

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: 19 Dec 2016

Object: Jupiter – Non-Io-A

Start of pass:	0909 UT		
Jupiter Altitude:	22.5 degrees	Jupiter Azimuth:	120.9 degrees
Jupiter CML:	243.13	Jupiter Io Phase:	089.11
Jupiter RA:	13:13	Jupiter Dec:	-06:21
Sun Altitude:	-37.7 degrees	Sun Azimuth:	089.9 degrees
Sun RA:	17:42	Sun Dec:	-23.23

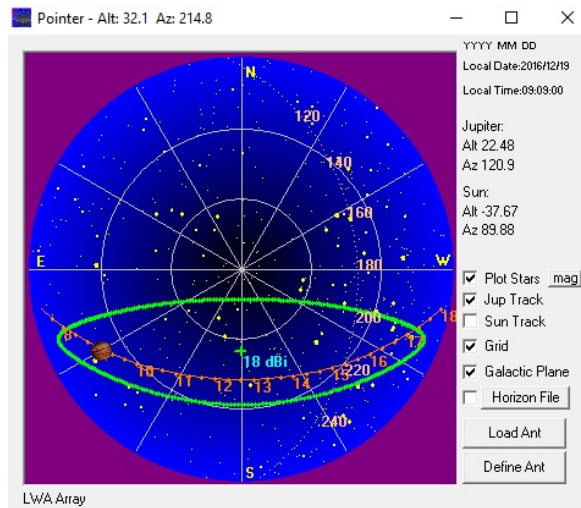
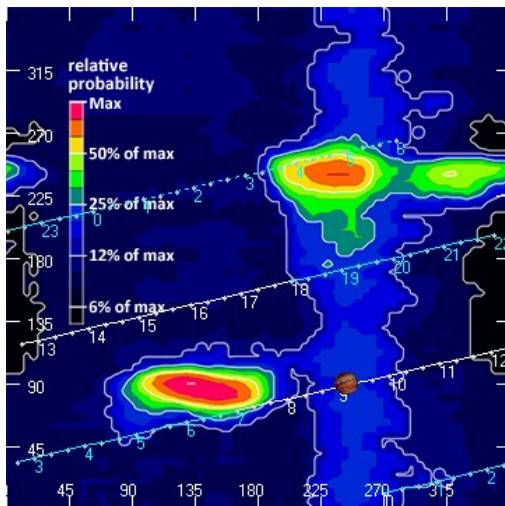
End of pass:	0930 UT		
Jupiter Altitude:	25.8 degrees	Jupiter Azimuth:	125.3 degrees
Jupiter CML:	255.83	Jupiter Io Phase	092.05
Jupiter RA:	13:13	Jupiter Dec:	-06:21
Sun Altitude:	-33.7 degrees	Sun Azimuth:	093.2 degrees
Sun RA:	17:43	Sun Dec:	-23.23

Observations made using:

