

901101 - Seafloor Mapping

Week 29

1. Kent Headley
 - a. graphics update meeting w Tom and Dave
2. Mike McCann
 - a. Meeting with capstone students working on actual mesh generation for the 3D Tiles work
3. Mike Risi
 - a. Working on LASS MOB tasks for tomorrow's expedition

Week 28

1. Mike Risi
 - a. Testing timer server event time stamps on TCU.
 - b. Working on LASS MOB tasks for July 14th expedition

Week 27

1. Karen Salamy
 - a. Received a request from Jenny P. to make quick updates on SMDB.
 - b. Out of project time but plan to implement the quick fixes next week.

Week 26

1. Kent Headley
 - a. Chatted w Dave re code review, TRN, Axial etc.
2. Irene Hu
 - a. Made some cables for RBR turbidity sensor and communicated with instrument
3. Mike Risi
 - a. Set up TCU with Chad on Packard for July expedition
 - b. Started initial TCU network testings with help from IS
4. Karen Salamy
 - a. Received an update request from Jenny P. Will look into it despite being out of projet time.

Week 25

1. Kent Headley
 - a. code review for MB-System PR. Interesting case where a PR was generated largely by Claude AI, which did some questionable things.

2. Irene Hu
 - a. ORP board sent out for prototyping. Made a cable for turbidity sensor

Week 24

1. Irene Hu
 - a. Review of first layout of ORP board
2. Mike McCann
 - a. Gave some input for next year's proposal
 - b. Initial pull request for the mbmesh addition to MB-System has been merged into master
 - c. Independent Contractor Agreement is in place for getting mbmesh to work with X3DOM
3. Karen Salamy
 - a. Fixed .fnv file parser to always skip lines beginning with # (PR #308, Jun 2)

Week 23

1. Irene Hu
 - a. First draft of code for ORP board including ADC code adapted from MOSOS and translated to C++
2. Mike McCann
 - a. Fixed bug in SMDB's load script that caused some mission tracks to not be computed
 - b. Writing Independent Contractor Agreement for x3dom 3D Tiles work by Earthstruct, LLC

Week 22

1. Irene Hu
 - a. Finished ORP board rA, ready for layout
 - b. Look over commands for RBR turbidity sensor
2. Mike McCann
 - a. Meeting with new capstone team on next steps for mbmesh

Week 21

1. Irene Hu
 - a. Continue updating ORP board schematic following suggestions from design review
2. Mike McCann
 - a. Debugged a mission track not being computed from a set of .inf files
3. Mike Risi
 - a. Finished work with Chad on strobe tilter clean up

- b. Working with Doug C. on event time stamping with Microchip timeserver for July expedition

Week 20

1. Kent Headley
 - a. In a meeting with Tom and Dave last week, Tom presented some details of the MB-System Qt/VTk implementation
2. Irene Hu
 - a. Design review for ORP board and subsequent modifications to board
3. Mike McCann
 - a. Tested and approved for merging the [Pull Request](#) from the capstone team for mbmesh
 - b. Had first meeting with the summer semester capstone team

Week 19

1. Irene Hu
 - a. Procured command set manual for RBR turbidity sensor
 - b. Adding a power switch to circuit
2. Mike McCann
 - a. Debugging why recent R/V Sonne missions aren't loading into SMDB
3. Mike Risi
 - a. Debugging and software changes for LASS strobe-tilters
 - b. Working with Doug C. on event time stamping with Microchip timeserver for July expedition
 - c. Completed Ricketts interface for July, waiting for opportunity to test on ROV
 - d. Added octans_pub to lass-services for July expedition
4. Karen Salamy
 - a. Finished my work on this project for 2026 proposal work.

Week 18

1. Kent Headley
 - a. meet w/ Tom O re MB-Systems graphics architecture
2. Irene Hu
 - a. Updated ORP board for new choice of microprocessor. Using uP directly instead of a module requires more attention
 - b. Packaged materials for design review and wrote a readme
 - c. Ordered turbidity sensor
3. Mike McCann
 - a. Wrapping up capstone project with meeting on Saturday and MBARI tour on 8 May

Week 17

1. Irene Hu
 - a. Working draft of main ORP board completed
2. Mike McCann
 - a. Reloaded SMDB's production database mid-week to test Karen's new filtering additions
 - b. Setup hourly emails for M1 sound speed profile for current Packard mapping cruise
3. Mike Risi
 - a. MOB for LASS cruise series
 - b. Tested lass-control on LASS cruise series
 - c. Looking into event timing with Microchip s650 timeserver with Doug C.
 - d. Working on Ricketts interface for July expedition
4. Karen Salamy
 - a. Discussed updates on sinkerdev with Jenny Paduan. She has expressed that she is happy with the recent updates tested there.
 - b. Requested Mike M. to update the production server database and surveyTally.xlsx imports.
 - c. I have completed my time on SMDB for the year resolving all of the requested issues and outstanding PR's for the team.
 - d. Deployed final SMDB updates/merges to the production server (all is working well):
 - i. #299 Filter panel: reactive hover/click feedback on Filter and Clear buttons (#297)
 - ii. #302 Sidebar filter: Citation search fields in sidebar UI (Home & Missions pages) (#301)
 - iii. #301. feat: citation search in Missions sidebar and tally load (#301)
 - iv. #297 ux: Filter/Clear sidebar button hover & click (#297)

