

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: 5 February 2018

Object: Jupiter - IoA

Observer: Unattended

Start of pass:	1147	Planetary K-index:	3
Jupiter Altitude (deg):	32.3	Jupiter Azimuth (deg):	183.1
Jupiter CML:	199.54	Jupiter Io Phase:	239.92
Jupiter RA (hr/min):	15:17	Jupiter Dec (hr/min):	-17:00
Hour Angle (hr/min):	00:11	Polarization	RCP
Sun Altitude (deg):	-07.1	Sun Azimuth (deg):	105.6
Sun RA (hr/min):	21:09	Sun Dec (hr/min):	-16:26

End of pass:	1247		
Jupiter Altitude (deg):	30.0	Jupiter Azimuth (deg):	199.7
Jupiter CML:	235.82	Jupiter Io Phase	248.40
Hour Angle (hr/min):	01:11		
Sun Altitude (deg):	03.5	Sun Azimuth (deg):	115.2

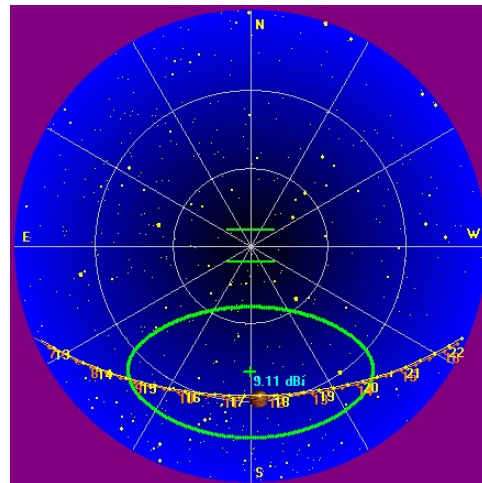
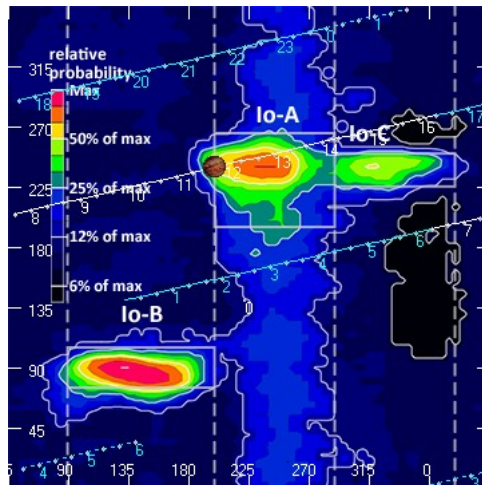
Observatory Configuration

Spectrograph Receiver	Antenna	Polarization	System Loss	Multicoupler	Multicoupler port	Calibrated
FSX-8S	TFD	RCP LCP	-7.7 dB - 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	-7.7 dB	#1 LCP	Port 3 +3dB	Twice daily
SDRPlay RSP2	TFD	LCP	-7.7 dB	#2 RCP	Port 3 +3dB	Twice daily
SDRPlay RSP1	Jove dipoles	Linear	-3.19 dB	N/A	N/A	12/29/2017
JOVE II	Jove dipoles	Linear	-3.19 dB	N/A	N/A	12/29/2017
JOVE 1	TFD	RCP	-7.7 dB	N/A	N/A	
JOVE 1	TFD	LCP	-7.7 dB	N/A	N/A	

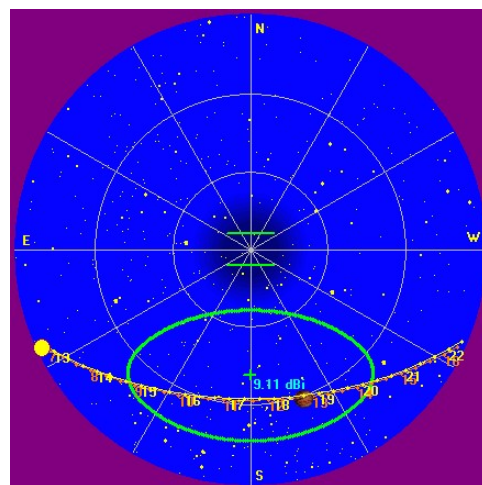
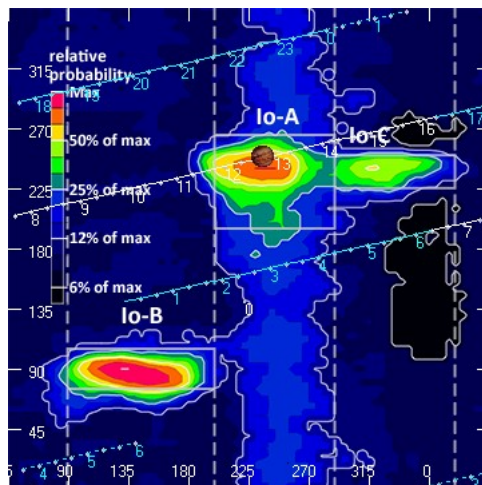
JOVE dipoles phased for 2017-2018 season

LWA antenna orientation for observation: 67.5 degrees

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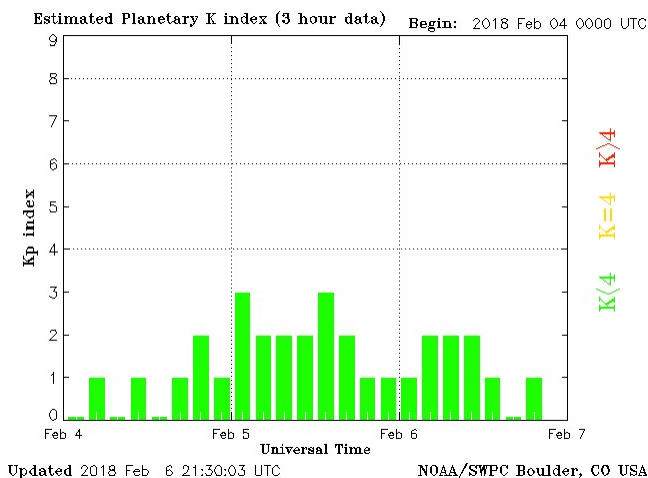
Beginning of Pass



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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A 1-hour long Io-A storm, observed between 16 and 24 MHz, just before sunrise at the observatory. Negative drift emissions and negative slope modulation lanes. Modulation lanes were visible from beginning to end of storm.

