

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: April 24, 2018

Object: Jupiter – Io-A

Observer: RF

Start - Time UT:	0523	Planetary K-index:	0
Jupiter Altitude (deg):	31.0	Jupiter Azimuth (deg):	162.6
Jupiter CML:	195.68	Jupiter Io Phase:	220.56
Jupiter RA (hr/min):	15:12	Jupiter Dec (hr/min):	-16:33
Hour Angle (hr/min):	-01:02	Polarization	RCP
Sun Altitude (deg):	-37.1	Sun Azimuth (deg):	003.2
Sun RA (hr/min):	01:60	Sun Dec (hr/min):	12:12

End – Time UT:	0707	De:	-3.4
Jupiter Altitude (deg):	31.9	Jupiter Azimuth (deg):	192.0
Jupiter CML:	258.56	Jupiter Io Phase	235.35
Hour Angle (hr/min):	00:42	Duration (min):	184
Sun Altitude (deg):	-30.8	Sun Azimuth (deg):	033.0
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	04/10/2018
SDRPlay RSP1	Experimental*					

JOVE dipoles phased @ 32 degrees for 2017-2018 season

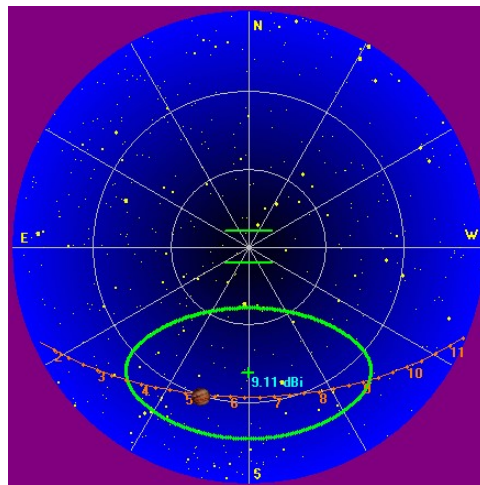
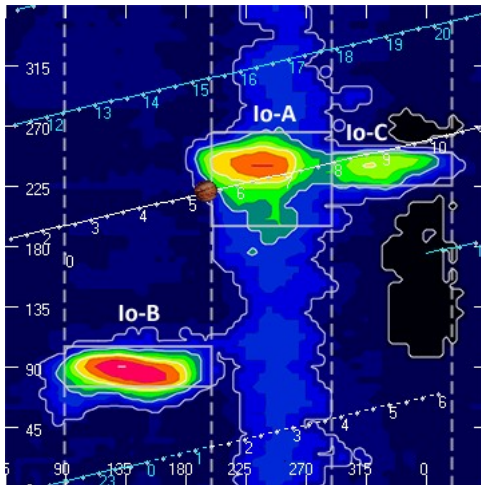
TFD array phased @ 35 degrees for 2017-2018 season

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

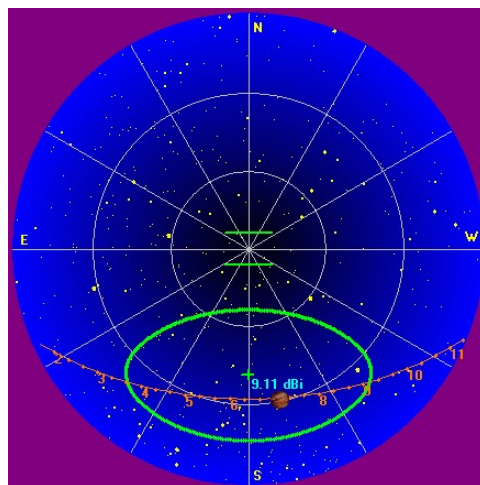
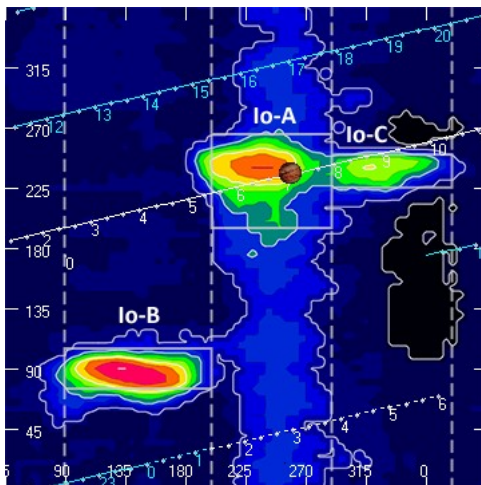
* Used for testing and evaluating antenna systems

Software Radio Sky Spectrograph 2.8.50

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Beginning of Pass



End of Pass

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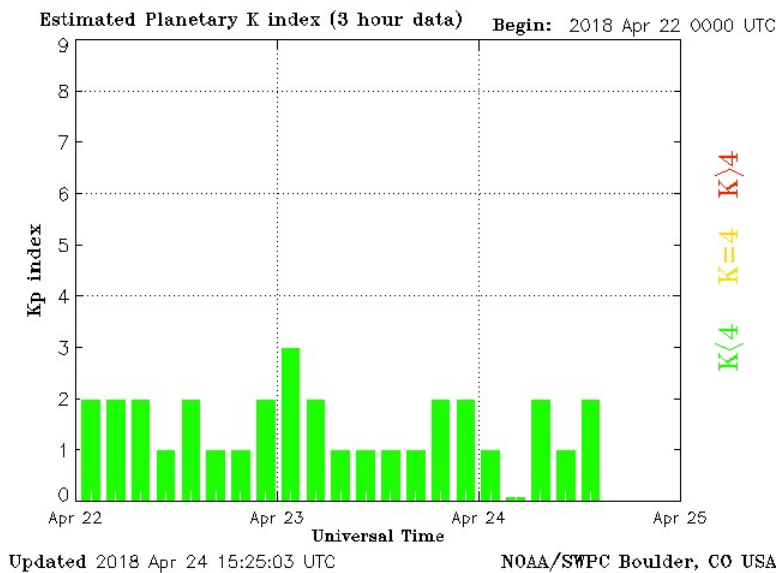


MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360	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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Certainly, the best Jupiter activity of this season. From first observable emissions o the last, this storm lasted 184 min as seen from this observatory.

Relatively strong L-bursts with distinct L4 modulation lanes throughout the storm. Negative slope emissions starting above 24 MHz and dropping below 16 MHz at the end.

Of the three spectrographs running able to observe this storm, only the SDRPlay / RSP2 recorded the event. The FSX-2 was affected by RFI and the data fie from the FSX-8S was somehow not written to the hard drive.

Activity at 20.1 MHz were seen in the Skypipe record using the linear Jove dual dipoles. Strongest bursts at that frequency reached 66 kK at this observatory. Several examples are shown at the end of this report. The SkyPipe record of the event in RCP/LCP from the TFD was also not recorded and data lost.

Nothing else of note.

