

Engineering Weekly Report 5/27/2021 - 6/3/2021

Executive Council Notes

- LRAUV Development (Hobson)
 - We wrapped up three weeks of intensive vehicle operations with the recovery of Makai and Daphne on Monday. Two ESP equipped vehicles, Makai and Brizo, collected over one hundred samples along and performed on-board analysis for HAB toxins during the EcoHAB deployment. Daphne and Pontus were deployed as well to perform automated patch tracking and general science surveys around the sampling vehicles.
 - LRAUV Tethys, Pontus and Brizo were deployed at Portuguese Ledge for Dr. Rock to demonstrate how LRAUVs can use the position of nearby vehicles, using acoustic communications and tracking along with Terrain Relative Navigation to refine their position estimates.
 - LRAUV Triton will head offshore next to test the new bio-acoustic payload for Dr. Benoit-Bird
 - LRAUV Galene is being configured for some midwater imaging work for Dr. Katija next week.

Individual Activities

- Francois Cazenave
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Working to integrate Cytobot to buoy. We cut a hole in the foam.
 - Making various preparation for deployment
 - 901700 - Acoustical Ocean Ecology
 - Gathering information for housing design
 - 902106 - Niobicon-Based AUV Docking Development
 - I have been testing docking in the test tank
 - Preparing for DOEST
 - Out of Office
 - I took Friday off.
- Mark Chaffey
 - Out of Office
 - Will be OoF May 1 - 22 and unavailable.
- Danelle Cline
 - 500055 - Video Annotation DM
 - On call while Brian was on vacation. All was quiet with no issues.
 - 901502 - Passive Acoustic Sensing
 - COVID paper is available through open access. [Reduction of Low-Frequency Vessel Noise in Monterey Bay National Marine Sanctuary During the COVID-19 Pandemic.](#)
 - Summer intern planning
 - Porting classifier code to train in SageMaker
 - John and Danelle gave an outdoor COVID safe presentation to Soquel High School in Santa Cruz. Special thanks to Dave French for rebuilding the mobile sound exhibit which we gave a test drive at this event.



-
- 300057 - Mooring Maintenance
 - Weekly meetings with Rich. OASIS turn is coming up quickly.
- 902005 - VARS Annotation Assistance
 - Cloud-enabled the video processing pipeline. Only 40 lines of code for a full video processing pipeline in SageMaker. Pretty cool.
 - Working with the team on pulling out performance metrics in the VAA SageMaker web app. So far so good.
- Overhead
 - Our paper was published, finally! Automated classification of fauna in seabed photographs: the impact of training and validation dataset size, with considerations for the class imbalance. Open access here: <https://doi.org/10.1016/j.pocean.2021.102612>
- Out of Office
 - May 28th
- Duane Edgington
 - 902005 - VARS Annotation Assistance
 - Conference calls with Carlos and Danelle on VAA Vue app (training metrics)
 - Overhead
 - Group meeting (virtual) May 28.
 - Out of Office
 - Friday May 28: Vacation.
 - Monday May 31: Holiday
 - May 25-27: Embedded Vision Conference (virtual).
 - June 2: AWS ML Summit
 - June 1 - 4: NOAA AIASI VIAME training course.
- Jon Erickson
- Kevin Gomes
 - 300057 - Mooring Maintenance
 - Setting up the SSDS processing for the test deployment for pre-M1 turn
 - 901502 - Passive Acoustic Sensing
 - Uploaded all the images for the visual browsing to AWS S3 to test performance gains with S3 hosting and CloudFront. While CloudFront provided remarkable speed improvements for repeated requests, we don't see that as a normal use case so will continue to host visual browsing for soundscape at MBARI.
 - Overhead
 - Starting discussion about cloud exploration proposal
 - Reviewed RFP document for web re-design and attended a meeting to finalize by Friday.
 - Working on various Carson odds and ends
 - More work transferring Rich work/knowledge through meetings
 - Meeting with Todd R to discuss managing external service accounts and broader context of how to handle our interactions with external services, security and intellectual property rights.
 - With a lot of help from Cindy, getting Diana's office set up and ready for her return to work
 - Yet more meetings to discuss the fate of aircraft engine parts.

