

Engineering Weekly Report 3/3/2022 - 3/10/2022

Executive Council Notes

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Individual Activities

- Kevin Barnard
 - 902002 - FathomNet
 - Started Colab notebook for FathomNet workshop to demonstrate Python client API
 - Started Twitter bot for FathomNet outreach
 - Finished implementation of sharktopoda-client-py; testing client localization sync between BoxJelly and Cthulhu
 - 902005 - VARS Annotation Assistance
 - Ran comparisons between several modes of ML inference to check for differences in data products
 - YOLOv5 detect.py with/without `--agnostic-nms` (agnostic non-maximum suppression)
 - PyTorch Hub model backbone vs. YOLOv5 codebase
- Francois Cazenave
- Danelle Cline
- Duane Edgington
 - 902004 - Planktivore
 - Team meeting March 7.
 - 902005 - VARS Annotation Assistance
 - Team working session March 3. Released python command line script to initiate AWS SageMaker processing jobs of deepsort-yolov5 detect and track model against M3 videos uploaded to AWS S3. Script updated to add upload from Titan M3 directly to S3, and to upload from Titan M3 and Process in one command line. Installation procedure and running tested by team.
 - Overhead
 - Attended NOAA FathomNet presentation.
- Jon Erickson
- Ben Erwin
 - Out of Office
 - Vacation 2/12-2/20
- Kevin Gomes
 - Out of Office
 - Mar 21-25: Vacation
- Andy Hamilton
- Kent Headley
 - Out of Office
 - Mar 1-3 : ocean imaging TRN test cruise
- Rich Henthorn
 - 901101 - Seafloor Mapping
 - Dorado vehicles Mapper1 and Mapper2 are now mostly operational with TRN

- The vehicles can now employ an MB-system-derived app with embedded TRN communicating with a Reson T-50 Multibeam sonar to provide position offsets to the navigation process
 - Attempting to build old auv-linux code for Dorado Linux port
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - RPi controller config
 - 901618 - Pelagic-Benthic Coupling and the Carbon Cycle
 - Weekly meeting
 - Castroville visit
 - Hunted (and found) SES images from latest MARS test deployment in 2020
 - Renamed image files from 2011 MARS test deployments to include VARS-style timestamp
 - Out of Office
 - March 14 - 25 (next 2 weeks), vacation & WFH, email & phone OK, MDT timezone
 - July 4 - 18, vacation & WFH, email & phone OK
 - Sep 21 - 30, Sta.M Cruise
- Brett Hobson
- Scott Jensen
 - 901205 - SURF Center
 - Sample design continues with a few details worked out
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Slowly receiving PCB's in for assembly
 - 902106 - Niobicon-Based AUV Docking Development
 - Working on dock communications with power line modems
- Brent Jones
- Chad Keczy
- Brian Kieft
 - 300082 - DMO Support - Wave Glider
 - Piloted this weekend
 - Preparing script to assist with tracking Yui's glider
 - 708168 - DHS/LRAUV Under-Ice
 - Troubleshooting buoyancy system on Stella
 - Reviewed Polaris DVL data
 - 800139 - EyeRIS (Remote Imaging System)
 - Met to discuss
 - 901513 - Targeted Sampling by Autonomous Underwater Vehicles
 - Reviewing issues with chl measurements from last summer
 - 902009 - AUV User Experience Design
 - Met with Carlos/Kevin to discuss architecture
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Wrapped up DAT firmware updates on all 7 units
 - Added bootloader flashing tools to repo. Assisting Tanner with SOM bringup
 - Prepped Pontus for deployment next week
 - 902106 - Niobicon-Based AUV Docking Development
 - Continued docking tests with Tethys. Replaced dropweight Monday following
 - Updated LNM
 - Testing simulated oil spill for Buzzard's Bay demo later this month
 - Testing polygon geofencing for EcoHAB
 - Testing low power Hawaii transit mode
 - Out of Office
 - 3/10 (kids passports/half day)
 - 3/14-17 (AZ - MST)

