

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: June 3, 2018

Object: Jupiter – Io-B

Observer: JB/Unattended

Start - Time UT:	0506	Planetary K-index:	2
Jupiter Altitude (deg):	29.6	Jupiter Azimuth (deg):	207.4
Jupiter CML:	91.45	Jupiter Io Phase:	082.73
Jupiter RA (hr/min):	14:53	Jupiter Dec (hr/min):	-15:15
Hour Angle (hr/min):	01:38	Polarization	RCP
Sun Altitude (deg):	-27.2	Sun Azimuth (deg):	358.5
Sun RA (hr/min):	04:37	Sun Dec (hr/min):	22:03

End – Time UT:	0655	De:	-3.3
Jupiter Altitude (deg):	16.3	Jupiter Azimuth (deg):	232.2
Jupiter CML:	157.35	Jupiter Io Phase	098.02
Hour Angle (hr/min):	03:27	Duration (min):	149
Sun Altitude (deg):	-22.8	Sun Azimuth (deg):	025.9
Max Frequency MHz	14	Min Frequency MHz	16

Observatory Configuration

Spectrograph Receiver	Antenna	Polarization	System Loss	Multicoupler	Multicoupler port	Calibrated
FSX-8S	TFD	RCP LCP	-8.35 dB -7.59 dB	#2 RCP #1 LCP	Port 1 +10dB Port 1 +10dB	Twice daily Twice daily
FSX-2	LWA	RCP/LCP manual select		N/A	N/A	N/A
SDRPlay RSP2	TFD	RCP	-8.35 dB	#2 RCP	Port 2 +3dB	Twice daily
SDRPlay RSP2	TFD	LCP	-7.59 dB	#1 LCP	Port 2 +3dB	Twice daily
JOVE 1	TFD	RCP	-8.35 dB	#2 RCP	Port 3 +3 dB	04/20/2018
JOVE 1	TFD	LCP	-7.59 dB	#1 LCP	Port 3 +3 dB	04/20/2018
JOVE II	Jove dipoles	Linear	-3.12 dB	#3 Linear	Port 4 +3 dB	04/10/2018
SDRPlay RSP1A	Experimental*					
SDRPlay RSP1	Experimental*					

JOVE dipoles phased @ 32 degrees for 2017-2018 season

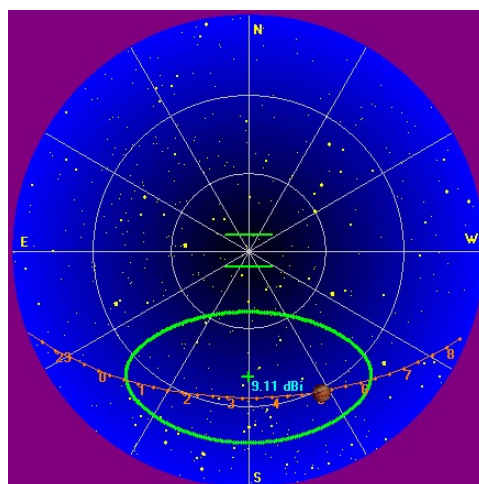
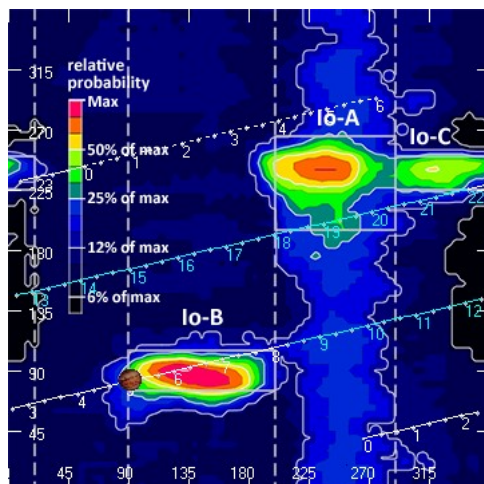
TFD array phased @ 35 degrees for 2017-2018 season

LWA array phased @ 35 degrees for 2017-2018 season

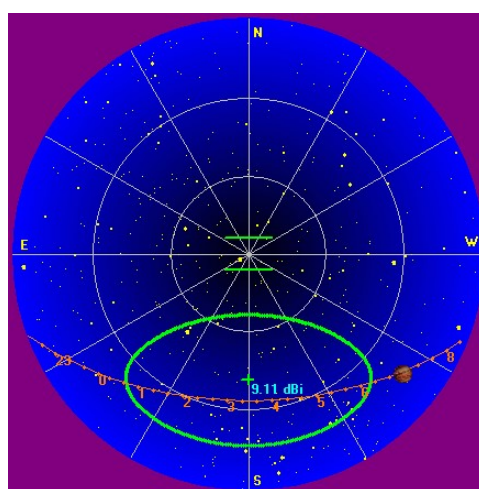
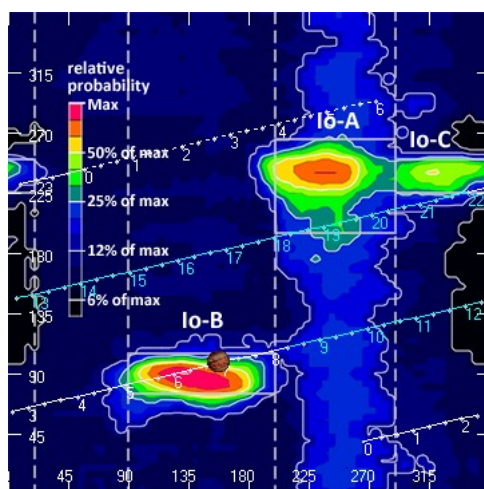
* Used for testing and evaluating antenna systems

