

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: 6 April 2017

Object: Jupiter – Io-B

Observer: Unattended

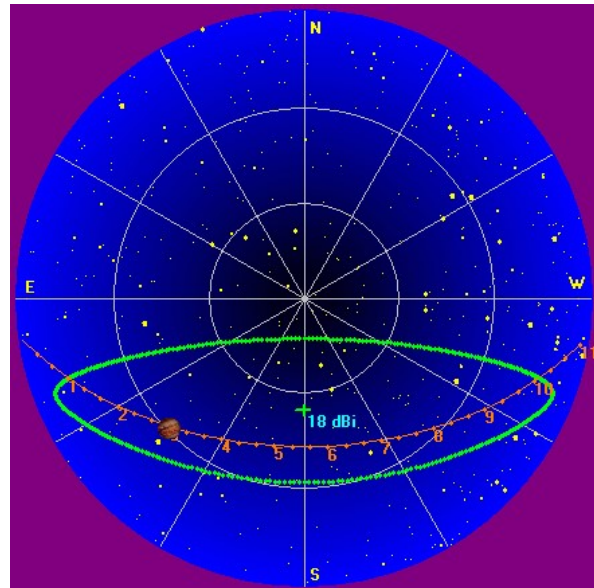
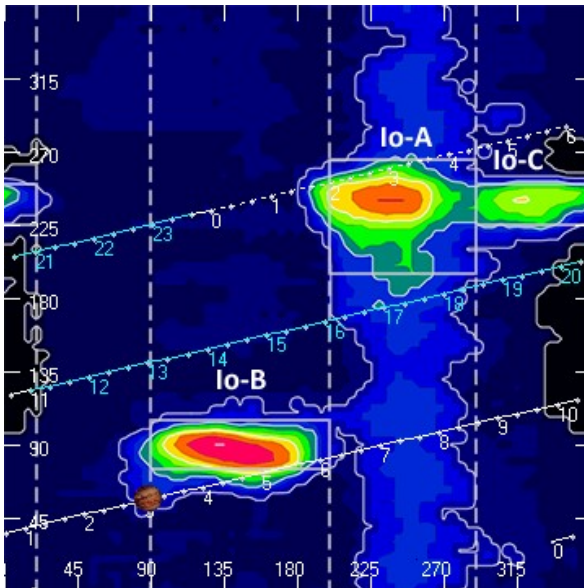
Start of pass:	0305 UT	Planetary K-index:	2
Jupiter Altitude:	32.4 degrees	Jupiter Azimuth:	134.6 degrees
Jupiter CML:	88.6	Jupiter Io Phase:	056.77
Jupiter RA:	13:10	Jupiter Dec:	-05:45
Hour Angle:	-02:29	Polarization	RCP
Sun Altitude:	-34.5 degrees	Sun Azimuth:	318.8 degrees
Sun RA:	00:54	Sun Dec:	05:46

End of pass:	0530 UT		
Jupiter Altitude:	43.6 degrees	Jupiter Azimuth:	178.9 degrees
Jupiter CML:	176.27	Jupiter Io Phase	077.12
Hour Angle:	-00:03		
Sun Altitude:	-43.4 degrees	Sun Azimuth:	004.4 degrees

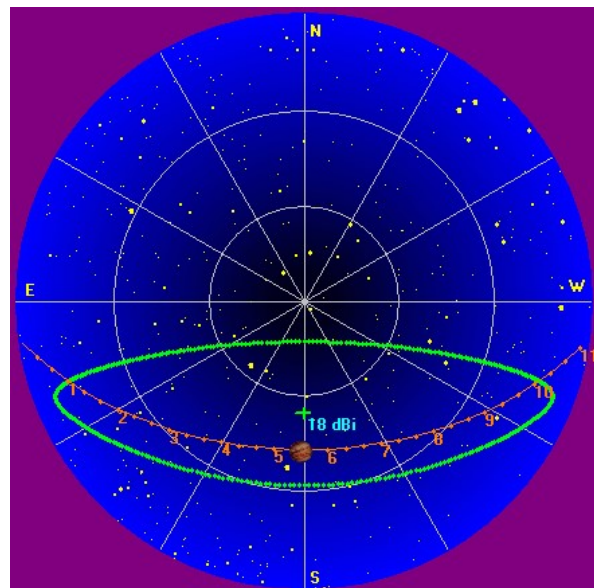
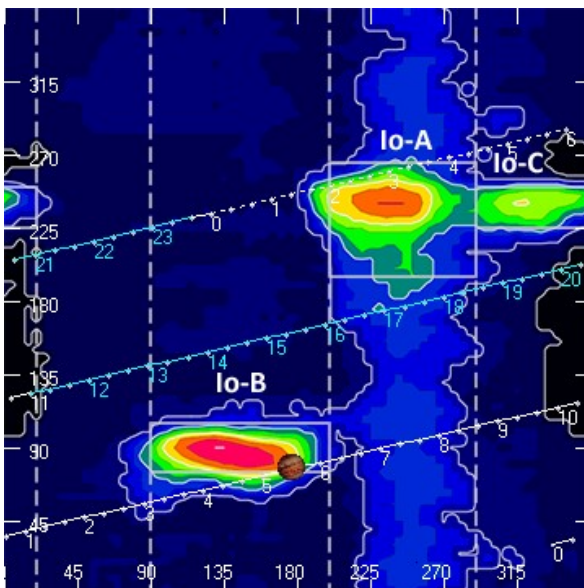
Observations made using:

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 @ 10'
 - a. 12' phase cable - phased for 2016-17 season
 - b. Calibrated 6 March 2017
 - c. Connected to dipoles through HNRAO Multicoupler #3, port 1.
 - i. 3.165 dB loss between Multicoupler and dipoles.
4. Icom R75 receiver fed by experimental DDRR antenna directly.
 - a. Calibrated 6 March 2017
5. SDRPlay
 - a. RSP1 (2) and RSP2 (1)

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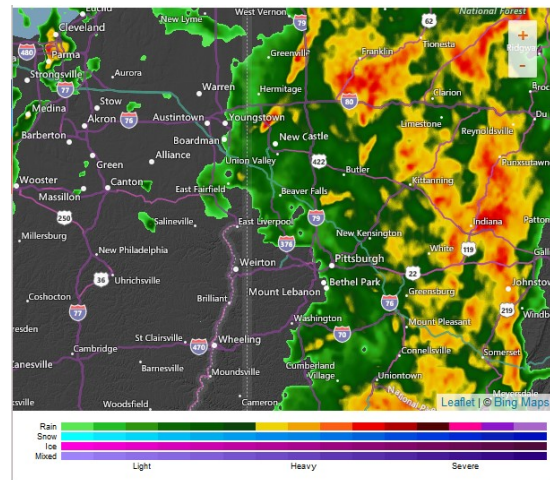
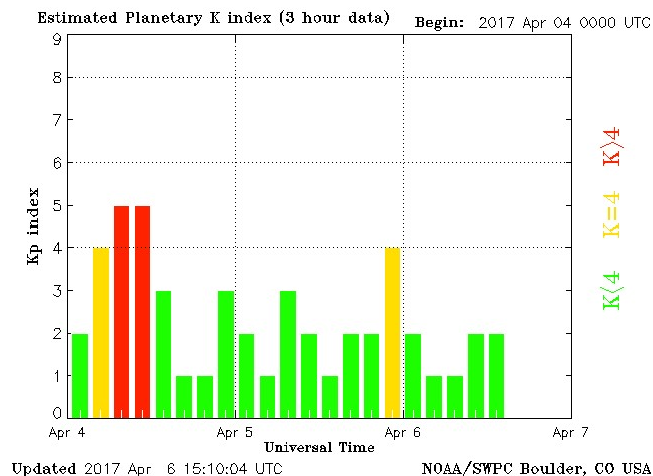
Beginning of Pass



End of Pass

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An Io-B pass, beginning with extremely weak negative drift L-bursts, visible due to the modulation lanes. Later emissions were obscured by precipitation static caused by a heavy and prolonged rain storm (see above radar image).

There were L-bursts present in this pass, but it was predominantly N-events populated by negative drift S-bursts. Emissions observed with the SDRPlay RSP2 unit spanned 16 MHz – 24 MHz. Measurements by the FSX-2/LWA pair show a frequency span of 15 MHz to 28 MHz.

One interesting feature that stands out besides the N-events is a random cluster of what appear to be L-bursts in a random pattern between 0440 UT and 0443 UT.

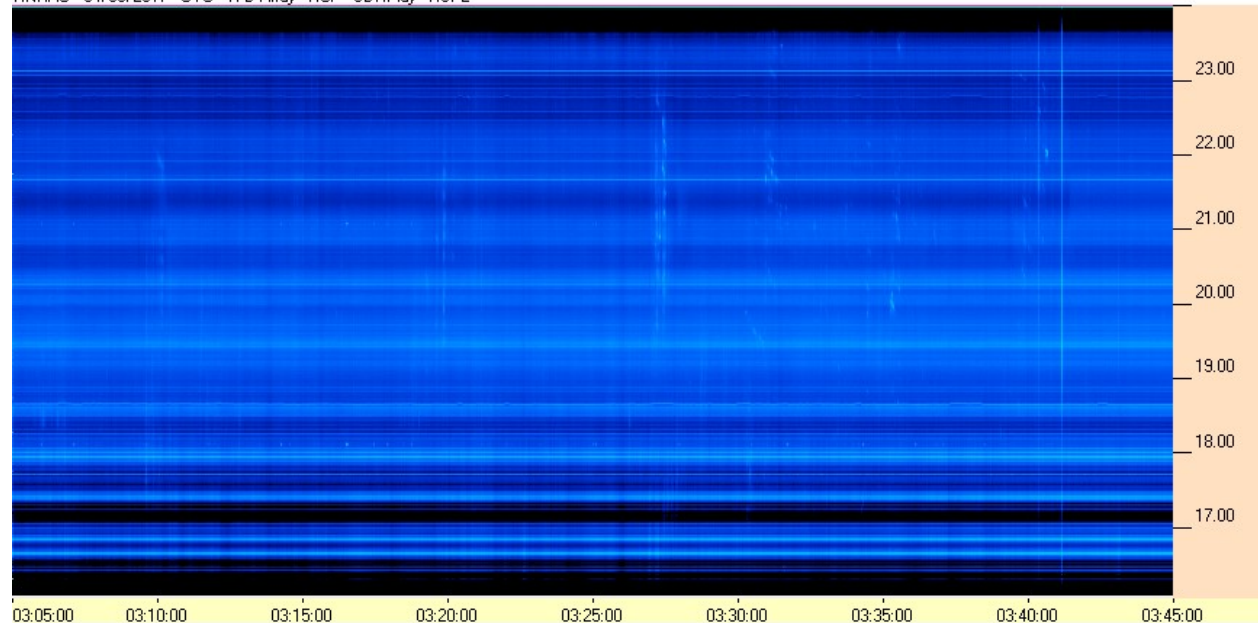
Positive drift modulation lanes were present. While conditions made identification of modulation lanes difficult, there were 4 instances during that pass that measurements could be made. Measurements yielded a high of 182 kHz/sec to a low of 112 kHz/sec. with an average of 137 kHz/sec.

