**HNRAO Observing Log**
**40.673181 N – 80.437885 W**
**EN90sq**


**Date: 10 April 2017**

**Object: Jupiter – Non-Io-B**

**Observer: Unattended**

| | | | |
|---|---|---|---|
| **Start of pass:** | **0706** | **Planetary K-index:** | **1** |
| **Jupiter Altitude:** | **37.3 degrees** | **Jupiter Azimuth:** | **215.5 degrees** |
| **Jupiter CML:** | **116.97** | **Jupiter Io Phase:** | **185.11** |
| **Jupiter RA:** | **13:08** | **Jupiter Dec:** | **-05:33** |
| **Hour Angle:** | **01:51** | **Polarization** | **RCP** |
| **Sun Altitude:** | **-35.7 degrees** | **Sun Azimuth:** | **034.3 degrees** |
| **Sun RA:** | **01:09** | **Sun Dec:** | **07:20** |

| | | | |
|---|---|---|---|
| **End of pass:** | **0706:20** | | |
| **Jupiter Altitude:** | | **Jupiter Azimuth:** | |
| **Jupiter CML:** | | **Jupiter Io Phase** | |
| **Hour Angle:** | | | |
| **Sun Altitude:** | | **Sun Azimuth:** | |

Observations made using:

1. FSX-8S fed by the TFD array
    a. 7.7 dB loss between TFD and Multicouplers.
    b. Connect to array through HNRAO Multicoupler #1 and #2, port 2
        i. HNRAO Multicoupler #1 – TFD/LCP
        ii. HNRAO Multicoupler #2 – TFD/RCP
            1. Port 1 having 10 dB of gain, all other ports have 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’
    a. 12’ phase cable - phased for 2016-17 season
    b. Calibrated 6 March 2017
    c. Connected to dipoles through HNRAO Multicoupler #3, port 1.
        i. 3.165 dB loss between Multicoupler and dipoles.
4. Icom R75 receiver fed by experimental DDRR antenna directly.
    a. Calibrated 6 March 2017
5. SDRPlay
    a. RSP1 (2) and RSP2 (1)

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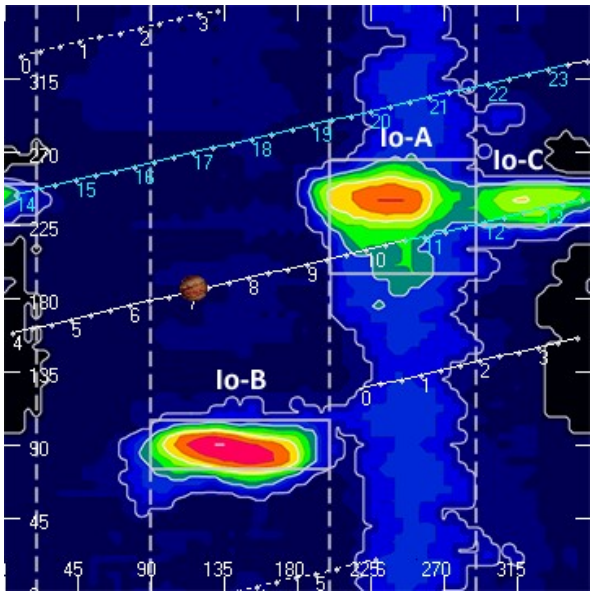
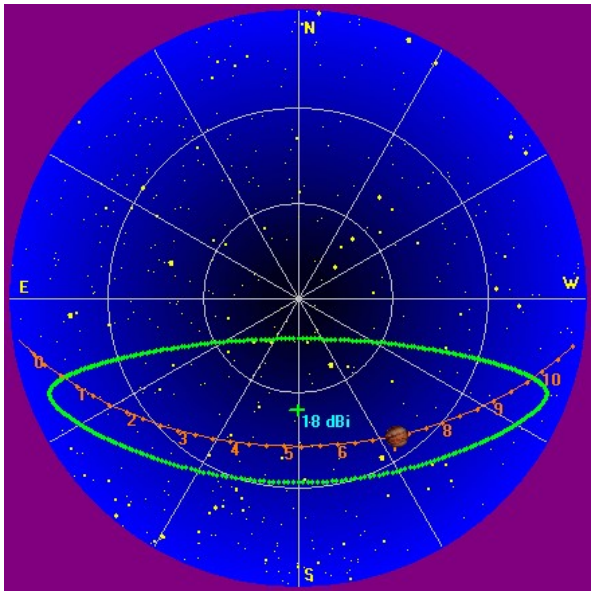
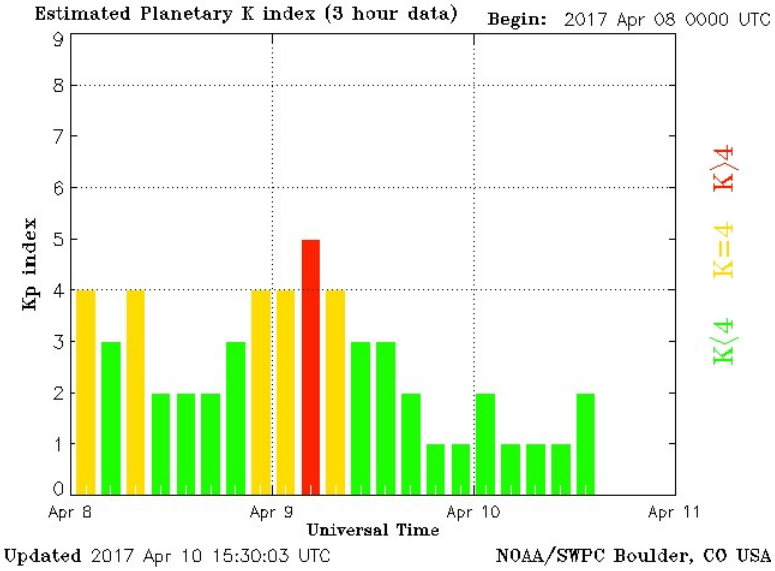



**Beginning of Pass**

**End of Pass**



| MODE | CML RANGE | Io RANGE | MAX F | POLAR | ARC | NOTES |
|---|---|---|---|---|---|---|
| Io-D | 0-200 | 95-130 | 18 | LH | Early | Also called "fourth source" |
| Io-B | (105 - 185) | (80-110) | 39.5 | RH | Early | Also called "early source" |
| non Io-B | 80-200 | 0-360 | 38 | RH | Early | Voyager info |
| Io-A | (200-270) | (205-260) | 38 | RH | Late | Also called "main source" |
| non-Io-A | (230-280) | 0-360 | 38 | RH | Late | |
| Io-C | (300-20) | (225-260) | 36 | RH&LH | Late | Also called "third source" |
| non-Io-C | 300-360 | 0-360 | 32 | RH&LH | Late | Voyager info |

Power line RFI made review of data very difficult, however, barely above galactic background, RCP negative drift L-bursts with positive drift modulation lanes were observed at 0705:55 UT until 0706:20 UT. The CML at emission strongly suggests Non-Io-B (from table above). On review of other spectrographs, there was no LCP component to this emission detected and neither FSX spectrographs captured this event in either RCP or LCP. Visually appears to span 17 MHz to 20 MHz. No other emissions were detected for the remainder of the time before sunrise.

The clearest modulation lane measured yielded a 204 kHz/sec drift rate.

