

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



**Date: 6 May 2017**

**Object: Jupiter – Non-Io-A**

**Observer: JB**

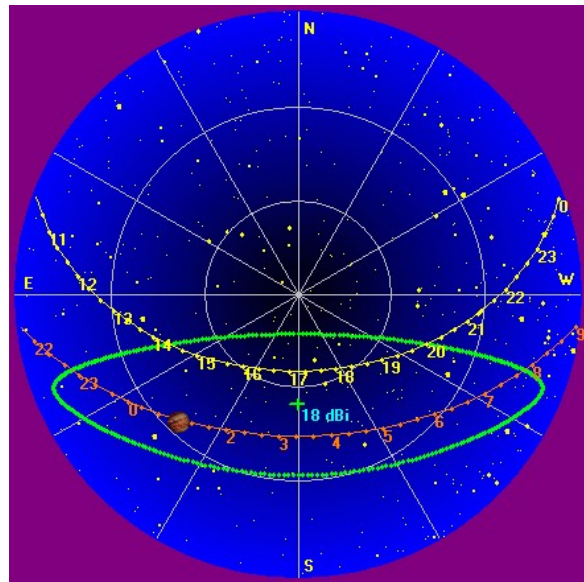
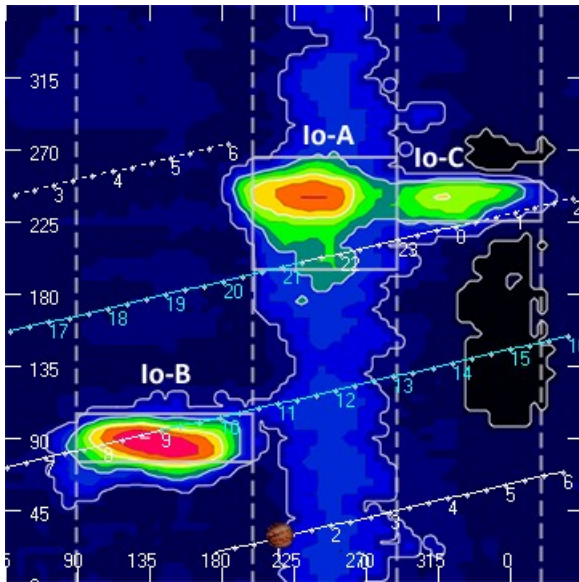
|                                |                |                               |               |
|--------------------------------|----------------|-------------------------------|---------------|
| <b>Start of pass:</b>          | <b>0108 UT</b> | <b>Planetary K-index:</b>     | <b>3</b>      |
| <b>Jupiter Altitude (deg):</b> | <b>35.4</b>    | <b>Jupiter Azimuth (deg):</b> | <b>137.4</b>  |
| <b>Jupiter CML:</b>            | <b>216.93</b>  | <b>Jupiter Io Phase:</b>      | <b>028.40</b> |
| <b>Jupiter RA (hr/min):</b>    | <b>12:57</b>   | <b>Jupiter Dec (hr/min):</b>  | <b>-04:14</b> |
| <b>Hour Angle (hr/min):</b>    | <b>-02:14</b>  | <b>Polarization</b>           | <b>RCP</b>    |
| <b>Sun Altitude (deg):</b>     | <b>-10.2</b>   | <b>Sun Azimuth (deg):</b>     | <b>301.6</b>  |
| <b>Sun RA (hr/min):</b>        | <b>02:46</b>   | <b>Sun Dec (hr/min):</b>      | <b>16:00</b>  |

|                                |                |                               |               |
|--------------------------------|----------------|-------------------------------|---------------|
| <b>End of pass:</b>            | <b>0224 UT</b> |                               |               |
| <b>Jupiter Altitude (deg):</b> | <b>43.0</b>    | <b>Jupiter Azimuth (deg):</b> | <b>160.0</b>  |
| <b>Jupiter CML:</b>            | <b>262.88</b>  | <b>Jupiter Io Phase</b>       | <b>.39.05</b> |
| <b>Hour Angle (hr/min):</b>    | <b>-00:58</b>  |                               |               |
| <b>Sun Altitude (deg):</b>     | <b>-21.4</b>   | <b>Sun Azimuth (deg):</b>     | <b>316.6</b>  |

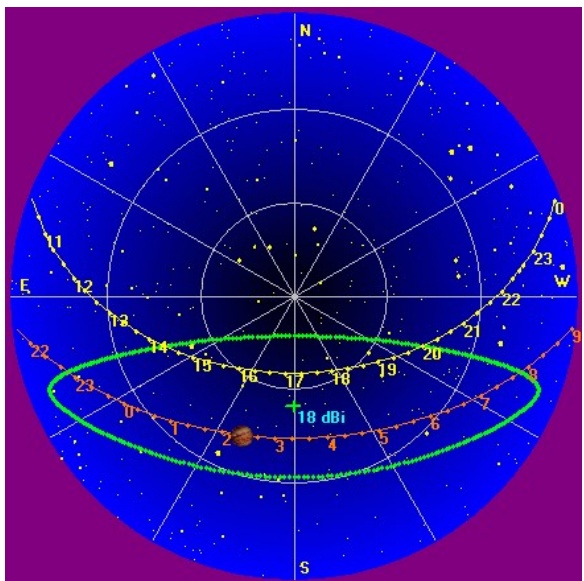
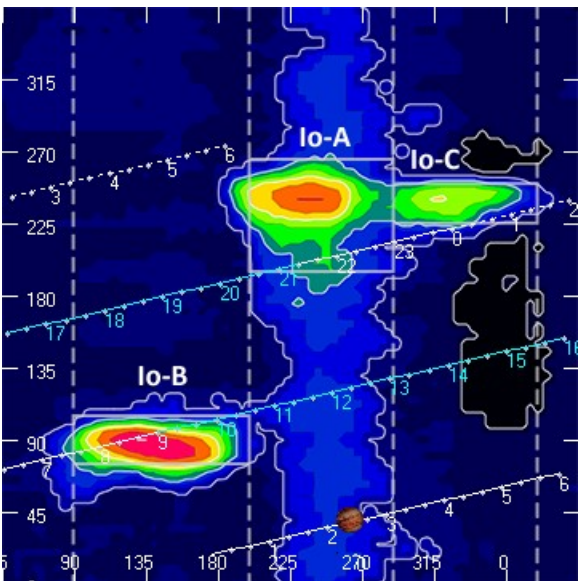
Observations made using:

