

HNRAO
Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: 17 December 2016

Object: Jupiter Io-B – No Jupiter to report.

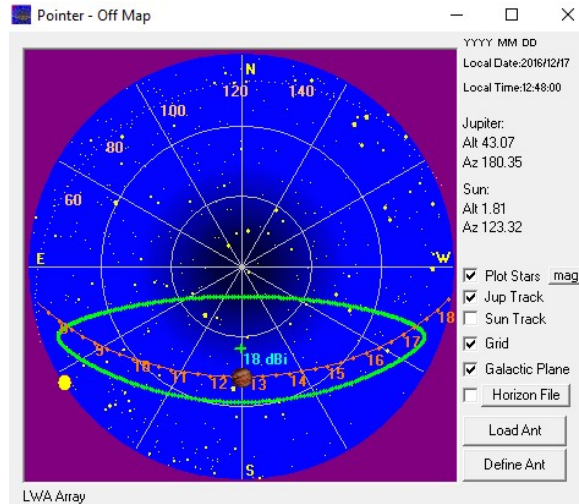
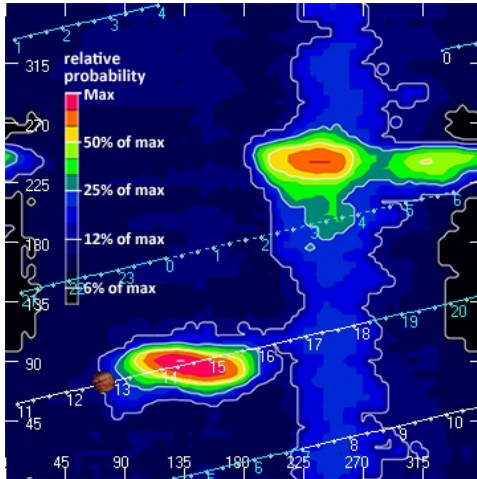
Start of pass:	1228 UT		
Jupiter: Altitude:	43.1 degrees	Jupiter: Azimuth:	180.3 degrees
Jupiter: CML:	74.57	Jupiter: Io Phase:	073.40
Jupiter: RA	13:12	Jupiter: Dec	-06:15
Sun: Altitude:	2.6 degrees	Sun Azimuth:	124.49 degrees
Sun: RA	17:34	Sun: Dec	-23:19

End of pass:	1600 UT		
Jupiter: Altitude:	25.4 degrees	Jupiter: Azimuth:	235.4 degrees
Jupiter: CML:	190.63	Jupiter: Io Phase	100.34
Jupiter: RA	13:12	Jupiter: Dec	-06:16
Sun: Altitude:	24.0 degrees	Sun Azimuth:	162.5 degrees
Sun: RA	17:35	Sun: Dec	-23:19

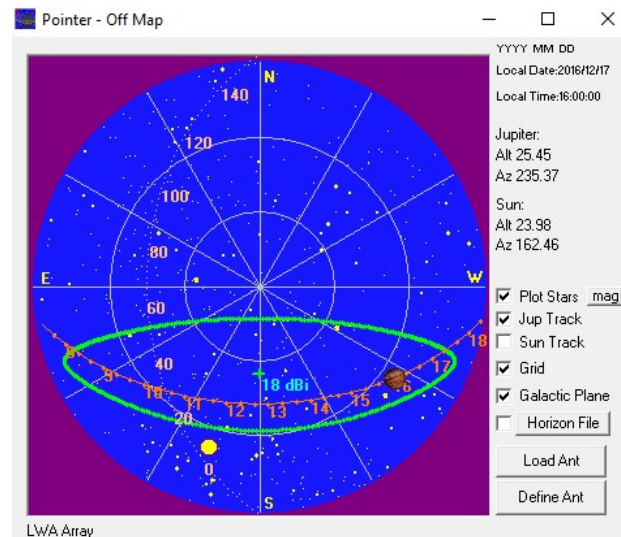
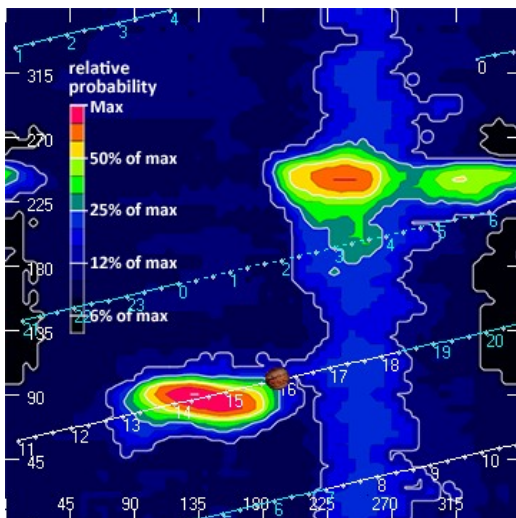
Observations made using:

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
5. RSP2 fed by LWA LCP port
 - a. Being used to locate broadcast RF sources

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Beginning of Pass



End of Pass

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1. 1248 UT

- a. Terrible line noise on the FSX-8S.
- b. FSX-2 is clear and will be used for the observations this morning.
- c. Temperature at observatory = 32 degrees with rain and ice
- d. HNRO GB 120 kK (line noise) but will be useless for Jupiter this morning
 - i. LGM GB 48 kK
- e. FSX-2 Set RCP/LWA
 - i. CO: 437 - CG: 2.5
- f. RSS header set for RCP
- g. FSX-8S Set TFD antenna
 - i. CO: 1141 - CG: 2.5
- h. Radio JOVE 2 receiver (JOVE dipoles) set @ 20.1 MHz
- i. Icom R75 (DDRR antenna) 22.3 MHz
- j. RSP2 currently 21.5 MHz (LWA LCP port) but will float as storm progresses

1. 1251 UT

- a. Jupiter at transit
 - i. Sun altitude 2.6 degrees (sunrise). Sun azimuth 124.49
 - ii. Jupiter altitude 43.05 degrees. Jupiter azimuth 182.38
- b. RJP = 17% probability
- c. Radio Havana Cuba @ 17.580 MHz is prominent on both FSX-8S and FSX-2

2. 1307 UT

- a. Jupiter entering probability area
- b. RJP = 19% probability
- c. Sun is 4.76 degrees above the horizon

3. 1313 UT

- a. Radio Havana Cuba (17.580 MHz) getting stronger.

4. 1317 UT

- a. Radio Havana Cuba beginning to reach 170 Mk on FSX-8S
- b. No Jupiter evident
- c. RJP = 25% probability

5. 1320 UT

- a. Power line remains terrible on FSX-8S
- b. In spite of that, signs that Radio Havana Cuba beginning to overload the frontend of the FSX-8S
- c. Beginning to get strong on FSX-2. Fading between red and white.

6. 1330 UT

- a. HNRAO GB 102 Mk (power line noise/precipitation static)
 - i. LGM GB 48 KK
- b. Radio Havana Cuba beginning to fade.

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7. 1337 UT

- a. LGM reports Jupiter 19-23 MHz
- b. Nothing here. No sign of Jupiter on FSX-2/LWA
- c. FSX-8S and TFD totally useless

8. 1344 UT

- a. No sign of Jupiter
- b. Radio Havana Cuba signal strength increased. Overloading FSX-8S frontend
- c. Very strong on FSX-2. Showing signs of overloading frontend of FSX-2.
- d. HNRAO GB 102 KK
 - i. LGM GM 48 KK

9. 1350 UT

- a. RJP = 48% probability
- b. No signs of Jupiter
- c. Sweeper 15-22 MHz
- d. FSX-8S continues to be useless for observations
- e. FSX-2 clear

10. 1405 UT

- a. Radio Havana Cuba signal strength peaked again. Overwhelmed FSX-8S
- b. Very strong on FSX-2
- c. RJP = 73% probability
- d. No sign of Jupiter

11. 1409 UT

- a. S-bursts FSX-8S @ 23 MHz?
- b. Nothing on FSX-2

12. 1420 UT

- a. RJP = 91% probability
- b. No Jupiter on FSX-2
- c. No apparent Jupiter on FSX-8S although line noise makes it difficult to see anything

13. 1430 UT

- a. RJP = 97% probability
- b. No Jupiter FSX-8S or FSX-2
- c. Line noise still making it extremely difficult to see anything on FSX-8S
- d. Radio Havana Cuba continues to overload front end of FSX-8S. Very strong on FSX-2.
- e. HNRAO GB 114 KK
 - i. LGM GB 59 KK

14. 1445 UT

- a. RJP = 96% probability
 - i. Still no signs of Jupiter
- b. Radio Havana Cuba continues to overload FSX-8S and FSX-2 is now being strongly affected by its broadcasts.
 - i. Jupiter Altitude 35.55 degrees, Azimuth 217.74 degrees

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- ii. Sun Altitude 18.02 degrees. Azimuth 145.94 degrees

15. 1500 UT

- a. RJP = 81% probability
 - i. Jupiter Altitude 33.6 degrees. Azimuth 221.96 degrees.
 - ii. Sun Altitude 19.45 degrees. Azimuth 148.97 degrees
- b. No sign of Jupiter on either spectrograph.
- c. Radio Havana Cuba currently not affecting either spectrograph
- d. HNRAO GB 101 KK
 - i. LGM GB 59 KK

16. 11515 UT

- a. RJP = 65% probability
 - i. Jupiter Altitude 32.03 degrees. Azimuth 224.99 degrees.
 - ii. Sun Altitude 20.67 degrees. Azimuth 151.88 degrees.
- b. No sign of Jupiter.
- c. HNRAO GB 89 KK
 - i. LGM GB 59 KK

17. 1527 UT

- a. Briefly switched FSX-2 to TFD/RCP for 10-15 seconds.

18. 1530 UT

- a. RJP = 48% probability
 - i. Jupiter Altitude 29.81 degrees. Azimuth 228.85 degrees
 - ii. Sun Altitude 22.09 degrees. Azimuth 155.78 degrees
- b. No sign of Jupiter
- c. HNRAO GB 74 KK
 - i. LGM GB 61 KK

19. 1546 UT

- a. RJP = 35% probability
 - i. Jupiter Altitude 27.61 degrees. Azimuth 232.29 degrees
 - ii. Sun Altitude 23.17 degrees. Azimuth 159.32 degrees
- b. No sign of Jupiter HNRAO
 - i. No sign of Jupiter LGM
 - ii. No sign of Jupiter AJ4CO
- c. HNRAO GB 74 KK
 - i. LGM GB 61 KK

20. 1600 UT

- a. RJP = 27%
 - i. Jupiter Altitude 26.08 degrees Azimuth 234.45 degrees
 - ii. Sun Altitude 23.75 degrees Azimuth 161.48 degrees
- b. No sign of Jupiter
 - i. No sign of Jupiter LGM
 - ii. No sign of Jupiter AJ4CO
- c. HNRAO GB 74 KK
 - i. LGM GB 61 KK

END OF OBSERVATIONS

Should have connected to LGM and AJ4CO spectrographs at the beginning of the storm for confirmation of no Jupiter here.