

Engineering Weekly Report 4/8/2021 - 4/15/2021

Executive Council Notes

- 902101 LRAUV
 - The lab is busy preparing the fleet of vehicles for upcoming deployments over the next few weeks:
 - CANON with Brizo+ESP, EcoHAB with Makai+ESP+SPR and Pontus+Biolum and Daphne, Rock's Multi-vehicle (3) position sharing with Tethys, Pontus and Brizo, Low-altitude obstacle avoidance with Pontus and Bio-acoustics testing with Triton and finally AUV docking tank tests with Tethys.
- 901911 ROVVR & 902012 Telepresence
 - Eric Martin and Ben Erwin gave presentations wednesday during a session at the annual meeting of the Scientific Ocean Vehicle alliance on Telepresence and VR Camera projects, respectively.

Individual Activities

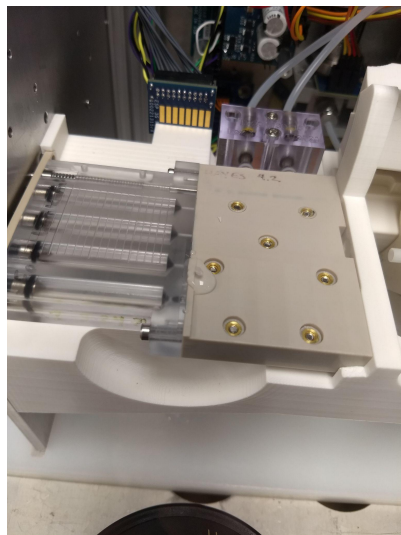
- Francois Cazenave
 - 901405 - Wave-Energy Conversion for Oceanographic Applications
 - I reassembled the hydraulic motor with the PTO and filled with oil
 - 902106 - Niobicon-Based AUV Docking Development
 - I finished assembling the 2' long dock
 - I finished assembling the brushes and start a new test in the test machine
 - Overhead
 - Helping Chad with BOSS maintenance
 - Out of Office
 - I was in quarantine until friday
- Mark Chaffey
 - Out of Office
 - Will be OoF May 1 - 22 and unavailable.
- Danelle Cline
 - Out of Office
 - March 29-April 2nd. I will be off-the-grid for a good part of this.
- Duane Edgington
 - 901603 - Video TAG: Visualizing Ocean Change
 - Relevant presentations during GTC conference. Following up on GLOM and Barlow Twins.
 - Out of Office
 - Vacation April 9
 - Vacation April 16
 - NVIDIA GTC virtual conference April 12 - 16
- Jon Erickson
 - 701145 - Penguin Hotspots
 - Changing the internal chassis parts to fit Paul M. shielding design. Five parts/prints & lots of hardware.
 - 800139 - EyeRIS
 - Solids and prints for EyeRis on LRAUV.
 - Solids design for a 6000m version.
 - 901217 - Chemical Sensor Program

- ISUS - APEX tubes from Amalga should be delivered next week. Then pressure Tests.
 - 902107 - Consequences of a Changing Ocean: Manipulative Microbiology Experiments at MARS
 - Finished a thermal model, just meetings now.
 - Overhead
 - A second drawing check for MARS MVC
- Kevin Gomes
 - 901009 - CANON
 - Troubleshooting some bugs that cropped up on the WF during CANON
 - General experiment support
 - Overhead
 - Support for first ROV dive on new navproc/datamanager/dataprobe
 - Out of Office
 - April 7-14: Sick leave mostly. Trying to work some.
 - May 12-24: Vacation
 - June 21-25: Vacation
- Andy Hamilton
- Kent Headley
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Reviewing relevant code for TRN sim
 - 901803 - Carbon Wave Glider Development
 - Starting an O5 driver for the instrument
 - Overhead
 - Resource requests
 - Strategic roadmap
 - PE hire input
 - Off hours: working on wave glider loop and cross
 - Out of Office
 - Tue 5/25 - medical (late a. m.)
- Rich Henthorn
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Analyzing LRAUV TRN performance
 - 800139 - EyeRIS
 - Weekly meeting
 - EyeRIS LRAUV Interface app
 - 901618 - Pelagic-Benthic Coupling
 - Weekly meeting
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Analyzing TRN performance
- Brett Hobson
- Scott Jensen
 - 901205 - ESP SURF Center
 - Ordering parts for terrestrial housing
 - 901805 - Coastal Biogeochemical Sensing
 - Testing of MCAP tester
 - nanopHOx bias scheme being adjusted.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Working on layout for Thruster Drive
 - Overhead
 - Answered a question about Building G
- Brent Jones

