HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq

Date: 6 June 2017

Object: Jupiter – Io-A

Observer: JB

Start of pass:	**0221 UT**	**Planetary K-index:**	**2**
Jupiter Altitude (deg):	**42.9**	**Jupiter Azimuth (deg):**	**203.5**
Jupiter CML:	**247.65**	**Jupiter Io Phase:**	**228.47**
Jupiter RA (hr/min):	**12:50**	**Jupiter Dec (hr/min):**	**-03:48**
Hour Angle (hr/min):	**01:08**	**Polarization**	**RCP**
Sun Altitude (deg):	**-15.4**	**Sun Azimuth (deg):**	**319.3**
Sun RA (hr/min):	**04:49**	**Sun Dec (hr/min):**	**22.27**

End of pass:	**0234 UT**		
Jupiter Altitude (deg):	**41.8**	**Jupiter Azimuth (deg):**	**207.6**
Jupiter CML:	**255.51**	**Jupiter Io Phase**	**230.32**
Hour Angle (hr/min):	**01:21**		
Sun Altitude (deg):	**-16.9**	**Sun Azimuth (deg):**	**322.0**

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 1 June 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)

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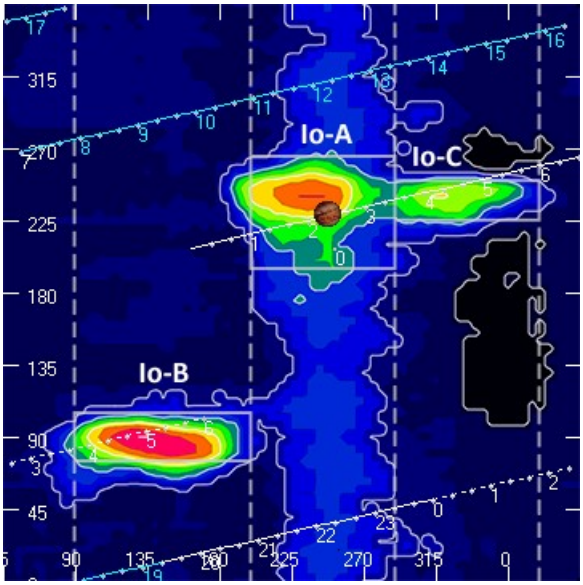
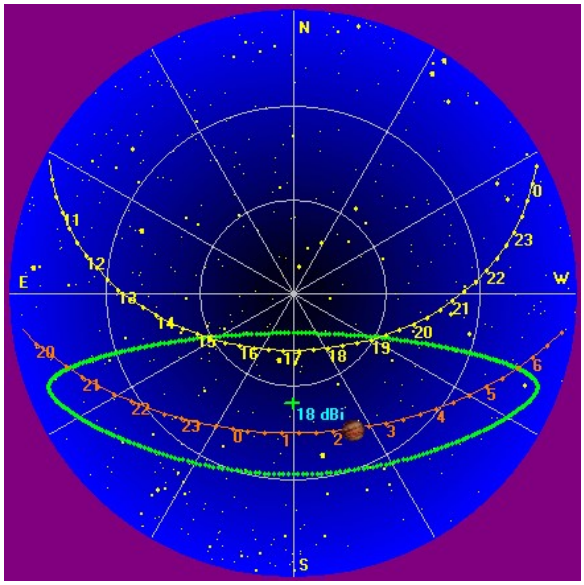
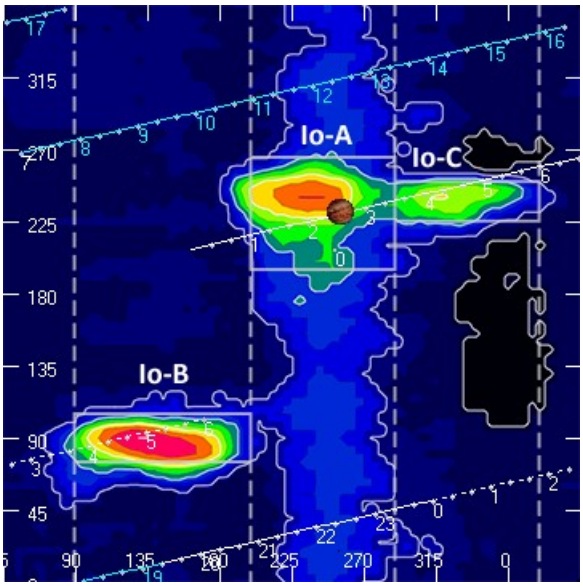
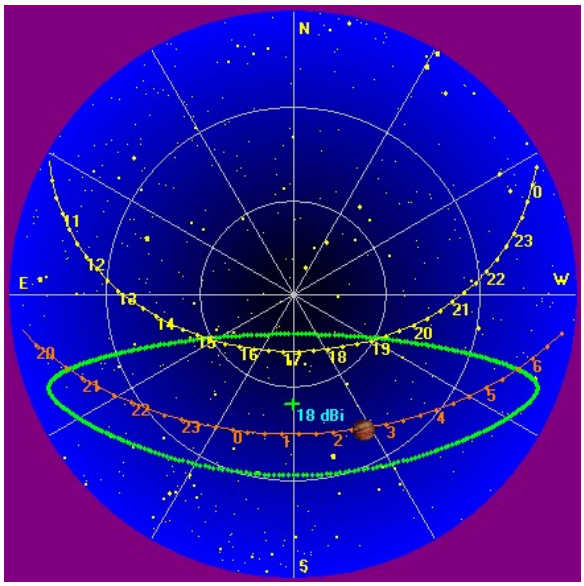




