

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: June 26, 2018

Object: Jupiter – Io-D

Observer: Unattended

Start - Time UT:	0204	Planetary K-index:	2
Jupiter Altitude (deg):	34.3	Jupiter Azimuth (deg):	186.3
Jupiter CML:	145.4	Jupiter Io Phase:	105.46
Jupiter RA (hr/min):	14:45	Jupiter Dec (hr/min):	-14:47
Hour Angle (hr/min):	00:22	Polarization	LCP
Sun Altitude (deg):	-11.9	Sun Azimuth (deg):	315.6
Sun RA (hr/min):	06:20	Sun Dec (hr/min):	23.22

End – Time UT:	0228	De:	-3.1
Jupiter Altitude (deg):	33.5	Jupiter Azimuth (deg):	193.3
Jupiter CML:	159.9	Jupiter Io Phase	108.84
Hour Angle (hr/min):	00:46	Duration (min):	32
Sun Altitude (deg):	-17.9	Sun Azimuth (deg):	320.3
Max Frequency MHz	24	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	06/23/2018
SDRPlay RSP1	Experimental*					

JOVE dipoles phased @ 32 degrees for 2017-2018 season

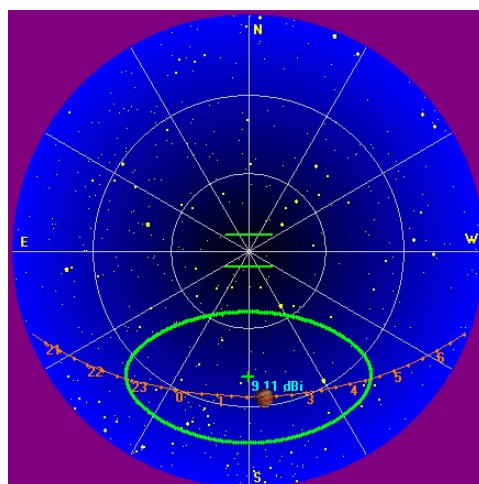
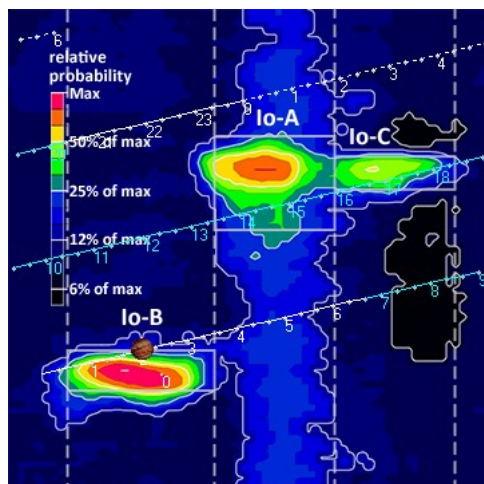
TFD array phased @ 35 degrees for 2017-2018 season

LWA antenna phased @ 35 degrees and orientation for observation: 45 degrees

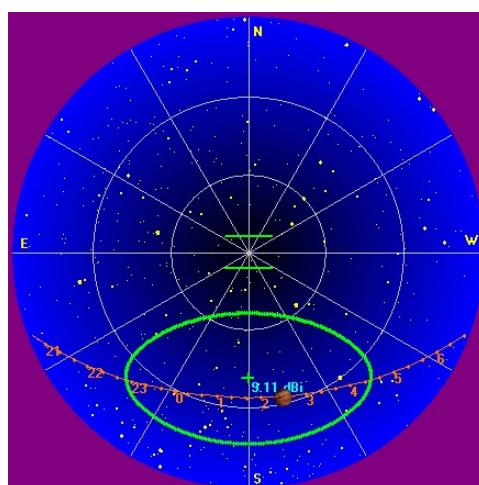
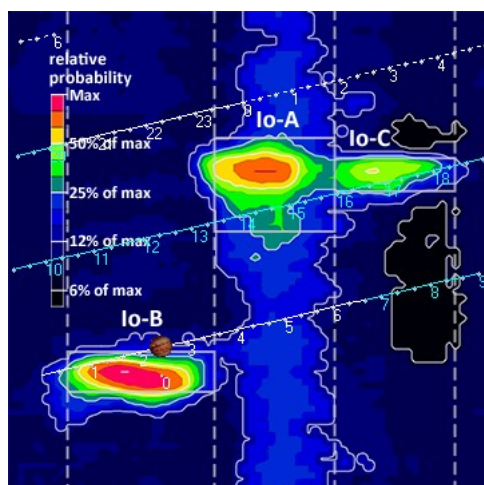
* Used for testing and evaluating antenna systems

Software Radio Sky Spectrograph 2.8.50

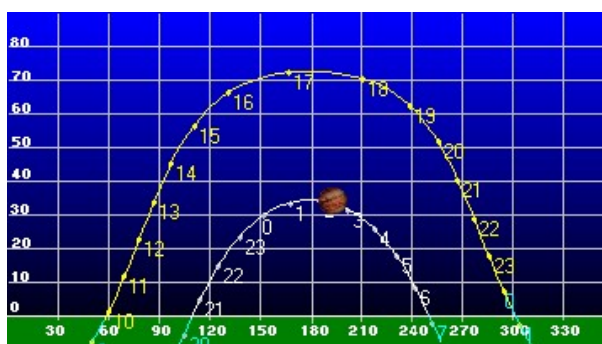
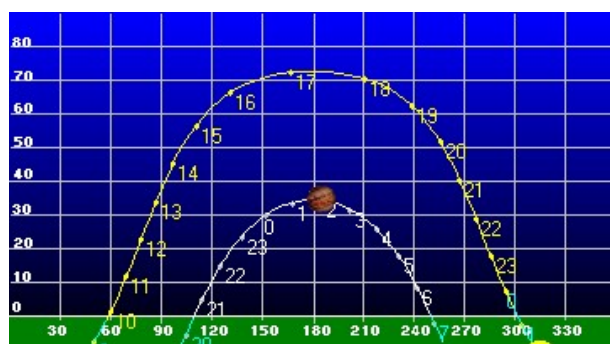
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Beginning of Pass



End of Pass



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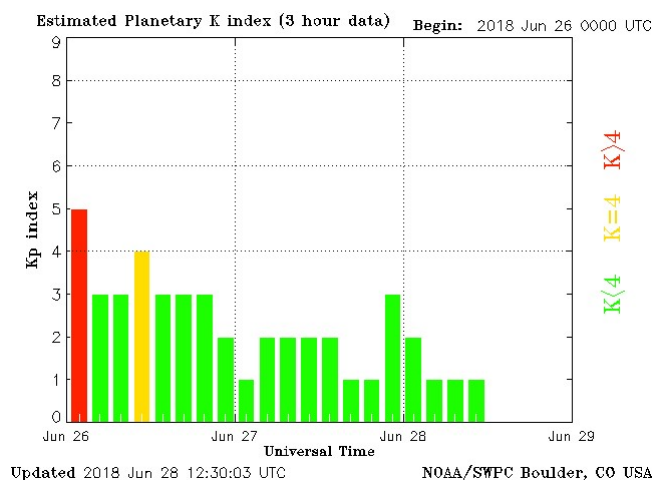


MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360	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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An Io-D storm, lasting 32 minutes, followed the Io-B storm earlier in the observing session. Positive drift LCP L-burst emissions with L3 and L4 modulation lanes. One strong burst at the beginning of the storm, followed by weaker emissions for the duration of the rest. Lightning discharges were very prominent through the storm, but not as bad as in the preceding Io-B storm.

