

Engineering Weekly Report 8/17/2023 - 8/24/2023

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

Executive Council Notes

- Kevin Gomes gave an invited talk to the Monterey Data Conference in Monterey, CA. From the conference website: “The Monterey Data Conference is an annual invitation-only meeting in Monterey which brings together researchers from DOE national laboratories, facilities, universities, and industry to showcase and discuss the latest advances and open challenges in scientific data analysis and computing.” For more information visit the site at: <https://www.montereydataconference.org/>

Individual Activities

- Michael Anderson
- Kevin Barnard
 - 500055 - VARS, M3/RS, DSG
 - Completed and released VARS GridView feature requests
 - Sort by multiple values
 - Delete observations with localizations
 - Setting for font size
 - Context menu in image pane
 - Click to select box from image pane
 - Drag-select localizations from grid view
 - Investigated changing observer when box changes → not the case
 - Continued integration of VARS GridView with Sharktopoda 2
 - Remapped embargoed concepts in mbari315k_yolov8 model for public release
 - 902002 - FathomNet
 - Uploaded MBARI 315k YOLOv5 and v8 models to FathomNet model zoo
 - Created HF space for FathomNet2023 Kaggle challenge baseline YOLOv8 model
 - 902204 - Scalable Robotics
 - Continued investigating loop closure issues
 - 902304 - Piscivore Cam
 - Made some improvements to Lonny's video processing code
 - DQ2209 - Ocean AI 2
 - Continued user storyboarding process
- Francois Cazenave
 - 901221 - Midwater Time Series
 - Prepared AUV towing tests and went out on Paragon to performs tests
 - 901405 - PowerBuoy Development
 - Monitoring buoy
 - Inspection dive on buoy
 - 902204 - Scalable Robotics
 - Designing sled and ordering parts.
- Danelle Cline
 - Out of Office

- SoundCoop Workshop, Boulder, CO October 24-25 2023
- Duane Edgington
 - 500055 - VARS, M3/RS, DSG
 - Working on VARS-ML pipeline worksheet action items and testing
 - 901103 - Biodiversity and Biooptics of Zooplankton
 - Discussions with Steve Haddock and Danelle on MT proposal feedback
 - Overhead
 - Working with project leads on MT phase 1 feedback to 2024 proposals.
 - Out of Office
 - Oct 16-18 2023. Pytorch conference. SFO (in person). PDT (UTC-7)
- Jon Erickson
 - 901217 - Chemical Sensor Program
 - ISUS-APEX: Yet another change by Zeiss. Requires another version of the analogue board.
 - 901805 - Coastal Biogeochemical Sensing Program
 - nanoFET: Believe all the parts are finished into assembly.
 - 902010 - Mesopelagic LRAUV
 - Working on a solution for the failed motor mount end plate. The old drive motor is obsolete, so we have to design for a new version. TBD.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Working on a new version radio bracket to fit a new Cradle point radio.
- Kevin Gomes
 - 200105 - Core Navigation Data - MDUC
 - More work on logr2 code
 - 300070 - DMO Divisional Support - Ventana
 - Helping debug some video card issues for the machine paduk
 - 901915 - Improving MBARI Data Impact
 - More investigation of the SuperToken framework
 - Overhead
 - Preparing invited talk for Monterey Data Conference
 - Delivered talk at Monterey Data Conference and attended other days
 - Proposal related meetings
 - Group meeting
 - Running down costs for Slack plan upgrade
 - Preparing and executing Director's Discretionary request for ActiveState license for EXPD
 - Out of Office
 - Aug 22-24: Monterey Data Conference, Monterey, CA
 - Aug 28-Sep 12: Vacation
- Andy Hamilton
- Kent Headley
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Supported Rob in running a Dorado sim of the upcoming Axial mission with MB-System TRN processing in the loop (a goal of the project for 2023)
 - 901101 - Seafloor Mapping
 - Standby support for ongoing Pacific NW cruise. They've had rough weather and some HW issues to work through, but they've managed to deploy a couple of times on the Cascadia leg. They've been running another quick survey Wed/Thu, and will pick up Erik Thu for the Axial leg, conditions permitting.
 - Submitted an MB-System docker image based on Alpine linux. Danelle Cline recommended Alpine for reducing image size, and it did make a pretty compact version (~30% reduction). Found a build issue that affects a couple of linux variants: CFLAGS -m<bits> is not set correctly

on some platforms (Alpine linux, Jetson Nano), breaking the build. It is set using "gmt-config -bits", which returns an empty value in some contexts. The empty value results in an invalid flag (-m) to be passed to the compiler/linker. Also, it is being added to LDFLAGS, when it is a compiler flag (CFLAGS). Resolution TBD.