Beginning of Pass





End of Pass

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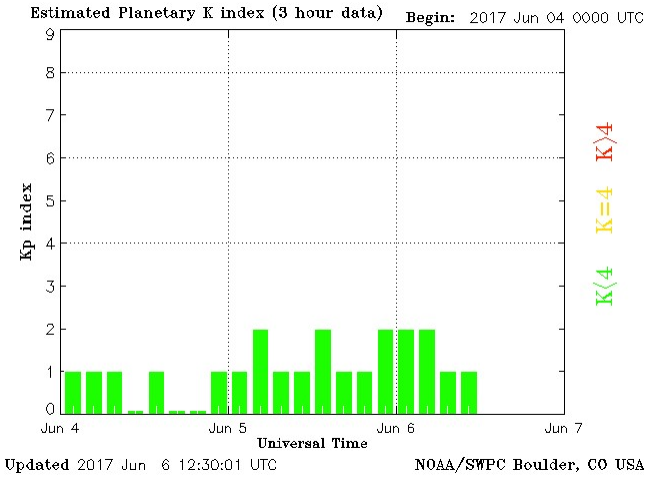

MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360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

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

An impossibly weak Io-A storm. Most of the emissions were just above the galactic background. The strongest bursts were at 0225:08 UT. The beginning was intermingled with broadcast stations and distant lightning but weak negative drift RCP L-burst modulation lanes were identifiable. A table of measured drift rates are shown at the end of this report.

Emissions were first observed at 24 MHz and drifted down to 18 MHz.

Emissions were not observed with the FSX-2/LWA or FSX-8S/TFD pairs.

Nothing other of note in this storm.

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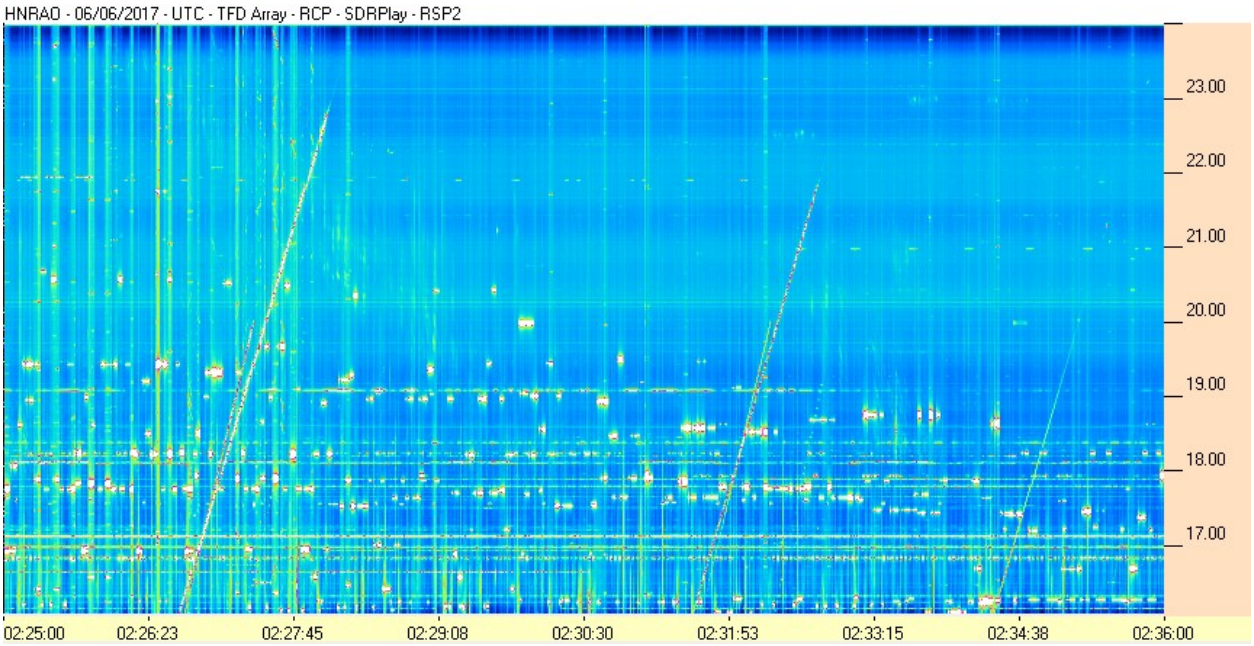

