

Engineering Weekly Report 4/28/2022 - 5/5/2022

Executive Council Notes

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Individual Activities

- Kevin Barnard
 - 200103 - Core CTD Data - MDUC
 - Caught up on O2 QC flags for dives through:
 - Doc Ricketts 1438
 - Ventana 4393
 - 500055 - VARS, M3/RS, DSG
 - Finished Annosaurus OpenAPI spec: mbari-media-management/m3-api-docs
 - 701139 - ML Tracking
 - Parsed some more ML-Tracking LCM logs to JSON
 - 902002 - FathomNet
 - Completed and dockerized FathomNet Twitter bot; awaiting deployment
 - 902005 - VARS Annotation Assistance
 - Worked with Carlos R. on BoxJelly/Cthulhu setup
- Francois Cazenave
 - Out of Office
 - One day of vacation
- Danelle Cline
- Duane Edgington
 - 901603 - Video TAG
 - Attended selected sessions and a workshop at ICLR 2022 (virtual)
 - 901618 - Pelagic-Benthic Coupling
 - Dan Davis has an updated version of LaserMeasure to bring to MBARI for us to install and test.
 - Duane to process dive images through zhang calibration (to compare with raw images in laser measure)
 - 902005 - VARS Annotation Assistance
 - Project work.
 - Team discussed 2023 project trajectory (902005 ends in 2022)
- Jon Erickson
 - 701145 - Penguin Hotspots
 - Still fighting the parts battle to acquire parts in time.
 - Fixing a less than adequate bracket design.
 - Waiting on a second ti frame nose frame.
 - 800139 - EyeRIS (Remote Imaging System)
 - Waiting on parts.
 - 901217 - Chemical Sensor Program
 - Received a nes set of pressure test parts, still need to do Q.C.

Still working with and advising Quest Institute. Mostly about their MARS experiment. All day yesterday in the test tank for Thursdays deployment.

- Ben Erwin
 - Out of Office
 - Vacation 2/12-2/20
- Kevin Gomes
- Andy Hamilton
- Kent Headley
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Tested ROV TRN software on dive at Portuguese Ledge with Steve Rock, Mike Risi, Dave Caress and Giancarlo Troni. The primary cruise mission was to test control system software and collect a data set that could be used to continue developing a TRN application for the ROV. Despite marginal weather, the Carson/Ventana crews were able to give us more hours than expected, given the forecast, enabling us to reach our objectives. I was able to run TRN software during the dive; data flow and first long operation with real data went well. TRN results were encouraging and helped to expose some issues that would've been hard to find on shore, and I'm still sifting through data to resolve various TRN pipeline issues; the data set collected should enable this. Mike's control tests were also successful.
 - 901101 - Seafloor Mapping
 - See Precision Control
 - 901618 - Pelagic-Benthic Coupling and the Carbon Cycle
 - Ran loop and cross test at station M last week. Acoustic conditions were poor, but conditions posed a good challenge for recovery algorithms, and the mission did produce some data and resulted in a location estimate for the rover.
 - 902204 - Scalable Marine Robotics Foundations
 - Met with Giancarlo re project goals
 - Overhead
 - Setting up meeting with NOAA re material transfer
 - DEI, SRSC committee meetings
 - proposal/budget planning
 - Out of Office
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- Rich Henthorn
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Reviewing results from Feb TRN runs on LRAUV at PL
 - 901101 - Seafloor Mapping
 - Some assistance to ROV TRN
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Monitoring deployment
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Pulled TRN logs from tethys
 - DQ2032 - DOE Wave-Energy Control
 - Meetings about ROS - Gazebo architecture
 - Overhead
 - Proposal Workshop
 - Out of Office
 - July 4 - 18, vacation & WFH, email, phone, zoom OK
 - Aug 30 - Sep 16, vacation, email, in Germany
 - Sep 21 - 30, Sta.M Cruise (final scheduled cruise of the Western Flyer)
- Brett Hobson