Software Radio Sky Spectrograph 2.8.50

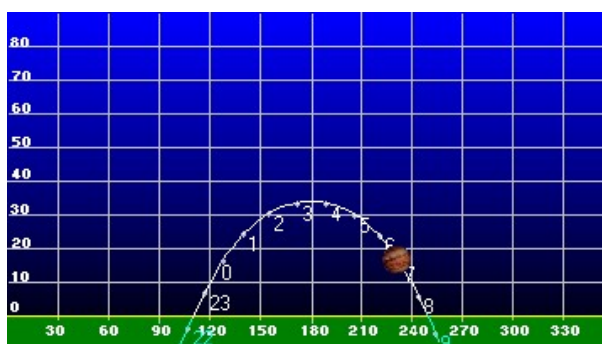
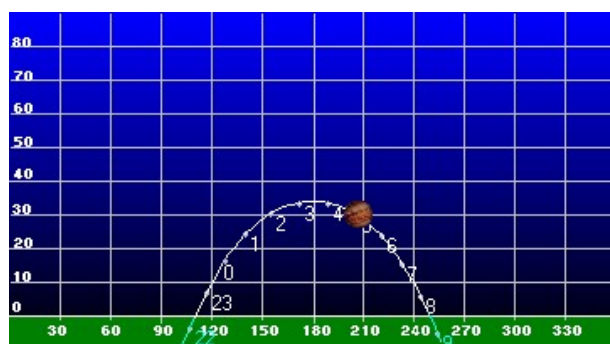
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Beginning of Pass



End of Pass



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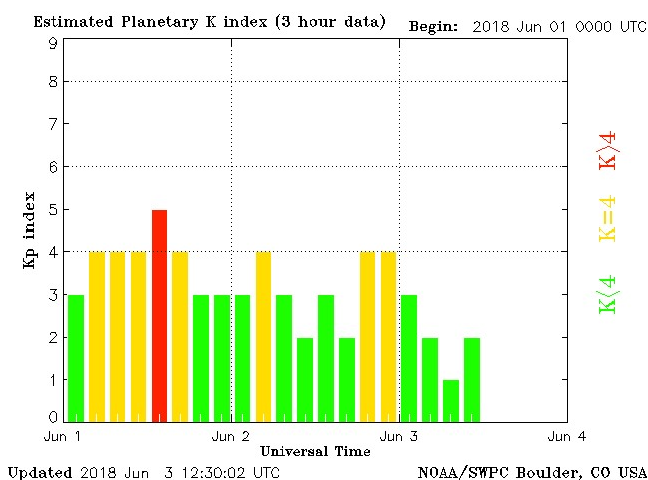


MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360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

Modulation Lanes Designations*	
L - Burst	S-Burst
L1 – No lanes	S1 – No lanes
L2 - Positive slope	S2 – Positive slope
L3 - Cross hatched	S3 – Cross hatched
L4 – Negative slope	S4 – Negative slope

*Modulation Lanes in the Dynamic Spectra of Jovian L-bursts, J.J. Riihimaa, Astron. & Astrophys. 4, 1970



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Observed with the FSX-8S, FSX-2, SDRPlay and Jove receiver, this RCP Io-B storm was weak with nothing of note. LCP spectrograph for same time revealed no emissions. Composed primarily of S-bursts which came in clusters, there were also L-bursts at the start and end. L4 modulation lanes at the beginning of the storm were measured. Most of the S-bursts were above and below 20.1 MHz and it is inconclusive if any were recorded with SkyPipe.

There was no RFI during the storm to speak of, but broadcast stations below 16 MHz were prominent at the beginning of the observation session.

