

# Engineering Weekly Report 3/4/2021 - 3/11/2021

## Executive Council Notes

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## Individual Activities

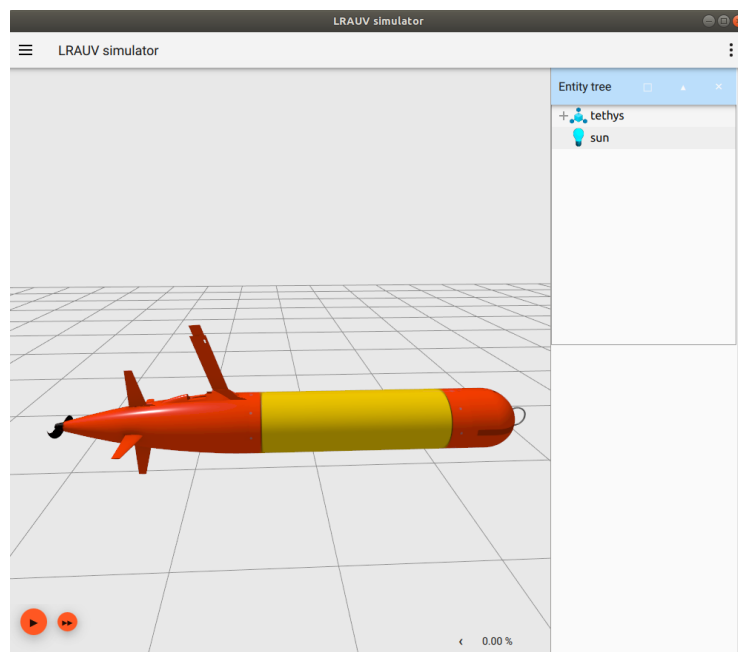
- Francois Cazenave
  - 902106 - Niobicon-Based AUV Docking Development
    - I started testing the niobium power transfer device in the test machine.
    - I am working on the 2' dock prototype.
  - Overhead
    - Talking with former post doc Ryan Portner about collaboration on sediment trap for Axial eruption
    - Talking with Yui about taking over Mike Parker's design work.
- Mark Chaffey
- Danelle Cline
- Duane Edgington
  - 902004 - Planktivore
    - Task to document on-shore 2021 image storage and processing plan
  - 902005 - VARS Annotation Assistance
    - Team meeting March 4
    - Capstone project team meeting March 10
    - Start of Sprint 2 this week
    - Sprint 1 wrap-up March 8.
  - Overhead
    - Group meeting March 8
    - Director's Dialog (watched March 9)
    - Giancarlo Troni Seminar March 10
  - Out of Office
    - Medical Appt Friday March 26
    - March 17-19 Conference: [International Conference on Pattern Recognition Systems ICPRS-21](#)
- Jon Erickson
  - 901809 - Deep Sea Bioinspiration
    - Particle injector pump parts into the shop this week.
  - 902010 - Mesopelagic LRAUV
    - P.O. for Carbon fiber pressure hull to Amalga Composites this week.
- Kevin Gomes
  - 300057 - Mooring Maintenance
    - Troubleshooting some connectivity issues with NDBC. Turned out to be a service outage that is supposed to resolve today (3/10)
  - 901009 - CANON
    - GraphQL API work
    - Trying to get moving again on odss migration to Ubuntu to address CentOS 6 migration issues.
  - 901915 - Improving MBARI Data Impact
    - Data catalog GraphQL API work

- 902100 - Telepresence on MBARI Research Vessels
  - Started to compile requirements in Google doc from documents reviewed to date.
- Overhead
  - Starting my role as third wheel/fly on the wall for the navproc/datamanager upgrade work that Mike Risi and Rich are doing.
    - Will try to meet Mike R on boat next week to observe his bring-up of test environment
    - Working on XOJO DataProbe to test on new NP/DM system
    - Met with Mike R to discuss NP/DM and future plans
  - Migrated more docs to se-ie-doc for MiniROV data processing
  - Started digging into MiniROV divelog XOJO app to make sure I can compile, run and build.
  - PE Interview
  - Joined (briefly) zoom meeting with Greensea to get an idea of status and plans for upgrade of control system servers and hardware
  - Briefly tuned in to meeting with Rich, Karen and Danelle re: mooring turn knowledge transfer.
  - LastPass trial with Group and IS that ends this Friday and will follow with discussion from their sales team on pricing
  - Group meeting to discuss:
    - Welcome Diana!
    - Joe Gomez gave a demo of some Elasticsearch based monitoring software he has been working on for infrastructure monitoring that we might be able to leverage too.
    - Discussion about docs.mbari.org and suggestions
  - Weekly meeting with Todd to discuss IS/SE IE topics
  - Meeting with WHOI IT/App development groups tomorrow.
  - Meeting with Aquafold Sales to discuss group/non-profit licensing for Aqua Data Studio and did not get very far. Probably will just manage individual licenses as needed for now.
  - Got Lonny set up in AWS with proper permissions and access ID and secret key for VAA work.
- Out of Office
  - May 12-24: Vacation
  - June 21-25: Vacation
- Andy Hamilton
- Kent Headley
- Rich Henthorn
  - 600034 - Precision Control Technologies for ROVs and AUVs
    - Prep lcm logs for OA and TRN playback
    - Tested playback against OA and TRN
  - 708167 - WEC Dynamics and Control
    - DOE grant work scheduled to heat-up in 3Q 2021
  - 800139 - EyeRIS
    - ELI implementation basics
      - LCM message intake
      - Data logging
      - Load config file
      - Prepping target
    - Weekly meeting
  - 901405 - Wave-Energy Conversion for Oceanographic Applications
    - Installed PowerBuoy software on spare sbc
    - Semi-weekly meeting
  - 901618 - Pelagic-Benthic Coupling
    - Mob and deploy LPS Monday, recover Tuesday
    - Weekly meeting

- Overhead
  - Director's Dialog and Safety Meeting
  - Troni Seminar
- Out of Office
  - Upcoming vacation days Mar 22 - Apr 2
- Brett Hobson
- Scott Jensen
  - 901205 - ESP SURF Center
    - Studied the SPR heater circuit to assist in tuning and failure analysis. Assisted in determined an erroneous setting allowing a previously non-function board to be functional.
  - 901805 - Coastal Biogeochemical Sensing
    - Received the nanpHOx prototype back and have determined that the 32kHz oscillator needed replacing.
  - 902101 - LRAUV Technology Development and Fleet Operations
    - Prototype drive is capable of starting thruster under many conditions. It is also able to develop the speed and torque required for the current configuration as well as a future option.
  - 902106 - Niobicon-Based AUV Docking Development
    - Power transfer wear tester operation mode has been modified for new test protocol
  - Overhead
    - Answered a few questions about the new building
- Brent Jones
  - 901112 - Monterey Bay Time Series
    - Continued design of WW C1 mooring.
  - 901800.98 - Bioacoustic Payload
    - Design and manufacture of CPU backplane/heat sink. Installing in LRAUV Triton
    - Design and manufacture of Diode OR power board for internal use in Triton
  - 901805 - Coastal Biogeochemical Sensing
    - Flying Spray29 in support of active experiment
    - Completing ballast of Spray34 in anticipation of deployment next week
- Chad Keczy
  - 901101 - Seafloor Mapping
    - Making final changes to TCU block diagram (based on meetings with Eric M and Mike R)
  - 901206 - Coastal Profiling Float
    - Evaluating a TI battery management eval board and helping with overall new battery integration plans.
  - 901713 - Nearshore FOCE
    - Jim M are integrating many of the subsea components in order to begin dry testing
  - 902107 - Consequences of a Changing Ocean: Manipulative Microbiology Experiments at MARS
    - Continuing to make progress on the Labview code.
  - Overhead
    - Hosted the BOSS team from MLML at the test tank to assist them with their pre-deployment calibration.
- Brian Kieft
  - Out of Office
    - Mar 3 (doctor)
    - Mar 8-11 (AZ)
    - Apr 2-9 (vacation)
    - Jul 1-9 (vacation)
    - Aug 5-6 (vacation)
- Denis Klimov

- 300083 - DMO Support LRAUV
  - Working on degaussing report
- 800139 - EyeRIS
  - Working on the setup for optical tuning of LED clusters: detector attachment base
- 902101 - LRAUV Technology Development and Fleet Operations
  - Working on LED light source housing model and drawings, magnets selection, and ordering parts
- Eric Martin
  - 708167 - WEC Dynamics and Control
    - Developing a plan for software efforts.
    - Prepping for a pier test for next week.
  - 901101 - Seafloor Mapping
    - Reaching out to Hans to discuss knowledge transition on Sonar components.
  - 901206 - Coastal Profiling Float
    - Potential fix for SD card failure seems to be working, more tank tests will confirm.
    - Reviewing HDBP materials
  - 901911 - ROVVR
    - Mini ROV Integration
    - Scope team testing efforts
  - 902100 - Telepresence on MBARI Research Vessels
    - Supporting Smith operations offshore.
    - Prep for Katija and Barry expeditions next week.
  - Out of Office
    - Tuesdays until school is back in session.
- Thom Maughan
  - Overhead
    - Reviewing intern applications
  - Out of Office
    - Driving back from Colorado starting Mar. 11, expected return on Mar 13.
- Mike McCann
  - 901910 - Plankton Taxonomic Groups from AUVs
    - Continuing to make progress on Parquet file generation ([Issue 837](#))
      - Deployed updated UI to production STOQS servers
      - Building a Notebook to demonstrate use with DataShader
      - Starting on unit tests (I know, I should have written these first :-)
- Rob McEwen
  - 708167 - WEC Dynamics and Control
    - Implementing another technique to detect wave crests suggested by Mathworks applications engineer.
  - 902101 - LRAUV Technology Development and Fleet Operations
    - Setting up the simulator, sanity checking the results.
    - Will try to play back LCM data from OA dive to further test OA code.
  - Out of Office
    - Out of the office Thursday to get vaccination.
- Paul McGill
  - 901618 - Pelagic-Benthic Coupling
    - Successfully deployed and recovered Larval Pump Sampler on Mon and Tue Rachel Carson/Ventana cruise.
  - 901700 - Acoustical Ocean Ecology

- Got PC boards back from techs to build Sonar Faraday Shield. Some minor adjustments need to be made but we're getting much closer.
- 901803 - Carbon Wave Glider Development
  - Ordered sheet metal parts for test stands
- Overhead
  - Started PCB Designer online courses. Trying to finish OrCAD online courses before they expire on April 3.
- Ed Mellinger
- Tom O'Reilly
- Craig Okuda
  - 901007 - Benthic Biology and Ecology
    - Assemble and test prototype BRS chamber valve
  - 901803 - Carbon Wave Glider Development
    - Update Dririte box design
  - Out of Office
    - Vacation day
- Doug Pargett
  - 881135 - 3G ESP Cartridge Redesign
    - ESP Tower has been pressure calibrated, pump installed, and oil chamber filled.
    - Setting up for static hydrotest, and pressure testing of Tower with a mock-cartridge.
  - 901205 - ESP SURF Center
    - Discussion with Lee Valve Co about G3 ESP valve needs, and G2 ESP valves that are being obsoleted by another mfg.
    - Testing of the pump on ESP Honu to see if there's a problem with it. So far it looks ok as most of the other pumps also have this pressure fluctuation. More testing needed to see what we can do about it.
  - Overhead
    - Director dialog and Wednesday seminar
- Ben Raanan
  - 600034 - Precision Control Technologies for ROVs and AUVs
    - Met with Steve and the team to review results from last LRAUV-TRN deployment.
  - 708168 - DHS Y7
    - Analysing ProNav data from last Polaris deployment at WHOI. New ProNav guidance docking success rate is ~70%.
  - 901502 - Passive Acoustic Sensing
    - Designed new passive acoustic monitoring mission for LRAUV.
  - 901809 - Deep Sea Bioinspiration
    - Implemented standalone KCF tracking node with LCM interfaces and profiled execution performance on embedded target (Jeston NX) using Nvidia Nsight.
  - 902101 - LRAUV Technology Development and Fleet Operations
    - Expanding LRAUV acoustic tracking to support tracking multiple targets.
    - Prepping backseat for JPL collaboration.
  - 902102 - Multi-LRAUV Simulation Environment
    - Open Robotics team is finalizing the LRAUV <-> Ignition sim data pipeline integration and testing the vehicle and world models.
    - Started design of the LRAUV <-> Ignition sim time syncing mechanism.



