

Engineering Weekly Report 1/27/2022 - 2/3/2022

Executive Council Notes

- 708168 - DHS Under-Ice LRAUV (Hobson) - The WHOI/MBARI LRAUV team conducted a system training exercise on Tuesday and Wednesday for about 35 people from the Coast Guard and NOAA. To demonstrate some of the capabilities of the MBARI LRAUV-based system, WHOI's Polaris LRAUV was sent 175 km SE of Woods Hole to search for oil around the site of an old WWII shipwreck. The Norwegian tanker Norne was carrying 90,000 barrels of fuel when it was torpedoed by a German U-Boat early in the war and that fuel is now slowly leaking into the environment. Unfortunately, the fluorescence-based oil detector used on Polaris wasn't able to detect a signal from the small amount of 60 year-old fuel that is leaking intermittently. Ben Raanan carried most of the presentation load and Mike McCann chipped in with a quick overview of STOQs.
- 902106 AUV Docking (Hamilton/Hobson) - Final testing of the prototype AUV docking station is being performed in the test tank this week. A handful of minor problems were found and solved with some extra effort from Francois and Jose. The team is planning a full deployment sometime in February.

Individual Activities

- Kevin Barnard
 - 200103 - Core CTD Data - MDUC
 - Got coredata login set up for CTD servlet maintenance
 - Restarted CTD servlets after IS server patch
 - 902002 - FathomNet
 - Concluded YOLOv5 output confidence correspondence with reviewed bounding boxes in ML DB
 - Implemented UDP video control and ØMQ localization control toward integration of BoxJelly and Cthulhu
 - 902012 - Telepresence on MBARI Research Vessels
 - Reviewed web UI mockup with Kevin G., looking into available Vue libraries & frameworks
- Francois Cazenave
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Helped Andy with efficiency testing
 - Tested top hat for gas leaks
 - Worked on new jacket for tether
 - 902106 - Niobicon-Based AUV Docking Development
 - Preparing collaboration with WHOI
 - Deployed current meter
 - Making plans for future tests
 - Continued testing in the tank
- Danelle Cline
 - 901502 - Soundscape Research and Education
 - AWS OpenData 2022 updates
 - Discussion with grad student at University of Denver about potential collaboration on miniML sound detection
 - Debugging an issue with blue A inference workflow
 - 902005 - VARS Annotation Assistance
 - Working on infrastructure roll-out and back-end deployment

- Finished dockerized deepsort tracker which the team is testing
 - So far so good. Hoping to have bulk batch testing finished next week.
- Overhead
 - Updated htcmastervm-c upgrade (need to ask Pat to change machine name)
- Duane Edgington
 - 901618 - Pelagic-Benthic Coupling
 - Discussions and meeting with Paul McGill. Planning way forward.
 - Plan team meeting week of Feb 7
 - 902004 - Planktivore
 - Team meeting Jan 31.
 - Looking at zfs file system and Ubuntu as requested by Project Manager
 - 902005 - VARS Annotation Assistance
 - Ran cpu-based instance tests with battery of video files using CSRT detect-track pipeline
 - Running gpu-based instance tests of battery of video files using new Deep-sort detect-track pipeline. So far so good (one bug in the underlying algo implementation found – Kevin B. has identified a fix from the maintainers).
 - Overhead
 - Engr dept meeting Feb 1.
 - Group meeting Feb 2.
- Jon Erickson
 - 701145 - Penguin Hotspots
 - Still doing assembly on the gimbal parts. Seeking vendors for the shell parts connected to REMUS
 - 901217 - Chemical Sensor Program
 - Calcs and solids for a pressure test cell for the complete ISUS sensor and stem.
 - 901805 - Coastal Biogeochemical Sensing Program
 - kick -off meeting. I'm on the hook for the mechanicals of the "modFET" Ph sensor; press. Case, chassis, etc.
 - 902004 - Planktivore
 - Endcaps out for anodize, pressure case tubes are done. Waiting on chassis parts.
 - 902010 - Mesopelagic LRAUV
 - Pressure test protocol with Aaron to go to Maripro.
 - Waiting on the strain gauges.
- Ben Erwin
 - Out of Office
 - Vacation 2/12-2/20
- Kevin Gomes
 - 300058 - DMO Support - Western Flyer
 - Small flail on the WF with regards to Navproc/datamanager/dataprobe which ended up being a disconnected cable on camera.
 - 300079 - DMO Support - Rachel Carson
 - Microwave data link still down so we have no way to remotely support the ship currently.
 - 902012 - Telepresence on MBARI Research Vessels
 - Looking at CI/CD to see if this can help manage the deployment of the many moving parts for this application.
 - Slack did fix the bug that was affecting development environments with non-standard ports (which is almost all of them!). I had a workaround in place, but nice to know it should be fixed.
 - Overhead
 - Finished up reviews
 - Weekly meeting with Todd