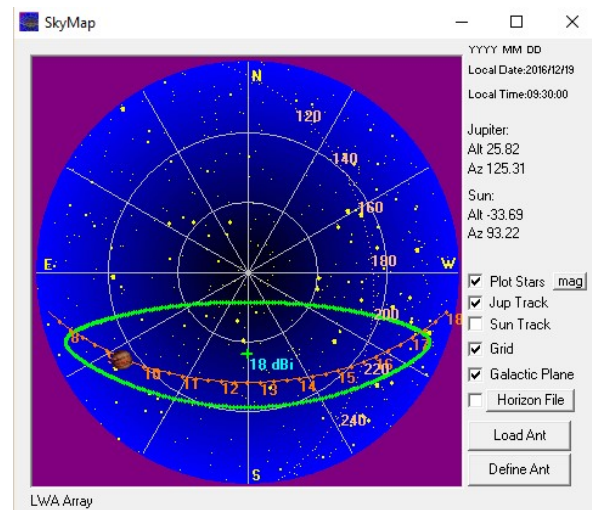
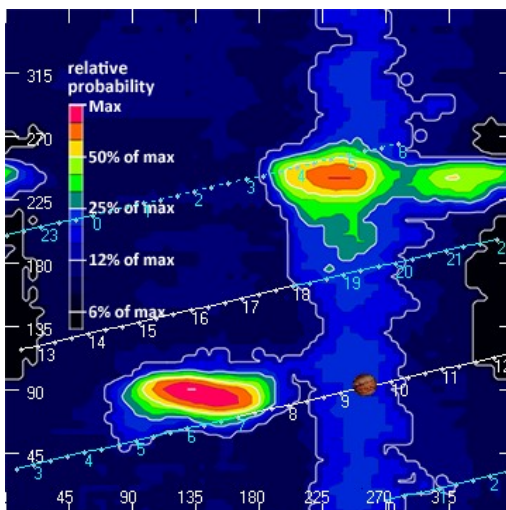
1. FSX-8S fed by the TFD array
 - a. Initially connect to array through HNRAO Multicoupler #1 and #2, port 2
 - i. HNRAO Multicoupler #1 – TFD/LCP
 - ii. HNRAO Multicoupler #2 – TFD/RCP
 - iii. Port 1 having 10 dB of gain, all other ports on Multicoupler have approximately 3 dB gain.
2. FSX-2 fed by the LWA array directly
 - a. LWA element configuration – 90 degrees
3. JOVE 2 receiver fed by phased JOVE dipoles @ 10' – phased for 2016-17 season
 - a. Calibrated 28 Nov. 2016
 - b. Connected to dipoles through HNRAO Multicoupler #3, port 1.
4. Icom R75 receiver fed by experimental DDRR antenna directly.
 - a. Calibrated 28 Nov. 2016

HNRAO Observing Log

40.673181 N – 80.437885 W
EN90sq



Beginning of Pass



End of Pass

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



I was not prepared for this storm and was not present during the emissions, therefore this will be a post-event report. I was also unable to record the Galactic Background temperatures at HNRAO, LGM Alachua and AJ4CO observatories for comparisons.

I do not have any SkyPipe data to present although there was activity at 20.1 MHz. For some reason, SkyPipe saved a file for the correct time period, but lacks any data.

A Non-Io-A event from 0909 UT through 0930 UT. Dominated by L-bursts. Modulation lanes prominent. At one point, cross hatched modulation lanes are apparent. This event was observed with both the FSX-8S and TFD antenna array, and the FSX-2 and LWA array. Surprisingly, the FSX-2 and LWA array saw a greater intensity in Jupiter emissions.

