

Engineering Weekly Report 10/1/2020 - 10/8/2020

Executive Council Notes

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Individual Activities

- Francois Cazenave
 - 901405 - PowerBuoy Development
 - I assembled the AUV dock prototype and tested it in the lab
 - 902000 - Multi-Spectral StealthCam
 - Supervising fabrication of parts
 - Out of Office
 - Was working part time at home last week due to quarantine.
- Mark Chaffey
 - 902001.99 - 4K ROV Camera Development
 - Final final final decision on penetrations/connectors.
 - Slight mechanical design modification for manufacturability.
 - Another slight mechanical modification to maintain optical adapter to dome clearance under all conditions.
 - Last tweaks to PDR design review materials.
 - Working on completing detailed electrical design for μ controller PCB.
 - Tested Canon lens servo to confirm the documented command voltage inputs.
 - Prepared board materials.
 - Overhead
 - Brought new (re-cycled) workstation online with excellent assistance from Doug and Jose.
- Danelle Cline
 - 901502 - Passive Acoustic Sensing
 - Testing ported tensorflow to pytorch blue whale classification code
 - Assisting with versioning and sharing click data with Cal Poly AI class
 - Discussion and planning with John Ryan and Kevin Gomes on how to best capture metadata and share with the AWS Open Data Sharing program
 - Working on cleaning up notebooks to share with POGO workshop participants & AWS Open Data Sharing program
 - 902002 - Fathomnet Detect and Classify
 - Tested code to remove black borders and deinterlace
 - Noticing some duplicate annotations
 - Need a way to filter out equipment and transect versus close-ups
- Duane Edgington
 - 901603 - Video TAG: Vis Ocean Chng
 - Working through Amazon SageMaker text
 - Webinar Oct 7: MLOps and Reproducible ML on AWS with Kubeflow and Amazon Sagemaker
 - Webinars Oct 4: AWS Summit Online Americas. SageMaker Studio and more.
 - 902005 - VARS Annotation Assistance
 - Successful 1 epoch training trials of deepsea-efficientdet model (Danelle's docker image) with voc_crop_896x896 image crops (and 512x512 image crops) in SageMaker Studio. Collected

training time and AWS cost statistics. Interfaced with WANDB and SakeMaker artifact reporting and plotting. Learning how to control costs in SageMaker Studio...

- Overhead
 - Oct 7 Webinar: Intel Real Sense L515 worlds smallest Hi-resolution LiDAR camera. Very cool.
 - Oct 2: Group Meeting
 - Oct 6: Dept Meeting
- Out of Office
 - Vacation Oct 9.
 - Oct 6. Watched the keynote of Nvidia GTC 2020 (running now, free registration). Amazing capabilities and product developments.
- Jon Erickson
 - 800139 - EyeRIs
 - Doing assembly on the light array, as parts come out of the shop.
 - 901217 - Chemical Sensor Program
 - Ordering a custom mandrel and carbon fiber tube to play test for the new ISUS-APEX float assembly. Ninety percent of the design is done.
 - 901809 - Deep Sea Bioinspiration
 - Trying to come up with a new Particle injector pump for PIV.
- Kevin Gomes
 - 300057 - Mooring Maint
 - Some SSDS metadata maintenance
 - 901009 - CANON
 - Support for experiment
 - ODSS development
 - 901205 - ESP SURF Center
 - Some small support for WHOI deployments
 - 901502 - Passive Acoustic Sensing
 - Working on data sharing
 - 901915 - Improving MBARI Data Impa
 - Working on data catalog (VueJS, GraphQL, etc.)
 - Overhead
 - Meetings for web site re-do
 - Various meetings on security issues, audits, etc.
 - Support on AWS on various fronts
 - Out of Office
 - Oct 8-9: Vacation
- Andy Hamilton
- Kent Headley
 - 901803 - Carbon Wave Glider Development
 - Refactored carbon waveglider internals and user interface
 - Now using table-driven composition of measurements and IO sequences (uses abundant program memory instead of RAM, and simplifies user interface parsing routines.
 - Simpler, more intuitive user interface
 - Fixing bugs, some old, some new
 - Making updates for new manifold (now easier with refactored code)
- Rich Henthorn
 - 800139 - EyeRIS
 - Attended virtual Prelim Design Review Monday
 - 901221 - Midwater Time Series
 - Created a script to sift through an i2MAP syslog and produce a transects spreadsheet file

