

# Engineering Weekly Report 6/17/2021 - 6/24/2021

## Executive Council Notes

- 901911 - ROVVR Virtual Reality for ROV Applications
  - Working with Leila Takayama's Human-Robot-Interaction group at UCSC, we successfully conducted a human trial with the ROV Mini and the ROVVR camera, aimed at determining if the VR solution improves ROV piloting skills. We were able to run 14 hour long trials, with a wide group of MBARlans with varying degrees of expertise in piloting ROVs. The early analysis is very promising, showing a statistically significant improvement in the speed of task completion when piloting with the VR Camera.



## Individual Activities

- Francois Cazenave
- Mark Chaffey
  - Out of Office
    - Will be OoF May 1 - 22 and unavailable.
- Danelle Cline
  - Out of Office
    -
- Duane Edgington
  - 901603 - Video TAG: Visualizing Ocean Change
    - Attending CVPR (virtual) conference. Workshops on Tracking, Video, and self-supervised techniques
    - Continuing exploration of VISSL framework, including SEER and DINO implementations
  - Overhead
    - Engineering virtual meeting, June 22.
  - Out of Office
    - June 18 - 27 CVPR Virtual conference

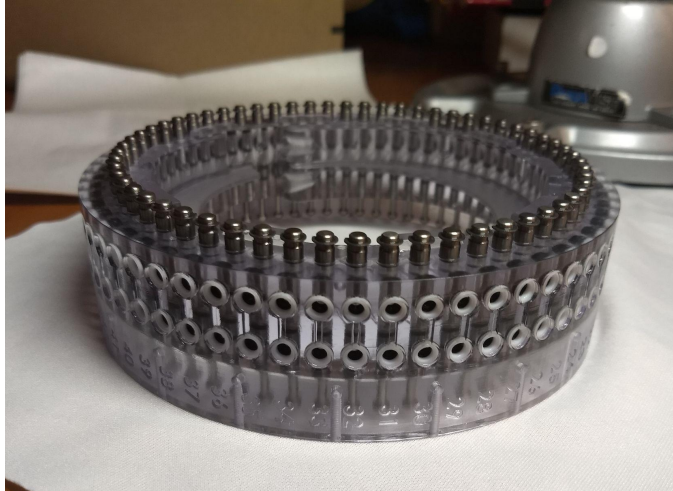
- Jon Erickson
- Kevin Gomes
  - Out of Office
    - June 21-25: Vacation
- Andy Hamilton
- Kent Headley
- Rich Henthorn
  - 901405 - Wave-Energy Conversion for Oceanographic Applications
    - Integrated CANBus timestamps into logging
    - Adding Spring Controller data checks into current command application
  - Out of Office
    - July 7 - 9, vacation
    - July 26 - Aug 9, mostly vacation, network and phone access
    - Sept 22 - Oct 1, vacation
- Brett Hobson
- Scott Jensen
  - 901405 - Wave-Energy Conversion for Oceanographic Applications
    - Battery testing
  - 902101 - LRAUV Technology Development and Fleet Operations
    - One more change to make the transition between bus and boosted voltage smoother.
    - Second article being assembled
- Brent Jones
  - 901009 - CANON
    - Budgeting 2022 costs for Wire Walker for the proposal
  - 901112 - Monterey Bay Time Series
    - SIPPER parts received. Inspected. Updating documentation and prepping for build
  - 901800.98 - Bioacoustic Payload
    - Modified several LRAUV missions to now run the BioAc
    - Continue to optimize gimbal mechanism. Minor mods to allow better swing
    - Increased recording rate on Absolute Orientation Sensor to better coincide with onboard LRAUV data recording
  - 901805 - Coastal Biogeochemical Sensing
    - Prepped, deployed, and am flying Spray34 in support of Yui's experiments
  - Overhead
    - Meetings
- Chad Keycy
  - Out of Office
    -
- Brian Kieft
  - 300082 - DMO Support - Wave Glider
    - Met to discuss front tracking porting options
  - 708168 - DHS Y7
    - Supporting the salt intrusion deployment going on now S of Nantucket
  - 901513 - Targeted Sampling by AUVs
    - Working with Yanwu on various upgrades for the WHOI deployment
  - 901618 - Pelagic-Benthic Coupling
    - Assisted with Rover work at Station M
  - 901800.98 - Bioacoustic Payload
    - Assisted with lab testing
  - 902009 - AUV UI

