

WeeklyReport

Engineering Weekly Report 1/30/2025 - 2/6/2025

<https://docs.mbari.org/internal/projects/Engineering/Weeklies/2025/>

Executive Council Notes

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Individual Activities

- Michael Anderson
- Kevin Barnard
- Francois Cazenave
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Tether order, meeting, deployment planning
 - 902106 - Niobicon-Based AUV Docking Development
 - Cleaning up, organizing, troubleshooting buoy
 - Brainstorming on high current contacts
 - 902204 - Scalable Robotics
 - meeting
- Danelle Cline
 - 901103 - Biodiversity and Biooptics of Zooplankton
 - Retrained M3 ViTS classification model with better focal loss. .90 top-1 balanced accuracy, 647 classes.
 - 901221 - Midwater Time Series
 - Nearly complete with improved tracking algorithm changes to [BioTrack](#) code. Combining multiple assignments from Hungarian optimizations is looking very good.
 - ViTS classification model trained with additional R.Sherlock labels. .92 top-1 balanced accuracy, 92 classes. Still some minor label clean-up to do. Rob requested retraining megadetector object detector model with removed nectosomes.
 - 901502 - Ocean Soundscape
 - Team meeting and kick-off discussion with LRAUV and OceanSonics about integration of ICListen recorder for near real-time detection/classification+recording. Google model on Kaggle may be a good candidate for this deployment as it uses the EfficientDet model architecture, specifically, efdet0 which is lightweight and should run ok on a NVIDIA Jetson Nano.
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
 - Finished SAM (Segment Anything Model) based corrections of bird localizations
 - ViTS classification model trained with improved bird localizations. .98 top-1 balanced accuracy, 27 classes.
 - Working on code migration task [#9](#)
 - 902111 - Carbon Flux Ecology
 - Downloaded training data set for Fernanda with missing bubbles category
 - Team plans to compare two models Resnet 18 and ViTs on a single ISIIS full mission.
 - Changed Docker build in aidata repo to use `pip install mbari-aidata`
 - 902306 - SINKER
 - Team kick-off meeting
 - Discussion with Karen and Carlos Rueda about preliminary prototype ideas
 - Overhead

- Scheduled meeting on plankton labeling. Plan to demo tools I have developed for a number of projects to rapidly annotate images/videos for machine learning.
 - Group meeting
 - Issues with
- Duane Edgington
 - 901502 - Ocean Soundscape
 - Team meeting Jan 29. Presented status on google Kaggle multispecies-whale model runs. Lots of good questions on results and processing details.
 - Decimating 256kHz Raw MARS audio to 24kHz for google Kaggle multispecies-whale model using the Yanwu Zhang and Paul McGill code. Decimation results in a time smearing that I need to discuss with them and John Ryan. Spectrograms look good.
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
 - Team meeting Feb 4.
 - Working on yolov11x detection model with Danelle's new class assignments.
 - 902111 - Carbon Flux Ecology
 - Project meeting/working session Jan 30.
 - Out of Office
 - Feb 17 - 21, 2025. [International Symposium on Orcas](#). Online/Tarifa Spain UTC/GMT +1 hour
- Jon Erickson
- Kevin Gomes
- Andy Hamilton
- Kent Headley
 - 300057 - Mooring Maintenance
 - Meeting with Jared, Francisco, and team to discuss mooring proposal
 - 300078 - DMO Support - AUV
 - Attended meeting re using LRAUV hardware for Dorado
 - 901221 - Midwater Time Series
 - Starting to work on Dorado code changes to Layered Control to support remote mission initiation
 - 902204 - Scalable Robotics
 - meeting with Dave, Giancarlo, Akshay re Norbit data processing. The open question is whether S7K is the best format to use for SR and Seafloor mapping, given that Norbit's S7K output implementation is tied to the Norbit GUI and doesn't support navigation/attitude/depth data.
 - 902405 - Precision Control Technologies
 - met with Steve last week re TRN doc and a pending code change
 - working on TRN doc organization
 - Overhead
 - review wrap up
- Rich Henthorn
 - Out of Office
 - Feb 17 - 19: WFH and PTO
 - Mar 16 - 19: WFH and PTO
 - Mar 31 - Apr 3: WFH and PTO
- Akshay Hinduja
 - 902101 - LRAUV Technology Development
 - Meet with John Ryan and LRAUV team for IC listen hydrophone integration
 - Meet with brian to troubleshoot data stream errors in gazebo simulator
 - Finished writing nc4 to gazebo conversion tool pending test and integration
 - 902204 - Scalable Robotics
 - Met Giancarlo to look at next steps for SLAM and localization using FLS and WBMS

