

901618 - Pelagic-Benthic Coupling and the Carbon Cycle

Week 52

1. Paul McGill
 - a. Repaired carousel motor on SES well enough for testing until new unit arrives

Week 51

1. Paul McGill
 - a. Repaired carousel motor for SES
 - b. Finished writing Web page for Laser Measure

Week 49

1. Alana Sherman
 - a. Rover fuses for optodes are fixed, just awaiting final test
 - b. Camera tripod dismantling is about to begin

Week 48

1. Paul McGill
 - a. Worked on finding a replacement stepper motor for SES but will buy assembly from McLane instead
 - b. Wrote draft of text for Laser Measure Web page
 - c. Identified problem with Laser Measure cal files but can't test it until I reinstall Matlab with the new license
2. Brian Schlining
 - a. Met with Crissy to work out changes to loading tripod images from station M into VARS.
3. Alana Sherman
 - a. Debugged Rover optode failure, found that a fuse was mis-sized and blew before the first layer of protection

Week 46

1. Paul McGill
 - a. Got Squirty shipment ready to go to New Zealand but plans changed and now we'll reassemble sed trap in high bay
 - b. Found some errors in Laser Measure calibration but total error is still too large—the search continues
 - c. Serviced all beacons from last cruise by removing batteries, cleaning, repairing labels, and testing

Week 45

1. Paul McGill
 - a. Created new calibration files for Laser Measure but still can't pin down source of errors
 - b. Troubleshooting failure in Rover optodes
 - c. Troubleshooting failures in Camera Tripod strobes
 - d. Identified and corrected missing images in Camera Tripod VARS repository
2. Alana Sherman
 - a. Review Rover schematics and data to try to determine where to start looking for optode issue experienced during our last cruise. I hope to follow up with some testing next week.

Week 44

1. Paul McGill
 - a. Made movies from camera tripod time-lapse images
 - b. Wrote code to analyze time-lapse images and determine when one or both strobes failed to fire
 - c. Analyzed failure in Dual Camera Tripod near-field camera
 - d. Worked on refining Laser Measure code to reduce errors
 - e. Preparing Squirty hardware for shipment to New Zealand
2. Brian Schlining
 - a. Working on request for changes on how images are registered in VARS
3. Alana Sherman
 - a. Wrote matlab script to determine if any of the respirometry data came through

Week 43

1. Paul McGill
 - a. Troubleshoot near-field camera on Dual Camera Tripod to see why it stopped working halfway through the deployment. It was a problem with the Canon camera.
 - b. Made movies from Camera Tripod, Macro Camera, and Rover images.
 - c. Recharged battery for Smith Macro Cam.

Week 42

1. Kent Headley
 - a. The earlier Rover acoustic survey produced an accurate location estimate

Week 39

1. Kent Headley
 - a. Worked with Chris W, Paul M, Rich H and Ken S to run a wave glider acoustic survey to locate the Rover using Paul's loop and cross algorithm. Two surveys were run; the first had some problems due to a bug and some configuration issues. After addressing those, the second survey ran as we'd hoped. The results are still pending, but we did produce a location estimate for the Rover recovery.

Week 38

1. Kent Headley
 - a. Coordinating w/ DMO and Smith group to fly waveglider loop and cross survey to locate rover during recovery next week; prepping mission

Week 34

1. Paul McGill
 - a. Wrote code to generate Laser Measure calibration files for import into Dan Davis' code. Am tweaking calibration files to try to improve accuracy.

Week 33

1. Paul McGill
 - a. Still working on Laser Measure calibration. Had a breakthrough with data processing and am slowly progressing.

Week 31

1. Paul McGill

- a. Having problems with matrix algebra for Laser Measure calibration. Laser dots transformed into camera coordinate system don't make sense, but I'll find the error.

Week 29

1. Rich Henthorn
 - a. Weekly meeting
2. Paul McGill
 - a. Worked on rotation vectors for Laser Measure calibration.
 - b. Tried to fix spare Raspberry Pi for BLISS.

Week 28

1. Rich Henthorn
 - a. Proposal work

Week 27

1. Rich Henthorn
 - a. Camera deployment

Week 26

1. Rich Henthorn
 - a. Proposal input for 901618 and new SES Event Detection project

Week 25

1. Rich Henthorn
 - a. Weekly meeting
 - b. Proposal inputs
2. Paul McGill
 - a. Helping to prep Macro Camera for next week's deployment.
 - b. Got Laser Measure code running on my computer, learning how it works.
3. Alana Sherman
 - a. Doing final prep of camera tripod for next weeks deployment. Collecting gear to bring on ship.

Week 24

1. Paul McGill
 - a. Tested Macro Camera with Alana, resolved battery issues
 - b. Met with Duane E. to get walk-through of Laser Measure setup and use
 - c. Still working on MATLAB licensing issues to run Laser Measure
2. Alana Sherman
 - a. Spent the week getting the Macro camera back up and running.
 - b. Overnight tests in the highbay were successful
 - c. Found potential issues with Seabattery, seems to take too long to charge, but should be okay for this brief deployment

Week 23

1. Rich Henthorn
 - a. Weekly meeting
2. Paul McGill

- a. Collecting documentation for Squirty sediment-trap agitator for IP license to a New Zealand collaborator.
- b. Met with Duane E. about Laser Measure, will meet again this week.

Week 21

1. Paul McGill
 - a. Arranging to get Laser Measure code from Dan Davis

Week 20

1. Paul McGill
 - a. Met with Duane E. about Laser Measure and am trying to get latest software from Dan Davis.
 - b. Began tracking down lasers and batteries for Smith Macro Cam to be deployed June 29th.
2. Alana Sherman
 - a. Getting macro set up for testing before June deployment

Week 19

1. Rich Henthorn
 - a. Proposal items
 - b. Weekly meeting

Week 18

1. Kent Headley
 - a. Ran loop and cross test at station M last week. Acoustic conditions were poor, but conditions posed a good challenge for recovery algorithms, and the mission did produce some data and resulted in a location estimate for the rover.

Week 17

1. Kent Headley
 - a. Worked with Chris W, Alana A and Rich H to run a loop and cross test at Sta. M
 - b. The acoustic conditions were marginal, with ~20% range return rate
 - c. The waveglider control algorithm performed reasonably well in terms of automated error recovery, i.e. detecting and responding to lost ranges)
 - d. The mission didn't complete a full loop and cross cycle, but the error recovery patterns provided adequate spatial coverage to produce a location estimate
2. Rich Henthorn
 - a. Working through Rover communication issues

Week 16

1. Rich Henthorn
 - a. Weekly meeting
2. Paul McGill
 - a. Calculated new Rover position for Wave Glider geolocation attempts next week.

Week 15

1. Rich Henthorn
 - a. Weekly meeting
 - b. Proposal items

2. Paul McGill
 - a. Trying to figure out coordinate transformation math for Laser Measure.

Week 14

1. Rich Henthorn
 - a. Weekly meeting

Week 13

1. Rich Henthorn
 - a. Weekly meeting
2. Paul McGill
 - a. Met with Duane E. to strategize about Laser Measure work this year.
 - b. Working on how to analyze calibration measurements from last year.

Week 12

1. Paul McGill
 - a. Had 1 hr phone call with Dan Davis to answer his questions about our Laser Measure data. He's making some progress analyzing images.

Week 10

1. Rich Henthorn
 - a. Weekly meeting
 - b. Castroville visit
 - c. Hunted (and found) SES images from latest MARS test deployment in 2020
 - d. Renamed image files from 2011 MARS test deployments to include VARS-style timestamp
2. Paul McGill
 - a. Helping Colleen access current meter data from Smooth Ridge.

Week 8

1. Rich Henthorn
 - a. Weekly meeting
2. Brian Kieft
 - a. Merged decoder fix for BEDs
3. Paul McGill
 - a. Had meeting with Dan Davis and Duane E. to go over Laser Measure analysis.

Week 7

1. Kent Headley
 - a. Made bug fixes and simulator updates based on results from recent SES and rover surveys
2. Rich Henthorn
 - a. Weekly meeting
3. Paul McGill
 - a. Worked with Kent H. to refine Loop & Cross algorithm and identify problems during the last deployment.

Week 6

1. Kent Headley

- a. With Chris Wahl and Paul McGill, piloted waveglider acoustic surveys to geolocate benthic rover and SES using an implementation of Paul's loop and cross algorithm that I implemented last year. The missions were both successful, and yielded accurate locations of the assets.
 - b. Wrote a utility to process loop and cross data to produce a location estimate by minimizing mean squared error using a binary octree search
2. Rich Henthorn
 - a. Sta.M - deployed Rover, SES, and Dual-Camera tripod
 - b. Demobilization

Week 5

1. Kent Headley
 - a. Prepping for potential waveglider operation to survey rover using loop and cross algorithm (conditions permitting)
2. Rich Henthorn
 - a. Sta.M cruise prep and mobilization
 - b. Western Flyer cruise to Sta.M
3. Paul McGill
 - a. Finished Rover, SES, and Camera Tripod preparation for cruise.
 - b. Loaded ship
 - c. Currently on cruise waiting for bad weather at Station M to abate.
4. Brian Schlining
 - a. Continuing work on adding [image localization tools](#) into the current [VARS app](#).

Week 4

1. Rich Henthorn
 - a. Rover ready to deploy
 - b. SES carousel motor debugging - hall switch bulkhead connector and cable
 - c. SES mission prep
2. Brian Schlining
 - a. Continuing to work on an annotation pane for desktop applications at <https://github.com/mbari-org/imgfx>
3. Alana Sherman
 - a. After some hiccups, I ran the Dualie camera tripod for an overnight test. Reviewed images, all looks good. Set up the cameras and it is ready to go
 - b. Packed ship with all Rover, camera tripod, SES stuff

Week 3

1. Rich Henthorn
 - a. Rover cables and connectors refurbished/replaced and tested OK
 - b. Rover operations testing at the tank - vehicle seems ready to go
 - c. SES prep
2. Paul McGill
 - a. Got Rover connectors repaired/cleaned and ran in test tank overnight—it's working.
 - b. Replaced battery in Dual Camera Tripod.
 - c. Rewired connector on SES motor, tested, and found problem with home sensor, yet to be solved.
3. Brian Schlining
 - a. Building JavaFX UI controls for image annotation to support porting the image annotations features from the older VARS, that Ken's lab is running, into the new system. These controls will also allow for rapid development of new annotation applications independently of VARS. Rapidly evolving source code is at <https://github.com/mbari-org/imgfx>, video demo of one of the controls at <https://youtu.be/Er3728Jh0C8>.

Week 2

1. Rich Henthorn
 - a. Some bad connectors discovered after observing flakey comms
 - b. Weekly meeting
2. Paul McGill
 - a. Replaced all accessible connector o-rings on Rover, inspected and cleaned all connectors
 - b. Getting faulty Rover cables rebuilt
 - c. Analyzed Loop and Cross data from last Wave Glider deployment
 - d. Had online meeting with collaborators Kathy Dunlop and Nigel Keely to discuss SES
3. Brian Schlining
 - a. Scoping and prototyping work to port image annotation tools from the older VARS system into the new system. <https://github.com/hohonuuli/imgfx>
4. Alana Sherman
 - a. Helping as I can to find spare pieces and parts as Paul has discovered some corrosion on the connectors.

Week 1

1. Rich Henthorn
 - a. Benthic Rover component tank testing prep for Feb deployment
2. Brian Kieft
 - a. Worked with Denis to establish a comms on the bench for BEDs FQT.
3. Paul McGill
 - a. Finished collating camera calibration data from last Laser Measure dive and will pass it on to Dan Davis for further analysis.
 - b. Worked with Alana and John F. to correct vignetting in Dual Camera Tripod Near-Field camera.
4. Alana Sherman
 - a. Testing Dualie camera tripod for Feb cruise