Only the largest burst at the beginning of the storm was observed with the FSX-8S/TFD array spectrograph.

Emissions strong enough to be recorded by the Jove receiver/Jove dipole array were not visible either by the strength of the burst or masked by lightning discharges.

Nothing else of note.

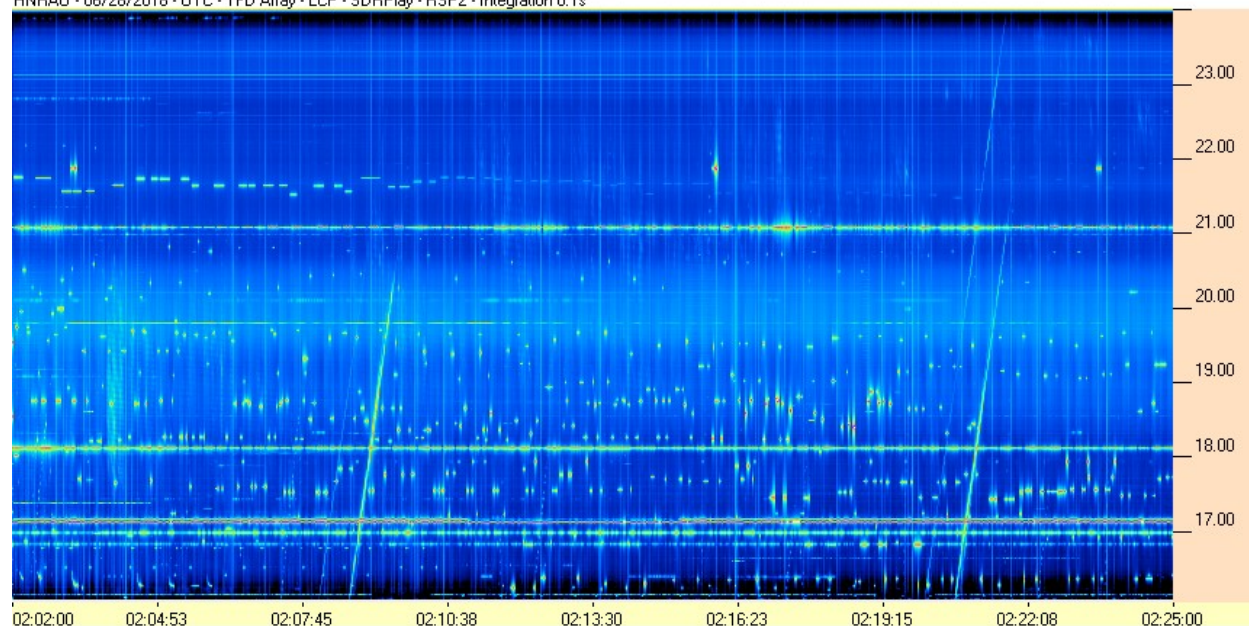
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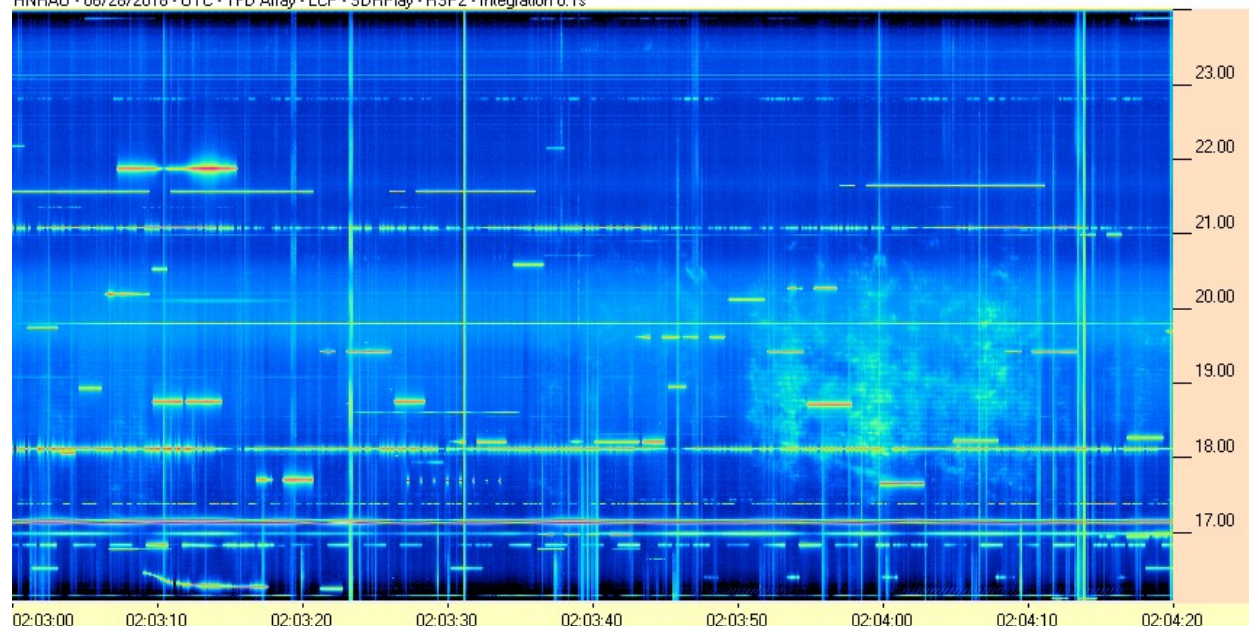


