

DSES Technical and Operations Meeting 10-08-2018

Location: IHop restaurant, Constitution Street, Colorado Springs

Attendance: Gary Agranat, Ed Corn, Floyd Glick, Dave Molter, Bob Haggart, Rich Russel, Bill Miller and new interested parties Caio Motta, and Jon Richardson

Attending Remotely via TeamViewer: Jay Wilson, Jamie Riggs, Tony Bigbee, and Skip Macaulay

Last Trips: The work trip of Sept 15 was documented and posted. Bill, Bob Haggart, and Ed Johnson went on Sept 23rd, Ed and Steve went done on the 27th. Dave Molter worked on the retaining wall on Sept. 30th.

Next Trips to site: The regularly scheduled 3rd Saturday of the month, Saturday October 20th, Observation planned on the 19th Friday night before.

Meeting Schedule:

DSES Technical and Operations Meeting; 2nd Monday of every month

DSES Science Meeting ; 4th Monday of every month

Accuracy: As always if I have misstated, omitted or misrepresented anyone please feel free to correct me WKM.

Agenda and Notes for this meeting

1. Gary Agranat discussed and passed around recent QSL Card envelopes. Gary will provide the QSL cards and Myron will send them to the members list.
2. Steve Plock is out of town camping in New Mexico for this meeting.
3. System 1 update to include tracking: Dave Molter has not had time to work on system 1 since the last session. Still need to fix errors in elevation serial encoder and add tracking drive electronics. Glenn has made some progress on the SW design but was not available for comment.
4. System 2 update to include tracking: Bill has built a test cable for the spare optical encoder and found nothing wrong with the encoder previously thought to have a bad bit. Ed will use the encoder to help debug the SW on the bench. Bill and Ed Johnson worked on the system 2 on the last trip of Sept 23rd. During this trip we were able to fix several control issues in the code, but the software still had timing issues. Ed took the complete system 2 back to his lab in Limon and continued to work on it. He discovered that the new

code runs very well inside the development environment or emulator but when compiled and installed as an executable there are conflicts in timing of the threads and it slows down unacceptably. Ed has isolated the issue to the way that windows updates the screen graphics thread. The earliest that Ed Johnson can come back if he is able to solve the thread interference problem is Oct. 21st but that date may conflict with Paul and Bill's schedules.

5. Park Position: Ed can ask that we get consensus on the Azimuth park position of the dish. After some discussion of whether it should be parked in the 180 deg, due South position for minimal movement for observation or in the 317 deg position which places it over the service scaffolding and with the access port open to the dish mount. We came to the consensus to park at the maintenance position of 317 degrees for ease of service should anything happen to the drive movement system after the parking.
6. Winter Observations
 - a. Rich wants to do an observation trip on Oct 19th about 3:00PM local and run through Oct 20th at about 10AM. This will precede the work trip on the 20th. Rich has published an excellent observing guide with all the applicable radio sources listed by RA/DEC, radio signature and optical photo.
 - b. Dave will do a retaining wall work trip on October 27th, weather permitting.
 - c. Future trips for maintenance and observations is weather dependent from here on out. Will try for the 3rd Saturday for maintenance and the observations on the Friday before. We will coordinate through the main membership list in email.
 - d. November work trip on Nov. 17th, observation on the 16th weather permitting.
 - e. December work trip on Dec. 15th with observation on the 14th. weather permitting.
 - f. For local weather call Haswell general store and propane 719-436-2301.

- g. Need to check on Dolores in Haswell about her status and publish her number if okay.
7. Retainer Wall Update
- a. Dave went down to the site on Sunday the 30th and added an additional tier of block.
 - b. Dave needs one more day to do another tier before winter.
 - c. Have plenty of materials to finish the planned wall tier for the year.
8. The local telephone company fixed the telephone dial tone and the 911 telephone was installed in the comm. trailer.
- a. Currently the phone will only work for 911 and the local exchange.
 - b. Steve has the number.
 - c. Ed will devise a way to connect the commercial line into the intercom system telephones.
9. Out House Heater
- a. Ed will purchase a milk house heater to heat the outhouse.
 - b. We will have to be sure to turn off the outhouse power when leaving the site.
 - c. We should have a general checklist for opening and closing the site.
10. Other Issues for Winter operations
- a. The comm. trailer has a blocking plywood on the exhaust fan window for the winter weather.
11. Porch update from Bob Haggart.
- a. Bob planned for a 4 by 8 plywood deck with 3 steps and a ramp with rail around the outside for access to the comm. trailer front door.
 - b. The main front door in the comm. trailer is a 28 inch door and not wheelchair accessible.
 - c. We discussed the back doors but those are locked and puts entry behind the impassable equipment rack.
 - d. The conclusion is that there is no good way to provide wheelchair access in the comm. trailer as currently configured.
 - e. Consensus is to do a 4 X 4 ft platform with stairs and no ramp for now. Work out handicap access in some other way like remoting the system monitors or a different building in the future.

