

Engineering Weekly Report 2/4/2021 - 2/11/2021

Executive Council Notes

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Individual Activities

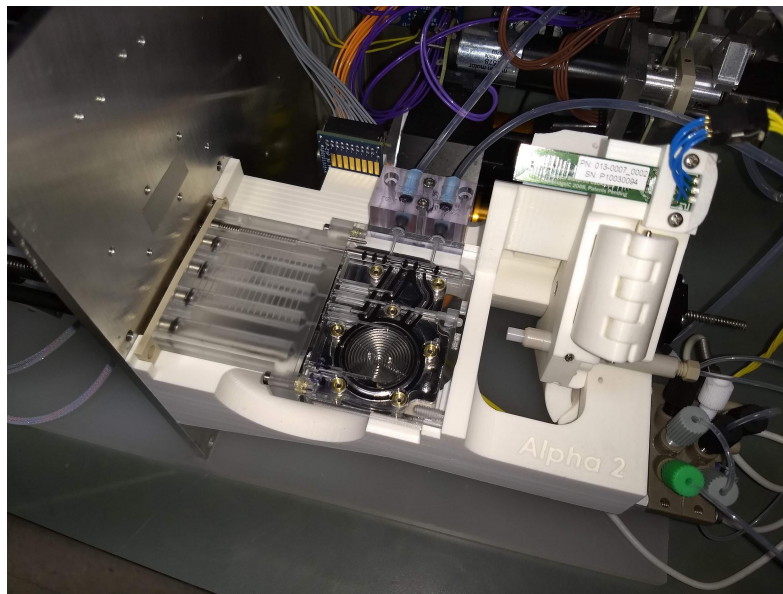
- Francois Cazenave
 - 708167 - WEC Dynamics and Control
 - Helping with PTO tests
 - 902106 - Niobicon-Based AUV Docking Development
 - Assembled 3D printed load dump
 - Made plans for Nb dock wear test
 - Out of Office
 - I have been working part time from home
- Mark Chaffey
- Danelle Cline
- Duane Edgington
 - 901618 - Pelagic-Benthic Coupling
 - Lots of progress by Dan Davis; plan discussion to map out underwater calibration procedure for next dive opportunity.
 - 902005 - VARS Annotation Assistance
 - Team meetings Feb 10, 11.
 - Continuity work on task associated with AWS Fargate and AWS containers
 - Out of Office
 - Medical Appt Monday Feb 8
- Jon Erickson
 - 901217 - Chemical Sensor Program
 - ISUS_APEX: The new mandrel for the composite pressure cases has been delayed in manufacture. Amalga won't get it 'till the end of Feb.
 - 902010 - Mesopelagic LRAUV
 - Trying to come up with a test protocol and the hardware for the pressure case tubes (13 inch I.D. x 44 inches long).
 - 902107 - Consequences of a Changing Ocean: Manipulative Microbiology Experiments at MARS
 - Think I've found data to relate porosity and depth to thermal conductivity in marine sediments. Maybe i can actually create a thermal model for Chad's test setup.
- Kevin Gomes
 - 901915 - Improving MBARI Data Impact
 - Researching Apache NiFi for workflow management (recommended by LLNL)
 - Overhead
 - Developing script for Jenny P that walks through excel spreadsheet of the samples that were sent to the American Museum of Natural History and extracts the framegrabs, watermarks them so that they can be included in a data dump that is going to the AMNH.
 - Succession planning
 - Started a mkdocs site for SE IE documentation (focused on Rich transitioning). Added a couple of Rich's documents here:

- <https://docs.mbari.org/internal/se-ie-doc/support-docs/history-tables/>
 - <https://docs.mbari.org/internal/se-ie-doc/support-docs/new-year-rollover/>
 - Working with Rich to document and transition the new navproc datamanager logging software. Early version of the documentation can be found at <https://docs.mbari.org/internal/se-ie-doc/systems/navproc-datamanager/>
 - Working with Rich to document and transition the DiveLog XOJO application(s). Transition documentation here: <https://docs.mbari.org/internal/se-ie-doc/systems/divelog/developers-guide/>
 - Meetings for strategic roadmap planning
 - Hiring committee stuff
 - Performance review wrap up stuff
 - Group meeting - Rich transition focus
 - Got TWIC card renewed
 - Out of Office
 - May 12-24: Vacation
 - June 21-25: Vacation
- Andy Hamilton
- Kent Headley
 - 901803 - Carbon Wave Glider Development
 - Adding support for record streaming and formatting options
 - Working on strategy for host platform APIs to balance computational loading and real time data return
 - Overhead
 - Review wrap up
 - Site access
 - Misc admin
 - Investigating OA2 telemetry issues with OASIS team
 - Out of Office
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- Rich Henthorn
 - 708167 - WEC Dynamics and Control
 - ROS 2 research
 - 800139 - EyeRIS
 - Weekly meeting
 - Moetino platformio project code
 - EyeRIS LRAUV Interface app
 - 901221 - Midwater Time Series
 - Building a useable transecting tool from a 2020 prototype for the Midwater lab
 - App walks through the syslog from a Dorado i2MAP mission extracting complete transect data including timing, vehicle depth, and average speed measured from the DVL
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Automated winding current command utility ready for use (minus the motor RPM monitoring)
 - 901618 - Pelagic-Benthic Coupling
 - Weekly meeting
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Weekly meeting
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Prep pontus for Obstacle Avoidance and TRN test deployment
 - Checking OA and TRN data - some mods were necessary
 - Overhead

