

Engineering Weekly Report 1/7/2021 - 1/14/2021

Executive Council Notes

- 901902 Unoccupied Aerial Vehicles for Science, Operations, and Outreach
 - Two fixed-wing UAVs - *Believer-1* and *Believer-2* - nearly complete
 - Preparing to resume test flights when covid-19 restrictions permit; first over land, then over the ocean
 - Catapult launcher complete, tested with inert *Believer-1* airframe. We'll use the catapult to launch UAVs from beach, *Paragon* and *Western Flyer*
 - *Believer-2* payload waterproofing complete, ready to test
 - Science camera payload integration in progress

Individual Activities

- Francois Cazenave
 - Out of Office
 - I have been working part time from home
- Mark Chaffey
- Danelle Cline
 - 901502 - Passive Acoustic Sensing
 - Testing new decimation with optimized filters (the third iteration) that the team has converged on with the help of Yanwu, Paul McGill, and John Ryan.
 - Standing on the pillar of the two giants Google and AWS, working with John to test data access in the AWS Data Sharing program with a [Colab notebook](#). Jupyter notebooks will come next.
 - Updating wav metadata generator in preparation for adding it to soundscape workflow. Computed wav metadata, including time corrections for all 5 years of recordings.
 - Added compute VM gizo.shore.mbari.org to the HTCondor compute pool.
 - 902005 - VARS Annotation Assistance
 - Updating deepsea-ai GraphQL API to correctly reference VARs video references and adding query and mutation capability as needed for Cthulu testing.
 - Deepsea-ai.shore.mbari.org setup is pending request to move to Ubuntu and docker (instead of CentOS7 and podman which has been fraught with issues).
 - After countless interruptions to fix an issue with wandb logging which interfered with SPOT training, I think I've finally solved it and I'm ready to do cloud training.
 - Overhead
 - Submitted [project description](#) for CSUMB Spring Capstone project
 - Picture a Scientist Discussion Panel
- Duane Edgington
 - Overhead
 - Training: taking edX [Building Containerized Applications on AWS](#) course
 - Picture a Scientist Discussion Panel and Virtual Screening
 - Group meeting
- Jon Erickson
 - 901217 - Chemical Sensor Program
 - Still....
 - 902010 - Mesopelagic LRAUV

- Working on the nose shell and tail shell mod's to make them fit and prove we can get all the sensors in place.
- Overhead
 - Meeting Knute finalize the mod's to the docking head. Not sure what I can do more than I've done already.
- Kevin Gomes
 - 901009 - CANON
 - Still working on ODSS migration finalization. Some map management scripts left to migrate
 - Using the 2nd round of migration for odss-test to evaluate Ubuntu as possible server platform for MBARI moving forward
 - 901915 - Improving MBARI Data Impact
 - Discussions and meetings about SamplesDB and whether we can move it to a service while incorporating changes to support EDNA analysis (sub-samples)
 - Overhead
 - Performance review preparation
 - Succession planning
 - Picture a scientist movie and panel discussion
 - Group Meeting
 - Weekly IS-SEIE Meeting
 - ACM Webinar on large scale Time Series Databases
 - Applied for (and was granted) a non-profit annual credit of \$2000 for AWS costs that are now applied to the MBARI account.
 - Working on making final decision on Docker plan upgrade path
 - Helping with BitBucket and JIRA additions
 - Out of Office
 - May 12-14: Vacation
 - June 21-25: Vacation
- Andy Hamilton
- Kent Headley
 - Overhead
 - Annual Review Prep
 - Training: phishing security, Picture a Scientist Viewing
- Rich Henthorn
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Removing qnx-utils from Obs Avoidance repo
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - ROS research
 - CurrCom current commanding application
 - 901618 - Pelagic-Benthic Coupling
 - Kick-off SES Obs Manager epic w/outline and discussion
 - Weekly meeting
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Replacing qnx-utils in Obs Avoidance with reference to libtrnav version
 - Overhead
 - Picture a Scientist
 - Eval materials
 - Out of Office
 - Vacation day Jan 12
- Brett Hobson
- Scott Jensen