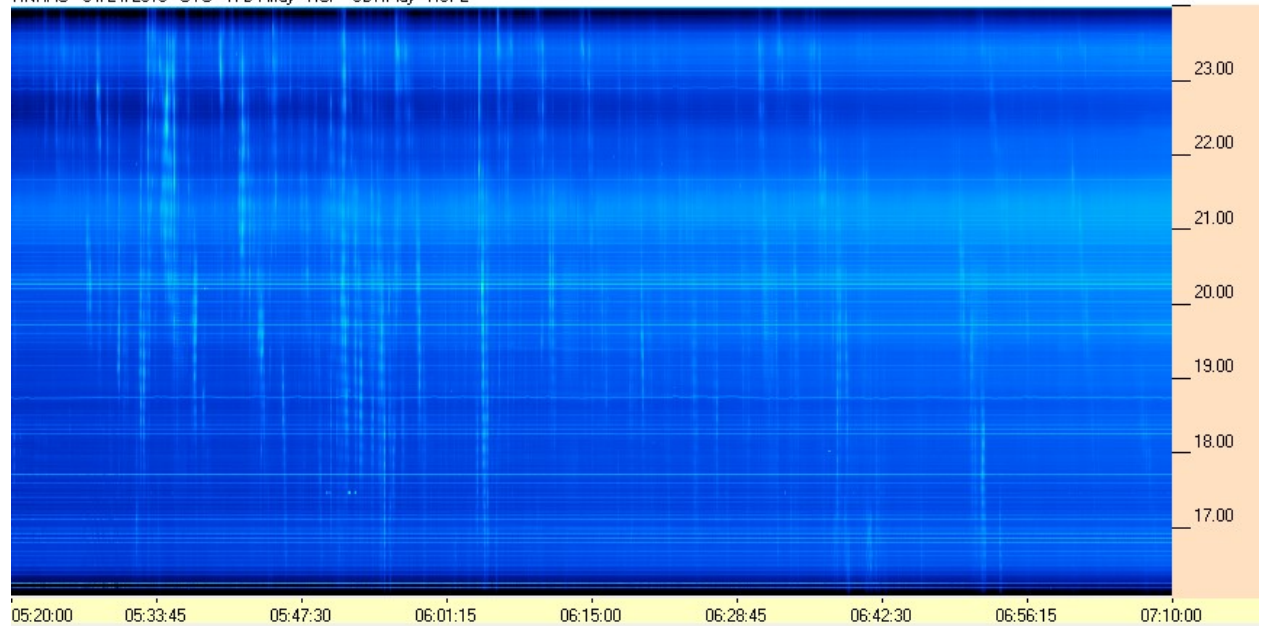
EOR

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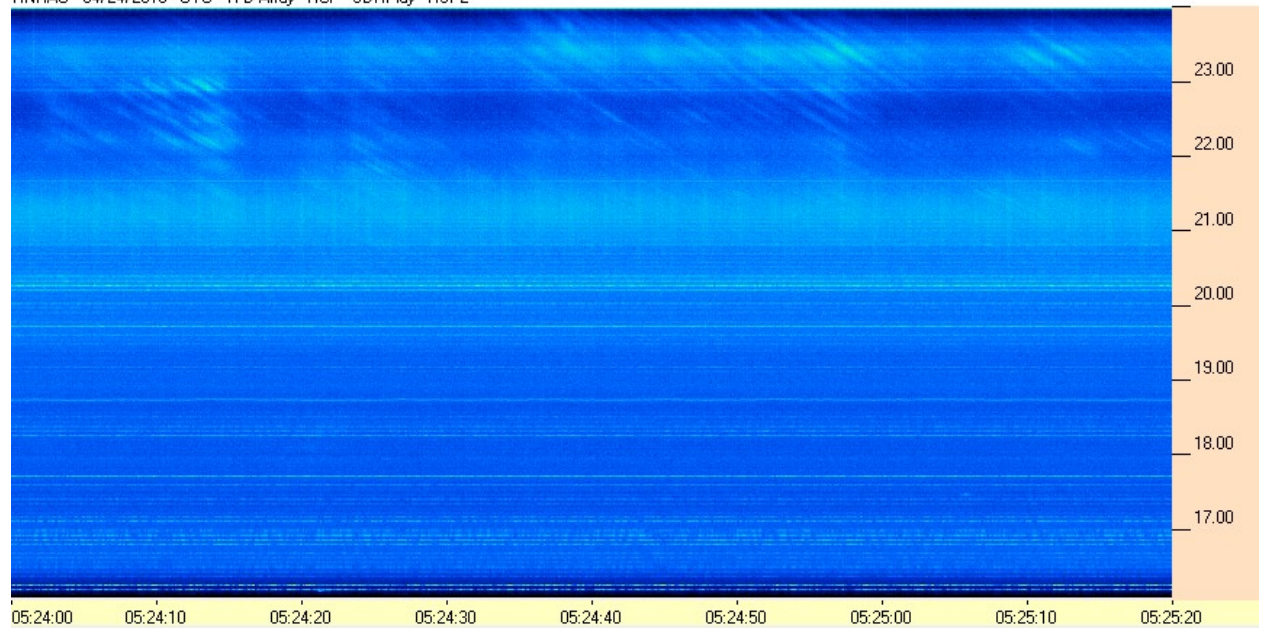


SDRPlay 2 / TFD Array

HNRAO - 04/24/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



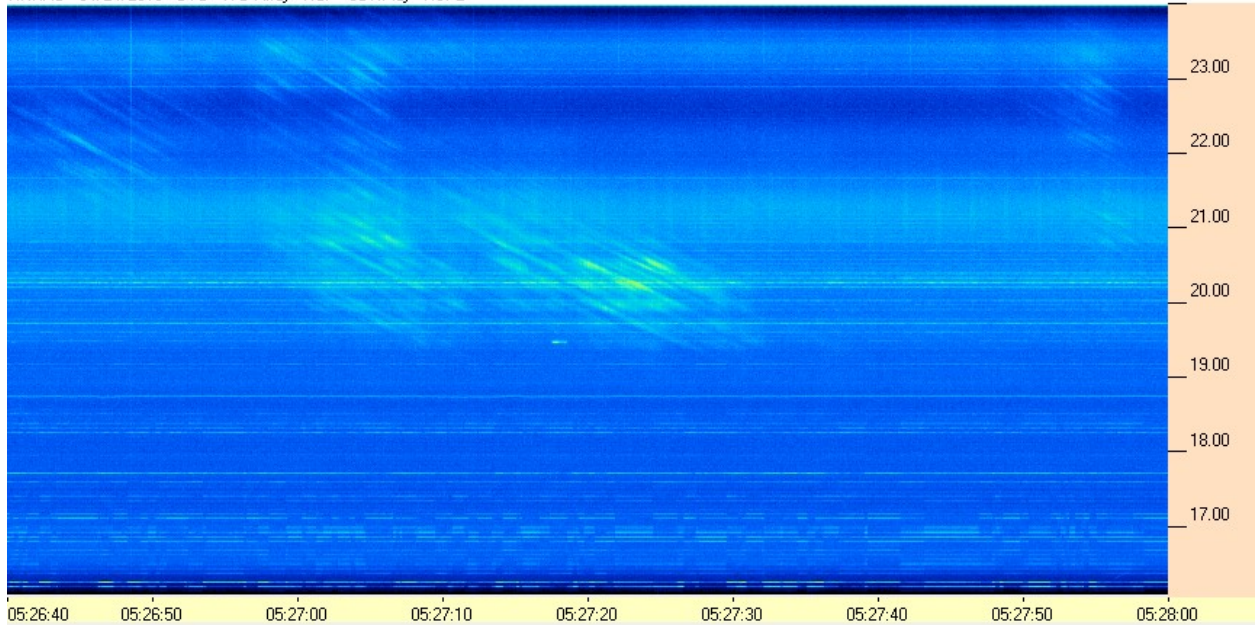
HNRAO - 04/24/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



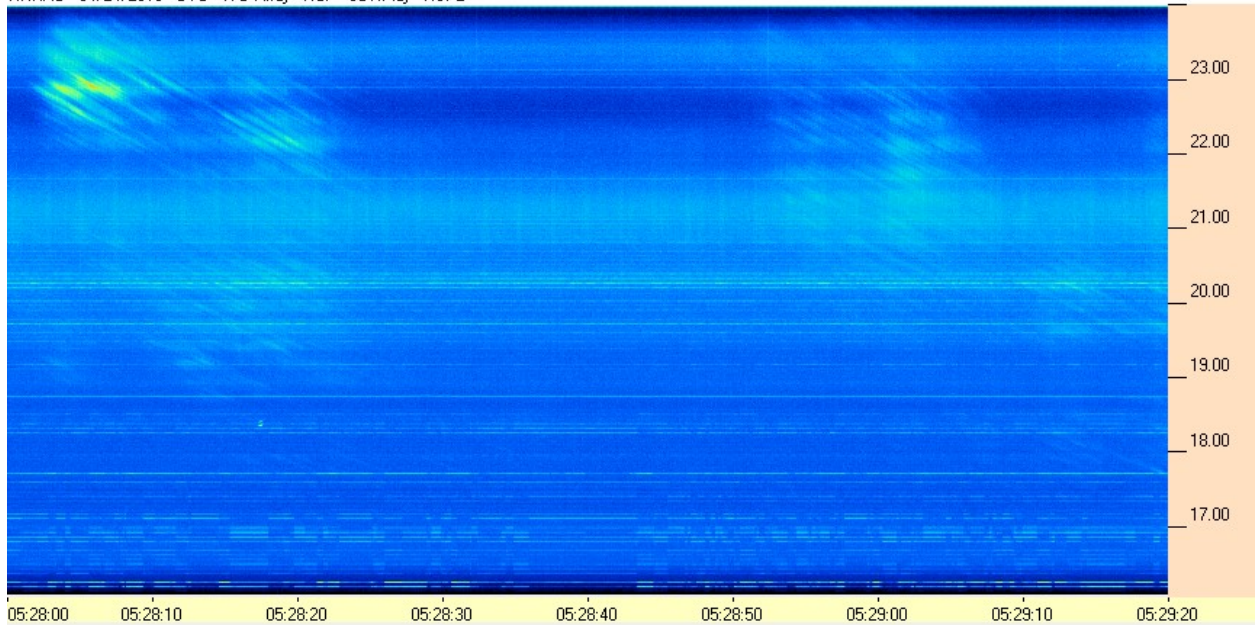
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HNRAO - 04/24/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