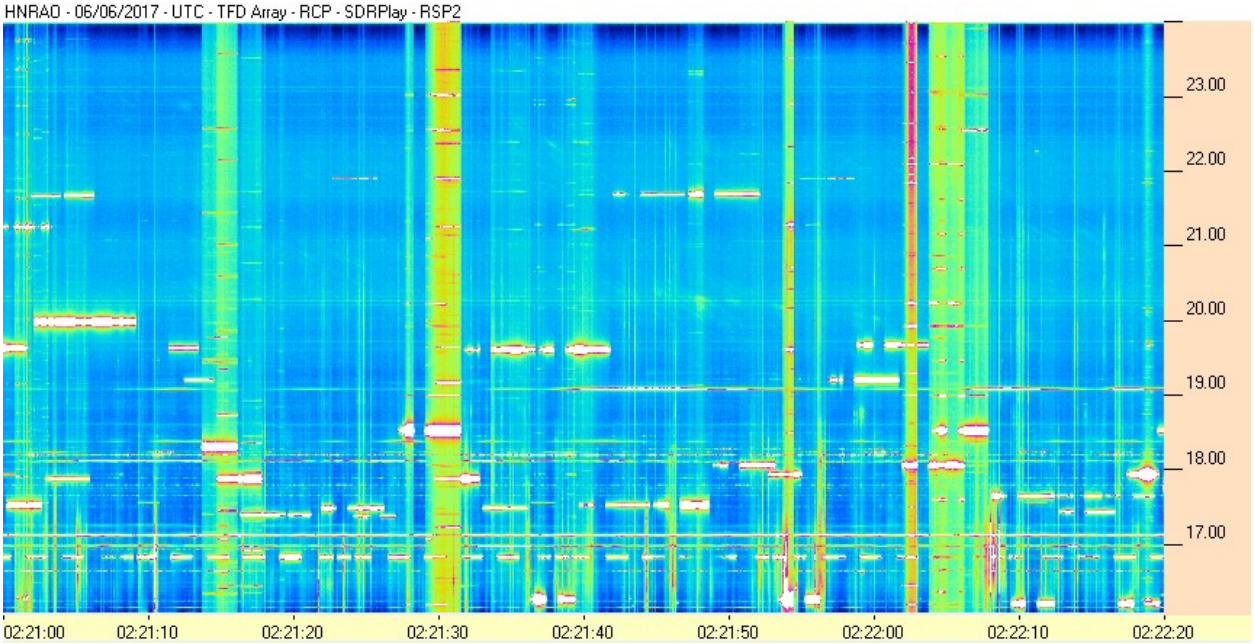

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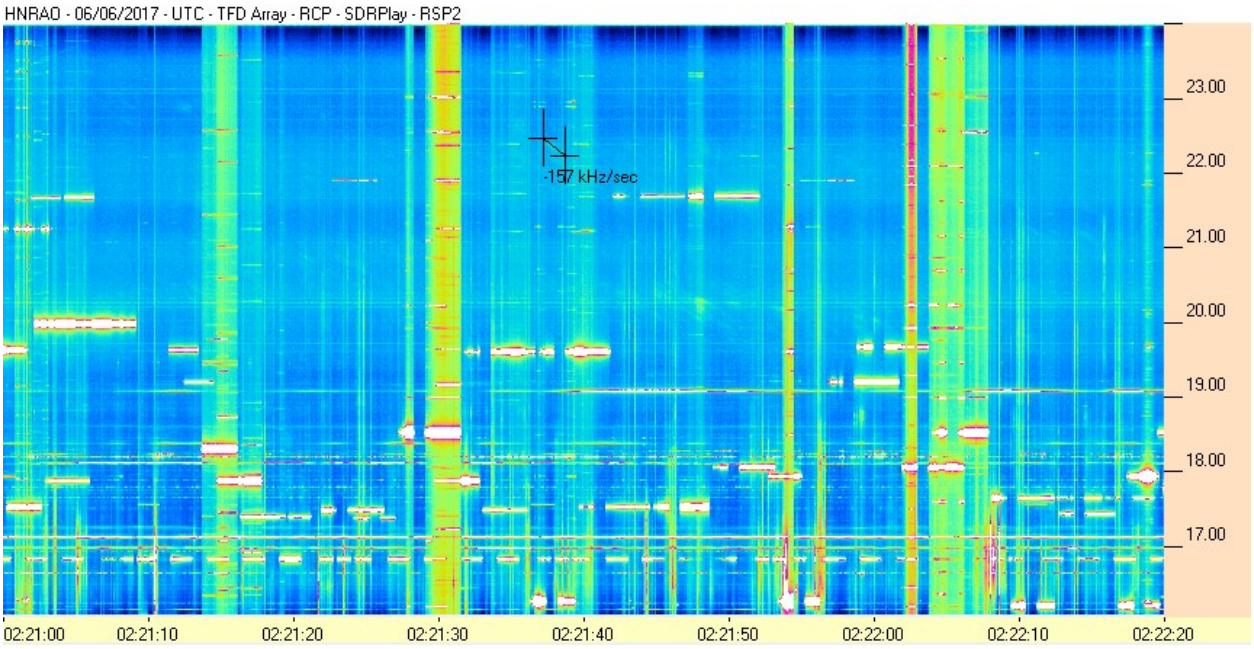

