

Engineering Weekly Report 5/13/2021 - 5/20/2021

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

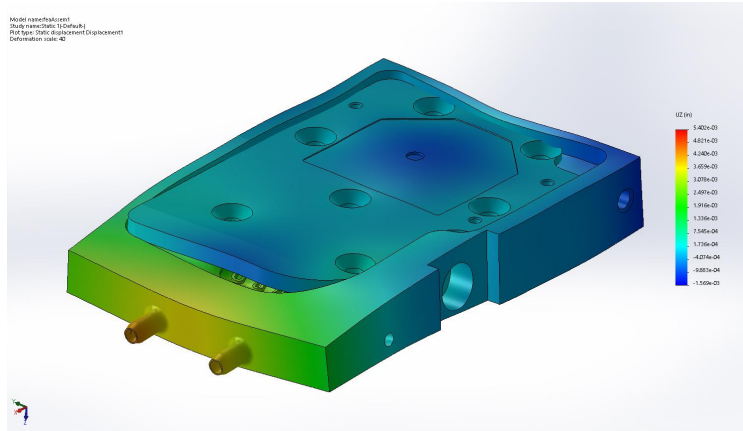
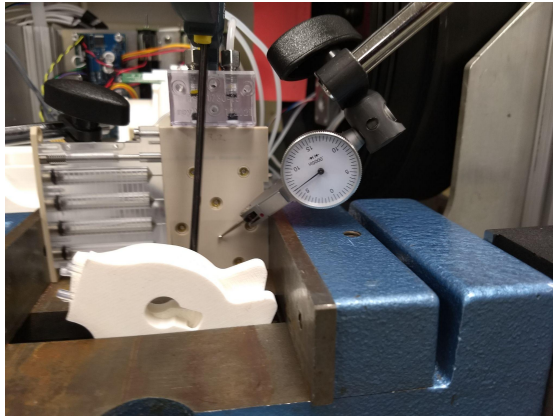
- Francois Cazenave
 - Out of Office
 - Took Thursday off
- Mark Chaffey
 - Out of Office
 - Will be OoF May 1 - 22 and unavailable.
- Danelle Cline
- Duane Edgington
 - 902005 - VARS Annotation Assistance
 - Continued work on AWS SageMaker Training metric tracking API calls. Demoed some plots.
 - Overhead
 - Worked on Cloud abstract
 - Spinning up on Vue and JS.
 - Out of Office
 - Friday May 21: Vacation.
 - Wednesday May 19: Medical
 - May 25-27: Embedded Vision Conference (virtual).
- Jon Erickson
- Kevin Gomes
 - Out of Office
 - May 12-24: Vacation - multiple graduations
 - June 21-25: Vacation
- Andy Hamilton
- Kent Headley
 - 901803 - Carbon Wave Glider Development
 - Found and fixed a couple of issues in logging and timing (new firmware release)
 - Bench testing
 - Overhead
 - Misc admin

- SRSC
 - Abstracts
 - Dorado code eval
 - Loop and cross waveglider search algorithm
 - Conversation w Yui re LabView
- Out of Office
 - Tue 5/19 - personal
- Rich Henthorn
 - 800139 - EyeRIS
 - Weekly meeting
 - 901101 - Seafloor Mapping
 - Merging code from mapping vehicles into central repo
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Modifications and cleaning of command suite and logging
 - 901618 - Pelagic-Benthic Coupling
 - Creating Station-M workstation for dev and data processing for Rover and SES
 - Weekly meeting
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Weekly meeting
 - 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
 - Tested pump controllers for upcoming Yellowstone deployments
 - Completed fabrication and install of second terrestrial housing lid
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Finished rebuild of power converter
 - Tested rebuild for functionality
 - Worked on BMS communication system
 - 901805 - Coastal Biogeochemical Sensing
 - Design for unipolar ISFET to MFET adapter PCB
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Received Thruster PCB and began assembly. Power supply functional and 95% efficient.
 - 902106 - Niobicon-Based AUV Docking Development
 - Attended meeting with collaborator NG.
 - Found the long lost original power coupling prototype
- Brent Jones
- Chad Kecz
 - Out of Office
 - Possibly out 4/26 (right after 2nd Pfizer shot)
 - May 18-24/25 Vacation (staying local)
- Brian Kieft
 - 901800.98 - Bioacoustic Payload
 - Met to discuss recent deployment, review data, and plan for new mission
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Assisted with prep for today's Pontus deployment
 - Out of Office