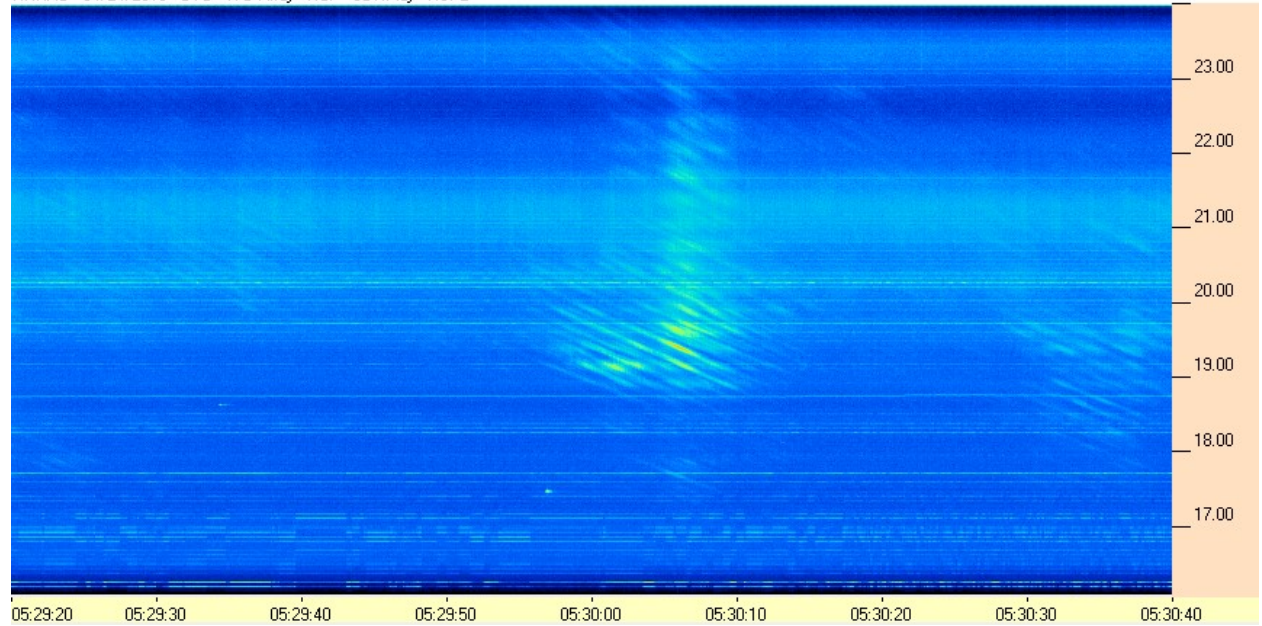
HNRAO - 04/24/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



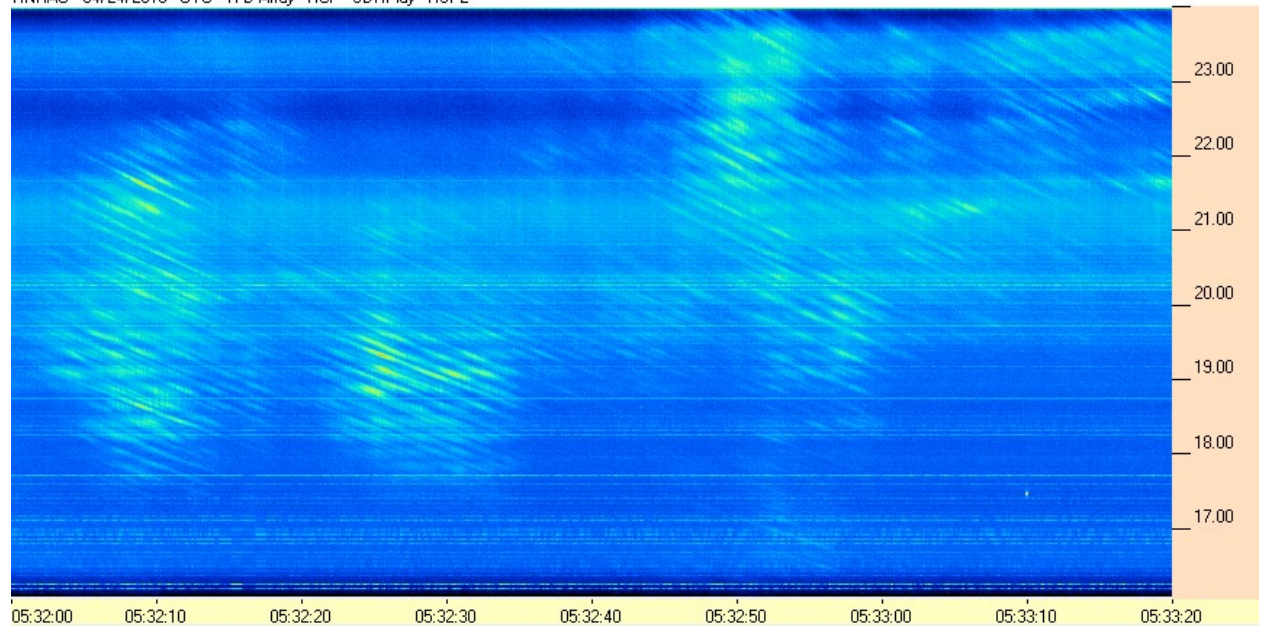
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HNRAO - 04/24/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



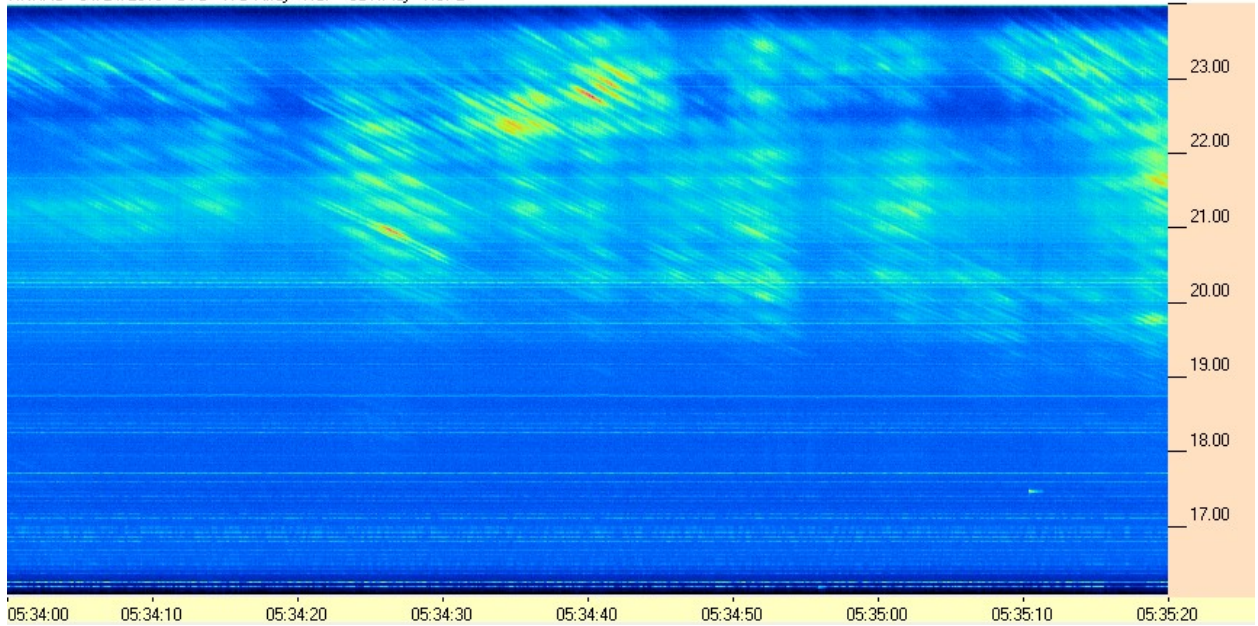
HNRAO - 04/24/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



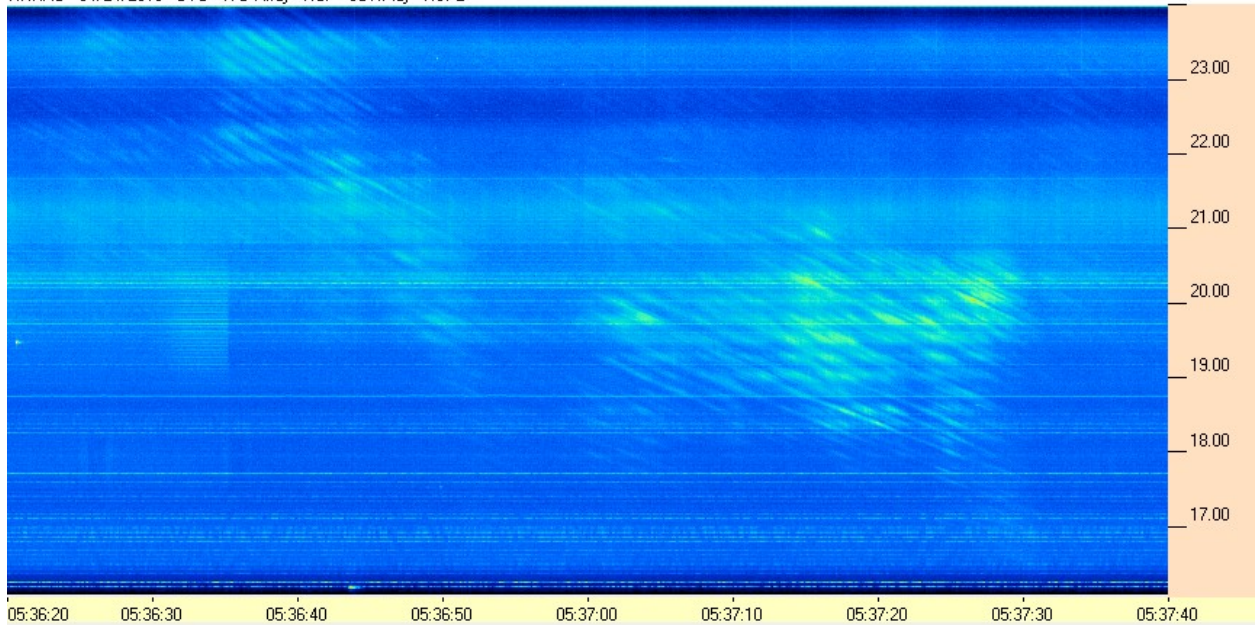
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HNRAO - 04/24/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