- 05/15 - 06/04 (EcoHAB PDT)
 - 07/02 - 07/09 (HST - vacation)
 - 07/13 - 07/22 (AKDT)
 - 08/01 - 09/03 (EDT)
 - 09/13 - 09/30 (GMT+2 - vacation)
- Denis Klimov
- Diana LaScala-Gruenewald
- Eric Martin
 - Out of Office
 - Vacation Feb 21-25
 - STCW training April 11-15
- Thom Maughan
 - 901009 - CANON
 - Looking at battery and battery management options.
 - 901713 - Nearshore FOCE
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 - 901805 - Coastal Biogeochemical Sensing Program
 - Working on pHFET-SOS v4.x release.
 - Provided support and updated firmware with new pump sequencer for octopus respirometer experiment.
 - Debrief with Chris L. on octopus respirometer experience.
 - 902004 - Planktivore
 - LED Strobe assembly and test
 - Setup and test in the Rock Lab
 - Camera and lens assembled on Paul's frame. Working thru assembly process to add Strobe.
 - Paul found an optical path length problem, working on a solution
 - Larry has completed the titanium housing fab. Pressure test will be on an ROV dive to 1200m Mar 17. Larry is working on Spray Mounting bracket and foam.
 - Denis' Aquavore is assembled and Paul ran first image test.
 - Out of Office
 - Mar 21 to Mar 30 Driving to Montana, flying back. (Dates might change)
 - May 27 - 31 Camping
 - Jul 6 - 13 Camping
- Mike McCann
 - 901101 - Seafloor Mapping
 - Tested, merged, and deployed Karen's UI improvements to <https://smdb.shore.mbari.org>
 - 901602 - Data TAG
 - Setting up emdb.shore.mbari.org for centralized logging
 - Overhead
 - Working on implementing Django table views for expd_mapping database
 - Out of Office
 - 28 March - 1 April: Vacation
- Rob McEwen
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Participated in Caress TRN sea days.
 - Working on a few code improvements identified during the dive.
 - 901405 - PowerBuoy
 - Working with Eric to modify Matlab code to read the latest Garmin radar format.
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach

- Believer 3 now contains all major electronic components (receiver, telemetry radio, GPS, etc.) necessary for flight (no payload), except the parachute servo.
 - Starting the bring-up and checkout process today.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Will examine recent Tethys data for power consumption and maximum possible range.
 - Out of Office
 - 10 March Thursday
 - 18 March Friday
- Paul McGill
 - 300079 - DMO Support - Rachel Carson
 - Met with DJ about RS-485 comms to new ROV winch.
 - 701145 - Penguin Hotspots
 - Assembling second REMUS Sonar payload chassis.
 - 901618 - Pelagic-Benthic Coupling and the Carbon Cycle
 - Helping Colleen access current meter data from Smooth Ridge.
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach
 - Released v1.0.0 of Believer UAV schematic.
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Participated via telepresence in Barry dive on Davidson Seamount to deploy Coral Macro Camera in octopus nursery. Initial images are stunning and camera will stay there until July.
 - Overhead
 - Still migrating software to new Mac Powerbook.
- Tom O'Reilly
- Craig Okuda
- Doug Pargett
 - Out of Office
 - Working from home for a while longer.
- Ben Raanan
 - 708168 - DHS/LRAUV Under-Ice
 - Tethys deployed for docking tests. DAT noise has been an issue, but converging on a filtering approach that will allow line capture docking with reasonable success rates.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Fixed additional issues with config set
 - 902102 - Multi-LRAUV Simulation Environment
 - Updates in the lrauv-app to accommodate the new AHRS sensor model
 - Team is working on adding in digital elevation maps of Portuguese Ledge
 - Team is working on surface winds
 - Team is working on DVL plugin
 - Working on test plan for Q1
 - Out of Office
 - 02/23-24
 - 04/4-7
 - 04/13-23
- Mike Risi
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Finishing off roV-control command set
 - 901101 - Seafloor Mapping
 - Working on plan to integrate ROV nav/bathymetry data into TRN
 - Waiting on Ventana to come back online to test sonar integration
 - 902208 - MiniROV Operations

