HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq

Date: 14 April 2017

Object: Jupiter – Io-A

Observer: JB

Start of pass:	**0222 UT**	**Planetary K-index:**	**3**
Jupiter Altitude:	**31.7 degrees**	**Jupiter Azimuth:**	**132.4 degrees**
Jupiter CML:	**187.89**	**Jupiter Io Phase:**	**239.85**
Jupiter RA:	**13:07**	**Jupiter Dec:**	**-05:21**
Hour Angle:	**-02:36**	**Polarization**	**RCP**
Sun Altitude:	**-26.5 degrees**	**Sun Azimuth:**	**310.8 degrees**
Sun RA:	**01:23**	**Sun Dec:**	**08:44**

End of pass:	**0406 UT**		
Jupiter Altitude:	**42.4 degrees**	**Jupiter Azimuth:**	**162.3 degrees**
Jupiter CML:	**250.78**	**Jupiter Io Phase**	**254.67**
Hour Angle:	**-00:52**		
Sun Altitude:	**-38.1 degrees**	**Sun Azimuth:**	**338.1 degrees**

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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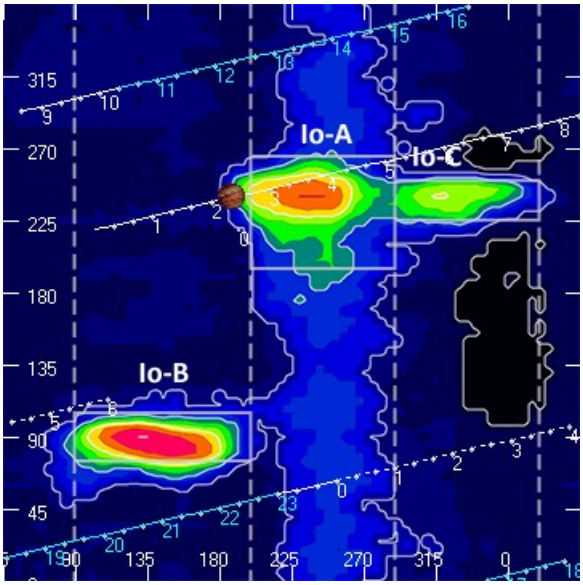
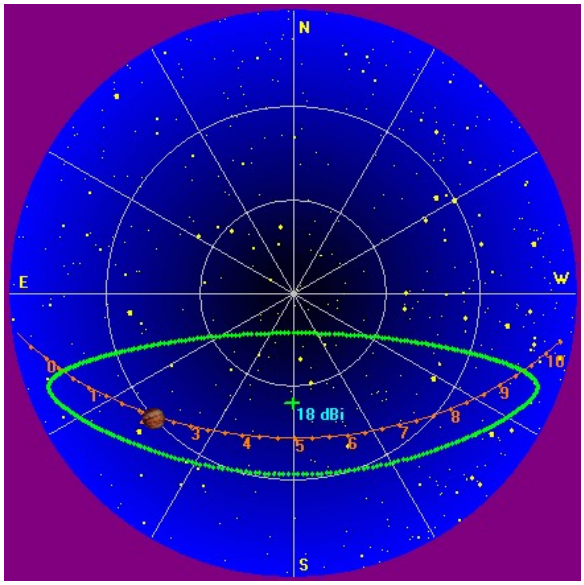
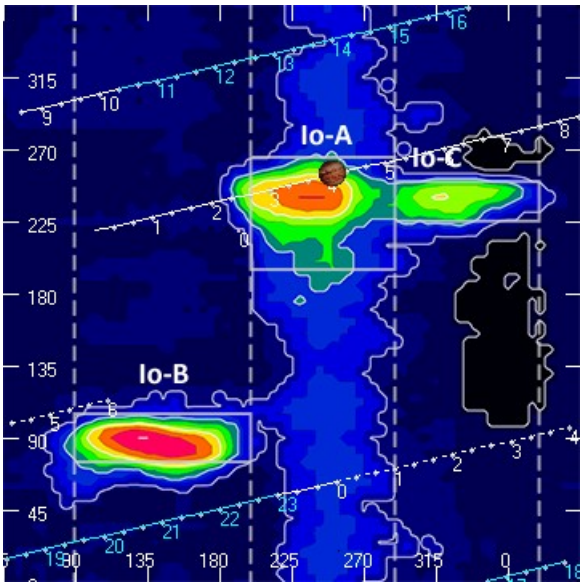
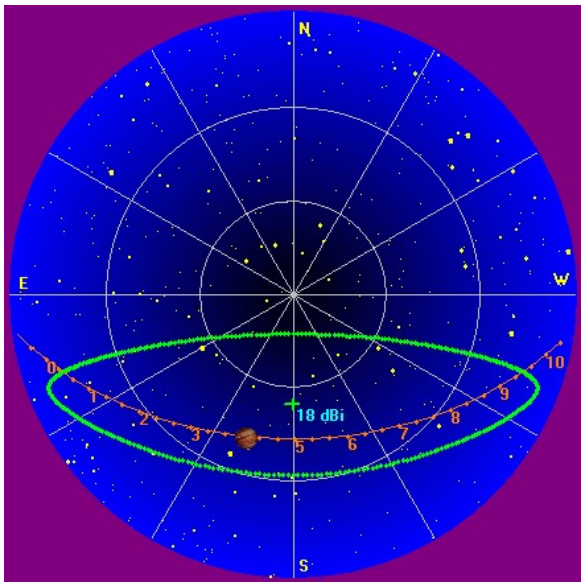




Beginning of Pass





End of Pass

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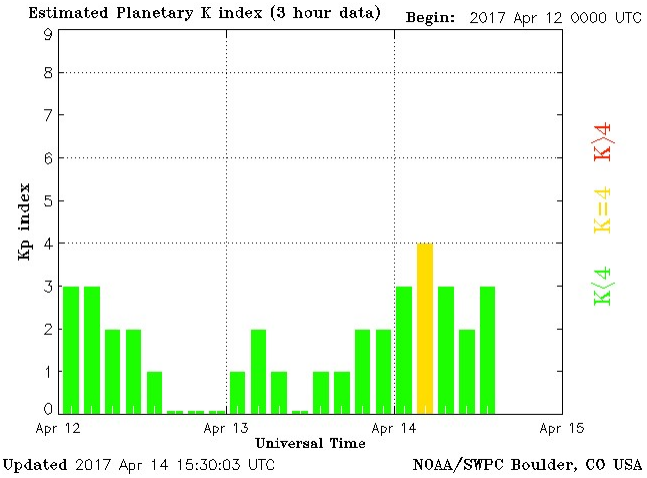

Io-A with well-defined negative drift modulation lanes and negative drift RCP L-bursts from 15 MHz to 24 MHz. Not exactly consistent through the pass, there were long pauses between stronger burst clusters.

One sequence is of special note between 0351:30 UT until 0352 UT. A series of swirls and eddies depart from the straight lines of the modulation lanes.

Modulation lanes were well defined and drift rates measured. A high of -114 kHz/sec to a low of -80 kHz/sec, with an average of 97 kHz/sec. There was no apparent pattern to the drift rate and time of pass.

