

Engineering Weekly Report 2/18/2021 - 2/25/2021

Executive Council Notes

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Individual Activities

- Francois Cazenave
 - 902106 - Niobicon-Based AUV Docking Development
 - Tested epoxy glues on niobium and fiberglass
 - Pull tested eyebolt in fiberglass rods
 - Designing AUV dock details
 - Preparing wear test
 - Out of Office
 - I have been working part time from home
- Mark Chaffey
- Danelle Cline
 - 901502 - Passive Acoustic Sensing
 - Decimation optimization work continues with John and Yanwu for the AWS Open Data Sharing program. It looks like the Matlab code is not handling timekeeping correctly.
 - Restarted the soundscape live-stream
 - 902005 - VARS Annotation Assistance
 - Working on week one of a two-week sprint with the team to stage training data. Data registry tool is taking shape and data storage and cost tagging has started. Coordination on tasks through ClickUp is good so far.
 - Weekly meeting with CSUMB capstone team. Students are getting to know the data and running through tutorials to familiarize themselves with the tasks.
 - Overhead
 - Meeting planned with Rich and Karen Friday at 11 for OASIS download/config onboarding.
- Duane Edgington
 - 902005 - VARS Annotation Assistance
 - Working on Sprint tasks. Tags for tracking costs etc in AWS.
 - AWS Innovation conference Weds Feb 24. AI/ML
 - Weekly meeting with CSUMB capstone team
 - Out of Office
 - Medical Appt Friday Feb 19
- Jon Erickson
 - 800139 - EyeRIS
 - Parts are still in the machine shop
 - 901217 - Chemical Sensor Program
 - Waiting on Amalga for the composite tubes.
 - 902010 - Mesopelagic LRAUV
 - Waiting on a quote for the pressure hull tube - 13" DIA. x 40" long
 - 902107 - Consequences of a Changing Ocean: Manipulative Microbiology Experiments at MARS
 - Got a thermal model of the proposed layout to work. Will show it at the meeting.
- Kevin Gomes

- 901009 - CANON
 - ODSS restarting and fixes after firewall replacement
- Overhead
 - Coordinating meeting between my group, IS and WHOI IT/app dev
 - More transitioning work with Rich: MARS data management this time
 - Finished framegrab extraction for Jenny
 - Working on planning for LastPass evaluation for my group/MBARI
 - PE Interview
 - AWS cost management stuff
 - Finished scheduling group touch point meeting for 2021
 - Sat in on MHKDR data management to help Andy
- Out of Office
 - May 12-24: Vacation
 - June 21-25: Vacation
- Andy Hamilton
- Kent Headley
 - 901803 - Carbon Wave Glider Development
 - Refactor of logging to reduce redundant code nearly complete
 - Sketching out download file queue implementation
 - Overhead
 - Strategic roadmap
 - Covid test for possible march cruise
 - Meet w Paul re Loop and Cross algorithm development support
 - Misc admin
 - Out of Office
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- Rich Henthorn
 - 708167 - WEC Dynamics and Control
 - Working thru issues while building ROS 2 on target system
 - Target system is arm32 requiring us to build from source
 - Installed dependencies now building ROS packages
 - 800139 - EyeRIS
 - Weekly meeting
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Converting Power Controller data source to ROS
 - Created mbari_wec_ros repo with instructions on how to build
 - 901618 - Pelagic-Benthic Coupling
 - Tested updated BLISS carousel hardware and motor assembly
 - BLISS deployment at MARS planned for March 8 and 9
 - Overhead
 - AUV seminars
 - Out of Office
 - Vacation days this Mon Feb 22, Wed 24, Fri 26
 - Upcoming vacation days Mar 22 - Apr 2
- Brett Hobson
- Scott Jensen
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Cell voltage limiter prototype testing, looks promising as a solution.
 - 901805 - Coastal Biogeochemical Sensing
 - More coordination of build. MFET's have now been received.

- npHOx development
 - 902106 - Niobicon-Based AUV Docking Development
 - Gathering parts for wear tester
 - Overhead
 - On going EDM implementation troubles.
- Brent Jones
 - 901009 - CANON
 - Continued diagnosis of Wire Walker GSM cell modem issues
 - Designing WW C1 mooring
 - 901805 - Coastal Biogeochemical Sensing
 - Flying Spray29
 - Continued prepping Spray 34
- Chad Kech
 - 901101 - Seafloor Mapping
 - Meeting with Eric tomorrow on TCU block diagram.
 - 901206 - Coastal Profiling Float
 - Received a BMS (BQ79642) EVM for testing. Formulating a formal test plan.
 - 901713 - Nearshore FOCE
 - Moving forward with electronics integration. Bringing Aaron up to speed on mechanical tasks.
 - 902000 - Multi-Spectral StealthCam
 - Camera housing is all wired minus the camera power supply.
 - Main tether being connectorized.
 - Ship side electronics is being built
 - 902107 - Consequences of a Changing Ocean: Manipulative Microbiology Experiments at MARS
 - Making progress on LabView code for controlling seawater lab exper.
- Brian Kieft
 - 300082 - DMO Support - Wave Glider
 - Hotspot modem integration
 - 300083 - DMO Support LRAUV
 - MBTS deployment
 - 901009 - CANON
 - Preparing missions for April
 - 901513 - Targeted Sampling by AUVs
 - Running acoustic tests in preparation for spring ops
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Fixed bug in altitude envelope using stale values
 - Fixed bug in water current direction
 - Tested initial quick GPS mission
 - Ran engineering deployment last week
 - Assisting with hotspot bringup in lab
 - Out of Office
 - Mar 10-11
 - Apr 2-9
 - Jul 1-9
 - Aug 5-6
- Denis Klimov
 - 300083 - DMO Support LRAUV
 - Helping Erik to debug LRAUV battery half-pack fault
 - 800139 - EyeRIS

