

Engineering Weekly Report 8/1/2024 - 8/8/2024

Engineering Weekly Report

<https://docs.mbari.org/internal/projects/Engineering/Weeklies/2024/>

Executive Council Notes

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Individual Activities

- Michael Anderson
- Kevin Barnard
 - Out of Office
 - MBARI Open House comp day Jul 19, 2024
- Francois Cazenave
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Monitoring buoy
 - Cable order
 - 902106 - Niobicon-Based AUV Docking Development
 - Designing new photosensor housing
 - 902204 - Scalable Robotics
 - Designing brackets for Mini ROV
- Danelle Cline
 - Out of Office
 - September 24/25 NOAA SoundCoop workshop Boulder, CO
 - Oct 7-10 - 5th Marine Imaging Workshop in Monterey
- Duane Edgington
 - 500055 - VARS, M3/RS, DSG
 - Team meeting 8/7/2024. Focus on ML metrics. Follow-up meeting to be scheduled.
 - 901502 - Ocean Soundscape
 - Team meeting 8/8/2024.
 - Digging into [Orcasound code](#) for running inference to detect orcas. Thanks to Danelle for the pointer!
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
 - Team meeting 8/6/2024
 - 902111 - Carbon Flux Ecology
 - Preparing for the science team to start labeling clusters generated by the pipeline. Assisting Danelle with [documentation](#)
 - Overhead
 - Group meeting and AWS CDK discussion.
 - Out of Office
 - Sept 17 - 20, 2024. PyTorch Conference, San Francisco
 - Oct 21 - Nov 8, 2024. Vacation UTC+1
- Jon Erickson

- Kevin Gomes
 - 300059 - DMO Support - RV David Packard
 - Doug Conlin set up a Moxa on the GPS feed to the CTD machine so that it could be split out to multiple listeners. I wrote a python script and deployed it in a docker container on a VM on the ship and it's reading from the GPS and sending data to the AMQP messaging bus for the ODSS with an email backup if the VPN drops during the cruise (which is likely).
 - Bi-weekly meeting with folks on site to discuss networking and issues
 - Overhead
 - Proposal review
 - Out of Office
 - Aug 16: Vacation
 - Sep 16: Vacation
 - Oct 7-11: Vacation
- Andy Hamilton
- Kent Headley
 - 902204 - Scalable Robotics
 - preparing for cruise 08/08: testing oculus sonar driver, fixed a few issues, and added test pattern feature to oculus simulator.
 - Overhead
 - developing activities with Akshay
 - proposal review
 - misc admin
 - Out of Office
 - 08/08 Rachel Carson
- Rich Henthorn
 - Out of Office
 - July 16: SINKER test on Carson
 - Aug 5 - 8: WFH
 - Aug 26 - Sep 11: Vacation
- Akshay Hinduja
 - 902204 - Scalable Robotics
 - Assist in setup for cruise on 8/8
 - Go through driver repositories for gemini and oculus sonars
 - 902101 - LRAUV Technology Development
 - Start familiarizing with LRAUV simulator codebase.
 - Plan to get everything installed, and test logs to visualize real data in simulator
- Brett Hobson
- Irene Hu
 - 901217 - Chemical Sensors
 - pH measurements with MSC3 are working after various code fixes
 - Coin cell and main battery power consumption tests
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Code updated to incorporate camera, camera connector ordered
 - Out of Office
 - July 10 - Aug 5: regularly out of office
- Scott Jensen
 - 706008 - READI-Net
 - Worked out puck loading algorithm with state implementation
 - Working toward being able to run an actual "sample"
 - Supporting design of electronics board

