

Engineering Weekly Report 2/3/2022 - 2/10/2022

Executive Council Notes

-

Individual Activities

- Kevin Barnard
 - 701139 - ML Tracking
 - Collected & parsed stereo cam localizations from several MiniROV dives; preparing for load to VARS
 - 902002 - FathomNet
 - Upgraded fathomnet-py with support for image tag CRUD operations; released v0.4.1
 - Continued integration of BoxJelly with Cthulhu
 - Revived dfg-tool codebase for automated digital video frame grabbing; modernizing and testing prior to video lab use
 - 902005 - VARS Annotation Assistance
 - Met with team for internal project updates on production workflow, detect+track experiments, BoxJelly status
- Francois Cazenave
- Danelle Cline
- Duane Edgington
 - 901603 - Video TAG
 - Monthly NOAA AIASI telecon Feb 7; Kakani presented FathomNet to the participants.
 - 901618 - Pelagic-Benthic Coupling
 - Scheduling on-site meeting with Paul M. and Dan D. to work out year plan and next steps.
 - 902004 - Planktivore
 - Reported, in brief, to team on ZFS at weekly project meeting Feb 7.
 - Eric O., Paul R and Duane scheduling meeting to go over planktivore database tool (formerly used at SIO) to set up on DeepRip. Eric has established a bitbucket repository, and started build on DeepRip.
 - 902005 - VARS Annotation Assistance
 - Continuing deepsort test runs.
 - Very useful meeting the AWS ProServe team Feb 8 on cloud formation tools (a way to build a processing pipeline). Reading about the Cloud Development Kit (CDK) and how to write code to configure cloud resources.
- Jon Erickson
 - 701145 - Penguin Hotspots
 - Paul M. has the tilt board to mount on the EK-80 electronics
 - Aaron is machining the pressure case tube to fix the mistakes.
 - Still working on gimbal assembly.
 - 901217 - Chemical Sensor Program
 - Prints for yet another pressure tester, for the entire ISUS sensor and stem.
 - 901805 - Coastal Biogeochemical Sensing Program
 - Working on interior layout with the nanoFET ph board.
 - And a pressure case to go with it. (neutrally buoyant of course).