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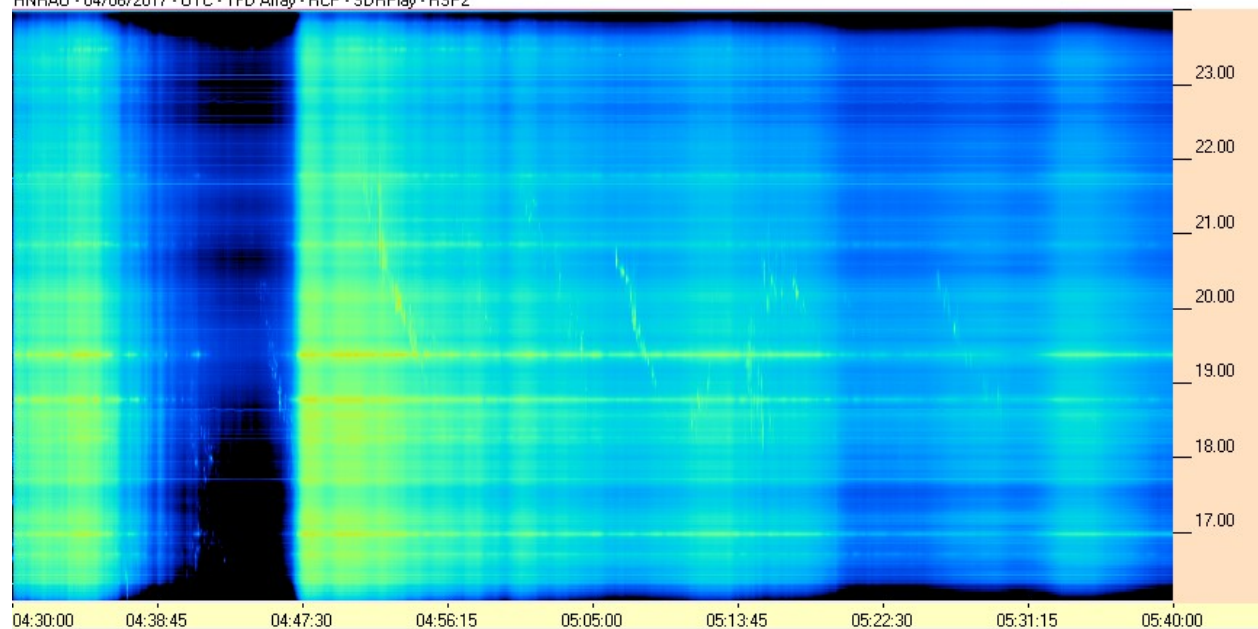


SDRPlay RSP2/TFD Pair

HNRAO - 04/06/2017 - UTC - TFD Array - RCP - SDRPlay - RSP2



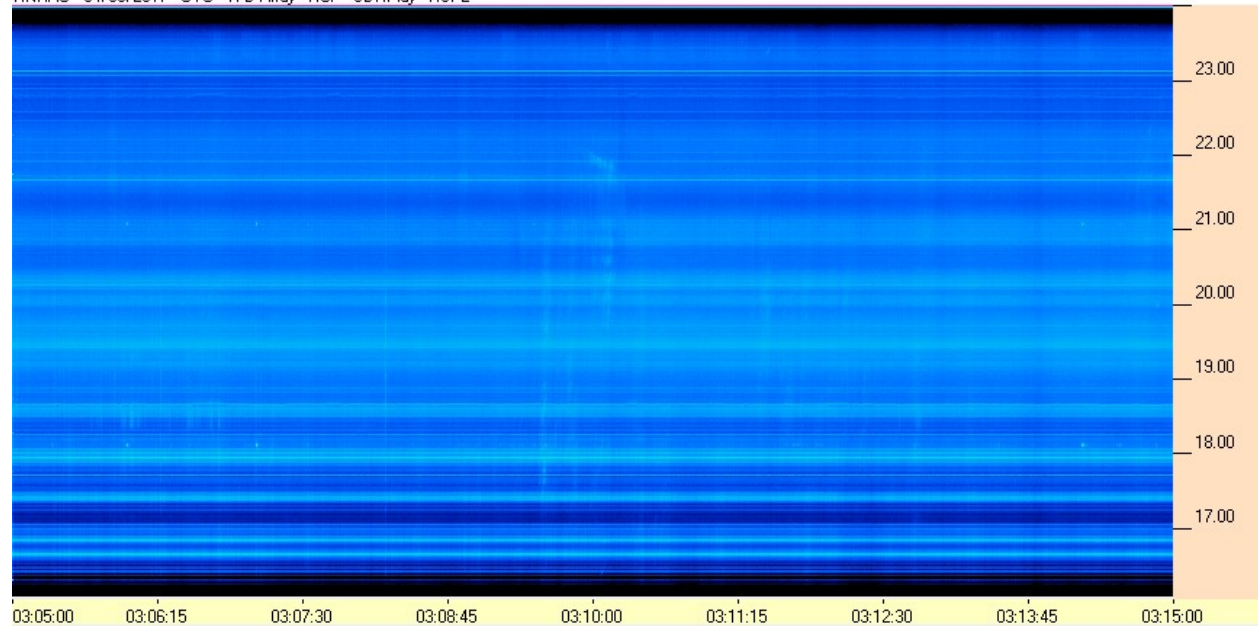
HNRAO - 04/06/2017 - UTC - TFD Array - RCP - SDRPlay - RSP2