- 902204 - Scalable Robotics
 - Generated a compact docker image for the multibeam processing (see notes, seafloor mapping)
- Overhead
 - Hiring: reviewing applications, met w/ Norm re ad updates, AOSE, EE
 - Cawthron visit 9/11 week
 - Proposal feedback review
- Rich Henthorn
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Dorado simulation mbtrnpp issue
 - LCM networking issues between conduit and rastros
 - 902305 - Event Detection using the Sedimentation Event Sensor
 - Benthos modem spec, quote, and PO
 - Telecon with McLane concerning adaptive sampling
 - 902306 - SINKER
 - Dev meeting
 - Camera control board testing
 - Overhead
 - Rec Com
 - R/V Packard project update
 - Out of Office
 - Sept 5 - 7: Remote work, PDT
- Brett Hobson
- Irene Hu
 - 901805 - Coastal Biogeochemical Sensing Program
 - Nanofet rB tests of bias and main power/current consumption using Yokogawa
 - Initial analyses of Nanofet noise performance, waiting for titration tests
 - Prepping AEC instrument for tank dunk
 - 901904 - Deep-Sea Coral Community Observatory
 - Timed operations in detail to understand where lags are/how to speed up
 - Restructured Python code, modified firmware and camera settings to cut small delays
 - 902305 - Event Detection using the Sedimentation Event Sensor
 - Conversation with McLane; will likely use Gen3 controller to trigger a trap
 - Overhead
 - Put together reccom budget presentation
- Scott Jensen
 - 706008 - READI-net
 - Mechanism familiarization and check out
 - Simple protocol work
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 - 708178 - Marine E Development NAV
 - Requirements document
 - Preparations for integration testing
 - 901205 - ESP SURF Center
 - Support of 2 and 3g instruments
 - Filtration data processing
 - Overhead

- E-tech hiring committee
 - Out of Office
 - Vacation Aug 28- sept 1
- Brent Jones
- Chad Keczy
 - Out of Office
 - Out of office on Fridays
- Brian Kieft
 - 300082 - DMO Divisional Support - Wave Glider
 - Piloting 25th-28th
 - 901513 - Targeted Sampling by AUVs
 - Reviewed Yanwu's recent paper on coordinated ESP sampling during CANON
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Met with mgmt to discuss funding for UX development outside services for first 3 mo of Q4.
 - DVL parsing fix was investigated and determined to be dropping bytes. Baud rate reduction seems to have solved the issue system wide
 - Configured planktivore networking and tested on Ahi for upcoming deployment.
 - Troubleshoot issue with shutdown command hanging the system over serial console
 - 706007 Great Lakes
 - Supporting Triton deployment in Lake Michigan.
 - Reviewed data from Makai bottoming incident
 - Out of Office
 - 09/18-09/21 (EDT)
 - 09/25 - 09/29 (EDT)
- Denis Klimov
- Eric Martin
 - 300079 - DMO Divisional Support - Rachel Carson
 - Meeting last week with Exail to discuss INS options
 - 901101 - Seafloor Mapping
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 - 901206 - Coastal Profiling Float
 - Sleep in Anchor working, doing power calculations, assessing battery health.
 - 901911 - ROVVR
 - Proposal Feedback
 - Getting Intern references
 - 902012 - Telepresence
 - Meeting last week on paper status
 - Working on writing for feedback response.
 - 902204 - Scalable Robotics
 - Proposal Feedback
 - MiniSled Wiring in
 - MiniCamera Review
 - Topside for Mini planning
- Thom Maughan
 - 300083 - DMO Divisional Support - LRAUV
 - Updating test plan for scenarios. Read the battery safety checklist.
 - Working on charge termination via smbus
 - 901009 - CANON
 - Prep for bio-informatics meeting. Meeting delayed to the 30th (covid)
 - 901805 - Coastal Biogeochemical Sensing Program

