

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: April 24, 2018

Object: Jupiter – Io-C

Observer: RF

Start - Time UT:	0711	Planetary K-index:	2
Jupiter Altitude (deg):	31.8	Jupiter Azimuth (deg):	193.1
Jupiter CML:	260.98	Jupiter Io Phase:	235.92
Jupiter RA (hr/min):	15:12	Jupiter Dec (hr/min):	-16:32
Hour Angle (hr/min):	00:46	Polarization	LCP
Sun Altitude (deg):	-30.4	Sun Azimuth (deg):	034.0
Sun RA (hr/min):	02:00	Sun Dec (hr/min):	12:14

End – Time UT:	0937	De:	-3.4
Jupiter Altitude (deg):	17.4	Jupiter Azimuth (deg):	228.5
Jupiter CML:	349.26	Jupiter Io Phase	256.72
Hour Angle (hr/min):	03:13	Duration (min):	226
Sun Altitude (deg):	-09.3	Sun Azimuth (deg):	064.9
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

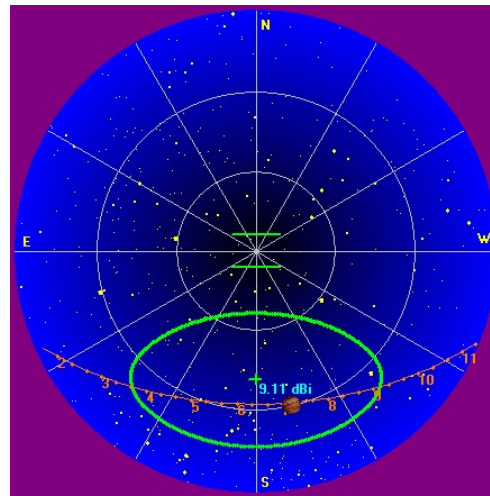
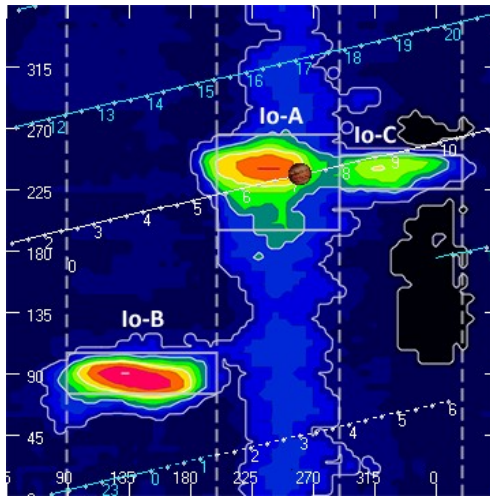
TFD array phased @ 35 degrees for 2017-2018 season

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

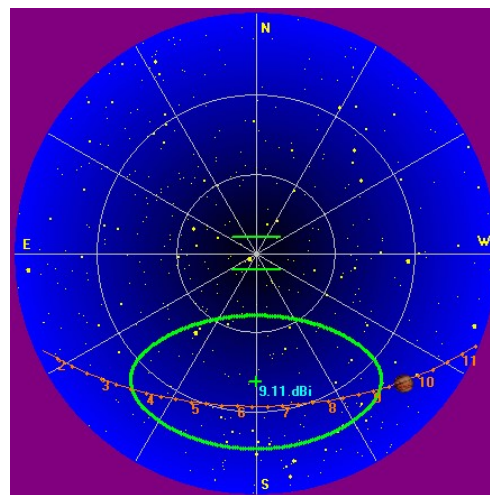
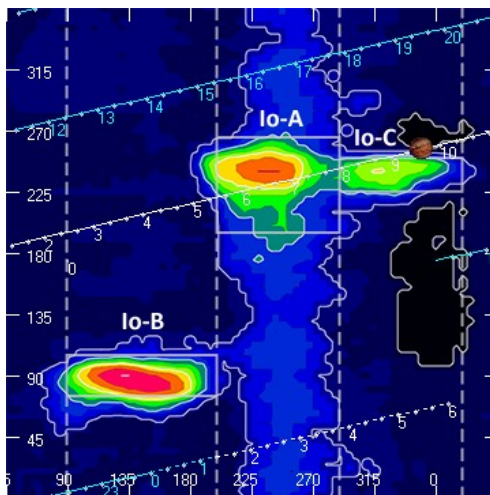
* Used for testing and evaluating antenna systems

Software Radio Sky Spectrograph 2.8.50

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Beginning of Pass



End of Pass

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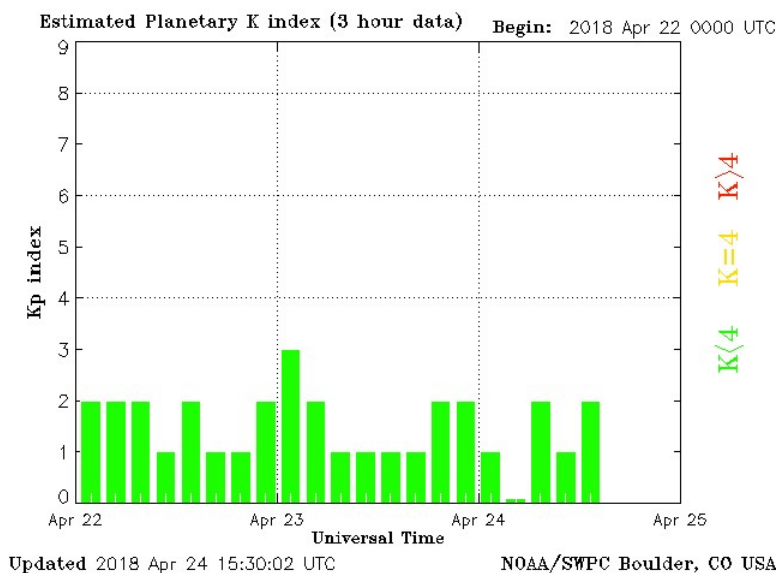


MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360	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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Beginning early after the Io-A storm that preceded it, this positive drift LCP Io-C storm contained mostly L-bursts but also has S-bursts at the end.

While the L-bursts were spread from 16 MHz to 24 MHz, the S-bursts were never observed to rise above 18 MHz.

Well-defined L4 modulation lanes were observed with a few measurable S4 modulation lanes towards the end of emissions.

Of the two spectrographs capable of observing this storm, only the SDRPlay/RSP2 recorded data. The data files from the FSX-8S were (for some reason) not written to the hard drive and were lost.

One single L-burst was strong enough at 20.1 MHz to be observed with the linear Jove dual dipoles, SkyPipe record which was seen to reach 60 kK.

Other than it's being relatively early following the Io-A event, there was nothing else of note.