- Out of Office
 - June 21-25: Vacation
- Andy Hamilton
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Testing the new power converter in Bldg D with the PTO in preparation for upcoming deployment
 - 708167 - WEC Dynamics and Control
 -
 - 901700 - Acoustical Ocean Ecology
 - Working towards a tank test of hydraulic control system. Coded the IMU data ingress and control loop, working on actuator output.
 - 902106 - Niobicon-Based AUV Docking Development
 - Working on preparations for DOEST
 - Overhead
 - Board meeting preparations
- Kent Headley
 - 901803 - Carbon Wave Glider Development
 - Attended PMEL planning telecon; we hope to deliver a test instrument in the next month or so.
 - Meanwhile, we are building our first article for the lab
 - Continue bench testing firmware
 - RH sensor hardware on order
 - Overhead
 - Dorado control issues
 - SRSC worked w/ Alana and Jim to develop slide concepts for board meeting
 - Waveglider Loop and Cross: Tom, Brian and Chris are helping me to get Loop and Cross code into test; not sure whether I'll make a test window at Sta M, but the code is being tested and will demo for Paul this week.
 - Misc admin
- Rich Henthorn
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Merging Dorado code bases
 - 800139 - EyeRIS
 - Weekly meeting
 - EyeRIS-LRAUV Interface
 - 901101 - Seafloor Mapping
 - Merging Dorado code bases
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Weekly meeting
 - CANbus data logging
 - 901618 - Pelagic-Benthic Coupling
 - Weekly meeting
 - Rover paper manuscript
 - 902101 - LRAUV Technology Development and Fleet Operations
 - TRN
 - Out of Office
 - July 7 - 9, vacation
 - July 26 - Aug 9, mostly vacation, network and phone access
 - Sept 22 - Oct 1, vacation
- Brett Hobson
- Scott Jensen

- 901205 - ESP SURF Center
 - Preparations for Yellowstone deployment
 - Helping resolve SPR issues
- 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Prepared Battery pack for upcoming deployment
- 901805 - Coastal Biogeochemical Sensing
 - Checked out for detailed testing the unipolar ISFET adapter on a prototype MCAP
- 902101 - LRAUV Technology Development and Fleet Operations
 - Worked on a method for controlling ramp up and down of boost voltage to accommodate changes while spinning.
- Brent Jones
 - Out of Office
 - Last Friday and ½ day tues
- Chad Keczy
 - Out of Office
 - Possibly out 4/26 (right after 2nd Pfizer shot)
 - May 18-24/25 Vacation (staying local)
- Brian Kieft
 - 708168 - DHS Y7
 - Preparing for salt intrusion deployment
 - 901009 - CANON
 - Launched LRAUV daphne for MBTS run yesterday. Supporting deployment.
 - 901618 - Pelagic-Benthic Coupling
 - Limited planning for station M ops
 - 901800.98 - Bioacoustic Payload
 - Prepping vehicle for deployment today.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Thruster HE testing on Triton
 - Docking testing on Tethys
 - Vehicle prep on daphne
 - DQ2025 - L. Erie HAB
 - Meeting today to discuss logistics. Planning on first 2 weeks of August.
 - Out of Office
 - Jun 8-11 (vacation)
 - Jul 1-9 (vacation)
 - ~~Aug 5-6 (vacation)~~
 - Aug 1-11 (Great Lakes LRAUV)
 - Sep WHOI?
 - October 25-31 (PLOCAN glider school tentative)
- Denis Klimov
 - 300083 - DMO Support LRAUV
 - Battery pack degaussing procedure: text draft completed.
 - 800139 - EyeRIS
 - Second controller board is configured; performing optical testing with 5 LED strobes
 - 901809 - Deep Sea Bioinspiration
 - Labels for DeepPIV 3 and 4 are completed and printed
 - Overhead
 - We are doing testing of IFCB sampling protocols, with three fluids added to the internal compartments; calibrating beads, bleach, and biocide. Electrical tests for current and energy

draw are completed. Mechanical integration to Power Buoy is under way; a hole in surface expression drilled, and IFCB housing initial test fit performed.

- Out of Office
 - June 14-18
- Diana LaScala-Gruenewald
 - 200103 - Core CTD Data - MDUC
 - Continued to set ROV CTD QC flags as needed (O2, light)
 - Reviewed documentation in preparation for taking over additional new tasks from Rich (Ship and ROV core data workflow, esp Rovctd ingest to EXPD and dive/divesummary table updates)
 - 500055 - Video Annotation DM
 - Continued working on creating concept distribution maps for a set of regions
 1. Created a “global” extent focused on the eastern pacific
 2. Adjusted code to create bounding boxes and grid accordingly
 3. Moved code into Pycharm to take advantage of better debugging capabilities
 4. Added code to query for region coords and iterate to create concept maps for each region
 5. Currently troubleshooting a number of mapping issues arising from testing this code on a larger subset of concepts
 - Will likely need more detailed shapefiles for maps, possibly w/ bathymetry
 - Overhead
 - Weekly meeting(s)
 - Some training on database creation, management, and optimization to improve understanding of EXPD DB
 - Out of Office
 - ½ day vacation on Wednesday 5/26
- Eric Martin
 - Out of Office
 - Tuesdays until summer break for schools.
- Thom Maughan
 - 901805 - Coastal Biogeochemical Sensing
 - Testing on MFET and MpHOx is complete.
 - Implemented improvements to QA routine, with the notion of having outside manufacturing run the QA routine or EE Tech team. It takes about one minute per board for this release.
 - Released v3.8.1 for MFET and MpHOx to the Carbon team for lab testing.
 - Working on 2022 proposal inputs
 - Paul Coenen is working on the QA workstation test jig. We’ve got 40 MpHOx and 20 MFETs to process. James and Joseph are checked out on the QA setup. I owe Joseph a follow up as our session was cut short due to trip to dentist.
 - 901713 - Nearshore FOCE
 - Updated Dale Graves’ MpHOx, explained data organization differences. Dale gave great feedback on M2M protocol improvements.
 - 902004 - Planktivore
 - Project proposal tasks and estimates.
 - Started setting up RAID on DeepRip. Not done yet. Linux is next and will try zfs.
 - Got estimates from Larry Bird for Planktivore Housng. Work start end of June and three to four weeks of labor.
 - Out of Office
 - Second Moderna vaccine received on 4/30.
 - Vacation 4 Jun (1 days). Camping. Shortened from 5 days to 1 day due to wife’s job commitments.

