

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: 26 March 2018

Object: Jupiter Io-B

Observer: Unattended

Start - Time UT:	0450	Planetary K-index:	3
Jupiter Altitude (deg):	12.9	Jupiter Azimuth (deg):	126.7
Jupiter CML:	126.33	Jupiter Io Phase:	072.49
Jupiter RA (hr/min):	15:22	Jupiter Dec (hr/min):	-17:13
Hour Angle (hr/min):	-03:39	Polarization	RCP
Sun Altitude (deg):	-47.3	Sun Azimuth (deg):	348.7
Sun RA (hr/min):	00:13	Sun Dec (hr/min):	01:25

End – Time UT:	0604		
Jupiter Altitude (deg):	23.0	Jupiter Azimuth (deg):	142.1
Jupiter CML:	171.07	Jupiter Io Phase	082.88
Hour Angle (hr/min):	-02:25		
Sun Altitude (deg):	-46.7	Sun Azimuth (deg):	016.0

Observatory Configuration

Spectrograph Receiver	Antenna	Polarization	System Loss	Multicoupler	Multicoupler port	Calibrated
FSX-8S	TFD	RCP LCP	7.70 dB 7.70 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	-7.70 dB	#2 RCP	Port 2 +3dB	Twice daily
SDRPlay RSP2	TFD	LCP	-7.70 dB	#1 LCP	Port 2 +3dB	Twice daily
JOVE 1	TFD	RCP	-7.70 dB	#2 RCP	Port 3 +3 dB	03/08/2018
JOVE 1	TFD	LCP	-7.70 dB	#1 LCP	Port 3 +3 dB	03/08/2018
JOVE II	Jove dipoles	Linear	-3.19 dB	#3 Linear	Port 4 +3 dB	02/20/2018
SDRPlay RSP1	Experimental*					

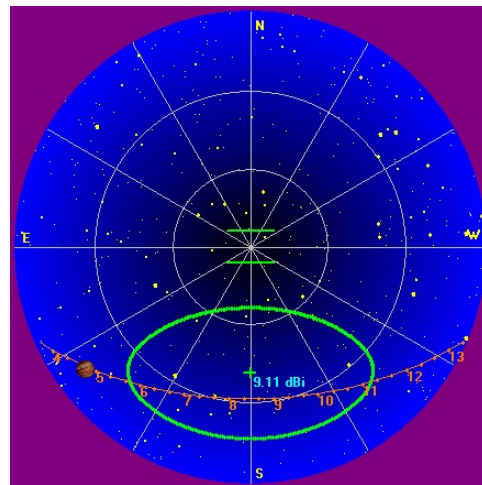
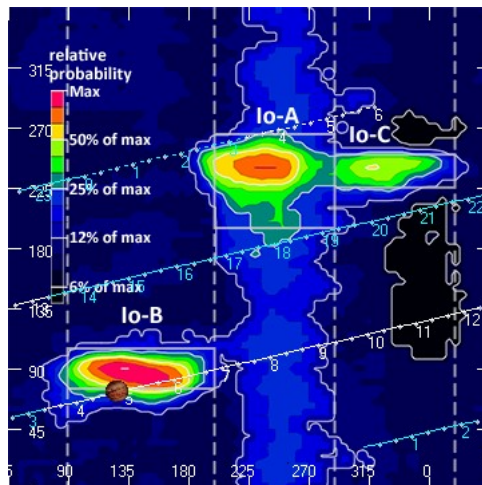
JOVE dipoles phased @ 32 degrees for 2017-2018 season

TFD array phased @ 35 degrees for 2017-2018 season

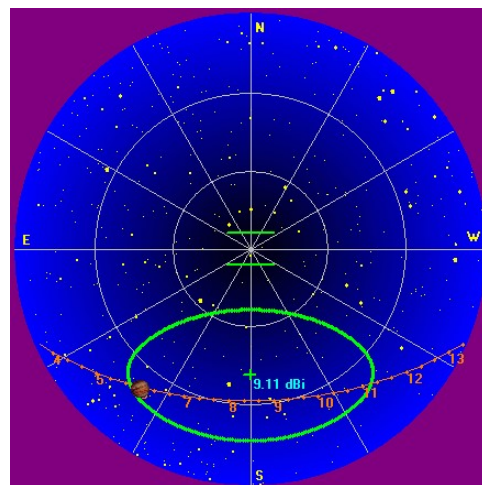
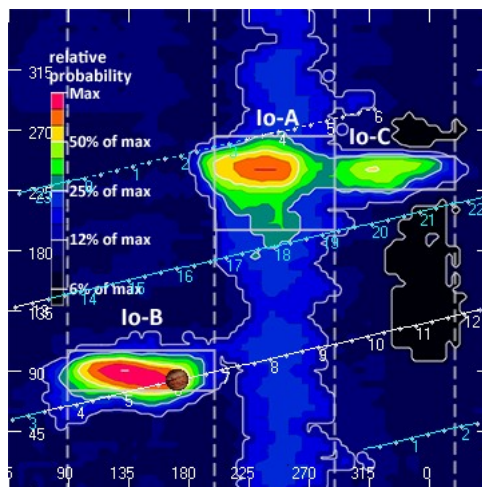
LWA antenna phased @ 35 degrees and orientation for observation: 45 degrees

* Used for testing and evaluating antenna systems

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Beginning of Pass



End of Pass

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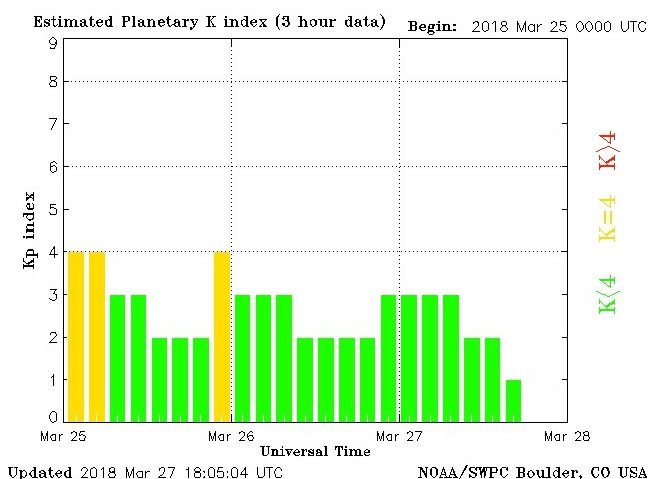


MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360	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 relatively weak Io-B storm, seen before transit, was composed of S-bursts from 16 MHz to 24 MHz as viewed with the SDRPlayRSP2/TFD spectrograph. Given that emissions were at the band edges it's reasonable to assume emissions were below 16 MHz and above 24 MHz.

Neither FSX spectrographs resolved these emissions because they were below the noise floor of each spectrograph.

The only real notable event was an N-event near the beginning of the storm between 22 MHz and 24 MHz appeared to be composed of S-events.

The most energetic emissions were around 0600 UT.

S2 modulation lanes were present and measure.

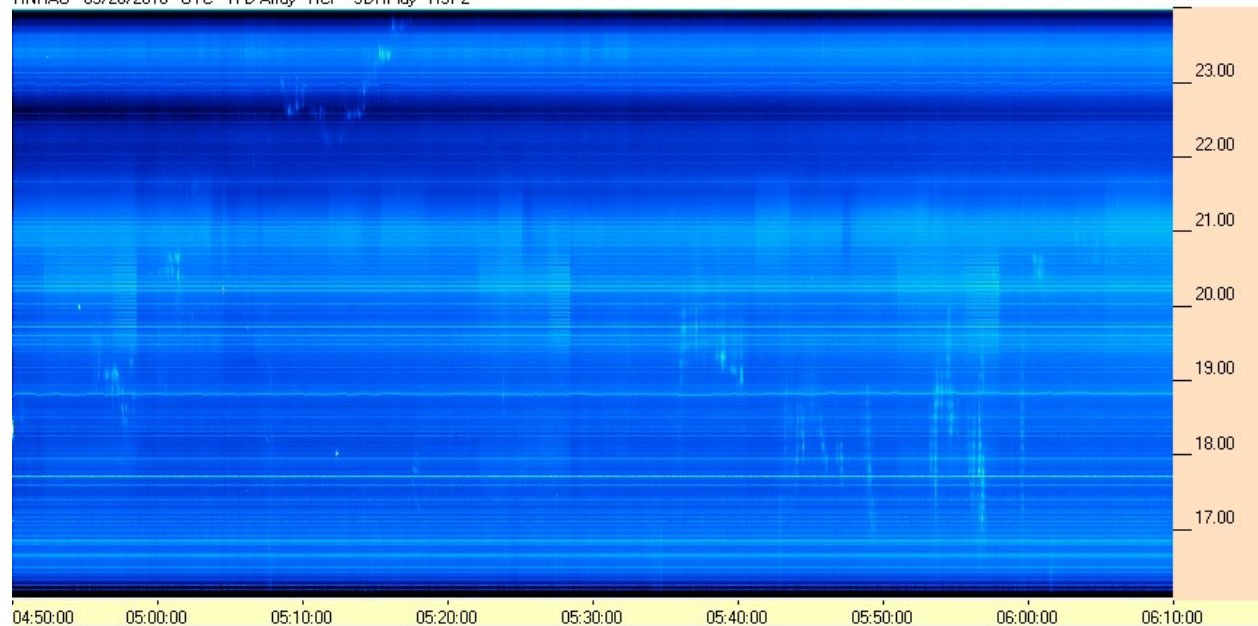
Nothing else of note.