Emissions were observed with all spectrographs on site. FSX-2/LWA/RCP, FSX-8S/TFD/RCP/LCP, SDRPlay RSP2/TFD/RCP, SDRPlay RSP2/TFD/LCP, SDRPlay RSP1/JOVE dipoles/Linear. While it was very weak on both the FSX spectrographs, it was moderately strong with the SDRPlay units on the TFD array. It was even observed with the JOVE dipole spectrograph.

The storm stayed predominantly above 19 MHz. As is typical with all Jupiter storms, fading was obvious throughout the entire storm. One group of emissions at 1250 UT stands out as the strongest.

Modulation lanes were measured, and the results presented in graph form at the end of this report.

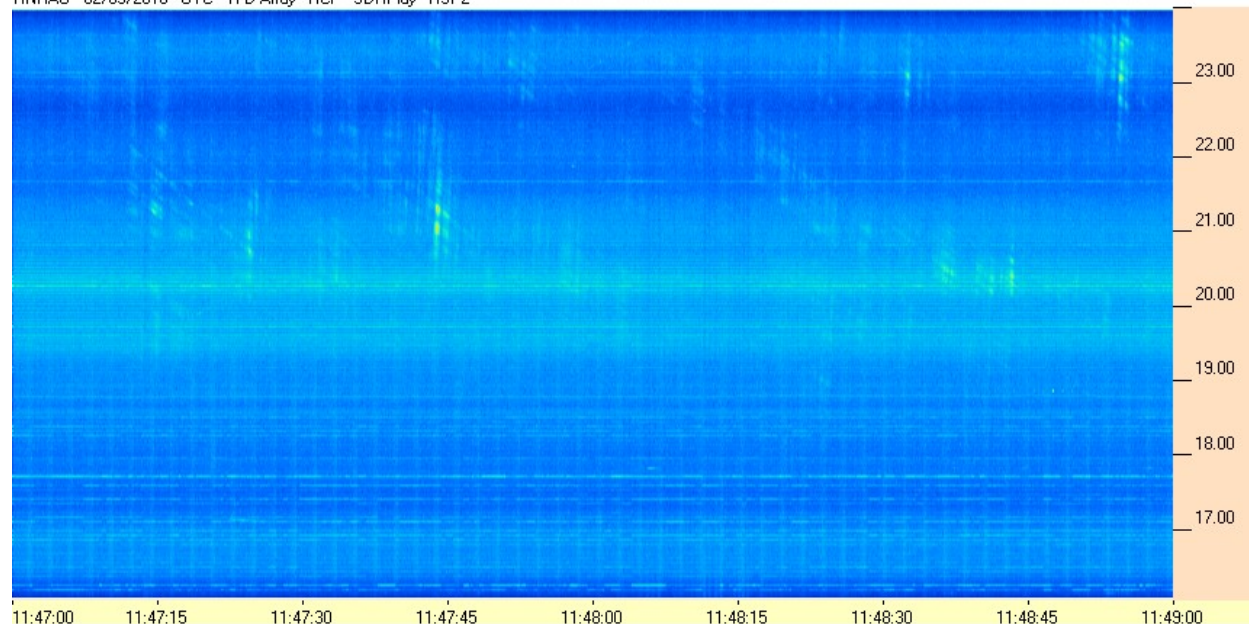
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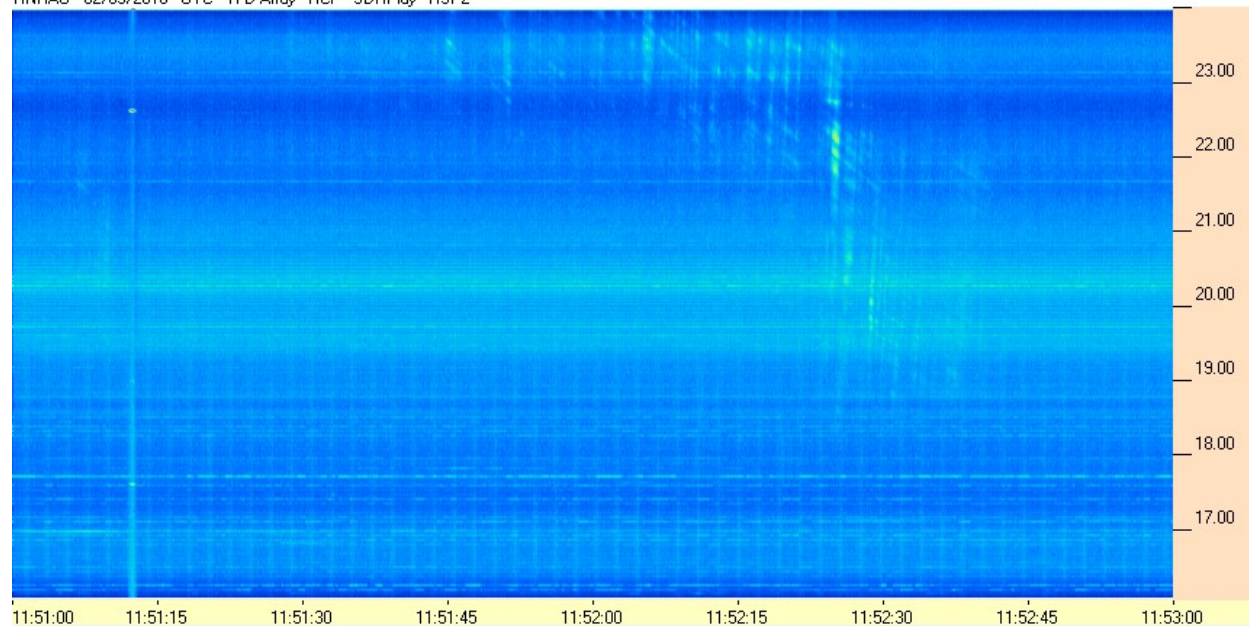