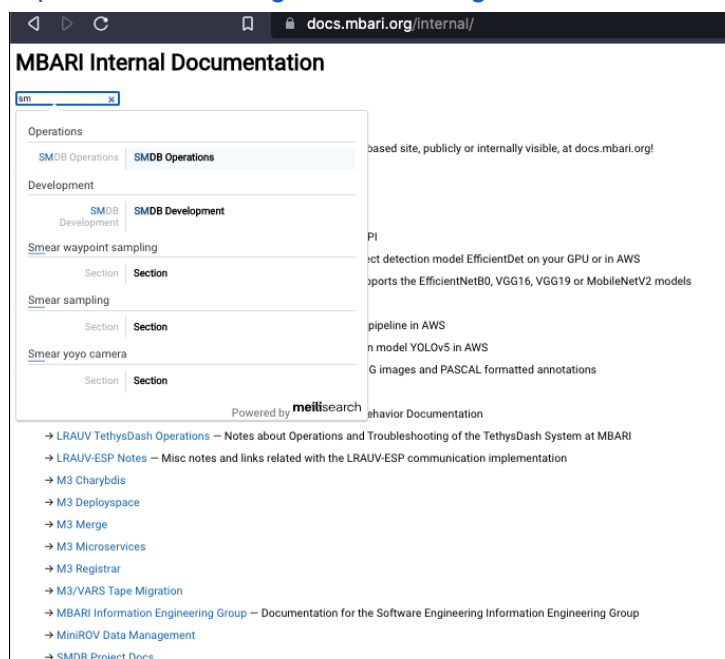
- 901809 - Deep Sea Bioinspiration
 - Subastian interface can end cap in the shop for mod.
- 902004 - Planktivore
 - Pressure case end caps are out for Anodize.
- 902010 - Mesopelagic LRAUV
 - Started working with Ti_squared for the hull end domes. (as Castings).
- Ben Erwin
 - Out of Office
 - Vacation 2/12-2/20
- Kevin Gomes
 - 200105 - Core Navigation Data - MDUC
 - Mike Risi and I have started discussing how best to think about planning for David Packard infrastructure work
 - 901915 - Improving the Impact of MBARI's Data
 - Met with Visceral to go through their cut at Information Architecture for the new website
 - 902012 - Telepresence on MBARI Research Vessels
 - Configured everything to build and deploy using docker so I can deploy on telepresence
 - Trying to get WebSockets to work through SSL proxies so I can push data to the browser that comes from the boats.
 - Overhead
 - Working with IS (Todd/Joe) on leveraging Joe's great work on monitoring, logging, alerting and extending to incorporate the needs of our group. Researching possible methods to support/extend this.
 - VAA Meeting
 - AWS VAA Meeting
 - Meeting to discuss oddities in navigation data in EXPDB/VARS
 - Met with Video Lab to discuss MiniROV data flow and concerns. Refresher on how things work and seem to be running smoothly again.
 - Met with ShopDev (external contractor) to understand their business model for contract work.
 - Out of Office
 - Feb 14: Possible start of Jury Duty
 - Mar 21-25: Vacation
- Andy Hamilton
- Kent Headley
 - 901618 - Pelagic-Benthic Coupling and the Carbon Cycle
 - With Chris Wahl and Paul McGill, piloted waveglider acoustic surveys to geolocate benthic rover and SES using an implementation of Paul's loop and cross algorithm that I implemented last year. The missions were both successful, and yielded accurate locations of the assets.
 - Wrote a utility to process loop and cross data to produce a location estimate by minimizing mean squared error using a binary octree search
 - Overhead
 - Review wrap up
 - SRSC
 - Misc admin
 - Out of Office
 -
- Rich Henthorn
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Adding to and improving data logging
 - Reviewing latest TRN logs

- 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Testing updated software
 - Re-build RPi4 target system 'torque' after disk error
- 901618 - Pelagic-Benthic Coupling and the Carbon Cycle
 - Sta.M - deployed Rover, SES, and Dual-Camera tripod
 - Demobilization
- Out of Office
 - Feb 14 - 18 (next week), vacation & WFH
 - March 14 - 25, vacation & WFH
 - Sep 21 - 30, Sta.M Cruise
- Brett Hobson
- Scott Jensen
 - 901205 - SURF Center
 - Continued support of sampling development
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Slow progress on acquiring parts for spare PCBs
 - 901805 - Coastal Biogeochemical Sensing Program
 - Checkout of nanoFET continues as well as packaging starts.
- Brent Jones
- Chad Keczy
- Brian Kieft
 - 706007 - USGS Great Lakes Prey Fish Assessment
 - Met with team to discuss plans for Lake Superior
 - 902009 - AUV User Experience Design
 - Got NDA signed with our developer at Sumo
 - Chased down accounting issue which showed no MBARI payment for last PO. Issue ended up being a bank software issue on their end.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Added in water speed for current estimator and ran some tests at sea on tethys
 - Assisting in upgrades to Tethys including HE thruster. Diagnosing possible wiring error.
 - 902106 - Niobicon-Based AUV Docking Development
 - Ran docking and charge tests in the tank
 - Preparing for deployment next week. Had to open vehicle due to a leaking connector.
 - Overhead
 - Lots of wet wifi testing with coordinated location of waveglider over Tethys to transfer live streaming video
 - Out of Office
 - 3/14-18 (AZ - MST)
- Denis Klimov
- Diana LaScala-Gruenewald
- Eric Martin
- Thom Maughan
 - 901009 - CANON
 - Started a conversation on Slack with Kent and Nate for embedded software to support eDNA processing workflow
 - Battery options.
 - 901805 - Coastal Biogeochemical Sensing Program
 - Working on new datalogging/controller mode for BEAMS and Barry lab
 - New features, bug fixes
 - Instrument driver OCR-504