EOR

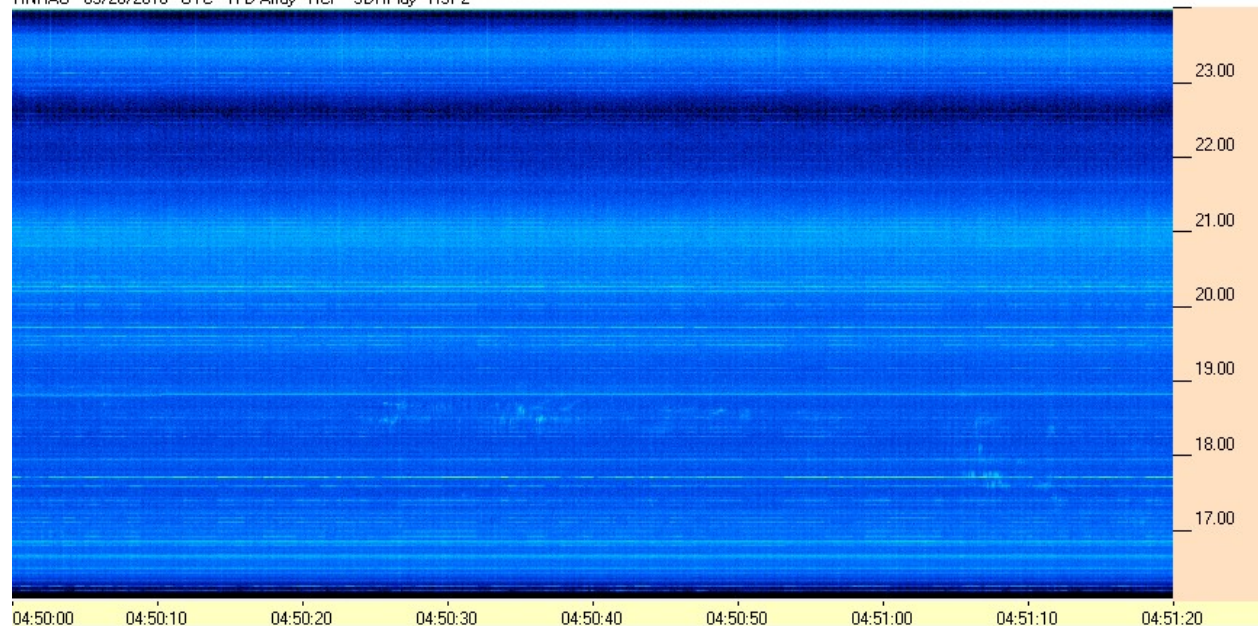
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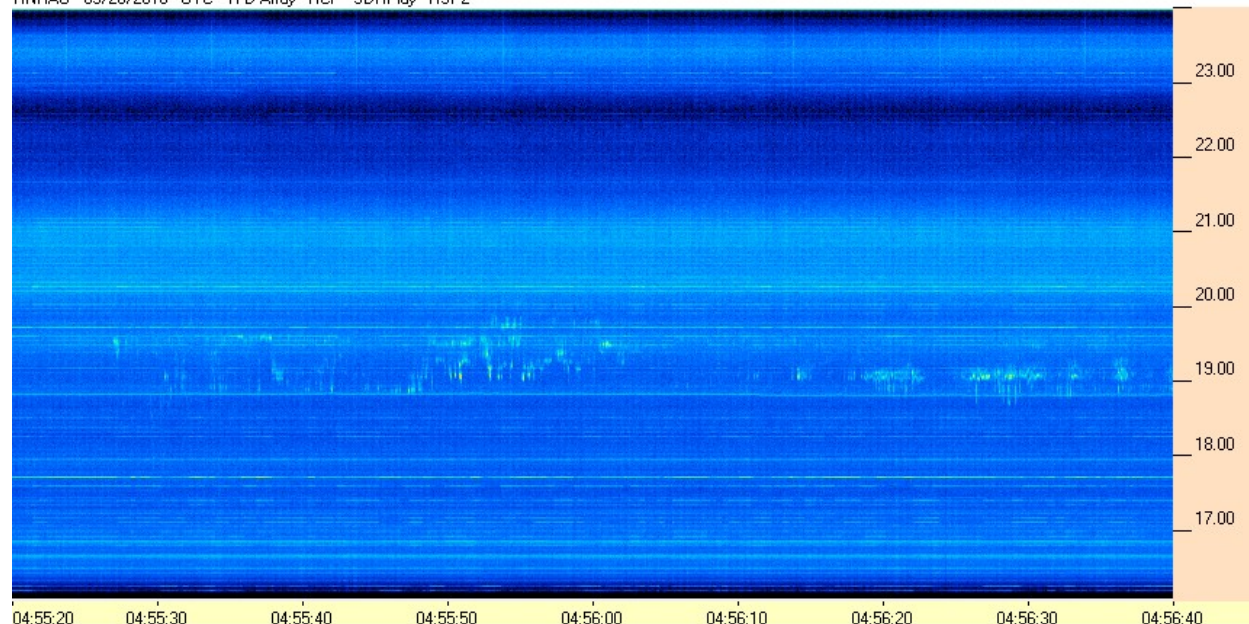
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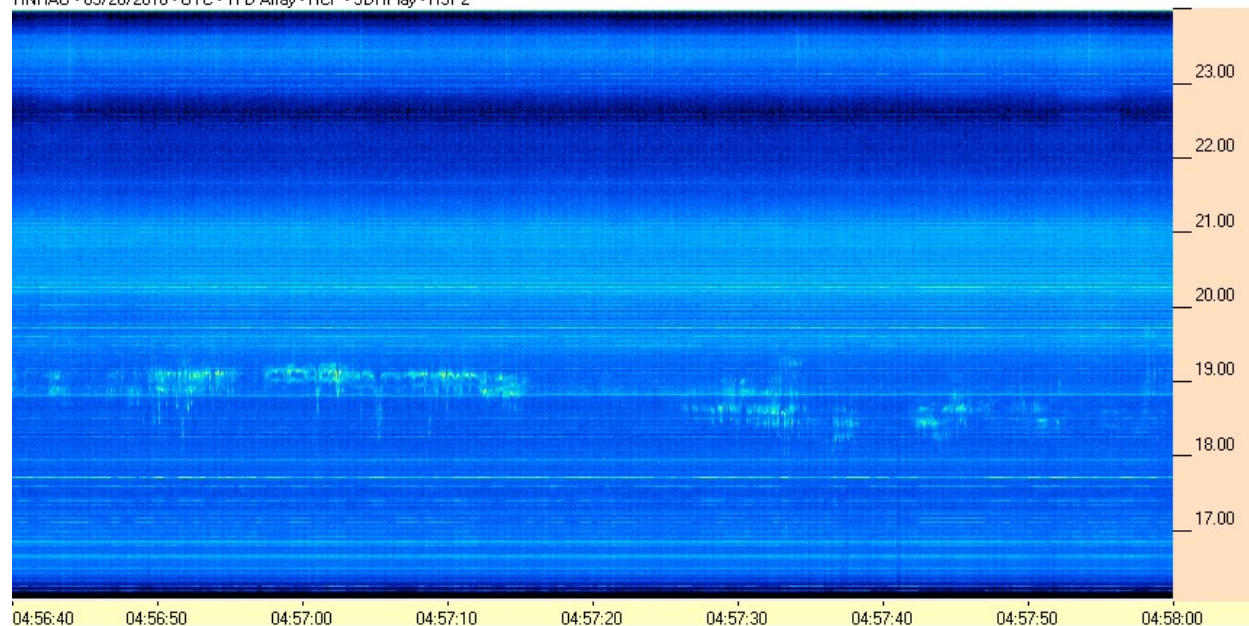
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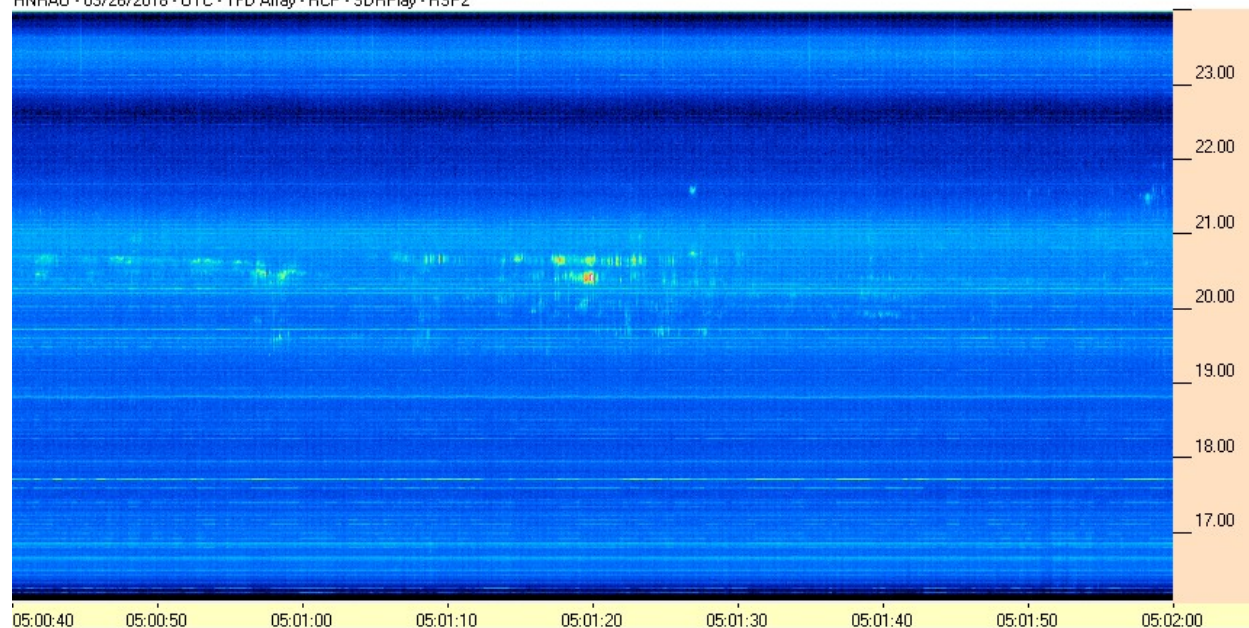
