HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq

Date: June 28, 2018

Object: Jupiter – Io-B

Observer: Unattended

Start - Time UT:	**0135**	**Planetary K-index:**	**2**
Jupiter Altitude (deg):	**34.5**	**Jupiter Azimuth (deg):**	**177.8**
Jupiter CML:	**127.87**	**Jupiter Io Phase:**	**101.38**
Jupiter RA (hr/min):	**14:45**	**Jupiter Dec (hr/min):**	**-14:47**
Hour Angle (hr/min):	**-00:07**	**Polarization**	**RCP**
Sun Altitude (deg):	**-07.8**	**Sun Azimuth (deg):**	**310.2**
Sun RA (hr/min):	**06:20**	**Sun Dec (hr/min):**	**23:22**

End – Time UT:	**0200**	**De:**	**-3.1**
Jupiter Altitude (deg):	**34.4**	**Jupiter Azimuth (deg):**	**185.2**
Jupiter CML:	**142.98**	**Jupiter Io Phase**	**104.90**
Hour Angle (hr/min):	**00:18**	**Duration (min):**	**25**
Sun Altitude (deg):	**-11.3**	**Sun Azimuth (deg):**	**314.9**
Max Frequency MHz	**24**	**Min Frequency MHz**	**14**

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	06/23/2018
SDRPlay RSP1	Experimental*					

JOVE dipoles phased @ 32 degrees for 2017-2018 season
TFD array phased @ 35 degrees for 2017-2018 season
LWA antenna phased @ 35 degrees and orientation for observation: 45 degrees
* Used for testing and evaluating antenna systems
Software Radio Sky Spectrograph 2.8.50

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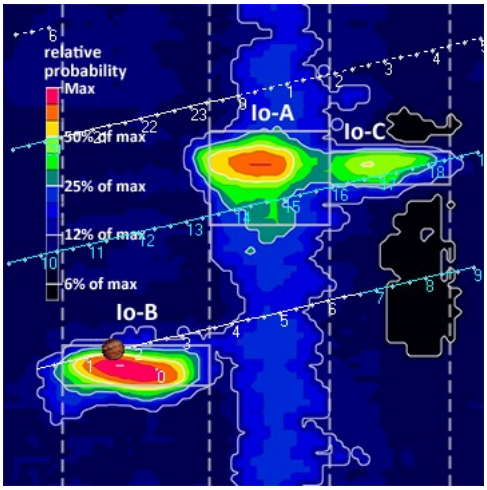
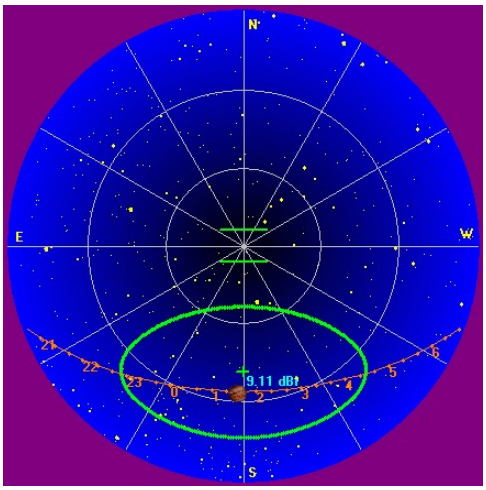
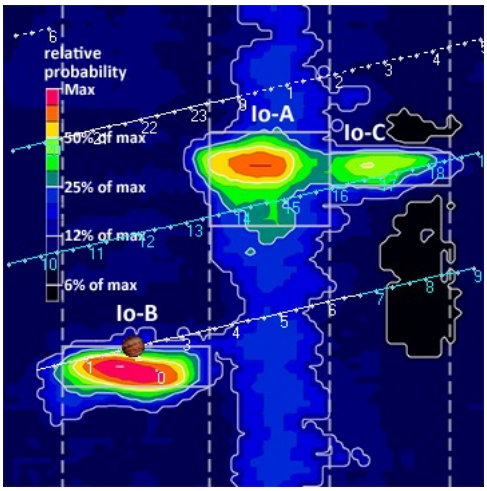
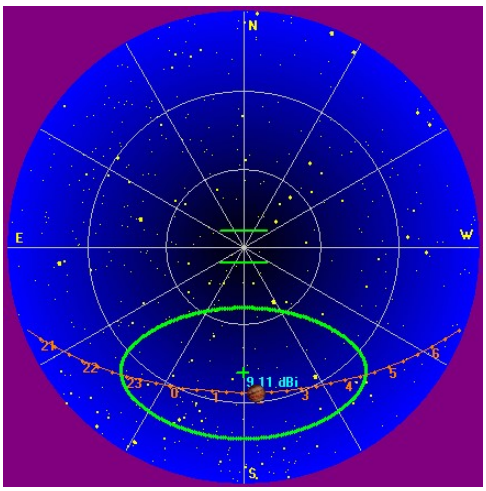


