using Acoustic Energy Measurements with UWSN

Haitao Dong, School of Marine Science and Technology,

Northwestern Polytechnical University

Haiyan Wang, School of Marine Science and Technology,

Northwestern Polytechnical University

Yuzhi Zhang, School of Marine Science and Technology,

Northwestern Polytechnical University

Haiyang Yao, Northwestern Polytechnical University

(2:10 PM) Continued Development of Broadband Passive Bearing Estimation

Dale Green, Teledyne Benthos

Steven McManus, Teledyne Benthos

(2:30 PM) Discriminative Sparsity for SONAR ATR

John McKay, Pennsylvania State University

Raghu Raj, Naval Research Laboratory

Vishal Monga, Pennsylvania State University

Jason Isaacs, Naval Surface Warfare Center

Sea Change: Dive into Opportunity

Optics, Imaging, Vision, E-M Systems 2

Thursday, October 22 (1:30 PM - 3:15 PM)

Location: Magnolia 2

Chair:

Clifford Pontbriand, WHOI

(1:30 PM) Wireless Data Harvesting Using the AUV Sentry and WHOI Optical Modem

Clifford Pontbriand, WHOI

Norman Farr, WHOI

*Dehann Fourie, MIT-WHOI Joint Program in Oceanography/
Applied Ocean Science & Engineering*

Johanna Hansen, WHOI

James Kinsey, WHOI

Leo-Paul Pelletier, WHOI

Jonathan Ware, WHOI

(1:50 PM) A design of underwater wireless laser communication system based on PPM modulating method

Bing Zheng, Ocean University of China

Jingpeng Liu, Ocean University of China

Lifeng zhao, Ocean University of China

Zhaoyang Gong, Ocean University of China

(2:10 PM) Application of Laser-Induced Breakdown Spectroscopy for In-situ Measurement of Metal Grade for Seafloor Mineral Processing

Yasuharu Nakajima, National Maritime Research Institute

Blair Thornton, The University of Tokyo

Takumi Sato, The University of Tokyo

Sea Change: Dive into Opportunity

Numerical Modeling and Simulation 3

Thursday, October 22 (1:30 PM - 3:15 PM)

Location: Magnolia 3

Co-Chairs:

Alexander Pavin, Far Eastern Federal University

Aijun Song, University of Alabama

(1:30 PM) Simulation Method of Water and Underwater Body Interaction with Smoothed Particle Hydrodynamics

Zhisheng Li, 91550 Unit of PLA

Lu Liu, Harbin Engineering University

(1:50 PM) Interference Cancellation in In-Band Full-Duplex Underwater Acoustic Systems

Li Li, University of Delaware

Aijun Song, University of Alabama

Leonard Cimini, University of Delaware

Xianggen Xia, University of Delaware

ChienChung Shen, University of Delaware

(2:10 PM) Distributed Simulation Framework for Investigation of Autonomous Underwater Vehicles' Real-Time Behavior

Sergey Melman, Far Eastern Federal University

Valery Bobkov, IACP FEB RAS

Alexander Inzartsev, IMTP FEB RAS

Alexander Pavin, Far Eastern Federal University

Sea Change: Dive into Opportunity

Offshore Structures 1

Thursday, October 22 (1:30 PM - 3:15 PM)

Location: Camelia 1

Chair:

John Flory, Tension Technology International

(1:30 PM) Fatigue Load and Life Estimation of Composite Turbine Blades under Random Ocean Current

Takuya Suzuki, IHI Corporation

Hassan Mahfuz, Florida Atlantic University

Marco Canino, Florida Atlantic University

(1:50 PM) Numerical Analysis of the Dynamics of Inter-Linked SPAR structures using Conenctors for Possible Wind Farm Application

Hyun-Sung Kim, KRISO

Seok Won Hong, KRISO

Yun-Ho Kim, KRISO

Byoung-Wan Kim, KRISO

Sa-Young Hong, KRISO

(2:10 PM) Numerical analysis on dynamic responses of hybrid sandwich structures with V-type corrugated cores subjected to water impact

Hao Wu, Huazhong University of Science and Technology

Jun Liu, Huazhong University of Science and Technology

Pan Zhang, Huazhong University of Science and Technology

Menghao He, Huazhong University of Science and Technology

Yuansheng Cheng, Huazhong University of Science and Technology

(2:30 PM) About 75 Years of Synthetic Fiber Rope History

John Flory, Tension Technology International

John Hearle, Tension Technology International

Hank McKenna, Tension Technology International

Michael Parsey, Tension Technology International

(2:50 PM) NX-2G : autonomous BBOBS-NX for a highly mobile broadband seismic and tilt observation at the seafloor

Hajime Shiobara, University of Tokyo

Hiroko Sugioka, JAMSTEC

Aki Ito, JAMSTEC

Masanao Shinohara, University of Tokyo

Sea Change: Dive into Opportunity

Marine Environment Imaging and Vision 3

Thursday, October 22 (3:30 PM - 5:15 PM)

Location: Azalea 1

Chair:

Gerard Dooly, University of Limerick

(3:30 PM) Real-Time Reconstruction of Underwater Environments: from 2D to 3D

Matija Rossi, *University of Limerick*

David Scaradozzi, *Universita Politecnica delle Marche*

Pierre Drap, *CNRS*

Pietro Recanatini, *Universita Politecnica delle Marche*

Gerard Dooly, University of Limerick

Edin Omerdic, *University of Limerick*

Daniel Toal, *University of Limerick*

(3:50 PM) When Underwater Imagery Analysis Meets Deep Learning: a Solution at the Age of Big Visual Data

Hongwei Qin, Tsinghua University

Xiu Li, *Tsinghua University*

Zhixiong Yang, *Tsinghua University*

Min Shang, *Tsinghua University*

(4:10 PM) Improved Supervised Classification of Underwater Military Munitions Using Height Features Derived from Optical Imagery

Arthur Gleason, *University of Miami*

Nuno Gracias, University of Girona

ASM Shihavuddin, *Institut de Biologie de l'Ecole Normale Supérieure*

Gregory Schultz, *White River Technologies*

Brooke Gintert, *University of Miami*

(4:30 PM) A Shadow -Removal based Saliency Map for Point Feature Detection of Underwater Objects

Rui Nian, Ocean University of China

Liqin Fu, *Ocean University of China*

Yiru Wang, *Ocean University of China*

Zhebin Zhang, *Ocean University of China*

Amaury Lendasse, *The University of Iowa*

(4:50 PM) Time of Flight Measurements for Optically Illuminated Underwater Targets Using Compressive Sensing and Sparse Recovery

Robert Lee, Naval Air Systems Command

Linda Mullen, *Naval Air Systems Command*

Piya Pal, *University of Maryland*

David Illig, *Clarkson University*

Sea Change: Dive into Opportunity

Autonomous Underwater Vehicles 9

Thursday, October 22 (3:30 PM - 5:15 PM)

Location: Azalea 2

Chair:

Doug Wilson, Caribbean Wind LLC.

Modeling Perceptual-motor Behaviors to Enable Intuitive Navigation Paths in an AUV

Carlos Erasto Romero-Martínez, CINVESTAV Campus Saltillo
Luz Abril Torres-Méndez, Robotics and Advanced Manufacturing Group, CINVESTAV Campus Saltillo
Edgar Alonso Martínez García, Institute of Engineering and Technology, Universidad Autónoma de Cd. Juárez

(3:50 PM) Tracking and Sampling of a Phytoplankton Patch by an Autonomous Underwater Vehicle in Drifting Mode

Yanwu Zhang, Monterey Bay Aquarium Research Institute
Brian Kieft, Monterey Bay Aquarium Research Institute
Robert McEwen, Monterey Bay Aquarium Research Institute
M. Stanway, Monterey Bay Aquarium Research Institute
James Bellingham, WHOI
John Ryan, Monterey Bay Aquarium Research Institute
Brett Hobson, Monterey Bay Aquarium Research Institute
Douglas Pargett, Monterey Bay Aquarium Research Institute
James Birch, Monterey Bay Aquarium Research Institute
Christopher Scholin, Monterey Bay Aquarium Research Institute

(4:10 PM) AUV-derived geographical photomosaics - using multibeam bathymetry to correct image placement

Max Woolsey, NIUST

Allison Woolsey, University of Mississippi
Samuel Hulme, Moss Landing Marine Laboratories

(4:30 PM) A Novel Calibration Method for Acoustic Vector Sensor when the Phase is Inconsistent

Yao Zhang, State Key Laboratory of Robotics Shenyang Institute of Automation CAS
Guan-nan Li, Shenyang Institute of Automation, CAS
Lei Gao, Shenyang Institute of Automation, CAS
Hai-tao Gu, State Key Laboratory of Robotics Shenyang Institute of Automation CAS

Sea Change: Dive into Opportunity

Systems and Observatories 4

Thursday, October 22 (3:30 PM - 5:15 PM)

Location: Azalea 3

Chair:

Gabriel VASILE, CNRS

(3:30 PM) Prospects of the future squid fishing based on the big data

Masaaki Wada, Future University Hakodate

(3:50 PM) Prototype Development of an Underwater Sound Measurement Module Using Four Hydrophones

Sehyun Oh, KRISO

Sung-Hoon Byun, KRISO

Sea-Moon Kim, KRISO

So-Young Sung, KRISO

Kihun Kim, KRISO

Chong-Moo Lee, KRISO

Il-Young Che, KIGAM

(4:10 PM) Virtual Platform of a Remotely Operated Vehicle

Jin Zhang, Shenyang Institute of Automation, CAS

Wei Li, Shenyang Institute of Automation, CAS

Jiancheng Yu, Shenyang Institute of Automation, CAS

Yan Li, Shenyang Institute of Automation, CAS

Shuo Li, Shenyang Institute of Automation, CAS

Genshe Chen, I-Fusion Technologies, Inc

(4:30 PM) Calibration of an Active Ultrasound Bedload Monitoring System for Underwater Environments

Gabriel VASILE, CNRS

Guy D'URSO, Electricite de France

Rayna Charlatchka, Electricite de France

Elena LUNGU, SIGINTEC

(4:50 PM) The Research of Analysis Strategy of Transmission Performance in Subsea Observatories

Kai Sun, Shenyang Institute of Automation, CAS

ZhiGang Li, Shenyang Institute of Automation, CAS

XiaoHui Wang, Shenyang Institute of Automation, CAS

HongLi Xu, Shenyang Institute of Automation, CAS

Lei Gao, Shenyang Institute of Automation, CAS

Sea Change: Dive into Opportunity

Automatic Control 3

Thursday, October 22 (3:30 PM - 5:15 PM)

Location: Annapolis 1

Chair:

Esten Ingar Grøtli, SINTEF ICT

(3:30 PM) Development of a Dynamic Model for a Constant Tension Winch

Qi Chen, Shenyang Institute of Automation, CAS

Wei Li, Shenyang Institute of Automation, CAS

Xiaohui Wang, Shenyang Institute of Automation, CAS

Jiancheng Yu, Shenyang Institute of Automation, CAS

Jafarzadeh Saeed, California State University Bakersfield

Yan Li, Shenyang Institute of Automation, CAS

Shuo Li, Shenyang Institute of Automation, CAS

Wei Zhang, Shenyang Institute of Automation, CAS

Genshe Chen, I-Fusion Technologies, Inc

Adaptive Wind Feedforward Control of an Unmanned Surface Vehicle for Station Keeping

HUAJIN QU, Florida Atlantic University

Karl Ellenrieder, Florida Atlantic University

(4:10 PM) Trajectory Controller for Autonomous Surface Vehicle Under Sea Waves

Boris Braginsky, Ben-Gurion University of the Negev

Hugo Guterman, Ben-Gurion University of the Negev

(4:30 PM) Autonomous job analysis: A method for the design of autonomous marine operations

Esten Ingar Grøtli, SINTEF ICT

Marielena Vagia, SINTEF ICT

Sigurd Fjerdings, SINTEF ICT

Magnus Bjerkeng, SINTEF ICT

Aksel A. Transeth, SINTEF ICT

Eirik Svendsen, SINTEF Fisheries and Aquaculture

Per Rundtop, SINTEF Fisheries and Aquaculture

(4:50 PM) Robustness of Visual-Servo Against Air Bubble Disturbance of Underwater Vehicle System Using Three-Dimensional Marker and Dual-Eye Camera

Myo Myint, Okayama University

Kenta YONEMORI, Okayama University

Akira YANOUE, Okayama University

Yukihiro SAKA, Kowa Corporation

Shintaro ISHIYAMA, Okayama University

Mamoru MINAMI, Okayama University

(5:10 PM) Command Filtered Backstepping Control for Dynamic Positioning Ships

Xingchao Shao, Harbin Engineering University

Guoqing Xia, Harbin Engineering University

Jingjing Xue, Harbin Engineering University

Sea Change: Dive into Opportunity

Offshore Wind and Marine Renewable Energy 2

Thursday, October 22 (3:30 PM - 5:15 PM)

Location: Annapolis 2

Chair:

Lindsay Dubbs, UNC Coastal Studies Institute and UNC Chapel Hill

(3:30 PM) Observation and regional model based Gulf Stream marine hydrokinetic energy resource estimates for North Carolina

Mike Muglia, UNC Coastal Studies Institute

Caroline Lowcher, UNC Coastal Studies Institute

Patterson Taylor, UNC Coastal Studies Institute

Ruoying He, NC State University

Harvey Seim, UNC chapel Hill

John Bane, UNC Chapel Hill

Billy Edge, UNC Coastal Studies Institute

(3:50 PM) An examination of pelagic Sargassum community primary productivity and nutrient cycling in the face of Gulf Stream based energy

Lindsay Dubbs, UNC Coastal Studies Institute and UNC Chapel Hill

Michael Piehler, UNC Coastal Studies Institute and UNC Chapel Hill

Jonathan Colby, Verdant Power

Smart Inspection ROV for Use in Challenging Conditions

Romano Capocci, University of Limerick

Edin Omerdic, University of Limerick

Gerard Dooly, University of Limerick

Joseph Coleman, University of Limerick

Daniel Toal, University of Limerick

(4:30 PM) Near Wake Flow Field Measurements of a Marine Current Turbine

Ethan Lust, US Naval Academy

Luksa Luznik, US Naval Academy

Karen Flack, US Naval Academy

Julio Barros, U.S. Naval Academy

(4:50 PM) Electromagnetic Spring for Sliding Wave Energy Converter

Hsiang Chen, Wave Energy Technologies

Donald DelBalzo, University of New Orleans

(5:10 PM) Effects of waves on BEM theory in a marine tidal turbine environment

Jeremiah Fulton, US Naval Academy

Luksa Luznik, US Naval Academy

Karen Flack, US Naval Academy

Ethan Lust, US Naval Academy

Sea Change: Dive into Opportunity

Vehicle Design

Thursday, October 22 (3:30 PM - 5:15 PM)

Location: Annapolis 3

Chair:

Karl von Ellenrieder, Florida Atlantic University

(3:30 PM) Development of an autonomous surface vehicle for monitoring underwater vehicles

Takeshi Nakatani, JAMSTEC

Tadahiro Hyakudome, JAMSTEC

Takao Sawa, JAMSTEC

Yoshiyuki Nakano, JAMSTEC

Yoshitaka Watanabe, JAMSTEC

Tatsuya Fukuda, JAMSTEC

Hiroshi Matsumoto, JAMSTEC

Ryotaro Suga, JAMSTEC

Hiroshi Yoshida, JAMSTEC

(3:50 PM) Development of a USV-Based Bridge Inspection System

Karl von Ellenrieder, Florida Atlantic University

(4:10 PM) An Open-Source Watertight Unmanned Aerial Vehicle for Water Quality Monitoring

Paulo Rodrigues, CTS-UNINOVA

Francisco Marques, CTS-UNINOVA

Eduardo Pinto, CTS-UNINOVA

Ricardo Pombeiro, CTS-UNINOVA

André Lourenço, CTS-UNINOVA

Ricardo Mendonça, CTS-UNINOVA

Pedro Santana, ISCTE- IUL

José Barata, CTS-UNINOVA

(4:30 PM) Development of Standard Test Methods for Evaluation of ROV/AUV Performance for Emergency Response Applications

Adam Jacoff, NIST

Kamel Saidi, NIST

Robert Von Loewenfeldt, SLED

Yukio Koibuchi, University of Tokyo

(4:50 PM) Modeling for the Crabster's leg with hydrodynamics force

Hangoo Kang, KRISO

Seong-yeol Yoo, KRISO

Hyungwon Shim, KRISO

Bong-Huan Jun, KRISO

Sea Change: Dive into Opportunity

Optics, Imaging, Vision, E-M Systems 3

Thursday, October 22 (3:30 PM - 5:15 PM)

Location: Annapolis 4

Chair:

Steve Holt, SGT, Inc.