- 901205 - ESP SURF Center
 - Meetings and preparing for another build of the hostgate. Due to a few parts not available suitable replacements needed to be identified.
- 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Cell Voltage limiter PCB, working on schematic entry
- 901805 - Coastal Biogeochemical Sensing
 - Keeping track of MFET and MCAP build
- 902106 - Niobicon-Based AUV Docking Development
 - Working out design of the electrical test setup for a prototype for tank and deployment testing.
- Overhead
 - Picture a Scientist and Discussion
- Brent Jones
 - 901502 - Passive Acoustic Sensing
 - Begin work on a ML detector for isolating echosounder clicks. Spent some time labeling and extracting training sets
 - 901800.98 - Bioacoustic Payload
 - Still trying to figure out wiring for moving BA CPU into Spray LRAUV
 - 901805 - Coastal Biogeochemical Sensing
 - Merging older down/up profiling code with latest code so I only have to maintain one. Adding capability to change profiling from down/up to just up over iridium
 - Overhead
 - Picture a scientist
 - Meetings
 - Helping write a proposal for OTIC NPS collaboration to put a particle sensor hydrophone on Spray
- Chad Keczy
 - 901101 - Seafloor Mapping
 - Met (virtual) with Eric M about requirements for TCU
 - Reviewing existing documents to prep for shipside TCU design
 - 901713 - Nearshore FOCE
 - Went onsite to meet with Jim M about next steps forward with the build
 - 902107 - Consequences of a Changing Ocean: Manipulative Microbiology Experiments at MARS
 - Bringing up the Wago stack
 - Overhead
 - LabView exercises
 - Mandatory trainings on Tue & Wed
- Brian Kieft
 - 708168 - DHS Y7
 - Met with team to discuss next deployment and current status.
 - Will be testing circular USBL in the lab once it's connected.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Met to discuss docking progress and software integration of the arm/latch
 - 902102 - Multi-LRAUV Simulation Environment
 - Met with team for kickoff. Will be working on initial requirements.
 - Overhead
 - Review materials, picture a scientist, conflict of interest, staff council responses.
- Denis Klimov
- Eric Martin
 - 708164.50 - Y2 Research Labor funds
 - Attended bi-weekly meeting last friday.

- Wrote a software tool to extract radar settings from network captures to aid Rob McEwen in wave analysis.
- 901101 - Seafloor Mapping
 - Edited drawing sets
 - Finalized cable wiring schematic for vendors
- 901700 - Acoustical Ocean Ecology
 - Warming back up into EK60/80 Data ingestion with Python
- 901911 - ROVVR
 - Microcontroller selection for synchronization and camera PTH monitoring.
- 902100 - Telepresence on MBARI Research Vessels
 - Project prep
 - Working with Leila Takayama on the user survey
 - Assembling a list of participants
 - Reviewing interview questions
- 500055 - Video Annotation DM
 - Working with Lonny to test and deploy refactored tools for M3RS monitoring.
- Overhead
 - Picture a scientist
- Out of Office
 - Out sick wednesday.
- Thom Maughan
- Mike McCann
 - 500055 - Video Annotation DM
 - Continued work on vfcbydive to better handle multiple annotations
 - 901009 - CANON
 - IS spun up an Ubuntu kraken2 VM for replacing the existing kraken hardware
 - Working on a Jupyter Notebook for making T/S plots for all platforms in a campaign
 - Out of Office
 - Took several vacation days
- Rob McEwen
 - 708167 - WEC Dynamics and Control
 - Continuing to improve the wave crest identification algorithm and Matlab code.
 - Estimating wave arrival time using distance-to-the-wave-crest, wavelength, and the dispersion relation.
 - Integrating the Ahrs data. The objective is to compute the measured arrival time and check the above estimate.
- Paul McGill
 - 901618 - Pelagic-Benthic Coupling
 - Worked on Squirty pump controller but having problems with Microchip programming tool.
 - Did some cleanup of archived Rover data.
 - 901700 - Acoustical Ocean Ecology
 - Ordered parts for power supply for Enet switch in LRAUV sonar payload.
 - Got home copy of OrCAD connected to CIS database at MBARI
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Worked out system-level wiring with Alana for Coral Macro Camera.
 - Overhead
 - Ben E. and I had Zoom meeting with Karen Alley at Univ of Manitoba to advise her on using UAVs in polar regions.
 - Watched "Picture a Scientist" and attended discussion.
- Ed Mellinger