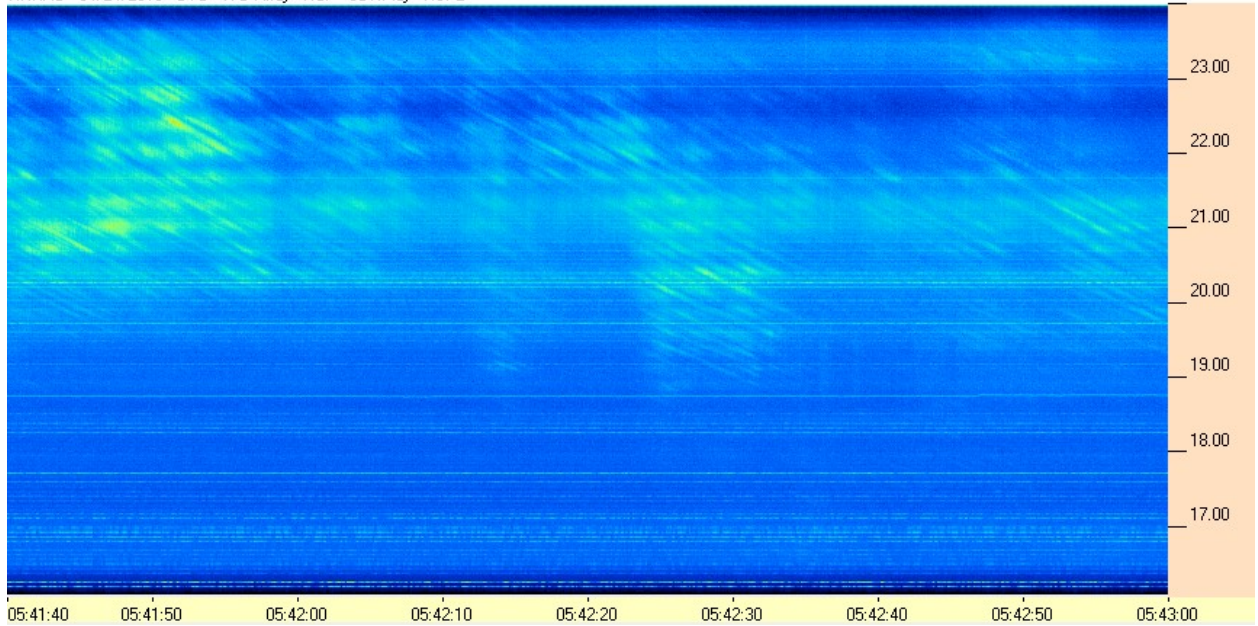
HNRAO - 04/24/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



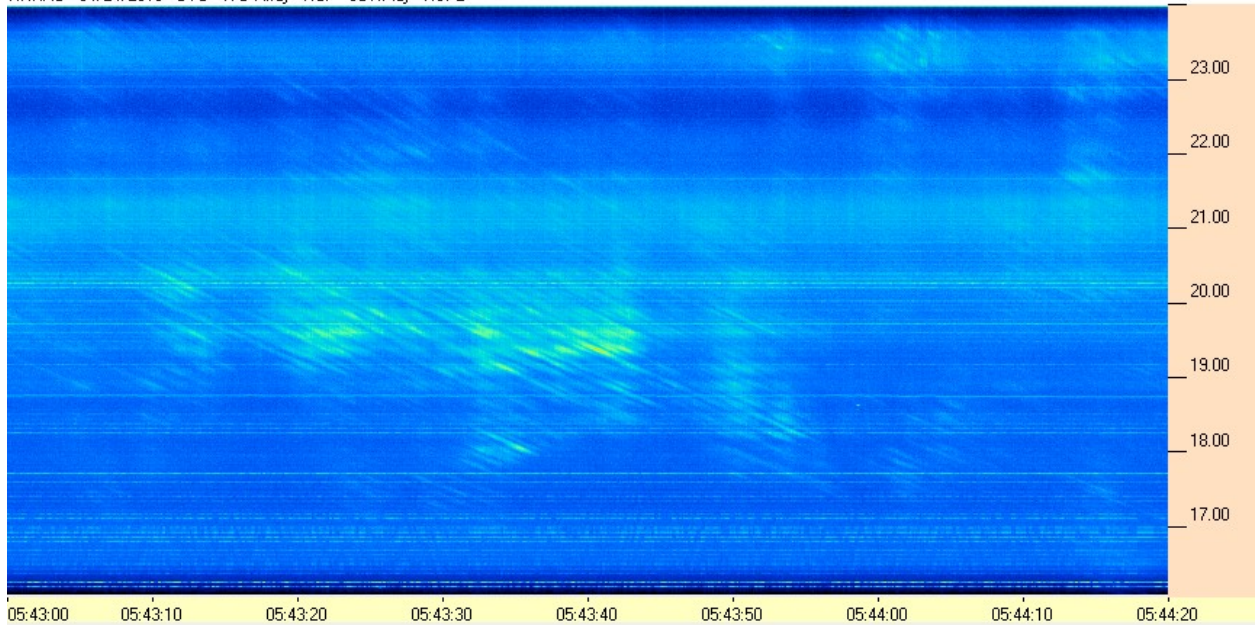
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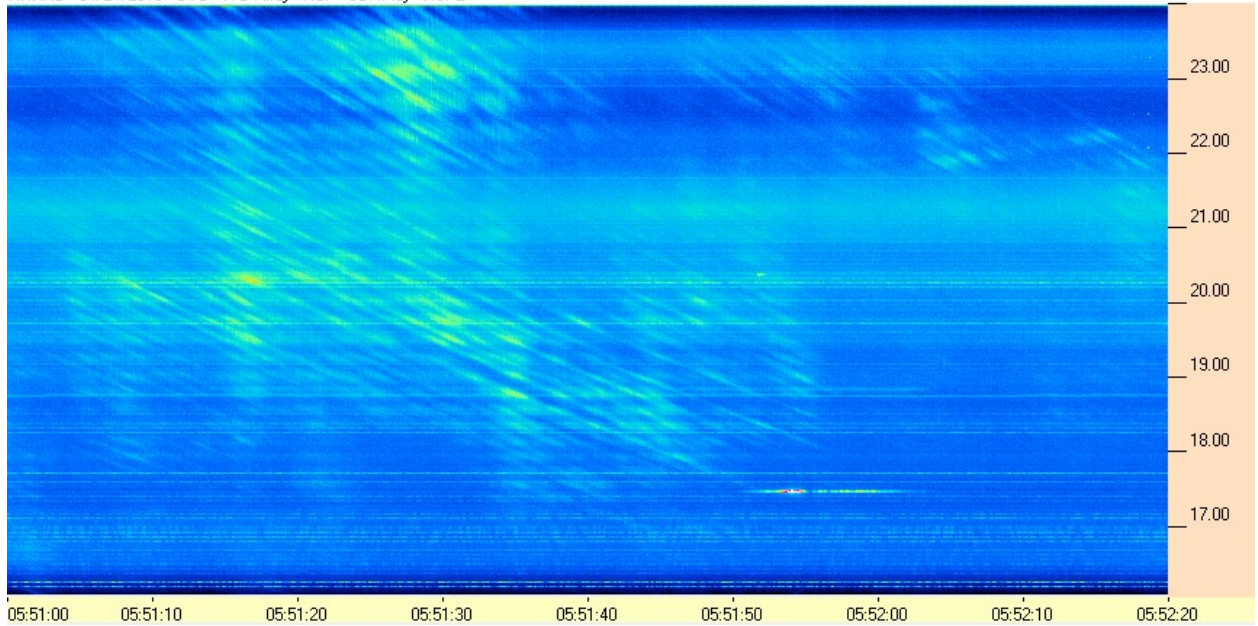
HNRAO - 04/24/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



