

WeeklyReport

Engineering Weekly Report 5/1/2025 - 5/8/2025

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

Executive Council Notes

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Individual Activities

- Michael Anderson
- Kevin Barnard
 - 500055 - VARS, M3/RS, DSG
 - Scoped VARS vector database, helped write project abstract
 - 901809 - Deep Sea Bioinspiration
 - Downloaded siphonophore dataset from VARS
 - Cleaned/filtered siphonophore data according to embargoes
 - Converted dataset to train YOLO OD
 - Trained several YOLO11x models
 - Evaluated models against test dataset
 - Ran detection & tracking on LRAUV Galene Optim midwater transects
 - Packaged tracks for import to VARS
 - 902204 - Scalable Robotics
 - Cruise May 2, 2025
 - Rebasng changes made to RTAB-Map SLAM to latest version
 - Out of Office
 - May 8, 2025 - May 9, 2025 – vacation
 - May 22, 2025 - May 23, 2025 – vacation
 - Jun 3, 2025 - Jun 10, 2025 – vacation
 - Jun 11, 2025 - Jun 15, 2025 – CVPR
 - Jun 23, 2025 - Jun 26, 2025 – HPE Discover
 - Aug 7, 2025 – vacation
 - Aug 11, 2025 - Aug 12, 2025 – vacation
- Francois Cazenave
- Danelle Cline
 - 901103 - Biodiversity and Biooptics of Zooplankton
 - Continued running data mining pipeline for cteno. Expedition data query and thalassa access seem very slow and data migrations to thalassa are disruptive. Some contention on GPU machine doris doing the work with other projects that need GPU compute.
 - Discussion about proposal
 - 901221 - Midwater Time Series
 - Trained new i2MAP classifier ViTs models for 8,16, and 32 block sizes
 - Processed i2MAP_20250402 dive with 1 second 3 stage YOLO + ViT + cluster pipeline and loaded to [mantis](#).
 - Processing i2MAP_20250402 300 meter day/night transect with custom YOLO BioTracker strided tracking to compare to 415K YOLOx detection/tracking. Developing a workflow for fast dive summary.