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 @ 13'
  - a. 12' 6" phase cable - phased for 2016-17 season
  - b. Calibrated 19 April 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 19 April 2017
5. SDRPlay
  - a. RSP1 (2) and RSP2 (1)

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



**Beginning of Pass**



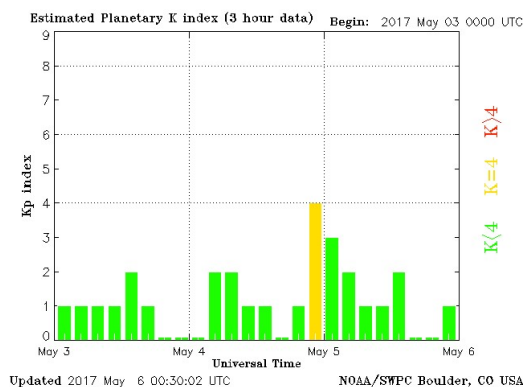
**End of Pass**

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



| 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                |

<https://www.radiosky.com/jupmodes.html>



Observation conditions were terrible for this Non-Io-A storm. Rain produced precipitation static and lightning discharges obscured most of the emissions.

Negative drift L-bursts with negative drift modulation lanes from 15 MHz to 27 MHz.

Several modulation lanes were measured and were in the -100 kHz/sec range.