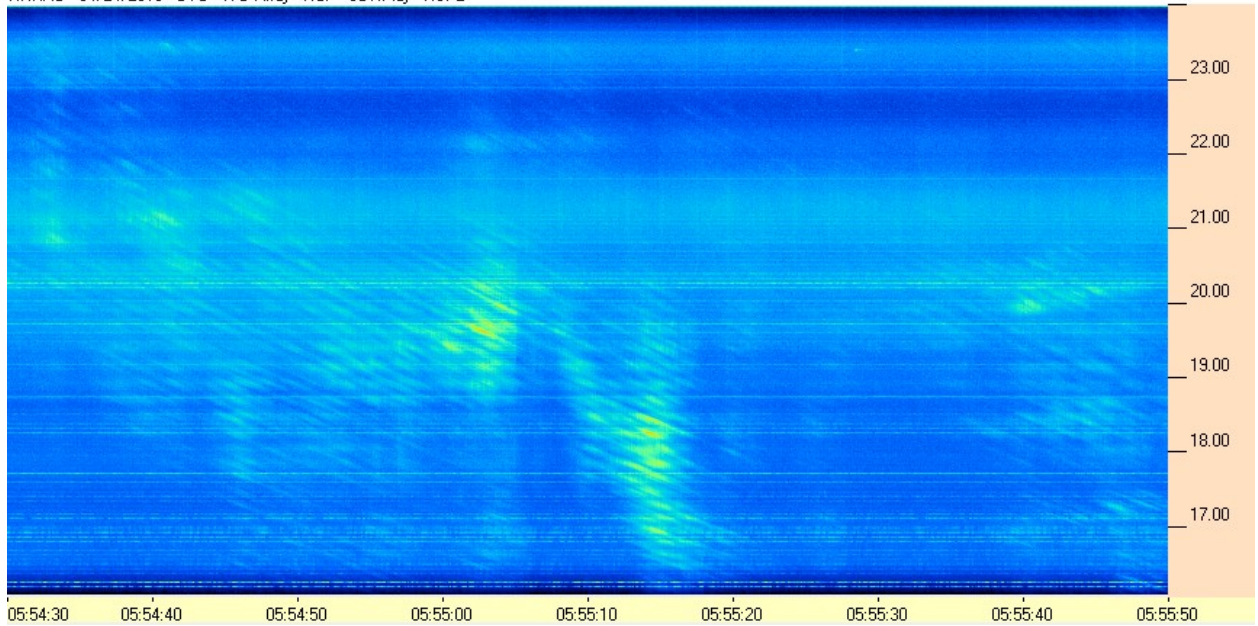
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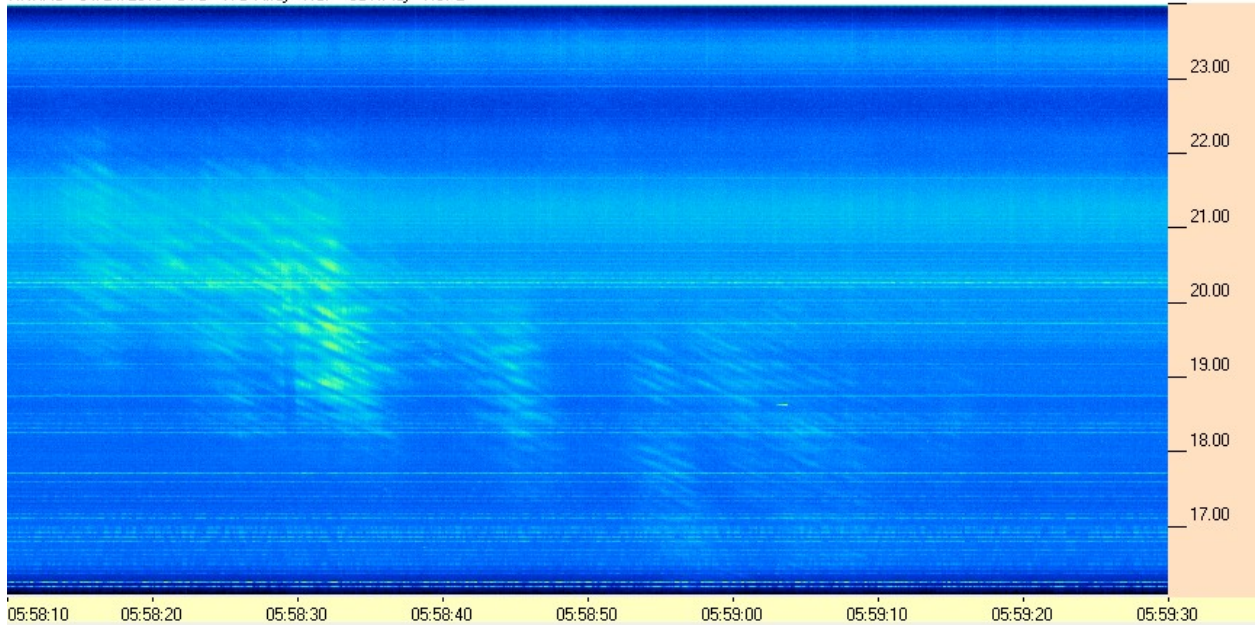
HNRAO - 04/24/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



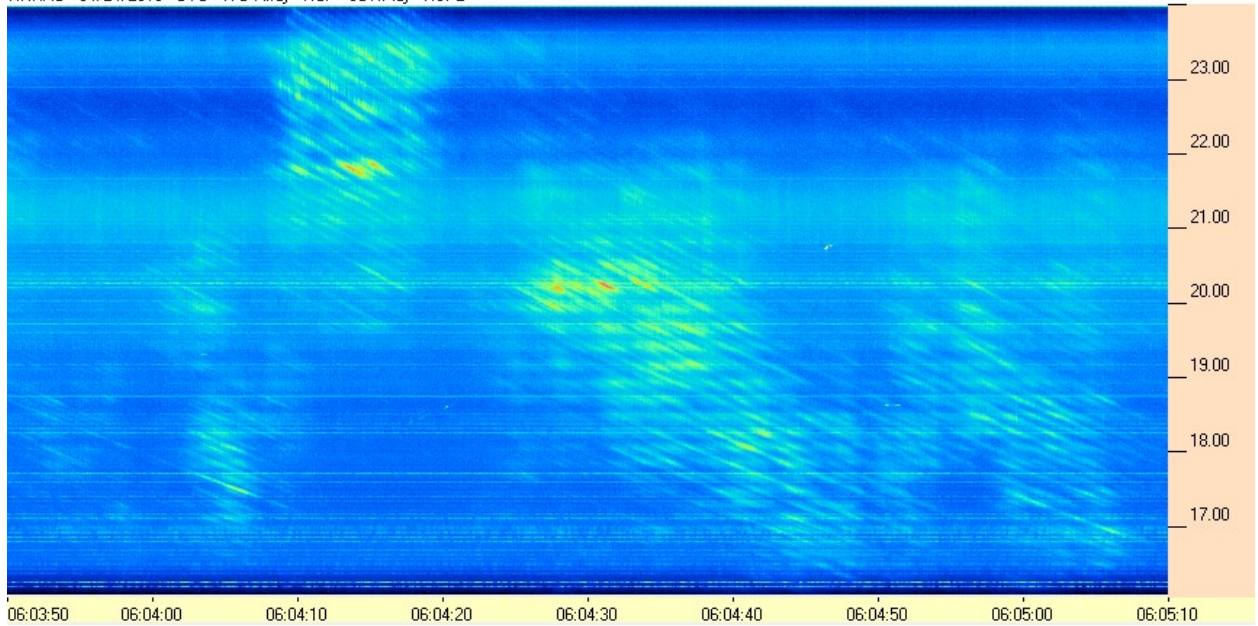
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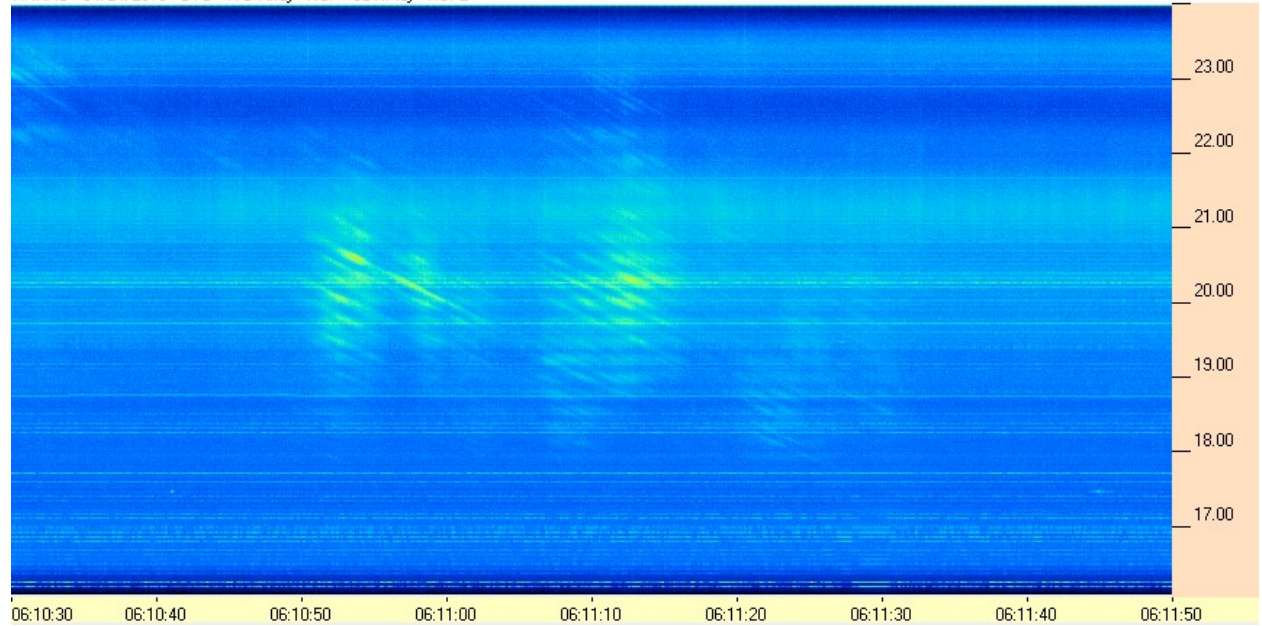
HNRAO - 04/24/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