- Mike Risi
  - Out of Office
    - April 26-30: Ocean Imaging Cruise
    - September 3-14: Ocean Imaging Cruise
    - Vacation on alternate Fridays
- Brent Roman
  - 708146 - NOPP Saildrone
    - Initial mission completed. Successfully archived 10 ESP samples But....
      - Problems with satcomms, air in ESP water feed and sudden roll changes bumping the ESP carousel out of position. Lots of work to do :-)
  - 901205 - ESP SURF Center
    - Preston noticed that ESP was not detecting clogged filters reliably.
      - I discovered that pulsations in ESP 3G sample pump pressure can cause the ESP firmware to fail to detect clogs.
      - Worked with Doug to characterize pump pulsations
      - Tweaked digital filter in ESP firmware to ignore those pulsations
      - Preston is testing now
  - 901913 - Demonstrating high-speed communication with a submerged AUV
    - Working through ITAR/EAR classification issues with OceanComm modems
  - Out of Office
    - March 29-April 2 + 2wk away from the office due to quarantine
      - Traveling up to Oregon & Washington to visit colleges.
- Carlos Rueda
  - 901502 - Passive Acoustic Sensing
    - Putting together some HMM+GMM code, mainly using python libraries. This is taking me more time than expected.
  - 902005 - VARS Annotation Assistance
    - Resolved [one](#) of the outstanding Cthulhu bugs!
  - 902101 - LRAUV Technology Development and Fleet Operations
    - Did adjustments to the TethysL API, in particular re XML mission script validation, so it's easier to use via any HTTP client tool. Email sent to the group for any XML mission writers that may be interested. New [section in the documentation](#) describing this capability, which also includes a git pre-commit hook, so any modified mission must be valid for the commit to be accepted.

- General reorganization and revision of the [TethysDash documentation](#).
- Overhead
  - IE meeting.
  - More improvements to the engine behind docs.mbari.org. [Documentation](#) updates.
  - Director's Dialog.
  - Giancarlo Troni's seminar.
  - Just got an M1 based Macbook loaner (thanks Doug C.) to verify compatibility aspects prior to proceeding with a computer upgrade. One of the main concerns is Docker... and in fact, already having issues to run the dockerized TethysDash system.
- Karen Salamy
  - 902100 - Telepresence on MBARI Research Vessels
    - Attended first telepresence team ZOOM meeting this past week.
  - Overhead
    - Worked with Teresa on some text formatting issues with the pre-cruise web forms
    - Continued working on MBsystem replacement script for the mini ROV nav
    - Held a meeting with Rich and Danelle to discuss mooring turnaround responsibilities currently performed by Rich. Both Danelle and I are slated to take over these responsibilities when Rich retires this year.
  - Out of Office
    - Heading to the snow for a few days again. I plan to work from where we are staying as much as possible. March 17-19.
- Brian Schlining
  - 500055 - Video Annotation DM
    - Continuing work on integrating descriptive info about dives and videos into VARS. This is to support the Iron Mountain video transcoding. The video lab would like to be able to add non-annotation descriptive info about individual dives or video segments.
    - [Investigated VARS crash](#) on the Rachel Carson
    - Testing ideas for a [web based VARS query app](#)
    - Added documentation for deploying M3 microservices on the [ships](#) and [shore](#).
  - 902002 - Fathomnet Detect and Classify
    - Telecon with Ariell Friedman, author of [Squiddle](#), about integration with FathomNet
    - Reviewed [first version of gridview](#) that works against M3/VARS
  - Overhead
    - Responded to forward looking video storage and encoding information request from CSIRO
    - Responded to a request for assistance with older VARS from a student at University of Texas Rio Grande Valley.
    - Attended telecon about running [Hasura](#), a graphql server, on top of SQL Server
    - [Restructuring CSUMB student's project](#). Some students are having issues running [Cthulhu](#) on their Linux systems.
      - Wrote a couple of [simple demo apps](#) for simulating and working with Cthulhu. Needed to help the students get some traction:
        - <https://github.com/mbari-media-management/ghroth>
        - <https://github.com/mbari-media-management/oryx>
    - Meetings! .... so many meetings.
- Rich Schramm
  - 200105 - Core Nav - MDUC
    - Setting up simulators and loggers in prep for next week deployment of new navproc to R.Carson
  - 300057 - Mooring Maintenance
    - DocumentM1 turn in se-ie-docs
  - 300070 - DMO Support Ventana

- Attend meeting with Greensea and Ventana re computer upgrades
- Overhead
  - Continue various transition documentation/handoffs
- Alana Sherman
  - 300080 - DMO Support Mini ROV
    - Set up system to bring up NUCs with correct vehicle software. On one machine I have an issue that I am trying to debug.
  - 901904 - Deep-Sea Coral-Sponge Community Observatory
    - Put together a sea-going kit to recover the time-lapse camera system, this posed more difficulty as the two laptops I was using, had separate but equally frustrating problems to overcome but now both are operational.
    - Ordered new deck cable for the system but still not sure it looks tough enough so I ordered another. Other cables for the system arrived.
    - Worked out component placement with Aaron for the camera housing. The cap charger boards arrive and I will begin to test those.
  - Overhead
    - Had 4th interview for new PE hire.