

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: 2 March 2018

Object: Jupiter – Io-A

Observer: Unattended

Start - Time UT:	0712	Planetary K-index:	1
Jupiter Altitude (deg):	19.5	Jupiter Azimuth (deg):	136.2
Jupiter CML:	197.25	Jupiter Io Phase:	247.35
Jupiter RA (hr/min):	15:23	Jupiter Dec (hr/min):	-17:20
Hour Angle (hr/min):	-02:53	Polarization	RCP
Sun Altitude (deg):	-49.7	Sun Azimuth (deg):	042.8
Sun RA (hr/min):	22:45	Sun Dec (hr/min):	-07:55

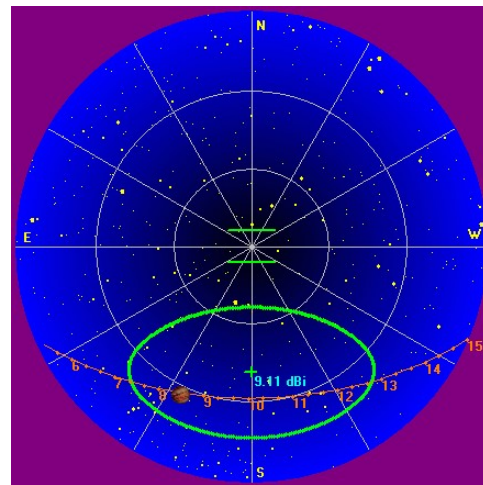
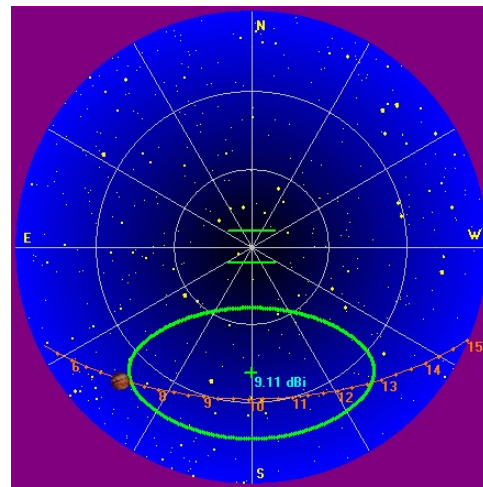
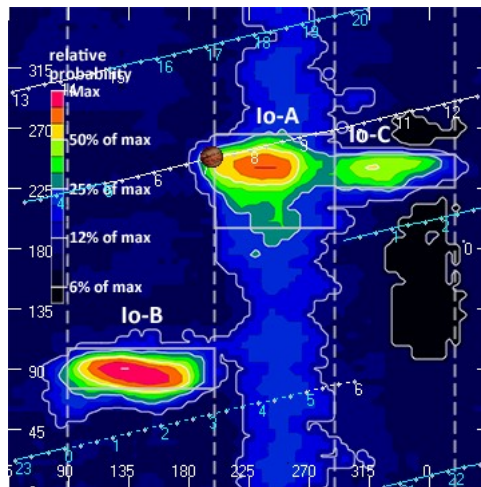
End – Time UT:	0831		
Jupiter Altitude (deg):	28.1	Jupiter Azimuth (deg):	154.6
Jupiter CML:	245.01	Jupiter Io Phase	258.57
Hour Angle (hr/min):	-01:33		
Sun Altitude (deg):	-37.7	Sun Azimuth (deg):	064.3

Observatory Configuration

Spectrograph Receiver	Antenna	Polarization	System Loss	Multicoupler	Multicoupler port	Calibrated
FSX-8S	TFD	RCP/LCP	7.7 dB	#1 LCP #2 RCP	Port 2 +3dB Port 2 +3dB	Twice daily
FSX-2	LWA	RCP/LCP manual select		N/A	N/A	N/A
SDRPlay RSP2	TFD	RCP	-7.70 dB	#1 LCP	Port 3 +3dB	Twice daily
SDRPlay RSP2	TFD	LCP	-7.70 dB	#2 RCP	Port 3 +3dB	Twice daily
SDRPlay RSP1	Jove dipoles	Linear	-3.19 dB	N/A	N/A	N/A
JOVE II	Jove dipoles	Linear	-3.19 dB	N/A	N/A	02/20/2018
JOVE 1	TFD	RCP	-7.70 dB	N/A	N/A	
JOVE 1	TFD	LCP	-7.70 dB	N/A	N/A	

