

Engineering Weekly Report 4/22/2021 - 4/29/2021

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
 - 902106 - Niobicon-Based AUV Docking Development
 - Monitoring niobium power transfer test
 - Assembling improve clamping device
 - Modeling AUV with docking device
 - Gathering information for MARS dock
- Mark Chaffey
 - Out of Office
 - Will be OoF May 1 - 22 and unavailable.
- Danelle Cline
 - Out of Office
 - March 29-April 2nd. I will be off-the-grid for a good part of this.
- Duane Edgington
 - 902005 - VARS Annotation Assistance
 - Working on the task to search SageMaker job records for values of interest (Billable time, Spot instance or not, etc). Sprint 2: Train. Good progress. I have the search results in a python dictionary; working through how to harvest and display.
 - Meet with the CSUMB Capstone team Friday April 30.
 - Overhead
 - Engineering meeting April 27.
 - Seminar April 28.
 - Out of Office
 - May 3 - 7. International Conference on Learning Representations
- Jon Erickson
 - 300070 - DMO Support Ventana
 - New light bar for Ventana. Bending moments.
 - 300079 - DMO Support Rachel Carson
 - Checking Scott /Frank design for new container deck mounts.

- 701145 - Penguin Hotspots
 - Meetings to settle electrical noise issues. Final prints are waiting.
- 800139 - EyeRIS
 - Finally solved the strobe fit issues and have a polycarbonate dome design.
 - Have not pressure tested the camera case. Waiting on parts.
- 901217 - Chemical Sensor Program
 - Carbon fiber tubes to be delivered this week.
- 902010 - Mesopelagic LRAUV
 - Waiting on the Carbon fiber tubes from Amalga.
- Overhead
 - Quest - is interested in pursuing a motorized subsurface mooring at MARS. Trying to scope that design.
- Kevin Gomes
 - 901009 - CANON
 - Experiment support
 - Cut over to the Ubuntu based ODSS on the test machine and will start planning for production and boat upgrades.
 - Support and troubleshooting for tracking database for glider for Yui
 - Overhead
 - Working on debugging issues with Navproc/Dataprobe/etc.
 - COVID test to shorten 14 day quarantine to 9.
 - Job description work and submission.
 - More work with Navy on aircraft engine report and parts decision. Took possession of parts for Chris Grech.
 - A little more work on CSS for EDNA graphic on website
 - Meeting with Mike Kelly to talk about planning for the David Packard
 - Out of Office
 - Some sick leave Mon/Tue
 - May 12-24: Vacation
 - June 21-25: Vacation
- Andy Hamilton
- Kent Headley
 - Out of Office
 - Tue 5/25 - medical (late a. m.)
- Rich Henthorn
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - TRN and OA work
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Added checking for RPMs before executing the CurrCmd schedule
 - Created more utility commands for sampling controller data
 - 901618 - Pelagic-Benthic Coupling
 - Weekly meeting
 - Paper research
 - 902101 - LRAUV Technology Development and Fleet Operations
 - TRN and OA work
- Brett Hobson
- Scott Jensen
 - 901205 - ESP SURF Center
 - Preparations for the Montana deployments
 - 901405 - Wave-Energy Conversion for Oceanographic Applications