- Met with Leila to discuss proposal
- 902101 - LRAUV Technology Development and Fleet Operations
  - Proposal time discussion have been gelling
  - Working to integrate nano DVR
- DQ2025 - L. Erie HAB
  - Travel preparations. Flights/car done
- DQ2029 - L Michigan
  - Meeting with team to discuss further plans
- Overhead
  - Covid tests and engineering meeting
- Out of Office
  - Jun 28-30 (phoenix MST)
  - Jul 1-9 (vacation HST)
  - ~~Aug 5-6 (vacation)~~
  - Aug 1-11 (Great Lakes, Great LRAUVs EDT)
  - Aug 16-21 (Great Lakes, Great LRAUVs EDT)
  - Sep WHOI?
  - October 25-31 (PLOCAN glider school tentative GMT+1)
- Denis Klimov
  - 300083 - DMO Support LRAUV
    - Ordered knurled black Nylon 3D printed inserts proto from Go Proto
  - Overhead
    - Draft model for IFCB pre-filter provided to Francois so could design IFCB bottom mount; ordering and evaluating filtering mesh materials in order to finalize pre-filter design
  - Out of Office
    - June 14-18
- Diana LaScala-Gruenewald
  - 200103 - Core CTD Data - MDUC
    - Reviewed notes from most recent meeting with Rich, got follow-up questions answered, made sure I could access/understand the code
  - 500055 - Video Annotation DM
    - Helping rename LTO tapes
  - Overhead
    - Weekly meeting(s)
    - Completed LinkedIn Learning course on database management
- Eric Martin
  - 708167 - WEC Dynamics and Control
    - Bi-weekly meeting
  - 901101 - Seafloor Mapping
    - Assessing outstanding tasks for Falkor LASS integration.
    - Testing DeltaT driver with Mike Risi
  - 901206 - Coastal Profiling Float
    - Minor code edits, prepping for next round of tank tests next week.
  - 901405 - Wave-Energy Conversion for Oceanographic Applications
    - Assessing data budget, integrating the IFCB
  - 901911 - ROVVR
    - Ran a 14 user trial last week, and early results are good, see the project updates.
    - My abstract to Oceans was accepted, paper will be submitted in mid-July.
  - 902100 - Telepresence on MBARI Research Vessels
    - Telepresence support for Robison last week, Smith this week.

- Test for Sur Ridge Live, they are using the telepresence equipment.
- 368000 - DMO AUV
  - Meeting to plan PNW expedition.
- Overhead
  - Initial meeting for Doc Ricketts telemetry upgrade scoping effort.
- Out of Office
  - July 19-Aug16 Pacific Northwest for Dorado support.
- Thom Maughan
  - 901805 - Coastal Biogeochemical Sensing
    - Slides for nanoFET status, updates for 2022 ideas doc
    - Working on nanoFET, MFET and MPHOX software dev.
    - Bug tracker setup, Jira and Backlog eval. Jira is a bit more complex, but will go with the standard MBARI tool.
  - Out of Office
    - Second Moderna vaccine received on 4/30.
    - Vacation 14-18 Jun (5 days) Camping a night on USS Iowa, then Catalina Emerald Bay with Scouts. Vacation extended 6/21, 6/22 to assist family in Pleasanton.
    - Dental appointment on July 14
- Mike McCann
  - 500055 - Video Annotation DM
    - Catching up with email backlog following 3 weeks of vacation, much to do with various Expedition Database issues: moving dives, tape summary data, permissions
  - 901101 - Seafloor Mapping
    - Working on getting production deployment to work on smdb.shore.mbari.org
  - 901111 - AUV Infrastructure Support
    - Added some AUVCTD data processing debugging instructions to the new docs location
    - Fixed a problem where 2017.248.01 had the tail end of the data lopped off in STOQS
  - 901910 - Plankton Taxonomic Groups from AUVs
    - Met Monique's intern Lyndsey (via email) who is working on cluster analysis of Dorado data
- Rob McEwen
  - 902101 - LRAUV Technology Development and Fleet Operations
    - Examining Triton control problem
    - Also will check power consumption of the new thruster servo.
- Paul McGill
- Ed Mellinger
- Tom O'Reilly
- Craig Okuda
  - 901007 - Benthic Biology and Ecology
    - Test fit new rev of valve hydraulic actuator
  - 901803 - Carbon Wave Glider Development
    - Assemble test stands
    - Rev manifolds
    - Instrument build
  - Out of Office
    - Misc FCC license work
- Doug Pargett
  - 881135 - 3G ESP Cartridge Redesign
    - Ran several FEA analyses on proposed mods to the alpha 3 cartridge.
    - Meetings

- 901205 - ESP SURF Center

- Assembled a new warp core. (Actually, I installed the 120 port seals around the new Toroid valve ring from the MV3 ESP.)



