

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: April 17, 2018

Object: Jupiter – Io-A

Observer: Unattended

Start - Time UT:	0437	Planetary K-index:	1
Jupiter Altitude (deg):	24.1	Jupiter Azimuth (deg):	143.3
Jupiter CML:	193.12	Jupiter Io Phase:	228.82
Jupiter RA (hr/min):	15:15	Jupiter Dec (hr/min):	-16:45
Hour Angle (hr/min):	-02:19	Polarization	RCP
Sun Altitude (deg):	-38.8	Sun Azimuth (deg):	348.2
Sun RA (hr/min):	01:34	Sun Dec (hr/min):	09:46

End – Time UT:	0631	De:	-3.4
Jupiter Altitude (deg):	32.3	Jupiter Azimuth (deg):	173.0
Jupiter CML:	262.05	Jupiter Io Phase	245.04
Hour Angle (hr/min):	-00:25	Duration (min):	126
Sun Altitude (deg):	-36.5	Sun Azimuth (deg):	023.8
Max Frequency MHz	28	Min Frequency MHz	15

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	04/10/2018
JOVE 1	TFD	LCP	-7.59 dB	#1 LCP	Port 3 +3 dB	04/10/2018
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

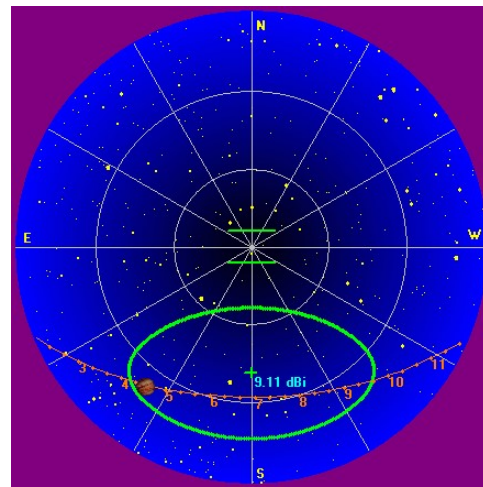
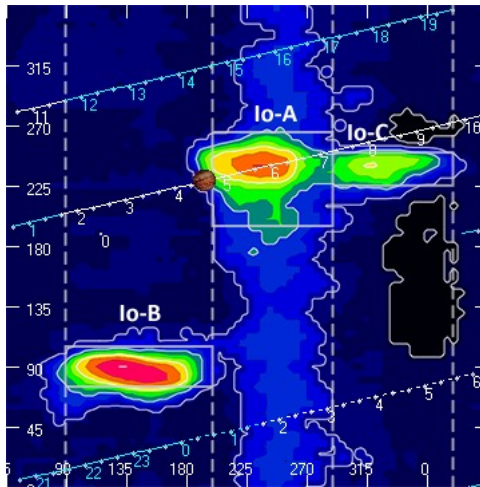
TFD array phased @ 35 degrees for 2017-2018 season

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

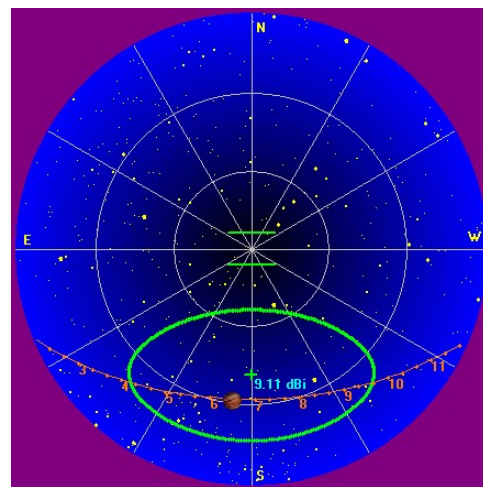
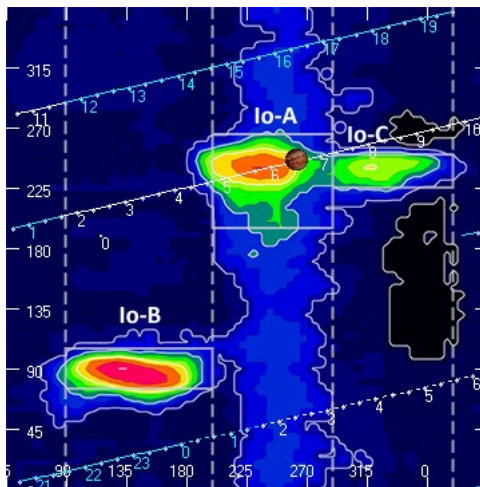
* Used for testing and evaluating antenna systems

Software Radio Sky Spectrograph 2.8.50

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Beginning of Pass



End of Pass

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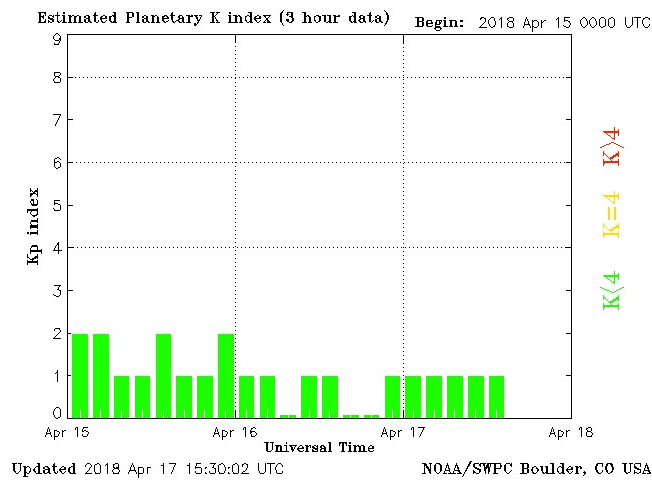


MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360	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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A center pass storm and the best storm observed from this location season. There were many indications of scintillation. Scintillation became more pronounced as the storm progressed, and very prominent @ 0524 UT.

L-bursts were seen with the strongest recorded at 125 kK at 0601 UT measured with a calibrated Jove receiver at 20.1 MHz with the TFD array. No S-bursts evident.

L4 modulation lanes from beginning through the end of the pass.

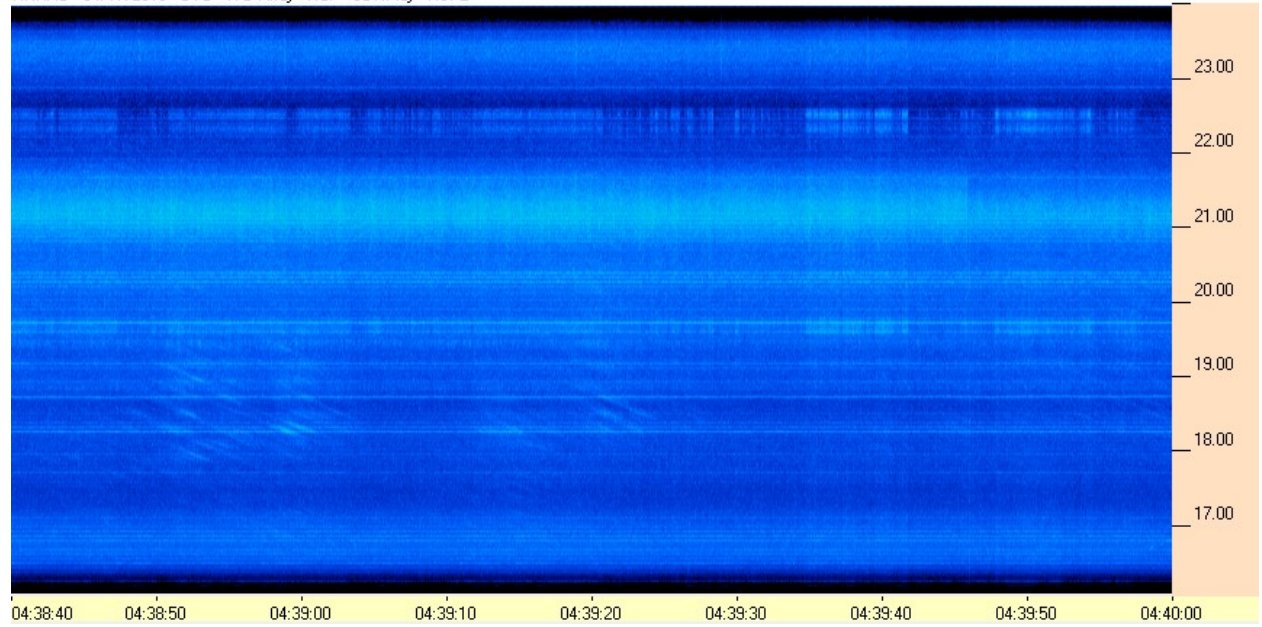
EOR

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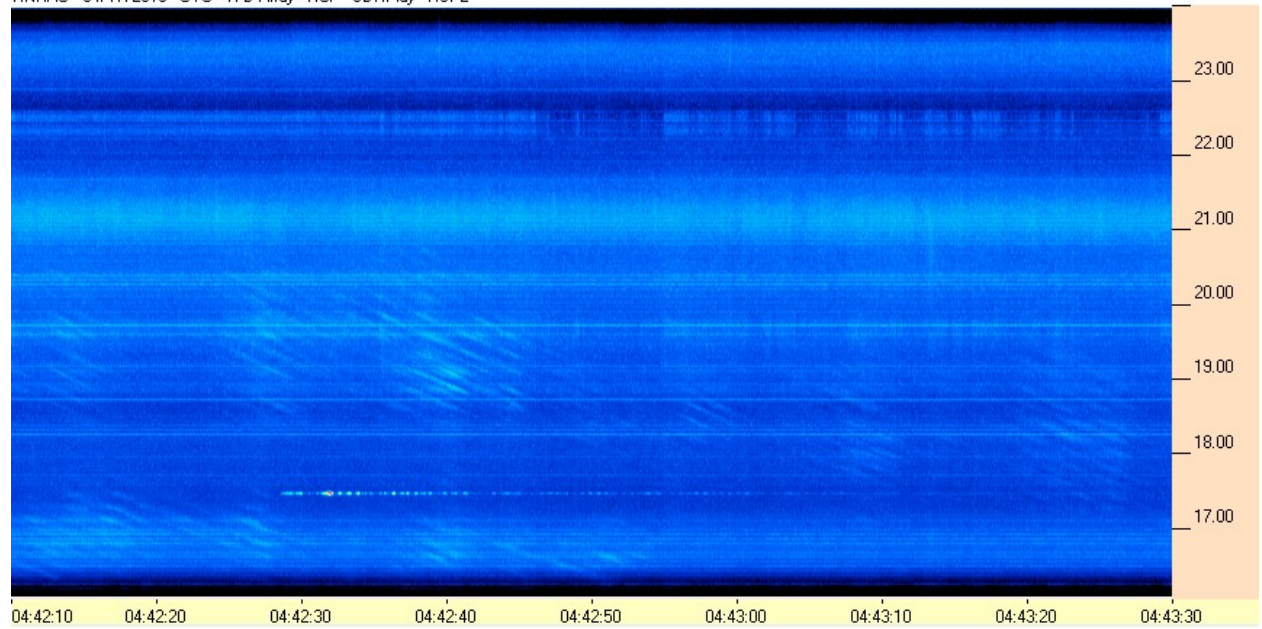


SDRPlay RSP2 / TFD Array

HNRAO - 04/17/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



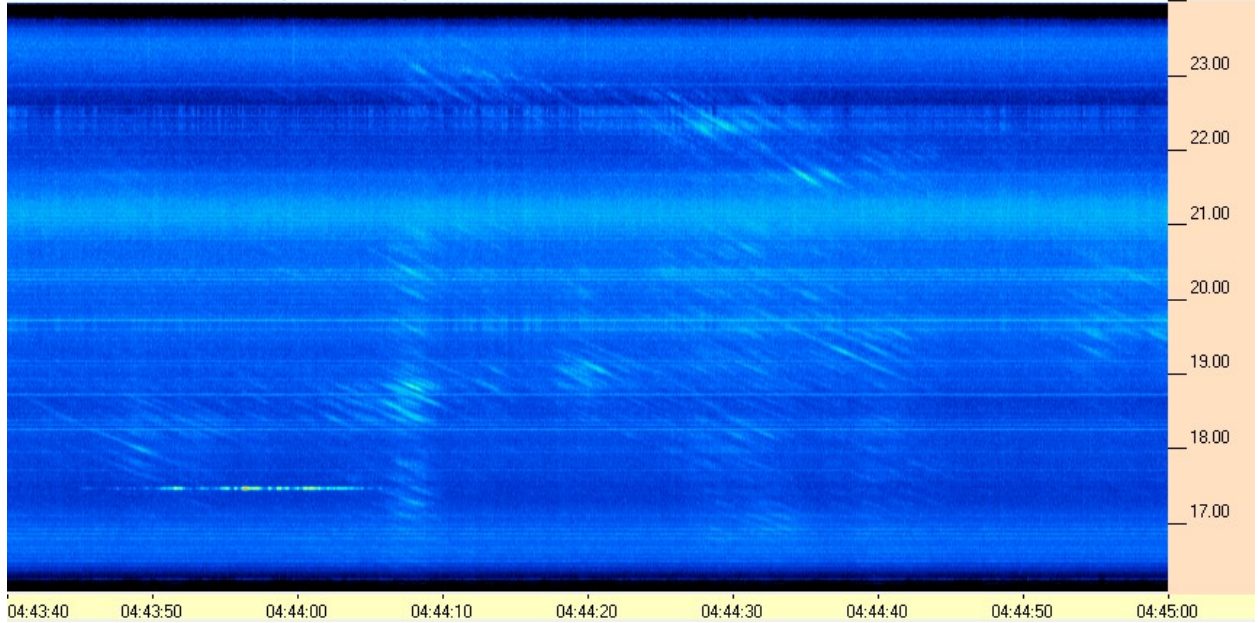
HNRAO - 04/17/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