(3:30 PM) Forward scattering characterization of beams with orbital angular momentum for underwater communication systems

Kaitlyn Morgan, *Clemson University*

Brandon Cochenour, *Naval Air Warfare Center*

Eric Johnson, *Clemson University*

(3:50 PM) Underwater Electric Potential Measurements using AUVs

Samuel Qualls, *University of Idaho*

Joseph Osborn, *University of Idaho*

Michael Anderson, *University of Idaho*

Eric Wolbrecht, *University of Idaho*

James Frenzel, *University of Idaho*

Dean Edwards, *University of Idaho*

John Canning, *University of Idaho*

(4:10 PM) Littoral Seafloor Sensing and Characterization Using Marine Electromagnetics, Optical Imagery, and Remotely and Autonomously Operated Platforms

Gregory Schultz, *White River Technologies*

Joe Keranen, *White River Technologies*

Arthur Gleason, *University of Miami*

Nuno Gracias, *University of Girona*

(4:30 PM) Probability Density Function Analysis for Optimization of Underwater Optical Communication Systems

Marius Bernotas, *United States Naval Academy*

Charles Nelson, *United States Naval Academy*

Sea Change: Dive into Opportunity

Offshore Structures 2

Thursday, October 22 (3:30 PM - 5:15 PM)

Location: Camelia 1

Chair:

Peter Kampmann, German Research Center for Artificial Intelligence

(3:30 PM) Geometrically Motivated Inverse Kinematics for an Arm with 7 Degrees of Freedom

Richard Tatum, NSWCPD

Drew Lucas, NSWCPD

Josh Weaver, NSWCPD

Jim Perkins, NSWCPD

(3:50 PM) Deepwater Synthetic Aperture Sonar and the Search for MH370

Pete LeHardy, Phoenix International

Peter McKibbin, Phoenix International

(4:10 PM) An active node isolating method based on discrete-voltage intervention for seafloor observation network

Zhifeng Zhang, Zhejiang University

Yanhu Chen, Zhejiang University

Feifei Xu, Zhejiang University

Canjun Yang, Zhejiang University

Bo Jin, Zhejiang University

Feng Zhang, Zhejiang University

(4:30 PM) Research on key technologies of junction boxes for Chinese experimental seafloor observatory network

Jun Wang, Zhejiang University

Dejun Li, Zhejiang University

Canjun Yang, Zhejiang University

Zhifeng Zhang, Zhejiang University

Bo Jin, Zhejiang University

Yanhu Chen, Zhejiang University

(4:50 PM) Equipping industrial deep-sea manipulators with a sense of touch

Peter Kampmann, German Research Center for Artificial Intelligence

Timo Stoffregen, German Research Center for Artificial Intelligence

Frank Kirchner, German Research Center for Artificial Intelligence and University of Bremen

Washington, DC

NOTES

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Sea Change: Dive into Opportunity

IEEE/OES Awards

DISTINGUISHED TECHNICAL ACHIEVEMENT AWARD



Professor Milica Stojanovic

For sustained contributions in the analysis, development and deployment of underwater acoustic communication and sensing networks.

Professor Stojanovic is on the staff at MIT and is recognized as a leader in the field of underwater acoustic communications. She is active in both technical contributions and educational fields. She has been and continues to be engaged as a leader in multi-disciplinary projects where underwater acoustic communications are the enabling technology. Dr. Stojanovic contributions are marked by an innovative and judicious use of theoretical analysis and modeling concepts that focus on the physical aspects of underwater acoustic communications channels and proof-of-concept analyses. Signal detection methods that she developed provided the basis for real-time implementation of the first high-speed acoustic modems at WHOI. Today the modem is used routinely in a variety of missions including those with multiple autonomous underwater vehicles thus providing the communication fabric for other advanced research. Her original transceiver designs remain the de-facto standard for evaluating acoustic communications techniques that are being developed around the world.

Dr. Stojanovic has been active in the society serving on the Administrative Committee, as an editor for the society journal-JOE, peer reviewing papers for publications and is a member of the OES technical committee for Communications, Navigation and Positioning.

DISTINGUISHED SERVICE AWARD

Elizabeth Creed

For contributions to the governance of the society as a member of the Administrative committee and serving as the Vice President Professional Activities.

Elizabeth Creed, more familiarly known as Liz, has been a member of IEEE/OES since 1987. She is a senior member of IEEE and has actively participated in OES activities. She has served as Membership Development chair for six years, chapter coordinator for three years, served two terms on the Administrative Committee for six years, Vice President Professional Activities for three years and is presently Workshops and Symposia coordinator. Liz has been the impetus behind the society representation via our booth at major conferences including OTC Houston and OCEANS. The society membership has been directly influenced by this presence at the various events

Liz background is in gliders and she has participated with the US Navy in several exercises testing the efficacy of their utility. She has been on exercise ranging from the Norwegian fjords to the Antarctic. She has made three dives in DSRV ALVIN in the central Pacific and one in Harbor Branch Oceanographic Institution's Clelia.

IEEE/OES Emeritus Award

Claude Pierre Brancart
Joseph R. Vadus

COMPANY AWARD

Kongsberg Maritime

Presidential Award

Franz S. Hover

Sea Change: Dive into Opportunity

MTS Awards

Awards are presented to people, companies and MTS groups who have shown exemplary contributions to the Society or to their industries. The Society is especially honored to have the support of Compass Publications, Lockheed Martin, and Ocean News & Technology for sponsoring annual awards.

Compass Distinguished Achievement Award:

Drew Michel

Compass International Award:

Nautilus Marine Service GmbH

Compass Industrial Award:

Vencore Services and Solutions, William (Bill) Lingsch

Lockheed Martin Award for Ocean Science and Engineering:

Fritz Stahr

Ocean News & Technology Young Professional Award:

Arnold Hechanova

MTS Outstanding Service Award:

Charles A. Richards, Sr.

MTS Outstanding Section Award:

Newfoundland and Labrador Section

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OCEANS '15 Exhibitor Profiles

Agile Sensor Technologies, Inc.

Booth: 525

Suite 3003, Bruneau Centre, MUN
P.O. Box 4200
St. John's, NF A1C 5S7 Canada
709 864 3110
www.agilesensors.com
brian.terry@agilesensors.com

Agile Sensor Technologies is a Canadian university spin-out. We have developed a suite of technologies aimed at the robotics market, particularly the unmanned vehicles segment- air, sea and land. Making extensive use of FPGAs, our products are built for speed, accuracy and great dynamics. Our FPGA-based camera can perform image processing functions internally at the frame rate of the camera and has been programmed to provide precise position data with respect to our passive infrared target. This application is aimed at the ROV/AUV segment. Our patented motion platforms offer exceptional speed and resolution for applications that include image stabilization, laser scanning and more. Our FPGA-based mini-quadcopter for ISR applications has outstanding performance due to its unique method of motor control. We can equip the quadcopter with the intelligent camera programmed for automated hovering and landing on our passive infrared target and are working on wireless recharge capability.

ALSEAMAR

Booth: 338

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www.alseamar-alcen.com
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ALSEAMAR, an ALCEN Group company, is a European high-tech company located south of France. ALSEAMAR has developed the first underwater glider fitted with rechargeable batteries: the SEA EXPLORER

The SEA EXPLORER is an efficient tool to continuously monitor oceans and to collect various long-term and large-scale real-time data in a very cost-effective way. Its new and enhanced features make it the ultimate low-logistics and user-friendly glider.

AML Oceanographic**Booth: 239**

2071 Malaview Ave.

Sidney, BC V8L 5X6 Canada

250 656 0771

www.amloceanographic.comjehan.zouak@amloceanographic.com

AML Oceanographic of British Columbia, Canada designs and manufactures oceanographic instrumentation and sensors. AML pioneered the design of field-swappable sensors, which minimize downtime and logistics costs, and maximize the utility of each instrument in a fleet. Beginning with Sound Velocity, our Xchange suite has grown to include Pressure, Temperature, Conductivity, and Turbidity. Data-Xchange brings Wi-Fi data transfer and GPS to X-Series survey profilers to streamline SVP data collection workflow. The industry's only proven UV biofouling control products, UV-Xchange and Cabled UV, prevent biofouling-induced drift in CTD data, and are ideal for protecting a broad spectrum of surfaces and devices, such as other sensors, ADCPs, camera lenses, lights, hydrophones, and sonar heads. Today, we are the instrument vendor of choice for a wide range of marine survey organizations and manufacturers of multi-beam sonar systems. AML continues to strengthen its X-Series product line, providing a full spectrum of instrumentation solutions for other market segments.

Aquabotix**Booth: 436**

10 N. Main St. 3rd floor

Fall River, MA 02720 United States of America

508 676 1000

www.aquabotix.comdawn@aquabotix.com

Aquabotix Technology Corporation is based in Southern New England, long-recognized as a hub for marine technology development. Our talented team of engineers and software developers innovate and integrate the latest technology for underwater inspection and exploration.

Aquabotix is the market leader in smart technology for ROVs. Our years of experience with underwater applications have created a new breed of ROVs - the ROV/AUV hybrid. The HydroView and HydroView Professional are remotely controlled via a tether with the added functionality of autopilot commands.

Our iPad and laptop applications are the most intuitive driving systems for underwater ROVs. From case to water in three minutes; from inexperienced to accomplished pilot in three hours; no formal training, lengthy instruction or special degrees are needed to profit from Aquabotix technology.

Aquabotix products are currently deployed in over 30 countries. All products are supported by our CEO guarantee, one-year warranty and best-in-class customer support.

Sea Change: Dive into Opportunity

ASL Environmental Sciences, Inc.

Booth: 320

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jbuermans@aslenv.com

ASL Environmental Sciences Inc. is a physical oceanographic consulting and instrumentation company providing measurement analysis services and underwater acoustic instrumentation.

AXYS Technologies Inc.

Booth: 221

2045 Mills Road
Sidney, BC V8L 5X2 Canada
250 655 5850 ext 1504
www.axystechnologies.com
alafond@axys.com

AXYS Technologies Inc. (AXYS) is an ISO 9001-2008 registered Canadian company with over 40 years experience in the Design, Manufacture and Deployment of remote environmental monitoring systems worldwide. AXYS applies its extensive knowledge and experience to marine, freshwater, offshore wind resource assessment, and land-based monitoring systems that measure aquatic, oceanic and atmospheric parameters. Offered in addition are technical field services to train and support customers in the operation and maintenance of all products, as well as data management and analytics services. AXYS systems and turnkey solutions utilize cost-effective technology proven to be reliable and durable in a wide range of applications, including harsh and remote marine environments.

AXYS has built and commissioned more than 500 meteorological and oceanographic systems of various types around the world, in over 50 countries over the last 20 years. Clients include wind and wave energy companies, oil & gas companies, all levels of government, international military agencies, environmental agencies, coastal engineering firms, mining companies, port authorities, meteorological agencies, and oceanographic research institutes.

BioSonics, Inc.**Booth: 720**

4027 Leary Way NW

Seattle, WA 98107 United States of America

206 782 2211

www.biosonicsinc.combevacker@biosonicsinc.com

BioSonics has been manufacturing quality Scientific Echosounders since 1978, including DT-X split-beam echosounders for fisheries research; automated systems for fish, debris or MHK monitoring, DT-X SUB systems for seafloor observatories or AUVs; MX echosounders to assess aquatic habitat.

BIRNS, Inc.**Booths: 602,604**

1720 Fiske Pl.

Oxnard, CA 93033 United States of America

805 487 5393

www.birns.comabrown@birns.com

BIRNS, Inc. is an ISO 9001:2008 certified global leader in the design and manufacturing of high performance connectors, custom cable assemblies and lighting systems, and has been serving the subsea industry since 1954. With a NAVSEA PRO-020 certified molding facility, the company leads the industry with sophisticated connector lines, including exceptional electrical, electromechanical, coaxial, electro-coax, optical, electro-optical and electro-opto-mechanical hybrid options. BIRNS provides the industry's highest volume of cost-effective hydrostatic and helium pressure testing, and has a wide range of ABS Product Design Assessment (PDA) certified fiber optic and electrical penetrators. BIRNS also delivers brilliant LED and tungsten-halogen marine, chamber, security and commercial diving lights trusted in the world's most extreme environments.

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Boston Engineering Corp.

Booth: 228

300 Bear Hill Road

Waltham, MA 02451 United States of America

339-222-7148

www.boston-engineering.com

sdhamdhere@boston-engineering.com

The Boston Engineering V-Wing is a towed underwater depressor for diverse applications including deep-water mapping, water quality monitoring, side-scan surveys, and reconnaissance.

The V-Wing name refers to the product's unique dihedral wing design, which enables rapid descent, submerges to unlimited depths, provides stability during operations, and minimizes drag.

Boston Engineering improves the way that people work and live through product innovation and novel engineering. We manage the entire product development process- from ideation to supply chain development. Certified for ISO 9001 and ISO 13485, our industry expertise includes consumer products, defense & security, medical devices, robotics, and industrial & commercial products.

Campbell Scientific

Booth: 626

815 W 1800 N.

Logan, UT 84321 United States of America

435-227-9000

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Campbell Scientific designs measurement instruments, specializing in dataloggers and sensors used in water quality, level, current, and flow applications. We have over 40 years of experience in systems delivering data globally in coastal and ocean environments, and our instruments are well-known for robust measurements, especially in harsh, remote environments. Our new OBS501 dual-turbidity probe with patented ClearSensor® antifouling combines a backscatter sensor (better at measuring high turbidity) with a second sidescatter sensor (better at measuring lower turbidity) and multiple antifouling methods to provide accurate measurements in biologically active water. The OBS501 has improved performance in heavy sediment-load environments. (ClearSensor U.S. Pat. No. 8429952; OBS® and ClearSensor® are registered trademarks of Campbell Scientific, Inc.) Learn more about the OBS501 at www.campbellsci.com/obs501.

Canal Geomatics**Booth: 232**

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888 595 5015

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Canal Geomatics Inc., is the leading edge distributor of advanced survey, navigation and positioning systems for the marine industry. Specializing in GNSS, Inertial, Gyro and Antenna products to meet the demanding requirements of our global clientele. Our products are available in OEM version for integration into your own platform or off the shelf enclosed units for plug and play operation. Our mission statement is simple: pair the best products with premium knowledge and support.

CARIS USA**Booth: 533**

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Alexandria, VA 22314 United States of America

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Established in 1979, CARIS is a leading developer of geospatial software designed for the hydrographic and marine industries. Developed in cooperation with hydrographic clients and universities worldwide, CARIS software is designed to cater specifically for the marine GIS community, and is built on decades of hydrographic experience.

No other single company can supply a software solution for your entire offline workflow. The CARIS Ping-to-Chart solution is designed to deliver an integrated and seamless solution for the entire workflow of hydrographic information from processing the echo-sounder ping to the production and distribution of the chart. This integrated software solution provides our clients with resource optimization and a true operational advantage.

The CARIS Ping-to-Chart solution includes products that address the need to manage bathymetric data sets containing billions of soundings, to support the development of multiple chart types from a single source and to be able to distribute and interrogate high density bathymetry over the internet.

CARIS software also offers peace of mind backed by a comprehensive level of industry leading support. CARIS offers training sessions, consulting and technical support services, as well as an extensive series of courses to make sure that its clients fully utilize the software's capabilities. Users can also gain swift access to qualified technical experts via on-line services, multilingual telephone support and email.

Find out why CARIS software is selected by national mapping and charting agencies, survey companies, port and waterway authorities, oil and gas companies and academic institutions around the world by visiting www.caris.com.

Sea Change: Dive into Opportunity

Cathx Ocean

Booths: 324,326

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Cathx Ocean design and manufacture advanced subsea imaging & measurement systems. Our products designed specifically for subsea, allow AUVs and ROVs to capture UHD Stills, HD Video and 3-D point cloud at greater ranges and speeds. The Cathx system includes Camera, Laser Profiler and Strobe lights with sequential imaging providing a high resolution co-registered stills and 3-D point cloud data set.