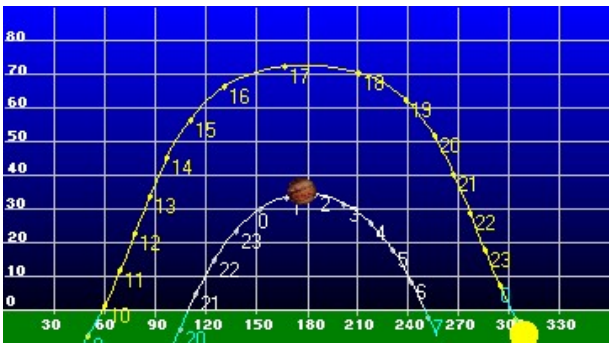


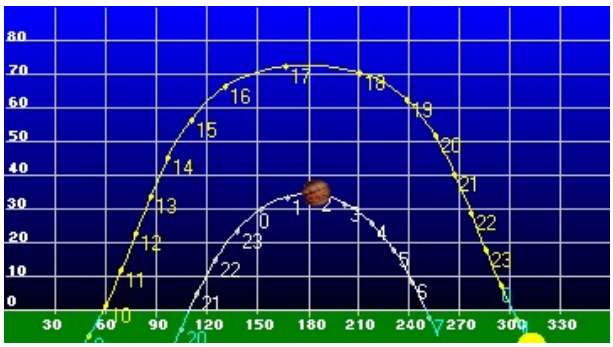
Beginning of Pass





End of Pass





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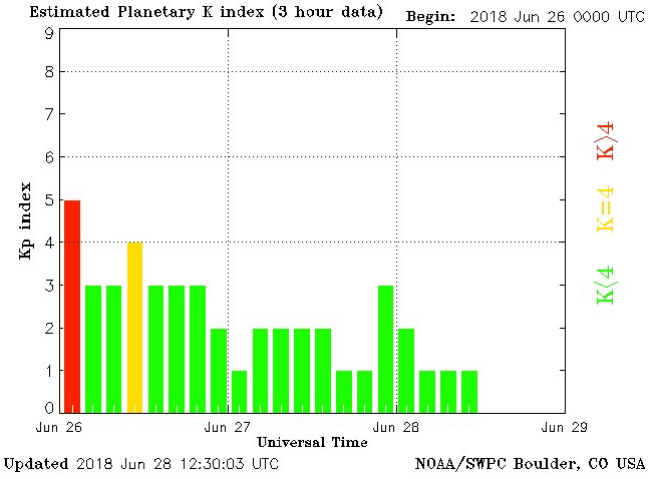
MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360	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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Very little to report. A 25-minute Io-B storm with nothing remarkable. Observing conditions were less than ideal with a nearby thunderstorm producing significant lightning in the data. L-bursts observed. If any S-bursts were present, they were masked by the lightning. L3 modulation lanes at the beginning of the storm, transitioning to L2 then back to L3 near the end of emission.

Only the strong burst at the beginning of the storm was observable with the FSX-8S/TFD spectrograph.

The same was true with the FSX-2/LWA spectrograph.

