

Engineering Weekly Report 8/13/2020 - 8/20/2020

Executive Council Notes

- 901800 LRAUV: We launched LRAUV Daphne equipped with the Sipper water sampler today for the routine MBTS deployment. LRAUV Tethys will be joining Daphne offshore tomorrow for a short development cruise to test a new behavior to measure the speed and direction of currents at various depths. These current data will be used to improve station keeping at DEIMOS and acoustic homing for AUV docking. A new obstacle avoidance sonar has been integrated into LRAUV Pontus along with a new altimeter for a series of tests later this week or early next week.
- 901027 Sedimentation Event Sensor: After a busy month readying the SES the Smith Lab successfully deployed the instrument on MARS Tuesday for 5 weeks of development and testing. The team will use this time on MARS to focus on fine tuning the carousel rotation and acoustic communication. After recovery next month the team will prepare the SES for a 12-month deployment at Station M scheduled to begin in late October.
- 901618 Pelagic-Benthic Coupling: The Smith Lab also deployed the Benthic Larvae In-Situ Sampler (BLISS) Tuesday near MARS for a 24 hour test. The system collects larvae samples by pumping water through filters of 63 um and 100 um in support of new MBARI post-doc Diana Baetscher. The team worked diligently over the past couple months getting the system rebuilt for this successful test. BLISS is also scheduled for a Station M deployment of 48 hours at 4000 m depth. Congratulations to the Smith Lab team!

Individual Activities

- Francois Cazenave
- Mark Chaffey
- Danelle Cline
 - Out of Office
 - Off Fridays for summer duration
- Duane Edgington
 - 901603 - Video TAG: Vis Ocean Chng
 - Preparing for ECCV FewShot learning tutorial Saturday, and reading ECCV FewShot papers. Very active ECCV topic.

- 902005 - VARS Annotation Assistance
 - Team meeting Aug 20. Work on Phase 2 proposal.
 - Spin up [Metaflow](#) framework -- workflow candidate
- Overhead
 - Group meeting
 - Weekly NOAA AI initiative Workshop teleconference Thursdays.
 - Lunchtime reading AWS: IAM and VPN and EC2.
- Out of Office
 - Aug 21. Vacation.
 - Aug 22 - 28. ECCV. Virtual conference. Workshops, tutorials and presentations.
- Jon Erickson
- Kevin Gomes
 - 300057 - Mooring Maint
 - Troubleshooting Mt. Toro issues
 - Enabled OA2 deployment downloads
 - Trying to figure out mooring turn plans given Toro might be down past the mooring turn
 - 901009 - CANON
 - Working ODSS related issues (comms issues with Carson really).
 - 901205 - ESP SURF Center
 - More migrations of data and pretty much done. The MARS 2013 data set is giving some issues, but that is the last one.
 - 901915 - Improving MBARI Data Impa
 - Working on data catalog capabilities to support UAV data catalog, query and registration in GeoServer. Working to support Tom's PDR which is tomorrow.
 - Overhead
 - Still working on AWS breach issue (fiscal and security)
 - Working on implementing recommendations from AWS for breach prevention in the future
- Andy Hamilton
- Kent Headley
 - 600034 - Control Tech - Rock
 - Telecon with Steve to discuss phase 2 proposal
 - 901101 - Ocean Imaging
 - Wrote some cmake relocatable packaging code to help with Sentry TRN integration
 - CMake has a bit of a learning curve, but it's OK to use; less arcane than Autotools and gnu make. Don't know how it scales to large projects and across platforms, but for the small projects I'm working on, it's quick to get up and running. The packaging stuff took a couple of days to make work; there is lots of doc, but concrete examples and best practices/patterns are hard to find.
 - 901803 - Carbon Wave Glider Development
 - Continuing board bringup
 - Wrote board bringup doc
 - Reformatted controller platform help file (markdown)
 - Used pandoc and a google markdown extension to style and generate doc PDF
 - Overhead
 - Misc admin and meetings
- Rich Henthorn
 - 901405 - PowerBuoy Development
 - Adding to the command suite
 - Broadcast data from the various controllers over LCM
 - 901618 - Pelagic-Benthic Coupling