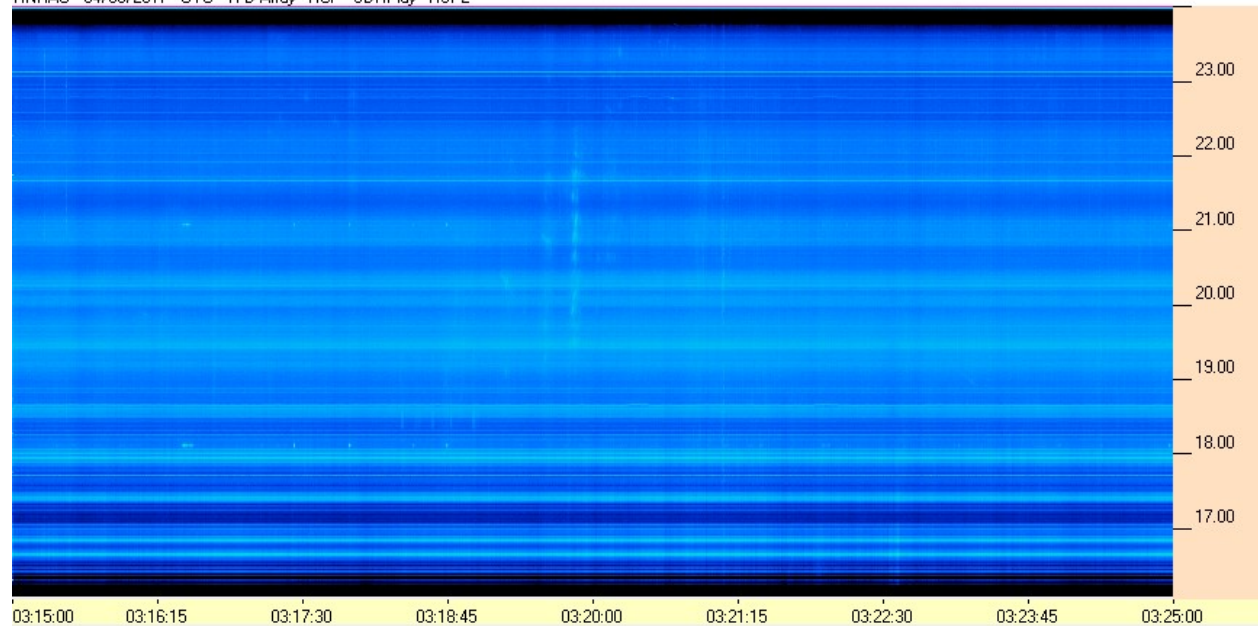
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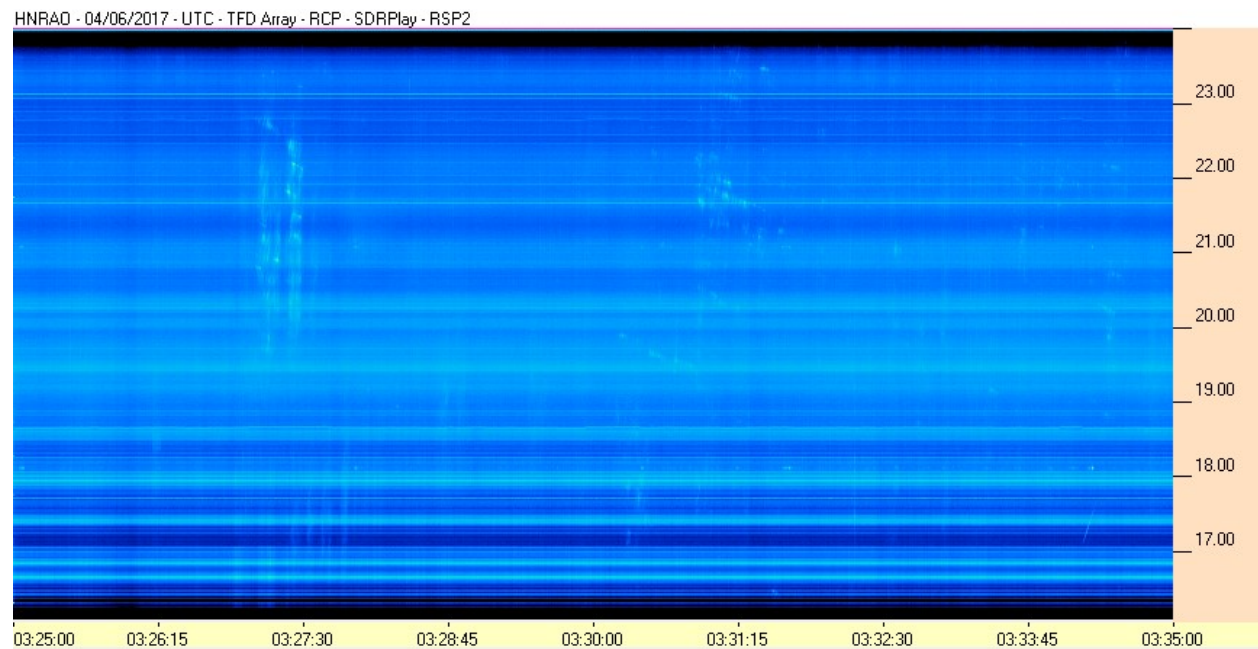
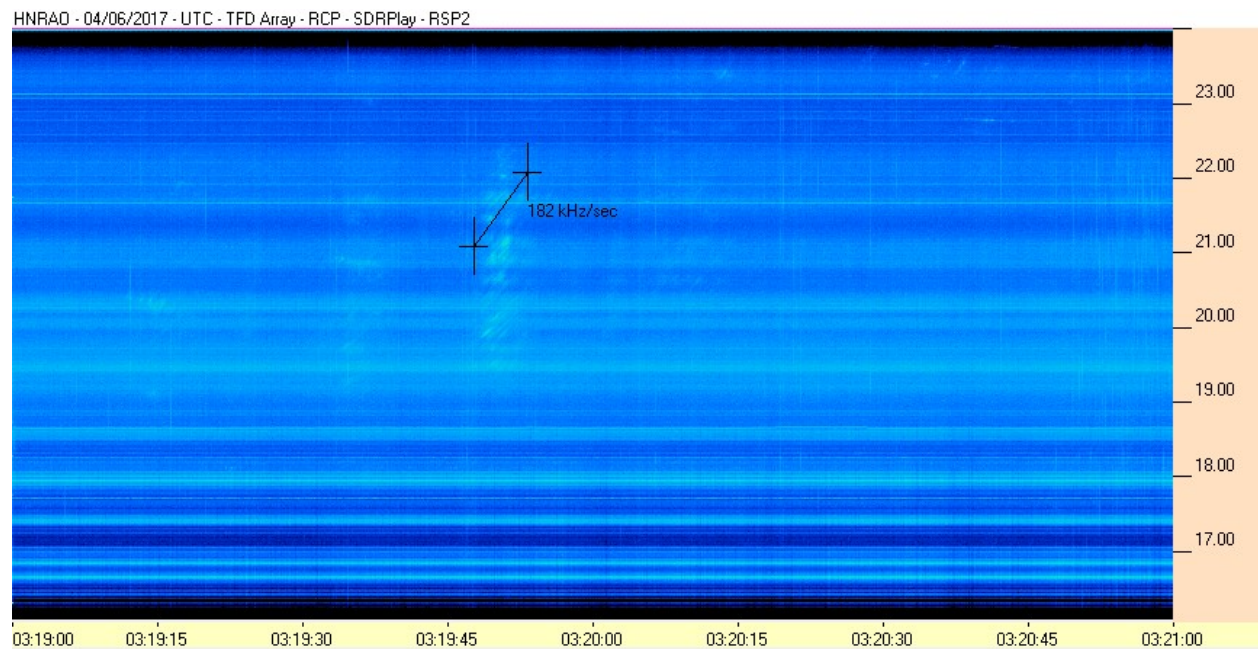
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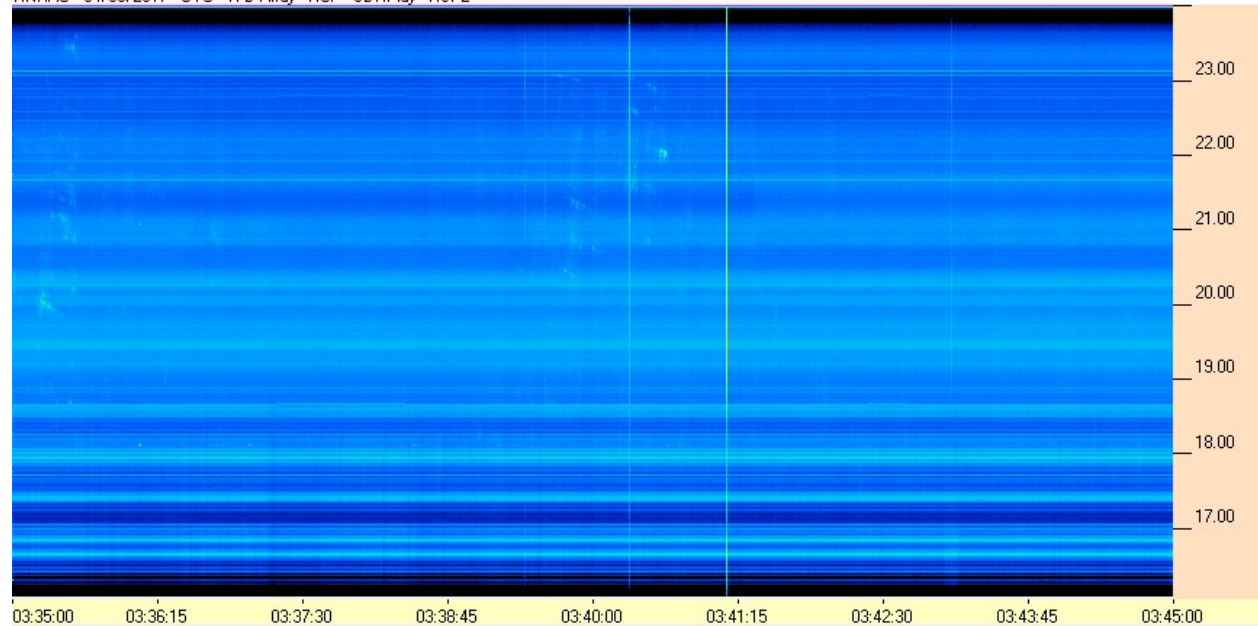
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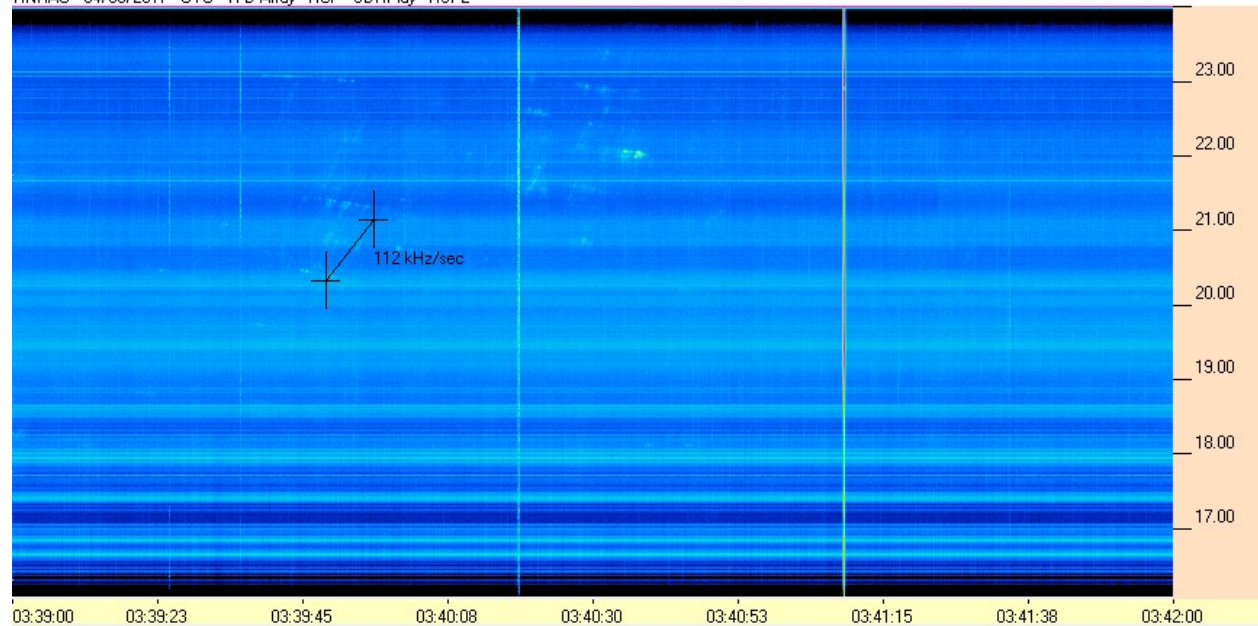
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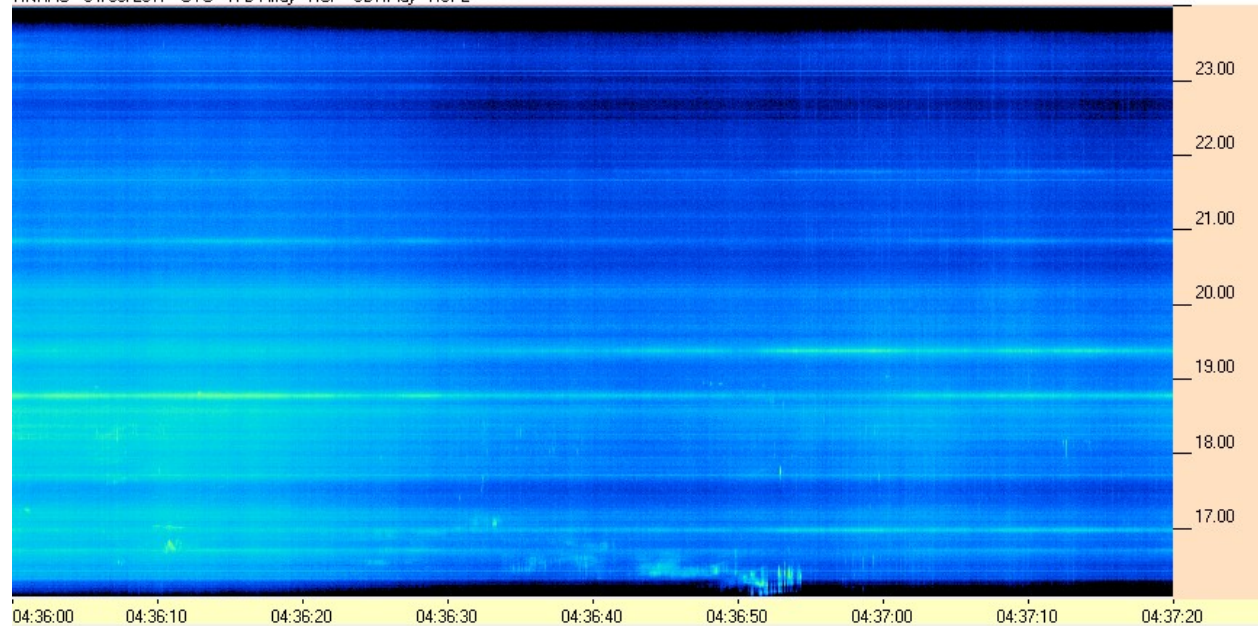
HNRAO - 04/06/2017 - UTC - TFD Array - RCP - SDRPlay - RSP2



