

Engineering Weekly Report 1/21/2021 - 1/28/2021

Executive Council Notes

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Individual Activities

- Francois Cazenave
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - I am helping with testinG the PTO
 - 902106 - Niobicon-Based AUV Docking Development
 - Finished the design and drawings of load dump
 - Out of Office
 - I have been working part time from home
- Mark Chaffey
 - 902001.99 - 4K ROV Camera Development
 - Finalised PCB and hardware interface.
 - Finished all camera mechanical and electrical drawings (74!).
 - Created assembly drawings and BOM and ordered all small hardware parts.
 - Bid out camera sheetmetal parts and one machine part and placed order.
 - Finalized 12 G coax connector layout and specifications.
 - Prepped additive parts and painted.
 - Overhead
 - Annual review.
- Danelle Cline
- Duane Edgington
- Jon Erickson
 - 800139 - EyeRIS
 - Ray's back in the shop so we'll get some headway on the camera case parts.
 - 901217 - Chemical Sensor Program
 - Jerry comes in next week, I'll get him to fix the prototype spectrometer parts, then I can finish that test assembly.
 - 902010 - Mesopelagic LRAUV
 - Deep into migrating parts and assemblies from LRAUV to MesoP. There will be size changes for the VB and Drop Weight.
 - 902107 - Consequences of a Changing Ocean: Manipulative Microbiology Experiments at MARS
 - Zoom meeting. I'm going to have to go in next week and figure out how to do a thermal model of sediment. Have to dig up thermal properties for marine sediment. (forgive the pun).
- Kevin Gomes
 - 901915 - Improving MBARI Data Impact
 - Short discussion with group about goals for project
 - Overhead
 - Performance reviews
 - Transition and succession planning work
 - WHOI IT/App developer follow up
 - Out of Office

- May 12-24: Vacation
 - June 21-25: Vacation
- Andy Hamilton
- Kent Headley
 - 901803 - Carbon Wave Glider Development
 - Refactored i2c bus primary, testing now
 - Writing i2c secondary, untested
 - Overhead
 - Review meetings and related admin
 - Out of Office
 - 1/19/20 - medical (family)
- Rich Henthorn
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Winding current scheduler app ready to review and test
 - ROS 2 research
 - 901618 - Pelagic-Benthic Coupling
 - Weekly meeting
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Working towards testing the Delta T on Pontus
 - Out of Office
 - Vacation days Jan 25
 - Upcoming vacation days Jan Wed 27, Fri 29.
 - Upcoming vacation days Feb Mon 8, Wed 10, Fri 12, Mon 22, Wed 24, Fri 26
- Brett Hobson
- Scott Jensen
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Stated Cell limiter PCB layout
 - 901805 - Coastal Biogeochemical Sensing
 - Dealt with a few questions about incoming order
 - 902106 - Niobicon-Based AUV Docking Development
 - Helped with the electrical aspects of the prototype testing hardware and the at sea testing hardware design.
- Brent Jones
 - 901009 - CANON
 - Preparing SIPPER drawing package for outside machine shop quotes
 - 901502 - Passive Acoustic Sensing
 - Running Deimos echosounder click detector. Works well. However, pre processing waveforms to images is proving too slow.
 - 901805 - Coastal Biogeochemical Sensing
 - Preparing Spray 29 for deployment. Investigating feasibility of using BOG CPF to carry microrider turbulence sensor
- Chad Kecz
 - 901101 - Seafloor Mapping
 - Worked on a block diagram for a new shipside TCU
 - 901206 - Coastal Profiling Float
 - Participated in a meeting concerning the new battery control board
 - I am reviewing a part suggested by Gene for battery functions (and EVM)
 - 901700 - Acoustical Ocean Ecology
 - Board design is on pause until a new set of actuators are selected
 - 901713 - Nearshore FOCE

