HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq

Date: 4 April 2017

Object: Jupiter – Non-Io-A

Observer: Unattended

Start of pass:	**0527 UT**	**Planetary K-index:**	**4**
Jupiter Altitude:	**43.4 degrees**	**Jupiter Azimuth:**	**174.8 degrees**
Jupiter CML:	**233.11**	**Jupiter Io Phase:**	**029.85**
Jupiter RA:	**13:11**	**Jupiter Dec:**	**-05:50**
Hour Angle:	**-00:15**	**Polarization**	**RCP**
Sun Altitude:	**-44.2 degrees**	**Sun Azimuth:**	**003.2**
Sun RA:	**00:47**	**Sun Dec:**	**05:02**

End of pass:	**0544 UT**		
Jupiter Altitude:	**43.5 degrees**	**Jupiter Azimuth:**	**180.7 degrees**
Jupiter CML:	**243.39**	**Jupiter Io Phase**	**032.23**
Hour Angle:	**00:02**		
Sun Altitude:	**-43.9 degrees**	**Sun Azimuth:**	**009.1 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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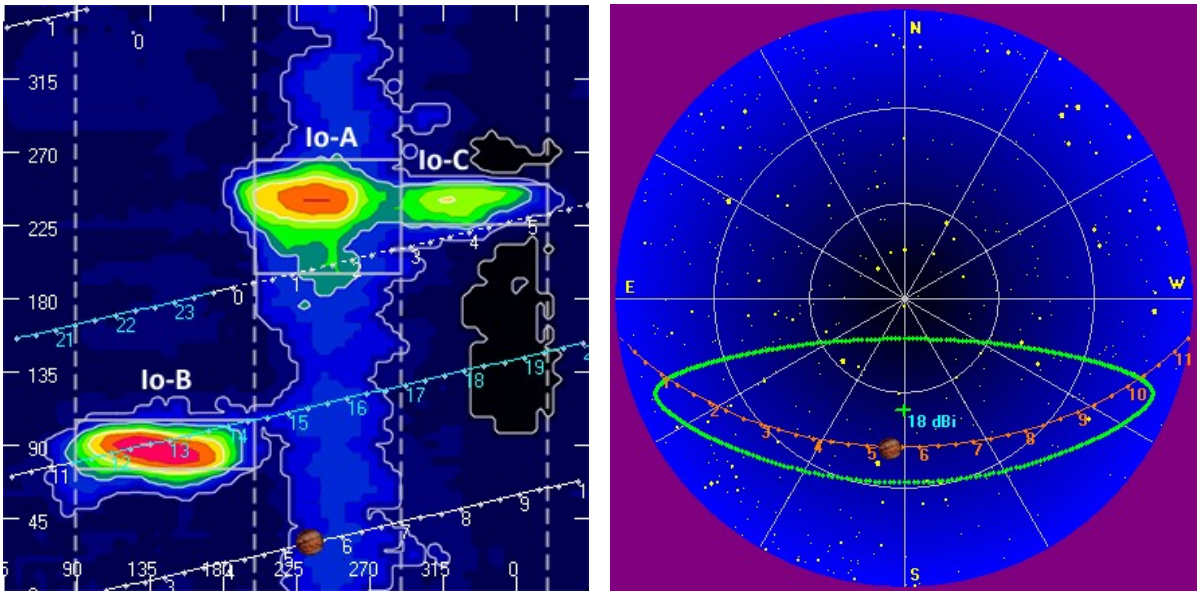
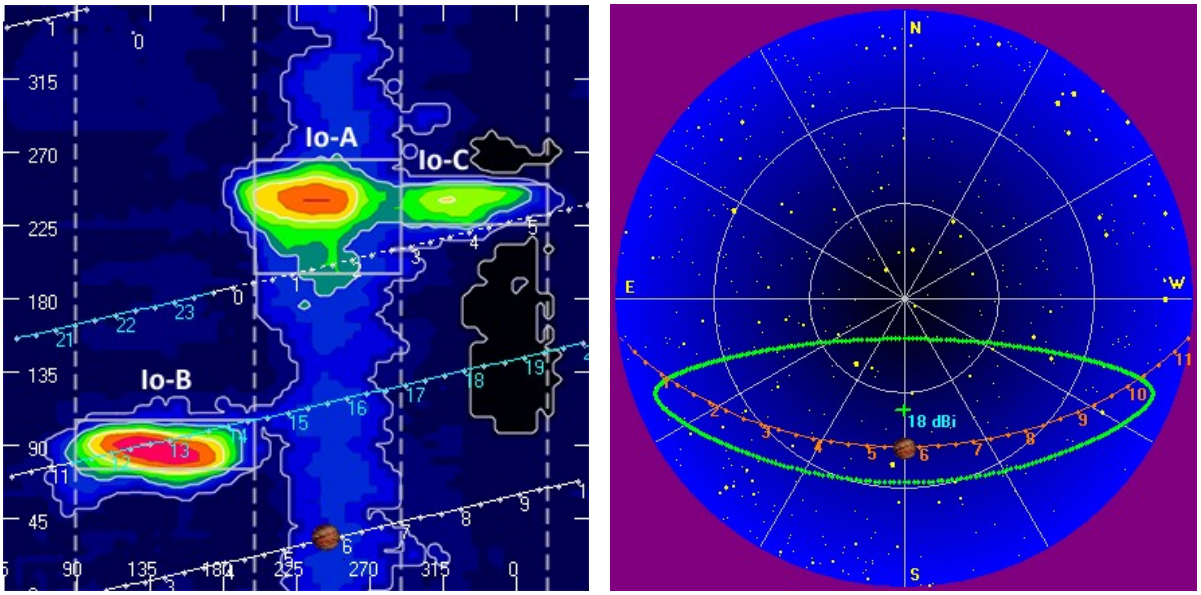