CeramTec GmbH

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CeramTec is a global leading supplier of technical ceramics and specializes in the development, production, and distribution of innovative ceramic products. CeramTec's seven core divisions in Germany, along with various subsidiaries around the world, supply major markets including electronics, telecommunications, automotive, medical, machinery, metalworking, and chemical industries. With more than 100 years of experience in the technical ceramics field, CeramTec plays a leading role in "Innovative Ceramic Engineering". Within the CeramTec Group, the Multifunctional Ceramics Division is one of the world's largest piezoelectric ceramic manufacturers. Among many applications, CeramTec has vast experience in producing parts that are effective for sonar applications.

The applications for sonar systems range from single element transducers for smaller vessels to more complex systems that are engineered to detect water depth, collect oceanographic data, or track schools of fish. Piezoelectric ceramics with varying geometries, typically covering a frequency range of 5 kHz to 10 MHz, are produced for use in different sonar systems. CeramTec offers piezo solutions for transmitters as well as receivers. With a variety of core materials, CeramTec can provide a solution for most applications.

Channel Technology Group**Booth: 240**

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Channel Technologies Group is a premier provider of Piezoelectric Ceramic and Transducers for Commercial, Medical, and Military applications. This includes PZT and Single Crystal materials. We also provide solutions utilizing injection molding ceramic for sonar applications.

CLS America, Inc.**Booth: 205**

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CLS America Inc. provides Argos and Iridium satellite services for global data and location reporting. Drifting buoys, profiling floats, gliders and other oceanographic platforms are monitored worldwide. Low power transmissions enable long-term autonomous operation. Features include two-way communication, increased data transmission rate and fully customized access to data and results.

Compusult Limited**Booth: 535**

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Compusult is an established, 30-year old IT and electronics company with a proven track record in Canada and internationally. We are a technical leader in the following areas: > Web-based and mobile geospatial applications software; > Web, Windows, and mobile software for asset tracking, check-in/out, and inventory control; and > Web-based software for sensor data management and electronics for sensor interfacing.

Compusult offers highly robust, cost-effective and unique state-of-the-art IT solutions such as: > Web Enterprise Suite (WES) software and associated services; > FasseTrack software products and services for item tracking solutions; and > Software development services (especially Web-based and mobile device applications), including provision of Software as a Service (SaaS) and cloud-based applications.

Sea Change: Dive into Opportunity

Consortium for Ocean Leadership

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The Consortium for Ocean Leadership represents 89 of the leading public and private ocean research education institutions, aquaria and industry with the mission to shape the future of ocean science and technology. In addition to its advocacy role as the voice of the ocean research and education community, Ocean Leadership manages a variety of community-wide research and education programs in areas of ocean observing, ocean exploration, and ocean partnerships.

Deep Ocean Engineering

Booths: 622,624

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Deep Ocean Engineering, Inc. is a technology-based engineering and manufacturing company that provides Remotely Operated Vehicle (ROV) and Unmanned Surface Vehicle solutions (USV). Our ROV and USV systems have been utilized in a broad range of industry applications - port and harbor security, military, homeland defense, nuclear and hydroelectric power plants, inshore dams and lakes, oil and gas, scientific research, fisheries, salvage, search and recovery, broadcast filming, hydrographic surveys, and pipeline inspections. More recently, we took the 33+ years of ROV experience and applied that to our new line of Unmanned Surface Vehicles, the H-1750, H-300, I-980 and the I-1650. This has opened up a new market for Deep Ocean Engineering and now we are able to offer even more solutions to our customers who are seeking a low cost, unmanned method for acquiring data. Our ROVs, the Firefly, P-150, Phantom T5, L5, and S5, range from small, shallow depth nuclear vehicles to our larger, offshore 1000m models and everything in between. With our ROVs and USVs as a solution to the customer, they can easily complete any jobs that vary in scope and complexity. We have been providing integrated solutions since 1982 and have over 600 vehicles worldwide, much of which are still in operation. Based out of San Jose, Ca, the heart of Silicon Valley, we have the tools necessary to provide turnkey solutions to the customer's needs. Let us know what you need accomplished and we can help!

DeepSea Power & Light**Booth: 508**

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DeepSea Power & Light is excited to exhibit at Ocean's 2015. They will be displaying high quality subsea products backed with over 30 years of engineering excellence including new LED Lights, and Cameras.

EA Engineering, Science, and Technology, Inc., PBC**Booth: 721**

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A leading provider of interdisciplinary environmental services, EA offers marine and aquatic survey capabilities for upland, intertidal, subtidal, and offshore projects. Using the highest order positioning systems, our environmental sampling, measurement, and monitoring services include seafloor and seabed characterization; geotechnical, geochemical, and biological seafloor sampling; and physical and chemical oceanographic measurements. EA is a 100% ESOP-owned Public Benefit Corporation that employs more than 400 professionals through a network of 24 offices. In business for more than 42 years, EA has earned an outstanding reputation for technical expertise, responsive service, and judicious use of client resources. For more information about EA, visit www.eaest.com.

EdgeTech**Booth: 203**

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EdgeTech is a leader in underwater technology solutions including: deep and shallow water acoustic releases, transponders, USBL systems, side scan sonars, sub-bottom profilers, bathymetry systems, AUV and ROV-based sonar systems, customized underwater acoustic command and control systems and sonar solutions.

Sea Change: Dive into Opportunity

EMO Marine Technologies Ltd.

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EMO Marine Technologies Ltd. designs and manufactures subsea fibre optic communications systems for use in harsh marine environments. EMO Marine strives to remain cost effective by working with a qualified selection of trusted suppliers to achieve the firm specifications of our clients. Our core technology uses a range of fibre optic video/data multiplexers and media converters suitable for various marine and subsea applications. Our focus is to provide reliable fibre optic communication solutions in the smallest form factor subsea enclosures with various pressure ratings. Our experienced design capabilities allow EMO Marine to provide customized solutions for all types of subsea applications. The challenging environments that our clients operate in are where the quality of our products are proven and confidence in EMO Marine is established.

Energy Sales, Inc.

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Since 1972 Energy Sales has been providing OEMS and Institutional Customers with high quality batteries, related products and services for application in some of the most demanding environments. Always remaining cognizant that your products rely on the batteries Energy Sales supplies, we deliver high reliability batteries that offer customers value.

We access each application with over 100 years of sales and design experience to customers, we can offer advice on alternative chemistries, design, packaging and Hazardous Materials shipping. We manufacture high quality battery packs made to customer's specifications. We service the Aerospace, Medical, Oceanographic, Homeland Security and portable instrumentation industries.

Environmental System Inc.**Booths: 209**

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Environmental System helps water resource professionals generate reliable data throughout the entire water cycle. We can providing Water Quality visualization (2D and 3D).

Automatic water quality profiling system for estuary (bay) long-term monitoring (3data sampling/50mm each) with Water Quality visualization technique

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Falmat Cable**Booth: 610**

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Falmat Cable is celebrating 50 years of excellence and innovation in 2015. We design and manufacture high performance cables for use in harsh and demanding environments. Our proven and hardworking "Xtreme" cables are known and preferred worldwide for superior reliability and durability in commercial and military projects. High quality engineered cables for ROV, sonar, video, communication, towed array, instrumentation, deep water Ethernet and many other specialized applications. Visit our web site to learn more about our versatile cable products and manufacturing capabilities. Falmat is a Certified ISO9001/AS9100 organization.

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Link Foundation Ocean Engineering and Instrumentation Ph.D. Program and FAU Ocean Engineering Program

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Focal, a Moog Inc. Company

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Focal Technologies, a Moog Inc. company, specialises in providing electrical slip rings, fiber optic rotary joints, hydraulic utility swivels and fiber optic multiplexer solutions for the worldwide marine industry including ROV, seismic, FPSO turret and oceanographic applications.

Product features include hybrid packages that combine fiber, electrical and fluid rotary joints for harsh environments and adaptation to customers' size and mounting constraints.

Focal Technologies Corporation 77 Frazee Avenue, Dartmouth, Nova Scotia, Canada. B3B 1Z4. Tel: +1-902-468-2263, focal@moog.com, www.moog.com/marine

Geodynamics LLC

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Geodynamics specializes in collecting and processing multibeam, singlebeam, sidescan, geophysical, and acoustic backscatter hydrographic data. Our work experience includes the most challenging coastal environments, including dynamic tidal inlets, high energy surf zones, the IntraCoastal Waterway, and rapidly changing shoal systems and marshes that challenge navigation. Geodynamics has extensive experience in hydrographic surveys, shoreline monitoring, and bathymetric Digital Elevation Modeling to support hazard models for coastal erosion monitoring. Geodynamics also has a proven track record of hydrographic, geophysical and oceanographic surveys along both the inner and outer continental shelf regions using our custom survey vessels and large research vessels. Geodynamics is a Woman-Owned Small Business firm, is certified as a Disadvantaged Business Enterprise (DBE), and is an active participant in the SBA Woman-Owned Small Business Program (EDWOSB). Geodynamics has consistently received CPARS/ACASS ratings of Exceptional with additional positive official remarks for our preparation and execution of hydrographic survey work.

Geometrics**Booth: 229**

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Geometrics, a member of the OYO Corporation, manufactures, sells, rents, and services portable geophysical instruments for land, marine, and air investigations of the subsurface. Geometrics' main product line includes proton precession and cesium magnetometers, high-resolution seismographs and digital marine streamers, and electrical conductivity imaging and resistivity systems. Geometrics' instruments are used around the world for natural resource exploration, geotechnical and environmental assessments, ordnance detection, surveillance, locating archeological and treasure sites, and teaching and research.

Geospace Offshore**Booths: 220,222**

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Geospace Offshore, a division of Geospace Technologies, designs, engineers and manufactures cables and umbilicals for the Offshore, Oil & Gas, Marine, Subsea Survey and Specialty cable markets.

Product lines include: Offshore Oil Production Cables, SSIVs, Electrical and Optical Cables, BOP/MUX Cables, Armored Umbilicals, Lead-In Cables, Airgun Umbilicals, ROV Tethers and Main Lift Umbilicals, Survey and Sonar Cables, as well as custom designed specialty cables and umbilicals to fit each application. Geospace Offshore is an ISO9001:2008 certified company located in Houston, TX. Certifications for products include ABS, API, CSA, DNV and are committed to providing cables that comply with industry standards.

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Geospectrum Technologies, Inc.

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GeoSpectrum Technologies Inc. (GTI) supplies hydroacoustic hardware for defence, security, oil & gas, and environmental monitoring. Our products include hydrophones, acoustic projectors, moored and towed thin line arrays, portable acoustic calibrators, and acoustic communication systems. Our compact sonars and towed arrays are suitable for unmanned vehicles and small craft. For towed systems, GTI can provide turnkey packages, including the cable, winch & handling system and towed body.

Glenair, Inc.

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Global Dynamix, Inc.

Booth: 600

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Global Dynamix, Inc. represents some of the leading manufacturers of underwater equipment and marine technology. The products provided are used by oceanographic researchers, commercial and military divers, hydrographic surveyors, environmental engineers, defense contractors and the offshore industry.

Global Ocean Design**Booth: 601**

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Global Ocean Design manufactures pressure activated SPST switches that trigger shallow, but survive immense depth; a direct-to-ship GPS-based range-and-bearing recovery beacon; moisture purge systems including retrofit modules for a number of existing pressure cases and spheres; burnwire pelican-hook release mechanisms, countdown timer releases, styrene sphere pressure housings, an a line of basic payload hauler landers. The PT-100, PT-130 and PT-170 Series benthic landers are broadly adaptable to custom payloads. From components to full-up benthic landers, count on Global Ocean Design to provide cost-effective and proven technology.

Greensea**Booth: 204**

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Greensea, a leader in automation and navigation for UUVs, offers custom INS solutions, and high-end navigation and automation systems delivered in plug-and-play hardware. The company has provided software solutions to numerous OEMs and successfully installed systems on hundreds of vehicles including high-profile ROVs such as NOAA's deepwater vehicle, Deep Discoverer.

GRI Simulations, Inc.**Booth: 529**

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GRI Simulations Inc. (GRI) is a software development company that focuses on real-time 3D simulation, visualization, and integrated engineering technologies for critical marine activities. These technologies help to enhance the safety, security, and productivity of marine systems and operations. Beginning with the Virtual Remotely Operated Vehicle (VROV) Simulator System, GRI has provided instructional platforms for the training of ROV pilots with unparalleled dynamic realism. This gives ROV pilots realistic simulations to enhance safety and productivity as well as giving valuable stick-time so as to minimize risk to personnel and ROV equipment in a cost-efficient way. With the introduction of IDEA-FDK, GRI has enabled VROV simulations in customizable field layout designs, promoting the environmental and operational objectives of oil and gas projects.

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Harris Acoustic Systems

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Harris Acoustic Sensors is one of North America's largest manufacturers of piezoceramic materials including components, value added sub-assemblies and transducers for diverse medical imaging, therapy and surgical applications, power ultrasonics for cleaning and welding, oceanographic and oil and gas applications. Harris has over 60 years of piezomaterials and transducer engineering, design and production experience that has benefitted large and small customers. Harris offers standard and custom piezoceramic formulations of PZT, PT and PMN-PT materials, FEA and applications assistance for prototype and production volume applications. Harris is ISO 9001/2008 registered and can provide 100% testing of components.

Hawboldt Industries Ltd.

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Hawboldt is a single-source provider of integrated design and manufacturing capabilities engineered for line-handling, winching, LARS and lifting solutions for marine applications. Our facilities bring together advanced mechanical and hydraulic engineering with complete machining, welding, foundry and hydraulic shops. By creating an efficient and accountable process from design to final test, Hawboldt ensures a clear focus on project needs to reduce risk and maximize return on the customer's total investment. We are experienced in projects requiring strict compliance with precise military and scientific specifications, and in accordance with third-party classification societies such as ABS, Lloyds, and DNV. Our specialists in marine technologies are also supported by the engineering and manufacturing resources of the Timberland Group, providing a range of experience in lifting, pulling and line-handling applications unmatched anywhere in the world.

Hydro Group - Swann & Associates**Booth: 216**

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Hydro Group-USA vertically manufactures underwater cables, penetrators & connectors. Electrical, coaxial, optical, and custom molded assemblies. We are the only ISO 9000 certified manufacturer that can offer this under one roof. Hydro Group is involved in military & defense projects and is a preferred supplier to the United States NAVY and defense contractors.

Hydro International (Geomares)**Booth: 224**

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Hydro International, the independent and high-quality information source for the global hydrographic industry, brings you the latest insights and developments in both technology and management, topical overviews, news and developments, expert opinions and technology

IEEE OES**Booth: 300**

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The Oceanic Engineering Society of the Institute of Electrical and Electronic Engineers, Inc. (IEEE) seeks to advance the science and technology of Ocean Engineering. Its objective are scientific, literary, and educational in character. The Society strives for the advancement of the theory and practice of technology applied to the ocean environment, not only by ocean engineers but also by individuals in allied branches of engineering and related arts and sciences. The Society maintains a high level of professional standards among its members and affiliates and through them promotes technical excellence and actively encourages the exchange of information through conferences, meetings, workshops and publication. Excellent benefits for students are also available. Students and professionals are encouraged to stop by the IEEE/OES booth for information on the Society including reduced or free memberships.

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Imagenex Technology Corp.

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Imagenex Technology Corp. was founded in 1988 by pioneers in the development of high resolution sonar. On an international level, Imagenex is an innovative company that designs and manufactures sonar systems and continues to move forward through ground-breaking advances, with continual support for the customer's needs and demands. The company's products include multibeam, mechanical scanning, and sidescan sonars.

International Ocean Systems

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International Ocean Systems is a European-based Diver Group magazine with a bi-monthly circulation in excess of 10,000 worldwide. It serves the commercial oceanography market covering the fields of ocean data gathering, underwater surveying, and instrumentation. Readers are predominantly upper management, designers/engineers and scientists.

IXBLUE

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iXBlue provides a range of high-technology equipment, systems and turn-key solutions in the areas of navigation and surveillance, underwater positioning and communications, seabed imaging and surveying. iXBlue is a global organization with main sales and support bases in the USA, UK, France, Germany, Netherlands, UAE, Singapore and Australia.

Japan Agency for Marine-Earth Science and Technology**Booths: 209**

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Japan Agency for Marine-Earth Science and Technology (JAMSTEC) is a comprehensive research institution in Japan which specializes in marine science and technology. Through its research and development activities, JAMSTEC has taken on challenges to elucidate complicated phenomena on the earth, promote ocean exploration, and investigate possibilities of marine resource utilization.