- 901009 - CANON
 - Deployed Wire Walker system. Topside telemetry system failed after 5 days due to a leak. Also troubleshooting data that was returned to shore. Multiple trips to WW buoy for diagnostics and checks
 - Deployed and recovered multiple LRAUV's in lead up CANON testing and for CANON
- 901805 - Coastal Biogeochemical Sensing
 - Flying Spray 29 in support of CANON
 - Prepping Spray 34 for deployment
- Chad Kech
 - 901101 - Seafloor Mapping
 - Helping Eric and folks get ready for the upcoming cruise.
 - Working with Paul C and Jim M to get the TCU wired up for test tank testing
 - 901206 - Coastal Profiling Float
 - Still evaluating the BQ eval board - Have implemented a handful of safety features
 - Prepping for Concept/Battery Safety Review
 - Making Register Maps + flowcharts
 - 901713 - Nearshore FOCE
 - Performed some system level software/hardware testing on the system at the test tank
 - Next steps are to start installing the instruments on the four chambers.
 - 902000 - Multi-Spectral StealthCam
 - Gathered parts for building camera power supply
 - Met with Thom M about software testing (with James McC)
 - 902107 - Consequences of a Changing Ocean: Manipulative Microbiology Experiments at MARS
 - I think I have a working Labview VI to control the temperature of the system!
 - Adding in some solid state relays to system; will begin mounting pieces into IP68 housing soon.
 - Overhead
 - Helping the BOSS crew troubleshoot their downward looking camera. I'm not able to replicate their problem (works fine in lab). It might be a pressure related issue with the Subconn cables - ongoing.
 - Out of Office
 - Possibly out 4/26 (right after 2nd Pfizer shot)
 - May 18-24/25 Vacation (staying local)
- Brian Kieft
 - 300082 - DMO Support - Wave Glider
 - Assisting with hotspot support on occasion
 - 901009 - CANON
 - CANON field program is happening! So far so good from the LRAUV/ESP side.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Prepped for CANON and preparing for EcoHAB now
 - 902102 - Multi-LRAUV Simulation Environment
 - Routine meetings with the team. Looking forward to Ben's design review on Friday.
 - Overhead
 - Heading for covid testing and shot #2 this week.
 - Out of Office
 - Apr 2-9 (vacation)
 - Jul 1-9 (vacation)
 - Aug 5-6 (vacation)
- Denis Klimov
 - 901809 - Deep Sea Bioinspiration
 - Updating operation on deck procedure for optional laser sheet labels

- Ordering material for LED light diffusers
- Diana LaScala-Gruenewald
- Eric Martin
 - 901101 - Seafloor Mapping
 - Sled checkout and prep for new TCU
 - Found a bad CTD, investigating.
 - 901911 - ROVVR
 - SCOPE Meeting
 - Prepping for test on Mini next week
 - 902100 - Telepresence on MBARI Research Vessels
 - Sur Ridge Live Show meetings
 - 368000 - DMO AUV
 - At sea 2 days last week
 - Following up on tasks for engineering support requests.
 - Overhead
 - PE Candidate interview writeups
 - AUV Engineering Hiring Committee
 - Out of Office
 - Tuesdays until school is back in session.
- Thom Maughan
 - Out of Office
 - Vacation 9 Mar 2021 (1 day)
 - Vacation 6,7,10 Apr (3 days)
 - Vacation 31 May - 4 Jun (5 days)
 - Vacation 14-18 Jun (5 days)
- Mike McCann
 - 901009 - CANON
 - Processed Dorado mission 2021.102.02 using ctd2
 - Setup [stogs_canon_april2021](#) to receive data from the current campaign
 - Almost ready to make the switchover to the new kraken2 server
 - 901101 - Seafloor Mapping
 - Beginning to look at how modern Django projects are currently structured
 - 901111 - AUV Infrastructure Support
 - Updated IMEI for new beacon installed on mapper2 vehicle
 - Overhead
 - Helped IS figure out a problem with email sent from Linux servers to Sympa lists
 - Meeting about ROV oxygen data handling
 - Out of Office
 - Some sick time taken following 2nd COVID vaccine shot
- Rob McEwen
 - 708167 - WEC Dynamics and Control
 - Will clean up Matlab code and investigate conversion to C/C++ real-time.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Added much more logging to the OA code. Testing and plotting it now.
 - Out of Office
 - Taking one day of vacation per week for the next 6 weeks or so.
- Paul McGill
- Ed Mellinger
- Tom O'Reilly
 - 300082 - DMO Support - Wave Glider

- Operated Hotspot tracking/stalking of LRAUV brizo in support of CANON; evaluating potential modifications to software that would improve tracking accuracy.
- 902101 - LRAUV Technology Development and Fleet Operations
 - Refined Hotspot acoustic relay software; ready for at-sea testing during ECOHAB campaign
- Craig Okuda
 - 901007 - Benthic Biology and Ecology
 - Test BRS chamber valves
 - 901803 - Carbon Wave Glider Development
 - Assemble fluid manifold
 - Out of Office
 - Vacation day
 - Overhead
 - Mt Toro maintenance
- Doug Pargett
 - 881135 - 3G ESP Cartridge Redesign
 - Assisted in pressure testing of new test cartridges. We found some more leaks, but getting closer to the goal! Will likely need torque tools to pre-load screws correctly during assembly.



