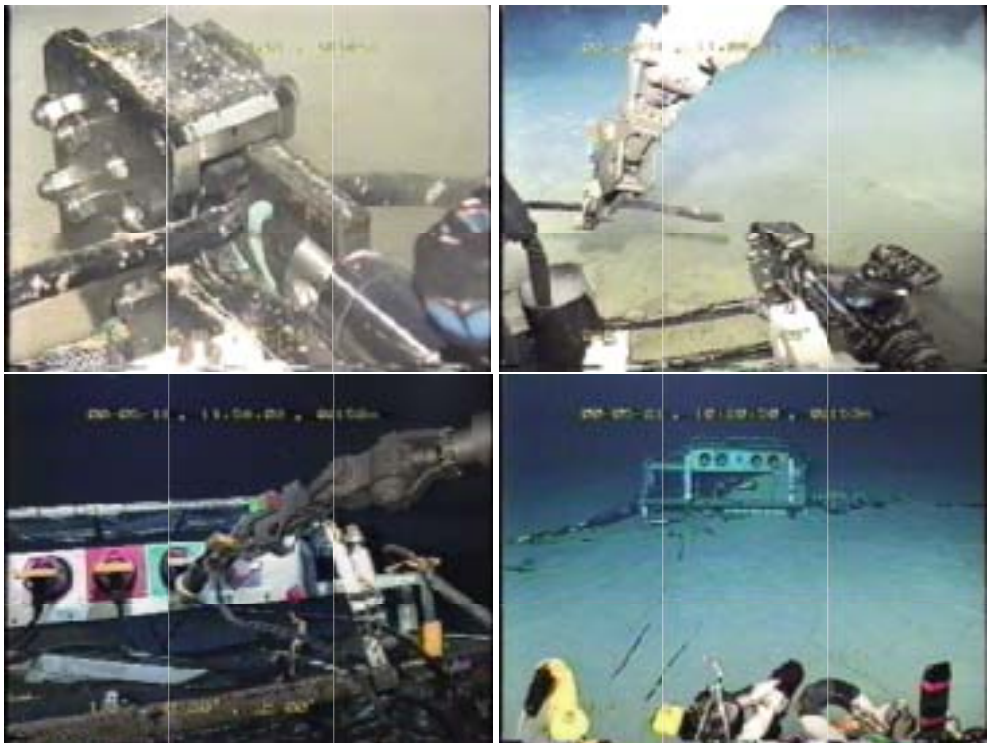
SSC'03

The 3rd International Workshop on

Scientific Use of Submarine Cables and Related Technologies



25-27 June, 2003

Tokyo, Japan

SEIKEN SYMPOSIUM 35

SSC'03 FINAL PPROGRAM

ORAL SESSIONs

June 25 (Wednesday)

Opening Ceremony	**09:00 – 09:15**
Session: Previous System	**09:15 – 10:55**
Coffee Break	**10:55 – 11:15**
Session: Observation Technology (1)	**11:15 – 12:30**
Lunch & Poster Session	**12:30 – 13:50**
Session: Observation Technology (2)	**13:50 – 15:05**
Coffee Break	**15:05 – 15:25**
Session: Scientific Results	**15:25 – 17:25**
Reception	**18:30 – 20:30**

June 26 (Thursday)

Session: AUV/ROV Technology	**08:30 – 10:10**
Coffee Break	**10:10 – 10:25**
Session: Communication Technology (1)	**10:30 – 12:10**
Lunch & Poster Session	**12:10 – 14:10**
Technical Tour	**13:00 – 14:00**
Session: Communication Technology(2)	**14:10 – 15:00**
Session: Future System (1)	**15:05 -- 16:20**
Coffee Break	**16:20 – 16:40**
Session: Future System(2)	**16:40 – 18:20**

June 27 (Friday)

Session: Data and Interface Standardization	**08:30 – 10:10**
Coffee Break	**10:10 – 10:25**
Panel Discussion	**10:25 -- 11:25**
Lunch & Poster Session	**11:25 – 13:15**
Technical Tour	**12:00 – 13:00**
Session: Power Supply	**13:15 – 14:05**
Session: Future System (3)	**14:10 – 15:25**
Coffee Break	**15:25 – 15:40**
Session: Future System (4)	**15:40 – 17:45**
Closing Ceremony	**17:45 – 17:50**

POSTER SESSIONs (June 25 – June 27)

Reception

18:30-20:30, 25th June
Reception will be held at Komaba Eminence. All the participants of the workshop are welcomed to the reception. It is complimentary.