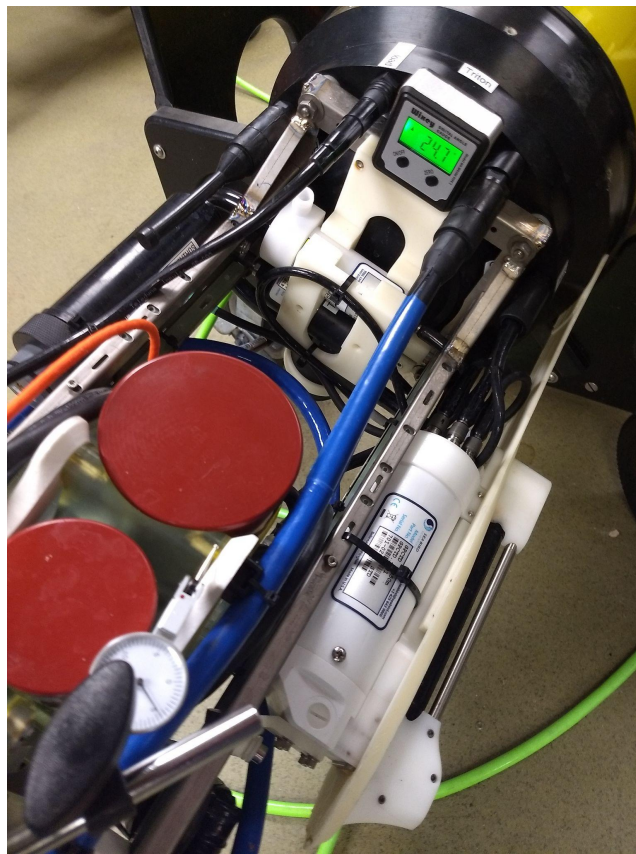
- Currently awaiting Covid test results to return
 - Jun 8-11 (vacation)
 - Jul 1-9 (vacation)
 - Aug 5-6 (vacation)
 - Aug 16-31 (Great Lakes LRAUV)
 - October 25-31 (PLOCAN glider school tentative)
- Denis Klimov
 - 800139 - EyeRIS
 - Updating second controller board, and optimizing strobe pulse length
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Figuring out optical flat paint, that could stand up in salt water conditions
 - Overhead
 - Working on testing IFCB, tilt tests, current draw characterization, and drafting wiring for Power Buoy installation
- Diana LaScala-Gruenewald
 - 200103 - Core CTD Data - MDUC
 - Spent some time getting familiar w/ ROV CTD data and diveinfo servlets
 1. Practiced using them
 2. Got access to coredata and made sure I could find all the code
 3. Might still be good to look more closely at cron jobs and JavaScript code
 - Set O2 QC flags for recent Doc Ricketts dives
 - Looked into setting lightFlag for these dives as well
 1. Exploring writing a stored procedure to do this
 2. Spent a little time learning more about database components that I know less about (incl. stored procedures)
 - 500055 - Video Annotation DM
 - Met with Brian to get feedback on initial set of concept distribution maps and identify next steps
 - Overhead
 - Weekly meeting(s)
 - Spent some time setting up new laptop
- Eric Martin
 - 901101 - Seafloor Mapping
 - Lidar data analysis shows that errors are still happening, engaging 3D@depth soon.
 - Shipping requirements for GOC and NW Expedition passed onto Teresa.
 - 901206 - Coastal Profiling Float
 - Troubleshooting issues with new sparkfun GPS carrier
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Looking at remaining tasks for deployment.
 - 901700 - Acoustical Ocean Ecology
 - Brief analysis of battery need for moored deployment
 - 901911 - ROVVR
 - Attended Olin SCOPE final symposium, transitioning projects to MBARI github.
 - Study approved at UCSC for VR HRI test tank trial, initial meeting with Leila and Ben to run tests in June, for publication in July.
 - 902100 - Telepresence on MBARI Research Vessels
 - Update with Mike Kelly last monday
 - Supporting Katija expedition on the RC
 - Writing next survey for annotation needs
 - Overhead