Japan External Trade Organization (JETRO)**Booths: 209**

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JETRO Headquarters Tokyo, JETRO Osaka, Institute of Developing Economies and 41 regional offices, Overseas: (57 countries)76 offices (as of January 2015)

JETRO is the catalyst for doing business with Japan.

We are a Japanese governmental organization dedicated to strengthening trade and investment between Japan and other nations. Japan is a global leader in marine technologies.

We introduce the Japanese trusted and advanced technologies.

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JFE Advantech Co. Ltd.

Booths: 209

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Since our establishment in 1944, we, JFE Advantech, have striven to be a company that contributes to society with our widely used products at social infrastructure, manufacturing worksites and field observation.

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JouBeh Technologies Inc.

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JouBeh is a leading Iridium satellite Value-Added Reseller (VAR) focused on data services. JouBeh's focus is in supporting tracking and monitoring solution developers with modems, airtime, IT engineering and technical support for the commercial, research, and defense sectors. We support a wide range of applications from ocean science, wildlife tracking, and search/rescue to automatic vehicle location, surveillance, and aviation. Our partners span the globe and are experts in these applications.

KAIYO DENSHI Co., Ltd.**Booths: 209**

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Knudsen Engineering Limited**Booth: 337**

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Knudsen Engineering Limited (KEL) Recognized for innovation, high performance products and dedicated customer support, Knudsen manufactures single beam echosounders used in numerous diverse applications including survey, navigation, dredging, sub-bottom profiling and ocean research. Visit Booth 337 to learn more on our SOUNDER and CHIRP series echosounders along with Pinger Shallow Water Sub-Bottom Profiler.

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Kongsberg Underwater Technology, Inc.

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World leading supplier of advanced underwater acoustic systems, subsea systems, and instrumentation for ocean research, homeland security and the offshore oil and gas industry. We offer multibeam echo sounders (from 12kHz to 400kHz), a variety of single beam echo sounders, positioning systems, motion reference sensors, underwater cameras, HUGIN, REMUS and Seaglider AUV's.

Kraken Sonar Systems, Inc.

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Kraken Sonar Inc. is a marine technology company engaged in the design, development and marketing of advanced sonar and acoustic velocity sensors for Unmanned Underwater Vehicles used in military and commercial applications. We are recognized as world leading innovators of Synthetic Aperture Sonar (SAS) - a revolutionary underwater imaging technology that dramatically improves seabed surveys by providing ultra-high resolution imagery at superior coverage rates.

L-3 Klein Associates, Inc.

Booth: 340

11 Klein Drive

Salem, NH 03079 United States of America

603 893 6131

www.L-3Klein.com

deborah.durgin@L-3com.com

L-3 Klein Associates, Inc. - BOOTH 340 11 Klein Drive Salem, New Hampshire 03079 Tel: 603 893 6131 / Fax: 603 893 8807 Email: Klein.Mail@L-3com.com Web: www.L-3Klein.com

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Please feel free to check out our product offerings at www.L-3Klein.com.

Linden Photonics, Inc.**Booth: 238**

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978 392 7985

www.lindenphotonics.com

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571-265-3351

www.lockheedmartin.com

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Lockheed Martin Mission Systems and Training (MST) provides surface, air and undersea applications on more than 460 programs for U.S. military and international customers. The same expertise we provide to military customers is being applied to increase capabilities of U.S. and international civilian agencies. Our vision for MST is to set performance standards for our customers worldwide, every day with the best people, best systems, and best services

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rfb@macArtney.com

MacArtney produce high quality products, fully integrated systems and innovative custom solutions, from design to installation, supported by training, service and local workshops. We cover the areas of connectivity, launch and recovery, and data acquisition for oil and gas related companies, ocean science institutes, marine renewable developers, navies and others around the world.

Sea Change: Dive into Opportunity

MARACOOS-Mid Atlantic Regional Assoc. Coastal Ocean Observing System

Booth: 707

318 S. College Ave

MARACOOS

Newark, DE 19711 United States of America

302 831 7553

www.maracoos.org

kuska@maracoos.org

The Mid-Atlantic Regional Association Coastal Ocean Observing System (MARACOOS) or Mid-Atlantic IOOS, is one of the 11 regions that comprise the U.S. Integrated Ocean Observing System (IOOS). MARACOOS operates an integrated, regional scale ocean and coastal observation, data management and prediction network in real-time. Covering the region from Cape Cod, MA to Cape Hatteras, NC, MARACOOS focuses on stakeholder outreach and engagement to identify community needs and design integrated information solutions to address critical challenges. MARACOOS includes federal, state, regional, and local authorities, academic, non-government, and private sector / industry organizations.

Marine Magnetics

Booth: 311

135 Spy Court

Markham, ON L3R 5H6 Canada

416 722 3313

www.marinemagnetics.com

mm@marinemagnetics.com

Designs and manufactures magnetometers using advanced Overhauser technology for high sensitivity and unmatched accuracy characteristics. Products include:

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Explorer is a miniature, lightweight magnetometer designed for in-shore surveys in. It is ideal for small-boat applications where size and weight are most important. Integrations available with side scans and AUV's.

SeaQuest is the most advanced magnetic search tool available - improving speed and accuracy in UXO and mine detection.

The Sentinel base station magnetometer can be deployed almost anywhere on the surface of Earth including the seafloor. It has a storage capacity of one million readings and it's battery life exceeds several months. While, an omni directional sensor and the ability to preprogram the mag makes deployment fast and easy.

Marine Technology Reporter**Booth: 427**

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202 717 8705

www.mtsociety.org

chris.barrett@mtsociety.org

The international Marine Technology Society offers extraordinary resources and networking opportunities to ocean engineers, technologists, government, industry and academia. MTS' passion for the advancement and application of marine technology assists members through specialized committees (seafloor technologies, ocean observing, underwater vehicles, marine security, and more), conferences, workshops, a professional journal, and newsletters. MTS maintains a website with news for and about the maritime community.

Markall, Inc.**Booth: 225**

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Santa Ana, CA 92704 United States of America

714 557 2322

www.markallinc.com

jack.follman@ra-industries.com

Markall, along with its manufacturing arm, RA Industries, LLC, is a privately held, woman and minority-owned, full-service engineering, international repair hub and fabrication completion center that has primarily operated in Santa Ana, California, and has an administrative presence in Texas, Louisiana and Alaska. For 60 years, and through three generations, Markall has developed highly refined experience in machining precision parts using exotic raw materials, including cobalt, nickel, Inconel, beryllium copper, titanium and thermoplastics.

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MATE Center

Booth: 307

980 Fremont St.
Monterey, CA 93940 United States of America
831-646-3082
www.marinetech.org
jzande@marinetech.org

The Marine Advanced Technology Education (MATE) Center is a national network of community colleges, secondary schools, universities, research institutions, professional societies, marine industries and professionals. The MATE Center's mission is to create an interest in and improve science and technology education and to provide the marine workforce with well-educated technical professionals. Headquartered at Monterey Peninsula College, the MATE Center was established with funding from the National Science Foundation in 1997.

Maxon Precision Motors, Inc.

Booth: 341

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www.maxonmotorusa.com
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Maxon precision motors is a leading supplier of high-precision DC brush and brushless servo motors and drives. Maxon's rhombic wound ironless rotor motors provide exceptionally high efficiency, low EMI emissions, fast acceleration, no preferred rotor position, linear speed and torque constant (accurate control) and long life. These motors range in size from 4 - 90 mm and are available up to 500 watts.

We combine electric motors, gears and DC motor controls into high-precision, intelligent drive systems that can be custom-made to fit the specific needs of customer applications.

McLane Research Labs

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508 495 4000
www.mclanelabs.com
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McLane Research Laboratories, Inc. manufactures time-series oceanographic profilers, samplers, and flotation. Our objective is to enable worldwide investigators to achieve their research and scientific goals by providing advanced, cost-effective instrumentation.

Measurement Technology NW**Booth: 638**

4211 24th Ave. W

Seattle, WA 98199 United States of America

206 634 1308

lci.mtnw-usa.comkylem@mtnw-usa.com

Measurement Technology Northwest's (MTNW) Line Control Instruments division designs and manufactures rugged programmable controllers, sensors, instrumentation, controls and automation equipment used in industries ranging from oil & gas, industrial, oceanographic, mining to construction. Our brand of multivariable controllers is continually selected in mission-critical applications where rugged durability, viewability, accuracy and data acquisition is required.

MetOcean Data Systems**Booth: 522**

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Dartmouth, NS B3B 1R9 Canada

902 468 2505 x289

www.metocean.comscotie@metocean.com

MetOcean Data Systems develops and manufactures state-of-the-art data acquisition and telemetry systems. Incorporated in 1985, MetOcean has been a world leader in integrated systems used for real-time environment monitoring. MetOcean specializes in the production of air-deployed and ship-deployed drifting buoys, search and rescue buoys, oil tracking buoys, ice management systems, polar platforms, and acoustic systems.

MetOcean Data Systems**Booth: 701**

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MetOcean Data Systems develops and manufactures state-of-the-art data acquisition and telemetry systems. Incorporated in 1985, MetOcean has been a world leader in integrated systems used for real-time environment monitoring. MetOcean specializes in the production of air-deployed and ship-deployed drifting buoys, search and rescue buoys, oil tracking buoys, ice management systems, polar platforms, and acoustic systems.

Sea Change: Dive into Opportunity

National Oceanographic Partnership Program (NOPP)

Booth: 408

4100 N. Fairfax Drive, Suite 800
Arlington, VA 22203 United States of America
703-284-8357
www.nopp.org
Bbischof@nopp.org

The National Oceanographic Partnership Program (NOPP) is an innovative collaboration of federal agencies that support ocean research partnerships among academia, government, industry, and non-governmental organizations. NOPP investments encompass numerous areas, including oceanographic research and exploration, technology development, resource management, and ocean education; these focus areas have led to community advances in oceanography and impacts on society. Since 1997, NOPP has become an excellent forum for development of new interagency initiatives and priorities that transcend single agency mandates in the pursuit of wise use of the ocean and maintenance of its health.

National Research and Development Agency

Port and Airport Research Institute

Booths: 209

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PARI was started in 1946 as a research office of Ministry of Transport, Japan. In 1962, "Port and Harbor Research Institute (PHRI)" was established in Ministry of Transport. In 2001, PHRI was reorganized as Independent Administrative Institution, PARI and it was renamed to National Research and Development Agency, PARI this year. Now we are one of the most famous research institute in the field of marine construction engineering research and technologies in Japan. In this exhibition, we will display our research activities on each field of the coastal and ocean engineering, the marine information and tsunami, the coastal and estuarine environment, the geotechnical engineering, the earthquake disaster prevention engineering, the structural engineering, the frontier technology and engineering. Additionally, we will present about three research centers, Asia-Pacific Center for Coastal Disaster Research, Life Cycle Management Research Center for Coastal Infrastructures, and Ocean Infrastructure Research Center.

Nautilus Marine Service**Booth: 601**

Alter Postweg 24
Buxtehude, 21614 Germany
+49 4161 86625 0
www.nautilus-gmbh.com
S.Pausch@nautilus-gmbh.com

Nautilus Marine Service (NMS) achieved an international reputation with its high quality VITROVEX® deep sea glass housings in different shapes, sizes and pressure ratings up to full ocean trench depth. In-house pressure testing capability provides confidence in performance. In 2012, the Vitrovex 17" deep spheres were a key enabling technology that allowed James Cameron's unmanned landers to dive the Mariana Trench Challenger Deep.

Nautilus Marine Service also represents some of the world's leading manufacturers of marine technologies and supplies, marine safety and rescue gear to research, survey and monitoring markets in Germany.

Naval Research Laboratory**Booths: 400,402,404,406**

4555 Overlook Ave.
Washington, DC 20375 United States of America
202 767 2697
www.nrl.navy.mil
gayle.fullerton@nrl.navy.mil

The Naval Research Laboratory provides primary in-house research for the physical, engineering, space and environmental sciences; broadly based applied research and advanced technology development programs in response to identified and anticipated Navy and Marine Corps needs; broad multidisciplinary support to the Naval Warfare Centers; and space and space systems technology, development, and support.

Naval Undersea Warfare Center**Booth: 504**

1176 Howell St., Bldg 102T
Newport, RI 02841 United States of America
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valerie.larkin@navy.mil
[401 832 8720](tel:4018328720)

Sea Change: Dive into Opportunity

NiGK Corporation

Booths: 209

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Toshima, Toshima-ku Tokyo, 171-0022
JAPAN

Website: <http://www.nichigi.com/>

Email: ocean-g@nichigi.co.jp

Phone: +81-3-3986-5222

NiGK Corporation was fully financed and established by NOF CORPORATION in December 1980. Our company has promoted research and development in various fields in parallel with manufacturing of ocean research equipment, pyrotechnics, temperature indicating materials, sterilization bags/indicators and other products.

"NiGK Ocean" represents the ocean biz group in our company. Since 1980, we have been engaged in development of new observatory system, with our company's catch phrase: "From the Ocean to Outer Space". Recently, we are involved in some cable network projects, and survey systems for offshore resources. Besides we are making a great effort for development of Vertical Profiling System as new platform for long time monitoring.

Our typical products and services are; underwater winches (Seabed type and Mooring type), releasers for OBS, acoustic releasers, structural design of key equipment for cable network projects (e.g. NODE, JB and Battery Pack), and so on.

NOAA

Booths: 505,507

1305 East West Highway, Ste. 9130
Silver Spring, MD 20910 United States of America
301 713 3010

www.noaa.gov

paul.taylor@noaa.gov

The National Oceanic and Atmospheric Administration (NOAA) of the U.S. Department of Commerce is one of the world's premier scientific and environmental agencies. NOAA conducts research and gathers data and observations about the global oceans, atmosphere, space, and sun, and applies this knowledge to environmental prediction and services that touch the lives of all Americans. NOAA works with government, academia and private sector partners to provide the nation with high quality weather, water, climate and related environmental information.

Nortek USA**Booth: 629**

27 Drydock Ave.

Boston, MA 02210 United States of America

617 206 5750

www.nortekusa.com

freda@nortekusa.com

NortekUSA provides technical sales, support and system integration for ocean currents, waves, and turbulence measurement systems. NortekUSA services clients in North America. Stop by booth #45 to learn about the advantages in range, data quality, and flexibility that the AD2CP platform and Signature series instruments can offer your next project.

Ocean Aero**Booth: 441**

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Suite 367

San Diego, CA 92131 United States of America

858-945-3768

www.oceanaero.us

eapatten@oceanaero.us

Ocean Aero is solving the ocean observation challenges for the military, scientific, security, and oil and gas communities throughout the world. We have designed a "game changing" highly ruggedized surface & sub-surface vessel: the "Submaran", powered by wind and solar, capable of several months at sea that can be deployed from land, sea or air. The "Submaran" will be delivered both as a system for purchase and as a part of a contracted System as a Service (SaaS) fleet of data gathering vessels that customers need not purchase or manage.

Ocean Aero epitomizes the next generation in unmanned ocean systems with the development of an autonomous, highly persistent, energy scavenging, wind/electric-unmanned vessels packaged in a small, man-portable configuration. The "Submaran", a new class of Unmanned Underwater, Surface Vessel (UUSV), takes the best of both of surface and subsurface vessels and combines them into a completely new, transformable, self-propelling body, capable of missions in extreme conditions.

Sea Change: Dive into Opportunity

Ocean Business

Booth: 606

The Pike House
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Gloucestershire, GL6 0AG United Kingdom
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www.oceanbusiness.com
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Ocean Business is a hands-on ocean technology exhibition and training forum, to be held at the National Oceanography Centre, Southampton, UK from 4 - 6 April 2017. The event incorporates an international ocean technology exhibition running in parallel with live demonstration and training sessions, Offshore Survey: a technical conference and Ocean Careers: an interactive careers event. For more information, please visit www.oceanbusiness.com

Ocean Networks Canada

Booth: 733

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Victoria, BC V8W 2Y2 Canada
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elliottl@uvic.ca

Ocean Networks Canada operates the world-leading NEPTUNE and VENUS cabled ocean observatories for the advancement of science and the benefit of Canada. These observatories collect data on physical, chemical, biological, and geological aspects of the ocean over long time periods, supporting research on complex Earth processes in ways not previously possible. The NEPTUNE regional observatory and VENUS coastal observatory, which have been operating for four and seven years respectively, provide unique scientific and technical capabilities that permit researchers to operate instruments remotely and receive data at their home laboratories anywhere on the globe in real-time. These facilities extend and complement other research platforms and programs, whether currently operating or planned for future deployment.