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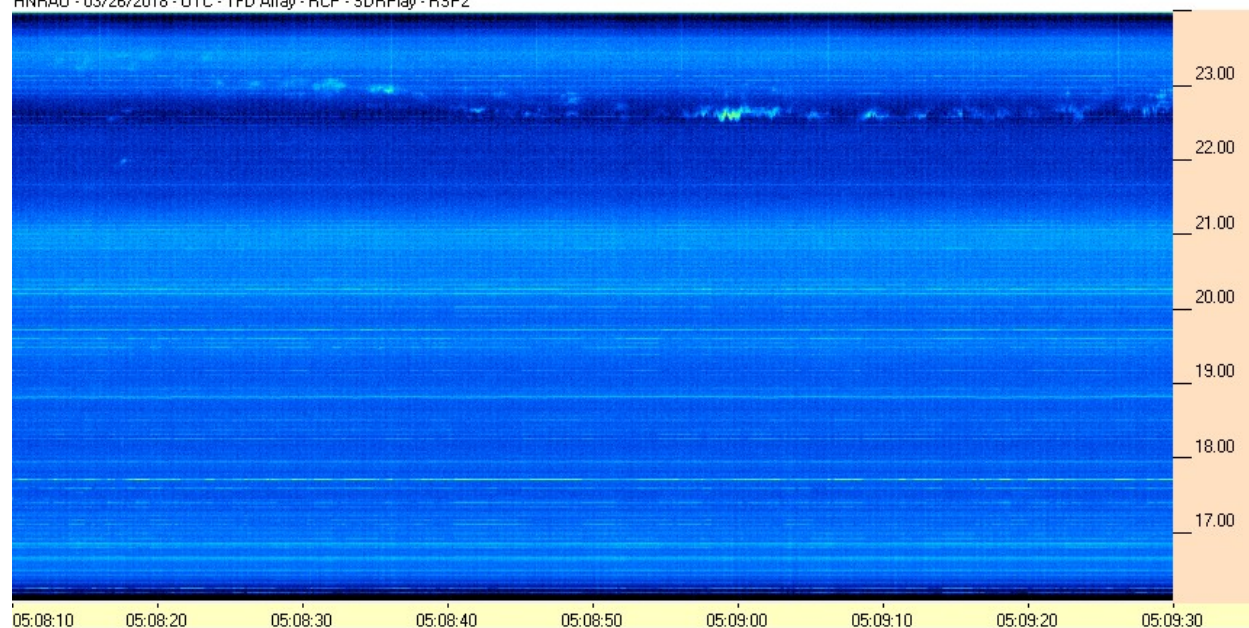
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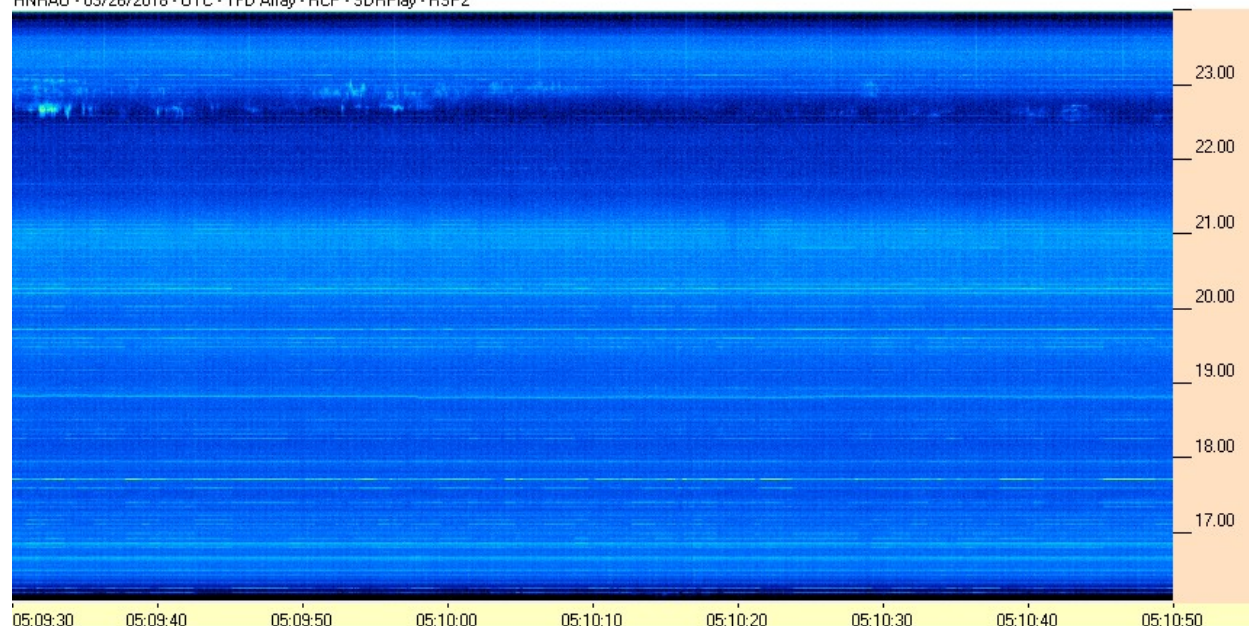
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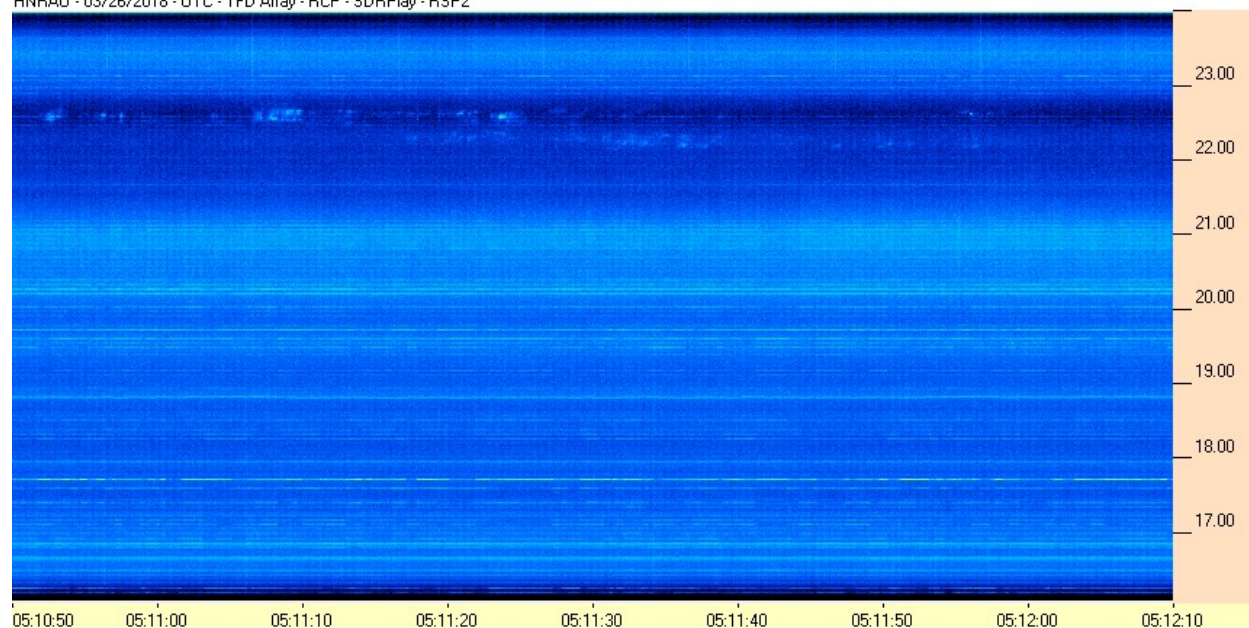
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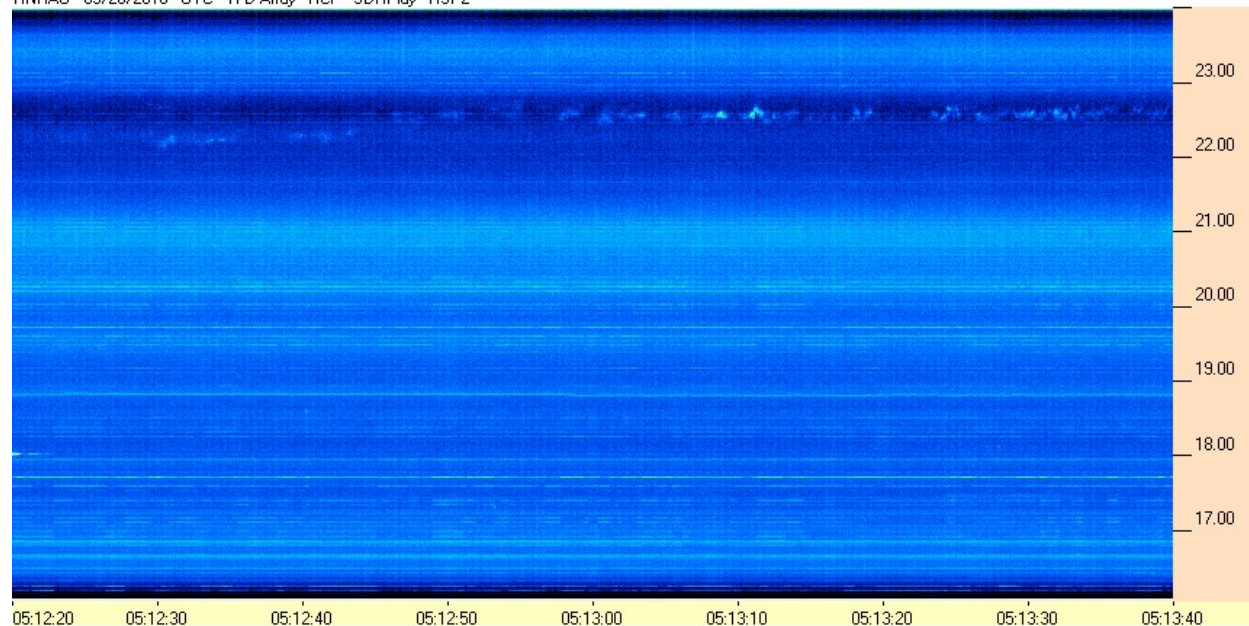