- Scott Jensen
- Brent Jones
 - 901009 - CANON
 - Diagnosed leak in Wire Walker telemetry package. Packaged up and sent back to RBR CA
 - 901805 - Coastal Biogeochemical Sensing Program
 - Designing OCR mount for Spray use
 - 902004 - Planktivore
 - Ballasting spray 34 with planktivore attached
 - Overhead
 - Meetings about 2023 proposals
- Chad Keczy
- Brian Kieft
 - 708143 - Eco HAB
 - Working on logistics and vehicle prep
 - Testing new mission changes and ESP integrations
 - Hooked up ESP test board
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Got Benthos MF replacement quote
 - Ran FQT on coulomb counter on vehicle Makai in preparation for EcoHAB
 - Tested quick GPS mission fix offshore last week
 - Opened Tethys to repair failed ethernet cable on backseat computer in preparation for TRN runs.
 - Logged bad batteries on Brizo/Makai
 - Overhead
 - Worked with Matt on LRAUV air ship quote
 - Out of Office
 - 05/15 - 06/04 (EcoHAB PDT)
 - 07/02 - 07/09 (HST - vacation)
 - 07/13 - 07/22 (AKDT)
 - 08/01 - 09/03 (EDT)
 - 09/12 - 09/28 (GMT+2 - vacation)
- Denis Klimov
 - 902004 - Planktivore
 - We have upcoming deployment approaching quickly. Of a recent development, designed a vacuum viewport extractor which greatly simplified removal of viewports, to the point that now insertion is a bigger effort.
 - Also, worked on various issues of mounting and clearances on a strobe assembly, as well as cables and routing
 - Also, designed an assembly jig allowing handling Planktivore housings during assembly
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Degaussing two primary battery packs for upcoming LRAUV deployment
- Diana LaScala-Gruenewald
- Eric Martin
- Thom Maughan
 - 901009 - CANON
 - eDNA meeting to discuss plans and coordination between wet side team and sequencer/bioinformatics effort. Very helpful.
 - Reading about BentoBox
 - 901805 - Coastal Biogeochemical Sensing Program
 - Worked with Irene on nanoFET and discuss plans for use of tagging in git.

- 902004 - Planktivore
 - Worked with Paul and Denis on housing assembly.
 - Worked with Paul to resolve software issues on camera controller and setup of nomachine for remote access to XavierNX - learning opportunity.
 - Ballast and trim Planktivore
 - Mounted Planktivore on Spray with revised foam. Comms roll maneuver was successful, almost too good. Brent J says good to go.
 - Working plans for engineering test at sea next week.
- Out of Office
 - TBD trip to Montana.
 - May 27 - 31 Camping
 - Jul 6 - 19 Camping, Bear Lake Monster Swim
- Mike McCann
 - 901101 - Seafloor Mapping
 - Working with Karen on trying to get her front end improvements merged in
 - 901221 - Midwater Time Series
 - Picking up the auv-python project and getting reacquainted with Poetry inside VS Code
 - Planning to process i2Map logs and put corresponding netCDF files back onto the M3 share
 - Overhead
 - The emdb server now has [this view](#) to help us monitor ROV nav edited file processing
 - Planning to meet with Lonny & Krystle next week to go over using emdb
- Rob McEwen
 - Out of Office
 - Vacation April 29 and May 11-13.
- Paul McGill
 - Out of Office
 - Will be on vacation April 21st thru May 12th.
- Tom O'Reilly
- Craig Okuda
- Doug Pargett
 - 708143 - ECOHAB - Andy Allen
 - Preparing the MV1 and Honu instruments for deployment.
 - 708146 - Saildrone
 - Preparing the MV3 Instrument for the saildrone deployment.
- Ben Raanan
 - 902101 - LRAUV Technology Development and Fleet Operations
 - PR reviews
 - 902102 - Multi-LRAUV Simulation Environment
 - Wrapping up data lookup/interp
 - [Acceptance testing — running multi-LRAUV targeted sampling tests with synthetic data](#)
 - Tethys (blue line): hover on chlorophyll max, trigger ESP water sample on a timer
 - Daphne (red line): acoustically track/circle Tethys while profiling the water column