Nothing observable with the Radio JOVE/JOVE dipole array due to the lightning discharges.

Nothing else of note.

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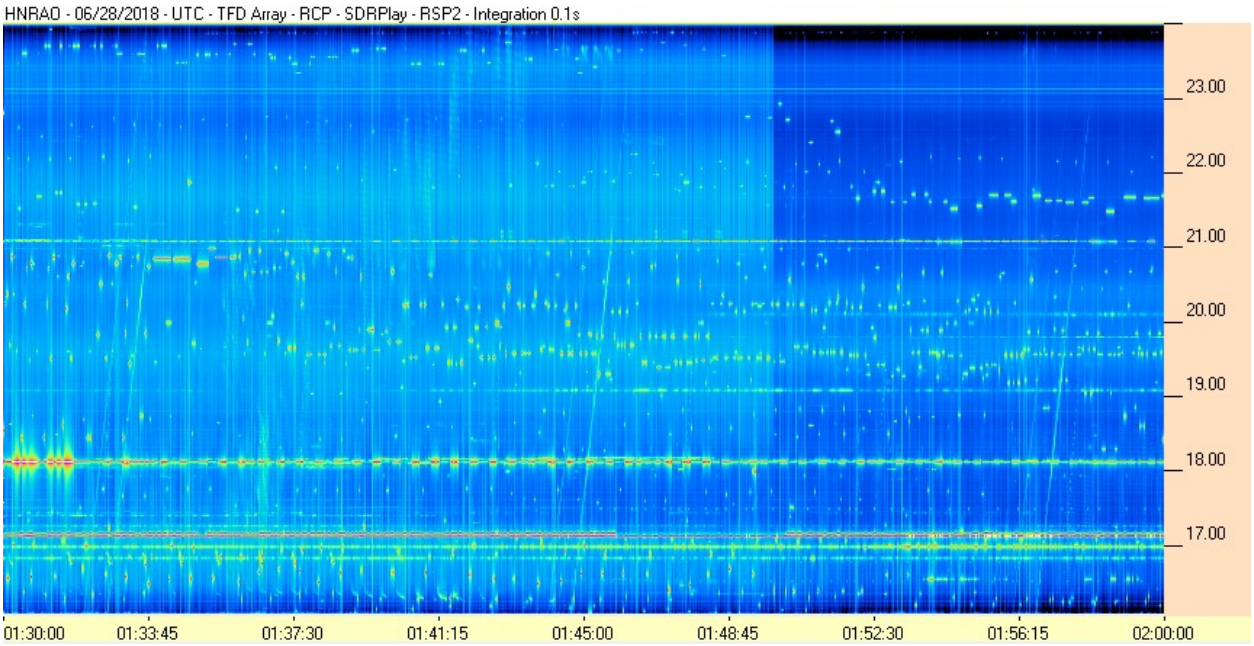
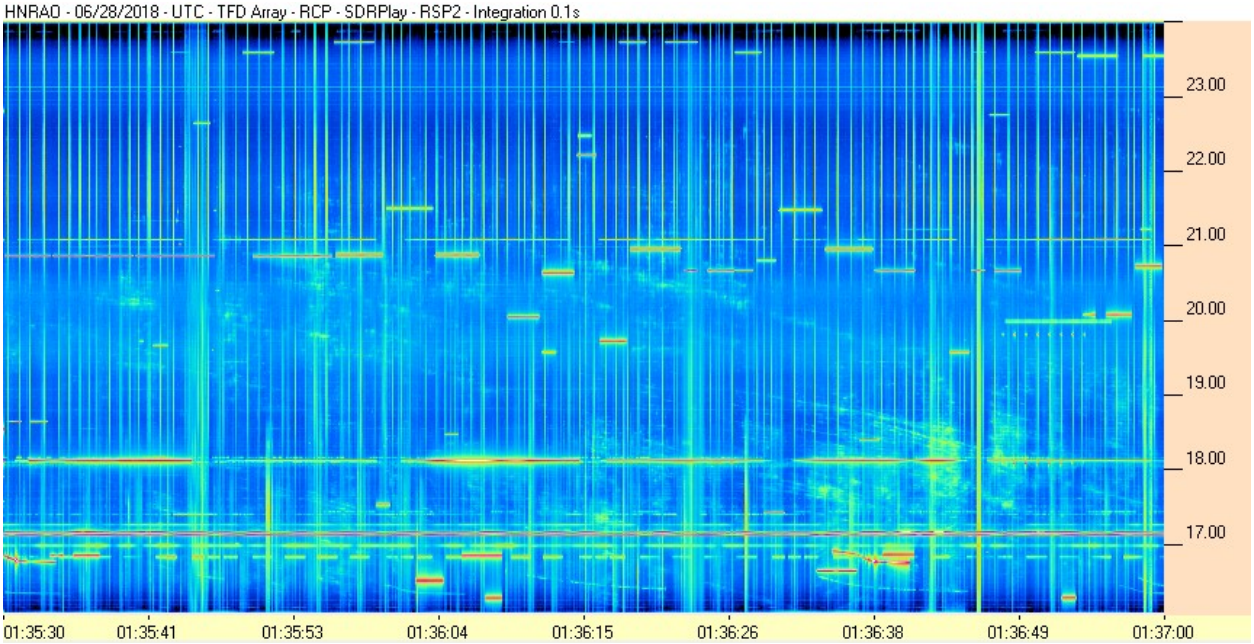
SDRPlay RSP2 / TFD Array