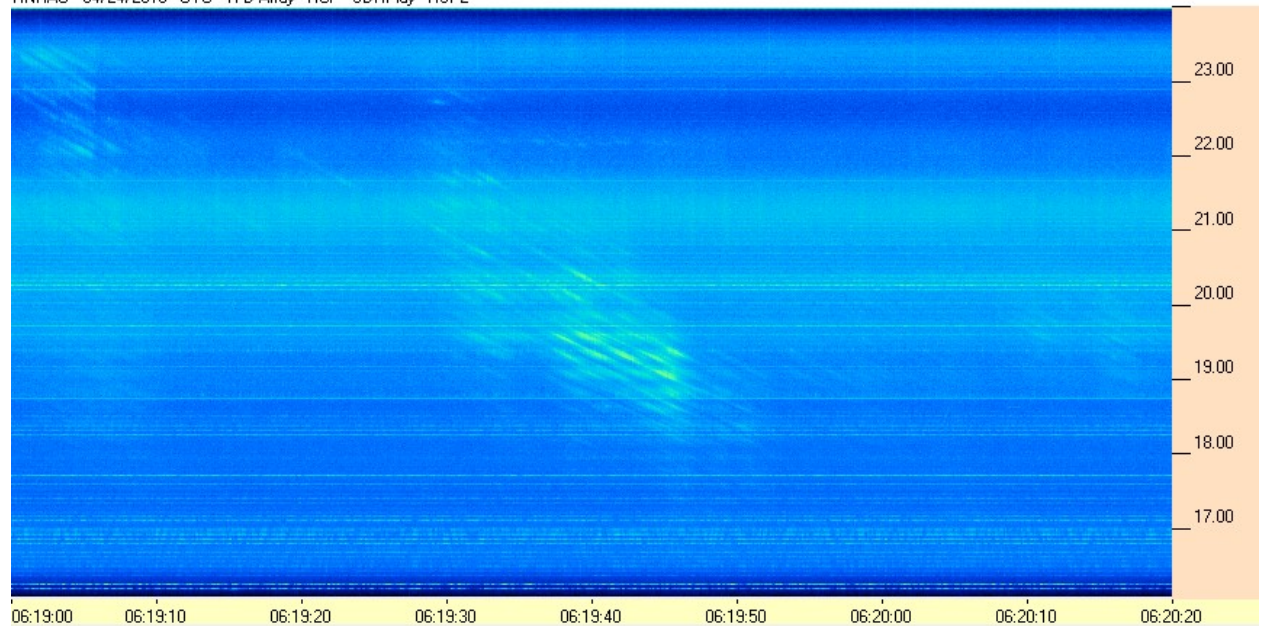
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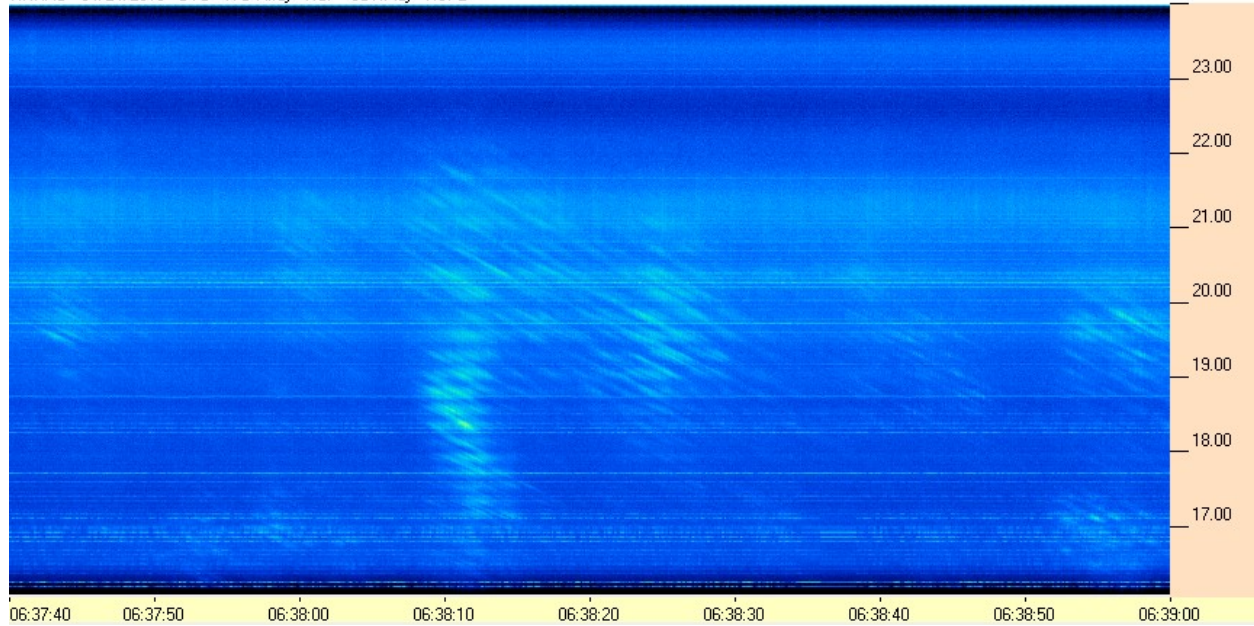
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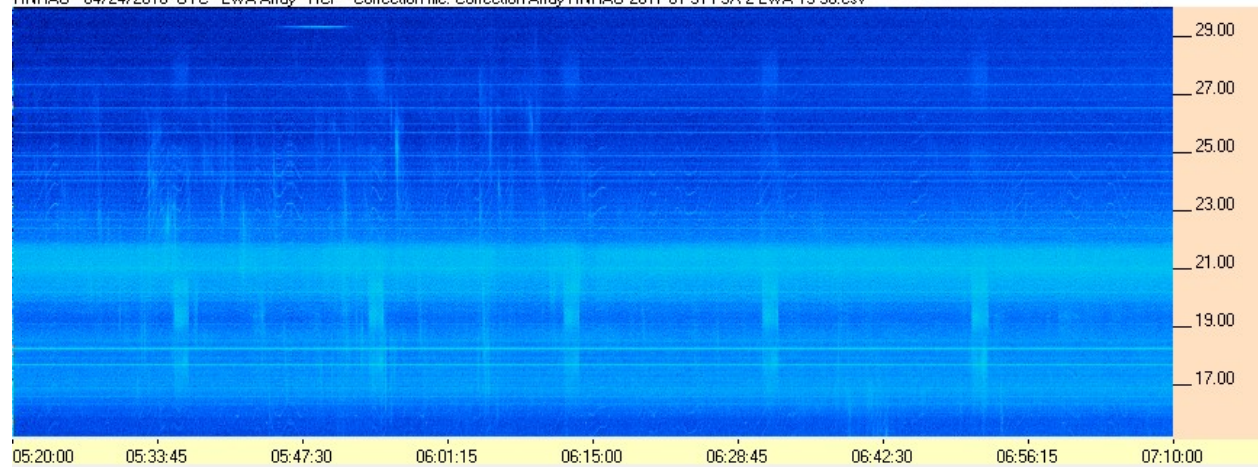