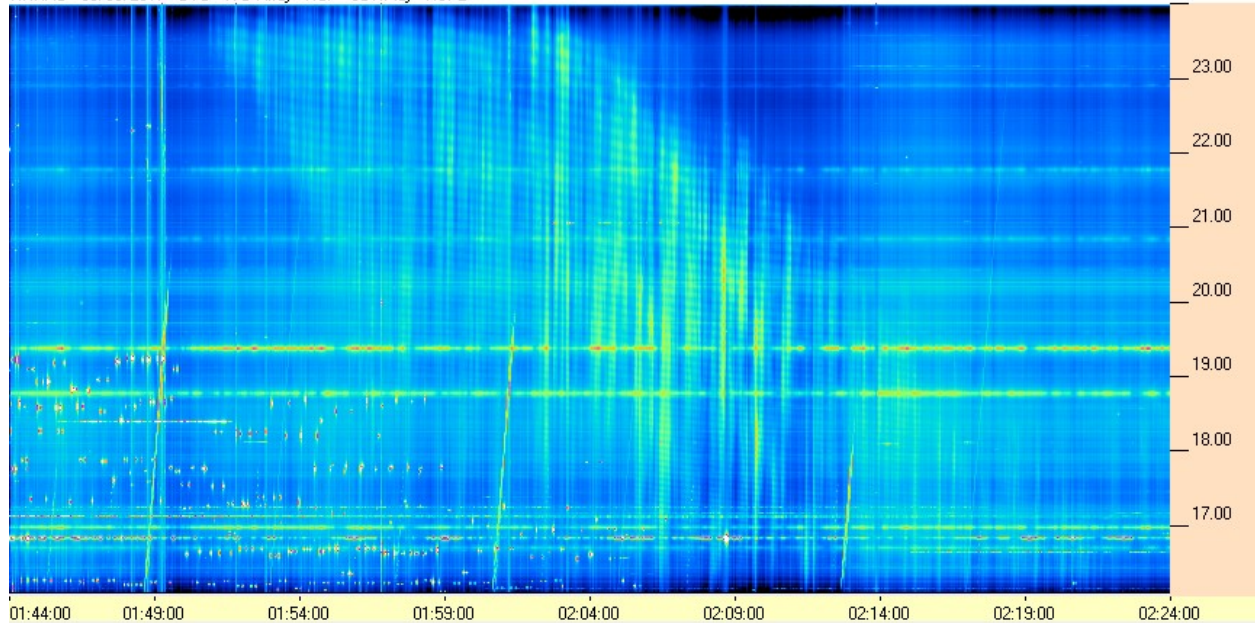


**HNRAO Observing Log**  
**40.673181 N – 80.437885 W**  
**EN90sq**

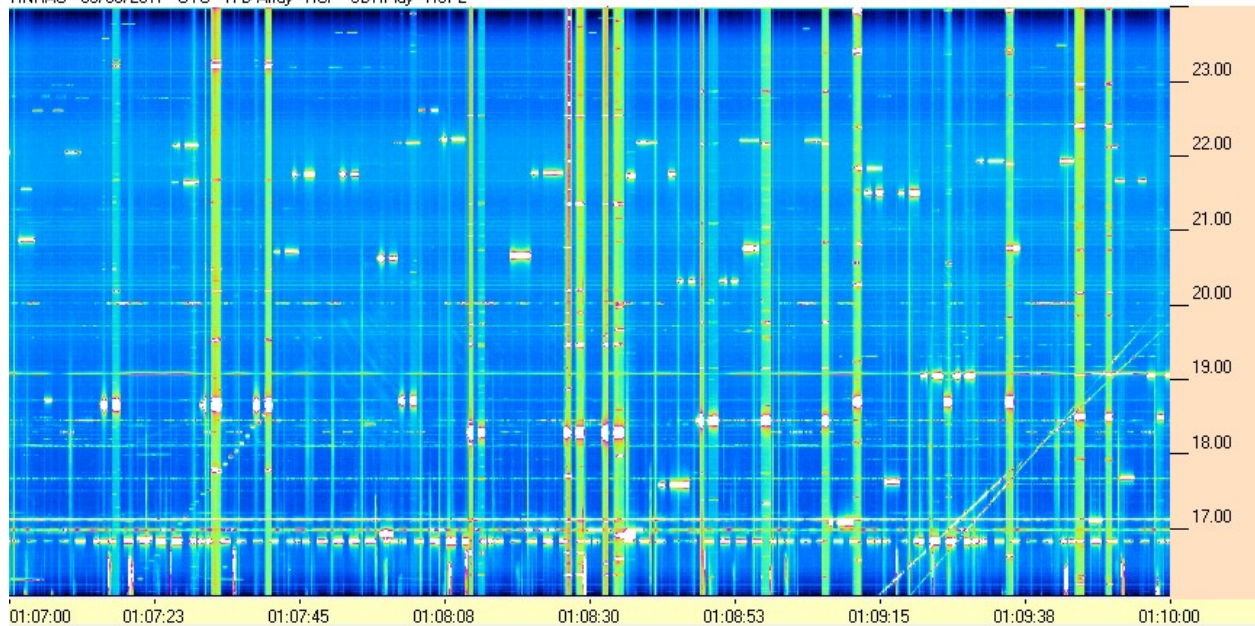


**SDRPlay RSP2/TFD Pair**

HNRAO - 05/06/2017 - UTC - TFD Array - RCP - SDRPlay - RSP2



HNRAO - 05/06/2017 - UTC - TFD Array - RCP - SDRPlay - RSP2

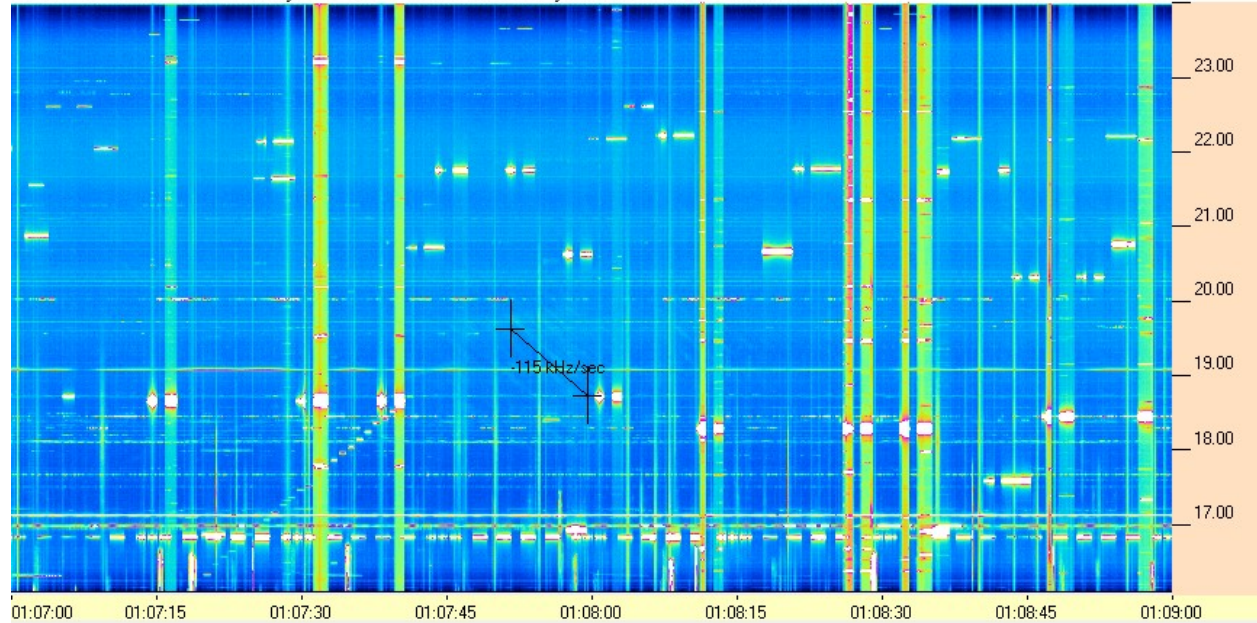




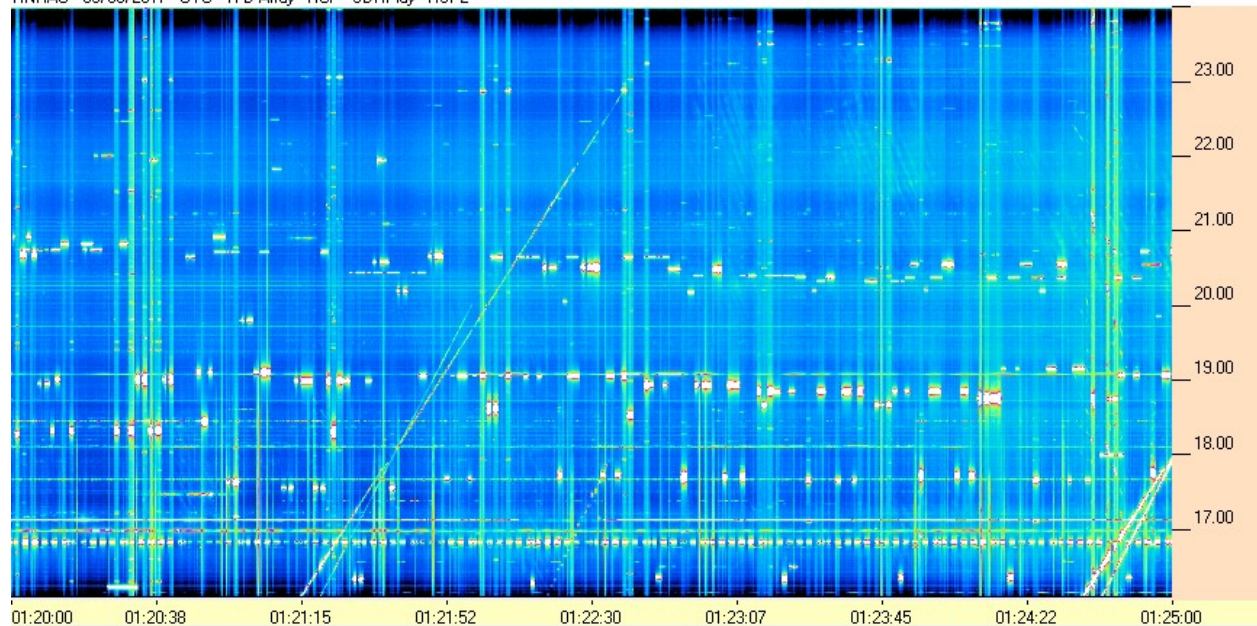
**HNRAO Observing Log**  
**40.673181 N – 80.437885 W**  
**EN90sq**



HNRAO - 05/06/2017 - UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv



HNRAO - 05/06/2017 - UTC - TFD Array - RCP - SDRPlay - RSP2



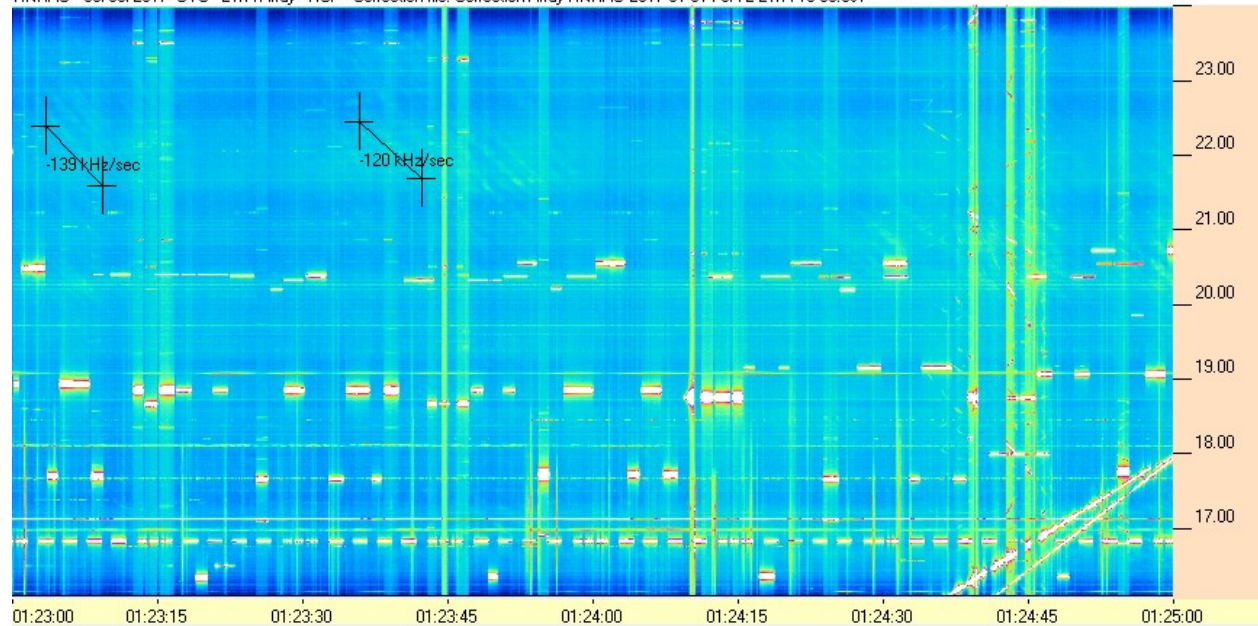


# HNRAO Observing Log

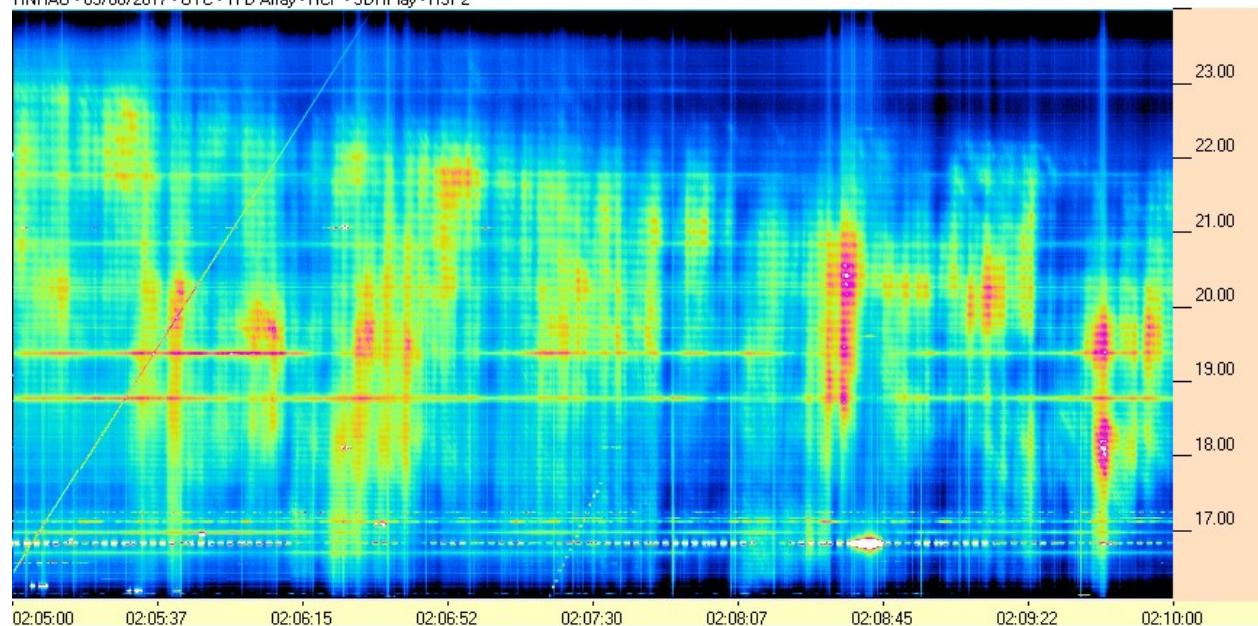
40.673181 N – 80.437885 W  
EN90sq



HNRAO - 05/06/2017 UTC - LWA Array - RCP - Correction file: CorrectionArray HNRAO 2017 01 31 FSX-2 LWA 15-30.csv

