

Engineering Weekly Report 1/23/2025 - 1/30/2025

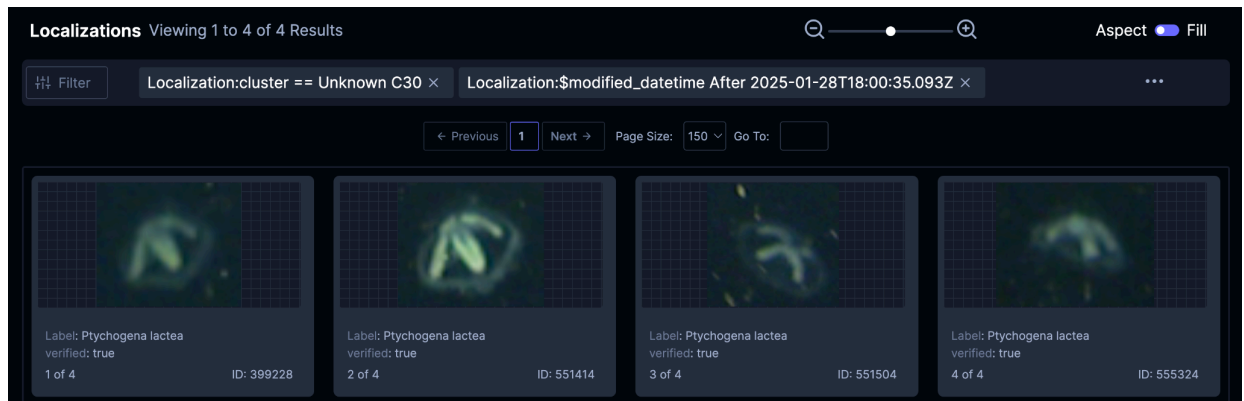
<https://docs.mbari.org/internal/projects/Engineering/Weeklies/2025/>

Executive Council Notes

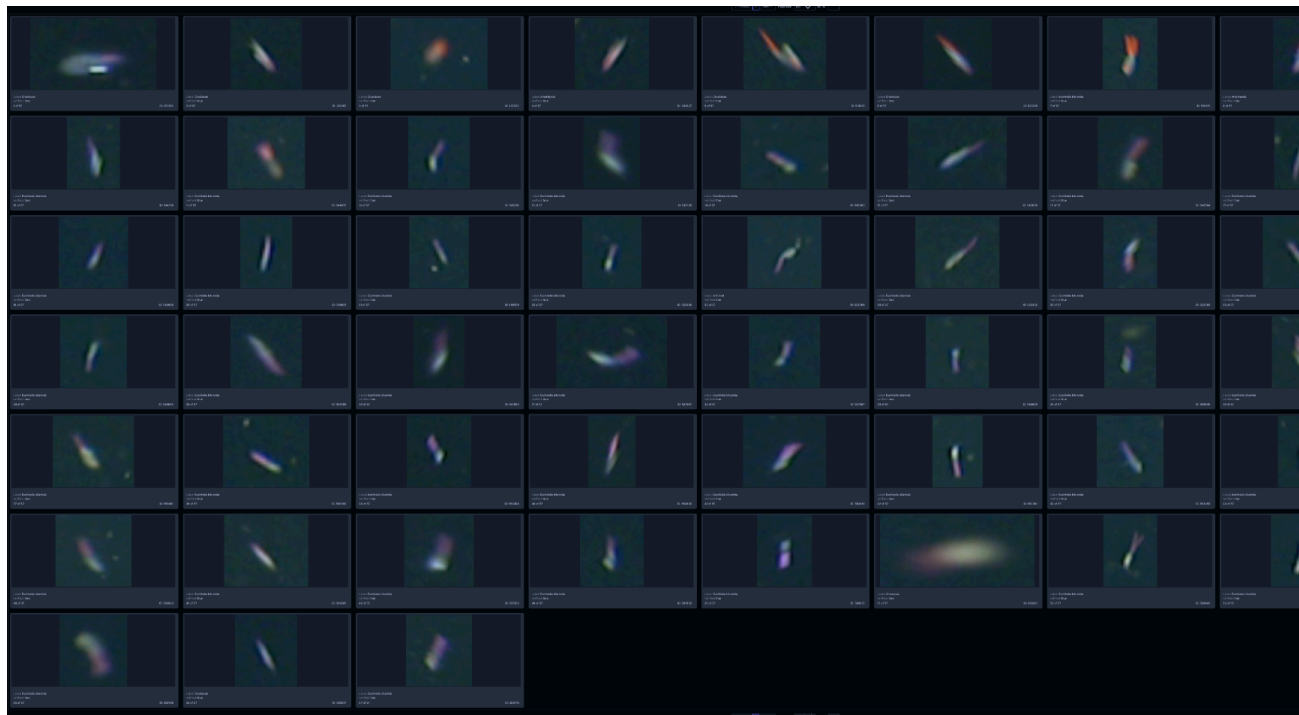
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Individual Activities