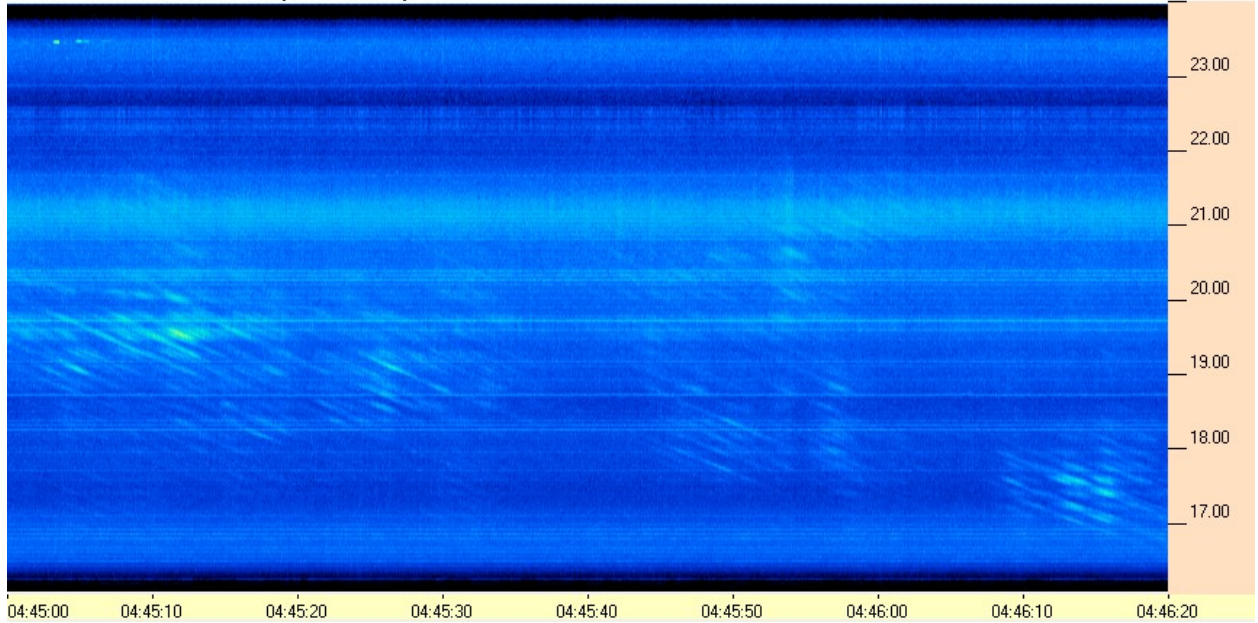
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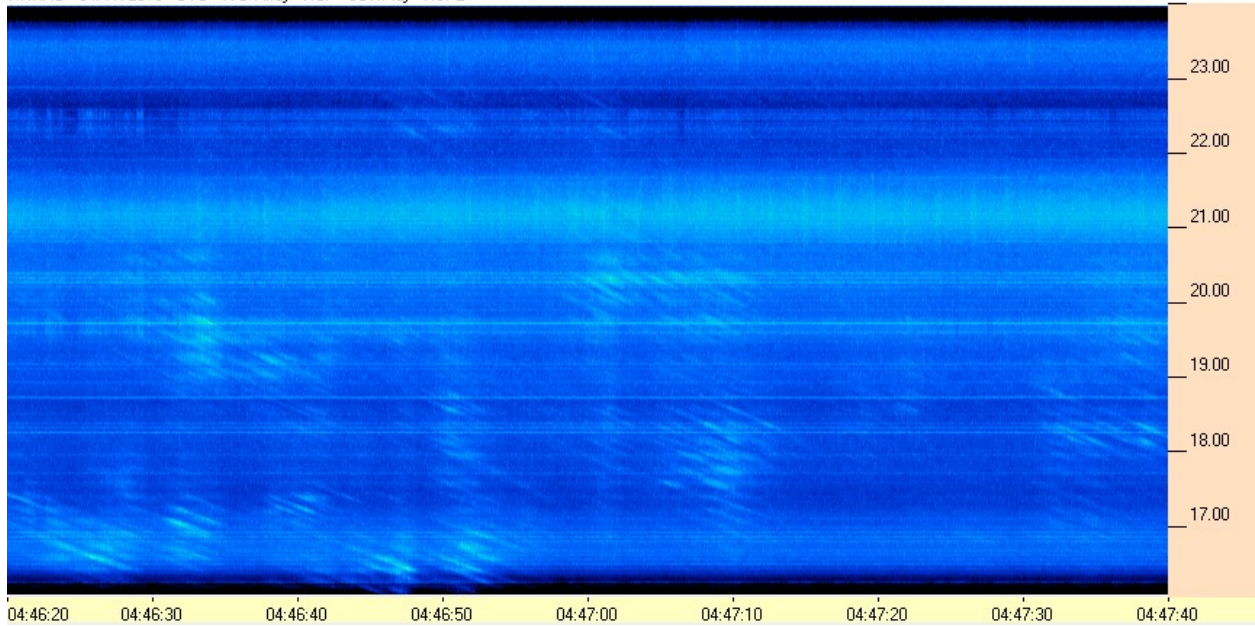
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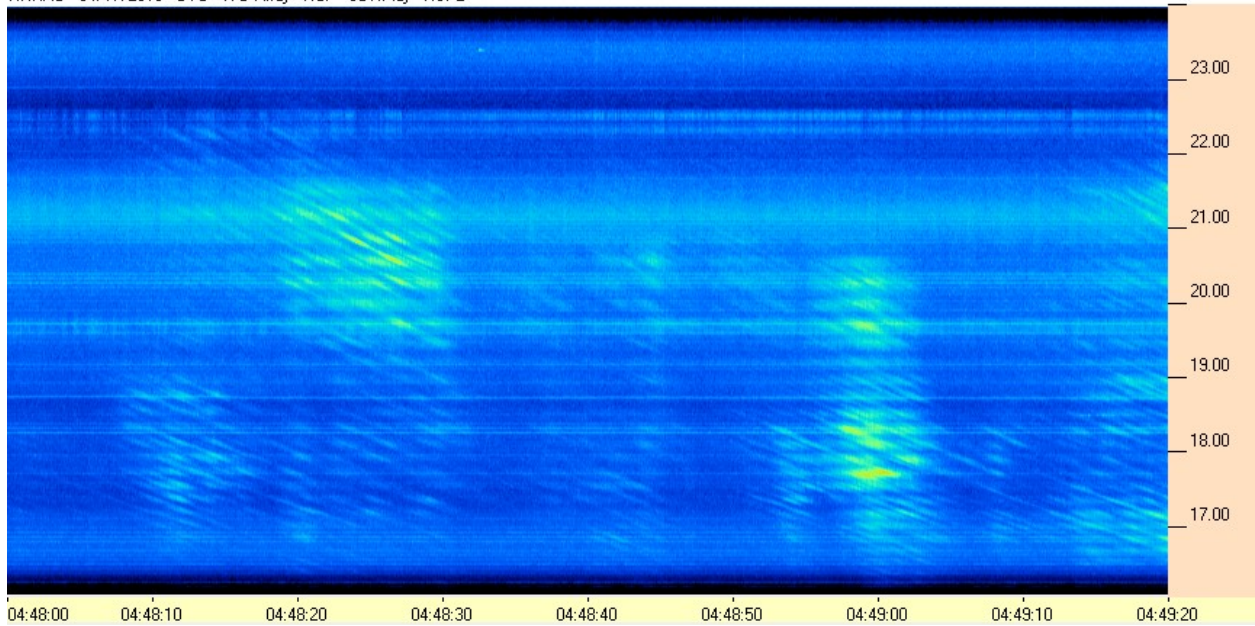
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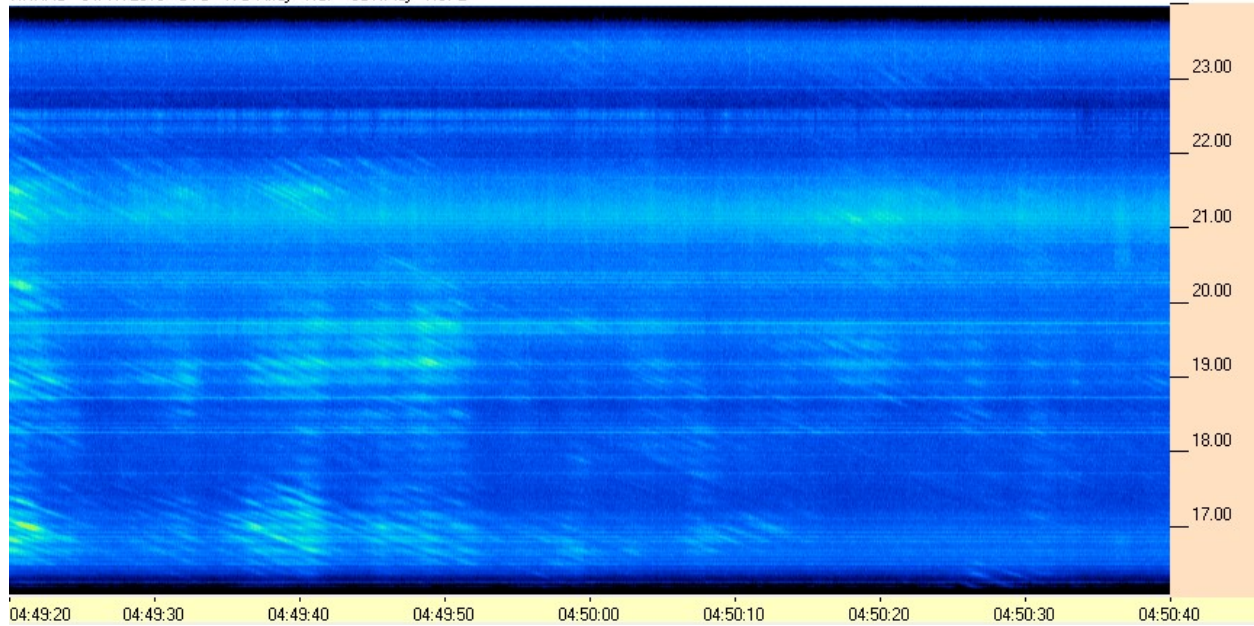
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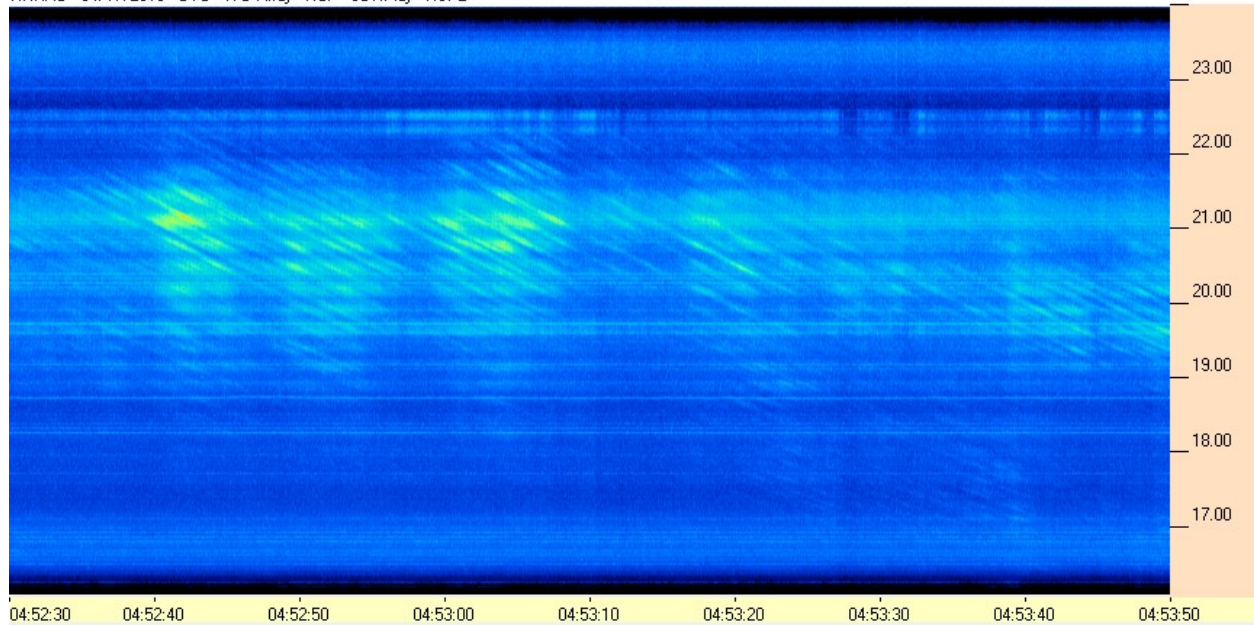
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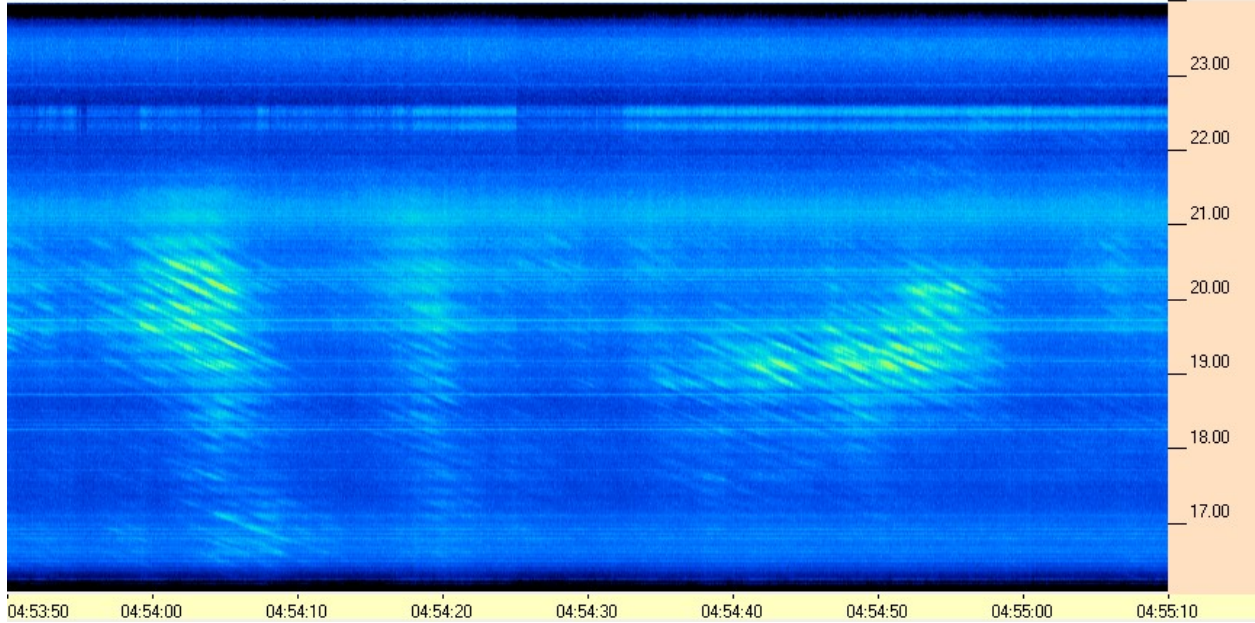
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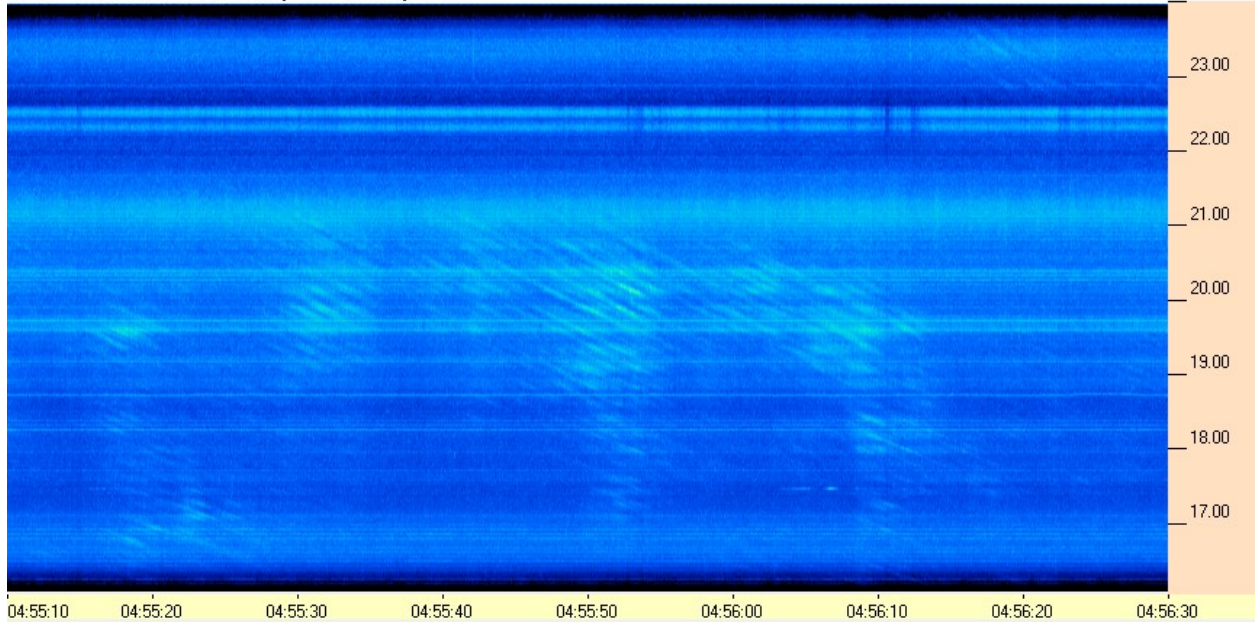
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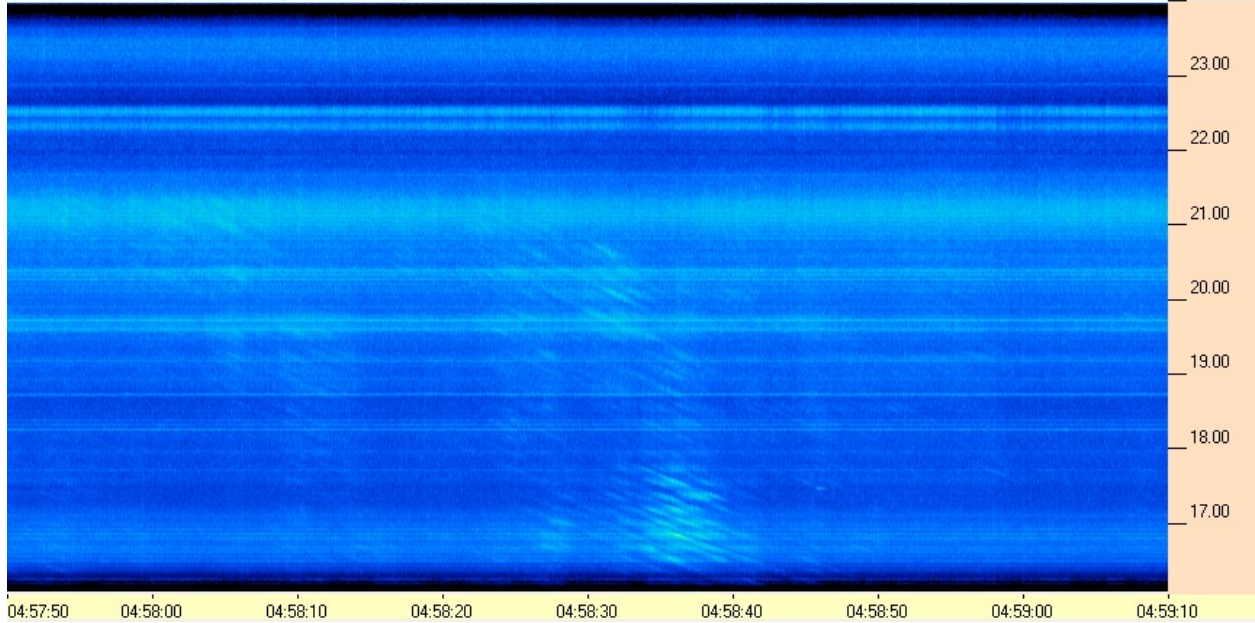
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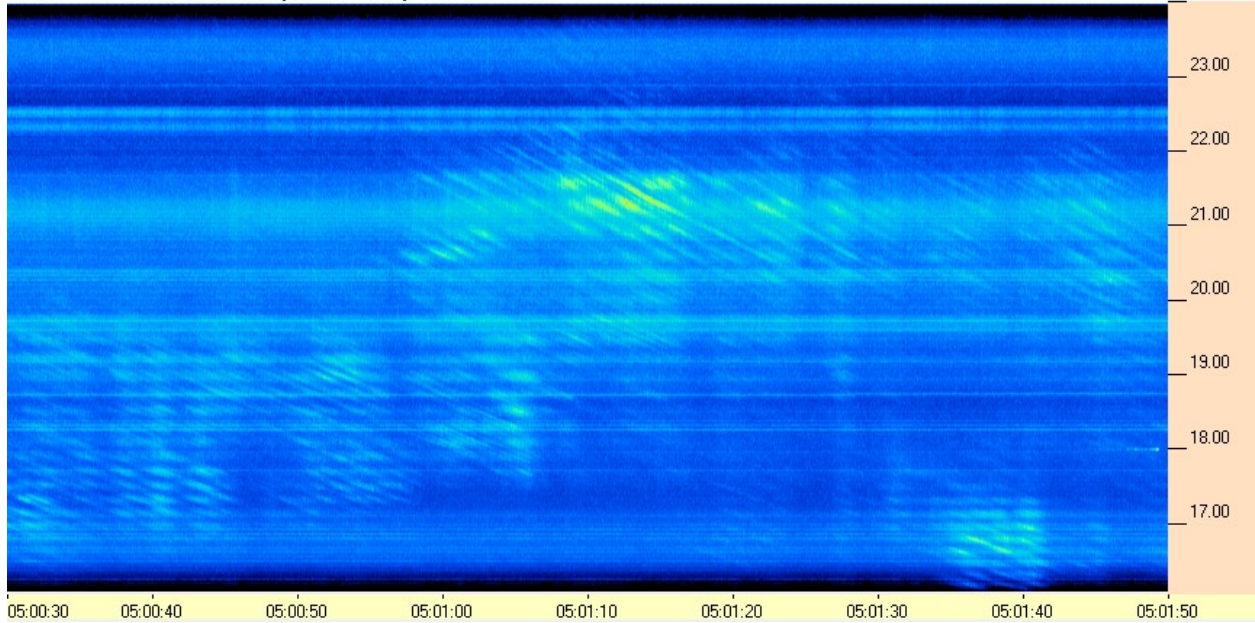
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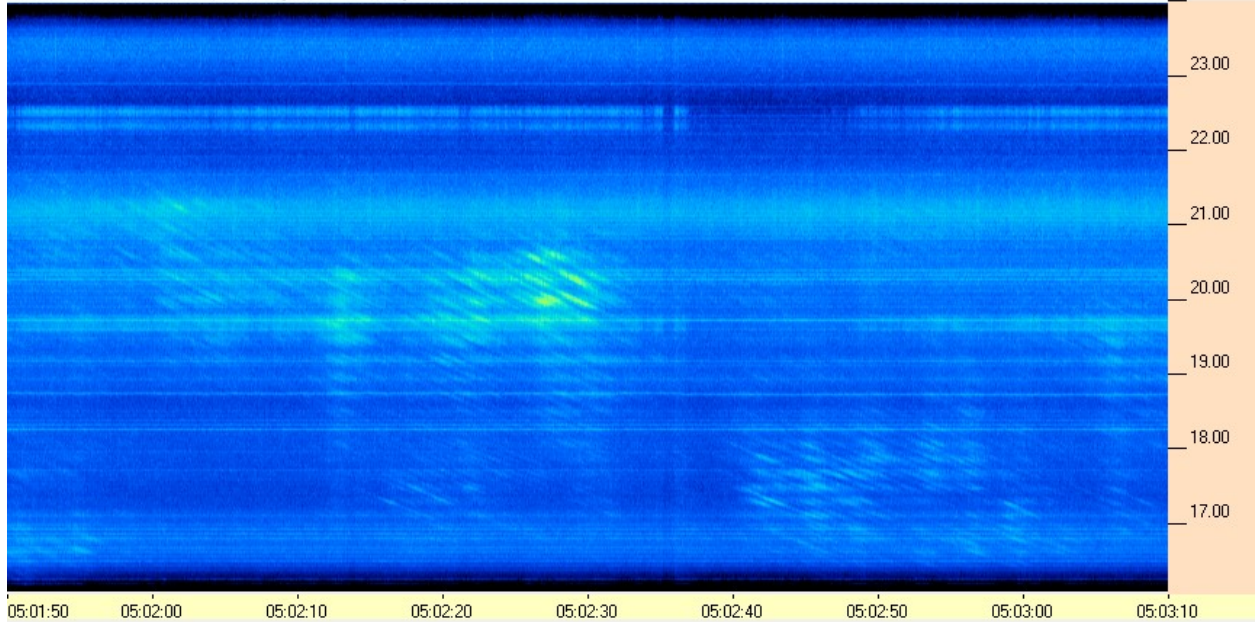