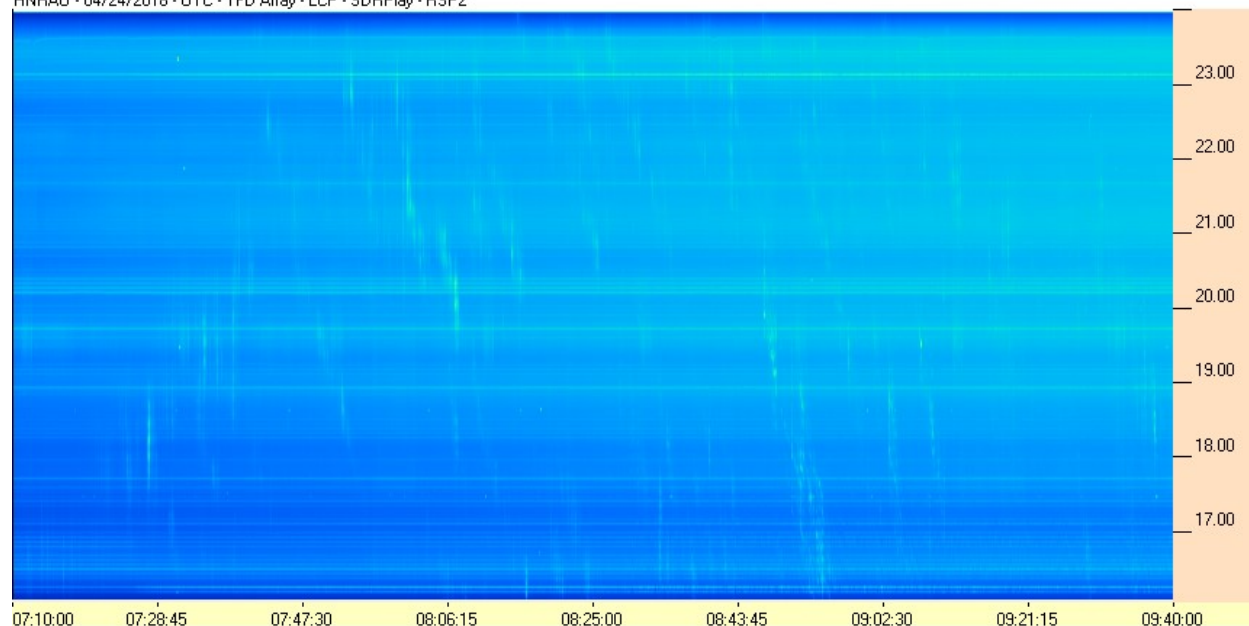
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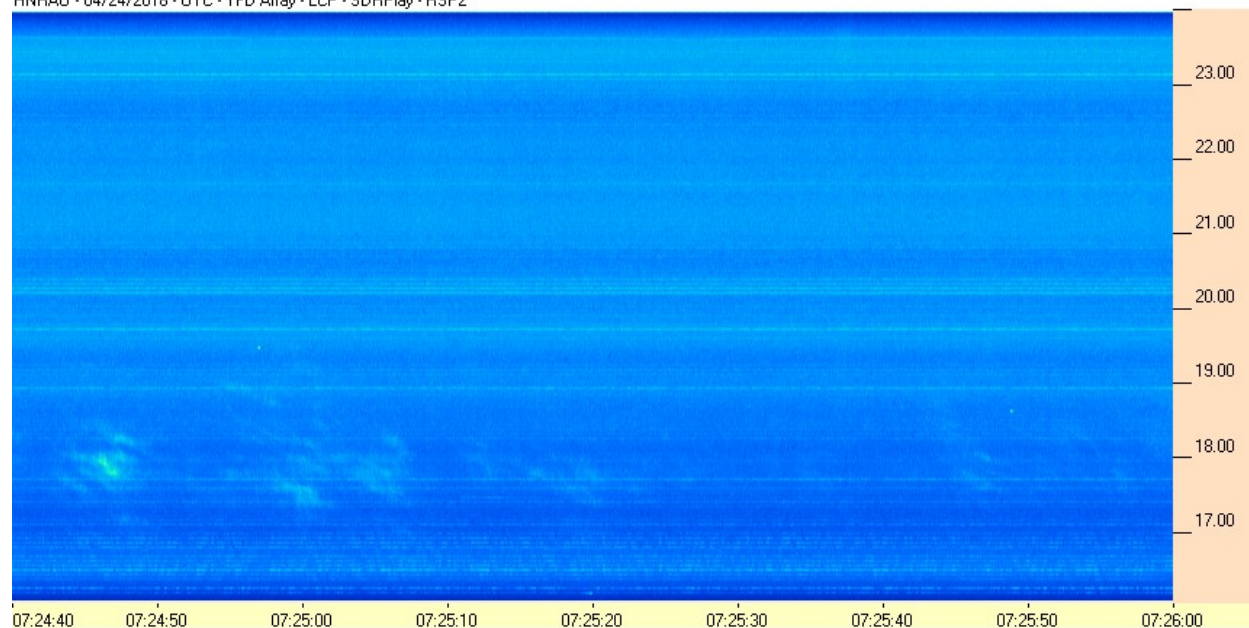


