

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: 6 Jan 2018

Object: Jupiter – Io-C

Observer: Unattended

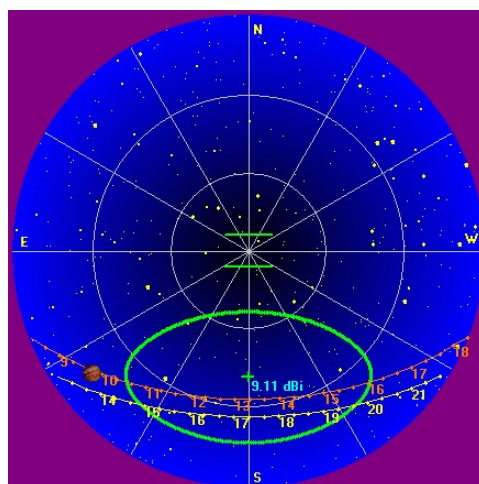
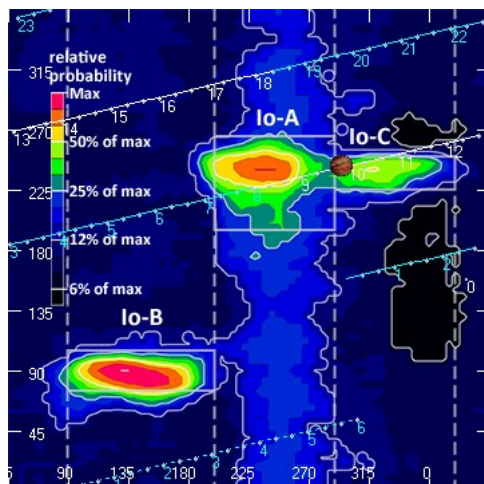
Start of pass:	0951 UT	Planetary K-index:	
Jupiter Altitude (deg):	15.7	Jupiter Azimuth (deg):	128.2
Jupiter CML:	294.89	Jupiter Io Phase:	242.22
Jupiter RA (hr/min):	15:01	Jupiter Dec (hr/min):	-15:59
Hour Angle (hr/min):	-03:28	Polarization	LCP
Sun Altitude (deg):	-30.9	Sun Azimuth (deg):	094.5
Sun RA (hr/min):	19:01	Sun Dec (hr/min):	-22:42

End of pass:	1115 UT		
Jupiter Altitude (deg):	26.5	Jupiter Azimuth (deg):	146.6
Jupiter CML:	345.67	Jupiter Io Phase	254.06
Hour Angle (hr/min):	-02:03		
Sun Altitude (deg):	-15.3	Sun Azimuth (deg):	107.0

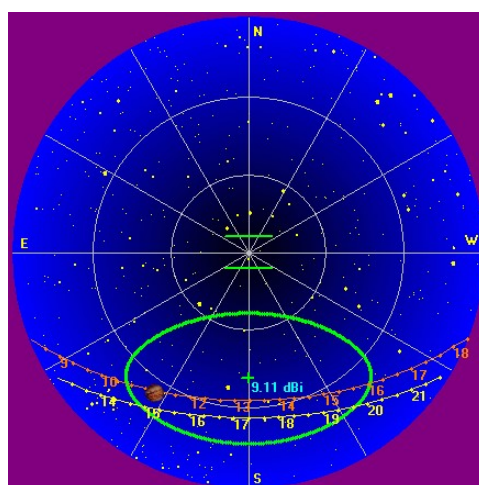
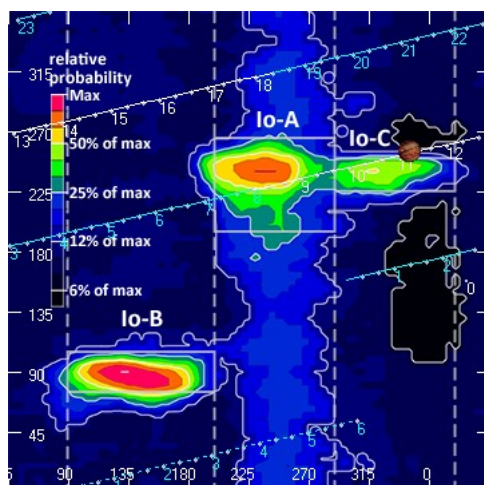
Observations made using:

1. FSX-8S fed by the TFD array
 - a. 7.7 dB loss between TFD and Multicouplers.
 - b. Connect to array through HNRAO Multicoupler #1 and #2, port 2
 - i. HNRAO Multicoupler #1 – TFD/LCP
 - ii. HNRAO Multicoupler #2 – TFD/RCP
 1. Port 1 having 10 dB of gain, all other ports have 3 dB gain.
2. FSX-2 fed by the LWA array directly
 - a. LWA element configuration – 90 degrees
3. JOVE 2 receiver fed by phased JOVE dipoles @ 13'
 - a. 12' 6" phase cable - phased for 2016-17 season
 - b. Calibrated 1 Jan 2018
 - c. Connected to dipoles through HNRAO Multicoupler #3, port 1.
 - i. -3.19 dB loss between Multicoupler and dipoles.
4. JOVE 1 receiver fed by TFD/RCP. JOVE 1 receiver fed by TFD/LCP
 - a. Calibrated 1 Jan 2018
 - b. Connected to TFD through HNRAO Multicouplers #1 & #2, port 1.
5. SDRPlay
 - a. RSP1 (TFD/LCP) and RSP2 (TFD/RCP)

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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	

Io-C with LCP L-burst emissions from 15 MHz to 22 MHz S-burst emissions also appear in the lower frequencies. L4 and S4 modulation lanes throughout the storm. Measured and plotted modulation lane slope values are at the end of this report. The results indicate that as CML increases, the slope increases as well.

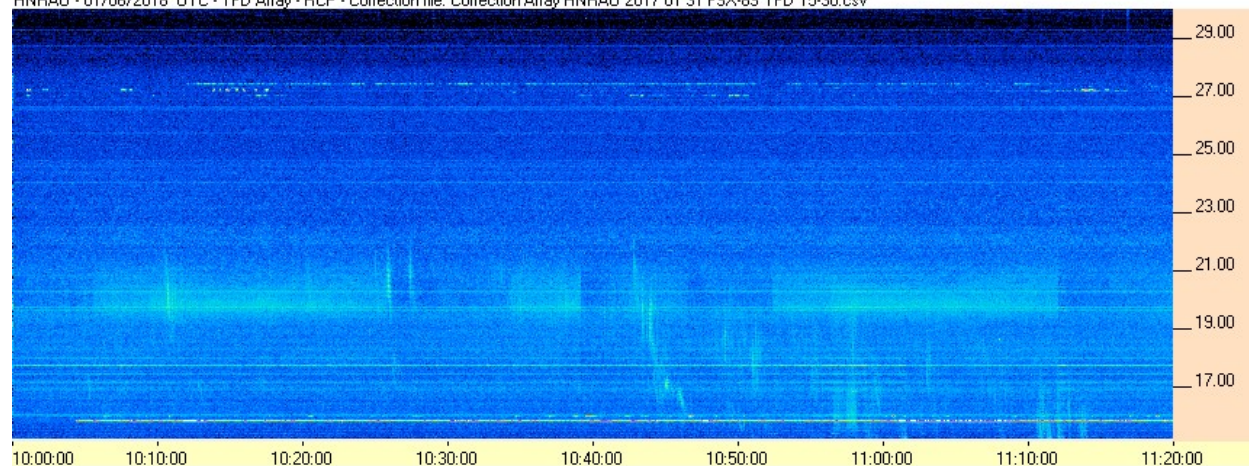
Calibrated Radio Jove receiver/dipole pair measured a peak emission of 471 kK equivalent antenna temperature at 1027 UT.

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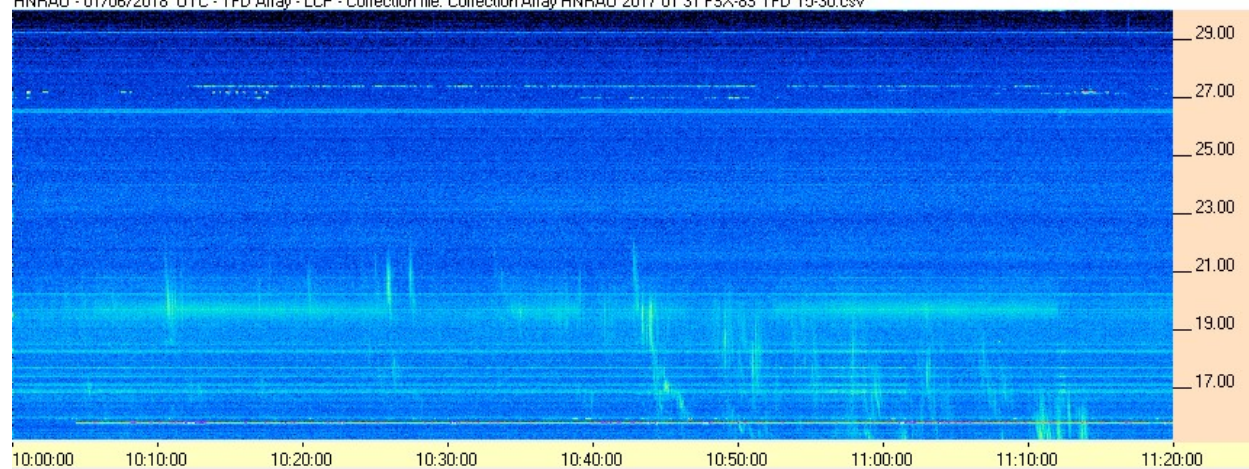


FSX-8S/TFD Pair

HNRAO - 01/06/2018 UTC - TFD Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv



HNRAO - 01/06/2018 UTC - TFD Array - LCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv

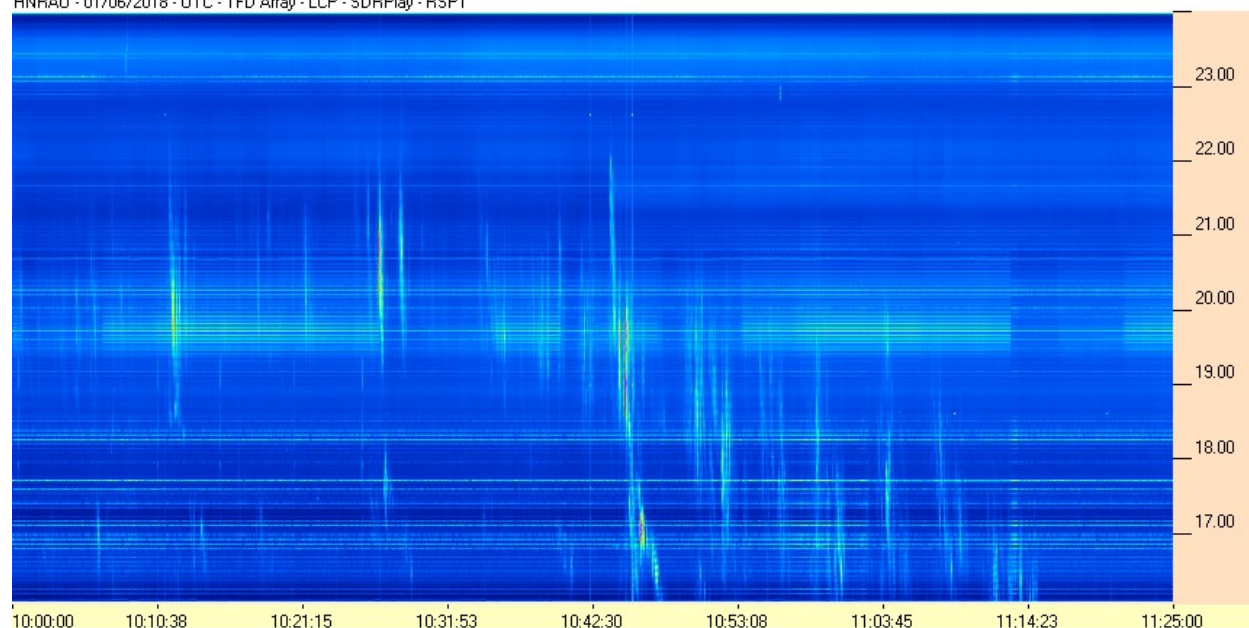


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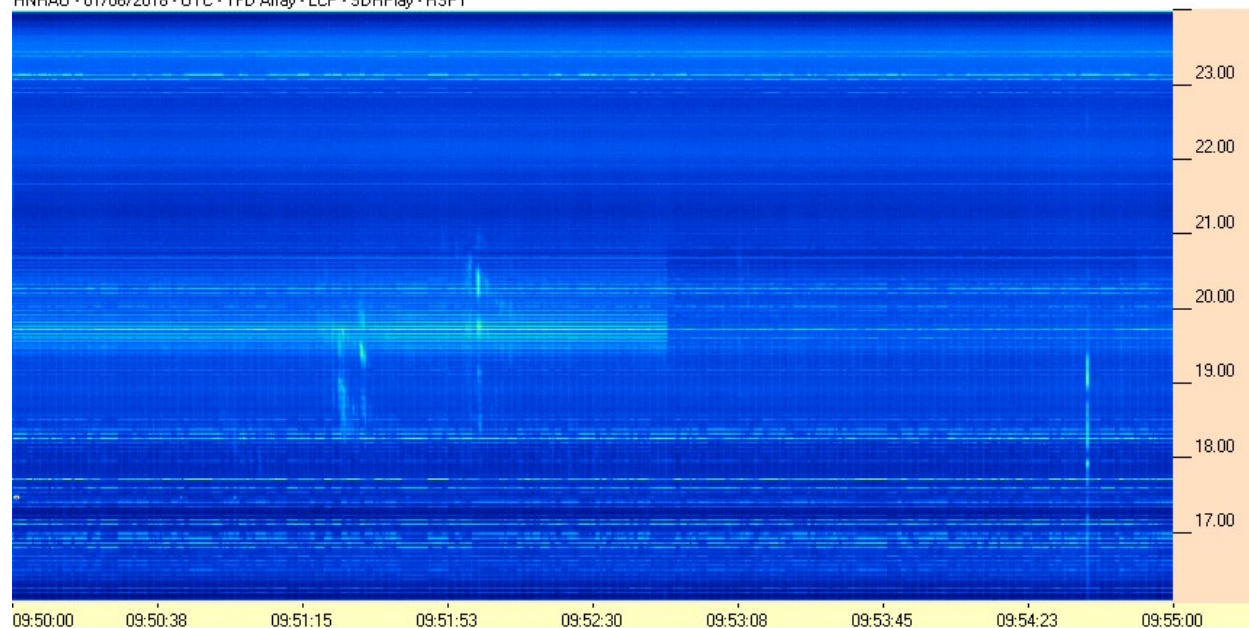


SDRPlay RSP1/TFD Pair

HNRAO - 01/06/2018 - UTC - TFD Array - LCP - SDRPlay - RSP1



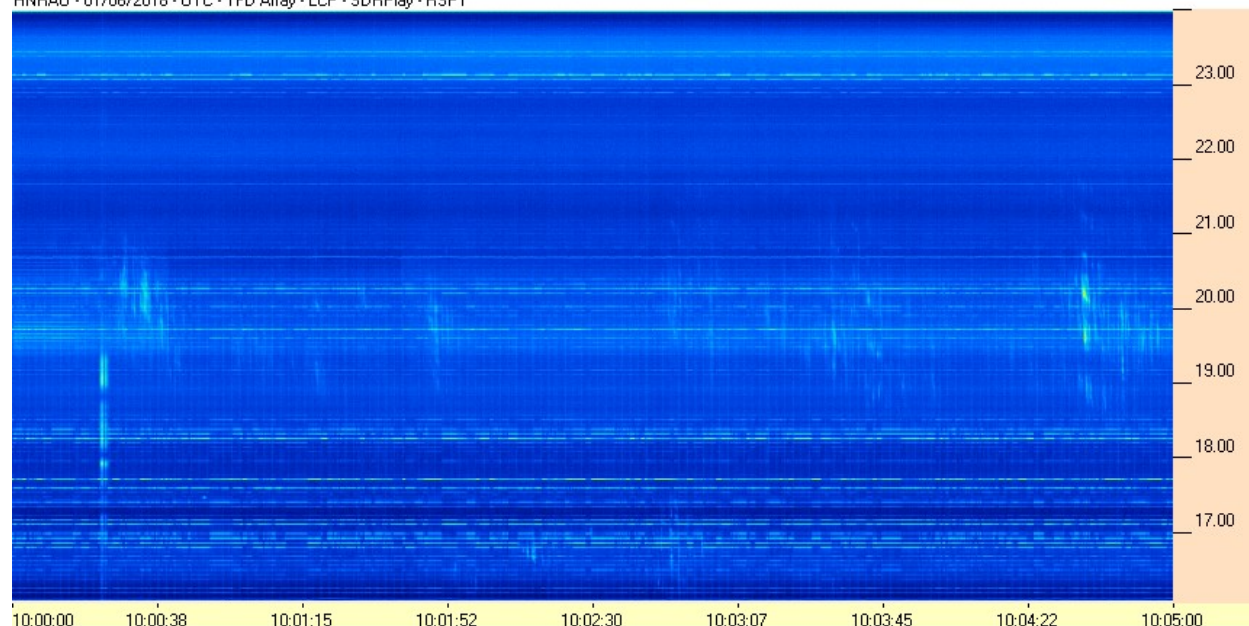
HNRAO - 01/06/2018 - UTC - TFD Array - LCP - SDRPlay - RSP1



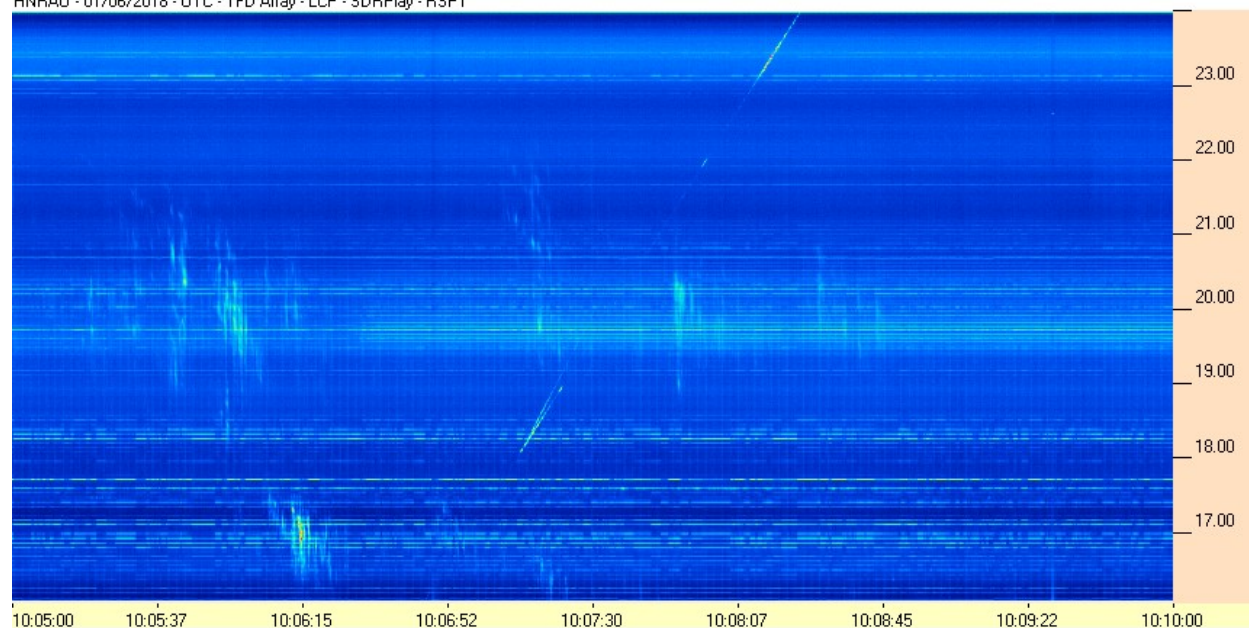
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HNRAO - 01/06/2018 - UTC - TFD Array - LCP - SDRPlay - RSP1



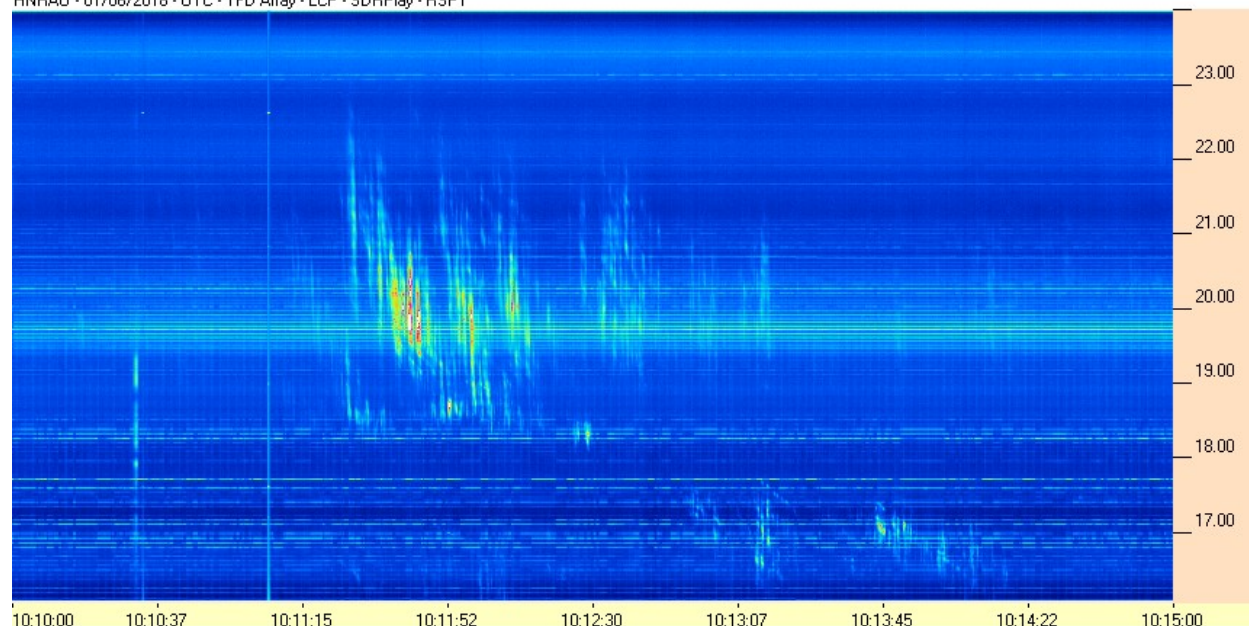
HNRAO - 01/06/2018 - UTC - TFD Array - LCP - SDRPlay - RSP1