- Attended mapping meeting with Caress and Troni group for unifying mapping system for MBARI
- Brett Hobson
- Irene Hu
 - 701160 - Year 4 Sensors
 - Minor troubleshooting for broken controller
 - 901217 - Chemical Sensors
 - Some updates to next Tiva129 module, eg fix I2C issue noticed by contractor
 - 901805 - Coastal Biogeochemical Sensing Program
 - Non-iso nano is ordered and on its way
 - Finally got mini lamp info after Photonics West meetup. Updated circuit for mini ISUS baseboard, Jose went back and forth with Jon re: layout
 - Continue trying to understand alkalinity circuit
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Researched some more LEDs
 - Code planning and other discussions w/ Paul
 - Out of Office
 - Feb 10: WFH
 - Feb 26 - Mar 9: vacation
- Scott Jensen
 - 706008 - READI-Net
 - Working on an improved measurement technique of the clamp
 - Getting the software repositories up to date
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 - 901205 - ESP SURF Center
 - With the equipment shipped it now has been a chance to clean up a few details for this deployment and make sure there are not any forgotten details
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - The build of the replacement power converter has been completed along with initial acceptance tests.
 - Finally assembly prior to integration is underway
 - Out of Office
 - Feb 10 - 24 Tasmania Deployment
 - Feb 25 - March 7 vacation
- Brent Jones
 - 901112 - Monterey Bay Time Series
 - Beginning turnaround of Wire Walker
 - 901502 - Ocean Soundscape
 - Completed processing of all clicks
 - Generating stats on clicks detected
 - 901805 - Coastal Biogeochemical Sensing Program
 - Meetings
 - Beginning to look at repackaging nanoFET
 - 902004 - Planktivore
 - meeting
 - Overhead
 - Still outfitting new G120 lab
- Chad Kechy
 - Out of Office
 - Out of office on Fridays
- Brian Kieft

- 300083 - DMO Support - LRAUV
 - Supporting Daphne and Ahi MBTS deployments this week. Issues with Ahi ground fault on the puck but otherwise good planktivore data.
- 901513 - Targeted Sampling by AUVs
 - Working with Yanwu on edge detect missions and behavior to keep vehicle in a feature of interest.
 - Also fixing various sim issues related to his work.
- 902101 - LRAUV Technology Development
 - Lots of gazebo sim issues. Met with Akshay to discuss options and topic data fixes
 - Met with our dash5 team here to prioritize issues in git.
 - Met with Sliced Bread to plan for full team meeting week of 2/17. Goal is to have functional dash 5 in users hands by end of Q2 for beta and feedback.
- Overhead
 - Brief meeting with TNC collaborator
 - Reviewed report on Oshen collaboration. Adding to collection of ASVs reviews.
- Out of Office
 - 02/10-14 Open Ocean (PST)
 - 02/25-28 (MST)
- Denis Klimov
- Eric Martin
 - Out of Office
 - Vacation 12/23-1/3
- Thom Maughan
 - Out of Office
 - Vacation 10 Feb to 18 Feb, Colorado and Texas
- Mike McCann
 - 901101 - Seafloor Mapping
 - Met with folks from Ocean Exploration Trust to discuss getting our data into RUMI 3D viz
 - 902403 - Expedition DB Modern
 - Merged [expd-django-5.0 branch](#) to main and pulled to production
 - Kicked off team meetings that will continue bi-weekly through March
 - Trying to get tests to run on a fresh Azure SQL Edge database in GitHub Actions
 - Out of Office
 - 14 - 24 February 2025: Some vacation, some WFH
- Paul McGill
 - 701147 - MARS O&M IV
 - Working with Bryan to get Meinberg time server working and updated, but we're having lots of problems.
 - 902401 - Geo-Sense
 - Working on strategies to survey the exact location of the DAS cable.
 - 902402 - CSEM
 - Ordered a Dataq data logger to monitor the CSEM transmit current.
 - Investigating whether noise in the transmitter power supply compromises recorded data.
- Enoch Nicholson
 - 706008 - READI-Net
 - Continuing to receive FIDO parts
 - Continuing ordering
 - Redesigned RAM, created weight calibration setup started first article inspection
 - 901205 - ESP SURF Center
 - Working to source a heater calibration tool with brent.

- 902306 - SINKER
 - Beginning instrument frame modification for march dive.
 - Elevator preparations beginning.
- Tom O'Reilly
- Mike Risi
 - Out of Office
 - Offsite on Tuesday and Friday
 - March 3 - March 6, 2025 - vacation
 - June 2 - June 6, 2025 - vacation
- Paul Roberts
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - SWIR system controller layout
 - 902004 - Planktivore
 - Ahi 24 deployment
 - Data management
 - 902306 - SINKER
 - System-controller firmware dev: periodic imaging events and state diagrams
 - Orin AXG pylon image recorder dev
 - Overhead
 - Moving 4k camera to building G
 - Camera lab planning
- Brent Roman
 - 708184 - ESP Monitoring PNW
 - Testing wireguard timing adjustments to save satellite link bandwidth
 - 901205 - ESP SURF Center
 - Located used thermal forcing system for \$8k (who will pay for it?)
 - Working with Enoch to build a quicking acceptance test fixture.
 - Configured ESPaway3 to act as router for the team in Tasmania
 - 901913 - Wet Wifi
 - OceanComm will supply a pair of modems in April.
 - No more deployments on fast moving ships as that seems to cause housing leaks
 - 902304 - Piscivore Cam
 - Researching possibility of using commodity processor board and open source software
 - Overhead
 - Moving into my new office. Gotta get blinds!
- Carlos Rueda
 - 901502 - Ocean Soundscape
 - Group meeting with European collaborators, who are contributing additions to PBP.
 - 901513 - Targeted Sampling by AUVs
 - Modularizing tracking codebase toward incorporating a new implementation for patch tracking.
 - 902101 - LRAUV Technology Development
 - TethysDash now has MBARI SSO as a direct authentication option (still via Firebase). Many thanks Andrew and Travis for the great assistance. The various new auth options are behind special flags to facilitate testing. This kind of change is challenging and tricky to put into production, especially because, while keeping in mind that real testing and verification only happen when using our production server with real users, we also need to support both mechanisms as a safety net (during a transition period). This "mixed" mode in the current version has brought inconveniences to some users. I plan to have a completely separate webapp with the new mechanism, while reverting the usual dash4 to the previous version. Hopefully that will enable a smoother path toward migration.

