

Engineering Weekly Report 3/28/2024 - 4/4/2024

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

Executive Council Notes

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Individual Activities

- Michael Anderson
- Kevin Barnard
- Francois Cazenave
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Replaced hydraulic motor
 - 902106 - Niobicon-Based AUV Docking Development
 - Assembling Pontus for deployment
 - Ordering components for mooring
 - 902204 - Scalable Robotics
 - Helping with design of new camera housing
- 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
 - 902010 - Mesopelagic LRAUV
 - Thruster motor is delivered. It Fits!!! Waiting on Rotor parts
 - New circuit design for the Variable Ballast system. For the ability to pump at 1,500 meters.
 - Testing set up for proof pressure test of vehicle hull. Prepare for test to failure on the spare hull tube.
 - Finish prints for VB system parts.
 - 902101 - LRAUV Technology Development
 - Model for a new Radio Bracket and fitment.
 - New gimbal parts (Rev. B) for EK-80 on LRAUV. Just out of the shop.
- Kevin Gomes
 - Out of Office
 - March 18-21: Vacation
 - March 25-29: Data Council Conference: Austin, TX
- Andy Hamilton
- Kent Headley
 - 300078 - DMO Support - AUV

- studying layered control part of codebase, with any eye towards some updates to enable towed operation use cases
- 3000?? - DMO Support - Ventana
 - re-tested delay through Wago stack (modbus write coil :: actuation), looks like < 15 ms
- 901101 - Seafloor Mapping
 - added new docker builds with Debian and Ubuntu22 based images
 - Sentry: prepared latest integration package, attended telecon
- Overhead
 - hiring: screenings (2), scheduling, planning
 - misc admin
- Out of Office
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- Rich Henthorn
 - 300078 - DMO Support - AUV
 - CARL setup program
 - 902305 - Event Detection Using the Sedimentation Event Sensor
 - Progress made on the SES V3 controller
 - All communication pathways tested and verified
 - Successfully tested on the SES instrument frame with connectors
 - Replaced obsolete environmental sensor with TEMPerHUM
 - Controller ready to be reinstalled in housing
 - 902405 - Precision Control Technologies
 - Shout out to Michael Anderson for 3-vehicle LRAUV sim with acoustic comms
 - Overhead
 - Planktivore Update
 - Out of Office
 - Apr 10: WFH
 - Apr 11 - 12: Vacation
 - May 28 - 30: Vacation
 - July 3 - 11: Vacation and WFH
 - Aug 26 - Sep 11: Vacation
- Brett Hobson
- Irene Hu
 - 901805 - Coastal Biogeochemical Sensing Program
 - Picked up some boards at Indtec; probing and troubleshooting Analog MMS board
 - Started reorganizing MSC2 into MSC3
 - Bias battery measurements for lioncap, and update schematics for lioncap and NC-nanofet for new I_DS
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - ROV firmware moved to bitbucket; board json
 - Read camera documentation and updated controller schematic to add extra lines for camera output and iso ground
 - Checked two new LED pucks delivered by Jim; some soldering issues, resolved and passed on to Aaron
 - Overhead
 - Hosted speaker on Wed/Thurs last week
 - Out of Office
 - May 3-15: Taiwan
- Scott Jensen
 - 706005 - eDNA Grass Carp Sandusky