- 901205 - ESP SURF Center
 - Support of lab's instrumentation and troubleshooting
- Out of Office
 - September 16-20
- Brent Jones
 - 901502 - Ocean Soundscape
 - Converting julia click detection to python. Measuring performance
 - 901805 - Coastal Biogeochemical Sensing Program
 - Helping prep Spray34
 - 902004 - Planktivore
 - Deploy, flew, recovered LRAUV Ahi
 - Overhead
 - Analyzing returns from deployed M1 cell package
- Chad Keczy
 - Out of Office
 - Out of office on Fridays
- Brian Kieft
 - Out of Office
 - 07/29-0802 (EDT)
- Denis Klimov
- Eric Martin
 - Out of Office
 - Vacation Friday July 29-30
- Thom Maughan
 - 300083 - DMO Support - LRAUV
 - Working with Varsha on BPC2 Charger input protection testing and debug
 - Eval board purchased, Varsha and Tad made great progress
 - Working with Varsha and team on assembly of 2nd LRAUV battery pack.
 - 901217 - Chemical Sensors
 - Note: Backlog of missed weeklies.
 - Moved from MSC2 (MpHOx based) to new MSC3 hardware in 3rd week of June.
 - Worked with Irene on board bringup and sorting out RevA issues.
 - Designed a small board to add FRAM to the RevA Tiva module.
 - Designed a Tiva launchpad daughterboard to open the possibility of outside contractor development of peripheral drivers. Planning to use upwork and/or fiverr. Hoping to invest 6 to 10 hours and save 6 to 10 days development. EETechs have assembled 5 boards.
 - Stripped down version of pHFETSOS to remove IP for outside development. Pushed to public bitbucket. Thanks Kent for the bitbucket project support.
 - I2C port expander driver working. Testing of MMS Spec and Fiberlite UV source.
 - Irene tested the MCAP pH after finding and fixing some software porting issues.
 - In progress on ISUS driver
 - Inrush current testing of MSC3. Inrush of Fiberlite on MSC3 is less than 0.5 amps. MSC1 has reported inrush of 3 amps, in progress on measurement.
 - Software dev resumed on July 31.
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Working deployment prep, see notes under Planktivore
 - 902004 - Planktivore
 - Holding weekly meetings. Working on 2025 deployment consolidation but not finding reasonable overlaps. Met with Chris Wahl to discuss ASO group 2025 deployments. Met separately with Brett on same.

- MBARI open house. Club Plankton.
 - Paul and Brent worked the deployment of intern Steven Patrick's real time plankton classification algorithm. Good results! Follow up meeting with Monique for comparison to Plankton Proxies model.
 - Working the planktivore V1 deployment for the Barry lab. Aaron is using the deepconnect frame for the battery and microscope mounting.
 - Working with Denis on getting the battery housing and cables finished and tested.
- Overhead
 - Intern Forrest Milner has made great progress. We had to pivot away from bidirectional satellite communications due to license and code access delays. New direction is to produce a custom radio board based on STM32WL55 that can run the Kineis software stack if we ever get access. Board fab at PCBWay, EETechs did a great job assisting Forrest with the assembly. Forrest used the new pick and place machine and the reflow oven. The radio board loads code and Forrest is working thru debugging solder shorts on some tiny parts in the RF path. Outstanding progress
 - Met with Kineis on Aug 7 and we received access to the documents. Time is too short to do much unfortunately. We also found that Kineis software stack does not support bidirectional on STM32WL55. Kineis is working on the KIM2 module (\$75) that does support bidirectional. Also found that only 2 of the 9 Argos satellites support bidirectional. New Kineis satellites are q'd for launch. Looks like we were in a bit early and their website a bit enthusiastic. Good results for the feasibility study this summer. 1Q25 is likely a better time to start the eval.
- Out of Office
 - Aug 23 to 27
 - Oct two to three weeks vacation Colorado.
- Mike McCann
 - Out of Office
 - 5 - 7 Aug: Sick leave
- Rob McEwen
- Paul McGill
 - 300070 - DMO Support - Ventana
 - Refining design of joystick range scaling circuit
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
 - Planning for two flights I'll assist with on Thursday
 - 902101 - LRAUV Technology Development
 - Finished pressure testing of AOS PIC24 attitude sensor, will now see about fabricating more parts
 - 902401 - Geo-Sense
 - Working on battery sphere wiring
 - Overhead
 - Working with IS to address multiple issues preventing me from running OrCAD
- Enoch Nicholson
 - 706008 - READI-Net
 - Completed ordering parts. In process of printing
 - 901007 - Benthic Biology & Ecology
 - Completed 3rd test tank run of BRS & reviewed data with Barry lab
 - Planned for next test.
 - 902306 - SINKER
 - Started Final modeling of long term deployment frame.
 - Out of Office
 - April 5-10 Vacation (Available via Slack & Email)