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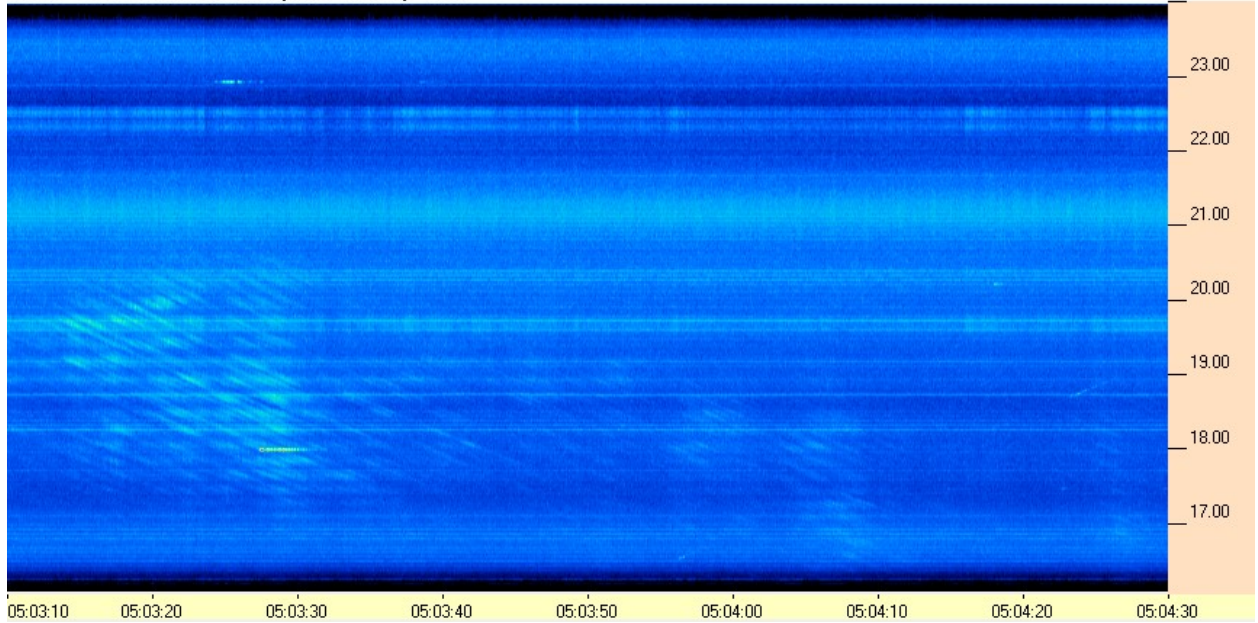
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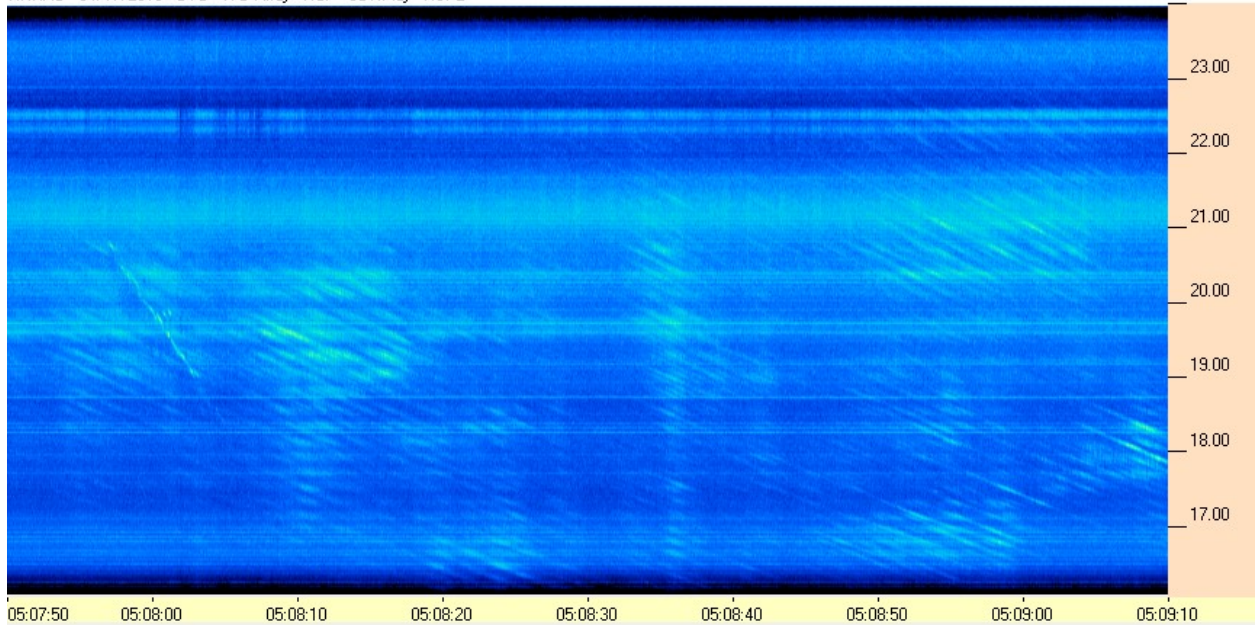
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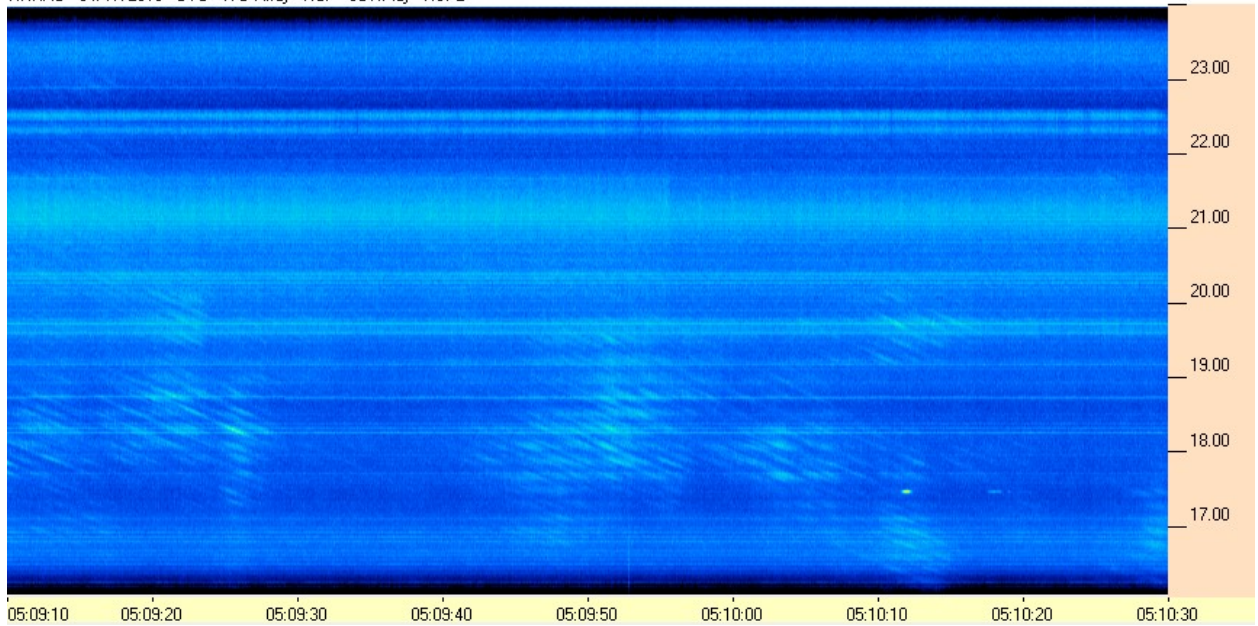
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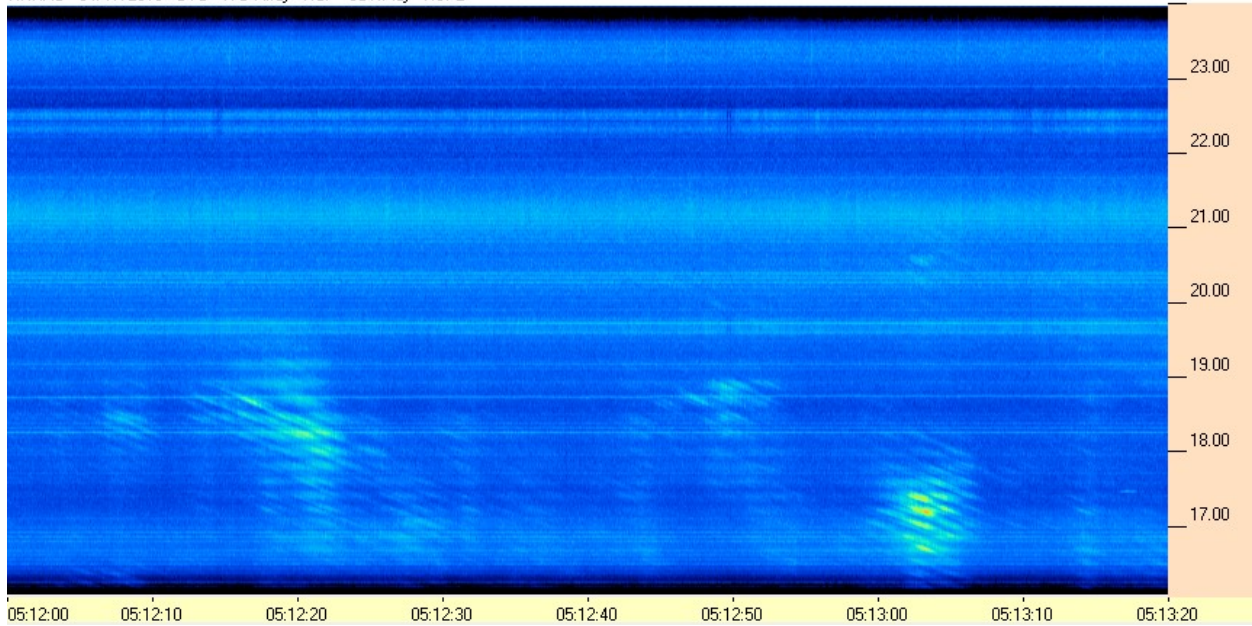
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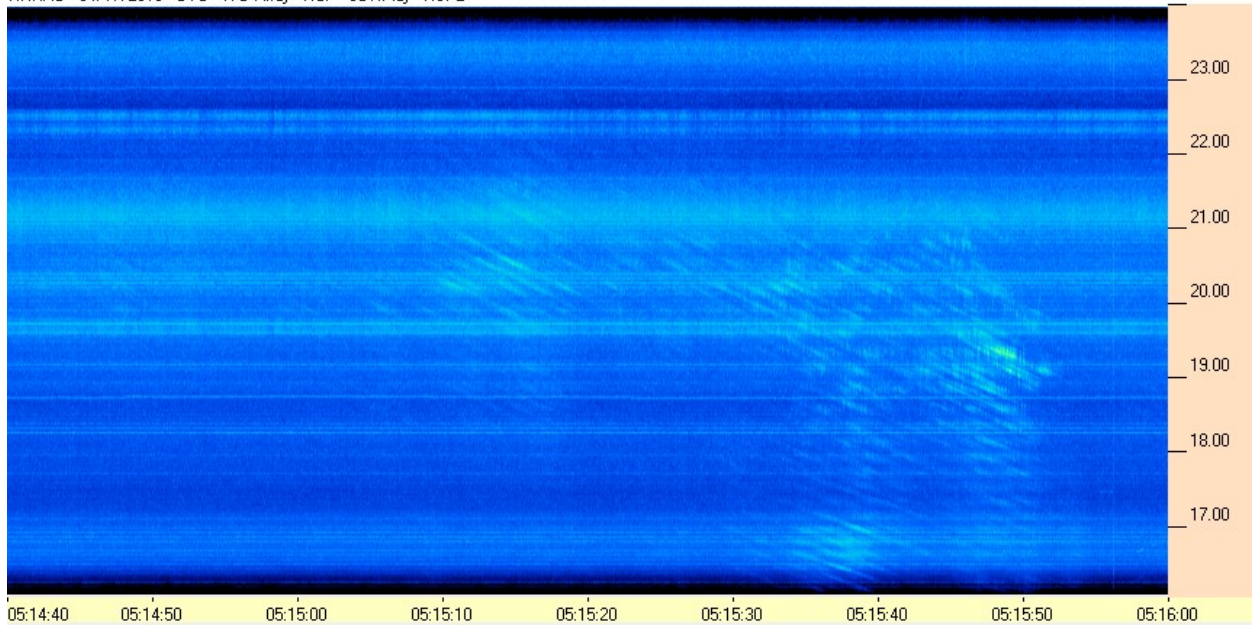
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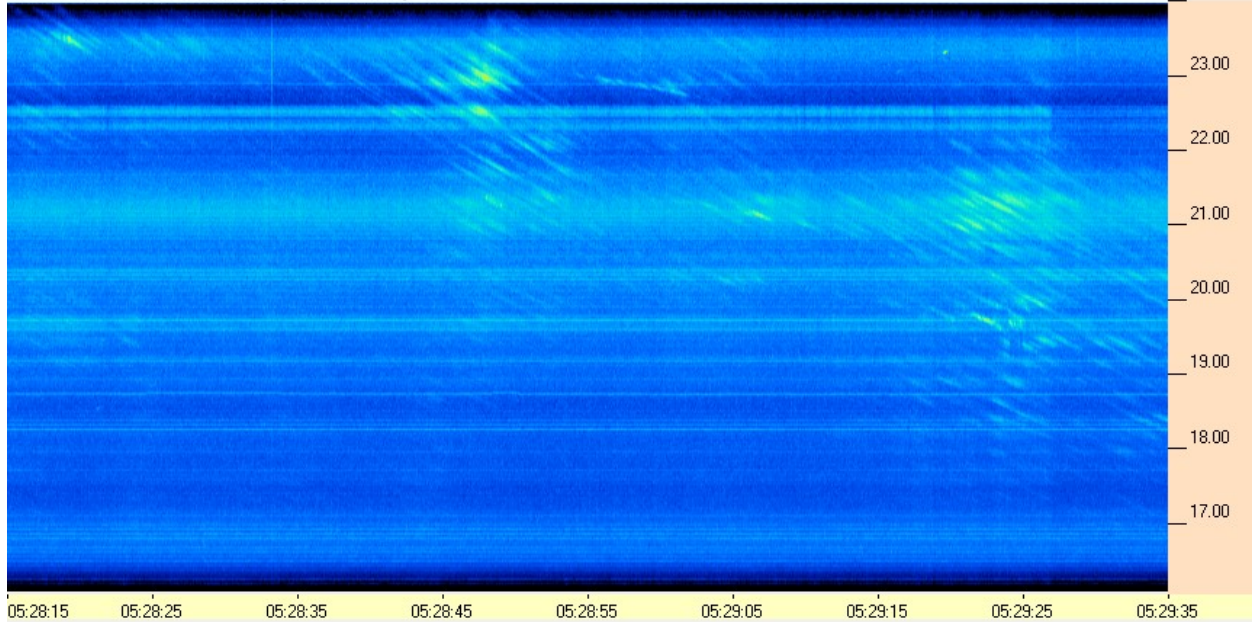
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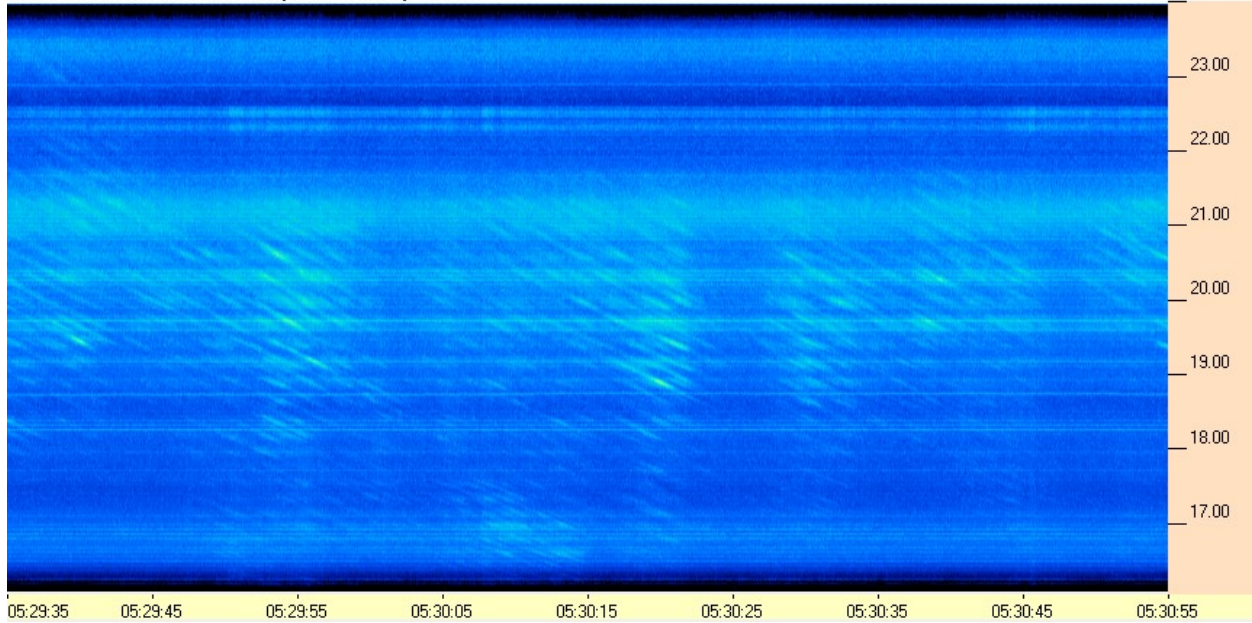
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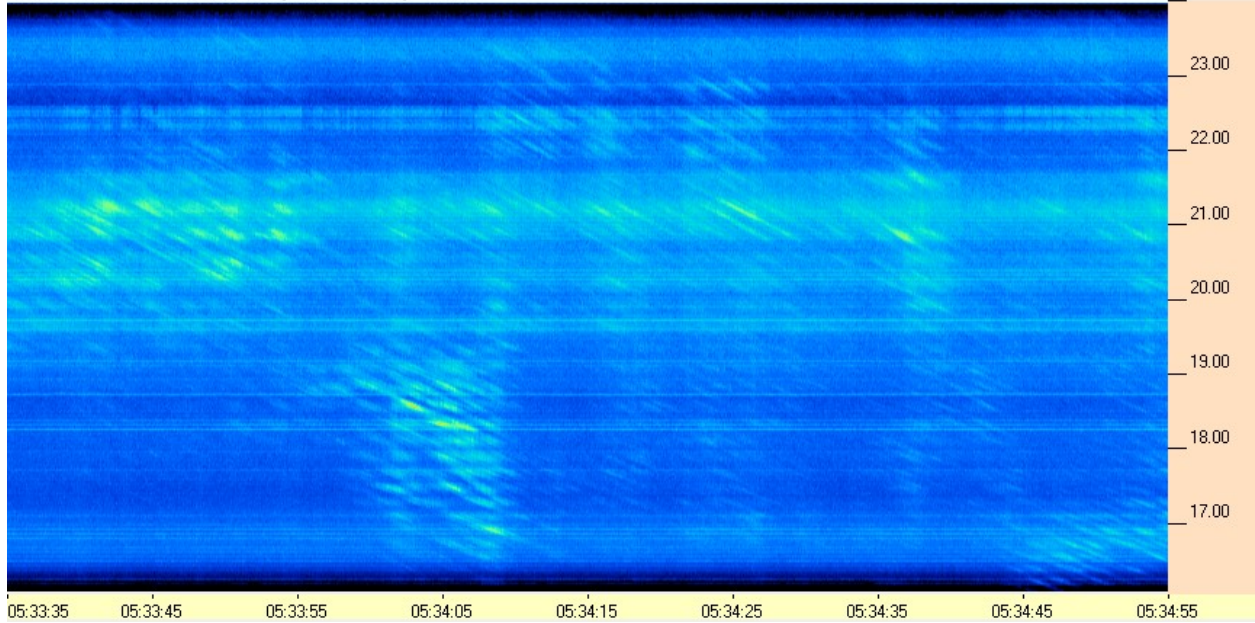
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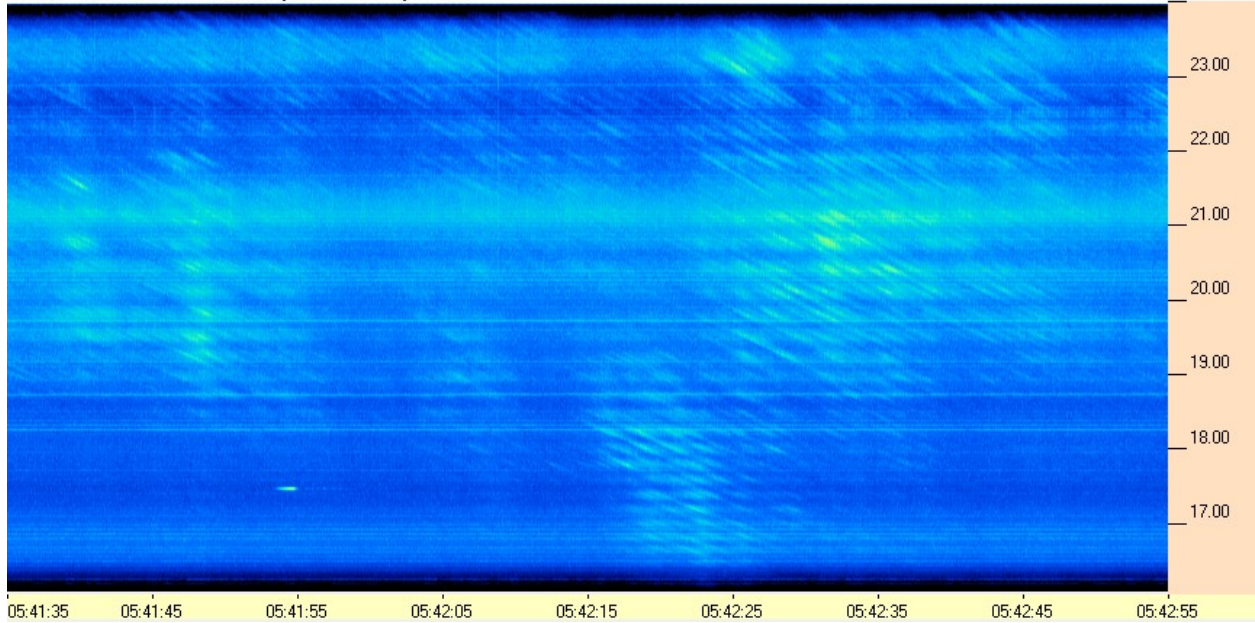
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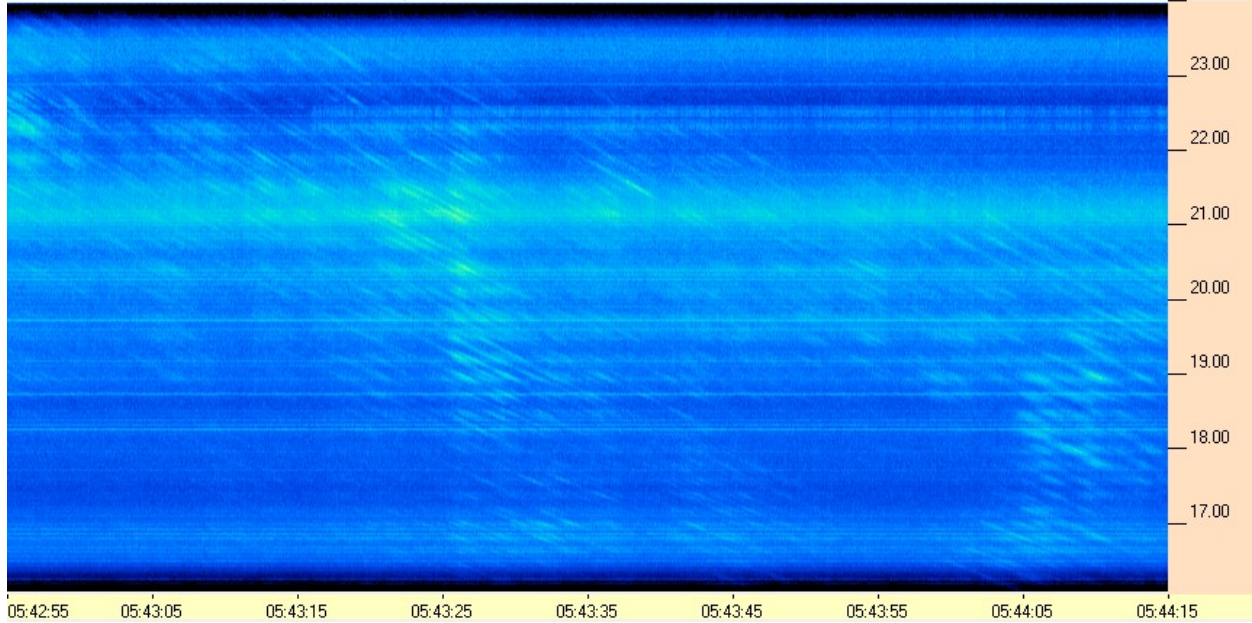