JOVE dipoles phased for 2017-2018 season

LWA antenna orientation for observation: 67.5 degrees



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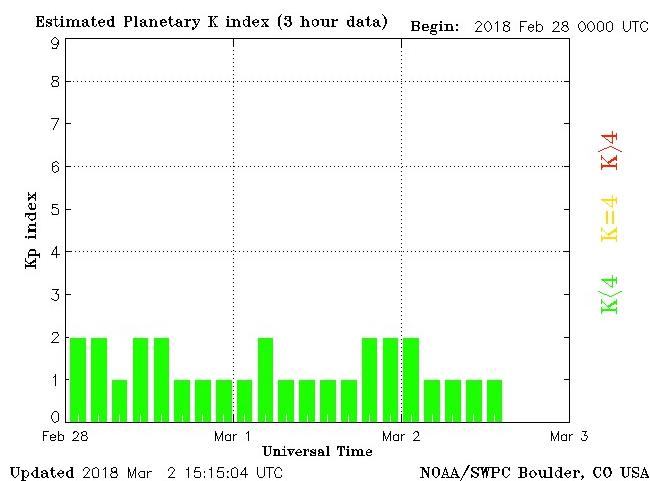


MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360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



An unattended Io-A storm beginning at 0712 UT with L-Burst emissions starting at 16 MHz on the SDRPlay RSP2 spectrograph. Modulation lanes of type L3 present. Stronger emissions begin at 0720 UT between 16 MHz and 19 MHz. L-Bursts rise to 21 MHz at 0730 UT to 21 MHz. By 0733 L-Burst emissions climbed to 22 MHz. There were long periods of no activity or very weak activity through the duration of the pass. Slightly stronger L-Bursts at 0746 UT have

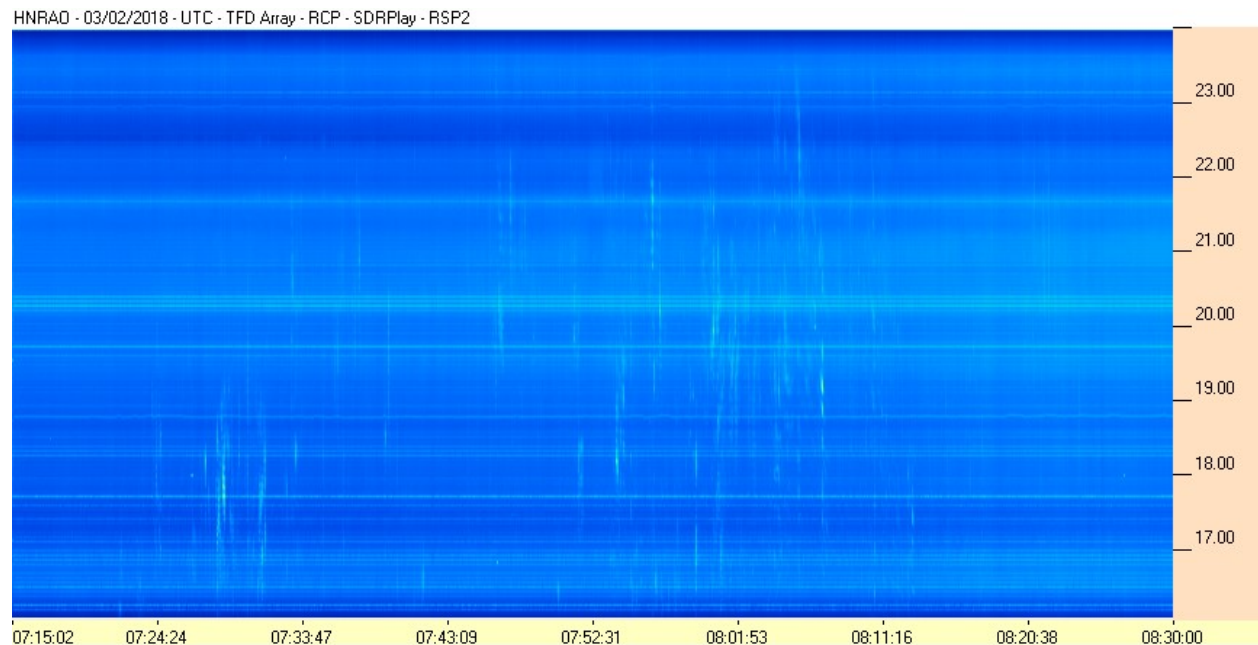
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risen to 23.5 MHz. A single stronger burst at 0754 UT at 18 MHz. A grouping of slightly stronger L-bursts at 0756 UT span 16 MHz to 24 MHz. At 0807 Ut there was another stronger grouping at 19 MHz. The last trace of emissions were very weak L-Bursts a 0831 spanning 16 MHz to 19 MHz, ending in approximately the same frequency span as at the beginning of the storm.