- 902004 - Planktivore
 - Monday engineering meeting. Larry is finishing titanium work, beautiful stuff.
 - Updating LED strobe for proper optical spacing beneath lenses
 - Received updated strobe_energy board, kitting for assembly
 - Met with Larry/Paul to review optical chassis mounting
 - Pressure sensor wiring, dimension
- Out of Office
 - 8 Feb day off for bereavement
 - Mar 21 to Mar 30 Driving to Montana to help daughter move
- Mike McCann
 - 901101 - Seafloor Mapping
 - Loaded <https://smdb.shore.mbari.org/> with Compilations to give us something to discuss
 - Working on [Issue 76](#) and getting frustrated with traefik, might go with just nginx
 - Overhead
 - Spun up an Expedition Mapping Database project to analyze ROV Nav data
 - Group meeting: thinking of centralized logging I could do
- Rob McEwen
 - 708167 - WEC Dynamics and Control
 - Will try better color scaling on the radar plots to see if we can make the wave crests more evident (Andy).
 - Will try to look at scans taken on wavetops to see if the data is better and also how far until the next wave (Andy).
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach
 - Discovered that the plane had an unusually large angle of attack on the unsuccessful catapult launch. It was 25 degrees. This implies that the main wing was stalled, which would explain why the plane didn't fly. However, the plane is held securely by the launch mechanism.
 - Exploring the theory that the launch flange tore off the plane during the catapult, or partially tore off, explaining how the plane could pitch up while still attached.
 - Assisted in repairing Believer 2 by relaminating (re-covering) the nose.
 - Got Mission Planner to run on my VM, and talk to the 915 radio and to the plane.
 - Now running some whole system checks in the lab.
- Paul McGill
- Tom O'Reilly
- Craig Okuda
- Doug Pargett
- Ben Raanan
 - 902009 - AUV User Experience Design
 - Met with the SliceBread team for design review
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Terminal homing improvements — Resolved vehicle→navigation frame projection issue. Adding median and single pole IIR low-pass filtering on dock nav-frame projection and bearing rate calculation.
 - 902102 - Multi-LRAUV Simulation Environment
 - Working on new aocomms sim module, AHRS sensor model, surface simulation
 - DQ2032 - DOE Wave-Energy Control
 - Met with the team at Open Robotics for project kickoff
 - Out of Office
 - 02/23-24
 - 04/4-7