Technical Tour

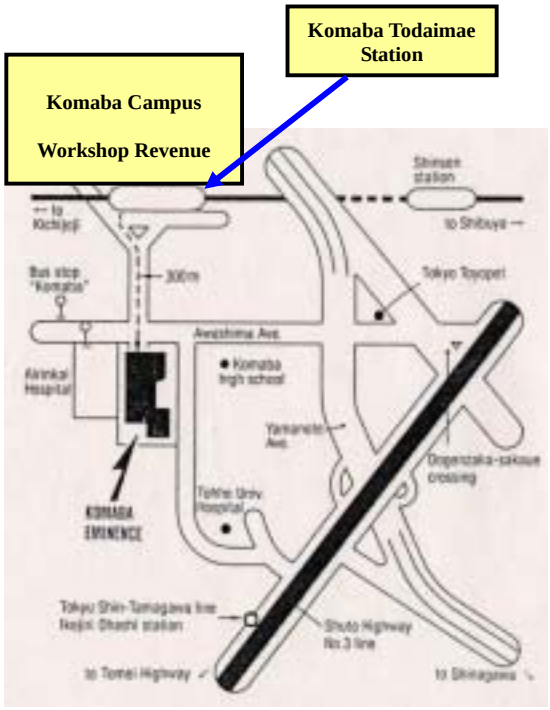
13:00-14:00, 26th and 27th June
A technical tour has been arranged. Participants will visit Ura Laboratory, the Underwater Technology Research Center, Institute of Industrial Science, University of Tokyo. It is about 10-15 minutes walk from the workshop revenue. The Ura lab is the most advanced laboratory in the underwater robot field in Japan. Those who want to participate in the technical tour are requested to register at the reception desk. The number of participants is limited to fifteen for each day. The tour will be lead by Prof. Rheem and depart from the workshop revenue at 13:00. It is complimentary.

Luncheon

25th -27th June
Luncheon will be provided to all participants as there are few facilities for lunch are available in the campus. It is complimentary.

Map of IIS University of Tokyo
Venue of Technical Tour
about 10-15 minutes on foot

Map of Komaba Eminence
Venue of Reception
about 10 minutes on foot



Related Meetings

(1) Reuse of decommissioned cable
12:30-14:00 on 26 June (Thursday)

(2) Science cooperation among international countries
Lunch time, June 25th in the meeting place.

(3) Engineering cooperation among international countries in the use of cabled observatories
9 am, June 28th at the JAMSTEC Tokyo Branch office.

Map of JAMSTEC Tokyo Office

Revenue of the Meeting on Engineering Cooperation

SSC'03 FINAL PPROGRAM

ORAL SESSION (June 25 – June 27)

June 25 (Wednesday)

Opening Ceremony **Dr. Hajimu Kinoshita (JAMSTEC)** **09:00 – 09:15**

Session: Previous System **Chair: Ralph Stephen** **09:15 – 10:55**

PS/1 **Scientific Results from Underwater Earthquake Monitoring Using Cabled Observatories**
Hitoshi Mikada, Kenji Hirata, Hiroyuki Matsumoto, Katsuyoshi Kawaguchi, Tomoki Watanabe, Riyo Otsuka and Shigehiko Morita

PS/2 **Ocean Crustal; Drilling at the Hawaii-2 Observatory**
Ralph A Stephen, Junzo Kasahara, Gary D. Acton and The ODP Leg 200 Scientific Party

PS/3 **2003-2004 Upgrades and Additions to the Hawaii-2 Observatory**
A.D. Chave, J.W. Bailey, S. Beaulieu, R. Butler, F.K. Duennebier, J.H. Filloux, D. Harris, M. Mandea, J.A. Orcutt, K. Smith, R. Stephen, P. Tarits, F.L. Vernon and F.B. Wooding

PS/4 **SN-1: the First Node of the Italian Seafloor Observatory Network - Background and Perspective**
Paolo Favali, SN-1 Team and NEMO Collaboration

Coffee Break **10:55 – 11:15**

Session: Observation Technology (1) **Chair: Paolo Favali** **11:15 – 12:30**

OT/2 **Optical Hydraulic Pressure Sensor Using Frequency Shifted-Feedback Laser for Ocean-Bottom-Tsunami Sensing**
Takefumi Hara, Fumihiko Imamura and Hiromasa Ito

OT/3 **Integrated Acoustics Systems for Ocean Observatories**
Bruce M. Howe, James H. Miller and The IASOO Committee

OT/4 **Engineering Reliability for the NEPTUNE Observatory**
Paul N. Bowerman, Harold Kirkham, George Fox, Philip Lancaster, Stephen Lentz, Richard P. Kemski and Bruce M. Howe