Beginning of Pass



End of Pass

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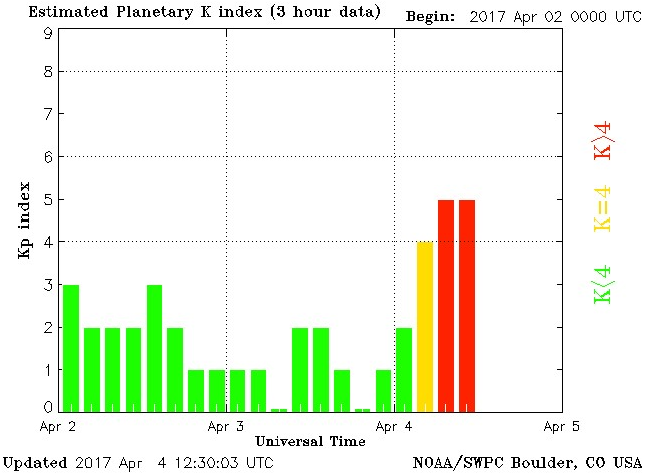

MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360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

A very weak, brief, Non-Io-A pass from CML 233 to 243. All RCP L-bursts with cross hatched modulation lanes. Emissions spanned from 16 MHz to 21+ MHz on the RSP2, and visible from 15 MHz to 19 MHz on the FSX-2. Emissions were too weak to measure on the FSX-8S. So, observed frequency span here ranged from 15 MHz to slightly over 21 MHz.

Strong power line RFI from 0526:15 UT through 0535 UT obscured only part of the emissions.

Negative drift modulation lanes ranged from a low of -106 kHz/sec to a high of -127 hHz/sec with an average for the pass at -117 kHz/sec. Positive drift modulation lanes ranged from 18 kHz/sec to 22 hHz/sec. with an average of 20 kHz/sec.

Emissions at 20.1 MHz too weak be recorded on Radio JOVE SkyPipe trace.

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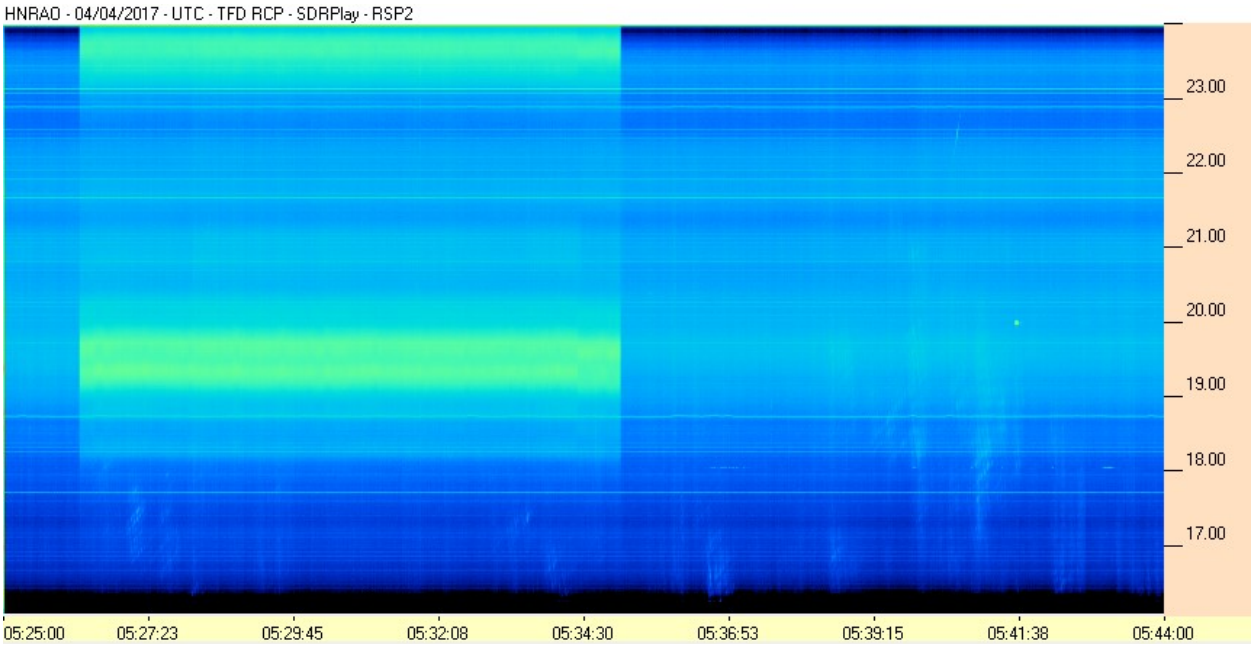
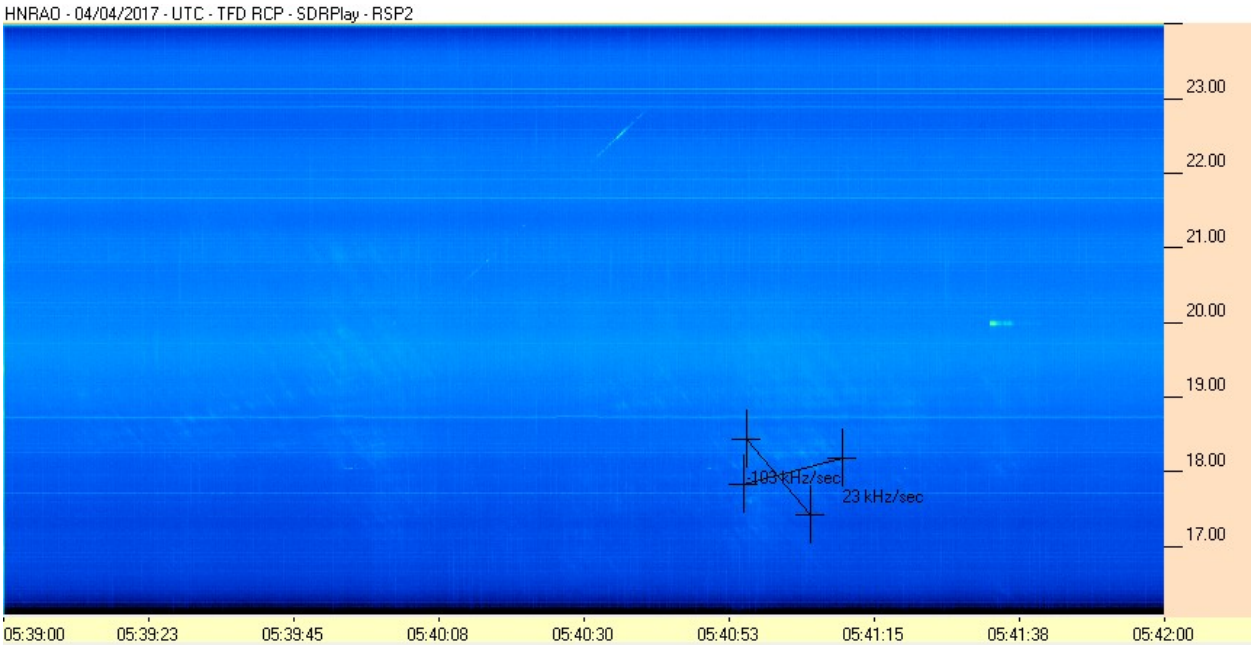
RSP2/TFD Pair





