

# Engineering Weekly Report 2/10/2022 - 2/17/2022

## Executive Council Notes

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## Individual Activities

- Kevin Barnard
  - 701139 - ML Tracking
    - Preparing stereo cam framegrabs/localizations for ingest to VARS; tracking down several videos that failed to load
  - 902002 - FathomNet
    - Reworked dfg-tool architecture; testing and preparing to hand off to VL
    - Released vars-localize with Raziel integration
    - Upgraded vars-localize and vars-gridview to support Python 3.10 & Qt 5.15+
- Francois Cazenave
  - 901405 - Wave-Energy Conversion for Oceanographic Applications
    - Preparing the tether for TMT. Added PE jacket
    - Monitoring leak in top hat
  - 902106 - Niobicon-Based AUV Docking Development
    - Tested the entire system in the tank
    - Prepared collaboration with WHOI
    - Prepared deployment of tst buoy
- Danelle Cline
- Duane Edgington
  - 901618 - Pelagic-Benthic Coupling
    - Project meeting with Paul McGill and Dan Davis rescheduled to Feb 17 at MBARI.
  - 902004 - Planktivore
    - Team meeting Feb 14.
    - Shoreside software discussion with Paul R. and Eric O. Feb 15.
    - Reviewing Django, nginx, Unicorn, and Planktivore repository on MBARI bitbucket in preparation for sprint Weds Feb 23 on preparing and documenting shoreside web server for Planktivore images.
  - 902005 - VARS Annotation Assistance
    - Team meeting Feb 15. Focus on the processing pipeline.
- Jon Erickson
  - 701145 - Penguin Hotspots
    - Still trying to assemble the gimbal parts. Aaron is fixing the EK80 electronics cases.
  - 901217 - Chemical Sensor Program
    - New pressure tester for the ISUS stem assembly. Copied the previous Swagelok VCO assembly.
  - 901805 - Coastal Biogeochemical Sensing Program
    - nanoFET - Working on the interior layout with the circuit board.
  - 902004 - Planktivore
    - Final assembly of the remote battery cases.
  - 902010 - Mesopelagic LRAUV

- Requested a quote for casting the hull end domes. Similar to LRAUV but larger.
- Ben Erwin
  - Out of Office
    - Vacation 2/12-2/20
- Kevin Gomes
  - 200105 - Core Navigation Data - MDUC
    - Rcnavproc1 had what appears to be a hardware failure so Mike Risi is rebuilding with spare (he cut over to the spare one already on board).
    - Upgraded python scripts to run on python 3 as python 2 is deprecated. Working on corenav-sim, will deploy to rcnavproc1 and wfnavproc1 soon.
  - 300058 - DMO Support - Western Flyer
    - Winfrog configuration change broke one test in Dataprobe. Fix is in the code, will try to deploy first thing in the AM before they depart.
  - 300070 - DMO Support - Ventana
    - Installed a new NAS to replace the failed system. Will finish configuration when bubinga get re-installed.
  - 300079 - DMO Support - Rachel Carson
    - Finalized fixes in ArcMapNav to get upgrade deployed on Carson (then on Flyer when it returns)
  - 902012 - Telepresence on MBARI Research Vessels
    - Not much progress, but working on Docker containerization so I can automate deployment to get more developers working on it.
  - Overhead
    - Working on syslog to understand if this will meet our groups centralized logging as a step to consistent logging, monitoring and alerting.
    - Some discussions on microwave, AIS, radios, Mt. Toro, etc.
  - Out of Office
    - Mar 21-25: Vacation
- Andy Hamilton
- Kent Headley
  - 901101 - Seafloor Mapping
    - Preparing TRN software and doing testing for upcoming Ocean Imaging cruise days Mar 1-3
    - Erik has been making a number of software fixes and platform configuration improvements on the Dorado vehicles. I've addressed an issue in the TRN sonar protocol and added some features, and we're in the process of bringing everything up to date and make sure that it all works (hopefully better than ever).
  - 901618 - Pelagic-Benthic Coupling and the Carbon Cycle
    - Made bug fixes and simulator updates based on results from recent SES and rover surveys
  - 901112 - Changes in MB and CA current (HIPPE/eDNA)
    - Met with Nate, Francisco and Tom to discuss project plans and activities
  - Overhead
    - Met w/ Craig and Paul re Carbon Waveglider transfer plan
    - Wrapping up review process
    - SRSC presentation review
    - Misc admin
  - Out of Office
    - Mar 1-3 : ocean imaging TRN test cruise
- Rich Henthorn
  - 708167 - WEC Dynamics and Control
    - Installed and built current command application on RPi controller
    - Updating and verifying repo