- Prep and mobilize for SES and BLISS deployments at MARS
 - Tue and Wed on Carson at MARS
 - Tuesday deployments of instruments went very well
 - Recover BLISS Wednesday
- 901800 - LRAUV Payload & Support
 - Some small touches to DeltaT data logger
 - Deployment soon after some integration with lab CPU
- Out of Office
 - Aug 18 and 19: Carson cruise to MARS to deploy SES and BLISS
 - Oct 27 to Nov 5: WF cruise to Sta. M
- Brett Hobson
 - 901800 - LRAUV Payload & Support
 - Working on the integration of an obstacle avoidance sonar, which for me includes sonar mounting, processing computer mounting and the electrical integration of the wet cables, bulkhead and internal wiring modifications. I've also been working on the Wave Glider Towout design, LCB testing, antenna construction, packed and shipped a palletainer to WHOI
- Scott Jensen
 - 901205 - ESP SURF Center
 - Checked out power supply for SailDrone
 - Completed drawings of cables for SailDrone
 - Gathered material to send to SailDrone
 - 901405 - PowerBuoy Development
 - Finished check out of new development PCB set
 - Finished layout of new Load Dump Switch PCB
 - 901805 - Coastal Biogeochemical Sensing
 - Put together history of MFET and MCAP
 - Finished layout of nanopHOx
 - Out of Office
 - Current schedule is Sunday-Tuesday
- Brent Jones
 - 901112 - Change in MB & CA Current
 - Diagnosing CPF failure during CANON. Is definitely a software issue!
 - 901800.98 - Bioacoustic Payload
 - Finished design on internal bracketry for elex. Sent to printing
 - 901805 - Coastal Biogeochemical Sensing
 - Continuing to run two spray gliders offshore. Doing comparative pH dives requiring lots of user intervention
 - Changing code to record higher res pH data to CF card
 - Overhead
 - Intern mentoring
 - meetings
- Chad Kecy
- Brian Kieft
 - 300082 - DMO Support - Wave Glider
 - Troubleshooting a bit with waveglider issues returning from Station M
 - Assisting with bringup of new 1U hotspot payload
 - 708158 - DHS Y6
 - Wrote an ocean current estimation behavior. Sim/tank tests passed. Will test offshore soon.
 - Met with team today to discuss progress/plans
 - 901800 - LRAUV Payload & Support

- Worked a bit on sonar/backseat integration
- 902009 - AUV UI
 - Team is actively watching this deployment and beginning to roll out user testing
- Denis Klimov
 - 300083 - DMO Support - LRAUV
 - Performed analysis on LRAUV flasher LED replacement. Looks like lime LED would be more visible to human eye even with reduction in LED quantity from 6 to 4
 - 901800 - LRAUV Payload & Support
 - PAR sensor for LRAUV Galene is completed and tested. Working on low-light source for biolum detector testing.
 - Overhead
 - Elecia White is having some progress with the code. This week, inventorying available BEDS instruments.
- Eric Martin
 - Out of Office
 - I am at MBARI Mon, Tues, and Friday
 - Vacation days on thursday when available.
- Thom Maughan
 - 901009 - CANON
 - Working with Raksha on benchmarking cpu and memory for minimap2 (eDNA sequence aligner) on Amazon AWS Server. Looking at cost reduction options for moving to a less capable EC2 instance and also scoping the resources required for embedded ARM. Things are looking good for using Xavier NX.
 - Many thanks to Kevin Gomes for walking me thru two factor authentication to boost security on AWS.
 - 901805 - Coastal Biogeochemical Sensing
 - Board checkout on the MpHOx boards, so far so good. I should be able to offload this task as I've got a test procedure written.
 - Meeting with Yui and Joseph on MFET / MpHOx board status. Scott provided a hardware change list to help with the versions, very helpful. Discussed lessons learned and we are tightening our process for numbering and tracking the boards.
 - Working on support for MFET revA with MCAP revC to get MFETS for a deployment.
 - Went back thru some of the MFET boards that failed and found a jumper had been installed on the reworked boards that was preventing deep sleep. We should have boards to build instruments now.
 - 902000 - Multi-Spectral StealthCam
 - Spent a couple hours working on burning bootloader, debugging whether it's the JTAG connection, emulator, or the board.
 - 902004 - Planktivore
 - Met with Paul Roberts on Friday. Helpful on many fronts especially on lighting design.
 - Fluum is in working order - Larry has done an awesome job! Flow rate is less than 1m/s but should be fine for prelim testing. Looking for a low voltage (12v/24v) drive motor with PWM control - fish trolling motor might be an option (0 to 300 rpm).
 - Have contacted three contractors and will be working RFQ as soon as possible.
 - Instituted status reporting on Slack
 - 901713 - Nearshore FOCE
 - Connectors have been received for building config cable for conductivity sensor.
 - Working on a config option to disable the filesystem.
 - Sent status to the nsFOCE team.
 - Overhead