- 901618 - Pelagic-Benthic Coupling
 - Examining results of final MARS mission
- Overhead
 - Workstation issues - Windows laptop does not mount external drives plugged into USB ports
- Out of Office
 - 14-day quarantine away from MBARI, allowed back on Oct 14 assuming no COVID issues
 - Oct 27 to Nov 5: WF cruise to Sta. M
- Brett Hobson
- Scott Jensen
 - Out of Office
 - Current schedule is Sunday-Tuesday
- Brent Jones
- Chad Kacey
- Brian Kieft
 - Out of Office
 - 9/30 - 10/05 (mom AZ)
- Denis Klimov
- Eric Martin
 - 901101 - Ocean Imaging
 - Mobilizing for the 10/12-10/17 expedition
 - Working with collaborators on new camera driver
 - 901206 - Coastal Profiling Float
 - Identifying next steps after tank tests were successful.
 - 901911 - ROVVR
 - Progress from our Olin student team is good.
 - Working to supply them with contextual data.
 - DQ1942 - Buoy Power Generation
 - Took out Paragon last week, and collected radar data for our collaborators.
 - 901200 - Telepresence
 - Submitted board bullets
 - Preparing board package slides
 - Overhead
 - Helped briefly with acoustic noise tests on the Moog Hydraulic valves last week.
 - Out of Office
 - Tuesdays until 2:30PM
- Thom Maughan
 - 901009 - CANON
 - Tried the Oxford Nanopore basecalling package install on TX2 with Ubuntu 18.04 - still having problems even with the alternate procedures from ONT support. Next step is to try on Ubuntu 16.04 on the TX2.
 - Ran into connection / access problems with the ONT MinIT. Looked like a connection problem so invested heavily in diagnosing that. Turns out it was documentation errors on the ONT website. Working to come up to speed on running the MinIT and looking at the installed software.
 - JHU/APL sent me a tweet from Italy where someone had the basecaller running on a TX2. Tried to make contact. Further investigation led to a group in New Zealand doing the same thing as I'm trying on the Xavier. They made daily progress reverse engineering and recompiling packages and have had some success. I'm going to follow their notes and see how far I can get on Xavier NX.

- Benchmarked power and execution time for the eDNA aligner software on Xavier NX and TX2 in various power and core configuration modes.
- 901805 - Coastal Biogeochemical Sensing
 - The new nanoFET board was sent out for fab by Scott, expecting boards back mid-Oct., planning board bringup in latter weeks of Oct.
- 902004 - Planktivore
 - Submitted board bullets.
 - Reviewed spend plan for compute, cameras and optics with Paul
 - Great meeting with Larry and Paul on the microscope housing. We worked thru a few tradeoffs and Larry has a good set of requirements for the first housing iteration.
 - Larry submitted housing optics bench design to the 3D printer and I will work with Aaron on mirror mount while he is on vacation. The plan is for Larry to work on the microscope housing design when he returns from vacation and is in quarantine.
- 901713 - Nearshore FOCE
 - Attended meeting. Plan is to work on nsFOCE towards end of Oct.
- Out of Office
 - Working remote with regular access as needed at MBARI Tues, Wed, Thurs
- Mike McCann
 - 200109 - Core Mooring Data
 - Tracked down a bad depth value for M1's SWR instrument
 - 901009 - CANON
 - Rolled out updates (some correcting security problems) to production STOQS servers
 - Seeing that current campaign data are flowing into [stogs_canon_october2020](#)
 - 901111 - AUV Infrastructure Supprt
 - Finally fixed pytest running in Pipelines – this I learned: MacOS file systems are case insensitive when accessing files, Linux file systems are not (spent a day chasing this).
 - 901221 - Midwater Time Series
 - Helped Rob get auv-python running on his system
- Rob McEwen
 - 901800 - LRAUV Payload & Support
 - Refining power estimates from Portuguese Ledge run.
 - Beginning to transfer obstacle-avoidance code from Dorado. The objective is to retain the existing algorithm, and only change code where necessary to work with the LR architecture.
- Paul McGill
 - 300070 - DMO Support- Ventana
 - Helping DJ design a power supply for a new pan and tilt on Ventana.
 - 901618 - Pelagic-Benthic Coupling
 - Doing frame grabs of camera calibration target video from ROV dives last week.
 - 901700 - 2017 Acoustical Ocean Eco
 - Worked with Chad W in the lab to measure the sensitivity of the Simrad WBT sonar to external noise sources. Bottom line - it's VERY sensitive. Working on mitigation strategies.
 - 901904.99 - Coral Camera System
 - Helping Alana with Coral Macro Camera strobe power supply and battery pack design.
 - Out of Office
 - Was on vacation Wed thru Fri of last week.
- Ed Mellinger
 - Out of Office
 - Scheduled in-office days Tuesday, Friday
- Tom O'Reilly