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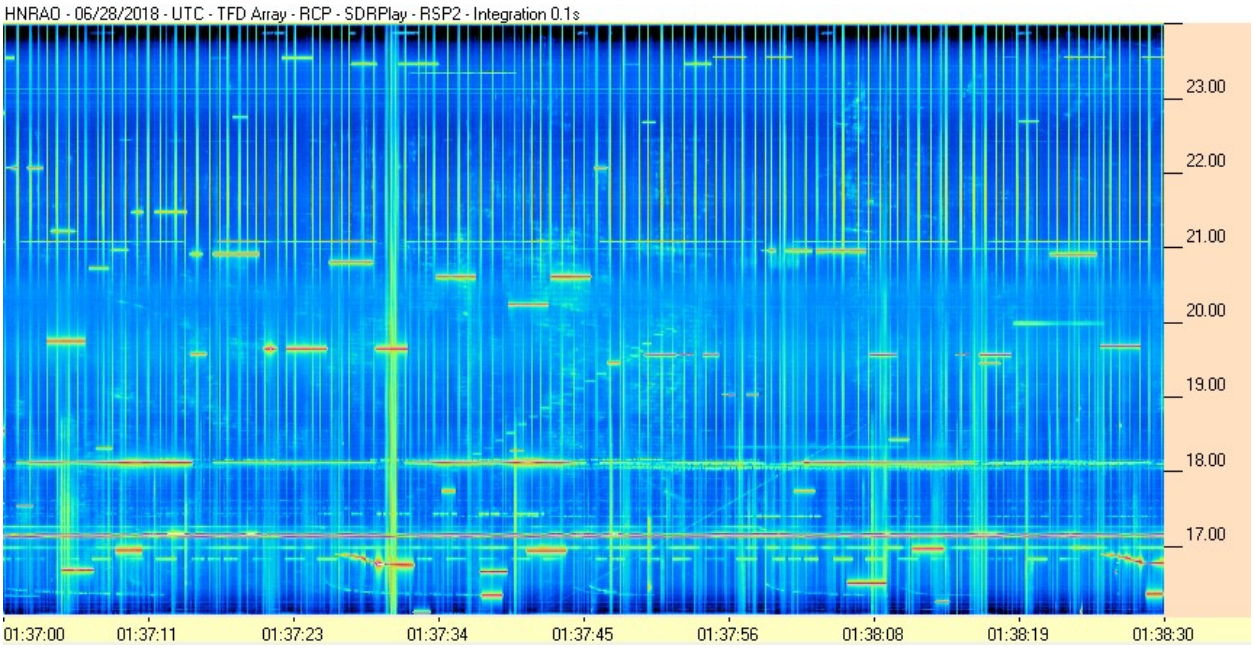