SDRPlay RSP 2 / TFD Array

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



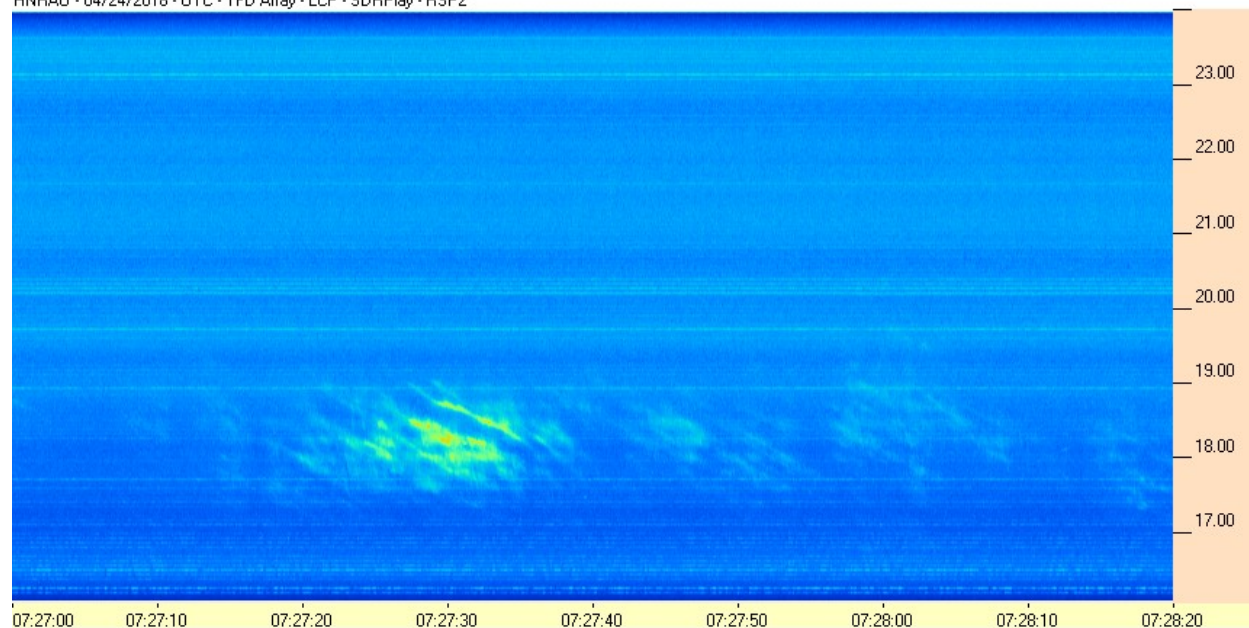
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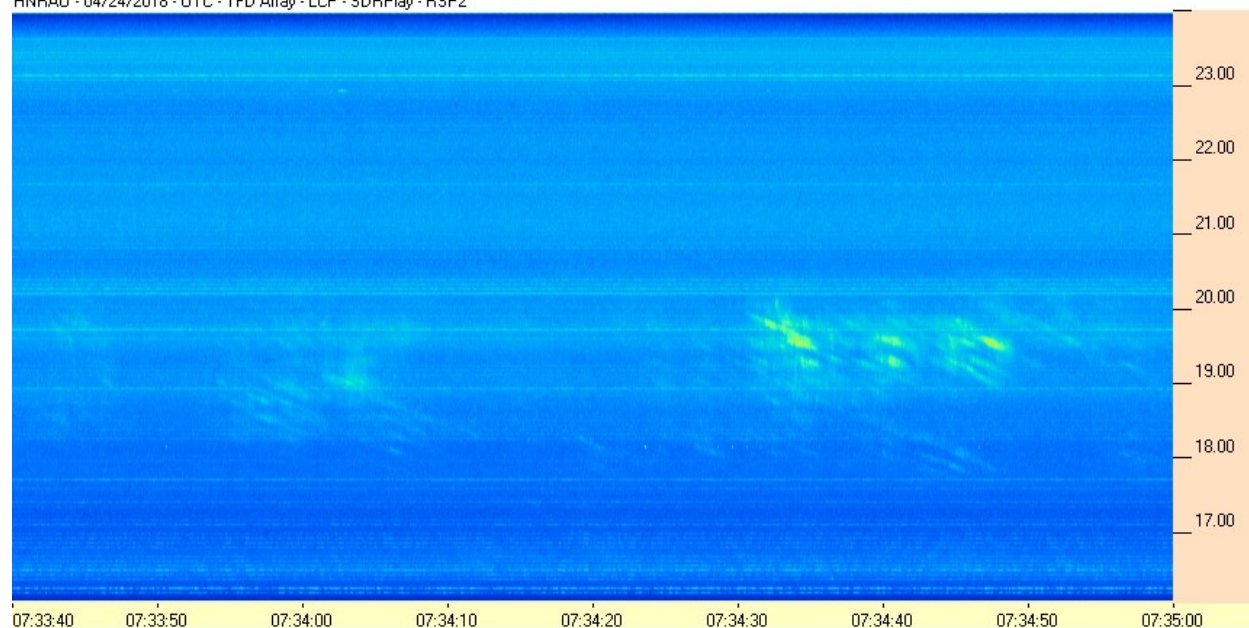
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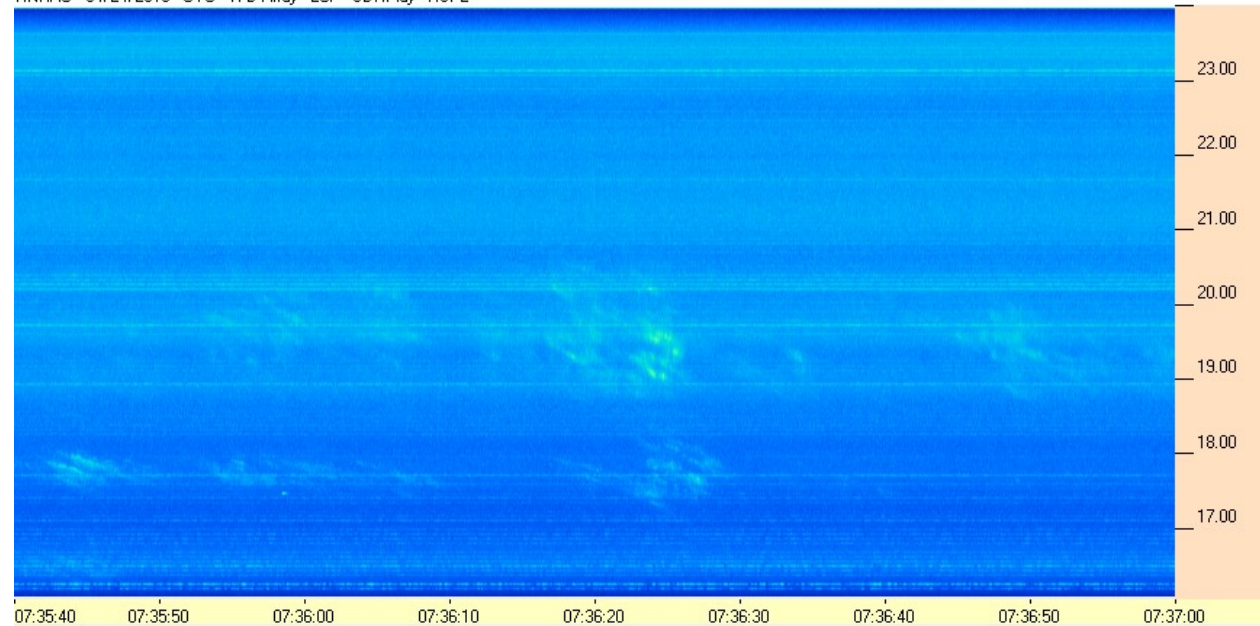
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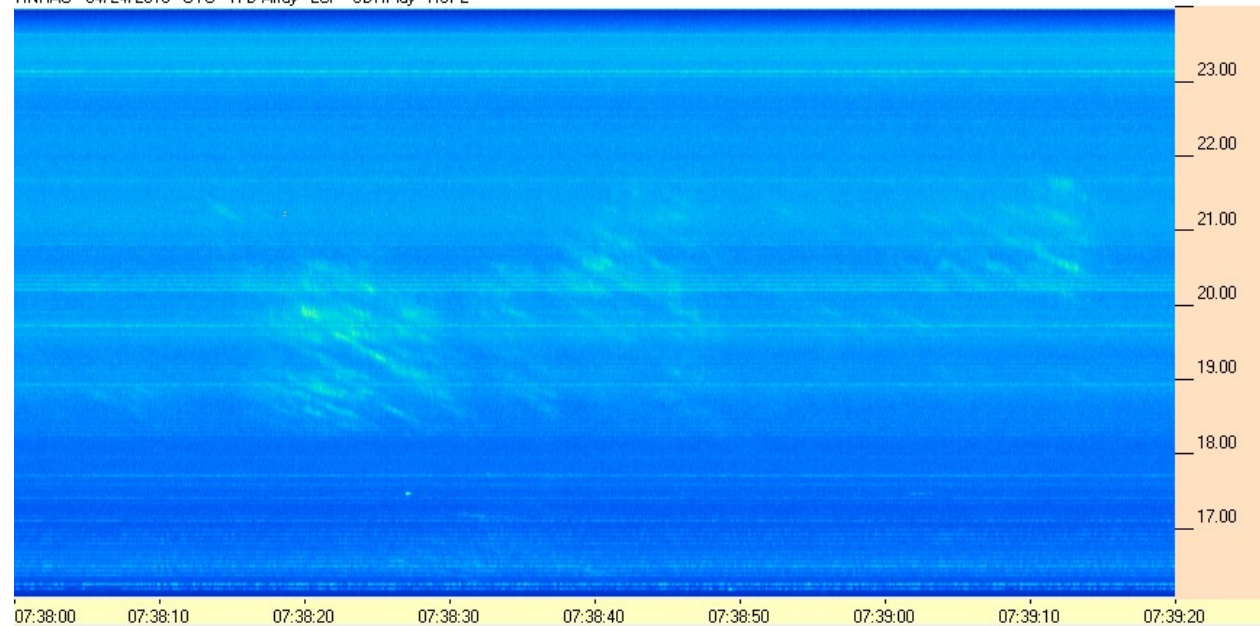
