

Engineering Weekly Report 2/25/2021 - 3/4/2021

Executive Council Notes

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Individual Activities

- Francois Cazenave
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Helped with PTO test
 - Build soundproofing for HPU
 - 902106 - Niobicon-Based AUV Docking Development
 - Started Niobium wear test
 - Design dock and mooring
 - Out of Office
 - Took two sick day to take care of sick child
- Mark Chaffey
 - 902001.99 - 4K ROV Camera Development
 - Completed electrical design of lapbox and rack box for control room.
 - All components are on order for these two items.
 - Completing mechanical cutout design for lapbox and rack box.
 - PCB's for the camera and the lapbox are in fabrication.
 - MBARI built mechanical components are underway in the shop.
 - Housing and dome are undergoing "operational" final pressure testing at DSP&L with the completed housing and all connectors mounted.
 - Next: work on finalizing the calibration plan.
- Danelle Cline
 - 901502 - Passive Acoustic Sensing
 - AWS open data sharing scripts to upload 2018-2020 data for COVID paper requirements
 - Debugging 1-second offset decimation scripts for 2020-08 data
 - 902005 - VARS Annotation Assistance
 - Week 2 of 2 week sprint going well. Training data staged on Atlas and scripts for generation and upload in progress with AWS tagging proposal.
 - Overhead
 - OASIS Onboarding meeting with Rich and Karen to discuss mooring turnovers
- Duane Edgington
 - 901603 - Video TAG: Visualizing Ocean Change
 - Reviewing recent few-shot learning papers
 - Monthly NOAA teleconference March 1. Huge amount of activity using ML within NOAA fisheries science centers.
 - 901618 - Pelagic-Benthic Coupling
 - Laser measure. Paul McGill is preparing to go out on cruise March 9 with the 3 laser system mounted and take test images with the ROV camera of our checkerboard calibration target. This is a test of a new, improved in-water calibration procedure -- no in air calibration is planned.
 - 902004 - Planktivore
 - Conference call with project manager March 1 to go over 2021 project plans.

- 902005 - VARS Annotation Assistance
 - Completed asset AWS tagging proposal. Exploring AWS Tag Editor (very slick).
 - Completing AWS Containers course -- this week is Kubernetes week.
 - Biweekly AWS SageMaker Friday video workshop.
- Out of Office
 - Medical Appt Friday March 5
 - March 17-19 Conference: [International Conference on Pattern Recognition Systems ICPRS-21](#)
- Jon Erickson
 - 800139 - EyeRIS
 - Waiting on LRAUV camera parts from the shop.
 - 901217 - Chemical Sensor Program
 - Have proto-type boards for the spectrometer. On to test assembly.
 - Still waiting on Amalga to deliver the composite tubes for the pressure cases.
 - 902010 - Mesopelagic LRAUV
 - Waiting on a Quote from Amalga for the pressure hull tube.
 - Some re-design to allow for the larger size. (VB, Thruster motor, Drop Weight)
 - 902107 - Consequences of a Changing Ocean: Manipulative Microbiology Experiments at MARS
 - Finished a thermal model of the test setup. Need to get some parts fab'd before we start digging up mud.
- Kevin Gomes
 - 901009 - CANON
 - Some ODSS troubleshooting and tracking verification for Carson
 - 901915 - Improving MBARI Data Impact
 - Starting work again (finally!) on the data catalog
 - Moved first couple of components of catalog to Docker and new MkDocs format
 - Converting API to GraphQL before moving on to other components
 - Overhead
 - Working with Rich on transitioning more systems
 - Weekly call with Todd to talk IS/SE-IE stuff
 - Finished script and runs for image extraction and watermarking for Jenny P for rock samples going to American Museum of Natural History
 - Scheduled meeting with WHOI IT/App dev group (SE-IE and IS involved)
 - Group meeting
 - Some AWS management overhead
 - Assisting with LastPass trial
 - Mkdocs site development and theme change to material
 - Out of Office
 - May 12-24: Vacation
 - June 21-25: Vacation
- Andy Hamilton
- Kent Headley
 - 901803 - Carbon Wave Glider Development
 - Posted new major code/doc release with refactored log utilities that include full-binary record logs and some search/filter capabilities. The code was repartitioned to use generic utility front-ends with content-specific back ends, significantly reducing redundant code, and making the utilities extensible to multiple file formats.
 - Added crude filter capability (substring match) to directory listings
 - Overhead
 - Developing notes on SR and hiring
 - Out of Office