- Making a modification to the Durafet sensor interface to the Durafet housing (new cable)
 - Went to the warehouse yesterday to retrieve some cable
- 902000 - Multi-Spectral StealthCam
 - While on campus, I gathered some of the parts needed for the ship side control
- 902107 - Consequences of a Changing Ocean: Manipulative Microbiology Experiments at MARS
 - Participated in a kick off meeting and presented the electrical hardware I've already wired up
- Overhead
 - Had my annual review
- Brian Kieft
 - 708168 - DHS Y7
 - Supporting engineering deployment in Buzzard's Bay
 - Troubleshooting issue with vehicle pitch control
 - 901513 - Targeted Sampling by AUVs
 - Prepping for patch tracking demo
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Started bringing up hotspot payload to enable GWB python script installation
 - 902102 - Multi-LRAUV Simulation Environment
 - Weekly meetings with the team
- Denis Klimov
 - 800139 - EyeRIS
 - Looking into design of the optical power meter attachment for LED strobe
 - 901903 - Bio Raman
 - Revising panel lock brackets to include O-ring buffers
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Testing another PAR sensor
- Eric Martin
 - 708164.50 - Y2 Research Labor funds
 - Meeting last week, discussing wave analysis mostly.
 - 708167 - WEC Dynamics and Control
 - Getting an image of Ubuntu onto the spare TS7970 for ROS Eval
 - 901101 - Seafloor Mapping
 - Processed Focal Repair
 - Ordered Camera for Prosilica upgrade
 - 901206 - Coastal Profiling Float
 - Attended calls regarding Battery Pack design and new SOM eval.
 - Remote troubleshooting for an overdischarged float during calibration.
 - 901700 - Acoustical Ocean Ecology
 - Finally made some progress processing Simrad data from the EK60 at MARS, reviewing it with Kelly and Chad for next steps.
 - 901911 - ROVVR
 - Ordered components for time sync and PTH monitoring.
 - 902100 - Telepresence on MBARI Research Vessels
 - Participated in remote manipulator arm tests with a lab in Munich, Germany for Leila Takayama.
 - Leila and I have solicited for the first round of interviews for the telepresence user survey.
 - Compiling system information for Kevin and Rich.
 - Annual report contributions.
 - 500055 - Video Annotation DM
 - Troubleshooting Lingon setup with Lonny.
 - Overhead
 - Review with Alana.

- Thom Maughan
 - 901805 - Coastal Biogeochemical Sensing
 - Working on nanoFET board bringup, pinmux and registers are init'd, working on adapting peripheral drivers as needed. Seeing lots of need to refactor the codebase, will need to figure out when to fork off a functional version for some much need restructuring.
 - MpHOx / MCap board test. Three fails will be brought into MBARI for Scott.
 - Adding PWM driver for solenoid control
 - 901713 - Nearshore FOCE
 - Programmed 13 MpHOx boards with pre-release firmware, tested, and sent via UPS to MBARI
 - Working on Aanderaa Conductivity sensor config, finally figured out the blocking issue with PC connection (terminal emulator setting).
 - Attended meeting, found out about 2nd serial port connection requirement. Working on Aanderaa drivers.
 - 902004 - Planktivore
 - Started drafting kickoff slides
 - Board bullets
 - DeepRip build is still working thru component problems. Motherboard is being RMA'd. Jose is doing a fantastic job.
 - Overhead
 - Review
 - Out of Office
 - Cancelled my vacation plans for last week.
- Mike McCann
 - 901910 - Plankton Taxonomic Groups from AUVs
 - Working on Notebook that tests different queries for [Issue 837](#)
 - Overhead
 - Evaluation
 - Group meetings
 - Out of Office
 - Vacation day: 26 Jan 2021 for first week of CSUMB teaching
- Rob McEwen
 - 708167 - WEC Dynamics and Control
 - Investigating feasibility of Optical Flow algorithms to compute incoming wave speed.
 - Obtained free 30-day trial of Matlab computer vision toolbox suite.
 - Overhead
 - Annual Review
 - Out of Office
 - Probably Friday 29 Jan, and the following Monday through Wednesday.
- Paul McGill
 - 901618 - Pelagic-Benthic Coupling
 - Working with Duane E. on Laser Measure, trying to analyze images from last Oct. Still not working but we're knocking down problems.
 - 901700 - Acoustical Ocean Ecology
 - Working on mechanical layout of sonar Faraday shield.
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Finished system schematic for Coral Macro Cam wireless data connection. Reviewed with Alana and ordered a bunch of connectors.
 - Overhead
 - Annual evaluation with Alana.
 - Updated the OS on my laptop after many backups.