Lunch & Poster Session **12:30 – 13:50**

Session: Observation Technology (2) **Chair: Bruce Howe** **13:50 – 15:05**

OT/1 **Development and Field Application of Composite Type Submarine Cables for Coastal Wave Observation**
Toshihiko Nagai, Hiromi Kado, Masakatsu Nakayama, Hiroyasu Nakashima, Mitsuru Inoue, Yasuo Simizu and Tohru Nakagawa

OT/5 **Seafloor Geomagnetic Observatory Program in France**
Pascal Tarits, Mioara Mandea, Michel Calzas, Christine Drezen and Alain Dubreule

OT/6 **Managing Sensor Network Configuration and Metadata in Ocean Observatories Using Instrument Pucks**
Kent L. Headley, Dan Davis, Duane Edgington, Lance McBride, Thomas C. O'Reilly and Michael Risi

Coffee Break **15:05 – 15:25**

Session: Scientific Results **Chair: Nikolay Palshin** **15:25 – 17:25**

SR/1 **Deep MT Sounding Using Submarine Cable Voltages between the Gotland Island and the Swedish Mainland**
Nikolay A. Palshin and Peter Sigray

SR/2 **Monitoring the Kuroshio in the Tokara Strait and Izu Islands Region by using Submarine Cables**
Kunio Rikiishi, Y. Hashimoto, H. Matsuda and M. Michigami

SR/3 **Ocean Transport Monitoring in the Beginning Region of the Kuroshio Using OKITAI and OLU Submarine Cables**
Momoki Koga, Cho-Teng Liu, Sesar villanoy and Keisuke Taira

SR/5 **Three-Dimensional Electrical Conductivity Structure beneath North Pacific by Using a Submarine Cable Network**
Takao Koyama, Hisayoshi Shimizu and Hisashi Utada

SR/6 **Micro-Tsunami Detected by Cabled Ocean-Bottom Tsunami Meters off Sanriku**
Hiroyuki Matsumoto, Tatsuo Ohmachi and Kiyoshi Suyehiro

Reception **(Hotel Tokyo Komaba Eminence)** **18:30 – 20:30**

June 26 (Thursday)

Session: AUV/ROV Technology **Chair: Dana Yoerger** **08:30 – 10:10**

AT/1 **Preliminary Study on the Inertial-doppler Localization of a Deep-sea Launcher hanging on a Cable**
Pan-Mook Lee, Chong-Moo Lee, Sea-Moon Kim, Bong-Hwan Jeon, Seok-Won Hong and Taro Aoki

AT/2 **Visual Observation of Underwater Objects by Autonomous Underwater Vehicles**
Hayato Kondo and Tamaki Ura

AT/3 **Autonomous Underwater Vehicles for Seafloor Observatories: Challenges and Opportunities**
Dana R. Yoerger and Albert M. Bradley

AT/4 **Autonomous Underwater Vehicle "R2D4"**
Kenji Nagahashi, Takashi Obara, Tamaki Ura, and Takashi Sakamaki

Coffee Break **10:10 – 10:25**

Session: Communication Technology (1) **Chair: Gary Waterworth** **10:30 – 12:10**

CT/1 **Synchronous Data Transmission and Seawater Power Return Cable Systems**
Arthur Ayres, Steve Meehan, and Wayne Beckman

CT/3 **High Reliability Submarine Optical Cables and Their Use In Scientific Applications**
Gary Waterworth

CT/4 **Data Transport System Architecture for Scientific Submarine Cable**
Yukio Horiuchi and Masatoshi Suzuki

CT/5 **A Modular Gigabit Ethernet Backbone for NEPTUNE and Other Ocean Observatories**
Andrew Maffei, Alan Chave, John Bailey, Albert Bradley, Xavier Garcia, Haywood Gelman, Steven Lerner and Frederick Sonnichsen

Lunch & Poster Session **12:10 – 14:10**

Technical Tour **13:00 – 14:00**
(The Ura Lab of Institute of Industrial Science, the University of Tokyo)

Session: Communication Technology(2) **Chair : Walter Paul** **14:10 – 15:00**

CT/6 **The Data Transmission System for the Real-Time Seafloor Monitoring Cable Network**
Minoru Yoshida and Yoshiharu Hirayama

CT/7 **Electrical and Electro-Optical Mooring Links for Buoy Based Ocean Observatories**
Walter Paul, Doug Bentley, Mark Chaffey and Dan Frye

Session: Future System (1) **Chair: Scott Glenn** **15:05 -- 16:20**

FS/1 **Cabled Observatories for Ocean Research: a Component of the Ocean Observatories Initiative**
H. Lawrence Clark and Alexandra Isern