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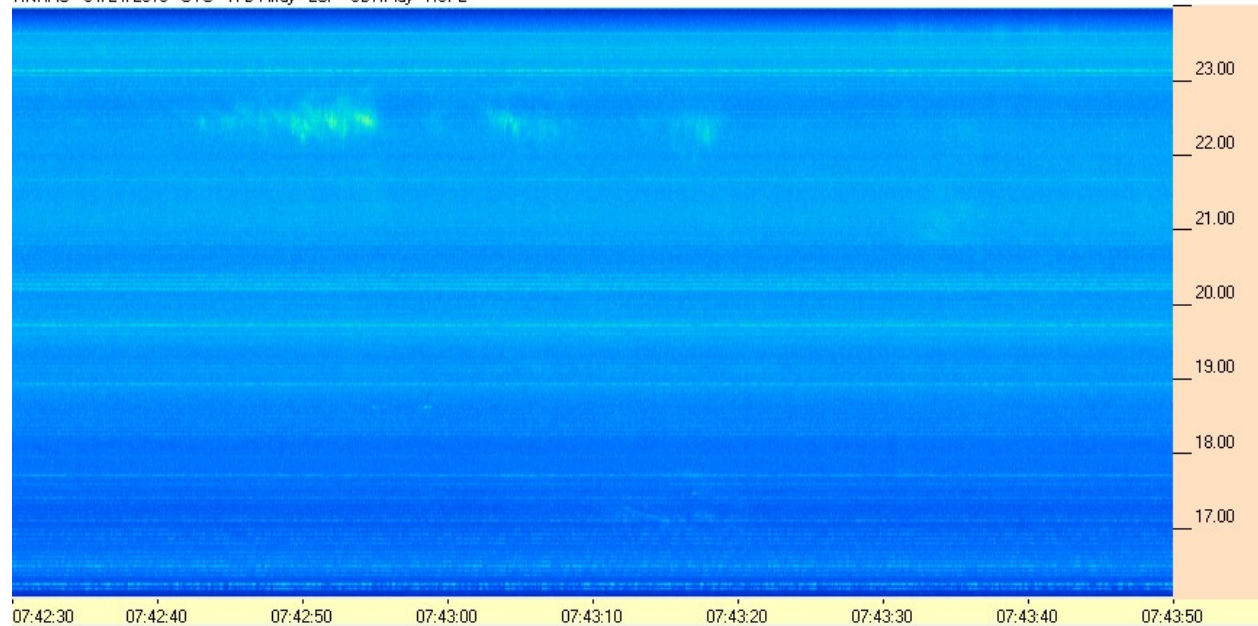
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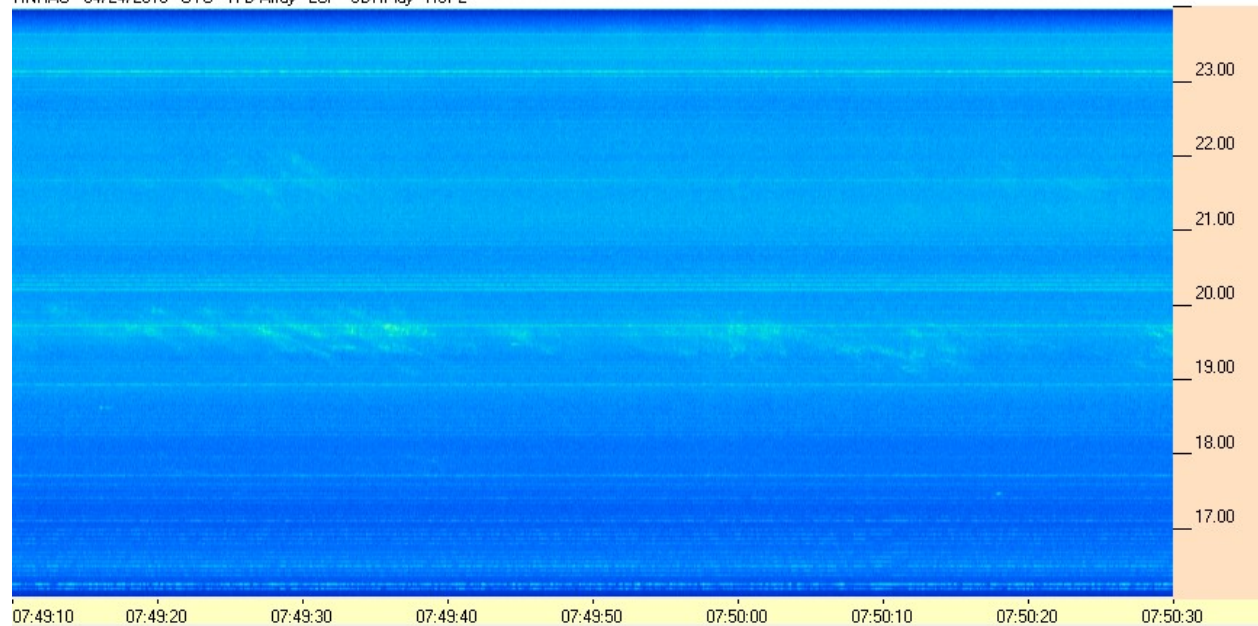
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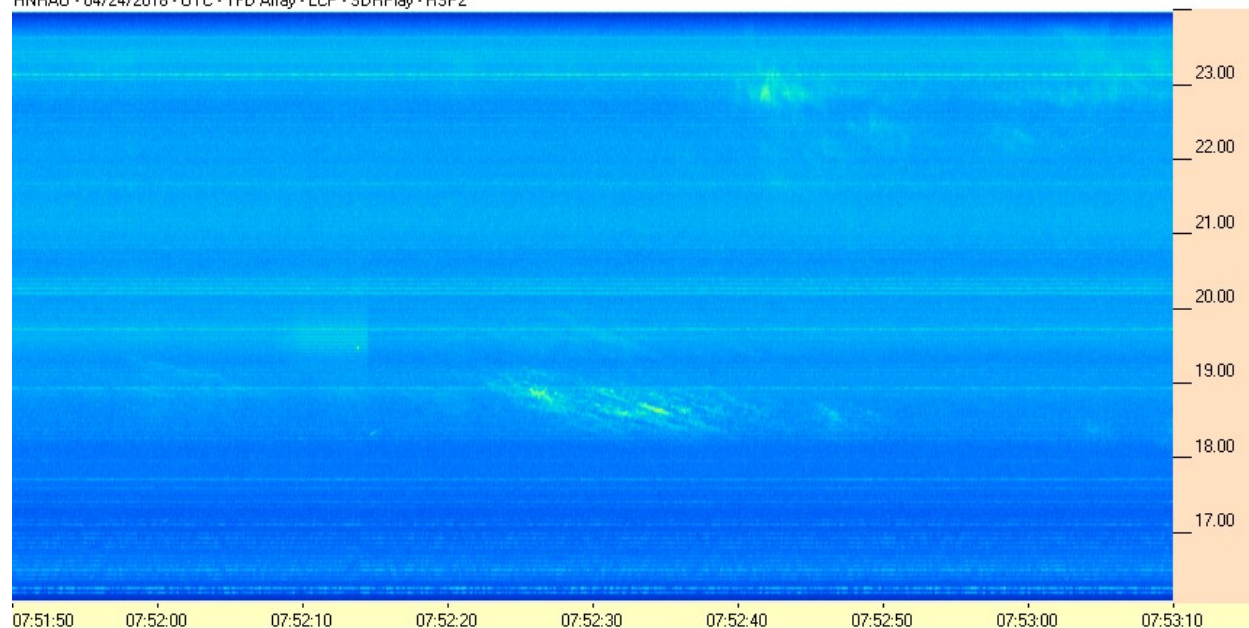
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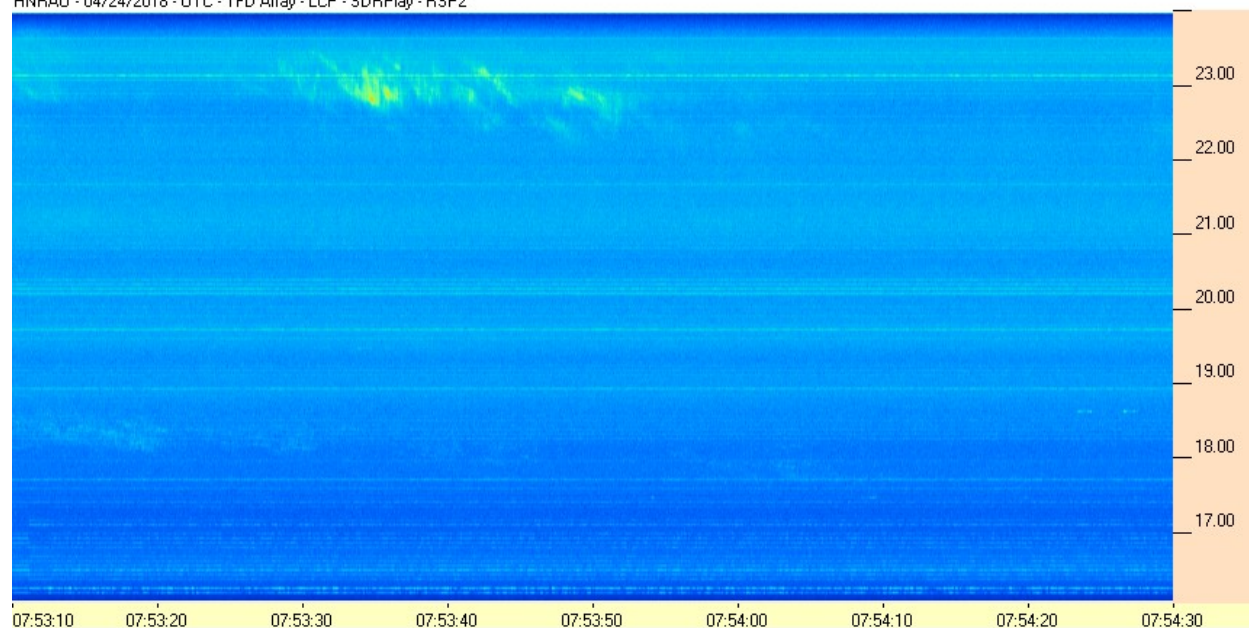