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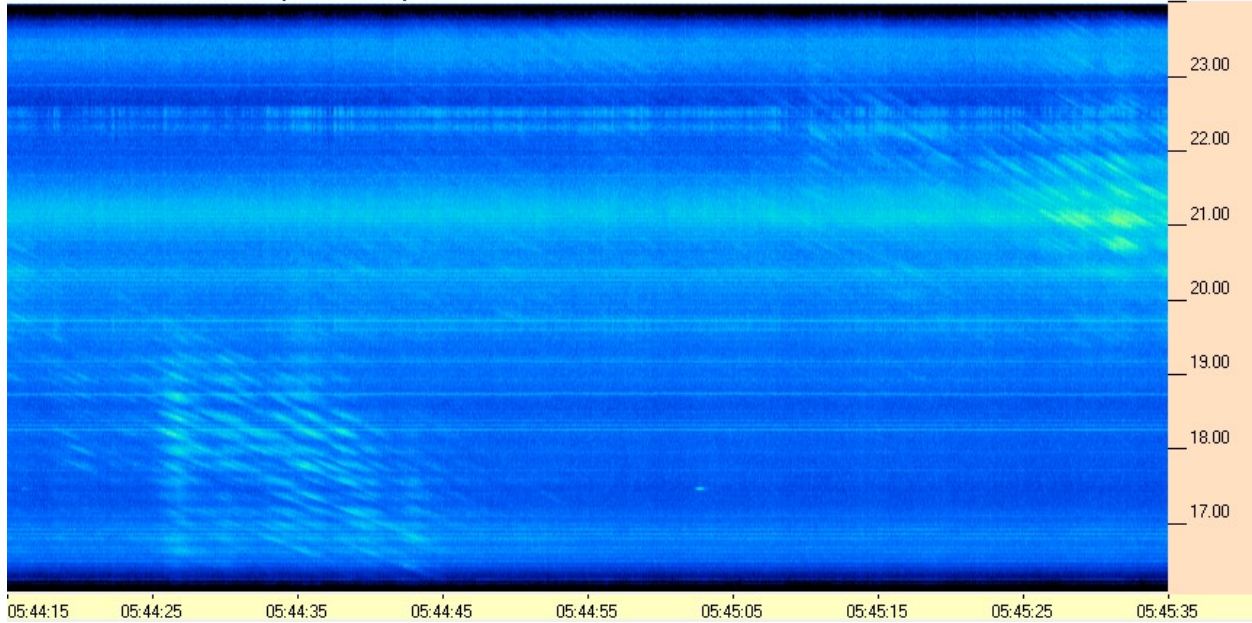
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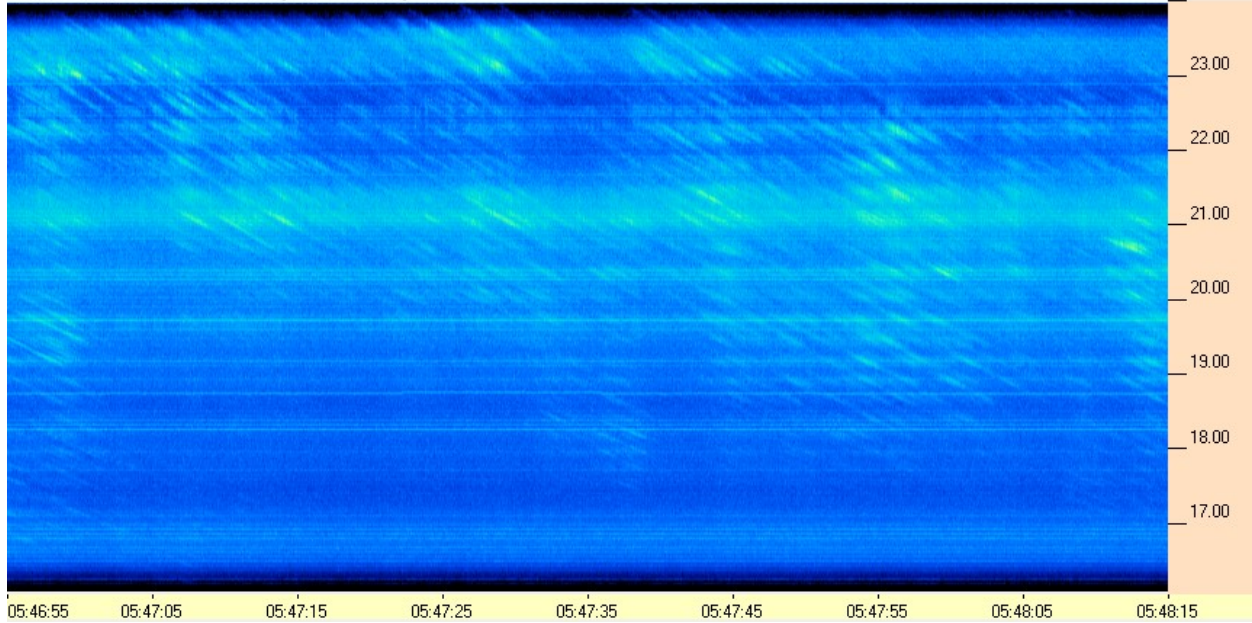
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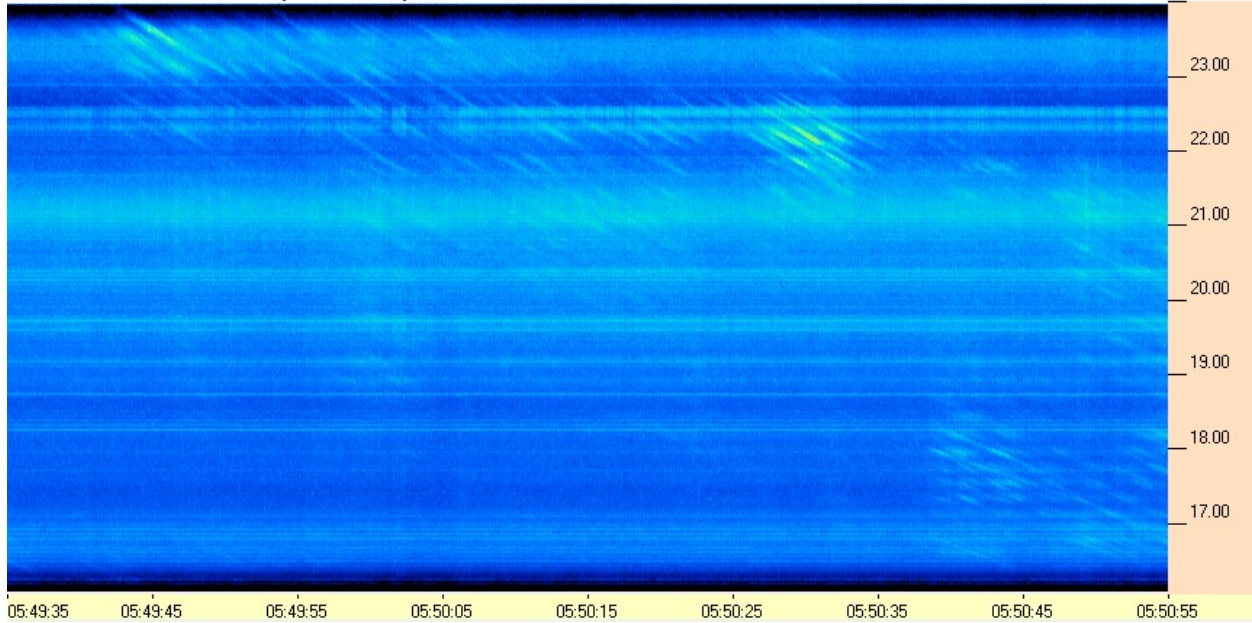
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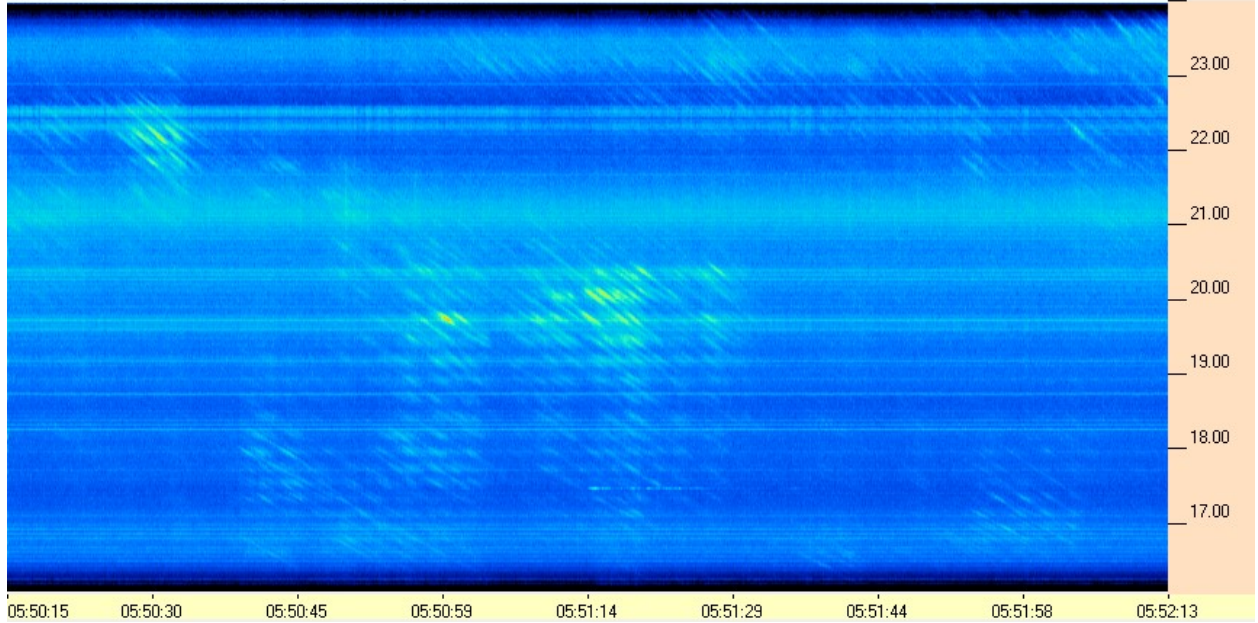
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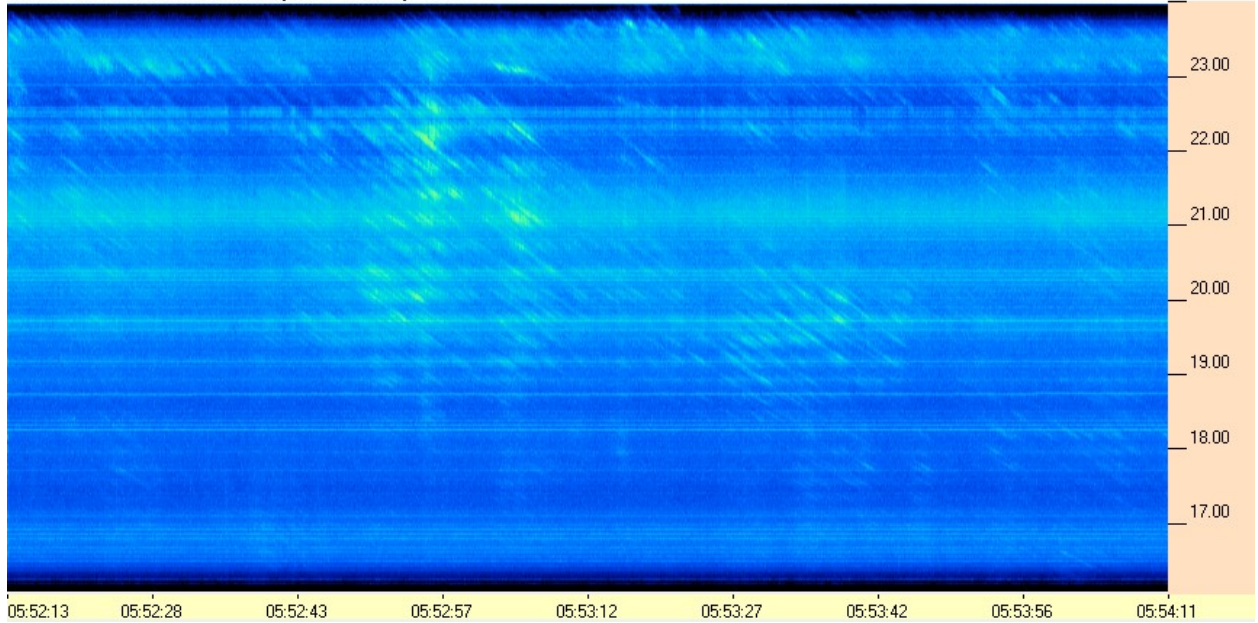
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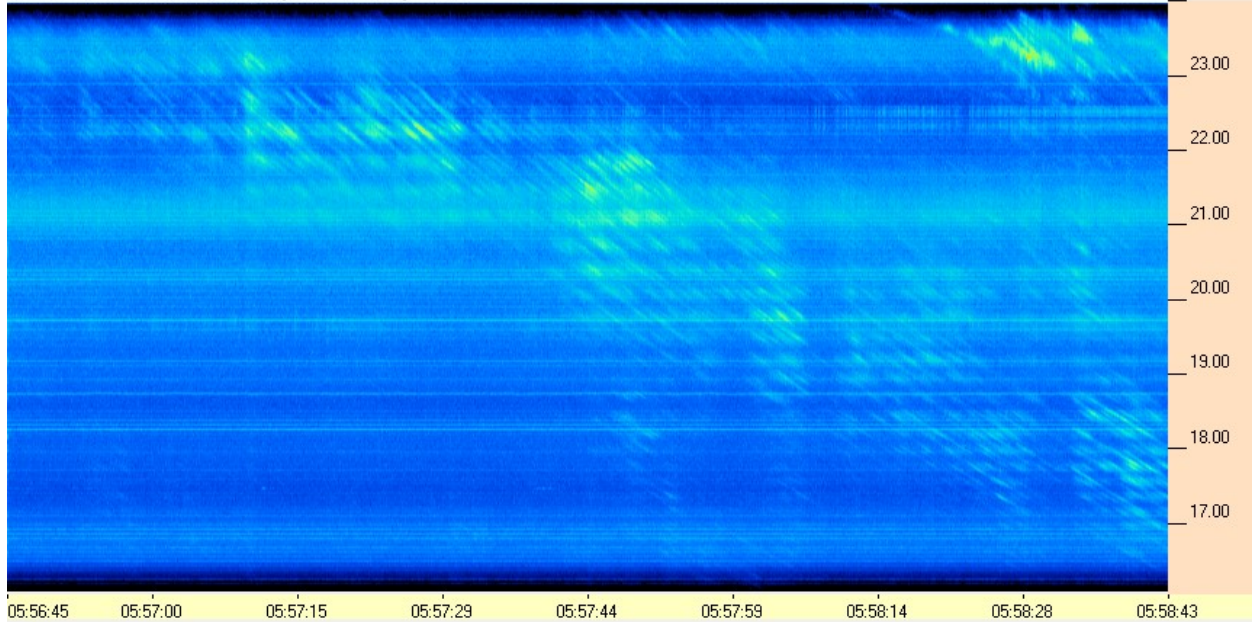
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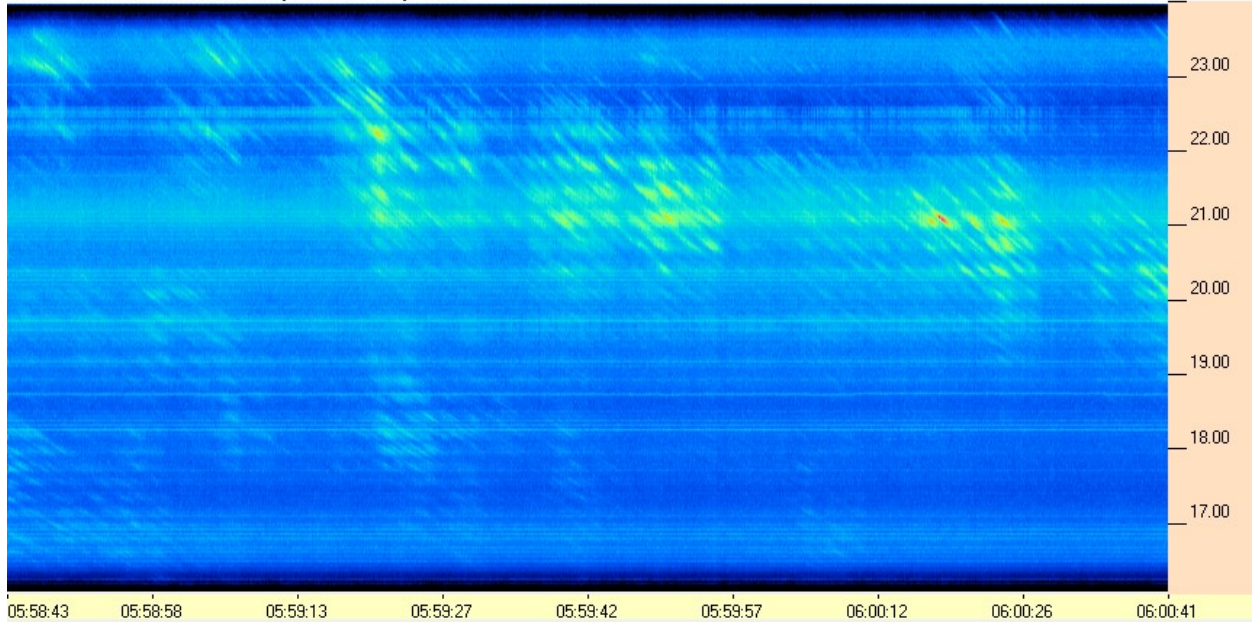
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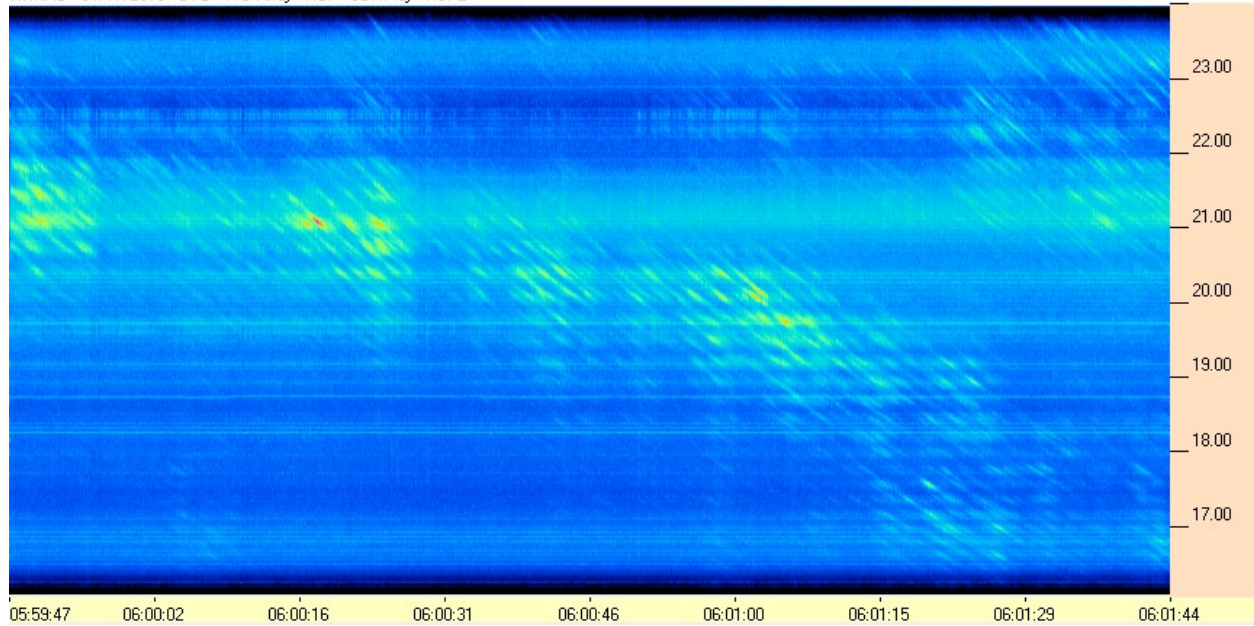
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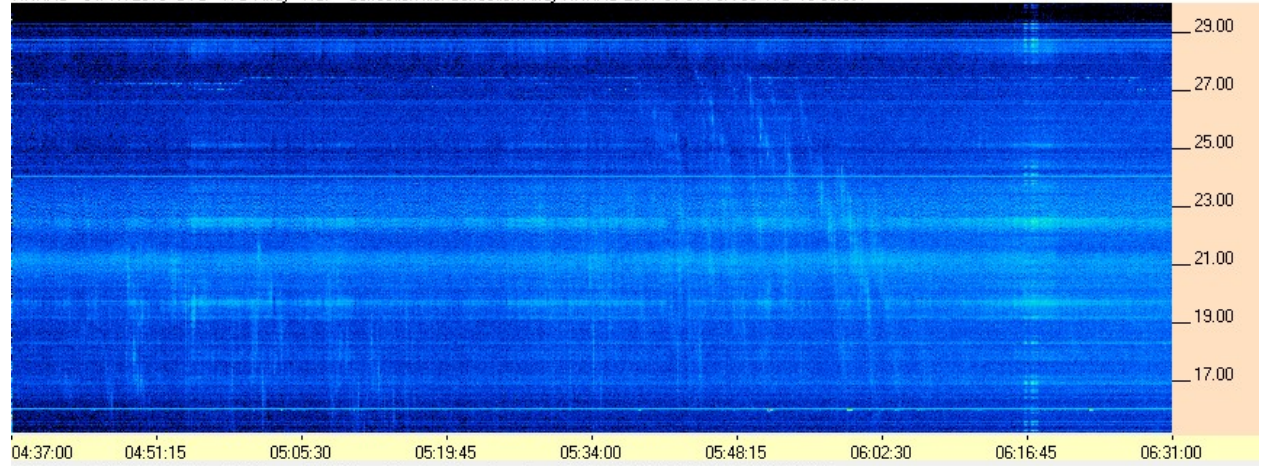