- Ordered lab tools to help measure part deformation when testing cartridges. We may need to “shape” some components to better seat the seals during assembly.
- 901205 - ESP SURF Center
 - Requested final parts from the shop to build new G3 bulkhead valve assembly with the 3d printed frame.
- Out of Office
 - A few days off.
- Ben Raanan
 - 300083 - DMO Support LRAUV
 - CANON and EcoHAB ops
 - 708168 - DHS Y7
 - Added support for water velocity data collection using DVL
 - 901009 - CANON
 - Vehicle prep, planning, and operations for CANON
 - CANON is on!
 - 901513 - Targeted Sampling by AUVs
 - Support for EcoHAB and CANON missions
 - 902009 - AUV UI
 - Met with Leila and the team to inform the design of a battery widget for LRAUV dash

- 902101 - LRAUV Technology Development and Fleet Operations
 - Fixed segfault issues in LRAUV mission manager to enable acoustic data flow to a remote contact
 - Engineering deployment 3 vehicles — prep for CANON
 - Major edit of the biolum backseat app to modify filtering method of bathyphotometer data
- 902102 - Multi-LRAUV Simulation Environment
 - Wrapping up milestone 1 — prepping for design review
- Mike Risi
 - 901101 - Seafloor Mapping
 - Preparing OI sled for deployment at the end of the month
 - 901809 - Deep Sea Bioinspiration
 - Working on Doc Ricketts interface for mid-water tracking code
 - Out of Office
 - April 26-30: Ocean Imaging Cruise
 - May 3-7: Vacation
 - September 3-14: Ocean Imaging Cruise
 - Vacation on alternate Fridays
- Brent Roman
 - 708146 - NOPP Saildrone
 - Satcomms has gotten so bad as to be unusable. Disconnects every few seconds.
 - Pushing to get access to their VPN, as that seems the only practical option remaining.
 - 901205 - ESP SURF Center
 - Finally got WireGuard VPN working with low-power ESP CPU and a new tiny ESPshore server!
 - Working with IS to resolve problems I believe are being caused by blocked UDP ports in the DMZ
 - Brizo/mv1 ESP archival only run seems to be going well. (touch wood)
 - 901913 - Demonstrating high-speed communication with a submerged AUV
 - Waiting for docs from OceanComm...
- Carlos Rueda
 - 901009 - CANON
 - ODSS Planning component: adjustments/fixes while testing against odss-test8. The component can be exercised directly [here](#), where Chris W. could try to reproduce issues he recently noticed. (Thanks Kevin for [CORS](#)-enabling the ODSS, so my local proxy for development purposes is no longer needed.)
 - 901502 - Passive Acoustic Sensing
 - Trying to find time to resume work on paper!
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Discussions with and assistance to Tom re Hotspot
 - TethysDash/DashUI: More adjustments and testing related with use of own websocket endpoint, all of this on tethystest (branches: [backend](#), [frontend](#)).
 - ESPComponent: Brent's suggestion captured: <https://mbari1.atlassian.net/browse/TETHYS-625>
 - More TethysL work
 - Dash: Monitoring CANON/EcoHAB activities
 - Overhead
 - Setting up my new laptop, which is taking more time than expected (well, not surprisingly, really) mainly due to weird issues involving sudo commands, which prevented the indispensable homebrew tool from installing. More recently, upon multiple retries, homebrew is now finally installed. But a proper solution is still pending. Thanks Doug for assistance.
 - Engineering mtg.
- Karen Salamy
 - Overhead

- Continued with weekly Onboarding meetings with Rich and Danelle
 - Began transferring recorded ZOOM meeting files of Rich's knowledge transfer to google drive
 - Continued trying to figure out the issue between the kahuna SVN repository and the SmartSVN client since the most recent server upgrades.
 - Helped Kent access a project on the moonjelly CVS repository.
 - Reached out to Jared F. For the new M1 turn instrument list.
 - Engineering Meeting.
- Brian Schlining
 - 500055 - Video Annotation DM
 - Continuing work on features for the new [Deep-sea Guide](#). (e.g. [Grimpoteuthis](#))
 - Working on [REST API](#) to support data analysis of annotations.
 - [Fetch all ROV dives](#)
 - [Find a dive of interest \(e.g. V4222 or Ventana 4222\)](#)
 - [Fetch detailed nav/ctd data for a dive. \(e.g. V4222\)](#)
 - [Fetch compact ROV nav/ctd data for a dive \(e.g. V4222\)](#)
 - You can read the nav/ctd from the compact data endpoint into python using:


```
import pandas as pd

df = pd.read_json("http://quasar.shore.mbari.org:8123/deployments/query/data/V4322")

df['timestamp'] = pd.to_datetime(df['time'])
```
 - 901618 - Pelagic-Benthic Coupling
 - Provided support for VARS for the lab.
 - Overhead
 - Continue to meet w/ CSUMB capstone students working on [Cthulhu](#) and [Kassogtha](#)
 - Interview w/ Giancarlo
- Rich Schramm
 - Out of Office
 - 5/12 thru 5/14
- Alana Sherman