Ocean News & Technology/ECO Magazine

Booths: 621,623

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772-221-7720
www.oceannews.com & www.ecomagazine.com
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Ocean News & Technology, distributed monthly, is the leading publication for the ocean and offshore industries, reporting on the latest news, events and technology developments around the world. Distributed 9 times a year, ECO Magazine provides comprehensive coverage and analysis of issues affecting the coastal and offshore environmental fields while highlighting the five key environmental areas of Science, Technology, Economics, Regulatory & Policy, and HSSE. Both international publications are available in print, digital, and APP formats at no cost to industry professionals.

Ocean Sonics Ltd.**Booth: 526**

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Great Village, NS B0M 1L0 Canada
902 655 3000
www.oceansonics.com
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Ocean Sonics designs and manufactures the iCListen Smart Hydrophone, an innovative passive acoustic monitoring system. As the world leader in gathering ocean sound, Ocean Sonics combines smart electronics with very high signal performance to give customers the best digital hydrophone technology available. This enables users to collect, record, measure, process and interpret calibrated sound data from the ocean.

Oceaneering International. Inc.**Booths: 409,411**

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www.oceaneering.com
mpoisal@oceaneering.com

The Advanced Technologies (ADTECH) group of Oceaneering is recognized as an industry leader in enabling humans to work safely and effectively in harsh environments ranging from the depths of the sea to the outer reaches of space. ADTECH specializes in the support of manned systems and the development and application of practical, cost-effective robotic systems in multiple industries.

ADTECH designs, builds, and operates unique underwater systems for the US Navy and provides life cycle maintenance services for Submarines and Deep Submergence Systems. ADTECH is developing the next generation space suit for NASA and provides robotic and spacecraft life support systems. ADTECH is also an award winning leader in design, build and installation of theme park entertainment ride systems and provides intra-logistic solutions using AGV systems.

ADTECH's business areas are: Oceaneering Technologies, Marine Services Division, Oceaneering Space Systems, Oceaneering Entertainment Systems, Frog AGV Systems, and ADTECH Manufacturing Group.

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Oceanology International - Reed Exhibitions

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www.oceanologyinternational.com
anna.jackson@reedexpo.co.uk

The Oceanology International portfolio of events offers the world's leading forums where industry, academia and government share knowledge and connect with the marine science and ocean technology communities.

Oceanology International's world-class exhibitions and conferences help organisations reach buyers from key market regions and sectors worldwide and help them improve their strategies for measuring, exploiting, protecting and operating in the world's oceans.

OCEANS'16 Monterey

Booth: 303

7700 Sandholdt Rd
Moss Landing, CA 95039 United States of America
831-775-1707
<http://www.oceans16mstsieeemonterey.org/>
oceanengsoc@gmail.com

IEEE-OES / MTS Oceans Conference September 19th to the 23rd 2016:

We anticipate a great turnout with a superior technical program and wonderful events to educate as well as entertain our registrants. The week will start with local tours at several of the more than 20 marine-related facilities that form the Monterey Bay Crescent Research Consortium; world class golf; kayak tours with sea otters; and other activities where you can experience the natural outdoor splendor of our local area.

The program kicks-off with workshops and tutorials then moves on to the core technical program over several days. Join your peers for breakfast, lunch, or dinner at any number of top-level establishments, which are all within a few feet of the hotel and the convention center. Several other special events are also being planned. These include tastes of the food and wine that the Monterey area is famous for.

The week will also include in-water demonstrations and exhibits of the latest in ocean technology. On the culminating evening of the conference, find yourself strolling between the local flora and fauna at our Gala Dinner being held at the Monterey Bay Aquarium. Special room rates are available for the conference and extend over the weekend prior and afterwards for those who would like to enjoy Monterey further. Giant sequoia redwoods, art galleries of all kinds, beautiful vistas and endless activities are all just a short drive away from downtown Monterey.

Easy to get to, easy to stay, hard to leave - Oceans Monterey 2016 is the place to be!

OCEANS'16 Shanghai**Booth: 302**

llian@sjtu.edu.cn

Visit us in Booth 302 to hear more about OCEANS 16 in Shanghai

OCEANS'17 Aberdeen**Booth: 304**

University of Aberdeen

Fraser Nobel Building

King's College Campus

Aberdeen, AB24 2UE United Kingdom

01224 272804

<http://www.oceans17mtsieeeaberndeen.org/>

j.watson@abdn.ac.uk

Oceans '17 19 - 22 June 2017 OCEANS '17 will be held in Aberdeen Scotland with the theme of "A Vision for our Marine Future". Join us at the booth to meet the organisers and find out more about Aberdeen, Scotland and the special topics for the 2017 conference. Exhibitors can also find out about the options available in Aberdeen and reserve spaces.

OCEANS'17 Anchorage**Booth: 305**

23827 Homestead Rd.

Chugiak, AK 99567 United States of America

907 632 7498

www.oceans17mtsieeeanchorage.org

rseitzak@aol.com

OCEANS '17 the annual joint conference of MTS and IEEE, will be held September 18-22, 2017 at the Dena'ina Center in Anchorage, Alaska. The theme is "Our Harsh and Fragile Ocean" or "Modern Technology and Traditional Knowledge working together to solve our oceans problems" Alaska has over 23,000 miles of coast line and is bounded on three sides by oceans. The conference will have focus on Energy from the Ocean, the Arctic's Changing Climate, Remote Sensing, Operations Under, On and Above the Arctic Sea Ice, as well as other topics.

OceanServer Technology Inc.**Booth: 538**

151 Martine St.

Fall River, MA 02052 United States of America

5086780550

www.ocean-server.com

kirk@ocean-server.com

OceanServer Technology is a leading provider of man-portable Autonomous Underwater Vehicles (AUVs). The Iver AUV is an affordable, commercial vehicle used for general survey and sub-surface security work, autonomy research, behavioral and sensor development studies at universities and navy research facilities.

Sea Change: Dive into Opportunity

Oceanworks International, Inc.

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OceanWorks is a subsea solutions engineering company, providing over 20 years of services to the Oil & Gas, Military, Scientific & Environmental markets worldwide.

Offering a full range of subsea system engineering, design and analysis, manufacturing, fabrication, testing, and project management services.

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Okeanus Science & Technology, LLC is the premier rental provider for oceanographic and marine scientific research equipment utilized in nearshore and offshore projects around the world. Focused on providing industry-leading customer service, Okeanus offers advanced, high-quality technology coupled with knowledgeable and experienced staff that can deliver dedicated support regardless of a project's location.

Phoenix International

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plehardy@phnx-international.com

Phoenix International is an experienced marine services contractor providing underwater engineering and operational solutions to customer requirements worldwide. We are committed to ensuring the safety of our personnel at all times; our excellent safety record is a testimonial to the success of this commitment. Operating from support facilities on the East, Gulf, and West Coasts, Phoenix provides a full range of manned and unmanned diving capabilities to accomplish complex operations from the surface to water depths of 6,000 meters. Phoenix engineers specialize in the design and build of underwater systems and tooling to assist our employees and our customers in accomplishing projects in the marine environment.

Piezo-Kinetics, Inc.

Booth: 440

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Bellefonte, PA 16823 United States of America
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www.piezo-kinetics.com
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Piezo Kinetics (PKI) is the leading North American manufacturer of specialty piezoelectric elements and assemblies. Through our strong technological positions, we offer the following to our customers: Piezoceramic Shapes- Standardized and Customized -Engineering Collaborations -Value-Added Manufacturing -Value-Added Services -Piezoceramics Material Developments - Application Specific Performance Piezo Kinetics manufactures piezoelectric crystals and products that are the heartbeat of piezoelectric transducers, piezo pick-ups, piezoelectric actuators, and piezoelectric generators in a multitude of applications. Our piezoceramic products are manufactured from lead zirconate titanate (PZT), lead metaniobate, and other piezoelectric materials.

Pillsbury Winthrop Shaw Pittman LLP

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With offices in major maritime hubs around the world, Pillsbury is a full-service law firm advising Blue Tech companies to help take greater advantage of new opportunities, meet and exceed their objectives, and better mitigate risk.

Sea Change: Dive into Opportunity

Polymer Corporation

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Polymer Corporation focuses on manufacturing high-performance plastic parts and assemblies for blue-chip customers in targeted markets worldwide, using a variety of manufacturing processes. Parts big and small, we make them all. Our parts are tough, lightweight, don't corrode or rust, and can meet a wide variety of mission-specific performance requirements. They are found in numerous' marine science, oceanographic, environmental, defense, safety, drilling, diving, and construction applications. Leading marine industry companies depend on us for in-depth knowledge and flawless execution. Polymer has extensive knowledge of materials for marine use and has custom-formulated materials for increased buoyancy and weight reduction; for specific underwater signal reflection, transmission or attenuation characteristics; for undersea optical applications; and for outgas-free \ submarine/dive requirements. We often encapsulate delicate electronics, GPS modules, antennae, and other critical components. Since we offer multiple manufacturing processes --including machining, injection molding, and our unique Liquid Resin Casting™ process--we can optimize our solution for your application and minimize product life-cycle costs. Low-volume production can mean no or low-cost tooling and rapid time to first article.

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Pro-Oceanus**Booth: 536**

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902 530 3550

www.pro-oceanus.comadmin@pro-oceanus.com

Pro-Oceanus Systems Inc. provides world-class technology in our line of advanced dissolved gas sensors

Pro-Oceanus Systems continues to provide highly stable and quality products that measure dissolved gases in natural waters. The goal is to assist in providing critical information for monitoring biological production, understanding the dynamics of greenhouse gases, surveying the distribution of pollutants, and determining the health of sensitive ecosystems.

Q•I Incorporated**Booths: 209**

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<http://www.qi-inc.com/>jpn@qi-inc.com

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Mankind has expanded the sphere of his activity into universe, under the seas and underground. These realms are limitless and severe conditions. Q•I Inc. has been challenging such unknown areas using advanced technologies. It is our policy to create products for the worldwide market with quality and innovation we can be proud of.

We are going to exhibit about following products and works.

(1) Delta-100R: Delta-100R is a compact, lightweight, and energy saving ROV. It is ideal for research or rescue operations by a small boat.

(2) Underwater Inspection System for Dam Inspection: We have been developing Underwater Inspection System for dam. It is unique system which is composed by USV and ROV. It will be obtain high quality inspection data with low cost and easy operation.

(3) Underwater gravity measurement system: This is an efficient gravity survey system for exploration of seafloor hydrothermal deposit using ROV or AUV. Q•I Inc. have developed structure and gimbal system of underwater gravimeter.

Sea Change: Dive into Opportunity

QPS, Inc**Booth: 540**

104 Congress St - Ste 304

PO Box 4639

Portsmouth, NH 03801 United States of America

6034311773

www.qps-us.com

lbicknell@qps-us.com

QPS is a software design company specialized in Hydrographic and Maritime applications, which include QINSy, Fledermaus and Qimera. The key technology of QPS is based on precise navigation, the collection and presentation of large volumes of navigation and depth data. QPS is a wholly owned subsidiary of Saab AB.

RBR Ltd.**Booth: 620**

95 Hines Rd. Unit 5

Ottawa, ON K2K 2M5 Canada

613 599 8900

www.rbr-global.com

info@rbr-global.com

Based in Ottawa, Canada and established in 1976. The company is an industry leader in the design, development and manufacture of high precision instruments for oceanographic, freshwater, groundwater and cryospheric research. Products include CTDs, small temperature or depth loggers, tide gauges, wave loggers and multi-parameter sondes.

Remote Ocean Systems**Booth: 434**

5618 Copley Drive

San Diego, CA 92111 United States of America

858 565 8500

www.rosys.com

kendrak@rosys.com

Remote Ocean Systems (ROS) has been an industry leader in the design and manufacturing of reliable, high-tech equipment and systems for the most severe subsea, oceanographic, industrial, commercial and military environments since 1975.

Rowe Technologies, Inc.

Booths: 234,236

12655 Danielson Ct., Ste. 306

ROWE Technologies, Inc.

Poway, CA 92064 United States of America

8588422600

www.rowetechinc.com

rmahrjr@rowetechinc.com

Visit ROWE Technologies at Booth 234/236, and also attend the Product Theater presentation at 0930 on Wednesday about our new SeaSEVEN ADCP.

Rowe Technologies specializes in the design and manufacture of underwater acoustic Doppler products and imaging systems for the oceanographic, hydrographic and hydrologic markets. Founded in 2009, Rowe Technologies is a technology-based private company with the main office located in Poway CA, USA. Rowe's ADCP/DVL electronics suite is superior to others due to a powerful compact single-unit configuration which allows simultaneous current profiling. This configuration easily handles 2D Doppler Array, multi-beam, and dual frequency transducer technologies. This improved versatility and measurement capability is achieved for both the Current Profiler and the Doppler Velocity Log.

Sea Change: Dive into Opportunity

Saab Seaeeye

Booth: 429

16225 Park Ten Place, Ste. 500

Houston, TX 77084 United States of America

+1 (571) 294 8418

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chris.roper@saabgroup.com

Saab Seaeeye is the world's largest manufacturer of Electric ROV/AUV systems operated by commercial O&G contractors, military/police departments & universities. We offer work class vehicles including the 3000m depth rated Hybrid ROV/AUV system, Sabertooth and the new 3000m Leopard.

The company specializes in the manufacture of electrically powered Remotely Operated Vehicles, ROVs, for the offshore oil and gas industry. Saab Seaeeye has led the way in many breakthrough ROV innovations, such as brushless DC motor technology for ROV thrusters, polypropylene ROV chassis, carbon fiber electronics pods (on Panther Plus), distributed intelligence and modular ROV control systems, and new power distribution concept for deep water applications.

Saab Seaeeye has delivered over 800 ROVs to date and has become the benchmark by which all electric powered ROVs are compared today and has expanded its production capacity by 50% with the opening of a new 24,000 sq. ft. factory in Fareham, Hampshire, UK. This factory is about an hour from London's two international airports, Heathrow and Gatwick and between the south coast ports of Portsmouth and Southampton for easy ferry access to the continent. This facility includes workshops, test tanks, office & meeting facilities as well as a thruster pressure test area, motor room and design engineering office. A classroom is available for the ROV technical training courses offered to customers. Saab Seaeeye uses in-house engineers armed with the latest computer aided technology, that allows a fast turnaround between concept and a final product, design all of Saab Seaeeye's products.

A fully equipped prototyping machine shop is available for development engineering as well as the fast turnaround of small batch items. Machining of standard, large volume items is subcontracted to approved specialist manufacturers and a team of electronic and mechanical engineers and technicians carry out assembly and testing of the sub-assemblies and systems

Additional benefits of working with Saab Seaeeye: - DNV ISO 9001 accredited company - Long established products with proven track records - Over 800 Saab Seaeeye vehicle systems sold - High quality customer service/offshore support, with 24h emergency contact number and comprehensive stock holding - Worldwide network of experienced representatives - Innovative engineering team using powerful design tools - Customized solutions to meet client requirements - Comprehensive production & test facilities - Experienced project management

SBG SYSTEMS**Booth: 541**

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SBG Systems is a leading supplier of miniature, high performance & cost-effective MEMS-based inertial motion sensing solutions. Our Motion Sensors and Inertial Navigation Systems are ideal for ship motion monitoring; SONAR, LiDAR, and Buoy orientation & position; ROV & AUV control; camera stabilization, and antenna tracking.

Sea Technology Magazine**Booth: 410**

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Arlington, VA 22209 United States of America
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www.sea-technology.com
seatechads@sea-technology.com

Published monthly for 52 years - available in print and electronically. Sea Technology magazine is circulated in more than 110 countries and is the worldwide information leader for marine business, science, engineering, diving, and offshore applications for commercial and military marine markets. Also produce a bi-weekly electronic newsletter, Sea Tech e-News.

Sea-Bird Scientific**Booths: 500,502**

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Sea-Bird Scientific, a global provider of oceanographic and water quality sensors and platforms, is headquartered in Bellevue, WA. Sea-Bird Scientific combines the capabilities of Sea-Bird Electronics, WET Labs, and Satlantic to provide best-of-class sensors and systems for oceanographic research and environmental water quality monitoring of physical and biogeochemical properties. Today Sea-Bird Scientific employs over 200 people in the US, Canada, and Europe in the development, manufacture, calibration, sales, and support of our products.

Sea Change: Dive into Opportunity

Seafloor Systems, Inc.