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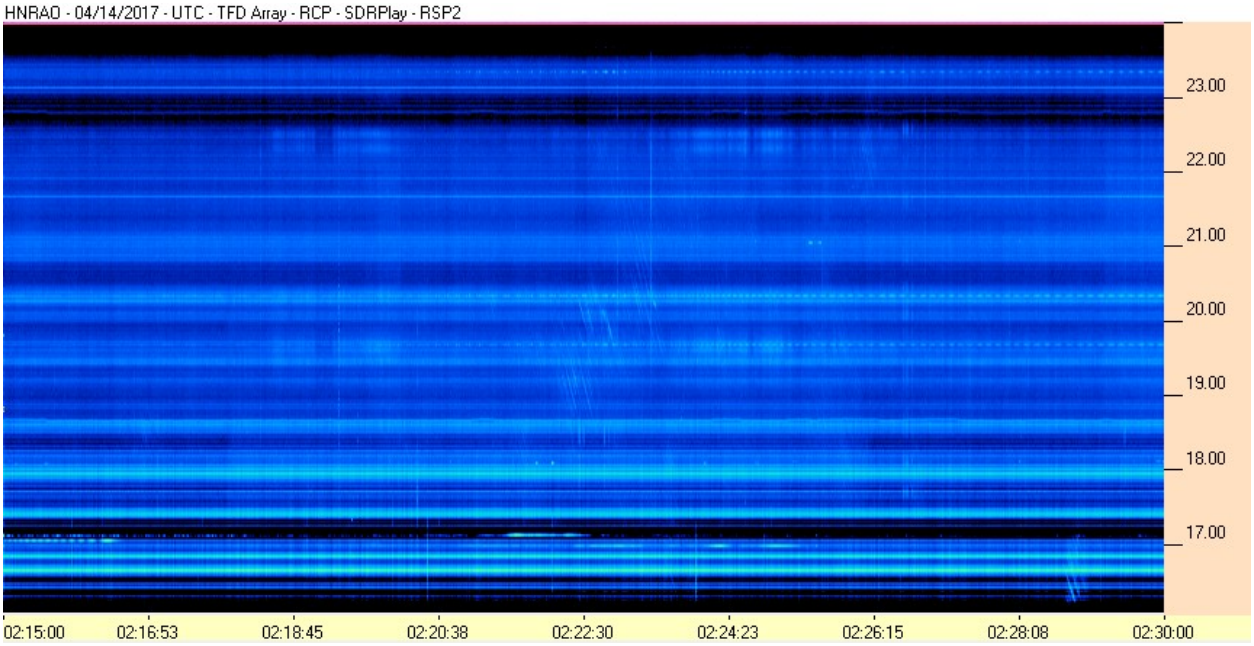
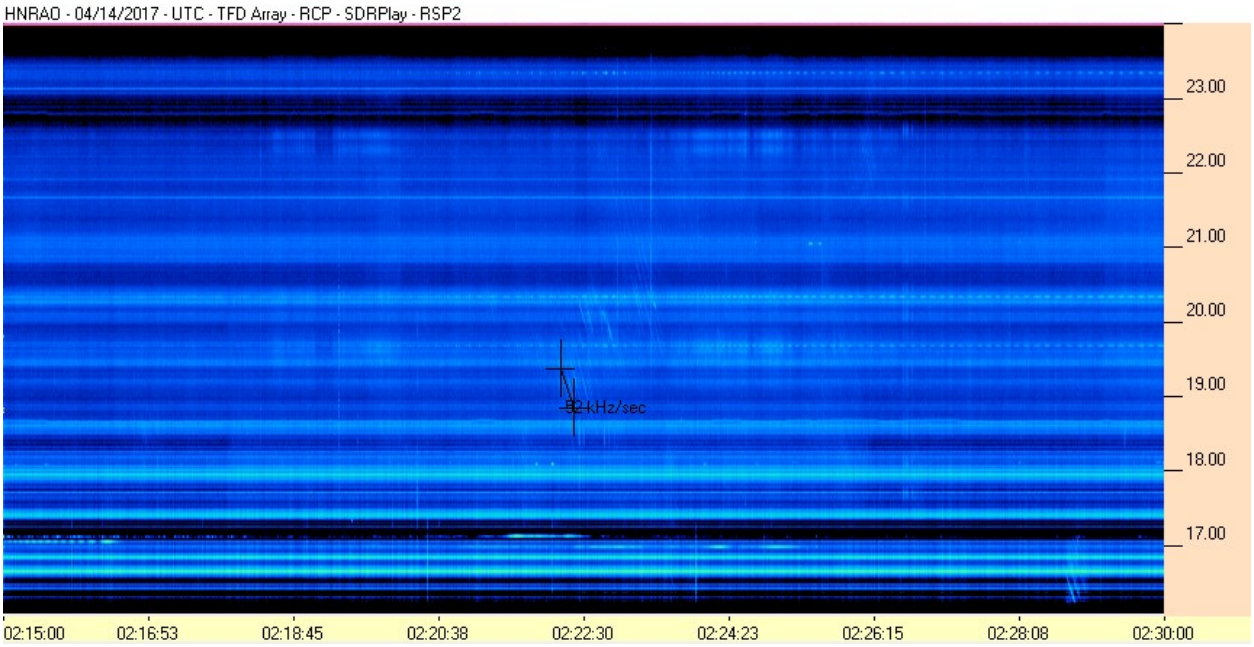
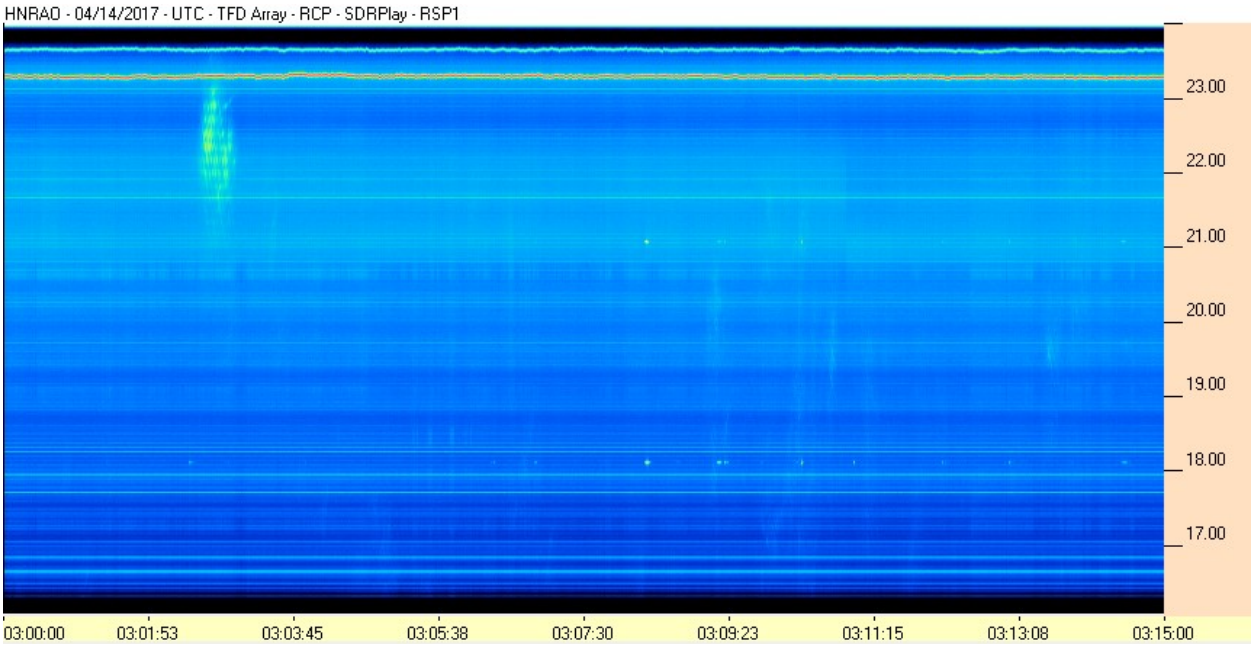
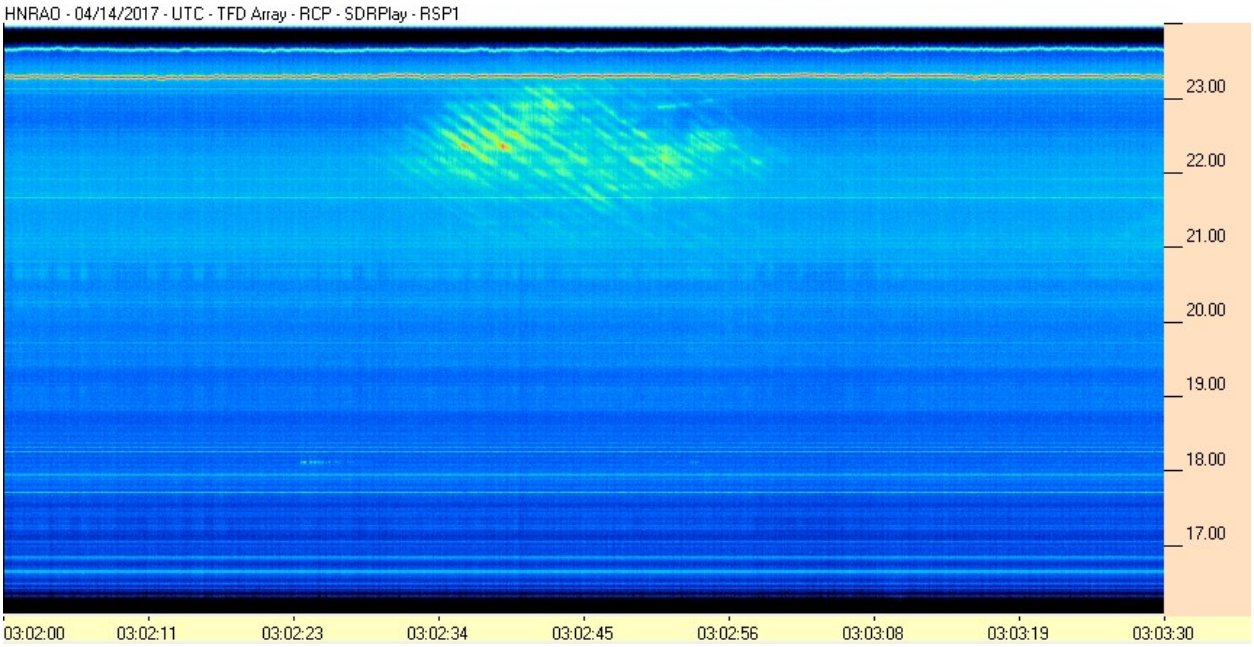
SDRPlay RSP2/TFD Pair