- April 14-18 IEEE Oceans (Available via Slack & Email)
 - April 19-23 Vacation (Unavailable)
 - September 19-24 Vacation (Available via Slack & Email)
- Tom O'Reilly
- Mike Risi
 - Out of Office
 - Offsite on Tuesday and Friday
 - January 16 - January 19, 2024
 - February 22, 2024
 - March 4 - March 8, 2024 - vacation
 - April 24, 2024 - vacation
 - May 20 - May 24, 2024 - vacation
 - June 17 - June 18, 2024 - vacation
 - September 3 - September 9, 2024 - vacation
- Paul Roberts
 - 702108 - Deployable AI
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 - 702108.99 - 6-eye camera-compute mod
 - concept design and preparing for starting build
 - 902004 - Planktivore
 - Data ingest from July 27 deployment
 - 902204 - Scalable Robotics
 - Deployment support
 - 902306 - SINKER
 - Side-looking camera chassis
 - Out of Office
 - Aug. 16 2024 - CES Northstar
 - Aug. 30 2024 - CES China Peak
- Brent Roman
 - Out of Office
 - June 20 - June 31 (gunkholing in the Sacramento Delta)
 - July 1 - Aug 31 (Vacation in Japan)
- Carlos Rueda
 - 901502 - Ocean Soundscape
 - PBP (1.1) now has a new [porcelain API in PBP](#), which should be much more user friendly. All tested successfully in our JupyterLab environment.
 - Assistance to Michael R. (NOAA) re PBP use.
 - 902101 - LRAUV Technology Development
 - Dash4 is now [4.70.5](#).
 - WHOI: brief exchanges with Matthew C. re unserialization issues, but nothing conclusive.
 - 902204 - Scalable Robotics
 - Working on the new Dial UI layout, now with 3 subviews (2D, 3D, Monitor) in the viz panel.
 - With Sebastián, defining channels and fields to populate the status panel.
 - Overhead
 - IE group mtg (learned about CDK).
 - Out of Office
 - TBD a week or so in Aug/Sep: vacation
- Karen Salamy
 - 200103 - Core CTD Data - MDUC
 - Updated ROV CTD QC flags in the EXPD as per Ed Peltzer's emails.

- Wishing Ed a wonderful retirement. Thanks for everything throughout the years.
- 300057 - Mooring Maintenance
 - Mooring data download checks.
- 902101 - LRAUV Technology Development
 - Updated Dash5 on okeanids server this past week with various map updates.
 - Have run out of time with Jim Jeffers for the summer.
 - Chasing a few bugs in the code before performing the next pull request to the main.
- Overhead
 - Attending various talks and meetings throughout the week.
- Out of Office
 - Vacation: August 20-28, 2024
 - US React Summit Conference: November 19-24, 2024, NYC.
 - On-campus 3 days/week (**T, W, TH**).
- Brian Schlining
 - 500055 - VARS, M3/RS, DSG
 - The new knowledgebase service, [Oni](#), is deployed and the old vars-kb-server and vars-user-servers have been retired. Api docs at <http://portal.shore.mbari.org:7070/docs/>
 - Updated the [ship's docker stacks to use Oni](#) and deployed it to Rachel Carson
 - 902002 - FathomNet
 - Wrote a service, [bitfrost](#), for handling zip uploads of images and localizations from researchers. The service repackages and stages them according to NOAA's requirements. This service is publically deployed.
 - Working on [scanner](#) for NOAA's staging server to register staged packages in FathomNet.
 - New release of fathomnet-rest-api was deployed with features to support the scanner
 - 902404 - 5th Marine Imaging Workshop
 - Ongoing. We're getting lots of questions as the early-bird registration deadline of Aug 8th approaches.
 - Out of Office
 - Aug 19-22 Vacation
 - Sep 5-9 - Vacation
 - Oct 7-10 - 5th Marine Imaging Workshop in Monterey
- Alana Sherman
 - 902208 - Mini ROV Operations
 - I went over the fiber pathway/new focal stack design with Johann. The pod is open, and the bottom side stack will be changed now.
 - 902401 - Geo-Sense
 - Weekly meeting was tuesday, several small items to follow up on.
 - 901205 - ESP/Readinet
 - Working on reverse polarity protection, and other little mods..getting closer
 - Overhead
 - Reading proposals- proposal review is next week.
 - Out of Office
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- George Stern
 - 902204 - Scalable Robotics
 - Light Power and Control board assembled and tested
 - Began writing control software
 - 902304 - Piscivore Cam
 - Met with Rhonda Software to get a proposal bid
 - 902306 - SINKER

- Initial power testing of battery interface board electronics
- Justin Tucker
 - 901101 - Seafloor Mapping
 - Organize reassembly of LASS brackets
 - Design of Norbit bracket adapter
 - 902010 - Mesopelagic LRAUV
 - Organize previous carbon tube testing for benchmarking of simulated failure index
 - Intro discussion with Schrodinger's polymer science lead on applying their multiscale modeling method to composite failure prediction
 - Out of Office
 - Aug 20-21 - Port Hueneme pressure testing
- Johann Voigtlander
 - 902204 - Scalable Robotics
 - Built Norbit multibeam mount for the BlueBoat.
 - Tested the drag in the test tank
 - 902208 - Mini ROV Operations
 - Took apart the EPOD and started the Focal motherboard upgrade.
 - 902402 - CSEM
 - Talked to Jean from NOAA, trying to book a CSEM slot later this year
 - Overhead
 - Completed workplace violence training
 - Out of Office
 - April 16th - May 7th Germany CSEM
 - May 8th - May 12th Vacation