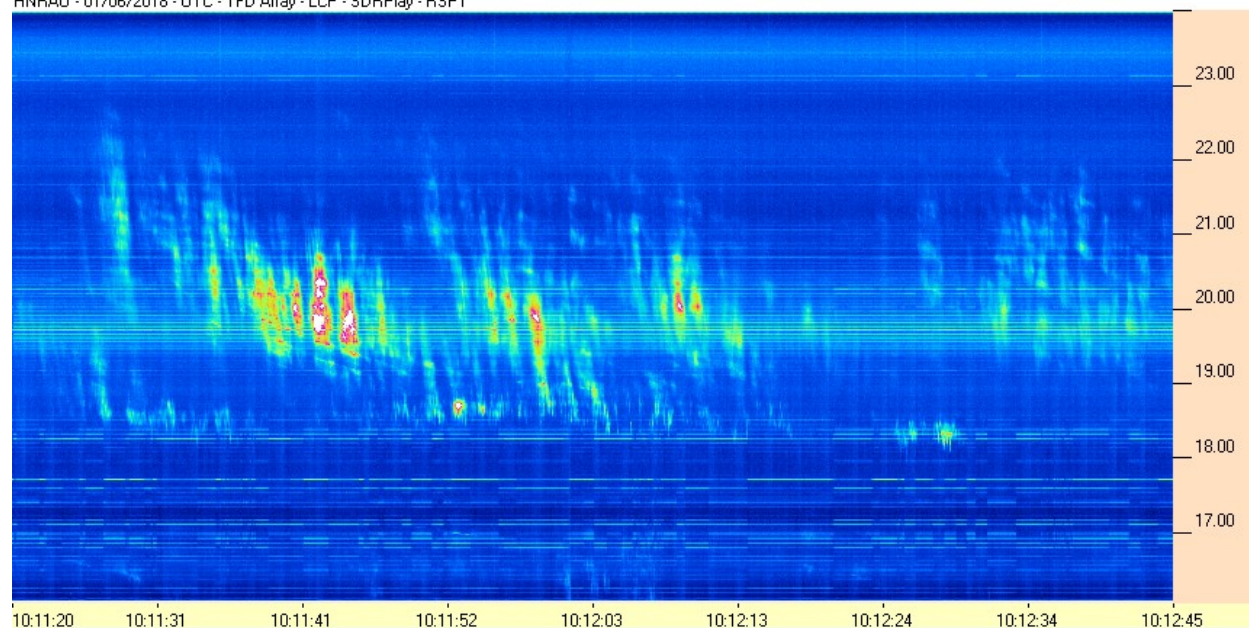
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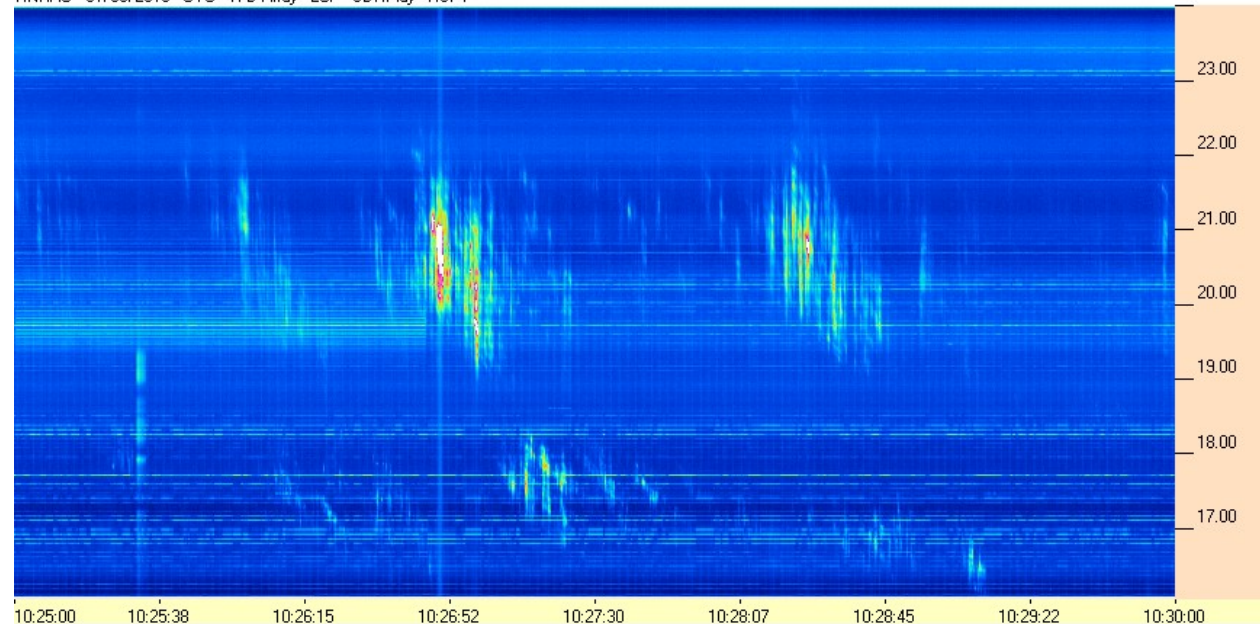
HNRAO - 01/06/2018 - UTC - TFD Array - LCP - SDRPlay - RSP1