Overall, a very weak and unremarkable Io-A storm. There were only a few relatively stronger L-Bursts, with the remaining emissions either weak, or very weak. L3 modulation lanes were seen and recorded.

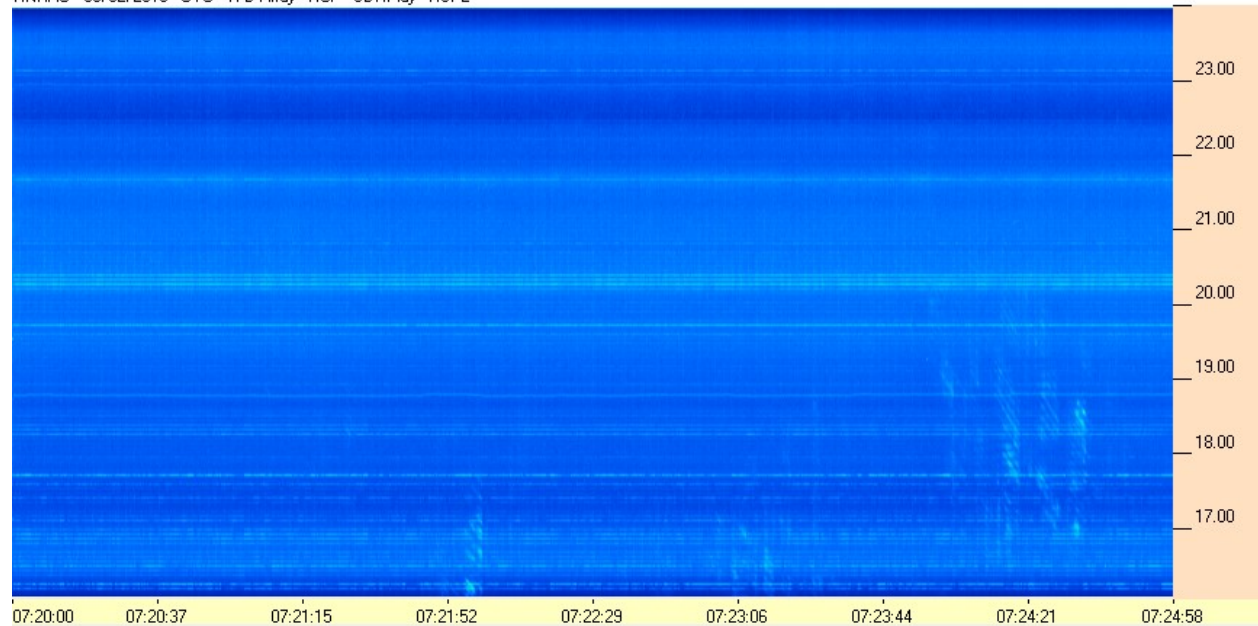
There were some L-bursts recorded with the Radio JOVE receiver and dual dipole array.



