HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq

Date: 4 January 2017

Object: Jupiter – Io-B

Observer: Unattended

Start of pass:	**0835 UT**		
Jupiter Altitude:	**23.8 degrees**	**Jupiter Azimuth:**	**121.1 degrees**
Jupiter CML:	**110.55**	**Jupiter Io Phase:**	**098.39**
Jupiter RA:	**13:20**	**Jupiter Dec:**	**-07:01**
Sun Altitude:	**-49.2 degrees**	**Sun Azimuth:**	**081.1 degrees**
Sun RA:	**18:53**	**Sun Dec:**	**-22:53**

End of pass:	**0910 UT**		
Jupiter Altitude:	**30.5 degrees**	**Jupiter Azimuth:**	**133.9 degrees**
Jupiter CML:	**131.71**	**Jupiter Io Phase**	**103.30**
Sun Altitude:	**-38.7 degrees**	**Sun Azimuth:**	**088.2 degrees**

Observations made using:

1. FSX-8S fed by the TFD array
    a. 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

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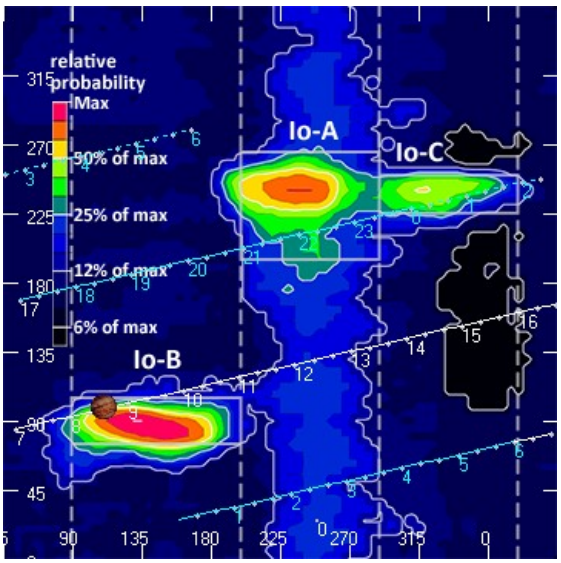
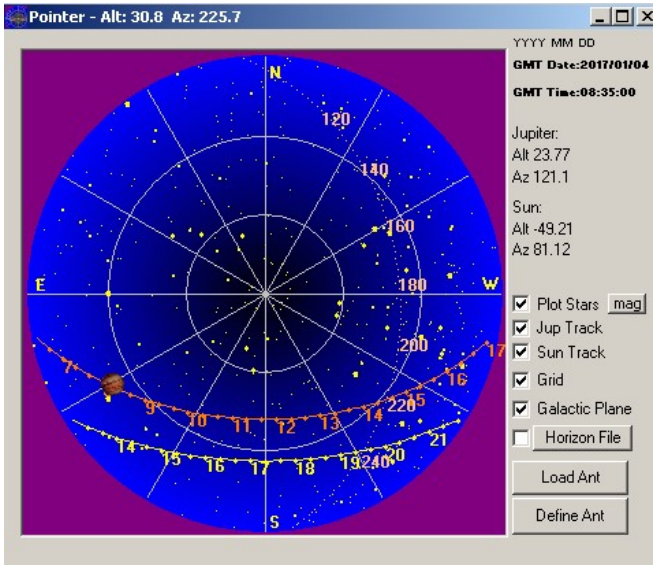
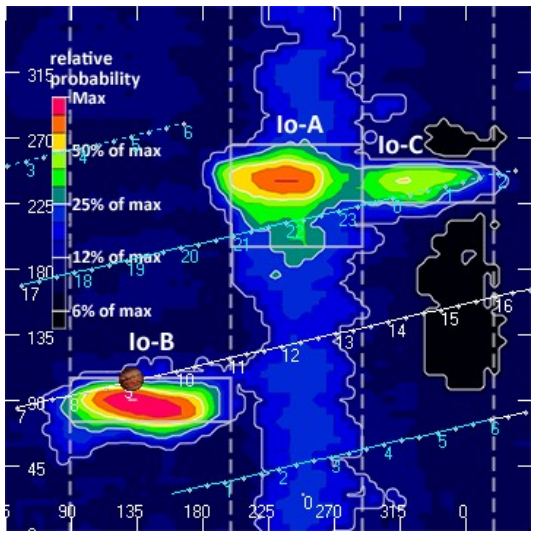
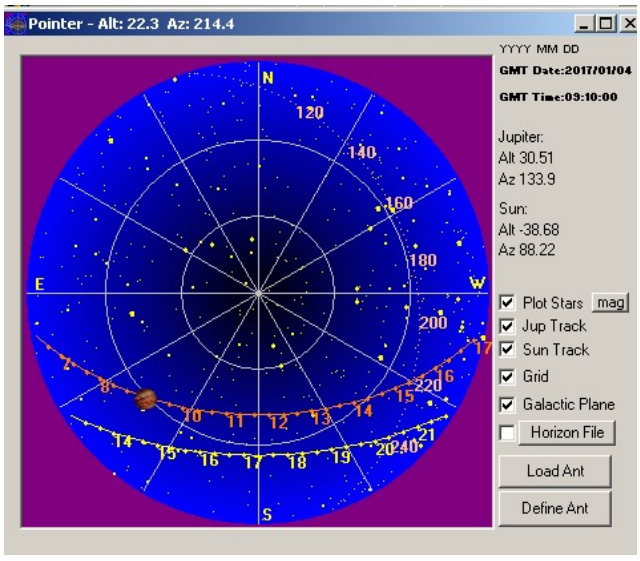




Beginning of Pass





End of Pass

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An unattended observation of very weak Io-B emissions. This was a grazing, high Io-B pass.

Manual calibration of spectrographs not performed due to an unattended observation.

1) **0840 UT**
    a) Weak RCP L-burst emissions begin below 15 MHz and start a positive slope arc which passes beyond 30 MHz at approximately 0905 UT.
    b) All emissions are vertical L-bursts. Do to the weakness of the emissions, no visible signs of modulation lanes or any other structure is evident.
2) **0910 UT**
    a) Weak emissions pass beyond the spectrograph sweeping range.
3) Observed on both FSX-2/LWA pair and FSX-8S/TFD pair.
    a) FSX-2/LWA recorded emissions for a longer period of time, stonger and in a broader frequency span than the FSX-8S/TFD.
    b) FSX-8S/TFD recorded emissions from approximately 0841 UT to 0852 UT and 15 MHz through 25 MHz.
4) Emissions not seen with Radio JOVE/Dipole pair to record.

End of Report

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