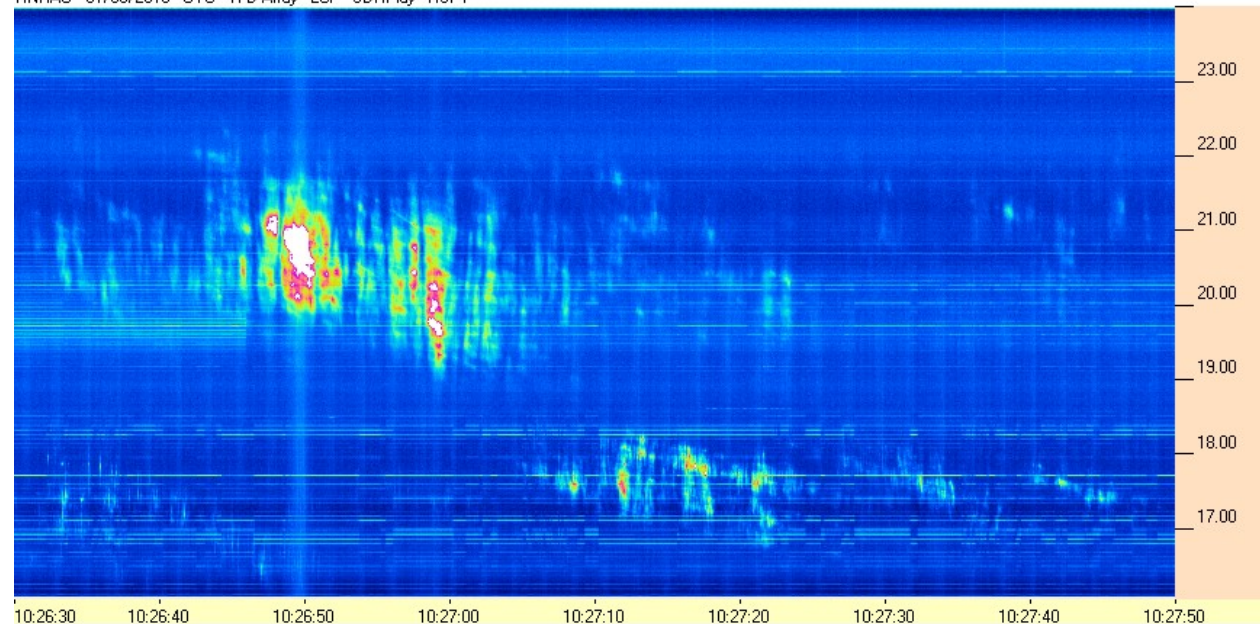
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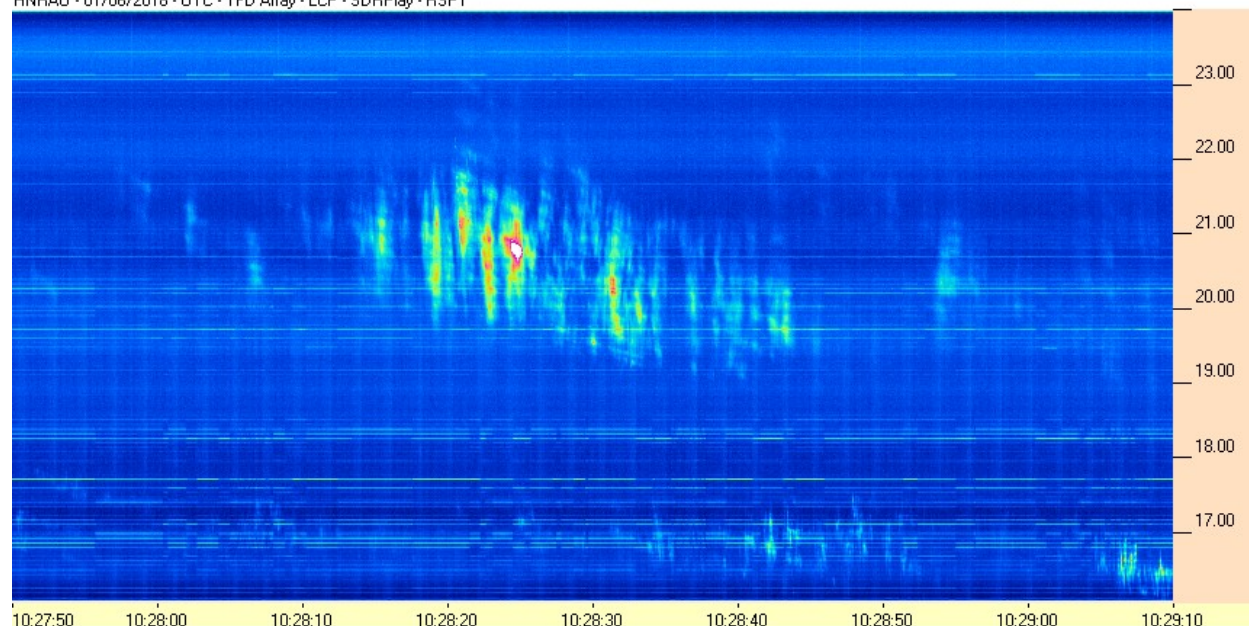
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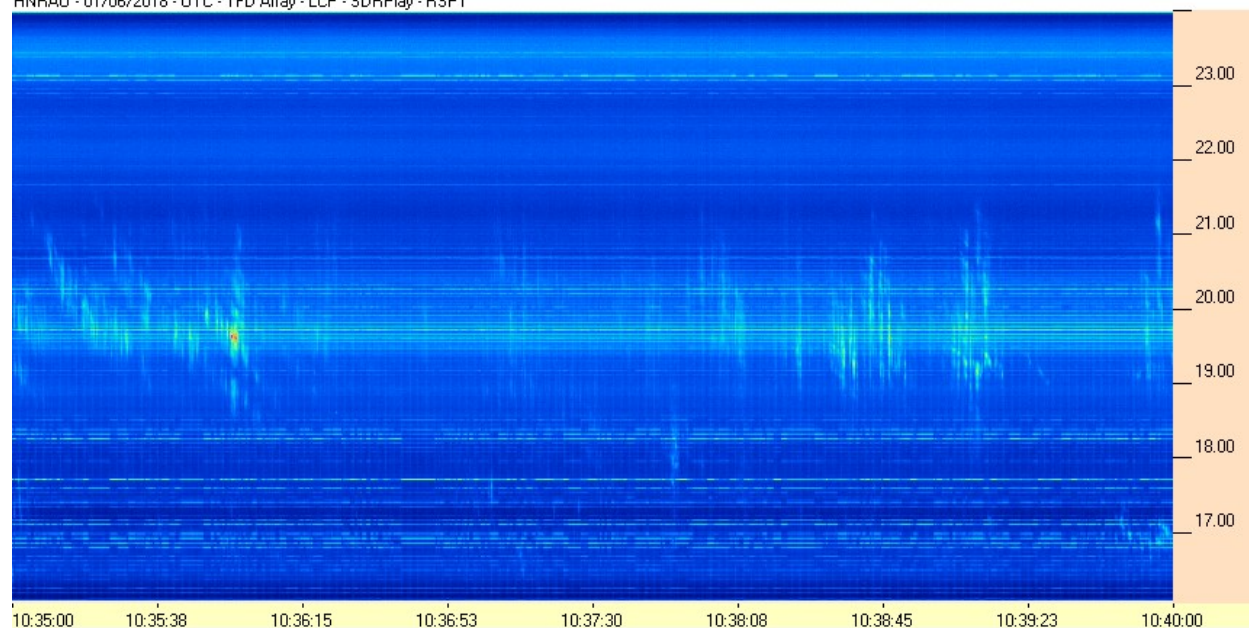
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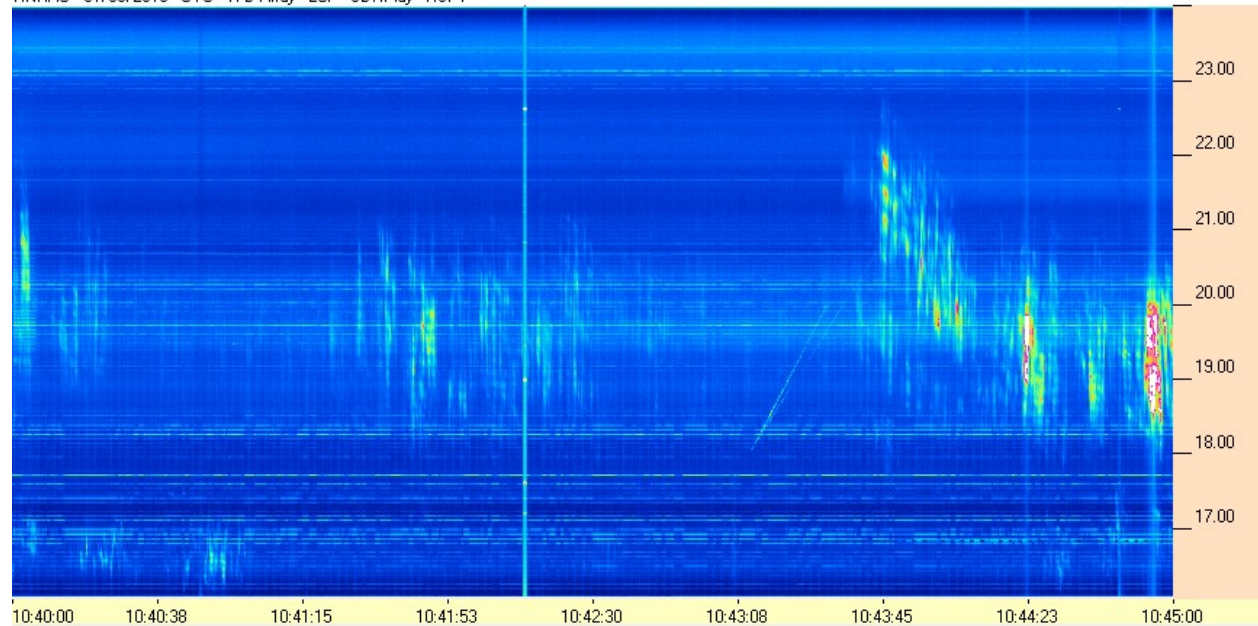
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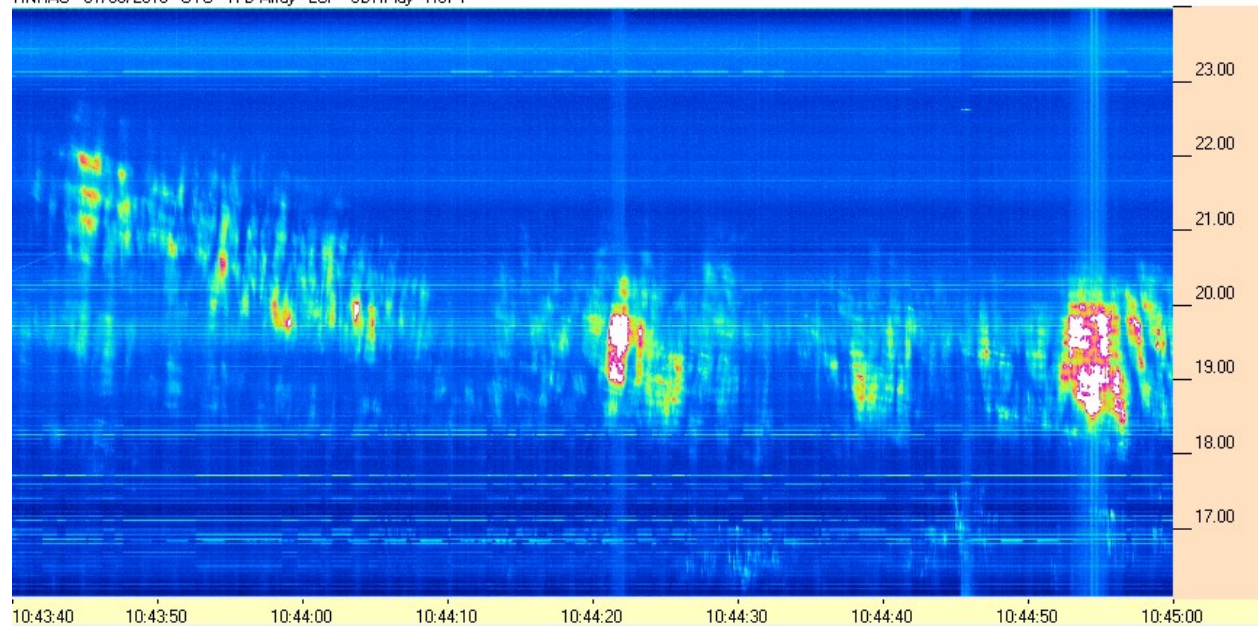
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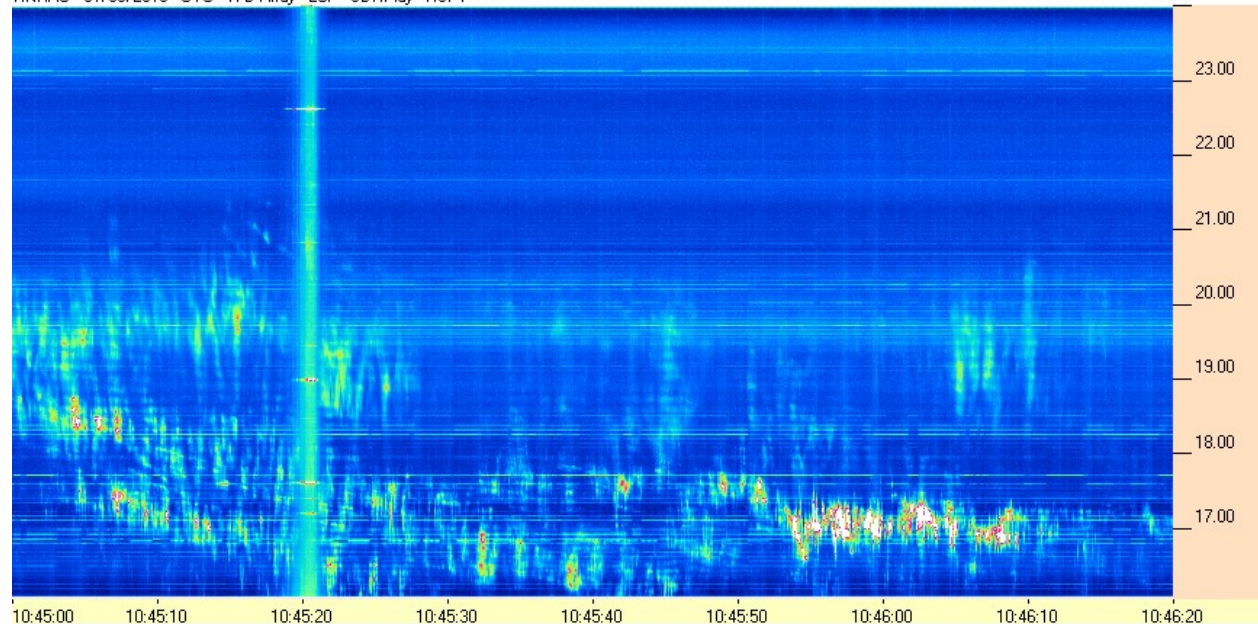