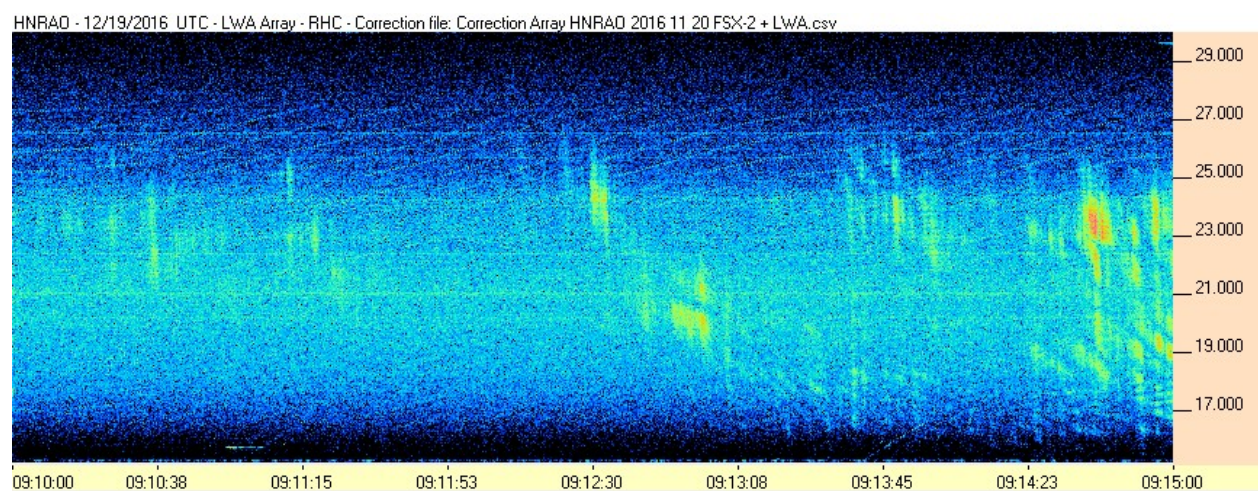
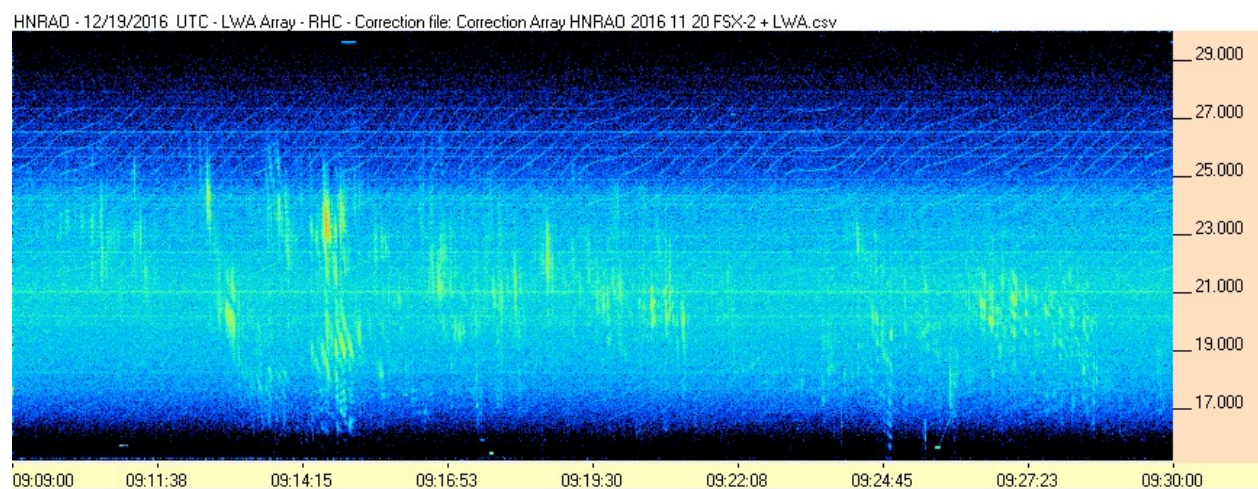
1. 0910 UT
 - a. Emissions observed to begin
 - b. Weak L-bursts centered at 23 MHz.
 - i. A series of near vertical L-bursts occur over the next 38 seconds.
2. 0911 UT
 - a. Emissions weaken
3. 0912:30 UT
 - a. A series of stronger emissions begin
4. 0913 UT
 - a. The first obvious negative slope modulation lane can be seen.
 - b. Emissions at this point begin to span 26 MHz to 15 MHz
 - c. L-bursts continue to be near vertical
5. 0914 UT
 - a. The most intense bursts of the storm occur at 23-24 MHz.
 - i. Negative slope modulation lanes continue to be evident.
 - ii. Possible cross hatched modulation lanes at 0915 UT.
6. 0915:30 UT
 - a. Emissions weaken substantially and continue to be weak L-bursts through the end of the storm with only a few exceptions.
 - b. Emissions continue to be near vertical.
7. 0920 UT
 - a. Moderately strong emissions from 19-21 MHz.
 - i. Modulation lanes continue to be observed.
8. 0925 UT
 - a. Nearly the end of emissions.
 - i. Negative slope modulation lanes continue.
9. 0926:30 UT
 - a. Last moderately strong emissions with negative slope move from 21 MHz and drop to 16 MHz.
 - b. Continued negative slope modulation lanes.

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



10. 0931:15
a. End of emissions.