SDRPlay/RSP2/TFD Array

HNRAO - 02/05/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



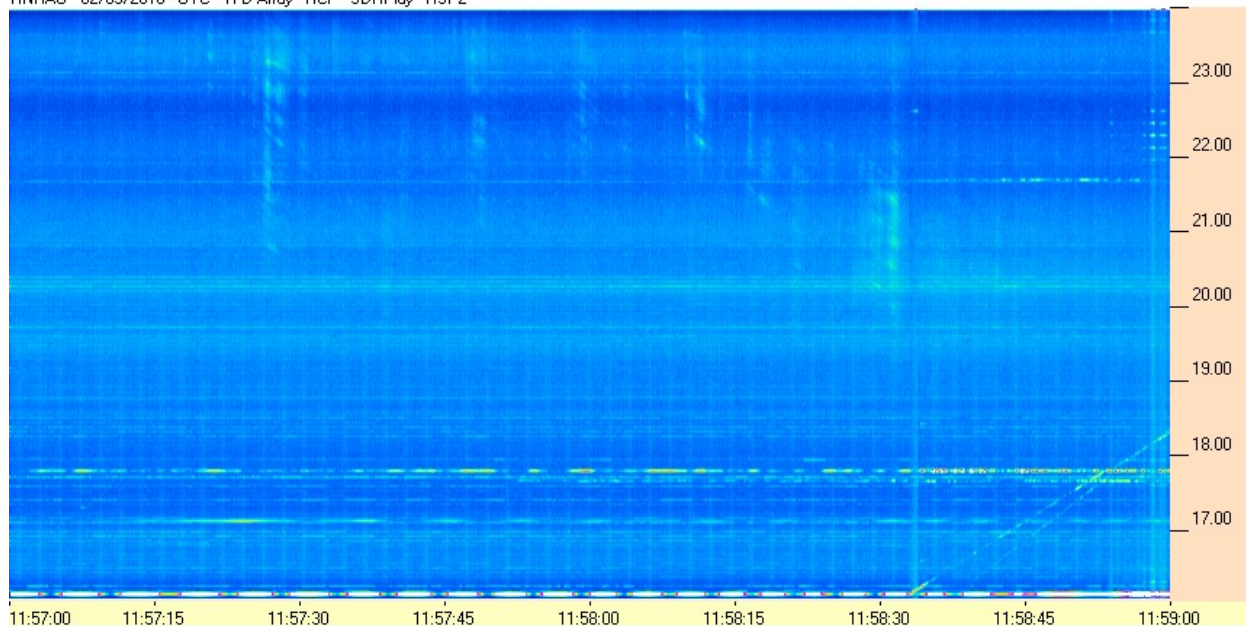
HNRAO - 02/05/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



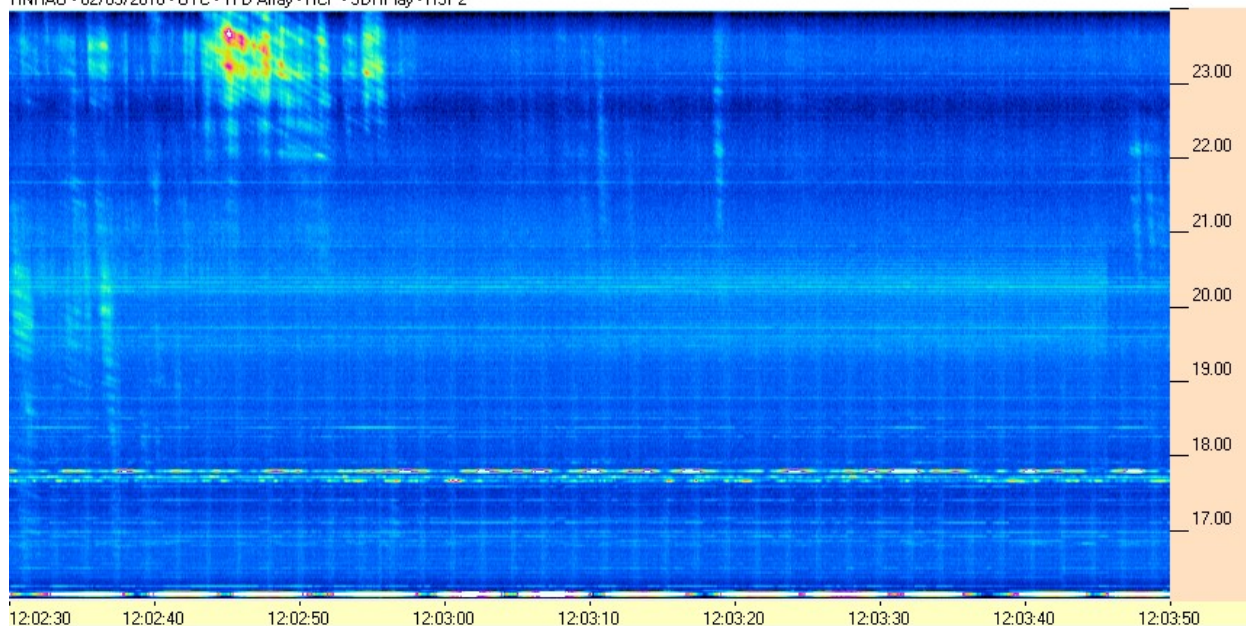
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HNRAO - 02/05/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