- Presented to 60+ 9th STEM students in the Oakland area last week, discussing Marine robotics and the associated challenges. They would like to follow up with a tour next year.
 - Test driven development class next week.
- Out of Office
 - Tuesdays until summer break for schools.
- Thom Maughan
 - 901805 - Coastal Biogeochemical Sensing
 - Firmware release for testing by Carbon lab.
 - Review of data grouping proposal. Grouping and support of legacy users.
 - Temperature conversion: worked on three variable Steinhart-Hart alg and trying to understand the equation used by Scripps (four variable). Researching and testing. Converted to single to double precision. Three equations, three unknowns to generate S-H coefficients if we were to encode the calibration of the thermistor.
 - Working to improve QA procedure. James M. did a walkthrough for Yui. Working to further automate to make James job easier with all the same traceability.
 - 902004 - Planktivore
 - Status/Kickoff meeting with Steve Haddock, Francisco Chavez, Henry Ruhl, Paul Roberts
 - Follow-up meeting with Paul to discuss technical direction.
 - Working on 2022 estimate for Henry
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 - Out of Office
 - Second Moderna vaccine received on 4/30.
 - Vacation 6-11 May (4 days). Complete: flew to Missoula from Monterey, drove back solo. Week of May 17 onsite access with testing.
 - Vacation 31 May - 4 Jun (5 days). Camping in SLO county.
 - Vacation 14-18 Jun (5 days) Camping a night on USS Iowa, then Catalina Emerald Bay with Scouts
- Mike McCann
 - 901009 - CANON
 - Battled travis-ci failure with pip not able to resolve dependencies
 - Exploring using Docker's --scale option to horizontally scale the STOQS web app
 - 901101 - Seafloor Mapping
 - Exploring Django integration of front-end frameworks such as Vue and Vite
 - Code repository set up at <https://github.com/mbari-org/SeafloorMappingDB>
 - 901910 - Plankton Taxonomic Groups from AUVs
 - Provided some input to Monique's abstract for a 3-year renewal of the project
 - Out of Office
 - Vacation: 1-18 June 2021
- Rob McEwen
 - Out of Office
 - Taking today and this coming Monday off as vacation.
- Paul McGill
- Ed Mellinger
- Tom O'Reilly
- Craig Okuda
 - 901007 - Benthic Biology and Ecology
 - Test valves
 - 901220 - Midwater Ecology
 - Design replacement battery pack
 - 902101 - LRAUV Technology Development and Fleet Operations

- Test LRAUV antennas
- Out of Office
 - Vacation day
 - Sick day
- Doug Pargett
 - 881135 - 3G ESP Cartridge Redesign
 - Lots of cartridge testing and FEA analysis



- 901205 - ESP SURF Center
 - Meetings and a bit of work to prep MV2 for more testing
- 901800.98 - Bioacoustic Payload
 - Measured deformation of structure due to vehicle roll.