- Michael Anderson
- Kevin Barnard
- Francois Cazenave
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - PTO assembly
 - 902106 - Niobicon-Based AUV Docking Development
 - Buoy recovery and troubleshooting.
 - 902204 - Scalable Robotics
 - meeting
- Danelle Cline
 - 901103 - Biodiversity and Biooptics of Zooplankton
 - Refactored fastapi-tator. This refactor included some improvements to allow bulk deletion/modifications of video and image annotations.
 - Update docs <https://docs.mbari.org/internal/ai/data/> and <https://docs.mbari.org/internal/ai/>
 - 901221 - Midwater Time Series
 - Refactored fastapi-tator
 - Loaded ~30K clustered+classified results from ViT-S16 model which had better .89 *balanced accuracy* than ViT-S8 model of .82 for the 82 concepts (mostly species). Many common species cluster nearly perfectly. Some not in the model have been uncovered, e.g. *Ptychogena lactea*. Because of domain shift, these look different in i2MAP versus ROV so discovery through clustering is proving useful.



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- (mostly) *Euchirella bitumida* many poses in a single cluster



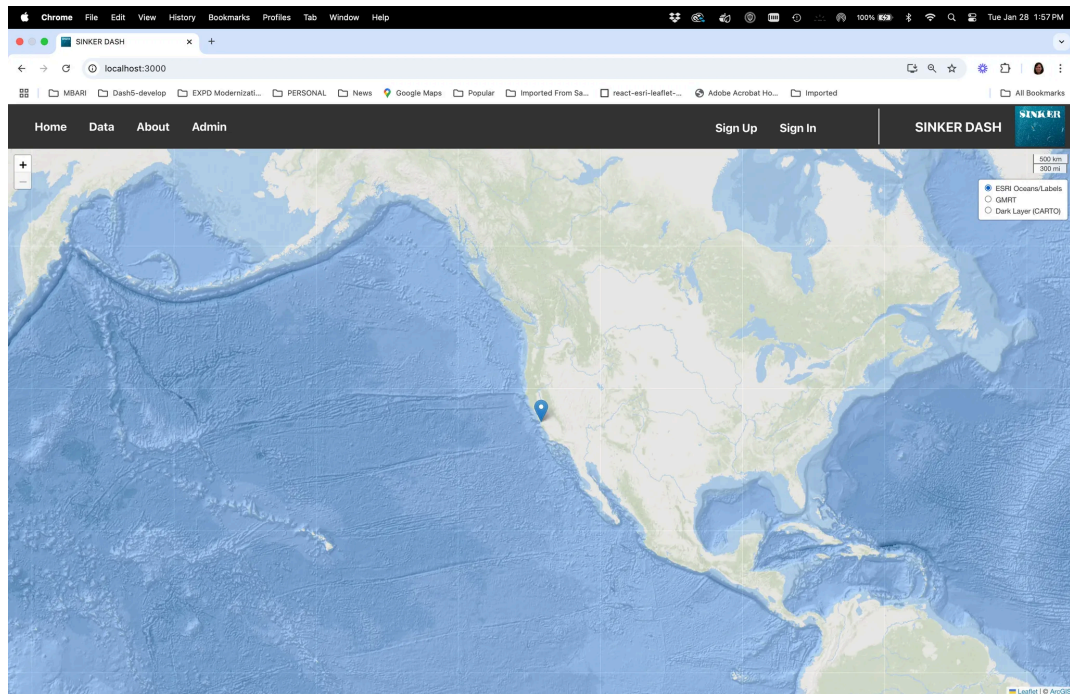
- 901502 - Ocean Soundscape
 - Discussion about PBP quality flag enhancements. [Issue #56](#)
- 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
 - VO flight volunteer Jan 29th Terrace Point
 - Moving ApacheBeam pipeline from aipeline GitHub repo to uavprocessing BitBucket repo. To simplify install, moved aidata repo to a pip module.
- 902111 - Carbon Flux Ecology
 - Refactoring fastapi-tator
 - Scheduled ISIIS review meeting with team
- 902306 - SINKER
 - Kick-off meeting
- Overhead
 - Finished self-assessment for performance review
- Duane Edgington
 - 901502 - Ocean Soundscape
 - Colab Jupyter Notebook code completed to decimate/zero-offset/normalize 256kHz raw MARS audio files (10 minutes each) to 24kHz, as input to Google Kaggle multispecies-whale detector model
 - Running notebook to verify model and mine for orca calls in MARS data
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
 - Preparing to train yolov11x model on full UAVS labeled dataset, to produce a better object detector. Run on Colab NVIDIA A100 or on MBARI DORIS dual NVIDIA L40S-48C.
 - Overhead
 - Annual Performance discussion
 - 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
- Rich Henthorn
 - 902306 - SINKER