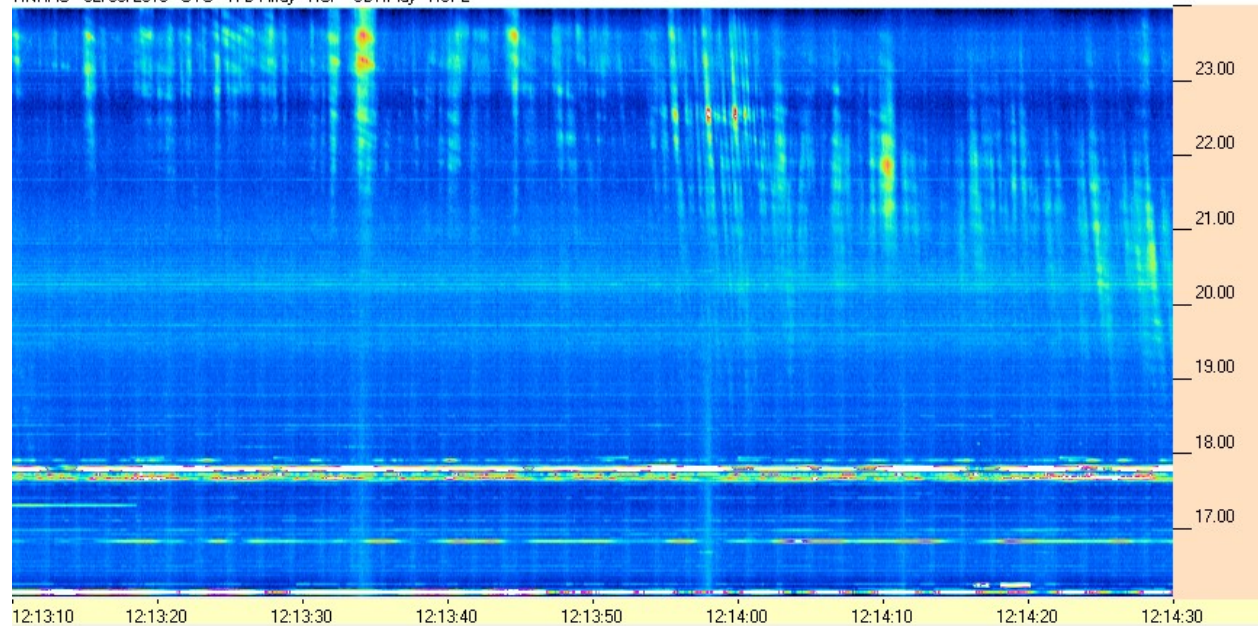
HNRAO - 02/05/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



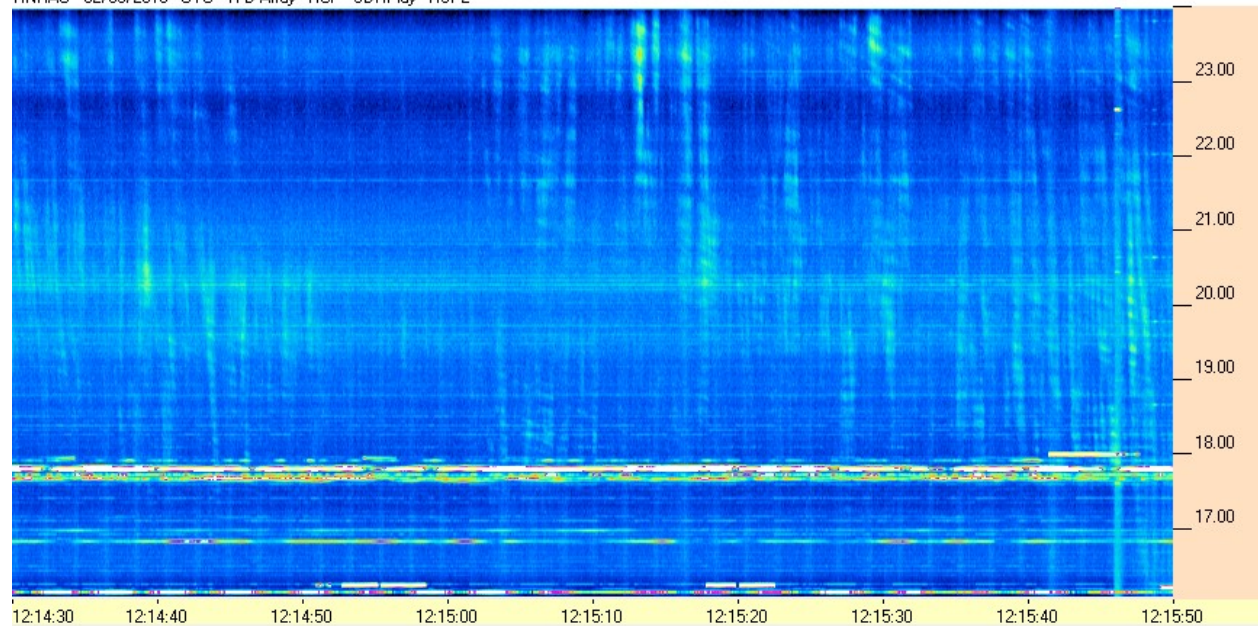
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HNRAO - 02/05/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



