

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: 16 December 2016

Object: Io A/C

Start of pass:	1100 UT		
Jupiter Altitude:	39.7 degrees	Jupiter Azimuth:	153.9
Jupiter CML:	237.55	Jupiter Io Phase	218.30
Jupiter RA:	13:11	Jupiter Dec:	-06:12
Sun Altitude:	-11.0 degrees	Sun Azimuth:	111.3 degrees
Sun RA:	17:30	Sun Dec:	-23:15

End of pass:	1131 UT		
Jupiter Altitude:	40.5 degrees	Jupiter Azimuth:	112.8 degrees
Jupiter CML:	243.59	Jupiter Io Phase	219.71
Jupiter RA:	13:11	Jupiter Dec:	-06:12
Sun Altitude:	-09.3 degrees	Sun Azimuth:	112.8 degrees
Sun RA:	17:30	Sun Dec:	-23.16

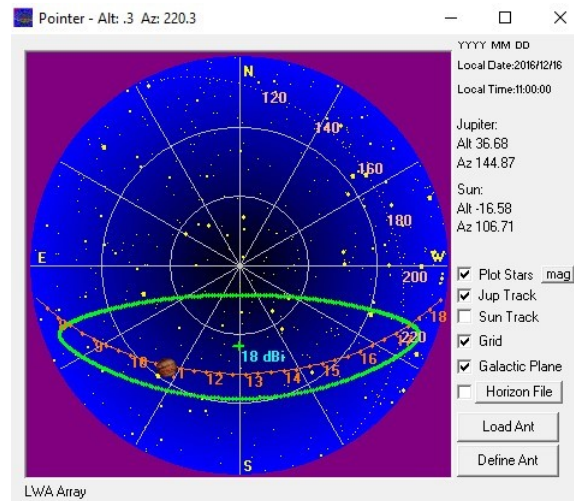
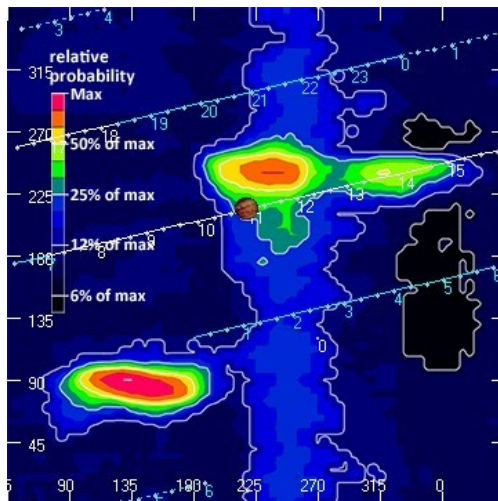
Observations made using:

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.

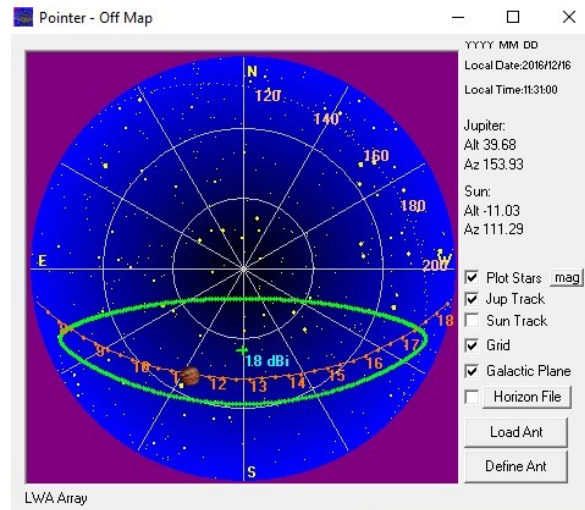
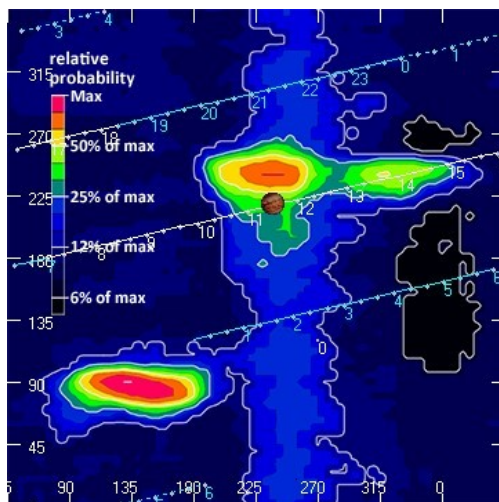
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- a. Calibrated 28 Nov. 2016
- 5. RSP2
 - a. Connected to unused LWA port (RCP/LCP) when available.