SDRPlay RSP2/TFD Array

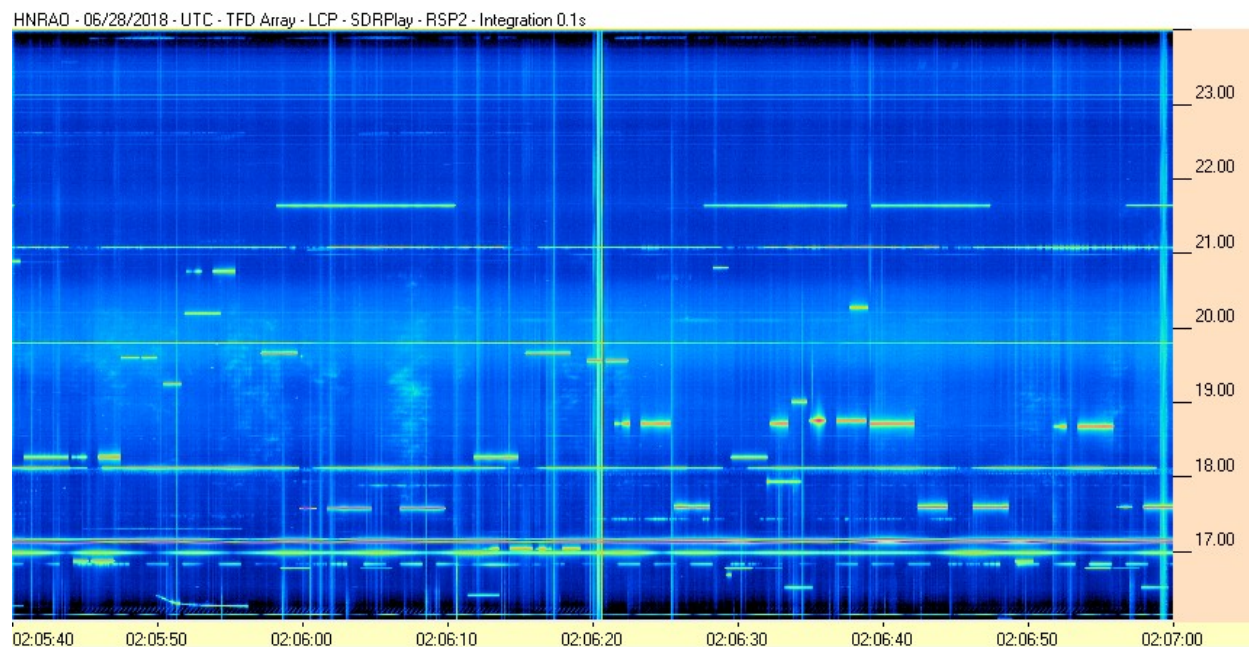
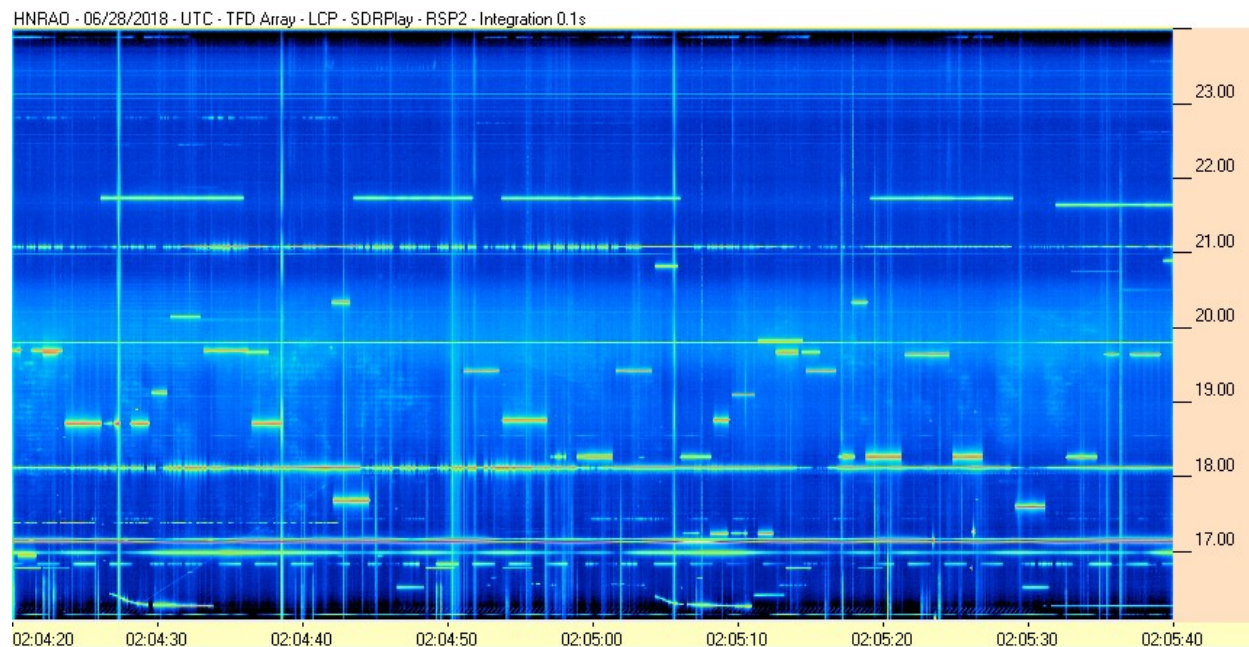
HNRAO - 06/28/2018 - UTC - TFD Array - LCP - SDRPlay - RSP2 - Integration 0.1s



