

2017-11-13 DSES Technical Planning Meeting Minutes

Location and Time: The November DSES Technical Planning Meeting was held on **Monday November 13th at 5:30PM MST** at the IHOP Restaurant at Constitution Ave. and Tutt St, Colorado Springs, CO 80919.

Attendance: Gary Agranat, David Blair, Myron Babcock, Ed Corn, Floyd Glick, Glenn Davis, Bill Miller, Steve Plock, and Rich Russel

Attending Remotely via Team viewer: Skip Crilly from New Hampshire and the Green Bank Observatory in West Virginia. Phillip Coker from Florence, Co. , Dayton Jones from Lyons, Co.

As usual if I have omitted anyone or miss represented anyone or anything here please feel free to correct me.

General notes and short term plans:

Gary will travel to Eads to do a local outreach at the Eads Bazaar this Saturday 9:00AM to 2:00PM. Leave at 5:30 AM. Bill will go as well and they will stop by the site to download the computer program to send to Ed Johnson for further system control development.

Gary has a Radio Astronomy introductory course by Felix J. Lockman published by the Great Courses and highly recommends at about \$80 on sale.

Next site trip for Steve and Rich will be November 24th and 25th for correlated SETI observation with Skip Crilly at Greenbank.

Next Science meeting: 5:30 MST, November 27th at Dr. Rich Russel's residence.

Agenda and minutes:

1. Glenn Davis, System 1 completion timeline

Glenn has taken the display SW and moved it from the Raspberry Pi to the Laptop. This will solve the issue with the reboot issue corrupting the file system. The serial port problem and power fluctuation issues have been mostly resolved. Glenn would also like to change the Raspberry Pi to a more robust micro computer module.

Ed Corn commented that he would like the System 1 to be fully debugged. Bill and others agreed that both system 1 and 2 pointing and control systems should be completed and this would be a great exercise for learning the control process and for publishing some papers on how it was done.

2. Bill Miller, System 2 completion timeline (This section is out of sequence with the actual meeting)

Bill gave an update on the System 2 pointing and control system for the dish. Ed Johnson and he spent Sunday, October 29 working on the system 2 control system. Ed modified the programming to add startup and shutdown ramp

subroutines and changed the speed and calibration parameters in the XML (Extensible Markup Language) file.

We spent a great deal of time troubleshooting a problem where the computer and LAN would appear to interrupt or pause momentarily about every 10 seconds. The LAN was eliminated as the source by completely eliminating the switches and using the other CAT5 wire to the pedestal controller with no effect. It was concluded that the cause was in the ATOM based bench computer and it was decided to change it out later with a more powerful laptop that Ed will provide.

While working on the System 2 control system we found that the elevation encoder has a fault and needs to be repaired. This could be a bad bit in the 12 bit encoder or a scratch on the optical disk. This will need to be examined further for root cause, repaired or replaced before accurate pointing and control can be obtained with either system 1 or system 2.

Ed is busy in a house restoration but will have additional time in December to work on the controller. Bill expects that we can complete the pointing in early January and tracking in the first part of the year if some of the failed parts can be resolved.

Bill and Gary made another trip to the site on November 18th after the Eads Bazaar to download the computer program and pickup the other computer from Ed Johnson in Limon.

For more detail on this item refer to the **2017-10-29 DSES Plishner Site Work Trip Report** <http://dses.science/october-29-2017-dses-plishner-site-work-trip-report>

3. Rich Russel, Dish Project

12 foot dish at Rich's residence is assembled and ready to attach a feed for the SpectraCyber. A mount was devised and the dish should be good for drift scan hydrogen line experiments and can be put online for member experimentation.

4. Floyd Glick, Radiometer Project

Floyd has the Solar Radiometer from the Boulder site and Rodney Howl. Uses a Dickey switch and Python programming to calibrate the total power measurement and measure the solar flux units.

5. Michael Lowe, Computer project

The computer for Paul Plishner has been given back to Rich Russel for completion of a slide presentation and menu of reports. Rich is finishing this up and will transfer the machine to Lauren Libby for Delivery to Paul Plishner.

6. Steve Plock, Triplett Receiver observing periods #3 & #4

Steve built a cavity feed with high gain for the 1420 Mhz observation from 1404 thru 1448 MHz to detect triplets from 40 Eridani A. Skip Crilly drove out from New Hampshire and provided a complete receiver system that receives and logs the data from the dish. With a 10 second integration time the system can get down to about .25 J.

Data was taken simultaneously with Skips 40Ft dish at Greenback in the early morning of October 29th. A GPS time source is used to correlate the data for the signals. Rich, Steve and Skip plan to do a second observation session with both the Haswell and Greenbank dishes on November 24th and 25th.

More on this see the **10-21-2017 Site trip report**,
<http://dses.science/plishner-site-work-trip-october-21-2017>

Skip commented that we could use a laptop with Putty or WinSEP to transfer the output file and get a graphic data display for near real time observation of the received signal.

When traversing M42 we should be able to see its emission.

Skip suggested that we should use some absorbing foam over the computer and screen to prevent RFI with the dish and receivers.

Floyd commented that the track is near where there is interference with geosync satellites.

7. Completion of tumbleweed fencing

Ed took fencing to the site last summer and we should get it installed before the tumble weeds roll in this winter.

8. Steve Plock, Grid power update

As of the morning of November 13th the utility said they hadn't received the money. Myron sent the check last week. The electrical inspector wants to know the state tax status of the DSES and whether they can qualify us as a closed entity like a homeowner. We are a 501-C3 and a closed society but it is up to the state as to our electrical requirements.

If the state will not let Ed do the hook up we would have to hire an electrician. Ed would like to employ one locally to save transportation charges.

The utility has staked the entry power pole near the gate. The utility will bring the power down the road to the drop pole where the meter and 200 amp disconnect will be.


The goal is to have the power in by the end of the year but we captive to the time line of the state and the inspector.

Other business:

Silent key, Kirby (KC) Stafford, W0TBJ, a friend to many of the Colorado Springs members of the DSES passed away on September 6th. His memorial service was held on November 10. He will be greatly missed at the Saturday breakfast club, on the air with the Rocky Mountain RV net and in our daily lives. His family donated his 10-80 meter vertical and Yaesu FT897 transceiver to the DSES through Myron. The group has planned to use these in the site bunker ham station emplacement.

We need to start working the election for January to replace four board members.

This concludes the minutes from the November 13th Technical meeting. See also report on EADs Bazaar and site trip to follow.

73 and keep looking up! 
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