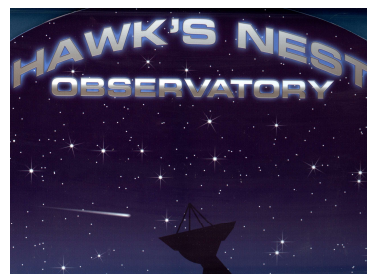


HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: January 17, 2019

Object: Jupiter – Io-B

Observer: Unattended

Start - Time UT:	1325	Planetary K-index:	1
Jupiter Altitude (deg):	25.7	Jupiter Azimuth (deg):	163.7
Jupiter CML:	117.73	Jupiter Io Phase:	077.51
Jupiter RA (hr/min):	16:53	Jupiter Dec (hr/min):	-21:56
Hour Angle (hr/min):	-01:03	Polarization	RCP
Sun Altitude (deg):	07.1	Sun Azimuth (deg):	125.8
Sun RA (hr/min):	19:49	Sun Dec (hr/min):	-21:06

End – Time UT:	1500	De:	-2.8
Jupiter Altitude (deg):	26.9	Jupiter Azimuth (deg):	188.3
Jupiter CML:	175.16	Jupiter Io Phase	091.01
Hour Angle (hr/min):	00:32	Duration (min):	175
Sun Altitude (deg):	19.8	Sun Azimuth (deg):	144.4
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	-3.66 dB	#3 Linear	Port 4 +3 dB	01/18/2019
SDRPlay RSP1	Experimental*					

JOVE dipoles phased @ 32 degrees for 2017-2018 season -- TFD array phased @ 35 degrees for 2017-2018 season

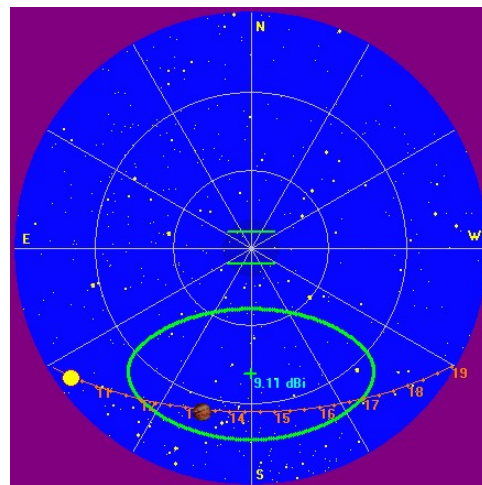
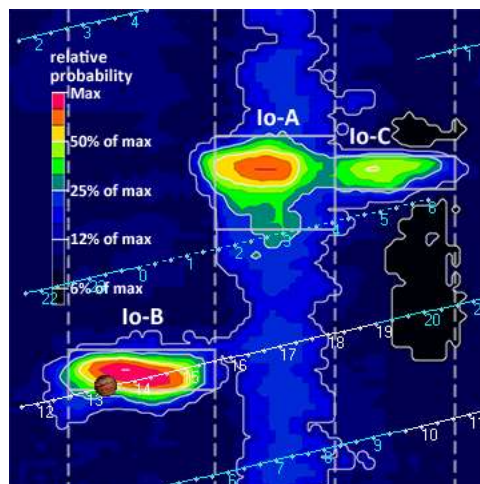
LWA antenna phased @ 35 degrees and orientation for observation: 45 degrees

* Used for testing and evaluating antenna systems

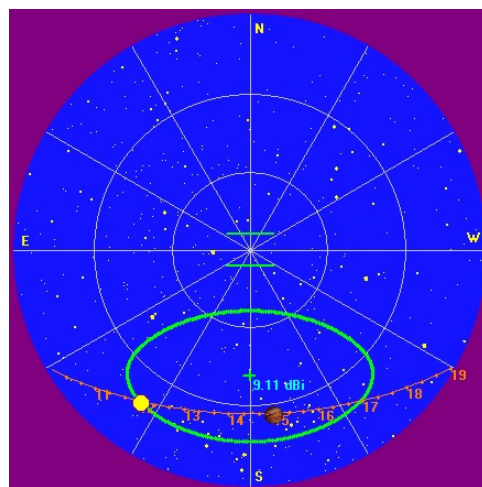
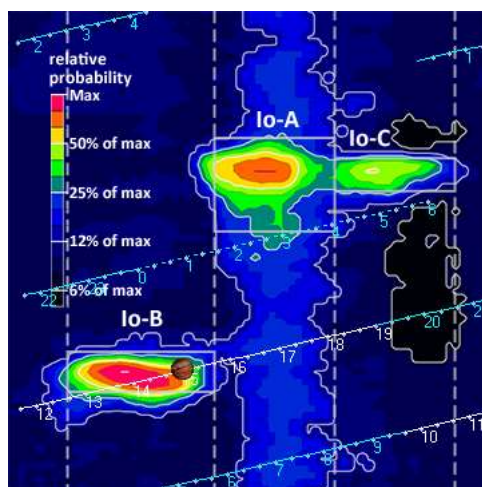
Software Radio Sky Spectrograph 2.8.50

Red = Offline

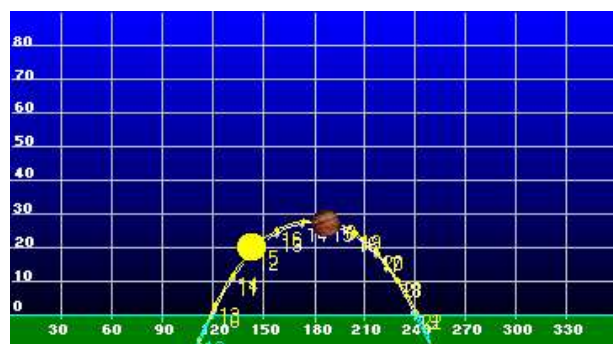
HNRAO Observing Log
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Beginning of Pass



End of Pass



HNRAO Observing Log
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EN90sq

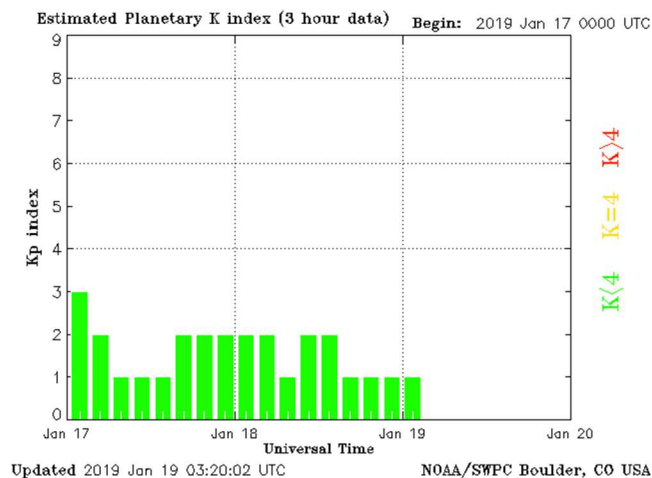


MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360	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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An RCP Io-B storm dominated by S-bursts. Storm observed with FSX-2 / LWA Array, FSX-8S / TFD Array, SDRPlay RSP2 / TFD Array and Jove II receiver/Jove Dipole Array. There was one cluster of S-bursts seen by the FSX-8S/TFD array and the FSX-2/LWA array at 1325 UT. Nothing else was observed with these two instruments. The SDRPlay RSP2/TFD array instrument and the Jove II receiver/Jove dipole array were the primary observation instruments for this storm. Weather conditions at the observatory were clear and no precipitation.

Despite the interference from foreign broadcast stations at 16 MHz and below, a surprising number of emissions were observed here. All were S-bursts. No L-bursts were seen. S2 modulation lanes were observed from 1406 UT through 1425 UT with a slope of between 110 – 133 kHz/sec.

There were several brief N-events between 23 MHz and 24 MHz.

Emissions spanned 16 MHz to 24 MHz, but it was clear that emissions were well above 24 MHz.

All SkyPipe data has been uploaded to the Radio JOVE data archive.