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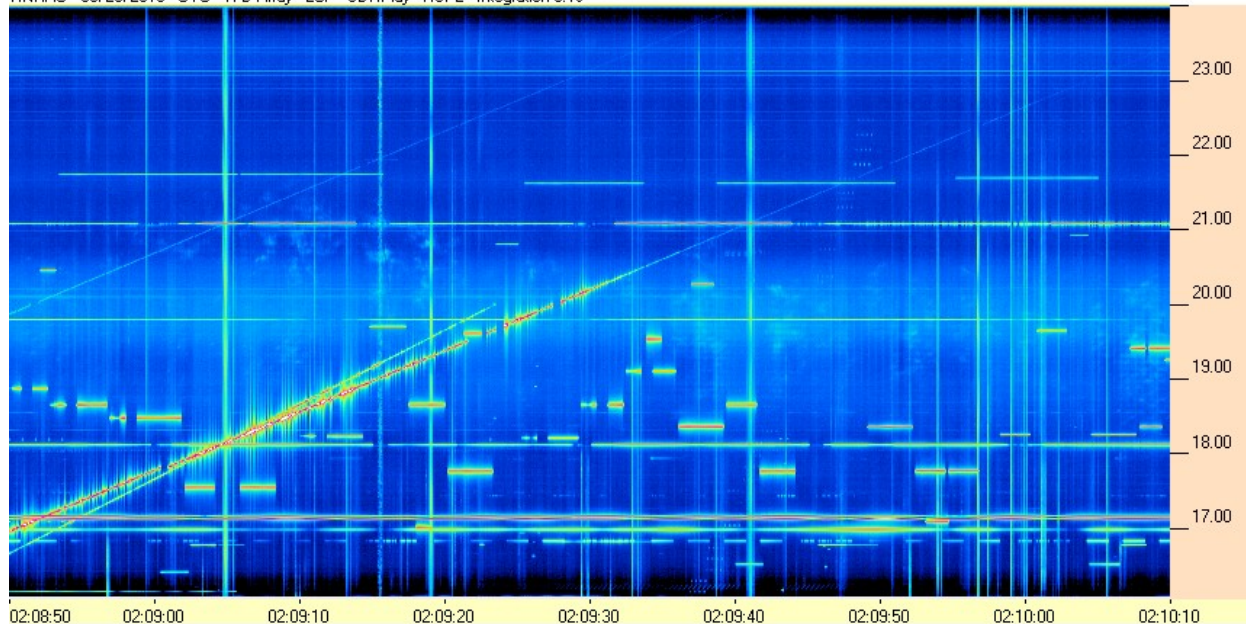
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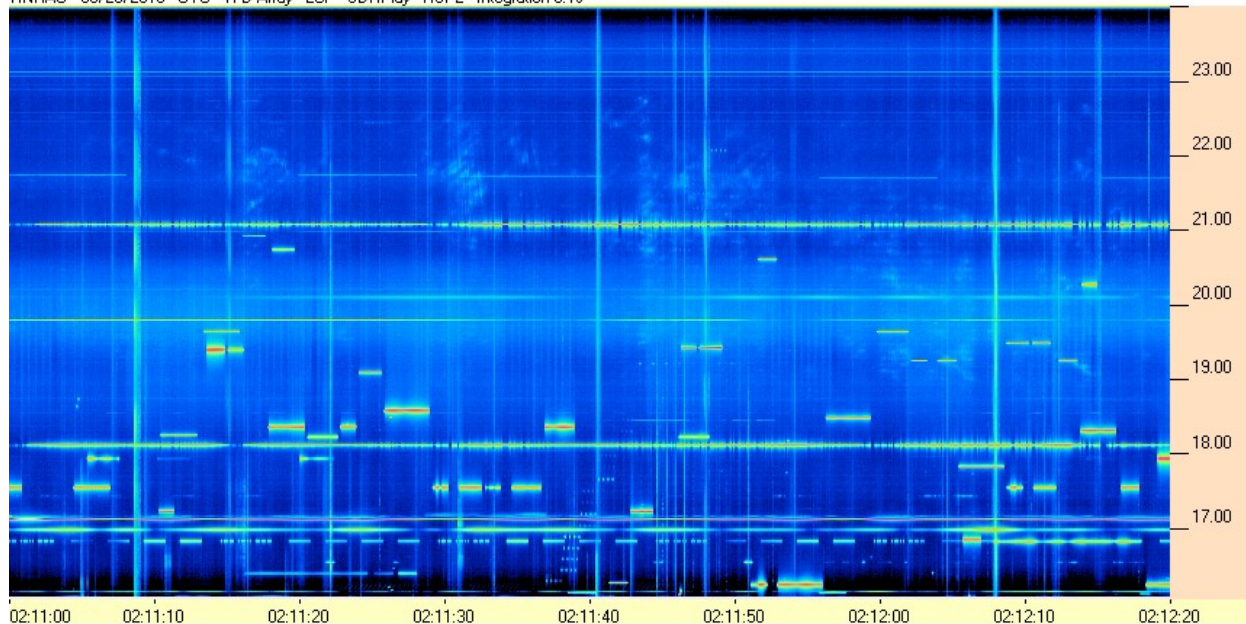
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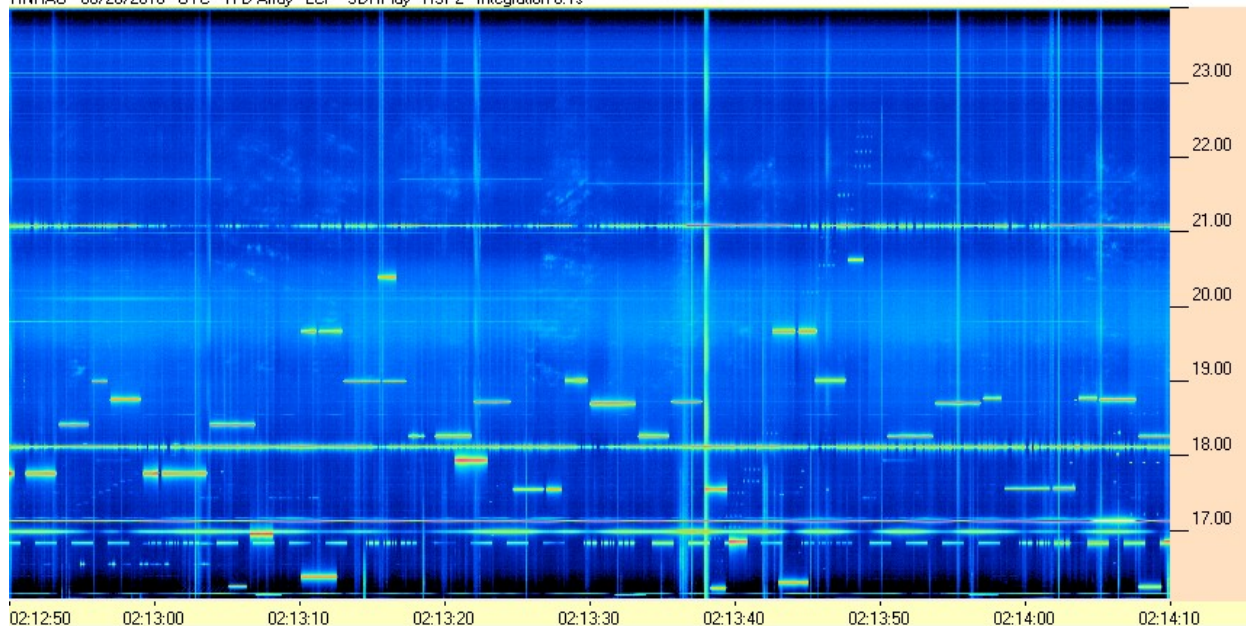