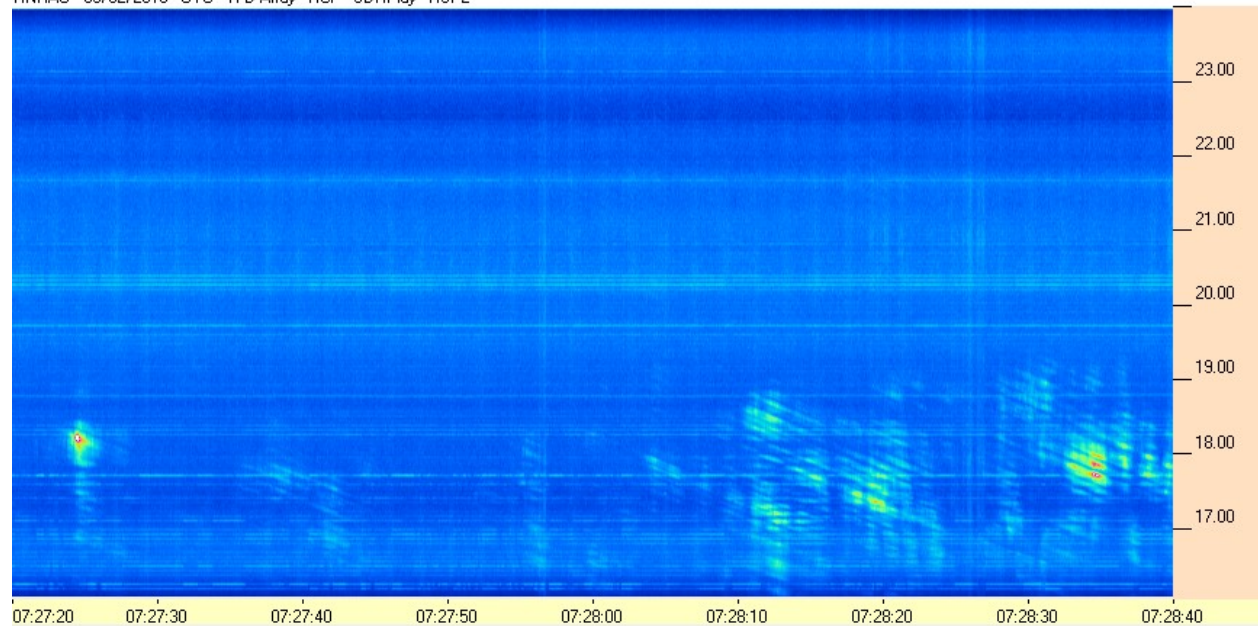
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HNRAO - 03/02/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