- Final system testing with a big step backwards.
- 901805 - Coastal Biogeochemical Sensing
 - Received the new bias PCB and thus far the circuit looks promising
- 902101 - LRAUV Technology Development and Fleet Operations
 - The layout is 95% complete and parts have been ordered for the MBAR Thruster Drive
- 902106 - Niobicon-Based AUV Docking Development
 - Support of the power transfer testing
- Overhead
 - PCB editor, Orcad and EDM configuration
- Brent Jones
- Chad Key
- Out of Office
 - Possibly out 4/26 (right after 2nd Pfizer shot)
 - May 18-24/25 Vacation (staying local)
- Brian Kieft
 - 300082 - DMO Support - Wave Glider
 - EcoHAB piloting/tracking
 - 708168 - DHS Y7
 - Assisted with ground fault troubleshooting
 - 901009 - CANON
 - Recovered Daphne/Makai following successful EcoHAB deployment and 86 hours of underwater drift
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Working on docking arm integration in preparation for tank testing next week
 - Prepping Galene for deployment
 - Out of Office
 - Apr 2-9 (vacation)
 - Jul 1-9 (vacation)
 - Aug 5-6 (vacation)
- Denis Klimov
 - 800139 - EyeRIS
 - Figuring out how to add heat sinking from MOSFETs in switching regulators on existing board, and retesting controller
 - 901809 - Deep Sea Bioinspiration
 - Updating DeepPIV 3 and DeepPIV 4 use on deck policy for optional laser sheet angles
 - Overhead
 - Installing and testing IFCB; helping organizing remote training session with MacLane
- Diana LaScala-Gruenewald
 - 200103 - Core CTD Data - MDUC
 - Continuing to set ctd O2 QC flags as they arrive
 - Looking into an issue with the latest reprocessing procedure - first dive was not processed with the correct config file - with help from Rich
 - 500055 - Video Annotation DM
 - Met w/ Brian to get feedback and discuss next steps
 - Updated code for images based on initial feedback
 - Implemented initial code to generate static images for all VARS concepts
 - Currently troubleshooting this process
 - Overhead
 - Weekly meeting(s)
- Eric Martin

- Out of Office
 - Tuesdays until school is back in session.
- Thom Maughan
 - 901805 - Coastal Biogeochemical Sensing
 - Pushing to release the latest software. Testing and review is creating todo items, but the list is converging.
 - Thanks to James M. for helping with easy bias battery measurement probe. Gave Scott a setup and he found an assembly error on the 'bad' MCAP board
 - Wrote QA firmware and put together a setup for programming and testing the 40 mphox+mcap boards.
 - 902000 - Multi-Spectral StealthCam
 - Bootloader is flashed on PWM lighting boards.
 - 901713 - Nearshore FOCE
 - Working to get Chris setup to measure pH. Found and fixed problems with power supply, usb to serial, pH cable, durafet2 sensors and MpHOx+MCAP assembly error.
 - 902004 - Planktivore
 - Getting parts from Paul for strobe testing.
 - Out of Office
 - Second Moderna vaccine scheduled 4/30.
 - Vacation 6,7,10,11 May (4 days) Updated to fix a typo (Apr) and add a day 5/11. Flying to Missoula and driving solo back to CA.
 - 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
 - Loaded delayed mode & ESP filtering LRAUV data into [stoqs_canon_april2021](#)
 - Beginning to look for shipboard data to load into STOQS
 - 901101 - Seafloor Mapping
 - Exploring using cookiecutter-django for creating framework for the database project
 - Out of Office
 - Vacation: 27 & 29 April 2021
- Rob McEwen
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Completed first pass at merging crest-detection and sea-surface prediction codes in Matlab.
 - Tested on recorded data. Results are not yet adequate.
 - Will work with team members to improve the algorithm.
 - Out of Office
 - Taking one day of vacation per week for the next 6 weeks or so.
 - Taking vacation today (Wed).
- Paul McGill
- Ed Mellinger
- Tom O'Reilly
- Craig Okuda
 - 300079 - DMO Support Rachel Carson
 - Handoff RC conversion docs to DMO
 - 901007 - Benthic Biology and Ecology
 - Test valve actuator
 - Out of Office
 - Vacation day