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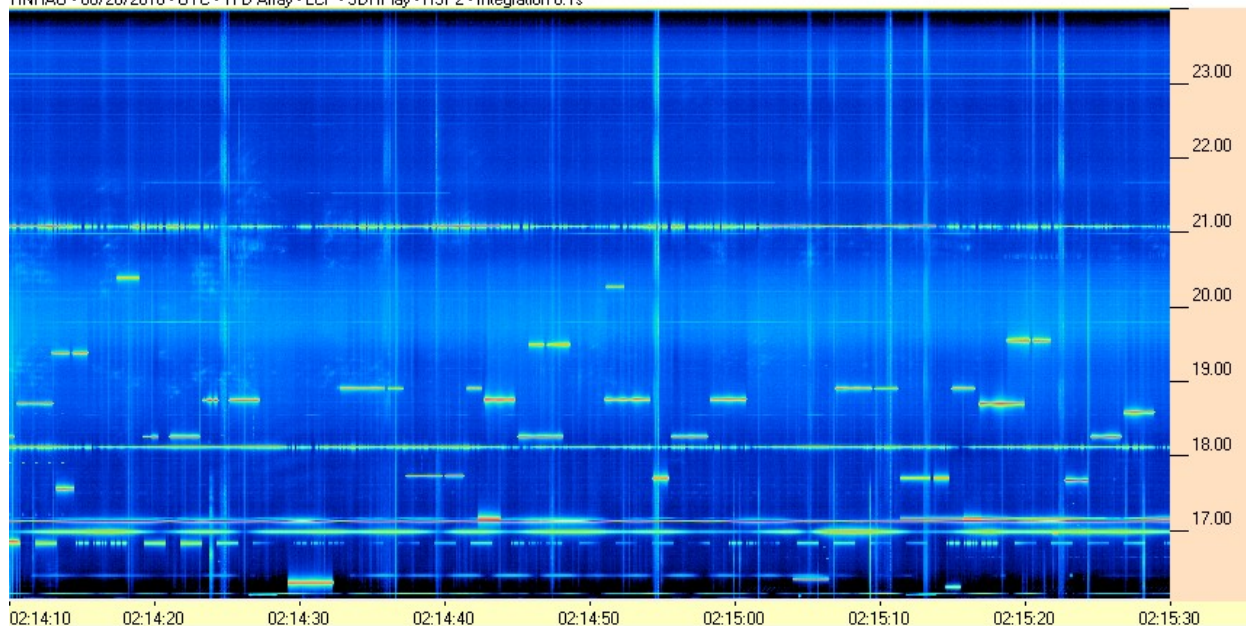
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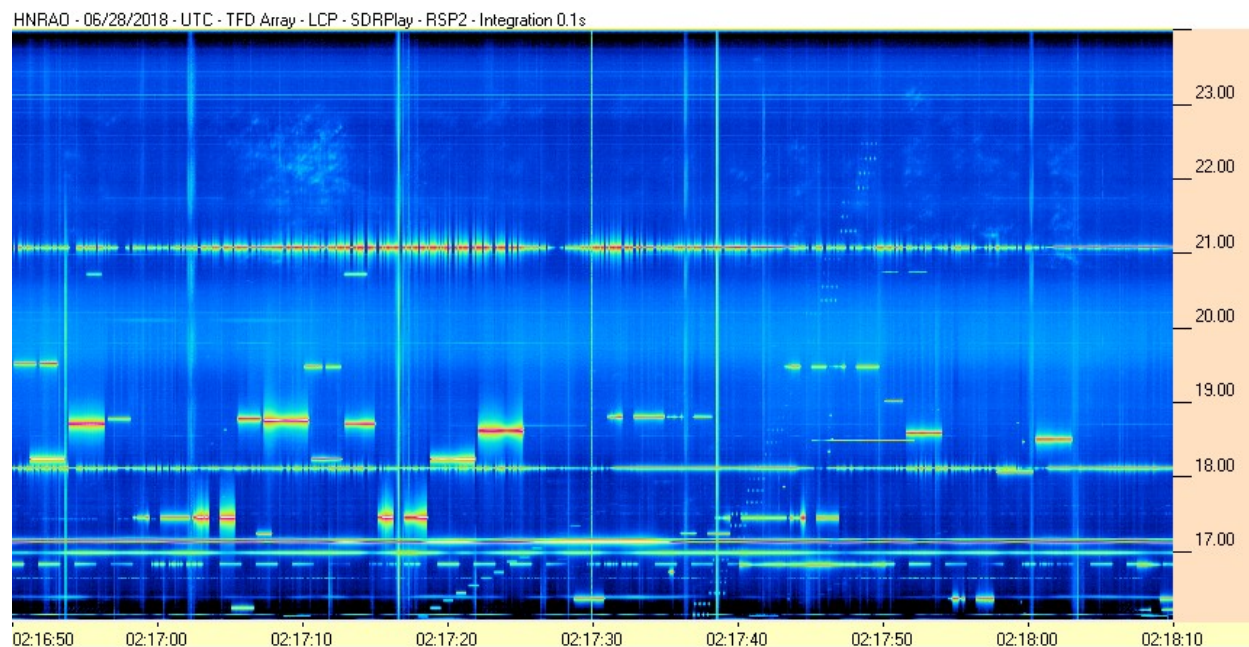
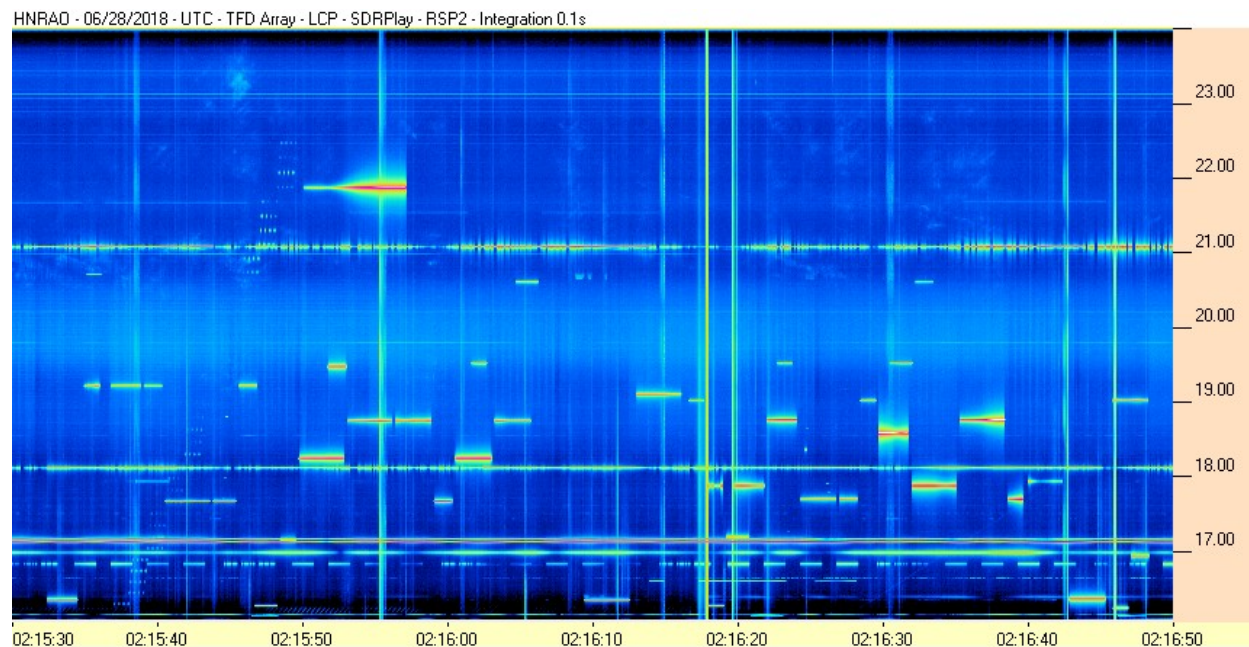
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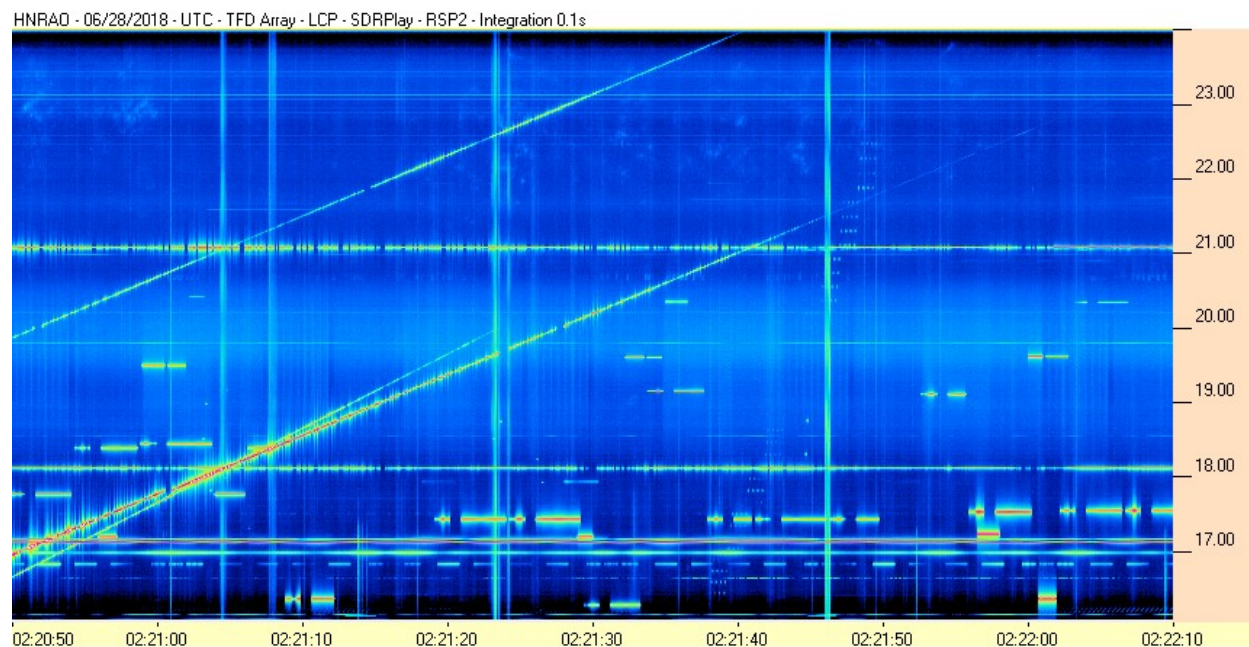
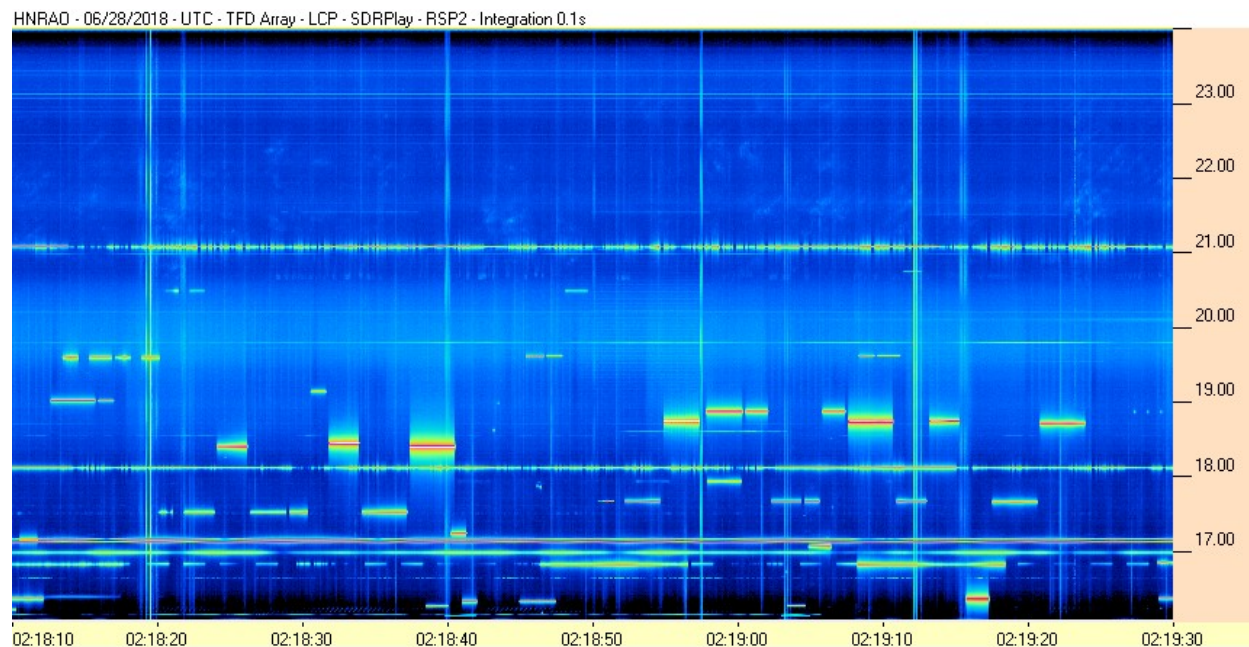