SDRPlay RSP1/TFD Pair (different settings than SDRPlay RSP2/TFD Pair)





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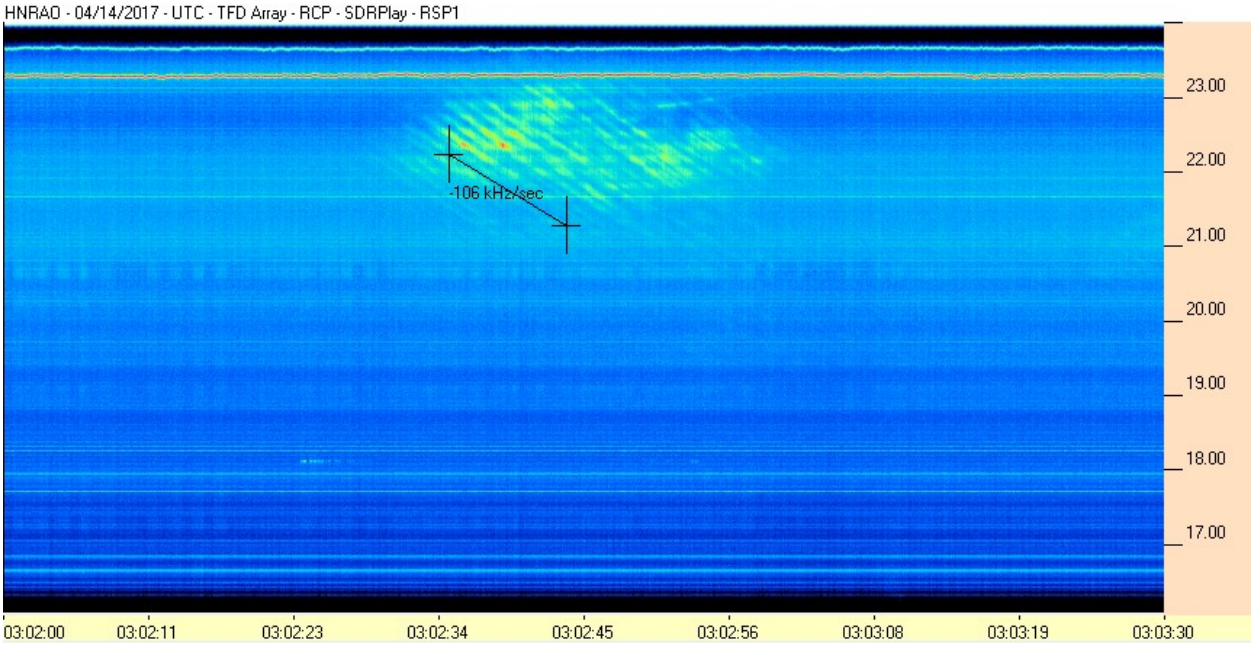