- Cross braces for power meter attachment for IRIS strobe are complete, working on finalizing drawing for the aluminum tube
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Working on mounting LED light sources inside the light box
- Eric Martin
 - 708167 - WEC Dynamics and Control
 - SBC moved into the lab, added to the can network
 - 901101 - Seafloor Mapping
 - Call last friday regarding new heatflow probes to be made by WHOI. They have some manufacturing roadblocks we'll try to navigate.
 - Checked out old sensor, seems to be working, we'll need to order a new bulkhead and cabling.
 - 901206 - Coastal Profiling Float
 - Squashing bugs, we have a new streamlined to-do list we're working from.
 - Tank tests went well over the weekend.
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Group meeting Thursday
 - 901911 - ROVVR
 - SCOPE Meeting Tuesday
 - Working on MiniROV integration plan with Paul Roberts.
 - 902100 - Telepresence on MBARI Research Vessels
 - Attended Leila's first pass review meeting of the user survey, she'll be presenting more results to the entire group this thursday.
 - Overhead
 - PE applicant seminars attended.
 - Out of Office
 - Tuesdays until school is back in session.
- Thom Maughan
 - 901805 - Coastal Biogeochemical Sensing
 - nanoFET board bringup.
 - 902000 - Multi-Spectral StealthCam
 - Simplified the wiring with direct wiring for JTAG to eliminate some of the variables, it's looking like it's the Atmel ICE or it's cable. Also tried wiring to a Feather M0 type board, could not burn bootloader either.
 - Atmel ICE ordered.
 - Out of Office
 - Allergy symptoms preventing access to MBARI, Allergy doctor on Friday
 - Vacation plans TBD, after getting projects underway.
- Mike McCann
 - 500055 - Video Annotation DM
 - Monitoring vfcbydive's processing as dozens of dives are now being re-annotated nightly
 - 901111 - AUV Infrastructure Support
 - Monitoring LRAUV data processing into https://tethysviz.shore.mbari.org/stoqs_lrauv_feb2021
 - 901910 - Plankton Taxonomic Groups from AUVs
 - At a checkpoint with demonstration notebook for extracting STOQS data in columnar format
 - Buffing out extract_columns.py command line tool to create Parquet files
 - Estimating memory use before extraction as Pandas doesn't have a useful chunking option
- Rob McEwen
 - Out of Office
 - Probably Friday 29 Jan, and the following Monday through Wednesday.
- Paul McGill

- Out of Office
 - Will take vacation Feb 16th thru 19th.
- Ed Mellinger
- Tom O'Reilly
 - 300082 - DMO Support - Wave Glider
 - Working with Chris Wahl and Liquid Robotics to upgrade onboard Python version from 2.7 to 3.x. Python 2 is near end-of-life, and most new applications are written in Python 3.
 - 901009 - CANON
 - Met with Carlos Rueda, Kevin Gomes, and Kongsberg engineers to discuss their development of standards-based mission planning tools that manage underwater, surface and aerial vehicles with a wide variety of protocols; their system has similar goals to our management of the CANON autonomous fleet.
 - 901101 - Seafloor Mapping
 - Integrating existing MB-System 'C' libraries with C++ prototype bathymetry editor - reuse of well-tested MB-System code is a key goal of our upgrade effort
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Developing Wave Glider Hot Spot command-data relay between submerged LRAUVs and shore, in preparation for April ECOHAB experiment
 - 902018 - Mixing Rates from Autonomous Profiling Floats in the Coastal Oceans
 - Working with project team to develop use cases in which near-realtime telemetry from deployed turbidity sensor would be useful; most candidate vehicle hosts for the sensor provide only low-bandwidth Iridium satellite link, which limits the telemetry volume. Working with instrument vendor to scope effort to enable telemetry, which we might propose for 2022.
- Craig Okuda
- Doug Pargett
 - 708146 - NOPP Saildrone
 - After the fix to the Koa G3 ESP instrument last week, it passed all tests and got reloaded with several cartridges. I helped prep the instrument and took it up to Alameda and helped get it installed in the Surveyor Saildrone. Initial tests look good.