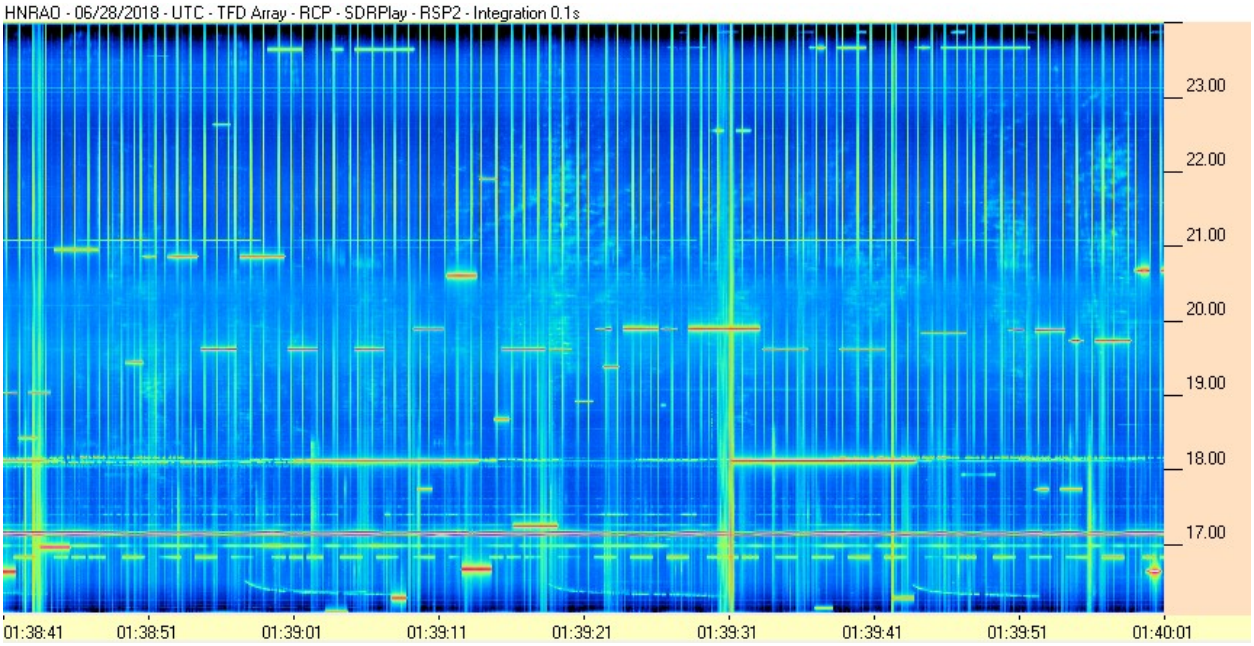

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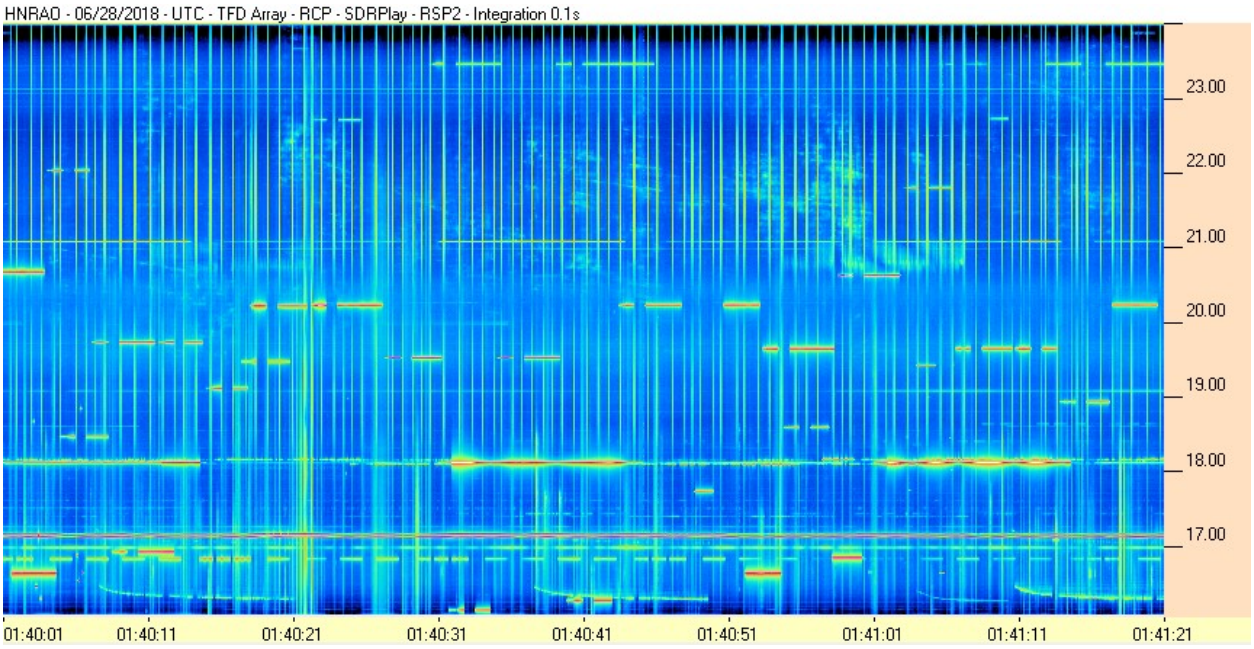