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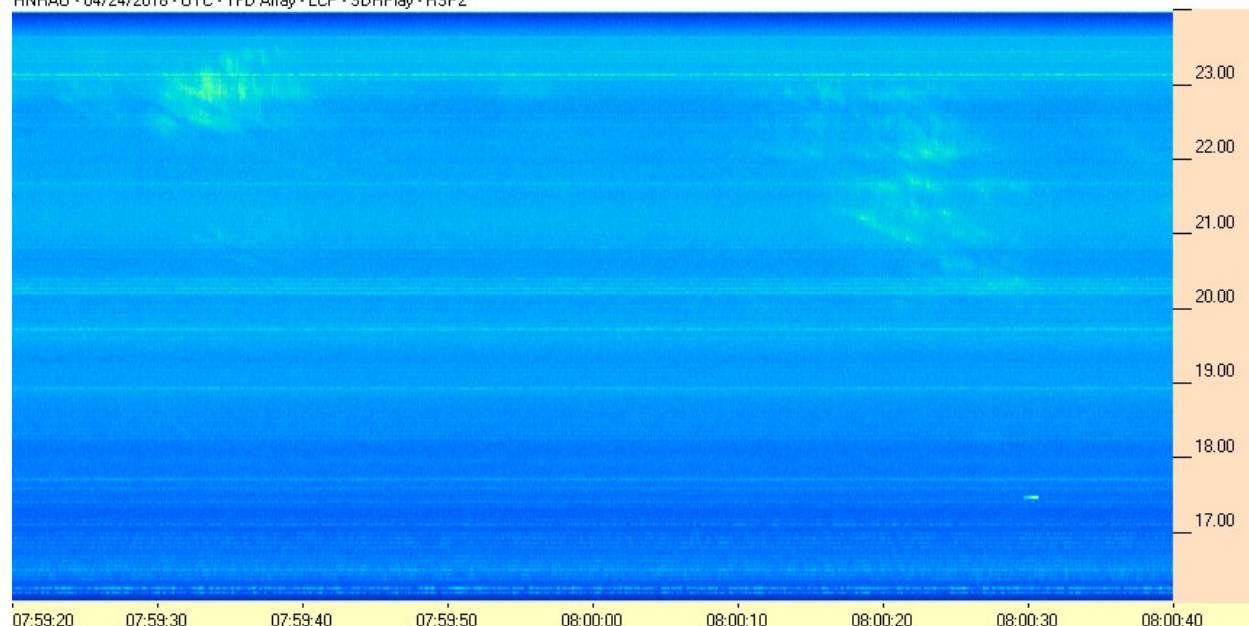
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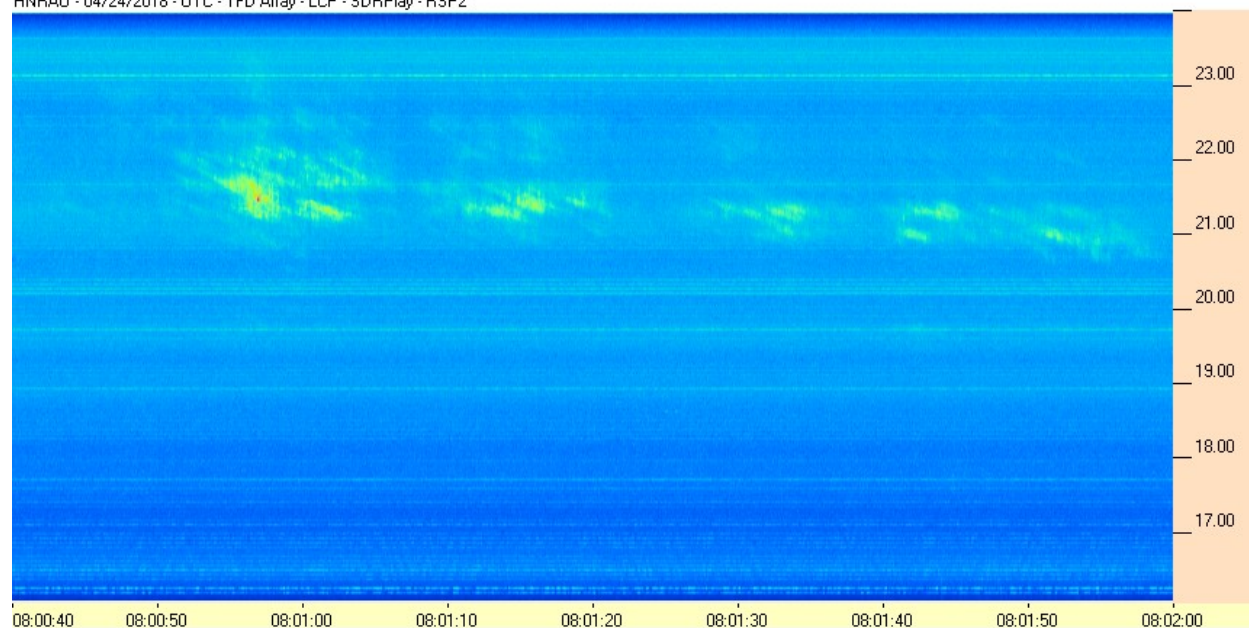
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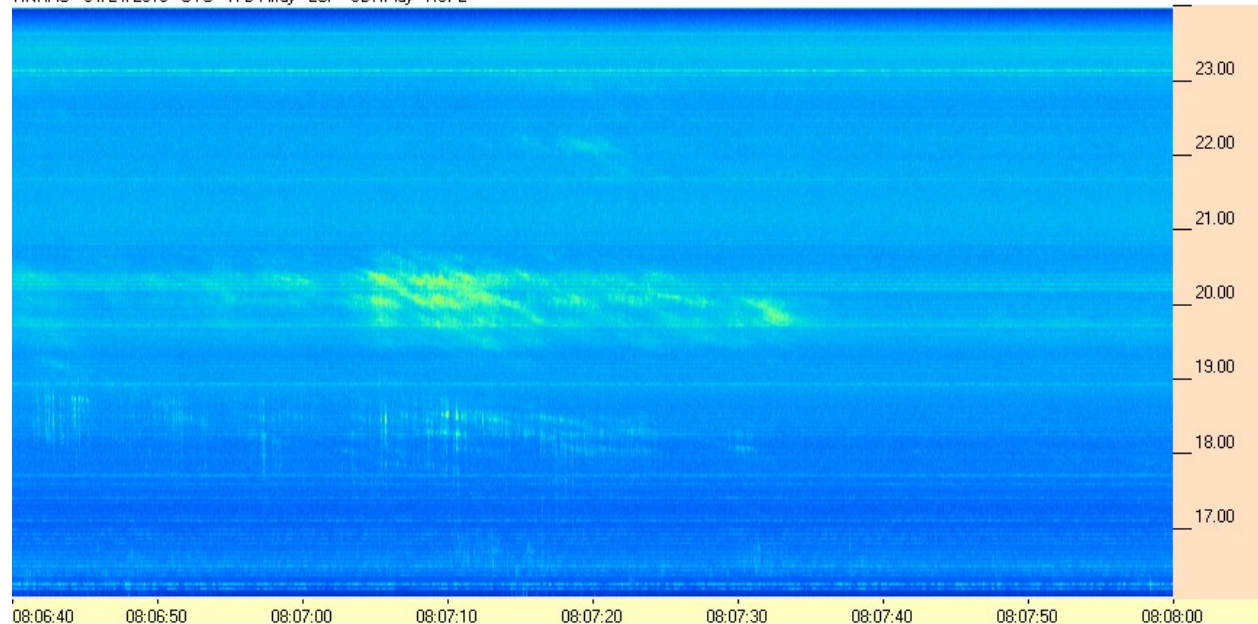
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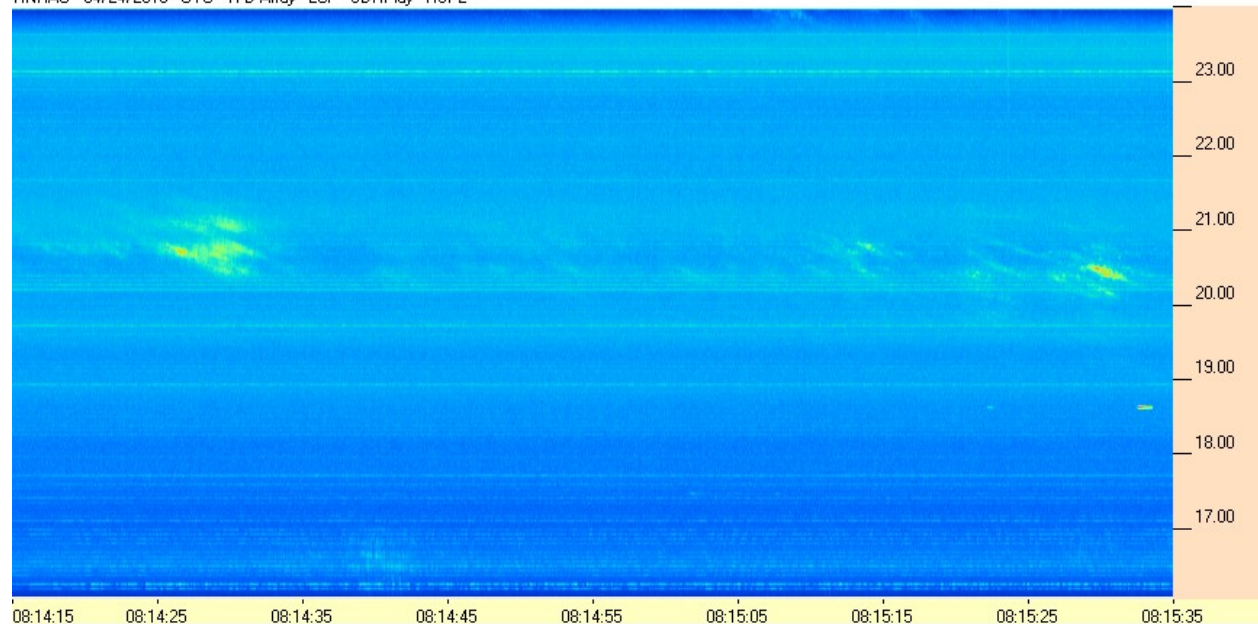