- Beginning to pull together required hardware for this deployment
- 706008 - READI-Net
 - The ambient tolerant opto-interruptor driver values have been determined and completely assembled. Testing has shown complete function even in full sun light. It is however still possible to run the unmounted sensor in just the right angle to directly face the sun and cause the over-bright function to trip. There has to be a limit, but at least there is an indication now that it is too bright.
 - Integration within the firmware environment found a conflict between two functions where one was disabling interrupts for a long period of time. A work around has been determined but an investigation into if the disabled is required would be useful.
- 901205 - ESP SURF Center
 - Supporting lab functions and deployments
 - Prepared the BGAN satellite terminal for deployment
- Out of Office
 - April 5-9 vacation
 - June 17-21 vacation
 - July 18-23 vacation
 - July 24-29 vacation
- Brent Jones
- Chad Keycy
 - Out of Office
 - Jan. 22- Potential Jury Duty
 - Out of office on Fridays
- Brian Kieft
 - 300083 - DMO Support - LRAUV
 - Supported Daphne MBTS run
 - Investigated data issue with sampler following false start on sampling mission. Attempting to streamline sampler files to stakeholders.
 - 902101 - LRAUV Technology Development
 - Finished SW headers with Quinn and opened repositories to Saab Inc.
 - Lots of work with Saab SW dept this week getting the host sim and build environment up and rolling
 - Met with WHOI to discuss upcoming scallop deployments and dash failover options.
 - 902106 - Niobicon-Based AUV Docking Development
 - Worked with Rob on docking sim stuff
 - 902405 - Precision Control Technologies
 - Got Steve some initial data from the gazebo sim with TRN running.
 - DQ2322 - Denmark Windfarm
 - Lots of logistics work on charts, shipping, travel. Discussing sampling approach
 - Overhead
 - Resume reviews and screening
 - Hosted NOAA and MBNMS policy reps for UAV flight and Paragon AUV recovery. Discussed future UAV work for kelp and mammal surveys.
 - Finally wrapped collaboration agreement with UPC in Spain.
 - Out of Office
 - 04/04-04/10 (CDT)
 - 04/15 (PDT)
 - 05/27-06/21 (GMT+1)
- Denis Klimov
 - 901112 - Monterey Bay Time Series

- Preparing for the upcoming deployment of Power Buoy. Also, ordering materials and spare parts.
- 902401 - Geo-Sense
 - Ordering 'black hole' fiber optic terminators.
- Overhead
 - Safety: Review for the Sinker Battery Pack design was held; compiled feedback.
- Eric Martin
 - 300078 - DMO Support - AUV
 - Brief consult on Erik about ethernet adaptors
 - Discussion on MVC next steps
 - 901101 - Seafloor Mapping
 - Obstacle avoidance sonar spec
 - Dragonfish order
 - 901911 - ROVVR
 - Support last week for Harvey Mudd student visit.
 - 902204 - Scalable Robotics
 - Boxfish Order Spec
 - Power can bulkhead replacement
 - Mola development kickoff
 - OAK redesign concept review, contractor feedback.
 - Overhead
 - SEE-EAD meeting and zoom interviews
 - Out of Office
 - Sick Leave 4/1
 - Vacation 4/4-4/12
- Thom Maughan
 - 901805 - Coastal Biogeochemical Sensing Program
 - (3 weeks weekly)
 - Finished software and hardware forensics. We have a solid plan for getting MSC1 back on track for delivery commits in 2024.
 - Worked with IS to backup the various computers and VMs. Active content moved to Titan.
 - MMS Digital: Quartus FPGA programming was assessed and the recommended path forward is to use digikey to copy a master configurator since no changes are planned for the fpga. The dependency on parallel port programming requires old PC hardware. PIC18F programming can be done onboard, however, recommend using digikey to pre-program.
 - MMS Digital PSoC design. Working with contractor Bill Keeler who took over from previous contractor. The state of the design is being assessed - there are issues in the ADC read timing. Duplicating Bills setup.
 - Persistor CF2 code. Binary and source diffs are done. Production binaries obtained from UW / Dana Swift so we good to go on programming remaining 45 CF2 MSC1 builds.
 - Evaluated state of Persistor CF2 replacement with STM32F413. First hardware revision was handed off to EE Techs however the software dev for STM32 had not yet been started. CubeIDE was installed and minor mods to an example were all that was found on 3 computers and 5 VMs. Recommended porting CF2 application to Tiva processor and using Carbon lab version of pH boards (MCAP).
 - Dana Swift (UW) drafted an interface spec. Recommending minor modifications to the serial protocol.
 - Irene delivered MpHOX revB wired to MSC2 for Tiva porting. Porting is in progress.
 - MSC3 processor module design recommendations provided to Irene.
 - 902004 - Planktivore