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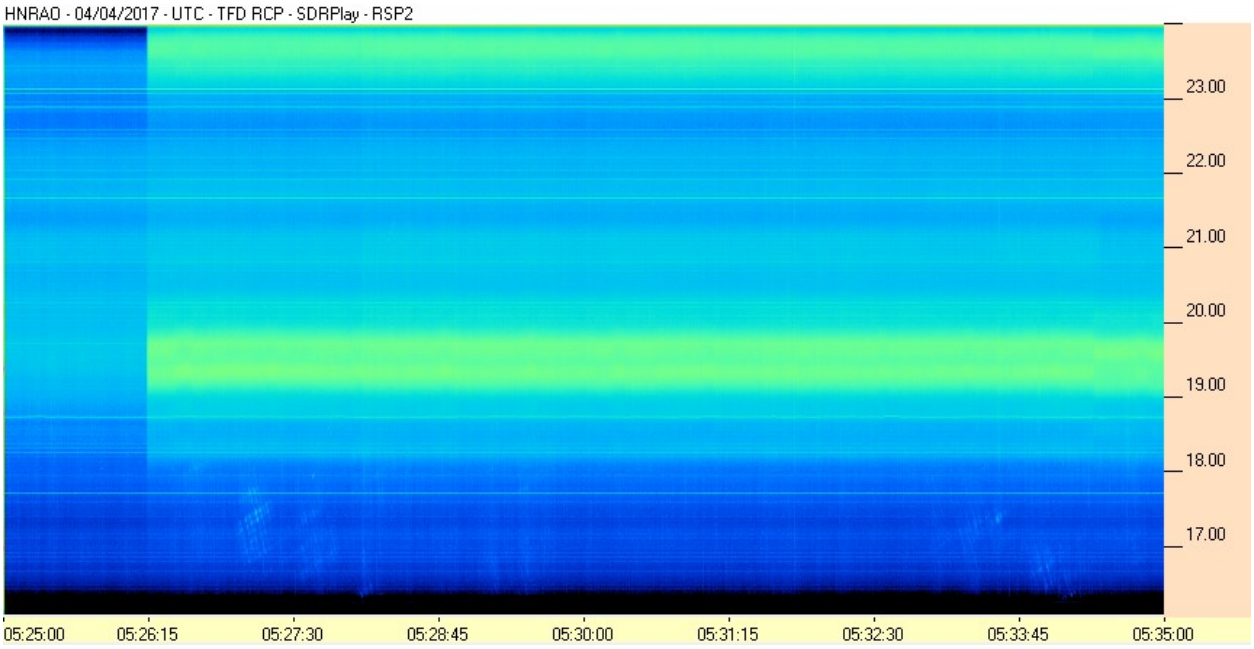