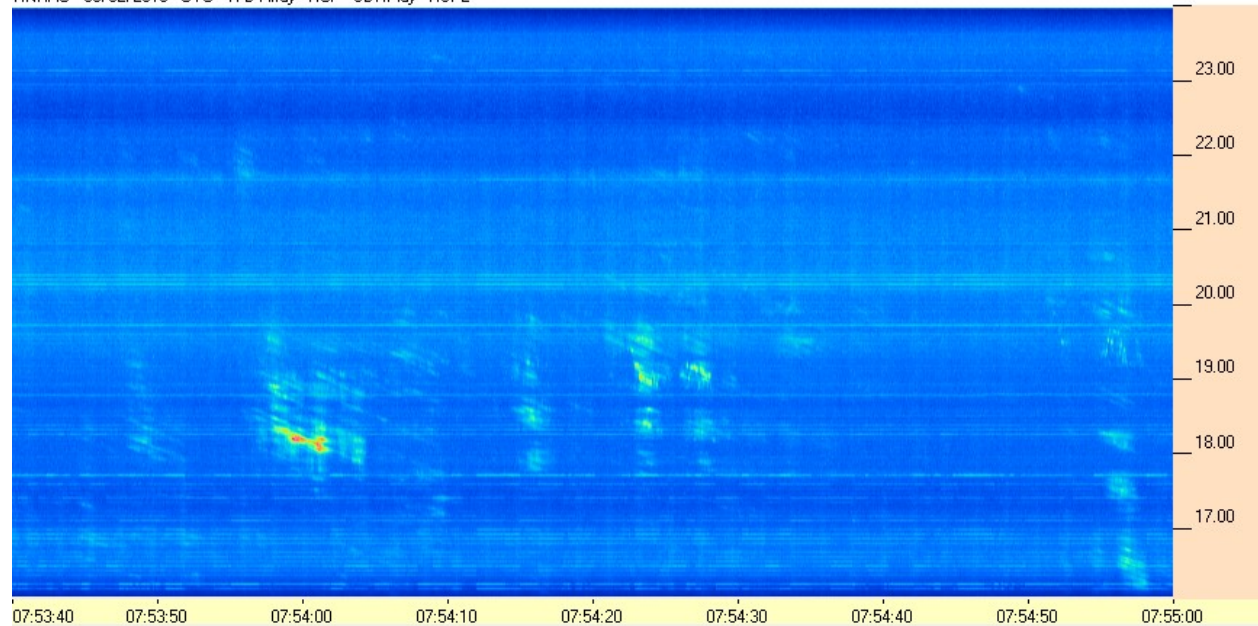
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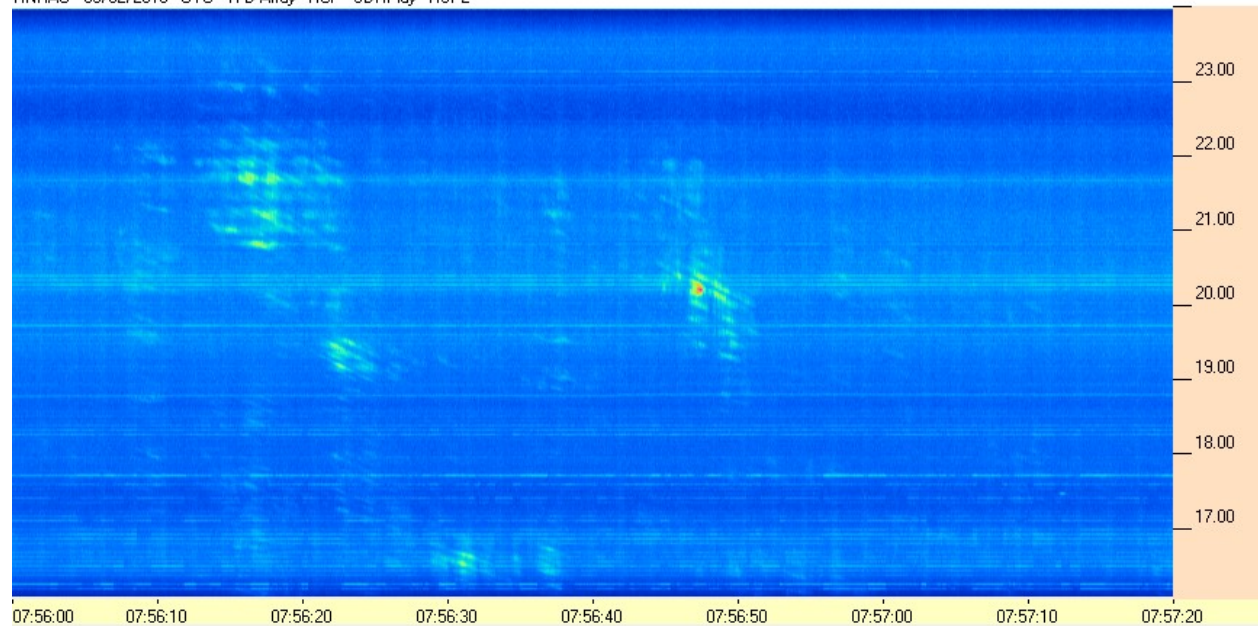
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