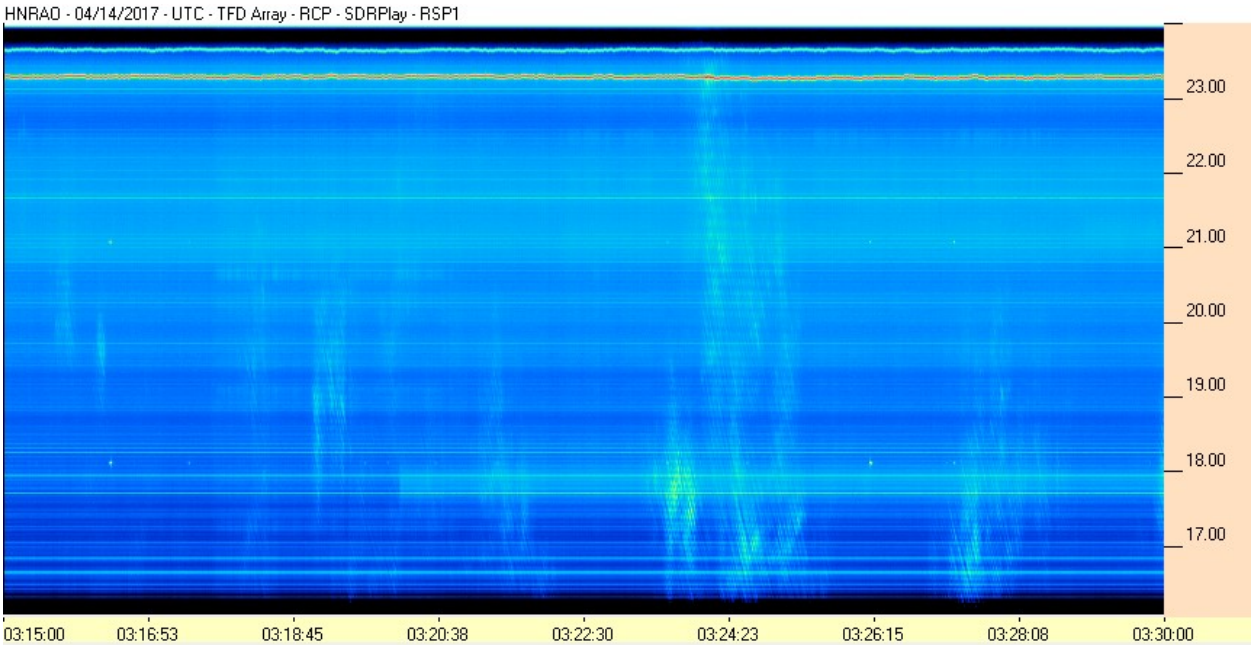

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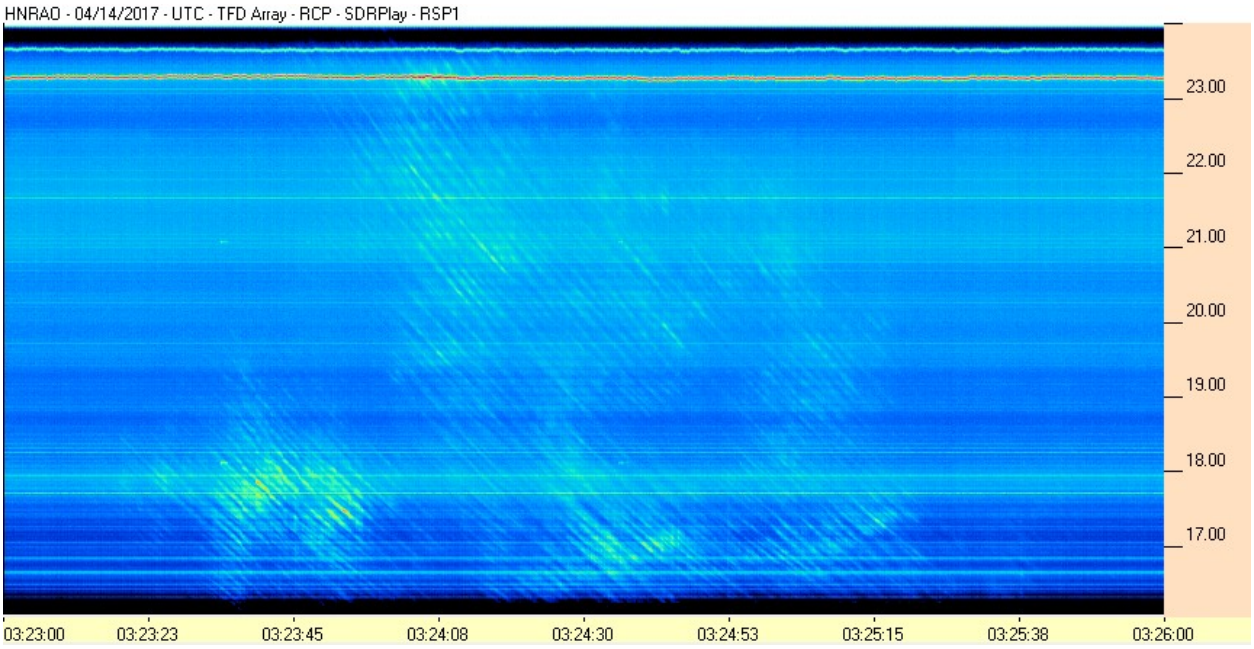

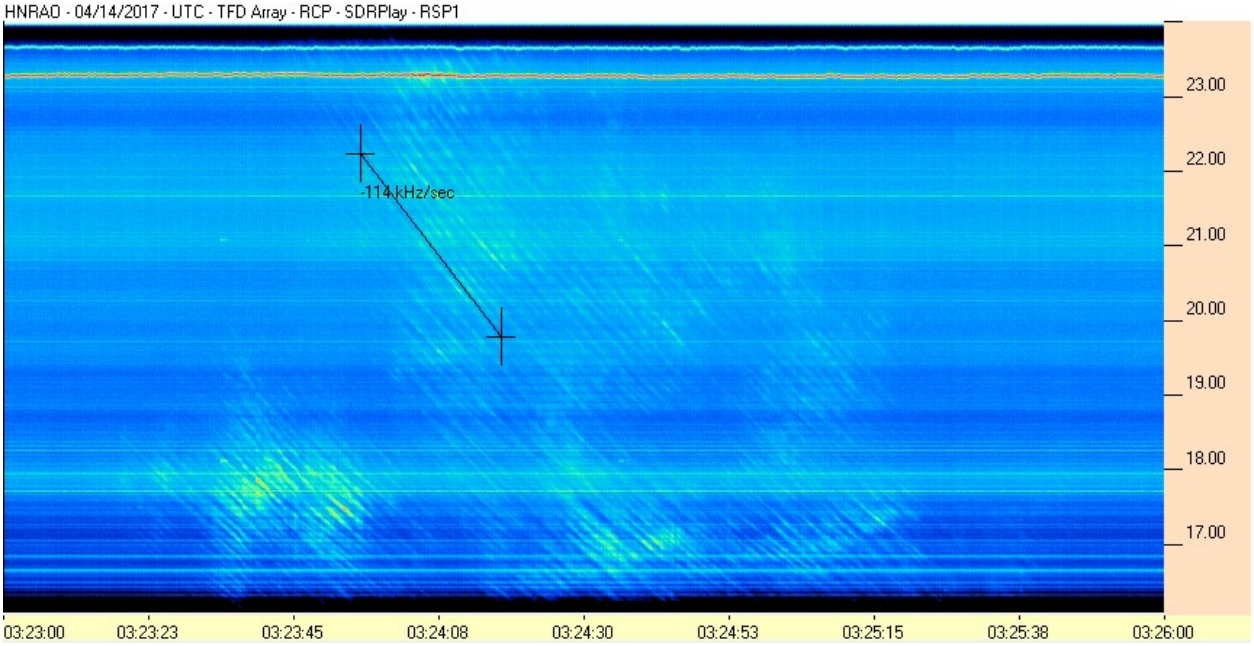

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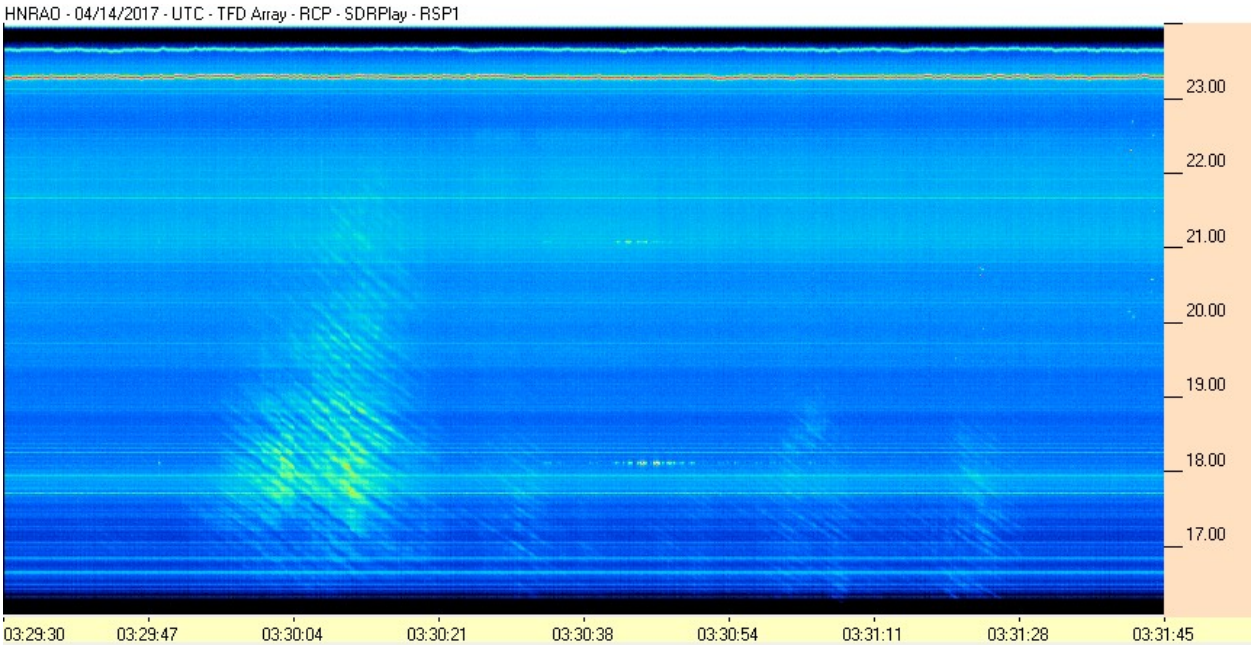