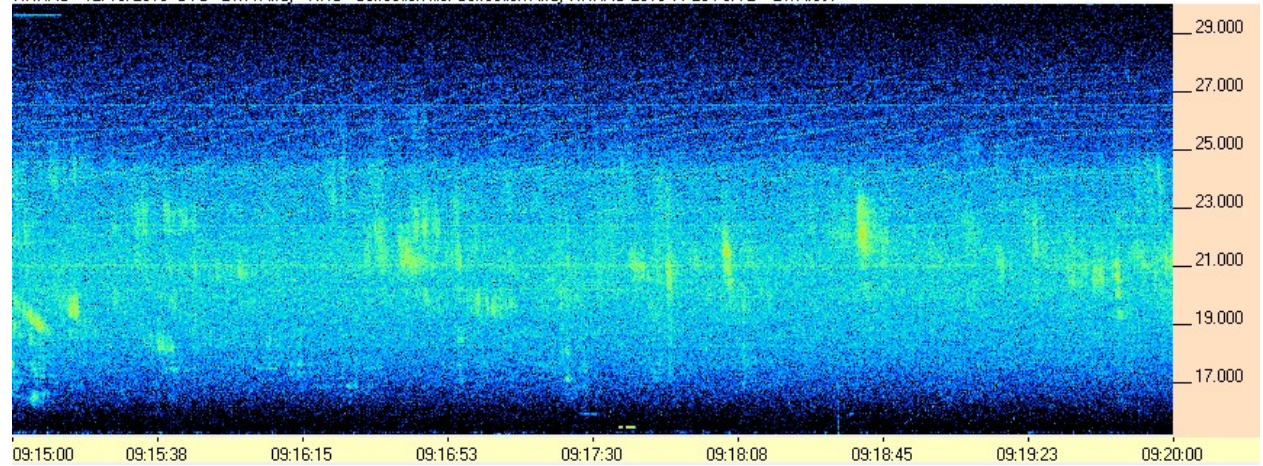
FSX-2 / LWA Array



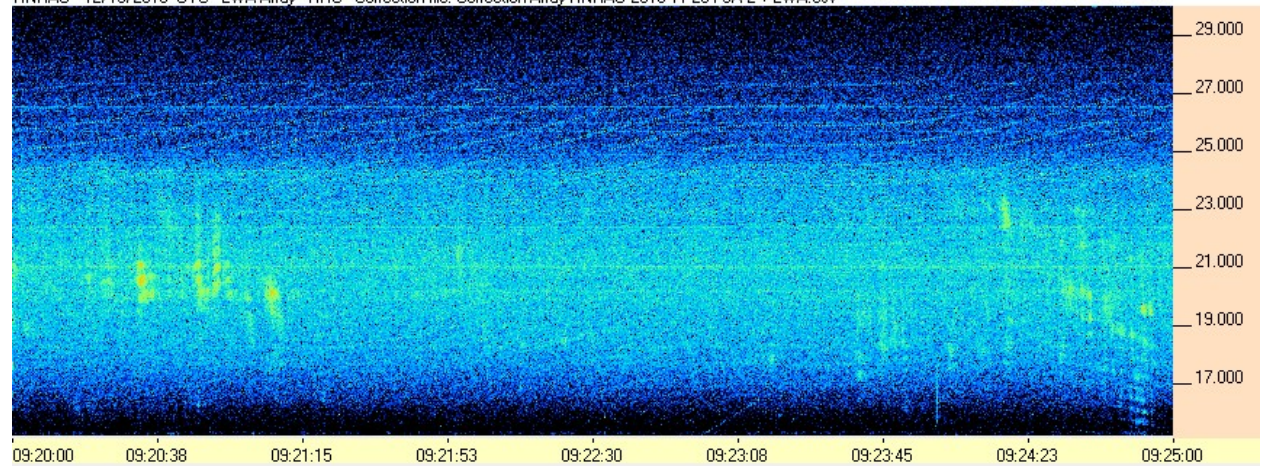
HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



HNRAO - 12/19/2016 UTC - LWA Array - RHC - Correction file: Correction Array HNRAO 2016 11 20 FSX-2 + LWA.csv