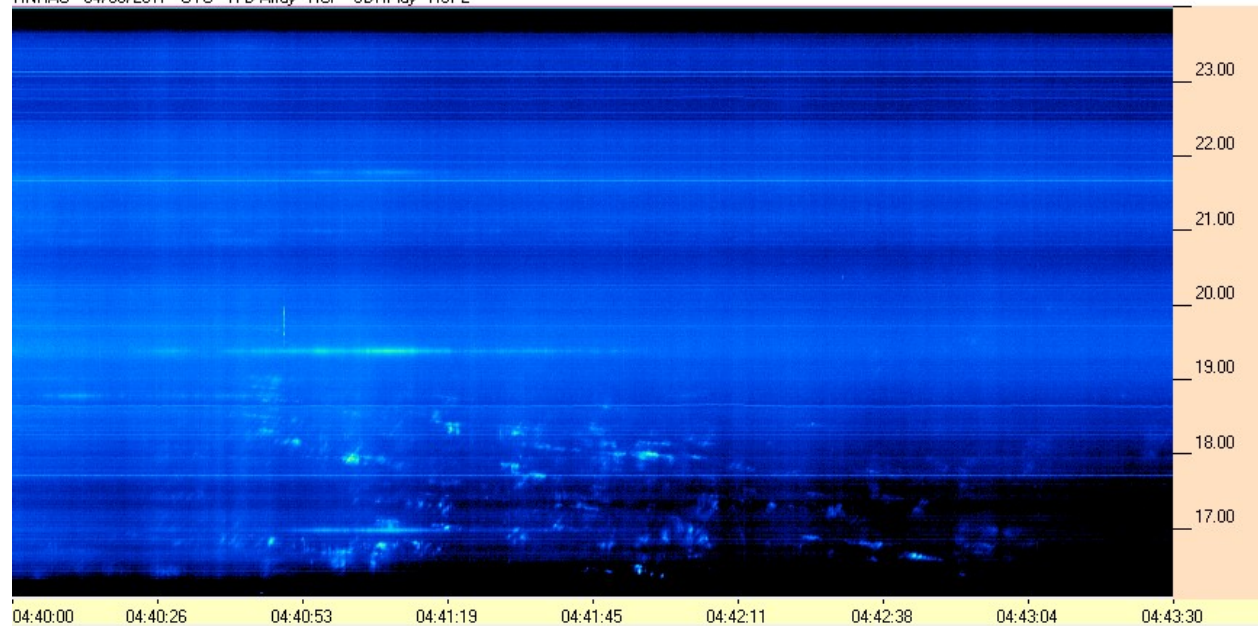
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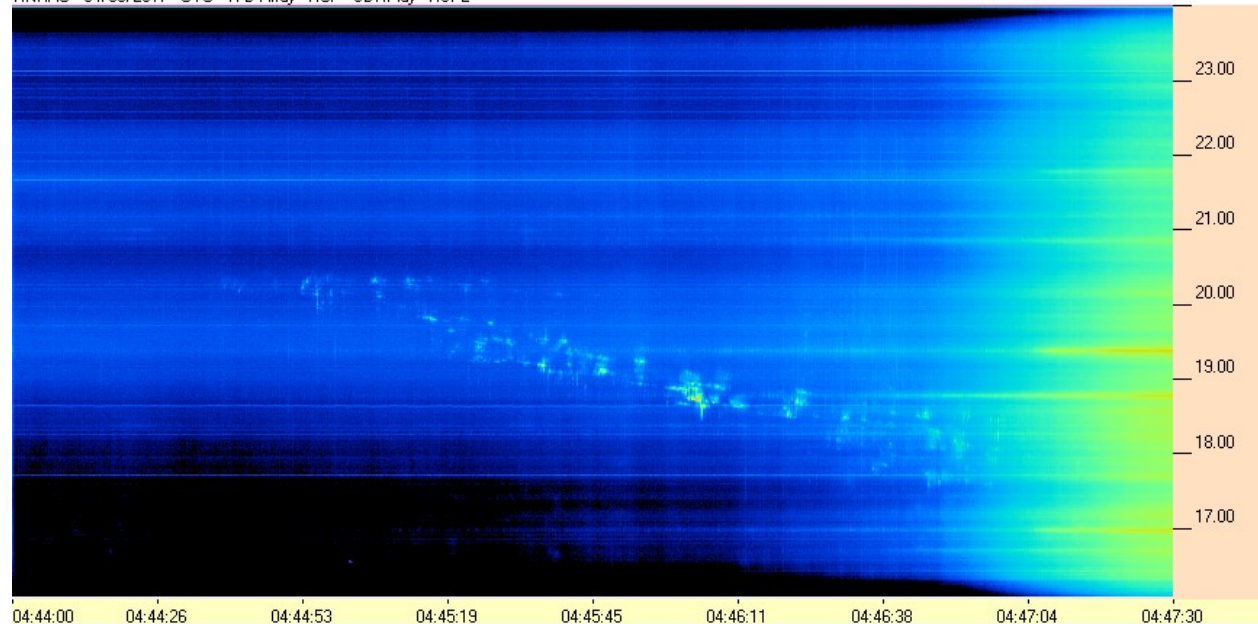
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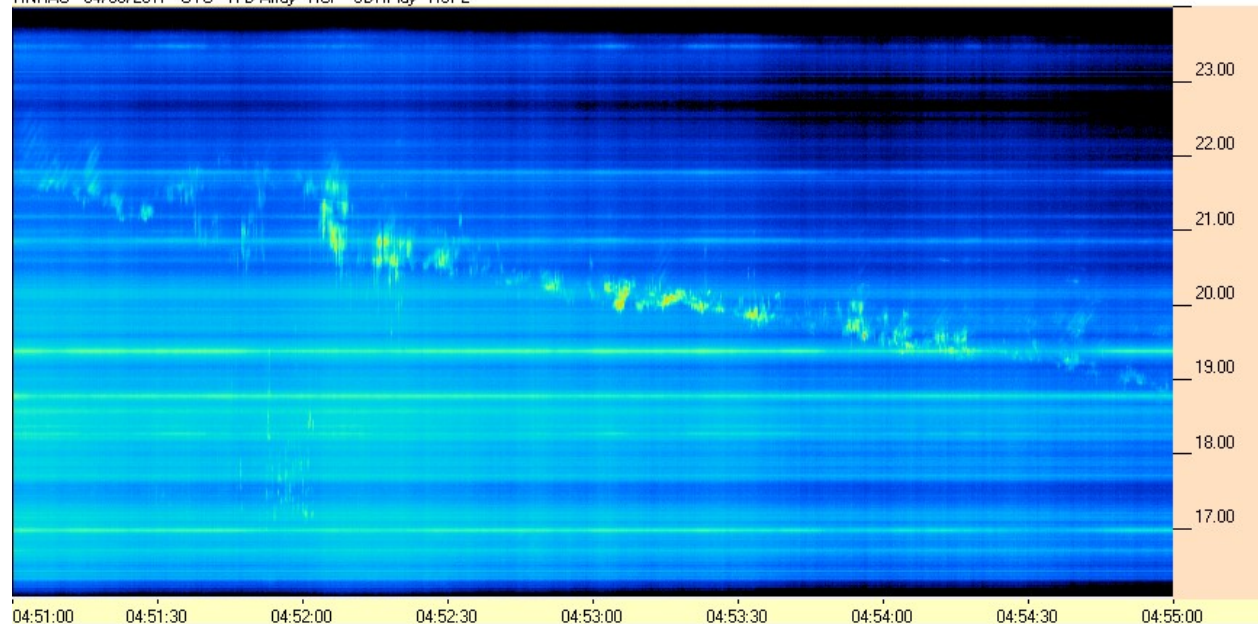
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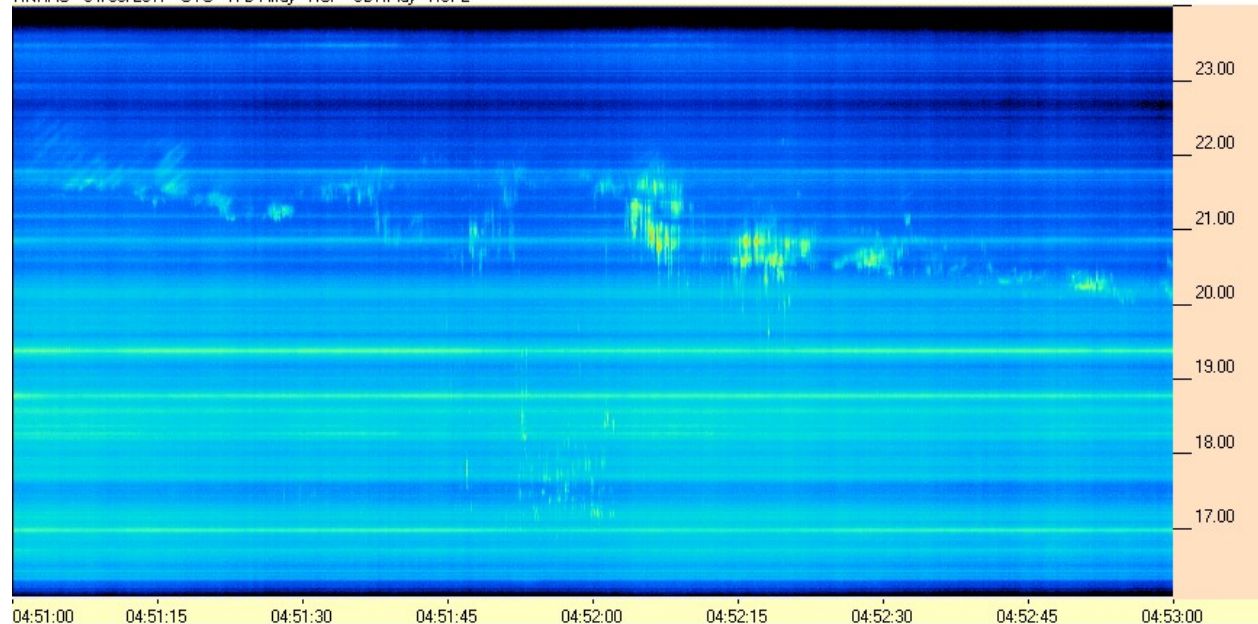
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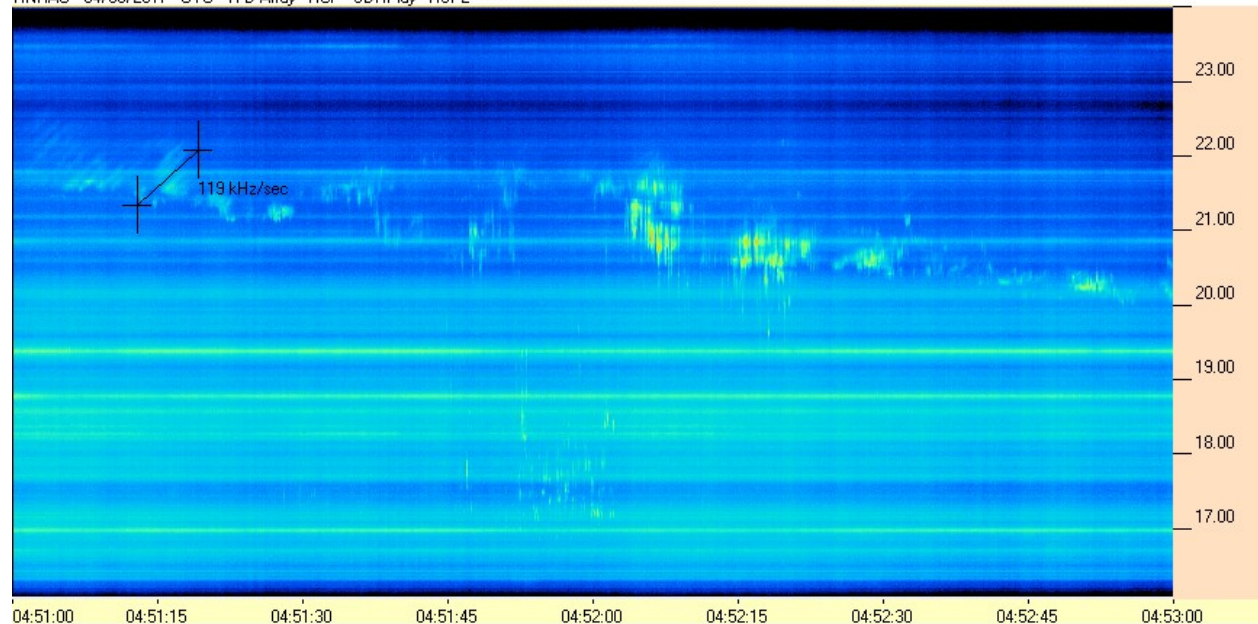