- Overhead
 - Misc wireless system clean up
- Doug Pargett
 - 881135 - 3G ESP Cartridge Redesign
 - Reviewing new cartridge designs to try and find possible leak sources.
 - Inspecting parts and assemblies
 - Setting up method to measure cartridge deformation while testing new cartridges.
 - 901205 - ESP SURF Center
 - Building up new 3G pump assembly to test pressure pulse reduction methods.
 - Overhead
 - Seminars
 - Out of Office
 - A few hours for the dentist and the vaccinators
- Ben Raanan
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Met with Steve to review data
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Finished bioacoustics backseat app design — working on integration
 - Debriefs for CANON/EcoHAB
 - Working on 24 v converter load control interface
 - 902102 - Multi-LRAUV Simulation Environment
 - Working with the ORSC team on adding new plugins for simulating vehicle mass/VBS/DropWeight and ocean currents.
 - Overhead
 - PE search
 - Out of Office
 - June 8-22
- Mike Risi
 - 200105 - Core Nav - MDUC
 - After several successful ROV dives, the new navproc appears to be working as anticipated.
 - 901101 - Seafloor Mapping
 - Setting up up on Western Flyer for Ocean Imaging cruise
 - 902001.99 - 4K ROV Camera Development
 - Working on lapbox integration with Doc Ricketts
 - Out of Office
 - April 26-30: Ocean Imaging Cruise
 - May 3-7: Vacation
 - September 3-14: Ocean Imaging Cruise
 - Vacation on alternate Fridays
- Brent Roman
 - 708143 - NOAA ECOHAB
 - Both ESPs worked! Even SPR worked!
 - 708146 - NOPP Saildrone
 - They kindly provided us access to one of their servers, however...
 - We still cannot hold up a connection more than a few seconds on Certus
 - Jim Birch is trying to get the problem more visibility at Saildrone
 - 901205 - ESP SURF Center
 - Fixing minor bug unearthed during ECOHAB
 - Demonstrated that SPR data can easily be compressed 14:1
 - ESPshore2.mbari.org is up and supports the Wireguard VPN in addition to PPTP and ssh tunnel

- 901913 - Demonstrating high-speed communication with a submerged AUV
 - Got an acceptable loan agreement from OceanComm
 - How a couple options for where we can secure the ITAR equipment at MBARI
 - OceanComm says they are ready to ship!
 - Waiting on signatures from MBARI side.
- Carlos Rueda
 - 708168 - DHS Y7
 - Some more exchanges with Ryan G. (WHOI), some of which captured in this [ticket](#).
 - 901009 - CANON
 - ODSS planning component issues seem to have been fixed. Thanks Chris W. for the testing. Pending update on the production server.
 - 901502 - Passive Acoustic Sensing
 - Team meeting. Re HMM based humpback whale song unit analysis paper, will look into elaborating the continuous density version toward a more complete submission later in the year.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Monitored recent deployments. Good feedback from Dash users in general.
 - TethysDash/DashUI: Will be testing the 4.4.2 prerelease on the production okeanids server in the upcoming days. The big change here is the use of a proper websockets endpoint.
 - ESP/ESPComponent: Brent R. tells me he has done his part re [TETHYS-625](#).
 - TethysL: Very good progress implementing the LSP mechanism. VSCode client is now taking shape with nice features (error highlight and description; hover; go-to-definition).
 - Overhead
 - Engineering meeting.
 - ESI Semantic Technologies meeting. They may be requesting some of my time to perform some upgrades in the ORR software stack and/or the COR instance in particular. Details TBD.
- Karen Salamy
- Brian Schlining
 - 500055 - Video Annotation DM
 - Discussions with video lab about issues surfaced during our last ingest of videos from Iron Mountain.
 - 902002 - Fathomnet Detect and Classify
 - Working on merging temporary annotation database used for correcting localizations into the master database.
 - Also, fighting with Windows SQL tools/VM/VPN issues/endless updates as part of this.
 - Meeting with JAMSTEC
 - 902005 - VARS Annotation Assistance
 - Ran [visualization/performance testing](#) using [Cthulhu](#) with a [full video's worth of ML generated annotations](#).
- Rich Schramm
 - 200105 - Core Nav - MDUC
 - Help with debugging issues around USBL and Mesotech sonar
 - 500055 - Video Annotation DM
 - Research why video data logs havent been uploading for over a year
 - Overhead
 - Continue transition meetings and documentation tasks
 - Out of Office
 - 5/12 thru 5/14
 - 6/3 thru 6/7
- Alana Sherman