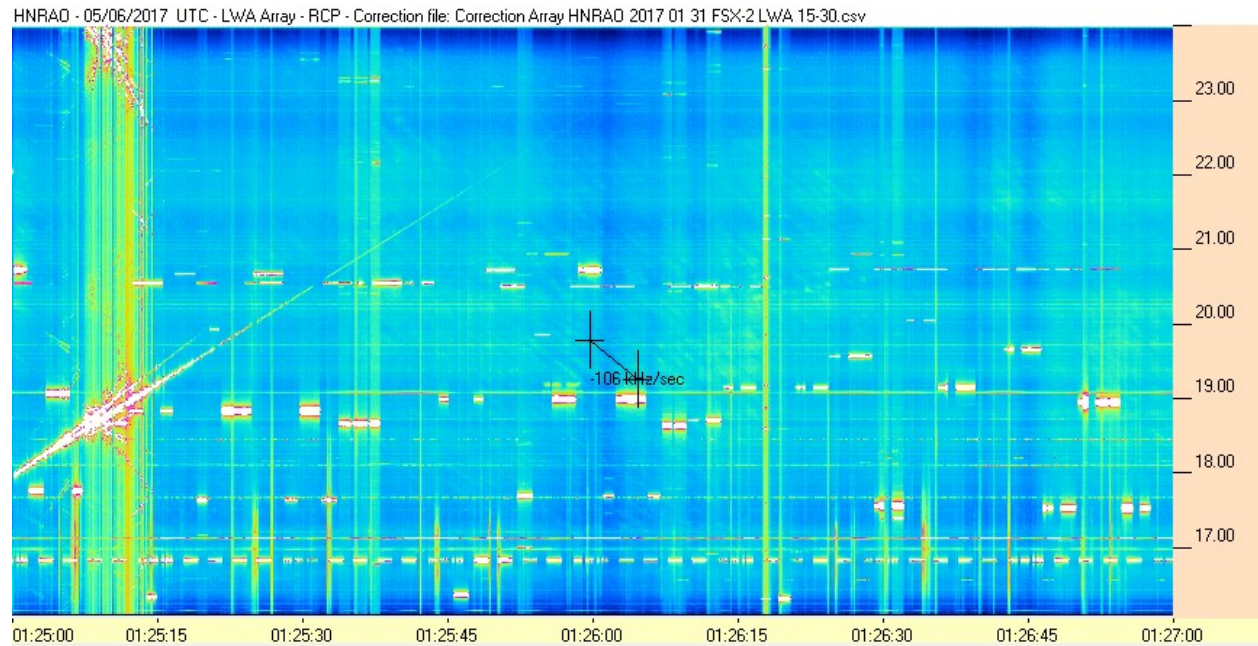


HNRAO - 05/06/2017 UTC - TFD Array - RCP - SDRPlay - RSP2

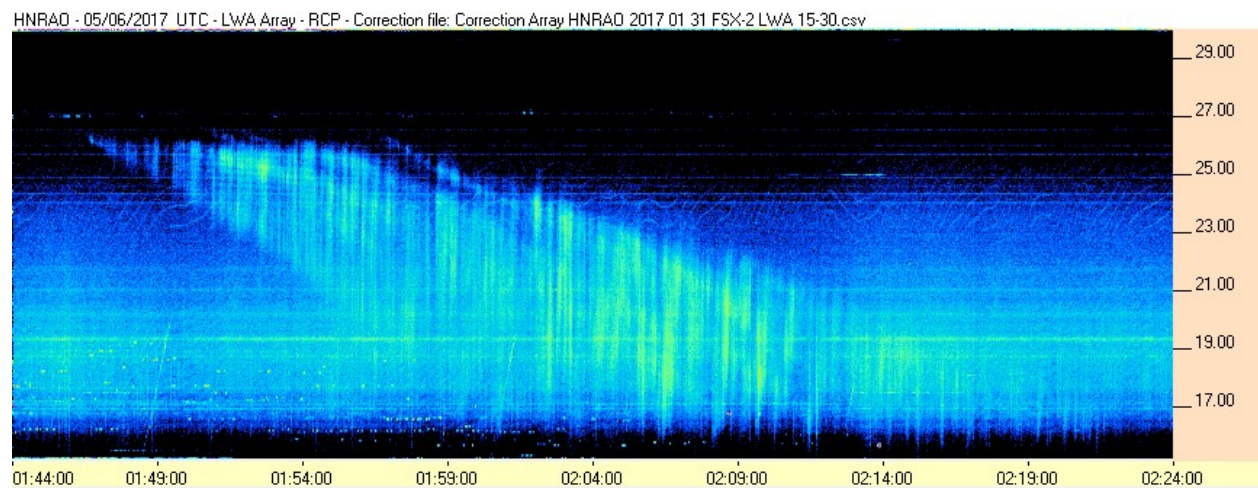




**HNRAO Observing Log**  
**40.673181 N – 80.437885 W**  
**EN90sq**



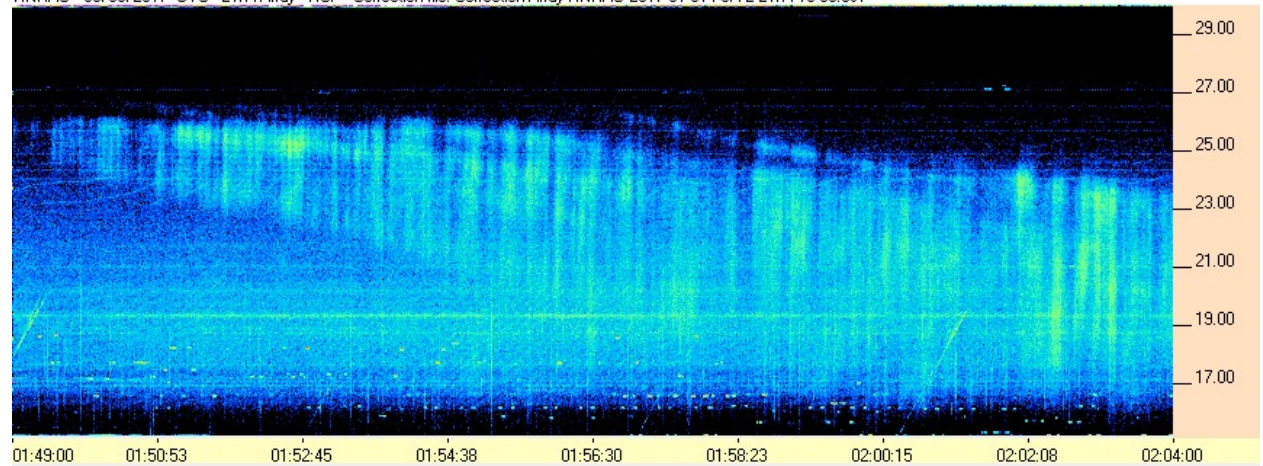
**FSX-2/LWA Pair**



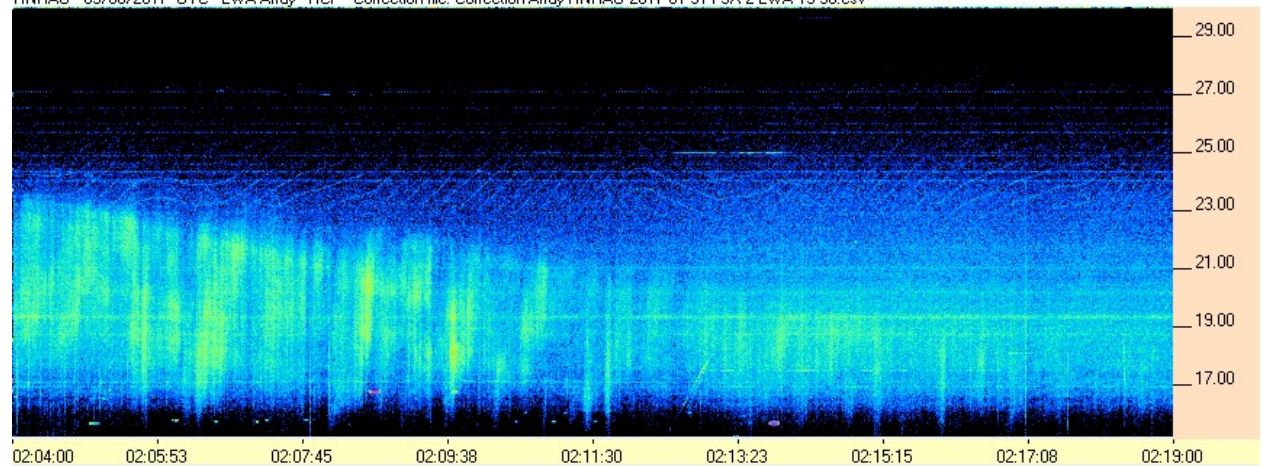
**HNRAO Observing Log**  
**40.673181 N – 80.437885 W**  
**EN90sq**