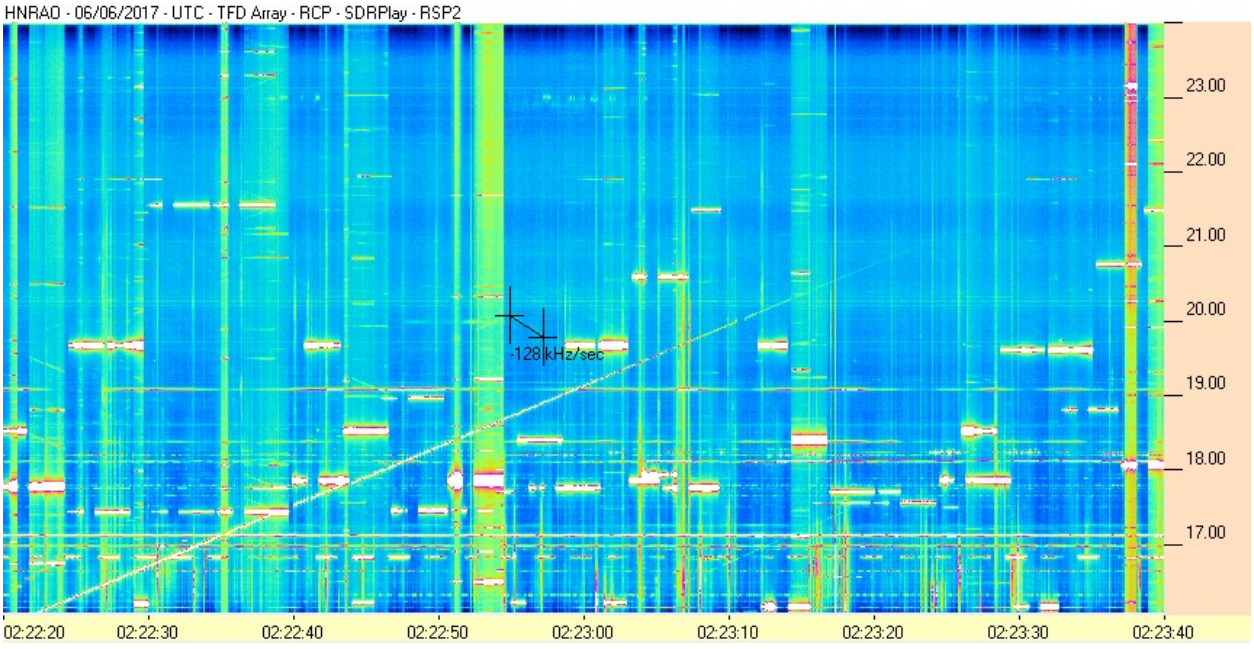

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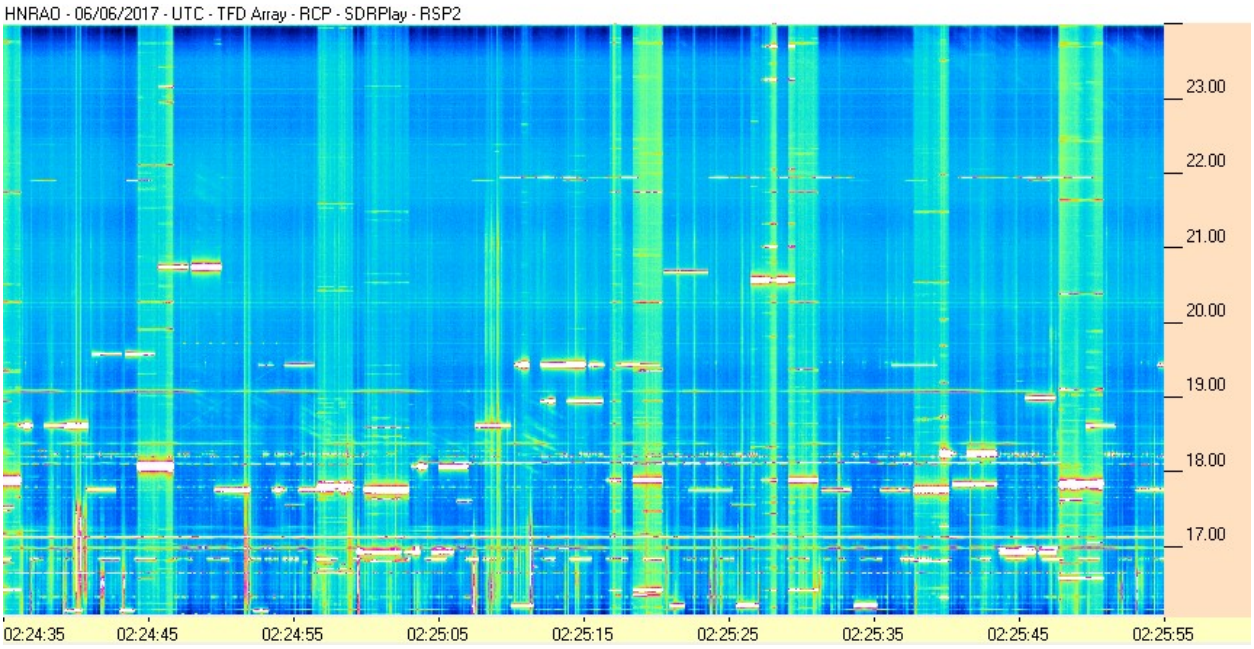