12. Site computer: Rich would like to get the remotely accessible laptop up and running again and monitor the batteries, Radio Jove and other experiments. Plan to reinstall the system on the 19th. Will need the Wi-Fi hot spot in the comm. trailer or available on the LAN in order to do this.
13. Radio Jove: Bill is working to repair the Radio Jove receiver that was damaged in the static storm back in July. He is getting some JFET transistors for it from Ray Uberecken.
14. Tour of Plishner site after SARA West Conference
 - a. Rich is in contact with Dave Westman, SARA director at large and technical contact.
 - b. The SARA conference is planned for March 23rd and 24th in Boulder. DSES would host interested participants down at the site on the night of March 24th with tours on the 25th and SARA members would fly out on the 25th and 26th. A tight schedule with the 3 to 4 hour commute from boulder to Haswell but may be doable. May suggest that interested parties fly out from Pueblo.
 - c. More to come.
15. Conex or addition for Communications Trailer
 - a. To get more room in the comm. trailer we could use a steel Conex cargo container. Cost is \$3500 for an 8 x 40 ft non-refurbished container.
 - b. Dave Molter recently investigated buildings for his use. Compare container above to a used modular classroom building or UBC 12X60 ft. building at \$18K.
 - c. Dave also compared a 12 X 40 construction office trailer for about \$5500. Would need a commercial license to tow or deliver either of these due to wide load status.
 - d. We should keep our eyes open for a best deal and funding to buy one of these solutions in the future. Here are some examples:
36' x 48' Prebuilt non-modular Classroom \$3000
<https://eastco.craigslist.org/for/d/modular-classroom/6708980689.html>

8' x 28' Mobile Office \$3,699.00

<https://www.modspace.com/en/listings/sale-products/8-x-28-mobile-office-800460.aspx>

However, the removal and transportation may cost as much as the building.

16. Gary and Ed will work on the tower raising near the underground on the 20th weather permitting. Ed has already installed a 5 ft base above the ground and can now go to 30 ft without guy wires and >40 ft with guy wires.
17. Dave Molter stated that the 19th through the 21st weekend is the Boy Scout jamboree on the air. We should all join in. Check the frequencies on line or with Dave at lcipilot@ymail.com.

Meeting Adjourned

Agenda and Notes from Last Meeting of 9-10-2018:

- 1) System 1 status
 - a) System 1 is in place.
 - b) Dave will build the control amps to emulate the hand controller and install on-site.
 - c) Bill gave Dave the linear power supply to replace the switch and minimize noise in the elevation circuit chain.
 - d) Dr Dennis Acos was the CU professor who lead the undergrad team who did the first control and tracking design. We may ask him if he has any documents or insights on the dish control.
- 2) System 2 Status
 - a) Ed Johnson will come down with Bill on Sept 23rd and work on system 2 control and tracking.
 - b) Bill has added LEDs to each relay driver to facilitate Software debug.
- 3) Rich's items
 - a) Prep for Observation on 22 Sept. for Rich and Gary
 - b) Rich has a new radio astronomy guide with RA and DEC of all the radio objects we can observe. He has about 6 objects from the list that he and Gary have observed.
 - c) Rich will observe with the Spectra Cyber and Tony Bigbee will bring a RASDR 4.
 - d) Prepare for a predicted supernova at 1400 LY in 5 years
 - e) The Open House Report is the first of 3 papers for the SARA journal.
 - f) The Journal articles are due Oct. 2nd.
 - g) Rich gave Bill the Radio Jove for repair.
- 4) Install amp in RX chain

- a) Steve plans to Install an additional amplifier in the receiver chain. The amp will be in front of the laser diode in the RX chain.
- 5) Modify cavity filter
 - a) Steve will take the output of the cavity filter to the panel to patch back in so we have access
- 6) Install Azimuth stops
 - a) The AZ stops will be set to about 20 deg on either side of north
- 7) Ramp
 - a) Steve will bring more concrete and Dave will work on the wall
- 8) RV Cable burial
 - a) Ed will bring out a trencher on Saturday to bury the power cables for the RV park outlets.
- 9) Rohm 25 tower mount ready to go with Ed's 5 ft section to erect a tower at the bunker.
- 10) Bill will install the elevation synchro wires on the trip.
- 11) Site trip will be Friday thru Sunday. Steve and Paul will be onsite on Friday the 14th. Main crew will go down on Saturday Sept. 15th.
- 12) What about the new control system that Paul proposed? What is our mission statement?
 - a) Need a save function on the tracking systems logs so we have the time stamped position to marry with the data from the receivers
 - b) Bill thinks we need a mission statement saying what we can and can't do with the system.
 - c) No upgrade to specs and capabilities unless it goes through the Operations and Engineering meeting.
- 13) Proposal to do the 1st weekend of every month for the observation trip.
- 14) We got a phone bill but though we have the wire installed we don't have a dial tone. Steve will check with the phone company.
- 15) The Spring SARA conference may be held in Boulder in March.
- 16) We may want to have an open house after the event. Rich will contact Jay Wilson on the possibilities.
- 17) Bob Haggart has a 4x8 1700 lbs. trailer and will give to the group for 5 years of membership. The group isn't sure because we have access to several trailers.
- 18) Bob would like to build the stairs and ramp for the comm trailer.
- 19) John Royo suggests that we have another tier of donations for individuals and corporations that want to do ongoing sponsorship. What can we offer as justification for this?
- 20) Need 24" trencher for a day and deliver back the next day or a 24hour rental for around \$100. Bill will check with Blue Line Rental contact.

Meeting Adjourned