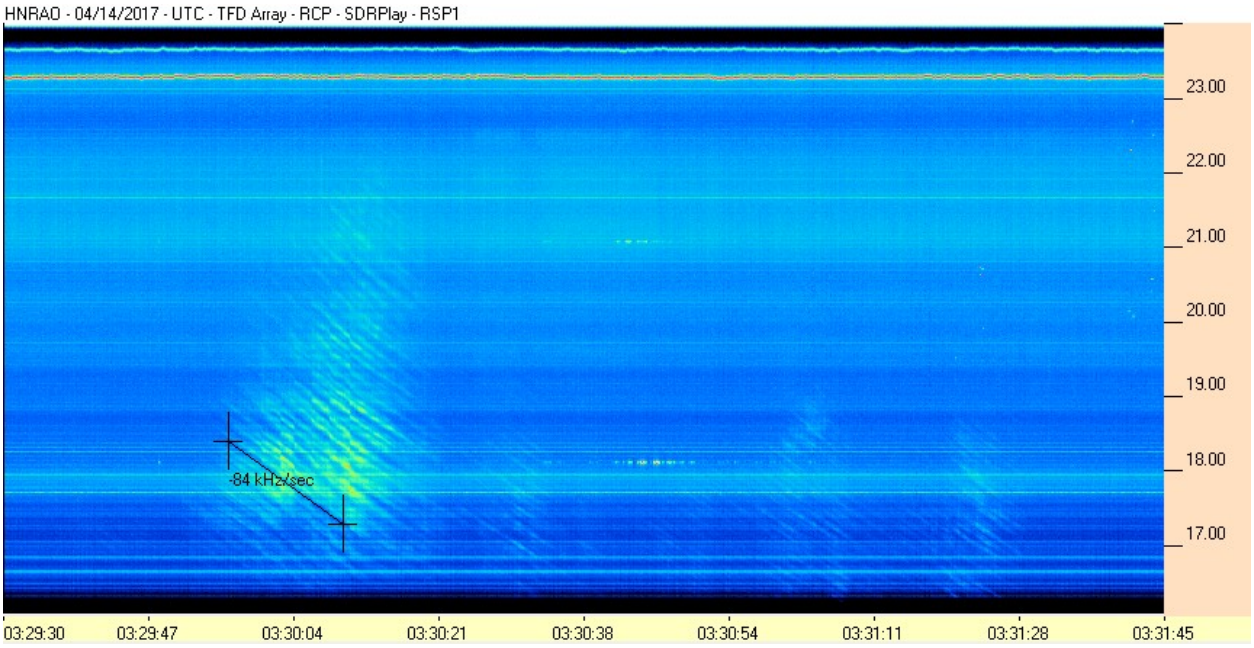

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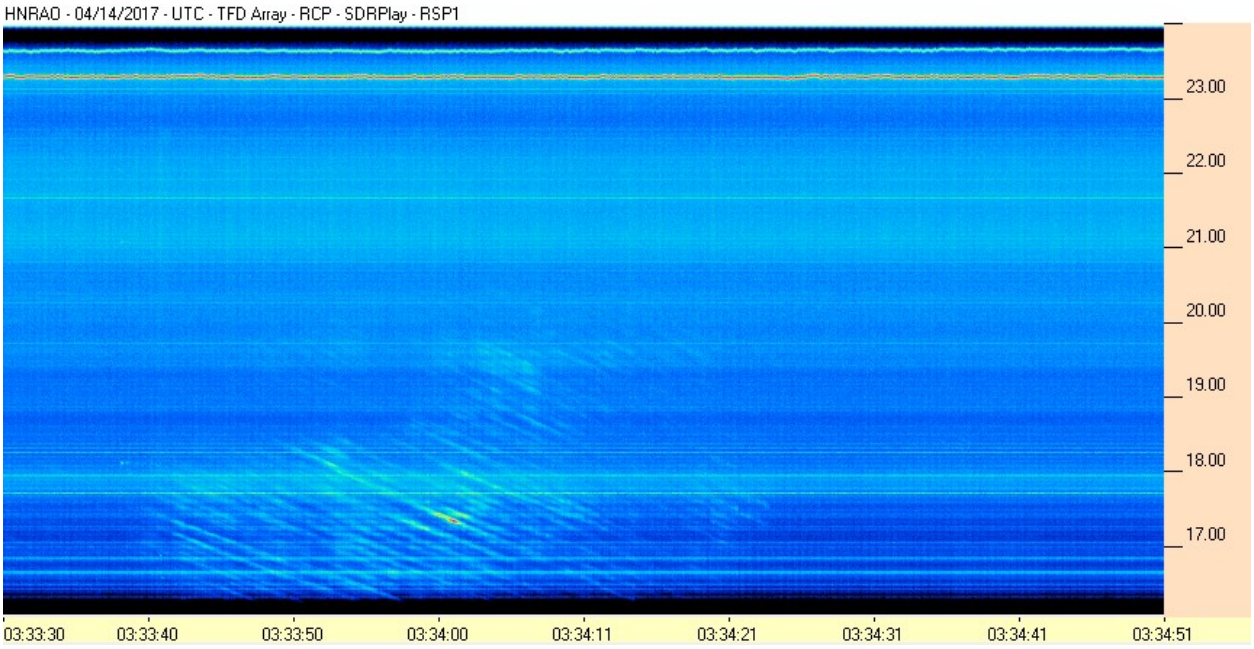
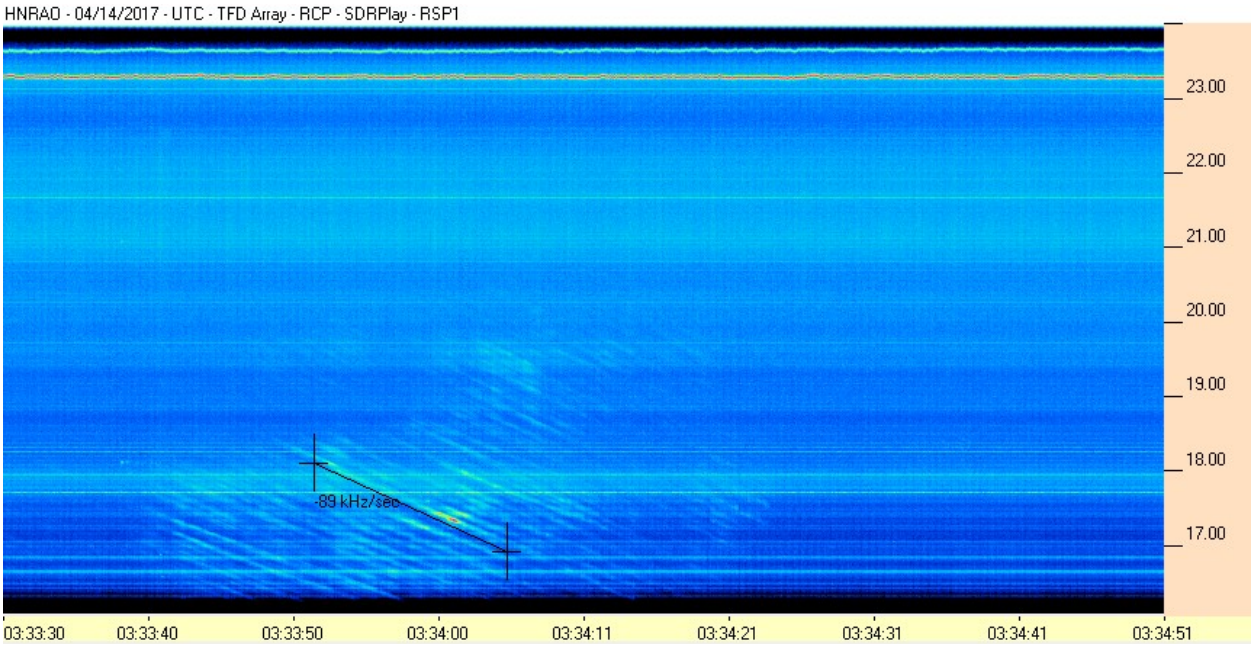
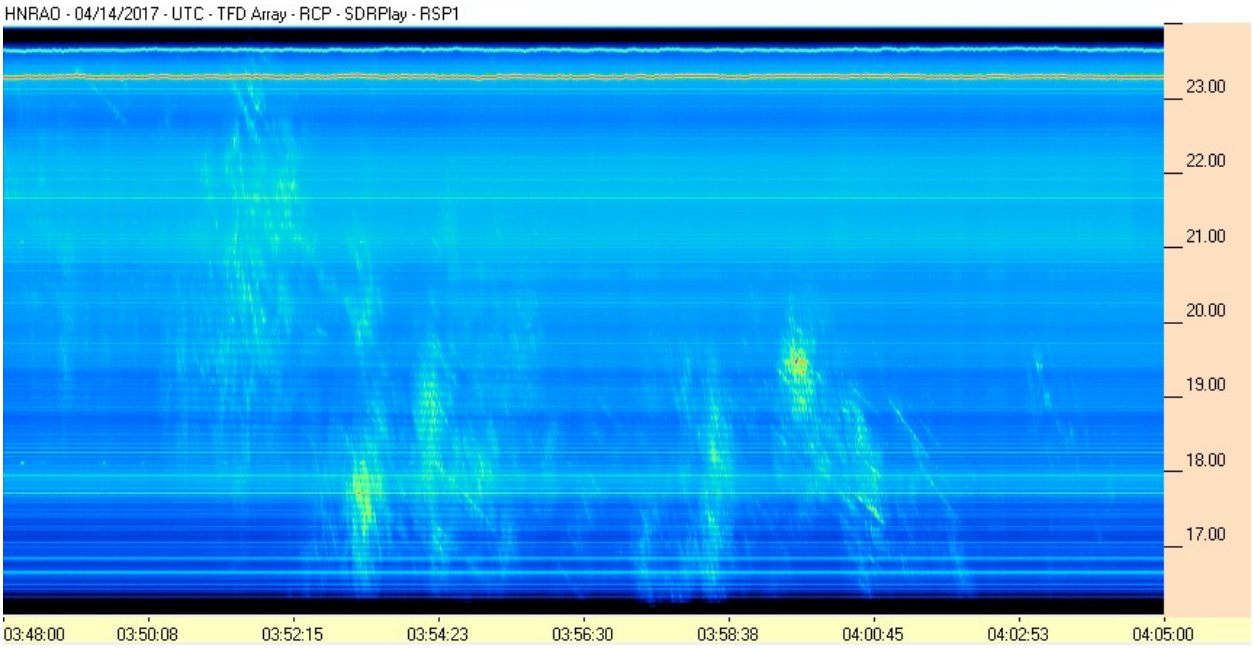
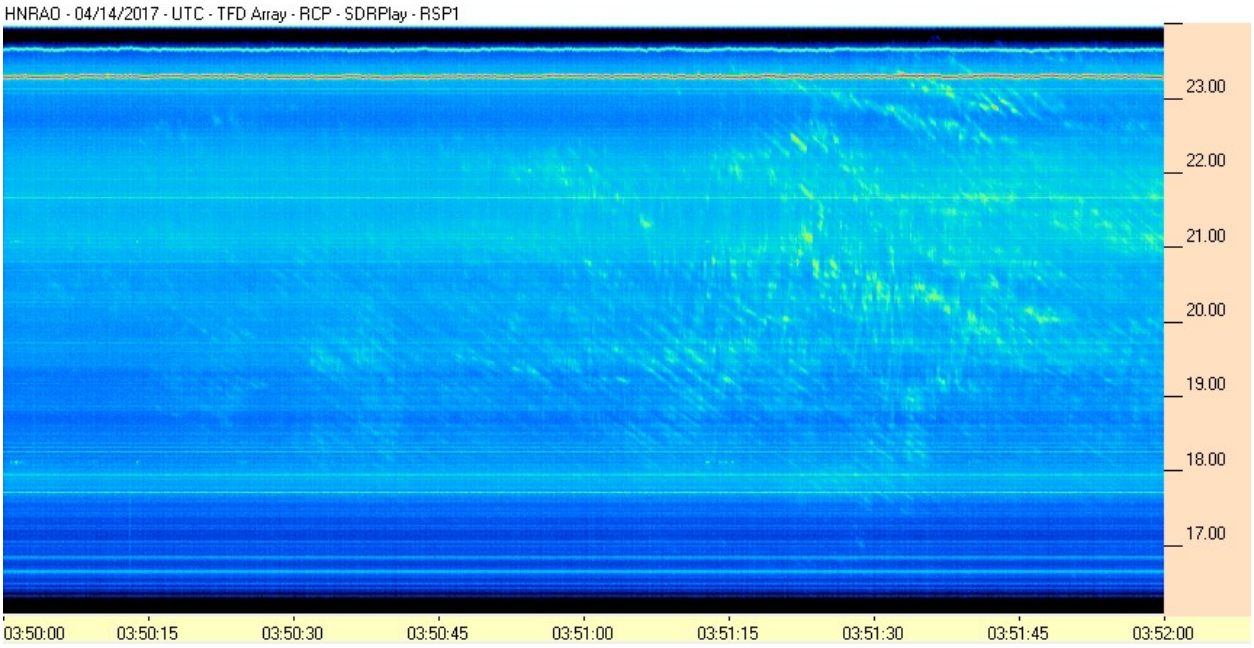