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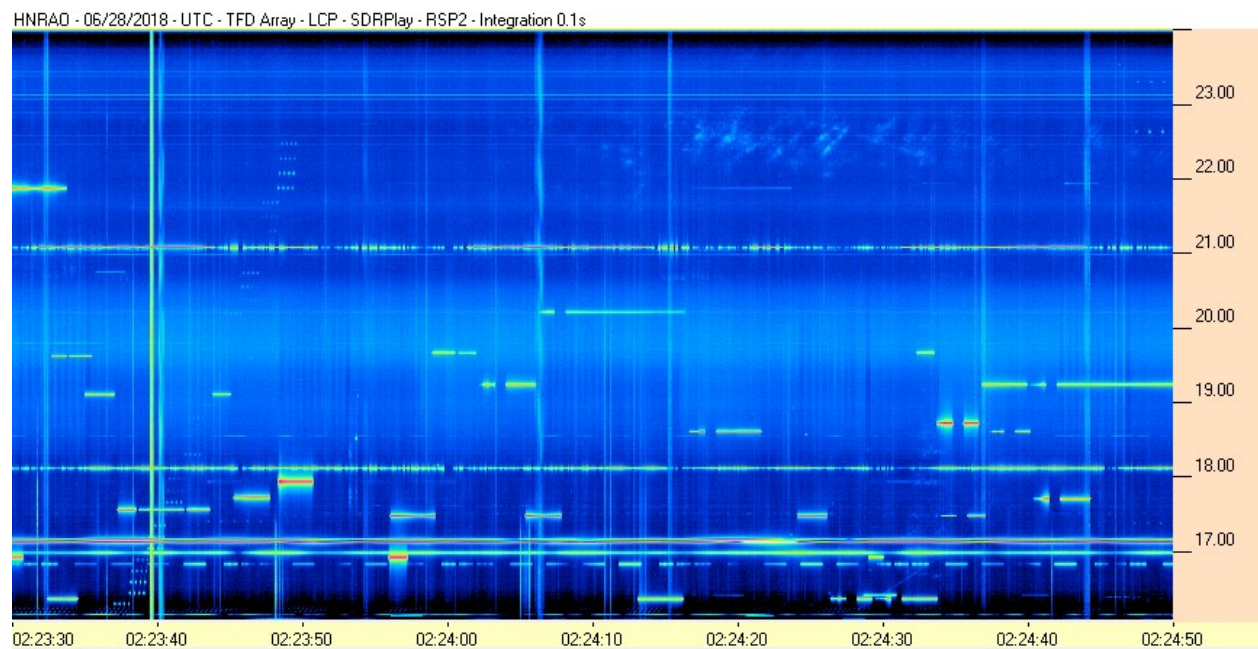
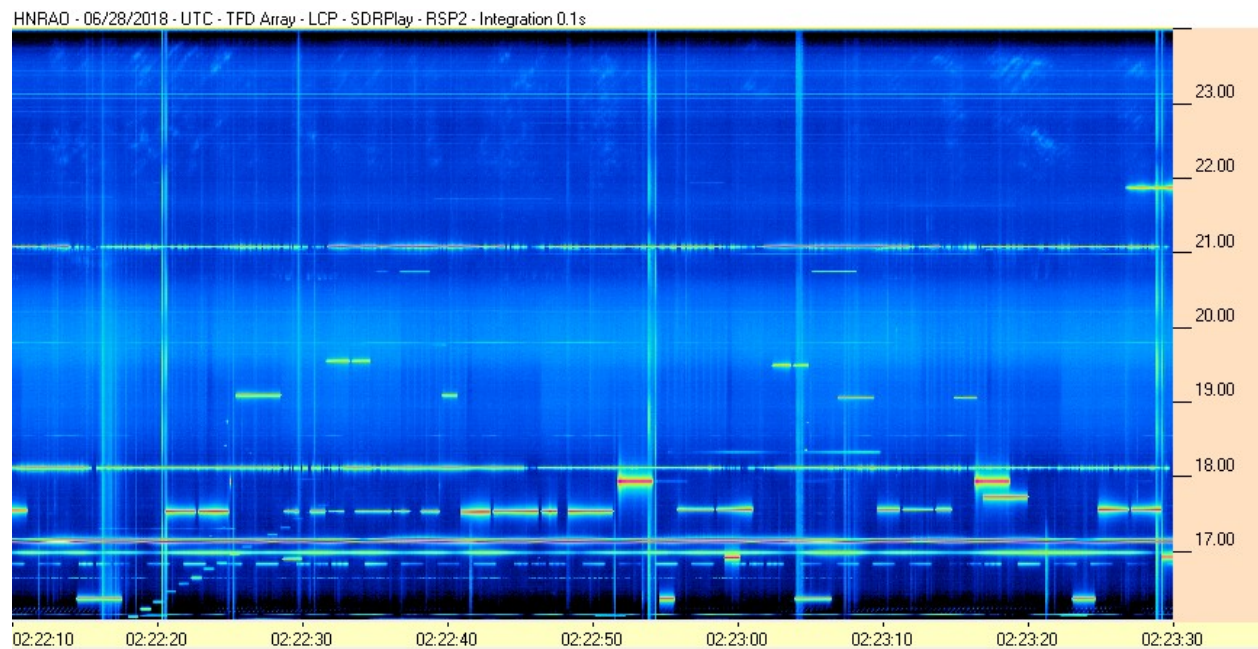
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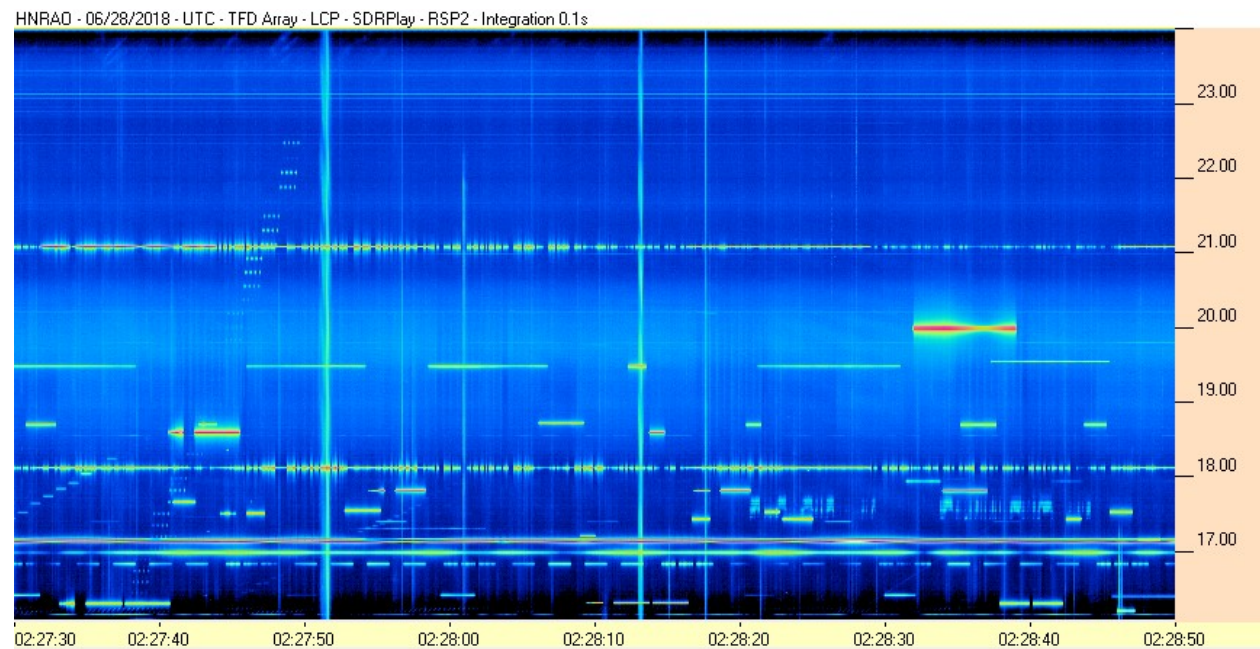
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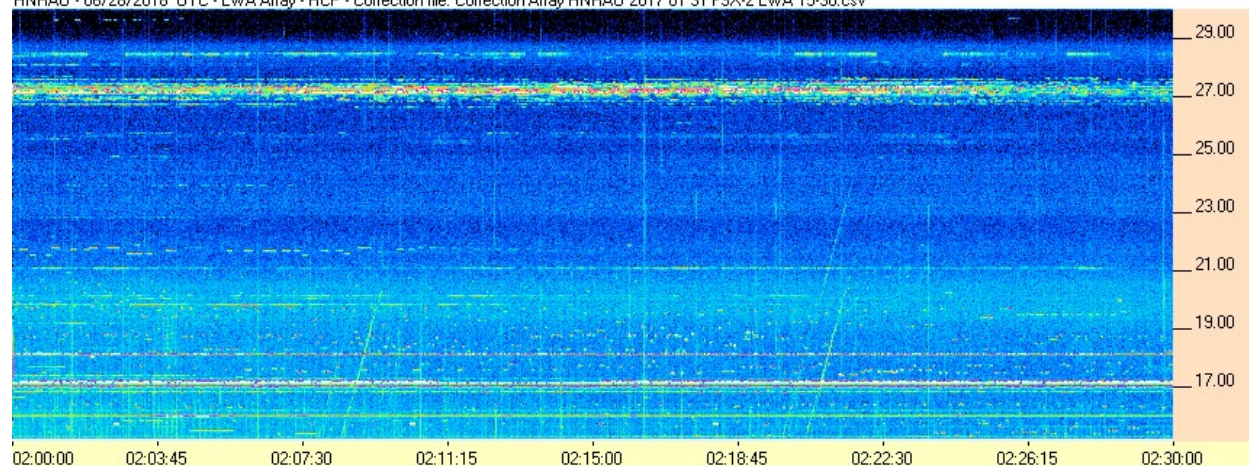


