

Engineering Weekly Report 9/10/2020 - 9/17/2020

Executive Council Notes

Individual Activities

- Francois Cazenave
- Mark Chaffey
 - 300082 - DMO Support - Wave Glider
 - Some minor support for the second Wave Glider HotSpot build.
 - 901807 - Next Gen Acoustic Dorado
 - Revised documentation and had tech support modify four more DSP&L LED lights to the low noise configuration.
 - 902001.99 - 4K ROV Camera Development
 - Re-assembled Sony HDC-P50 camera, which was completely in parts for chassis design work. This only took 1.5 hours which proves it is entirely feasible to re-assemble the camera if it is required to be returned for factory service (Sony will no longer perform on-site service).
 - Completed final telemetry test. Ran entire configuration over 10.8km of optical fiber verifying ability to transmit Sony RCP protocol as well as chromatic and material dispersion limits for the 12G video link. This is a major milestone and removes the last MBARI technical risk point.
 - All mechanical design is complete but drawings need to be done for numerous parts.
 - Working on electrical detailed design (system design has been complete for months).
 - Completing slide deck for planned comprehensive design review in conjunction with engineering team at Deep Sea Power & Light (DSP&L).
 - DSP&L has completed 100 cycles to 4000 meters on the first Dome test article without incident and is now moving to 7000 meter pressure cycling.
- Danelle Cline
- Duane Edgington
 - 901009 - CANON
 - Meeting Sept 17
 - 902005 - VARS Annotation Assistance
 - Work on accessing M3 prores files. Thanks to IS, we now have a mount point to titan M3 on our dev-box.
 - Uploaded "calpoly" mezzanine and prores file to AWS S3
 - Exploring AWS SageMaker Studio
 - Overhead
 - Engineering meeting Sept 15
- Jon Erickson
- Kevin Gomes
 - 300057 - Mooring Maint
 - Finished all the metadata plumbing to get data QC processes running again
 - 901009 - CANON
 - A little prep for CANON experiment coming in October
 - 901502 - Passive Acoustic Sensing
 - Meeting to discuss AWS plans
 - 901915 - Improving MBARI Data Impa
 - Working on VueJS, Firebase, Apollo and GraphQL to start on the UI side of the data catalog

- Overhead
 - IS Sync meeting
 - Worked on converting Apache OpenIDC module conversion from Auth0 to Firebase (just Google accounts actually)
- Andy Hamilton
- Kent Headley
- Rich Henthorn
 - 600034 - Control Tech - Rock
 - Modifying the mission replay application for use with LCM
 - 901618 - Pelagic-Benthic Coupling
 - Mission prep for SES
 - Final 24-hr SES test on MARS after unclogging
 - 901800 - LRAUV Payload & Support
 - Delta T logging updates
 - TRN for LRAUV
 - Rebooted the TRN application for the updated LCM types
 - Out of Office
 - Beginning next Wednesday, Sept 23 - 29 Vacation, MDT timezone, spotty email-only
 - Oct 27 to Nov 5: WF cruise to Sta. M
- Brett Hobson
 - 708168 - DHS Y7
 - Provided continued support to WHOI while they build new LRAUVs
 - 901809 Bioinspiration lab
 - Modified the ML-Tracking stereo cameras to more accurately align the lens entrance pupil with the front dome port.
- Scott Jensen
 - 901205 - ESP SURF Center
 - Supporting Saildone effort
 - 901805 - Coastal Biogeochemical Sensing
 - Discussions around bringing the MFET/MCAP design to a stable release version and clearing various revisions.
 - Overhead
 - Working with Orcad vault system, EDM, to figure out how it works and how EE's may best implement its use.
 - Out of Office
 - Current schedule is Sunday-Tuesday
 - Because of work related travel I will not be on site due to MBARI's policy which will be a minimum of September 17.
- Brent Jones
 - 901112 - Change in MB & CA Current
 - Diagnosing bad battery packs in the CPF during CANON deployment. Also updating energy use models
 - 901800.98 - Bioacoustic Payload
 - Providing support to noise testing. Procuring different pressure case material possibilities for testing
 - 901805 - Coastal Biogeochemical Sensing
 - Flying spray gliders 29 and 34 24/7. There is some suspicion of fluorometer values being 2 blocked so I'm tracing the measurement from the sensor, through the hardware, through the satellite, and ultimately to the final product
 - Overhead

