

Engineering Weekly Report 9/17/2020 - 9/24/2020

Executive Council Notes

- 901800 LRAUV Development (Hobson)
 - Three LRAUVs were deployed this week for science and engineering development. Daphne was collecting data and samples for the BOG lab and Tethys was working in tandem with WaveGlider Tiny above the DEIMOS observatory at MARS. Later in the week Tethys will join Pontus above Portuguese Ledge for more inter-vehicle acoustic tracking work.

Individual Activities

- Francois Cazenave
 - 901405 - PowerBuoy Development
 - Preparations for upcoming deployment
 - Preparations for cable dock test
 - 901704.99 - 8 Camera Obs Lander
 - Reviewing documentation
 - Out of Office
 - Was on vacation for the last 3 weeks. Currently working part time at home during 2 week quarantine.
- Mark Chaffey
- Danelle Cline
 - 901502 - Passive Acoustic Sensing
 - AWS upload throttle test
 - Discussion with Cal Poly about potential student projects
 - Team meeting
 - 902002 - Fathomnet Detect and Classify
 - Interview scheduled 2pm 9/24 to speak to web designers
 - 902005 - VARS Annotation Assistance
 - CUDA deinterlacing docker image
 - SageMaker training almost ready for sweeps
 - Integrating C++ inference engine into tracking code.
- Duane Edgington
 - 901009 - CANON
 - Project meeting Sept 17
 - 902005 - VARS Annotation Assistance
 - Working through SageMaker Studio evaluation / training
 - Overhead
 - Group meeting Sept 21
 - Seminar Sept 23
 - Out of Office
 - Sept 24 Vacation
- Jon Erickson
- Kevin Gomes
 - 901009 - CANON
 - Starting on a VueJS based ODSS interface as a client for data catalog

- 901502 - Passive Acoustic Sensing
 - Some meetings and small amount of AWS stuff
- 901915 - Improving MBARI Data Impa
 - Data catalog work (API, Apollo/GraphQL, etc.)
- Overhead
 - Some IS related work (docker, CentOS versions, system restarts/upgrades)
 - More AWS work on alerts and security
 - Requested quota increase (granted) on SageMaker related AWS resources
 - Working with Rich on transition plans, docs and process/projects
 - Group Meeting
- Andy Hamilton
- Kent Headley
 - 901101 - Ocean Imaging
 - Finished Axial cruise with some exciting results. In addition to getting good science map coverage overall, Sentry was able to steer away from its holding-pattern trackline, then close the loop using Terrain Relative Navigation to bring it back onto the trackline using the TRN offsets.
 - Working on post-cruise software maintenance
 - 901704.99 - 8 Camera Obs Lander
 - Rick Starr, Katy (MLML) used the test tank to calibrate BOSS for an upcoming cruise. Stopped by to help with a couple of software questions.
 - 901803 - Carbon Wave Glider Development
 - Am about 5 days deep in chasing a bootloader bug. I may have found the root cause in some component code distributed by Microchip.
 - Overhead
 - Clean up on allocations
 - Misc admin
- Rich Henthorn
 - 600034 - Control Tech - Rock
 - Integrating TRN into LRAUV
 - 901618 - Pelagic-Benthic Coupling
 - Coaching folks to run BLISS and SES missions for next weeks MARS deployment
 - 901800 - LRAUV Payload & Support
 - Integrating TRN into LRAUV using the updated lrauv-lcmtypes
 - Obstacle avoidance updates
 - Out of Office
 - This week, Sept 23 - 30 vacation, MDT timezone, spotty email-only, returning Oct 1
 - Oct 27 to Nov 5: WF cruise to Sta. M
- Brett Hobson
- Scott Jensen
 - 901205 - ESP SURF Center
 - Continuing to work on Elf failure.
 - 901405 - PowerBuoy Development
 - Cleaned up the bus voltage and current signals with a change in opamp performance. Which has reduced system noise by an order of magnitude.
 - Overhead
 - Really getting a handle on the EDM software. About ready to bring in a few people to test setup and get feedback.
 - Out of Office
 - Current schedule is Sunday-Tuesday