- Overhead
 - Postdoc applications review
- Karen Salamy
 - 200103 - Core CTD Data - MDUC
 - Updated latest ROV CTD O2 flag information into the EXPD.
 - 300057 - Mooring Maintenance
 - Continue weekly coredata8 maintenance and downloads.
 - Tomorrow is the first M1 meeting of 2025. The management team has requested that more reasoning be offered to keep the M1 deployment time series going.
 - 901101 - Seafloor Mapping
 - Working on Github requests for viewing the map and data pages on a screen-only device like a pad or phone.
 - 902101 - LRAUV Technology Development
 - Met with Brian and Quinn to go over the most important Github issues to be addressed first thing when SUMO Creations is back on board for Dash5.
 - 902306 - SINKER
 - Had a meeting with Danelle earlier this week to discuss setting up some scaffolding for the SINKER Dash
 - 902403 - Expedition DB Modern
 - Attended the first 2025 kickoff for EXPDM with Mike M. Mike reviewed the new Django app structure he has built.
 - Overhead
 - Meetings.
 - Out of Office
 - Vacation March 3-11, 2025 - Holiday Vacation
 - On-campus 3 days/week (**T, W, TH**). New OFFICE - G106.
- Brian Schlining
 - 500055 - VARS, M3/RS, DSG
 - Released [a windows build of VARS Annotation 2.2.0](#)
 - Doing an investigation on providing direct links to different views in a single-view web app behind a proxy.
 - Released [vampire-squid-java-sdk](#), a Java SDK for interacting with [MBARI's video asset manager](#). This will be useful in a number of existing projects.
 - 902002 - FathomNet
 - Starting review of Kevin's [Vue 2 -> 3 migration](#) of the web front end
 - 902111 - Carbon Flux Ecology
 - [Continuing work on migrating Station M image annotations into M3/VARS](#). Working with Crissy on remapping deployments to more standardized names.
 - Overhead
 - Working with external groups to “pass the torch” for the 6th Marine Imaging Workshop in 2026.
 - Helped OSU with updating their VARS system to the latest versions. Also provided [a script for merging seabird CTD files](#) with their video annotations.
- Alana Sherman
 - 902401 - Geo-Sense
 - GeoSense deployed and making plans for our visit back to the site on Thursday.
 - Overhead
 - Reviews, this consumed almost all my time since the GeoSense deployments. I just finished all 10!
 - Postdoc application reviews
- George Stern

- 902204 - Scalable Robotics
 - Fixturing and setup to test if luxonis software accepts external camera sync
- 902304 - Piscivore Cam
 - More rhonda meetings - not going well... They don't want to provide total project cost estimates, technical analysis to support their platform choice, or really any information about the product; after sending them \$15k over 6wks ago and now having spent 4 meetings asking for details we requested in the spec we sent them >2mths ago, they finally read the spec and indicated they don't want to do much of what we asked... Hopefully the language barrier or possibly aggressive timeline is causing the issues?
 - Continued investigating alternative options - luxonis is so close but conversations with the company indicate either we would need a very complex hardware effort and software contract work they may not be interested in or it is probably over a year away; NVIDIA with GSML3/FPD-Link4 despite being technically risky due to lack of underwater connectors, and consuming too much power are looking better and better.
- 902306 - SINKER
 - Finished battery charging script
 - Created a charging station in the lab, integrated with the real batteries and simultaneous stack charging; 2 sets of batteries have been charged.
 - Began checking out battery interface boards
- Justin Tucker
 - 300062 - DMO Support - Doc Ricketts
 - Lifting bracket weld analysis
 - 708178 - Marine E Development NAV
 - Battery proposal review and meeting
 - 901007 - Benthic Biology & Ecology
 - Valve design revamp
 - 901101 - Seafloor Mapping
 - Compiled payload mass budget for AUV proposal
 - Kinematic analysis for reversed ram placement on LASS
 - 902010 - Mesopelagic LRAUV
 - DVL housing assembly and rework troubleshooting
- Johann Voigtlander
 - 902208 - Mini ROV Operations
 - Test tank camera and laser calibrations for GT
 - Clump EPOD disassembled
 - Out of Office
 - Dec 16th - Jan 10th - Vacation