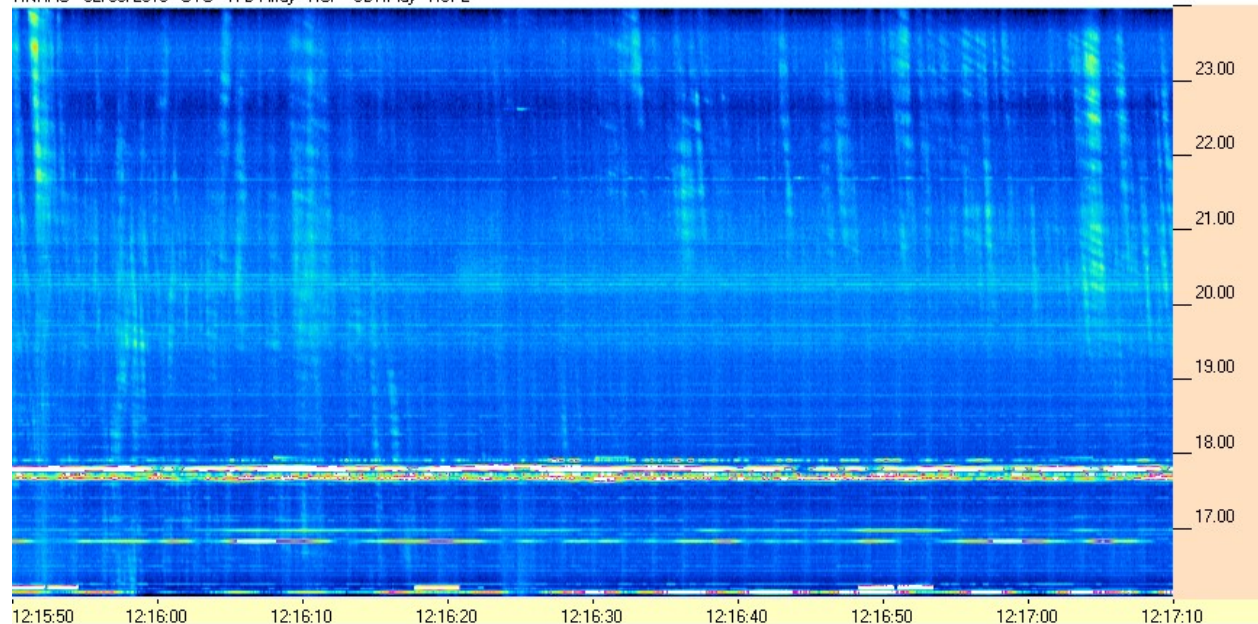
HNRAO - 02/05/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



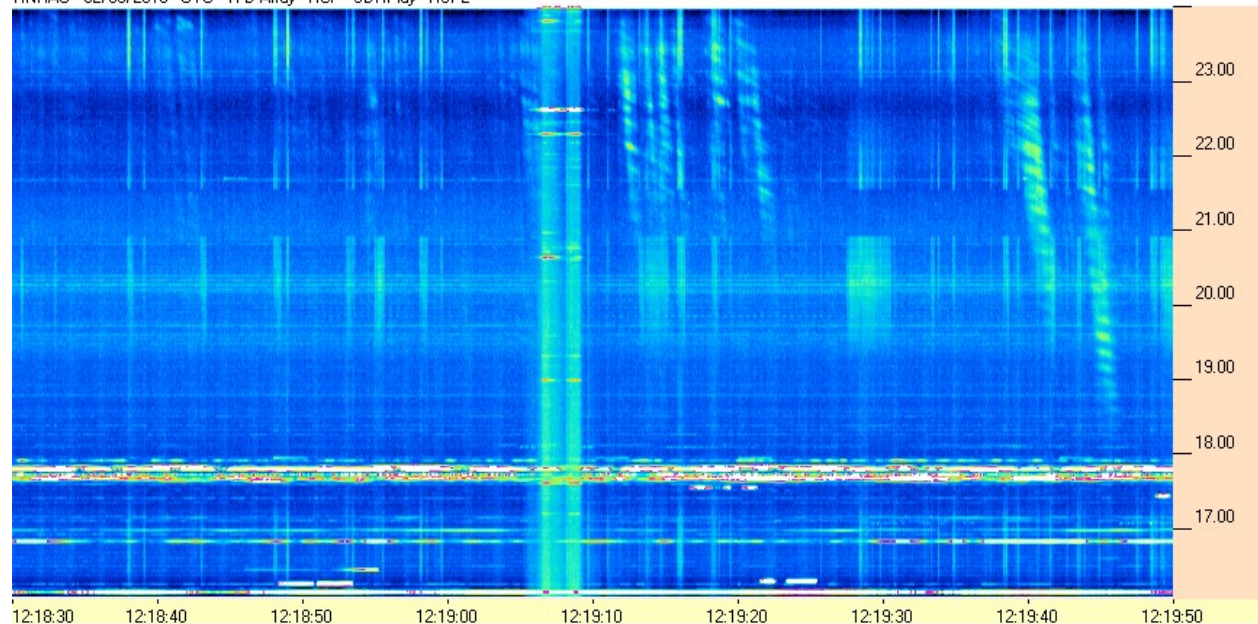
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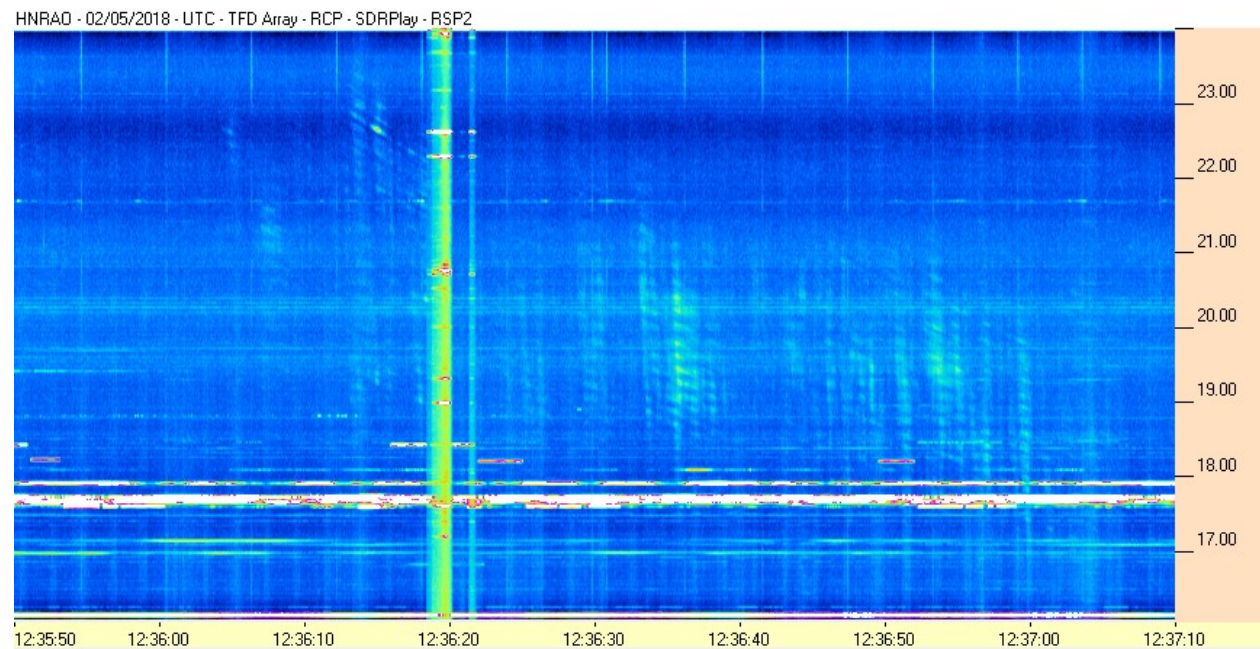
HNRAO - 02/05/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