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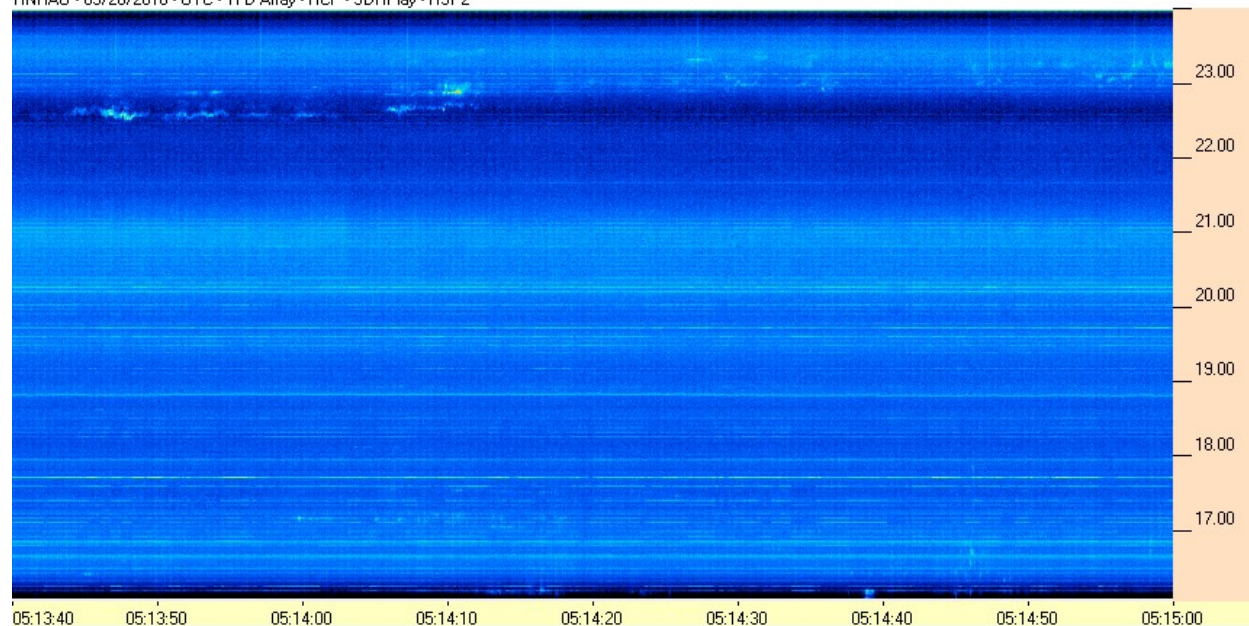
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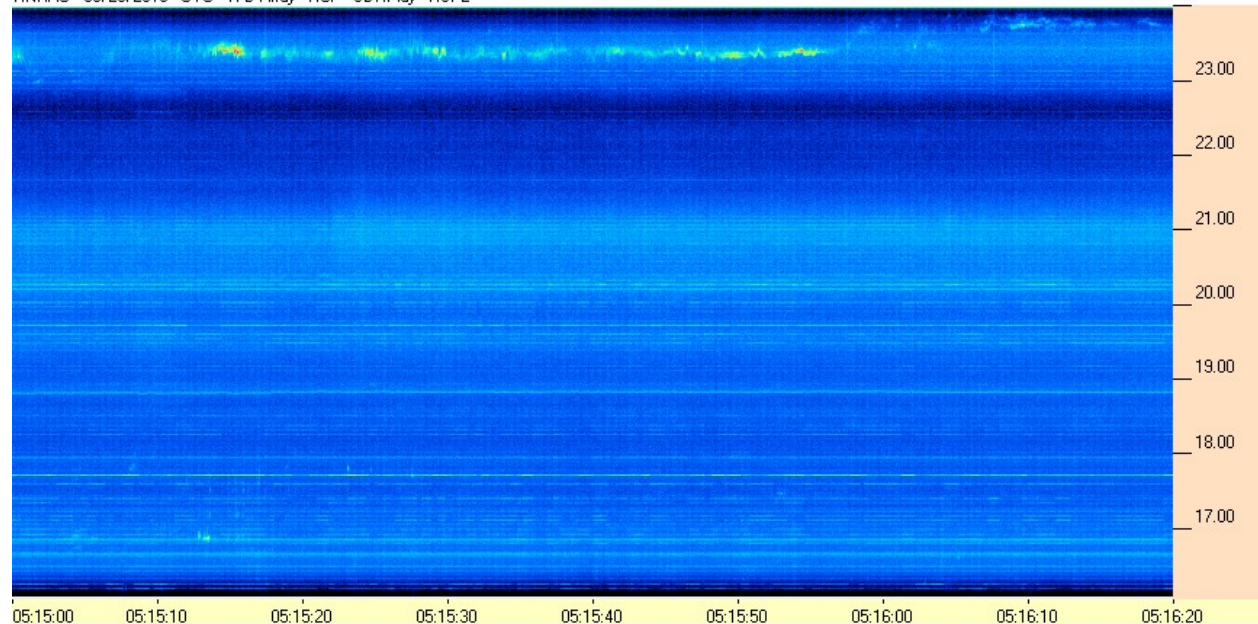
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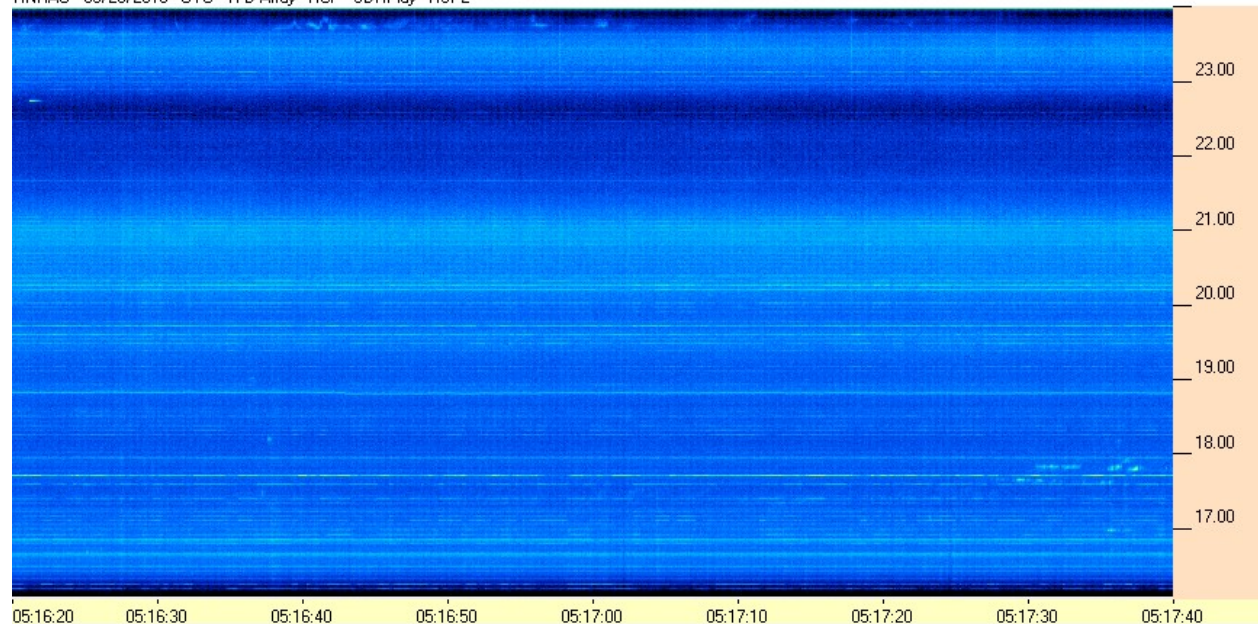
