

Engineering Weekly Report 4/11/2024 - 4/18/2024

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

Executive Council Notes

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Individual Activities

- Michael Anderson
- Kevin Barnard
 - 701165 - OVAI Phase II
 - Implemented training play context generation for FathomVerse CMS
 - 902204 - Scalable Robotics
 - Started investigating BehaviorTree state machine library for Mola mission management
- Francois Cazenave
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Making preparations for deployment
 - 902106 - Niobicon-Based AUV Docking Development
 - Assembling Pontus nose
 - Assembling niobium brushes
 - Planning deployment
- Danelle Cline
 - Out of Office
 - Medical leave March 18-April 22
- Duane Edgington
 - Out of Office
 - March 28 - April 12, 2024. Vacation UTC+3
 - April 12 - 21, 2024. EGU UTC+2
 - June 10 - 21, 2024. Vacation UTC-8
 - Oct 21 - Nov 8, 2024. Vacation UTC+1
- Jon Erickson
 - 901805 - Coastal Biogeochemical Sensing Program
 - No activity.
 - 902010 - Mesopelagic LRAUV
 - STILL working on the Variable Buoyancy system. Requires a new pump.
 - 902101 - LRAUV Technology Development
 - Rev B. EK-80 Gimbal assembly is completed. Waiting on install.
- Kevin Gomes
 - 200105 - Core Navigation - MDUC
 - Worked with Mike R to come up with a new procedure for installing the entire stack on a NUC using Ubuntu 22.04. There was quite a bit of thrash due to the fact that during a point release, Ubuntu moved from version 5 of the kernel to version 6 and some of the libraries would no longer compile. Found a way to roll back to kernel 5 in 22.04 and everything is working fine. I

built up a new simulation environment using this new build process and we are running everything in basic simulation now.

- 300059 - DMO Support - RV David Packard
 - More work on the Redis store for LCM messages. Split messages into different logical 'databases' so it's easier to work with them.
- 300062 - DMO Support - Doc Ricketts
 - ESRI is deprecating our ArcGIS product and we have to move to ArcGIS Pro which means the ArcMapNav add-in no longer works. I am trying to spin up on the SDK for ArcGIS Pro and have a basic project working that connects to ArcGIS Pro. I am basically going to just have to migrate the code from the old code base to the new ... sigh.
- 300070 - DMO Support - Ventana
 - Mike R and I worked to add the camera temperature from the 4K camera through navproc and into dataprobe/logging. Andy had to make some changes in the firmware to send the temperature out of the lapbox, but it's working now.
- 300079 - DMO Support - RV Rachel Carson
 - Mike R and I made all the changes to move navproc and logging to 4DNav so Winfrog can now be retired.
- 706008 - READI-Net
 - Worked with Scott to make changes to the online/cloud portion of READI-net.
 - Getting ready for a meeting to handoff code back to MBARI.
- 901009 - CANON
 - Wrote script to update mapserver files to make the WCOFS temp and salinity available on the ODSS. Current vector map is turning out to be much harder.
- Overhead
 - Sat in on meeting with Tympana to see how they are progressing on models to automatically QC Dorado data.
 - Working on project with our Board
 - Expenses and reports for travel.
- Andy Hamilton
- Kent Headley
 - 300078 - DMO Support - AUV
 - Though charging to overhead, got a qemu/virt-manager QNX VM for (Intel) MacOS running. Hopefully, this may provide a path for supporting QNX on Apple silicon Macs and/or linux.
 - 3000?? - DMO Support - Ventana
 - Worked ROV pilots and Thom on validating valve pack controller board and troubleshooting sampler closure delay. After disassembling a solenoid (fascinating!), the hypothesis is that under low temp/high pressure, the channels in solenoid for enabling fluid displacement when it moves may be too small. DMO thought they'd try opening the channels to see if it helps. The delay could not be reproduced in air.
 - Overhead
 - Recovering from computer failure; thanks to Doug and Daniel for a quick turn-around.
 - Hiring: zoom screening (Nick Ross). Reviewing applications.
- Rich Henthorn
 - 902305 - Event Detection Using the Sedimentation Event Sensor
 - Repo housekeeping
 - Event detection code
 - 902405 - Precision Control Technologies
 - TRN and CoNav LCM
 - Out of Office
 - May 8 - 10: WFH