HNRAO - 04/14/2017 - UTC - TFD Array - RCP - SDRPlay - RSP1
23.00
22.00
21.00
20.00
19.00
18.00
17.00
03:48:00
03:50:08
03:52:15
03:54:23
03:56:30
03:58:38
04:00:45
04:02:53
04:05:00


HNRAO - 04/14/2017 - UTC - TFD Array - RCP - SDRPlay - RSP1
23.00
22.00
21.00
20.00
19.00
18.00
17.00
03:50:00
03:50:15
03:50:30
03:50:45
03:51:00
03:51:15
03:51:30
03:51:45
03:52:00

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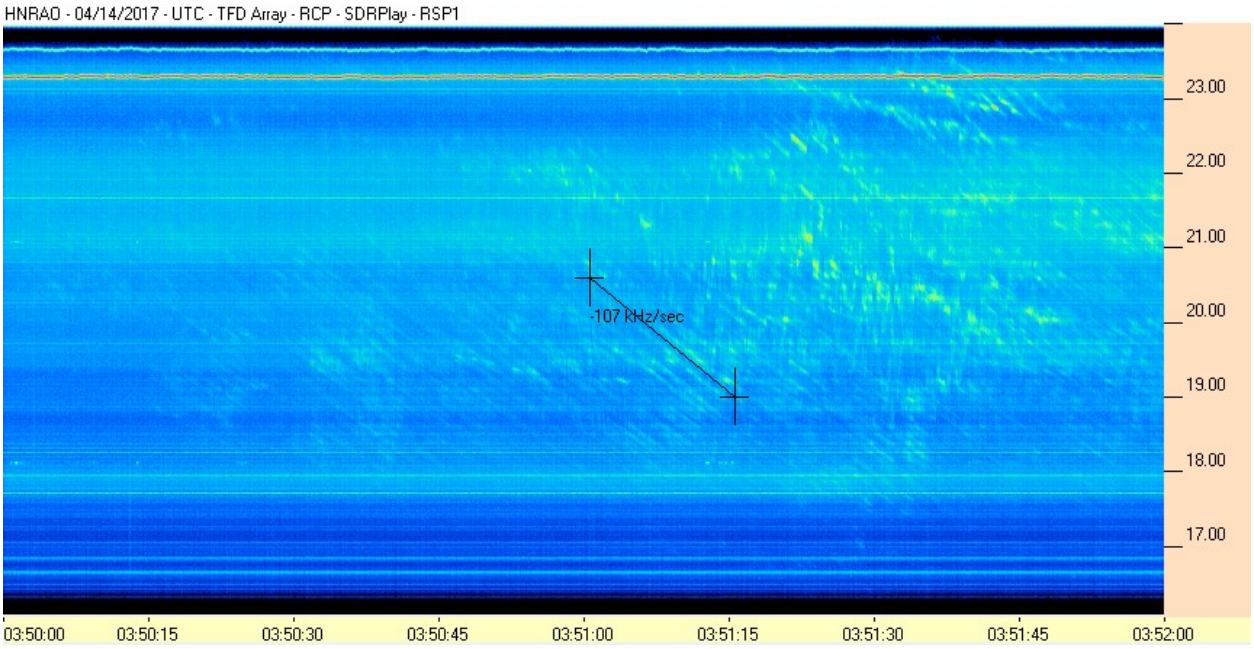
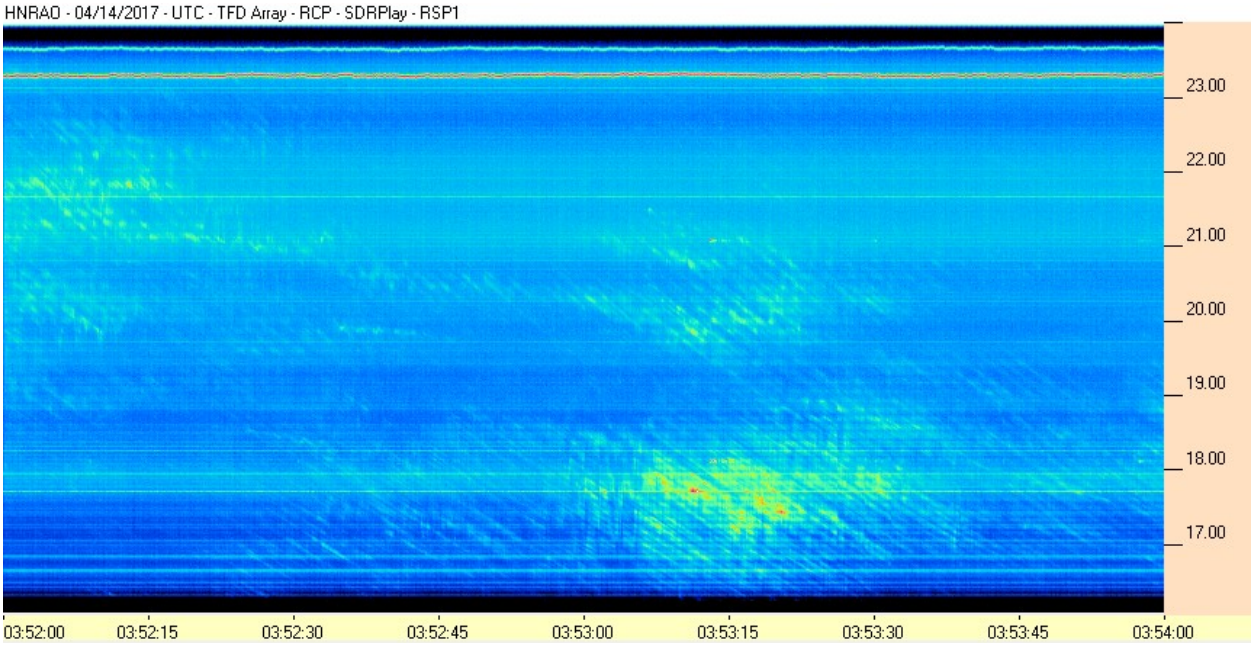
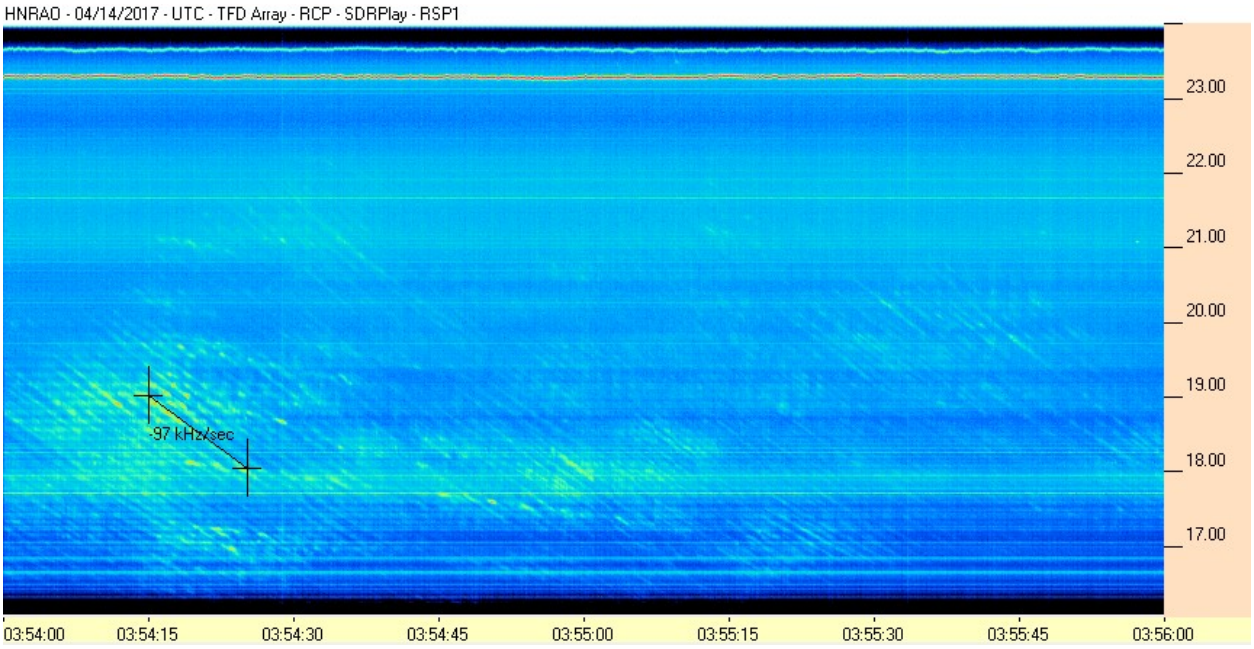
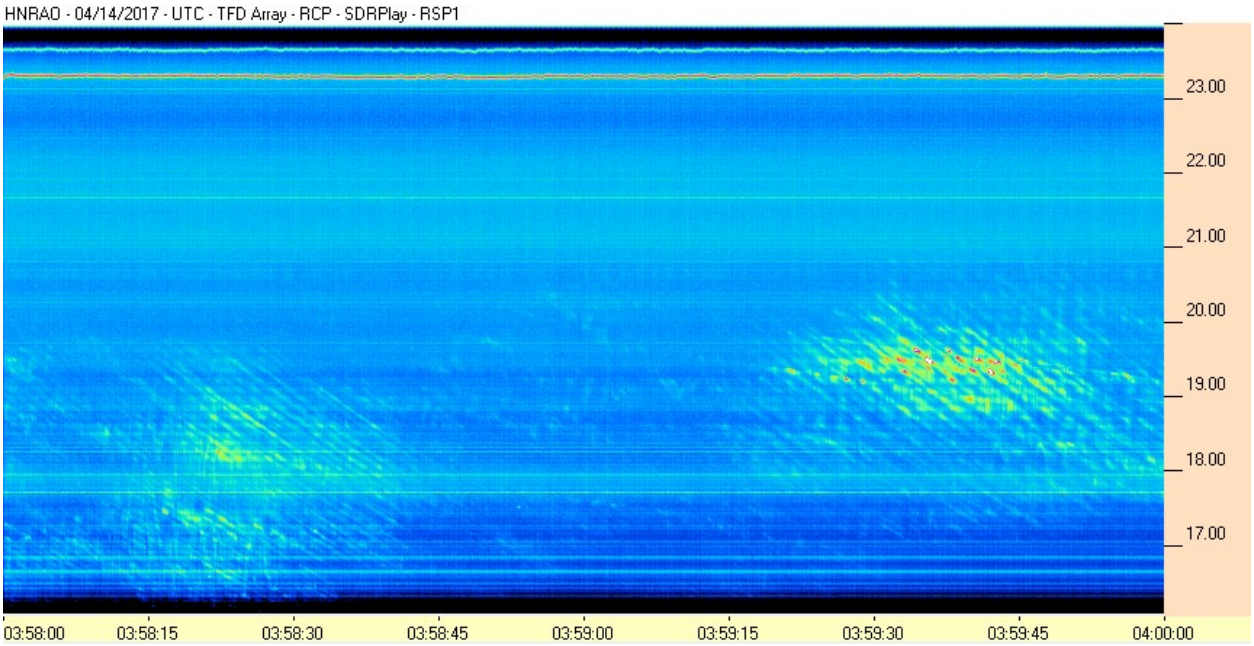
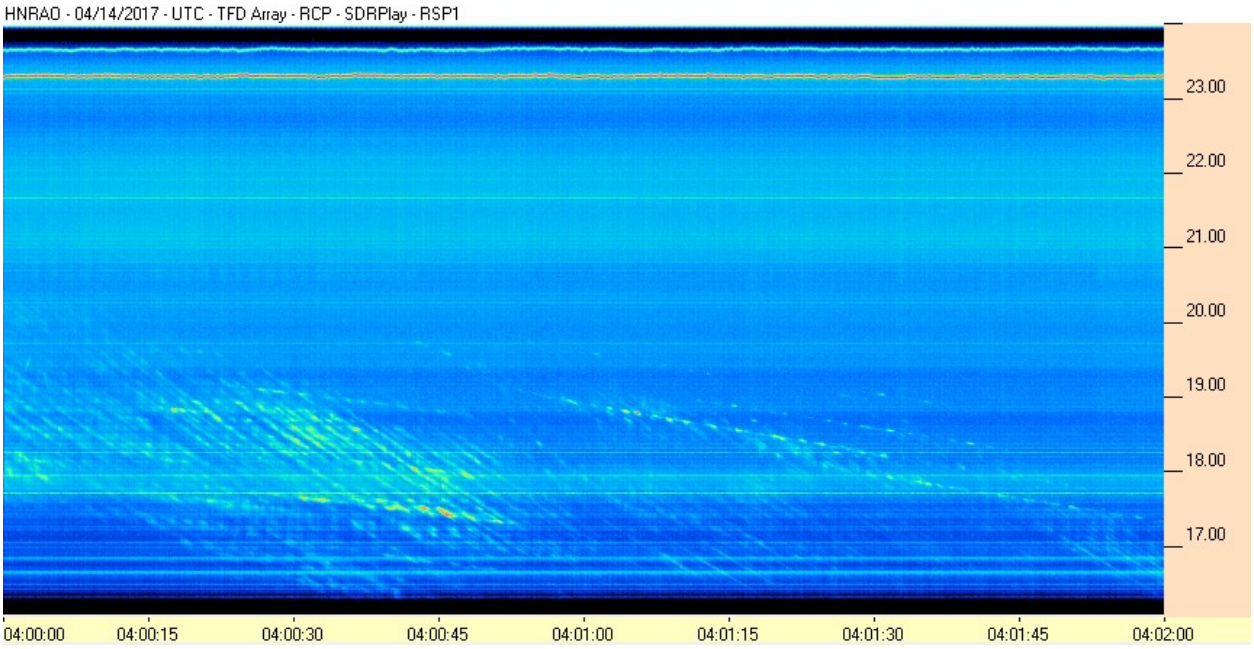
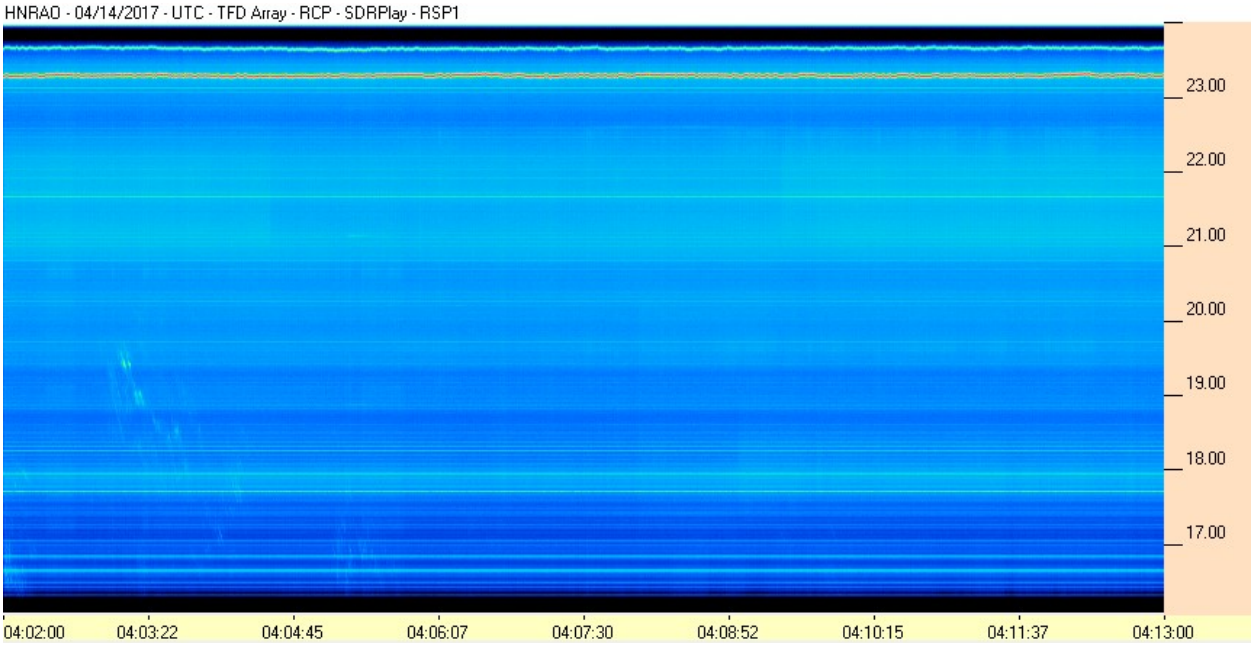