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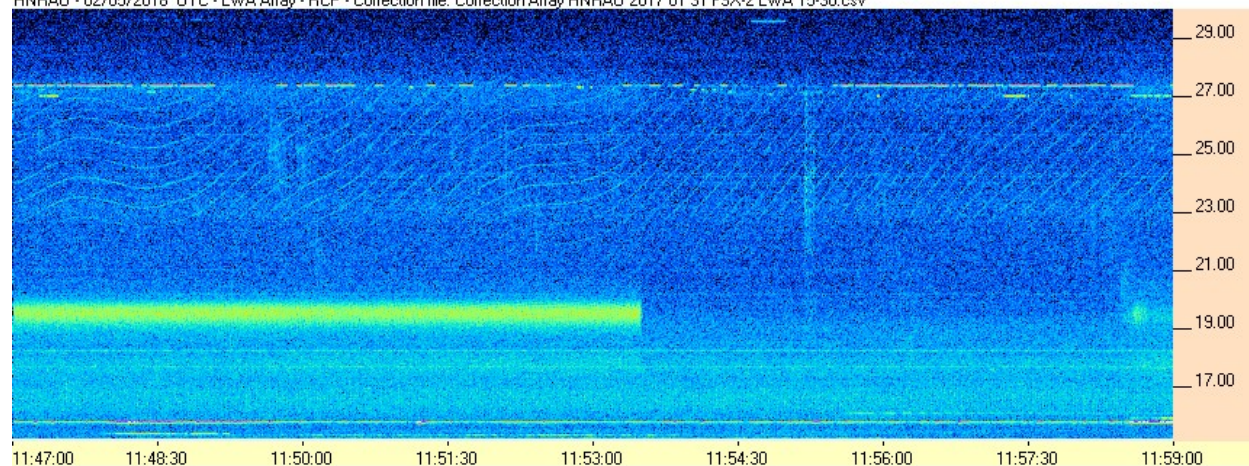


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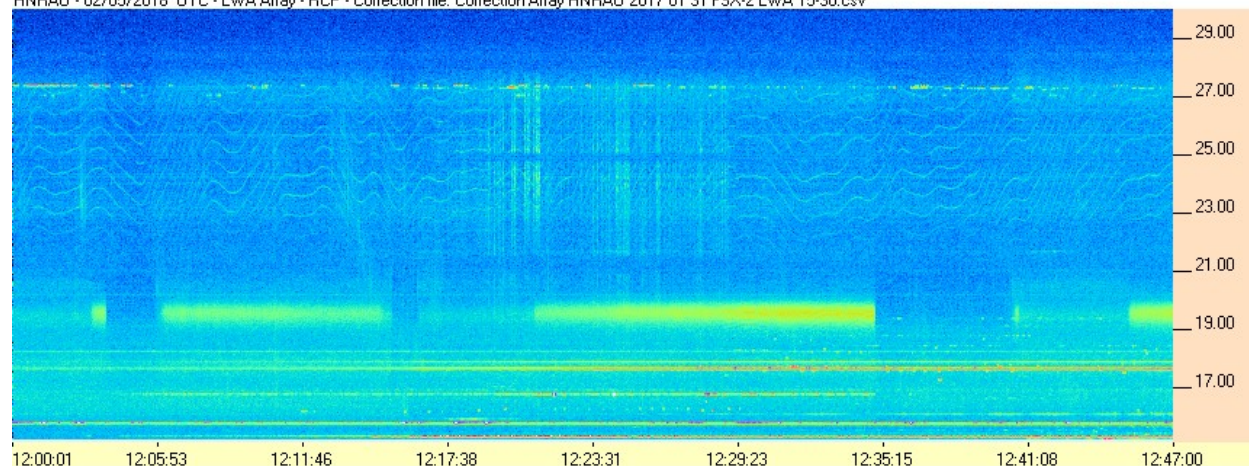