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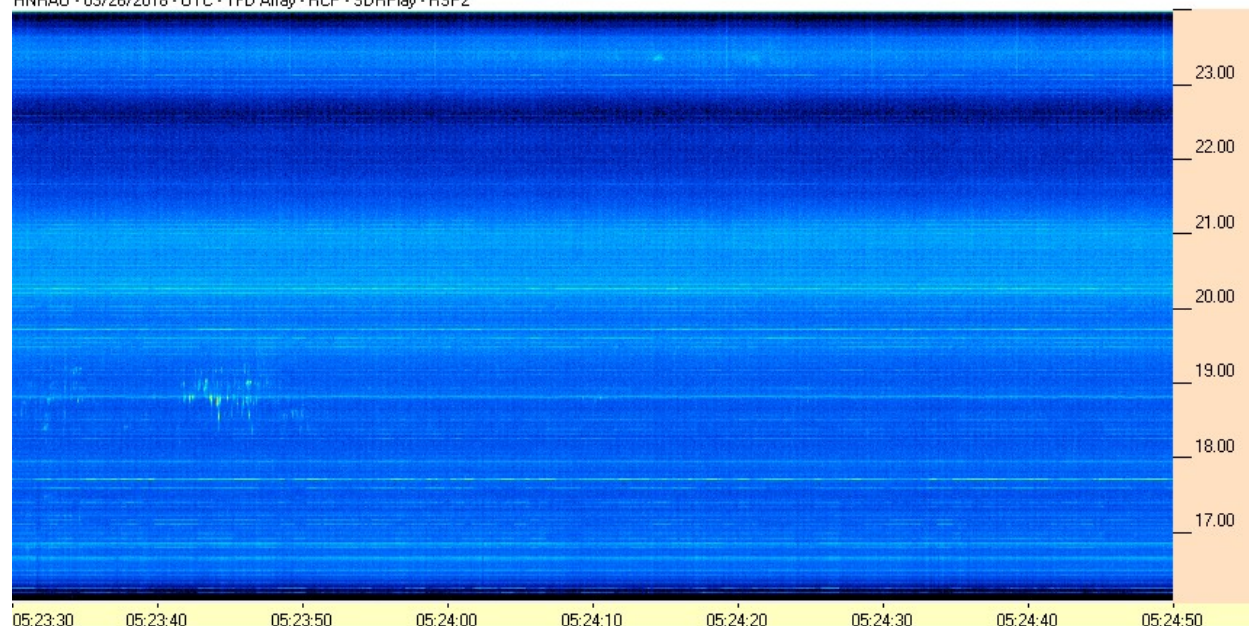
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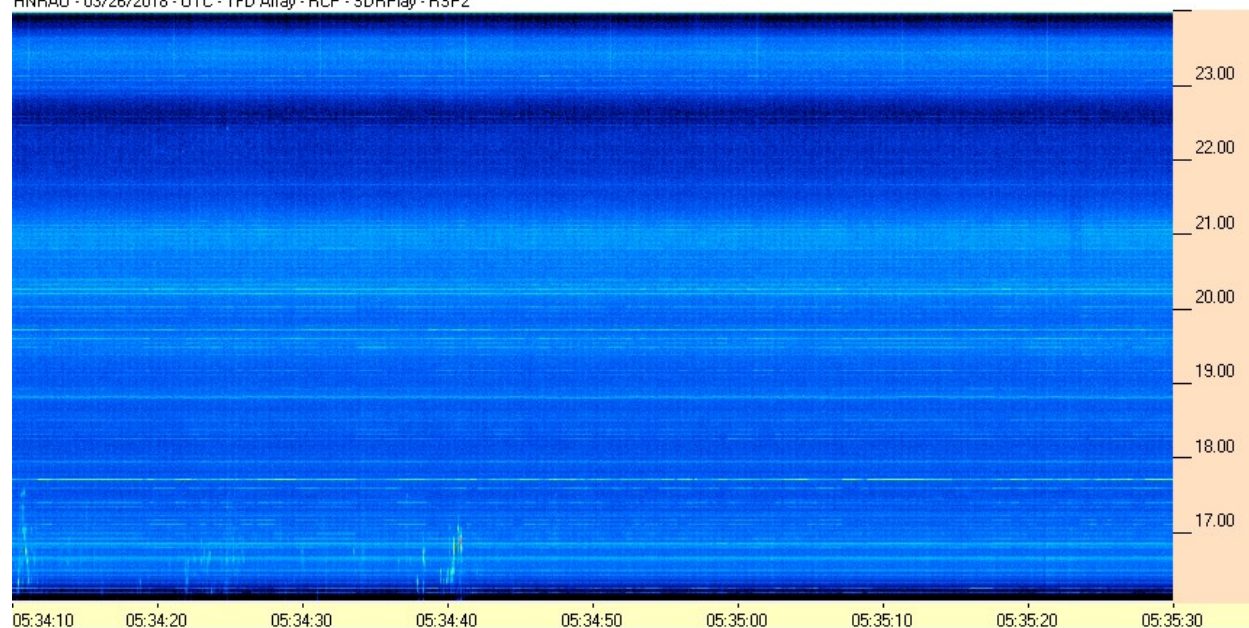
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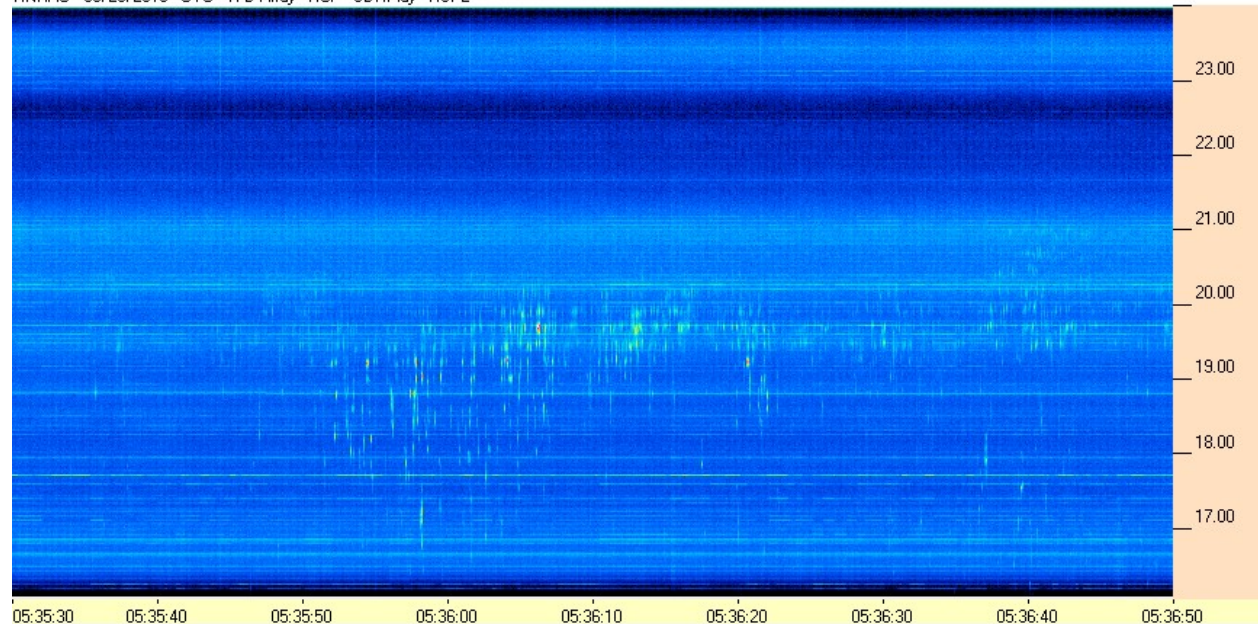
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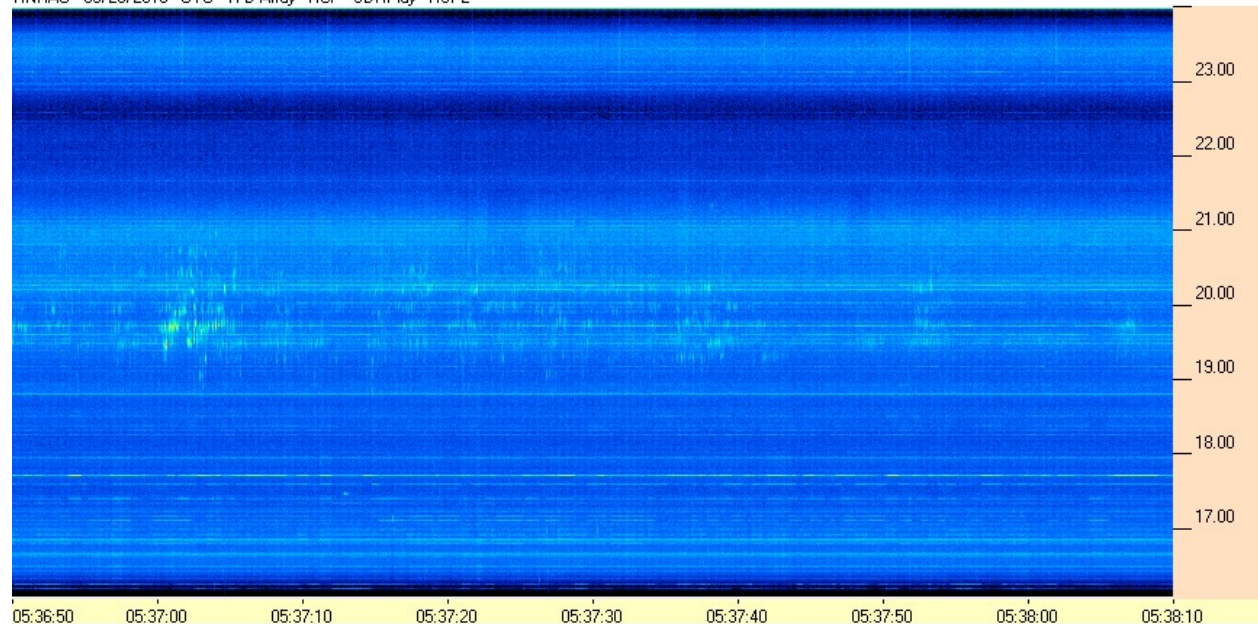