- Helped with Spray corrosion diagnostics and MFET uSD card diagnostic. Recommended updating firmware from 3.3.1 to 4.1.6 and disabling uSD card for Spray since persistor logs the data. If uSD is needed, used industrial 1GB or 2GB cards
 - 902004 - Planktivore
 - Working towards mid-Sept deployment. Plankti-shell was delivered and fit test surfaced minor issues. Brett had Stan do a fast turnaround fix.
 - Aaron replaced 3d printed (fragile) brackets with metal. Aaron also prep'd and pressure tested the deep brs housing. I'm in progress on battery safety checklist on Craig O's battery module.
 - Battery ChargR board testing. One works, the other worked for a short time then failed. More testing on the one that works.
 - Opened Planktivore V2 housing for adding ChargR, Li-on battery pack and fixing a wire.
 - Overhead
 - DMO Support Ventana. Wrote Xoyo Modbus app for exercising the FO Micro card. Fast turnaround was possible with help - thanks Kevin G, Kent H and Mike R for the assist. Delivered on Tues.
 - Out of Office
 - Vacation Sep 27 - Oct 2 Ohio
 - Vacation Oct 12 - 18 Nevada Eclipse
- Mike McCann
 - 300078 - DMO Divisional Support - AUV
 - Going through old Dorado missions to make sure all of them get processed by auv-python
 - 901910 - Plankton Taxonomic Groups from AUVs
 - Toggling between loading stoqs_all_dorado_t and stoqs_all_dorado to verify good processing
 - Overhead
 - Writing requirements document for Expedition Database Modernization capstone project(s)
 - Copying everything over to new computer
 - Out of Office
 - 12-20 September: Vacation
 - 29 September: Vacation
 - 9-11 October: Web3D 2023 Conference
- Rob McEwen
 - Out of Office
 - First two weeks of August.
- Paul McGill
 - 300070 - DMO Divisional Support - Ventana
 - Worked with DJ to get new GF isolator card integrated onto Ventana.
 - Helped DJ with a 120/240 VAC transformer issue for the vehicle.
 - 701147 - MARS O&M IV
 - Made corrections and additions to MARS MVPS requirements doc.
 - Reviewed all system design docs sent to us by UW
 - 901700 - Acoustical Ocean Ecology
 - Still working on AOS PIC24 code. Was successful in talking to BMA456 sensor with a Bus Pirate, but PIC code isn't working yet.
 - 902304 - Piscivore Cam
 - Got another camera controller I/O board built to replace one of our cameras that was stopping recordings early.
 - 902305 - Event Detection using the Sedimentation Event Sensor
 - Had a Zoom call with engineers at McLane to discuss their Gen3 sediment trap controller.
 - Overhead
 - Helping Jason Adelaars at CeNCOOS design a ground-fault detector for a mooring buoy.

- Met with Andrew M and others to figure out how to deploy 1 km of fiber optic cable for Geo Sense.
 - Out of Office
 - On vacation until Sep 6
- Enoch Nicholson
 - 706008 - READI-net
 - Sampler prototype build & test support
 - 902306 - SINKER
 - Housing detail design
 - Overhead
 - UAV flight ops / observation
- Tom O'Reilly
- Mike Risi
 - Out of Office
 - Out of office on Fridays
 - May 30 - June 6
 - August 21
 - September 5 - September 7
- Paul Roberts
- Brent Roman
 - Out of Office
 - Aug 21 - Sept 1 (Aug 24 - Sept 31 off the net in the Grand Canyon)
- Carlos Rueda
 - Out of Office
 - July 21: sick
 - August 8–28: vacation (out of the country)
- Karen Salamy
 - 200103 - Core CTD Data - MDUC
 - Weekly updates to EXPD of ROV CTD QC data checked by Ed. P.
 - 300057 - Mooring Maintenance
 - Weekly checkin and maintenance as needed.
 - 901101 - Seafloor Mapping
 - Read the most recent proposal feedback by management.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Continue to check off requested functionality for Dash5 working with Jim Jeffers. We have now implemented:
 - Elevation on maps
 - Measurement Tool
 - Geometry Toolbar
 - Split-Pane control

I am trying to “fine-tune” these capabilities to be more in-line with what the team has requested.

- Overhead
 - I have my new laptop. IS is requesting I copy over all data from my old laptop and turn it in ASAP. This is taking up more time than I had thought. I hope to get it to them next week sometime.
- Out of Office
 - On-campus 3 days/week (**T, W, TH**).
 - Sprained my back on Monday and am currently working from home due to the pain. Hopefully “back” in the office next week. (pun intended)
- Brian Schlining

- Out of Office
 - Jul 28 - Aug 6 - Vacation



- Aug 14 - 17 - Vacation
 - Aug 21 - 22 - Vacation
- Alana Sherman
 - 902208 - MiniROV Support
 - A mechanical failure was discovered in the Mini EPod, the fix itself was not difficult but did require removing almost all the wires in the lower half of the housing. James and I are working to build it back up.
 - 902312 - Seafloor Processes
 - Meetings with DeRegt about cables and DAS
 - Meetings with DMO about deploying DAS
 - Overhead
 - Arranging interview schedules for Mini position
 - Responding to people needing guidance before phase 2
- George Stern