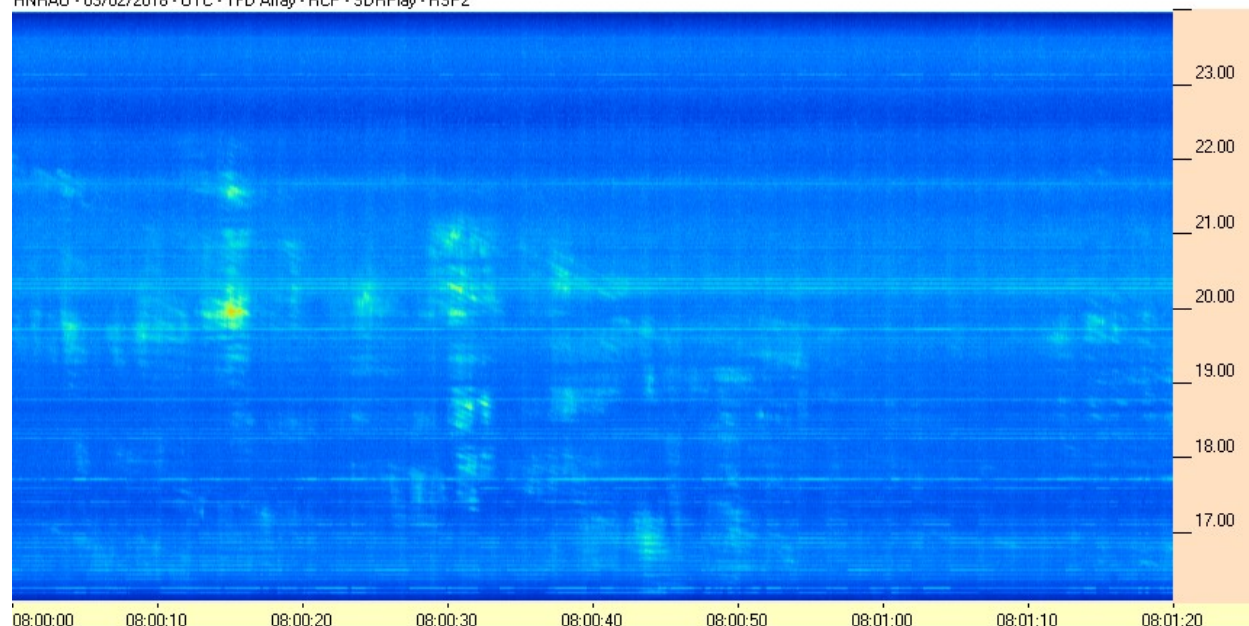
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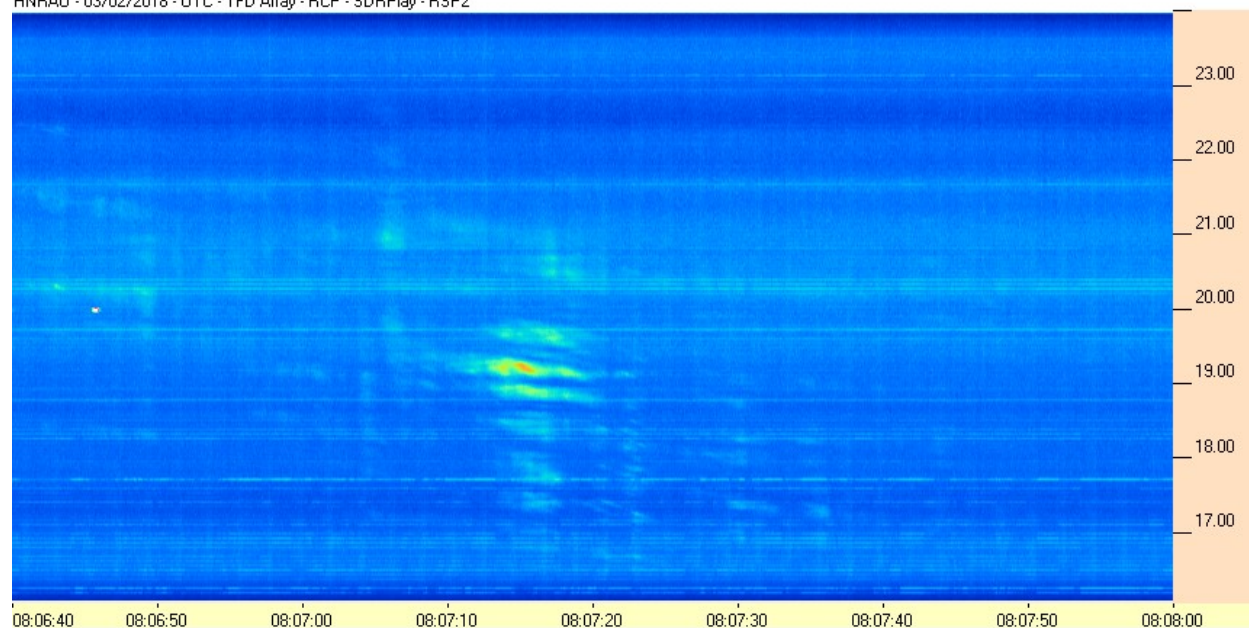