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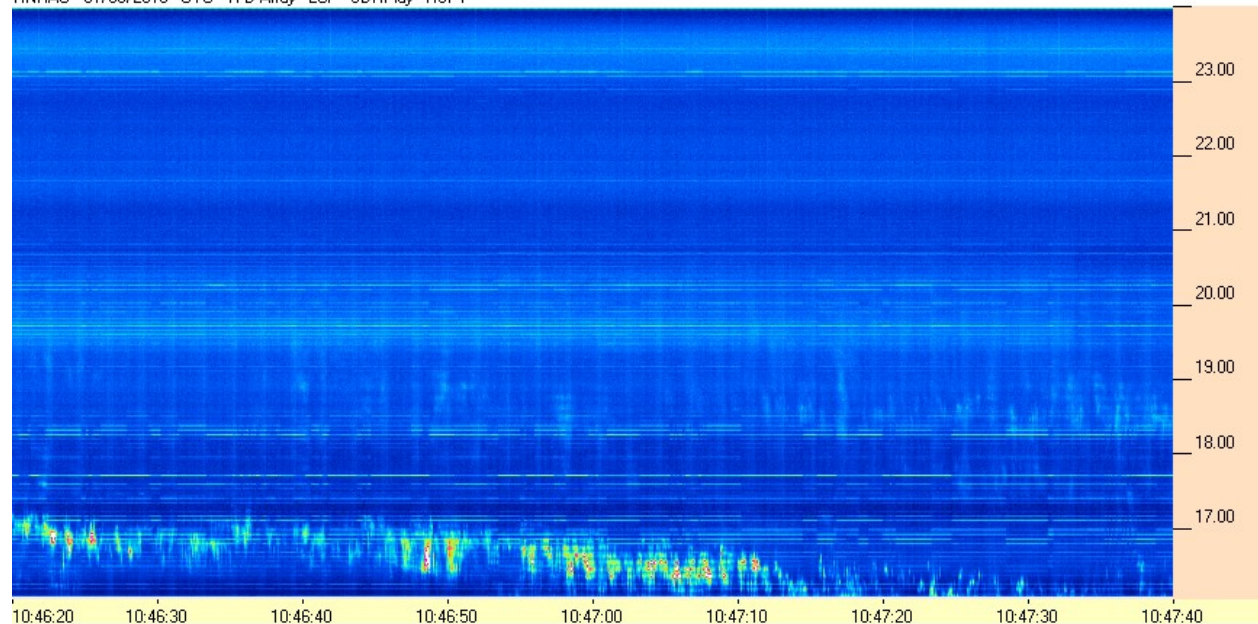
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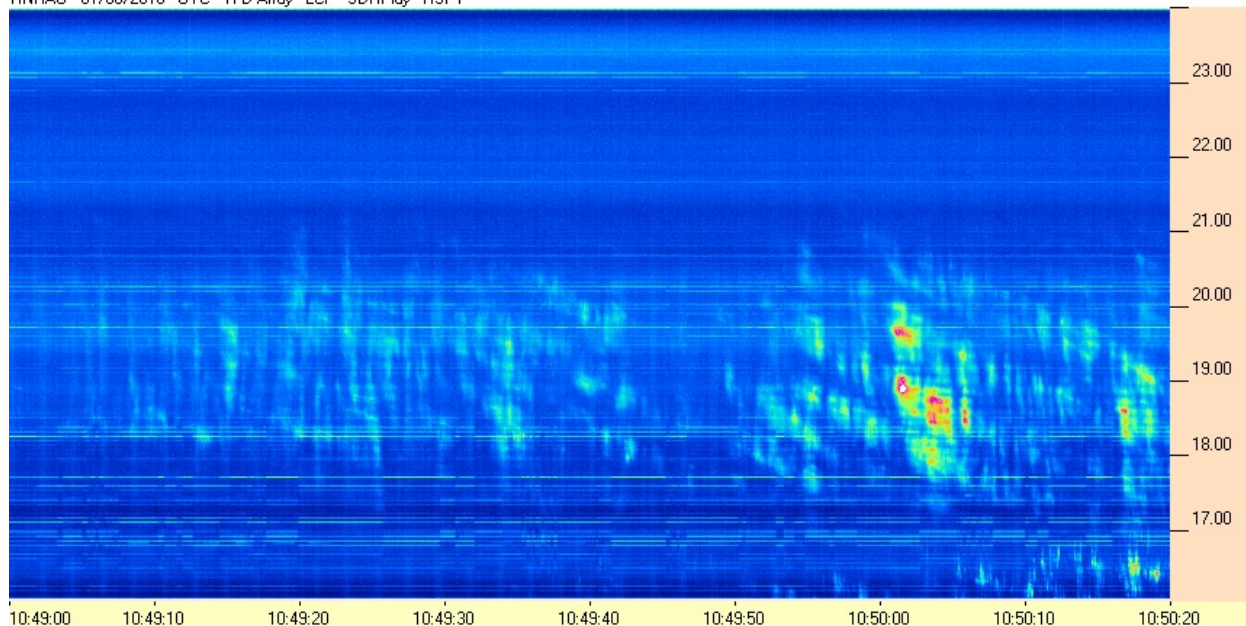
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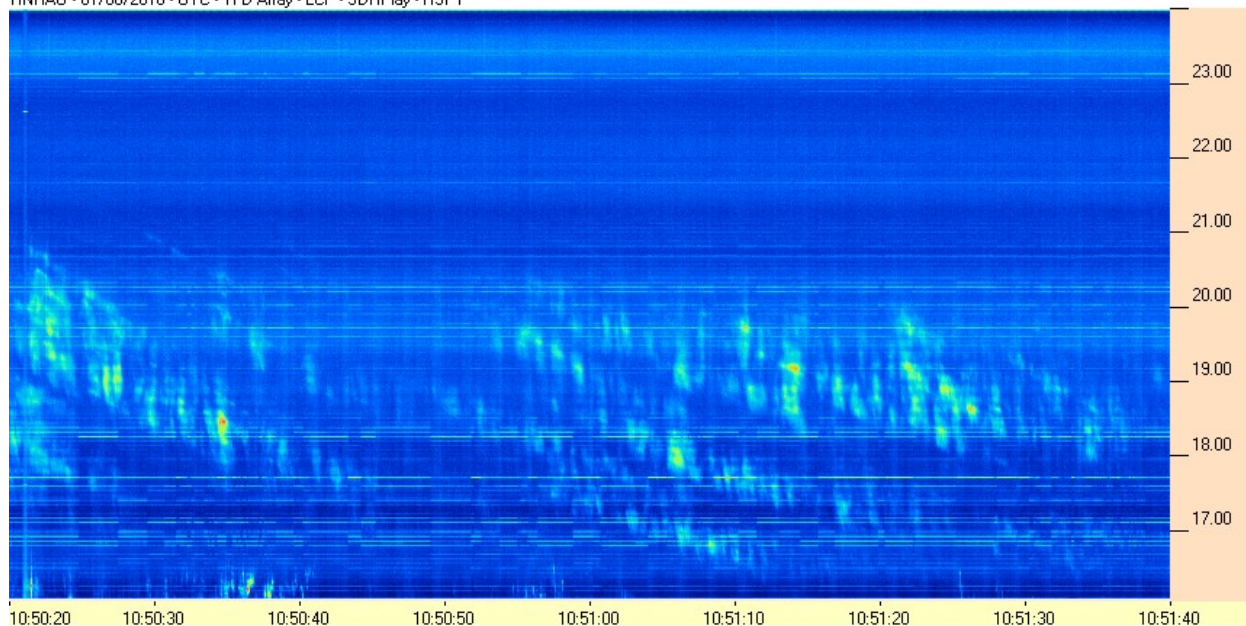
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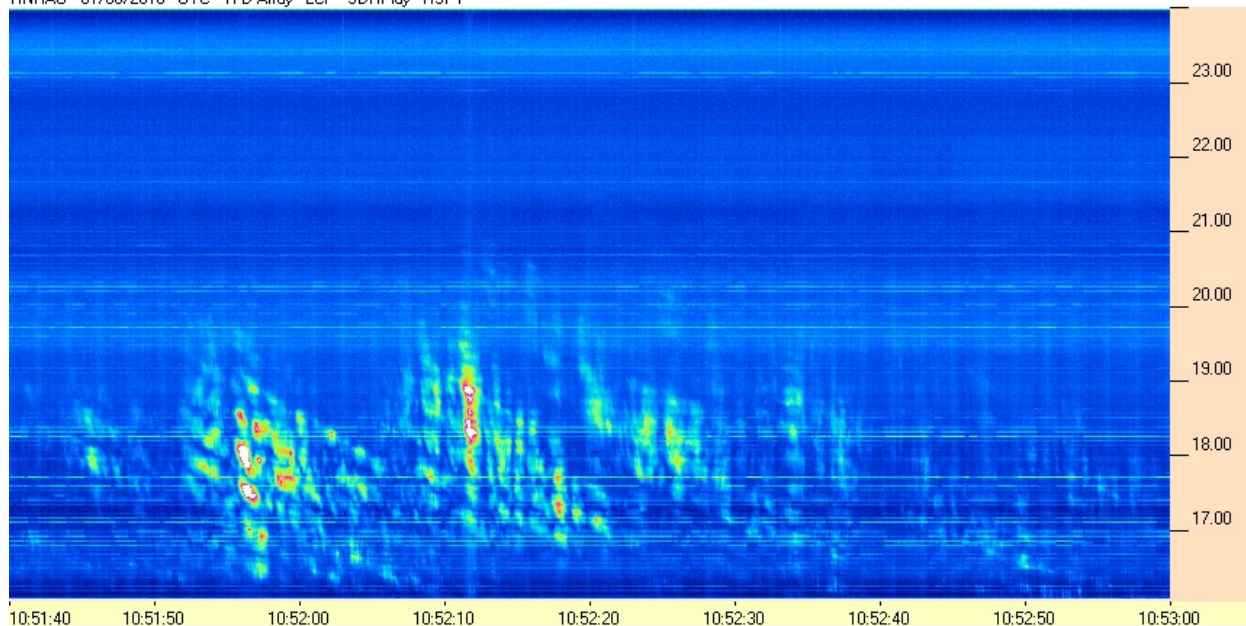
HNRAO - 01/06/2018 - UTC - TFD Array - LCP - SDRPlay - RSP1