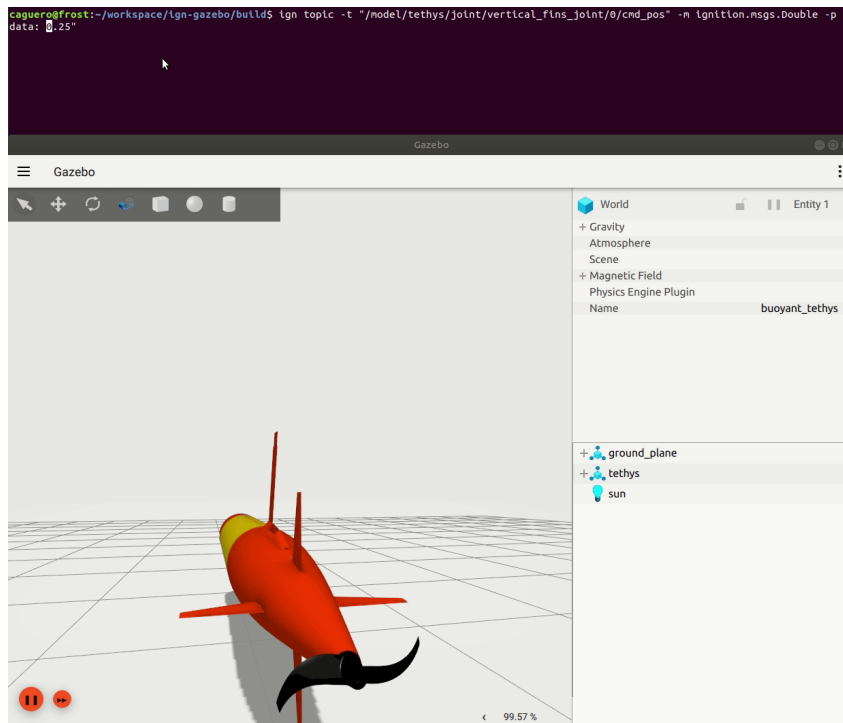
- 2021 Sea Lion Bowl Sat Feb 6, carried out very well with Zoom and Remo
 - Out of Office
 - Upcoming vacation days Feb Mon 22, Wed 24, Fri 26
- Brett Hobson
- Scott Jensen
 - 901205 - ESP SURF Center
 - Terrestrial housing held pressure over this last break. Looks like it is ready for use.
 - Group Meetings as well as individual task meetings
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Cell Voltage limiter prototype PCB has been submitted for fabrication
 - 901805 - Coastal Biogeochemical Sensing
 - Support of builds
 - 902106 - Niobicon-Based AUV Docking Development
 - Working on design and Acquiring parts for first tests of the power transfer device.
 - Overhead
 - A few awkward moments with PCB editor learning the intricacies of layout
- Brent Jones
 - 901009 - CANON
 - Procuring SIM card for WW modem.
 - 901112 - Monterey Bay Time Series
 - Deployed and am standing watch for Daphne and Pontus. Deployed WG Tiny
 - 901800.98 - Bioacoustic Payload
 - Water jetted heat sink and delivered to Waluck for testing. Looks like it is marginal but will try in LRAUV anyway
 - 901805 - Coastal Biogeochemical Sensing
 - Prepped, deployed, and am flying Spray 29
 - Diagnosed bad cable on Spray 29 that led to bad readings when immersed.
 - Continued Prep on Spray 34
 - Overhead
 - Took first aid/CPR/BBP training to maintain Paragon Captain status
 - Did MBARI yearly safety training
- Chad Keczy
- Brian Kieft
 - 300082 - DMO Support - Wave Glider
 - Helped launch Tiny
 - 300083 - DMO Support LRAUV
 - And launched Daphne for MBTS run
 - 708168 - DHS Y7
 - Debugging address mux issue with LCBs as well as mass shifter issues
 - 901513 - Targeted Sampling by AUVs
 - Working with Yanwu on patch tracking mission runs
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Launched Pontus for Engineering run
 - Tested fixed issue in vertical control that was causing stale pitch commands to be used
 - Overhead
 - Covid test, CPR cert, BBP cert, TWIC, Appendix A, self cert
 - Out of Office
 - Wednesday 2/10
- Denis Klimov
- Eric Martin