FS/2 **History of and Current Plans for U.S. Scientific Cabled Observatories for Time Series**
Scott M. Glenn, Tommy D. Dickey and Oscar M. Schofield

FS/3 **Sensor Networks for Cabled Ocean Observatories**
Bruce M. Howe and Timothy Mcginnis

Coffee Break **16:20 – 16:40**

Session: Future System (2) **Chair: Adam Schultz** **16:40 – 18:20**

FS/4 **A multidisciplinary ocean observatory system for the North Atlantic and Southern Ocean**
Adam Schultz and The B-DEOS Planning Consortium

FS/5 **ARENA: A Versatile and Multidisciplinary Scientific Submarine Cable Network of Next Generation**
Yuichi Shirasaki, Minoru Yoshida, Takao Nishida, Katsuyoshi Kawaguchi, Hitoshi Mikada and Kenichi Asakawa

FS/6 **VENUS: Future Science on a Coastal Mid-Depth Observatory**
Richard Dewey and Verena Tunnicliffe

FS/7 **System Engineering for a Regional Scale Cabled Observatory, Process and Progress**
Gene Massion, Pat Beauchamp, Alan Chave, Tim McGinnis, Peter Phibbs and Dave Rodgers

June 27 (Friday)

Session: Data and Interface Standardization **Chair: Alan Chave** **08:30 – 10:10**

DS/1 **Building Standards for Access to Oceanographic Observatory Instrumentation**
A.R. Maffei, A.D. Chave, J. Graybeal, J.B. Edson, J.J. Fredericks, J.W. Ammerman, and R. Hanisch

DS/2 **Conversion of SEED Format to XML Representation for a New Standard of Seismic Waveform Exchange**
Seiji Tsuboi and Shin'ya Morino

DS/3 **MBARI's SSDS: Operational, Extensible Data Management for Ocean Observatories**
John Graybeal, Kevin Gomes, Michael McCann, Brian Schlining, Rich Schramm and Daniel Wilkin

DS/4 **Development of Coastal and Estuarine Environmental Data Sharing Using XML**
Masaharu Ikegami, Yutaka Kameyama, Keita Furukawa and Tsuneki Sakakibara

Coffee Break **10:10 – 10:25**

Panel Discussion: **Chair: Alan Chave (WHOI)** **10:25 -- 11:25**
Subject: International Standards for Data Interfaces
Panelist: Andrew Maffei (WHOI)
Seiji Tsuboi (IFREE, JAMSTEC)
Brian Schlining (MBARI)

Lunch & Poster Session **11:25 – 13:15**

Technical Tour **12:00 – 13:00**
(The Ura Lab of Institute of Industrial Science, the University of Tokyo)

Session: Power Supply System **Chair: Harold Kirkham** **13:15 – 14:05**

PT/1 **The NEPTUNE Power System: Design from Fundamentals**
Harold Kirkham, Phil Lancaster, Chen-Ching Liu, Mohamed El-sharkawi and Bruce M. Howe

PT/2 **Feasibility Study on Power Feeding System for Scientific Cable Network ARENA**
Kenichi Asakawa, Jun Muramatsu, Junichi Kojima and Yuichi Shirasaki

Session: Future System (3) **Chair: Rhett Butler** **14:10 – 15:25**

FS/8 **ASSEM: A new concept of regional observatory**
J. Blandin, R. Person, J.M. Strout, P. Briole, G. Etiope, M. Masson, S. Smolders,

V. Lykousis, G. Ferentinos and J. Legrand

FS/11 **Infrastructure for the Modification and Maintenance of Legacy Undersea Cables**
Peter Yinger and Arthur Ayres

FS/10 **Scientific Re-use of Retired Undersea Fiber Optic Telecommunications Cables**
Rhett Butler

Coffee Break **15:25 – 15:40**

Session: Future System (4) **Chair: Richard Dewey** **15:40 – 17:45**

FS/9 **Physical Oceanography from Deep Ocean Submarine Cable Observatories**
Douglas S. Luther

FS/12 **Seafloor Geodesy and an Ocean Bottom Cable System**
Hiromi Fujimoto

FS/13 **SMAPS: Super-Precision Mapping for Crustal Monitoring**
Paul Jubinski and Donald M. Hussong

FS/14 **The MOMAR Area: a prime candidate for development of a seafloor observatory**
Fernando J.A.S. Barriga and Ricardo S. Santos