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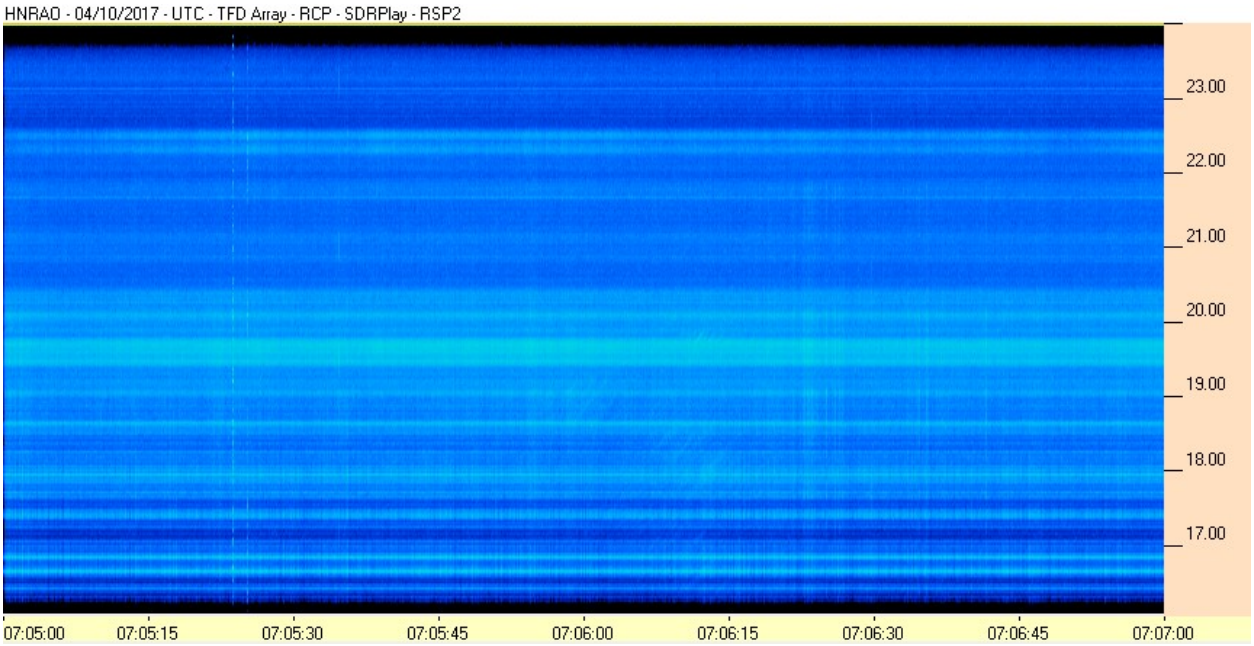
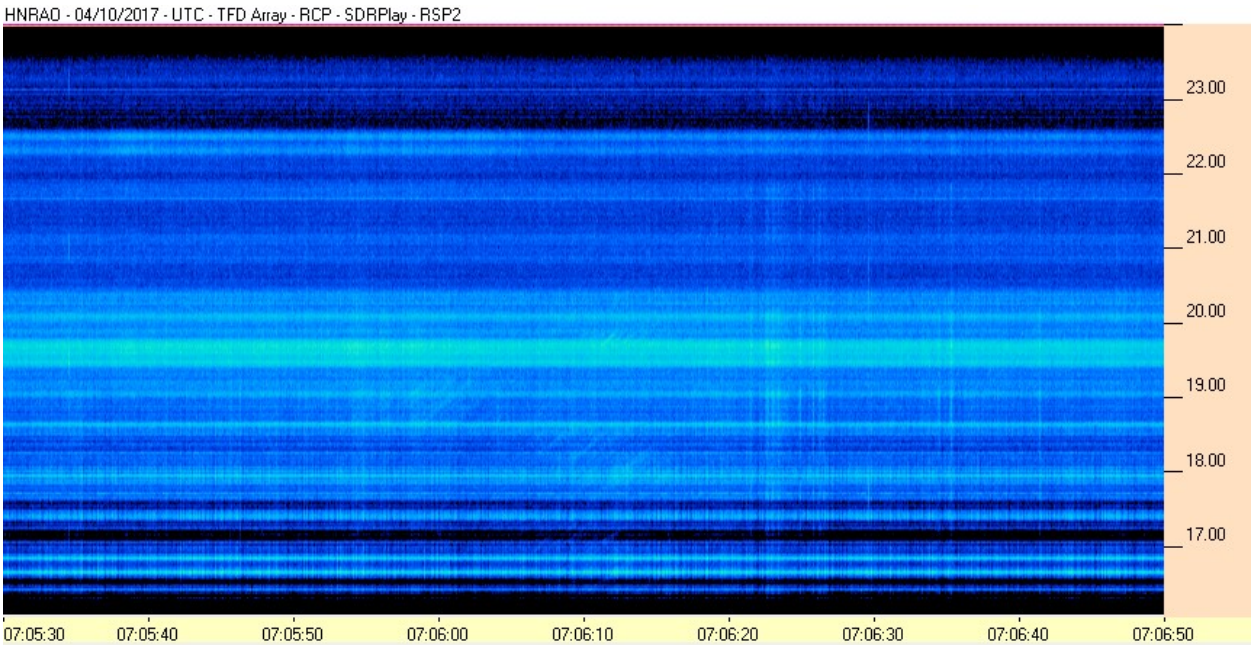
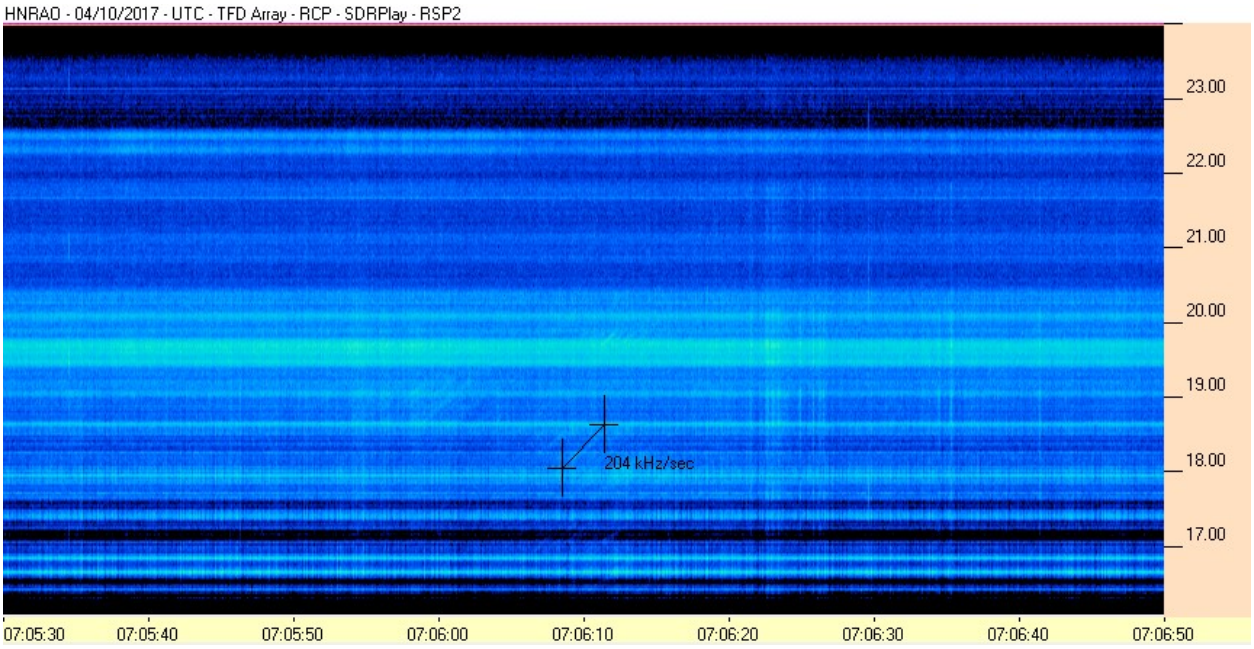