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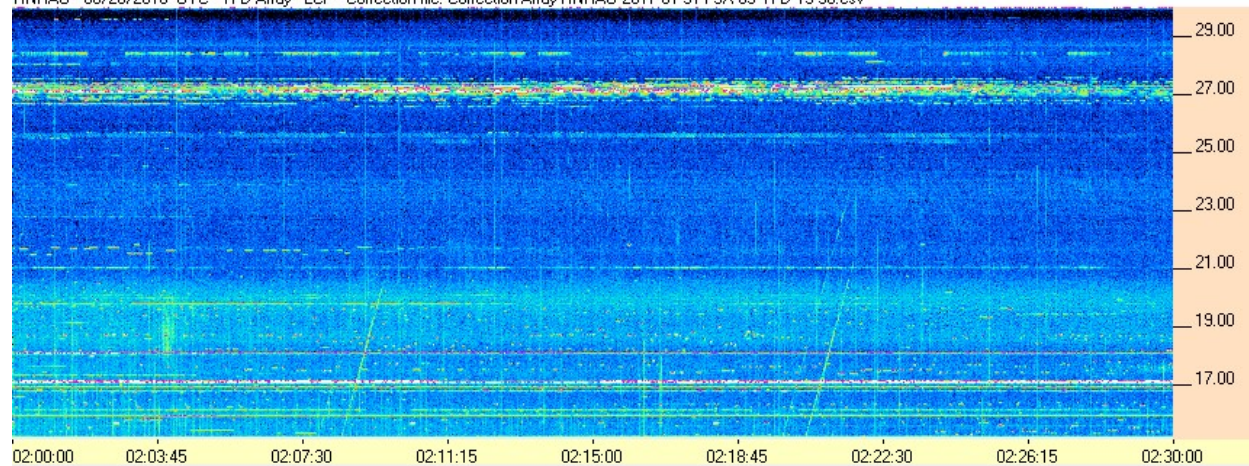