FS/15 **ESONET- European Sea Floor Observatory Network.**
Imants G. Priede. Martin Solan, Jürgen Mienert, Roland Person, Tjeerd .C.E.Van Weering, Olaf Pfannkuche, Nick O'neill, Anastasios Tselepides, Laurenz Thomsen, Paolo Favali, Francesco Gasparoni, Nevio Zitellini, Claude Millot, Hans W. Gerber, Jorge M.A. De Miranda and Michael Klages

Closing Ceremony **17:45 – 17:50**

POSTER SESSION (June 25 – June 27)

P1 **Development of Laser Tsunami-meter**
Shoji Sakata, Mikhail A. Gubin, Akito Araya, and Daisuke Tsuboi

P2 **Insulation Measurement of Undersea Equipments and Failure Analysis of the Underwater Connector on VENUS System**
Junichi Kojima

P3 **Pioneering Subsea Fiber Optic and Electric Solutions – Communication interconnect advances and solutions for cabled observatory installation, operation and maintenance (Focusing on wet-mate capabilities.)**
Steven Thumbeck, John Toth and Stewart Barlow

P4 **Development, Testing and Track Record of Fiber-Optic, Wet-Mate, Connectors**
Gary Brown

P5 **A Rescue Surface Vehicle**
Yan Kuichen, Yuan Xueqing and Qin Baocheng

P6 **Robust Trajectory Control of a Remotely Operated Vehicle for Underwater Inspection Tasks**

Jenhwa Guo, Forng-Chen Chiu, Sheng-Wen Cheng and Jun-Wei Pan

P7 Development of AUV "Marine Bird" with Underwater Docking and Recharging System
Tadayuki Kawasaki, Toshihito Noguchi, Toshifumi Fukasawa and Makoto Baino

P8 Cable Tracking by Autonomous Underwater Vehicle
Junichi Kojima

P9 Acoustic Thermometry Time Series in the North Pacific
Bruce M. Howe, Brian D. Dushaw, James A. Mercer, Peter F. Worcester and The NPAL Group

P10 Long-term electromagnetic field observational network in Russian Primorye
Valerian Nikiforov, Nikolay Palshin, Sergey Starzhinskii and Vitaly Kouznetsov

P11 Detectability of decadal variations of the surface electric potential generated by zonal oscillating flows in Earth's core
Hisayoshi Shimizu and Hisashi Utada

P12 Measurements of Motionally Induction Voltage in the RIA DE AVEIRO LAGOON (Portugal)
Rita Nolasco, Fernando A. Monteiro Santos, António Soares, N. A. Palshin, Patricia Represas and João M. Dias

P13 Double Seismic Zone in the Hokkaido Island, Southern Kurile Arc, Derived from Off-Kushiro Permanent OBS and Land-based Observations
Tomoki Watanabe, Riyo Otsuka, Hitoshi Mikada, Kenji Hirata, Hiroaki Takahashi, Minoru Kasahara, and Kiyoshi Suyehiro

P14 Multi-disciplinary VENUS observation at the Ryukyu Trench using Guam-Okinawa Geophysical Submarine Cable
Junzo Kasahara, Ryoichi Iwase, Tadashi Nakatsuka, Koji Nagaya, Yuichi Shirasaki, Katsuyoshi Kawaguchi and Ju'ichiro Kojima

P15 Off Hatsushima Island Observatory in Sagami Bay: Multidisciplinary Long Term Observation at Cold Seepage Site with Underwater Mateable Connectors for Future Use
Ryoichi Iwase, Kenichi Asakawa, Hitoshi Mikada, Tadanori Goto, Kyohiko Mitsuzawa, Katsuyoshi Kawaguchi, Kenji Hirata and Yuka Kaiho

P16 AOS: The Adaptable Observation System for Real-time Seafloor Observation
Katsuyoshi Kawaguchi, Hitoshi Mikada, Hiroko Sugioka and Hiroyuki Matsumoto

P17 A Near Real-Time Buoy Telemetry System for Observation of Marine Earthquake/Crustal Deformation in Japan
Hiroyuki Sekino and Andrew M. Clark

P18 Scientific Application of ARENA Networks
Junzo Kasahara, Yuichi Shirasaki, Kenichi Asakawa and Katsuyoshi Kawaguchi

P19 Permanent Full Wave Subsea Seismic Monitoring Systems Provides Next Generation of Applications for Oil and Gas Reservoir Exploration, Geotechnical Engineering and Security Monitoring Industries
Harold W.K. Merry and Larry Walter

P20 Development of Fiber-Optical Microsensors for Geophysical Use
Hiroshi Asanuma, Satoshi Hashimoto, Shin-ichi Tano, Shoichi Takashima, Hiroaki Niitsuma and Yugo Shindo

Map of Komaba Campus I
Workshop Revenue