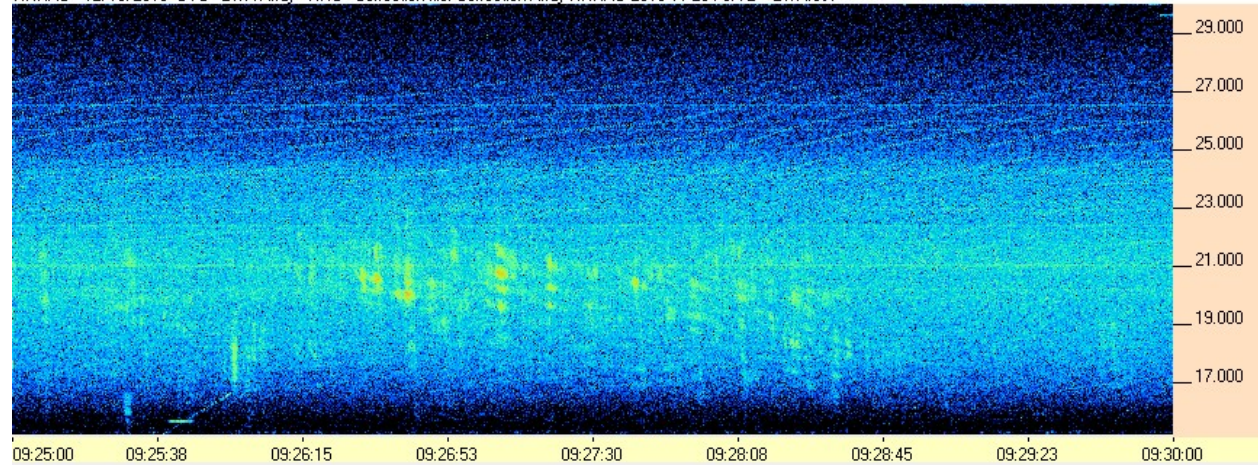
HNRAO - 12/19/2016 UTC - LWA Array - RHC - Correction file: Correction Array HNRAO 2016 11 20 FSX-2 + LWA.csv



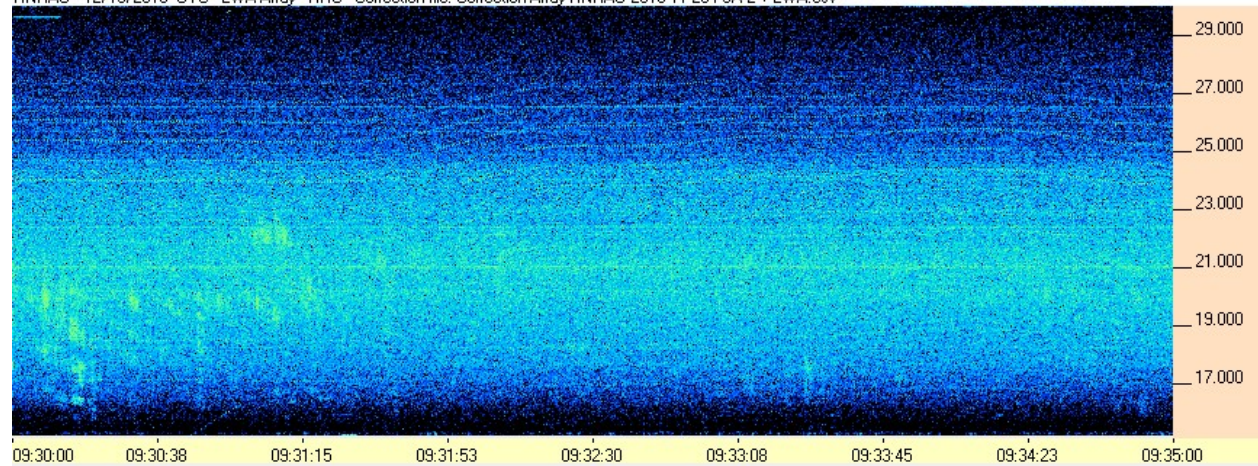
HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



HNRAO - 12/19/2016 UTC - LWA Array - RHC - Correction file: Correction Array HNRAO 2016 11 20 FSX-2 + LWA.csv



HNRAO - 12/19/2016 UTC - LWA Array - RHC - Correction file: Correction Array HNRAO 2016 11 20 FSX-2 + LWA.csv