- 300082 - DMO Support - Wave Glider
 - Integrated serial Iridium modem with Building G network to simplify over-the-horizon communications with Wave Glider, e.g. while at Station M.
- 901009 - CANON
 - Working with Carlos Rueda to integrate LSTS Neptus planning tool into our prototype Mission Execution Mediation Service, which will enable coordination of multiple robotic vehicles and types (AUVs, Wave Gliders, UAVs, etc)
- 901809 - Deep Sea Bioinspiration
 - Working with Kakani Katija and Dana Yoerger (WHOI) to plan acoustic communications with MesoBot, using Wave Glider hotspot as a relay.
- Out of Office
 - Was on vacation last week
- Craig Okuda
 - 901007 - Benthic Biology & Ecology
 - Finalize valve actuator drive PCB
 - 901803 - Carbon Wave Glider Development
 - Create cycle diagrams
 - Out of Office
 - Vacation days
- Doug Pargett
 - 901205 - ESP SURF Center
 - Made some quick repair and troubleshooting of the MV1 instrument for the coming deployment.
 - Built up more bleach-backwash check valve assemblies.
 - Disassembled the previous MV1 dome and cleaned up the parts. There was some sediment in the oil chamber. (This was originally on MV3, but swapped after MV1 got hit.) Some components are needed for the FrankenTower™ system. Additional parts from the shop are also needed to rebuild. This dome will be needed if we want to move Koa back to LRAUV operations.
 - Making the revisions to the Solidworks models of the Flowerpot housing parts to match what was needed/missed in the first build.
 - DQ1904 - NOPP Saildrone
 - Standing by to meet with Saildrone and see how the ESP backwash cleaning protocol will work with them.
 - Overhead
 - A couple hours of school/education outreach about ocean technology.
 - Out of Office
 - A few more leave hours
- Ben Raanan
- Mike Risi
 - 200105 - Core Nav - MDUC
 - Meeting with Rich S. to go over remaining processes to develop and deployment plan.
 - Continuing work on UHS and overlay processes.
 - 901101 - Ocean Imaging
 - Moved way-point processor to standalone process to help with user access.
 - Got Kearfott watchdog working for cruise.
 - 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
 - October 12-17: Ocean Imaging Cruise
 - October 19-23: Vacation
- Brent Roman
 - 901205 - ESP SURF Center
 - Helped diagnose grounding issue with analog pressure sensor on ESPmv1 for fall CANON
 - Diagnosed and fixed Forearm calibration issues on GLERL ESPs
 - Worked with WHOI and Gomes to add WHOI's ESPs to MBARI's ESPshore and ESP portal
 - DQ1865 - Bryde Whale
 - The equipment is finally back at MBARI!
 - Out of Office
 - At MBARI Tuesdays after 2PM
- Carlos Rueda
 - 901800 - LRAUV Payload & Support
 - Dash version 4 officially released! Now, [4.0.1](#).
 - TethysDash: Upgrading Tomcat to latest 8.5 version from version 7, which is fast approaching [EOL, March'21](#). This requires revision/adjustment of some config files related with URL encoding and directory listing. Good preliminary testing (both regular and dockerized).
 - Some minor config adjustments in preparation for CANON.
 - Reviewing general documentation and applying several updates already.
 - Dash4: further UI adjustments; code cleanup; quasar/app smoothly [upgraded to 2.0.0](#).
 - WHOI has already upgraded to TethysDash 4.0.1.
 - Overhead
 - Some work toward completing migration of the tethysdash VM due to CentOS 6 EOL.
 - ESIP COR meeting. With SemTech lead (JPL), reviewed various github tickets.
 - Out of Office
 - Oct 22-23: vacation
- Karen Salamy
 - 704109 - NavDORISS
 - Awaiting all mechanical assembly on NavDORISS to perform final tests of the system.
 - 901200 - Telepresence
 - Awaiting communication from Mike Kelly on releasing the updated version of MBARI precruise with telepresence mods.
 - Overhead
 - Building new Apache Superset dash
 - Out of Office
 - Will be working on MBARI campus ONLY on Tuesdays until further notice.
- Brian Schlining
 - 500055 - Video Annotation DM
 - Along with the video lab, hashing out how to manage non-core video data in VARS. (For example, benthic lander camera, bioinspiration stereo cameras)
 - 902002 - Fathomnet Detect and Classify
 - Continue to work on [data model and REST services](#)
 - Continue to work with <https://www.makemodel.co/> on fathomnet web UI
 - Setting up external web server for FathomNet (<https://fathomnet.mbari.org>), database (on dione.mbari.org, and [nats server](#))
 - Out of Office
 - Oct 12-16
- Rich Schramm

- Out of Office
 - Sep-28 - Oct-2 Vacation
- Alana Sherman
 - 800139 - EyeRIS
 - Attended and took notes for Paul's design review this week.
 - 901809 - Deep Sea Bioinspiration
 - The dye injector continues to be a problem were spin around but dont land somewhere. We have two ideas and will see what works.
 - 901904.99 - Coral Camera System
 - Going down the rabbit hole on this project. Discovered an issue with the camera using a "dummy" battery. My first solution (using an earlier model) has a big issue in that it has less memory. The second solution requires lots of testing,
 - Second issue is the battery pack design. Our new strobes have a higher current draw despite requiring orders of magnitude less energy. This creates issues with the pack design we have planned but the lead time is long. We are trying to figure out how many answers are enough.
 - Out of Office
 - Working from home for this week.