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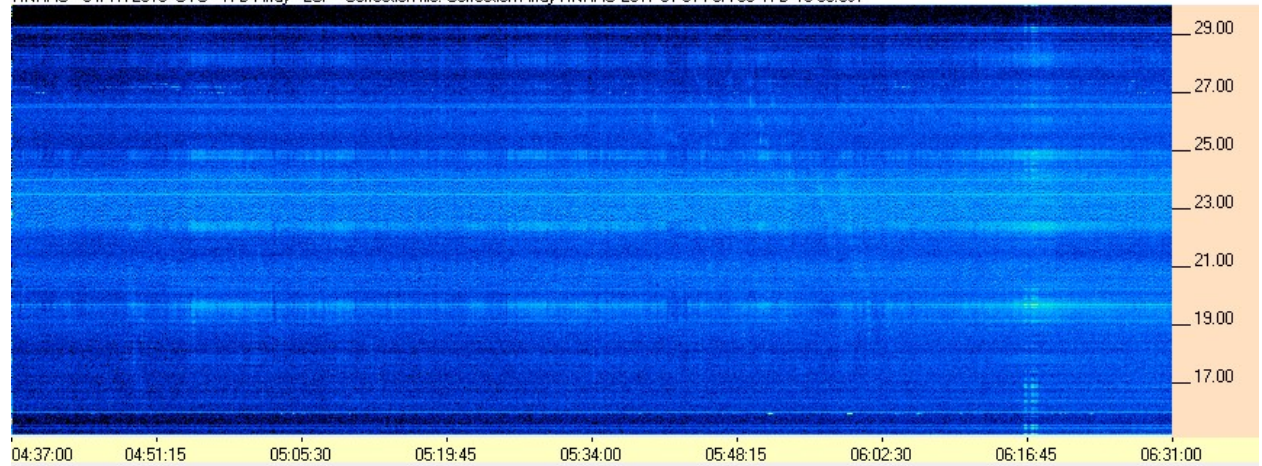