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FSX-2 / LWA Array

HNRAO - 04/24/2018 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv



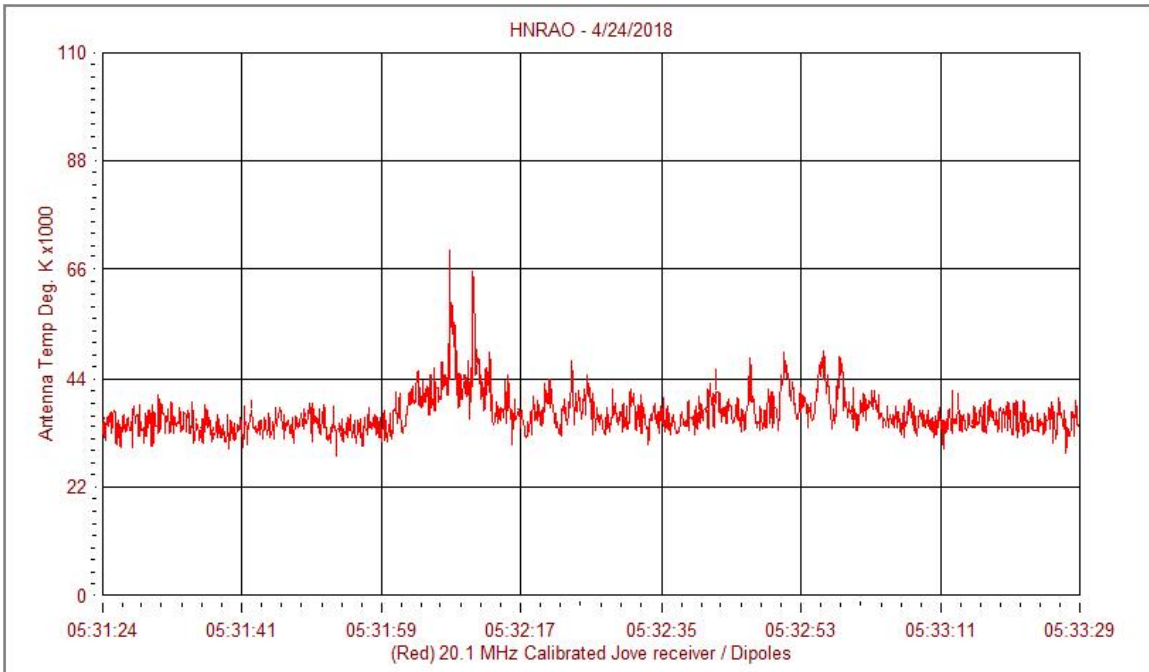
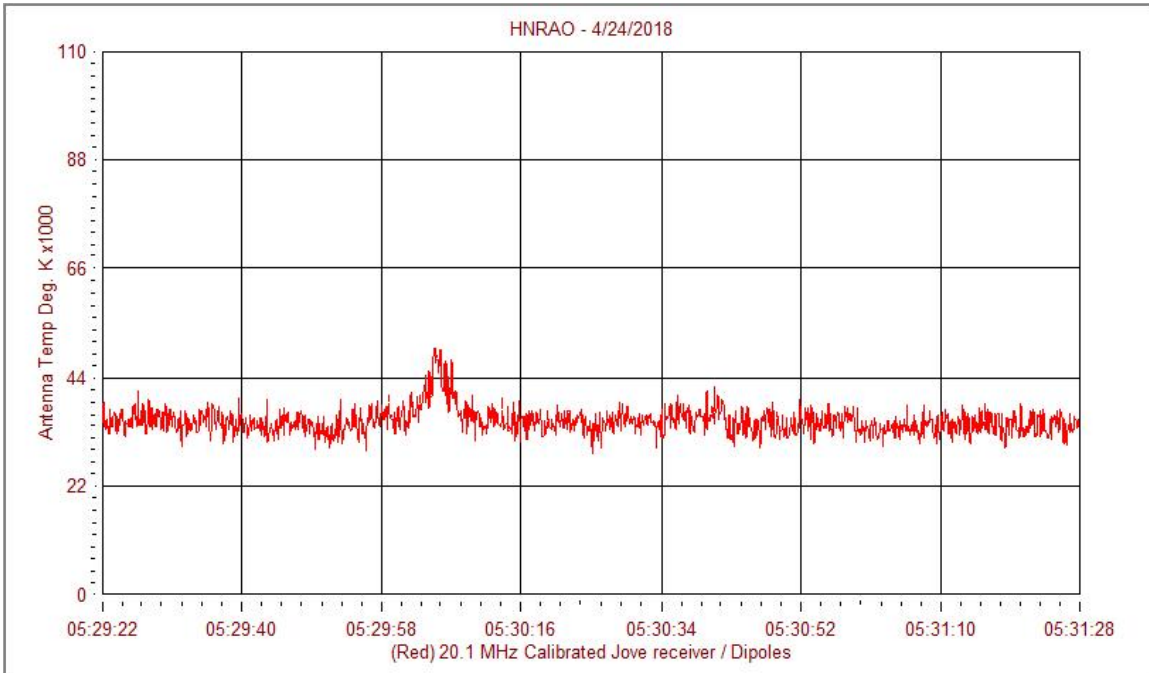
FSX-8S / TFD Array

Data File Lost

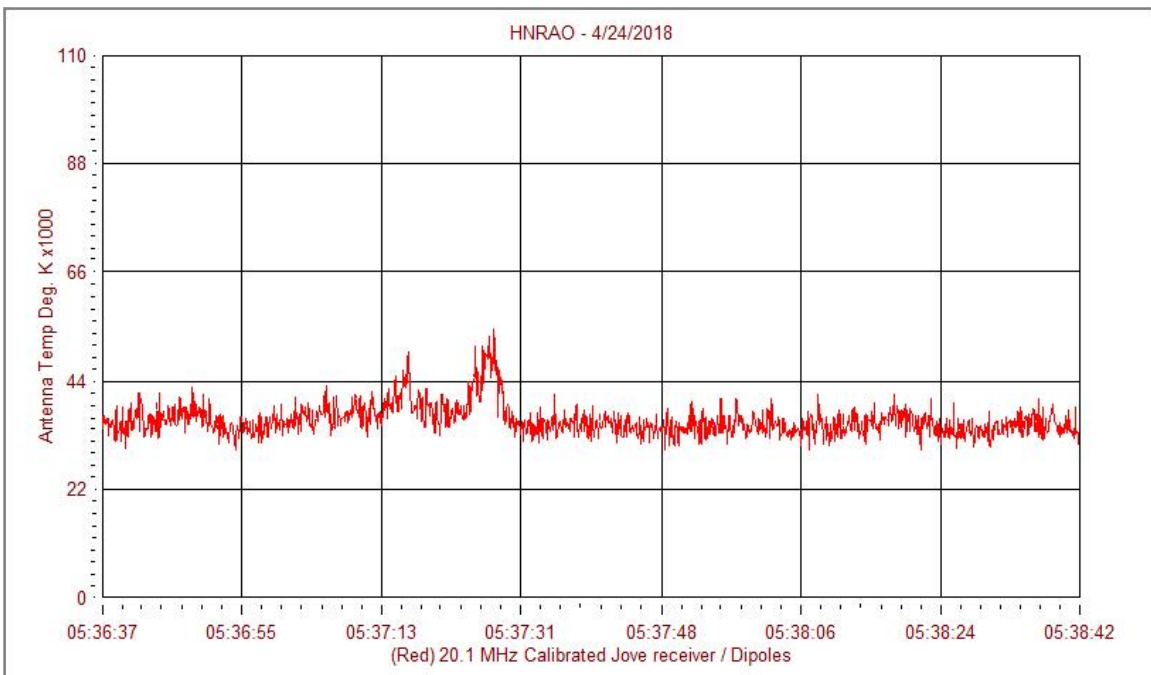
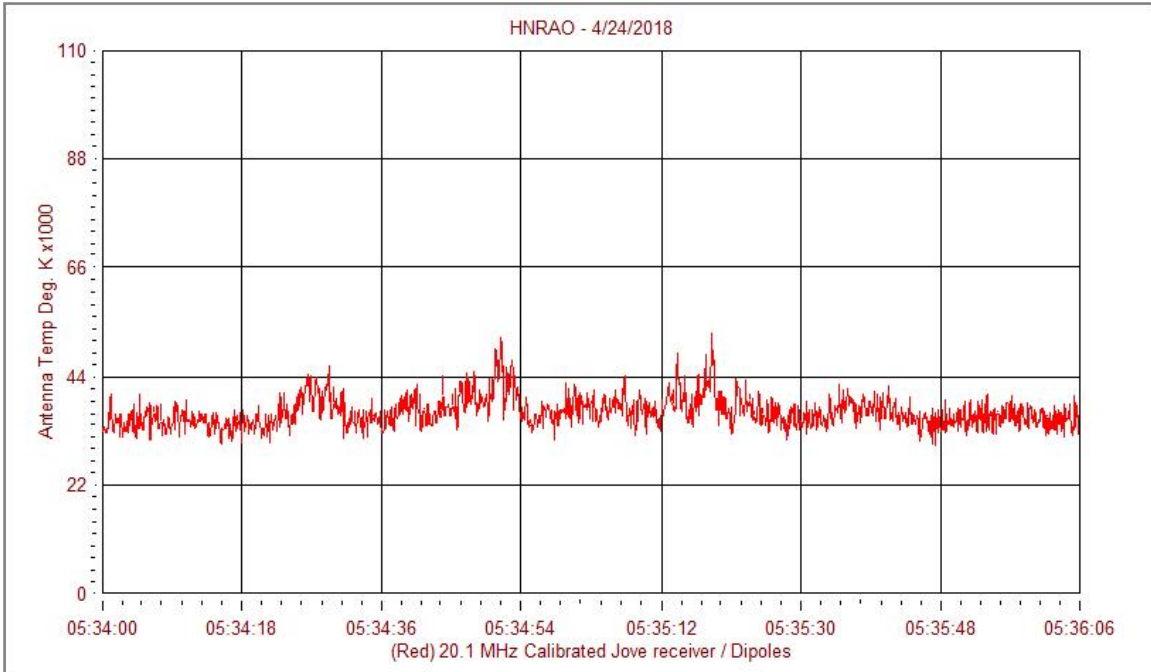
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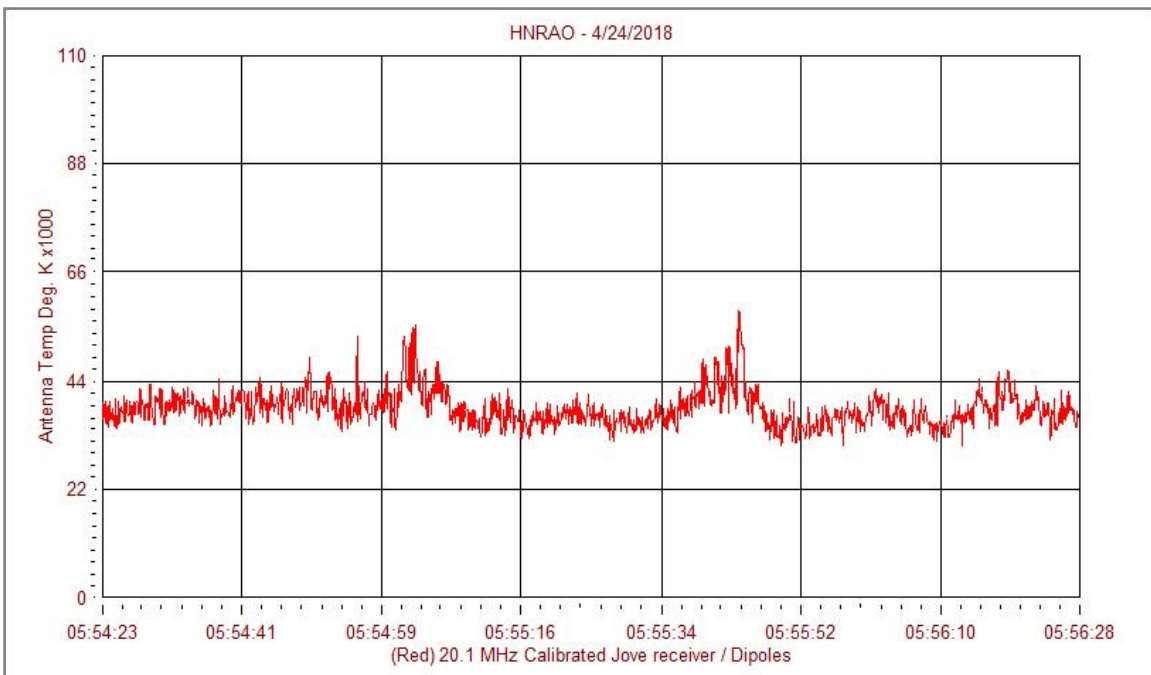
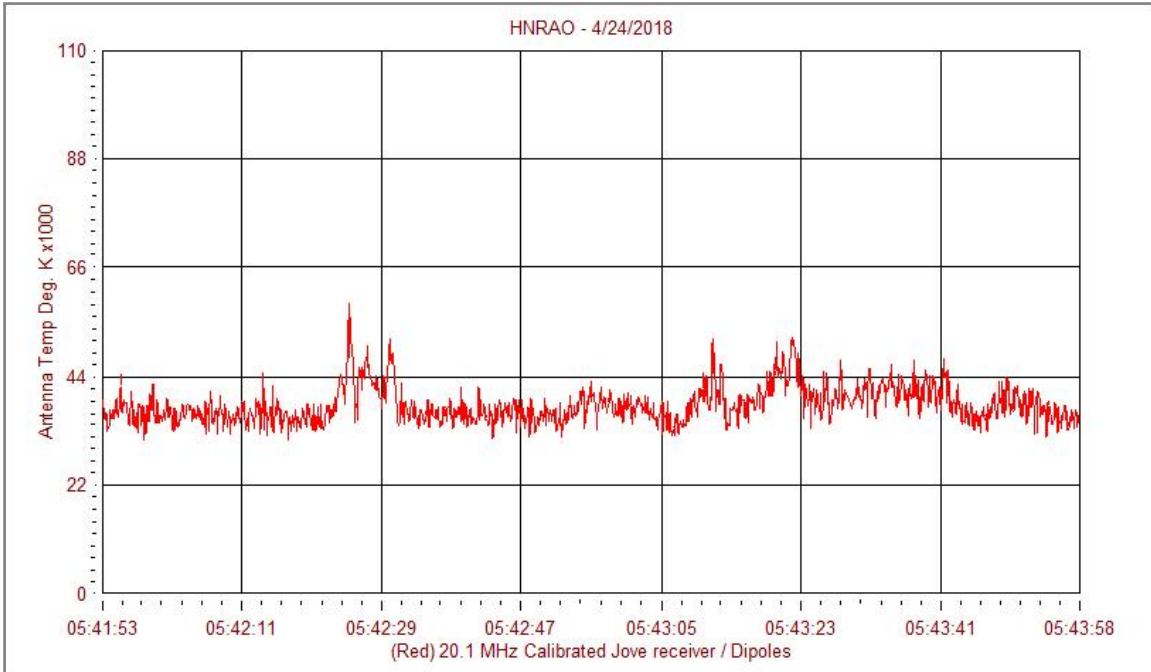
Radio Jove II Receiver / Jove Dual Dipole Array