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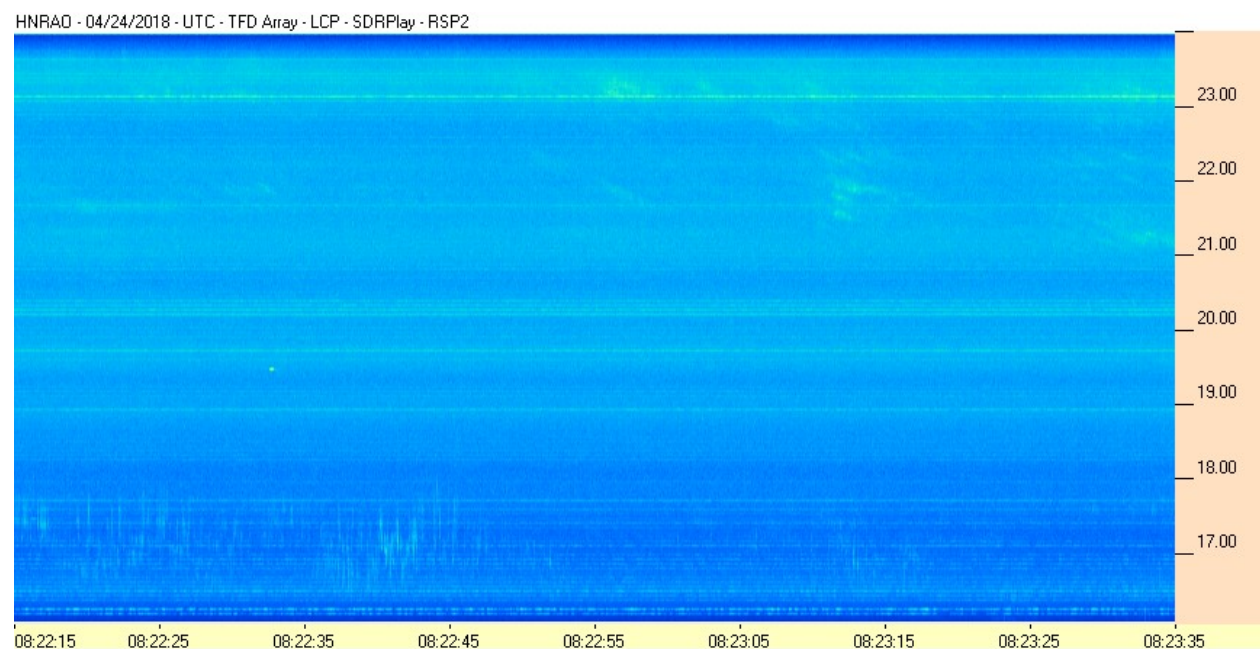
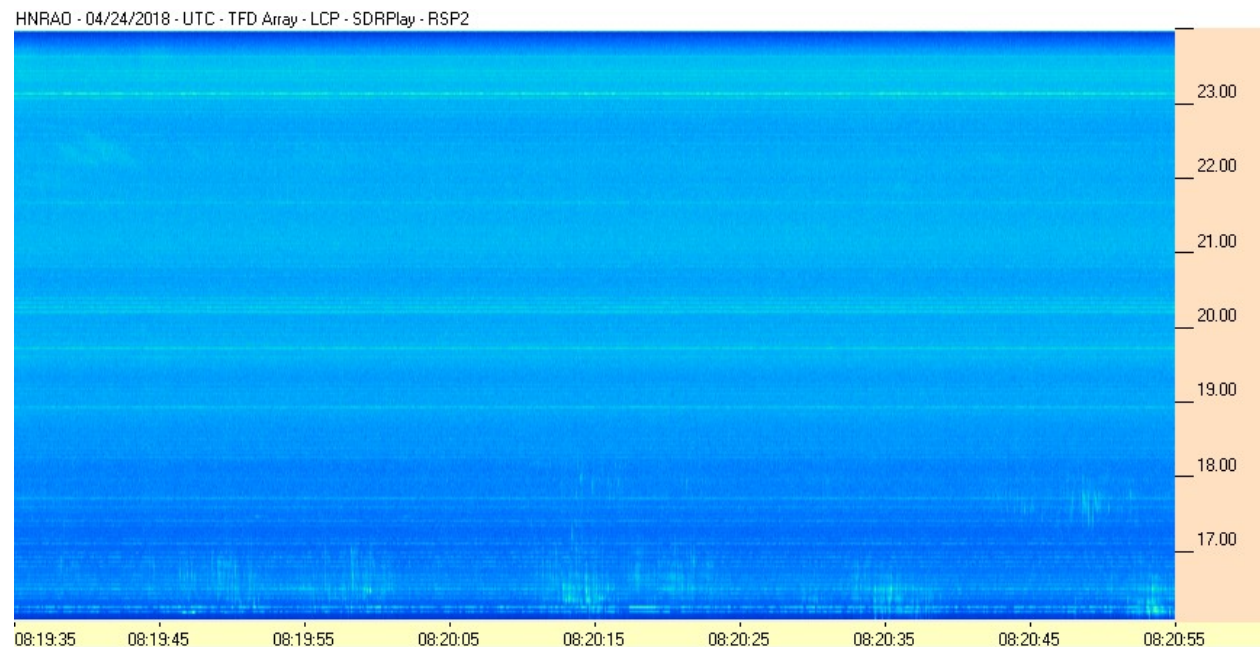
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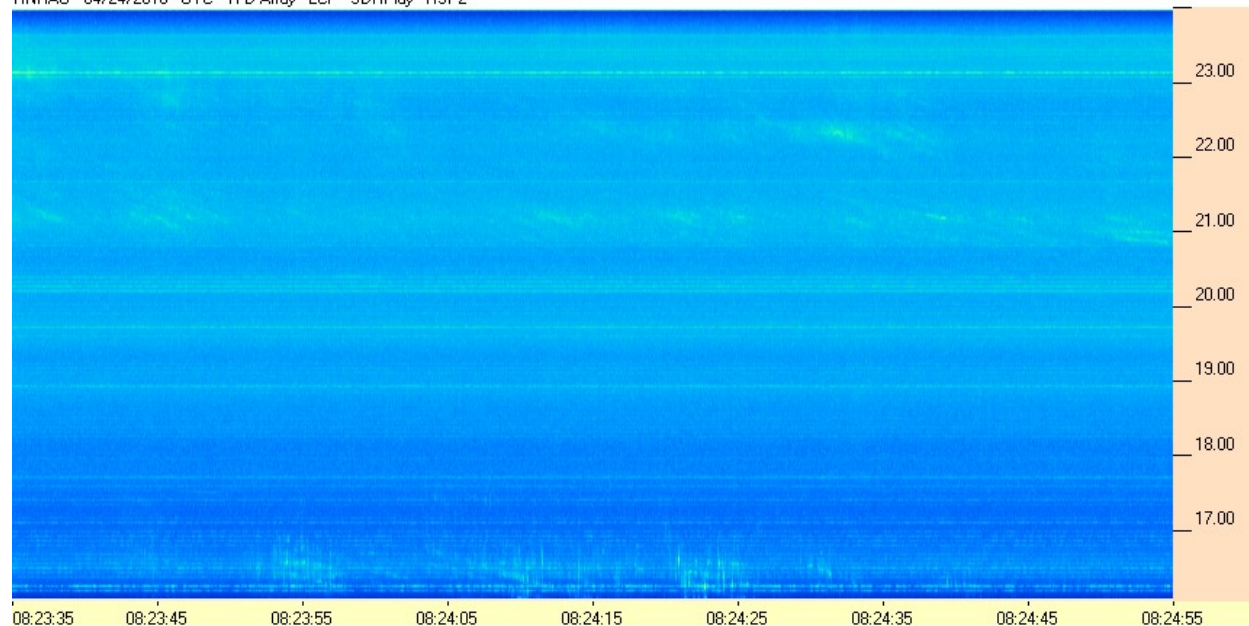
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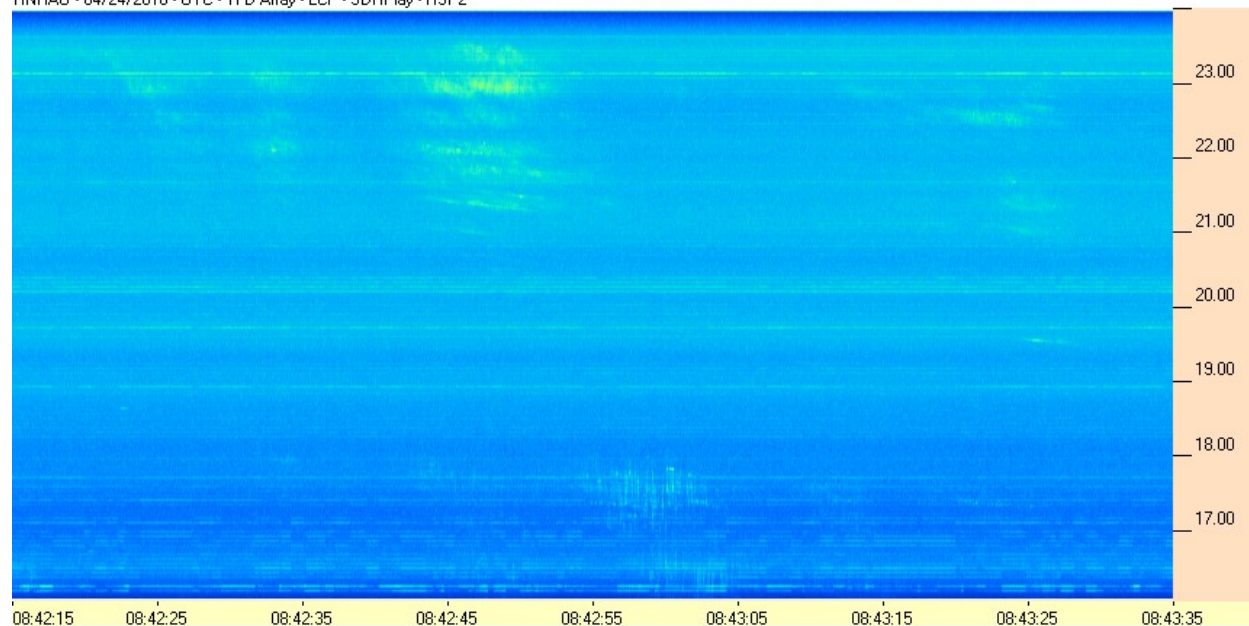