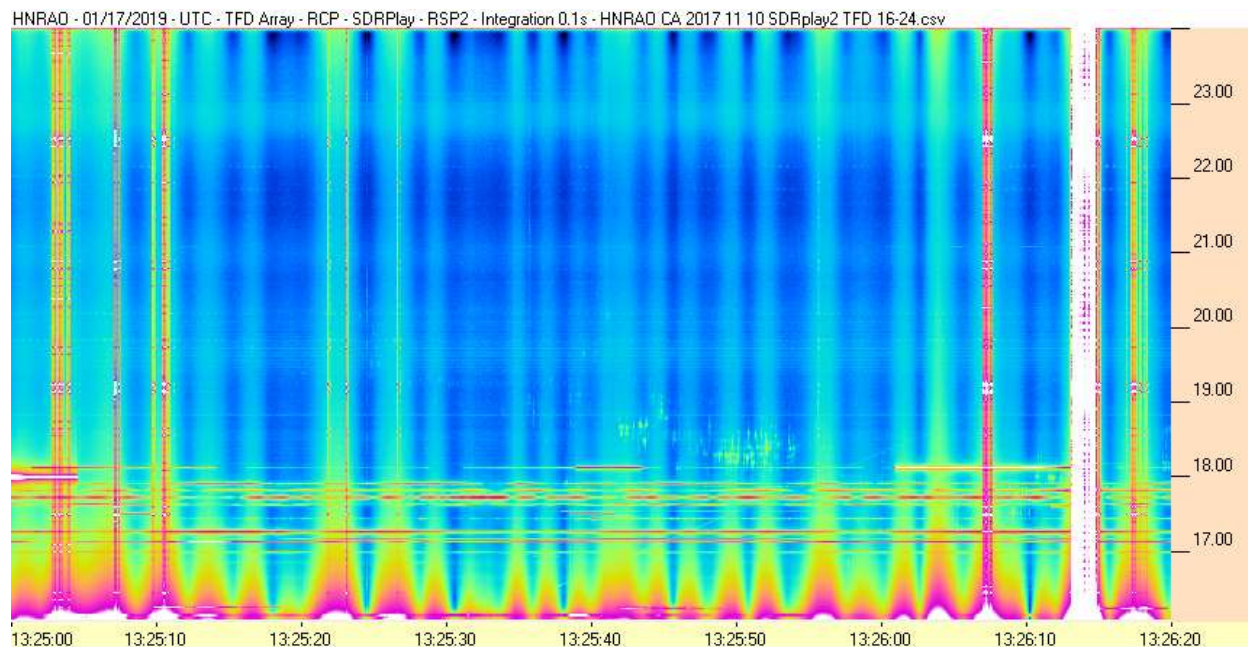
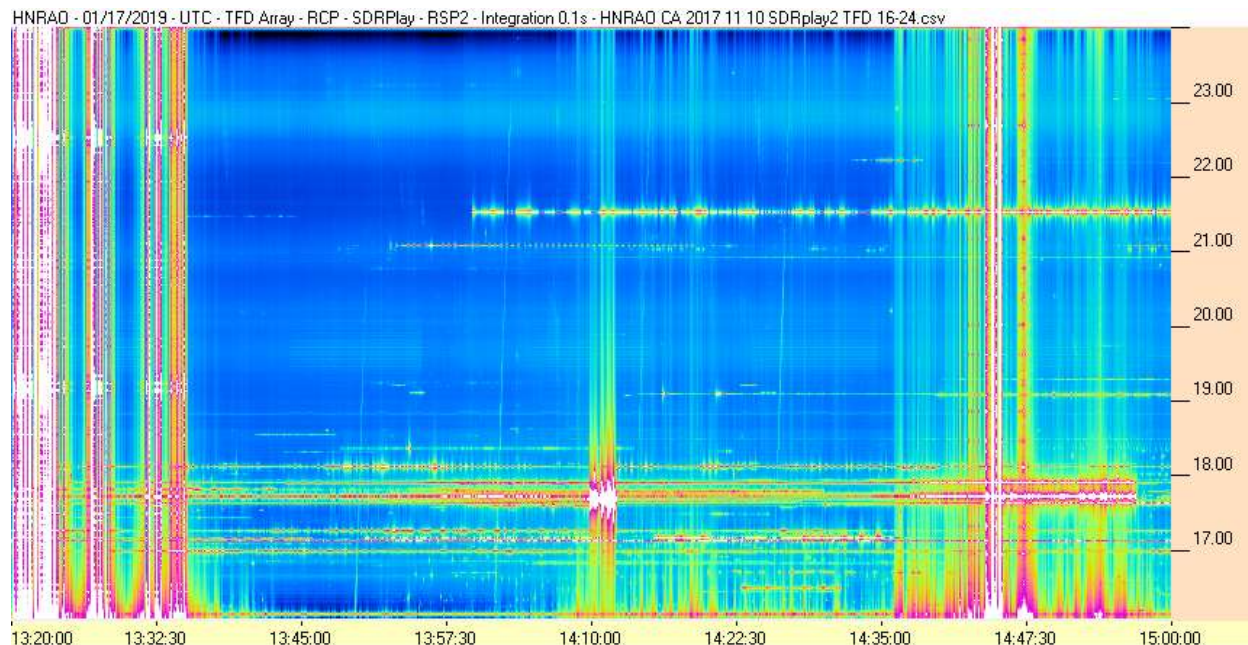
Overall an unremarkable storm, notable in it's reception for the given conditions.

EOR

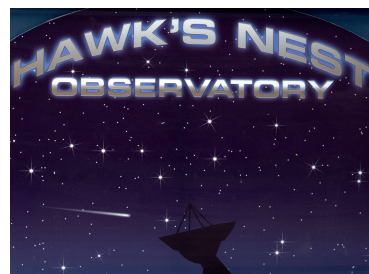
HNRAO Observing Log
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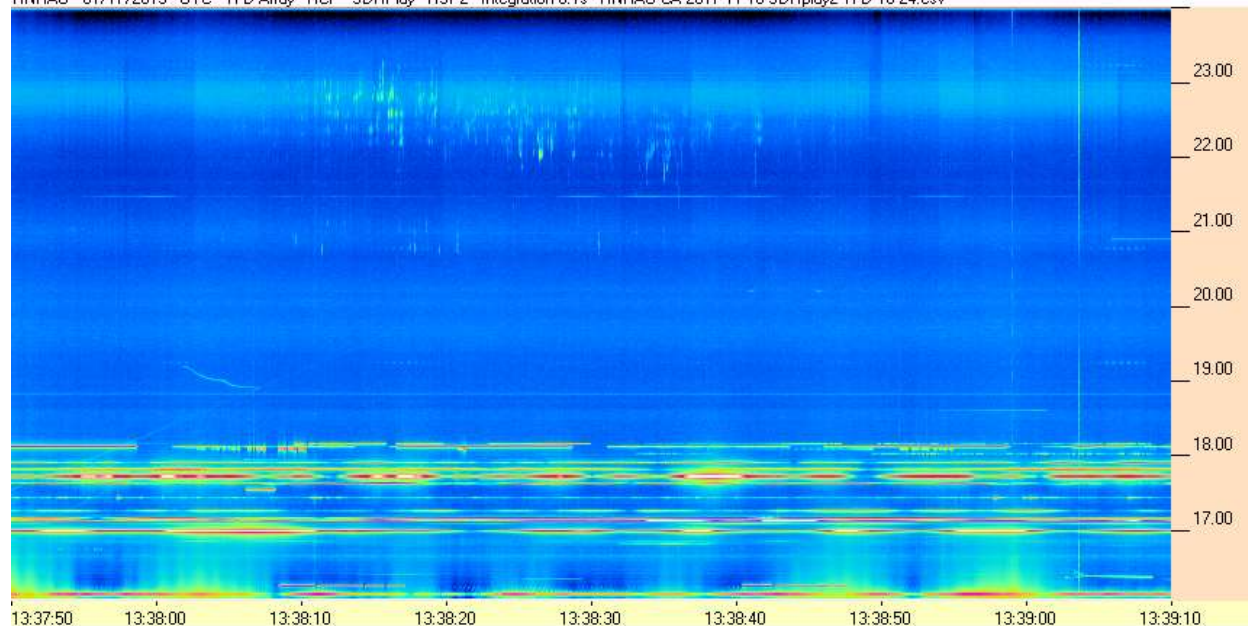
SDRPlay RSP2 / TFD Array