- Jon E. and I had Zoom meeting with International Titanium Association, who want to publish an article about our uses of Ti for our projects.
- Ed Mellinger
- Tom O'Reilly
 - 901101 - Seafloor Mapping
 - Improving MB-System installation process by moving away from antiquated 'autotools' approach to CMake
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach
 - Working with team to integrate and test science camera with *Believer* fixed-wing UAV
 - Working through Coursera/Stanford Machine Learning online course, which will have application to UAV image processing
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Working with Kieft to test and refine WHOI software that relays commands and data between LRAUV and shore via Wave Glider Hotspot
 - 902018 - Mixing Rates from Autonomous Profiling Floats in the Coastal Oceans
 - Working with team and Rockland Scientific to scope potential integration of MicroRider turbidity sensor with Coastal Profiling Float
- Craig Okuda
 - 300057 - Mooring Maintenance
 - Troubleshoot power fail casing download fail
 - 901007 - Benthic Biology and Ecology
 - BRS chamber modifications
- Doug Pargett
 - 881135 - 3G ESP Cartridge Redesign
 - Sent new cartridge port coupling to Protocafe for 3d printing.
 - 901205 - ESP SURF Center
 - Finished bulkhead valve redesign and submitted parts to MBARI shop for 3d printing.
 - Started redesign of Flowerpot bleach bottle bracket.
 - 901800.98 - Bioacoustic Payload
 - Prepared documents for annual review
- Ben Raanan
 - 708168 - DHS Y7
 - WHOI vehicle deployed for docking tests
 - 901513 - Targeted Sampling by AUVs
 - Working with Yanwu on patch tracking mission
 - 901809 - Deep Sea Bioinspiration
 - Meeting with Skydio Eng. Teo Tomic
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Testing updated LCM version
 - Investigating possible ballast and trim issue
 - Updates to LCM ingest in LRAUV app
 - Bioacoustics backseat app
 - 902102 - Multi-LRAUV Simulation Environment
 - Working with the Open Robotics team on vehicle plugins and integration plan
 - Finalizing export details for LRAUV application source code
- Mike Risi
 - 200105 - Core Nav - MDUC
 - Finished workstation configuration for Rachel Carson
 - Continuing development of the last processes necessary deployment on Rachel Carson
 - Working with Rich on configuration of CoreNav software for deployment

- 901809 - Deep Sea Bioinspiration
 - Continuing work on search mode extensions to tracking control system
- Out of Office
 - April 26-30: Ocean Imaging Cruise
 - September 3-14: Ocean Imaging Cruise
 - Vacation on alternate Fridays
- Brent Roman
 - 901205 - ESP SURF Center
 - Working with Preston on improving Lysate recover in ESP 3G for EcoHab
- Carlos Rueda
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Preparing [slides](#) and scheduling a group meeting to discuss TethysL 2021+ plans, get everyone on the same page, and decide if/how to move forward. (Thanks Mike G. for his input.)
 - TethysDash: Refining websockets endpoint and dispatch toward enabling further capabilities and control while also eventually replacing the external pusher service.
 - Helping investigate the issue of no data received in the Dash from Daphne noted by Brian. Reproduced this with a simulator using latest LRAUV build on tethyshub. Not clear yet where the actual issue is. The dash log shows http requests received but with empty payloads.
 - 902102 - Multi-LRAUV Simulation Environment
 - Attended meeting.
 - Overhead
 - “Rich system” and potential new hire discussions.
 - Out of Office
 - 2021-01-26: Drs. appointments.
- Karen Salamy
 - Overhead
 - Had annual evaluation meeting with Kevin G.
 - Attended group discussion on Rich S’s daily responsibilities and potential replacement needs for when Rich retires in a few months.
 - Met with Rich S. on separate ZOOM meeting to discuss what tasks he feels I should consider taking on after his retirement.
 - Looking into ways to incorporate a new script on coredat8 that will do the task of mbminirovnav script and no longer require setting up the entire MB-System to determine mini-rov nav. This idea was based on a discussion with Rich.
- Brian Schlining
 - 500055 - Video Annotation DM
 - [Fixed issue in VARS annotation](#) where commands were assigned to the same keyboard shortcut. During the rebuild of the app, I found [a bug](#) in JDK 14+ and [submitted a bug report to the JDK maintainers](#).
 - 901221 - Midwater Time Series
 - Put together SQL for Rob to fetch CTDO data by dive
 - 902002 - Fathomnet Detect and Classify
 - [Added change tracking](#) to fathoment database.
 - [Updated data column sizes](#) in preparation for public release.
 - Some web UI assets were being hosted by Make&Model servers. [Brian consolidated these into the Fathomnet repository](#) and updated the web UI to use them.
 - [Setting up an app to validate the existence of image assets](#) registered in FathomNet. This is needed as remotely hosted images may go offline.
 - Working through [how to accommodate organism parts](#) in FathomNet
 - Running a task to stage the latest localized image to FathomNet.

- 902005 - VARS Annotation Assistance
 - [Wrote an app](#) to read from Danelle's GraphQL service, extract a minimal data representation of ML generated annotations, and import them into VARS
- Overhead
 - Made many calls and had many meetings.
- Rich Schramm
 - Overhead
 - Code and cfg cleanup on Carson and Flyer navprocs
 - Continue documentation and knowledge xfer efforts
 - Revised datamanger/navproc build document
 - Participate in interviews
- Alana Sherman
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Specified last part for a small interface board that contains the cap charger circuit and they relays to disconnect the camera USB. James McClure is helping with parts specifications and laying out the board.
 - Overhead
 - Almost all overhead this week. I wrote up and conducted all nine performance evaluations for the EE group.