- First science mission. Ahi+Planktivore V2 shadowing I2MAP
- Out of Office
 - Apr 4 - 10 Eclipse Mexico, Cuatro Cienegas and stromatalites
- Mike McCann
 - 901101 - Seafloor Mapping
 - Fixing issues so that more Compilation images are found & linked with missions
 - Revamped the Mission detail view to show Compilations in a sortable table
 - 901910 - Plankton Taxonomic Groups from AUVs
 - Reprocessing pontus data into STOQS with new ParticulateBackscatteringCoeff variables
 - Overhead
 - <http://stoqs.shore.mbari.org> came up without its database files following Tuesday's shutdown
 - Peter & I figured out that the postgres partition was being mounted in a different spot
 - We're relieved that we didn't have to wait a day for a backup tape to be delivered to MBARI
 - Out of Office
 - 29 March - Vacation
- Rob McEwen
- Paul McGill
 - Out of Office
 - On vacation March 27, returning to MBARI April 15
- Enoch Nicholson
 - 706008 - READI-Net
 - Sampler Modeling
 - 771131 - Great Lakes PCM/HAB
 - Kickoff meeting with GLERL
 - 902306 - SINKER
 - Researching linear actuators & COTS wiper motors
 - Overhead
 - DFA Pro
 - 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
 - 200105 - Core Navigation - MDUC
 - Procmann Sheriff now working on Ubuntu 22
 - Working on configuration of Doc Ricketts NUCs for July install
 - 300062 - DMO Support - Doc Ricketts
 - Working on pan and tilt testing on the ROV in building D
 - Sending PT-25 pan and tilts to ROS for servicing and firmware upgrade
 - 300070 - DMO Support - Ventana
 - Working with Kevin G. to incorporate 4K camera temperature into Dataprobe
 - 901101 - Seafloor Mapping
 - Trigger board rev-c firmware nearing completion
 - Working on GUI updates for rev-c firmware and environmental warnings
 - Overhead
 - Linux and HDD upgrade on workstation
 - 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
 - March 30-April 7
 - April 14 April 20
- Brent Roman
- Carlos Rueda
 - Out of Office
 - Mar 25 - out sick
- Karen Salamy
 - Out of Office
 - **April 4th - Trip with daughter while on Spring Break**
 - On-campus 3 days/week (**T, W, TH**).
- Brian Schlining
 - 500055 - VARS, M3/RS, DSG
 - Used [kiota](#) to generate a [client SDK](#) from [Annosaurus' openapi spec](#). Still working through some authorization details. This is promising as kiota could make it very quick and easy for us to generate clients from any API.
 - Removing the use of [JFoenix](#) library from [VARS Annotation](#). JFoenix is not actively maintained and seems to be causing some runtime issues with VARS Annotation.
 - Upgrade [panoptes](#) to Scala 3 and migrate from javax to jakarta api.
 - Reworked and updated the stand-alone VARS systems for the two mini-ROV annotation stations. Replaced SQL Server with Postgres and [standardized the installation for any workstation](#). Integration test with the new stuff.
 - [Import recent ML generated annotations](#)
 - 902002 - FathomNet
 - Integration tests on recent web updates, published [web ui 1.3.7](#)
 - 902304 - Piscivore Cam
 - [Video import for recent deployments](#)
 - 902404 - 5th Marine Imaging Workshop
 - Updated <https://miw2024.org/> with additional content. Registration is now live.
- Alana Sherman
 - 902208 - Mini ROV Operations
 - Trying to establish dates for the Fulmar
 - 902401 - Geo-Sense
 - Progress! We are closing in on several quotes for the cable. We had another zoom meeting to discuss specs with Winchester (formally Falmat)
 - Also should have quote on another option for fiber connectors- one that is actually APC (angled physical connector)
 - Met with Aaron about CSEM issues with export controls in light of next years international cruise opportunities
 - 901205 - ESP/Readinet
 - Adding the circuit for the NFC reader
 - Overhead
 - Looking into new bldg G available space as the MT start to determine a plan for populating the offices and lab spaces
 - Out of Office

- Vacation Monday and Friday
- George Stern
 - 902204 - Scalable Robotics
 - Mola reverse engineering
 - Active buoyancy control research
 - ESC control/Ardupilot rehosting research
 - Camera sensor research
 - 902306 - SINKER
 - Identify/implement linear and servo motors for revised sealed bottom sinker
 - Worked with Jose on battery interface board layout
- Johann Voigtlander
 - 902208 - Mini ROV Operations
 - Installed ROVVR on MiniROV to enable students from Harvey Mudd University to test their VR system in the test tank
 - Vehicle maintenance - stopped a leak on the umbilical J-box
 - Added a new NUC and piped it into the system to remote desktop 4DNAV
 - Re-terminated video BNC & ethernet cable on RC to connect to ROV control van
 - 902402 - CSEM
 - Preparing for CSEM trip in mid-April
 - Overhead
 - Completed LabView Core2 course
 - Out of Office
 - April 16th - May 13th Germany CSEM