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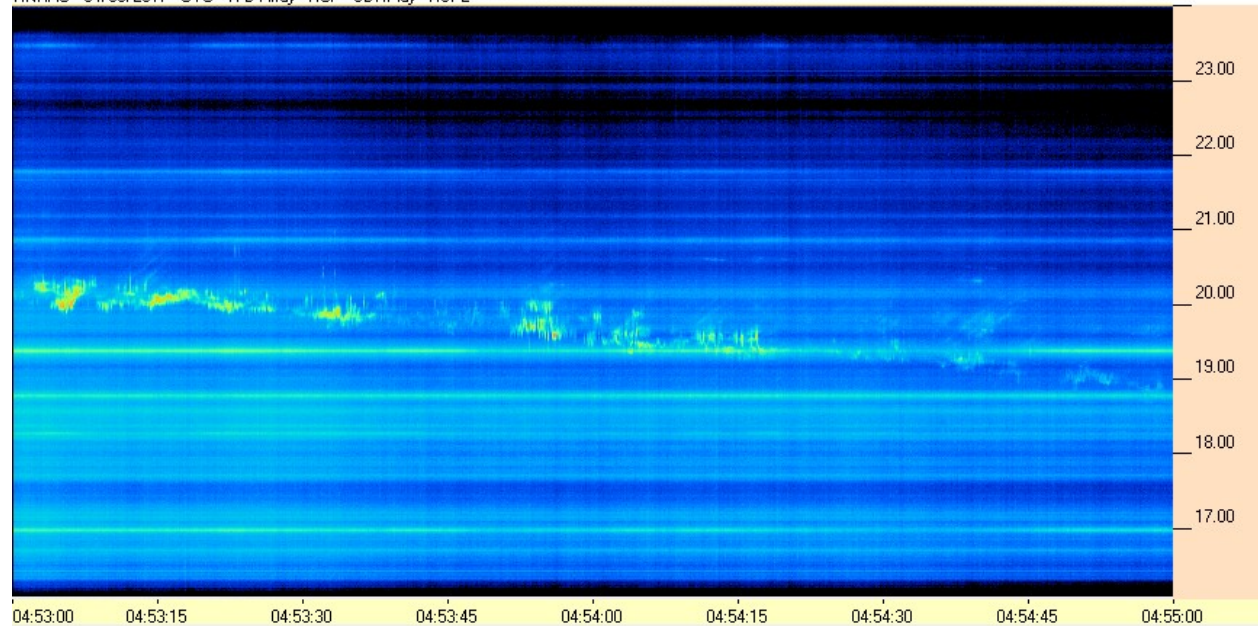
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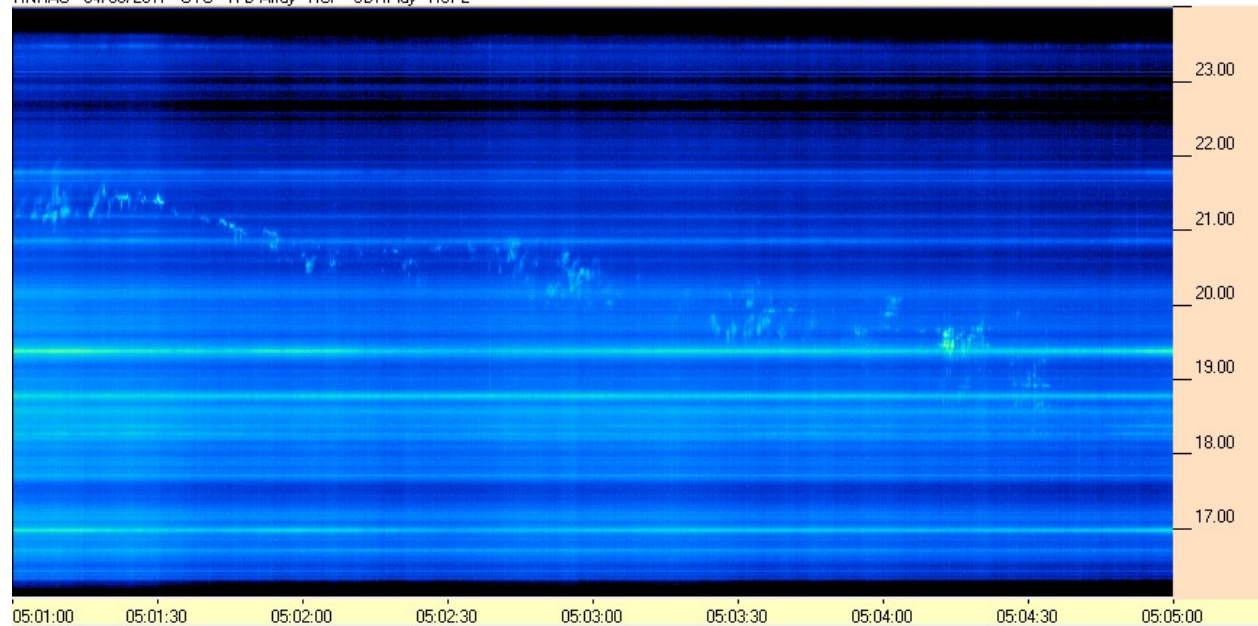
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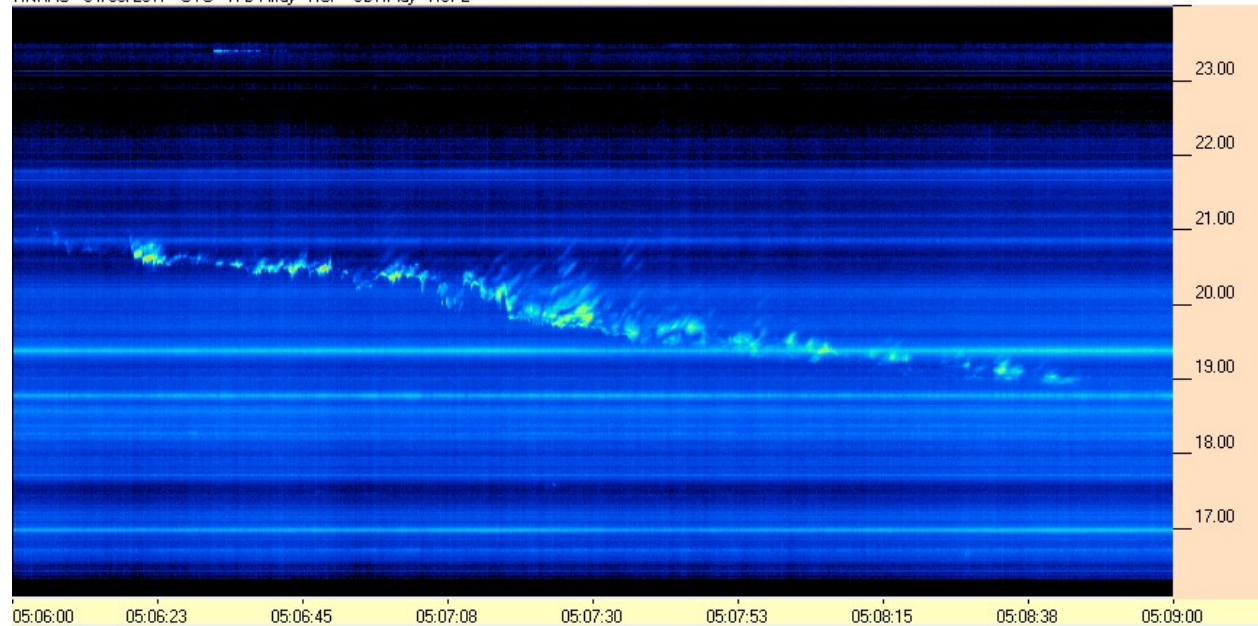
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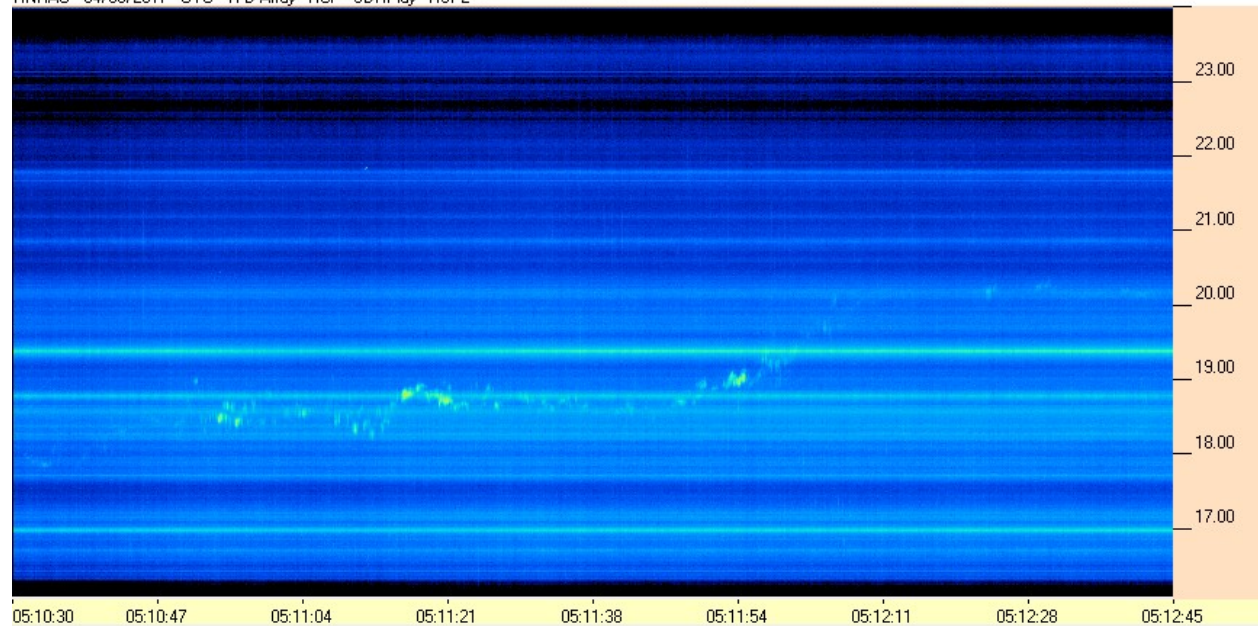
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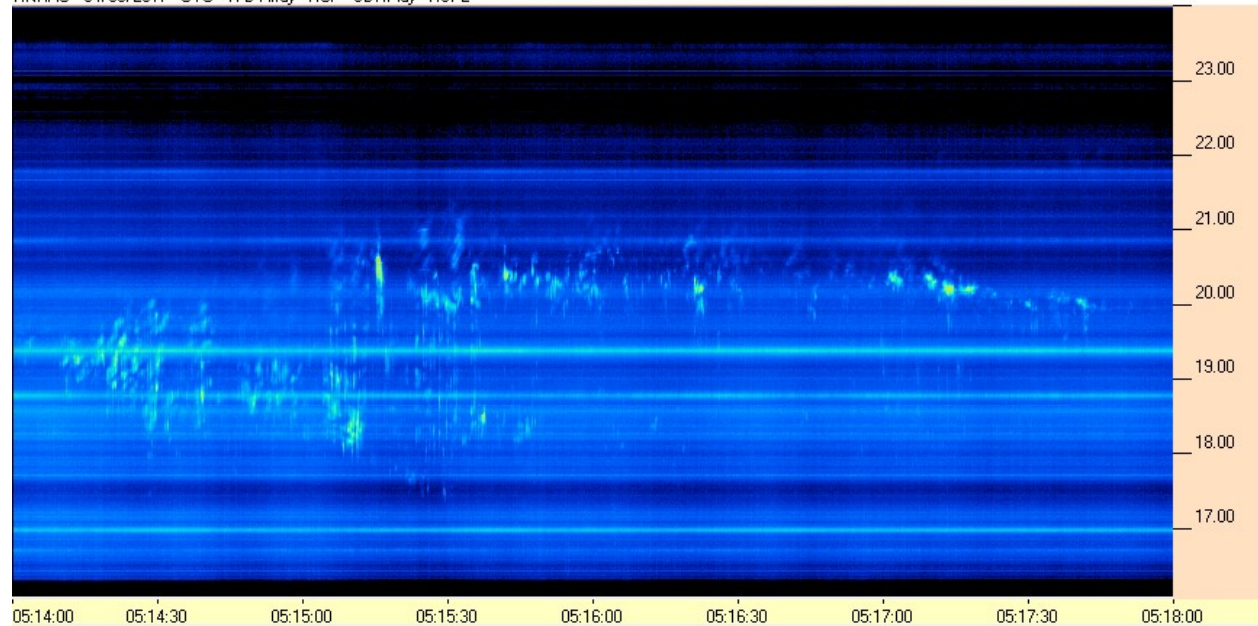