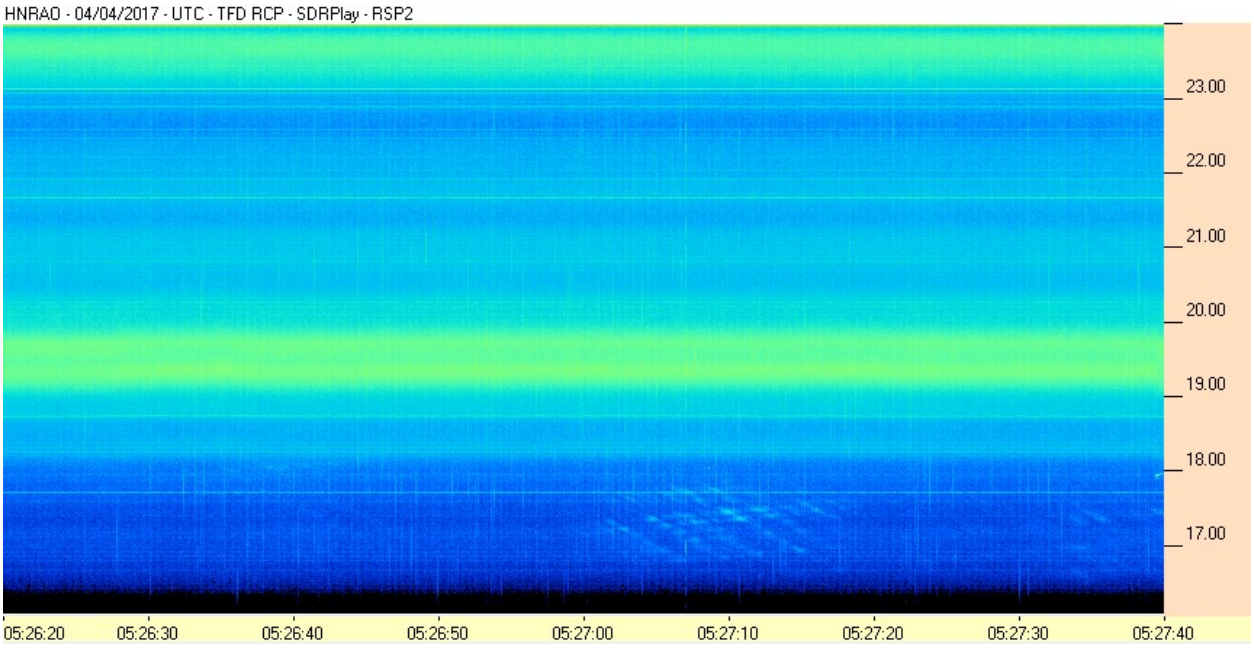

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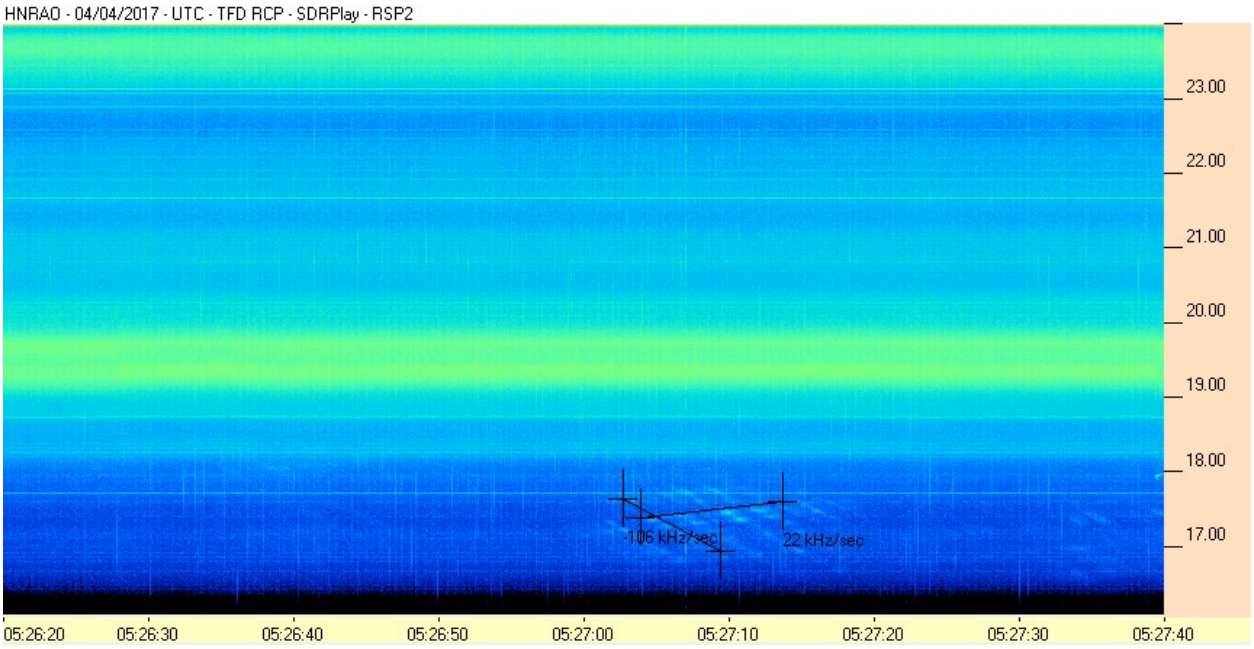

