

Engineering Weekly Report 5/21/2020 - 5/28/2020

Executive Council Notes

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Individual Activities

- Francois Cazenave
 - Out of Office
 - Special leave
- Mark Chaffey
- Danelle Cline
- Duane Edgington
 - 901603 - Video TAG: Vis Ocean Chng
 - Continuing One-shot learning exploration: Metrics-based methods
 - Continued Nvidia GPU Tech Conference presentations (Jetson Xavier NX and Cloud integration).
 - 902004 - Planktivore
 - Abstract input to Project Lead
 - 902005 - VARS Annotation Assistance
 - Some preparation for intern Peyton Lee, including CoLab / Google Cloud exploration and setup info.
 - Out of Office
 - Vacation Friday.
 - June 14-19. CVPR. Virtual registration at nominal charge for IEEE Life Members.
 - Working through AWS Security training course.
- Jon Erickson
 - 800139 - EyeRIS
 - Drafting
- Kevin Gomes
 - 901205 - ESP SURF Center
 - Moving the ESP web portal to containers
 - In order to upgrade services.mbari.org, need to migrate the ESP portal to CentOS 8 which is running on esp-portal.mbari.org
 - 901915 - Improving MBARI Data Impa
 - Small amount of catalog work
 - Overhead
 - Spending a lot of time learning podman and system services. Podman is RedHat/CentOS's version of Docker.
 - Out of Office
 - May 28: Leave
- Andy Hamilton
- Kent Headley
- Rich Henthorn
 - 901405 - PowerBuoy Development
 - Some ROS research, install

- 901618 - Pelagic-Benthic Coupling
 - Acoustic modem automation and tools
- 901904.99 - Coral Camera System
 - Minor mods to Snappy
- Brett Hobson
- Scott Jensen
- Brent Jones
 - 901112 - Change in MB & CA Current
 - Beginning write up of canon sampler
 - 901502 - Passive Acoustic Sensing
 - Beginning to deal with MARS echosounder clicks that started in 2019. Investigating traditional signal processing tools and a ML detector
 - Overhead
 - Meetings and continuing education online
 - Wire walker proposal for 2021
- Chad Kechy
- Brian Kieft
 - 708158 - DHS Y6
 - Added a fix to allow dynamic docking module to be more compliant with failures to retrieve status information while changing modes
 - Assisted in debugging a potential kernel issue on our SPI/UART bus that was causing docking failures during the last deployment.
 - Fixed some typos in the DVL code
 - Met with team to prepare for upcoming payload integrations, cruise, and a deployment next week.
 - 901800 - LRAUV Payload & Support
 - LCM architecture meeting
 - Worked with Mike G on coordination of acoustics fixes
 - Tested power variable that's now being written
 - Tested acommms from topside to vehicle and noted bugs existing in inner-vehicle acommms for the Benthos subsystem specifically.
- Denis Klimov
 - 901809 - Deep Sea Bioinspiration
 - Re-writing handbook for DeepPIV deck operation
 - Overhead
 - BEDS Bridge Board - quoting
- Eric Martin
 - 901101 - Ocean Imaging
 - Documentation organization
 - 901206 - Coastal Profiling Float
 - ZMODEM Transfer reliability testing on new server.
 - 901807 - Next Gen Acoustic Dorado
 - Revisiting goals for the year, some engineering dives were lost. Those goals may be requested in 2021.
 - 901911 - ROVVR
 - Check in call with UCSC.
 - DQ1942 - Buoy Power Generation
 - Handoff of wireshark LCM parsing tool.
 - Overhead

- Telepresence scoping complete with letter transmitted to the MT. We are talking to Mike Kelley regarding a possible test and necessary resources.
- Thom Maughan
 - Out of Office
 - Tentative week to ten days road trip plan is second week in June after school gets out, abstract presentation from the road possibly. Depending on pandemic rules.
- Mike McCann
 - 901009 - CANON
 - Fixed some date boundary test issues for loading LRAUV data
 - Fixed functional test execution on Travis-CI and dockerhub
 - Fixed a provisioning issue with a new postgresql dependency
 - 901111 - AUV Infrastructure Supprt
 - Reloaded the [stogs_mbts](#) database to pick up missing Sipper samples
 - Overhead
 - Provided milestones, time estimates, and edits for MB-Mapping proposal
 - Provided details on BEDs data visualization for Roberto's paper
- Rob McEwen
 - 600034 - Control Tech - Rock
 - Now getting a reasonable result from replaying Trn on LR data. This is the 4-state version with 100k particles. I'm waiting now to see if Stanford comes up with a similar result. They're going to use a different method (fminsearch in Matlab) to check.
 - Also ran many simulations and replays of Portuguese Ledge Dorado missions with the 4-state Trn. The Dvl runs give reasonable results. However, they're not particularly convincing since the Kearfott is very accurate and doesn't have significant attitude errors during our mission. That is, the yaw bias always converges to zero, because it probably is zero.
 - Ran simulations of this mission where the (simulated) Kearfott has a constant non-zero yaw bias. The 4-state Trn, using Dvl, converged to this quite well. It also correctly identified (simulated) Northing and Easting offsets.
 - 4 and 6 DOF Trn sims and replays using the Reson also give mostly reasonable results. But I'm still unsure that the code is correct in this case. How and where to recoordatize the Reson beams from Dave's along-track/cross-track/down frame into each particle's frame is hard to conceptualize. Still going around (and around) with this.
- Paul McGill
- Ed Mellinger
- Tom O'Reilly
- Craig Okuda
 - 901803 - Carbon Wave Glider Development
 - Update manifold design
 - Waveglider SV3 packaging
 - Out of Office
 - Special leave
 - Vacation
- Doug Pargett
 - 901205 - ESP SURF Center
 - Attended usual zoom meetings
 - Making minor tweeks to the solid models of the FlowerPot dome caps.
 - Reviewing the new cartridge testing and development.
 - Putting together ideas for the proposal cycle (upgrading G3 ESPs, etc)
- Ben Raanan
 - 708158 - DHS Y6

- Planning for YR7
 - 901800 - LRAUV Payload & Support
 - Integrating Tethys backseat API with the LRAUV app
 - 901809 - Deep Sea Bioinspiration
 - Spun up the new Jetson NX
 - 902008 - Multi Vehicle Sim
 - 2021 proposal
- Mike Risi
 - Out of Office
 - February 19-22: Ocean Imaging Cruise
 - March 9-12: Vacation
 - May 26-29: Vacation
 - June 29 - July 1: Vacation
 - September 18-29: Ocean Imaging Cruise
 - September 30 - October 2: Vacation
- Brent Roman
 - 901205 - ESP SURF Center
 - Added ability to defer exceptions using pure Ruby
 - Needed this for atomic database updates
 - Might be a good talk topic for RubyConf 2020
 - Merged “function” protocol mods into the master branch
 - Developed and documented install procedure for MacOS “Catalina”
 - DQ1904 - NOPP Saildrone
 - Saildrone managed to bring up an ESP simulation environment
 - Fixing a Ruby Fixnum multiplication overflow bug due to new gcc-9.x optimizations
- Carlos Rueda
 - 300083 - DMO Support - LRAUV
 - Started work on a [deployment overview](#) feature for the Dash as proposed by Erik. Initial prototype at <https://oceanids.mbari.org/dash3yz/#/-/:Reports>
 - 901101 - Ocean Imaging
 - Rebuilt/published docker image 5.7.6beta37 upon the proper release notification, and updated and tested the instance on mbscentos7. Also updated the general status at [github](#).
 - Thanks Dave for the testing and finding a nice solution for the OpenGL issues on Mac. Also for the email indicating the image is “a fully viable way to process data locally with MB-System.”
 - 901502 - Passive Acoustic Sensing
 - More experimentation with classification. Wrote python scripts to help [visualize the results](#) along with the original wav data (spectrogram).
 - Overhead
 - As announced a couple weeks back, old oceanids will be shut down this Friday.
 - Out of Office
 - A few hours spent on kids school related activities.
 - May 29: vacation
- Karen Salamy
 - Out of Office
 - Will tentatively need to continue working from home through the first month or so back to work depending on when after school resumes or if we are able to get daily child care/teacher.....
- Brian Schlining
 - 500055 - Video Annotation DM
 - Iron Mountain delivered a test batch of videos converted from some of MBARI’s ROV tapes. Brian is working on software to process these videos and set the correct metadata and

filenames. <https://bitbucket.org/mbari/tapemigration> . Part of this process also looks for timecode resets during a dive, which can cause problems with looking up some of the metadata.

- Investigating methods to extract frame rates from video files as part of video registration.
<https://bitbucket.org/mbari/m3-registrar>

- Out of Office
 - May 29th - Daughter's HS graduation

- Rich Schramm

- 200105 - Core Nav - MDUC
 - Short week due to holiday
- Overhead
 - Working on Dataprobe developers documentation
 - Refactoring Dataprobe application to make more supportable as I discover wonky parts while writing documentation.
- Out of Office
 - Jul 30 - 3-Aug Vacation
 - Monitor Space-X first commercial human launch attempt.
 - Aug-10 -21 Vacation

- Alana Sherman