Booth: 641

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El Dorado Hills, CA 95762 United States of America

530 677 1019

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Seafloor Systems provides a full spectrum of hydrographic survey equipment, software, personnel, training and support--specializing in the geophysical sector--for survey companies worldwide. The company also develops and manufactures the HydroLite portable hydrographic survey system, HyDrone-RCV, and EchoBoat remote-controlled survey platforms for remote hydrographic survey applications.

Seafloor Systems was formed in 1999 by veteran naval hydrographer John Tamplin, and has built the largest rental pool of multibeam echo sounder equipment in the U.S.

SEATECHCRIM

Booth: 634

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Gorky Leninskiye, Moscow, 142934 Russian Federation

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seatechrim@mail.ru

SEATECHCRIM designs, manufactures oceanography equipment for depth up to 6000m: autonomous and cable-powered equipment mainly to control of radioactive and chemical contamination in sea water; magnetometer, winches, launch and recovery systems; grab corers with TV monitoring, grabs, box and tube corers, samplers, acoustic releases; special equipment for AUV, in cooperation with GEOKHI RAS designs underwater autonomous mass spectrometer

Severn Marine

Booth: 510

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410 263 1143

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hank@severnmarinetech.com

ClearSignal Biofouling Control - Severn Marine Technologies are the developers and applicators of the ClearSignal biofouling control system for oceanographic instruments and undersea platforms.

SGK SYSTEM GIKEN CORPORATION**Booths: 209**

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JAPAN

<http://www.sgktec.co.jp>

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SGK is a leading manufacturer of underwater acoustic systems in Japan. SGK has developed and manufactured many different kinds of acoustic systems for a wide range of applications. The products have been used in oceanographic survey, underwater communication and navigation control, marine life research etc. SGK is supporting research organizations, universities, especially young researchers to explore the possibility of ocean development for future.

SGK provides underwater acoustic transponders, positioning systems, communication modems, and other acoustic systems for wide range of applications. Our products are designed in consideration of acoustic environment.

SGK transponders have been used for many kinds of applications, such as tracking and locating underwater vehicles and divers, surface control for Ocean Bottom Seismograph (OBS) etc.

SGK positioning systems are mainly based on SSBL principle and used for detecting and tracking offshore constructions, underwater vehicles, or divers.

We also have developed passive acoustic systems, such as searching and locating system for finding out the acoustic beacons on the seabed.

Sidus Solutions LLC**Booth: 716**

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Sidus Solutions, LLC is an integrated systems provider of security and video surveillance systems for worldwide businesses in the research, heavy industry, commercial, military, oil and gas markets. We are a full service provider, offering complete end-to-end solutions from concept design, product selection, engineering, manufacturing, technical and customer support.

Specializing in SUBSEA cameras, robotic-positioning, and lighting systems, Sidus services and manufactures complete, integrated security and surveillance solutions for any subsea application. Sidus equipment, operational to 6500 meter depths, is available alone or to integrate with existing systems. From concept design to technical support, Sidus has solutions for every need.

Sea Change: Dive into Opportunity

Smart Material Corp.

Booth: 335

2170 Main Street, Ste. 302
Sarasota, FL 34237 United States of America
941 870 3337
www.smart-material.com
m.daue@smart-material.com

Advanced piezo ceramic components and systems

Sonardyne Inc.

Booth: 433

8280 Willow Place Drive North
Ste.130
Houston, TX 77070 United States of America
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kim.swords@sonardyne.com

Sonardyne is a world leader in the design and manufacture of acoustic, inertial, communication and sonar technologies for the Oceanographic community. Our expertise range from long layback tracking up to 10,000m, autonomous monitoring and release and mooring of instruments, through to data logging, telemetry and underwater vehicle tracking and communications. Acoustic Positioning, Inertial Navigation, Wireless Communications, Sonar Imaging

Sonotronics, Inc.

Booth: 226

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520 746 3322
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sales@sonotronics.com

Founded in 1971, Sonotronics is THE Pioneer in Acoustic Telemetry for Animal tracking. Providing Ultrasonic Transmitters, Receivers and Hydrophones for Tracking Animals and Equipment underwater. Sonotronics products are used around the world in every ocean, and in rivers, lakes, and reservoirs. We strive to provide excellent service to our customers while working together to make a difference in the world we share.

Sound Metrics Corporation**Booth: 708**

11010 Northrup Way

Bellevue, WA 98004 United States of America

757-382 7616

www.soundmetrics.comsummer@oceanmarineinc.com

Based in Bellevue, Washington, Sound Metrics is a leading manufacturer of imaging sonars that capture the clearest and most detailed video images in their class. Sound Metrics Corp. is one of the first manufacturers of high resolution imaging sonars. In addition to being the technological leader in image quality, Sound Metrics has built a reputation for support and for innovating solutions around their customer's applications. The next generation of DIDSON is called ARIS and offers lower power consumption, smaller size and unprecedented clarity and resolution among other benefits.

Sound Ocean Systems, Inc.**Booth: 636**

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Redmond, WA 98052 United States of America

425 869 1834

www.soundocean.comted@soundocean.com

Sound Ocean Systems, Inc. (SOSI) provides a wide range of standard and custom designed products for use aboard ship, in the water column, and on the seafloor. Our major product focus includes small and large instrumentation, mooring, umbilical, tow, and general purpose winches, ROV, AUV, seafloor drill launch & recovery systems, real-time integrated oceanographic and environmental observing systems, towed bodies for sonar and survey, self-propelled and towed seafloor vehicles for cable burial, ocean mining, and environmental impact assessment. SOSI also provides engineering, design and project management services for marine projects, equipment and systems. Semi-custom products are based on existing designs with custom modifications made to suit the unique application needs of individual customers. When the best solutions call for innovative new designs, SOSI is especially well qualified and experienced. For more than 37 years, our design and manufacturing expertise has provided our commercial, academic, and military customers around the world with cost effective and innovative solutions to meet their technical and budgetary requirements.

Sea Change: Dive into Opportunity

Soundnine Inc.

Booth: 206

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8663887277
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doug@soundnine.com

Soundnine Inc. (S9) is making it easier and less expensive to build and operate real-time monitoring systems. S9 manufactures out-of-the-box solutions for end users building real-time data buoys or other platforms and offers turnkey buoy systems built to order. New products in 2015 include the breakthrough Ulti-modem -dual mode- inductive telemetry technology and high-accuracy, low cost Temperature, Pressure and Acceleration recorders with inductive telemetry. Products on display will include the DANTE Buoy Controller and Solar PowerPack, and the new S9 Ulti-modems and Enduro APT recorders. The DANTE Controller handles data collection, storage, transmission and power management and combines a GPS receiver, telemetry modems, compass and tilt/acceleration sensors with very low power data logging, power management and system watchdog functions in one extremely rugged immersion-proof enclosure. The Ulti-modem is an underwater inductive modem with internal battery and integrated coupler. It connects any serial device to inductive telemetry, including CTDs, current meters and custom sensors. The Enduro APT records Acceleration, Pressure and Temperature, logs internally and transmits data in real-time over plastic-jacketed wire rope. Both Ulti-modem and Enduro APT provide fast transmit mode plus Sea-Bird IMM/SIM compatibility in one instrument, providing clip on compatibility with existing Sea-Bird IM systems and data transmit rates of up to 19,200 baud when communicating with another S9 Ulti-Modem.

South Bay Cable

Booth: 432

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Established in 1957, we design, test and produce Electro Optical Mechanical Cables withstanding the harshest of environments. Our cables support a wide range of ocean applications; from Towed Arrays to Side Scan Sonar's, ROV Tethers and Umbilicals to Seismic Lead-in's and MUX BOP Control cables. From the Geophysical Lead-Ins to the US Navy Tow Cables, all of which share a common goal, our number one asset, "Quality". Our cables are engineered and built for the demanding operations of the offshore industry. By working closely with our customers we team with you to develop the best possible solution for the task at hand.

SubC Imaging

Booth: 521

317 Memorial Drive
Clareville, NL A5A 1R8 Canada
709 864 7805
www.subcimaging.com
rtc@subcimaging.com

Market leading manufacturer of advanced underwater vision systems for harsh environments.

Products designed for use with ROVs, AUVs, Ocean Observatories, Standalone Monitoring Systems or by Divers.

Current products include cameras, lights, batteries, lasers, multiplexers and topside video management systems for recording, overlaying and streaming.

Subsea Technologies, Inc.

Booth: 241

1323 Price Plaza Dr.
Katy, TX 77449 United States of America
281 398 5600
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Sales, service and rental of equipment for the offshore industry including GPS receivers, sonars, oceanographic sensors. USBL acoustic positioning systems, acoustic releases and subbottom profilers. US Distributor and Service Center for Hemisphere GPS

Sea Change: Dive into Opportunity

SULIS Subsea Corp.

Booth: 537

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Mount Pearl, NF A1N 4R6 Canada
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From building the world's first 3D-HD full-ocean depth camera system for James Cameron's DEEPSEA CHALLENGER submersible, to creating leading-edge 4K imaging technology for the Schmidt Ocean Institute's new robotic vehicle program, SULIS Subsea Corporation is revolutionizing the way scientists, explorers, and filmmakers share their discoveries with the world.

In 2011, SULIS's founder, Adam Gobi, designed the entire imaging pathway for the DEEPSEA CHALLENGER, including multiple 3D HD and 5K camera systems, pilot-screen imaging, camera control, and recording subsystems. At any single time, the sub would be imaging and recording 7 different camera feeds, and handling database rates in excess of 15 gigabits per second.

Now we offer the same level of imaging capability for underwater vehicles worldwide. Our showcase will feature our latest deep-sea innovations, including 4K cameras, the Z70 and H100, our hybrid lighting system, Hyllum, and our compact 4K video processing/recording solution, the Brain box.

Sunburst Sensors LLC

Booth: 710

1226 W. Broadway
Missoula, MT 59802 United States of America
406 532 3246
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jim@sunburstsensors.com

Sunburst Sensors, LLC designs and manufacture autonomous instruments that measure the marine and freshwater inorganic carbon parameters pCO₂ and pH using our patented drift-free technology.

The SAMI (Submersible Autonomous Moored Instrument) measures and logs pH or pCO₂ in marine and freshwater environments over long periods with ultra-low power and reagent consumption, providing valuable time-series data to researchers around the world. The AFT - Autonomous Flow Through - uses the same technology for flow through measurements on research vessels or on the bench-top. We also have underway systems built around NDIR technology.

Sutron Corporation**Booth: 608**

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TIDAL/ COASTAL MONITORING & WARNING Since 1975 Sutron Corporation's hydrological and meteorological end-to-end data acquisition solutions have provided real-time situational awareness & forecasting for decision makers & emergency responders worldwide. Our modular, open, expandable systems, stations & equipment deliver excellent performance regardless of how many new sensors, field stations or base stations are added. Commonality of system components & software with uniform interfaces facilitate easy system upgrades. The US National Ocean Service Trusts Sutron to Build Their Tide Gages. So Should You.

Tachyonish Holding Co., Ltd**Booths:209**

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JAPAN

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Founded in 2006, Tachyonish Holdings Co., Ltd is a consulting company in the research field to provide a total solution including field research with vessels, design and manufacture scientific instrumentation for environmental monitoring. Since 2006, leading companies in the industry in Japan, Sonic Corporation, Kaiyo Engineering Co., Ltd, Nippon Kaiyo Co., Ltd, Coastal Ocean Research Co., Ltd, Nissei Electronics Co., Ltd and Techno Suruga Lab Co., Ltd are all merged into Tachyonish Holdings.

Sonic Corporation provide many instruments, applying ultrasonic technologies. The field is from ocean to sky. For example meteorology field is ultrasonic anemometer etc.

Oceanographic field is wave height meter, wave flow meter etc. Fishery field is sonar etc.

Nippon Kaiyo procures various oceanographic instruments with a focus on the acoustic equipment from Europa and America that will meet the customers' requests and research needs in japan.

Kaiyo Engineering develop consulting work by "oceanographic investigation", "coastal region oceanographic investigation", "marine consultant", "marine plant design" and "environment equipment business" as main of using four research vessels.

Sea Change: Dive into Opportunity

Tecnadyne

Booth: 728

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Since 1985, Tecnadyne has been a leader in the worldwide subsea robotics industry, manufacturing underwater thruster motors, propulsion systems, rotary & linear actuators, hydraulic power units (HPU's), intelligent hydraulic valve packs, subsea and harsh environment controllers, subsea position sensors, and subsea pressure compensators for use on Remotely Operated Vehicles (ROV's), Autonomous Underwater Vehicles (AUV's), manned submersibles and other subsea platforms.

Teledyne Marine Interconnect Solutions

Booth: 321

Teledyne Marine Interconnect Solutions (TMIS) designs and manufactures high-reliability electrical and optical interconnect systems for mission-critical applications in extreme operating conditions. Solutions for these harsh environments include wet-mate, splash-mate and dry-mate connectors, pressure boundary penetrators, cable assemblies, cable terminations, and custom-engineered encapsulation and molding. They are available as stand-alone items, or as complex higher-order solutions that integrate cross-platform technologies into advanced, value-added systems. Teledyne Marine Interconnect Solutions addresses the current and future needs of the oceanographic, defense, and renewable energy markets through advanced technologies and world-class support.

Teledyne AG Geophysical Products

14880 Skinner Rd
Cypress, TX 77429
(281) 373-5952
www.aggeophysical.com

AGG supplies the world's marine seismic fleet with ruggedized submersible connectors and marine seismic source management systems engineered for reliable performance in the harshest of ocean conditions. Precision machining capabilities with proven production and quality processes deliver ruggedized performance survivability in repetitive high shock and shallow water sealing applications in the toughest deployment and retrieval scenarios.

Teledyne DGO

162 Corporate Drive, Suite 100
Portsmouth, New Hampshire 03801 USA

dgo@teledyne.com

603-474-5571

www.dgo.com

Teledyne DGO offers high reliability, high pressure connectors, penetrators, cabling and feedthrough systems for harsh environments. Teledyne DGO designs connection systems that transmit signals, data or power through challenging media, such as subsea oil wells, and through pressure barriers, such as the hull of a submarine. Because the cost of failure is so high, Teledyne DGO designs and manufactures its products to deliver total reliability.

Teledyne Impulse

9855 Carroll Canyon Road
San Diego, CA 92131 USA

Tel: 1-800-327-0971 or

+1-858-842-3100

impulse@teledyne.com

www.teledyneimpulse.com

Teledyne Impulse designs and manufactures high reliability electrical and optical interconnection systems for harsh environment applications. Our dry mateable, wet mateable and underwater mateable connectors are proven performers currently employed in subsea instrumentation, sensors and control systems, ROVs, AUVs, and seismology applications.

Teledyne ODI

1026 North Williamson Blvd.
Daytona Beach, Florida 32114 USA

Tel: +1 386 236 0780

USA: 888 506 2326

odi@teledyne.com

www.odi.com

Teledyne ODI provides subsea electrical and fiber optic interconnect systems for the harshest environments and at any ocean depth. Wet mateable connectors include signal and high-power electrical, fiber optic, and hybrid electro-optical products all based on patented oil-filled, pressure-balanced technology. Dry mate submersible connectors also provided.

Sea Change: Dive into Opportunity

Teledyne Storm Cable

9215 Premier Row

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Cablesolutions@teledyne.com

www.stormcable.com

Teledyne Storm Cable designs and manufactures robust application tailored cables utilizing a wide variety of high performance components and materials to formulate solutions to solve critical application problems in the harshest of environments and complex electrical situations.

Teledyne Marine

Booth: 421

Teledyne Marine is a group of surface and undersea technology companies that have been assembled by Teledyne Technologies Incorporated. In keeping with Teledyne's philosophy, the member companies within the Marine Group remain committed to their technical heritage; however, these companies now combine their talents and technology under the Teledyne Marine umbrella to provide their customers with a new level of collaborative technology, innovation, and worldwide support.

The Teledyne Marine companies are deeply entrenched in the oceanographic, offshore and defense industries, providing a wide array of highly reliable products and solutions in some of the world's most extreme offshore environments.

More information at: www.teledynemarine.com

Teledyne Benthos

49 Edgerton Drive

North Falmouth MA 02556

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Located in North Falmouth, Massachusetts, Teledyne Benthos is an industry leader with a history of over 50 years of innovation in marine technology. Benthos designs and manufactures rugged, reliable oceanographic instrumentation and infrastructure for marine environments. Teledyne Benthos products include: acoustic releases, acoustic telemetry modems, positioning systems, hydrophones, remotely operated vehicles (ROVs), glass flotation spheres and instrument housings, and locating devices. For more information visit www.benthos.com.