- meetings
 - Out of Office
 - 1 day vacation
- Chad Keycy
 - 901704.99 - 8 Camera Obs Lander
 - Performing calibration with MLML team for their upcoming deployment
 - 901713 - Nearshore FOCE
 - Tether/micronode nearly done. Awaiting chamber housings for E. population
 - Overhead
 - Reviewing a journal paper
 - Helping Sebastian with his 2021 work (pre-spending parts selection)
- Brian Kieft
 - 300082 - DMO Support - Wave Glider
 - Debugging issues with LF connection to SES at MARs.
 - 600034 - Control Tech - Rock
 - Working on 2 vehicle relative positioning for TRN runs. Harbor testing
 - 708158 - DHS Y7
 - Wrapped up DHS Jira issues 1,2,4,5 relating mostly to the DDM interface
 - 901009 - CANON
 - Figuring out requirements/missions for coincident water/ESP sampling
 - 901800 - LRAUV Payload & Support
 - Preparing for deployment Monday 9/21 to test multi vehicle TRN, DEIMOS live depth adjustment for camera capture of layers, and possible homing tests with DAT.
 - Overhead
 - Covid tests, proposal work for BIOSWAT, etc.
 - Out of Office
 - TBD early October
- Denis Klimov
 - 118000 - Safety Office - LSO activity
 - Another round of testing LIDAR in the test tank and we are trying to figure out how to use laser safety goggles together with face masks, and avoid fogging.
 - 901800 - LRAUV Payload & Support
 - Mounting cable penetrator on the biolum setup, and working on biolum light emulator
 - 901809 - Deep Sea Bioinspiration
 - Editing fiber optic penetrator assembly procedure; and working on the drawings for laser target for the breadboard optical setup
 - 901903 - Bio Raman
 - Working on drawing for sample chamber mounts and ordering fasteners
- Eric Martin
 - 901101 - Ocean Imaging
 - Added lidar system to frame
 - Getting TWA for tank work
 - Lining up for tank tests next week
 - 901206 - Coastal Profiling Float
 - CPF bug squashing underway
 - First tank profile completed
 - 901807 - Next Gen Acoustic Dorado
 - Lights are back from the shop with filter boards installed.
 - 901911 - ROVVR

- Getting Olin students spun up. Meeting with Olin professors today.
- DQ1942 - Buoy Power Generation
 - Found issue with radar logging, verifying before scheduling a paragon day.
- 901200 - Telepresence
 - Paull cruise running along
 - AMP day on the Carson this thursday
- Out of Office
 - Tuesdays until 2:30PM
 - This tuesday took the whole day, doctor's appointment.
- Thom Maughan
 - 901009 - CANON
 - Received and reviewed the kickoff materials for the automated eDNA processing work with Johns Hopkins. Sent introductions and info on prospective embedded platform.
 - Spent an afternoon with Amazon AWS trying to get the fasta files off the server by setting up an s3fs... The S3 web interface did the trick. Was hoping to turn off the AWS server at end of month but it looks like Chavez lab may have other uses for it. Thanks to Kevin Gomes for AWS devops assist.
 - Installation procedure for minimap2 on linux laptop. Ran benchmarks on Nate's eDNA basecall data. Deep6 laptop outperformed AWS!
 - Meeting with Nate to go over latest eDNA processing workflow.
 - 901805 - Coastal Biogeochemical Sensing
 - Meetings and discussions. Document procedure for board checkout with a focus on the analog simulator.
 - 902004 - Planktivore
 - Working with Larry on Planktivore housing, looking at optical path layout, improvements for manufacturability, proto for Fluum, etc. This effort will help with outsourcing the design and fab of the housings.
 - Meeting with Larry and Paul to go over proposed changes to the Scripps housing design.
 - Started ordering hardware for the compute module.
 - Camera review for global shutter to simplify the optical path. Good candidate has been identified from FLIR with the imx250 imager.
 - Project planning
 - Out of Office
 - Working remote with regular access as needed at MBARI Tues,Wed,Thurs
- Mike McCann
 - 200109 - Core Mooring Data
 - Copied recovered M1 deployment data to OceanSITES folder - as is done following a mooring turn
 - 901111 - AUV Infrastructure Supprt
 - Writing HS2 processing in the auv-python project
 - Writing unit tests for the auv-python data processing functions
 - Trying to speed up progress so that I can implement PAR and Ecopuck processing in auv-python rather than in the Matlab code base
 - Overhead
 - Meeting with Capstone students who will be working on [this Issue](#)
 - Attending virtual OceanSITES meetings early in the morning this week
- Rob McEwen
 - 901800 - LRAUV Payload & Support