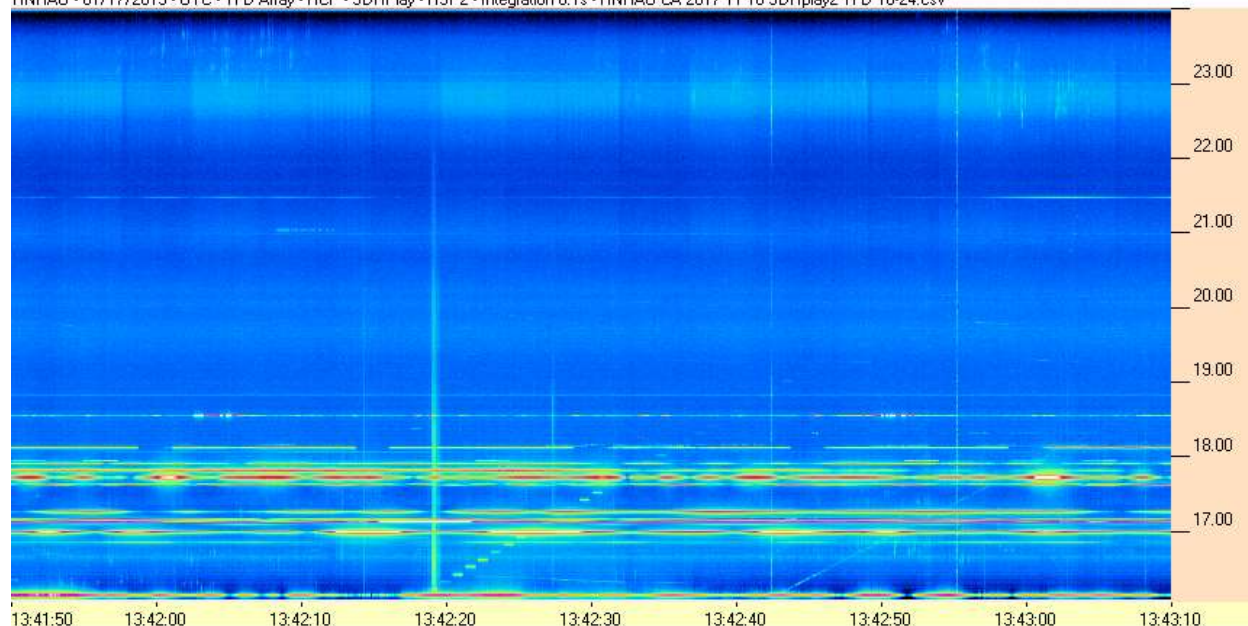
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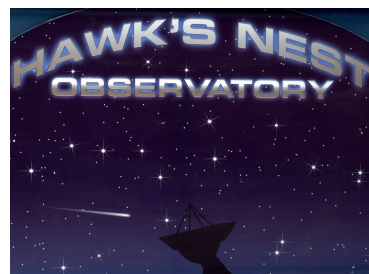
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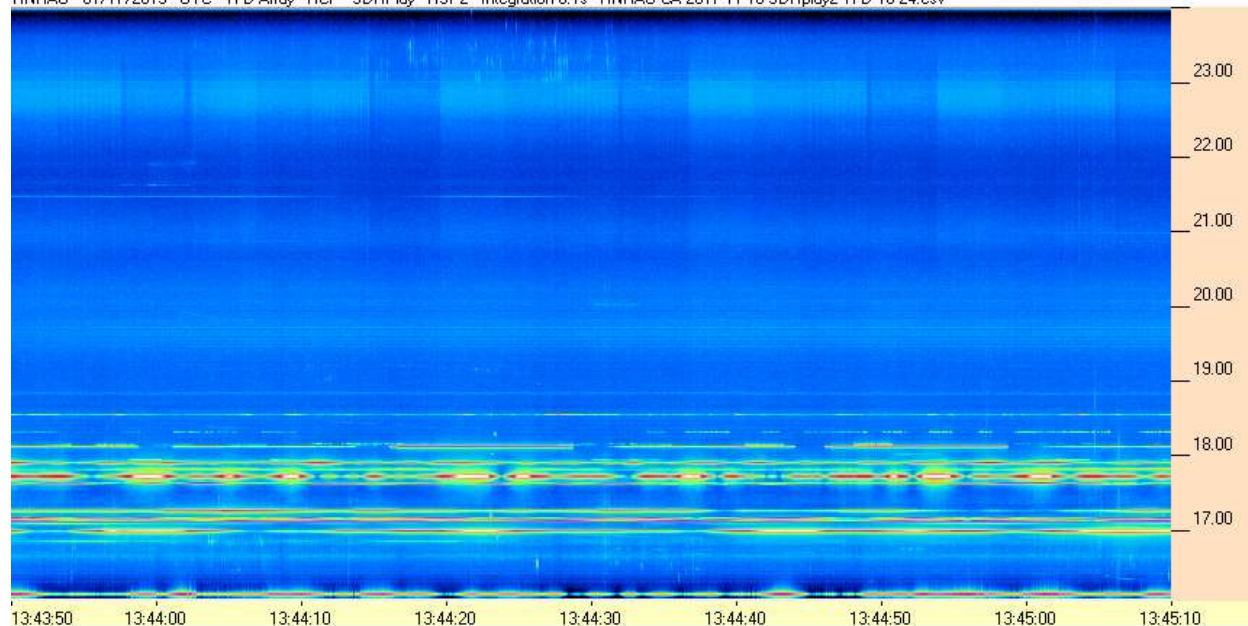
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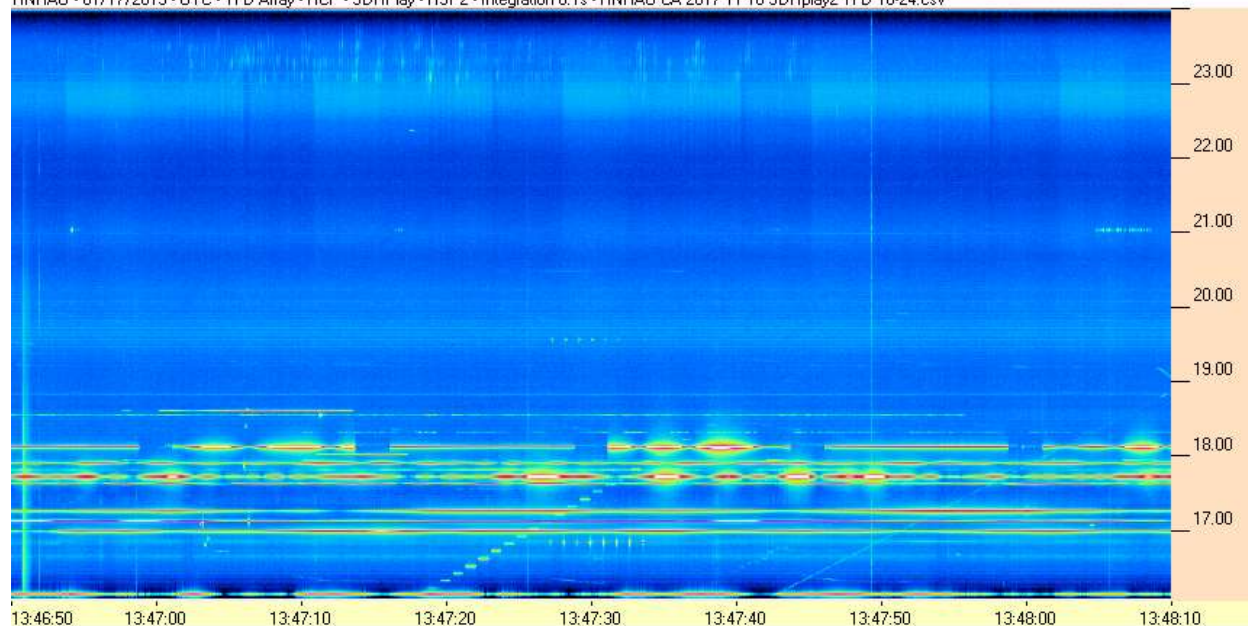
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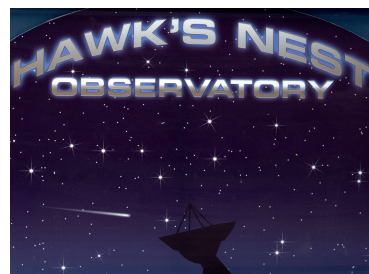