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- Rich Henthorn
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Meeting with Rock Lab
 - 708167 - WEC Dynamics and Control
 - Bumpy ride building ROS 2 on 32-bit ARM controller
 - Team decided that moving to a 64-bit Ubuntu RPi 4 controller was worth a try
 - ROS 2 installed on RPi 4 and our WEC skeleton nodes built tested
 - 800139 - EyeRIS
 - Design docs for EyeRIS-LRAUV-Interface (ELI)
 - Prototype state machine implementation for ELI
 - Reviewed docs for camera focus motor control
 - Weekly meeting
 - 901618 - Pelagic-Benthic Coupling
 - Prep for Larval Pump Sampler deployment next Mon and Tue on Carson
 - Tested LPS in test tank
 - Overhead
 - COVID test at ARCPoint for Carson cruise
 - Out of Office
 - Vacation days last Wed 24 and Fri 26
 - Upcoming vacation days Mar 22 - Apr 2
- Brett Hobson
- Scott Jensen
- Brent Jones
 - 901009 - CANON
 - Diagnosed bad GSM modem in RBR cervello. Sending back to Canada on RMA
 - Extracting realistic current profiles at C1 to input in mooring simulation. Looks like we might be able to get away with a 400# anchor. This means we can use the Paragon for ops!
 - 901800.98 - Bioacoustic Payload
 - Designing power diode pcb for use inside LRAUV with payload
 - 901805 - Coastal Biogeochemical Sensing
 - Continued flying of Spray29 in support of Yui's pH experiments
- Chad Kechy
- Brian Kieft
 - 300082 - DMO Support - Wave Glider
 - Met with Todd/Chris to upgrade hotspot cell modems
 - Worked with Tom to wire up consoles on test beds.
 - 708168 - DHS Y7
 - Weekly meeting last week to discuss upcoming deployment and review the last one
 - 901513 - Targeted Sampling by AUVs
 - Assisting with simulator issues for patch tracking work
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Did power comparison with Scott on new high efficiency thruster controller
 - Wrote initial hotbunking mission for next engineering deployment in prep for April field ops
 - Updated quick GPS test mission for next engineering test to grab GPS while underway following successful test briefly stopping on the surface to grab a "hotfix"
 - Roughing in component interface for new high efficiency thruster controller
 - Met with Steve Rock and team to discuss recent TRN results and plan the next deployment
 - Roughed in component interface for side docking arm and tested in lab
 - Planning next engineering deployment

- Out of Office
 - Mar 3 (doctor)
 - Mar 8-11 (AZ)
 - Apr 2-9 (vacation)
 - Jul 1-9 (vacation)
 - Aug 5-6 (vacation)
- Denis Klimov
 - 800139 - EyeRIS
 - Parts for power meter attachment for IRIS strobe are complete, assembling 3 units.
 - 901903 - Bio Raman
 - Did the test fit of sample chamber panel lock; they fit with some modification, shims under O-ring buffers.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Working on design of LED light sources; with Molex C-Grid connectors and magnet mount to the steel panel mounted inside the light box
- Eric Martin
 - 708167 - WEC Dynamics and Control
 - Failed build of ROS on the TS7970
 - 901101 - Seafloor Mapping
 - Deep dive into Lidar data after irregularities in Head A were discovered from October Data
 - 901206 - Coastal Profiling Float
 - Tanks test continue
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Reviving the Spot tracker
 - 901911 - ROVVR
 - Mini integration
 - Olin Scope team meeting
 - Fixed software issues on the camera control box.
 - 902100 - Telepresence on MBARI Research Vessels
 - Reviewing results of initial user survey, some very interesting responses.
 - Telepresence operations are returning. Supporting Smith March 8-9, and the Barry expedition on the WF.
 - Out of Office
 - Tuesdays until school is back in session.
- Thom Maughan
 - 901805 - Coastal Biogeochemical Sensing
 - nanoFET board bringup, working in progress, going reasonably well but need the 32Khz clock osc operational.
 - A/D converter is working, menu items for discrete channel testing are functioning. Did not have the Jensenian board, so not sure of noise/accuracy. Sending board to Scott to enable his analog checkout.
 - Ordered missing FRAM, arrived (late), just as I mailed the nanoFET back to MBARI for Scott Jensen.
 - MpHOx boards have been transferred to Scott Jensen. He is onsite and can coordinate with Joseph, Yui and Chad on board inventory and checkout.
 - New batch of MFETs are in progress. Met to discuss board QA procedure.
 - 902000 - Multi-Spectral StealthCam
 - Ordered a replacement JTAG emulator and connectors to resolve the bootloader burn problem.
 - 902004 - Planktivore