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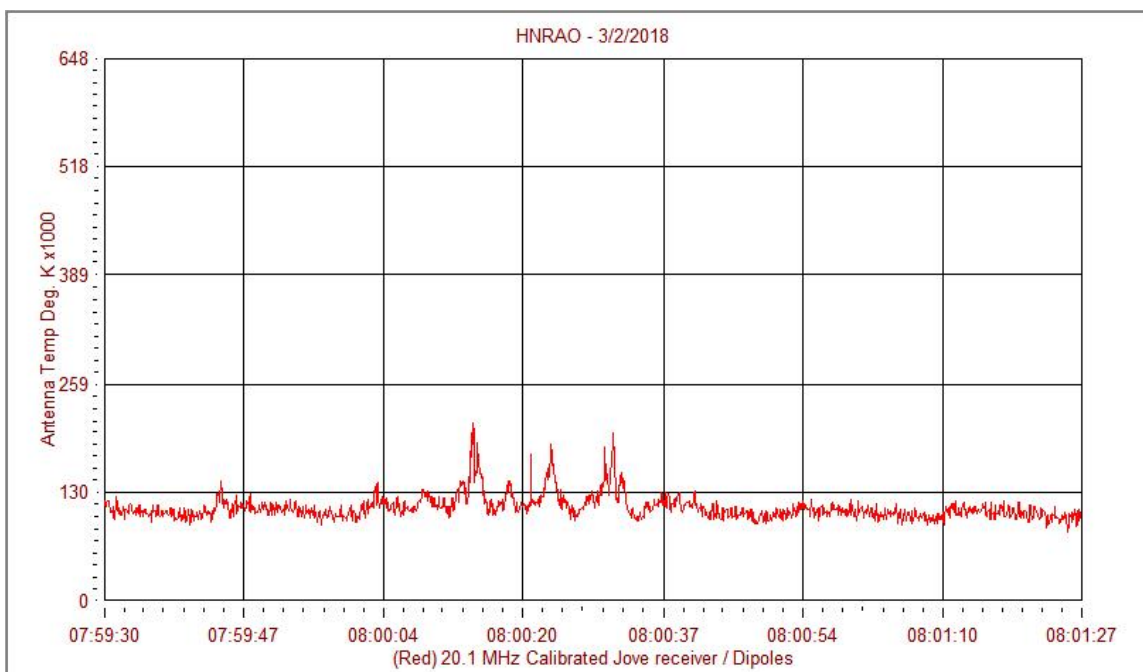
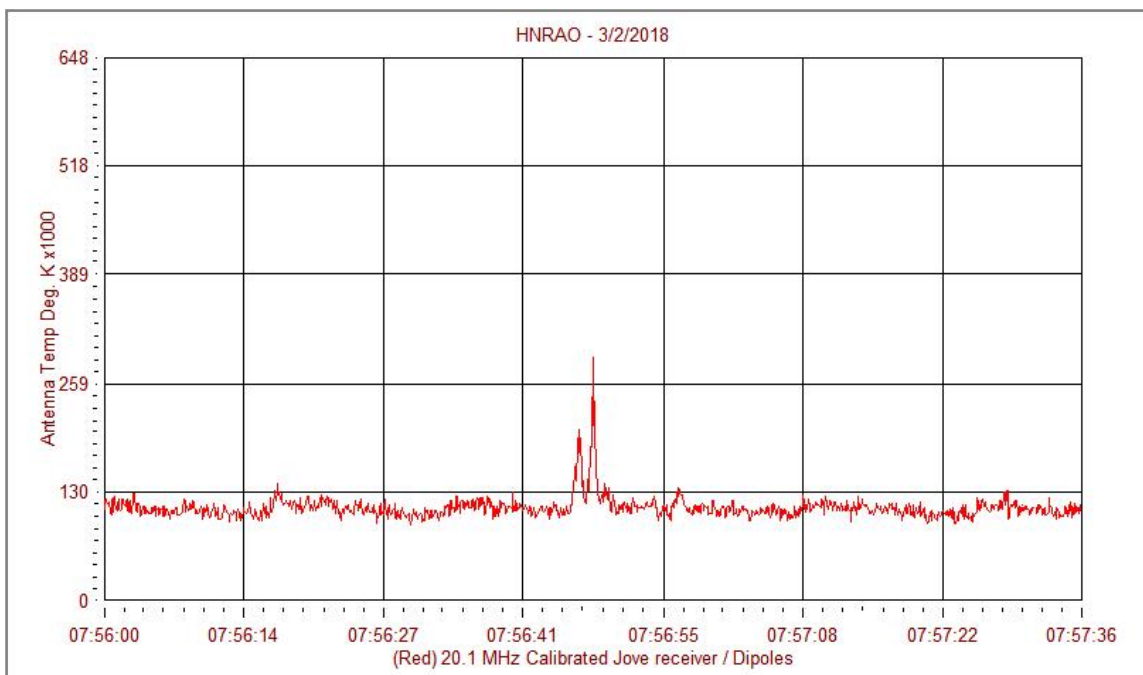
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