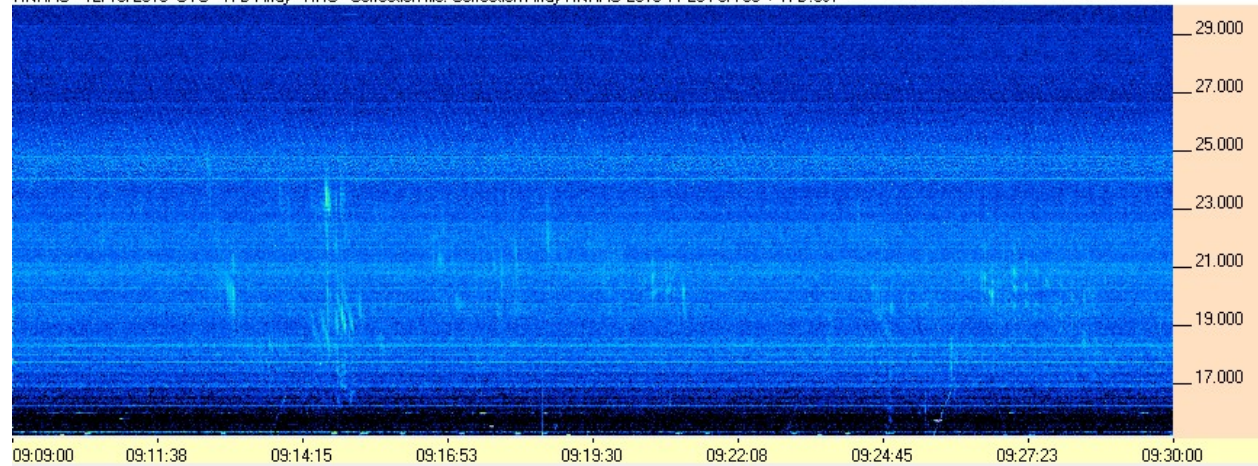


HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq

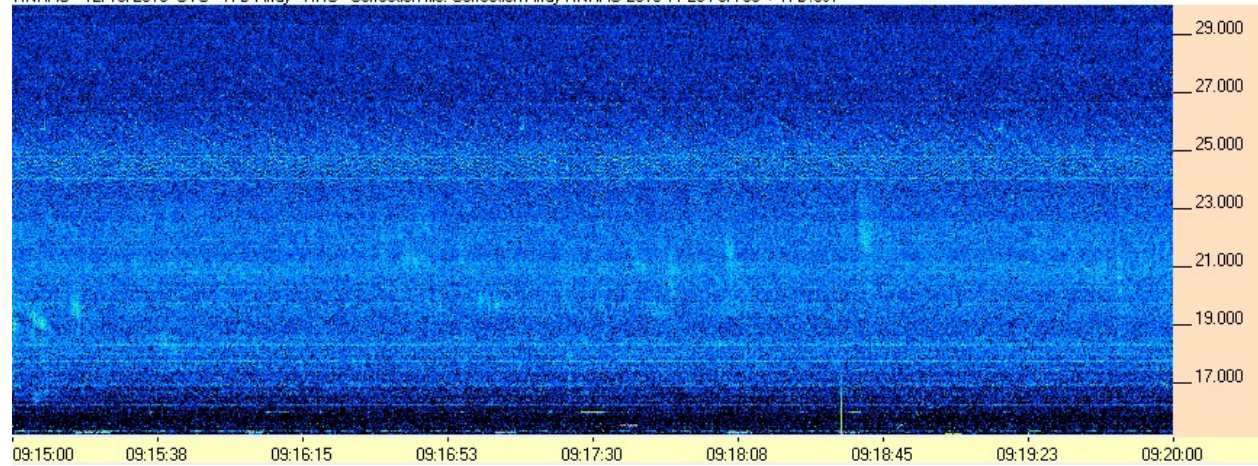


FSX-8S / TFD Array

HNRAO - 12/19/2016 UTC - TFD Array - RHC - Correction file: Correction Array HNRAO 2016 11 20 FSX-8S + TFD.csv