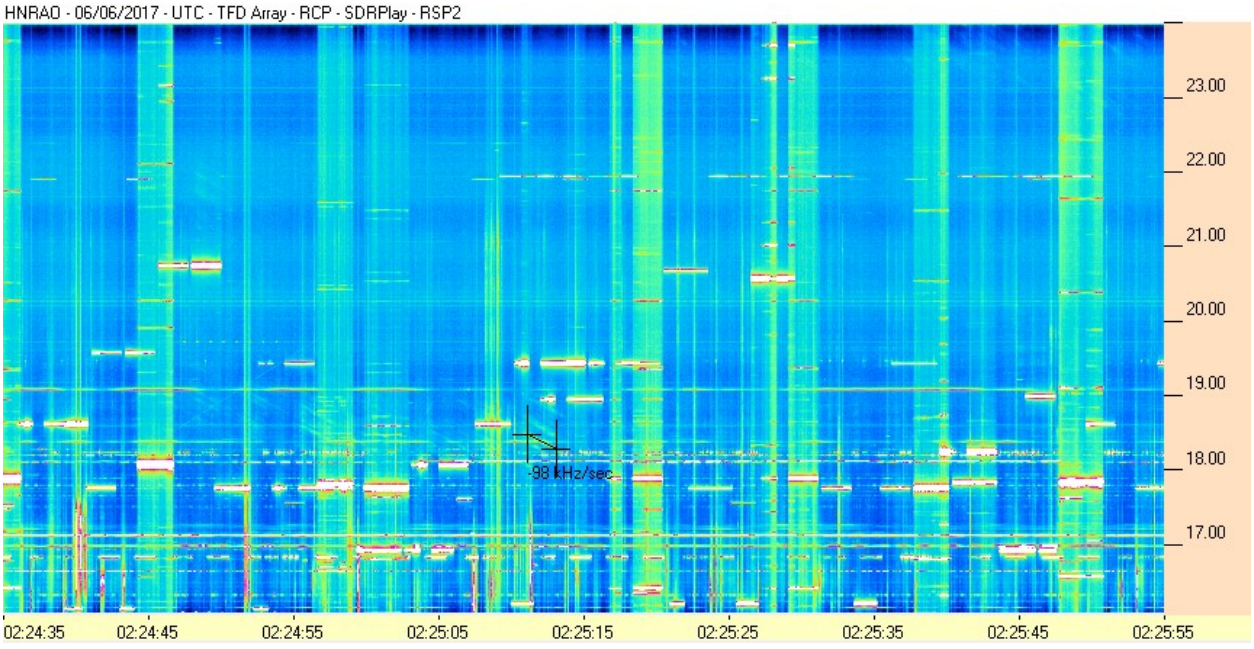

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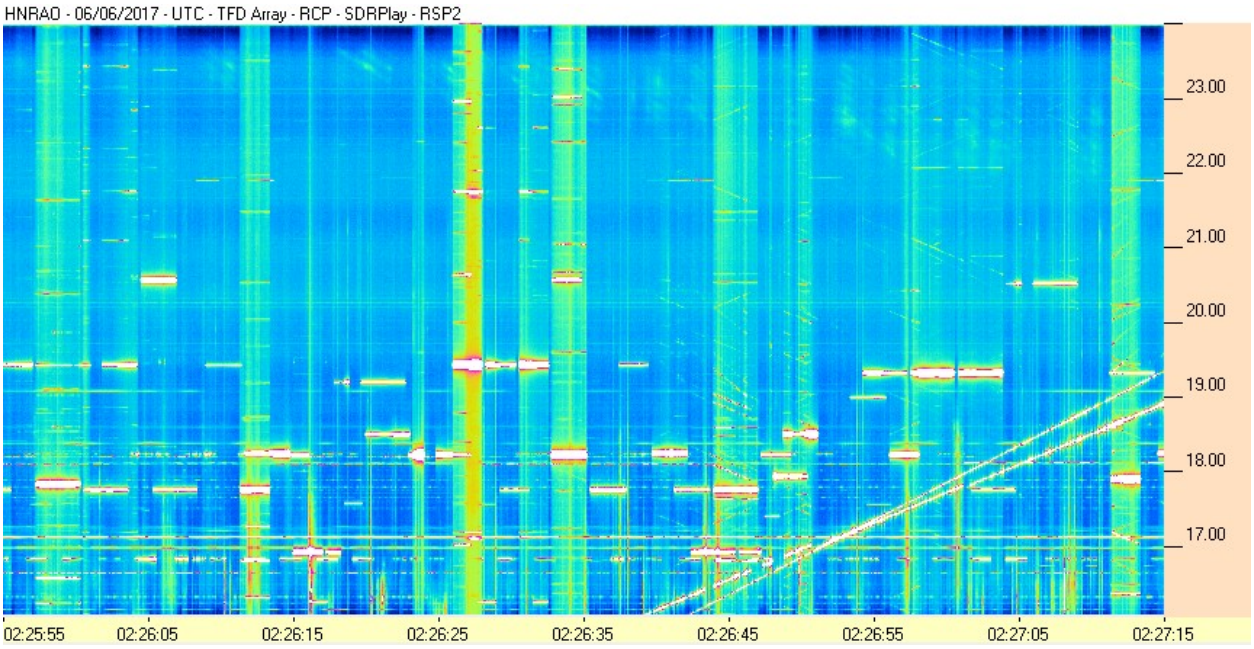