- Tom O'Reilly
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach
 - Working with team on science camera integration and test
 - Working with team to define next flight procedures, e.g. image scale calculation based on overflight of ground calibration targets
- Craig Okuda
 - 901007 - Benthic Biology and Ecology
 - Test assemble BRS chamber valves
 - 901803 - Carbon Wave Glider Development
 - Misc purchasing
- Doug Pargett
 - 901205 - ESP SURF Center
 - Revised the bench ESP stage to match the new cartridge and sent it to Ray for 3d printing.
 - Traced back which parts got printed and which ones got delayed at the end of last year. Requesting one to be made at an outside shop.
 - Designing new 3G toroid valve to work with the new cartridge port spacing.
 - Overhead
 - Training
 - Resolved an annoying Solidworks file bug.
- Ben Raanan
- Mike Risi
 - 200105 - Core Nav - MDUC
 - Continuing work on final processes necessary for Rachel Carson deployment
 - Working with Rich on plan for Rachel Carson deployment when shutdown ends
 - 901809 - Deep Sea Bioinspiration
 - Midwater tracking kick off meeting
 - Overhead
 - Review materials
 - Picture a Scientist Movie and discussion panel
 - Out of Office
 - April 26-30: Ocean Imaging Cruise
 - September 3-14: Ocean Imaging Cruise
- Brent Roman
 - 901205 - ESP SURF Center
 - Wrapped up analysis of GoMex power consumption
 - Implemented scheduling of modem power scheduling to reduce consumption
 - 901913 - Demonstrating high-speed communication with a submerged AUV
 - Working with James Younce and Brett Hobson to determine whether Oceancomm's existing modem housing can fit into our LRAUV
- Carlos Rueda
 - 300083 - DMO Support LRAUV
 - Reviewing Erik's proposal about "component tracking" involving dash database.
 - 901502 - Passive Acoustic Sensing
 - Kickoff meeting (1/6)
 - Put together our ASA poster in [markdown format](#) (result available [here](#)) mainly because there's no complete PDF or some other good format to be exported from the [iposters](#) site.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Some TethysL related discussions and preparations, including [a first VSCode extension](#) with very basic language features, which involved a few "logistics" (setting up an organization,

associated access token) on the VSCode marketplace. This setup may be useful for other developments later on.

- Brett has told me about time for Mike and I'm contacting Mike to start coordinating.
- Putting together TethysL document with description of use scenarios for discussion.
- 902102 - Multi-LRAUV Simulation Environment
 - Meetings
- Overhead
 - IE meeting.
 - Putting together work plans as availability of some resources are determined.
 - Picture a Scientist movie/panel discussion; Conflict of Interest and Sexual Harassment trainings.
- Karen Salamy
- Brian Schlining
 - 902005 - VARS Annotation Assistance
 - Spun up on GraphQL
 - Working on a prototype to display ML generated IDs and localizations on top of video using data pulled from Danelle's prototype database.
- Rich Schramm
- Alana Sherman
 - 300080 - DMO Support Mini ROV
 - Bringing up new NUC, this required troubleshooting a fault in the Wago stack. After some muddling around, I have everything working on the first machine I brought up but now I am working to debug an issue with the second machine - seems like a LabView library is missing.
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Resolved issue with camera USB locking up the shutter control. Tested a working solution.
 - Working with Paul on cables and connectors for Deepsea Connect aspect of the macro camera
 - Overhead
 - Began review process, contacted all PMs and PIs for feedback
 - Watched the film "Picture a Scientist"
 - Out of Office
 - Vacation last week.