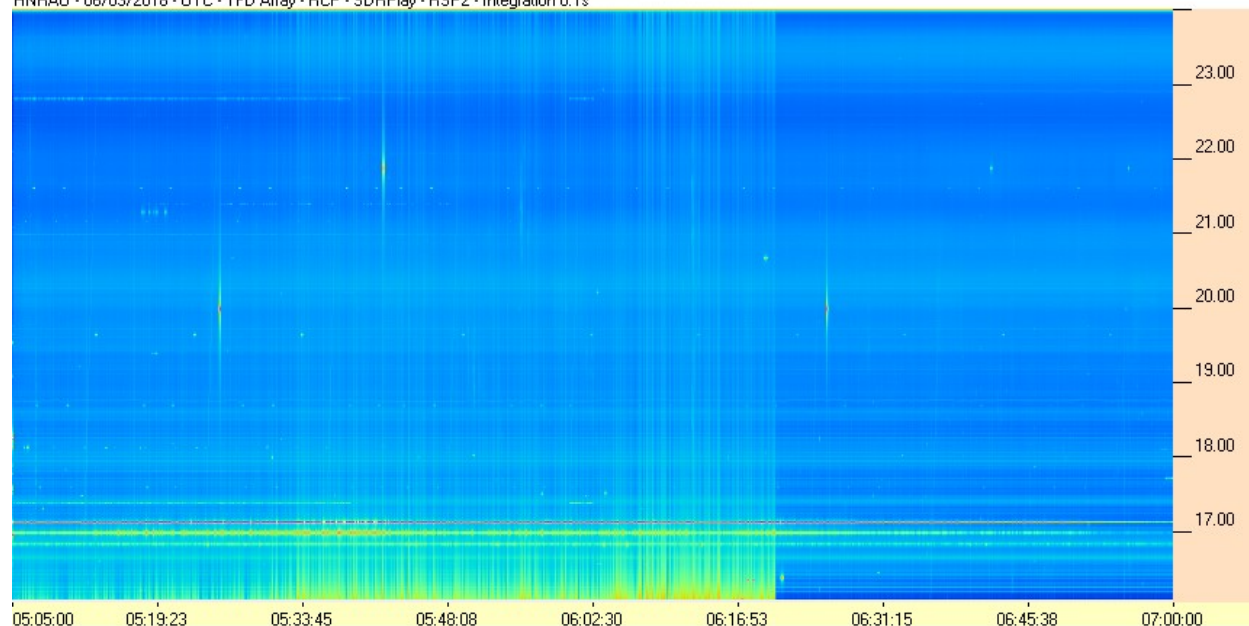
EOR

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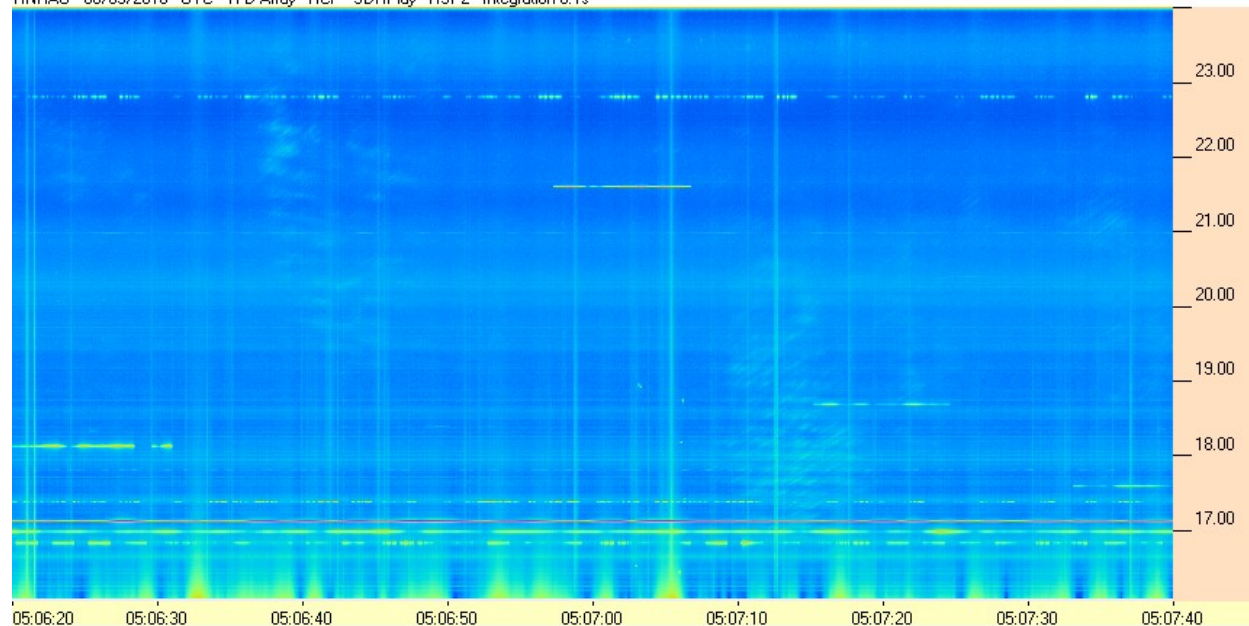


SDRPlay RSP2 / TFD Array

HNRAO - 06/03/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s



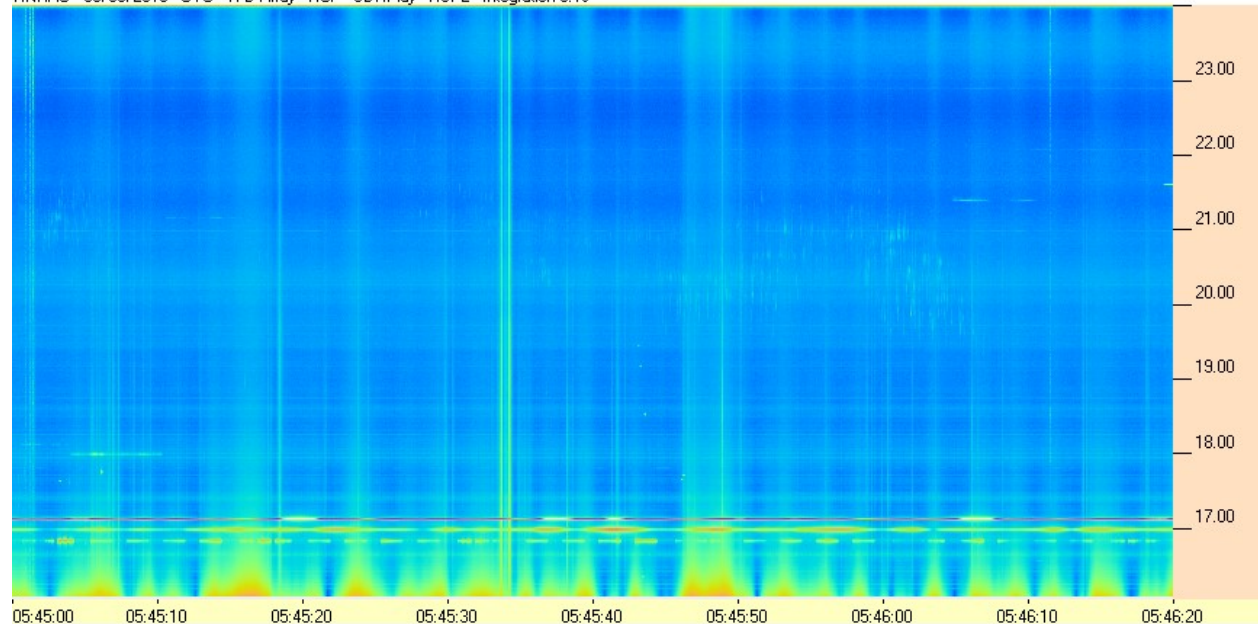
HNRAO - 06/03/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s



