

Engineering Weekly Report 11/30/2023 - 12/7/2023

<https://docs.mbari.org/internal/projects/Engineering/Weeklies/2023/>

Executive Council Notes

- Eric Martin presented an invited talk at the University of Rhode Island's Ocean Engineering Seminar Series, "*Multimodal Fine Scale Mapping and Control from Remotely Operated Vehicles*". This talk focused on low-altitude mapping work between the Seafloor Mapping and Scalable Robotics projects for David Caress and Giancarlo Troni, using both the Low Altitude Survey Sled and the MiniROV's Mapping Sled.

Individual Activities

- Michael Anderson
- Kevin Barnard
 - 500055 - VARS, M3/RS, DSG
 - Implemented several features for VARS GridView
 - Image caching
 - Sharktopoda 2 bounding box scaling
 - Visual improvements to grid view ROI widgets
 - Split label behavior into label, verify, unverify
 - Arrow key grid view controls
 - VARS observer in image details
 - Side taskbar
 - Bring Sharktopoda 2 video windows top-level on open
 - Sort by verifier
 - Customization of selection highlight colors
 - Map concepts to VARS KB primary names
 - Resolved issue with FreeTDS bug in TDS 7.3 datetime2 parsing
 - Started planning features for 2024 VARS GridView rewrite
 - 902002 - FathomNet
 - Planning for ONC collaboration
 - DQ2209 - Ocean AI 2
 - Continued support for CMS development
- Francois Cazenave
 - 901221 - Midwater Time Series
 - Preparing hardware for towing test with I2map AUV
 - 901405 - PowerBuoy Development
 - Working on tether order
 - 902106 - Niobicon-Based AUV Docking Development
 - Ordering new latch hardware
 - 902204 - Scalable Robotics
 - Helping with transfer of hardware to ROV Subastian
- Danelle Cline
 - Out of Office
 - Thanksgiving, November 22nd-November 24th.

- Duane Edgington
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach
 - Training session on 901102-uavs labeling Dec 5, 2023. Following up on action items. Planning follow-up team training session and labeling work.
 - Overhead
 - Telecon with Tom Uram of Argonne regarding their GPU enabled supercomputer systems, and process for accessing them for scientific workflows. Very exciting possibility for collaboration.
 - Out of Office
 - Dec 10 - 16. NeurIPS 2023. (virtual) UTC-6
- Jon Erickson
- Kevin Gomes
 - 200105 - Core Navigation Data - MDUC
 - Experimenting with Kafka to see if it's suitable for LCM bridge route to long term, high message rate storage
 - Looking at other message technologies as I have a huge concern about the things I'm reading about what it takes to maintain a Kafka instance.
 - Overhead
 - Troubleshooting issues with images on our external website
 - Finished 2024 summary reports for all members of the group
- Andy Hamilton
- Kent Headley
 - Overhead
 - Hiring: application review, screening calls.
 - Misc admin
 - Helping with some Matlab debugging
 - Out of Office
 - Nov 23-24
- Rich Henthorn
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - LRAUV simulations with TRN and CoNav
 - 902305 - Event Detection using the Sedimentation Event Sensor
 - New controller stack - data storage
 - Overhead
 - GeoSense meeting
 - Holiday auction
 - Out of Office
 - Dec 13: Rachel Carson
 - Dec 18 - 28: Holidays
- Brett Hobson
- Irene Hu
 - 901805 - Coastal Biogeochemical Sensing Program
 - Developed Nanofet QA procedure and QA'ed 8 new nanofets
 - One nanofet (delivered weeks later) has 240 uA bias current draw instead of 216 uA like everyone else; "cleaning" board made it worse, rigorous cleaning brought it back down to 240 uA. Will continue troubleshooting
 - 901904 - Deep-Sea Coral Community Observatory
 - Working on Strobe board in KiCAD
 - Out of Office
 - Dec 25-29: Holiday

- Scott Jensen
- Brent Jones
- Chad Key
- Out of Office
 - Out of office on Fridays
- Brian Kieft
 - 300082 - DMO Divisional Support - Wave Glider
 - Recovered Hansen
 - 300083 - DMO Divisional Support - LRAUV
 - Supporting Piscivore deployment
 - 901913 - Wet Wifi
 - Helped out with tank testing late last week.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Supporting UAV coordinated mission but it got scrubbed due to ceiling.
 - Looking into slowYo testing
 - Preparing for more docking tests.
 - 902102 - Multi-LRAUV Simulation Environment
 - Went over correct procedure for internal users and tested on multiple machines. Quinn updated the readme to match actuals
 - Fixed LCM networking issue on conduit in lab to enable TRN data to be ingested into GZ sim.
 - Overhead
 - Reviewing candidate resumes.
 - Out of Office
 - 12/04-12/07 Phoenix (MST)
 - 12/25-12/29 vacation
- Denis Klimov
- Eric Martin
 - 901206 - Coastal Profiling Float
 - RUDICS test setup
 - Energy saving analysis and feature development
 - 901911 - ROVVR
 - HMC meetings, troubleshooting their docker setup.
 - 902204 - Scalable Robotics
 - EOY spending
 - ASV help w/ George
 - Falkor prep work.
 - Overhead
 - SEE-EAD interview Tuesday.
 - Out of Office
 - Presented at URI, see EC note at the top of this report.
 - Sick day on Monday 12/4 for a sick child.
- Thom Maughan
 - 300078 - DMO Divisional Support - AUV
 - Parts kit and BOM for EE Techs. Serial Monster board has been stuffed by James. Will be working with Tad while Erik is out.
 - 300083 - DMO Divisional Support - LRAUV
 - Working thru the list of hardware bringup
 - Assembled parts kit, write PO for a 2nd build of 2 backplanes and 2 charger boards at Indtec