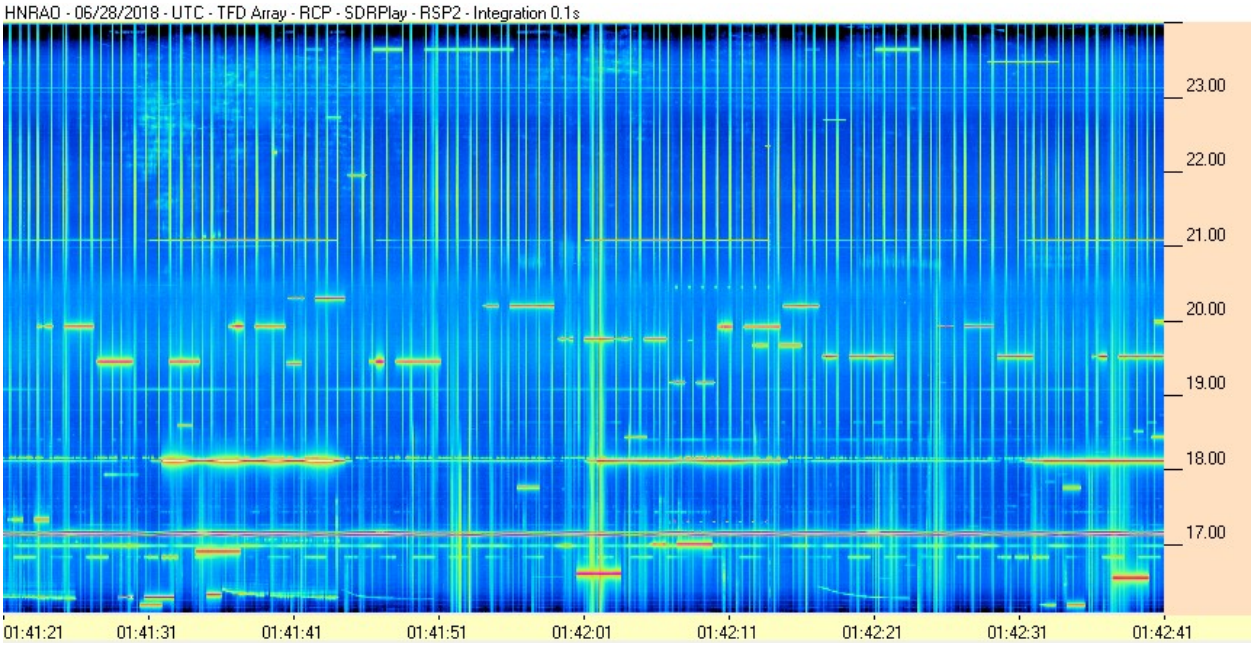

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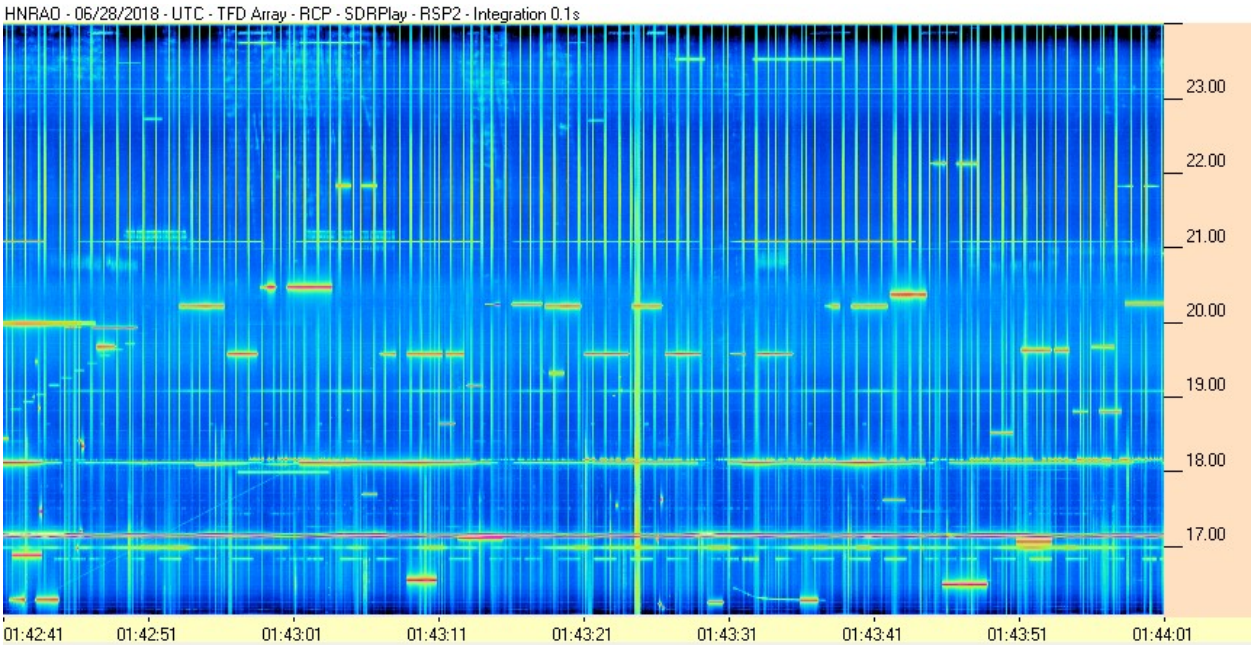