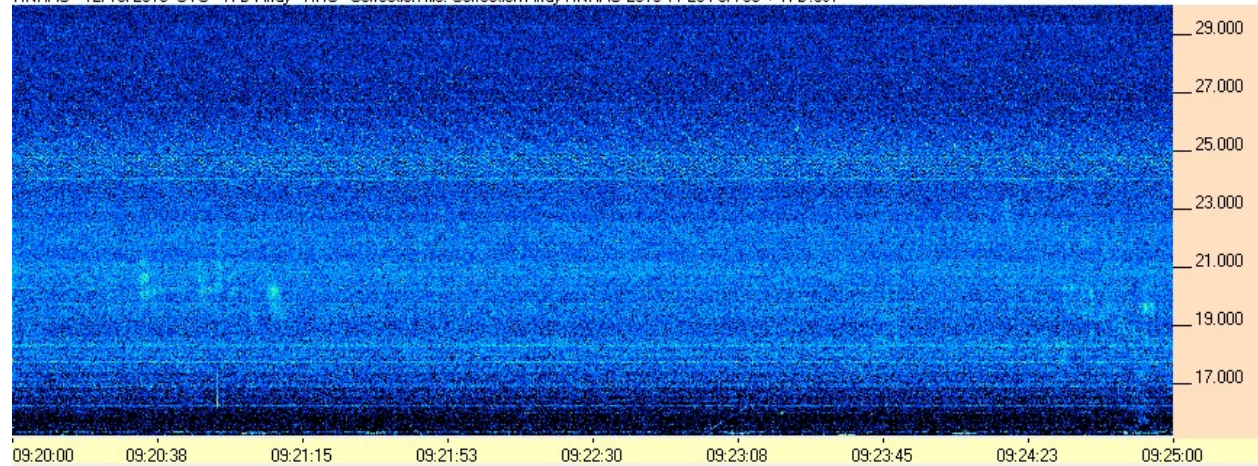
HNRAO - 12/19/2016 UTC - TFD Array - RHC - Correction file: Correction Array HNRAO 2016 11 20 FSX-8S + TFD.csv



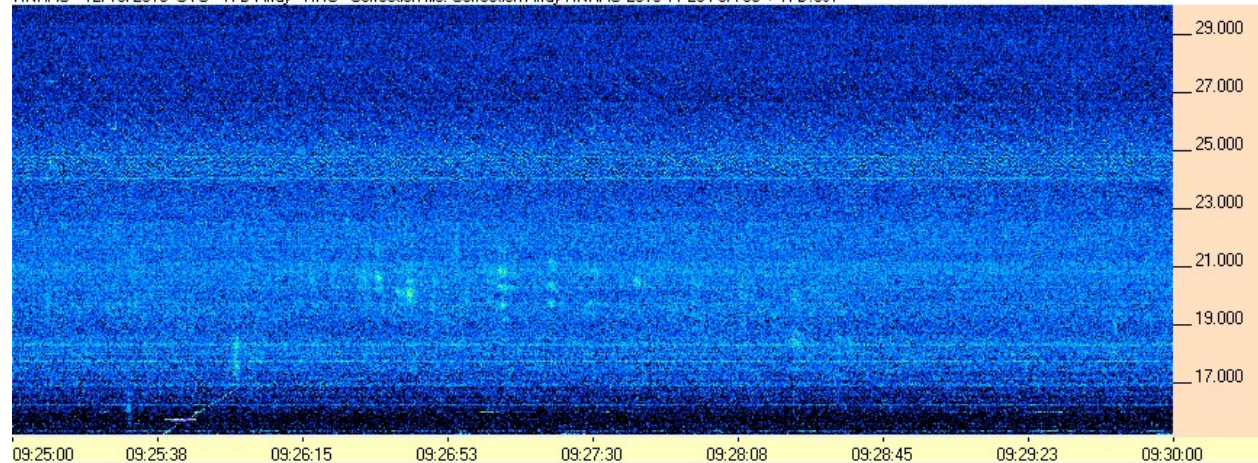
HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



HNRAO - 12/19/2016 UTC - TFD Array - RHC - Correction file: Correction Array HNRAO 2016 11 20 FSX-8S + TFD.csv



HNRAO - 12/19/2016 UTC - TFD Array - RHC - Correction file: Correction Array HNRAO 2016 11 20 FSX-8S + TFD.csv



HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



HNRAO - 12/19/2016 UTC - TFD Array - RHC - Correction file: Correction Array HNRAO 2016 11 20 FSX-8S + TFD.csv