- Evaluating Irauv simulator code for possible inclusion of octree-based Dvl and Imagenex models.
 - Investigating how to port Dorado OA code to Irauv.
- Paul McGill
 - 701145 - Penguin Hotspots
 - Modified WBT power supply board. Did a few more noise suppression tests on the WBT with Chad W. Working on setting up an ultrasonic sniffer to see if some noise is acoustic and not EM.
 - 901618 - Pelagic-Benthic Coupling
 - Prepping equipment and setting schedule for Carson cruises at end of this month.
 - Fixed some issues in my ROV transect volume calculations.
 - 901700 - 2017 Acoustical Ocean Eco
 - Learning how to set up more complex neural nets to improve accuracy. Concepts are easy, syntax is hard.
 - 901803 - Carbon Wave Glider Development
 - Finished doc on LI-COR calibration and shared with our PMEL collaborators.
- Ed Mellinger
- Tom O'Reilly
 - 901618 - Pelagic-Benthic Coupling
 - Running tests of "loop-and-cross" acoustic search algorithm with Wave Glider tiny's Hotspot, using SES modem as a target. I'm working with Paul McGill, Chris Wahl, and Brian Kieft to setup and run these tests. Depending on results we may use this algorithm to geolocate locate Benthic Rover on next Wave Glider trip to Station M
 - Out of Office
 - Was on vacation last week
- Craig Okuda
 - 300057 - Mooring Maint
 - Restart after power system fix
 - 300079 - DMO Support-RC
 - Realign microwave antennas after system restart
 - 901803 - Carbon Wave Glider Development
 - Modify manifold for better SLA printing
 - Overhead
 - Restart wireless system after ups replacement
 - Out of Office
 - Vacation days
- Doug Pargett
 - 901205 - ESP SURF Center
 - Ordering parts from the shop for MV2, MV3, and Franken-Tower builds.
 - DQ1904 - NOPP Saildrone
 - ESP Koa is in final testing before going to Saildrone. Saildrone is not ready for the ESP.
- Ben Raanan
- Mike Risi
 - 901101 - Ocean Imaging
 - Working on way-point and scripting changes for Ocean Imaging control systems
 - 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
 - Helping to calibrate/debug ESPmv1 for use on Fall CANON
 - Prepped electronics and software to APL comms test mooring off La Push, WA
 - Deployed 9/10. Lost contact with it after 3 days :-(
 - Ongoing thermal calibration of ESP3G smart cartridges
 - DQ1865 - Bryde Whale
 - Mooring is being trucked back to MBARI
 - DQ1904 - NOPP Saildrone
 - Helped to repackage ESPkoa in polycarbonate housing for use on Saildrone
 - Out of Office
 - At MBARI Tuesdays after 2PM
- Carlos Rueda
 - 901800 - LRAUV Payload & Support
 - Dash is now [3.9.981](#) with various adjustments and enhancements especially in the "smart waypoint editor" (distance/depth information, direct waypoint dragging on the map, etc.). [Mission](#) and [Map Markers](#) documentation pages updated. Have gotten very good reactions from a few users already especially in terms of suggestions (most of them already addressed), but not yet in terms of actual testing, which needless to say is critical moving forward with the full enabling of the new Command and Mission tab implementations.
 - Will soon be preparing a new docker release with the latest and greatest to WHOI, even with the ongoing transition features. Their own testing will be most welcome as well.
 - 902009 - AUV UI
 - Brief exchange to ask Leyla and team for any feedback regarding latest Dash enhancements.
 - Overhead
 - Final report of the EarthCube X-DOMES project has been submitted to NSF.
 - IE meeting (user authentication/authorization discussion; firebase-based demo)
- Karen Salamy
 - 704109 - NavDORISS
 - Working onsite today to build a bootable target image for the PC104 stack with the new Holograms. This image is required to place on USB flash drives to hand over to the Navy when the project is complete. I may require a Windows Embedded builder application and have been in touch with Eric Martin about trying to locate it and rebuild the image. The new image will change in that it will have the newest version of Holograms (4.2) that will run the NavDORISS camera.
 - 901200 - Telepresence
 - Completed test web form with telepresence mods. I have received positive feedback on my modifications from Mike K., Mandy A., Teresa C. so far. I am awaiting the "OK" before having these changes go live on the precruise web form.
 - Overhead
 - Finished a 2-day on-line course (M & T) on Apache Superset. Lots of data to digest but the class was extremely helpful and should help me best assess whether this application will work with the new LRAUV Engineering Dashboard.
 - Out of Office
 - Will be working on MBARI campus ONLY on Tuesdays until further notice.
- Brian Schlining
 - 500055 - Video Annotation DM