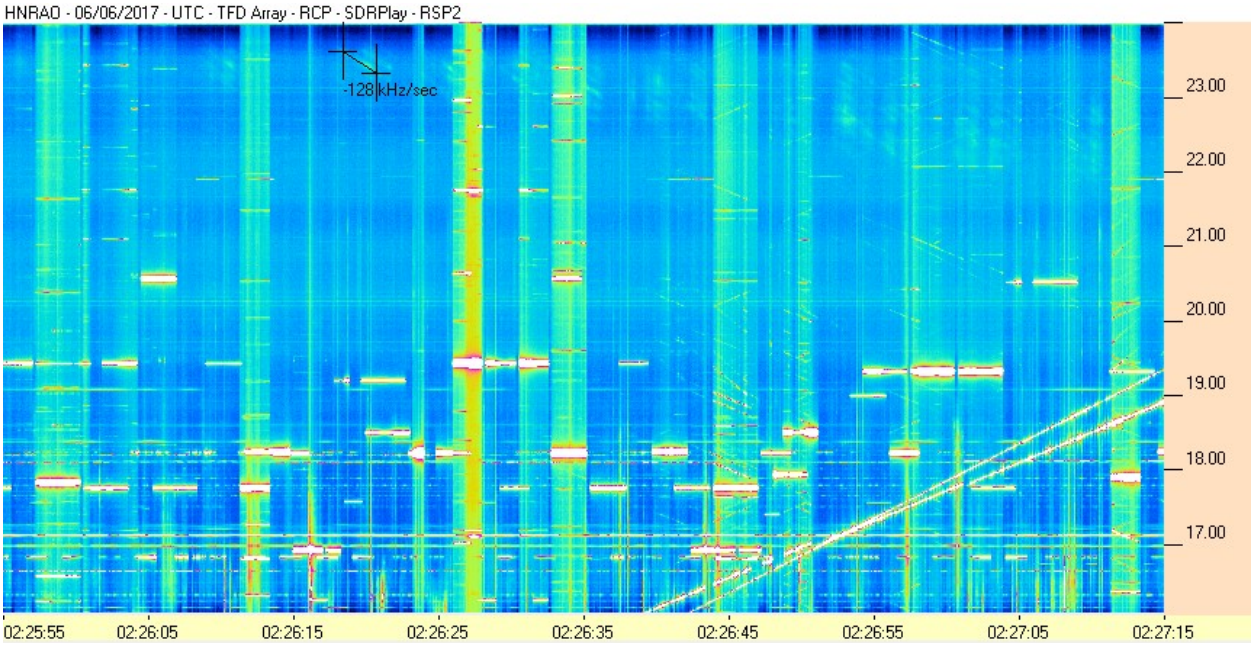

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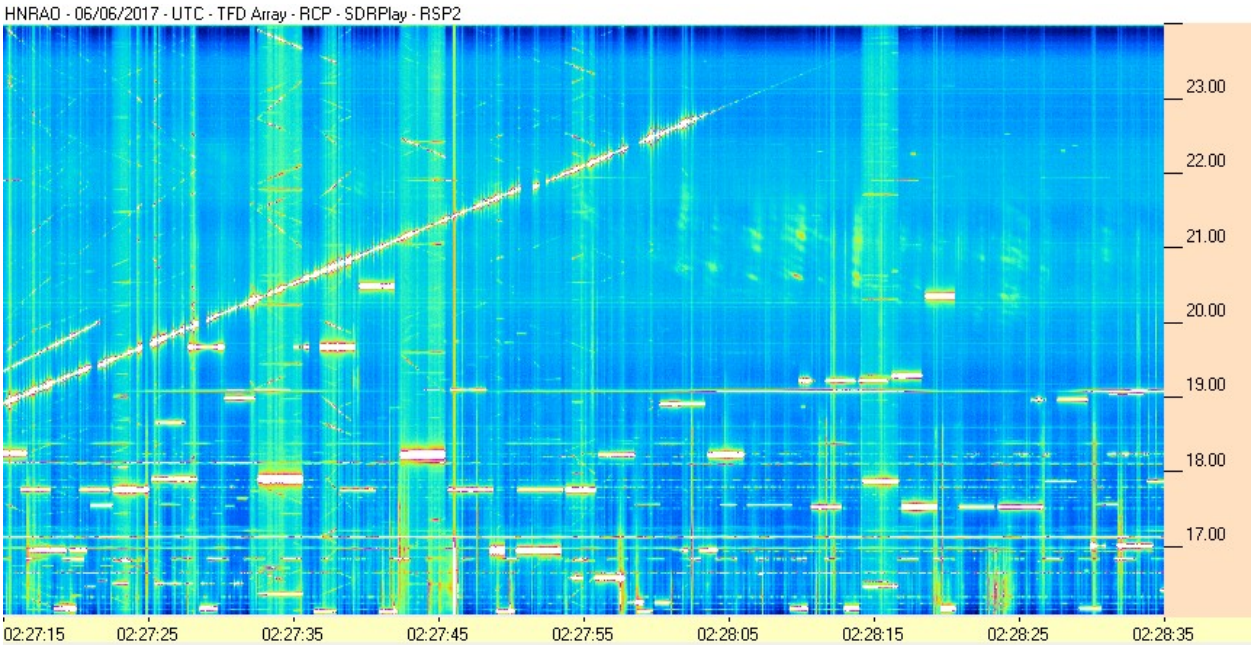