FSX-8S / TFD

HNRAO - 04/17/2018 UTC - TFD Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv



HNRAO - 04/17/2018 UTC - TFD Array - LCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv

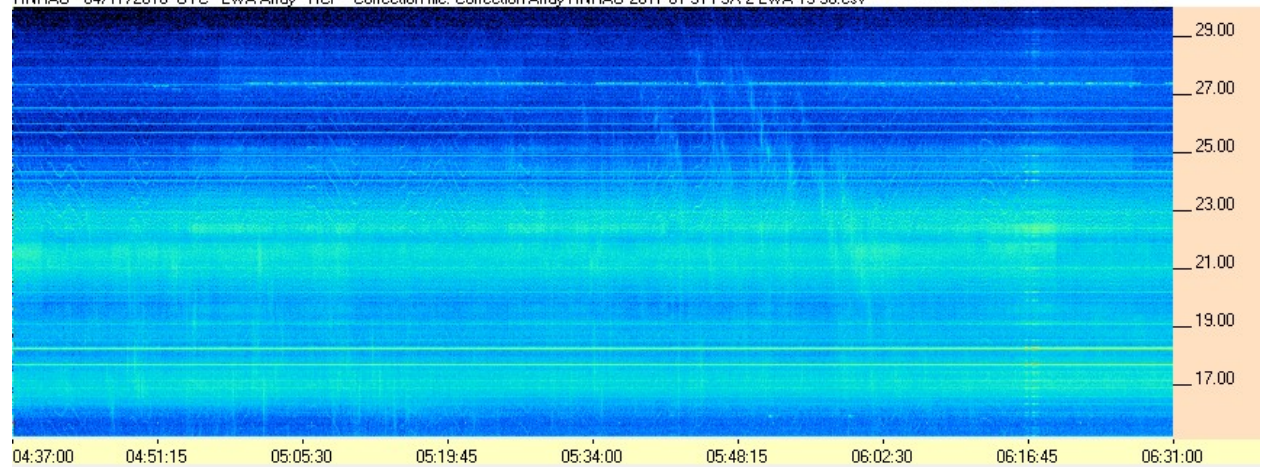


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FSX-2 / LWA

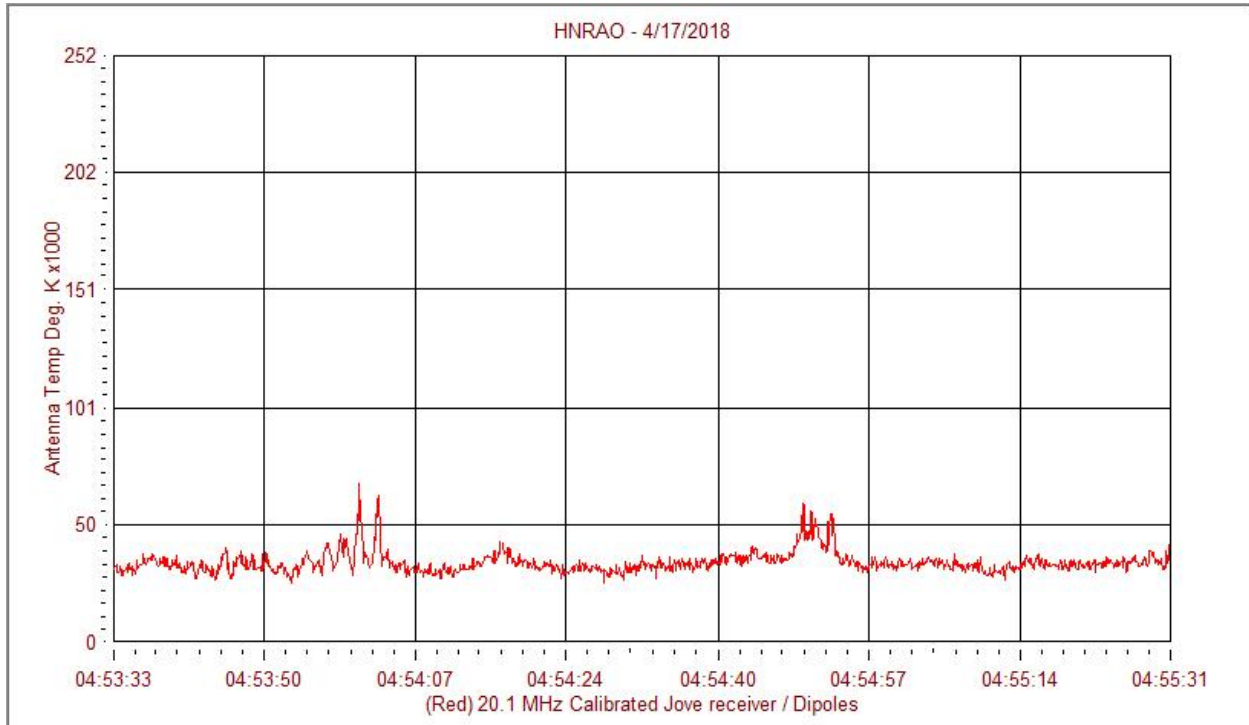
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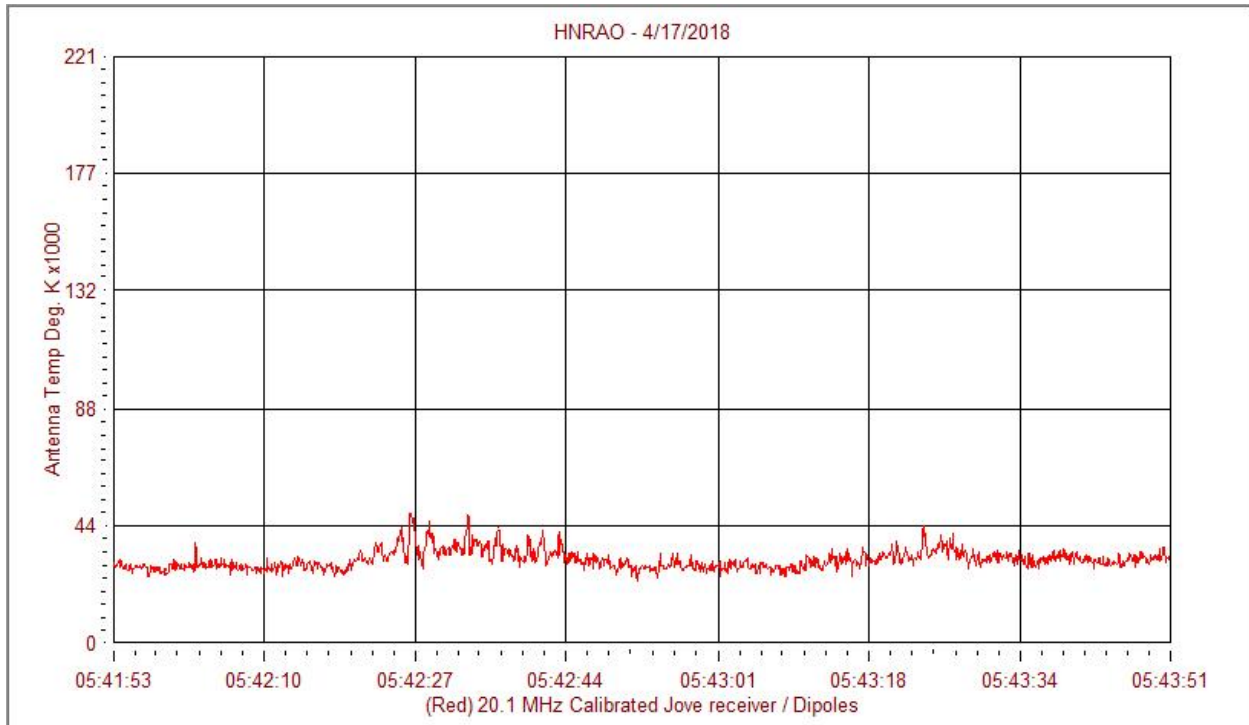
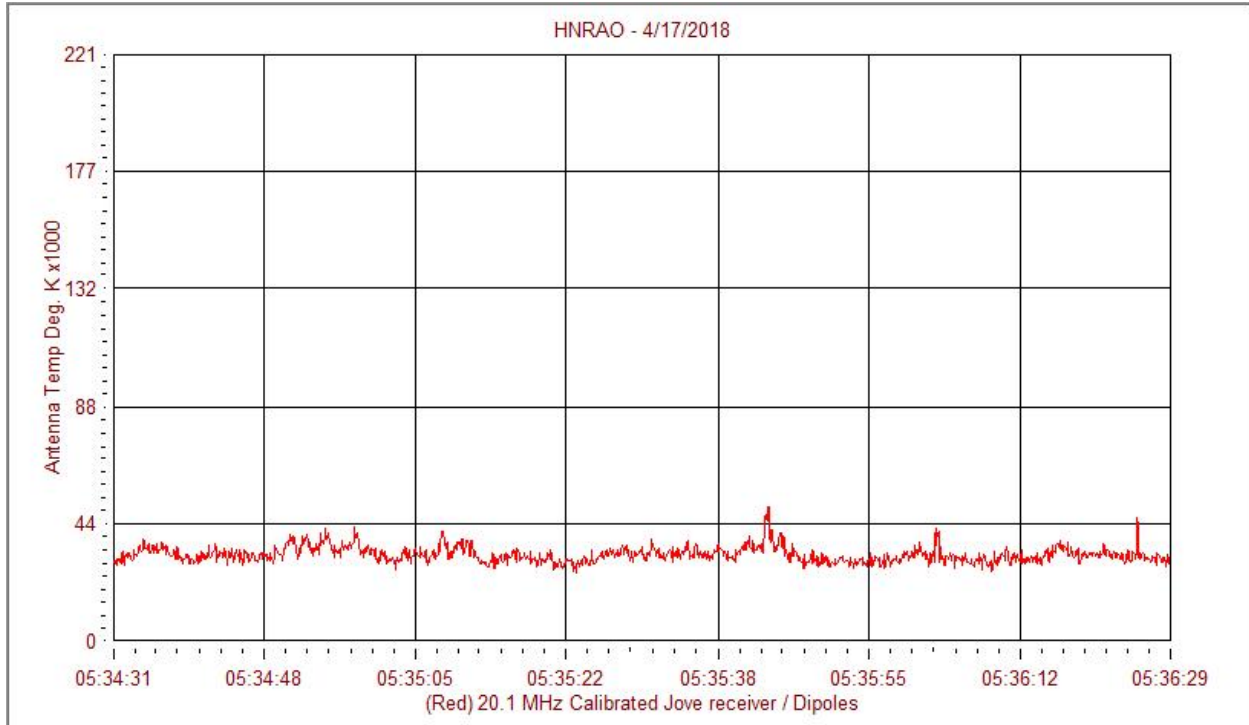
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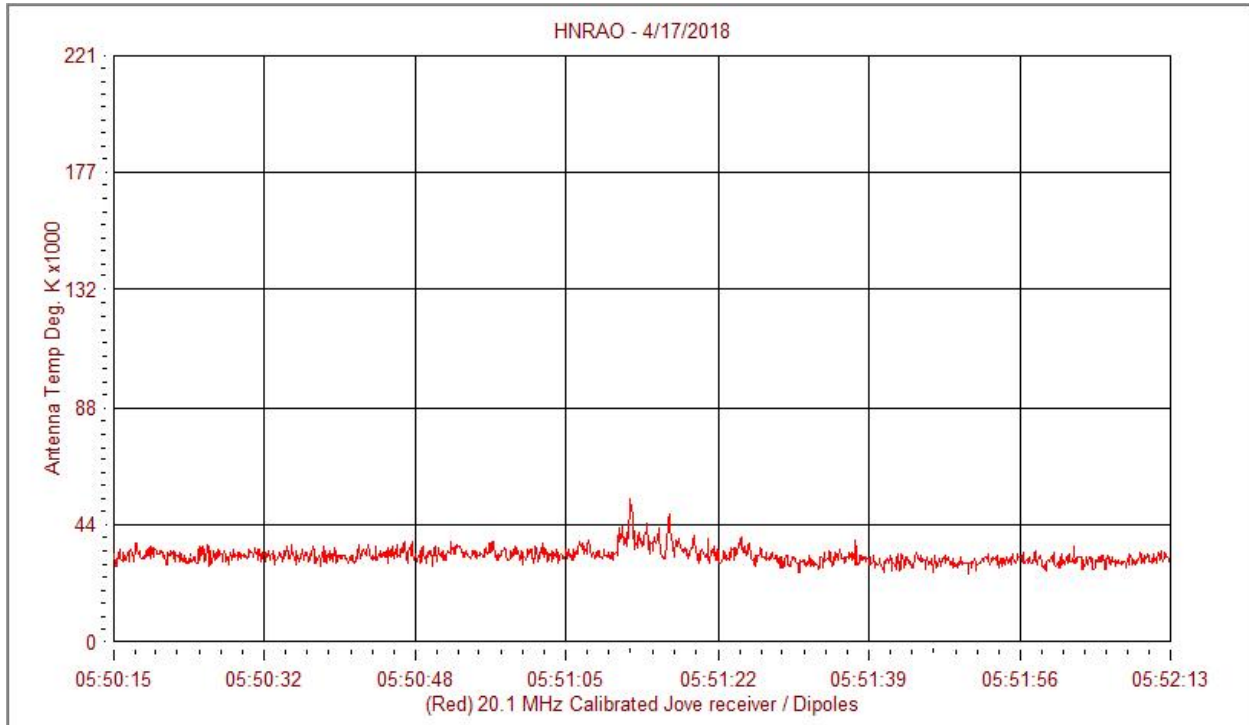
Jove II Receiver / JOVE Dipoles



