

SUG Minutes – 13 Sep 2016

In attendance

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

Station Reports – **New Info in RED**

Tom – Still beset with monsoons and lightning.

Dick – RSS computer at WCCRO has been rebooted; serving data just fine now.

Whit –

Nathan – FPGA receiver working well. Not much done with the SDRPlay lately. A hard BSOD with data loss occurred on the computer running the RASDR2; now using an older backup WinXP laptop.

Jim B – Working on getting a new floor installed in the radio room. Getting lumber to re-build the LWA array to have element arms with adjustable dangle angle. Also working on a write-up for how to set up an R75 and working on a write-up with Jim Sky about how to do a non-linear calibration in RSP.

Wes –

Chuck – A new site survey at the dairy farm detected only small audible ticks with the electric fence turned on. Will move the TFD array to the dairy farm. No internet connection available. Dave suggested using one of Whit's GPS NTP server boxes for keeping the RSS PC's clock accurate.

Francisco – Cutting back the trees that have grown into the 20P array at home. Sent proposal to get funding for an undergrad to help set up the TFD array at RHO.

Andy – Nothing new; still lots of thunderstorms and considering a 4 or 8 element TFD array for the future.

Dave – Nothing new.

Discussion – New Info in RED

Hawaii

Jim Sky hopes to put up a spectrograph at his cabin in Hawaii while he is there and run it remotely. Much depends on whether he can afford to beef up the solar panels enough to support the power requirements of the associated computer. The internet connection may not allow live streaming but the location seems to be pretty RFI quiet and may be useful.

Jovian DAM Morphology

Dave asked for some help in better understanding the terminology being used to describe the morphology of Jovian DAM dynamic spectra. Jim T offered that “arcs” occur on a scale on minutes and look like parenthesis, also that the term “emission envelope” contains the emission of the whole storm (on the time-frequency plane) and that we (usually) only ever see the upper frequency limit of observed emission in our spectrograms since the lower limit occurs somewhere (usually) below 15 MHz. Chuck will send the LeBlanc paper on arc structure to Dave. Dick mentioned that the term “bursting” came from single-frequency observations (strip charts and audio), hence the terms L (long) and S (short) bursts. Dave will digest this information and come back with yet more questions.

Software

Jim Sky indicated that experimentation continues with Nathan's SDRPlay2RSS program. He is trying to make the program easier to use from within RSS. The next RSS update should allow multiple configurations of the SDRPlay front end to be selected.

HEC grant / 2017 Eclipse general news

Jim T, Shing, and Len are meeting with many people at the HEC meeting at GSFC; this is getting Radio Jove out to a wider audience. Jim T mentioned the Space Weather Action Center, and education group at Goddard, would like to corroborate and possibly use Radio Jove data to supplement their own. Shing mentioned that a group at MSFC (Marshall) using Inspire VLF receivers is interested in the Radio Jove data. Shing also mentioned the HamSci group (ham radio science) is using QSO parties to monitor ionospheric conditions and may be interested in collaborating with Radio Jove. Shing mentioned that the Jove HEC group (Chuck, Shing, Jim T, and Len Garcia) had a telecom recently. Shing indicated that the group must present a progress report to the Powers That Be in December. Shing suggested new SUG stations at PARI and U Alaska Geophysics Institute. Shing also brought up the need to define what science is to be done for the HEC project.

Archiving

Jim Sky is still working on generation 2 of the CopySPS utility. This should not prevent anyone from sending in their current SPS files who has not done so before. One of the things the new version will do is read the manifest file created by version 1 that lists all of the files sent in on the first submission. Thus it can avoid re-sending those files. The next update to CopySPS will also submit SPD files so a name change is in order for the

copy program. **Anyone who has not submitted data on a PDS hard drive is asked do so and to contact Jim Sky for any needed help.**

eCALLISTO

Shing reiterated his desire for an instrument with a wider observing bandwidth, if possible, and if cost effective. Dick reminded us that the FSX is fixed at 15 to 30 MHz for technical design reasons and suggested that the eCALLISTO telescope may work. Whit offered that with the “normal” setup, the eCALLISTO telescope has a 250 ms time resolution. The receiver can sweep from 45 to 870 MHz. The sweep rate is 800 channels per second. Typical configuration is 200 channels, from 215 to 415 MHz. Each channel’s passband is 280 kHz wide. Dave asked Shing if this instrument’s capabilities would be suitable; Shing said the time and freq resolution would work fine.

Calibration

Dave asked Shing what is needed in the way of amplitude calibration. Shing replied that cross-calibration (each station calibrated in absolute terms) is definitely required if we are to compare data from different stations. We must be able to know and account for instrumental and data processing effects so that we can measure variations in source signal. These variations will ideally be due only to ionospheric scintillation and variation in the emission source itself. Dick mentioned that we also need to be able to back out the differences in antenna gain at each station for each station’s AZ/EL to Jupiter. Dave and Dick discussed briefly the idea of creating an automatic calibrator that would run once a day. The device would calibrate the RCP and LCP channels at the same time, the calibration plane being located at the inputs to the telescope’s hybrid ring. Chuck mentioned that at UF, calibrations usually took place at the start and end of an observing run and immediately after a particularly strong emission event. Dave mentioned that Nancay calibrations run every 4 hours (which is wrong, it’s once every hour). Dick and Dave will research the design of an automatic calibrator for SUG stations (cost, dynamic range, number of steps, timing, etcetera).

JUNO

Chuck is making a several ground-based observations using the LWA-1.

2017 Solar Eclipse

Chuck mostly done with a guide for participation in observing the 2017 eclipse with a Radio Jove receiver and one or two dipoles.

**Next SUG Telecon Tues, 27 Sep 2016 at 5:00 pm EDT (2100 UTC)
(844) 467-6272, 352297#**