- Document review for external web upgrade.
- Out of Office
 - Feb 14: Possible start of Jury Duty
 - Mar 21-25: Vacation
- Andy Hamilton
- Kent Headley
 - 901101 - Seafloor Mapping
 - Working w Erik T on scheme for dorado config repos
 - Code review for cmake implementation (O'Reilly)
 - 901112 - The Monterey Bay Time Series
 - eDNA : Spinning up on docker, conda, Nvidia platform
 - 901618 - Pelagic-Benthic Coupling and the Carbon Cycle
 - Prepping for potential waveglider operation to survey rover using loop and cross algorithm (conditions permitting)
 - Overhead
 - Review materials out for signature
 - Drafted materials list for Carbon Waveglider transfer package
 - SRSC : outline review, meeting
 - Attended meeting re SMD updates for David Packard (getting a sense for scope of work, timing)
 - Software updates for various computers
 - Office cleanup
 - Out of Office
 - Jan 11 (jury duty, tentative)
- Rich Henthorn
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Integrating CoNav DAT measurement cleaning into application
 - CoNav class data logging
 - 901618 - Pelagic-Benthic Coupling and the Carbon Cycle
 - Sta.M cruise prep and mobilization
 - Western Flyer cruise to Sta.M
 - DQ2032 - DOE Wave-Energy Control
 - Kickoff meeting with Open Robotics
 - Verified Michael's ROS2 implementation of controller commands
 - Overhead
 - Engineering Meeting
 - Out of Office
 - Feb 1 - 5 (this week), Sta.M Cruise
 - Feb 14 - 18, vacation & WFH
 - March 14 - 25, vacation & WFH
 - Sep 21 - 30, Sta.M Cruise
- Brett Hobson
- Scott Jensen
 - 901205 - SURF Center
 - ESP development
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Hunting for parts to build spares
 - 901805 - Coastal Biogeochemical Sensing Program
 - nanoFET check out and housing design
 - 902106 - Niobicon-Based AUV Docking Development
 - Supported a bit of Dock testing

- Brent Jones
- Chad Keczy
- Brian Kieft
 - 708168 - DHS/LRAUV Under-Ice
 - Supported deployment for the Norness oil spill wreck and the noreaster storm chase.
 - 800139 - EyeRIS (Remote Imaging System)
 - Met with team to discuss testing opportunity involving backseat commanding depth when it detects a region of interest.
 - 902009 - AUV User Experience Design
 - NDA signed for sub. Working through what issues need to be addressed for our prime (Sliced Bread)
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Added the water speed on DVL to water current estimator
 - Fixed a DAT init issue
 - Tethys is deployed on a wet wifi engineering mission as well as portuguese ledge tests.
 - 902106 - Niobicon-Based AUV Docking Development
 - Tank tested with actual dock in preparation for deployment
 - Overhead
 - CPR/FA/AED course online
 - Met with high school student per request to discuss STEM career opportunities
- Denis Klimov
- Diana LaScala-Gruenewald
- Eric Martin
 - 901101 - Seafloor Mapping
 - Cruise in February has been swapped on request from the Aquarium, now deploying June 2-7
 - Strobes have been serviced.
 - Coordinating with Larry Bird for information transition.
 - 901206 - Coastal Profiling Float Transition to Science Applications
 - Initial physical checks on CPF001 complete, some issues found.
 - Great progress on the buoyancy issues, it seems some elmo limits are causing unexpected behaviors without error reporting.
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Radar Meeting last week
 - Brief check on data integrity for gain changes
 - 902012 - Telepresence on MBARI Research Vessels
 - Did concept design and brief review with group last week for rack units.
 - DQ2032 - DOE Wave-Energy Control
 - Had meeting last week, will be delaying OR involvement until April.
- Thom Maughan
 - 901009 - CANON
 - Working to draft a notional project plan for the embedded eDNA processing project.
 - 901713 - Nearshore FOCE
 - Not needed at the meeting, on standby for to help support pH.
 - 901805 - Coastal Biogeochemical Sensing Program
 - Working on release of v4.x pHFET-SOS with support for nanoFET, new sampling routine for BEAMS and the Barry lab, m2m protocol enhancements, bug fixes.
 - Handed off nanoFET programmed and tested to Scott for hardware checkout. Need to thoroughly review/test the menu system and config. QA works, ADC test code works.
 - 902004 - Planktivore
 - Working on inventory of parts ordered, kitting, and expense report.

- Board bullets reviewed and submitted.
 - Strobe, strobe energy, strobe driver boards are functional. Improvements are planned and most interesting is Paul's new circuit idea for thermal protection.
 - Cam_ctrl board bringup with VS code PlatformIO.
 - Strobe board was found to need a revision to place the LEDS under the acrylic ball lens with correct optics
 - Hosted Monday engineering meeting, working to improve meeting format.
- Overhead
 - Contingency project on Thursday afternoons
- Out of Office
 - Mar 21 to Mar 30 Driving to Montana to help daughter move
- Mike McCann
 - 901101 - Seafloor Mapping
 - Modifying the schema to store Compilation records
 - Updating the load script to find and store interesting compilation information
 - Overhead
 - Wrapped up my work on the [Notebook to add up track lengths](#) from SeafloorMapping DB
 - Planning to put new BEDS qualification data into a STOQS database for validation
 - Annual review
- Rob McEwen
 - Overhead
 - Annual review
- Paul McGill
 - 701145 - Penguin Hotspots
 - Gave AOS PIC24 board to Jon E. for mounting. Working out discrepancies in hole spacing with Brent J.
 - 901618 - Pelagic-Benthic Coupling and the Carbon Cycle
 - Finished Rover, SES, and Camera Tripod preparation for cruise.
 - Loaded ship
 - Currently on cruise waiting for bad weather at Station M to abate.
- Tom O'Reilly
- Craig Okuda
- Doug Pargett
 - 901205 - SURF Center
 - Ordered new 3d printed toroid valve rings.
 - Documenting Bill of Materials for next ESP builds
 - Completed redesign of the linkage for the G3 valve actuator, had to modify to reroute cables and include an aluminum motor mount plate.
 - Inspected latest cartridge parts
 - Inspected SeaTrac vehicle for installing a G3 ESP into.
 - Overhead
 - reviews
- Ben Raanan
- Mike Risi
 - 300062 - DMO Support - Doc Ricketts
 - Telemetry upgrade meetings and documentation
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Continuing port of roV-control to PCF
 - 902204 - Scalable Marine Robotics Foundations

- Finalized data set for GIM
 - Starting work boxfish MQTT interface
 - Misc. equipment acquisitions
- 902208 - MiniROV Operations
 - Continued working with Ben on autonav
- Paul Roberts
 - 800139 - EyeRIS (Remote Imaging System)
 - Ocean Science Meeting preparations
 - 901809 - Deep Sea Bioinspiration
 - Multicamera requirements
 - Scoping camera options
 - Open World Object Detection advert
 - 902004 - Planktivore
 - Assembled internal chassis
 - Flow simulations
- Brent Roman
 - 901205 - SURF Center
 - Found and fixed old bug in 3G ESP firmware that was causing it to crash occasionally after recent code simplification.
 - Bug was causing a thread to be woken prematurely.
 - Helped Nadia test and debug Gripper issues on ESPbetty.
 - Working on adding the ability to track reagent use to better estimate volumes required for 2G missions.
 - 901913 - WetWiFi
 - Transmitted video from LRAUV to Waveglider in MBARI test tank.
 - Deployed Waveglider Hansen and LRAUV Tethys to Portuguese Ridge
 - Successfully streamed 640x480 15fps color video from Tethys 60meters below Hansen!!
 - Biggest challenge is keeping LRAUV within the 120 degree cones of the H150's acoustic transducers.
 - OceanComm claims the modems max range is 300m. We'd like to verify this.
- Carlos Rueda
 - Overhead
 - MBARI doc-gen: fixed the extraction of (meta)description for the site listings.
 - Out of Office
 - Jan 20-25: Attended a few of the [JChampions](#) conference presentations.
- Karen Salamy
 - 300057 - Mooring Maintenance
 - Weekly maintenance and data accuracy review
 - 901101 - Seafloor Mapping
 - Spent a bit of time this week meeting with Jenny P. and Mike M. I will be focusing on various web page related issues and requests by Jenny.
 - Overhead
 - Reviewing internal documentation written last summer by Rich regarding how to add MiniROV and various potential Ships of Opportunity (Platforms) to the EXPD. A meeting this Friday is planned for the VL and those of us in Software Engineering that deal with the EXPD to go over proper steps to smooth this process out.
 - Out of Office
 - Vacation:
- Brian Schlining
 - 901618 - Pelagic-Benthic Coupling and the Carbon Cycle

- Continuing work on adding [image localization tools](#) into the current [VARS app](#).
- 902002 - FathomNet
 - Implementing a % coverage estimator to report on images in FathomNet. It uses an ML endpoint, provided by CVisionAI, that proposes localizations on an image, and compares those results to the localizations in FathomNet. (Team private repo at <https://github.com/fathomnet/fathomnet-support>)
- Out of Office
 - Feb 14 - Feb 25 - Brian will be a visiting scientist at [DARC](#) to upgrade their video annotation system. Note that the dates were rescheduled from the original Jan 31 - Feb 11.
 - Due to COVID in his family, Brian is working remotely for now.
- Alana Sherman
 - Overhead
 - Seafloor processes PI interviews this week
 - Finished all 8 reviews for group- hooray!!
 - Working on strategic roadmap mission/vision/values section