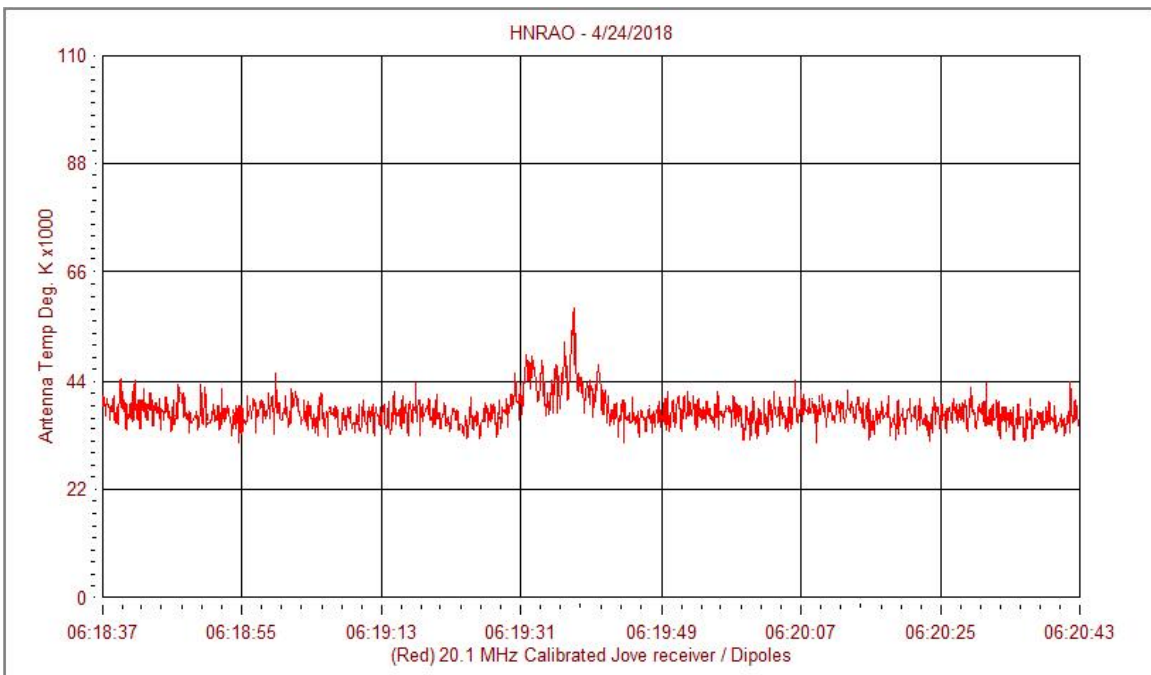
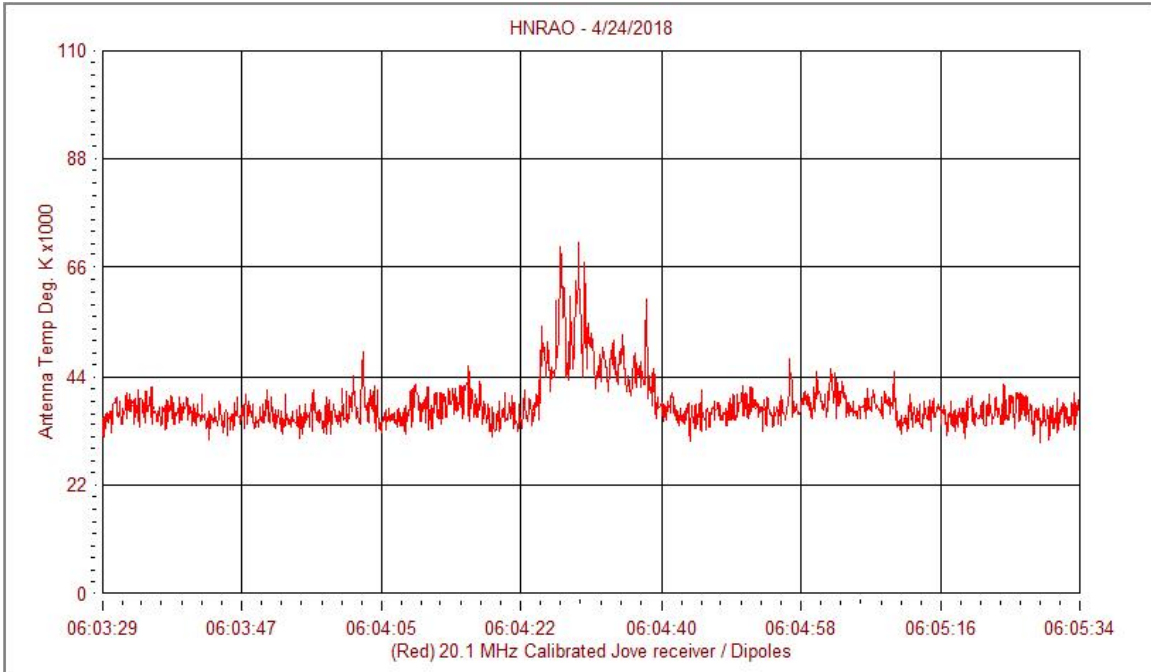
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