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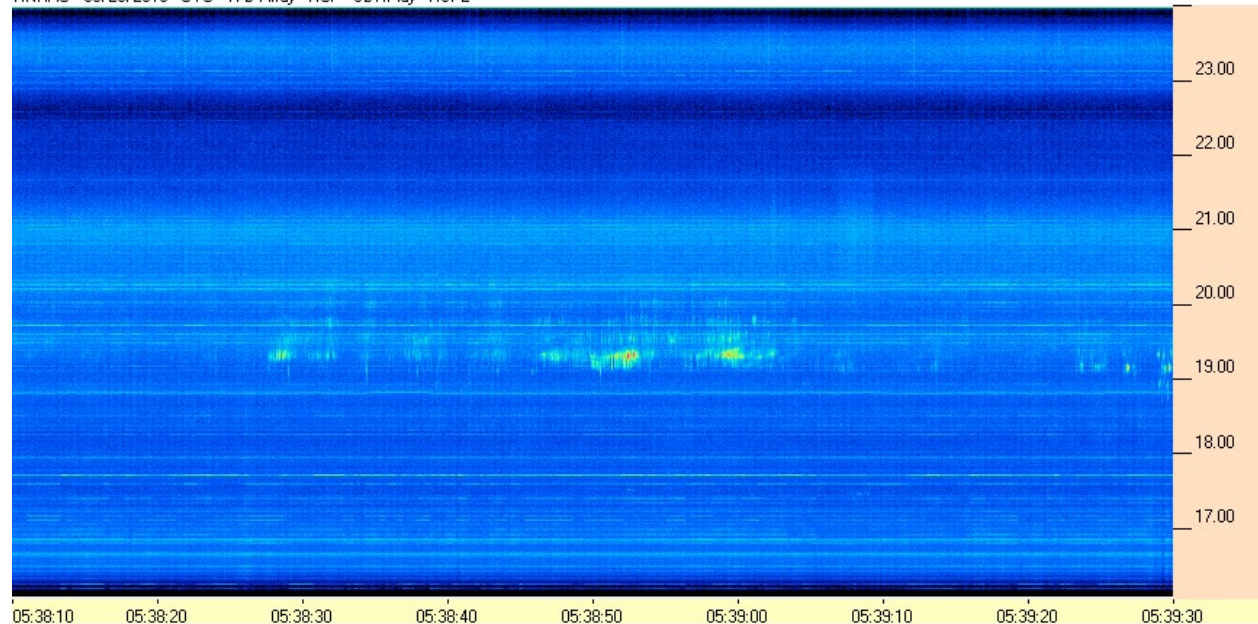
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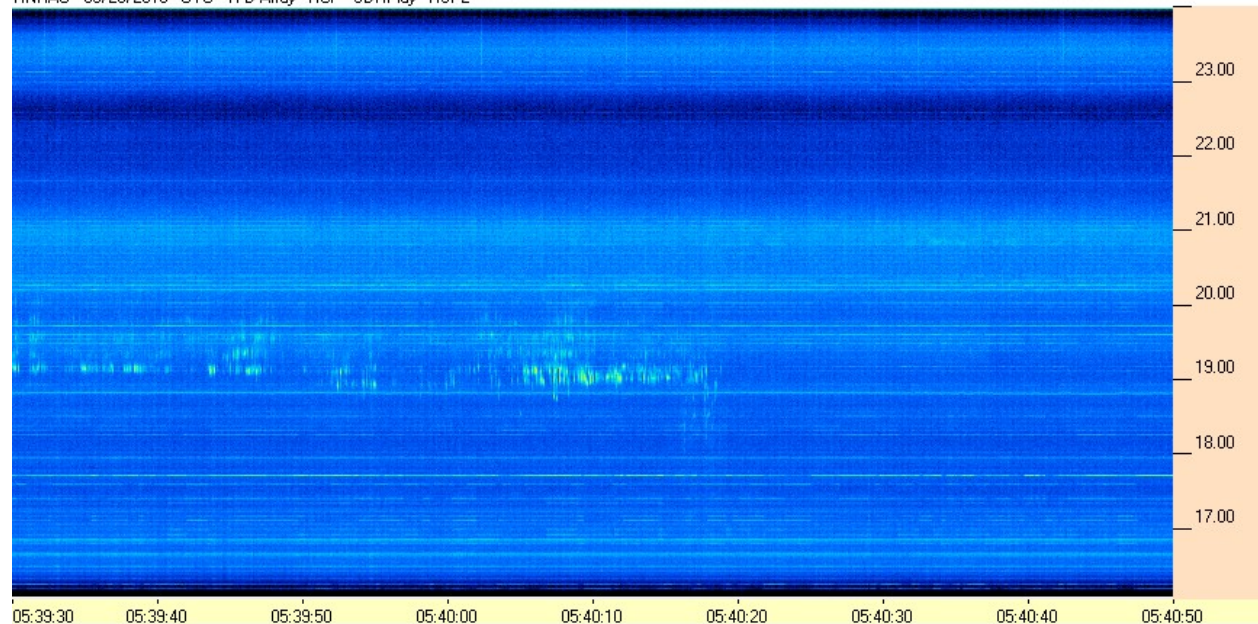
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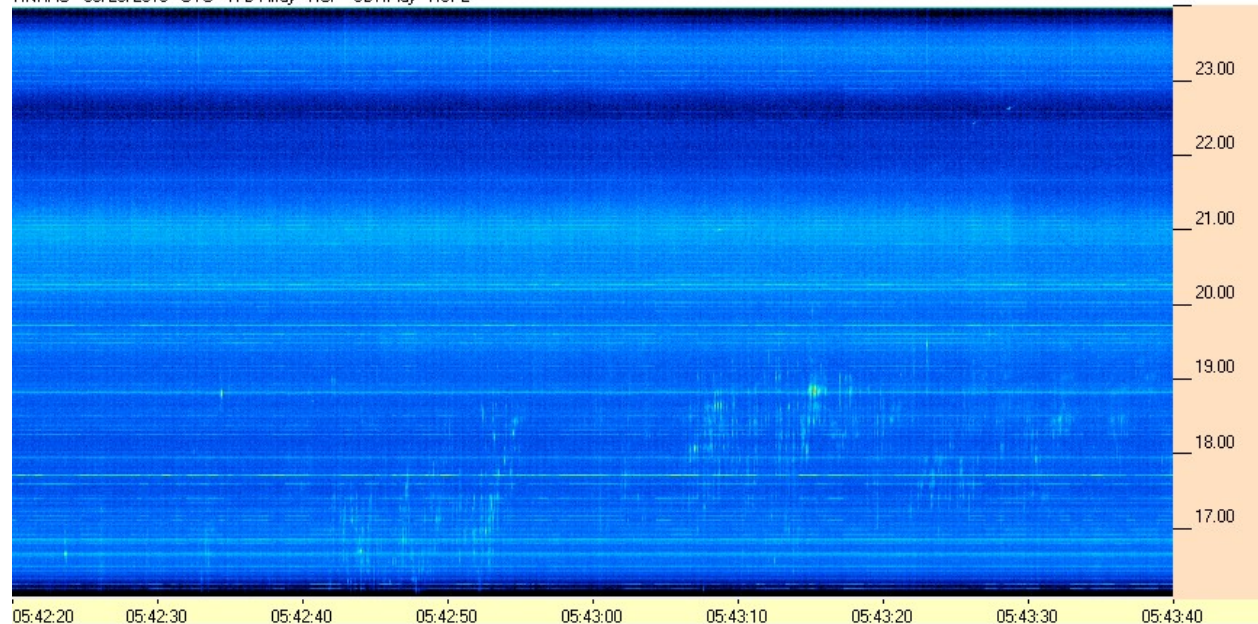
