

WeeklyReport

Engineering Weekly Report 2/27/2025 - 3/6/2025

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

Executive Council Notes

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Individual Activities

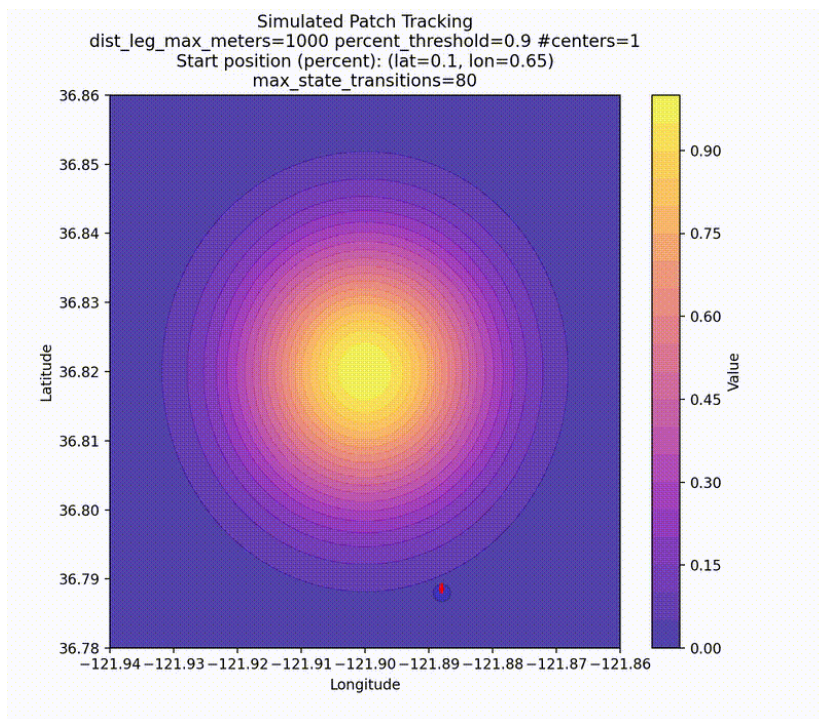
- Michael Anderson
- Kevin Barnard
- Francois Cazenave
- Danelle Cline
 - 901103 - Biodiversity and Biooptics of Zooplankton
 - Tator upgrade
 - ARGO Kubernetes sandbox.
 - 901221 - Midwater Time Series
 - Tator upgrade
 - ARGO Kubernetes sandbox.
 - 901502 - Ocean Soundscape
 - Testing a collaborators approach to scaled processing using PBP+Dask+PyHydrophone. Works! Now we can process 32 days in 4 minutes on gizo.shore.mbari.org. Thanks to Carlos and John for the teamwork, and our collaborator Clea Parcerisas for sharing.
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
 - Tator upgrade
 - ARGO Kubernetes sandbox.
 - Setup justfile recipes and some minor rework of processing scripts to help avoid an error in the post-flight processing. Thanks to Bill Kirkwood for the help.
 - 902111 - Carbon Flux Ecology
 - Discussion with team on CFE preprocessing and model results on a deployment. Three models Resnet18, DINO ViTs8 and ViTS16. Looks like we need a few more classes, e.g. diffuse blur. and to remove more “junk”. The blob detector may be too sensitive. Fernanda to explore changes to blob detector and some basic background subtraction.
 - Tator upgrade
 - ARGO Kubernetes sandbox.
 - SDCAT cluster mods to merge clusters on Planktivore low/high mag camera
 - Out of Office
 - Vacation 2/21, 2/28-3/7
- Duane Edgington
 - 901103 - Biodiversity and Biooptics of Zooplankton
 - Pipeline and planning discussion with Danelle C.
 - 901502 - Ocean Soundscape
 - Team meeting
 - Continued work on automating processing of MARS raw 256kHz 10 min audio segments to 24kHz downsampled 10 min audio segments, using 2 stage decimation followed by 1 stage resampling. Colab

- Processed 16 segments through kaggle google multi-species whale classification model. Analyzing results. Colab
 - Gaining expertise in visually identifying orca calls in 10 min spectrograms generated by the automated processing pipeline.
- 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
 - Pipeline and planning discussion with Danelle C.
- Out of Office
 - Doctor appointments early AM
 - Medical appt. Friday
- Jon Erickson
- Kevin Gomes
 - 200105 - Core Navigation - MDUC
 - More work to bring simulator as close to the current Carson as possible
 - Working on possibly creating a new LCM bridge for TimescaleDB
 - Overhead
 - Working on getting ML coordination kickoff meeting scheduled
- Andy Hamilton
- Kent Headley
 - 901221 - Midwater Time Series
 - Reviewed with Erik the implementation of Behavior class feature enabling start/end times to use real time clock.
 - Working on transit and low-power station keeping behaviors
 - 902405 - Precision Control Technologies
 - Reviewed Steve Rock's (excellent) TRN documentation sections
 - Working on software documentation section
 - Overhead
 - SE Hire process, misc admin
- Rich Henthorn
 - 902306 - SINKER
 - Viewport cleaning functional
 - Testing for deployment next Monday
 - 902401 - Geo-Sense
 - Deployment data
 - Out of Office
 - Mar 10 - On Carson for SINKER deployment near MARS node
 - Mar 31 - Apr 3: WFH and PTO
- Akshay Hinduja
 - 902204 - Scalable Robotics
 - Debug and test LCM to S7K tool
 - Scoping meeting for Norbit WBMS localization
 - Setup timeline analysis for Localization
 - Out of Office
 - WFH Feb 27 and Feb 28
- Brett Hobson
- Irene Hu
 - Out of Office
 - Feb 26 - Mar 9: vacation
- Scott Jensen
 - Out of Office

- Feb 10 - 24 Tasmania Deployment
 - Feb 25 - March 7 vacation
- Brent Jones
 - 901805 - Coastal Biogeochemical Sensing Program
 - Split nanoFET pcb board into two (Analog and digital) to repackage in smaller housing
 - Circuit drawn up in KiCAD
 - Working on analog pcb layout in KiCAD
 - Out of Office
 - Dr appointments for injured hand
- Chad Keczy
 - Out of Office
 - Out of office on Fridays
- Brian Kieft
 - 902101 - LRAUV Technology Development
 - Launched Aku last week for engineering tests. Lots of changes in Feb release.
 - Lots of work this week with Sumo creations and Sliced Bread. Reviewing Figma changes and steering the project in the direction of an engineering lead versus design led. Seeking >25% EV by end of Q1 and the team is finally coming onboard with the concept. Paid first invoice of 4 with nearly 0 EV on the project so far.
 - Investigated strange thruster faults observed on Aku during last deployment that were quite disruptive. Able to reproduce on shore. Culprit is thrashing speed commands to the component. Will make HE component more tolerant of crazy missions. Also need to fix mission.
 - Spent time troubleshooting mission GPS fixes coming back from Aku with new mission from Yanwu. Culprit was logging style and fix was checked in yesterday.
 - 902405 - Precision Control Technologies
 - Attempting to get new sim run with single daemon for Steve. Currently the gz sim is broken (again) and this is a blocker for multiple tasks.
 - Confirmed nav ingest issue resolved for gz sim.
 - Overhead
 - Hyperion meetings
 - OOR final report
 - Shipping Oshen vessel
 - SAP expense report (first one!) Took awhile but much better than the old way.
 - Out of Office
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- 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
 - 901910 - Plankton Taxonomic Groups from AUVs
 - Got GitHub Actions CI job working for the [auv-python](#) project
 - Modified 1500 lines of legacy Python code to pass modern linting standards with pre-commit
 - Wrote tests of end-to-end Dorado and i2map data processing to STOQS loadable data
 - Made the [auv-python repo](#) public as it's referenced in a paper in review for publication
- Paul McGill
 - 701147 - MARS O&M IV

- Telecon with UW team to update status
- 902401 - Geo-Sense
 - Analyzed DAS data and presented to the team
 - Tested new DAS instrument and decommissioned old one
- 902402 - CSEM
 - Met with Johann to go over setup for next week's cruises
- Overhead
 - Doing three-phase cable voltage drop calculations for Ventana
- Enoch Nicholson
 - 706008 - READI-Net
 - Continued finalizing purchasing of printed parts and instrument frames.
 - Funding frozen by the government. Work paused
 - 901007 - Benthic Biology & Ecology
 - Starting to move BRS chamber components into the shop for Fabrication.
 - Lengthy fabrication discussion with the machine shop and Ray
 - 901205 - ESP SURF Center
 - Mocked up board holder for calibration fixture.
 - Mounted bag in the water bath
 - 902306 - SINKER
 - Printed actuator mount & installed.
 - Alignment of frame on the elevator.
- 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
 - 702108 - Deployable AI
 - Hardware procurement
 - 901809 - Deep Sea Bioinspiration
 - Optim/Galene deployment and eng. testing
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Mechanical review of SWIR housing
 - 902111 - Carbon Flux Ecology
 - Battery packs for scuba-isiis
 - 902306 - SINKER
 - Preparation for March 10 autonomous deployment
 - 902405 - Precision Control Technologies
 - Updating chassis for new power supplies and network hardware
- Brent Roman
- Carlos Rueda
 - 901513 - Targeted Sampling by AUVs

- Though still needing adjustments, the [patch tracking implementation](#) for the wave glider seems to be now in pretty good shape. As part of this I've implemented a waveglider simulator, which



has been super useful.

- 902101 - LRAUV Technology Development
 - The [TethysDash API doc page](#) was down, fixed now, and in a reliable way. Previously this involved a manual step which I forgot to apply at some point after some updates. I also added a [status monitor](#) (which would have notified me promptly about the issue in the first place ;))
- 902504 - Scalable Semantic Mapping
 - Demoed Dial in meeting about Arctic expedition organized by Giancarlo. It went very well and we got some good feedback.
 - Working on upgrading Rerun for Dial. So far not as straightforward due to incompatible changes and other subtle issues involving Vite and the webassembly version of the rerun library.
- Karen Salamy
 - 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
 - Found and fixed a bug in the m3-quickstart's [vars media update starttime.py](#) script (reported by OSU). Also updated [vampire-squid](#) and released a new version, 1.1.0.
 - Meeting w/ Sebastian Rodriguez to discuss management of Falkor Too images and video from Giancarlo's dives.
 - Meeting w/ Kevin Barnard to discuss unified handling of bounding box and related metadata across various annotation applications.
 - Script for bulk deleting annotations with localizations (for questionable ML loads)
 - Updates to the [vampire-squid-java-sdk](#). Pushed a new release, 0.0.4, to maven central.
 - 902002 - FathomNet
 - Meeting with Laura to discuss presentations at the upcoming FathomNet workshop in April.
 - Reorganization of FathomNet URLs.
 - fathomnet.org is now database.fathomnet.org
 - fathomnet.org is replaced with a WIX site
 - Working with CVIision on moving portal.tator.io to portal.fathomnet.org
 - 902403 - Expedition DB Modern

- Working through the [database schema](#) and [data importers](#) for the new DB design.
- Overhead
 - Backed up old computer, anicca, and returned it to IS
 - Meeting w/ Astrid at OSU regarding video data management.
 - Meeting w/ Eric Orestein and Alex Baldwin at NOC to discuss image data management.
- Out of Office
 - Feb 28 - Vacation
- Alana Sherman
 - 902208 - Mini ROV Operations
 - Still trying to resolve my resolver issue (pun intended), after banging my head against a wall I think I have a lead.
 - 902401 - Geo-Sense
 - We recovered the GeoSense and we able to recover some data despite the failure on the board. Actual cause tbd.
 - Lots of things we are trying to work through that were learned from the first deployment.
 - The new instrument arrived so we are trying to remember how we set it all up.
 - Out of Office
 - Out of the office March 5
- George Stern
 - 902204 - Scalable Robotics
 - Tweaked a fixture design and completed assembly and testing of the mola laser and light can on mola
 - 902304 - Piscivore Cam
 - Meeting/research to discuss alternative system designs and continue pushing forward
 - 902306 - SINKER
 - Battery charging and support for deployment next week
 - 902106 - Niobicon-Based AUV Docking Development
 - System review and power line modem and spec research
 - Procured and tested with a cheap modem designed to a competing spec (G.hn wave1) as the current nonfunctional one (Homeplug AV) - performance was no better and possibly worse
 - Ran a tank test with signal generator and scope connected to the charging rod/brush to better visualize what was happening - it is a giant cap
 - identified/ordered a Homeplug AV2 modem set but it is doubtful it will make significant improvements over the current module; anticipate needing to redesign the rod or make a complex RF transceiver with custom amp.
- Justin Tucker
 - 300062 - DMO Support - Doc Ricketts
 - Reanalysis of lifting bracket
 - 901007 - Benthic Biology & Ecology
 - Finalizing drawings for the lower part of the assembly
 - Working with shop to plan manufacturing schedule and quotes
 - Continued design of upper assembly
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Continued 2 point mooring simulation
 - Out of Office
 - Expected leave April 1st - 30th
- Johann Voigtlander
 - 902204 - Scalable Robotics
 - Installed Norbit WBMS
 - Charged & Installed 8P batteries for deployment

- Programmed mission failsafes
- Advised Vicente how to build thrusters to create a small constant water flow currentt in the test tank
- 902208 - Mini ROV Operations
 - Rebuilt clump thruster and tested
 - Worked out how to sync Atlas & Raid project library using VicaVersa software with the help of Neil
 - Helped Frank install swing arm, additional lights, probe motor, probe camera, temp probe, alt/depth
 - Reconfigured LabVIEW Digi devices to work with the newly installed sensors - still troubleshooting
 - Looking into replacing our raid drive NAS, which has critical errors
 - Purchased additional SDI->HDMI and HDMI->SDI modules for additional monitors and computers in the control van
 - Purchased spare fiber bulkheads & patch cables
 - Renewed LabView license
- 902402 - CSEM
 - Wound up winch, ready for deployment
 - Fulmar is 240V 3-phase, winch voltage needs to be swapped over
 - Organizing crew and logistics
 - Finished all NOAA VPM forms
- Out of Office
 - Dec 16th - Jan 10th - Vacation