- 708167 - WEC Dynamics and Control
 - Meeting last Friday, we're still in data analysis, but the realtime driver is getting near time for it to become defined.
- 901101 - Seafloor Mapping
 - Meetings regarding the Falkor Cruise in October.
 - The hunt for the test cable has failed, tearing it apart.
- 901206 - Coastal Profiling Float
 - Software architecture concept design for the high-density battery pack.
 - Tank testing CPF003
- 901405 - Wave-Energy Conversion for Oceanographic Applications
 - Built up spare TS7970, installing ROS2 on it.
- 901911 - ROVVR
 - SCOPE Meeting Tuesday
 - Drawing up micro plan, testing the teensy board.
 - Selecting a timecode generator and purchasing.
- 902100 - Telepresence on MBARI Research Vessels
 - Helping Leila whip survey participants, she's almost through the first round of 12.
 - Review VARs mods
 - Passing on materials to Kevin, Karen, and Rich
 - Board Bullets
- 500055 - Video Annotation DM
 - Modified code with more exception handling to avoid GUI freeze observed after 24 hours.
- Out of Office
 - Monday due to illness in the family.
 - Tuesdays until school is back in session.
- Thom Maughan
 - 901805 - Coastal Biogeochemical Sensing
 - Working on nanoFET
 - 901713 - Nearshore FOCE
 - Attended meeting
 - Working on Cond/O2 support
 - Support for Chad
 - Overhead
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 - Out of Office
 - Out sick 4 Feb to 10 Feb.
 - Vacation plans TBD, after getting projects underway.
- Mike McCann
 - Out of Office
 - Vacation day: 1 Feb 2021 for CSUMB teaching
- Rob McEwen
 - Out of Office
 - Probably Friday 29 Jan, and the following Monday through Wednesday.
- Paul McGill
 - 901618 - Pelagic-Benthic Coupling
 - Getting quotes for Squirty battery assembly.
 - 901700 - Acoustical Ocean Ecology
 - Modified Enet switch for wider power supply range and delivered to Chad W.
 - Beginning to spin up on Deimos (sonar plugged into MARS) redesign for this year.
 - 901803 - Carbon Wave Glider Development

- Inventoried and delivered more parts to Craig O.
- 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Reviewed schematics with Alana.
 - Tested magnetic reed switches through Ti housing, and they work.
 - Reverse-engineering POE injectors so they can be modified to deliver power both ways.
- Overhead
 - Got TWIC renewed.
 - Edited third draft of Ti trade publication article.
- Out of Office
 - Will take vacation Feb 16th thru 19th.
- Ed Mellinger
- Tom O'Reilly
 - 901009 - CANON
 - Tom was invited by an Open Geospatial Consortium working group focused on standards for networked robots and sensors, to talk about MBARI's autonomous CANON fleet at their February meeting. [Tom's presentation](#) describes software being developed by him and Carlos Rueda that will enable better situational awareness and robot-to-robot coordination.
 - 901101 - Seafloor Mapping
 - Developing prototype bathymetry editor using C++ and VTK/Qt graphical toolkits for MB-System, intended to upgrade existing 'mbeditviz' tool which is based on end-of-life Motif/X11. The new editor makes use of existing MB-System libraries which read and write sonar data files in a very wide variety of manufacturer formats.
 - Developed cmake scripts to build MB-System libraries and executables, which will replace the "auto-tools" currently used. Our experience is that software such as MB-System that runs on multiple platforms and operating systems is more easily built and installed with cmake than auto-tools..
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Adapting WHOI acoustic-satellite relay software to MBARI Hot Spot Wave Glider, to relay commands and data between shore and submerged LRAUV
- Craig Okuda
 - 901007 - Benthic Biology and Ecology
 - Work on BRS chamber and flush valves, prepare drawings for shop.
 - Out of Office
 - Out sick one day
- Doug Pargett
 - 881135 - 3G ESP Cartridge Redesign
 - Rebuilt the single cartridge ESPs to work with the newest test cartridges.