Beginning of Pass



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End of Pass

- 1) Starting GB
 - a) HMRAO GB 35 KK
 - b) Current outside temperature: 4 deg. F
 - c) No sign line noise on FSX-8S or FSX-2 spectrograph.
 - d) Mild cable TV interference @ 26.8 MHz
 - e) Winter storm warning in affect. Might have precipitation static if it occurs during pass
 - f) Jupiter currently 35.32 Altitude, 141.57 Azimuth
 - g) Sun -18 degrees Altitude
 - h) Jupiter SE of transit
- 2) 1100 UT
 - a) First Jupiter @ 15-17 MHz
 - b) L-burst
 - i) On both FSX-8S and FSX-2
 - c) Jupiter
 - i) CML 218
 - ii) Io Phase 213.8
 - iii) 36.57 Altitude. 144.57 Azimuth
- 3) 1105:30 UT
 - a) Weak S-bursts?? 1104 UT 17 MHz on FSX-2
 - i) Line noise making it nearly impossible to see any emissions on FSX-8S
- 4) 1110:10 UT
 - a) L-bursts @ 17 MHz.
 - (1) Visible on FSX-8S and FSX-2
 - (2) Negative drift
 - (3) Stronger on FSX-2
- 5) 1113UT emissions @ 21 MHz
 - a) Negative drift.
- 6) 1113:46 UT
 - a) L-burst 21 -17 MHz
- 7) 1114 UT

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- a) L-bursts 19-15.5 MHz
- b) Modulation lanes?
- c) Negative drift
- 8) 1117 UT
 - a) Emissions
- 9) 1122 UT
 - a) Very weak emissions but increasing in strength
 - b) 1122:17 21 MHz to 17 MHz negative slope
- 10) 1123:36 UT
 - a) Power line RFI increasing on FSX-8S. Abruptly stops
 - b) Line noise very weak on FSX-2
- 11) 1124 UT
 - a) No evidence of Jupiter on Jove receiver
- 12) 1133 UT
 - a) possible weak L-bursts on Jove
- 13) 1136 UT
 - a) powerline snapping on JOVE
- 14) 1136 UT
 - a) Jupiter
 - i) CML 241.2. Io Phase 219.1 ii) Altitude 40.17 Azimuth 155.76
- 15) 1137 UT
 - a) line noise begins FSX-8S
 - b) line noise on JOVE much stronger. 42 kK
 - c) due to line noise no doubt
 - d) LGM GB holding steady
- 16) 1141 UT
 - a) Additional weak L-bursts 19-17 MHz
 - i) no drift
- 17) 1139 UT
 - a) line noise increasing in strength on FSX-8S
- 18) 1142 UT
 - a) quieting
 - b) line noise now on FSX-2
 - c) line noise very strong fsx8s
- 19) 1145 UT
 - a) line noise stops
- 20) Line noise very strong 1149 UT abruptly ends

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- a) back 1150 UT
 - b) off and on and off again 1151 UT
 - c) saved top chart fsx8s 1152 UT to show line noise
 - d) line noise on and off again 1154 UT
- 21) 1155 UT
- a) JOVE chart very erratic due to line noise
- 22) 1204 UT
- a) CML 256.9.
 - b) Io Phase 222.8
 - c) Altitude 4187 Azimuth 154.04
- 23) probability 35%
- a) Sun
 - i) Altitude -5.48 Azimuth 115.3
 - b) HNRAO GB 35 kK.
 - c) LGM GB 47 kK.
 - d) AJ4SO GB 28 kK
- 24) 1220 UT
- a) HNRAO GB 31 kK
 - b) LGM GB 49 kK
- 25) 1227 UT
- a) Jupiter IO PHASE-B @ 25% probability
 - b) Switching FSX-2 to LCP
 - c) probably end of Io Phase-B portion of pass
- 26) 1230 UT
- a) line noise on and off.
 - b) JOVE rose to 62 kK dropped back down to 42 kK
- 27) 1241 UT.
- a) LGM SkyPipe very steady
 - b) HNRAO SkyPipe very erratic from line noise
- 28) 1253 UT
- a) JUPITER AT TRANSIT
 - i) Remains @ 23% probability
 - b) Nothing on FSX2 LCP
- 29) 1254 UT
- a) HNRAO GB 42 KK
 - b) LGM GB 49 KK
- 30) 1300 UT
- a) HNRAO GB 37 kK

