

Paul McGill Sorted By Project

300059 - DMO Divisional Support - David Packard

- Helped Bryan T-S with current sensor mystery in Doc Rickett's power system. (Week 19)

300070 - DMO Divisional Support - Ventana

- Worked with Jose on Ground Fault Channel Isolator board, found a bug, wrote a software patch, have yet to test. (Week 2)
- Made progress on ground fault channel isolator with Jose. (Week 3)
- Have revived the ground fault channel isolator project, doing some circuit analysis (Week 29)
- Continuing circuit analysis for ground-fault detection system to account for errors (Week 31)
- Finally finished calculations to account for weird behavior of Ventana's new ground-fault scanner. Hopefully we can get it working during the upcoming shore period. (Week 32)
- Worked with DJ to get new GF isolator card integrated onto Ventana. (Week 34)
- Helped DJ with a 120/240 VAC transformer issue for the vehicle. (Week 34)
- Reorganized ground fault system docs and am helping Ethan B. to understand the new system (Week 38)
- Helped DJ troubleshoot ground-fault issues on Ventana (Week 40)
- Developed a sampling scheme for ground-fault readings to be implemented by Greenseas (Week 40)
- Did some data modeling in Mathematica to verify that new ground-fault sampling scheme will work (Week 41)
- Met with Greensea's programmer to explain Ventana ground fault sampling protocol (Week 44)

300079 - DMO Divisional Support - Rachel Carson

701147 - MARS O&M IV

- Troubleshooting ground-fault issues on two instruments (Week 21)
- Worked with Kevin G to get access to MARS data in SSDS (Week 21)
- Met with Knute, Danielle, Andy, and Kelly to prepare for Zoom meeting with Tim McGinnis at UW tomorrow about their funding supplement request. (Week 24)
- Met with MBARI management to discuss plan for financing UW cost overrun (Week 30)
- Worked on budget with Knute to get more money to UW subaward. (Week 32)
- Working with Knute to get UW subaward refunded to make up for shortfall. (Week 33)
- Called Kandy Binkley at NSF to keep her in the loop. (Week 33)
- Made corrections and additions to MARS MVPS requirements doc. (Week 34)
- Reviewed all system design docs sent to us by UW (Week 34)
- Reviewed all MARS LVPS schematics to look for errors (Week 37)
- Held electrical design review with UW so they can get boards fabbed (Week 37)
- Working on requirements docs for MARS LVPS (Week 38)
- Working on NSF budget request for UW's subcontract (Week 38)
- Tested serial port splitter so we have two ways to control each module in system. There are problems with it which I'm trying to solve. (Week 39)
- Arranging for review of UW's design for LVPS chassis (Week 39)
- Had two Zoom meetings with UW team to settle technical issues (Week 40)
- Finally got serial splitter to work, but we may go with relay switching instead (Week 40)
- Did extensive search for 4PDT relays for serial splitter board (Week 41)
- Did calculations to modify HV power supply controls for reduced voltage (Week 42)
- Working on budget reallocation to fund UW's supplement request (Week 42)

- Worked on serial splitter design (Week 42)
- Supported deployment of MARS mini-node on Tue until the dive was aborted (Week 43)
- Participated (via telepresence) in Thu's dive to recover main node (Week 44)
- Trying to figure out how to set up Meinberg PTP timing hardware (Week 44)
- Held another Zoom meeting with ME at UW to work out details of internal chassis design (Week 45)
- Trying to figure out how to mount Meinberg N2X box with tabs instead of DIN rail (Week 45)
- Spent some time playing with Meinberg M600 PTP clock to understand its operation (Week 45)
- Had another meeting with UW ME to work on layout of internal chassis (Week 46)
- Troubleshooting ground-fault issues on Mini Node (Week 46)
- Still working with Duane T on serial port splitter (Week 46)
- Had remote meeting with UW to discuss new PCB bring-up and mechanical design (Week 49)
- Finalized design for Serial Splitter board. Fab is next. (Week 50)