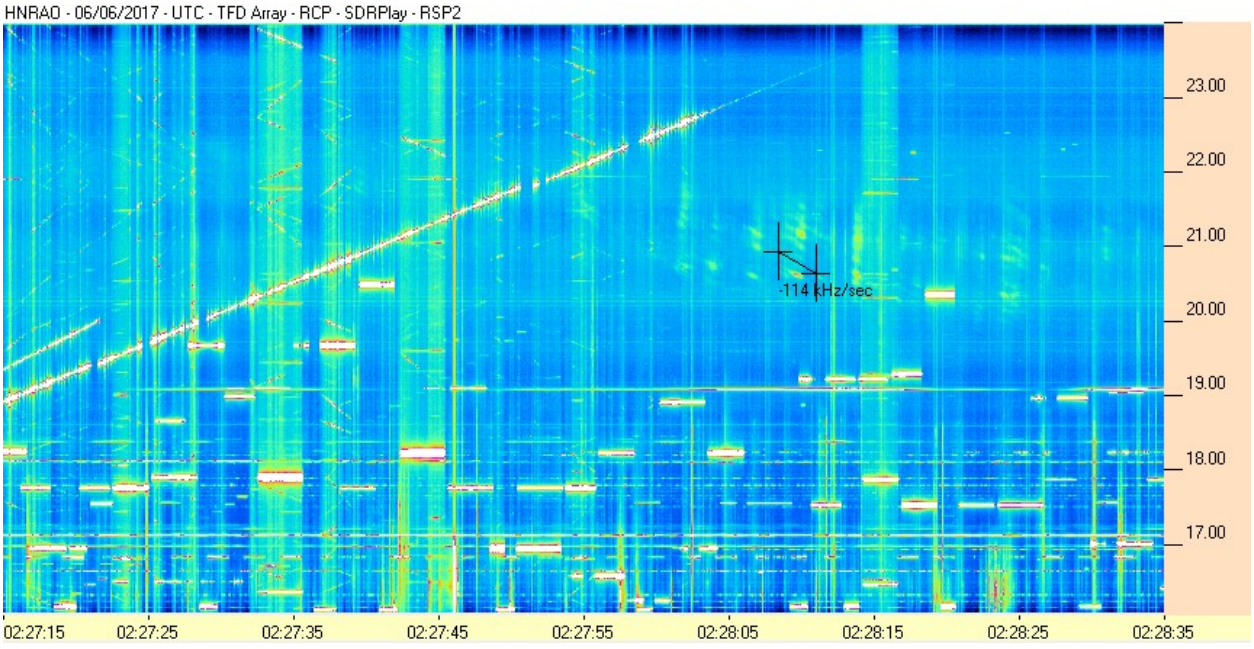

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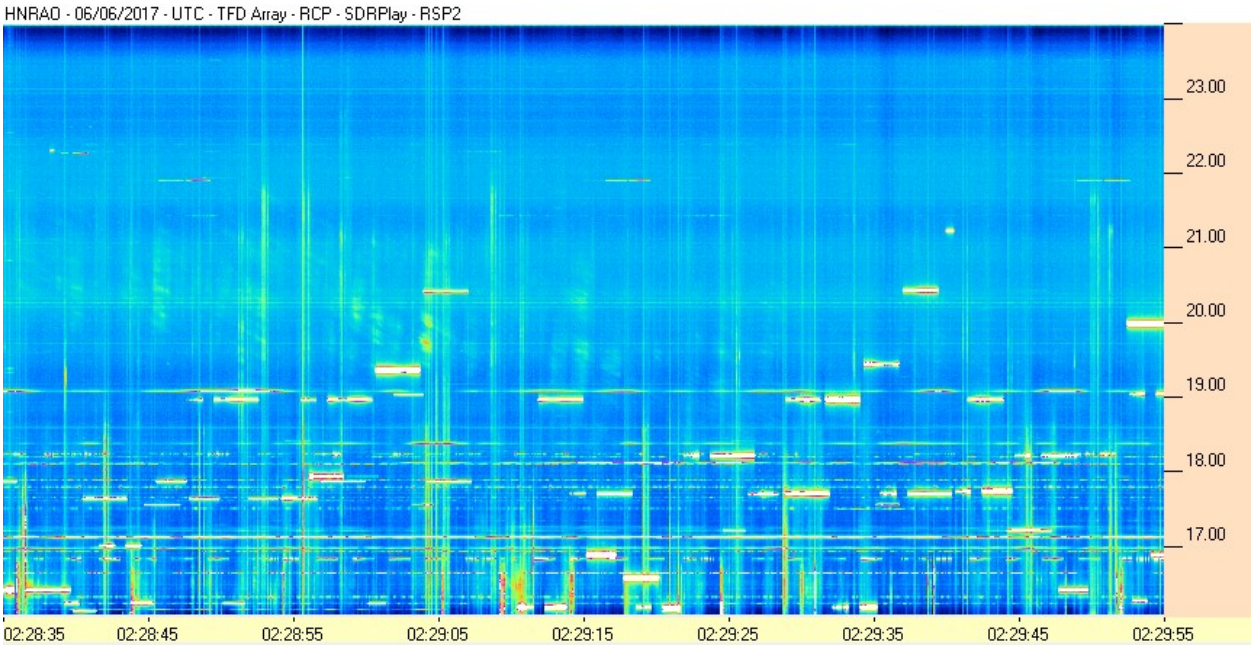

