

## Welcome to the March 2021 DSES Engineering and Ops Meeting

2021-3-08 DSES Engineering and Ops Meeting Notes:

by Bill Miller

We had 19 participants in the virtual engineering meeting today: Thanks everyone for joining.

**Participants:** Myron Babcock, Glenn Davis, Dr. Richard Russel, Gary Agranat, Dan Layne, Bob Haggart, Floyd Glick, Ted Cline, Jonathon Ayers, Bob Sayers, Phil Coker, Ray Uberecken, Don Latham, Don Savage, Jason Fazio, Dan Layne, Michael Nameika, Edward Currie, Bill Miller

**See the Zoom Meeting Video at: Topic: DSES Engineering and Ops Meeting**

**Start Time : March 8, 2021 05:30 PM**

**Meeting Recording:**

[https://us02web.zoom.us/rec/share/l0GCX7TOgGgV\\_n3PmbRoQAnhr8vwr3xsQdBpo3lr6yj0l0ucsz6lbJDWn\\_Z45aZO.Ss4jjTkK7xGK4LBu?startTime=1615249952000](https://us02web.zoom.us/rec/share/l0GCX7TOgGgV_n3PmbRoQAnhr8vwr3xsQdBpo3lr6yj0l0ucsz6lbJDWn_Z45aZO.Ss4jjTkK7xGK4LBu?startTime=1615249952000)

**See the Zoom Meeting Chat at:** [https://us02web.zoom.us/rec/sdownload/2elha-Q4036MY2M1oScm7Po25AUGFDpa3GeWd9tXZzkf\\_XwPH-eGYTt0oBjl7Fi4WaX6fioS2MT-OBNI.g29uN2jJhHJoehg5](https://us02web.zoom.us/rec/sdownload/2elha-Q4036MY2M1oScm7Po25AUGFDpa3GeWd9tXZzkf_XwPH-eGYTt0oBjl7Fi4WaX6fioS2MT-OBNI.g29uN2jJhHJoehg5)

**Agenda and notes.**

1. Check In
2. Note on Zoom: Per new security guidelines, you cannot change this setting. Please contact your account admin for more information. **Require that all meetings are secured with one security option.** Require that all meetings are secured with one of the following security options: a passcode, Waiting Room, or "Only authenticated users can join meetings". If no security option is enabled, Zoom will secure all meetings with Waiting Room. [Learn more](#)
3. Membership Dues are now due for 2021. Please submit check or pay pal payment to Myron or on the link in the website.
4. If you order on Amazon use the Smile option for Deep Space Exploration Society and we get a rebate. Gary will post a procedure form Myron on how to do this.
5. Myron's Treasures report: Ck 2469.79 Sav 5742.33 Dues for 3 renewing members outstanding. Website DSES.Science, will auto renew. UPS mailbox is \$135/year. Power is nominal \$60-\$85.
6. Photographers Don Savage and Jason Fazio would like to do a Wednesday night photography session on site this week. Is anyone planning a trip? Good weather until Thursday PM, then bad weather thru the weekend. Don will teach any member who wants to come out how to do this nighttime and time lapse photography.
7. BOD Election. Where are we with returned ballots? Need to do one final call and close out election.
  - a. We will elect or retain 3 seats turning over in 2021. These seats are Dave Molter at Large, Floyd Glick- Secretary, Bill Miller - President,
8. So far, we have these nominations.
  - a. Ray Uberecken from Myron. Bill seconded that nomination,
  - b. Don Latham nominated by Ray Uberecken and Bill seconded

- c. Floyd Glick self-nominated and Bill seconded.
  - d. Bill Miller self-nominated and Myron seconded.
9. In keeping with the Bylaws schedule changes voted by the board in 2019 the rough schedule is as follows; hold nominations open we will need to modify these dates by the delay.
    - a. Open nominations now, January 15th, and close in 20 days, on February 4th.
    - b. Released the ballot to the members by February 24th.
    - c. Hold board election in the following 10 days.
    - d. Decided to send one final notice to the membership and then close the balloting by March 12<sup>th</sup>.
    - e. The 4 BOD members not up for election shall count the ballots and make results known to the membership by March 17th.
    - f. We are a little behind on that schedule but want to give members a chance to vote.
    - g. Schedule the virtual “all-member annual meeting” in mid to late March and in that meeting the Board votes for or assigns officers from the elected BOD. Although we would like to have an in person meeting, because of the Covid-19 and our responsibility to keep our members safe, the all-members meeting will be scheduled and held virtually.
  10. We need to finish and post the new bylaws changes related to the BOD election schedule that was approved last year to our website. Bill sent the Ver 3.1 Bylaws markup to Gary and Floyd for review, incorporation and posting.
  11. April 3<sup>rd</sup> is the SARA western conference with papers already submitted. Deadline for papers for the August conference is the first of June. The annual SARA conference is Saturday, July 31 to Sun Aug 1 and will be held virtually. See [radio-astronomy.org](http://radio-astronomy.org) Pay \$25 attending member fee to SARA and attend.
  12. DSES Aug. Open House: Plan for on-site open house in August but will watch the CDC for guidance on the Corona Virus guidelines and try to decide in June.
  13. The last pulsar trip was not too successful. Next pulsar trip?
    - a. Need a long dwell time of 4 hr. per pulsar that we haven't already captured.
    - b. Have 13 of the easy ones.
    - c. Could do this weekend but weather may be a problem.
  14. Do a moon bounce and EME distance measurement weekend at 1296MHz. Look for a Moon view window. Gary says, regarding trying an EME ranging test, on the weekend from next Mar 21 the Moon will be at first quarter. So, the Moon will be up from about noon to midnight that weekend.
  15. We have 1420, 1296 and 408 MHz feed capability.
  16. Skip's 1420 SETI observation is in May and requires Steve's 1420 Feed.
  17. Compare Scope in a Box Receiver and other receiver tests between now and the open house. Maybe do a runoff of receivers at the open house? This would be a great Science fair project for a high school student with hooking up and affordable SDR to the big dish and getting actual data.
  18. The 2020 Virtual DSES Open House Presentation  
<https://www.dropbox.com/s/zxpzj879iz7mt77/2020%20DSES%20Virtual%20Open%20House.mp4?dl=0>

- a. Bill gave the presentation to the Front Range 6 Meter group <https://groups.io/g/FrontRange6Meter> last month, recorded and posted it to our site.
  - b. Everett Curry, W6ABM Assistant Section Manager/Oregon ARRL, asked to present the recorded presentation to the General Interest Amateur Radio Club in North East Oregon Thursday, Feb 18<sup>th</sup>
  - c. The Artic Armature Radio Group of which Myron is a member asked for a live presentation of the Open House on Friday, March 12<sup>th</sup>.
  - d. The Utah DX Amateur group would like the presentation on Wednesday March 17<sup>th</sup>.
19. The 1296MHz feed is now changed out to the 408MHz feed for continuing pulsar work.
    - a. Need to learn how to use the B210 receiver. Rich has it set up as best as possible. Would like to have a faster computer to handle the throughput.
    - b. Need more dwell time.
    - c. Need a 10MHz reference source for B210.
  20. See the Feed Change Schedule on the main website page. This may need updating.
    - a. 4GHz feed for aiming.
    - b. 1420Mhz is on the table
  21. The HughesNet dish for internet service may be a dry hole. Ray and Rich had called the service tech to the site, but he showed up at Ray's residence, so it didn't get fixed. We need to look for other alternative Internet providers Myron has started to investigate this.
  22. Don checked on Musk's Starlink internet connection which is in beta testing and as yet sporadic connectivity. It costs \$500 for a ground station and \$99/month for a beta test setup. Too expensive for us.
  23. Need internet for SuperSids and Radio Jove, Magnetometer, Security System, Power monitors, etc.
  24. Rich's projects and presentations:
    - a. Has been invited to HAMsci on March 19-20<sup>th</sup> to develop an interactive poster on the eclipse detection. <https://hamsci.org/hamsci2021>
    - b. <https://www.eucara.nl/>  
<https://www.camras.nl/blog/2021/eucara-2021-webconferentie-oproep/>  
The EUCARA presentation is about deciphering the pulsar map on the Pioneer Spacecraft
    - c. Sara conference April 3
    - d. Call from Jason Outenreath who is a documentary film maker that would like to do a film on radio astronomy.
    - e. Editor for the SARA journal.
    - f. 9 Ft dish in Rich's yard generated a H1 full sky survey over the last year for H1 mapping.
  25. Jon Ayers discussion on the data reduction and method for reducing and using the H1 data from Rich's setup.
  26. Discussion on the Dicke-Switch
  27. Glenn Davis system 1 status
    - a. Mid to late April scan SW and field of view SW
    - b. Phil Gage. Commanding and GUI interface and field of view

- c. Lewis Putman working on Python interface for integration and to log the data off the SDR.
  - d. Glenn working SW interface to connect the system across the network
  - e. Phil developed a Geo Pointing SW that points to GeoSync satellites for mount calibration. The scan pattern will hunt the field and log the output of the receiver and make a correction offset.
28. Jon Ayers – Can you send a dual frequency beacon that can be used for range finding on the moon. Like a frequency phase comparison range finder.
  29. Bob Haggart has the Radio Jove Dipoles ready to put up back. Ray wants to us his Flex 1500 in the 54MHz band and have it on
  30. Ted asks about the H1 data from the 9 Ft dish. The data needs to be processed. The Data off the receiver is raw signal strength and normalized and is not square law or power. Ted is ready to plot processed data. Ted will post on drop box.
  31. Dan Layne using Gaussian fit to analyze the pulsar data. SARA has data on Skynet on Greenbank 20 meter dish and the data. Should look at that data from Greenbank. We should learn and make use of the data sets from our national radio observatories to go deeper. Note that EdX Radio Astronomy course starts March 14 <https://www.edx.org/course/radio-sky-1> if you are interested.
32. Things to do
    - a. Check clean out and fix the Sump Pumps in the underground before spring rains flood the bunker. (Bill talked to Dave Molter and He said they had never been completely mucked out as far as he knew.) need to muck them out before spring rains. Don suggested that we get a septic tank cleaner to come out and pump out the sumps. He would even pay for it.
    - b. Cut off the 5 band vertical mounting pole and move the vertical base to ground level and reattach and add more radials and bury them for protection.
    - c. Repair the dish edge damage.
    - d. Clean out the tower and the pedestal base. Too much junk and clutter are accumulating there.
    - e. ~~Align Ray's HughesNet Satellite internet dish. Call HughesNet for reprogramming and support.~~ Find internet provider alternative. Couldn't get DISH out to reset the microbeam position. Bill asked the group if someone would donate a hot spot modem for a period of time and DSES will reimburse the plan cost.
    - f. Need to remove Tumble weeds have piled up in the ramp. Does anyone have a small yard waste chipper/shredder we could try? Bob Sayers has one at his cabin site that he will lend. We can try it out as a way of quickly dispensing the tumble weeds.
    - g. Continue to look for more, higher (8 Ft) chain link fence to mitigate the tumble weeds in the ramp.
    - h. Clean the silt out of the Underground from the flooding damage. Need a pass through vacuum with a long exit hose.
    - i. Nails on Road. Several of Ray's friends came out on the 10/3 trip and used metal detectors and magnets to clear the site of nail and metal on the road. We've all had

flat tires and need to continue to clear the road and site of debris as many of us have had tire damage. Bill bought a new magnet roller and left it in the Comm. Trailer. Please walk it up and down the road once whenever you're on site.

- j. Take down the Beam on the tip over tower and align the 3 elements on the Yagi and re-enforce the element attachment on the beam with bolts.
- k. The Ham Radio Equipment in the bunker needs some dust covers or enclosures to keep the dust out of the equipment. Need dimensions of the equipment to sew tarps or by plastic covers online.
- l. Need a program to combine logs for position and time and signal strength.
- m. Need to modify the heater with sheet metal or plastic covers to provide safety and the bracket needs to be reinstalled. Need 4 2 ½ inch drywall screws to hold the heater bracket to the wall. Bob has this done and only needs to reinstall it.
- n. ~~Replace the rear window of the Comm. Trailer.~~ Complete: Bill bought custom window from Kent Glass for \$81 and installed it.
- o. Ray has 8 brackets to fix a railing around the scaffold for additional safety. Needs some help to install.
- p. Ettus Research B210 receiver from Don Latham. Rich has it working except for the GPS input. Will work at the site with the GPS. Don says there is a 10MHz source in the electronics he brought down.
- q. Retrieve Key for Battery Box from Ed Corn.
- r. Clean up the DC Bus on the Comm./Operations trailer wall.
- s. Find the perfect focal point and phase center of the dish. See: Ruze formula. Could we characterize the dish surface for problems and accuracy to determine the loss from damage and weathering. Or, could devise measurement and reference system so we always place the feed in the exact phase center?
- t. Ground the feed to the pedestal ground for lightning and static build up mitigation.
- u. Fix old website to link to new one.
- v. Facebook page link to new website.

33. Miscellaneous discussion on various topics, see the Zoom recording.