HNRAO - 05/06/2017 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv



HNRAO - 05/06/2017 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv



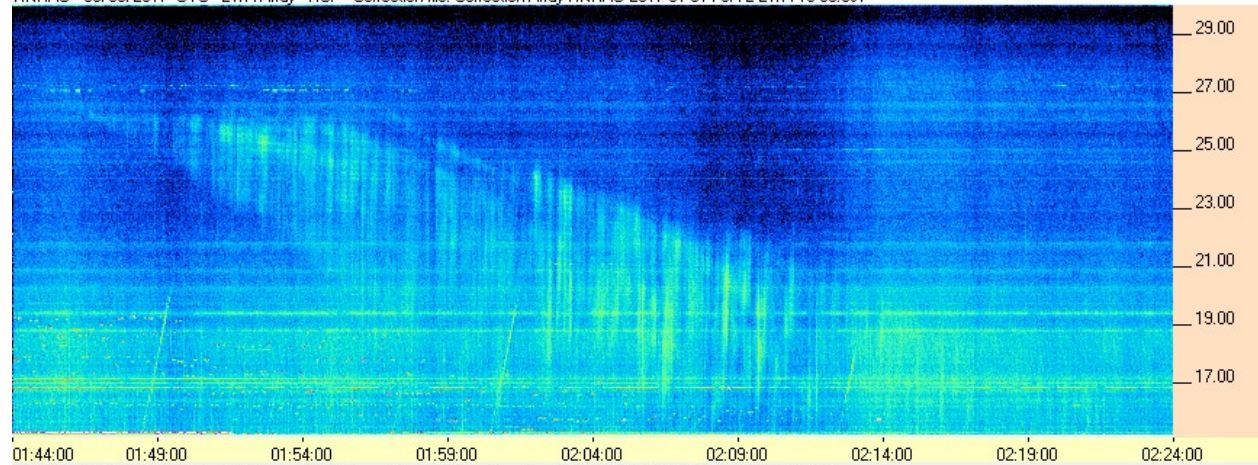


**HNRAO Observing Log**  
**40.673181 N – 80.437885 W**  
**EN90sq**

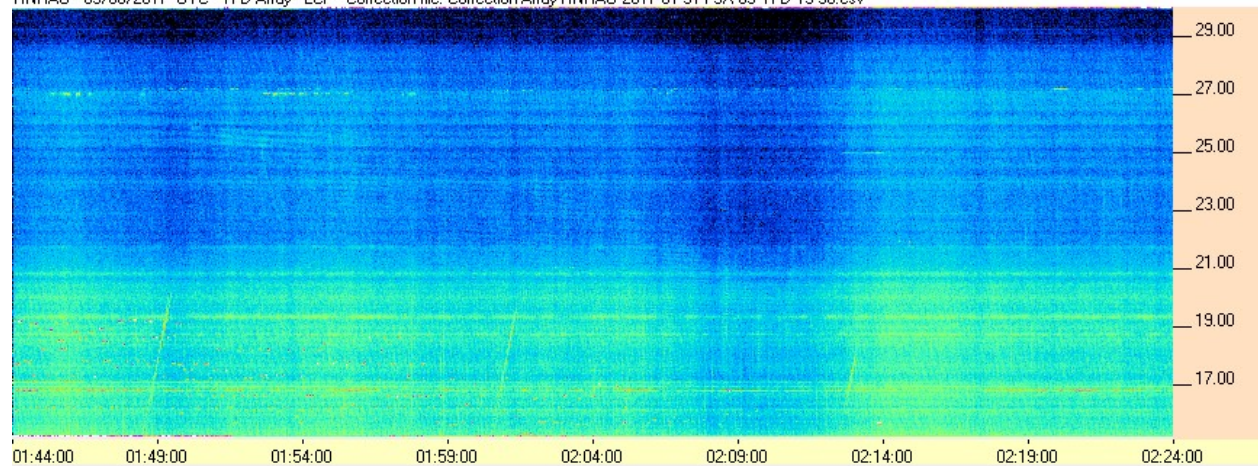


**FSX-8S/TFD Pair**

HNRAO - 05/06/2017 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv



HNRAO - 05/06/2017 UTC - TFD Array - LCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv

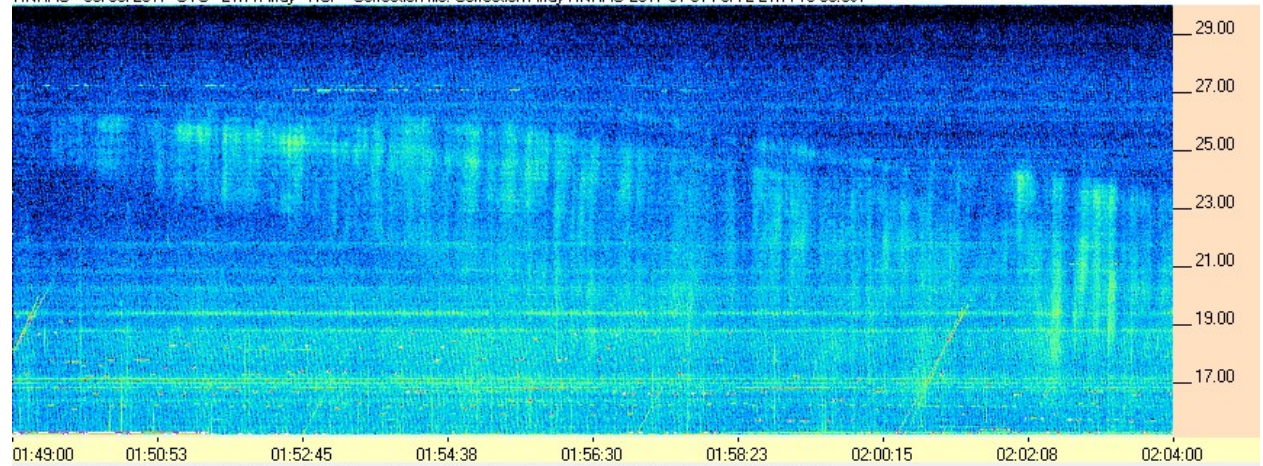




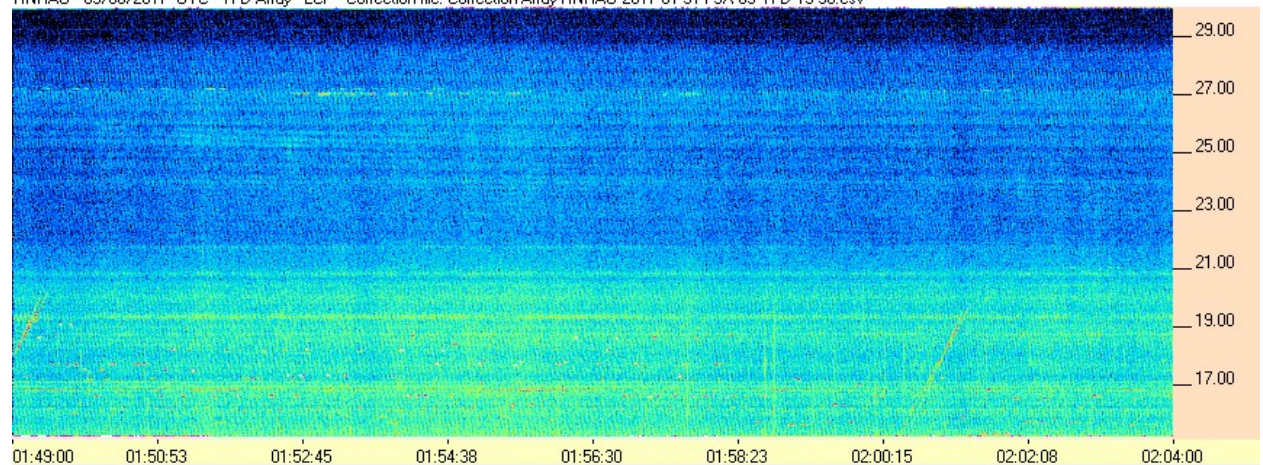
**HNRAO Observing Log**  
**40.673181 N – 80.437885 W**  
**EN90sq**



HNRAO - 05/06/2017 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv



HNRAO - 05/06/2017 UTC - TFD Array - LCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv

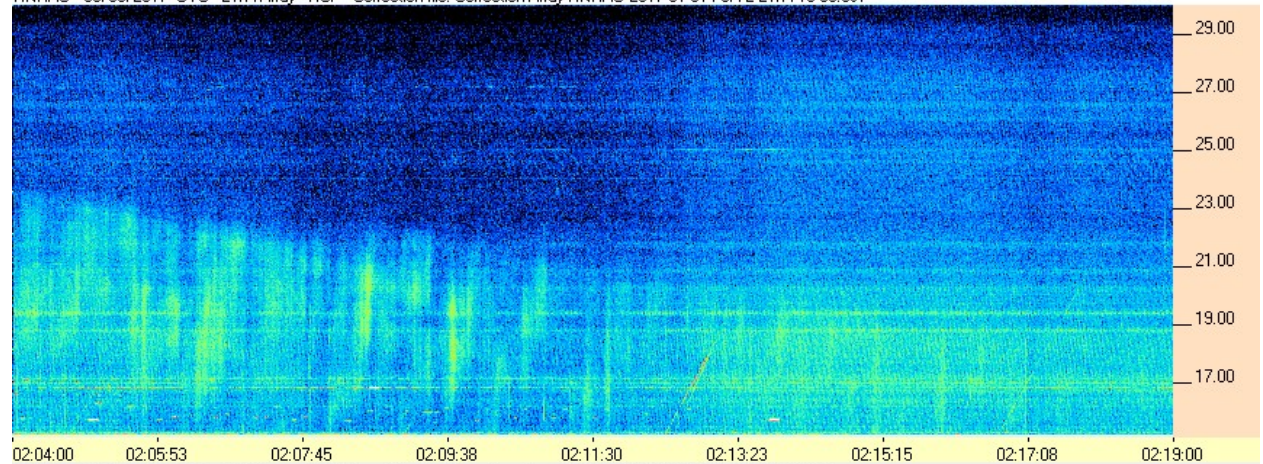




**HNRAO Observing Log**  
**40.673181 N – 80.437885 W**  
**EN90sq**



HNRAO - 05/06/2017 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv



HNRAO - 05/06/2017 UTC - TFD Array - LCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv