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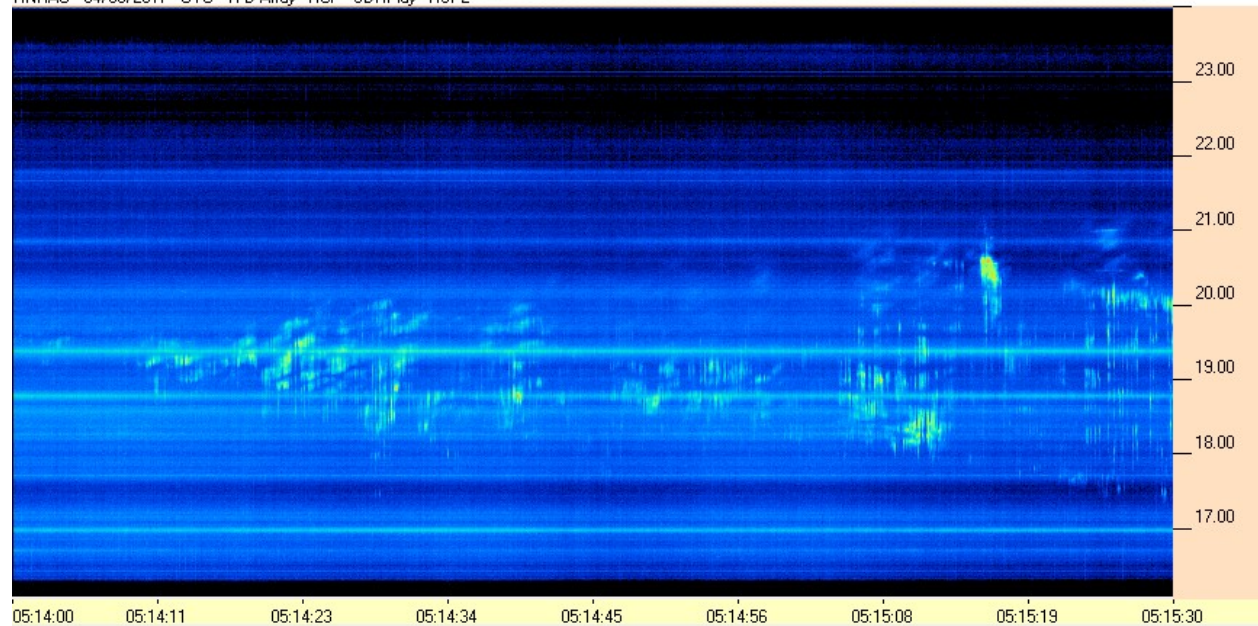
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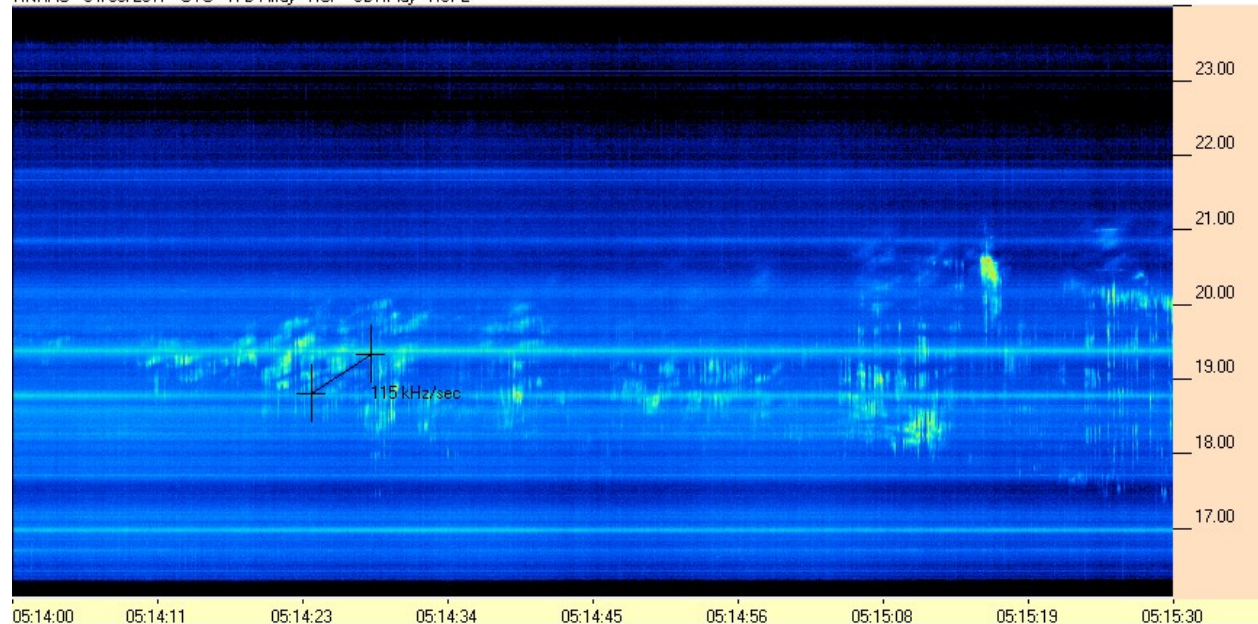
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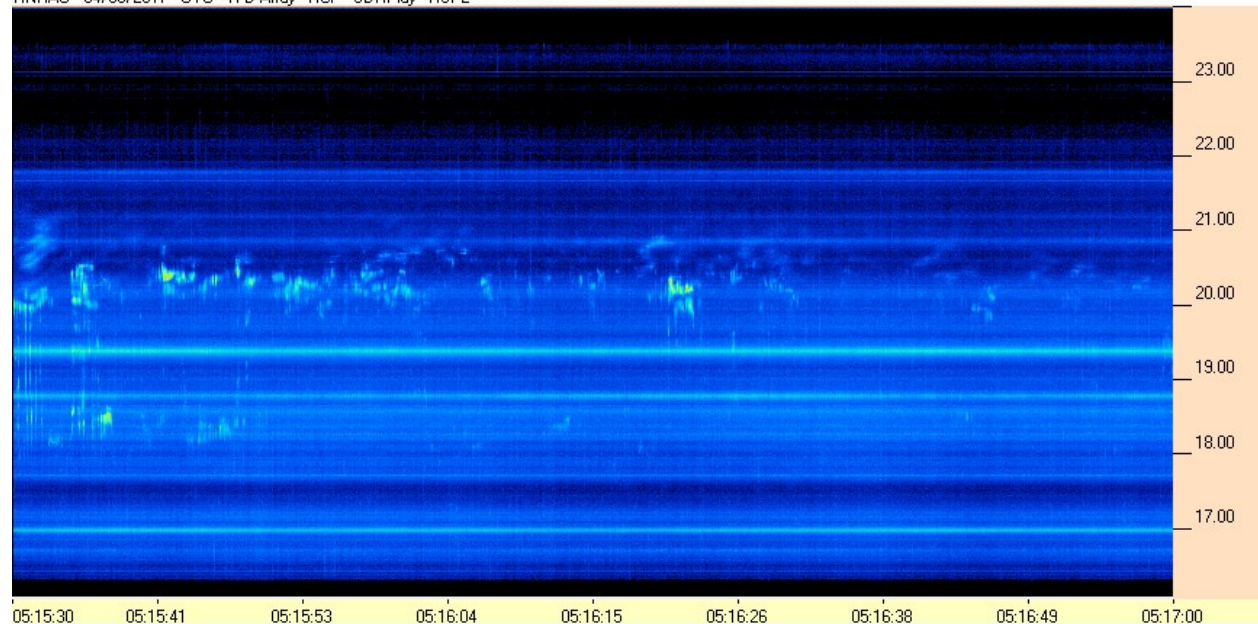
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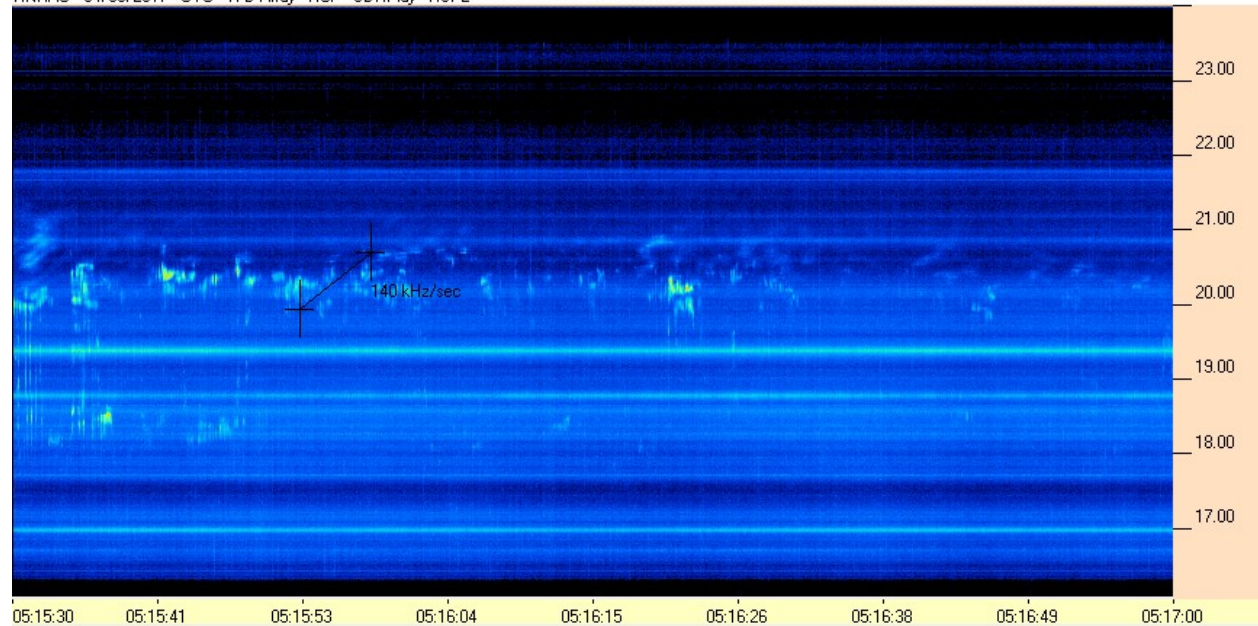
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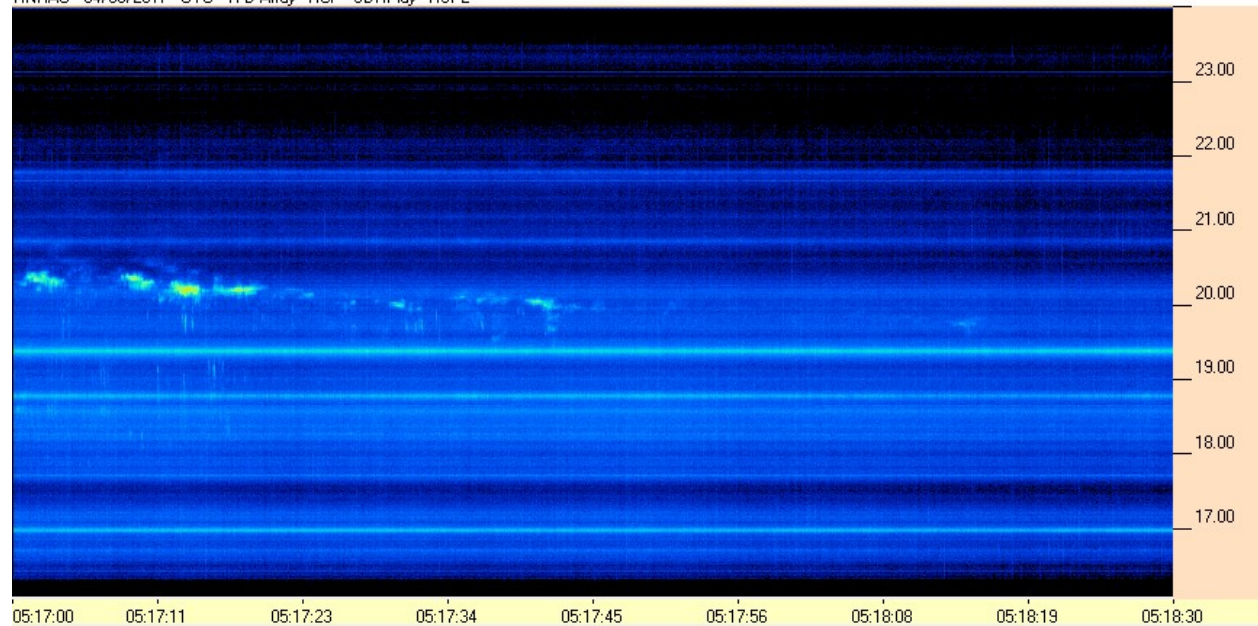