- Vacation 14-18 Jun (5 days) Camping a night on USS Iowa, then Catalina Emerald Bay with Scouts
- Mike McCann
 - Out of Office
 - Vacation: 1-18 June 2021
- Rob McEwen
 - Out of Office
 - Taking today and this coming Monday off as vacation.
- Paul McGill
 - 701145 - Penguin Hotspots
 - Working with Chad W. on wiring of REMUS sonar payload
 - 901618 - Pelagic-Benthic Coupling
 - Working on Rover paper
 - Helping Alana with wiring of Macro Camera
 - 901700 - Acoustical Ocean Ecology
 - Tested latest incarnation of sonar Faraday shield with Chad W.
 - Ordered power supplies for MARS Echosounder
 - 901803 - Carbon Wave Glider Development
 - Had Zoom meeting with PMEL to discuss DIC analyzer testing strategy
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Installed battery in DiSCO camera
 - Compiled inventory of our numerous lasers
- Ed Mellinger
- Tom O'Reilly
 - 901112 - Monterey Bay Time Series
 - Conducted tests of IFCB microscope integrated with Power Buoy onboard network and cell modem
 - Testing IFCB operation and calibration procedures
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach
 - Helped team prepare abstract presentation for 2022 proposal
 - As project manager, starting to plan tasks, milestones, resources and budget for phase 1
- Craig Okuda
 - 901007 - Benthic Biology and Ecology
 - Assemble new chamber sensor mounts
 - 901220 - Midwater Ecology
 - Rebuild midwater frame
 - Out of Office
 - Vacation day
 - Sick day
 - Meet with Mt Toro ranch owner
- Doug Pargett
 - 708146 - NOPP Saildrone
 - Recovered the Koa ESP from the Saildrone Surveyor
 - 881135 - 3G ESP Cartridge Redesign
 - Testing cartridge fastener strength
 - Reviewing the newest alpha 3 design
 - 901205 - ESP SURF Center
 - meetings
 - Overhead
 - Solving some network problems

- Out of Office
 - Holiday
- Ben Raanan
 - Out of Office
 - June 8-22
- Mike Risi
 - Out of Office
 - April 26-30: Ocean Imaging Cruise
 - May 3-7: Vacation
 - June 4-11: Vacation
 - September 3-14: Ocean Imaging Cruise
 - Vacation on alternate Fridays
- Brent Roman
- Carlos Rueda
 - 708168 - DHS Y7
 - Some assistance to WHOI.
 - 902005 - VARS Annotation Assistance
 - Advancing the VAA Vue project to [display performance metrics](#) retrieved via AWS APIs.
 - 902009 - AUV UI
 - Met with Andy and Ken to delineate a strategy to incorporate their battery status widget in the Dash UI. In principle, this will be via "iFrame," similarly as with Steve's widgets.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - TethysDash system now [4.5.2](#) (not yet enabled on the production server) and published to Docker Hub.
 - Documentation updates (including docker install and release pages).
 - Out of Office
 - Jun 3-4: vacation
- Karen Salamy
 - Out of Office
 - May 28 - June 1 - Vacation
 - Doctor's appointments June 2nd & 3rd. Will be out for part of those days.
- Brian Schlining
 - 500055 - Video Annotation DM
 - [Working on the ingest of a big video drop](#) of 4,380 videos from iron mountain
 - Out of Office
 - May 27-June 1 - Vacation
- Rich Schramm
 - Overhead
 - Continue transition documentation and meetings
 - Out of Office
 - 6/3 thru 6/7
 - 7/1 - forever
- Alana Sherman