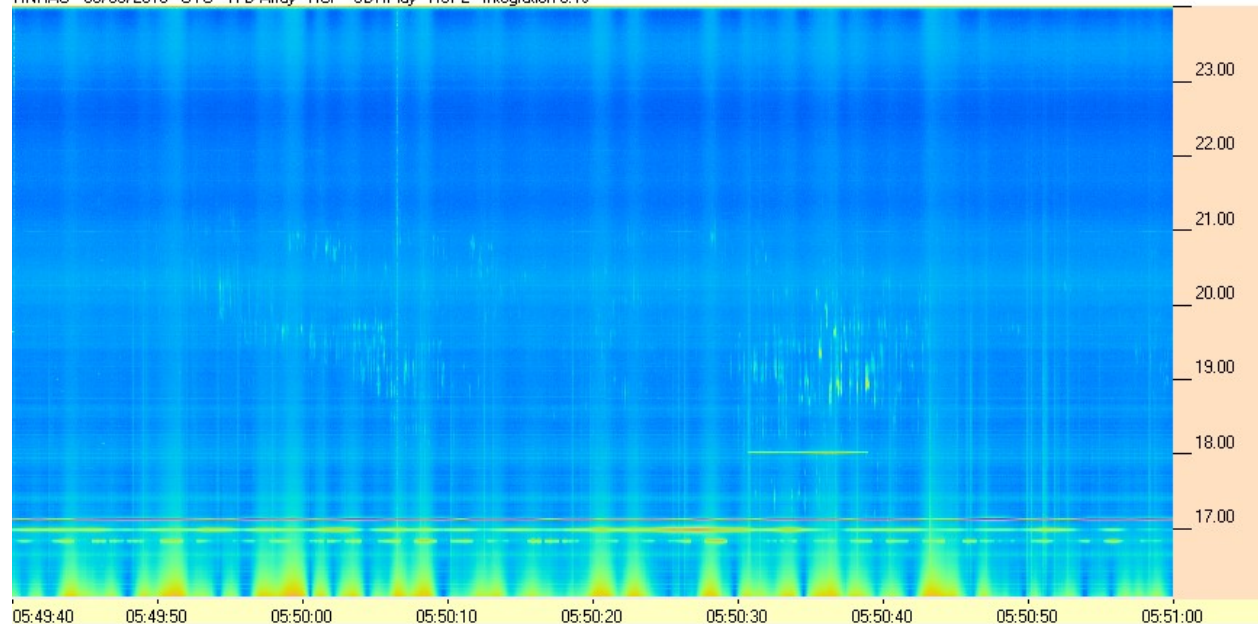
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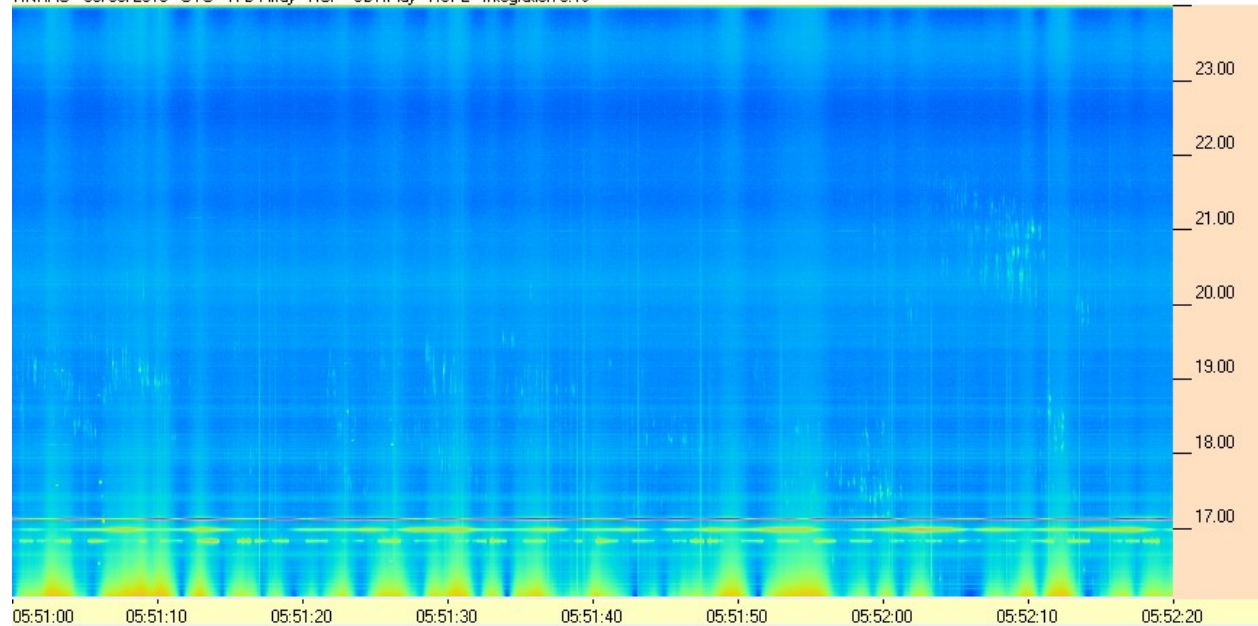
HNRAO - 06/03/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s