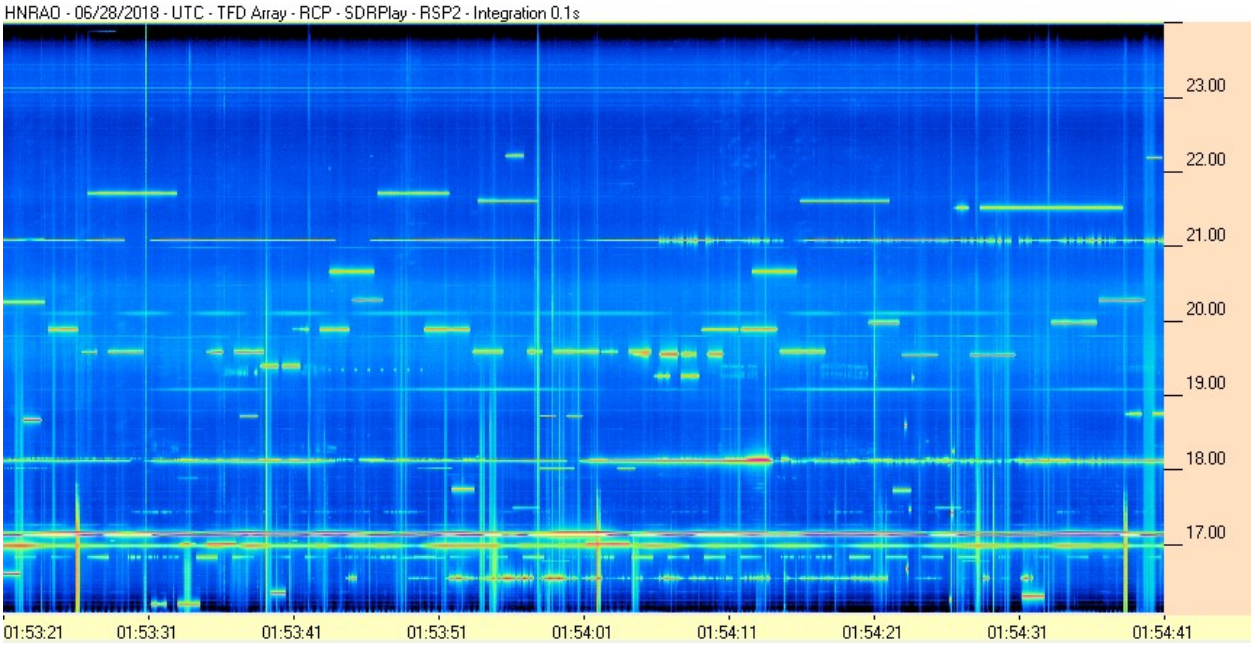

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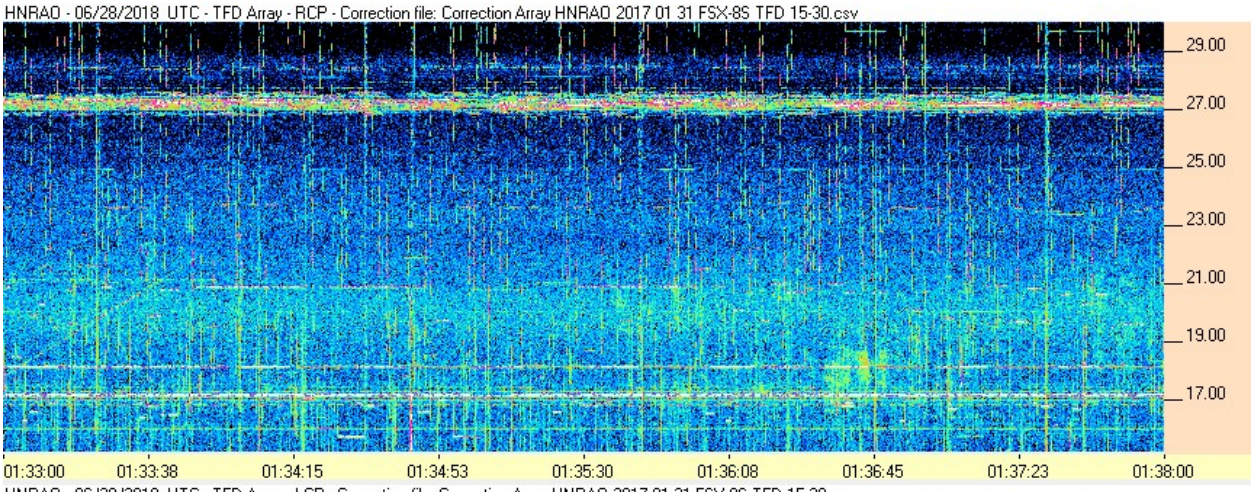
FSX-8S / TFD Array



FSX-2 / LWA Array