- Brent Jones
 - 901112 - Change in MB & CA Current
 - Diagnosing CPF battery failures. Tear down 1 instrument for inspection and battery replacement
 - 901502 - Passive Acoustic Sensing
 - Converting high pass filter in Julia to python. Investigating results
 - 901805 - Coastal Biogeochemical Sensing
 - Recover two spray gliders and do post deployment calibrations. Collecting seawater to diagnose fluorometer issue
 - Overhead
 - meetings
- Chad Keycy
 - 901704.99 - 8 Camera Obs Lander
 - Helped the MLML team perform their calibration. Also had to do some troubleshooting for an LED issue.
 - I am beginning to review the 775(!) page initial draft of the BOSS documentation package written by external technical writer, Elena Quijano.
 - 901713 - Nearshore FOCE
 - Helping Steve with some budget issues
 - Micronode & Distribution node built and tested. Awaiting chamber housings.
 - 902000 - Multi-Spectral StealthCam
 - Parts in shop
 - Overhead
 - Journal paper review
 - Helped Brent J with some battery pack troubleshooting
- Brian Kieft
 - 300082 - DMO Support - Wave Glider
 - Piloting Tiny/Hansen
 - 708158 - DHS Y7
 - Finished up JIRA issues in preparation for deployment.
 - Have been assisting with SOM bootloader issues
 - Advising on kernel upgrade options
 - Loaded latest release after testing in (their) lab.
 - Meeting today to discuss further deployment details
 - 901800 - LRAUV Payload & Support
 - Deployed Tethys yesterday following multiple harbor tests addressing acommms issues
 - Testing DEIMOS camera and ESP sampling missions with waveglider Tiny. Then on to Portuguese ledge for dual vehicle relative position TRN runs.
 - Out of Office
 - TBD early October
- Denis Klimov
- Eric Martin
 - Out of Office
 - Tuesdays until 2:30PM
 - This tuesday took the whole day, doctor's appointment.
- Thom Maughan
 - 901009 - CANON
 - Attended first meeting of the dry processing team, which include biologists at Johns Hopkins APL. Setup a slack channel for team and direct messaging.

- Working on eDNA embedded pipeline. Recompiled minimap2 for ARMv8 with neon. Ran benchmarks with 2 cpu core on Xavier NX (6W, 481sec). Same benchmark runs 200 sec on AWS EC2 with 16 cores and 112 GB RAM.
 - Started to add NVidia Jetson software one package at a time which got to be a slog. Went ahead and installed the entire Jetpack. Footprint optimization will come later.
 - Working on Oxford Nanopore MinIT software (guppy, etc). Working with Oxford Nanopore
 - Out of Office
 - Working remote with regular access as needed at MBARI Tues,Wed,Thurs
- Mike McCann
 - 901009 - CANON
 - Upgraded the STOQS VM provision.sh script to install the latest versions of GMT and MB-System so that the capstone students can use mbgrd2obj for [Issue 1093](#)
 - 901800 - LRAUV Payload & Support
 - Monitoring ongoing data flow into https://tethysviz.shore.mbari.org/stoqs_lrauv_sep2020
 - 901910 - Plankton Taxonomic GrpAUV
 - Continuing to implement calibrate_align.py in auv-python, making sure it gives the same results as the legacy auv_ctd Matlab processing
 - 901221 - Midwater Time Series
 - Helping Rob with plotting DVL measured water velocity data from i2Map using auv-python
 - Overhead
 - Rolled out module updates (fixing a Django insecurity) to our STOQS servers
 - With Pat & Joe's help moving WordPress server for stoqs.org to a new CentOS 8 VM
 - Out of Office
 - Vacation days: 18 September 2020, 2 October 2020
- Rob McEwen
 - 901800 - LRAUV Payload & Support
 - Did some power analysis on LRAUV data to determine the hotel and propulsion loads.
 - Beginning to transfer obstacle avoidance algorithms and code from Dorado.
- Paul McGill
 - 701145 - Penguin Hotspots
 - Did more sonar noise testing in lab with Chad W. Discovered that sonar is extremely sensitive to noise on its power input by injecting a signal there.
 - 901618 - Pelagic-Benthic Coupling
 - Cruise prep for next Mon and Tue. Found a last-minute problem with larval pump but think we've got it resolved.
 - Did loop and cross algorithm testing on Wave Glider with Tom O. Discovered some issues and modified algorithm, but won't get to test until WG is at Sta. M.
 - 901904.99 - Coral Camera System
 - Working on strobe design with Alana.
 - Overhead
 - Designing MARS cable extension with Craig D. for possible project with NPS.
- Ed Mellinger
 - 901206 - Coastal Profiling Float
 - Troubleshooting zapped LHE board, main power bus overvolt (?)
 - Evaluating system ground architecture
 - 901800 - LRAUV Payload & Support
 - Evaluating DC-DC options in support of upcoming EyeRIS review
 - Out of Office
 - Scheduled in-office days Tuesday, Friday