901618 - Pelagic-Benthic Coupling

- Working on repairing laser for Smith Macro Camera that was damaged while being put in storage (Week 1)
- Tested damaged laser on Smith Macro Camera and ordered parts to repair. (Week 2)
- Working on paper ideas for ASLO Spain in June. (Week 3)
- Replaced broken parts on Smith Macro Camera laser. (Week 3)
- Working on Rover fluorescence data to present at ASLO. (Week 5)
- Finally figured out why optodes aren't working on Rover. Parts on order. (Week 6)
- Continuing analysis of Rover fluorescence data for ASLO conference. (Week 6)
- Disassembled Camera Tripods for storage, removed used lithium batts. (Week 9)
- Submitted abstract for ASLO Mallorca. (Week 9)
- Continuing to process Rover fluorescence data. (Week 9)
- Tracked down missing syntactic float packs which are probably in Castroville. (Week 9)
- Did Rover lab cleanup with Alana and Rich H. Still more to deal with but much progress has been made. (Week 10)
- Analyzing Benthic Rover fluorescence images (Week 11)
- Collected info on SES for meeting with McLane about possible tech transfer (Week 11)
- Trying to reassemble SES but we're running into lots of problems. Working through them one by one. (Week 12)
- Went to Castroville and found missing syntactic floats, removed precious nitrile SS hardware for safe keeping. (Week 12)
- Still trying to fix the leaking SES fluorometer. Many things tried, non successful. We're considering more drastic measures. (Week 13)
- Solved leaking problem with SES fluorometer. (Week 14)
- Worked with Irene H. to reassemble camera and fluorometer onto SES and purge the air from their comp hoses. (Week 14)
- Finished repairing SES after discovering weird power supply issues. (Week 16)
- Working on Rover fluorometer data for ASLO meeting. (Week 18)
- Processed all available Rover fluorescence images. (Week 20)
- Completed 90% of my poster for ASLO Mallorca. (Week 20)
- Finished analyzing Rover fluorescence data (Week 21)
- Finished poster for ASLO (Week 21)
- Just returned from ASLO in Mallorca, Spain. Poster presentation went fine. (Week 24)
- Made Rover poster for Open House, dealing with Open House logistics (Week 29)

901700 - Acoustical Ocean Ecology

- Built up a Simrad Sonar Faraday cage for Brett to see if can fit it in LRAUV. (Week 6)
- Reading reviewer's comments on Kelly's acoustics paper. (Week 13)

- Wrote code for new sonar transducer attitude sensor but am having trouble getting I2C comms working. (Week 18)
- Worked on xducer attitude sensor code. Stuck on vexing problem. (Week 19)
- Helped Brett with building a Faraday shield for LRAUV Simrad sonar. (Week 20)
- Helping Brett with Faraday shield for latest Simrad sonar payload build. (Week 32)
- Still working on AOS PIC24 code. Was successful in talking to BMA456 sensor with a Bus Pirate, but PIC code isn't working yet. (Week 34)
- Spent 3 days troubleshooting code for new Bosch attitude sensor for Simrad transducer position, and finally got it to work (Week 38)
- Working on PCB for new AOS PIC24 sensor (Week 39)
- Now that attitude sensor is working, trying to figure out how to store offset values in EEPROM or flash (Week 40)
- Finished PCB design for new BMA456 sensor for AOS PIC24 (Week 41)
- Tweaking details on AOS PIC24 upgrade (Week 43)
- Achieved partial success in storing AOS PIC24 constants to EEPROM, needs more work (Week 44)
- Worked on PCB design for new AOS sensor but board house is rejecting my submission (Week 45)
- Met with Kelly and Chad about ground faults on MARS Echosounder and how to move forward (Week 46)
- Fixed problems with AOS PIC24 sensor PCB. Will submit for fab in Jan. (Week 50)