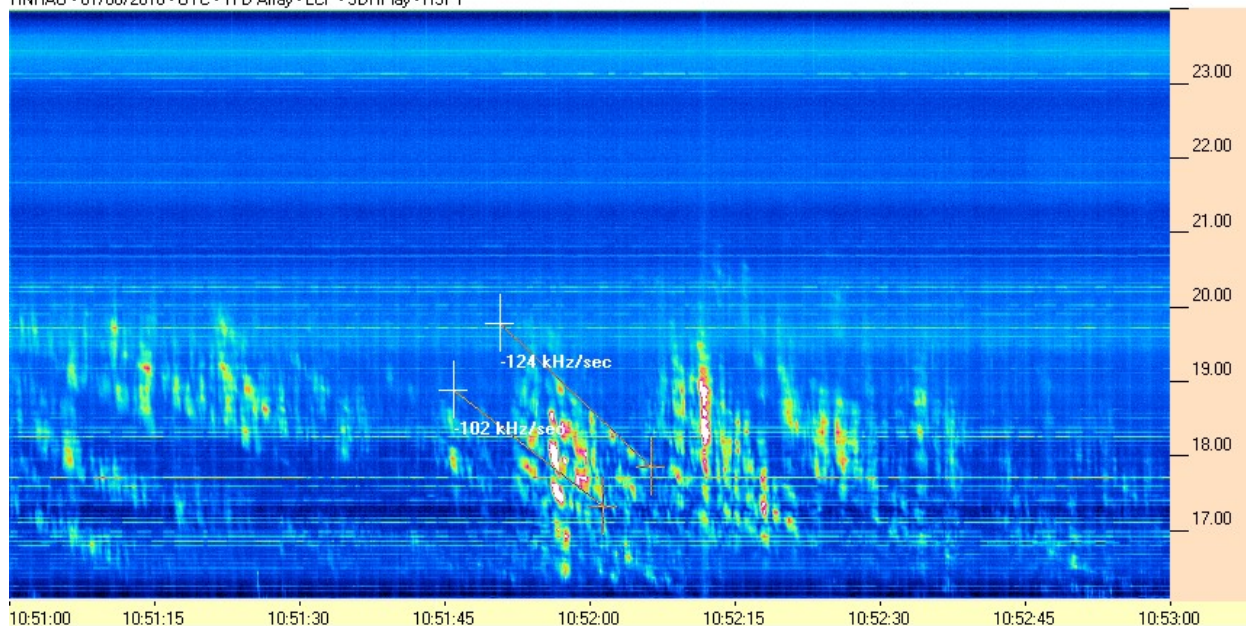
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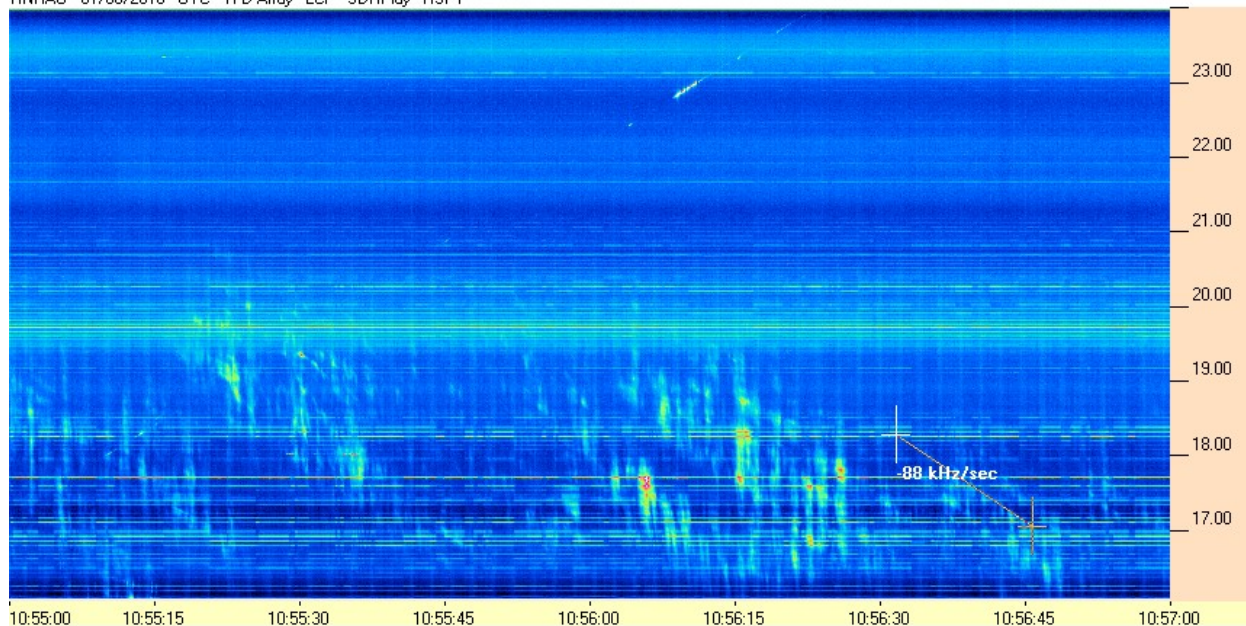
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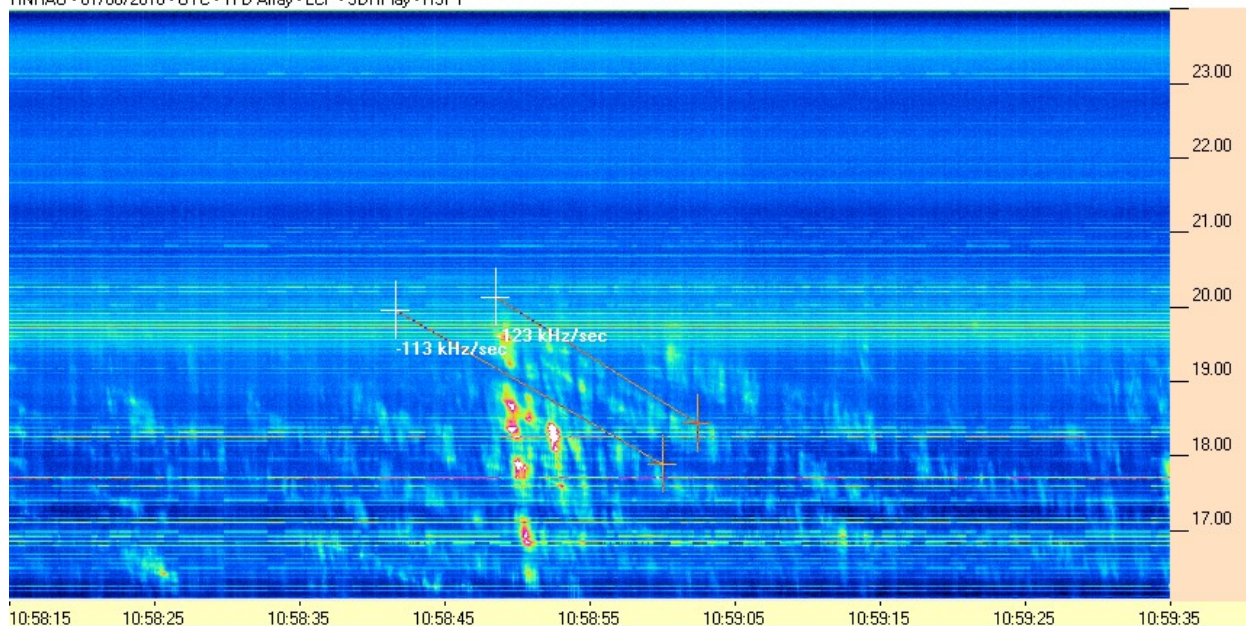
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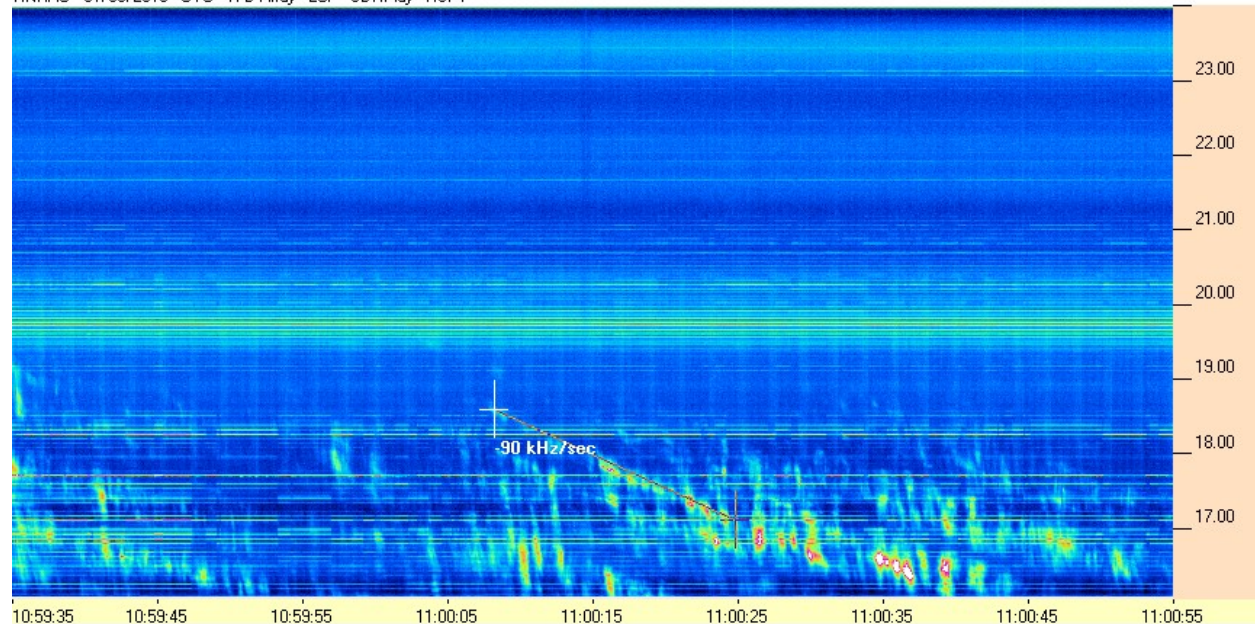