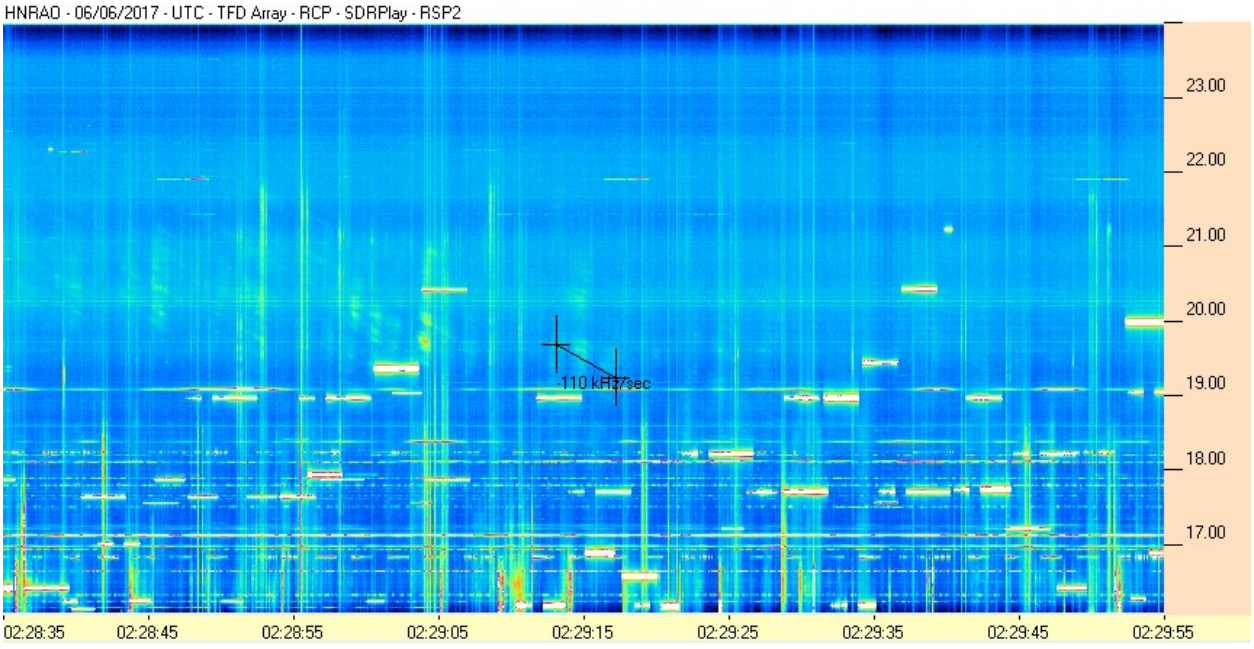

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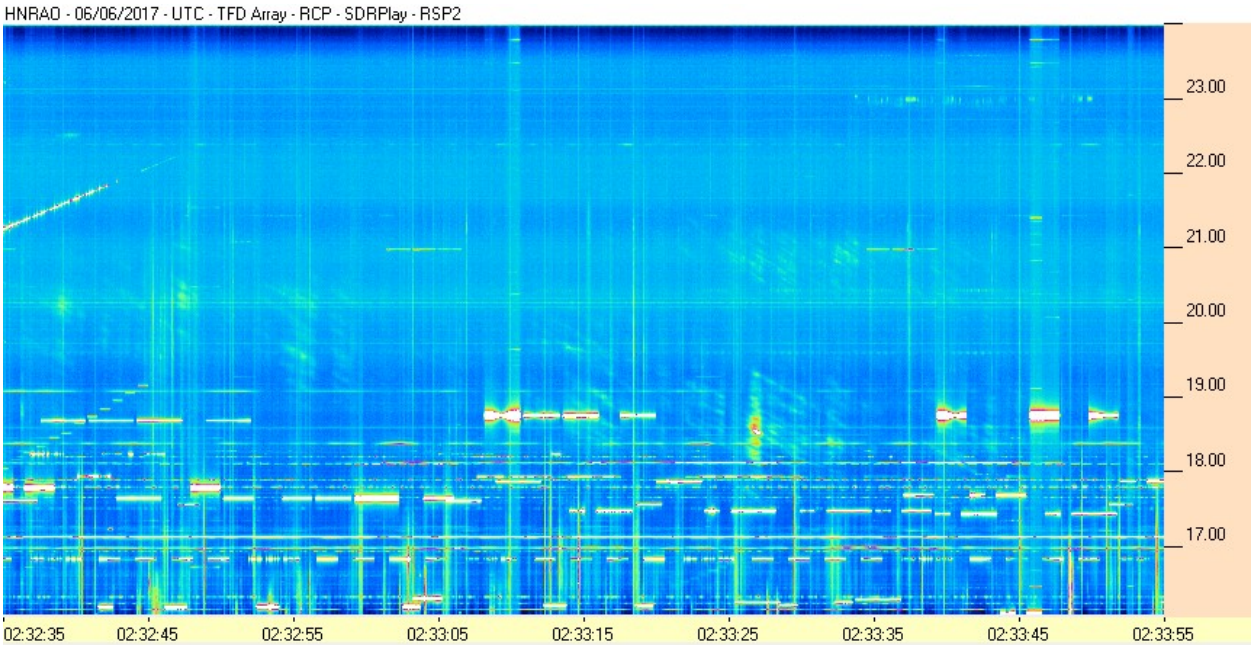

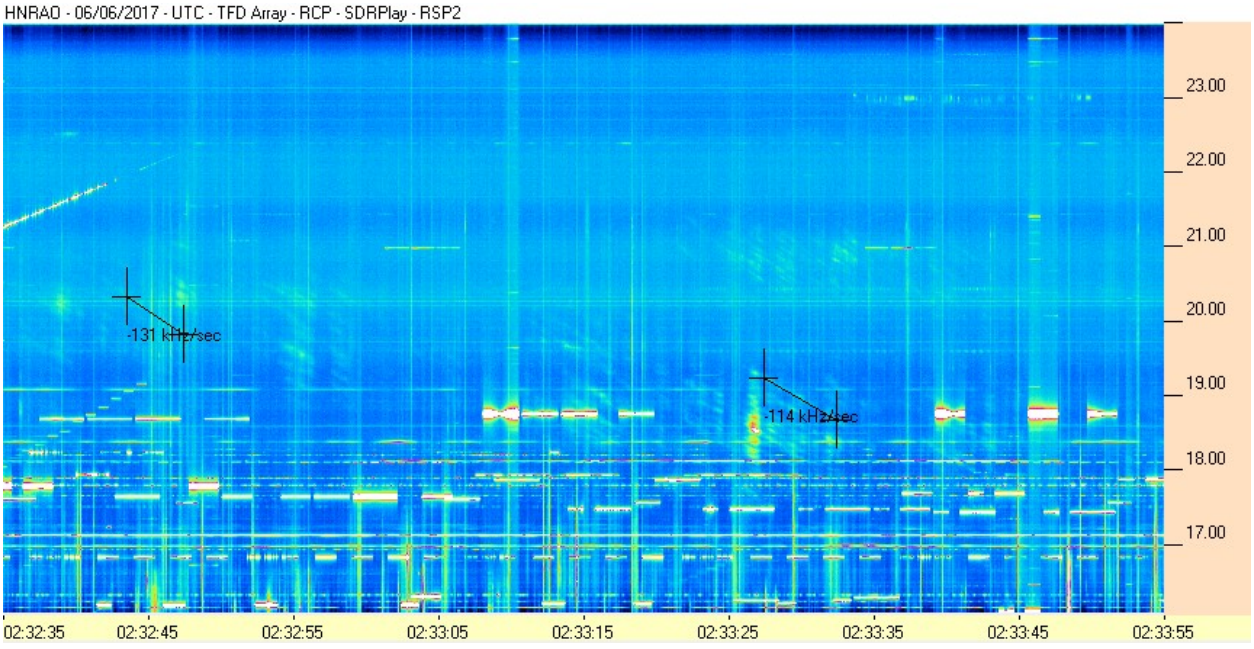

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Start	Stop	Mid	Freq 1	Freq 2	Mid Freq	Slope
6/6/2017 02:21	6/6/2017 02:21	6/6/2017 02:21	22214	22450	22.3	-157.4
6/6/2017 02:22	6/6/2017 02:22	6/6/2017 02:22	19734	20030	19.9	-128.3
6/6/2017 02:25	6/6/2017 02:25	6/6/2017 02:25	18219	18416	18.3	-98.4
6/6/2017 02:26	6/6/2017 02:26	6/6/2017 02:26	23315	23610	23.5	-128.3
6/6/2017 02:28	6/6/2017 02:28	6/6/2017 02:28	20600	20895	20.7	-113.5
6/6/2017 02:29	6/6/2017 02:29	6/6/2017 02:29	19793	20049	19.9	-150.5
6/6/2017 02:29	6/6/2017 02:29	6/6/2017 02:29	19183	19636	19.4	-110.4