- Kickoff meeting and discuss tasks for March deployment
- 902401 - Geo-Sense
 - DAS hardware shorted out Friday morning before leaving the dock
 - Instrument rebuilt over the weekend - Bravo!
 - Deployed slightly degraded DAS on Tuesday
- Out of Office
 - Feb 3 - 6: WFH and PTO
 - Mar 3 - 6: WFH and PTO
 - Mar 31 - Apr 3: WFH and PTO
- Akshay Hinduja
 - 902101 - LRAUV Technology Development
 - Deep dive into ExternalSimGazebo class for LRAUV-applications
 - Understand code flow
 - Wrote new class to read nc4 log files, and translate to gazebo messages
 - Check logic flow manually and then run and debug
 - 902204 - Scalable Robotics
 - Norbit c++ driver documentation writeup
- Brett Hobson
- Irene Hu
 - 901217 - Chemical Sensors
 - Discussions and some minor updates to next Tiva module
 - Bitbucket+VSCode tutorial to get Jess's MSC Sampler code onto Bitbucket
 - 901805 - Coastal Biogeochemical Sensing Program
 - Coordinated w/ Jon about Mini-ISUS layout specs
 - Reviewed more resumes
 - KAUST call
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Circuit review w/ Paul
 - Compile more LED info, donut hole LED pattern
 - Overhead
 - LNY cookie break
 - Out of Office
 - Jan 28: Photonics West
 - Jan 30: WFH
 - Feb 26 - Mar 9: vacation
- Scott Jensen
 - 901205 - ESP SURF Center
 - Finally the sampler is packed and has shipped to Australia
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Working on testing out the power electronics
 - These are identical electronics, just replacements for the damaged set
- Brent Jones
 - 901502 - Ocean Soundscape
 - Spun up windows server and processed 2022. Working on 2023 meetings
 - 902004 - Planktivore
 - Prepped, deployed, and flying ptvr ahi in support of I2MAP mission
- Chad Kecy
 - Out of Office
 - Out of office on Fridays

- Brian Kieft
 - 300083 - DMO Support - LRAUV
 - Supporting Ahi planktivore deployment this week
 - 901513 - Targeted Sampling by AUVs
 - Reviewing some minor changes with Yanwu wrt transit back to station for PAM missions.
 - 902101 - LRAUV Technology Development
 - Meeting today on Dash 5 with subs.
 - Troubleshooting GZ sim DVL issues. Getting closer to proper ingest in the application.
 - Instrumented ThrusterHE component to test at sea for failed rpm diagnostics
 - Met with WHOI to review their LRAUV plans for development for this year
 - 902405 - Precision Control Technologies
 - Meeting with Steve to review december data
 - Overhead
 - Reviewing abstracts for Oceans Brest
 - Coordinating shipping of Oshen ASV back
 - Out of Office
 - 02/06 - vacation (PST)
 - 02/10-14 Open Ocean (PST)
 - 02/25-28 (MST)
- Denis Klimov
- Eric Martin
 - 300079 - DMO Support - RV Rachel Carson
 - Telepresence for DAS Deployment
 - 901101 - Seafloor Mapping
 - 3D at depth meeting 1/28
 - Kickoff Meeting last Thursday, started scoping work
 - Strobe testing with Chad
 - 901103 - Biodiversity and Biooptics of Zooplankton (ROVVR Support)
 - Mobilizing 1/29 for offshore day Monday
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Some wiring advisement
 - 902204 - Scalable Robotics
 - Project kickoff for 2025
 - Helping Javi with defence practice
 - Advising many developments.
 - Out of Office
 - Vacation 12/23-1/3
- Thom Maughan
 - 300083 - DMO Support - LRAUV
 - Wheeled portable Batman dev cart to Cole, meeting to discuss next steps
 - 901217 - Chemical Sensors
 - At UW 25 Jan to 30 Jan. Met with Dana Swift and Aadu Prakash, MSC3 dev box, test plans, schedules, etc.
 - Working on MSC3 software. Release v5.0.4 on Jan 23, v5.0.6 with MSC1 compatibilit on 28 Jan
 - Working with Jacob on Tiva 1290 support. Testing.
 - Out of Office
 - Vacation 10 Feb to 18 Feb, Colorado and Texas
- Mike McCann
 - 902403 - Expedition DB Modern