- Ben Raanan
 - Out of Office
 - June 8-22
- Mike Risi
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Testing mid-water tracking interface to Doc Ricketts
 - 901101 - Seafloor Mapping
 - Starting DeltaT integration work
 - Working on way-point processor improvements
 - 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
 - 706005 - eDNA Grass Carp Sandusky
 - Purchased sim card
 - Working w/Scott to power the modem from the new terrestrial 55gal drum ESP "can"
 - 708146 - NOPP Saildrone
 - Saildrone finally came through with a networking architecture that works over Certus!!
 - Tweaks our SSH tunneling to play by their new rules
 - 708165 - NOAA-MERHAB
 - They are set to deploy their ESP in August.
 - Working with Kevin Zack of APL to integrate his new pump/external valve controller
 - 901205 - ESP SURF Center
 - Helped Bill Ussler get SPR running again in the lab with compressed output files

- Added chrony to ESP linux distro to support time sync required for Wireguard VPN
 - Finally found and fixed a nasty bug in libreadline5
 1. Where multibyte character support allows moving input cursor past end of string
 - 901913 - Demonstrating high-speed communication with a submerged AUV
 - Still stuck in ITAR Limbo...
- Carlos Rueda
 - 708168 - DHS Y7
 - Productive interactions with Ryan G. toward supporting their new mail server, which has required some upgrades in TethysDash, but also to address some other feedback. Various versions tested, now 4.4.8.
 - 902005 - VARS Annotation Assistance
 - Met with Danelle and Duane to discuss a VAA Vue project involving the display of performance metrics obtained via SageMaker API, which Duane will be focusing on, while I shall be helping with the UI side of things.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Some intensive TethysDash work, both backend and frontend. The system is now [4.4.8](#).
 - Automatic generation of mission documentation page now includes a section for any invoked LRAUV behaviors. [Example](#).
 - [TethysL use cases doc](#) updated (and simplified--one page with context and an update about the general integration strategy, and the other with the actual use cases).
 - Briefly met with Mike G., mainly about mission documentation.
 - Overhead
 - Input to IE/IS abstract
 - Out of Office
 - Out sick two days (effects of 2nd moderna dose past week)
- Karen Salamy
 - 901101 - Seafloor Mapping
 - Received new message from Mike M. and Jenny P. regarding initial names for the database we will be building. It is currently called SeafloorMappingDB (or smdb).
 - 902100 - Telepresence on MBARI Research Vessels
 - Some linkserver questions for IS
 - Overhead
 - Continue with Rich Weekly Onboarding of Oasis3 Mooring work.
 - Created a new script that would look for any stale vipr LCK files prior to data downloads. The persistence of these files will not allow data downloads. It is unsure what is causing this (possibly others logging in to the system at certain times) but the script has been keeping data downloads working.
 - Set up the M1-slave1 directory for Jared to test through in the Bird Cage. I added the new script to the 202106 download test hourly cronjob.
 - Out of Office
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- Brian Schlining
 - 500055 - Video Annotation DM
 - [Processed latest videos](#) from Iron Mountain for the tape-to-video conversion project. [The code that generates scripts](#) is working well but about 1/7 (100) of the videos required manual intervention. Brian [created some code to provide "guesses"](#) for the correct metadata for problem videos.
 - Now that Iron Mountain has figured out the workflow, they will be delivering 4 LTO tapes of videos every two weeks. To date, a single LTO requires about 2-3 days to work through correcting metadata with problem dives. (problems include: timecode resets during dives, wrong

dive metadata in the expedition database, older dives used year-day instead of dive number, mislabeled tapes, missing camera logs, etc)

- 902002 - Fathomnet Detect and Classify
 - Brian has wiped the FathomNet database and is working on reloading the data from VARS. During the reload, two problems were discovered that Brian is working on.
 1. Large loads were locking too many database tables. This caused the FathomNet website to hang and introduced lock contention which could result in loss of data during the load. That *should* be addressed [with this change](#).
 2. The complete object graph on loads is not always saved. DarwinCore and Tags objects may disappear. This is being investigated.
- Out of Office
 - May 27-June 1 - Vacation
- Rich Schramm
 - 300057 - Mooring Maintenance
 - Debugging M1-turn 2021 controller failure
 - 500055 - Video Annotation DM
 - Repair core video data load script.
 - Overhead
 - Continue transition work
 - Out of Office
 - 5/12 thru 5/14
 - 6/3 thru 6/7
- Alana Sherman