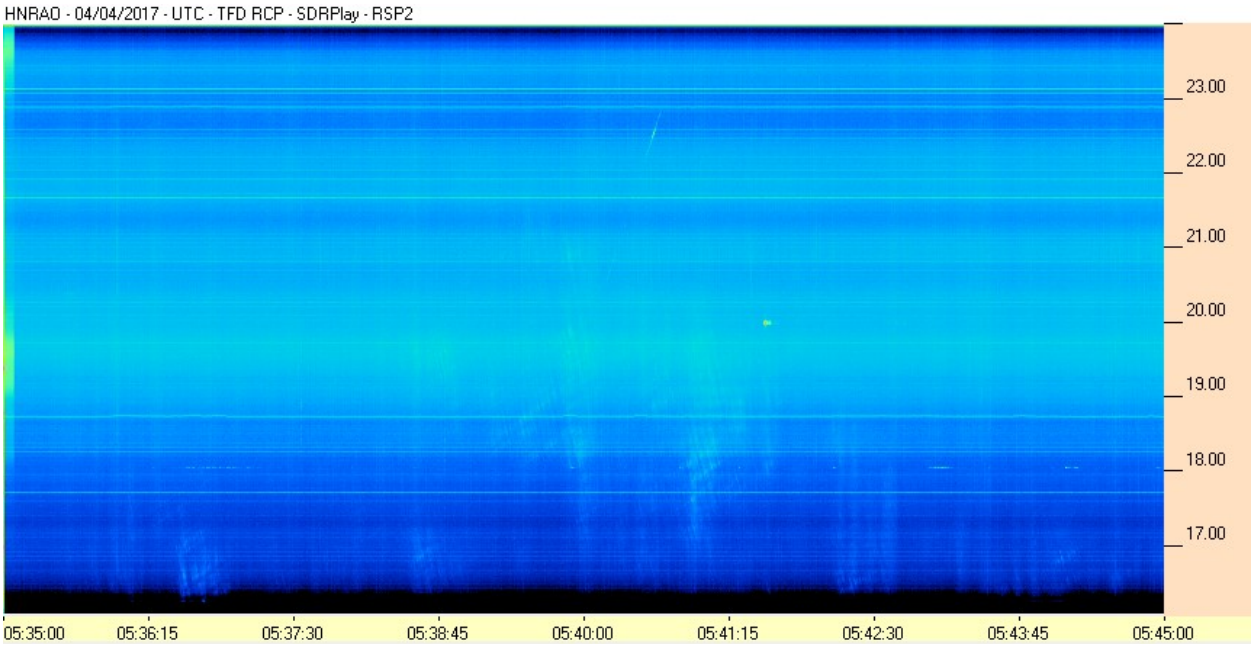

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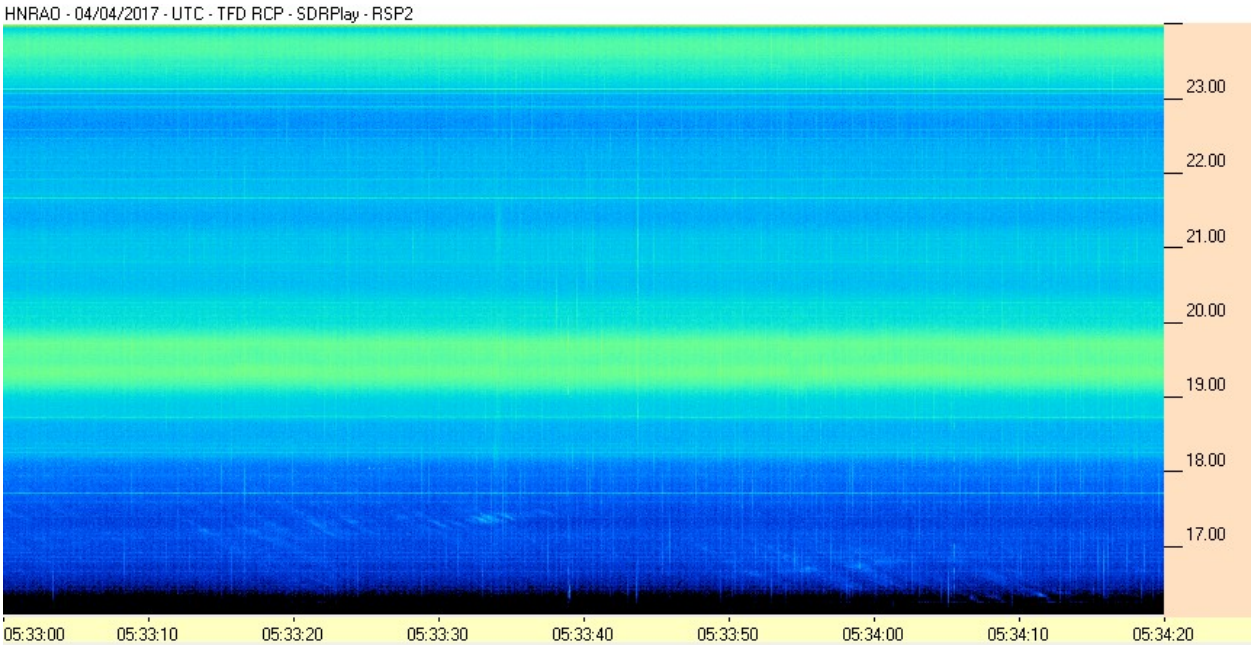