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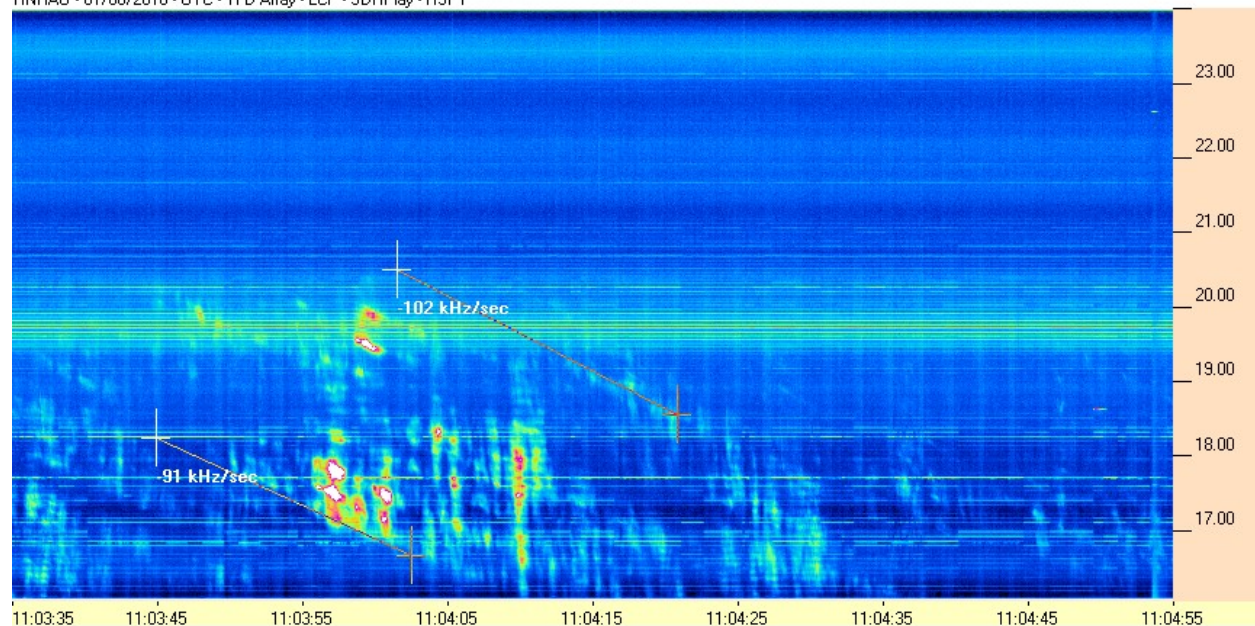
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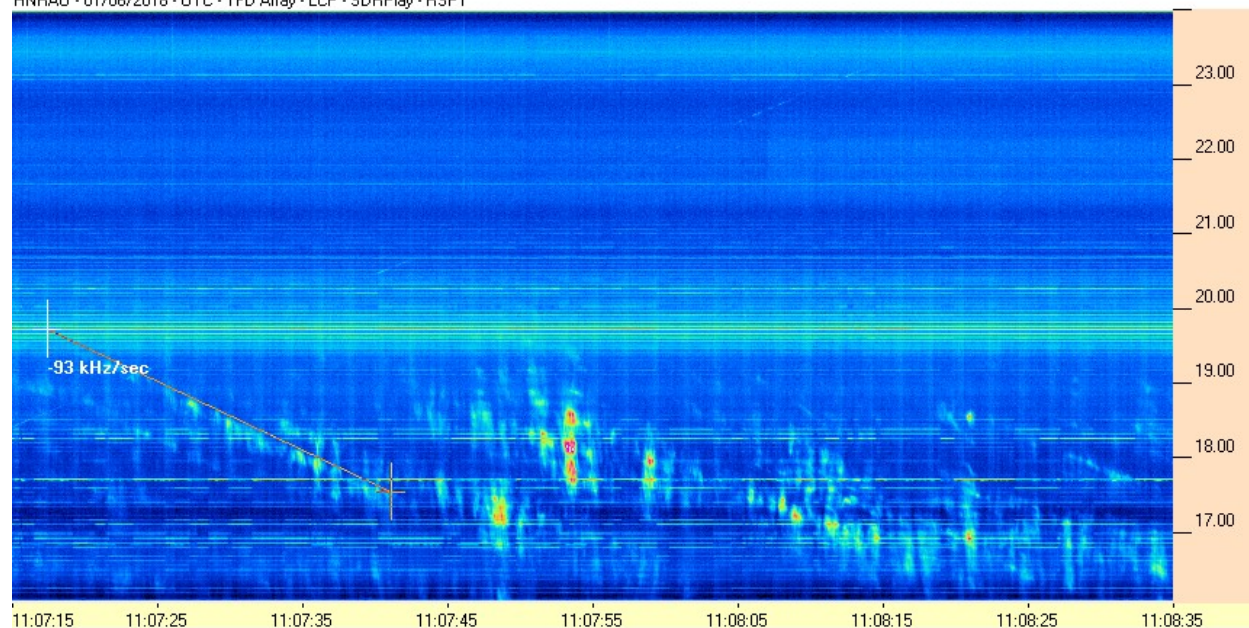
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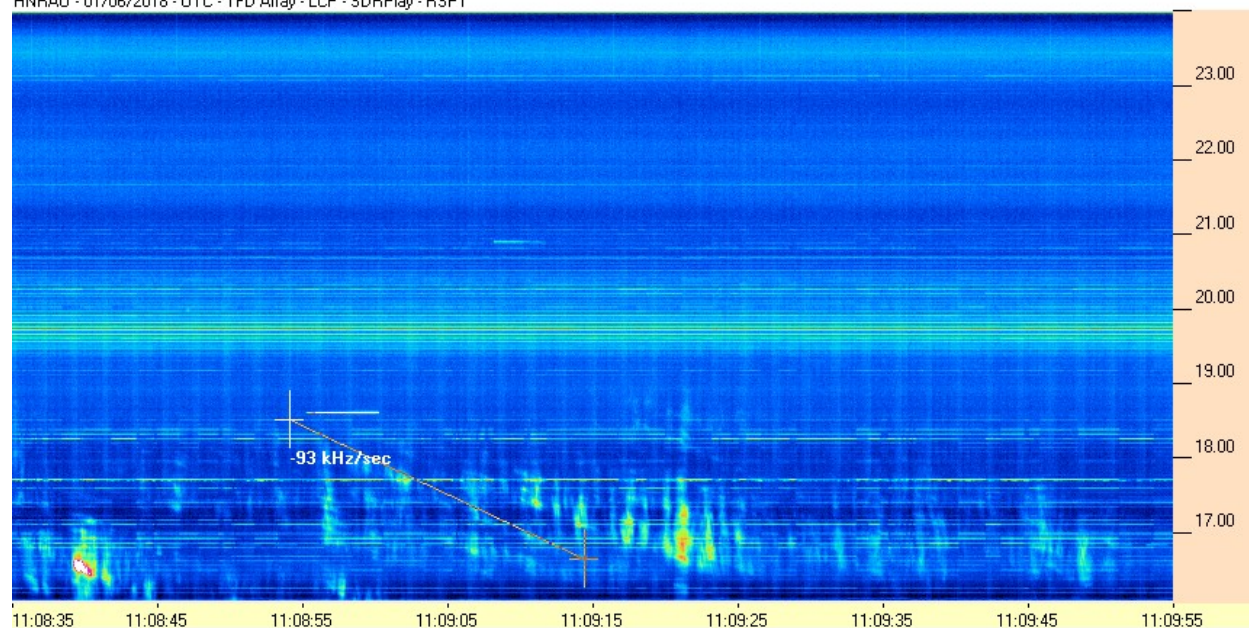
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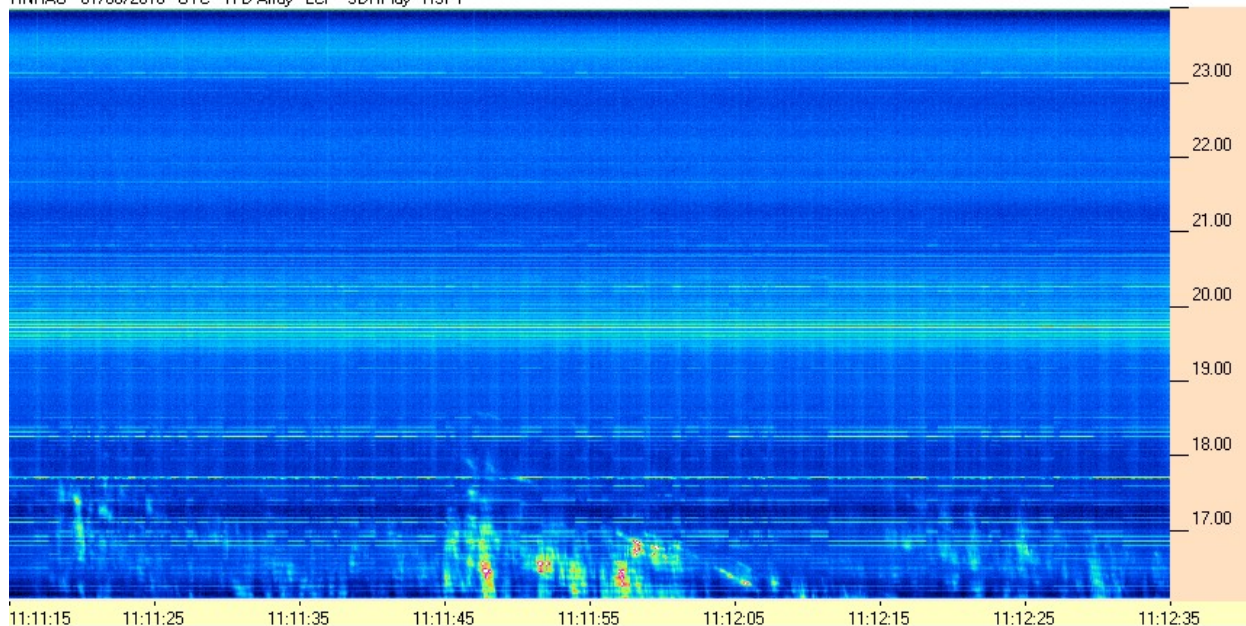
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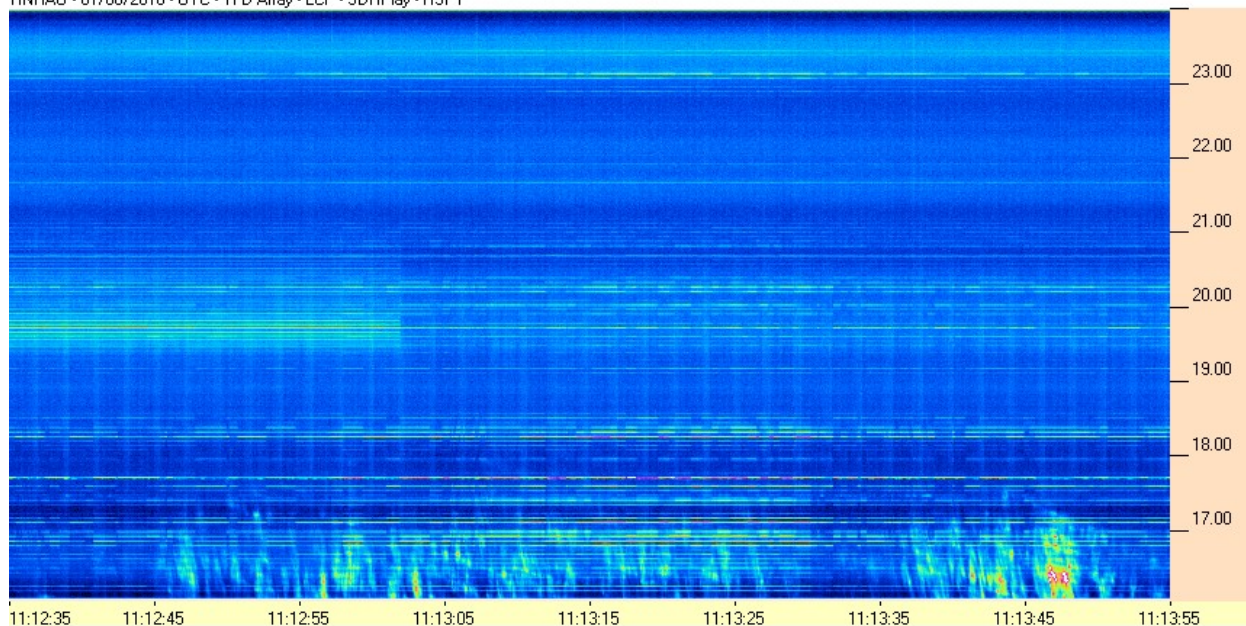
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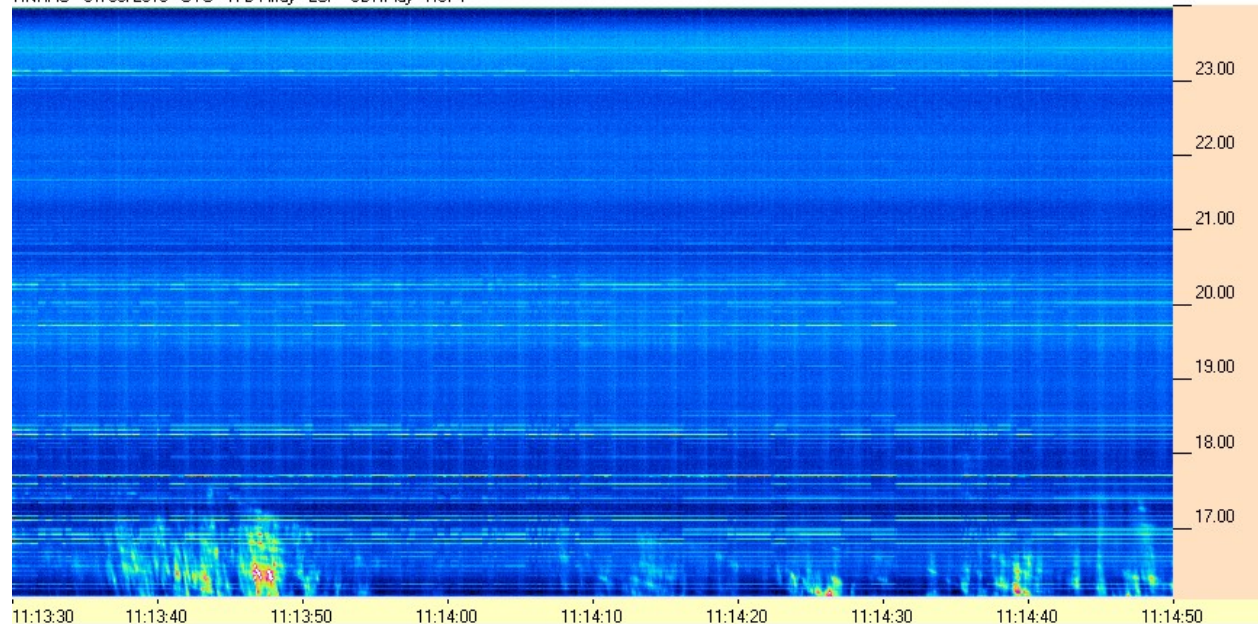
