

## SUG Minutes – 02 Aug 2016

### In attendance

Tom, Nathan, Dick, Jim S, Jim B, Chuck, Wes, Shing, Francisco, Andy, Jim T, Dave

### Station Reports – **New Info in RED**

**Tom** – Running okay; unplugging often due to local lightning storms.

**Dick** – Nada nuevo.

**Whit** –

**Nathan** – Discovered the usefulness of making sure there are no loose F connectors in the feed system. Also running freeware FFT code on his FPGA-based receiver; it is working very well.

**Jim B** – Presently testing one LWA cross with the arms elevated to horizontal to see if the antenna's susceptibility to line noise coming from low elevations is reduced. First subjective impression is that this does help, but as Dick noted, it will also reduce the antenna's ability to see Jupiter at low elevations. No free lunches! Jim built and installed an impedance match for his DDRR test antenna. Jim is also busy populating a 19" rack with equipment.

**Wes** – Buzzzz for the last week or so. Dick suggested looking into the June 2016 QST article that talks about RFI and the use of the MFJ ultrasonic sniffer. Dave will send around a PDF of this article if possible.

**Chuck** – Spectro running well. Not thrilled with the array's present location. Will go to the school's dairy farm to perform a site survey this week.

**Francisco** – Nada nuevo. Will send some spectrograms of his HVAC RFI to Dave to post on the SUG RFI web page.

**Andy** – Very busy, system running okay. Offline a lot for the typical afternoon thunderstorms. Still wrestling with the phone company, trying to get fiberoptic cable ran the last mile to his home.

**Dave** – Nada nuevo.

## Discussion – New Info in RED

### JUNO

Still in orbit. ☺ Chuck has forwarded an observing schedule used by the Juno team, including the observing schedule for the large radio observatories, to the SUG group.

### Archiving

Jim Sky has released a program that will automatically copy the user's RSS data directory to a PDS hard drive and format the directory structure on the PDS hard drive the way the PDS wants if formatted. Nobody has used it yet, but Chuck's students expected to do so soon. Some issues with Tom's data, as it is stored on a Mac, not a PC. Jim S working with Tom to find a work-around.

Jim B noted that the program was a little confusing to use when selecting the desired directory; will work with Jim S to make it smoother.

### SDRPlay

Jim Sky has integrated Nathan's SDRPlay interface software into the RSS installer in the latest version, which is 2.8.19 released today. Also contains several bug fixes such as banner text and time axis labels.

Dave asked if RSS could read the data from the SDRPlay at full speed; Nathan replied that RSS is good for 100 to 200 "sweeps" (really FFT blocks) per second, which is a far cry from full-speed data.

Nathan is updating the SDRPlay2RSS software; this update will be included in the next RSS update from Jim Sky.

### HEC grant general news

Shing, Chuck, Jim T, and Len Garcia had a telecom this morning; decided to submit an abstract for the upcoming AGU meeting (in San Francisco in December) outlining the HEC project as related to Radio Jove and the 2017 solar eclipse. Shing would like to have a Radio Jove setup available to display at the upcoming face-to-face meeting of HEC investigators at Goddard. Chuck sent around an email to include SUG data-providers as co-authors on a poster he will present at the AGU meeting. The poster will be about Radio Jove and citizen science, emphasizing the SUG-Juno collaboration.

### Discussion of HEC grant science drivers

Shing noted that the original proposal was to upgrade existing SUG stations to make simultaneous observations of ionospheric scintillation in celestial radio emission to infer ionospheric conditions for propagation studies. The aim is also to take advantage of the upcoming solar eclipse. With this, there is also the goal of not losing sight of Jovian emission observation and analysis. For example, there is still the need for a definitive study of Jovian DAM morphology.

Shing mentioned that on the hardware to accomplish this science, clusters of SUG stations remains the goal. Francisco added that increasing the effective area of some stations' telescopes should also be considered. Shing put forth that a greater frequency range is also desirable unless money is an issue, then we should stay with what we have now. Dick offered that money would certainly be (one) issue if the FSX were modified for the low-VHF band, and that perhaps the SDRPlat receivers or some other SDR could be used in the future. However, Dick also noted that it is not only the receiver, but new antennas would also be required for VHF observation – and that this is possibly where eCallisto telescopes might come into play in the future.

Dick asked if it would be helpful to Shing and Chuck, based on the science to be accomplished, to have an outline of some hardware improvements to SUG stations along with the associated costs and timeline. Shing and Chuck enthusiastically agreed. Dick and Dave will prepare such a document over the next couple of days and present to Chuck and Shing. A “hardware-upgrade” telecon was discussed and considered a good idea, to take place after Chuck and Shing have a chance to review Dick and Dave's document. All interested will be invited to attend.

### **2017 Solar Eclipse**

Chuck is writing a guide for participation in observing the 2017 eclipse with a Radio Jove receiver and one or two dipoles. Andy lives nearly exactly (within a few thousand feet) of the centerline of the path of totality and expressed his desire to upgrade his station prior to the eclipse. Francisco has rented a place in the path of totality in South Carolina to set up a Jove telescope for the eclipse.

**Next SUG Telecon Tues, 16 Aug 2016 at 5:00 pm EDT (2100 UTC)  
(844) 467-6272, 352297#**