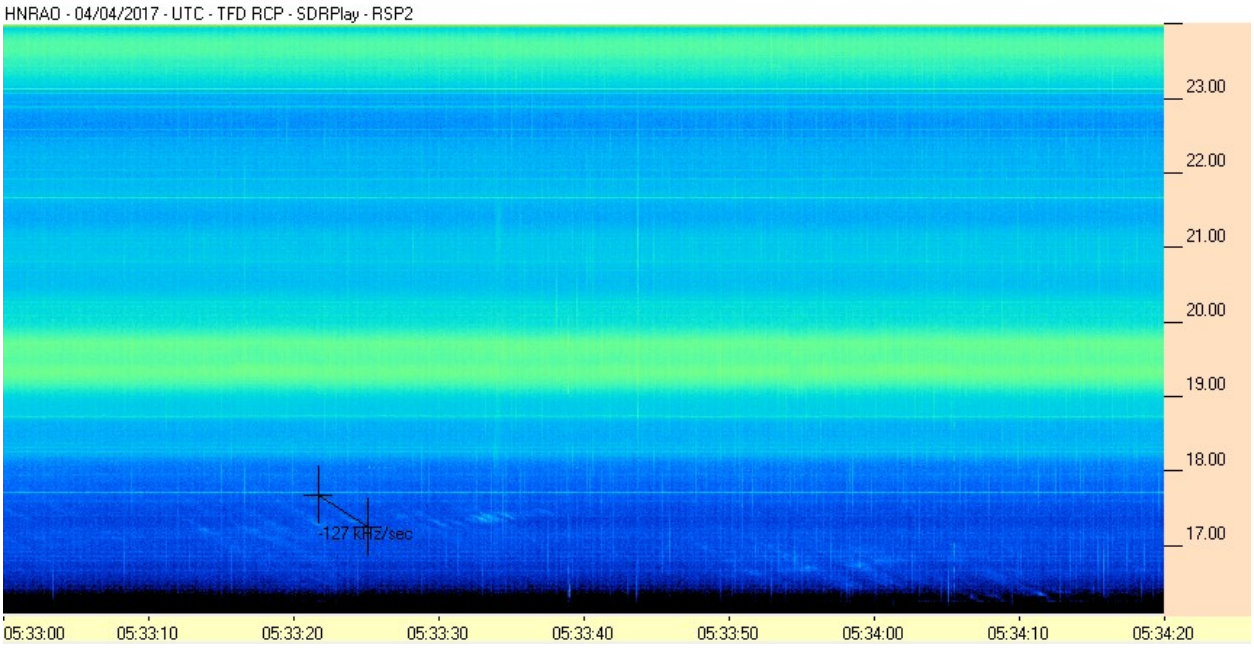
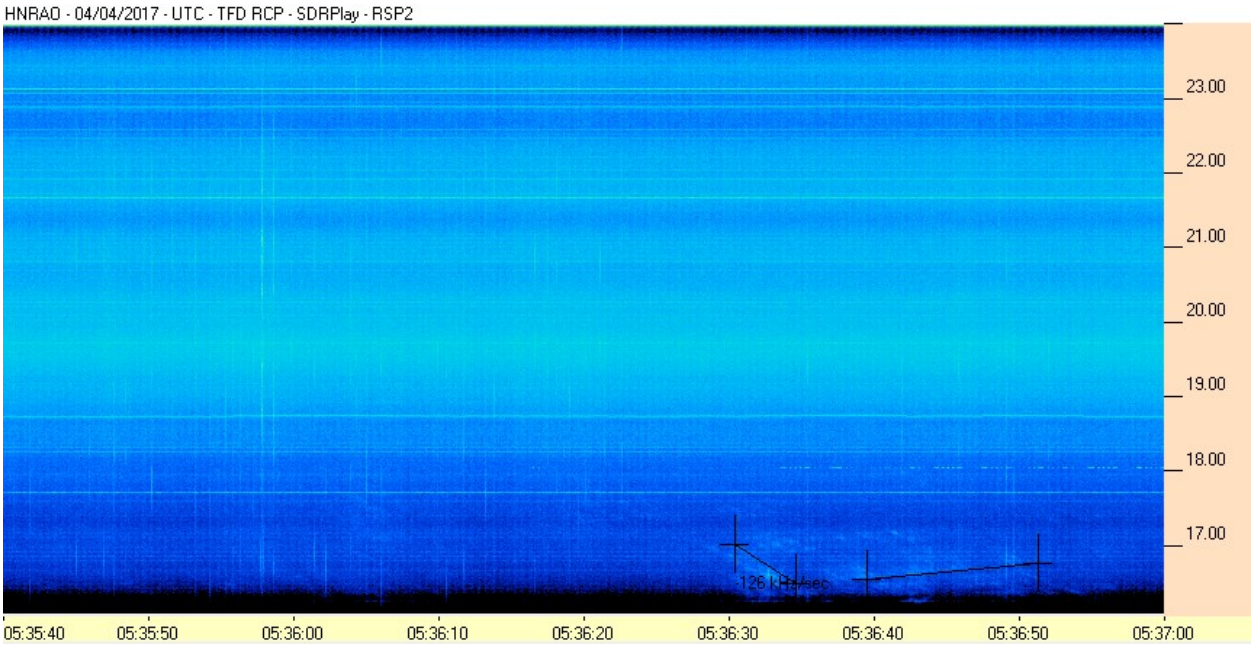
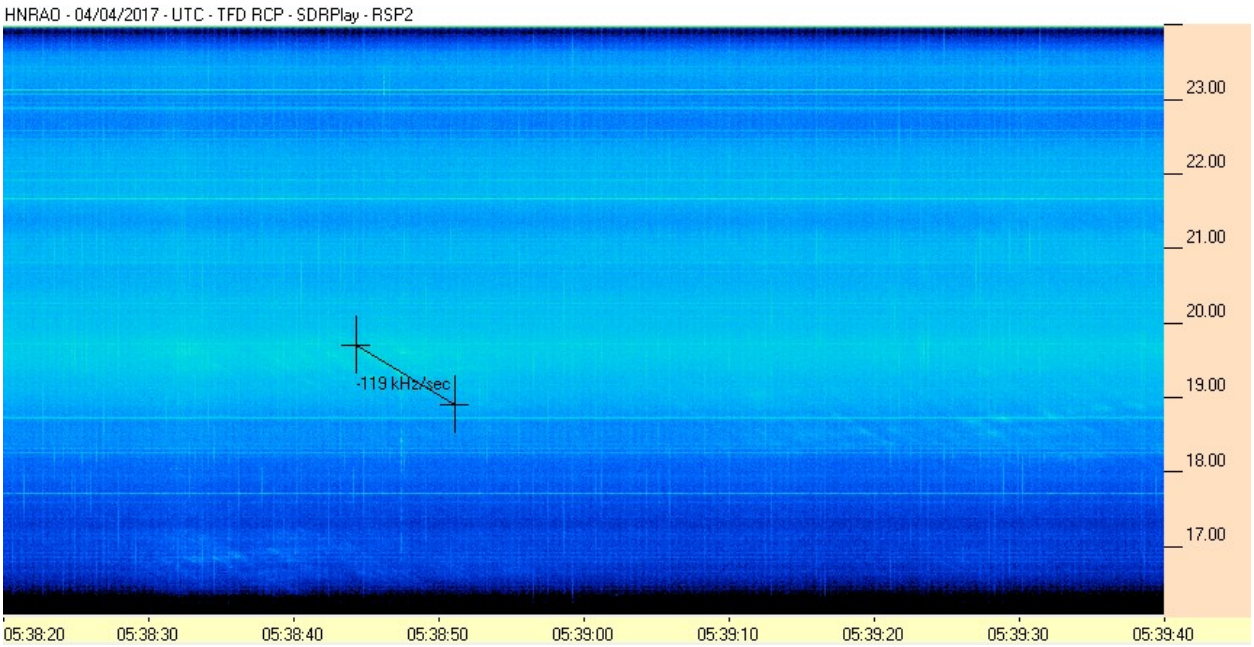