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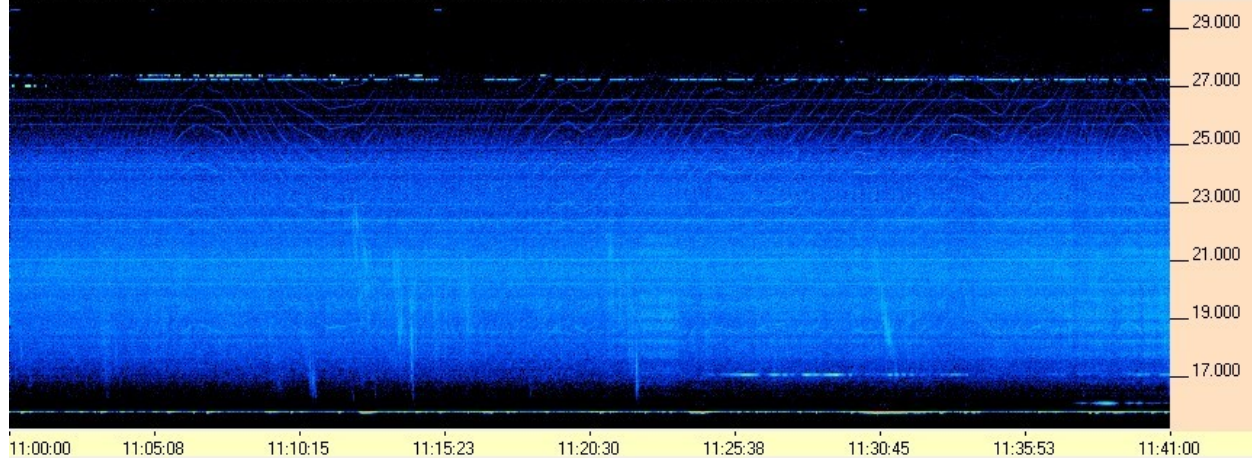


- b) LGM GB 49 kK
- c) AJ4CO GB 28 kK

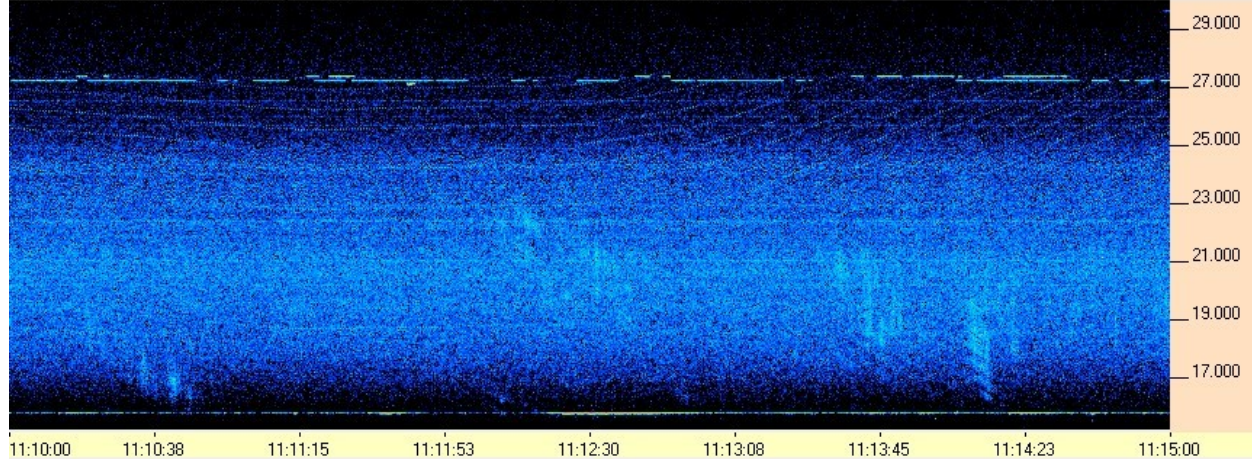
End of observing.

FSX-2

HNRAO - 12/16/2016 UTC - LWA Array - RHC - Correction file: Correction Array HNRAO 2016 11 20 LWA FS-2S + TFD.csv