Teledyne BlueView

18702 North Creek Parkway Suite 100
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Teledyne BlueView is the leading provider of state-of-the-art compact acoustic underwater measurement and imaging solutions for defense, energy, civil engineering, transportation, and port security applications worldwide. BlueView's advanced sonar systems have been adopted by leading manufacturers and service providers to support mission critical underwater operations. BlueView customers enjoy a low cost of ownership with reliable operation, exceptional service, on-site training, extensive online information, and worldwide after-sale support

Teledyne Bowtech

Company contact: Galen Rice
ABZ Business Park, International Avenue
Dyce, Aberdeen, AB21 0BH, UK
+44 (0)1224 772345

Teledyne Bowtech specialises in the design, manufacture and supply of underwater harsh environment vision systems, which includes video inspection systems, underwater cameras, underwater LED lights, xenon underwater emergency relocation strobes, custom moulded cable assemblies, pan and tilts, underwater electrical and fibre-optic connectors, fibre-optic multiplexers and slip rings for use in hazardous areas or subsea, at any ocean depth. Its fully trained team of Electrical and Mechanical Engineers and Technicians provide technical support to the entire product range and innovative design solutions.

Teledyne Gavia

Vesturvör 29
200 Kópavogur Iceland
Email: TMSys@teledyne.com
Phone: +354 511-2990

Located in Kópavogur, Iceland, Teledyne Gavia provides turnkey survey solutions to customers undertaking a variety of tasks for defense, commercial and scientific applications. The Gavia Autonomous Underwater Vehicle (AUV) can carry an array of sensors and custom payload modules that make it well suited for any research, monitoring or surveillance task where autonomy, cost and ease of deployment matters. Its modular design allows for rapid sensor reconfiguration and battery replacement. Visit www.teledynegavia.com to learn more.

Sea Change: Dive into Opportunity

Teledyne Oceanscience

2245 Camino Vida Roble, Suite 100

Carlsbad, CA 92011

Email: Shannon.searing@teledyne.com

Phone: 760-754-2400

Teledyne Oceanscience supplies the oceanographic, hydrologic and hydrographic communities with deployment platforms for environmental monitoring instrumentation. Our major products include turnkey remote hydrographic survey boat systems with environmental monitoring and/or bathymetry equipment; the new rapidCAST system that provides automated, affordable and compact SV profiling from a moving vessel; remotely-operated and tethered instrumentation deployment boats for echo sounders and ADCP's; and the popular Sea Spider and Barnacle seafloor platforms. www.oceanscience.com

Teledyne Odom Hydrographic

1450 Seaboard Avenue

Baton Rouge, Louisiana 70810-6261

Phone: +1 (225) 769-3051

Teledyne Odom Hydrographic continues its legacy of unwavering dedication to the principals of customer service and product innovation. With more than three thousand echo sounders produced and distributed worldwide, Teledyne Odom Hydrographic has established an enviable standard for product reliability and customer service that are second to none. From the industry favorite Hydrotrac II up to our MB2 multibeam system, it's no mystery why TOH has become the supplier of choice for professional hydrographers around the world.

Teledyne Optech

Booth: 425

300 Interchange Way

Vaughan, ON L4K5Z8 Canada

[905 660 0808](tel:9056600808)

www.teledyneoptech.com

tanja.fesenko@teledyneoptech.com

Teledyne Optech is dedicated to providing accurate and productive solutions for shallow-water bathymetry and topography. The revolutionary Optech Titan airborne lidar uses multispectral technology to seamlessly collect topography and bathymetry in clear and shallow waters, while the powerful Optech CZMIL Nova surveys deeper in turbid water than any other airborne lidar, and is now available for rental through the CZMIL Project Program. For harbor and infrastructure surveys, the watercraft-based Optech ILRIS MC integrates with Teledyne RESON sonar to survey above and below the water simultaneously.

Teledyne RDI

14020 Stowe Drive

Poway CA 92064

Email: rdi.sales@teledyne.com

Phone: +1-858-842-2600

With over 20,000 Doppler products delivered worldwide, Teledyne RD Instruments is the industry's leading manufacturer of Acoustic Doppler Current Profilers (ADCPs) for current profiling and wave measurement applications; and Doppler Velocity Logs (DVLs) for precision underwater navigation applications. For more information visit: www.rdiinstruments.com.

Teledyne RESON

Fabriksvangen 13

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Teledyne RESON is the world's leading provider of high-quality underwater acoustic solutions. With global presence and worldwide service facilities, we specialize in the design, development, manufacture and commissioning of advanced multibeam sonar systems, sensors, transducers, hydrophones and survey software. Teledyne RESON operates in the hydrographic, offshore, dredging, defense & security and marine research business areas.

Teledyne RESON is part of the Teledyne Marine Group. Together with Teledyne Odom Hydrographic, Teledyne Atlas Hydrographic and Teledyne BlueView we offer the market's strongest product portfolio for subsea acoustic imaging and multibeam echosounder solutions.

Teledyne SeaBotix

Company contact: Alasdair Murrie

2877 Historic Decatur Road, Suite 100

San Diego CA 92106

Email: TMSys@teledyne.com

Phone: +1- 619-450-4000

Based in San Diego, California, Teledyne SeaBotix, is a world leading manufacturer of an innovative and diverse suite of underwater observation class MiniROVs designed to perform a multitude of tasks such as maritime security, search and recovery, hull and pipeline inspection, hazardous environment intervention, aquaculture, oceanographic research, and more. SeaBotix continues to deliver revolutionary advancements to a diverse suite of MiniROV systems that are responsive to demanding professional applications. To learn more, visit www.seabotix.com

Sea Change: Dive into Opportunity

Teledyne TSS / Teledyne CDL

1 Blackmoor Lane, Croxley Green Business Park, Watford,
Hertfordshire, WD18 8GA, UK

Tel: +44 (0)1923 216020

URL: www.teledyne-tss.com

Teledyne TSS and Teledyne CDL design sensors for the accurate measurement of roll, pitch and heave, together with inertial navigation systems and gyrocompasses. All subsea systems are rated to minimum 3000m. TSS also manufactures industry standard underwater pipe and cable survey systems, whilst CDL also produces advanced control and monitoring technologies for subsea infrastructure and engineering via video, sound and data transmission products.

Teledyne Webb Research

49 Edgerton Drive

North Falmouth MA 02556

Email: TMSys@teledyne.com

Phone: +1-508-563-1000

Teledyne Webb Research has been serving oceanographic research, commercial, and government customers for over 30 years. Webb Research designs and manufactures scientific instruments for oceanographic research and monitoring with a focus on extended observations over both time and space. Teledyne Webb Research specializes in three areas of ocean instrumentation: Neutrally buoyant, autonomous drifters and profilers, autonomous underwater gliding vehicles, and moored underwater sound sources. To learn more, visit www.webbresearch.com

The Tsurumi-Seiki Co., Ltd.**Booths: 209**

2-20, 2-Chome, Tsurumi-Chuo, Tsurumi-ku, Yokohama, 230-0051,
JAPAN

<http://www.tsk-jp.com/>

trade@tsk-jp.com

+81-45-521-5252

The Tsurumi-Seiki Co., Ltd (TSK) is a leading oceanographic equipment manufacture. Ever since the establishment of TSK in 1928, many different types of products have been used in our customers. As a pioneer in developing and manufacturing ocean observation devices, TSK provide the researchers and experts with the devices with good quality and high accuracy. Through these activities, TSK makes our mission to contribute the preservation of global environment.

TSK products include a wide range of instruments designed specifically to support the study the water environment. They include eXpendable probes and various launchers for probes, analyzing system for probe data, water quality monitoring systems, laboratory salinometer, Wave high meter, CTDs and plankton net, etc. TSK's latest state of the art technology is Deep Argo float called "Deep Ninja" which is capable of the observation in 4,000m deep sea. In addition to development of the advanced sensors, TSK provide the total system such as data transmission systems, recording systems, that is well performed without being influenced external factors and environmental conditions.

Sea Change: Dive into Opportunity

THSOA

Booth: 640

415 N. Alfred St.
Alexandria, VA 22314 United States of America
703 299 9712

www.thsoa.org

admin@caris.us

TOA CORPORATION

Booths: 209

Shinjuku Park-Tower 31F, 3-7-1, Nishi-Shinjuku,
Shinjuku-ku, Tokyo 163-1031,
JAPAN

<http://www.toa-const.co.jp/>

s.izumi@toa-const.co.jp

+81-3-6757-3843

Since its establishment in 1908, TOA CORPORATION has been engaged in dredging and reclamation for the construction of harbors and their related facilities, design and execution of coastline buildings, construction of airports, marine leisure facilities, warehouses for distribution, factories, and power plants.

It passes more than 15 years after putting it to practical use in the leveling work of the rubble mound, and the developed submersible backhoe plays an active part in the construction in various bottoms of the sea to perform the human power work by the diving person in the bottom of the sea safely and effectively. The work at a dangerous place performs construction by the remote operation. The submersible backhoe became able to support various work environments now.

Deep sea crawler type robot named "DEEP CRAWLER" was developed for the purposes of working in the deep sea 3,000m depth and narrow places. This robot has four-crawlers and a manipulator, and can be remote controlled.

TrackServer

Booth: 539

151 Martine St.
Fall River, MA 02723 United States of America
508 678 0550

<http://www.iver-auv.com/trackserver.html>

kirk@ocean-server.com

TrackServer, Inc. has developed a simplified method of acoustic positioning - trade named EchoRanger - that enables a subsurface device such as an AUV, ROV, or Diver Handheld to accurately derive its position. This affordable (listen-only) technology eliminates many of the traditional hand-shake exchange issues seen with traditional LBL and USBL systems. The electronics can be enabled to transmit as well as receive, which permits a surface node to monitor positioning and status in real-time, and to send text commands to the subsurface device

Tritech, a Moog Inc. Company**Booth: 625**

1323 Price Plaza Drive
Katy, TX 77449 United States of America
281-398-3310
www.moog.com/markets/marine/
maria-adams@tritech.co.uk

Tritech International Ltd Tritech International Limited [Tritech], a Moog Inc company, is a high-technology business dedicated to providing the most reliable imaging and ancillary equipment for use in underwater applications and remains an industry leader in the provision of sensors and tools for ROVs and AUVs. Peregrine Road, Westhill Business Park, Westhill, Aberdeenshire. AB32 6JL. Tel: +44 (0)1224 744111, info@tritech.co.uk, www.tritech.co.uk

Tritech North America 1323 Price Plaza Drive, Katy, TX 77449 Tel: +1-281-398-3310, sales-usa@tritech.co.uk

Turbulent Research**Booth 532**

7A Canal St.
Dartmouth, NS B2Y 2W1 Canada
www.turbulentresearch.com
+ 1 902 499 2796
Sales@turbulentresearch.com

Turbulent Research is a high technology passive acoustics company, focusing on the development of high quality and world class signal products for underwater listening, tracking and noise measurement.

Turner Designs**Booth: 333**

845 W. Maude Ave.
Sunnyvale, CA 94085 United States of America
408-749-0994
www.turnerdesigns.com
marketing@turnerdesigns.com

Turner Designs provides innovative optical-based solutions for environmental research and monitoring, water quality analysis, and pollution control analysis. Having a unique focus on fluorescence instrumentation for over 40 years and customers throughout the world, Turner Designs is a leader in optical instrumentation design, manufacture, and support. We are known for providing rugged, reliable, stable submersible, field, handheld, laboratory, and online optical instrumentation varying in functionality, size and price. In addition to holding several patents for product innovations, we continuously focus on quality and repeatedly receive high customer ratings. Our reputation for long-term reliability has driven multiple system providers to integrate our sensors for their customers. Our customers rate us an average of 9.3, on a scale of 1-10, when asked how likely they would be to recommend us.

Sea Change: Dive into Opportunity

U.S.IOOS

Booths: 501,503

1315 East-West Highway, 2nd Floor,
Silver Spring, MD 20910 United States of America
301 713-3290 ext 124
www.ioos.noaa.gov
kate.culpepper@noaa.gov

The U.S. Integrated Ocean Observing System (IOOS) links ocean observing from the local to the global, providing important real-time data to enhance our nation's predictive capability and decision support infrastructure. Unifying information from both public and private entities, IOOS collects and manages intelligence from government, regional, and academic institutions to create the fullest possible profile of our oceans and coasts in real time. Utilizing observations, data management, analyses, and modeling, IOOS improves the tools communities need to safeguard lives and property and grow the economy, ensuring a safe, productive, and resilient ocean and coastal zone.

UTCRC, IIS, the University of Tokyo

(Underwater Technology Collaborative Research Center, Institute of Industrial Science, The University of Tokyo)

Booths: 209

4-6-1, Komaba, Meguro, Tokyo, 153-8505, JAPAN
Website: <http://unac.iis.u-tokyo.ac.jp/>
Email: harumis@iis.u-tokyo.ac.jp
Phone: +81-3-5452-6487

UTCRC, IIS,U-Tokyo has been seeking the advance technologies such as underwater platform systems, sensors and ocean perception systems to explore the deep-sea world. With the aim of leading the ocean related researches in the world and developing the integrated observation systems for sub-sea valuable resources for future, researchers and engineers, both domestic and foreign, and from various fields, cooperate, create networks, and exchange necessary information with a global perspective.

Introduction of advanced technology on the generation of dimensionally accurate, geo-referenced 3D visual maps of the seafloor using underwater robots to help understanding benthic habitat in deep-sea hydrothermally active areas and regions. We navigate you to the underwater world "Iheya North field in the mid-Okinawa Trough" with the demonstration of 3D maps and an AUV "TUNA-SAND" model.

Valeport Ltd.**Booth: 738**

St Peter's Quay

Totnes, Devon, Tq95EW United Kingdom

+44 1803 869292

www.valeport.co.uksales@valeport.co.uk

Valeport are the UK's leading manufacturer of Oceanographic and Hydrographic instrumentation which include the world's most accurate Sound Velocity Probes / Sensors, Altimeters, Radar Level Sensor, Current Meters, Tide Gauges, Wave Recorders, CTDs, Multi-Parameter CTDs, Fluorometers and GPS Echo Sounders. New to market are the Hyperion range of Fluorometers and a fast profiling CTD.

VEMCO**Booth: 439**

20 Angus Morton Drive

Bedford, NS B4B 0L9 Canada

9024501700279

www.vemco.comnancy.edwards@vemco.com

VEMCO will be demonstrating their new shallow water acoustic release at Booth 439. With over 35 years expertise in underwater communications, VEMCO has developed a release that will reliably recover your marine instruments.

VideoRay LLC**Booth: 201**

212 East High Street

Pottstown, PA 19464 United States of America

6104583015

www.videoray.combrian.luzzi@videoray.com

VideoRay is the largest volume producer of Underwater ROVs (Remotely Operated Vehicles) in the world. Established in 1999, VideoRay has worked with technology and mission partners throughout the world to develop and prove the small ROV tool for a wide range of applications. With over 2,500 units delivered to a wide range of organizations for a wide range of missions, hundreds of VideoRays work every day throughout the world underwater keeping us free from terrorism, finding and retrieving objects, inspecting infrastructure both inland and offshore, and keeping divers safe from hazardous conditions. We pride ourselves on state-of-the-art customer support and easily operated and maintained underwater robotic systems.

Sea Change: Dive into Opportunity

Whitecap Scientific Corp.

Booth: 523

54 Gil Eannes Drive
St. John's, NF A1B 5C4 Canada
709691
www.rov3d.com
sam@rov3d.com

Whitecap Scientific develops subsea imaging technology for the offshore oil and gas industry. Our ROV3D Survey software uses a ROV's existing video feed to generate a real time, three dimensional view of subsea assets.

Xeos Technologies, Inc.

Booth: 534

36 Topple Drive
Dartmouth, NS B4B 1L6 Canada
902 444 7650
www.xeostech.com
darren@xeostech.com

Xeos Technologies Inc. was incorporated in 2004 with an aim to bring together a diverse and experienced skill set to develop leading wireless telemetry products. The three founding managers have a combined experience of over 60 years in electrical engineering, mechanical engineering, software development and manufacturing.

Celebrating its 11th Anniversary, Xeos is now a global exporter with an excellent reputation for high quality engineering and customer service. Products range from deep sea alarm beacons to surface oil spill tracking systems to land based perimeter surveillance systems. Xeos is an Iridium Value Added Reseller and provides contract engineering services in addition to its standard product line. All these qualities have brought them success in their four divisions: Communications, Oceanographic Asset Recovery, Remote Monitoring and Security.