+18 kHz/sec & -126 kHz/sec





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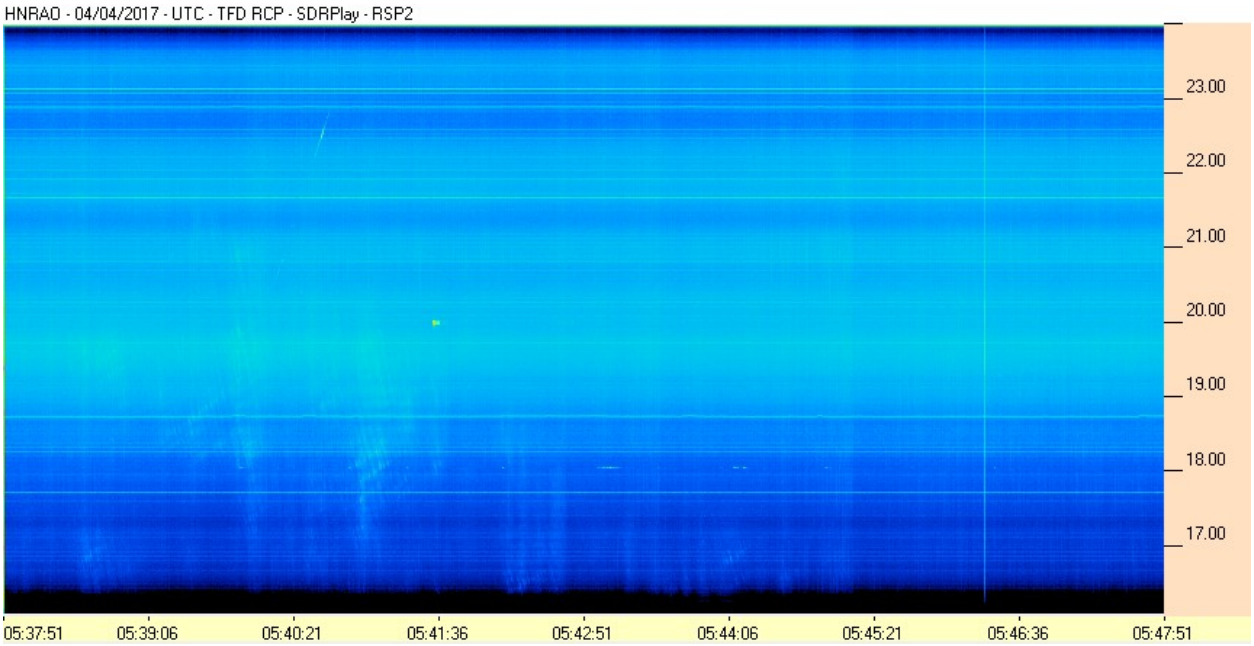