- 

- Started pressure testing of MV2.

- 901800.98 - Bioacoustic Payload

- Installed stainless steel backing plates to try and shield the transducers from “crosstalk”.



- 

- Overhead

- Engineering mtg.

- Ben Raanan

- Out of Office

- June 8-22

- Mike Risi

- 300062 - DMO Support Doc Ricketts

- Telemetry upgrade meeting

- 300070 - DMO Support Ventana

- Debugging interface to GTD Pro instrument from MBA

- 901101 - Seafloor Mapping

- Tested DeltaT code against instrument in the tank

- Out of Office
  - April 26-30: Ocean Imaging Cruise
  - May 3-7: Vacation
  - June 4-11: Vacation
  - June 28-July 2: Vacation
  - September 3-14: Ocean Imaging Cruise
  - Vacation on alternate Fridays
- Brent Roman
  - 708165 - NOAA-MERHAB
    - NOAA deployed their new, larger ESP telebuoy off La Push, WA
  - 901205 - ESP SURF Center
    - Temperature testing alpha2.2 cartridges indicates need to insulate metal back
  - 901913 - Demonstrating high-speed communication with a submerged AUV
    - Linux large TCP windows were not compatible with these ethernet modems
      1. Reducing the TCP window size and MTU yields solid 20 Kb/s TCP throughput
  - DQ2025 - L. Erie HAB
    - Put 3.18 Linux kernel with ethernet driver fixes onto ESPs destined for deployment
- Carlos Rueda
  - 901009 - CANON
    - Continued revising MXM code. Looking into determining next steps, especially regarding easier integration of execution systems, possibly even changing the design a bit in terms of a simplified registry component, so it mainly becomes a discovery service.
  - 901502 - Passive Acoustic Sensing
    - Started looking into applying the [google/humpback\\_whale/1](#) CNN model on some of our humpback whale song data: <https://github.com/mbari-org/google-humpback-model-tests>
  - 901513 - Targeted Sampling by AUVs
    - Talked with Yanwu and from there we set up a meeting with the team to delineate next steps. Tom will look into getting data (seems like commanding should not be a problem) and enabling python3. I'll be refactoring the code to facilitate use of the core algorithms on the vehicle.
  - 902101 - LRAUV Technology Development and Fleet Operations
    - Looking into enabling text messages (and emails in general) that could be sent to the Dash for posting notes and possibly also for some commanding ([#85](#)).
  - Overhead
    - Engineering meeting.
  - Out of Office
    - July 7-8: vacation
- Karen Salamy
  - Overhead
    - Working with Andy H. to acquire a Simulink transfer within our Master Matlab license. He needs both Simulink and Simscape for work - including for his summer intern. Given the cost of Simscape we are attempting to reduce costs where possible.
    - Worked with video lab to update various editing capabilities of certain users editing miniROV dives and other various older dives.
    - Successfully deployed the new Oasis M1 Mooring (first without Rich S.). Worked with Kevin G., Danelle C. and Jared F. to update all records and links on the day of deployment. Currently only one sensor (CTD at 150m on the string) is not working. All else appears to be ok.
- Brian Schlining
  - 500055 - Video Annotation DM
    - Continuing work on managing videos from Iron Mountain as part of the tape to video conversion. [Code](#). [docs](#).

- 901809 - Deep Sea Bioinspiration
  - Importing stereo camera videos, images, and localized annotations into VARS. Demo videos of results are [here](#) and [here](#). [Code](#).
- Overhead
  - Work on 2022 proposals.
- Out of Office
  - Jul 19 - 30 - Vacation
- Rich Schramm
  - Out of Office
    - 7/1 - 8/30 Vacation
- Alana Sherman