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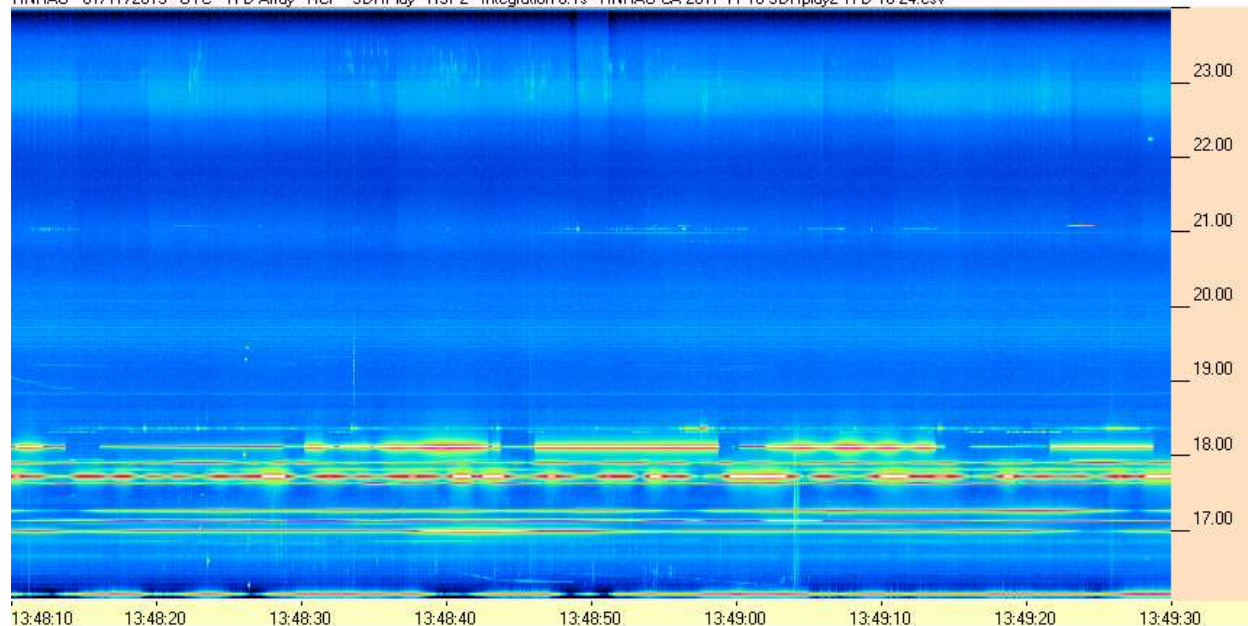
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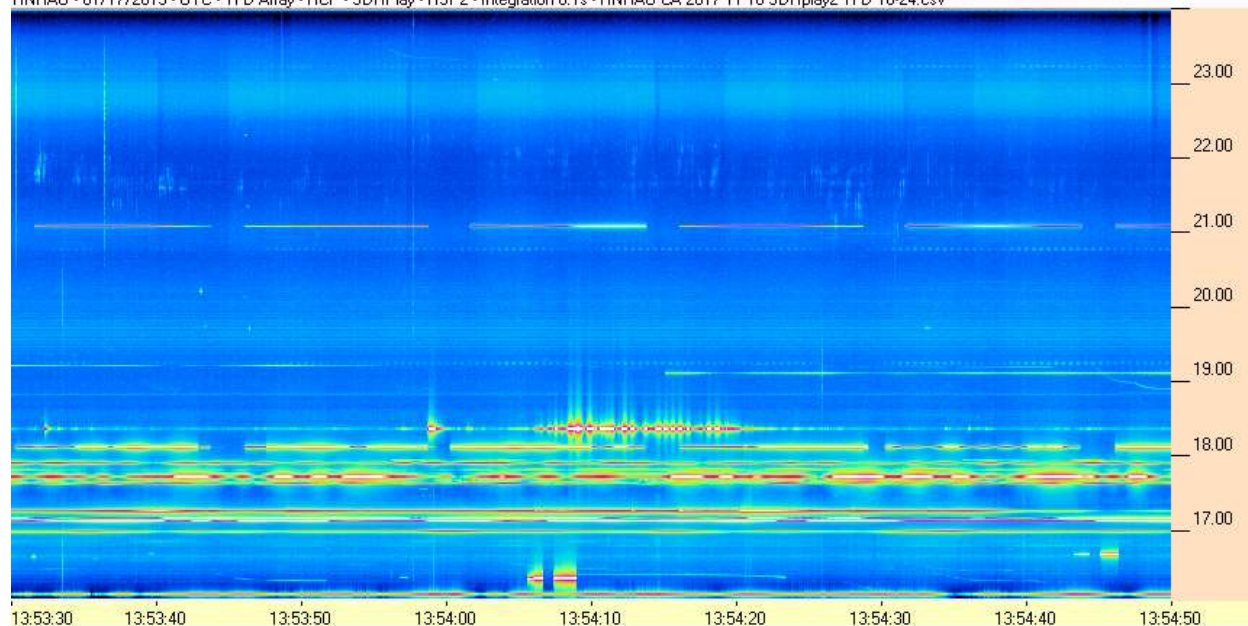
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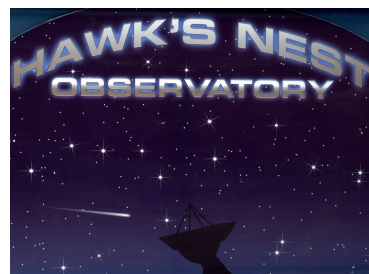
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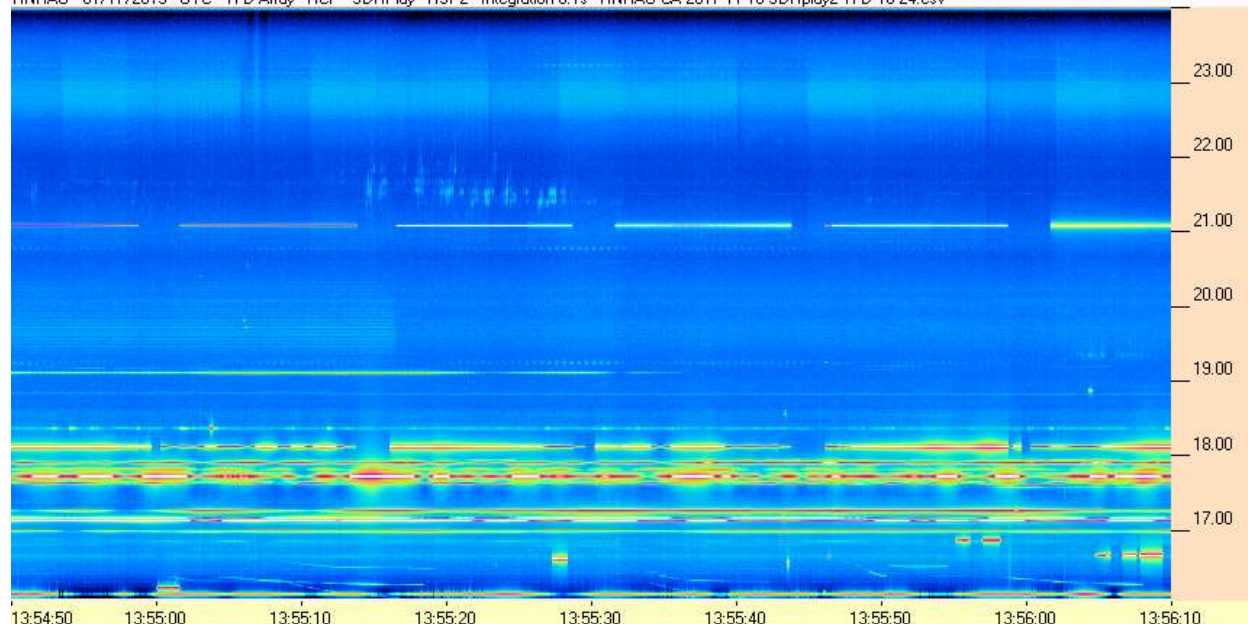
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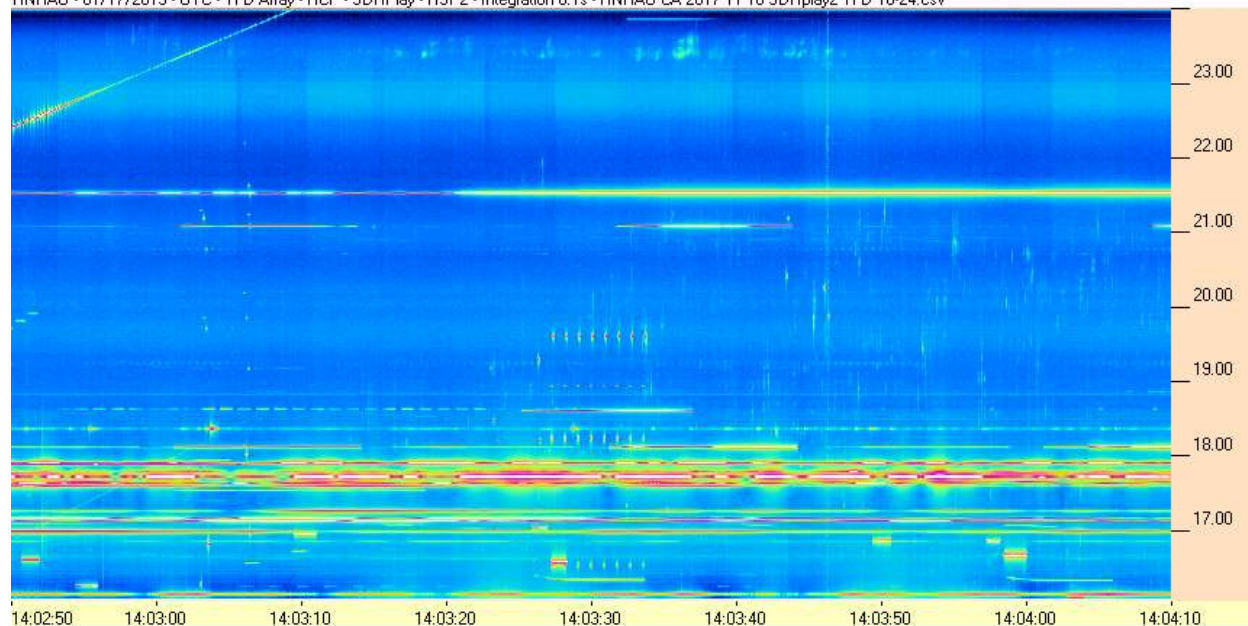