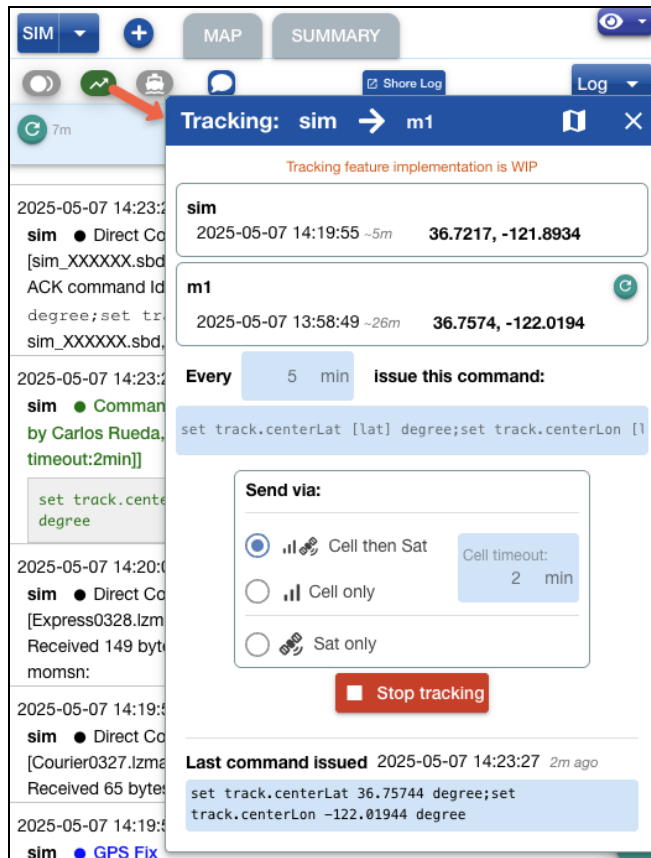
- Discussion about proposal
- 901502 - Ocean Soundscape
 - Debugging issues with recording drop-outs. IS and MARS staff are actively involved in the investigation as the errors are network related.
 - Email notification is broken on cetacean.
- 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
 - Update to processing pipeline to support either per mission or mission discovery level processing.
 - Processed mission trinity-2_20250422T171024_NewBrighton
 - Team meeting with collaborators interested in otter/shark avoidance.
- 902111 - Carbon Flux Ecology
 - Meeting with CenCOOS/planktivore team.
 - Trello board input on clustering tasks
 - Tried to process Hawaii ISIS video with Biodiversity pipeline with no luck. Need a blob or segment model detector.
 - Laura C. has proceeded with training low-mag model per [classifier training instructions](#). So far so good. Expect to do another round of clustering with this model.
- 902306 - SINKER
 - Productive meeting to discuss dashboard with the team. Delivery of initial prototype due in July.
 - Submitted IS request for VM to host dashboard and backend prototype. Discussion with Peter in IS about VM user configuration.
- Out of Office
 - Vacation 5/26-5/30
- Duane Edgington
 - 901502 - Ocean Soundscape
 - Continued work on applying Google Kaggle multi-species whale model to resampled MARS data. I am seeing too many false positives. Tried 10 min files, 1 min chunks, 5 sec chunks... Experimenting with denoising the resampled MARS data to see if the “noise” is causing the model to misclassify.
 - Exploring application of fine-tuning Google Kaggle multi-species whale model to enable WhaleSafe near-real-time PAM detections of Blue, Fin, Humpback whales.
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
 - Collaboration meeting with folks from CSUMB interested in otters, sharks, and kelp...
 - Overhead
 - Computer ICEFISH restored to Ventura OS by Daniel in IS. Whew. Sequoia OS locked me out of all my files and directories...
- Jon Erickson
- Kevin Gomes
 - 200105 - Core Navigation - MDUC
 - Starting work on downstream products from new navproc (portal, divelog, etc.)
 - 300059 - DMO Support - RV David Packard
 - Building configuration for navproc/logging/API to get ready for Packard return
 - 300070 - DMO Support - Ventana
 - Working on email fix for DiveLog since moving to new email system
 - 901009 - CANON
 - Helping with new platforms/layers for WHOI experiment
 - 902403 - Expedition DB Modern
 - Meeting about API progress and migration of loading
 - Overhead
 - Group meeting to discuss MCP and if it's applicable to the POC for AWS GenAI

- Meeting with Antje
 - Cal Poly Tour
 - Some ESP support for McCloud deployment
- Andy Hamilton
- Kent Headley
 - 300057 - Mooring Maintenance
 - developing requirements and estimate basis for 2026 mooring proposal
 - 300078 - DMO Support - AUV
 - working on experimental substack scheme to implement repeated layered control behaviors.
 - 902204 - Scalable Robotics
 - prepped oculus sonar software for cruise days 5/1-5
 - investigating issue with mb1stream (part of multibeam ingest for SLAM pipeline) reported during cruise. Sonar data from mb1stream appeared to encompass less swath than expected, and to present asymmetrically.
 - Overhead
 - hiring activities
 - abstract
 - misc admin
 - Out of Office
 - May 20 afternoon (med appt)
 - Jul 14-31 (vacation)
- Rich Henthorn
 - 902305 - Event Detection Using the Sedimentation Event Sensor
 - Proposal abstract
 - 902401 - Geo-Sense
 - Ext4 raid drive reader
 - Overhead
 - Rover external transfer
 - Out of Office
 - May 19 - May 29: Vacation
- Akshay Hinduja
 - 902204 - Scalable Robotics
 - Continued development of S7k translator tool, last missing pieces are Water Column and Snippet data
 - Assisted in dock deployment of blueboat and collected data
 - Processed RTK data to repackage as LCM and combine logs to make complete logs with all required message types as GPS fix messages from RTK were missing
 - Fixed a bug causing S7k logs to have some missing data.
 - Converted two logs with bathy + nav data to provide to Aaron Micallef before next Tuesday deployment.
 - Out of Office
 - Flying to Pittsburgh for commencement Wed 05/07/2025 and return on 05/12/2025. Will work remotely when possible.
- Brett Hobson
- Irene Hu
 - 901217 - Chemical Sensors
 - Assisting with various troubleshooting and coding tasks
 - Circuitry updates to address high latent power draw, bad EOL battery behavior
 - Battery drawdown and power consumption tests
 - 901904 - Deep-Sea Coral-Sponge Community Observatory