- 881135 - 3G ESP Cartridge Redesign
 - Function had a problem with a component on the single cartridge ESP they are using. I got them a replacement part from our other instrument, and gave them direction on how to replace it.
- 901205 - ESP SURF Center

- Meetings, answering emails...

- Ben Raanan
- Mike Risi
 - 200105 - Core Nav - MDUC
 - Working with Rich on deployment configuration Rachel Carson
 - Dealing with serial driver issues with 5.8 version of linux kernel
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Restarted roV-control development
 - Meeting with Steve to discuss testing for March 17th Rachel Carson cruise
 - Out of Office
 - April 26-30: Ocean Imaging Cruise
 - September 3-14: Ocean Imaging Cruise
 - Vacation on alternate Fridays
- Brent Roman
 - 708146 - NOPP Saildrone
 - Working with Dave Peacock to iron out comms and conops issues
 - 901205 - ESP SURF Center
 - Working on associating absolute encoder "absSkew" with the axis rather than with each of its trajectory configurations. This will allow recalibration without needing to alter all those configs.
 - Associated motor config updates with movement commands to avoid races
 - Helps, but this uncovered another race condition
 - I'll be restructuring the older motor control firmware to handle events and messages like the newer temperature control boards do. This should eliminate the races at their source.
 - 901913 - Demonstrating high-speed communication with a submerged AUV
 - Arranging delivery of a pair of modem board sets and dummy load
 - Dealing with ITAR
- Carlos Rueda
 - 901009 - CANON
 - MXM: meeting with kongsberggeospatial.com folks and Tom O. and Kevin G. regarding [SUIT standards-based UxS interoperability test-bed](#). Thanks Tom for organizing.
 - 901101 - Seafloor Mapping
 - Work session with Dave. Granted him more privileges on our MBARI space at Docker Hub. Hopefully he should now be able to link his Github account to then enable automatic builds for MB-System.
 - 901502 - Passive Acoustic Sensing
 - Group meeting.
 - Working on POMA paper. Met with John.

- Continue exploring [pomegranate](#) toward applying Gaussian mixture models with HMMs. (Example of a notebook [here](#).)
- 902005 - VARS Annotation Assistance
 - Looking into Cthulhu related tasks.
- 902101 - LRAUV Technology Development and Fleet Operations
 - Dash now [4.3.3](#) with fixes in handling of parameters in mission inserts.
 - LRAUV: Minor fix to the nightly build script, related with recent migration to tethyshub.
 - Email exchange with Brett regarding scoping of tasks related with TethysL (and others).
- Overhead
 - Enabled logging to a Slack channel for the generator that powers docs.mbari.org. Updated related [documentation](#), and improved the cronjob script that generates the listing of sites.
 - Attended seminars (Toward a More Human-Centered Robotics for Ocean Science; Virtual Environments to Support Development of Ocean Autonomy).
- Karen Salamy
 - Out of Office
 - Heading to the snow for a few days starting tomorrow. I plan to work from where we are staying as much as possible. Feb. 18-21.
- Brian Schlining
 - 500055 - Video Annotation DM
 - Working with IS to set up an account to run applications directly on the titan cluster. This will greatly speed up the ingest of videos ripped from our video tapes by Iron Mountain (IMES) . For example, for the recent delivery of video files, copying 22TB using a non-titan server would take 120 hours-ish. [Moving](#) them directly on titan takes seconds.
 - All video files from IMES's first delivery have been registered in M3/VARS.
 - Brian is working with the video lab to verify that existing annotations from tapes are aligned in time correctly with the video files.
 - Some videos are not being registered. [Brian is doing forensics on all the failure modes](#) that are occurring. (e.g. Dive times entered in correctly in EXPD, mislabeled tapes, missing camera logs, IMES operator error, etc)
 - [Fixed a bug](#) in the video registration software that incorrectly named videos "DocRicketts" instead of "Doc Ricketts"
 - [Created an app to move and organize IMES QC](#) information to smb://atlas.shore.mbari.org/VideoLab/DigitizingProject/Digitized_video_docs. Also, generates [QC plots](#) of timecode logs from the tapes.
 - 902002 - Fathomnet Detect and Classify
 - Reviewing and merging pull requests for mods to FathomNet from CVisionAI.
 - Discussions with groups about contributing image sets and using to FathomNet
 - Telecon with Benjamin Misiuk (U of Newfoundland, CA)
 - Telecon with Blair Thornton (U of Southampton, UK)
 - Overhead
 - Contributed 1st sets of docs to docs.mbari.org. A shout out to Carlos for his help with that. It's a pretty slick way to publish documentation.
 - <https://docs.mbari.org/internal/m3-registrar/index.html>
 - <https://docs.mbari.org/internal/m3-merge/index.html>
- Rich Schramm
- Alana Sherman
 - 901618 - Pelagic-Benthic Coupling
 - Working on the schematics for Sta. M macro camera
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Worked out last details with James on cap charger boards

- Overhead
 - Two more interviews for the new PE position
 - Sent off RFQ for Li-ion battery training and reviewing quote for battery safety team
 - Renewed TWIC card