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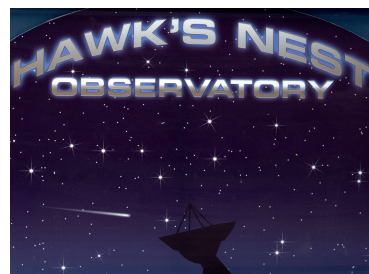
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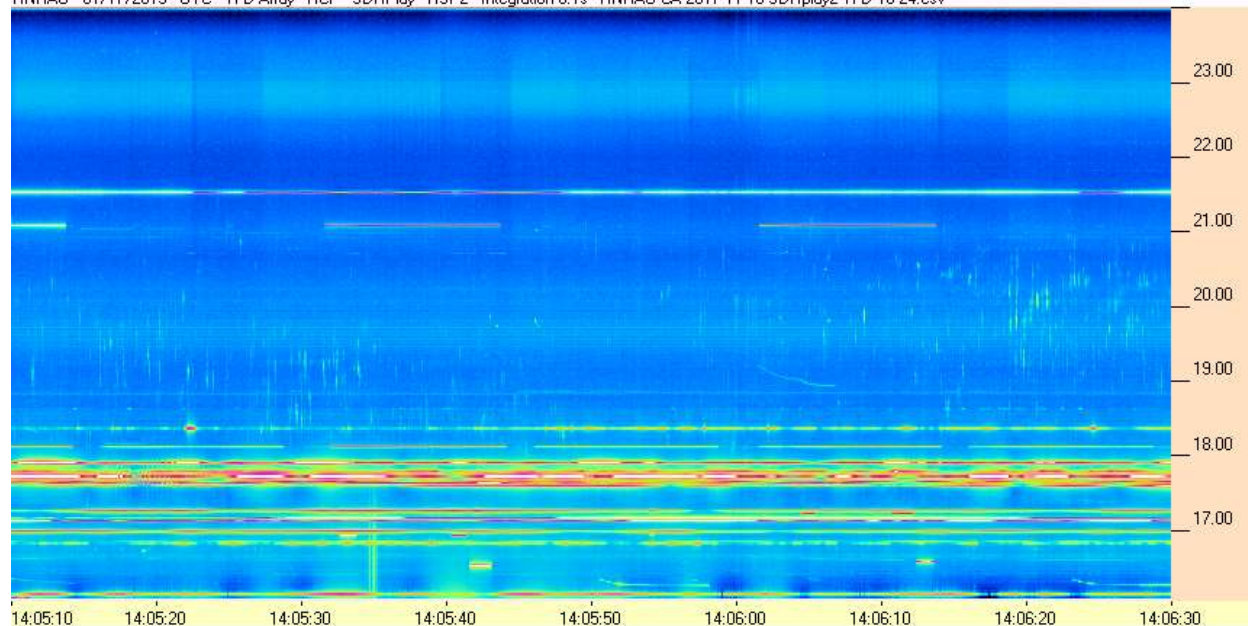
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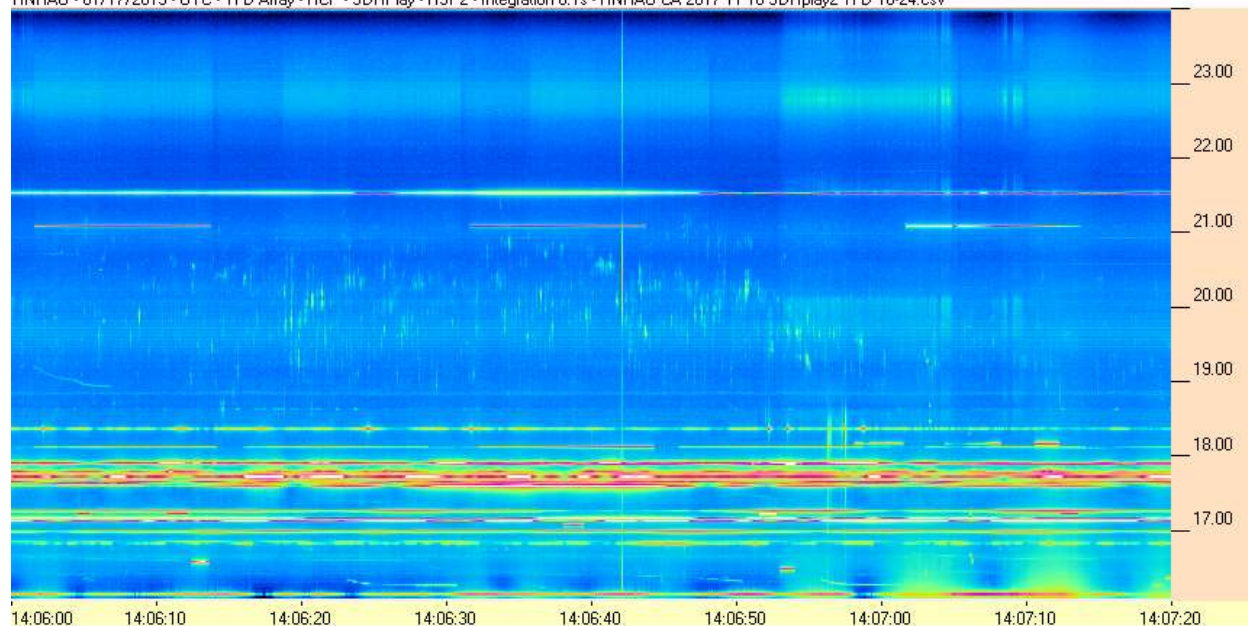
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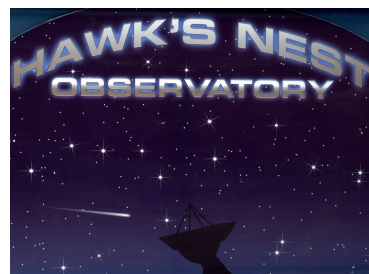
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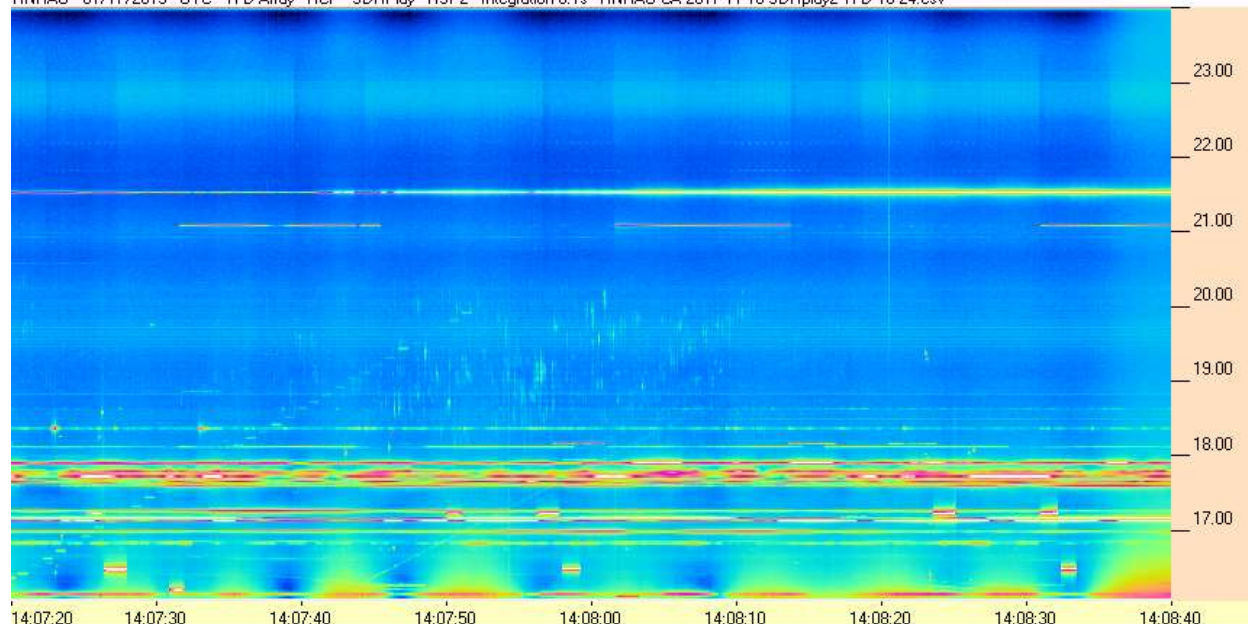