- 901205 - ESP SURF Center
 - Working on a concept for an electromagnet tipped actuator for the G3 ESP.
- Ben Raanan
 - 708168 - DHS Y7
 - Minor adjustments to the line capture behavior and support/planning for WHOI LRAUV team
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Supprot for TethysDash fixes
 - Updating LRUAV LCM pub interface for Universal data
 - Updates to AHRS driver data logging
 - Backseat prep in support of obstacle avoidance sea trials
 - Daphne and Pontus deployed to sea
 - 902102 - Multi-LRAUV Simulation Environment
 - Woking with Open Robotics team on LRAUV vehicle model and integration details



- Mike Risi
 - 200105 - Core Nav - MDUC
 - Working on scripts to control software when deployed

- Re-organized repos based on common, process, and logging code
- 901809 - Deep Sea Bioinspiration
 - Modifying depth loop based on testing results
 - Tested transitions between search and track modes
- 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
 - Preston and I finally managed to get an algorithm cobbled together that reliably recovers lysate from the ESP3G cartridges, detecting and correcting when the plunger sticks in the syringe barrel. It's a thing of beauty ;-)
- Carlos Rueda
 - 901009 - CANON
 - MMX: Helped Tom put together slides for presentation to OGC group, based on our [proposal draft](#). Thanks Yanwu for the figure from your recent paper. Some code review.
 - 901502 - Passive Acoustic Sensing
 - Resuming work of paper.
 - 902005 - VARS Annotation Assistance
 - Meetings.
 - Reading/viewing some misc materials.
 - 902009 - AUV UI
 - Meeting
 - 902101 - LRAUV Technology Development and Fleet Operations
 - TethysDash: Implemented mechanisms/workarounds, as discussed with Ben/Mike G./Brian, to address issues with long running unserialized processes and repeated data-link requests.
 - TethysL: (Feb 1; missed to report past week): Presented [Revisiting TethysL](#) to a group of 10 MBARians and WHOI (Ryan G.). I went over some history, background, clarifications, alternatives with pros/cons, and possible next steps. Then we had a great discussion for 1.5hr. My overall impression is that TethysL remains a strong candidate and that any other alternative really needs to demonstrate clear advantages under various considerations, as this is not only about the syntax per se, but also about the associated tooling both at the editor level (especially if full static semantic validation is still required/desired), and for execution on the vehicle. Concrete next steps are still TBD, but great feedback so far, and I've done some more [prototyping](#) to better assess required effort and areas of focus.
 - Overhead
 - Attended Teri L.'s seminar, "operational multi-robot systems for science"
 - IE meetings
 - Hazard Communication training
 - Out of Office
 - 2021-03-03: sick
- Karen Salamy
- Brian Schlining
 - 500055 - Video Annotation DM
 - Refactoring [m3-registrar](#) code used to register all video files in M3/VARS. Adding very detailed error tracking and performance enhancements to prep for the huge number of video files Iron Mountain will be delivering to MBARI over the next few years.
 - 901809 - Deep Sea Bioinspiration

- As part of the m3-registrar refactoring, Brian is adding stereo camera registration to M3 from the Mini ROV.
- 902002 - Fathomnet Detect and Classify
 - Fixed errors with data ingested from marineregions.org (Their errors, not ours)
- 902005 - VARS Annotation Assistance
 - Fixed a bug in Cthulhu that prevented users from opening a local video manually.
- Overhead
 - Brian has been trying out [ClickUp](#) for project management and issue tracking. Looks like an excellent alternative to Jira/Trello/etc/
 - Assembling materials and docs need by CSUMB capstone students to begin working on [Cthulhu](#). Reviewed student project proposal
 - [Complete migration of UH's VARS database to a new server](#).
- Rich Schramm
- Alana Sherman
 - 300080 - DMO Support Mini ROV
 - Fixing an order I botched in almost every conceivable way
 - 901618 - Pelagic-Benthic Coupling
 - Gathering pieces for Smith macro camera
 - Ordered new bulkheads and cables to interface to Seastrobes
 - 901904 - Deep-Sea Coral-Sponge Community Observatory
 - Finished schematics, reviewed connections with Paul and found quite some mistakes, fixing those now.
 - Working with James on mechanicals of cap charger board
 - Had to reorder Ultravolt cap chargers when the ones received were the wrong package type
 - Overhead
 - Preparing for brown bag on mentoring
 - PE interviews
 - Eng supervisors meeting
 - Out of Office
 - Sick leave Tuesday afternoon for dentist appt.