901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach

- Helping with assembly and checkout of new Trinity UAV (Week 5)
- Helped with Trinity flight last Thu at ESB. (Week 14)
- Trying to improve images taken by hyperspectral camera. (Week 14)
- Planning for Davenport flight this Friday. (Week 25)
- Searched the lab for parts for UAV ground station antenna pointer with Bryan, and discussed how to get system up and running. (Week 28)
- Investigating how to test ground station antenna servos without using Pixhawk (Week 29)
- Planning Friday's flight at Terrace Point with Tom O. (Week 29)
- Spent all day at Terrace Point in Santa Cruz on Fri waiting for fog to clear and winds to calm. Finally flew UAV in the evening and recorded 414 survey images. (Week 30)
- Prepared for two deployments at Terrace Point but got fogged out both times. (Week 32)
- Helped Duane E write abstract for OSM 2024 (Week 37)
- Working on antenna-aiming servo platform to improve connectivity with UAV during flights (Week 41)
- Worked on antenna pointing system with Bryan but we're having problems with the radio link (Week 42)
- Still struggling with radio connection between antenna aiming system and ground control station (Week 44)
- Started some photogrammetry analysis for Tom O (Week 46)
- Finished calculations for Tom O to determine geographic coordinates of corners in aerial images (Week 49)
- Attended a training session for our AI processing of aerial images (Week 49)
- Attended another training session for machine learning tools to process UAV images. (Week 50)

901904 - Deep-Sea Coral Community Observatory

- Did calculations for size of field of view for Coral Mega Camera deployment on Sur Ridge (Week 1)
- Attended kickoff meeting for the year where we rearranged some deployment dates. (Week 9)
- Edited Jim B's octopus garden paper. (Week 13)
- Attended meeting to plan recovery of cameras from Sur Ridge. (Week 19)
- Preparing Coral Macro Camera for deployment next Tuesday. Did tank testing today and re-aimed lasers. (Week 25)
- Helped Alana write abstract for OSM 2024 (Week 37)
- Did some macro camera pixel size calculations for Steve L (Week 41)
- Read through review materials for upcoming (Week 42)

- Looked up lens specs for Aaron so we can design focus motor drive (Week 44)
- Attended review of Multi-spectral Camera system (Week 44)
- Worked on design for rescue float pack for Coral Mega Camera so it can be retrieved on Fri (Week 45)
- Starting analysis of images from recently recovered Mega Coral Cam (Week 46)
- Tracking down beacons for deployments next year (Week 49)

902304 - Piscivore Cam

- Met with Jared about plans for this year, trying to set date for kickoff meeting once we know exactly who's on project this year. (Week 6)
- Wrote code for TinyZero microcontroller to control Piscavore camera. (Week 9)
- Bench-tested controller and camera with George and adjusted time constants to make things work. (Week 9)
- Tested new code with George to power up camera and start recording—it works. (Week 10)
- Built new camera controller board to interface with Pololu power supply for testing next week. (Week 10)
- Making good progress on Arduino code for camera controller (Week 11)
- Continuing to work on camera controller code. Went over functional req's with Jared F. (Week 12)
- Did more power testing of controller and tried to run clock accuracy test but battery died. (Week 12)
- Did clock accuracy testing of controller boards. (Week 13)
- Wrote the deployment section of the controller code and it is being tested now. (Week 13)
- Wrote last part of camera controller code, in testing now. (Week 14)
- Set up a run-time test with George S. to see how long main battery would last. (Week 14)
- Ran a full-up test over the weekend to check hardware and software. (Week 16)
- Prepared PCam for deployment and it went out on an LRAUV on Tue. (Week 16)
- Checked condition of PCam v2.0 from its first deployment—it worked! Battery voltages were about where they should be. (Week 17)
- Reviewed a bunch of video from PCam to look for interesting events. (Week 17)
- Prepped and deployed camera for its second deployment, coming back on Thu. (Week 18)
- Designing and building new controller I/O board to better control GoFish camera. (Week 19)
- Designed and built improved Piscavore Camera controller I/O board. Tested it with George S. and it works. (Week 20)
- Preparing latest camera for deployment next Tue. (Week 20)
- Attempted to run v2.1 camera on bench but had multiple problems (Week 21)
- Configured and deployed v2.0 camera for its third LRAUV deployment on Tue (Week 21)
- Preparing camera for deployment next Monday. (Week 25)
- Fixing minor interface bugs in camera control code. (Week 25)
- Made major progress on next revision of camera controller code. (Week 29)
- Reviewed video from most recent deployment. We got good stuff! (Week 29)
- Released version 1.2.0 of camera controller code with user interface improvements (Week 30)
- Discovered another bug in the latest code release but I fixed it. (Week 31)
- Getting another camera controller I/O board built (Week 31)
- Preparing for two-camera deployment next Tue (Week 31)
- Found and fixed more bugs in v1.2.0 of camera controller code, ran a multi-day test, and loaded code onto both cameras for this week's two-camera deployment on Pontus. (Week 32)
- Troubleshooting issue with last deployment where one of the cameras stopped recording part way through each day. We'll build a new camera module in case the old one has an intermittent failure. (Week 33)
- Got another camera controller I/O board built to replace one of our cameras that was stopping recordings early. (Week 34)
- Prepping for this week's deployment of two cameras on LRAUV (Week 39)
- Helped Jared with prep for this week's deployment (Week 42)
- Did capacity test on controller Li-ion cell to see why it died (Week 42)
- Had meeting to discuss this year's progress and plans for next year (Week 45)
- Choosing components for a Raspberry Pi camera system for testing (Week 46)

- Ordered multiple cameras and Raspberry Pi boards for evaluation (Week 50)
- Attended brainstorming session on what hardware might improve Piscivore image quality (Week 50)

902305 - Event Detection using the Sedimentation Event Sensor

- Worked with Rich H. to find reason for fail on previous deployment, found a bad Hall sensor cable and noted other anomalies that I'm investigating further. (Week 2)
- Attended project kickoff meeting. (Week 3)
- Working out wiring for new sediment trap motor and repairing wiring of Hall switch. (Week 3)
- Reprocessing old deployment data to see trends in sedimentation rates and to review quality of data. (Week 3)
- Got SES working again with old motor, new cable on order for new motor. (Week 5)
- Finished processing SES data from past deployments to identify significant sedimentation events. (Week 5)
- Found silicone oil to refill sediment trap motor. (Week 6)
- Disassembled, cleaned, inspected, and replaced o-rings on SES camera and fluorometer with Irene H's help. (Week 10)
- Opened SES battery sphere after wasting hours of Paul C's time removing a galled titanium screw. (Week 10)
- Preparing for meeting with McLane on Thu (Week 12)
- Finished closing all SES housings. (Week 16)
- Ran SES in Test Tank on MARS WNS all day Wed; it passed all tests. (Week 16)
- Fixed bad connector on Benthos modem. It now works, so I put it back on the SES frame. (Week 17)
- Retrieved six float blocks from Castroville. (Week 17)
- Working with Mtechs to get SES configured for May 8 deployment. (Week 17)
- Prepping SES for Monday's deployment. (Week 18)
- Deployed the SES on MARS on Monday. It works! (Week 19)
- Wrote code to process SES macro images. (Week 20)
- Continuing to monitor SES data as it comes in from MARS (Week 21)
- Continuing to monitor data from SES. So far, so good. (Week 25)
- Working with McLane engineer to determine method for remotely triggering sediment traps (Week 31)
- Reviewed documentation for newest McLane sediment trap controller to see how we might control it with our own remote trigger. (Week 32)
- Finally resurrected Snappy TNG after tracking down an obscure error with the Timer1 asynchronous mode. Also corrected bug in Microchip's MCC-generated code. (Week 33)
- Had a Zoom call with engineers at McLane to discuss their Gen3 sediment trap controller. (Week 34)
- Helped Crissy write abstract for OSM 2024 (Week 37)
- Went to storage at end of island to look at our Sediment Traps and pick the best one to modify for remote triggering (Week 38)
- Got quote from McLane for new Gen3 Sed Trap controller and NRE for modification for remote triggering (Week 38)
- Negotiated reasonable cost for NRE to modify Gen3 controller for remote triggering (Week 39)
- Participated in recovery of SES on Tue via telepresence (Week 43)
- Finally got PO submitted for Gen3 controller (Week 44)
- Shipped controller end cap and stepper motor back to McLane for upgrade to Gen3 (Week 45)
- Had a meeting with software team at McLane to work out details of NRE programming (Week 46)
- Helping Crissy with power issues on the ISSUS camera (Week 46)
- Analyzed fluorescence data from MARS deployment (Week 49)
- Processed more fluorometer data (Week 50)
- Wrote documentation for fluorometer data file format to avoid confusion about recorded values (Week 50)

902306 - SINKER

- Attended project kickoff meeting. (Week 3)
- Trying to make sense of the power budget spreadsheet. (Week 17)

- Helped a bit with tank testing of instrument in preparation for next week's dive (Week 49)

Out of Office

- Out sick Thu and Tue
- Medical appt on Wed morning
- Took day of vacation on Tue to recover from international travel.
- Took sick day on Tue to take wife to medical appointment.
- Returned from vacation on Tue
- Out on sick leave since Mon caring for wife after surgery
- On vacation until Sep 6
- Medical appointment Wed morning
- Took a sick day on Wed
- Was on vacation Thu and Mon

Overhead

- Working on materials for annual review (Week 1)
- Replaced batteries in UPS for (non-IS supported) DeepDark computer, tested okay. (Week 2)
- Had annual review. (Week 5)
- Helping to get new EE George Stern spun up. (Week 5)
- Helped George Stern get settled as Alana was wfh after COVID exposure. (Week 6)
- Helping Greg V. with Test Tank ground-fault detector system so Doc Ricketts can go into tank. (Week 10)
- Reviewed job posting for MiniROV hire (Week 11)
- Training: attended online seminar by Keysight on signal integrity for PCBs (Week 11)
- Still helping Facilities with the Test Tank ground system. Did some testing today and I think we know what to do next. (Week 13)
- Interviewed candidate for Ventana pilot position. (Week 14)
- Went over Chad K's design for LASS controller and attended design review. (Week 16)
- Upgraded the OS on my desktop computer. (Week 17)
- Interviewed Etech candidate Devin Kasproicz. (Week 17)
- Lots of paperwork to do for NSF to make me the MARS PI. (Week 18)
- Attended proposal workshop. (Week 18)
- Attended Engineering meeting (Week 19)
- Attended Aaron Micallef's Geo-Sense proposal meeting (Week 19)
- Setting up a ground-fault monitor for Erich R to use (Week 21)
- Did yearly Hazard Communications training. (Week 24)
- Watched Director's Dialog from Tue. (Week 24)
- Worked on proposals most of the day Tue (Week 28)
- Attended MARS team meeting to solve budget problems (Week 31)
- Helping to troubleshoot power supply overheating issue on MARS mini-node (Week 31)
- Working on reviving Snappy upgrade to get Irene up to speed on project. I'm currently fighting with the Microchip XC8 compiler, which is throwing errors on code generated by MPLAB. (Week 32)
- Helping Jason Adelaars at CeNCOOS design a ground-fault detector for a mooring buoy. (Week 34)
- Met with Andrew M and others to figure out how to deploy 1 km of fiber optic cable for Geo Sense. (Week 34)
- Helped retire old equipment in Castroville storage (Week 37)
- Helping Drew B. find a housing for Rickett's new camera system (Week 38)
- Reading resumes and interviewing candidates for electronics assembler position (Week 39)
- Helped Todd figure out why new forum projector is shutting down, more testing needed (Week 42)
- Researched OBX-90 seismometers to prepare for Thu's planning meeting for Charlie Paull's canyon experiment next year (Week 42)
- Participated in international Zoom meeting to plan for Charlie P's 2024 SeismoSands project (Week 43)

- Did some research into leveling mechanism for OBX-90 seismometer (Week 43)
- Had another meeting with Jason A about electrical design of his mooring (Week 44)
- Attended marathon meeting to choose best candidate for EE Tech hire (Week 45)
- Continuing to help Jason A with his mooring design (Week 49)
- Attended international telecon for Charlie P's Canyon Seismic experiment (Week 49)
- Attended meetings and did research for Aaron M's Geo Sense and CSEM projects (Week 49)
- Continuing to help Jason A with his mooring's ground-fault circuit design (Week 50)