FSX-2/LWA Array

HNRAO - 02/05/2018 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv



HNRAO - 02/05/2018 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv

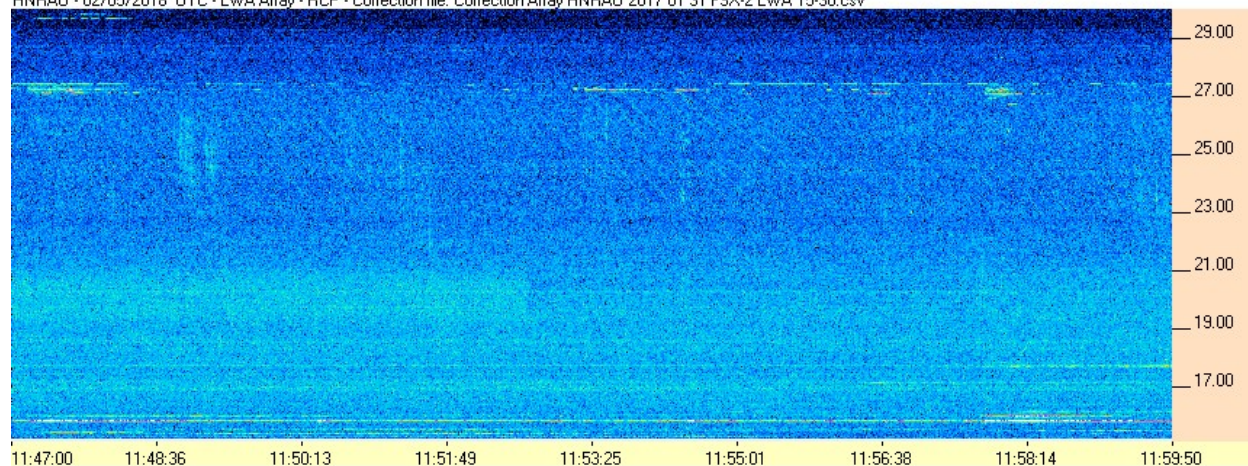


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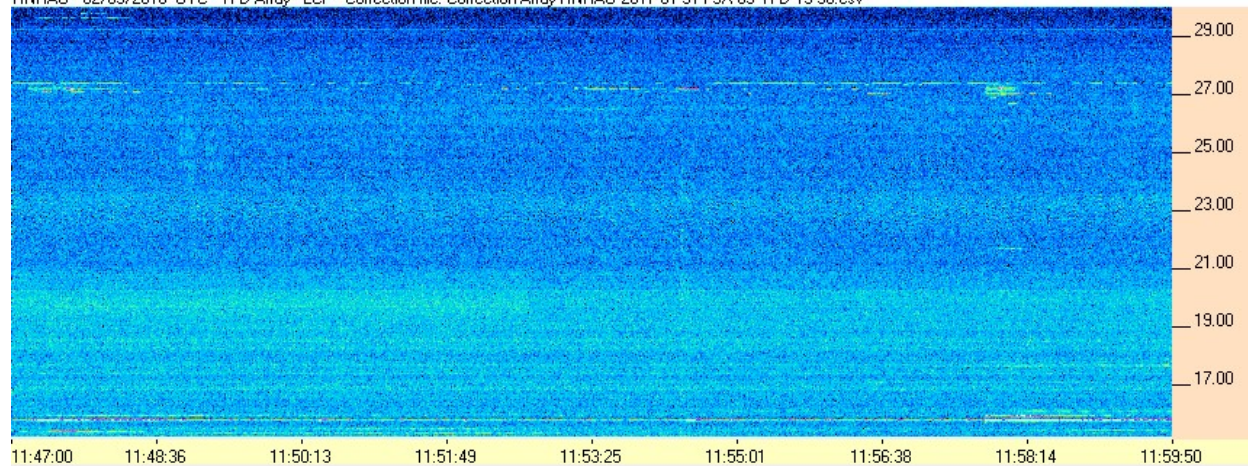


FSX-8S/TFD Array

HNRAO - 02/05/2018 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv



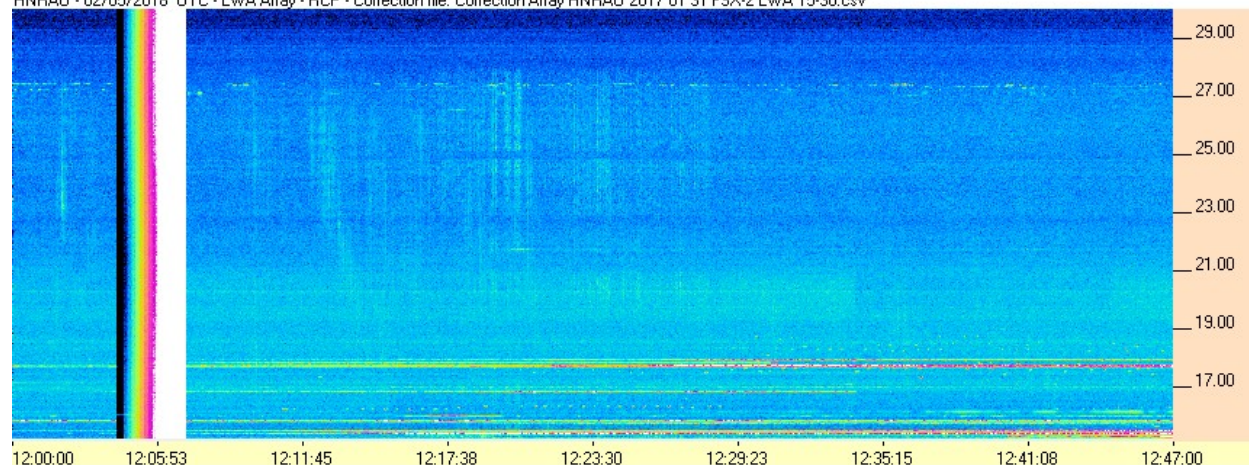
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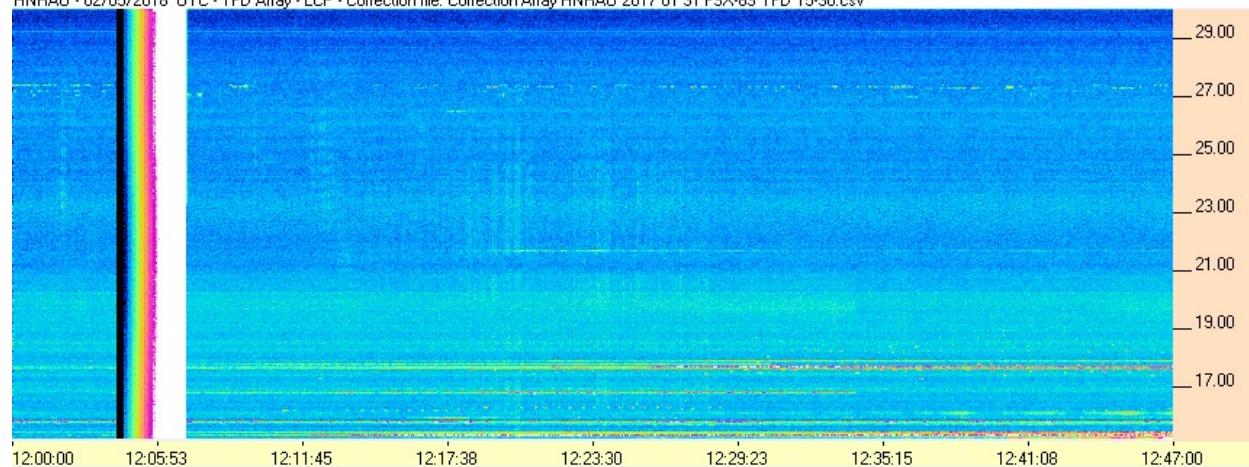
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HNRAO - 02/05/2018 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv



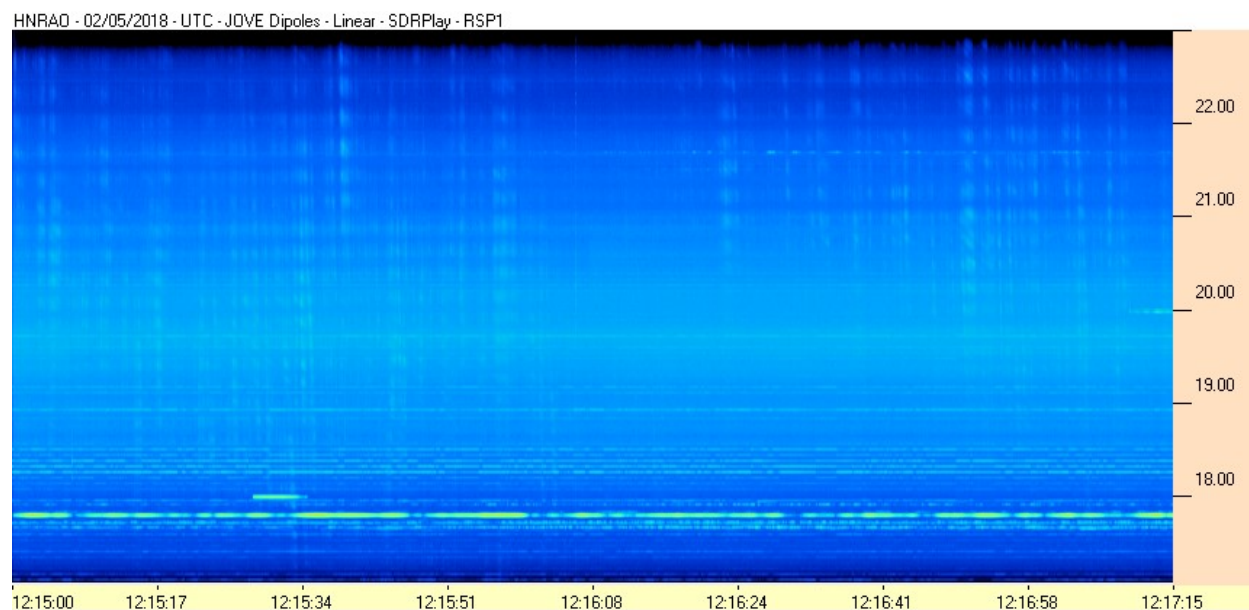
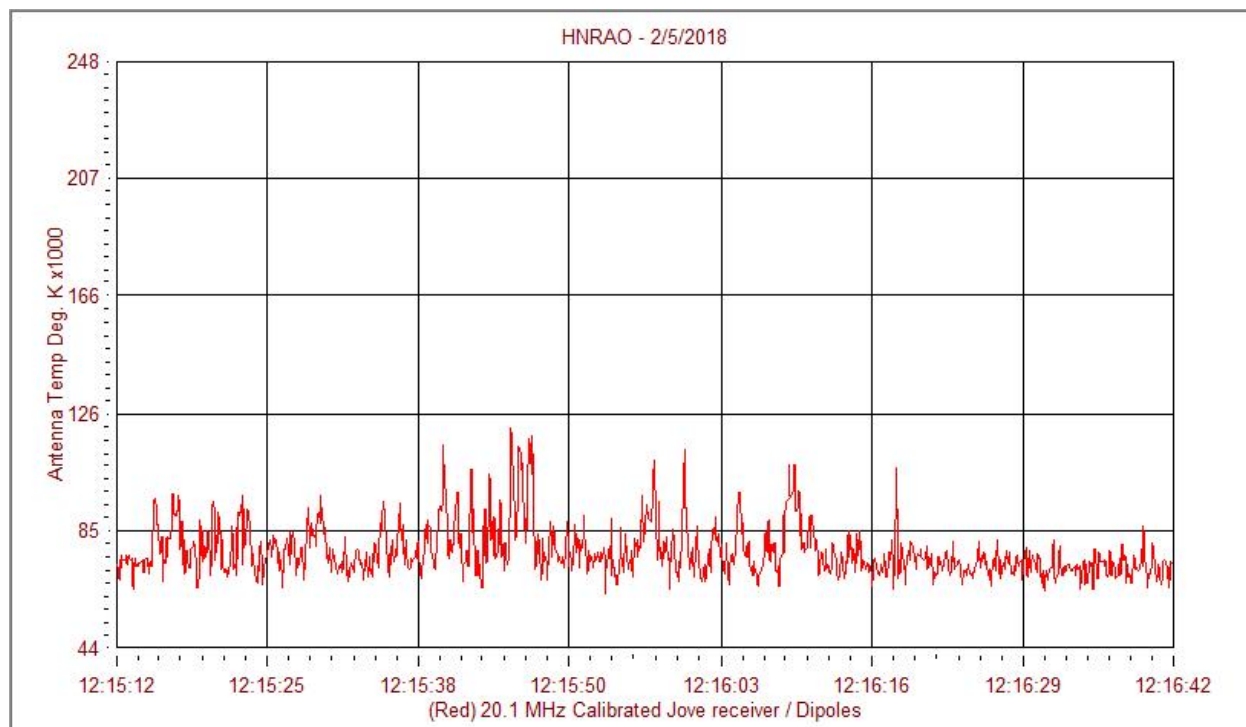
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Radio JOVE/JOVE Dipoles



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