- May 28 - June 5: Vacation
 - July 3 - 11: Vacation and WFH
 - Aug 26 - Sep 11: Vacation
- Brett Hobson
- Irene Hu
 - 901805 - Coastal Biogeochemical Sensing Program
 - Continue troubleshooting analog and digital boards for ISUS
 - Working with Jose for production of various boards (MBARI MMS digital, NC-nanofet, Lionfet, Nanofet, etc)
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Code for controlling jbox
 - Edits to jbox schematic to address issues identified while writing code
 - Work w/ Jose on board layouts
 - Cable/harness diagram for strobe pucks
 - Out of Office
 - May 3-15: Taiwan
- Scott Jensen
 - 901205 - ESP SURF Center
 - Two trips to Bollibokka on the Shasta Reservoir. The first was to finalize the install with a working satellite modem. The Second was to fix an internal leak that was discovered the day after the modem was installed. Both successful endeavors and the second may have saved the instrument.
 - Overhead
 - Investigating a FOC PMSM drive IC that might work well for a few projects.
 - Out of Office
 - June 17-21 vacation
 - July 18-23 vacation
 - July 24-29 vacation
- Brent Jones
- Chad Keczy
 - Out of Office
 - Out of office on Fridays
- Brian Kieft
 - 300083 - DMO Support - LRAUV
 - Supporting Synchro deployment
 - Supported MBTS deployment. Daphne recovered.
 - Diagnosed sampler data ingest issues for MBTS. New solution offered.
 - 902101 - LRAUV Technology Development
 - Updated Thruster HE configuration on two vehicles for testing at sea with lower P term gains for turbo mode.
 - Diagnosed and fixing an issue with Galene's buoyancy system involving a pot change inside the vehicle. Hoping to close today.
 - DQ2322 - Denmark Windfarm
 - Further discussions with team on sample plan, charts, operations area.
 - Expecting ffp shipping quote this week.
 - Overhead
 - Cornell collaboration paperwork has been delivered. Awaiting signature from them.
 - Met with WHOI Sentry team to discuss onboard AI and mission path planning as well as backseat operations.
 - Lots of work with Saab on getting DataViz, unserialize, and the host sim running.

- Supporting WHOI deployment back East. Diagnosed and fixed various configuration issues
- Out of Office
 - 05/27-06/21 (GMT+1)
 - 07/08-07/12 (HST)
 - 07/16-07/22 (EDT)
- Denis Klimov
- Eric Martin
 - 901101 - Seafloor Mapping
 - Finalized selection of an OAS Sonar
 - Passing on data to Dave Caress for review.
 - Managing schedules for mechanical mounting and PCB progress
 - DJ informed us that our serial port has been downgraded to 38400 bps, so we may have to enter into a testing cycle to determine if our 57600 system will need to be slowed down.
 - 901217 - Chemical Sensor Program
 - Working on CPF park period sample period console control.
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Helping with various wiring for the next deployment.
 - 901911 - ROVVR
 - Advising HMC
 - Cre
 - Out of Office
 - Vacation 4/4-4/9
- Thom Maughan
 - 300070 - DMO Support - Ventana
 - Worked with DJ to root cause the ~1sec actuation delay. Kent had figured out building and programming a spare valve pack controller designed in 2016 and with that spare and the modbus and electrical analysis tools ready for measurement, we had the privilege of working with the pilots who figured out the root cause is due to the internals of the valve - a great mbari moment. Ceremonial electrical measurements were made just to verify all was indeed well.
 - 300078 - DMO Support - AUV
 - Reading thru Erik's Dorado design diagram
 - 300083 - DMO Support - LRAUV
 - Brief meeting with Brett and Cole on the decision to prioritize Cole's time on BatMan v2 controller. Getting ready for a meeting on Thursday with Erik to discuss needed changes for the electrical
 - 901805 - Coastal Biogeochemical Sensing Program
 - Congrats to Yui who was married on Monday.
 - Participated in the team lead by Irene that got the MMS MBARI Digital and MMS MBARI Analog boards built, fpga and pic programmed, pots adjusted, and tested with UV lamp and Zeiss spec - major milestone accomplished for being able to build ISUS for the float program.
 - Relocated the dura board pH test setup from A113 (Luke's old office) to the Chem Sensors lab. Walked Peter and Jessica thru the high level procedure for dura board checkout. Will meet next week and run thru the test procedure along with MSC1 baseboard test procedure.
 - Reviewed implementation and emails concerning PSoC implementation of for new MMS Digital for mini-ISUS. Bill Keeler, contractor, is out of hours on PO but still working. Planning to meet with Ken and Bill next week. Working an alternate implementation proposal.
 - Cleaned out and vacated A113. Finishing the sort of what's needed and what should be tossed in B108. Moved needed computers to Chem sensors lab and worked with Josh on locating data ingest computer.