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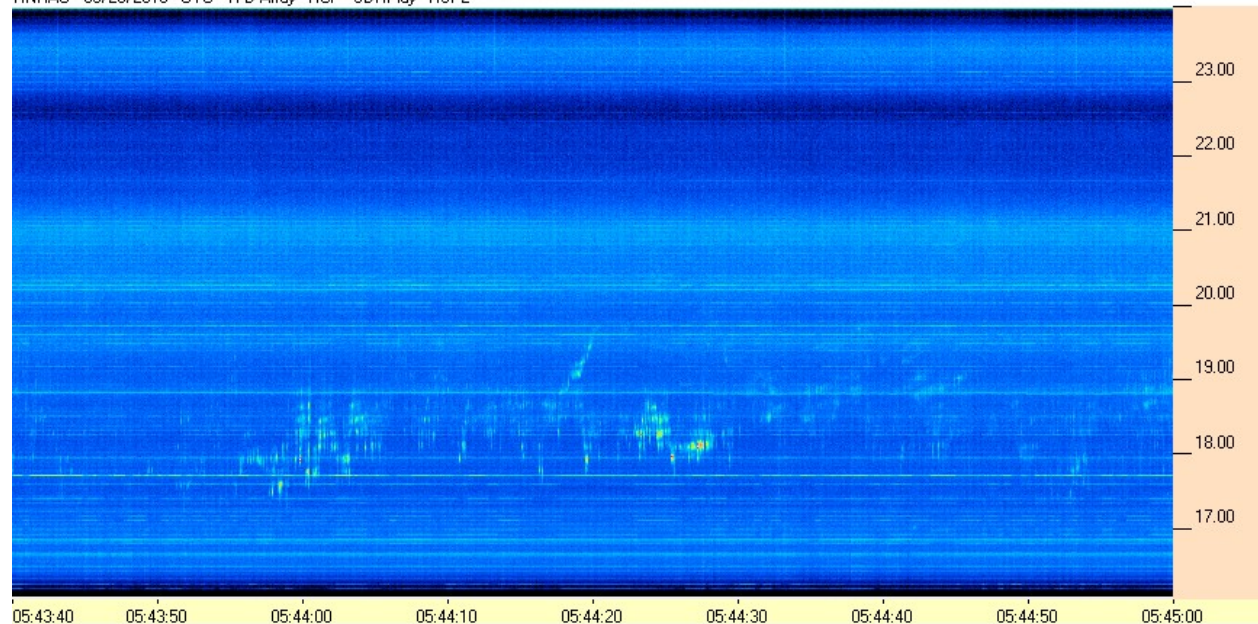
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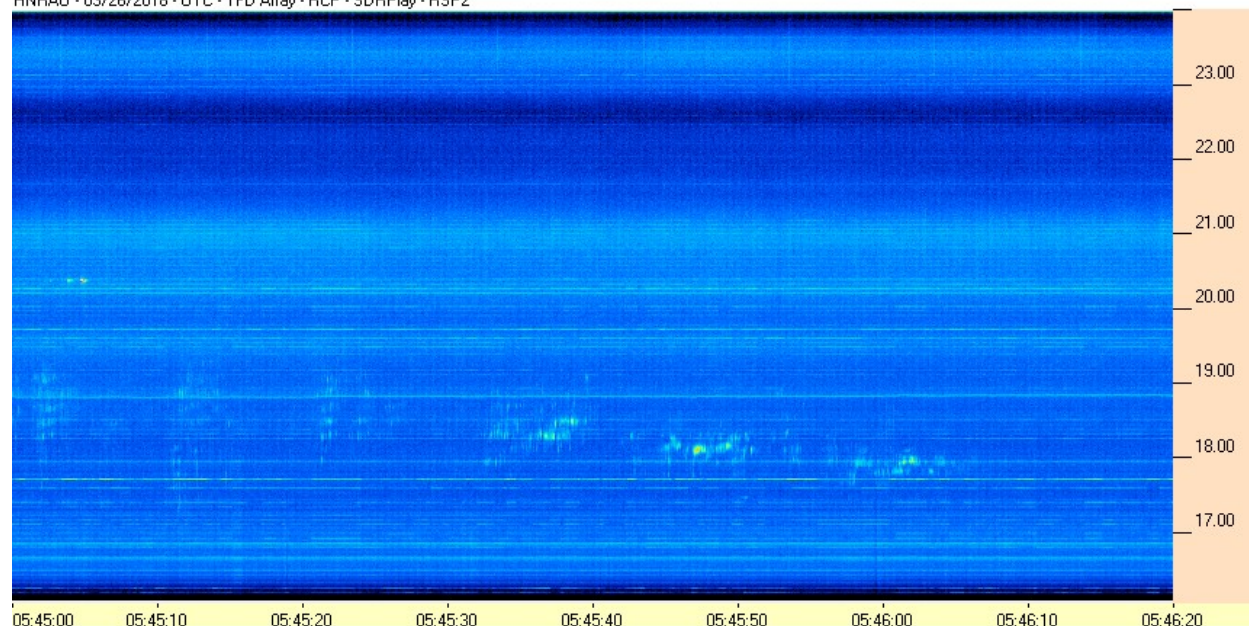
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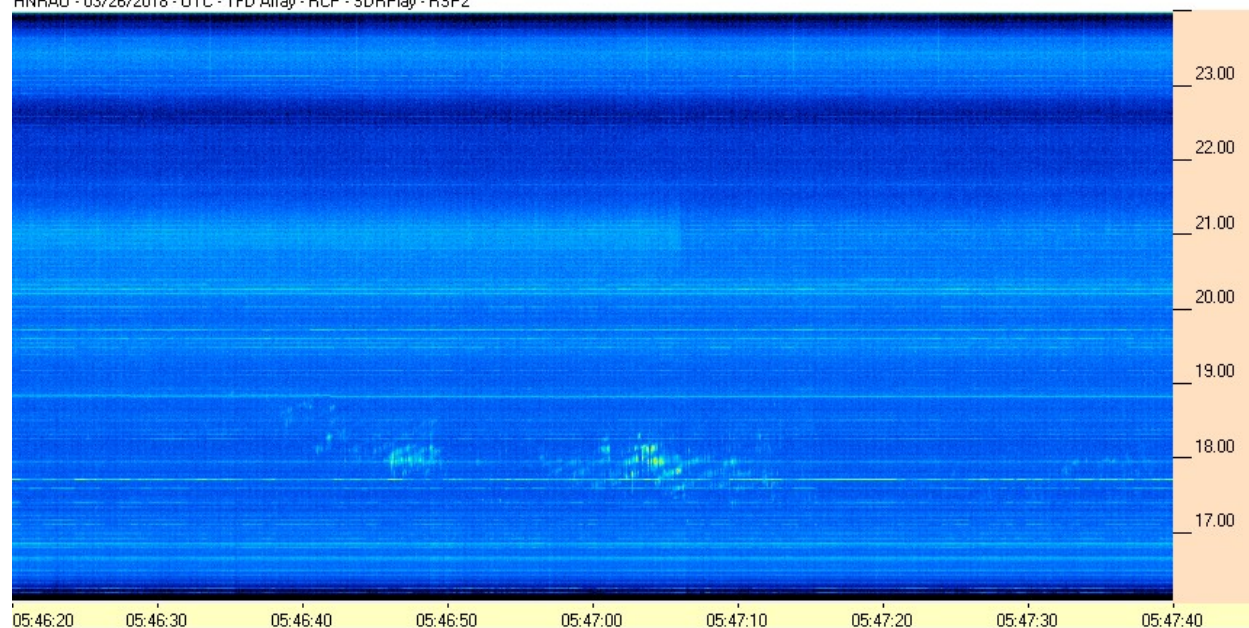
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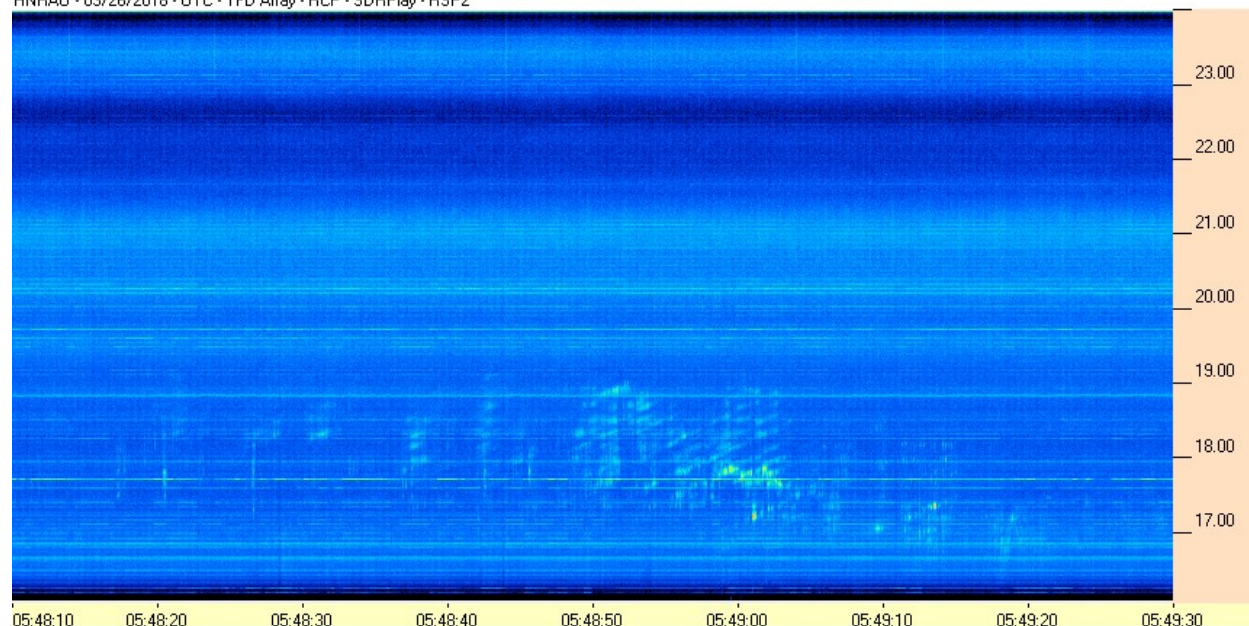