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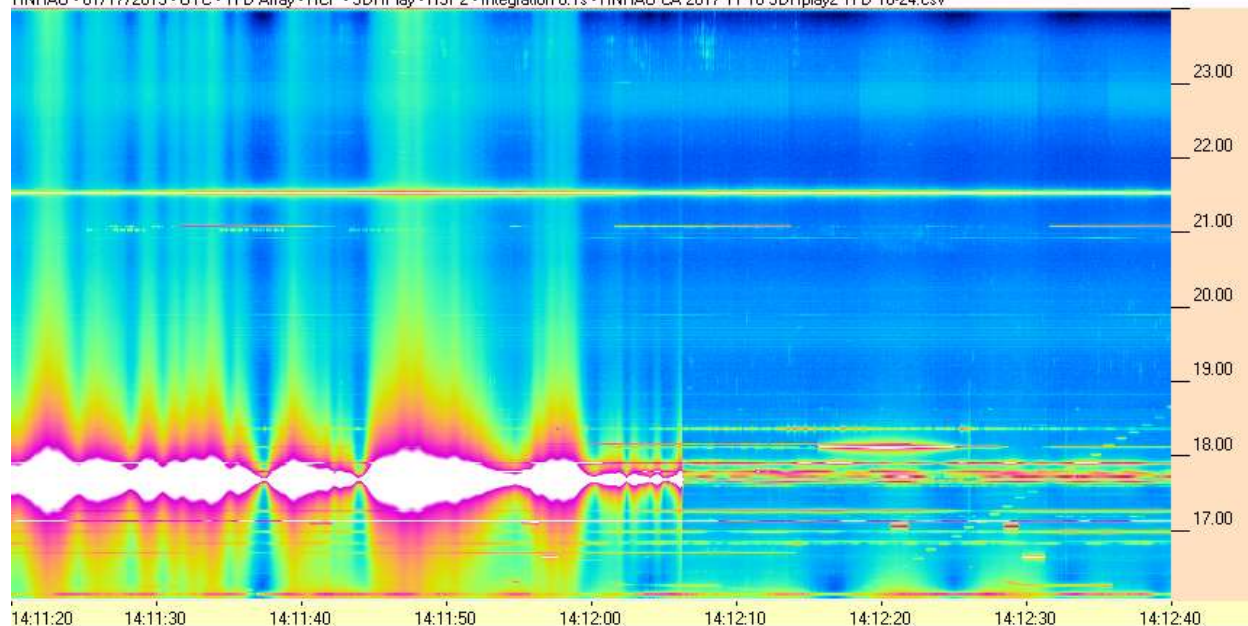
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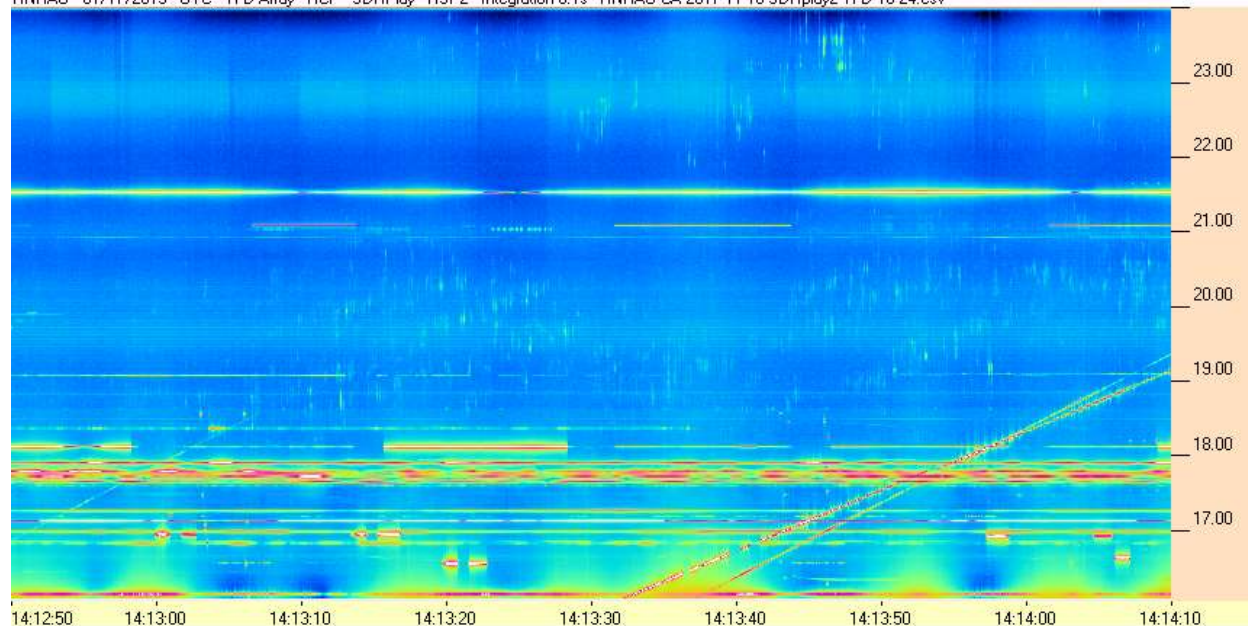
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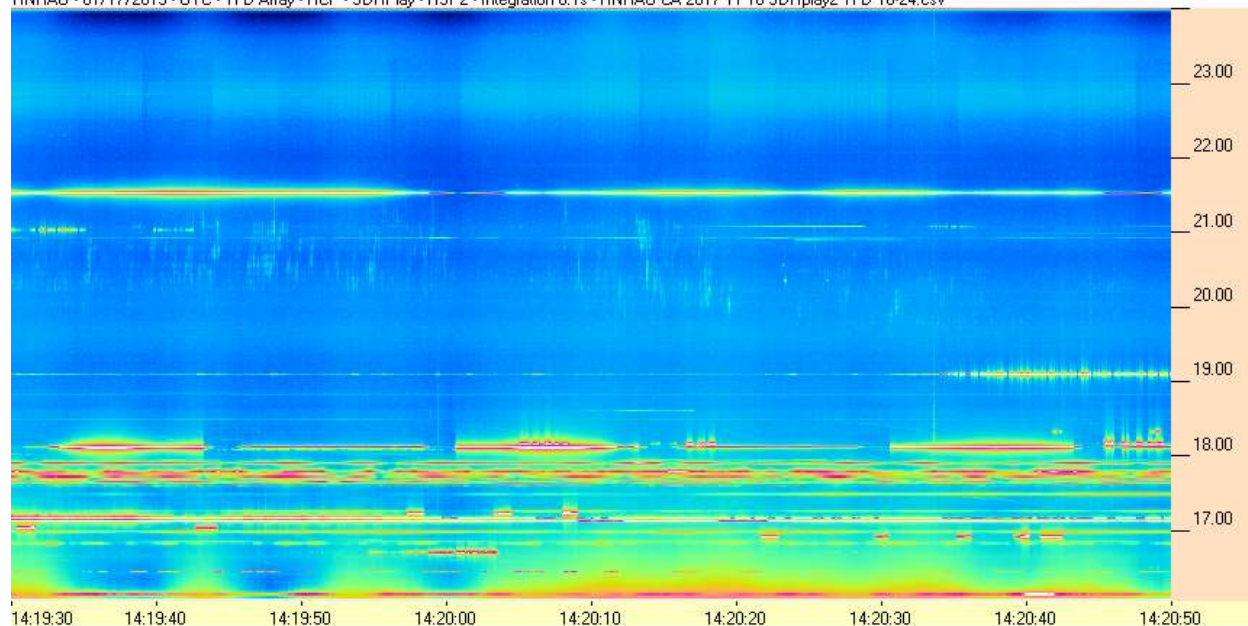
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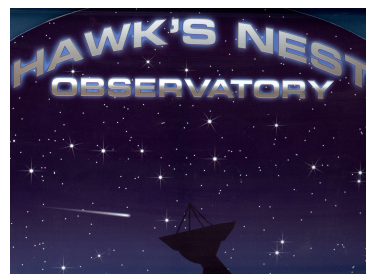