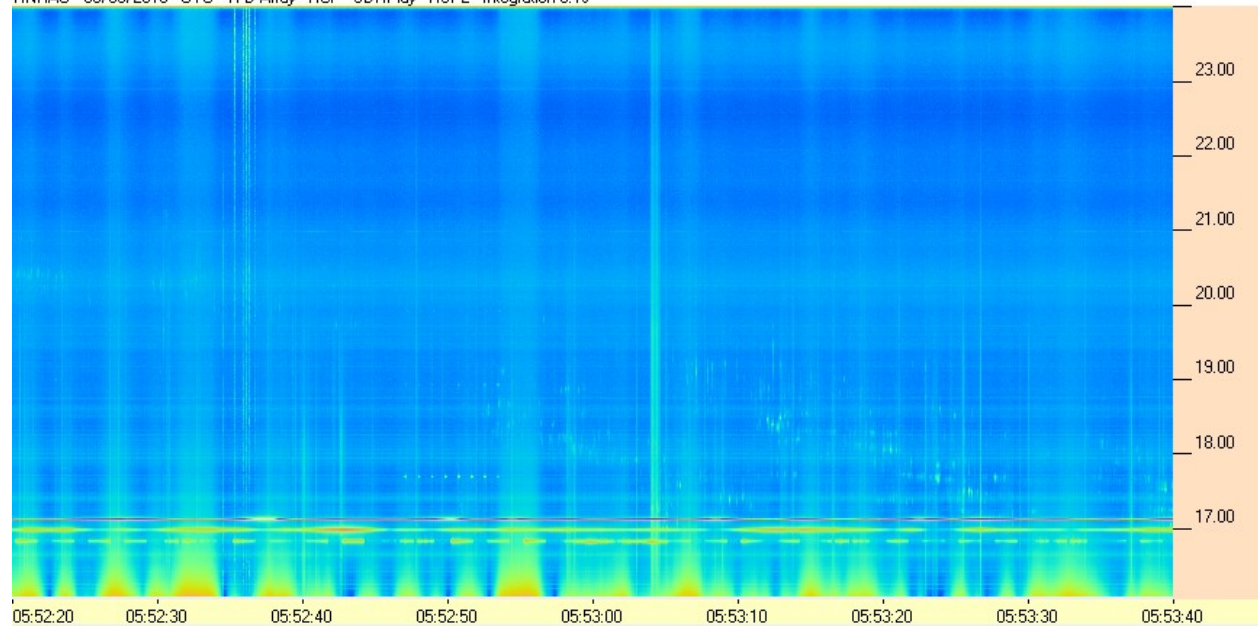
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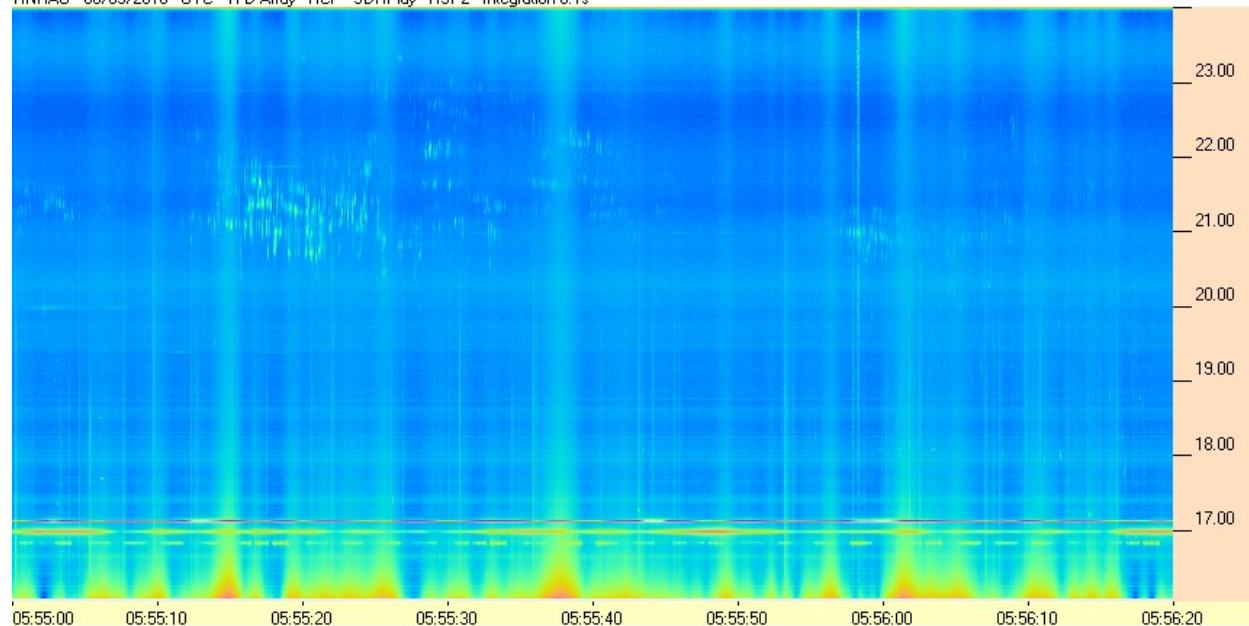
HNRAO - 06/03/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s



