

902305 - Event Detection Using the Sedimentation Event Sensor

Week 51

1. Rich Henthorn
 - a. SES deployed for 6.5 months on Dec 4
2. Irene Hu
 - a. Weekly meeting
3. Paul McGill
 - a. Team met for the last time this year to discuss instrument recovery and data analysis next year

Week 49

1. Rich Henthorn
 - a. Prep for SES deployment at MARS rescheduled for Wed Dec 4
 - b. Variable thresholds, trigger trap setup, and modems
2. Irene Hu
 - a. Changing batteries and other prep for deployment Dec 4

Week 48

1. Rich Henthorn
 - a. Prep for next week's deployment
 - b. Integrating new detection script
 - c. General operation tests in the test tank
2. Paul McGill
 - a. Worked with new ME techs to get SES battery sphere sealed
 - b. Did final checks and put SES in tank for testing over holiday

Week 47

1. Rich Henthorn
 - a. Implementing event detection with variable trigger limits using input from Yanwu
 - b. Improved acoustic communication interface
 - c. Preparing for deployment scheduled for Dec 6
2. Irene Hu
 - a. Fixing up checklist for upcoming deployment
3. Paul McGill
 - a. Preparing for upcoming deployment on Dec 6, lots of work changing batts, fixing beacons, etc.

Week 46

1. Rich Henthorn
 - a. Prep for SES deployment
 - b. Improvements and fixes for SES
 - c. Tank testing

Week 44

1. Rich Henthorn
 - a. Refactor image processing and event detection code
 - b. Prep for variable event detection parameters
 - c. Looking at possible redeployment in December
2. Paul McGill
 - a. Evaluating if we can get the SES and trigger trap back at sea for Dec 16 deployment

Week 43

1. Rich Henthorn
 - a. Post mission analysis of energy usage
2. Irene Hu
 - a. Weekly meeting
3. Paul McGill
 - a. Presented results of latest fluorometry analysis to group
 - b. Working on new analysis resulting from discussion

Week 42

1. Paul McGill
 - a. Analyzed fluorescence data from last deployment and found some interesting signals
 - b. Reviewing engineering data from last deployment to investigate battery anomaly
 - c. Working with Giancarlo to set up SES as a mapping target for his group

Week 41

1. Rich Henthorn
 - a. Analyzing the event detection to explain differences between the bench and deployed processes
 - b. Identifying modifications necessary for Jan 2025 deployment
2. Irene Hu
 - a. Weekly meeting

Week 40

1. Rich Henthorn
 - a. Analysis of recent deployment
 - b. Some issues but we are able to explain and correct them

Week 39

1. Rich Henthorn
 - a. Analyzing deployment data
 - b.

Week 38

1. Irene Hu
 - a. Collected SES and trigger trap on 9/18

Week 33

1. Rich Henthorn
 - a. Code repo management

Week 29

1. Rich Henthorn
 - a. Communicated with SES while at MARS for SINKER

Week 27

1. Paul McGill
 - a. Edited 2025 proposal

Week 26

1. Rich Henthorn
 - a. SES and the McLane Trigger Trap deployed near MARS last week
 - b. Post deployment wrap
2. Irene Hu
 - a. Deployed last Thursday
3. Paul McGill
 - a. Deployed SES and Trigger Trap near MARS last Thu—all went well

Week 25

1. Rich Henthorn
 - a. Testing and prep for deployment on June 20
2. Irene Hu

- a. Helping with prep for June 20 deployment
- 3. Paul McGill
 - a. Preparing for Thu deployment

Week 24

- 1. Rich Henthorn
 - a. Troubleshoot acoustic modem comms
 - b. Finishing touches made to image processing and detection scripts
 - c. Tested instrument in test tank with trigger sediment trap target

Week 23

- 1. Paul McGill
 - a. Sealed battery sphere on SES and installed new cable on Trigger Trap

Week 22

- 1. Paul McGill
 - a. Rich and I got new acoustic modems covered with tape for scratch protection and mounted on both the SES and the Trigger Trap

Week 21

- 1. Rich Henthorn
 - a. Image processing and detection algorithms on SES target controller
 - b. Detection tests success
 - c. Trigger trap testing
- 2. Irene Hu
 - a. Weekly meeting
- 3. Paul McGill
 - a. Successfully tested modem triggering McLane controller on Trigger Trap
 - b. Finished drawing for modem-to-controller cable, sent to manufacturing

Week 20

- 1. Rich Henthorn
 - a. SES testing and development at Test Tank
 - b. McLane Trigger Trap
- 2. Paul McGill
 - a. Trying to get quotes for Impulse connectors required for acoustic modem to talk to McLane controller

Week 19

- 1. Rich Henthorn

- a. Testing controller system
 - b. Issues with full-auto system need to be addressed
- 2. Paul McGill
 - a. Inspected wiper on SES carousel and found it full of gritty sediment
 - b. Cleaned camera viewport and what we thought were scratches are gone.
Determined that other blemishes in image are caused by small bubbles that will disappear at depth.

Week 18

- 1. Rich Henthorn
 - a. Integrating image processing tools into SES behavior control
 - b. Installing controller back into housing
 - i. Done - Way to go McGill and Hu!
 - c. Testing SES with installed controller
- 2. Irene Hu
 - a. Documenting and helping Paul's efforts to install updated controller, debubble chamber, swap battery from MARS config to standalone config
- 3. Paul McGill
 - a. Got SES battery sphere reconfigured for autonomous operation
 - b. Reinstalled SES controller into its housing.
 - c. Troubleshooting optical clarity issues with SES camera system.

Week 17

- 1. Rich Henthorn
 - a. Integrating image analysis into mission control
 - b. Reinstalling controller chassis in SES housing
- 2. Irene Hu
 - a. Started fixing up SES with Paul and Rich; video documenting process
- 3. Paul McGill
 - a. Removed MARS interface hardware from SES
 - b. Working on converting SES battery sphere to autonomous operation

Week 16

- 1. Rich Henthorn
 - a. Repo housekeeping
 - b. Event detection code

Week 15

- 1. Rich Henthorn
 - a. Image processing implementation and testing on target

Week 14

1. Rich Henthorn
 - a. Progress made on the SES V3 controller
 - b. All communication pathways tested and verified
 - c. Successfully tested on the SES instrument frame with connectors
 - d. Replaced obsolete environmental sensor with TEMPerHUM
 - e. Controller ready to be reinstalled in housing

Week 13

1. Rich Henthorn
 - a. Testing V3 controller comms on the instrument
 - b. Developing onboard image processing and event detection

Week 12

1. Rich Henthorn
 - a. Testing SES missions on V3 controller
 - b. Adjusting hibernation timing

Week 11

1. Rich Henthorn
 - a. V3 controller board installed in SES camera frame
 - b. Testing V3 controller with SES functions
2. Irene Hu
 - a. Weekly meeting

Week 10

1. Rich Henthorn
 - a. V3 controller Linux kernel 8250_ts module integrated
 - b. All serial and ethernet ports setup for system testing
2. Paul McGill
 - a. Opened battery sphere to configure for autonomous deployment.

Week 9

1. Rich Henthorn
 - a. Installing serial board on new controller
 - b. Building and testing kernel updates for controller

Week 8

1. Rich Henthorn
 - a. Conducted timing tests with Python image processing scripts on target hardware

- b. Results indicate a reasonable amount of time to process an image during normal mission execution - conversion of scripts to C++ probably not necessary
- c. Got acquainted with new trigger-trap controller from McLane

Week 7

1. Rich Henthorn
 - a. Lab's Python processing scripts enabled on target
 - b. Tinkering with new version of lab's image analysis scripts
 - c. Redesign for use in deployed system
2. Paul McGill
 - a. Inspected new Gen3 controller just sent by McLane

Week 6

1. Rich Henthorn
 - a. Experiments with new controller (V3) system OS variants
 - b. Ported image processing Python script to V3
 - c. Good results but the performance is lacking - may need to convert to C++

Week 5

1. Rich Henthorn
 - a. Installing Python tools on the new SES controller
 - b. Installed the other image processing tools on the new controller
 - c. Removed the SES controller chassis from the housing

Week 4

1. Rich Henthorn
 - a. Port SES image processing software and scripts from server to V3 target
 - b. Investigate V3 serial kernel requirements

Week 3

1. Rich Henthorn
 - a. Project team meeting

Week 2

1. Rich Henthorn
 - a. CLAMShell programming on Benthos modems
 - b. Install serial card on new SES controller