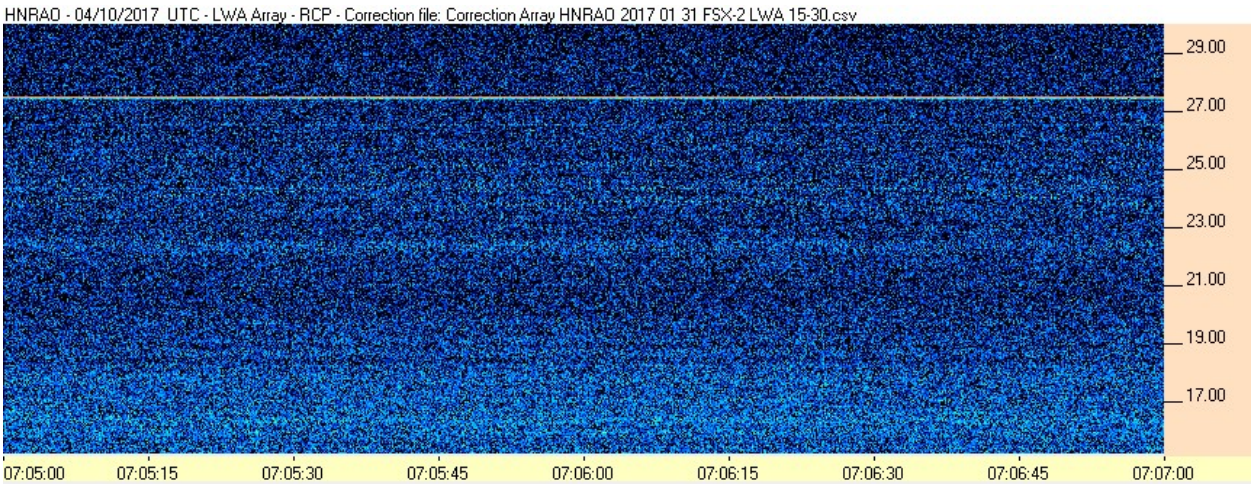
## SDRPlay RSP2/TFD Pair






## FSX-2/LWA Pair



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## FSX-8S/TFD Pair