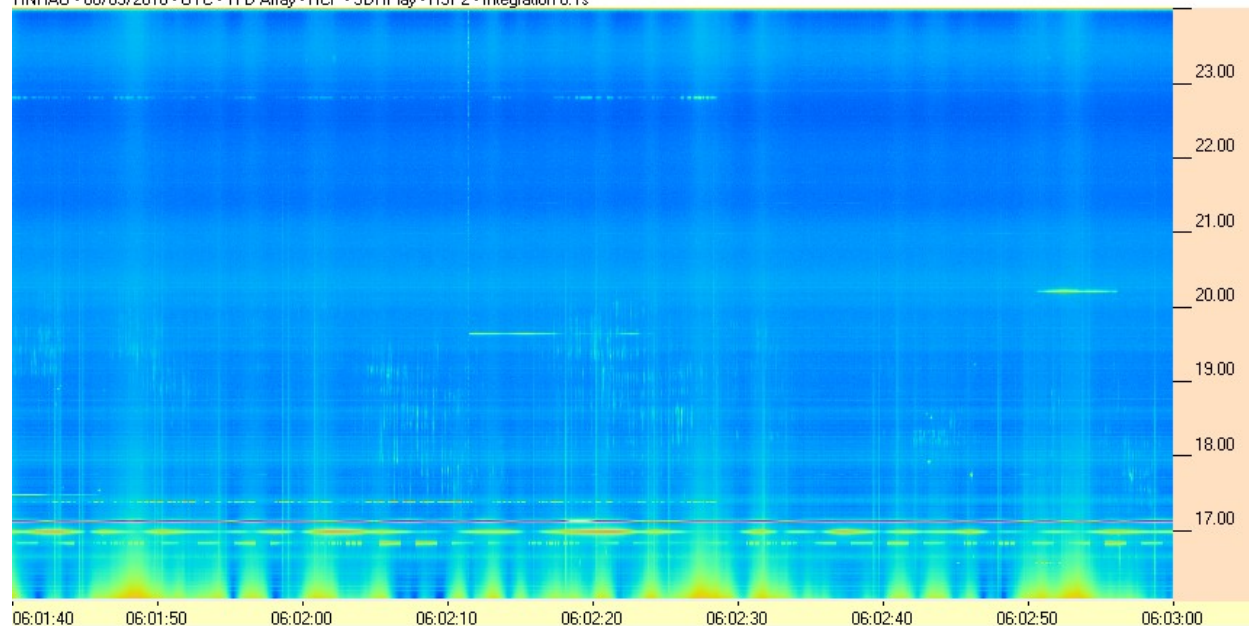
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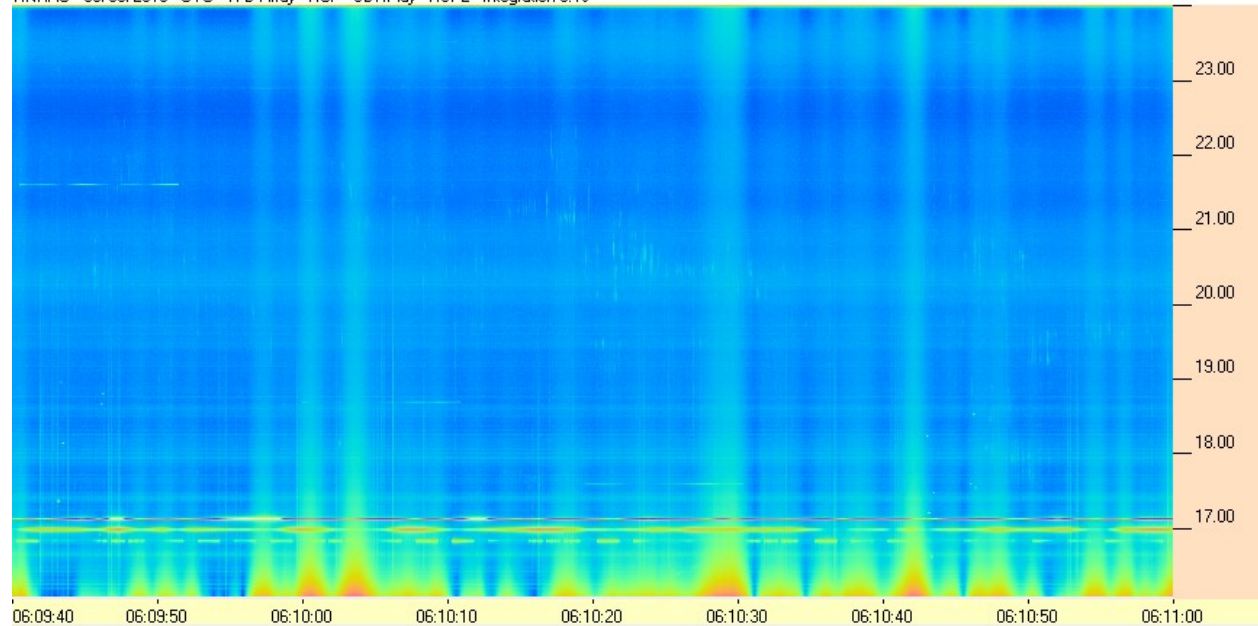
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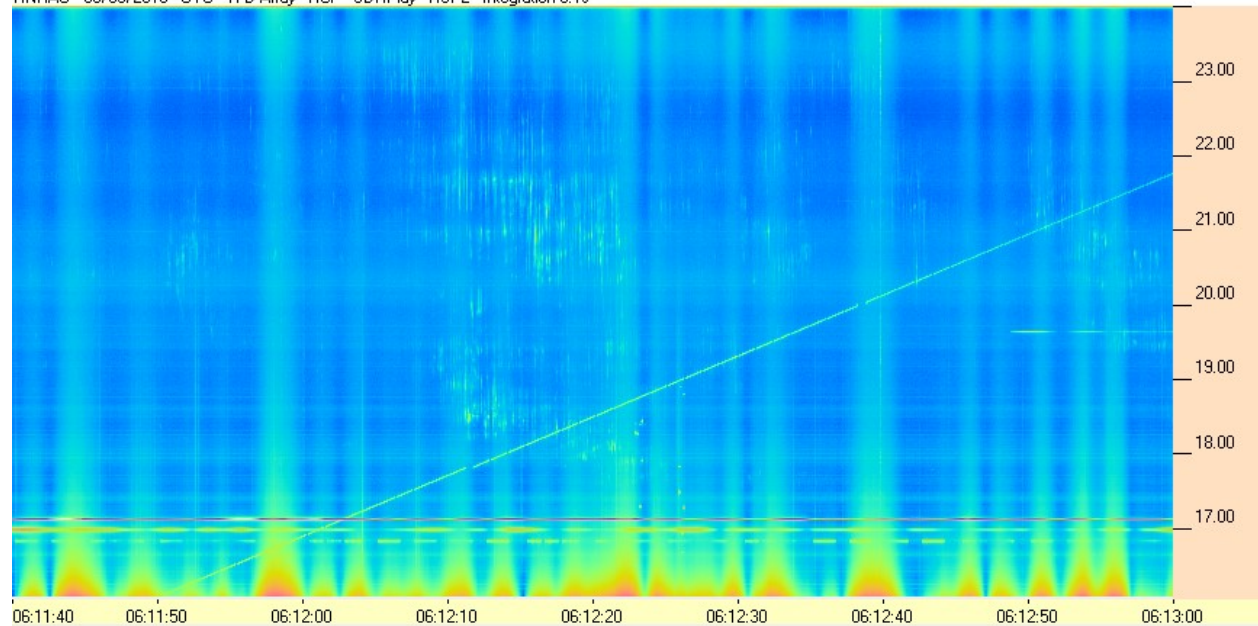
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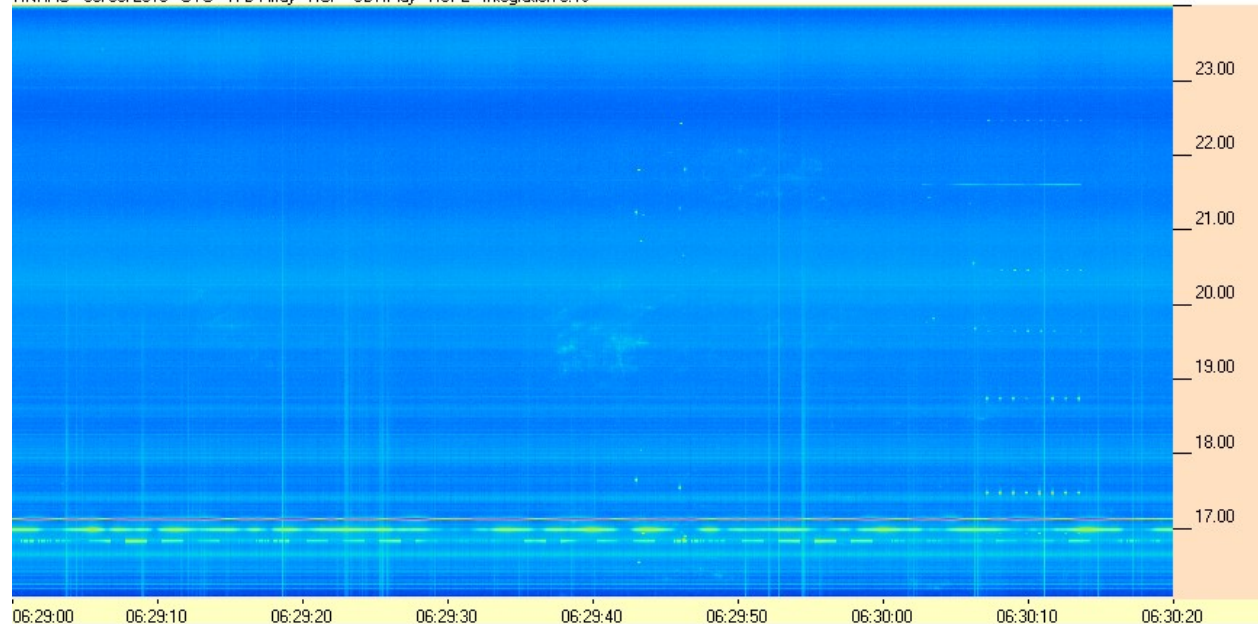