- Testing the [expd-django-5.0 branch](https://expd.shore.mbari.org) in production on <https://expd.shore.mbari.org>
 - Learning to use the [Kolo app](#) to generate integration test code - it's pretty cool!
 - Testing GitHub Actions for expd-django - wondering what databases are needed for the tests
- Overhead
 - Examined rovctd data transfer & processing to try and accelerate framegrab processing
- Paul McGill
 - 902401 - Geo-Sense
 - This week and weekend was all Geo-Sense, resulting in a successful deployment of the DAS instrument on Tue.
- Enoch Nicholson
 - 706008 - READI-Net
 - Finalizing FIDO production design
 - Ordering FIDO production components
 - Production planning meeting for FIDO.
- Tom O'Reilly
- Mike Risi
 - 200105 - Core Navigation - MDUC
 - Continuing to fix bugs in navproc 2.0 discovered during the test deployment
 - Working with Kevin to deploy navproc 2.0 on Rachel Carson in the last week of March
 - 901101 - Seafloor Mapping
 - LASS AUV scoping study and data budget
 - Continuing to document the workstation Loon configuration process
 - 902405 - Precision Control Technologies
 - Working on the RovLib framework
 - Working with Paul R. on mid-water tracking deployment plan for April
 - 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
 - Fieldwork debrief, paper planning
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - SWIR Controller design
 - 902004 - Planktivore
 - Ahi 23 I2MAP deployment
 - 902204 - Scalable Robotics
 - 2025 Kickoff Meeting, HSI and EVS planning
 - 902306 - SINKER
 - 2025 Kickoff Meeting
 - Overhead
 - Hyperion design review
 - Out of Office
 - Jan 29 : Photonics West
- Brent Roman
- Carlos Rueda
 - 902101 - LRAUV Technology Development
 - TethysDash/Dash4 now able to support Firebase Auth for user authentication. For now this is an opt-in feature for some time while testing/tuning. Emailed core LRAUV folks asking for their help testing, pointing them to this [doc](#), which explains the why and the how.

- (plus overhead?) - Initial implementation in TethysDash and satisfactory testing to support Microsoft 365 for IMAP access. Thanks Peter for the assistance.
- Overhead
 - Preparing software to support Microsoft 365 for IMAP access.
- Karen Salamy
 - 200103 - Core CTD Data - MDUC
 - No updates from Rob this week.
 - 300057 - Mooring Maintenance
 - Weekly maintenance and checks on data downloads for moorings.
 - 901101 - Seafloor Mapping
 - Checked in a few enhancement updates for issues this week.
 - 902101 - LRAUV Technology Development
 - A 2025 kickoff meeting is set for tomorrow at 10AM with Brian and Quinn
 - 902306 - SINKER
 - Spent some time yesterday setting up a basic SINKER Dash UI framework to show at the kickoff meeting yesterday @4PM. The final SINKER dash will look different but it allowed the team to start thinking of what they would like to see.



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- I also spent a little time working on a SINKER logo for the site as well.



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- Overhead
 - Had my annual review with K. Gomes on Monday.
- 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
 - Added support for compression to Raziel, Oni, Annosaurus, and Vampire-squid to help speed up web apps.
 - [Raziel auth is now case sensitive](#)
 - [Changes to Oni](#) to support the new Knowledgebase web app that Paul Rogers is working on.
 - 902002 - FathomNet
 - Short meeting with Laura to sort out export issues with the full coverage ML dataset in VARS.
 - 902111 - Carbon Flux Ecology
 - Finished resurrecting [the ancient vars database layer](#) to support migrating of Station M image annotations into the current VARS db. [Deployed to maven central](#)
 - Overhead
 - Note that the latest Mac update, Sequoia 15.2, breaks Java in containers running with the latest Docker (4.37.2). (Took me a while to figure out what was going on)
- Alana Sherman
 - 902401 - Geo-Sense
 - I worked with the amazing GeoSense team and many other heroic MBARlans through long hours all weekend to get the DAS back up and running and deployed on Tuesday. It was an exhausting and amazing experience. The deployment was successful.
 - Overhead
 - Starting reviews...
- George Stern
- Justin Tucker
- Johann Voigtlander
 - 901809 - Deep Sea Bioinspiration
 - MiniROV Dive, 12 hour day, collected animals
 - 902208 - Mini ROV Operations
 - Tool sled swap to benthic setup
 - Reconnected control van to building
 - Upgraded Focal box with diagnostics board

- 902402 - CSEM
 - Adjusted lengths of line on black winch & general maintenance
- Out of Office
 - Dec 16th - Jan 10th - Vacation