- Software porting has been on hold until we got the MMS ISUS build resolved, but that is now moving forward
- 902004 - Planktivore
 - Synchro Windfarm study is in full swing. Multi-platform coordinated ops with Ahi + PlanktivoreV2 + Piscivore playing a key role. So far so good on Ahi reliability. Chris Wahl did a great job fixing and testing the vehicle. We followed his advice on providing notification to the ASO group and the response has been fantastic. We are also using the planning tab in the ODSS and will be providing feedback to Carlos and Kevin for future improvements.
 - Ahi is making way to M2 and bucking some current. We are using more battery than is preferred but still within limits to return (20A-Hr predicted). We are working around a system integration problem that occurs outside of cell range when missions are changed and power is cycled to the payloads, there appears to be a race condition that causes Planktivore / LRAUV lcm based time sync to prevent image recording. The workaround is to avoid mission changes. Ahi due to arrive at C1 on Friday during a power outage. Brian is on top of this.
- Out of Office
 - Apr 4 - 10 Eclipse Mexico, Cuatro Cienegas and stromatalites
- Mike McCann
 - 901910 - Plankton Taxonomic Groups from AUVs
 - Reloading 2019-2024 monthly databases on tethysviz with proper backscatter parameters
 - Had IS create a new partition for the STOQS .pg_dump files that were filling up / on tethysviz
 - 902403 - Expedition DB Modern
 - Reading Django REST Framework and drf-spectacular documentation
 - Experimenting with adding REST endpoints to the expd-django
 - Overhead
 - Processed Dorado mission 2024.107.02
 - Out of Office
 - 22 April: Vacation
 - 24 June - 19 July: Vacation
- Rob McEwen
- Paul McGill
 - 701147.99 - MARS IV Node Upgrade
 - Dealing with another budget supplement request from UW
 - Met with Knute to discuss design of MARS science cables, contacted Brock for a cable quote
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations and Outreach
 - Researched and identified a better 2.4 GHz antenna for telemetry
 - 902304 - Piscivore Cam
 - Troubleshooting issues with flakey camera controller
 - Met to discuss development of next camera version
 - 902306 - SINKER
 - Attempting to find a Gig-E cable for this experiment
 - 902401 - Geo-Sense
 - Inventoried latest shipment from SubConn and am dealing with their mistakes
 - Overhead
 - Safety committee meeting on Wed
 - Out of Office
 - On vacation last week, returned to MBARI April 15
- Enoch Nicholson
 - 706008 - READI-Net
 - Prototype fabrication drawings for Cylinder & Encoder / base plate
 - 902306 - SINKER

- Ordered actuator
- Overhead
 - AUV Tutorial
- 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
 - May 20 - May 24, 2024
- Paul Roberts
 - Out of Office
 - April 14 through April 20
- Brent Roman
 - 708165 - NOAA-MERHAB-UW
 - Configuring a new Linux laptop for Steph's lab at NWFSC
 - 771131 - Great Lakes PCM/HAB
 - Working with team to spec out the dual depth sampling scheme for this summer
 - 901205 - ESP SURF Center
 - Shipped WiFi dongles to GLERL (since they can't seem to order the correct parts)
 - Helping Nadia debug hardware issues on the new 3G (re-)builds
 - DQ2320 - McCloud River Salmon
 - BGAN sat comms works great (so far 😊)
 - Supporting Jensen and Yamahara on two unscheduled service calls to the McCloud river
 - Overhead
 - Configuring new Framework laptop
 - 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 notebooks
 - 902101 - LRAUV Technology Development
 - Preparations to use WHOI Dash during the outage this Friday.
 - 902204 - Scalable Robotics
 - [Dial](#) is now [0.7.6](#).
 - Out of Office
 - Apr 4, 8: sick
- Karen Salamy
 - 300057 - Mooring Maintenance
 - Built a new M1 Mooring Deployment 202406 directory on coredata8 for Jared to begin instrument testing prior to the June 27, 2024 M1 deployment.
 - 902101 - LRAUV Technology Development

- Had several ZOOM meetings with Jim Jeffers regarding LRAUV team upgrades to Dash5. He will begin focusing on other map layer functionality while I complete the Measurement Map app.
- 902403 - Expedition DB Modern
 - Spent some time working on use
- Out of Office
 - Battling a cold this week at home.
 - On-campus 3 days/week (**T, W, TH**).
- Brian Schlining
 - 500055 - VARS, M3/RS, DSG
 - Updated [Pythia to support yolov8](#). Testing revealed a bug in [djl](#), but the dev's quickly fixed it. Pythia 0.1.1 has been released.
 - Imported ML for dives V4455, V4512, and V4513 into VARS using [a new pipeline](#).
 - Upgraded [tapemigration](#) and [m3-merge](#) to work with the latest services.
 - Met with Nancy to work out a roadmap for development of an updated knowledge base app. Started laying out a code base for the new kb services.
 - 901221 - Midwater Time Series
 - Generated CTDO stats for all midwater transects
 - 902002 - FathomNet
 - NCEI/NOAA is ready to start work on [data archiving for FathomNet](#). We're reconnecting.
 - 902403 - Expedition DB Modern
 - Started work on [adding foreign keys](#) to the existing database tables
 - 902404 - 5th Marine Imaging Workshop
 - Updates to MIW website
 - Science committee coordination
 - Overhead
 - Coordinating with OSU to set up their video lab.
 - Updated the [scala template](#) I use for new projects
 - Out of Office
 - Apr 11-12 - Vacation
 - May 16-20 - Vacation
 - Jun 10-14 - Setting up video lab at OSU
 - Jul 15-24 - Vacation
 - Sep 5-9 - Vacation
 - Oct 7-10 - 5th Marine Imaging Workshop in Monterey
- Alana Sherman
 - 902208 - Mini ROV Operations
 - Prepping for next weeks dives on the Carson
 - 902401 - Geo-Sense
 - All cable quotes are in hand. I am still working on the quotes for FO connectors.
 - Scheduling design reviews
 - 901205 - ESP/Readinet
 - Finished adding the NFC section
 - Working on the RS232 transceivers and USB to RS232
 - Added pads for unused MCU pins
 - Out of Office
 - School field trip on Tuesday
- George Stern
 - 902204 - Scalable Robotics
 - Mola fixturing designs for lights, Orin, and IMUs
 - Ordered Orin and peripherals

- 902304 - Piscivore Cam
 - LED board build and initial testing
- 902306 - SINKER
 - Finalized and ordered linear motor controller
- Johann Voigtlander
 - Out of Office
 - April 16th - May 13th Germany CSEM