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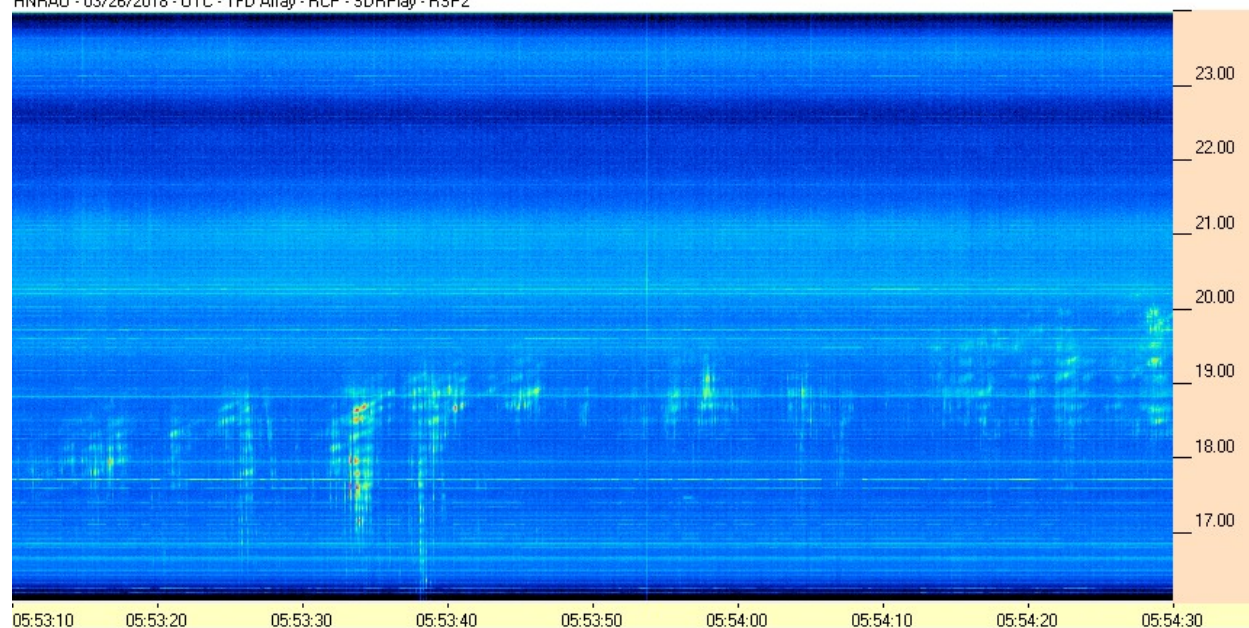
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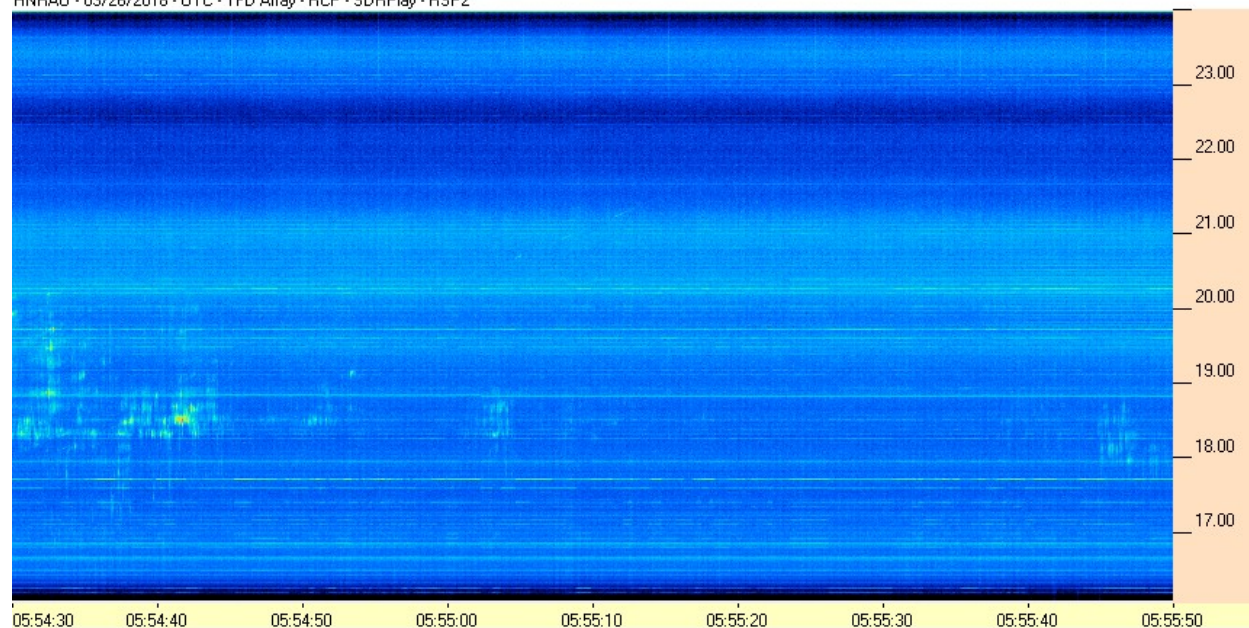
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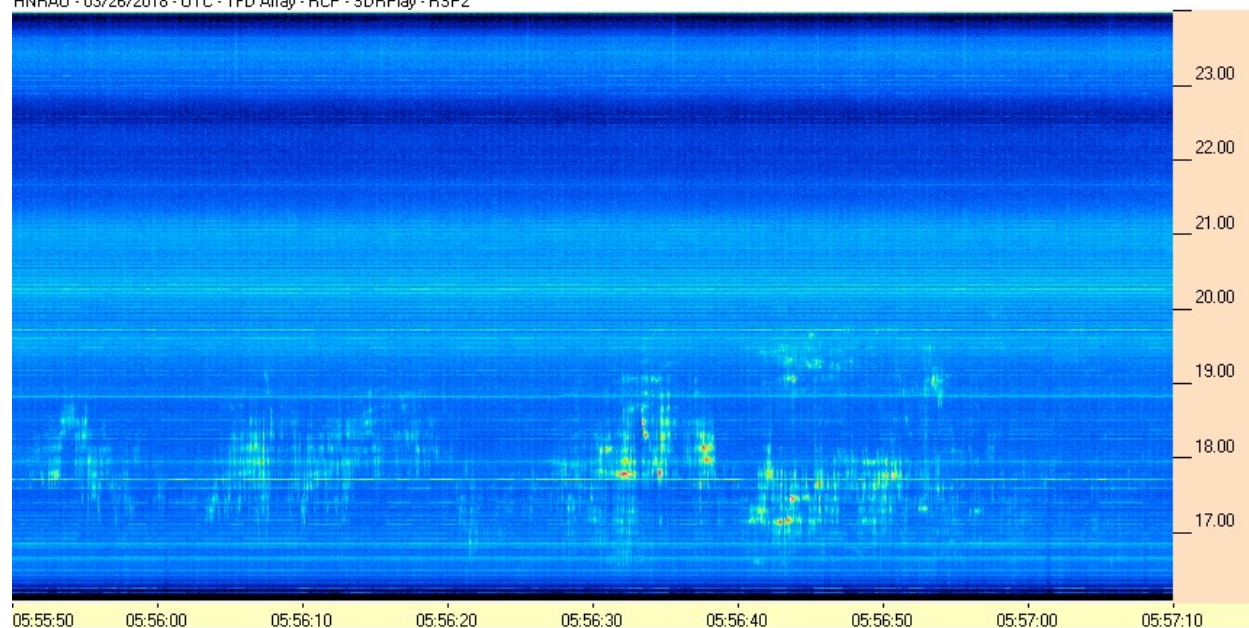
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