FSX-8S / TFD Array

HNRAO - 06/28/2018 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv



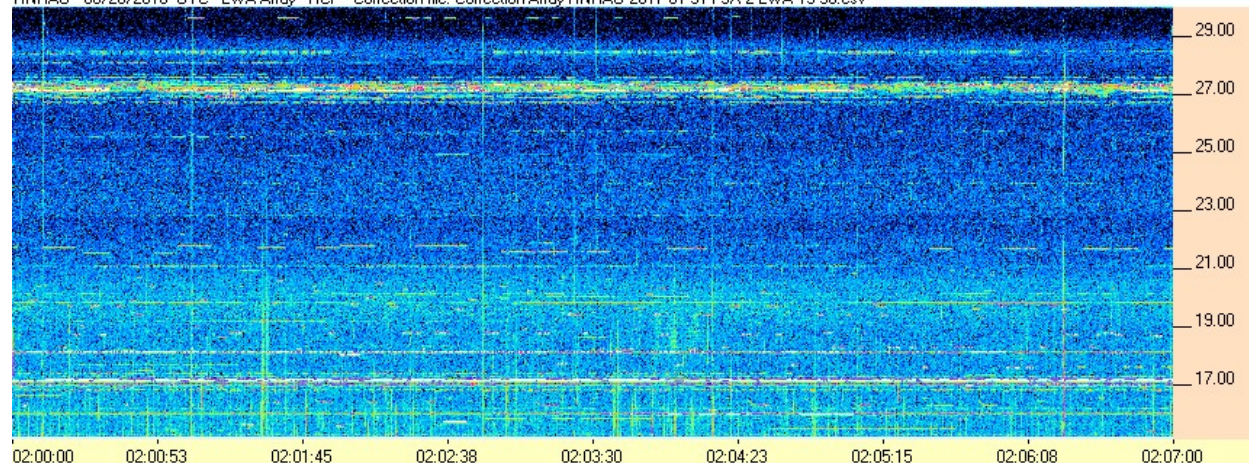
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