SUG Minutes – 16 May 2017

In attendance
Chuck, Dick, Tom, Wes, Mark, Francisco, Jim T, Jim S, Shing, Dave

Station Reports – New Info in RED

Tom – Unsettled weather; R75 started making RFI (Tom will send spectro image of this). R75 was being used on 54.309 MHz for meteor scatter observation. Will put an old Icom PCR-1000 into service in lieu of the R75.

Dick – Computer(s) at WCCRO being "upgraded" from Win XP to something hopefully not less useful.

Jim B –

Chuck H – GB a little jumpy, possibly from the dairy farm's electric fence.

Larry –

Andy –

Wes –Nothing new.

Francisco – Performed a brief site survey of the eclipse observing site in Summerville, SC (10 mi NW of Charleston) using a Jove dual dipole array, a Jove receiver, and the FSX-7S. GB slightly elevated at ~150kK due to power line noise. Performed similar site survey at RHO with same equipment; GB was observed at ~120 kK at 1700 local. Dave suggested the elevated background may be due to normal afternoon terrestrial propagation.

Dave – Nothing new.

<p align="center">**Discussion – New Info in RED**</p>

Jovian DAM Variability

Jim Brown commented in an email that it was odd that Jupiter was producing nearly daily emission a couple weeks ago, then nothing for a week. Dave sent around an email suggesting that among other things, the variability in the occurrence of Jovian DAM may be due to changes in the amount of volcanism on Io. Francisco offered that someone in the past had tried looking for a correlation between Jovian DAM and Io volcanic activity; but, data on the day-to-day volcanic activity is difficult to come by. The density of several ions (sodium, e.g.) in the Io plasma torus is used as a proxy for volcanic activity. The density is measure using IR and UV observations.

Chuck mentioned that the Galileo data shows a correlation between solar wind and very low frequency Jovian DAM, down at 3 to 5 MHz – but that nobody has shown good correlation at the higher frequencies where we look.

Jim T and Chuck reminded us of Len Garcia's dissertation that describes changes in the phase plane positions and boundaries of the probabilities with respect to D_e. Namely that the A and B zones drop slightly in probability at negative D_e, but that non-Io-A drops like a rock for the more negative D_e. Francisco mentioned that Len's dissertation shows that the top edge of the Io-A zone moves with D_e.

Shing suggested that since D_e is a geometric effect and the emission is thought to be radiated in cones, we should at how the emission occurrence at each frequency changes as D_e changes. That is, look to see if the centroid of each high probability area on the phase plane move as D_e changes. Dave thought this was a great idea.

Software

An updated version of Nathan's SDRPLay2RSS is available that allows the SDRPlay2 to switch back and forth between its two antenna inputs. It is still experimental at this point and the parameter for switching delay may have to be increased well above the default value. Dick noted that the SDRPlay switch may leave the unused port open causing an impedance mismatch on the hybrid – until the operation of the switch is fully understood data should be considered experimental – we don't want to generate any bad science due to instrumentation effects. Keep careful track of all your SDRPlay software settings in your engineering log and note any changes on different runs or different days.

Nathan's web site (look under the RSP2 folder for the exe that supports switching):
http://myplace.frontier.com/~nathan56/SDRPlay2RSS/
Latest version of RSS is 2.8.39A
http://radiosky.com/spec/Spectrograph_EXE_Update_2_8_39A.exe
Latest version of RSP is 2.7.15
http://radiosky.com/skypipe/RSPII_Update_2_7_15.exe

Software to allow SDR# to talk to RSS exists and is available on Jim Sky's blog. This is thought to enable RSS to record spectra from any hardware that SDR# supports.

RSS Plugin for SDR#:
http://cygnusa.blogspot.com/2016/10/use-sdr-with-radio-sky-spectrograph.html

Archiving

Mark mentioned that the new URL for the Radio Jove data at the PDS is here:
https://pds-ppi.igpp.ucla.edu/radiojove

HEC Grant – SDRPlay

Chuck will send out SDRPlay2 units to interested observers.

HEC Grant – Data Comparisons

Shing noted via email that the solar observations look vastly different between stations. Dave explained via email that differences in beam steering and position of nulls and side lobes between stations will have a great effect. Dave wondered how to achieve support for the HEC using Jovian DAM as a probe of the ionosphere while also doing the same for solar emission and also supporting the eclipse, noting that it would be very difficult for observers to re-steer their antenna beams multiple times every day. Dave also mentioned that if the solar event of April 18 had happened earlier in the day, closer to transit, that all stations' records would have been much closer in appearance. Shing suggested that the way to access the goal of comparing meaningful data isn't to re-steer antenna beams, but to look at past data for good solar events to compare, events that occurred closer to transit for all observers.

Dave offered to send all his data and spectrograms to anyone who sent him a portable hard drive. Dave noted that he would not send the data reduction (log of Jovian emission), but that the raw data are available to anyone for the asking. Chuck and Shing expressed interest.

Next SUG Telecon Tuesday, 30 May 2017 at 5:00 pm EST (2100 UTC)
(844) 467-6272, 352297#