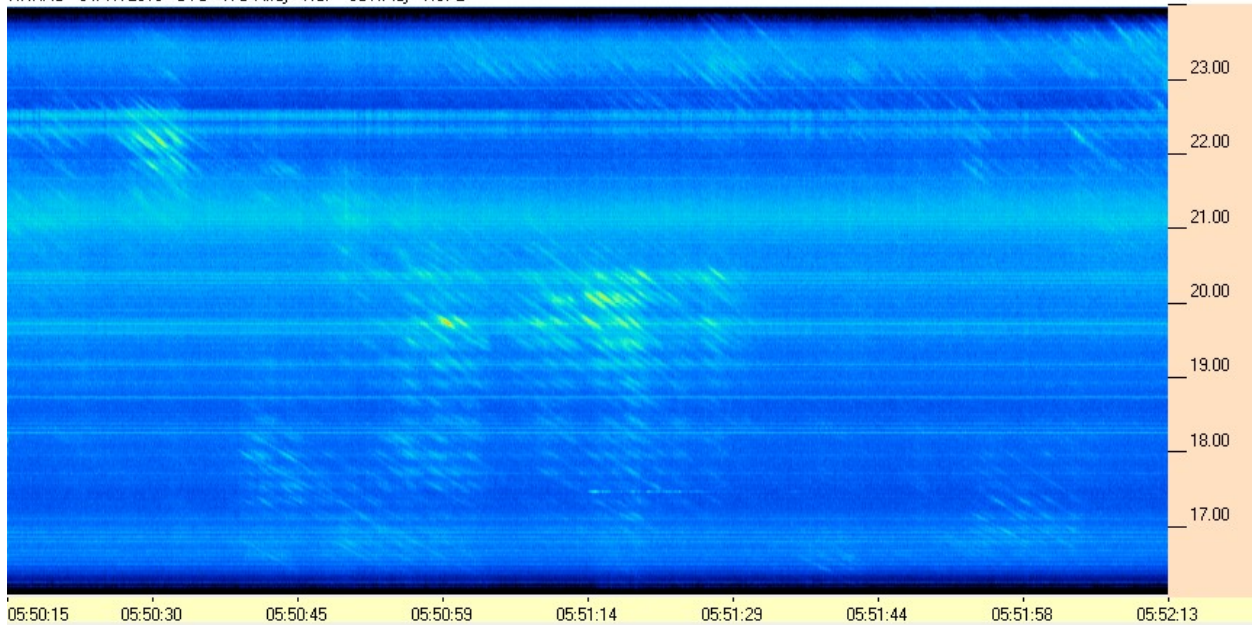
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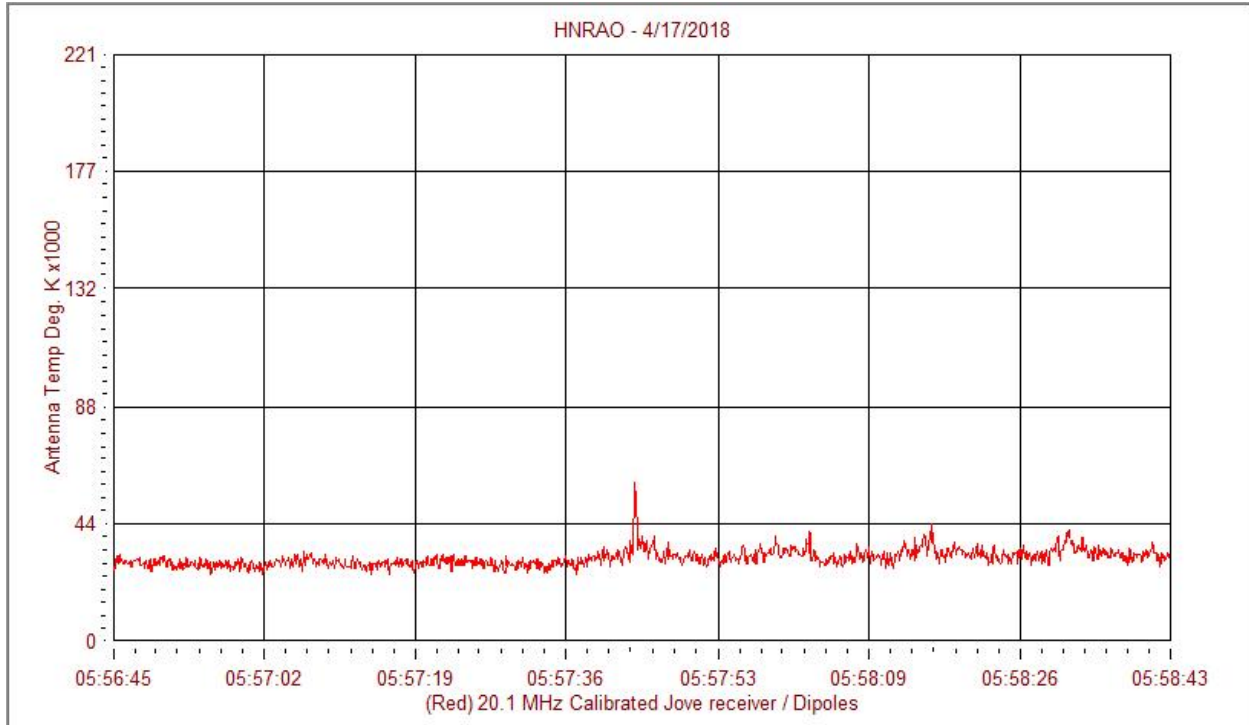
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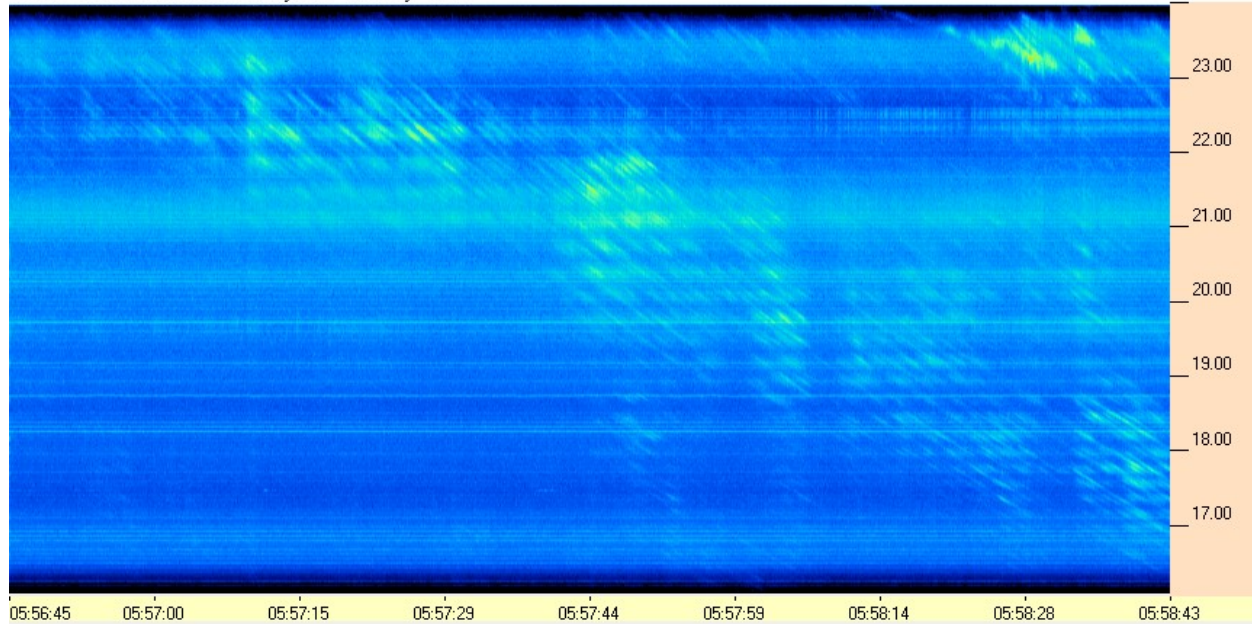
HNRAO - 04/17/2018 - UTC - TFD Array - RCP - SDRPlay - RSP2



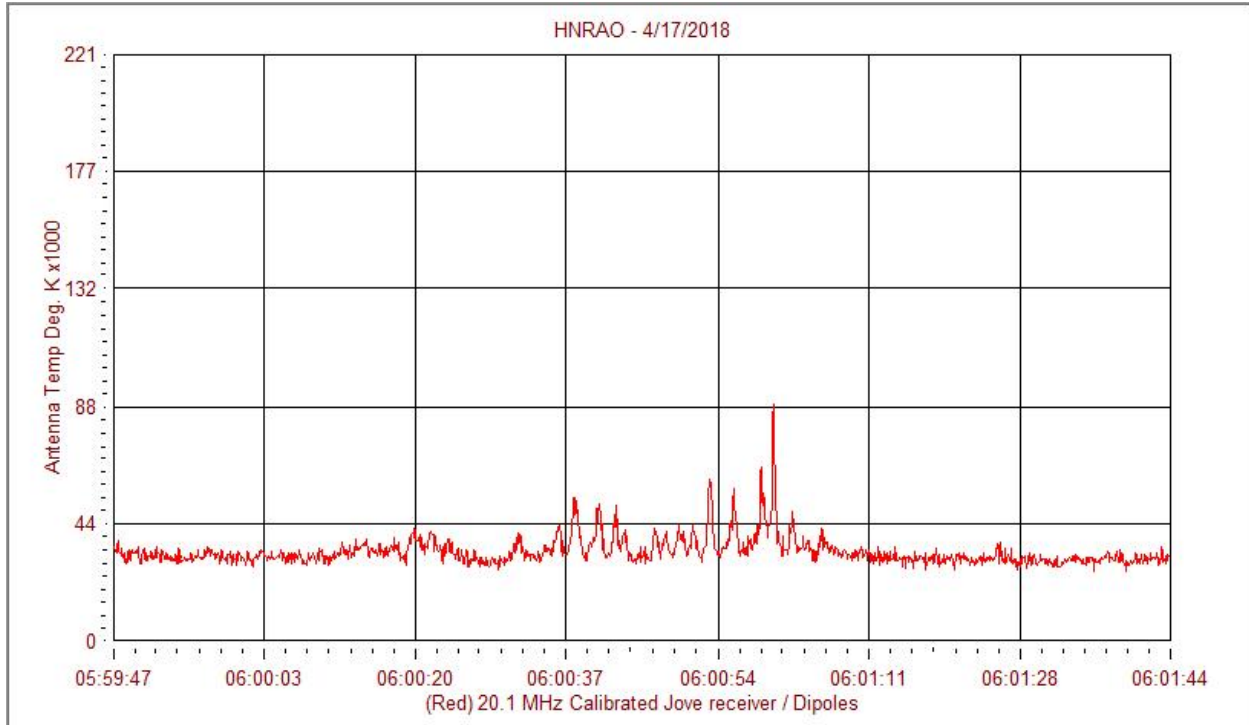
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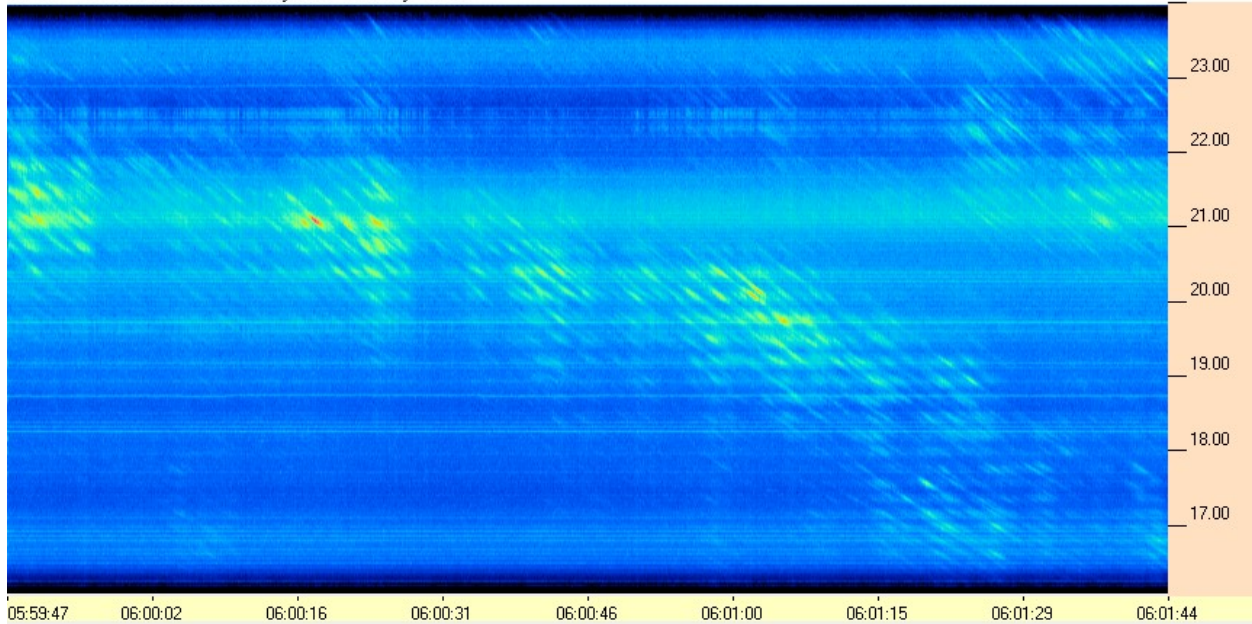
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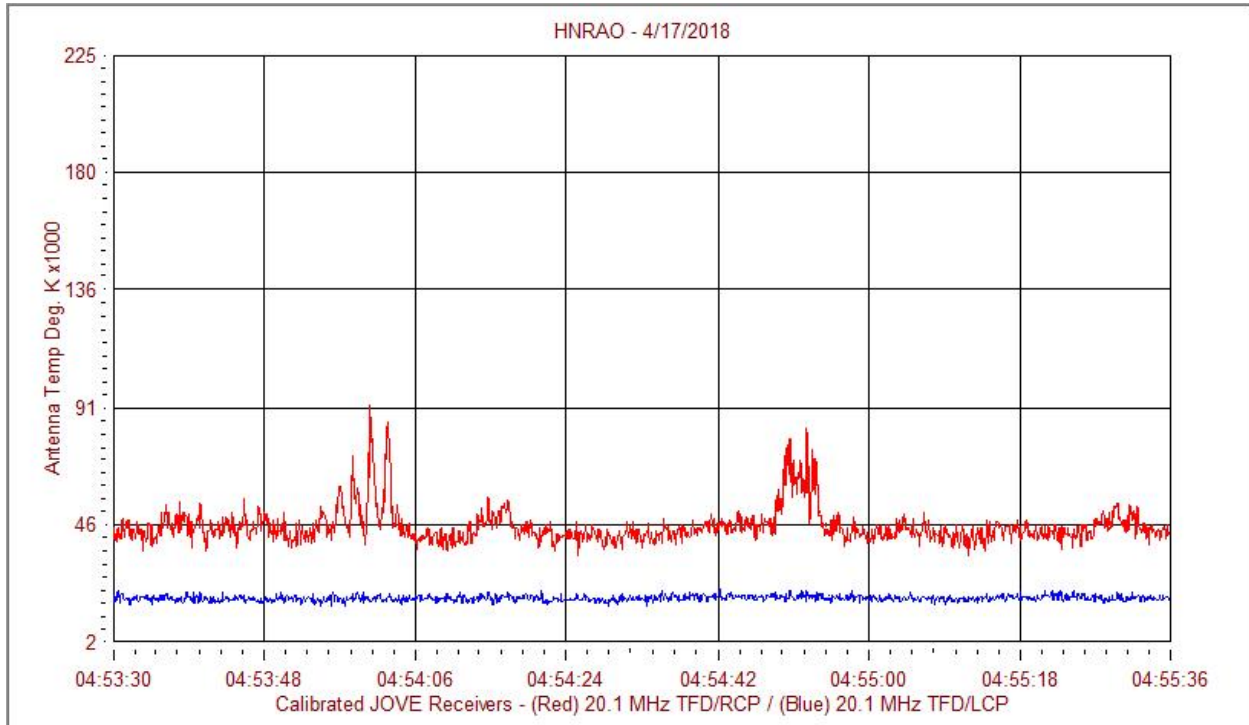
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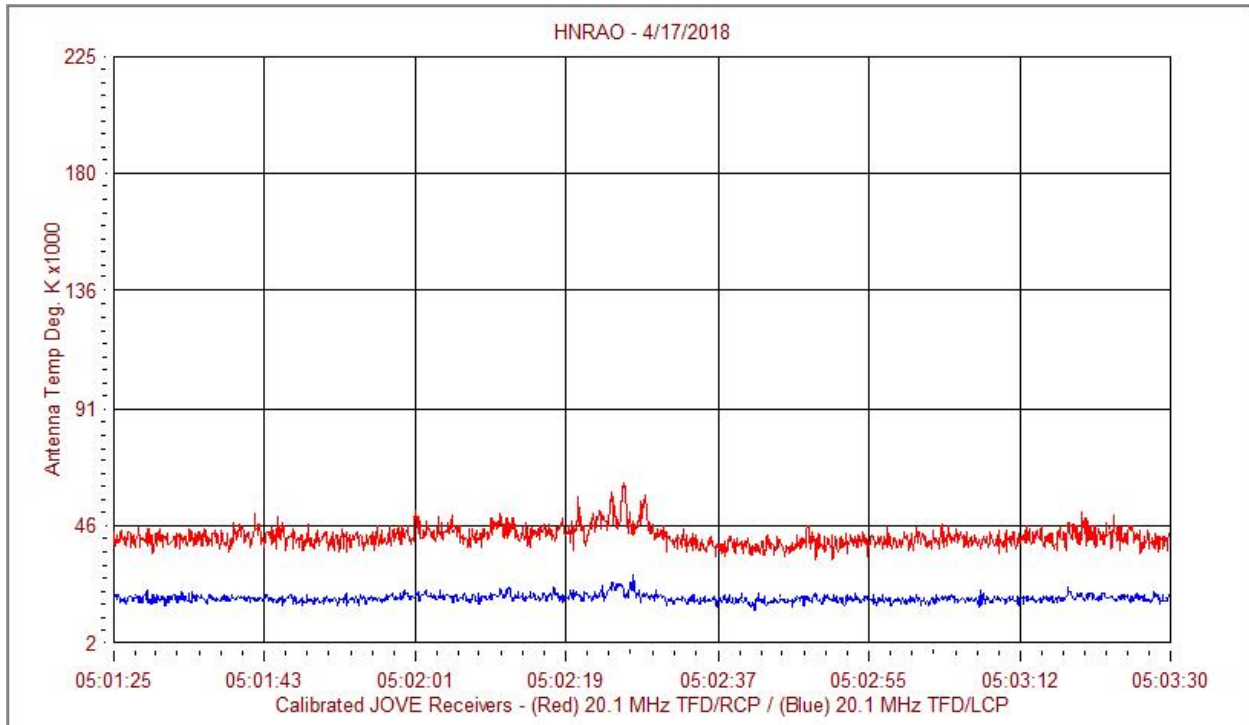
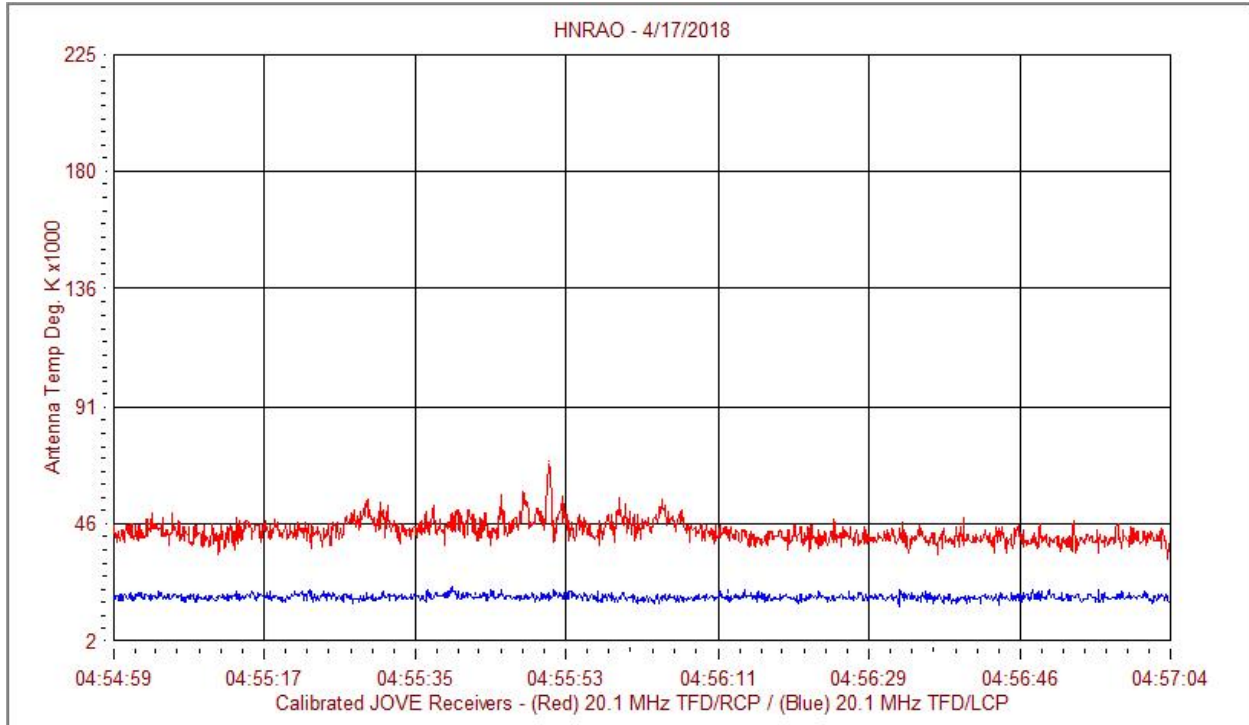
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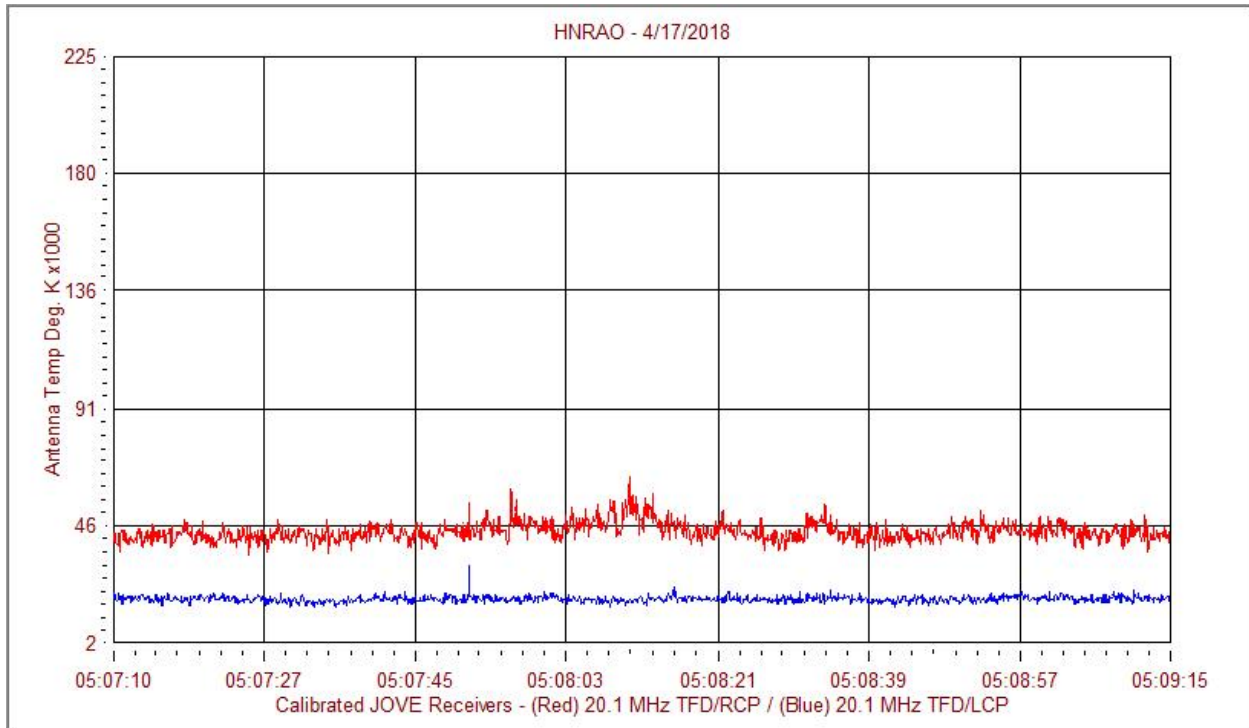
Jove Receivers / TFD Array