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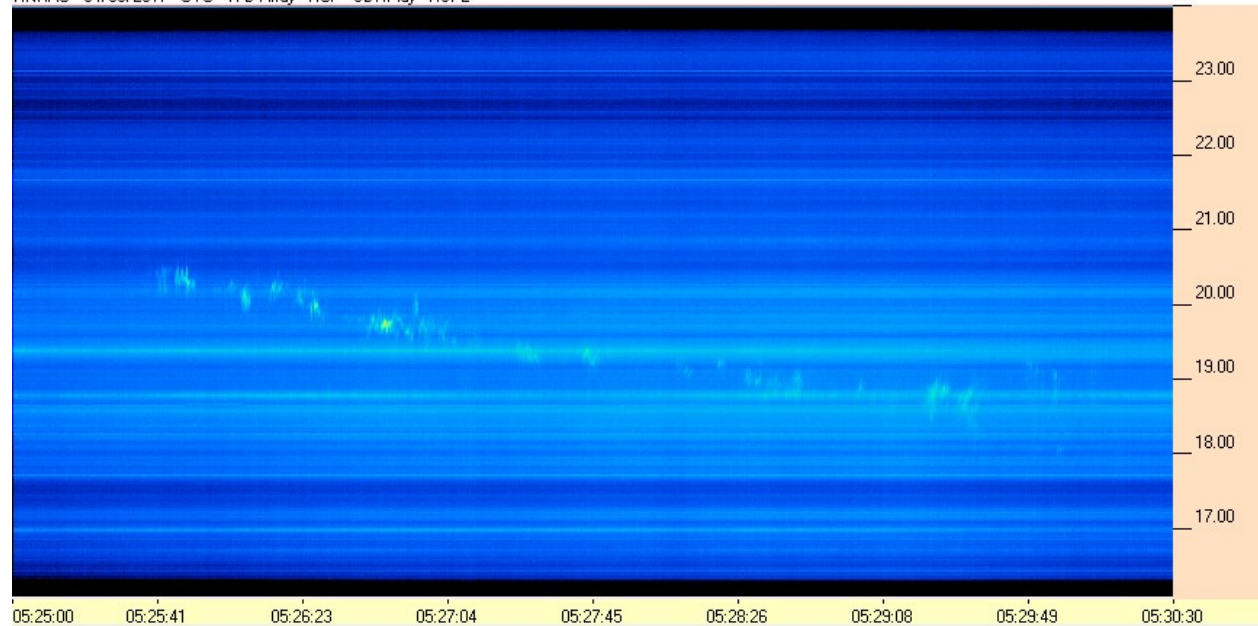
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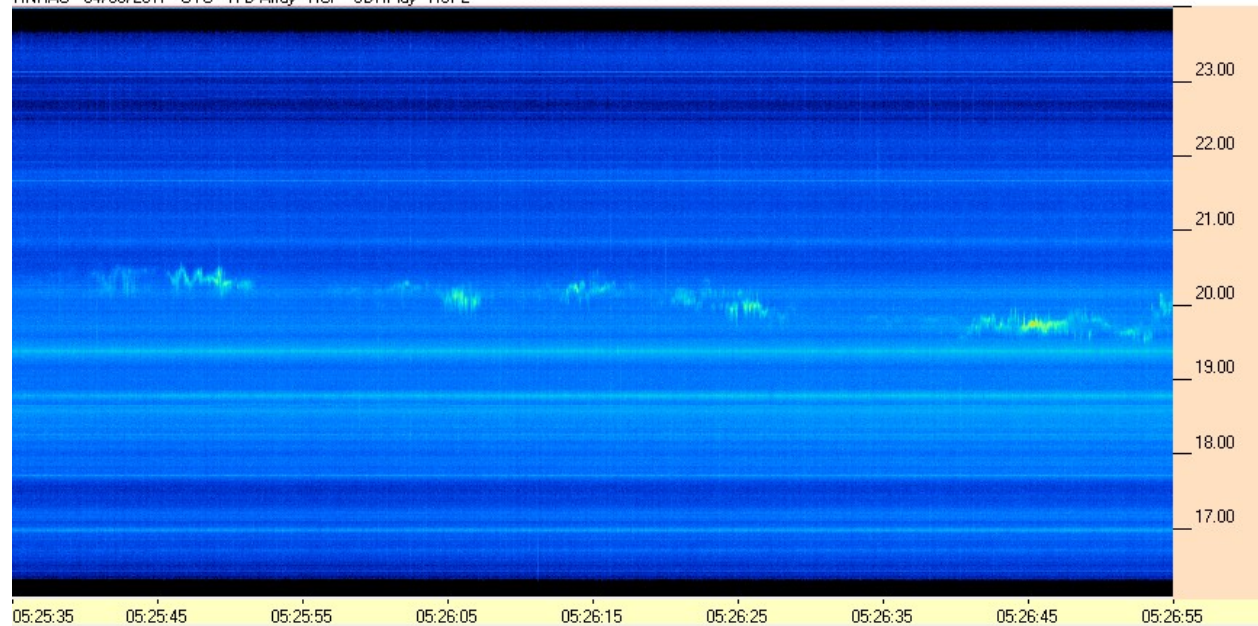
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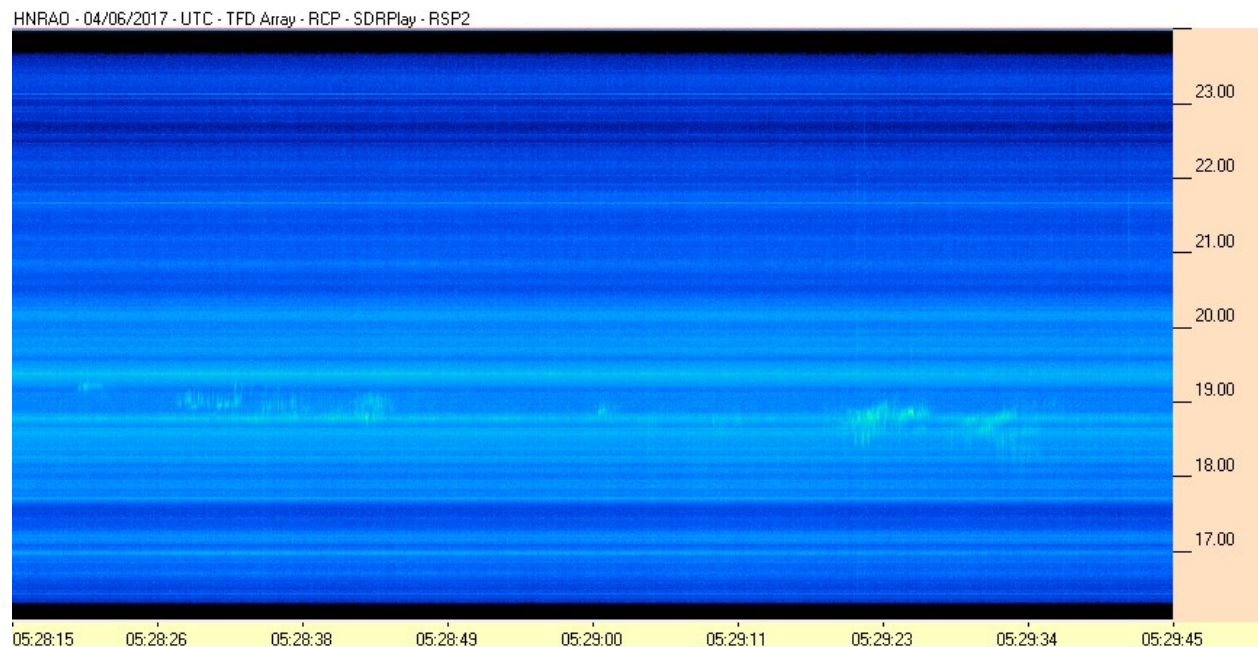
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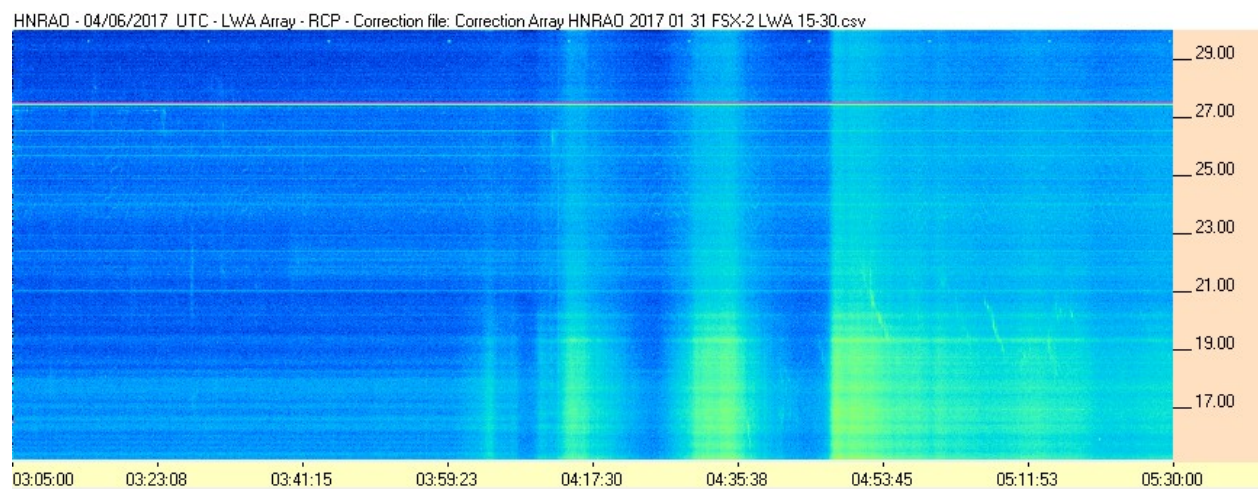
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FSX-2/LWA Pair