- Ran out of code space and found out a few things about library linking with gcc (thanks Erik). Supply chain is improving, lpc11e37 is available that boosts code space from 32k to 128k, whew.
 - Review packet health message with Quinn, we'll be changing to a 'Pack health' message from a 'stick average'
- 901009 - CANON
 - Moving forward with deepedna1 setup to match deepedna2
- 901805 - Coastal Biogeochemical Sensing Program
 - Working on addressing review comments and working to release a beta of v5.0 pHFET-SOS by next week.
 - Updating QA procedure.
- 902004 - Planktivore
 - Updating board designs to unify firmware / pin muxing between Planktivore v1 and v2. Planktivore v1 will have the faster strobes which will enable 1m/s (up from 0.25 m/s)
 - Fab packages, boms, etc.
- Out of Office
 - Vacation in Nov. TBD, Colorado (cancelled)
 - Vacation in Dec, couple days around Xmas
 - Jan 9 - 12 CES
 - Feb 9 - 14 Vacation Colorado
 - Feb 18 - 23 OSM24
- Mike McCann
 - 300083 - DMO Divisional Support - LRAUV
 - Processing VolumeScatCoeff117deg[470|650]nm variables now instead of Output[470|650]
 - 901910 - Plankton Taxonomic Groups from AUVs
 - Working on Notebook that uses Holoviews to interactively explore Parquet data from STOQS
 - Overhead
 - Appreciating Mac M2 performance after getting native ARM images to build for STOQS
 - Giving tour of MBARI for capstone teams Friday at noon
 - Out of Office
 - Dec 11-15: AGU
 - Dec 26-19: Vacation
- Rob McEwen
- Paul McGill
 - 701147 - MARS O&M IV
 - Had remote meeting with UW to discuss new PCB bring-up and mechanical design
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach
 - Finished calculations for Tom O to determine geographic coordinates of corners in aerial images
 - Attended a training session for our AI processing of aerial images
 - 901904 - Deep-Sea Coral Community Observatory
 - Tracking down beacons for deployments next year
 - 902305 - Event Detection using the Sedimentation Event Sensor
 - Analyzed fluorescence data from MARS deployment
 - 902306 - SINKER
 - Helped a bit with tank testing of instrument in preparation for next week's dive
 - Overhead
 - Continuing to help Jason A with his mooring design
 - Attended international telecon for Charlie P's Canyon Seismic experiment
 - Attended meetings and did research for Aaron M's Geo Sense and CSEM projects

- Enoch Nicholson
 - 706008 - READI-net
 - Cleaning printed pucks.
 - 902306 - SINKER
 - Instrument assembly & deployment preparation
 - 901205 - ESP SURF Center
 - Creating calibration fixture test parts
- Tom O'Reilly
- Mike Risi
 - Out of Office
 - Out of office on Fridays
 - May 30 - June 6
 - August 21
 - September 5 - September 7
 - November 20 - 23, 2023
 - March 4 - March 8, 2024
- Paul Roberts
 - 901809 - Deep Sea Bioinspiration
 - Chiton strobe controller and red LED revision
 - 901904.99 - Corral Camera System
 - Sourcing parts and power supply design
 - 902204 - Scalable Robotics
 - SOI integration planning
 - 902306 - SINKER
 - Sediment camera assembly and tank testing
 - Interface can software
 - Out of Office
 - Dec. 25 through Jan. 1 2024
- Brent Roman
- Carlos Rueda
 - 300083 - DMO Divisional Support - LRAUV
 - Exchanges with Erik regarding his maintenance tracking feature.
 - 701165 - OVAI
 - CMS UI prototype now [0.2.2](#). Started incorporating actual API calls as the services are made available.
 - 901513 - Targeted Sampling by AUVs
 - Although short, we had a successful front tracking exercise last week with code running on the wave glider. (great team effort with Chris W., Tom O., Yanwu)
 - 902101 - LRAUV Technology Development and Fleet Operations
 - TethysL is now [3.7.3](#). Along with couple of previous versions, new features include:
 - New "express migration" VSCode command (thanks Quinn for the great suggestion)
 - Dispatch of semantic tokens, and expanded "Outline" section in VSCode
 - Some bug fixes, and lots of code cleanup.
 - I'm also quickly revisiting some previous exercises to do the direct loading of tethysl missions in the LRAUV to estimate effort for this goal next year.
 - Out of Office
 - Dec 5, 22, 26–28: vacation
 - Jan 11: vacation
- Karen Salamy

- 200103 - Core CTD Data - MDUC
 - Still waiting for the last 6 weeks of updates from Ed Peltzer.....
- 300057 - Mooring Maintenance
 - Have performed weekly checks and have been in contact with Francisco regarding the long data download failures for both of OA1 and OA2. I have not heard from Jules as to whether he was able to determine what the issues were. The downloads have been less often of late.
- 902101 - LRAUV Technology Development and Fleet Operations
 - Dash5 work.
- Overhead
 - React 18.2 tutorials.
 - Need to work with Doug Conlin as my new laptop power cable no longer charges my computer... ??
- Out of Office
 - Had some personal meetings and doctor visits this week.
 - On-campus 3 days/week (**T, W, TH**).
- Brian Schlining
- Alana Sherman
 - 706008 - READI-net
 - Looking into STM32 necessary filtering on power inputs and programming link
 - Looked for perfect switch for low current sensors but did not find something suitable
 - 902312 - Seafloor Processes
 - Work on quotes for FO connectors
 - Wrote document for sanctuary permits
 - Followed up with Sintella regarding NRE
 - Overhead
 - Giving a talk tonight to the Sea Scouts in Santa Cruz about MBARI
 - Talked with UCSC student group working on senior engineering project
 - Organizing new hire brown bag seminar and tour
- George Stern