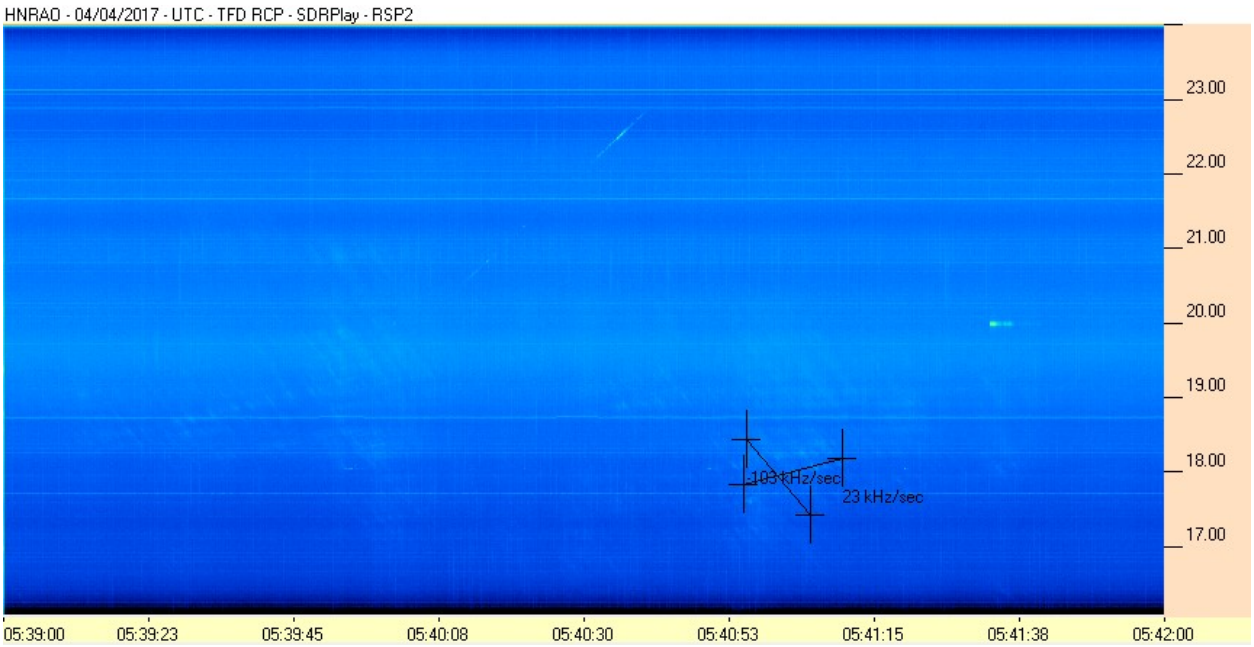
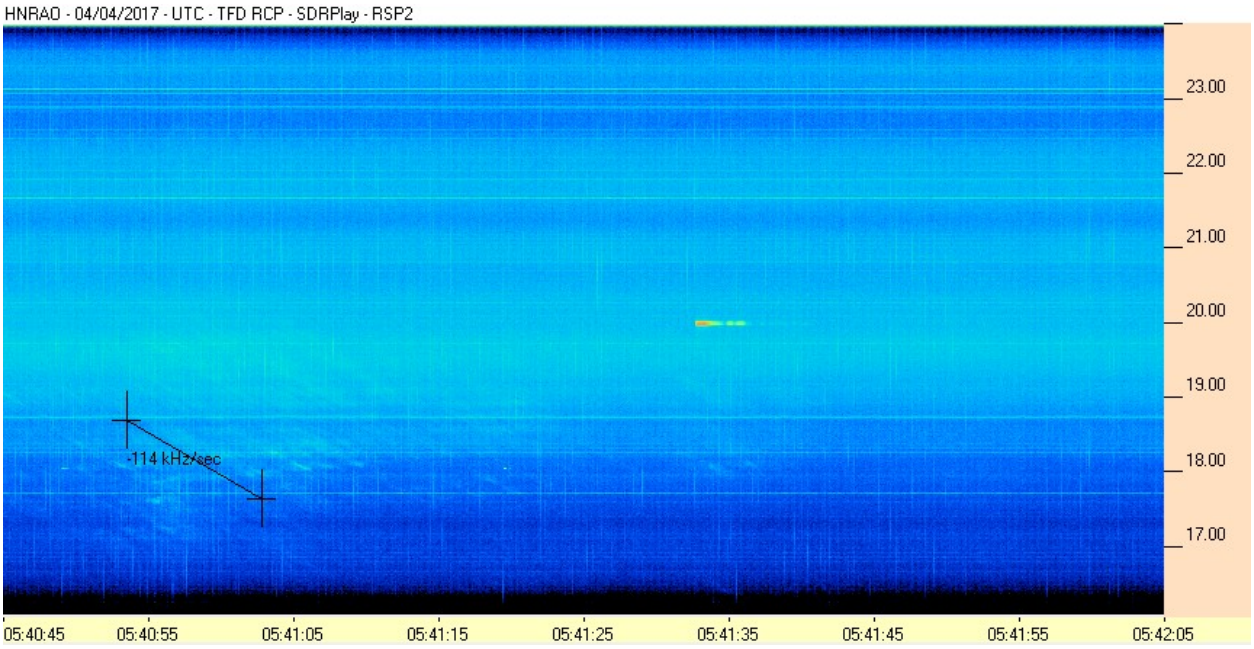
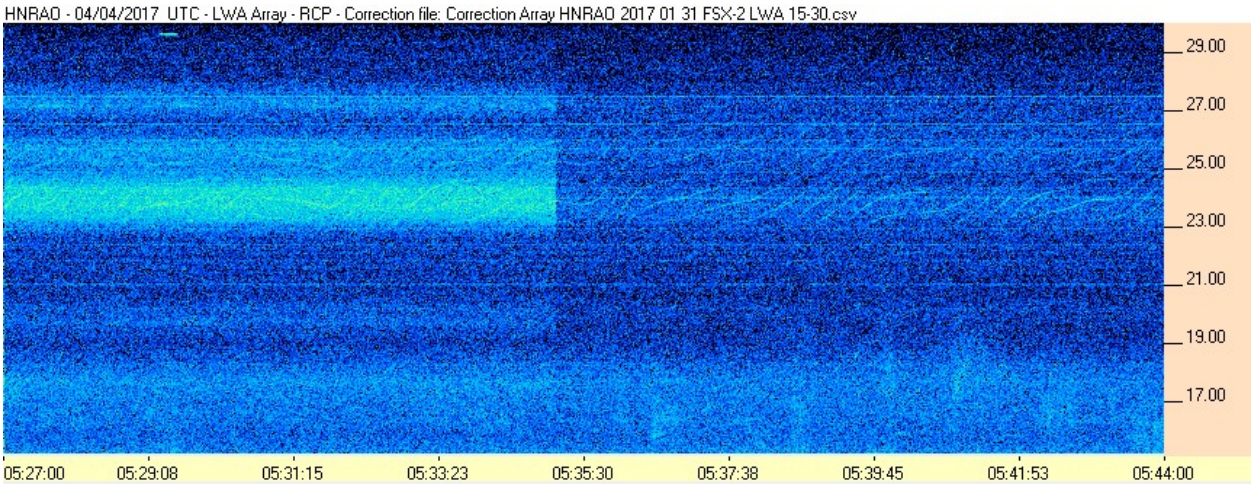






FSX-2/LWA Pair



FSX-8S/TFD Pair