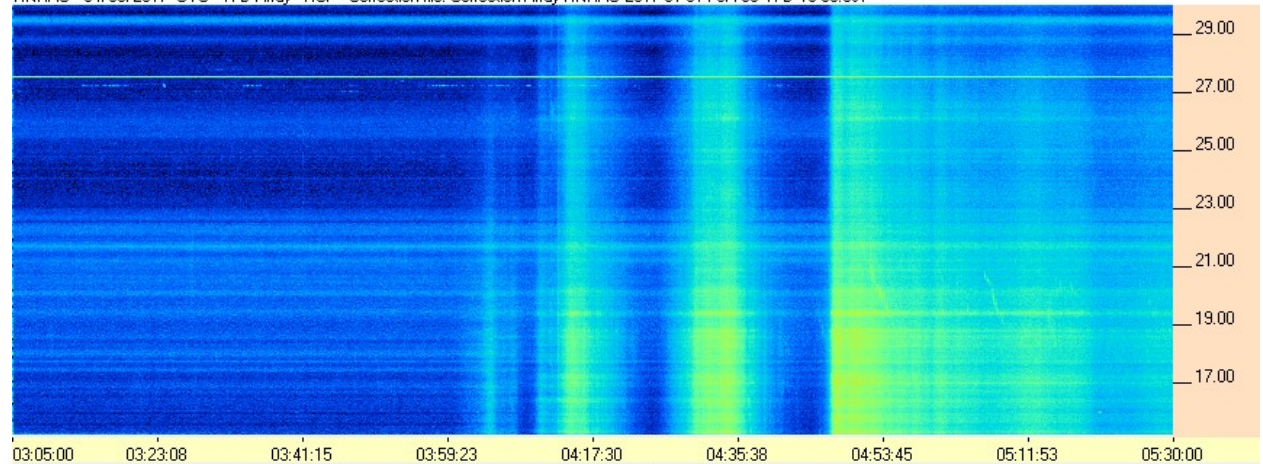


FSX-8S/TFD Pair

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HNRAO - 04/06/2017 UTC - TFD Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv



HNRAO - 04/06/2017 UTC - TFD Array - LCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv

