

Kent Headley

Week 53

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
- Out of Office
 - Nov 30, Jan 19 : personal
 - Dec 28-31 : vacation (tentative)

Week 52

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
- Out of Office
 - Nov 30, Jan 19 : personal
 - Dec 28-31 : vacation (tentative)

Week 51

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Status meeting
 - Discussing requirements for RH (relative humidity) sensor
- Overhead
 - Preparing for remote access
 - Computer maintenance
 - Workplace training
 - Scoping input for NSF docking proposal
 - Review prep
- Out of Office
 - Nov 30, Jan 19 : personal
 - Dec 28-31 : vacation (tentative)

Week 50

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology

- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Minor doc and firmware updates related to machine/machine and GUI
 - Looking at system resource requirements for proposed RH sensor
 - Refactored Python GUI to use model/view/controller pattern
 - Checking GUI windows compatibility
- Overhead
 - Meeting re Charlie Paull external proposal activity scoping meeting
 - Implementing Python GUI as learning project
 - Computer maintenance
 - Review prep
- Out of Office
 - Nov 30, Jan 19 : personal
 - Dec 28-31 : vacation (tentative)

Week 49

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Working on Python GUI to simplify some operational tasks and learn a bit about Python
- Overhead
 - Following Apple ARM and virtualization roadmap
 - Purchasing
 - Planning for potential site closure (and hoping it won't be necessary)
 - Starting prep for reviews
- Out of Office
 - Nov 30, Jan 19 : personal

Week 48

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Using Python and Tkinter to prototype a file transfer GUI for the controller and learn more about Python,
- Overhead
 - Misc admin, e.g. end of year purchasing, meetings, office/lab space discussion, review planning
- Out of Office
 - Nov 30, Jan 19 : personal

Week 47

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Developing C client library

- Adding/updating M2M (machine-machine) features
- Status meeting
- Released development snapshot and updated hardware
- Overhead
 - Misc admin
 - Reading on software licensing
- Out of Office
 - Nov 30, Dec 16 : personal

Week 46

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Working on reference client design and related machine-machine interface updates.
- Overhead - misc admin, distributed 2021 allocations
- Out of Office
 - Nov 30, Dec 16 : personal

Week 45

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Testing and fixing bugs.
 - Currently isolating an elusive bug that intermittently causes a sleep hiccup, delaying a scheduled event by ~10s. Long manifestation times make it slow to track.
- Overhead - misc admin, distributed 2021 allocations, flurry of purchasing and other activity
- Out of Office

Week 44

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Integrated cron-style scheduler for carbon waveglider payload
 - Working on doc
 - Handed off first hardware release to Jacki, w. Draft documentation
- Overhead - misc admin
- Out of Office

Week 43

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander

- 901803 - Carbon Wave Glider Development
- Overhead - misc admin
- Out of Office

Week 42

- 600034 - Control Tech - Rock
 - Minor code review for Rich
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - coding/testing cron-like scheduler implementation
 - Doc edits
- Overhead - misc admin
- Out of Office

Week 41

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Refactored carbon waveglider internals and user interface
 - Now using table-driven composition of measurements and IO sequences (uses abundant program memory instead of RAM, and simplifies user interface parsing routines.
 - Simpler, more intuitive user interface
 - Fixing bugs, some old, some new
 - Making updates for new manifold (now easier with refactored code)
- Overhead - misc admin
- Out of Office

Week 40

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
 - Minor post-cruise code maintenance
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Refactored macro code using table-based structures that better support manifold versioning and are stored in flash.
 - Updated macros to support latest manifold revision
 - Got confirmation/validation from Microchip on the issue I found in their bootloader library. They plan to fix it in an upcoming release
 - Found and fixed a couple of critical issues in the firmware (remnants of earlier refactoring in March) during testing
 - Software testing and updating doc
- Overhead - misc admin
- Out of Office

Week 39

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
 - Finished Axial cruise with some exciting results. In addition to getting good science map coverage overall, Sentry was able to steer away from its holding-pattern trackline, then close the loop using Terrain Relative Navigation to bring it back onto the trackline using the TRN offsets.
 - Working on post-cruise software maintenance
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
 - Rick Starr, Katy (MLML) used the test tank to calibrate BOSS for an upcoming cruise. Stopped by to help with a couple of software questions.
- 901803 - Carbon Wave Glider Development
 - Am about 5 days deep in chasing a bootloader bug. I may have found the root cause in some component code distributed by Microchip.
- Overhead
 - Clean up on allocations
 - Misc admin
- Out of Office

Week 38

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
- Out of Office

Week 37

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
 - Been helping with TRN at Axial. We had two Sentry dives before some vehicle issues and weather delayed ops Sun-Tue. Meanwhile, Dave did a lot of testing and analysis of the recent TRN data, and has come up with some modifications that look promising. The changes mostly consist of adjusting parameters that decide when to reset the TRN algorithm.
 - It's likely we'll have another Sentry dive Wed, and we'll be able to test the new settings.
 - I'm working with Rich, Rob and Steve to implement another change that enables us to specify the TRN algorithm search space during a reset, a complement to a change Dave already implemented to specify the center of the search space. I've also been adding/adjusting metrics and plotting code that generate performance plots.
 - Interesting weather note: the folks on the ship reported haze/smoke smell from all the fires
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Participated in (part of) a telecon with PMEL to discuss their testing and analysis of different gas analyzers and measurement methods and processing algorithms
 - Unfortunate that Andrea is leaving; wish her success and hope to be able to keep the instrument project and collaboration going
- Overhead
 - misc admin, proposal process (wrapping up phase 2 resource balancing)

- Helped Brett H with MB-System; set up test server to work out the technical issues, may help set up more permanent installation
- Out of Office

Week 36

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
 - Providing remote software support for Axial Sentry cruise with Dave and Hans.
 - The ship is transiting and will arrive on site this afternoon
 - We've been busy with software updates and configuration/network checks
 - First Sentry dive Wed 0600-1800, an engineering dive, will collect some TRN data if all goes to plan, though TRN would not be connected to the Sentry control system
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Working on hardware serialization scheme
 - Team decided to put a small EEPROM part, which will make it easier
 - Learned of a linker issue that may have been causing unpredictable behavior when accessing variables stored in flash. Updated tool chain may help
 - MPLAB (microchip IDE) became increasingly flaky, reinstalled. When their tools works they're good, but when they don't, they're a real time sink.
- Overhead - misc admin, proposal process
- Out of Office

Week 35

- 600034 - Control Tech - Rock
 - Phase 2 proposal discussion
- 901101 - Ocean Imaging
 - Due to the fires interfering with quarantine, Dave will be unable to participate in the UNOLS Axial cruise. There is still a chance that we will be able to participate remotely, at least enough to run TRN on Sentry and collect some performance data. Even if it isn't possible to interface with the Sentry control system. Hans and Dave have prepared Sentry data-pod hardware/drives that ship this week to meet the WHOI team in Oregon. I have been finishing TRN client code for Sentry, updating and documenting configuration/operation procedures, and doing code review on MB-System code updates that Dave has been working on (renaming variables, file process error handling, new TRN reinit triggers).
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Working on a reliable scheme for serializing hardware
 - Board bringup
- Overhead - misc admin, proposal process
- Out of Office

Week 34

- 600034 - Control Tech - Rock
 - Telecon with Steve to discuss phase 2 proposal
- 901101 - Ocean Imaging
 - Wrote some cmake relocatable packaging code to help with Sentry TRN integration
 - CMake has a bit of a learning curve, but it's OK to use; less arcane than Autotools and gnu make. Don't know how it scales to large projects and across platforms, but for the small projects I'm working on, it's

quick to get up and running. The packaging stuff took a couple of days to make work; there is lots of doc, but concrete examples and best practices/patterns are hard to find.

- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Continuing board bringup
 - Wrote board bringup doc
 - Reformatted controller platform help file (markdown)
 - Used pandoc and a google markdown extension to style and generate doc PDF
- Overhead
 - Misc admin and meetings
- Out of Office

Week 33

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
 - Tested release of a Terrain Relative Nav (TRN) client component that we hope to integrate onto Sentry for the upcoming Axial volcano mapping expedition. The TRN client enables the Sentry control system to receive real-time updates from MB-System with an embedded MBARI/Stanford TRN engine instance. MB-System provides filtered multibeam bathymetry and navigation. The TRN engine uses the filtered data to locate the vehicle on map. An estimate of location in the form of an offset is provided that may be used by a control system to direct the vehicle.
 - WHOI is working to integrate the TRN client with their control system using ROS. It's not 100% certain it'll happen on this cruise, but the plan is to run with a mission with TRN enabled, which may optionally be used to close the control system navigation loop.
 - The scientific context is that MBARI and WHOI are performing annual surveys of the Axial volcano to make high resolution maps of changes to this (large) geologically active region. TRN and MB-System enable the surveys to be conducted without installing navigation infrastructure. Recent TRN research by Steve Rock's PhD students is focused on algorithms for dealing with terrain that has changed since the map was made.
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Bringing up a DIC controller board to share with PMEL
 - Shared firmware repo with PMEL collaborators
- Overhead
 - Proposals
 - Misc admin
- Out of Office

Week 32

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
- Out of Office

Week 31

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
- Out of Office

Week 30

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
- Out of Office

Week 29

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
 - Working on new features and integration package for TRN on Sentry
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Team meeting re status and PMEL
- Overhead
 - Proposal scoping, updating labor spreadsheet
 - Proposal and engineering meetings
- Out of Office

Week 28

- 600034 - Control Tech - Rock
 - Working w/ team to provide 2011 Axial data sets
 - Wrote data converter (MB88 bathymetry/navigation to CSV)
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
 - Attending Embedded Linux Conference (virtually)
 - Working on proposals and budget
- Out of Office

Week 26

- 600034 - Control Tech - Rock
 - Discussion of TRN updates w/ Rich
- 901101 - Ocean Imaging

- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Testing/debugging feature for accessing text file regions (incl time search)
 - Working on scheme for external logging of ancillary licor data in lab
 - Drafting client software design
- Overhead
 - Misc admin
- Out of Office

Week 25

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Completed boot loader last week
 - Setting up remote access
 - Working on new feature for accessing selected sections from text files
 - Working on cwg client functions
- Overhead
 - Misc admin, meetings, input re reorg
- Out of Office

Week 24

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
- Out of Office

Week 23

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Working on bootloader firmware
 - Slow trickle of data workflow discussions
 - Abstract text
- Overhead
 - Reopening planning
 - 2021 Planning
- Out of Office

Week 22

- 600034 - Control Tech - Rock

- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
- Out of Office

Week 21

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
- Out of Office

Week 20

- 600034 - Control Tech - Rock
 - Fixed a number of warnings from static analyzer/compiler
 - Drafted architecture concept notes/diagrams
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Wrote matlab binary data loader (beta)
- Overhead
 - Misc admin
- Out of Office

Week 19

- 600034 - Control Tech - Rock
 - Working with Rich on concepts for TRN interface architecture
- 901101 - Ocean Imaging
 - Testing mbtrnpp (MB system TRN app) configuration file implementation, code review
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
 - Misc admin, meetings
 - LRAUV backseat driver architecture discussions
- Out of Office

Week 18

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead

- Out of Office
 - errands for at-risk family/neighbors

Week 17

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
- Out of Office
 - errands for at-risk family/neighbors

Week 16

- 600034 - Control Tech - Rock
 - Working with Rich on some TRN code cleanup
 - Writing proposed plan for managing new TRN repo
- 901101 - Ocean Imaging
 - Syncing trndev branch with updates from master
 - Addressing (cosmetic/style) issues in TRN code
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
 - meetings
- Out of Office
 - errands for at-risk family/neighbors

Week 15

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
- Out of Office
 - errands for at-risk family/neighbors

Week 14

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
- Out of Office
 - errands for at-risk family/neighbors

Week 13

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
 - Working w/ Dave on Terrain-relative nav (TRN) merge
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Finished port of file utils to cross platform wrapper API
 - Starting studying Matlab log reader
- Overhead
 - Engr/Group-lead Telecons, misc admin
- Out of Office
 - errands for at-risk family/neighbors

Week 12

- 600034 - Control Tech - Rock
 - Syncing updates among libtrnav and MB-System git repos
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Refactoring some log utility code, splitting out cross-platform code and adding a file IO wrapper API. This lets me share source code for data log tools between PIC and desktop platforms. Writing desktop versions of the on-board log utils (lcat, linfo, lless) around the refactored code - much simpler.
 - If possible, I'll meet w/ Jacki remotely to talk about a Matlab log reader/loader. If not, I'll take a crack at it.
- Overhead
 - Misc Admin, group comms
- Out of Office

Week 11

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
- Out of Office

Week 10

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Test, debug and documentation for changes to sampling and logging
- Overhead
 - Misc admin
- Out of Office

Week 9

- 600034 - Control Tech - Rock
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
- Overhead
- Out of Office

Week 8

- 600034 - Control Tech - Rock
 - Distributed code/doc package for TRN (terrain relative nav) plot generation
 - Made updates to TRN configuration tool (simpler, cleaner preset selection)
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Working on possible refactor of sampling and logging scheme to improve resource footprint and simplify post-processing
- Overhead
 - Misc admin
- Out of Office

Week 7

- 600034 - Control Tech - Rock
 - Cruise 06feb20 was successful; the vehicle made ~8 obstacle avoidance test runs, and terrain-relative nav (TRN) worked well. The changes in TRN we tested were successful in addressing the sawtooth data artifact from November. Still chasing down an anomaly in one dive.
 - Organized TRN log plot scripts into proper command line app
 - Re-organized some of the web-based command line builder tool and added responsive buttons
 - Updated mbtrnpp app to use single session ID so that log files share common name and made some adjustments to TRN log naming and directories
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
- 901803 - Carbon Wave Glider Development
 - Working on data processing plan
- Overhead
- Out of Office

Week 6

- 600034 - Control Tech - Rock
 - Preparing for dive day this Thu: wrote web-based configuration tool for terrain relative nav (TRN) application, which has a lot of options. Worked with Rob and Hans on software testing.
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
 - Distributed a documentation update
- 901803 - Carbon Wave Glider Development

- Starting to work on data handling plan
- Overhead
 - Annual review wrap up
 - Misc admin
- Out of Office

Week 5

- 600034 - Control Tech - Rock
 - Code and testing for cruise next week (06feb20). We are using a pub/sub mechanism for Terrain Relative Nav (TRN) updates to the main vehicle computer as part of a solution to address some data artifacts in the November dives. We will be doing some obstacle avoidance tests and refining code we plan to run on the WHOI Sentry vehicle this summer at Axial seamount.
- 901101 - Ocean Imaging
- 901220 - Midwater Ecology
- 901704.99 - 8 Camera Obs Lander
 - MLML will be here this week to calibrate the camera and take a look at the virtualized software environment I set up in December
- 901803 - Carbon Wave Glider Development
- Overhead
 - Annual review meetings
 - External review practice session
- Out of Office