- Worked on kickoff materials and updating the project plan. Online meetings one on one with Duane Edgington, Paul Roberts and Larry Bird.
 - Messaged via Slack the delay due to family emergency.
- Out of Office
 - Allergy symptoms improving. Doctors note is not forthcoming after 8 days waiting.
 - Family emergency in Colorado, leaving 3 Mar driving. Not sure on return, setting expectations as 10 to 14 days followed by mandatory 14 day quarantine.
- Mike McCann
 - 901009 - CANON
 - Examined metadata that Katie is dealing with for eDNA sample data
 - 901111 - AUV Infrastructure Support
 - Debugged a Dorado SBD message flow problem to ODSS
 - 901910 - Plankton Taxonomic Groups from AUVs
 - Making good progress on the parquet file generation: [Issue 837](#)
 - Expect to be testing parquet file generation on production servers real soon now
- Rob McEwen
 - 708167 - WEC Dynamics and Control
 - Experimenting with the Computer Vision toolbox on a free trial. Will meet with a Matlab application engineer tomorrow for further advice on wave speed estimation.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Coming up to speed on the LR simulation.
 - Will work with Rich H to replay the LR OA runs so that we can debug the OA code.
 - Drag analysis of deep LR vehicle is still pending.
 - Met with Rock and others regarding multivehicle LR operations.
 - Attended Ben's sim meeting.
 - Out of Office
 - I will be taking approximately one vacation day per week through March. Exact dates TBD.
- Paul McGill
 - Out of Office
 - Will take vacation Feb 16th thru 19th.
- Ed Mellinger
- Tom O'Reilly
- Craig Okuda
 - 901803 - Carbon Wave Glider Development
 - Test assemble new Dririte/Nafion adsorber box
 - Update Dririte box design
 - Out of Office
 - Vacation day
 - Overhead
 - Work on microwave/wireless doc
- Doug Pargett
 - 708146 - NOPP Saildrone
 - Following along Saildrone's ocean testing and occasionally answering a question.
 - Designing a single flush bottle holder for the front of the G3 that will fit thru the small hatch of the Saildrone without needing to be removed and reassembled inside the vehicle.
 - 881135 - 3G ESP Cartridge Redesign
 - Our equipment is back and the team is meeting with Function on their status and next steps.
 - Calibrating the Tower instrument's pressure sensors for High Pressure testing of the new cartridges.
 - 901205 - ESP SURF Center

- Calibrating MV2 for new pump installation and build-up.
- Ben Raanan
- Mike Risi
 - 200105 - Core Nav - MDUC
 - Serial driver issues with Linux solved, currently under test.
 - 901101 - Seafloor Mapping
 - Working with Chad and Eric on LASS TCU design
 - 901809 - Deep Sea Bioinspiration
 - Preparing for midwater tracking cruise series starting March 17th
 - Out of Office
 - April 26-30: Ocean Imaging Cruise
 - September 3-14: Ocean Imaging Cruise
 - Vacation on alternate Fridays
- Brent Roman
 - 706005 - eDNA Grass Carp Sandusky
 - Postponed until 2022
 - 708146 - NOPP Saildrone
 - Working with their engineers to identify source of sat comms disconnects
 - 901205 - ESP SURF Center
 - Brought up ESPtower (portable ESP configured for deep sampling)
 - Chris Preston says the new Lysate recovery procedure is working very well
 - 901913 - Demonstrating high-speed communication with a submerged AUV
 - Learned that Oceancomm's modems will likely have to be treated at ITAR :-(
 - Out of Office
 - March 29-April 2 + 2wk away from the office due to quarantine
 - Traveling up to Oregon & Washington to visit colleges.
- Carlos Rueda
- Karen Salamy
 - Out of Office
 - Heading to the snow for a few days again. I plan to work from where we are staying as much as possible. March 17-19.
- Brian Schlining
 - 500055 - Video Annotation DM
 - Added [detailed error messages](#) to the `mv` scripts generated as part of the Iron Mountain video ingest. This info greatly reduces time needed to investigate failure modes.
 - `mv` scripts, which migrate video files from staging areas into M3 are now being archived at smb://atlas.shore.mbari.org/VideoLab/DigitizingProject/Digitized_video_docs/LTO_scripts. This is useful if we need to track where a video was moved/renamed.
 - To accommodate issue reporting on video and tape problems by the video lab, Brian is working on [synching data between EXPD: TapeSummary.Notes and M3_VIDEO_ASSETS.video_sequences.descriptions](#). In addition, he's modifying VARS and vampire-squid to allow the video lab to [add descriptive information to dives and videos](#).
 - 902002 - Fathomnet Detect and Classify
 - [Merge external PR from CVisionAI](#)
 - Fixed issues in Vue/FathomNet: [Make links bookmarkable](#) and [Fix upload page links](#)
 - Met with groups from Geomar, BIIGLE, Dalhousie to introduce FathomNet and solicit image and data submissions

- Responded to detailed information requests from National Geographic regarding data submissions, user experience, and data rights management in FathomNet. This is being done to clear legal hurdles for NGS to submit info to FathomNet.
- Overhead
 - Continue working with CSUMB capstone students.
- Rich Schramm
 - 200105 - Core Nav - MDUC
 - Continue work on new loggers for datamanger/navproc upgrade
 - Overhead
 - Continue knowledge transfer to various member of the team, writing docs etc
- Alana Sherman
 - 901618 - Pelagic-Benthic Coupling
 - Finished up macro camera system schematics
 - 901809 - Deep Sea Bioinspiration
 - Found some connector parts for Paul R.'s version of the interface can
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Finished cable schematics, they are ready for the techs
 - Ordered new cable for camera systems
 - Revised procedures for DiSCO recovery
 - Overhead
 - PE interview #3 was last week