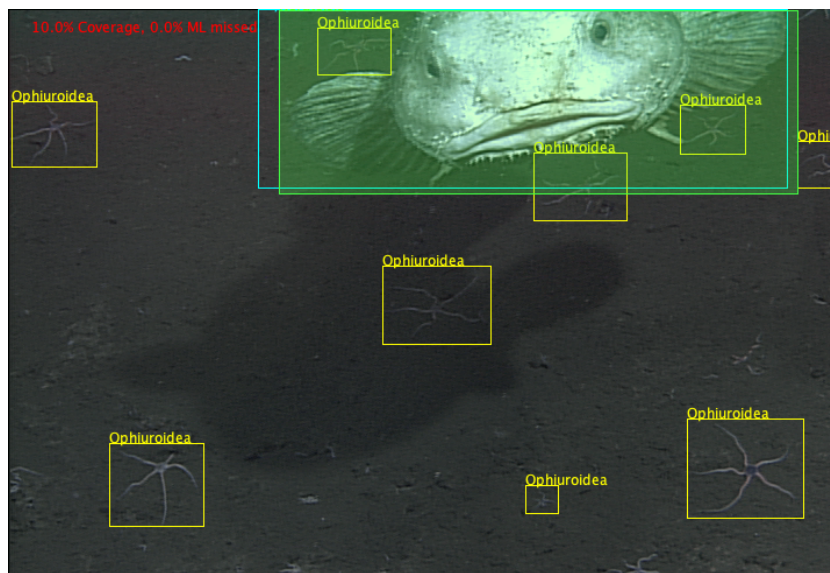
■ 04/27-05/5

- Mike Risi
- Paul Roberts
- Brent Roman
 - 901205 - SURF Center
 - Working on code to track volume of reagents consumed and waste produced
 - Implemented method returning reagent bag connected to specified syringe
 - 901913 - WetWiFi
 - First test deployment last Thursday produced real-time video streams from 90 meters
 - Only a minute or so as a time because Waveglider and AUV were not tracking
 - Returned modems to Oceancomm for firmware update and log evaluation
 - Next try, with tracking, tentatively scheduled for late March
- Carlos Rueda
 - 901502 - Soundscape Research and Education
 - Group meeting.
 - Met with Karl Watkins (U. Denver) to discuss collaboration opportunities.
 - 901513 - Targeted Sampling by Autonomous Underwater Vehicles
 - Some exchanges with Tom O. regarding issues to set up python pip on the SMC.
 - 902009 - AUV User Experience Design
 - Met with Brian K. and Jim@SumoCreations toward next steps re implementation of new designs.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Dash is now [4.9.51](#). (Also already installed by WHOI.)
 - Resuming work on TethysL, with an immediate focus on migrating to cats-parse and Scala3.
 - Overhead
 - Doc-generation:
 - Enabled [support for private Github repos](#) (seems like I didn't report on this previously).
 - Added [Meilisearch](#) powered search to our public and internal docs sites:
<https://docs.mbari.org/internal/docs-generation/search/>



- Eng meeting; IE meeting; Board bullets; Staff survey; Conflict of Interest disclosure; etc.
- Out of Office
 - May 16-17: vacation

- Karen Salamy
 - 300057 - Mooring Maintenance
 - Weekly maintenance and data verification/validation
 - 901101 - Seafloor Mapping
 - Continued to work on various issues and requests for the SMDB dashboard. I hope to push my updates out to the group soon.
 - Overhead
 - Met with the SWE group to discuss various data discrepancies and processing within the EXPD over the years. Looking at records from the early 2000's show quite a few dives that have been blocked for nightly loads due to various issues. I have been assigned to start looking into the reasons for these data failures and hopefully bring them to a conclusion of how to integrate them into the EXPD.
 - Met with the Video Lab (VL) and SWE group related to the uploading and nightly processing of the miniROV data, especially on non-MBARI ships. The meeting helped to clarify the steps of communication between the ROV operators, the Video Lab and myself on properly transferring and uploading the data and searching for the data via the postcruise.
 - I spent a bit of time following up from the VL discussion on the miniROV dives and worked with Lonny to add three non-MBARI ships to the postcruise search list, add their expeditionID and establish miniROV dives to those expeditions.
 - Out of Office
 - Vacation:
- Brian Schlining
 - 500055 - VARS, M3/RS, DSG
 - Dealing with IMES imports
 - Investigation of navigation errors in some ROV dives. Met with the team to discuss how to handle them.
 - Continued work on adding localization tools to VARS.
 - 901221 - Midwater Time Series
 - Investigated/resolved data issues with transect volume estimates.
 - Updated camera parameter history for the ROVs in the transect database.
 - 902002 - FathomNet
 - Working on podman networking between two containers. Re-deployed FathomNet using podman pods.
 - Meeting with [BIIGLE](#) dev about coordination with FathomNet
 - Discussions with NOAA/NCEI on statement of work for archiving some fathomnet images as well as data/metadata archival formats.
 - Added [tag API](#) to FathomNet to allow adding coverage estimate tags.
 - FathomNet has purchased the domain names oceanvisionai.net and oceanvisionai.com.
 - Working on adding annotation coverage estimates to all images in FathomNet. (Image below: Blue is human annotated, yellow is ML annotated, green is the intersection of ML with human)



- Overhead
 - Coordinating with DARC in prep of next week's VARS upgrade.
- Out of Office
 - Feb 14 - Feb 25 - Brian will be a visiting scientist at [DARC](#) to upgrade their video annotation system.
- Alana Sherman