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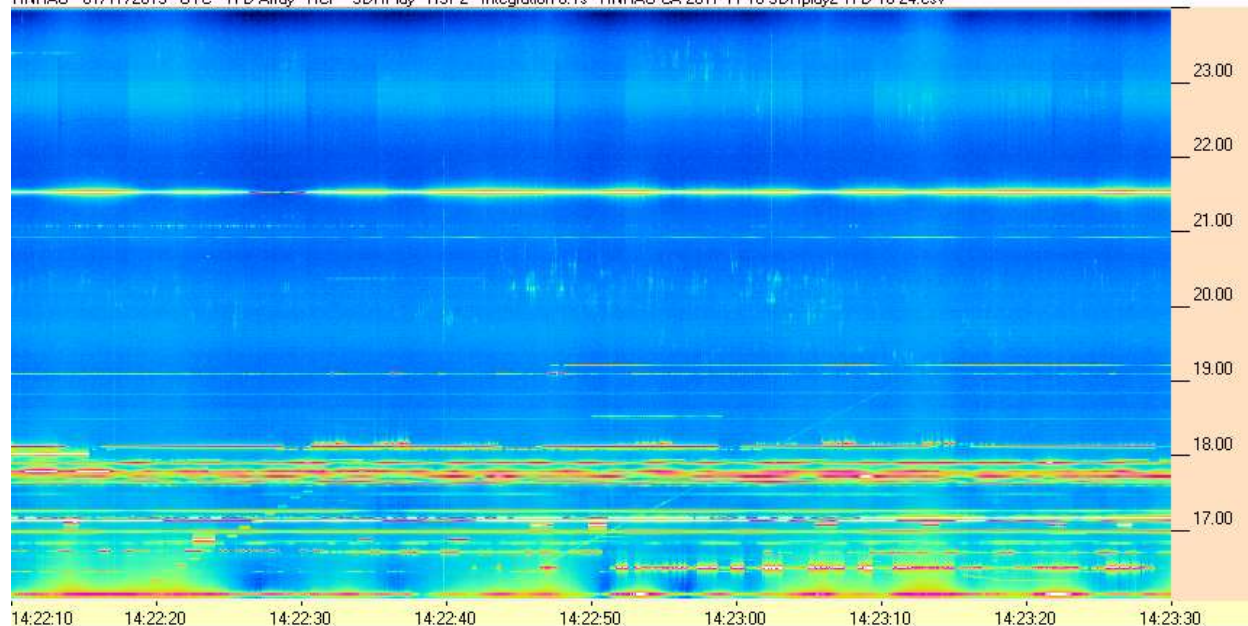
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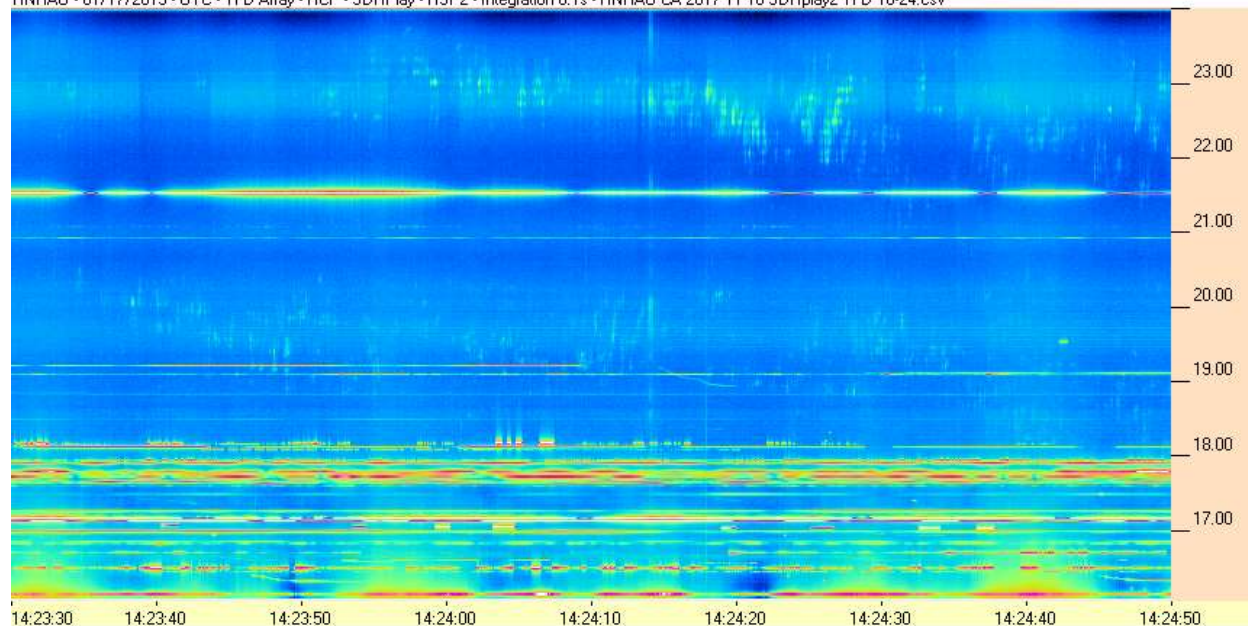
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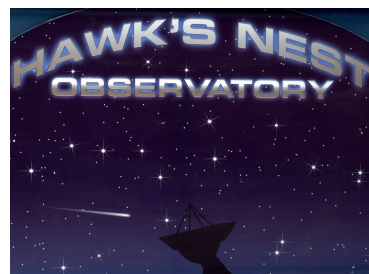
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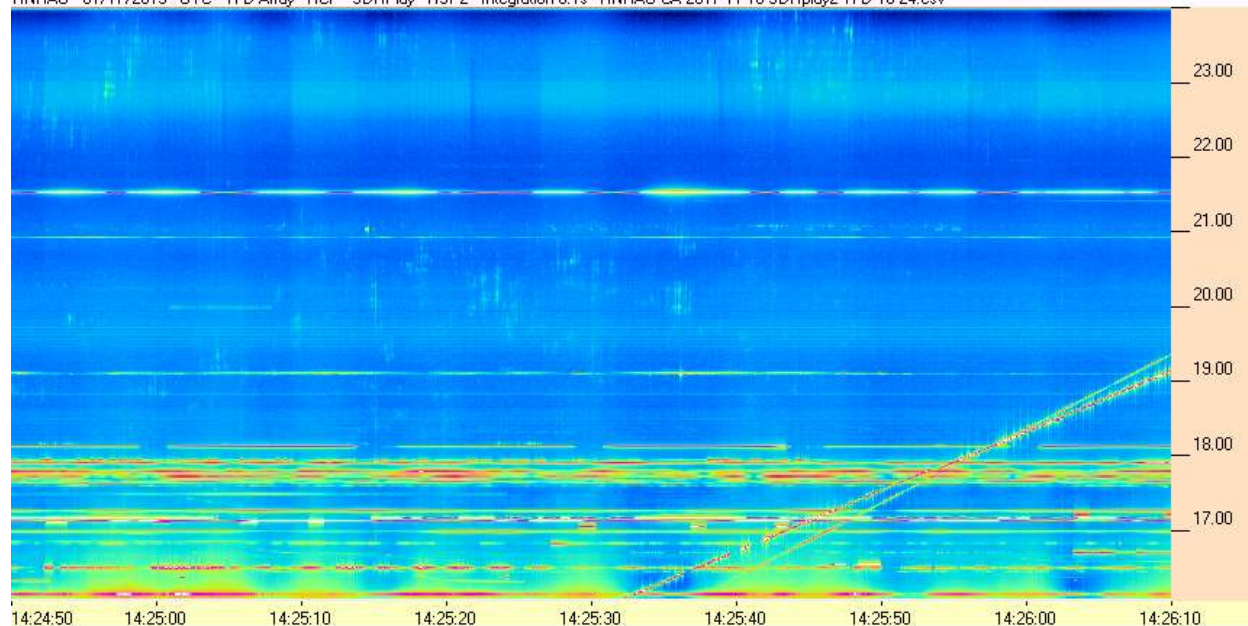
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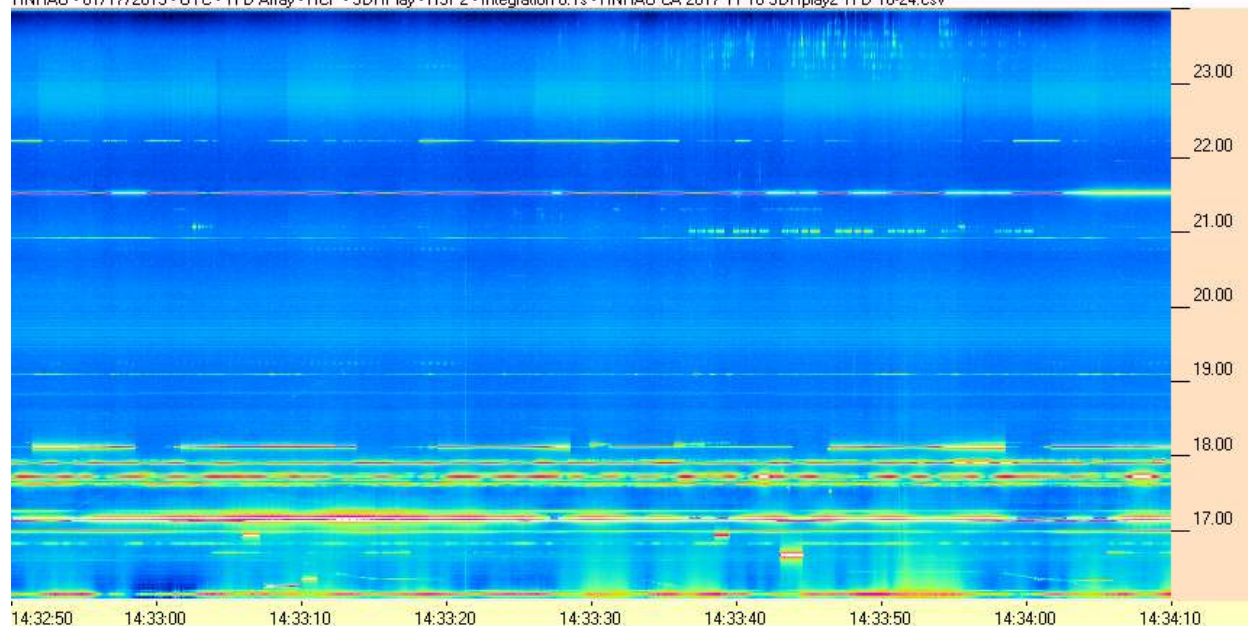