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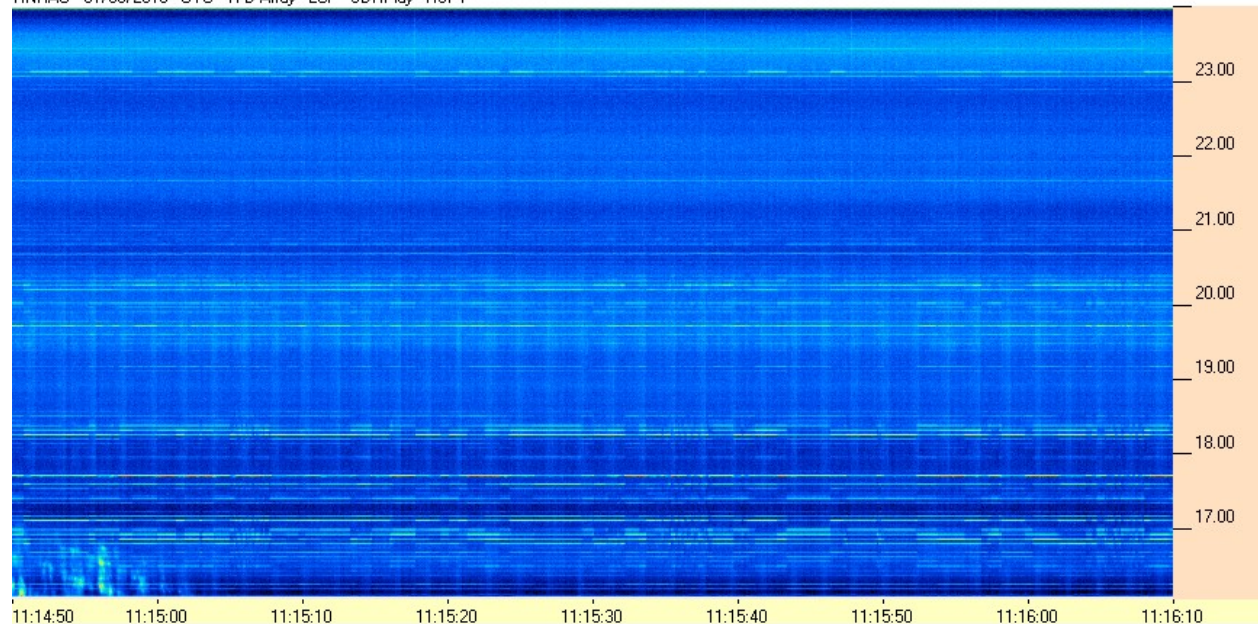
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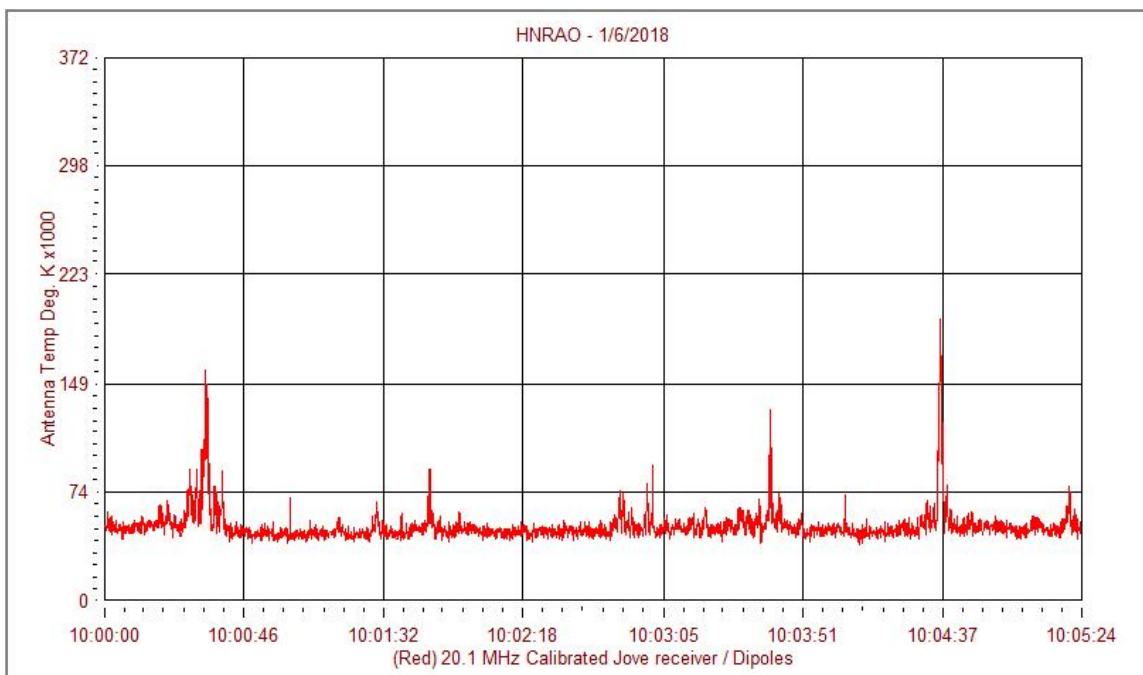
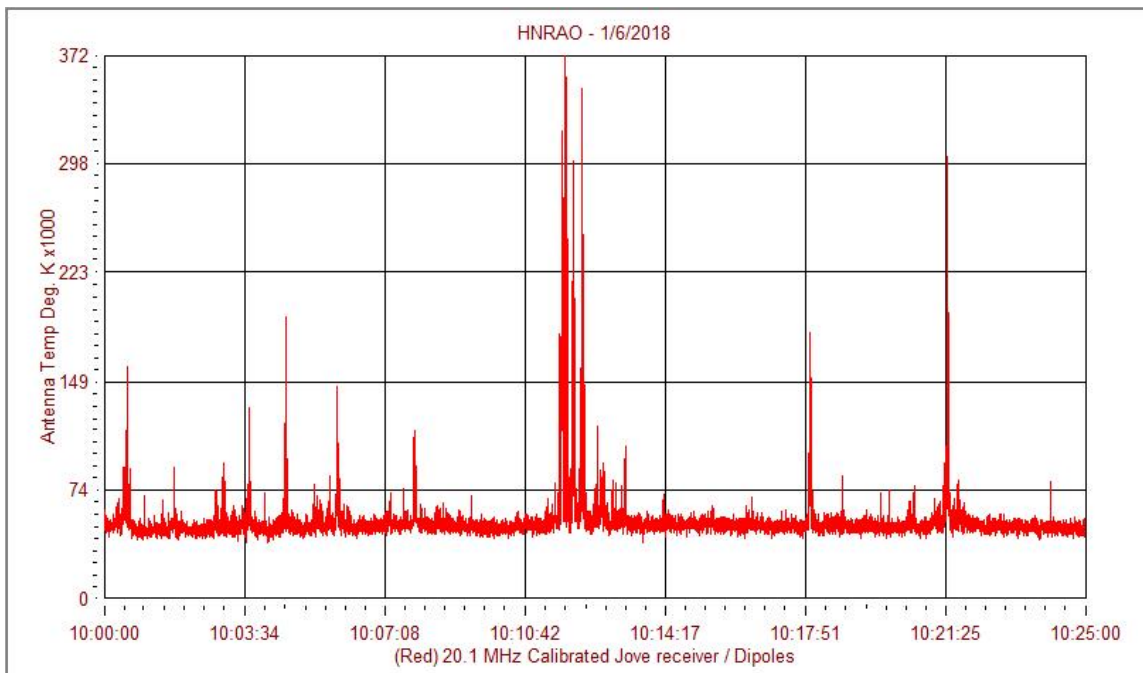
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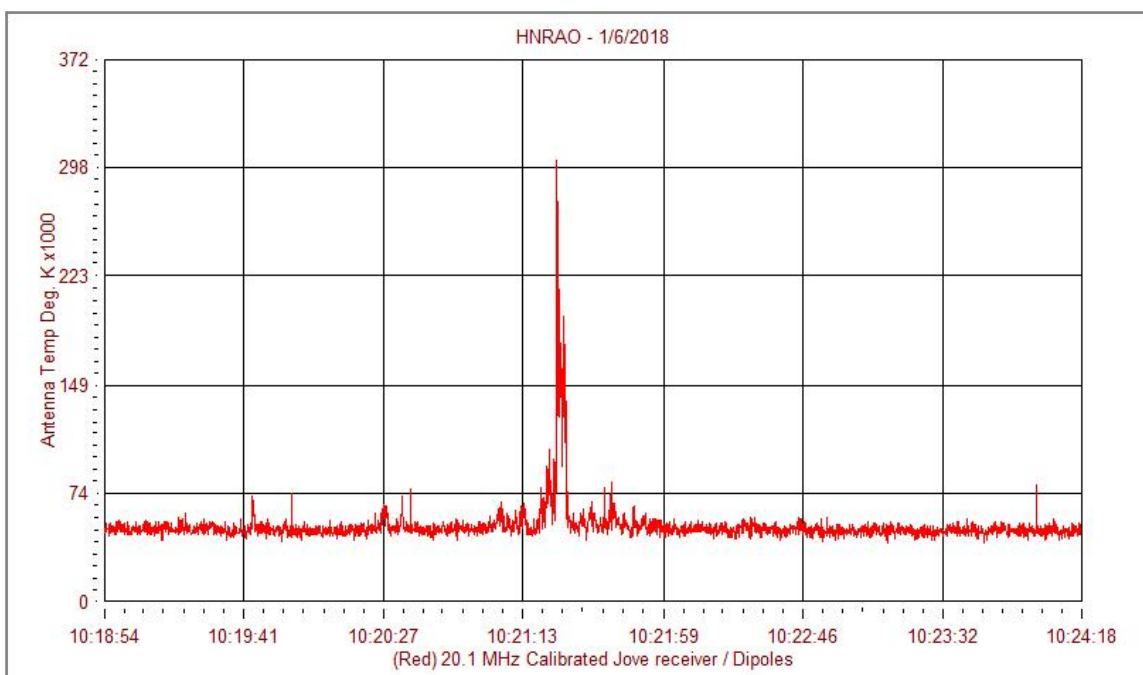
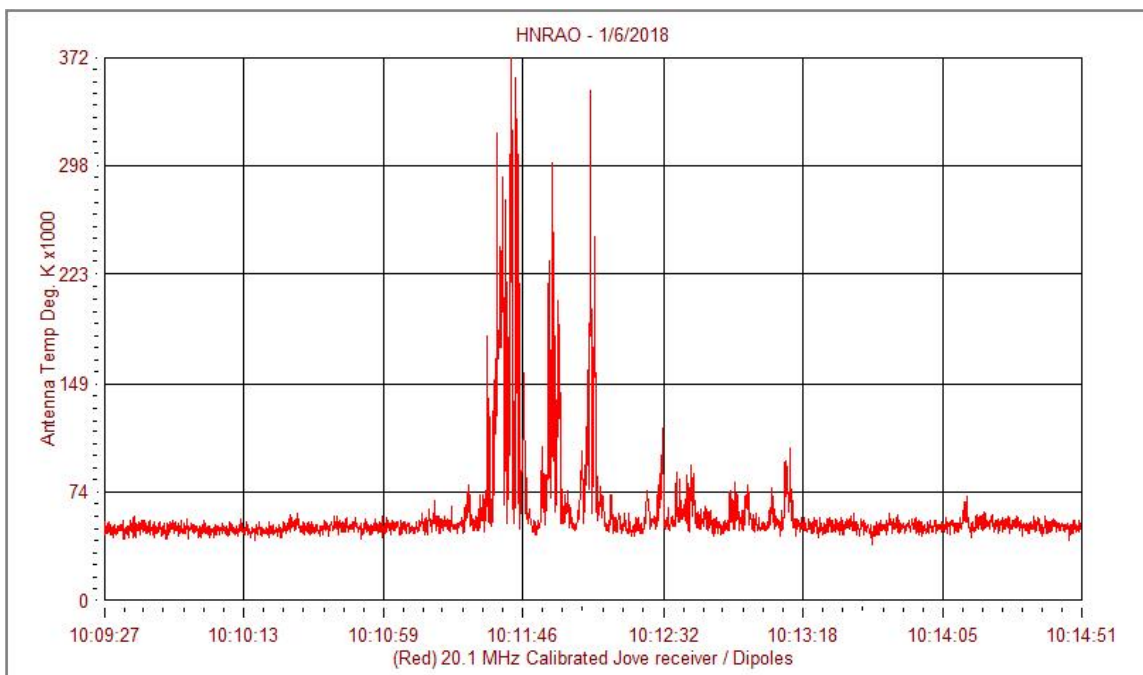
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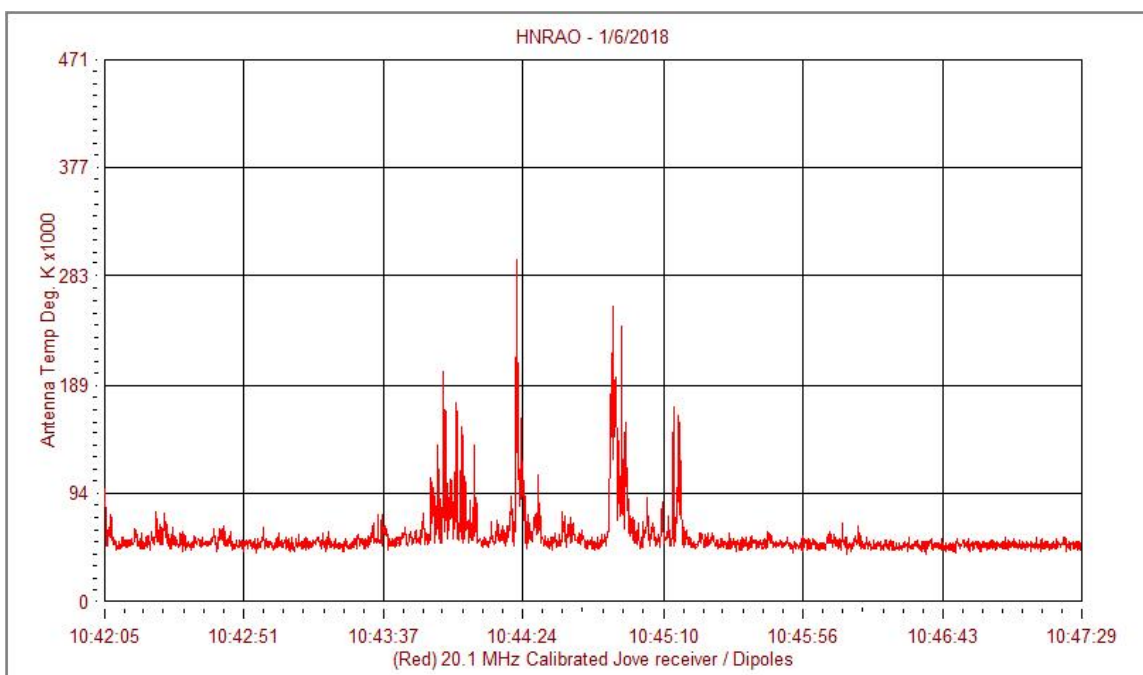
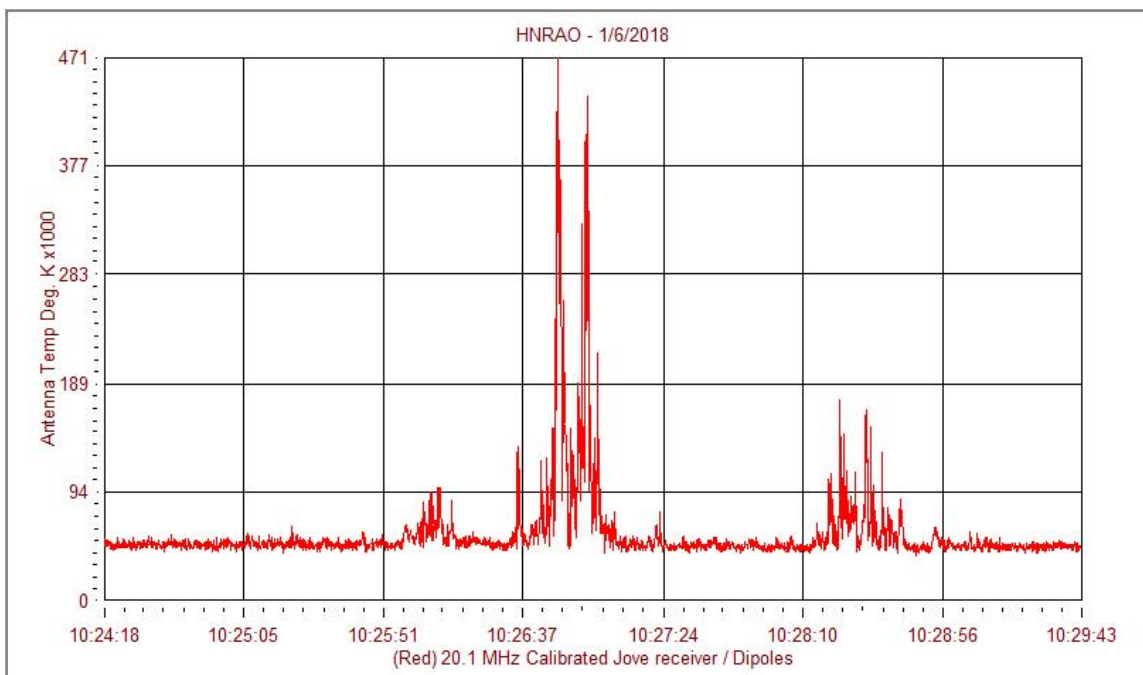
Radio Jove/Jove Dipole Pair



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