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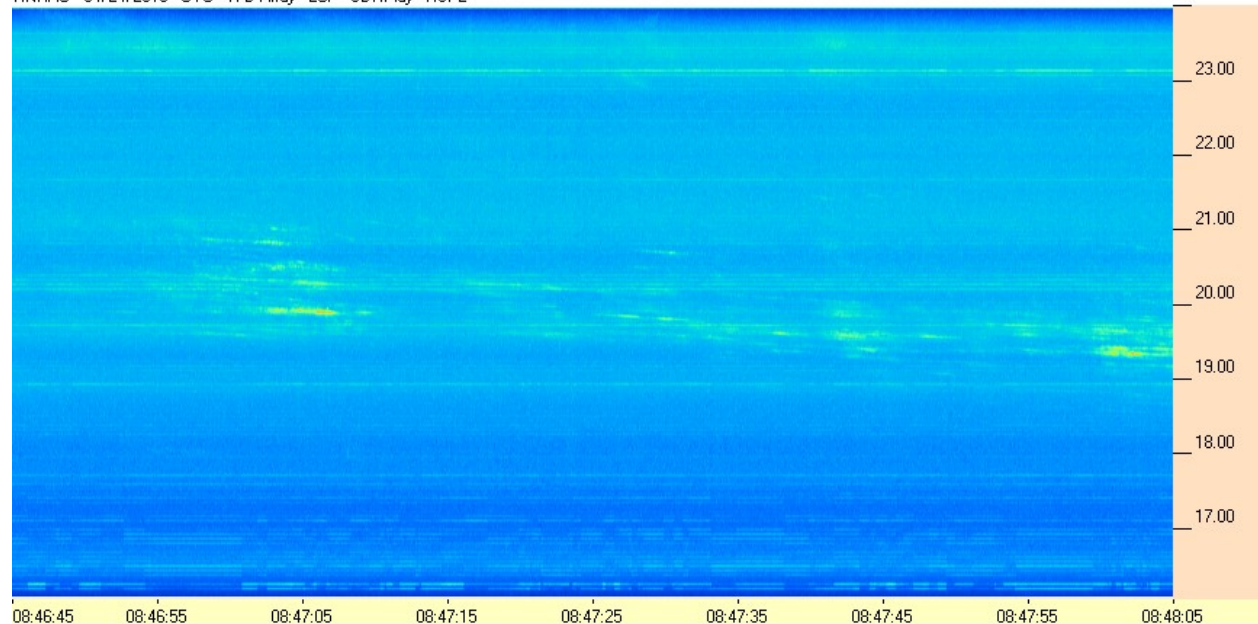
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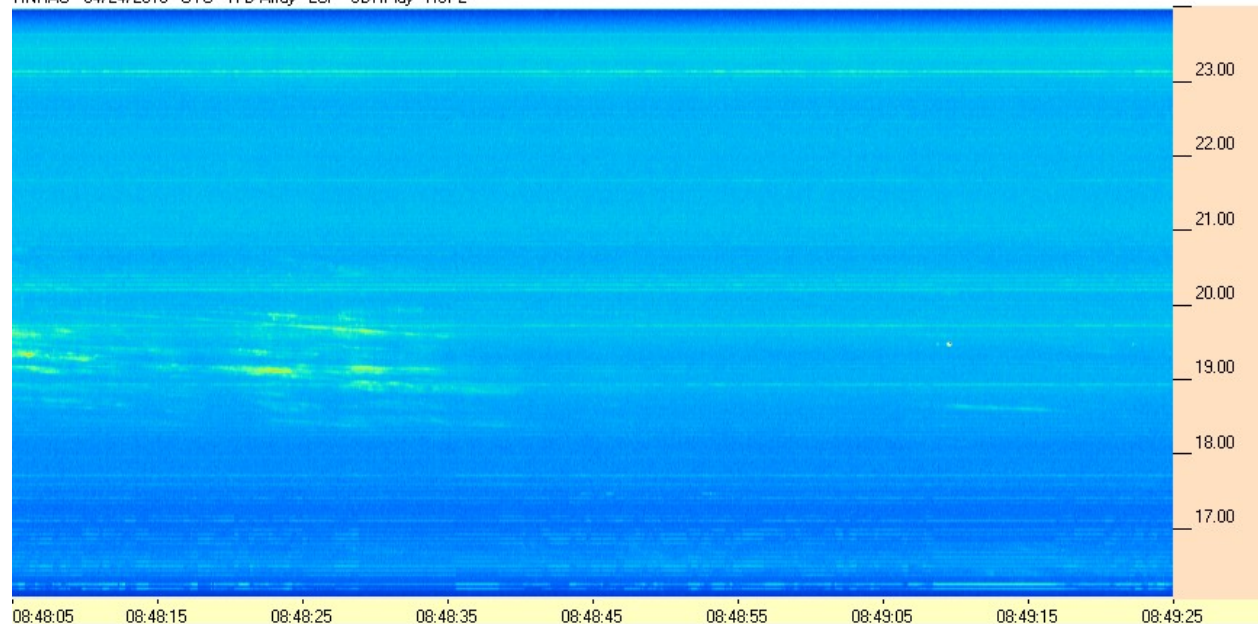
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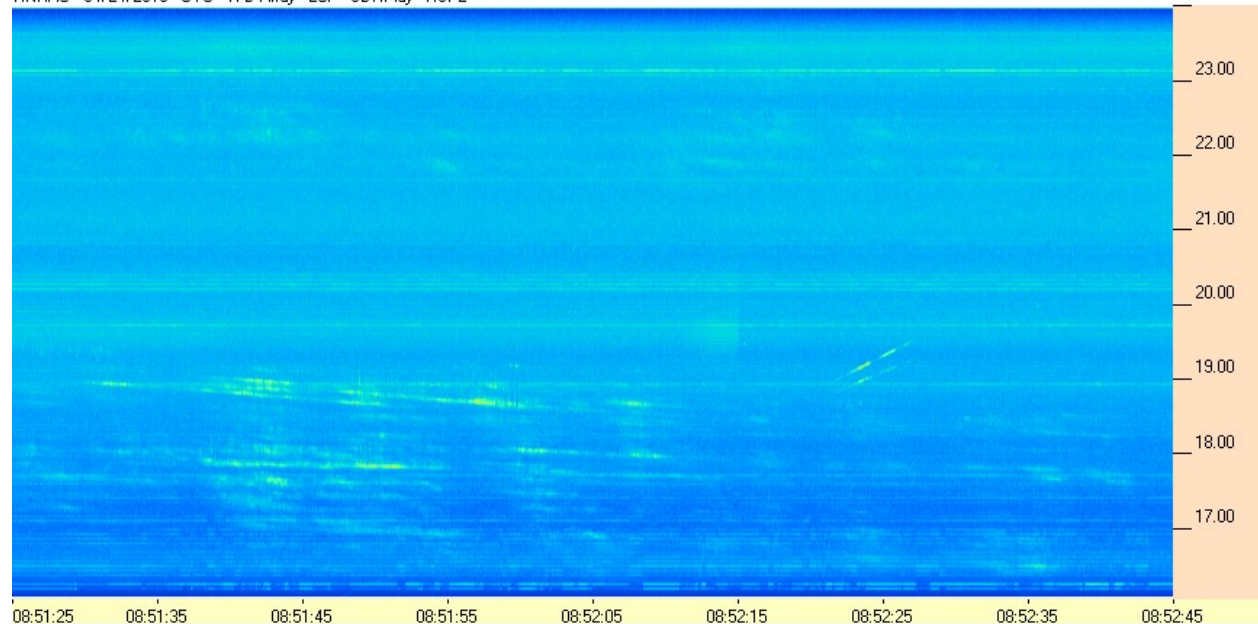
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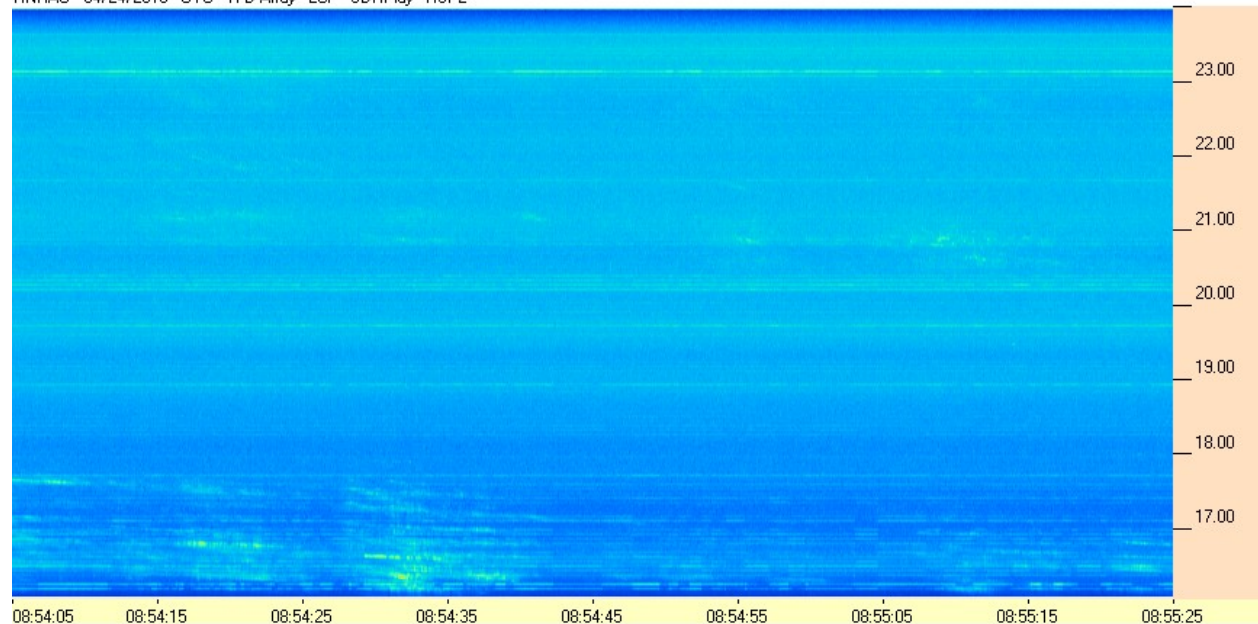