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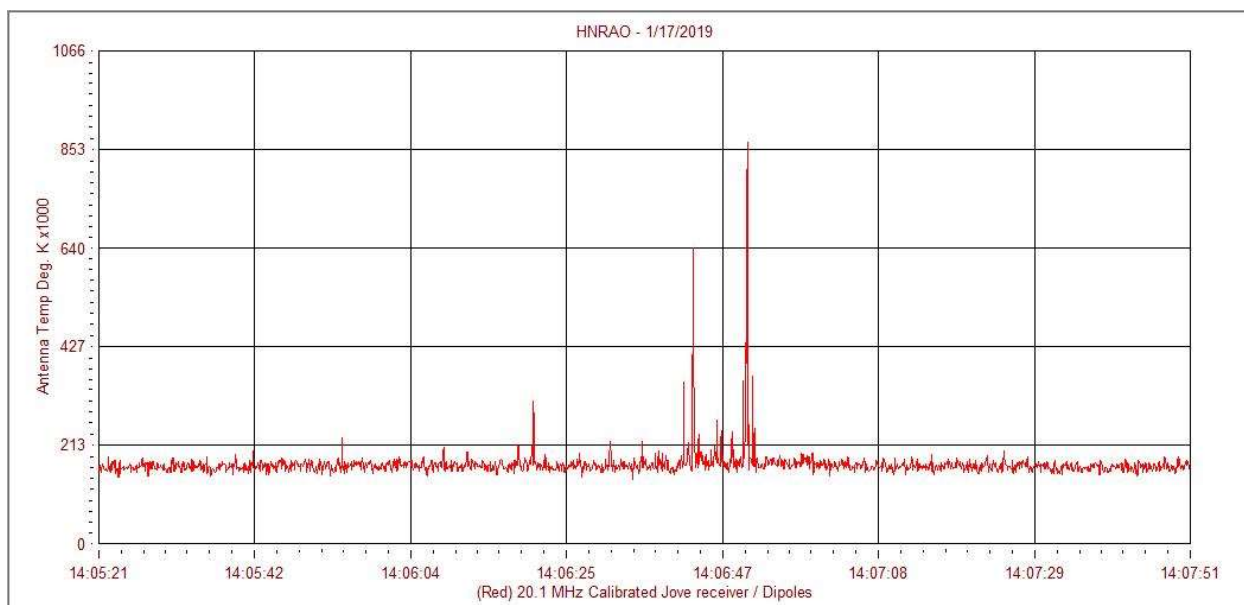
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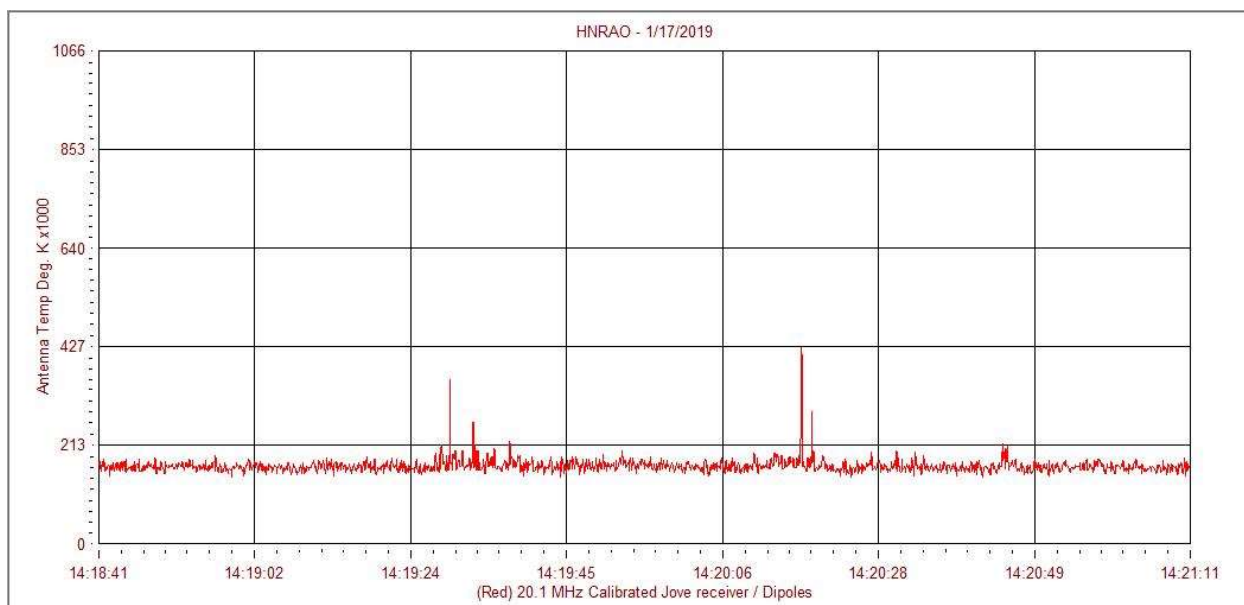
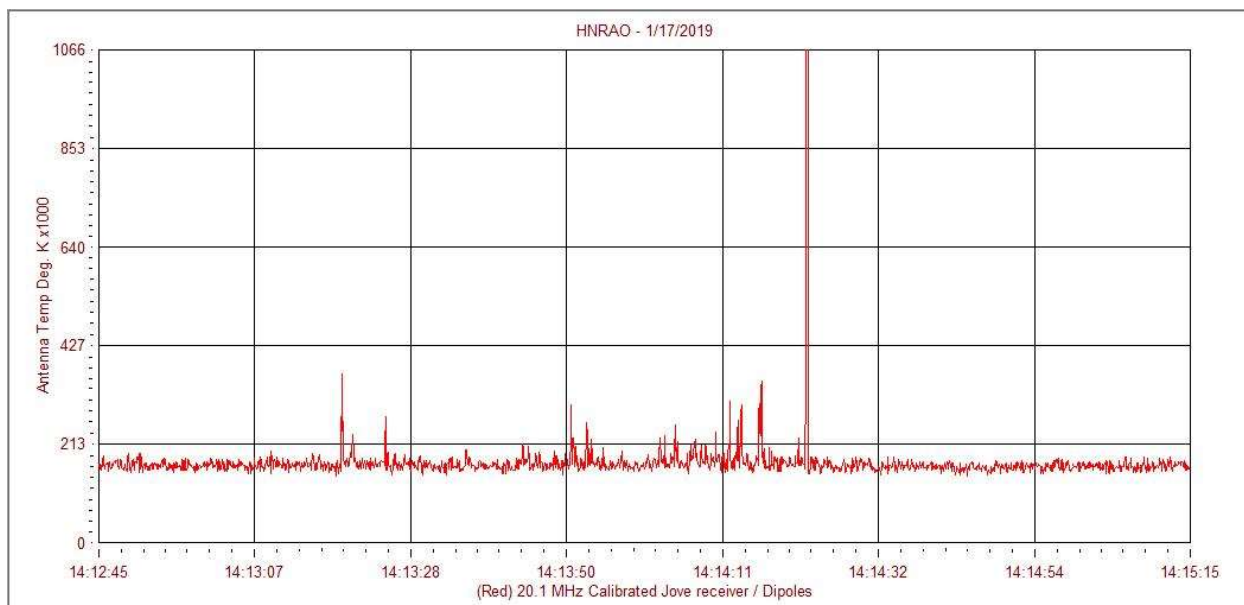


JOVE II Receiver / JOVE Dipole Array



HNRAO Observing Log

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HNRAO Observing Log
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