- [Added tools to generate reports](#) for all anomalies found in camera logs for dives. This tool is used to help identify problematic tapes before Iron Mountain begins the tape to video conversion of all MBARI tapes.
 - [Completed migration of all apps from seaspray](#) to expanse and quasar.
- 902002 - Fathomnet Detect and Classify
 - Added the following features:
 - [Fast geo-located image search endpoints](#)
 - Uploads of bounding-box data now archives the original source files.
 - Working on [nats](#) integration for inter-app messaging.
 - Working on docker-compose stack
 - Still working on security. Current approach is [firebase](#) for authentication. Some user data, such as roles and expertise-rank, is stored in FathomNet. [Also adding API keys](#) to allow authentication without firebase so that users with API keys can access protected REST endpoints.
- Overhead
 - Working with Pat/IS on [migrating older docker installations](#) on linux VMs to docker-ce.
 - Meet with <https://innotescus.io>. They are developing an on-line annotation platform and are seeking guidance on improving the tool for scientific applications. They have requested samples of our video/images in order to set up a demo for MBARI.
 - Meeting with CSIRO today to discuss integrations of their ML work into VARS and FathomNet
- Out of Office
 - I took Tuesday (9/8) off.
- Rich Schramm
 - 200103 - Core CTD Data -MDUC
 - Research and repair Ventana Dive 4295 in Expd
 - 200105 - Core Nav - MDUC
 - Continue navproc/datamanager upgrade work
 - Discussion w/M.Risi re. Testing on upcoming Flyer cruise
 - Overhead
 - Fix broken auto-generated rovctd QC plots
 - Out of Office
 - Aug-10 -21 Vacation
- Alana Sherman
 - 901809 - Deep Sea Bioinspiration
 - Updated all the software and fixed the last couple bugs (for now) for DeepPIV4
 - Debugged a problem with our new laptops and DeepPIV3, turned out to be a driver issue with a serial server. There is still one mystery left which seems to be a network issue to resolve.
 - Looking into a motor controller for a new dye injector.
 - 901904.99 - Coral Camera System
 - Working on the schematics for the system
 - Ordered all the interface cables for the sony to bench test with Snappy