Xylem**Booths: 609,611,613**

275 Martine St.

Ste. 200 #12

Fall River, MA 02723 United States of America

508 369 5269

www.xylemanalytics.comrichard.m.butler@xyleminc.com

Xylem provides solutions for environmental research used in oceanographic, hydrographic, marine transport, marine terminal, offshore oil & gas, river, lake, climate research and industry markets. As part of the Xylem family; Aanderaa, SonTek, Waterlog, and YSI deliver the most technologically advanced self-contained and integrated remote underwater observation systems, environmental monitoring buoys, telemetry, water quality and velocity sensors in the world. Our employees bring a broad range of applications expertise with a strong focus on finding local solutions to the world's most challenging water problems.

YAMAZAKI MACHINERY MANUFACTURING CO., LTD.**Booth: 209**

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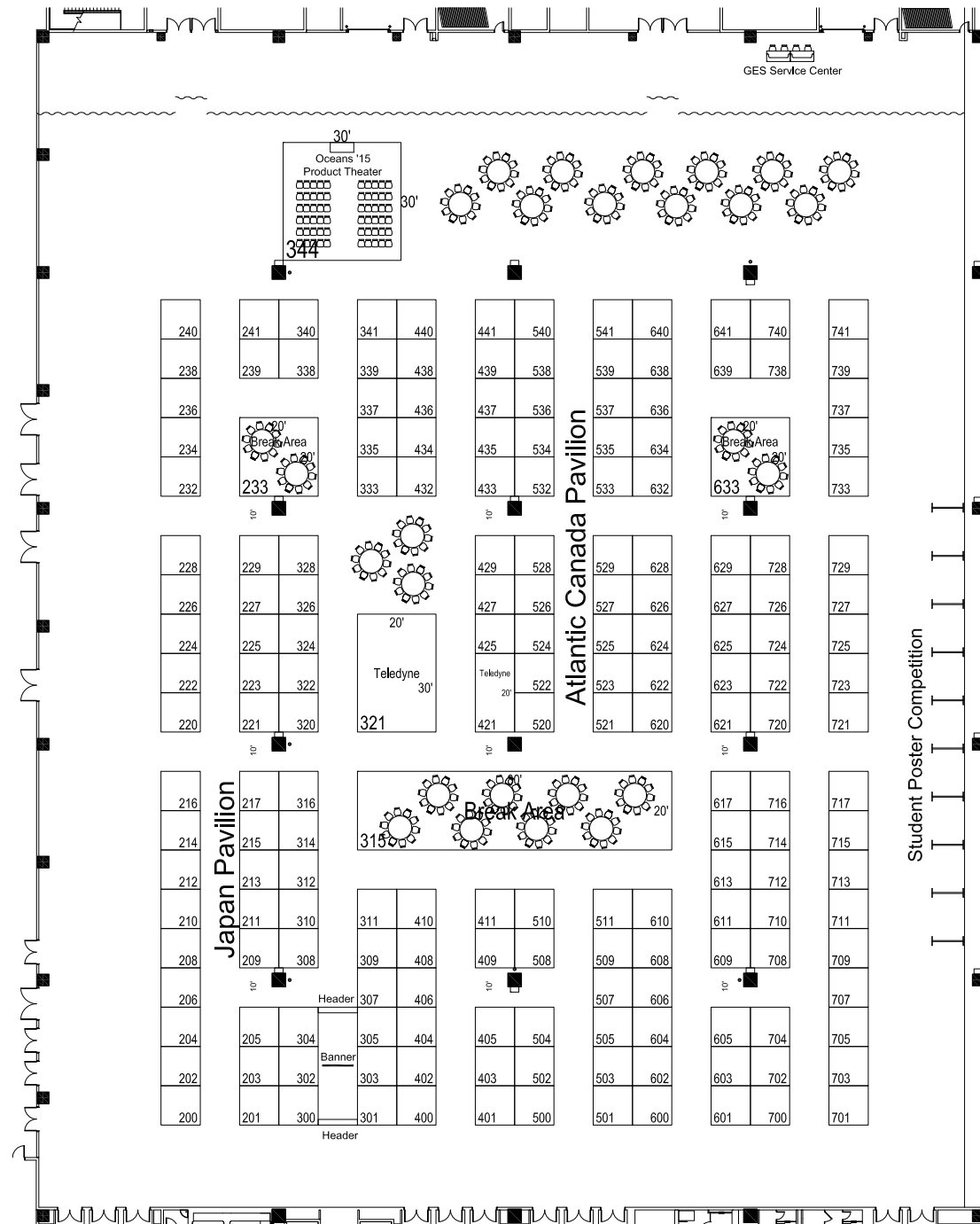
Yamazaki Machinery is the closed die forging manufacturer. A characteristic of our company is our flexible manufacturing system for making many types of products in weights ranging from 2lb to 3000lb, in small lots. Also the ring rolling mills and machining equipment at our group company can produce the forged ring ranging from O.D. 10 to 118 inches and machining them. We are currently certified according to ISO and major ship class associations (LR, ABS, DNV, GL, BV, CCS, KR, and NK-Japan).

Our Forging Equipment, Air Stamp Hammer produce a wide variety of shapes and size parts. We make an average of 500 different types of products, totaling 3500 tons or more, per month.

Equipment:

- Air Stamp Hammer: 13 units (2200 to 18000lbs)
- Trimming Press: 11 units
- Gas Butch Furnaces: 23 units
- Die Fabrication Equipment, Hardness Tester, Magnetic Particle Tester, Ultrasonic Detector, Tensile and Impact Tester, etc.
- Products;
- 1. Connecting Rod
- Applications: Marine Diesel Generator, Marine Engine
- Forging Lot: From 20 pieces
- Maximum Length: 53 inch
- 2. Valve Body
- Application: Oil and Gas, Chemical, Power Generation.
- Forging Lot: From 30 pieces
- Maximum Weight: 2200lb

EXHIBITION FLOOR PLAN



Sea Change: Dive into Opportunity

OCEANS '15 Product Theater

This is your opportunity to learn about the industry's newest and most innovative products. Participating companies will offer 30-minute presentations on their latest advancements, highlighting groundbreaking advancements in technology and its applicability.

The Product Theater -- a focus on technologies.

Tuesday, October 20

1:30 – 2:00 pm **SULIS SUBSEA CORP. – IMAGING**

From building the world's first 3D-HD full-ocean depth camera system for James Cameron's DEEPSEA CHALLENGER submersible, to creating leading-edge 4K imaging technology for the Schmidt Ocean Institute's new robotic vehicle program, SULIS Subsea Corporation is revolutionizing the way scientists, explorers, and filmmakers share their discoveries with the world.

In 2011, SULIS's founder, Adam Gobi, designed the entire imaging pathway for the DEEPSEA CHALLENGER, including multiple 3D HD and 5K camera systems, pilot-screen imaging, camera control, and recording subsystems. At any single time, the sub would be imaging and recording 7 different camera feeds, and handling database rates in excess of 15 gigabits per second.

Now we offer the same level of imaging capability for underwater vehicles worldwide. Our showcase will feature our latest deep-sea innovations, including 4K cameras, the Z70 and H100, our hybrid lighting system, Hyllum, and our compact 4K video processing/recording solution, the Brain box.

2:15 – 2:45 pm **SEA BIRD SCIENTIFIC**

Sea-Bird Scientific is pleased to participate in the Oceans 2015 Product Theater. The Sea-Bird Scientific family is composed of Sea-Bird Electronics, WET Labs, and Satlantic LP; each of which have built legacies based on strong scientific contributions in natural waters research and monitoring.

The Oceans 2015 Product Theater is a great opportunity to learn more about Sea-Bird Scientific's CTD, optics, nutrient, and observing platform products. We will also cover exciting details about recent brand-new products, including highlights of our SeapHOx and Float Deep SeaFET pH instruments, the oil-sensing SeaOWL instrument, and updates to our Navis and Thetis platforms. These product spaces represent some of the emerging environmental research areas which are driving the future of Oceanography and water quality monitoring.

Please join us on Tuesday, October 20th, at 2:15-2:45pm in the Product Theater area located in the Exhibition Hall. Also, for a more in-depth look at Sea-Bird Scientific products and technologies please drop into our booth #500-502) anytime during Exhibition open hours. Visit <https://sea-birdscientific.com/>

3:00 – 3:30 pm**PREVCO SUBSEA LLC**

Use of Ceramic for Subsea Pressure Vessels

Prevco Subsea are using Ceramic for subsea vessels and we are the first company to do this on a commercial basis. We're excited about the opportunities, especially for deep sea use, as there are many benefits to using this material.

Ceramic, although brittle on impact, is a remarkably strong substance under pressure, where its strength increases with depth, making it a strong but lightweight alternative to other materials.

Benefits include a lighter in-water weight than Titanium, it is non-magnetic, has low electrical and high thermal conductivity and corrosion resistance.

The nature of Ceramic may limit its uses, however for the right application, it could be the perfect alternative to heavier, more costly materials.

We'll explain more about the pros and cons of this technology at our presentation and you can visit our site www.prevco.com for more information.

3:45 – 4:15 pm**TELEDYNE ODI**

Teledyne Oil & Gas will display and demonstrate their Active Flying Lead technology. The demonstration will include live streaming data through different Teledyne designed electronics. Each product allows for a different distance to be reached. Full scale models of the Subsea media converter housing as well as the Ethernet Repeater will be demonstrated.

Wednesday, October 21**9:30 – 10:00 am****ROWE TECHNOLOGY – Our new SeaSEVEN ADCP Product**

ADCP technology developed by Fran ROWE about 35 years ago, was originally spun off from the Doppler radar used for lunar landings.

The newest innovative ADCPs developed by ROWE Technologies Inc. for underwater applications now use seven beams and dual frequencies to collect data which allow scientists to gather many more types of measurements about the characteristics in ocean water columns.

This presentation regarding ROWE Technologies Inc.'s new product, SeaSEVEN will demonstrate how a user can collect information used in seven fields of research: Waves, Tides, Turbulence, Reynolds Stress, Bottom Boundary Layer, Sediment Transport, and Renewable Energy.

11:00 – 11:30 am**KONGSBERG UNDERWATER TECHNOLOGY**

Kongsberg Maritime provides the ocean technology industry with a variety of novel tools and techniques to both observe conditions as accurately as possible and promote new discoveries through integrated solutions. In 2015 Kongsberg introduced several new

Sea Change: Dive into Opportunity

technologies to this end. One product we are proud to presenting at the Oceans 2015 Product Theater, is the Maritime Broadband Radio (MBR). Exceeding 50 km range the MBR is a revolutionary advance in interconnectivity of maritime operations. IP connectivity secures seamless interaction, exchange, and sharing of data between assets, as well as offers streaming of HD video and voice without adding conventional communications infrastructure. Easily deployable units create a unique solution for maritime networking. The MBR connects crews and their vessels using a high speed, high capacity digital communication channel. Applications span from coastal and offshore surveillance to remote seafloor mapping, fisheries enforcement, spill response operations, and many more yet envisioned.

1:30 – 2:00 pm

AML OCEANOGRAPHIC LTD

Established in 1974, AML Oceanographic of British Columbia, Canada designs and manufactures oceanographic instrumentation and sensors. AML's award-winning UV•Xchange and Cabled UV, the industry's only proven UV biofouling control products, enhance in-situ CTD performance and prevent fouling on other subsea equipment. UV•Xchange and Cabled UV bathe critical surfaces in ultraviolet light, keeping the desired area clean and sensor data accurate. Unlike other existing methods of biofouling control, UV•Xchange inhibits marine growth without contact or chemical pollution, and is suitable for surfaces of complex geometry.

AML Oceanographic will present Ocean Network Canada's (ONC) installation of sensors protected by UV•Xchange, located at the Folger Pinnacle observation site. The longest deployment to date conducted by a third party, it is approaching two years of impressive results. Analysis done by ONC scientists will be presented along with an assessment of the remaining challenges and future direction of UV-based antifouling.

http://www.amloceanographic.com/Products-Services-Hydrographic-Oceanographic/Biofouling-Control_3

2:15 – 2:45 pm

TELEDYNE MARINE

The Diver6 System is a new maritime tracking technology that utilizes Teledyne Benthos Modem communications, significantly enhancing diving command, control, and safety. As a supplemental resource, Diver6 assists Dive Supervisors in monitoring and tracking providing unparalleled situational awareness. Diver6 is proudly made in the USA.

Diver6 provides up to date information on the divers in the water allowing the dive master to make faster, safer, and more accurate decisions.

Using hardware and software designed and manufactured by Azimuth Inc, Diver data is transmitted via a Teledyne Benthos acoustic modem to a receiving unit on the surface. Data is then transmitted to a monitoring computer that records, calculates, and displays various parameters. This allows a dive master to closely track each diver's status, depth and location.

Diver6 enables a dive master to create a dive plan that assists in the monitoring and management of diving operations. All monitoring aspects of the dive are recorded and can be used for later analysis and audit.

The system is based on input from a broad range of real-world subject matter experts including: US Navy SEALs, EOD, Salvage Divers, Coast Guard, public safety and commercial divers.

Azimuth Inc. is the engineering designer and manufacturer of hardware and software for the Diver6 System. Azimuth is an OEM for Teledyne Benthos.

3:00 – 3:30 pm **CARIS USA**

Come and see how your hydrographic and oceanographic data workflow can be streamlined using autonomous tools in the industry proven CARIS Ping to Chart suite of software. We will discuss the release of the new CARIS Onboard software and its use with both manned and autonomous data gathering platforms, and how this new method of near real time processing is revolutionizing data acquisition. We will then see how the data can be further analyzed and checked in CARIS HIPS & SIPS, the hydrographic processing software trusted for over 20 years. Finally we will look at how this hydrographic data can be combined with multiple sources of oceanographic data in the common environment of CARIS BASE Editor. Visit: <http://www.caris.com/>

3:45 – 4:15 pm **TELEDYNE RESON**

Thursday, October 22

9:30 – 10:00 am **SONARDYNE, INC**

History of inverted USBL (iUSBL) and its Applications

With offshore survey work moving to ever greater depths there is more demand to position subsea vehicles accurately and reliably at distances of up to 10km. At these ranges conventional USBL performance is limited by the surface ship noise which must be overcome by the highly attenuated acoustic signal emanating from the remote acoustic transponder affixed to the target a long way away. Adopting different signal frequencies, increasing transmitted source level, improvements to USBL receiver sensitivity, digital signal processing and beam focusing can all help improve range performance but there is now a more attractive option.

Placing an iUSBL transceiver on the subsea target instead of beneath the ship has the effect of removing it from the significant ship generated acoustic noise field. Since its local environment is then much quieter and its motion more stable, overall system performance can be significantly improved.

10:15 – 10:45 am **Energy Sales**

Underwater applications requiring the use of portable power face a number of significant challenges not experienced in batteries designed for terrestrial applications. The most daunting is the un-

Sea Change: Dive into Opportunity

relenting effects of seawater pressure that will crush a traditional battery instantly. The solution generally requires the use of a pressure housing -- sometimes at great expense.

Energy Sales, Sunnyvale, California, in conjunction with the University of Washington's School of Oceanography – Applied Physics Laboratory, is pleased to announce a pressure tolerant alkaline battery pack (oil filled in a PVC housing), has been designed and pressure tested to 10K (psig). For many applications this solution could be a game changer, especially in the case of grant proposals.

Energy Sales will be presenting a 30 minute presentation on Thursday morning at 10:15 to introduce this new battery design. The presentation will consist of a slide show and question period introducing our new pressure tolerant alkaline battery pack

Sea Change: Dive into Opportunity

LOCAL ORGANIZING COMMITTEE



Rusty Mirick

General Co-chair



Jim Barbera

General Co-chair



Doug Wilson

Technical Program Chair



Debbi Kill

Finance Chair



Mike Egan

Exhibits Chair

Chris Beaverson

Patrons Chair

Chris Barrett

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Education Chair



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Secretary



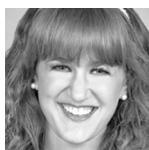
Tom Wiener

IEEE/OES Liaison



Mark Bushnell

MTS Liaison



Michelle Holt

Webmistress



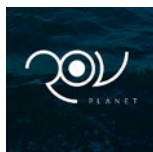
Dave McGee

Outreach Chair

NOTES

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Media Patrons





Sea Change: Dive into Opportunity

OCEANS '15 MTS/IEEE Washington DC



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<http://www.oceans15mtsieewashington.org/>