- Working on MiniROV interface to rov-control
- Paul Roberts
- Brent Roman
 - 706005 - eDNA Grass Carp Sandusky
 - Cobbled together a travel router for use in solar powered JobBox
 - 901205 - SURF Center
 - Added ability to track fluids into and out of 2G pucks
 - Added ability to simulate pressure in fluid containers
 - Worked with Kevan to test fluid tracking against WCR protocol on ESPwaldo
- Carlos Rueda
 - 901502 - Soundscape Research and Education
 - Helping John put together a new “Listening to Pacific Ocean Sound recordings” notebook targeted to “sound artists, naturalists, and educators whose primary goal is to listen rather than analyze.”
 - 902005 - VARS Annotation Assistance
 - Set up dev environment for the DeepSeaAI Dashboard (thanks, Danelle).
 - 902101 - LRAUV Technology Development and Fleet Operations
 - TethysL and mission/behavior documentation work. Productive session with Yanwu in preparation for a general status update (which WHOI is also interested in attending).
 - Advancing additions in TethysDash (both backend and frontend) to expose TethysL missions for scheduling (as with the usual XML files).
 - Overhead
 - IE meeting.
 - Demoed Dash UI (actual app, and code) to members of the IE team interested in using a similar underlying Vue/Quasar framework for a new project. Great discussion. (Thanks, Karen, Mike, Kevin B.)
 - Climate Change webinar.
 - Out of Office
 - Mar 10: vacation
 - May 16-18: vacation
- Karen Salamy
 - 300057 - Mooring Maintenance
 - Worked with Chris. and Jules regarding the maintenance of OA1 this past week. They fixed problems with the mooring and I then restarted the OA1 nightly downloads. So far, M1 and OA1 data downloads are now playing well together.
 - 901101 - Seafloor Mapping
 - Continue to update SMDB Dash UI using Bootstrap with Leaflet. I am working through listed requests and issues on the Github SMDB web site.
 - Overhead
 - Met with Carlos R., Mike M., Kevin B., Duane E., to discuss Carlos’s great work on his Tethys Dash UI using Vue and Quasar. Carlos demoed the UI to illustrate how Vue and Quasar work very well together to build his Dash. I have been considering incorporating various aspects of his UI into the SMDB Dash UI as well.
 - Out of Office
 - Vacation: March 17-18, 2022.
- Brian Schlining
 - 500055 - VARS, M3/RS, DSG
 - Installed Kent’s [libbmagic](#) on the Western Flyer. Brian will be running tests on the RC and WF.
 - Investigating new JVM crashes in vars-annotation.

- Investigating “jumping” behavior in the table view in vars-annotation. This may have been introduced when the underlying JavaFX library was upgraded. See issue [#1](#) and [here](#).
 - Imported 5 new LTO drives of videos from Iron Mountain.
 - Fixed a new issue in vars-annotation where user created “quick association” buttons were being unintentionally deleted.
- 902002 - FathomNet
 - Working on presentations for the upcoming FathomNet workshop.
 - Chrome’s security restrictions have changed and reports a link to an external font as a phishing attack. This has been addressed.
- 902005 - VARS Annotation Assistance
 - Worked on porting the [deepsea-ai-backend](#) from postgresql to SQL server so we can run on our production database. Port is stalled as Prisma seems to require writing to the master database on the server. Looking for a workaround.
 - Gamed out alternative database designs for deepsea-ai backend.
 - Added a [script to load Yolo output into Cthulhu](#) to visualize localizations.
 - Team was able to process a dive using an ML pipeline. Reviewing the output.
- Overhead
 - Provided additional documentation to [DARC](#) for their [VARS installation](#).
- Alana Sherman
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Provided shore support via telepresence for the deployment of the coral macro camera at octopus garden. It all went very smoothly and on a return trip three days later the camera was still working...now it only has to last 3 more months!
 - 902208 - MiniROV Operations
 - Finished schematics for benthic serial expansion can
 - Made system schematic for arctic cruise to help identify what cables we still needed
 - Order and found a vast number of cables and connectors
 - Trouble shot hall switch
 - Helped wire up the system for tank testing
 - Overhead
 - Working on microwave replacement plans and other details in light of Craig's retirement.