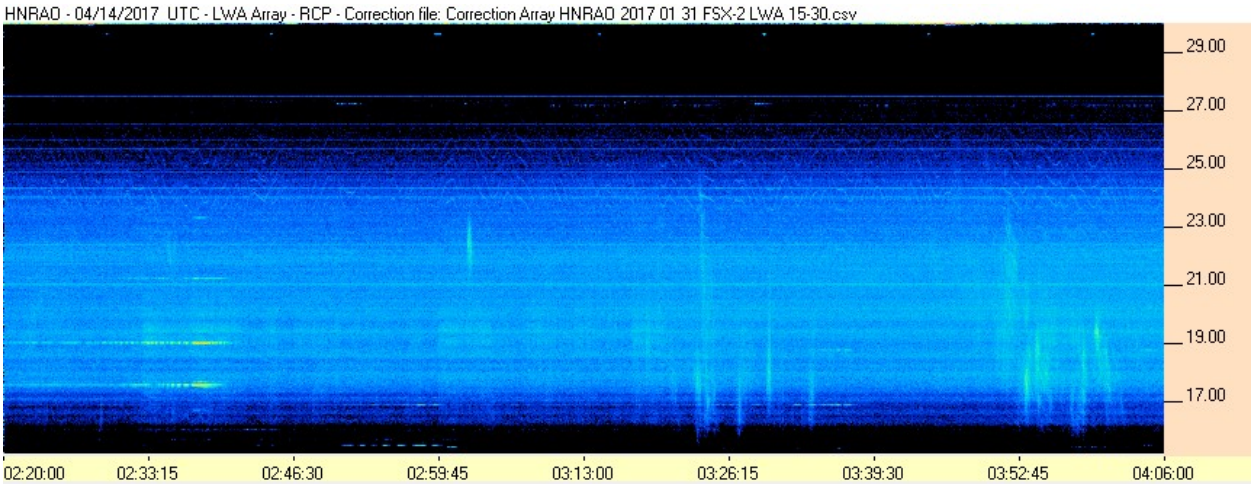

HNRAO - 04/14/2017 - UTC - TFD Array - RCP - SDRPlay - RSP1
97 kHz/sec
23.00
22.00
21.00
20.00
19.00
18.00
17.00
03:54:00
03:54:15
03:54:30
03:54:45
03:55:00
03:55:15
03:55:30
03:55:45
03:56:00


HNRAO - 04/14/2017 - UTC - TFD Array - RCP - SDRPlay - RSP1
23.00
22.00
21.00
20.00
19.00
18.00
17.00
03:58:00
03:58:15
03:58:30
03:58:45
03:59:00
03:59:15
03:59:30
03:59:45
04:00:00





FSX-2/LWA Pair


HNRAO - 04/14/2017 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv
29.00
27.00
25.00
23.00
21.00
19.00
17.00
02:20:00
02:33:15
02:46:30
02:59:45
03:13:00
03:26:15
03:39:30
03:52:45
04:06:00

FSX-8S/TFD Pair