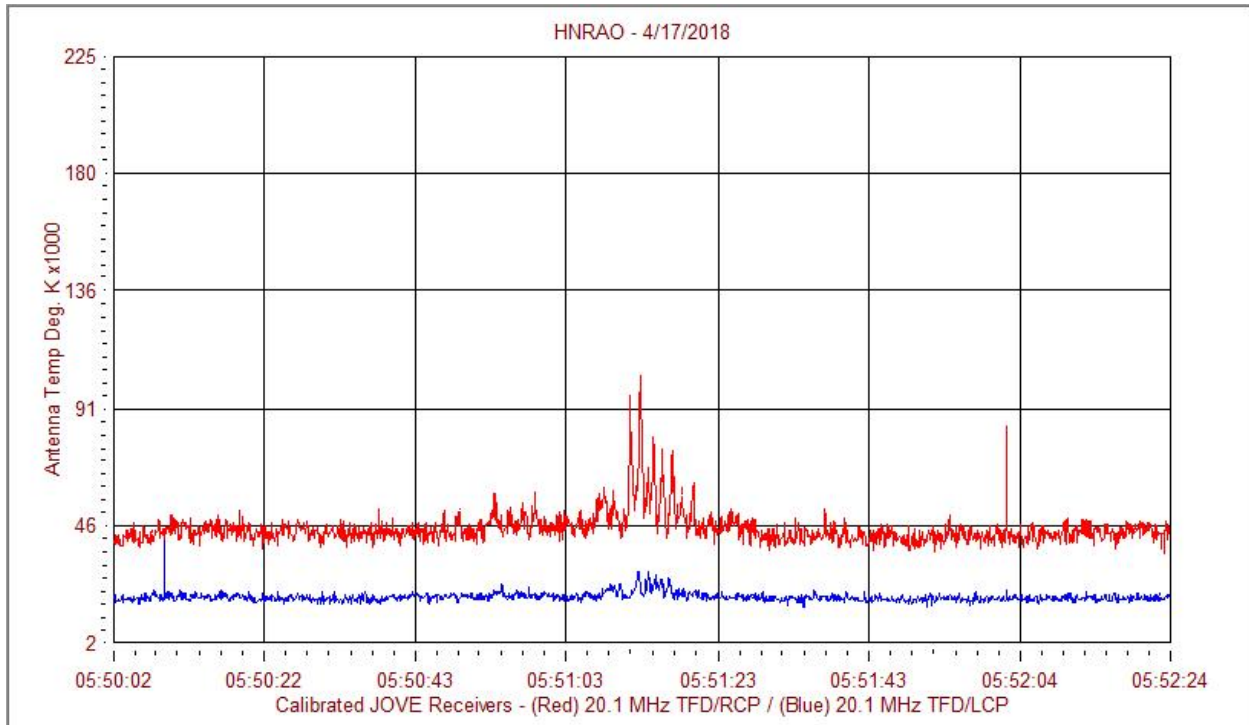
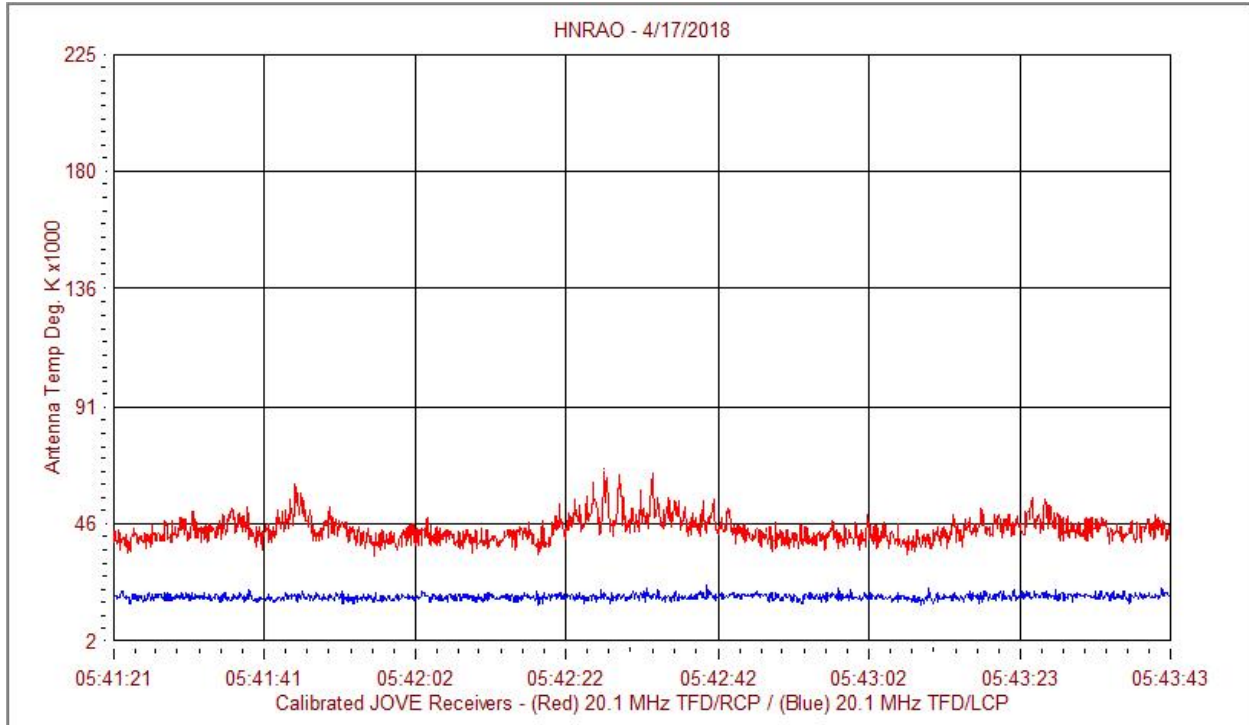
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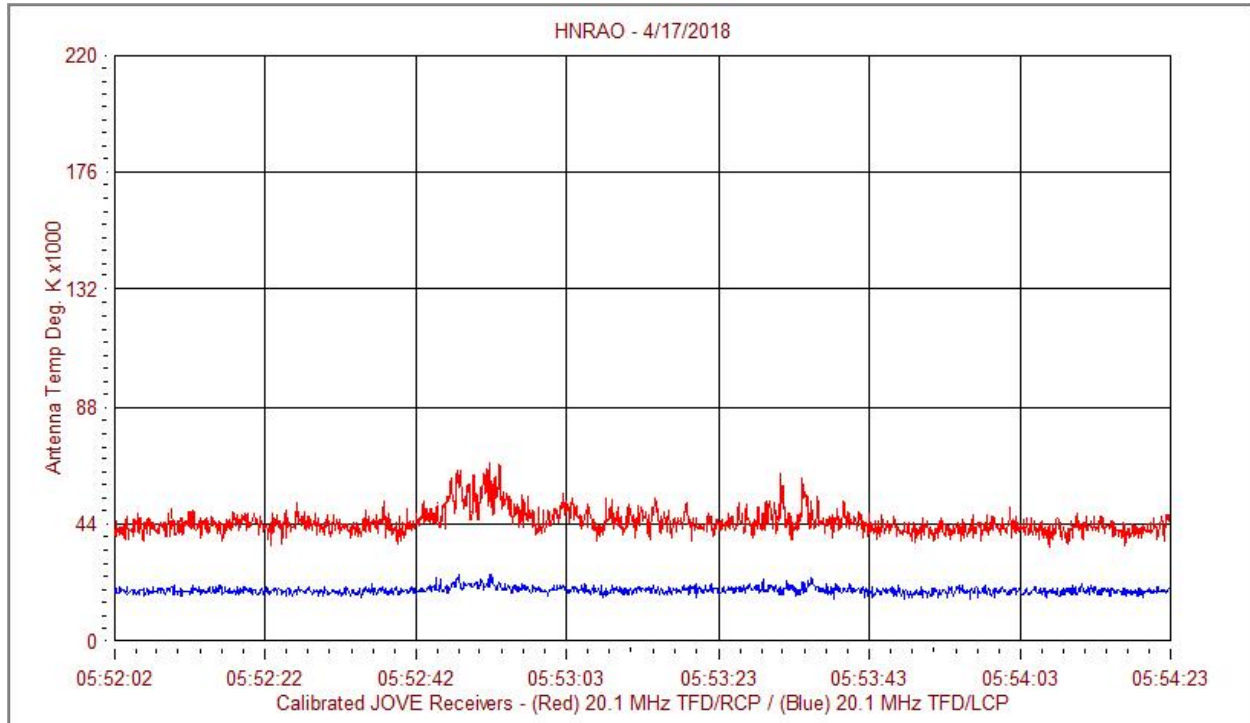
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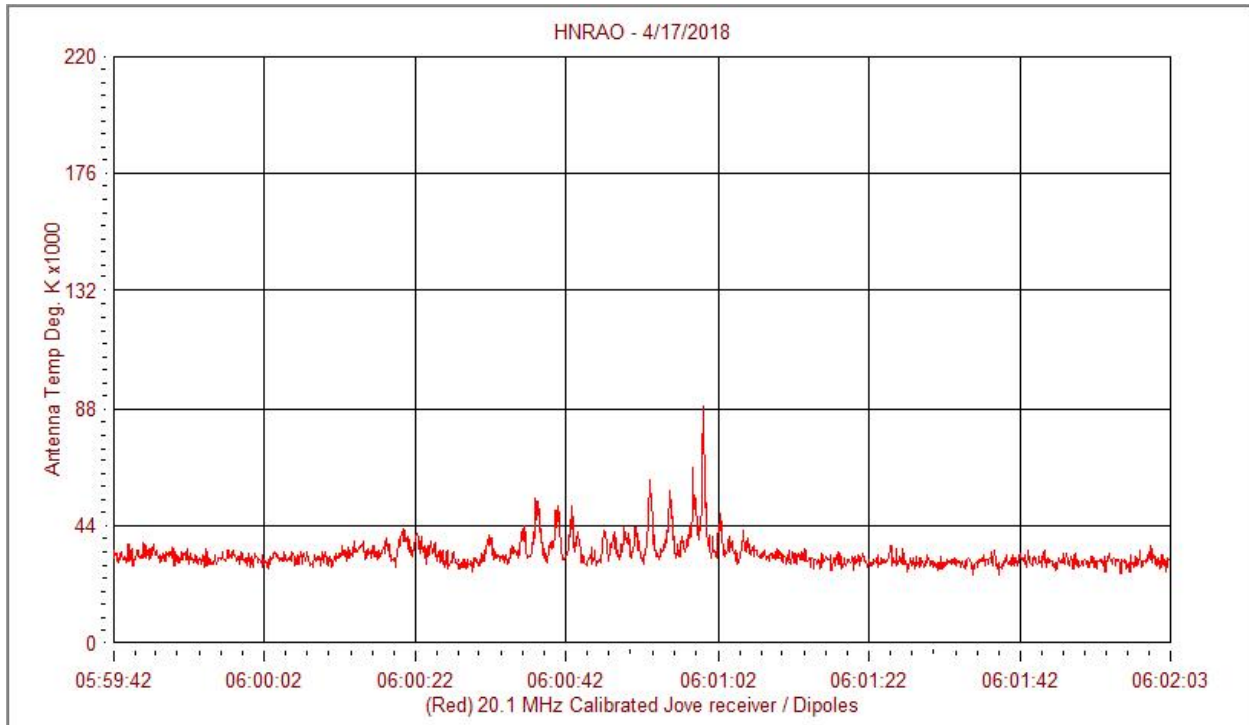
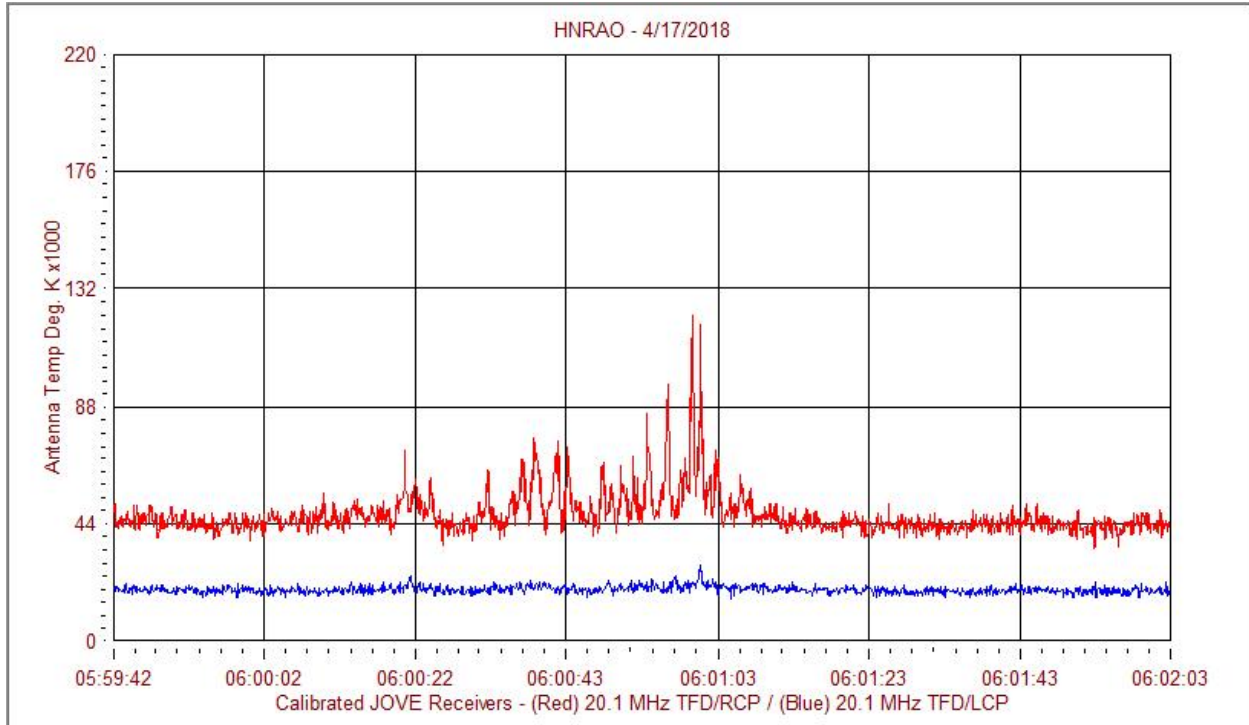
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