- Tom O'Reilly
 - 901618 - Pelagic-Benthic Coupling
 - Tested and refined loop-and-cross geolocation algorithm on WaveGlider tiny's Hotspot using MARS SES acoustic modem as target. Will refine software further based on test results before deployment to Station M, where algorithm will be used to geolocate Benthic Rover.
 - Out of Office
 - Was on vacation last week
- Craig Okuda
 - 901220 - Midwater Ecology
 - Chamber valve parts order
 - 901803 - Carbon Wave Glider Development
 - Update dririte box design
 - Update pmel docs
 - Out of Office
 - Vacation days
- Doug Pargett
 - 901205 - ESP SURF Center
 - The MV-1 instrument had cartridge issues after re-build, but looks to be an old part problem. I've added shim material to better line up the cartridges. Testing looks good so far.
 - Parts are coming in to rebuild 2 of the G3 ESP pumps.
 - Starting conversion of the Franken-Tower bench instrument to work with the Function cartridges at high pressure. The old damaged MV-1 LRAUV dome will be used for this.
 - DQ1904 - NOPP Saildrone
 - Koa has a check valve system on the output so we can test a mild bleach/flush backwash process.
 - The Flowerpot housing has new, grommated assembly straps and lift handles.
- Ben Raanan
- Mike Risi
 - 200105 - Core Nav - MDUC
 - Getting prototype system ready for testing on October 12th cruise.
 - 701127 - MARS O&M III
 - Setup software on nuc to test MARS mini node NPC stack
 - 901101 - Ocean Imaging
 - Added position loop around track-line velocity loop to allow for position based move commands.
 - Testing way-point concept with new track-line move commands
 - 901809 - Deep Sea Bioinspiration
 - Documenting LCM types for mid-water tracking control system
 - Out of Office
 - February 19-22: Ocean Imaging Cruise
 - March 9-12: Vacation
 - May 26-29: Vacation
 - June 29 - July 1: Vacation
 - September 7 - September 11: Vacation
 - September 30 - October 2: Vacation
 - October 12-17: Ocean Imaging Cruise
- Brent Roman
 - 901205 - ESP SURF Center
 - Working with NOAA to set up conference call this Friday to understand their ESP deployment and networking plans
 - Finished calibrating Lyse-N-Go heater boards