- Working with Kent, Doug and Norm to get a lab space, a reasonable candidate
 - Met with Gabe to talk lessons learned on Techfest. Gabe created a survey monkey to send to the interns. Gabe did a fantastic job running techfest this summer.
 - Bridget Benson delivered healthy baby Margot on Aug. 5. We are in email contact on student projects this week.
 - Fires have had an impact, did not go into MBARI as planned to drop off equipment. As of the 19th, Carmel (Cachagua) fire is 3 miles from our house. Smoke is a challenge.
- Out of Office
 - Working remote. On campus Thurs / Fri last week in the afternoon.
- Mike McCann
 - 901111 - AUV Infrastructure Support
 - Processed data for mission 2020.231.01
 - 901910 - Plankton Taxonomic GrpAUV
 - Elicited a few more issues on the auv-python project and inching forward on implementation
 - Getting around to correcting times for mission 2017.284.00
 - Overhead
 - Beginning to work with Joe in testing Expd on strawbexpd with ActiveState Perl
 - Out of Office
 - Vacation days Monday & Tuesday 17-18 August 2020
- Rob McEwen
- Paul McGill
 - 901618 - Pelagic-Benthic Coupling
 - Finished tank testing of BLISS larval sampler. Based on flow data collected, was able to calculate the optimal flow rate for this week's deployment at MARS.
 - Finished preparing SES for deployment.
 - Went to sea on Carson on Tue and Wed to deploy and recover instruments.
 - Wrote code to geolocate Rover with Wave Glider data and worked with O'Reilly on algorithm to do loop-and-cross navigation autonomously.
- Ed Mellinger
- Tom O'Reilly
 - 901618 - Pelagic-Benthic Coupling
 - Working with McGill to refine 'loop-and-cross' acoustic geolocation algorithm and automated Wave Glider navigation script. We believe that loop-and-cross will be most efficient in cases where target location is known to within roughly 2 kilometers. First sea-trial is planned in a few weeks on Wave Glider 'Tiny' at MARS, using SES as a target. If tests are successful, we will use loop-and-cross to geolocate Benthic Rover at Station M later this year.
 - Installing software into new Hotspot payload box, preparing for Hotspot integration with Wave Glider 'Hansen', for onshore testing of loop-and-cross algorithm
 - 901902 - Aerial Drones for Sci&MO
 - Preparing for data processing PDR, scheduled for Thursday 8/20, 14:00 PDT. Working with team and UCSC/CENCOOS collaborators to refine software design and protocols.
- Craig Okuda
 - 901007 - Benthic Biology & Ecology
 - Test assemble chamber flush valve actuator
 - Update design
 - 901803 - Carbon Wave Glider Development
 - Prep docs for PMEL
 - System docs
 - Lab test system maintenance
 - Overhead