- 901405 - Wave-Energy Conversion for Oceanographic Applications
  - Installed and built controller software on new RPi controller
- 901618 - Pelagic-Benthic Coupling and the Carbon Cycle
  - Weekly meeting
- 902101 - LRAUV Technology Development and Fleet Operations
  - Logs from recent TRN runs at PL
- DQ2032 - DOE Wave-Energy Control
  - Rebuilt, installed, and tested RPi-based controller hardware on buoy
  - Fired-up the spare RPi with duplicated system
- Overhead
  - PCR test for Pargett contact
- Out of Office
  - Feb 14 - 18 (this week), vacation & WFH
  - March 1 - 3, TRN cruise on Carson
  - March 14 - 25, vacation & WFH
  - Sep 21 - 30, Sta.M Cruise
- Brett Hobson
- Scott Jensen
- Brent Jones
  - 901009 - CANON
    - Prepping dual Sediment Trap CPF for deployment next week. Finally got it in the test tank yesterday.
  - 901502 - Soundscape Research and Education
    - Rewriting Teager click detector in Matlab
  - 901805 - Coastal Biogeochemical Sensing Program
    - Meetings
    - Begin degassing hydraulic oil for rebuild of Spray 29 hydraulics
  - 902004 - Planktivore
    - Meetings
- Chad Keczy
- Brian Kieft
  - 708168 - DHS/LRAUV Under-Ice
    - Troubleshooting issues on Stella bringup with mass and buoyancy servos
    - Working on testing oil spill simulation to prepare for demo next month
  - 902101 - LRAUV Technology Development and Fleet Operations
    - Updated altitude servo behavior to allow for missing altitudes
    - Fixed DAT command mode issue following a fault
    - Re-installed thruster HE after fixing a wiring issue on tethys and closed vehicle
    - Mission updates for line capture testing this week
    - Ran tank docking tests in preparation for deployment this week
  - 902106 - Niobicon-Based AUV Docking Development
    - Met with team to discuss deployment
  - Out of Office
    - 3/14-18 (AZ - MST)
- Denis Klimov
  - 902004 - Planktivore
    - Material for Aquavore tank/ aquarium is ordered and picked up from Professional Plastics, assembly is done by Gary's Plastic Place in Santa Cruz since gluing acrylic with good quality requires skill and very specific techniques.
    - Also, order for rails/ fasteners from McMaster is received

- Overhead
    - BEDS: searching for the new place to park BEDS mobile station test setup.
- Diana LaScala-Gruenewald
- Eric Martin
- Thom Maughan
  - Out of Office
    - 8 Feb day off for bereavement
    - Mar 21 to Mar 30 Driving to Montana to help daughter move
- Mike McCann
  - 901101 - Seafloor Mapping
    - Switched from traefik to nginx and now able to serve files from titan's SeafloorMapping share
    - Continuing work/discussions about Compilations
  - Overhead
    - Examined BEDS bench test .EVT files and submitted PR for decodeBEDS.py code changes
    - Continuing work on an "Expedition Mapping Database"
- Rob McEwen
- Paul McGill
  - 701145 - Penguin Hotspots
    - Mounted AOS PIC24 board to sonar chassis and am working with techs to get it wired.
  - 901618 - Pelagic-Benthic Coupling and the Carbon Cycle
    - Worked with Kent H. to refine Loop & Cross algorithm and identify problems during the last deployment.
  - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach
    - Started drawing schematic of Believer UAV wiring and am 95% done with system interconnect diagram.
  - 901904 - Deep-Sea Coral-Sponge Community Observatory
    - Preparing Coral Macro Camera for deployment in two weeks.
  - Overhead
    - Setting up new MacBook Pro with Doug C's help.
- Tom O'Reilly
- Craig Okuda
- Doug Pargett
  - 901205 - SURF Center
    - Working on a bill of materials for the next ESP build
  - Out of Office
    - Working from home for a while.
- Ben Raanan
  - 600034 - Precision Control Technologies for ROVs and AUVs
    - Tethys sea trial at Portuguese Ledge with TRN running on the backseat
  - 708168 - DHS/LRAUV Under-Ice
    - Meetings and support for WHOI team
  - 901513 - Targeted Sampling by Autonomous Underwater Vehicles
    - Pull request review and sea trail prep
  - 902101 - LRAUV Technology Development and Fleet Operations
    - Major rehaul of terminal guidance stack using velocity based proportional navigation guidance law
    - Added single-pole IIR filter and median filter classes and integrated into the acoustic tracking stack
  - 902102 - Multi-LRAUV Simulation Environment
    - Export control stuff

- Testing new acommms module
  - Wrapping up new AHRS sensor model unit tests
  - Wrapping up surface dynamics simulation
  - Starting work on DVL sensor plugin
  - Starting work on surface wind plugin
  - Updating virtualization layer to use Rocker
- Out of Office
  - 02/23-24
  - 04/4-7
  - 04/13-23
- Mike Risi
  - 200105 - Core Navigation Data - MDUC
    - Cleaned up some of the installation documentation
    - Fixed serial port drivers after kernel update
  - 300070 - DMO Support - Ventana
    - Misc. navproc updates
    - Replacing failed navproc machine
  - 600034 - Precision Control Technologies for ROVs and AUVs
    - Moved rovs-control command line UI to ZMQ
- Paul Roberts
- Brent Roman
  - 901205 - SURF Center
    - Adding reagent volume tracking to core ESP Ruby software
    - Participated in initial telecon regarding ESPs on IBM's "Mayflower" autonomous boat
- Carlos Rueda
  - 901502 - Soundscape Research and Education
    - Group meeting, again also with U. Denver participants.
  - 901513 - Targeted Sampling by Autonomous Underwater Vehicles
    - Via Github Actions, the front tracking software tests [pass on python 3.6.8](#), the version available on the SMC-2.
    - More exchanges with Tom & LR re pip issues on the SMC-2, and various installs as needed by the front tracking software.
  - 902009 - AUV User Experience Design
    - Met with Jim Jeffers (SumoCreations) re planning for the UX design implementation.
  - 902101 - LRAUV Technology Development and Fleet Operations
    - About to complete migration of TethysL to Scala3, while also improving autocompletions via LSP server and doing other code cleanup. Planning for a demo within the next few weeks.
  - Overhead
    - Attended Eric Oreinstein's project update and provided feedback (via email).
    - IE meeting. Looking into logging.
    - ESIP: One more (unexpected) migration of the COR came up, this time a little more manageable as it was based on an almost complete amazon instance copy. Still, it took me a couple of hours adjusting things and some back and forth with the ESIP person.
  - Out of Office
    - Feb 18: vacation
    - May 16-17: vacation
- Karen Salamy
  - 300057 - Mooring Maintenance
    - Weekly maintenance and data verification checks.
  - 901101 - Seafloor Mapping

- Continue to address project SMDB web issues brought forward by team members. I am currently implementing some of these requests into my own local development server.
  - Looking to see if there is a way to add GMRT (high resolution 100m grid) bathymetry maps to the SMDB basemap for further ZOOM capabilities.
  - I have had to wait to test many of my changes on the actual server due to Titan being down for various upgrade reasons.
- Overhead
  - Continue to help with integration of miniROV dives and expedition ships into the EXPD for ITD.
  - Staff Survey
- Out of Office
  - Taking my laptop to an AppleCare Genius Bar Friday afternoon to fix an internal retina screen display crack issue. They may need the laptop throughout the weekend. I am unsure how long the fix will take at this time. Happily, the laptop is still covered for this fix through Apple Care. The lack of the computer main monitor has been somewhat disruptive to my work but I am able to still do my work though my monitor at home.
  - Vacation:
- Brian Schlining
  - Overhead
    - Brian is upgrading DARC's video annotation systems
  - Out of Office
    - Feb 14 - Feb 25 - Brian will be a visiting scientist at [DARC](#) to upgrade their video annotation system.
- Alana Sherman