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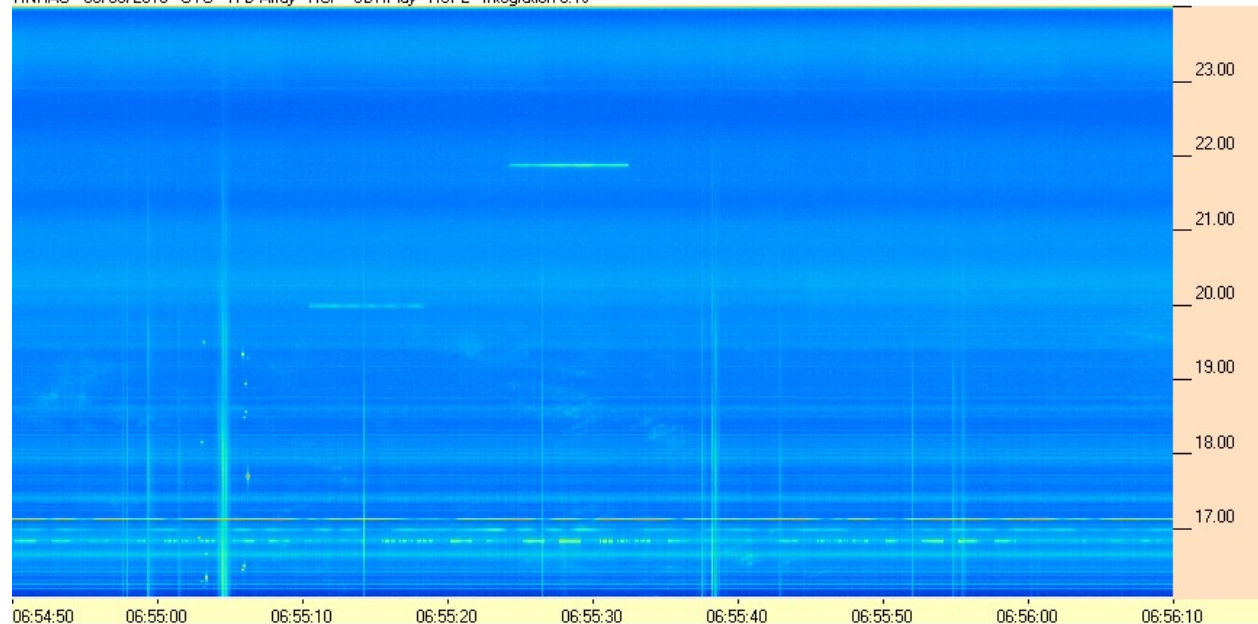
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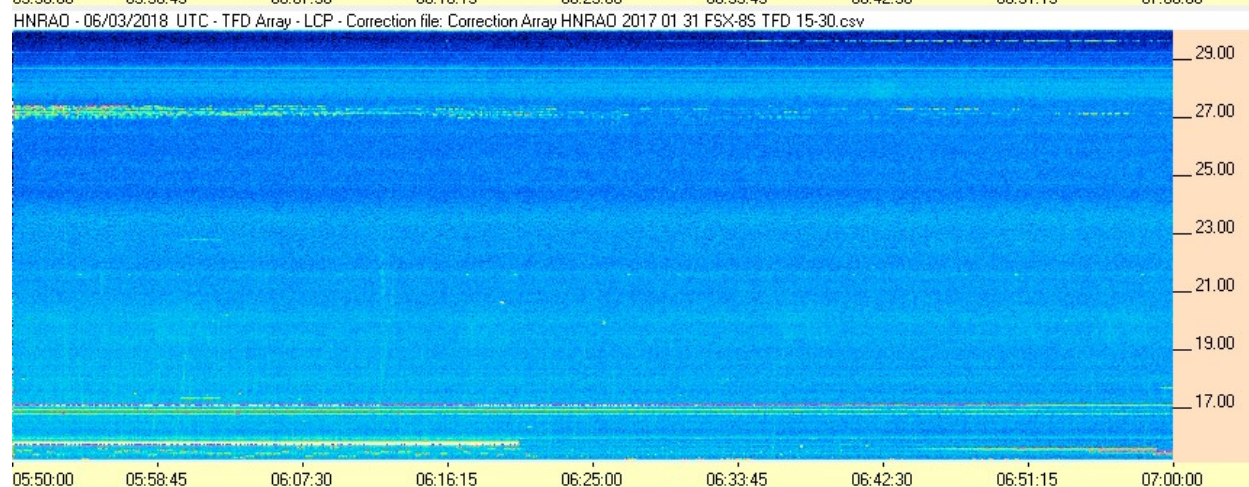
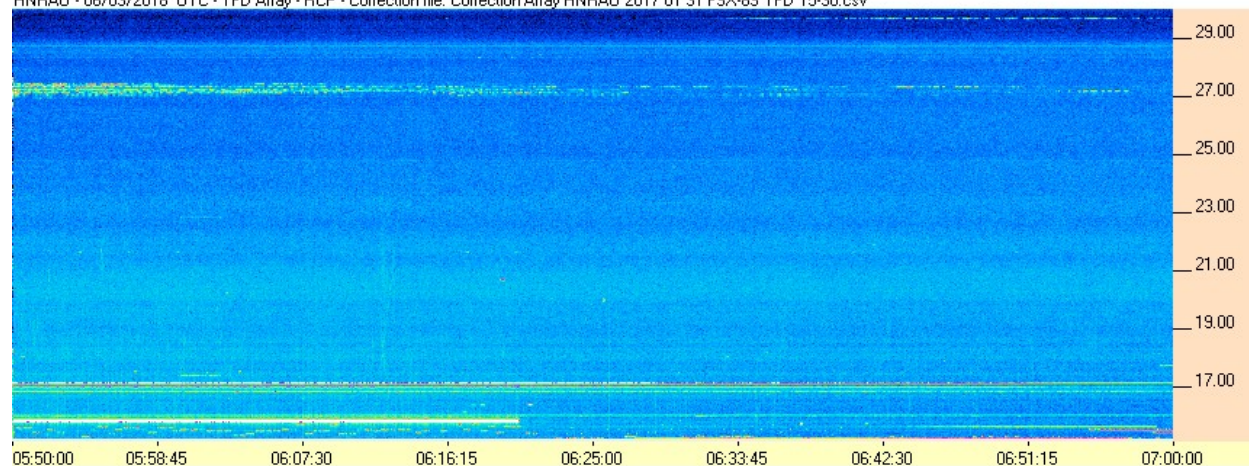


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FSX-8S / TFD Array

HNRAO - 06/03/2018 UTC - TFD Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv



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FSX-2 / LWA Array

HNRAO - 06/03/2018 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv