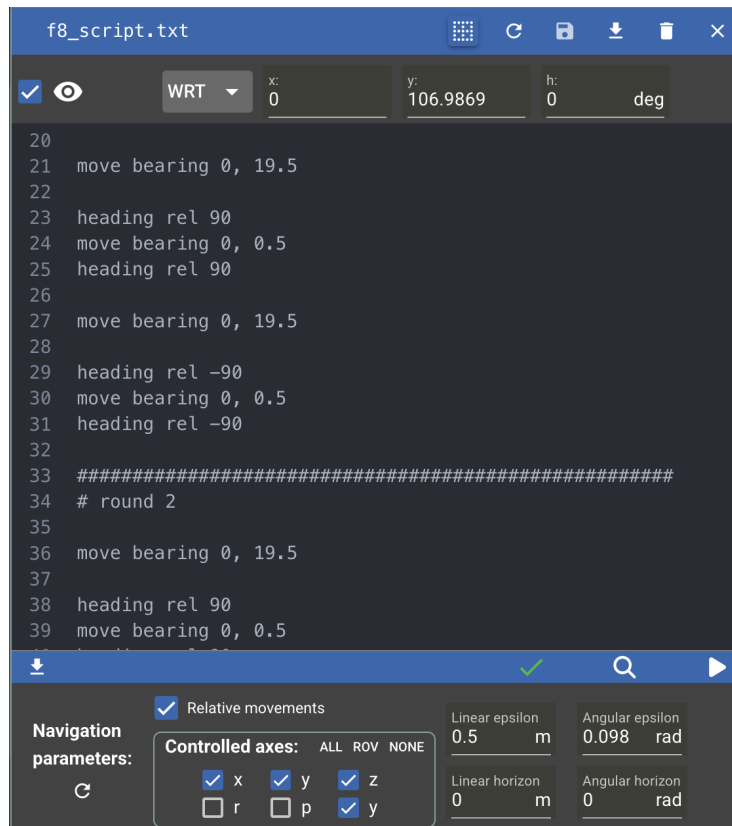
- Testing SWIR software with controller; after minor troubleshooting, seems to work
 - Out of Office
 - 5/13/25: Dr Appt
- Scott Jensen
- Brent Jones
- Chad Kacey
 - Out of Office
 - Out of office on Fridays
- Brian Kieft
 - 300083 - DMO Support - LRAUV
 - Supported multiple deployments including Galene/chiton
 - Localization and recovery support for Galene
 - 902010 - Mesopelagic LRAUV
 - Wrapped up rotation matrix for AHRS and initial ballast. Opah is ready for a sea trial following oil valve fix and ballast weight installation.
 - 902101 - LRAUV Technology Development
 - Troubleshooting Galene drop weight system
 - UX project management and testing
 - Out of Office
 - 6/16-24
 - 9/15-30 (UTC+2)
- Denis Klimov
 - 702106 - CeNCOOS
 - Power Buoy with IFCB was deployed and doing good so far; there were some changes in the setup such as bigger Zinc Anode, 1" diameter x 1" long, made specifically for IFCB as oppose to re-use of LRAUV anodes which are slightly smaller at 0.75" diameter x 1" long
 - Also "bucket test" for IFCB operation, as well as power and data link, at the dock, was easier to Power Buoy positioned in it's side. Also, installation of IFCB into Power Buoy bay was easier due to absence of the fence around the buoy; it was installed later at sea.
 - 902004 - Planktivore
 - Charging and equalizing the battery for Planktivore benthic deployment
 - 902304 - Piscivore Cam
 - Assisted on a deployment of Piscivore on LRAUV from a Paragon.
 - 902401 - Geo-Sense
 - We are working on completing Phase I items on converting inner lab A282a into Laser/ Optics space; the lab was cleaned and floor waxes with ESD wax; new dedicated lock installed; Sintela/Geo-Sense related items had been moved into A282a and we run the instrument several times in a temporary configuration
 - Outstanding items are parts for door window closure (drawings submitted to the shop); return air grill install (ordered by Erik); and serialize/ issue dedicated keys for A282a.
 - Overhead
 - On the Laser Safety side, the new scanning Lidar was received and testing in the Test Tank performed over 3 days with vendor representatives; this required some TWA modifications but overall went well.
 - Also new, better designed window closures for the Test Tank are needed, with a better seal around the edges.
- Eric Martin
 - 300079 - DMO Support - RV Rachel Carson
 - Some telepresence support 5/7/2025

- 901101 - Seafloor Mapping
 - Hosted 3d At Depth two weeks ago for Lidar tank testing followed by offshore work on the Carson last week and Monday, completing a large milestone of accepting this new system into the LASS.
 - We are also drafting an abstract as follow on work to our scoping study.
 - Moving forward with debrief of the cruise which will require shipment of the lidar back to colorado, refactoring of some of the sensor package, and assembly and calibration of a new Phins/Tasman.
- 902204 - Scalable Robotics
 - PM'ng supporting many initiatives.
 - Starting build of second POE can.
- 902504 - Scalable Semantic Mapping
 - Arctic shipment packed.
- 902505 - 2025 Arctic Expedition
 - Doing physical exams and testing
 - Medical forms
- Out of Office
 - Comp ½ day friday.
- Thom Maughan
 - Out of Office
 - TBD, Trip to UW after MSC3 passes our test plan, new forecast is mid-May.
- Mike McCann
 - 901221 - Midwater Time Series
 - Fixes to auv-python following move of i2MAP log files from titan to thalassa
 - 902101 - LRAUV Technology Development
 - Making sure all delayed mode data is getting processed into STOQS
 - 902403 - Expedition DB Modern
 - Wondering if I should continue to work on getting tests to pass on the expd-next branch
 - Out of Office
 - 6 May – Vacation
 - 8-9 May – Out of office
 - 21-25 July – ESIP Summer Meeting
 - 28 July - 8 August – Remote work
 - 10-14 August – SIGGRAPH
 - 18 August - 5 September – Vacation
 - 8-13 September – Web3D & Digital Heritage Conference
- Paul McGill
 - Out of Office
 - Medical appt on Mon morning
- Enoch Nicholson
- Tom O'Reilly
- Mike Risi
 - 200105 - Core Navigation - MDUC
 - Deployment of navproc 2.0 to Rachel Carson complete
 - Preparing to commission navproc on David Packard upon return from shipyard
 - 300062 - DMO Support - Doc Ricketts
 - Finishing up interface to test external control interface
 - Preparing for May 19th SMD visit
 - 901101 - Seafloor Mapping
 - Lidar CCI testing during tank tests

- LASS cruise series on Rachel Carson to test new WiSSL 2.0 Lidar
- 902405 - Precision Control Technologies
 - Working Steve Rock to eliminate pitch oscillations on Ventana during midwater tracking
- 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
 - Housing assembly and testing
 - 901221 - Midwater Time Series
 - Finishing housing drawings, ordering parts
 - 901513 - Targeted Sampling by AUVs
 - Review of ROIs from adaptive yoyo missions
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - SWIR chassis design
 - 902004 - Planktivore
 - Low-mag samples for clustering and model training
 - Shadowgraph illumination design
 - 902204 - Scalable Robotics
 - PoE can #2 chassis assembly
 - Overhead
 - Abstracts
- Brent Roman
 - 708184 - ESP Monitoring PNW
 - ESPeddie deployed w/o satcomms
 - Testing satcomms on roof of NOAA Office
 - 808015 - Monitoring McCloud
 - Supporting the away team!
 - 901913 - Wet Wifi
 - Decided to focus on LRAUV <-> Waveglider tracking for next few months
 - 902304 - Piscivore Cam
 - Oclea's CV25-based camera module is up and running
 - Built Yocto-based distro (after much trial and error)
 - Reconfiguring Linux kernel for USB host instead of device
 - Working with George Stern on packaging, physical ports, etc.
 - Out of Office
 - May 30 – June 23
- Carlos Rueda
 - 902101 - LRAUV Technology Development
 - TehysDash/Dash4: Initial implementation of tracking by LRAUVs of assets whose positions are maintained in the MBARI tracking database. This implementation is already basically functional, but intended to gather additional feedback to determine next steps for completion.



- 902504 - Scalable Semantic Mapping
 - Dial: Several significant enhancements in the last couple of weeks have been implemented. Latest version is 1.8.02, see <https://docs.mbari.org/internal/dial/changes/>.



- Overhead
 - Dash UIs: Investigated sudden significant increase of charges for Google Elevation API requests. Not only have they increased such charges but there have been recent multiple

requests, apparently from developers (domain: localhost), with >10K requests in a single day!
Ongoing discussion with Kevin G (and IS), and Brian K. to determine next steps.

- IE meeting - presented a general overview of Context Model Protocol ([MCP](#)). Quick demo with a Quarkus based server exposing data from [api.weather.gov](#). Good discussion.

- Karen Salamy

- Out of Office

- Personal Bereavement April 9-14, 2025 - Family funeral
 - On-campus 3 days/week (**T, W, TH**). New OFFICE - G106.

- Brian Schlining

- 500055 - VARS, M3/RS, DSG

- Updates to [beholder](#) to address a [vars-gridview issue](#)
 - Added a [simple annotation loader](#) and generated a large annotation data set for Paul Rogers to add to his database for testing against the [new kb app](#).
 - General support for registering ROV and Pisicovre videos during the titan to thalassa transition.
 - Created a [java SDK](#) for working with [Oni](#) ([VARS KB API](#)).
 - New releases of [oni-java-sdk](#), [annosaurus-java-sdk](#), and [vampire-squid-java-sdk](#).
 - New release of [m3-merge](#) using the above SDKs.

- 901221 - Midwater Time Series

- More investigations into anomalous transect distance calculations.

- 902403 - Expedition DB Modern

- Continuing work on new expedition database design, [migration tools](#), and [API](#). Swagger docs for testing at <http://gehenna.shore.mbari.org:9999/q/docs/>

- Out of Office

- Jun 2 - Vacation
 - Jul 21 - 24 - Vacation
 - Aug 18 - 21 - Vacation

- Alana Sherman

- Out of Office

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- George Stern

- 902304 - Piscivore Cam

- Began working on a housing design
 - Began working on an electrical interface

- Justin Tucker

- Out of Office

- On leave April 8th - May 5th

- Johann Voigtlander

- 902204 - Scalable Robotics

- Cleaned up Blueboat wiring
 - Scheduled a deployment with the Paragon, the boat performed well, but requires further upgrades
 - Conducted a blueboat harbour test. Data was processed, and a bathymetry map was created

- 902402 - CSEM

- Working on Antarctic logistics
 - Creating a datalogger and triggerbox GUI to see the settings and data stream better

- Out of Office

- Dec 16th - Jan 10th - Vacation