

Engineering Weekly Report 1/20/2022 - 1/27/2022

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
 - 902002 - FathomNet
 - Met with Simon-Martin Schröder to discuss MorphoCluster & brainstorm application to FathomNet
 - Finished integration and testing of vars-localize + Raziel
 - Continued development of sharktopoda-client-py toward BoxJelly + Cthulhu integration
 - Working on correspondence between inference confidence numbers over ML evaluation set and ML database bounding box associations
- Francois Cazenave
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Working on new tether
 - Working a heave cone rotation
 - Preparing pressure test of top hat
 - 902106 - Niobicon-Based AUV Docking Development
 - Testing dock in the tank
 - Preparing deployment of current meter
 - Out of Office
 - Took tuesday off due to daughter's school closure
- Danelle Cline
- Duane Edgington
 - 901603 - Video TAG
 - Reading Meta AI's recent paper "data2vec: A General Framework for Self-supervised Learning in Speech, Vision and Language". Source code and models for ViT portion of data2vec planned to be released by Meta AI...
 - 901618 - Pelagic-Benthic Coupling
 - Touching base with Paul M. on 2022 project goals and timeline
 - 902004 - Planktivore
 - Weekly status meeting Jan 24.

- Plan to meet with Paul R. and Eric regarding updated SPCconvert software to use for viewing Planktivore images
 - Team discussed need for test images with appropriate filenames and metadata for software testing
 - 902005 - VARS Annotation Assistance
 - Project meeting Jan 20
 - Running tracking tests 2K, 4K videos, CPU-only instances
 - Discussions on architecture and 2022 plans and goals
 - Teleconference with AWS Proserve team regarding automation and scaling
 - Built m3-quickstart on my workstation
 - Overhead
 - Annual performance discussion
- Jon Erickson
- Ben Erwin
 - 901023 - Continental Margins
 - Mission and operation planning continues.
 - 901200 - AMP
 - Discussion towards 2023 operations and technical developments for the MiniROV with Aquarium.
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach
 - An at-sea trial of a multi-rotor drone to test a shore based radar tracking system was canceled due to COVID related issues.
 - Work continues on Believer 2 repair and tuning, as well as a construction of new Believer 3 fixed wing aircraft.
 - An over land trial flight for Believer 2 plane is scheduled for sometime this week.
 - 901911 - ROVVR
 - Meeting planned to kick-off discussion of 2023 technical developments and outreach options.
 - 902208 - MiniROV Operations
 - Technical developments continue toward Arctic operations scheduled later this year
 - Planning and prep for March dives aboard R/V Fulmar
 - Test tank trials of station keeping software were conducted.
 - Out of Office
 - Vacation 2/12-2/20
- Kevin Gomes
 - 902012 - Telepresence on MBARI Research Vessels
 - Bug in Slack Authentication API confirmed by Slack but no timeline on fix. Only affects development environment and found workaround, basic skeleton of authentication working
 - Overhead
 - All overhead, all the time (performance reviews)
 - Met with AWS to discuss engagement with ProServe team for VAA project
 - Out of Office
 - Mar 21-25: Vacation
- Andy Hamilton
- Kent Headley
 - Out of Office
 - Jan 11 (jury duty, tentative)
- Rich Henthorn
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - CoNav syslogging
 - CoNav development

- 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Updated repo with changes from latest deployment
- 901618 - Pelagic-Benthic Coupling and the Carbon Cycle
 - Rover ready to deploy
 - SES carousel motor debugging - hall switch bulkhead connector and cable
 - SES mission prep
- Out of Office
 - Jan 24 - 28 (this week), vacation & WFH
 - Feb 1 - 5 (next week), Sta.M Cruise
 - Feb 14 - 18, vacation & WFH
 - March 14 - 25, vacation & WFH
 - Sep 21 - 30, Sta.M Cruise
- Brett Hobson
- Scott Jensen
 - 901805 - Coastal Biogeochemical Sensing Program
 - Minimally checked out new nanoFET so that it could be programmed to complete check out.
 - 902106 - Niobicon-Based AUV Docking Development
 - Supporting integration and testing. Located a couple troubles and helped with solutions
 - DQ2113 - Tidal Turbine
 - Met with collaborators and decided the current encoder is not workable. Solutions are being searched. Starting build of hardware.
- Brent Jones
 - 901009 - CANON
 - Updating CPF code to service 2 attached Sediment Traps
 - 901502 - Soundscape Research and Education
 - Extracting click features during known Sperm Whale clicking bouts and attempting a few digital code breaking techniques
 - 901805 - Coastal Biogeochemical Sensing Program
 - Ordering replacement pressure cases for gliders. Updating schematics
- Chad Keczy
- Brian Kieft
 - 300082 - DMO Support - Wave Glider
 - Assisted testing acomms on waveglider
 - 706007 - USGS Great Lakes Prey Fish Assessment
 - Met with team to discuss summer plans
 - 708168 - DHS/LRAUV Under-Ice
 - Tested grid mission
 - Attended USCG LRAUV training sessions over the past 2 days
 - Supporting the Norness/Wreck1487 oil spill deployment right now. Returning early due to weather.
 - 901513 - Targeted Sampling by Autonomous Underwater Vehicles
 - Reviewed L. Erie paper
 - 902009 - AUV User Experience Design
 - Light support answering questions on scheduler
 - 902106 - Niobicon-Based AUV Docking Development
 - Wrote a tank test mission for use with the real dock in the tank
- Denis Klimov
- Diana LaScala-Gruenewald
- Eric Martin
 - 901101 - Seafloor Mapping

- Technical kickoff meeting with 3DatDepth last week, follow on last Friday by a software tour.
 - Coordinating speed tests with Dominic at 3DatDepth
 - Sled Change set for Monday the 14th
 - Strobes submitted to shop for service.
- 901206 - Coastal Profiling Float Transition to Science Applications
 - Monday meeting to layout production plans, goals for June.
 - Configuration interface near completion.
 - CPF001 is in my office, production tests beginning.
- 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Boards in progress for Battery Controller
 - Meeting last week with JHU APL
 - Other CANBUS changes ongoing.
- 901911 - ROVVR
 - Kickoff meeting in progress
- 902012 - Telepresence on MBARI Research Vessels
 - Hoku labs contracts complete
- DQ2032 - DOE Wave-Energy Control
 - Kickoff this friday
- Thom Maughan
 - 901009 - CANON
 - Met with Nate to discuss 'functional notions' of next eDNA lunchbox build.
 - Team selected Yellow and agreed on Pelican 1200 / 1300 for form factor.
 - Researching battery options.
 - 901805 - Coastal Biogeochemical Sensing Program
 - Updating nanoFET support in pHFET-SOS. Programming the two boards for Scott to test hardware build.
 - Met with Yui on m2m interface for pHFET-SOS. Also discussed data dongle.
 - Working on release of pHFET-SOS v4.1
 - Comm protocol discussions with Irene.
 - 902004 - Planktivore
 - Planktivore status update for Francisco, Henry, Paul and Steve H.
 - Started weekly Planktivore engineering meetings on Monday 1pm.
 - Testing Strobe, Strobe_Energy, Strobe_Driver boards.
 - Updated Strobe_Energy layout to move components off the bottom side to relieve tight fit. Out for fab.
 - Parts kit for build of cam_ctrl and assembly instructions delivered to James, board is assembled and ready for bringup.
 - 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
 - Handling a request from ITD to compute distances surveyed over time
 - Got mbgrd2gltf to build with cmake in container and will integrate with Tom's work on cmake
 - 901111 - AUV Infrastructure Support
 - Fixed the re-interpolation of realtime decimated data in IrauvNc4ToNetcdf.py for LRAUV team
 - Found and fixed problem with colormap changes on subsequent selections in STOQS UI
 - Overhead
 - Participated in Zoom meeting with WHOI & USCG folks showing STOQS capabilities

- Rob McEwen
 - 708167 - WEC Dynamics and Control
 - Got a first version of Matlab wave-crest prediction code working with Eric's interface.
 - Starting to look through the voluminous radar data. So far I can't find any useable data.
 - Paragon data was much better. Will try to determine why.
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach
 - Preparing for flight tomorrow
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Plotted latest Triton run, analyzing power and sonar pointing problem.
 - Overhead
 - Annual review
 - Paul McGill
 - Tom O'Reilly
 - Craig Okuda
 - Doug Pargett
 - 901205 - SURF Center
 - Thermal FEA of latest Function design. Estimating the power split to better balance the temperature of the filter.
 - Redesigning the linkage for the G3 valve actuator to clear interferences and maintain linear motion.
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- - Reviewing G3 pump calibration process
 - Out of Office
 - Sick leave
 - Working remotely
 - Ben Raanan
 - Mike Risi
 - Out of Office
 - Vacation on alternate Fridays
 - Paul Roberts
 - Brent Roman
 - 901205 - SURF Center
 - Supporting Nadia in her efforts to bring up ESPhonu, ESPbetty and ESPwaldo
 - Testing up updated ESP3G firmware looked good, until I discovered a flakey crash bug :- (
 - Now appears that was caused by assuming chips had 2x the RAM they actually do.
 - Testing continues ...
 - New firmware framework allows for remote code updates.
 - 901913 - WetWiFi
 - Got commitment to extend project funding through early 2022
 - Still waiting on LRAUV availability – maybe next week ?
 - Carlos Rueda

- 902101 - LRAUV Technology Development and Fleet Operations
 - Lots of TethysDash related development/activities.
- 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
 - Out of Office
 - Vacation:
- Brian Schlining
 - 500055 - VARS, M3/RS, DSG
 - Updated docs and instructions for
 - [m3-quickstart](#)
 - [Vars-kb-server](#)
 - Investigating and resolving issues occurring in recent versions of VARS with large annotation sets.
 - 901618 - Pelagic-Benthic Coupling and the Carbon Cycle
 - Continuing to work on an annotation pane for desktop applications at <https://github.com/mbari-org/imgfx>
 - 902002 - FathomNet
 - [Discussion](#) with MorphoCluster team about integrating it into our tools. They are also interested in using our vars-kb-server in their tools.
 - Looking into ML image annotation as a service using <https://gitlab.com/bgwoodward/keras-model-server-fast-api>
 - 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
 - 901618 - Pelagic-Benthic Coupling and the Carbon Cycle
 - After some hiccups, I ran the Dualie camera tripod for an overnight test. Reviewed images, all looks good. Set up the cameras and it is ready to go
 - Packed ship with all Rover, camera tripod, SES stuff
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Reviewing pics for test from Canon week long bench test. So far looks good. Still some details on the internal clock battery that need addressing. Next up is to take some energy measurements to better inform our mission plan for March
 - 902208 - MiniROV Operations
 - Working on updated plan for Benthic tool sled
 - Overhead
 - Seafloor processes PI interviews this week
 - Finished all 8 reviews for group- hooray!!
 - Working on strategic roadmap mission/vision/values section