Week 16

1. Kent Headley
 - a. Fixed issue resulting in incorrect beam count in published MB1 records. The issue was a bookkeeping error, in which beams were not checked for flags and incorrectly included in the output count.
2. Irene Hu
 - a. Reviewed schematics and materials for ORP sensor to start mapping out requirements and boards
 - b. Discussion w/ Dave and Dorado crew about requirements and where sensor would live

- c. Began schematic for ORP main board
- 3. Mike McCann
 - a. Advising capstone students on reaching a good milestone to wrap up their project
 - b. Writing a new mbmesh Issue for the summer term capstone team
 - c. Writing abstract with Prof. Su from CSUMB for an Oceans poster submission

Week 15

- 1. Kent Headley
 - a. met w/ Tom O re MB-Systems graphics port to get an overview of the architecture (Qt, VTK, C++), and reviewing the existing codebase
 - b. Dave C gave me some pointers on using mbeditviz, and we discussed the graphics port and related build issues.
 - c. Posted significant update to TRN code; primarily a refactoring of the LCM front-end for using TRN in an ROV context, along with various bug fixes and some updates to initialization in TRN Client classes.
- 2. Mike Risi
 - a. Working with Chad to testing LASS system changes
 - b. Training for Both Jenny P. and Rich H. on refactored control system interface
- 3. Karen Salamy
 - a. Received a new request from Jenny P. for citation filtering on the SMDB. I am scoping out the amount of work and time to do this.

Week 14

- 1. Kent Headley
 - a. submitted pull request with a refactor of an LCM front end for TRN, along with bug fixes and some cleanup of TRN client initialization.
 - b. Reviewing Tom O's notes on the graphical update, and learning about the new architectural components, e.g. VTK and underlying graphics standards/implementations WebGPU, Metal, Vulkan, etc.
 - c. trying out some of the MB-System graphical tools using MiniROV scalable robotics (SR) sonar data. This will help refine the SR processing pipeline, as well as help me understand the MB-System graphical tools better.
- 2. Mike McCann
 - a. Met with capstone students – planning for an MBARI tour next month
- 3. Mike Risi
 - a. Working with Chad to test TCU chassis changes
 - b. Working on LASS configuration for April deployment
- 4. Karen Salamy
 - a. Pushed all recent updates and testing from smdb-dev (development server) into the Production server. All updates are now live on production.

- b. Bug Fixes — Merged into Development (smdb-dev) and Production (smdb) servers
 - i. Map Tooltip Fix (PR #296, merged Mar 27)
 - 1. Dates were showing as "Invalid Date" for non-standard slug formats — now uses start_date directly from GeoJSON feature properties with slug-parsing as a fallback
 - 2. route_file showing as "null" when not present in the database — fixed null handling
 - 3. Also addressed Copilot review suggestions: improved slug-parsing fallback logic and added escapeHtml() to prevent XSS from DB-backed fields in tooltip HTML

Week 13

- 1. Eric Martin
 - a. Helping coordinate sled fit test on the Packard
 - b. LASS rebuild and testing has begun
 - c. Firmware inplace test for the tcu controller
 - d. Kraken will be connecting to troubleshoot issues on the lidar.
 - e. Met with Vetana pilots for replumbing of swing arms for safety.
- 2. Mike McCann
 - a. smdb.shore.mbari.org OS Upgrade to Ubuntu 24 scheduled for Thursday morning
 - b. Advising capstone students – they're doing good work figuring out mbmesh and 3D Tiles
- 3. Karen Salamy
 - a. Finished testing and fixes of updated SMDB Dash code on smdb-dev and awaiting Mike M.'s review and hopeful push to production....

Week 12

- 1. Mike Risi
 - a. Testing new LASS control system on Loon
 - b. Working on configuration for upcoming cruise

Week 11

- 1. Kent Headley
 - a. Worked with Tom O to address build MB-System build issue (libproj v9.8 introduced a variable name that collides with termios baud macro B0)
 - b. Added updates to MB-System trndev to address build issues with LCM v1.5.2 and fix a couple of parsing bugs.
 - c. Have a large PR pending
- 2. Mike Risi

- a. Working on LASS control system refactoring
- 3. Karen Salamy
 - a. This week I took on some final major updates for the SMDB Dash for the team. Jenny P. indicated that various updates were needed and that I might be able to wrap up my time on the project for a while if these were completed. Needing to focus on other projects (SINKER and LRAUV), this was a logical step to complete now.

Week 10

- 1. Mike McCann
 - a. Advising capstone students on the mbmesh development
 - b. Chaired first meeting of Web 3D Consortium's Geospatial Working Group in many years
- 2. Karen Salamy
 - a. Spent time this week trying to wrap up the SMDB Dash. I am aware my time to give to this project will be limited throughout the rest of the year and wanted to address it now.

Week 9

- 1. Kent Headley
 - a. Testing code, syncing across repos, and submitting pull request for large-ish TRN change set, first to libtrnav, then MB-System. Changes primarily related to LCM front end for TRN on ROV, but also includes some updates to TerrainNav and client subclasses.
- 2. Eric Martin
 - a. Programming the micro for the TCU
 - b. Looking at G, not much room to get the sled going again
 - c.
- 3. Mike McCann
 - a. Met with Capstone students who are making good progress on [#1559](#)
 - b. Reviewed SMDB PR

Week 8

- 1. Mike McCann
 - a. Approved Pull Request for SMDB UI improvements
 - b. Reviewed 8 project proposals from each of the capstone students
 - c. Added --georigin and --html options to MB-System's mbgrd2gltf and testing in X3DOM
- 2. Mike Risi
 - a. Working on LASS control system refactoring

Week 7

1. Mike Risi
 - a. Working on LASS control system refactoring

Week 6

1. Eric Martin
 - a. Keeping on top of ongoing efforts.
2. Mike McCann
 - a. Learning MB-System tools (mbgrdviz, etc.) so that I can advise students working on [mbmesh](#)
 - b. Reviewing Pull Request for SMDB UI improvements
3. Mike Risi
 - a. Testing LASS simulation with existing LASS control system
 - b. Working on LASS control system refactoring
4. Karen Salamy
 - a. This week I worked on the Pull Request for the SMDB updates that Jenny has been asking for from the smdb-dev server to the production server (smdb). I am hopeful that Mike will be able to merge this PR with several review updates soon to the production server.
 - b. I also fixed a bug in the leaflet-measure application for the SMDB dash and pushed that as well to be merged into the production.
 - c. Today I am fine-tuning various bugs and map views for the Missions, Expeditions and Compilations pages under the Data Menu for the SMDB dash and hope to test and push those as well this week.

Week 5

1. Kent Headley
 - a. Refactoring ROV TRN (LCM front end for TRN) continues
 - b. Tested basic data flow using a portuguese ledge DVL data set from a LASS cruise. Fixed a few issues in refactored plug-in and processing code. TRN performance is not good in that data, but data flow is OK after resolving a number of issues.
 - c. Eliminated a lot of unnecessary code from TrnClient, and did some initialization cleanup in base classes TerrainNav and TerrainNavClient.
2. Irene Hu
 - a. Discussions with Erik on how to proceed. Started looking at circuit diagrams for existing MAPR
3. Eric Martin
 - a. Keeping track of upgrades to the power can
4. Mike McCann
 - a. Reviewing Pull Request for SMDB UI improvements

- b. Meeting with capstone teams on Friday – CSUMB is going all in on teaching AI tools

Week 4

1. Kent Headley
 - a. Refactoring LCM TRN front end (TRN for ROV); in progress
 - b. Checked in change set to libtrnav and MB-System affecting TRN particle filter noise floor and drift std deviation, per Steve Rock
2. Mike McCann
 - a. Opened [new "mbmesh" Issue](#) for MB-System for 2 capstone teams to work on this semester
 - b. Added [computation of area mapped](#) for each mission in SMDB
 - c. Reloaded SMDB to test new area results added to the web site and *_survey_tally.csv files

Week 3

1. Kent Headley
 - a. Finally resolved a bug that I chased for a couple of weeks. The issue manifested as segfaults caused when some (but not all) references to a particular object were invalid, as most of its data members appeared to be shifted 8 bytes in memory. Furthermore, when it occurred seems to be affected by when the first references were made.

The root cause turned out to be that the class in question was both compiled with application sources, and linked in a library. However, the compilation options - one of which included an extra class data member - were different for the library and the application code.

This created conflicting (and context-dependent) references for the object memory layout at run time, and hilarity ensued.

Shout out to Tom, Brent, and Dave for their fine debugging ideas.
 - b. Resuming the refactoring effort sidetracked by the deep bug-chasing rabbit hole.
2. Mike McCann
 - a. Considering 3DTiles 1.1 work in MB-System now that Cesium grant is in place for X3DOM
3. Mike Risi
 - a. Working on LASS simulation for control system refactoring

Week 2

1. Mike McCann
 - a. Wrapped up the [refine mbgrd2gltf C++ code Issue](#) that the CSUMB capstone team worked on
 - b. More cleanup of the mbgrd2gltf code following years of capstone team contributions