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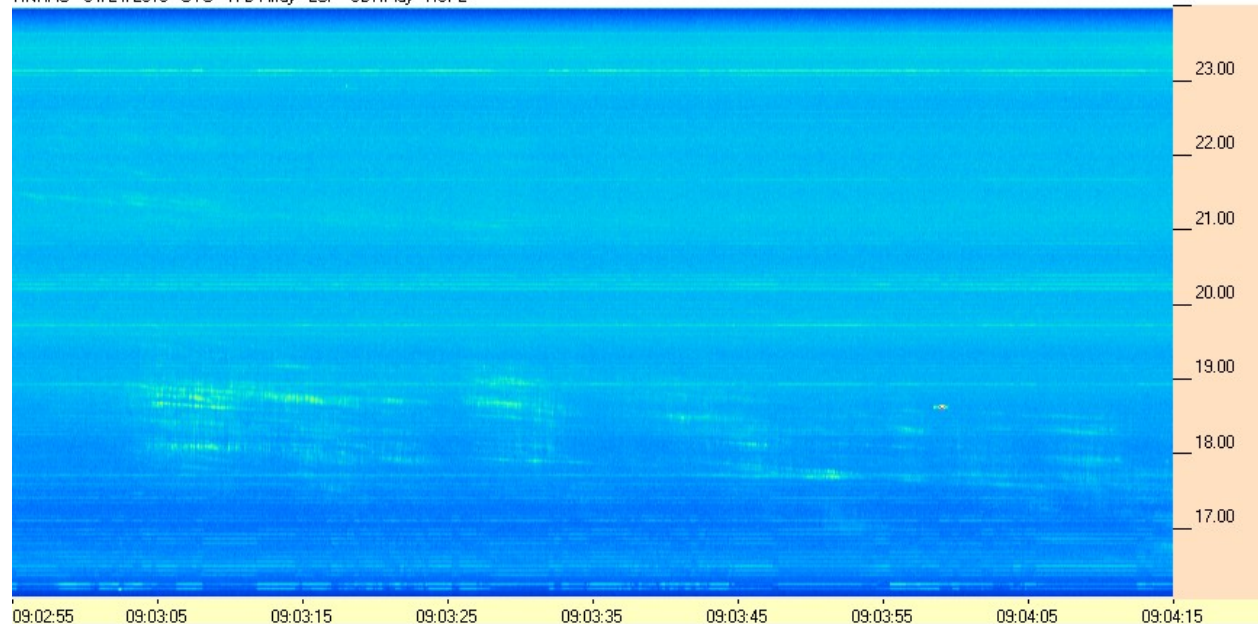
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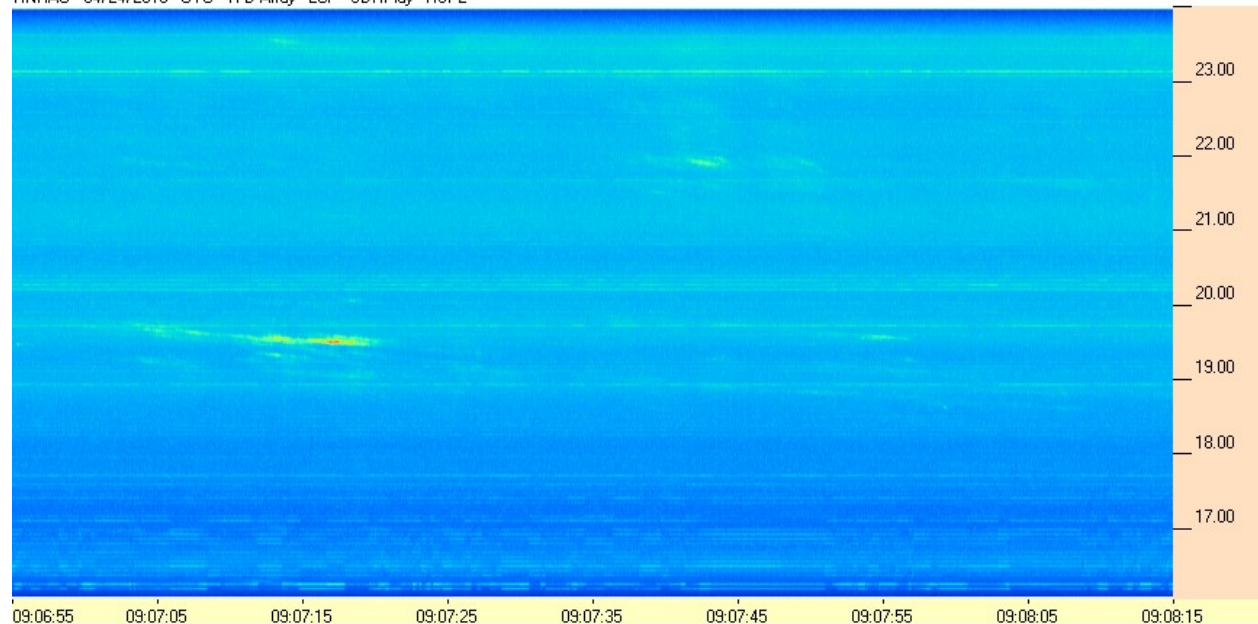
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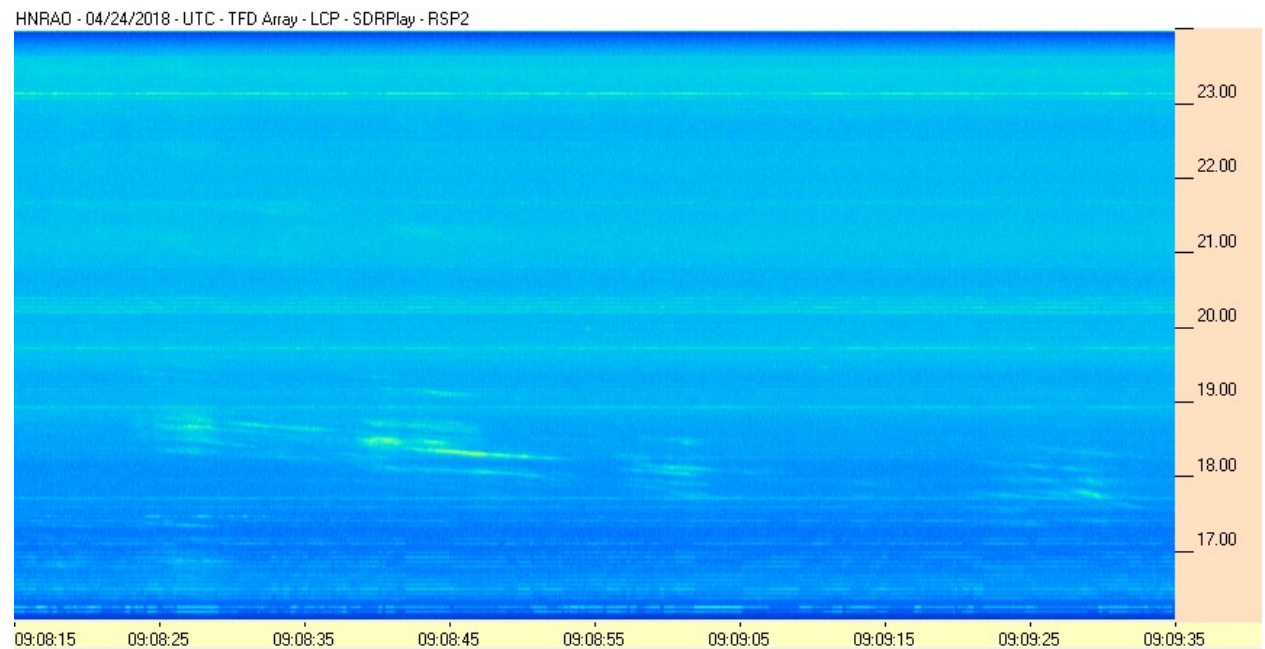
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Jove II Receiver / Jove Dual Dipoles