- Troubleshoot Mt Toro comms problem
 - Out of Office
 - Vacation day
- Doug Pargett
 - 901205 - ESP SURF Center
 - Working out solution for the pressure sensor problems.
 - Designed new stage and TV actuator for bench ESP. Made drawings and solid files for 3d printing.
 - DQ1904 - NOPP Saildrone
 - Building the FlowerPot housing and pump head. Moving the Koa ESP instrument to mount in it.
- Ben Raanan
- Mike Risi
 - 200105 - Core Nav - MDUC
 - Ran into problem running old navproc code due to datamanger issues with Ubuntu 20.04. Will use virtual machine with older version if I can't resolve the problem.
 - Pan and tilt simulator nearly complete.
 - 600034 - Control Tech - Rock
 - Meeting with Steve to go over concept for target hunting mode in mid-water tracking control system.
 - Working on interface to transition between hunting and tracking modes.
 - Overhead
 - Misc. phase 2 meetings and feedback
 - Out of Office
 - February 19-22: Ocean Imaging Cruise
 - March 9-12: Vacation
 - May 26-29: Vacation
 - June 29 - July 1: Vacation
 - September 30 - October 2: Vacation
 - October 12-17: Ocean Imaging Cruise
- Brent Roman
 - 901205 - ESP SURF Center
 - Found that one of the older 2G ESPs can pull out its Forearm wiring connector
 - Working with McLane on a mechanical fix
 - Added code to automatically choose between InStage and InCarousel heating profiles
 - Testing InCarousel heating on Honu in TTL "EasyBake" oven at ambient temperature
 - 901913 - Wet Wifi
 - Telecon with OceanComm to discuss LRAUV real-time video application next year
 - Overhead
 - Repaired my fanless desktop computer by replacing no-name PSU with one from Meanwell
 - Out of Office
 - At MBARI Tuesdays after 2PM
- Carlos Rueda
 - 901009 - CANON
 - MXM: updates to some libraries to address security alerts.
 - 901502 - Passive Acoustic Sensing
 - Meeting. Resuming work on technical report.
 - 901800 - LRAUV Payload & Support
 - Working on second part of adjustments to address [TETHYS-612](#).
 - Overhead
 - Provided input for NSF annual report related to the X-DOMES project.

- ESIP: As suspected, diagnosed and reported issue with pyLODE tool.
 - Created ORR [release](#) and updated the instances under our control (ESIP, X-DOMES, MMI).
 - Some more Rust learning, in this case with basic socket programming while putting together an [ESP Client](#) program (similar to Brent's Ruby version), which is also turning out pretty useful to inspect interactions for LRAUV's ESPComponent development purposes.
- Karen Salamy
 - Out of Office
 - Will be working on MBARI campus ONLY on Tuesdays until further notice.
- Brian Schlining
 - 500055 - Video Annotation DM
 - Completing a port of software that supports various VARS tasks such as Samples database integration, framegrab deletion reports, and video file metadata synchronization from VARS to M3/VARS.
 - Migrated support tasks from the server seaspray to quasar and expanse.
 - 902002 - Fathomnet Detect and Classify
 - Researching OAuth and OpenID Connect
 - Migrated code for applying embargoes and image watermarks from the older VARS to M3/VARS.
 - Created executables for windows/linux/macos for a VARS public query.
- Rich Schramm
 - Out of Office
 - Aug-10 -21 Vacation
- Alana Sherman
 - 901618 - Pelagic-Benthic Coupling
 - Helped team with deployments on Tuesday
 - Was trained on telepresence Monday, and controlling the SES
 - Was shore contact and pinch-hit for Rich who was at sea with no microwave. We were able to communicate to the SES through the MARS node.
 - 901809 - Deep Sea Bioinspiration
 - Fixed several issues with the Coherent GUI
 - Focus slider reset
 - Added zoom reset button
 - Fixed bug with lens parameters reporting
 - Overhead
 - Trying to sort out staffing issues for 2021 projects, have been contact EEs to work through hours individually