- Verifying calibrated cartridges in ESPhonu
- DQ1904 - NOPP Saildrone
 - Testing ESPkoa
- Out of Office
 - At MBARI Tuesdays after 2PM
- Carlos Rueda
 - 901502 - Passive Acoustic Sensing
 - Group meeting
 - 901800 - LRAUV Payload & Support
 - TethysDash [docker image 3.9.982](#) released and announced to WHOI. Various adjustments applied while preparing and testing the release.
 - Continuing with code cleanup and adjustments, both backend and Dash frontend, especially as the recent enhancements are exercised in real operations (today, for example, with some fixes in the Docs handling).
 - Upgraded the OpenAPI spec (to v3.0.1) for the TethysDash API as well as the underlying SwaggerUI tool that powers <https://docs.mbari.org/tethysdash/apidocs/>.
 - TethysDash backend: Upon some close inspection of this legacy handling, adjusted some logging related with "emaillogs," which is the typical major "culprit" when we get those occasional alerts from the system about less the 85% space becoming available on the machine. With just avoiding the thousands of repeated, almost-uninformative lines, we are now going to save more than 100Mb of unnecessary log stuff per year, as measured by grepping for the mentioned lines in what's currently captured for 2020.
 - 902009 - AUV UI
 - Exchange with Jasmine Otto related to her great feedback to recent Dash improvements, her work, and some questions re TethysDash API.
 - Overhead
 - IE: put together a simple Vue/Quasar app that demonstrates user authentication using Firebase. Instructions, screenshots and more details [here](#). App deployed [here](#).
 - Reported to IS what looks like a Mimecast bug: Under the On Hold folder, Mimecast claims that "images are not being displayed" but they are.
 - ESIP Semantic Technologies meeting.
- Karen Salamy
 - 704109 - NavDORISS
 - On Tuesday, I completed new NavDORISS Target image, installed it on the PC104 stack SSD and handed it over to Jim M. to install into the Vicors and wire the system into the chassis.
 - 901200 - Telepresence
 - I made small additional edits to the Precruise mods for Telepresence for Mike K., Mandy A., Teresa C., and Eric M. Each stated that they tested the changes. At this point, I am only waiting for them to send the green light to make the mods go live.
 - Overhead
 - Re-writing my notes and testing build options for Apache Superset following my 2-day online course last week. The class covered a lot of information and I am trying to distill it down to what is useful.
 - Registered and watched the talk by Craig McLean, Acting Chief Scientist at NOAA, entitled: "The future of ocean science and technology." this morning.
 - Out of Office
 - Will be working on MBARI campus ONLY on Tuesdays until further notice.
- Brian Schlining
 - 500055 - Video Annotation DM

- Working with video lab to handle annotations of organism parts (requested for ML-tracking project)
- 902002 - Fathomnet Detect and Classify
 - Working with [Make&Model](#) to develop fathomnet web UI
 - Expanding database model to accommodate [growing use case list](#).
 - Implemented security using Firebase and JWT. Example project and docs are [here](#).
- Overhead
 - Continue to work with IS as they roll out upgrades to older linux VMs
 - Met with CSIRO to discuss MBARI's ML efforts.
 - Published a new docker image for running Polynote notebooks.
<https://github.com/mbari-org/docker-polynote>
- Out of Office
 - Oct 12-16
- Rich Schramm
 - 200103 - Core CTD Data -MDUC
 - Convert rovtqcplot scripts to python3 and test under Centos8, document and create project on bitbucket
 - Overhead
 - Begin documenting minirov workflow and getting code into bitbucket.
 - Out of Office
 - Sep-28 - Oct-2 Vacation
- Alana Sherman
 - 800139 - EyeRIS
 - Talked over plans for the next design review with Paul
 - 901618 - Pelagic-Benthic Coupling
 - Trained with Rich on how to set up the larval pump and how to test the SES for next week's ROV dives.
 - 901904.99 - Coral Camera System
 - Working on specifying new battery pack, which has led me to realize that my new strobe/lighting plan is not quite as plug-and-play as I hoped. Trying to work through these details.
 - Started testing out remote shutter triggering (hardware not software) for the sony a7r3. After a little fiddling this is working and works when the Sony control software is running. Then discovered a few gotchas using the dummy battery to power the camera.