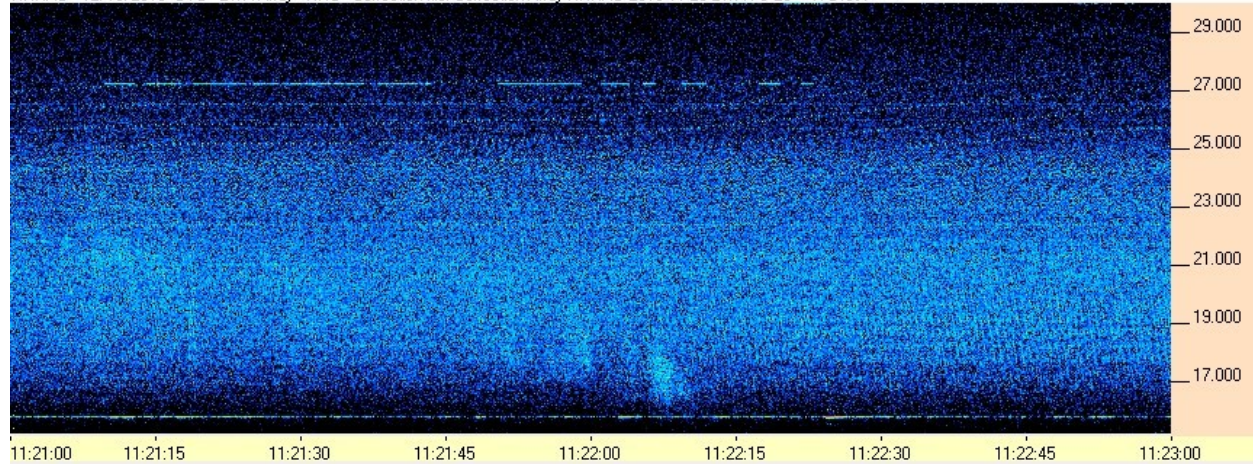
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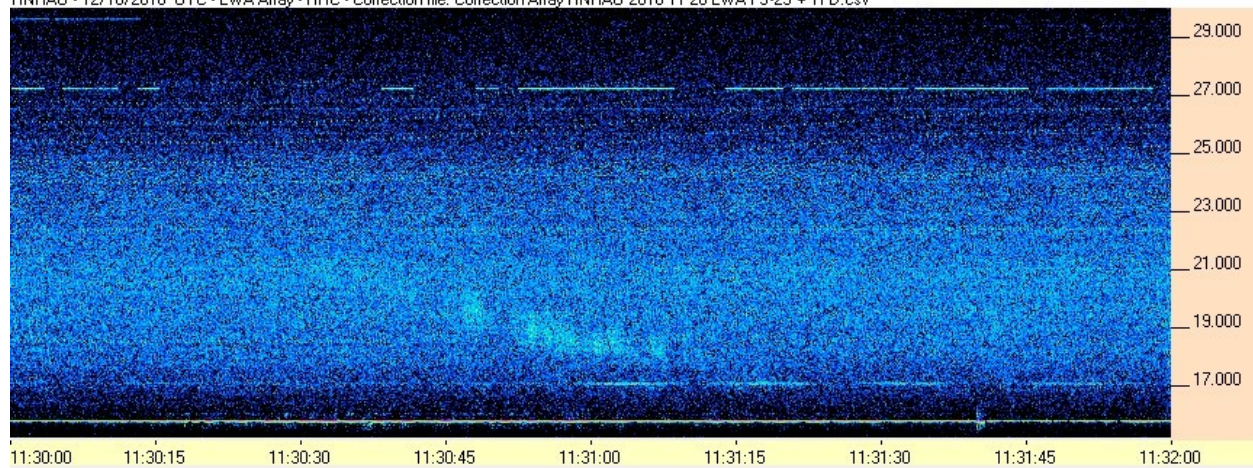
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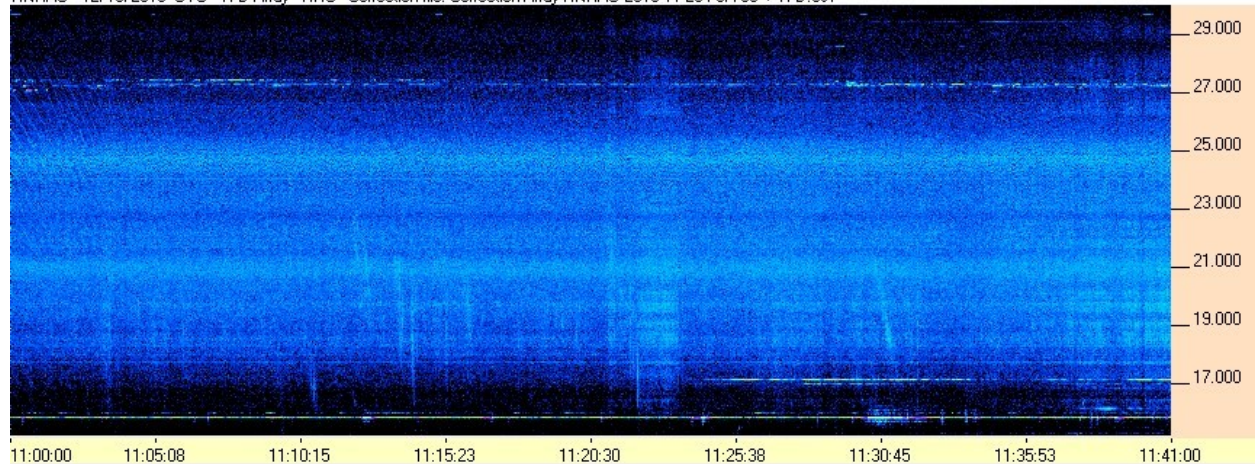


FSX-8S

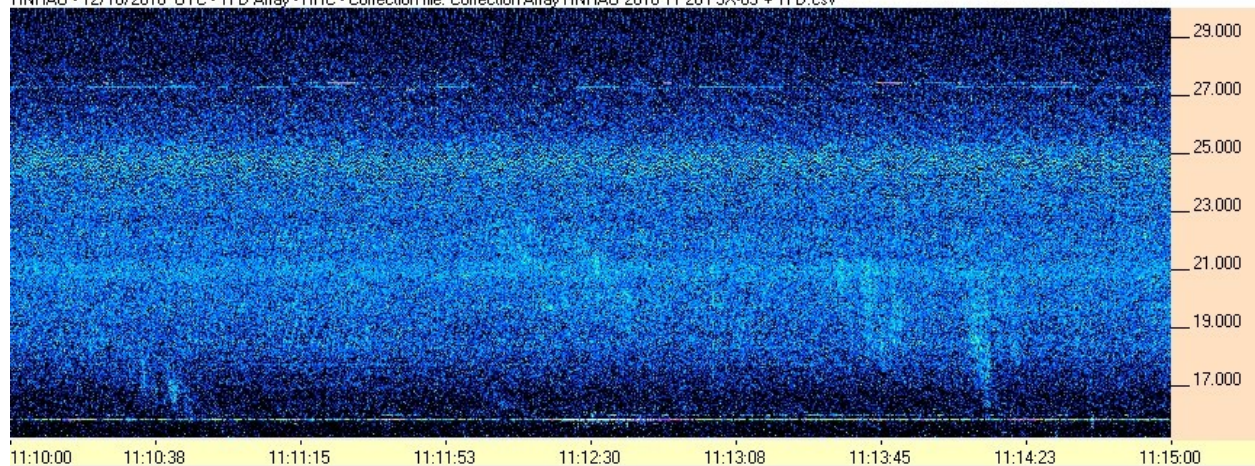
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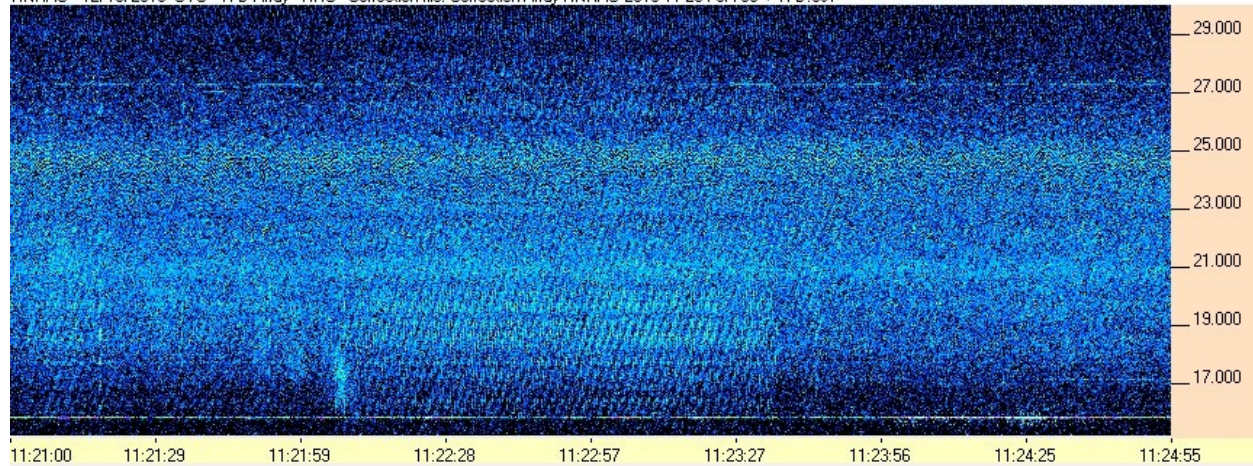
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