- Starting work on battery plugin
- Starting work on DVL plugin
- Out of Office
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- Mike Risi
 - Out of Office
 - May 5 - vacation
 - May 9-10 - vacation
 - June 2-8 - OI cruise
 - June 10-14 - vacation
 - June 20-22 - vacation
 - August 8-9 - out of office
- Paul Roberts
 - Out of Office
 - 4/2 - 4/9 (spring break san diego)
- Brent Roman
 - 706005 - eDNA Grass Carp Sandusky
 - Help Kevan alter mission sampling schedule on the fly (two per day and sunrise+1hr and +2hr)
 - 708143 - ECOHAB - Andy Allen
 - Updated firmware for the ECOHAB ESPs. Discovered an intermittent crash bug in the new Gateway firmware. Reverted back to an earlier version. Will have to investigate later.
 - Added support for new "Toxicant" valve to send bleach out ESP's exhaust port.
 - Worked with Ussler, Kieft and Rueda to design and implement a method of summarizing SPR runs on the ESP in a form suitable for uploading acoustically.
 - 708146 - Saildrone
 - Installed ESP brain to ride along on Surveyor's shakedown cruise this week.
 - Surveyor was supposed to leave Monday, but seems to still be in port.
 - 708165 - NOAA-MERHAB
 - Supporting Stephanie Moore as she preps their two ESPs for deployment
 - ESPeddie deployed off La Push, WA
 - 901205 - SURF Center
 - Frustrated by MBARI-Staff network's WiFi flakiness.
 - Out of Office

- Jury Duty at SC Court since Monday
- Carlos Rueda
 - 901101 - Seafloor Mapping
 - Brief chat with Doug C. re MB-system docker container issues on (m1) macOS Monterey.
 - 901502 - Soundscape Research and Education
 - Some literature review regarding sperm whale click detection
 - 902005 - VARS Annotation Assistance
 - Did adjustments in Cthulhu that seem to help with the issue of “disappearing boxes” during playback. A screencast (captured with Camtasia) doesn’t really reflect the improvement, so, hoping others can give it a try from this [branch](#). Also fixed a subtle issue exposed during rewind.
 - 902009 - AUV User Experience Design
 - (part charged here, part as overhead) Continued exploring various possible technologies for modernization of TethysDash backend.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - LRAUV ESPComponent:
 - Adjustment to use COURIER for the log summary report (merged in EcoHAB branch).
 - New request (low priority): <https://mbari1.atlassian.net/browse/TETHYS-637>
 - DashUI: Yanwu reported a bug in the “Build a command” feature: a missing “value” field, which seems like a long-standing regression as no changes have recently been made in relevant code. He also inquired about a possible way to display a boundary box (defined at the lrauv-config level) on the map for upcoming experiments in SB. This is not supported per se but I’m looking into it, probably just resorting to defining such a polygon in one of the formats supported under the Layers dropdown.
 - TethysL:
 - Brian and Ben have suggested we start migrating a few of the commonly used missions from XML to TethysL. I already prepared a PR for this purpose, initially with a dozen of such missions, and sent an email to the team about this plan.
 - Regarding execution of TethysL directly on the LRAUV (a desirable goal we have discussed for a future version –maybe in 2023?), I put together a pretty successful proof of concept involving the generation of a TethysL C library that can be called from the LRAUV for the tethysl-to-xml translation at runtime. All working great but, unfortunately, at least for the time being, this is not viable for real LRAUVs due to the lack of support for ARM32 as a target architecture in the technology I’ve been using to generate native binaries and such a linkable library.
 - Overhead
 - DEI AC meeting/review of job position text.
 - Proposal workshop.
 - Technology exploration involving Postgres, GraphQL, microservices.
 - Out of Office
 - May 16-20: vacation
- Karen Salamy
 - 300057 - Mooring Maintenance
 - Weekly maintenance and data checks.
 - 901101 - Seafloor Mapping
 - Ran into some issues trying to move my code updates into the main repo for SMDB this week. I have been working with Mike to try and determine what the issue on my local development system not working correctly. Today, I decided to completely rebuild the system from scratch. I am still having a few issues but hope to get it all up and running this week.
 - Out of Office
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- Brian Schlining
 - 500055 - VARS, M3/RS, DSG
 - Never-ending imports of video files from Iron Mountain ...
 - 902005 - VARS Annotation Assistance
 - Working on analysis comparing ML output with human annotations
 - Overhead
 - Moved to new office.
 - Out of Office
 - May 5th. Off the grid.
- Alana Sherman
 - Overhead
 - Attending National Academy of Sciences Workshop on Technology Developments to Advance Antarctic Research, giving a brief talk and will be a panelist for a session on Science/Engineering Partnerships. Working on talk prep.
 - Working on Strategic roadmap
 - Finalizing draft of new EE job posting
 - Out of Office
 - Out for sick kids and kids dr appointments