

HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: 4 March 2017

Object: Jupiter – Io-C

Observer: Unattended

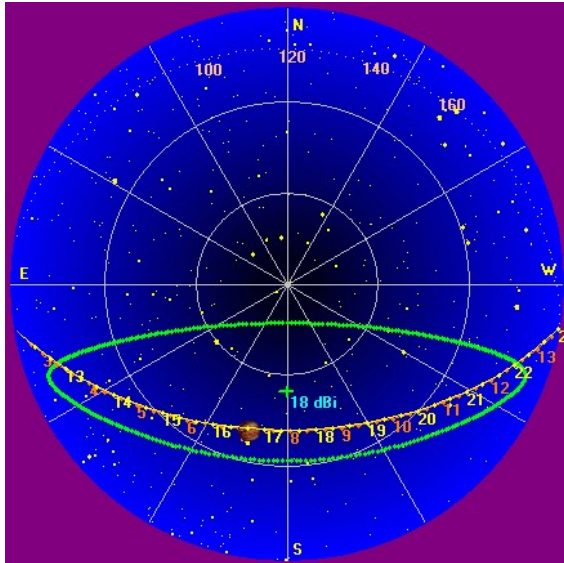
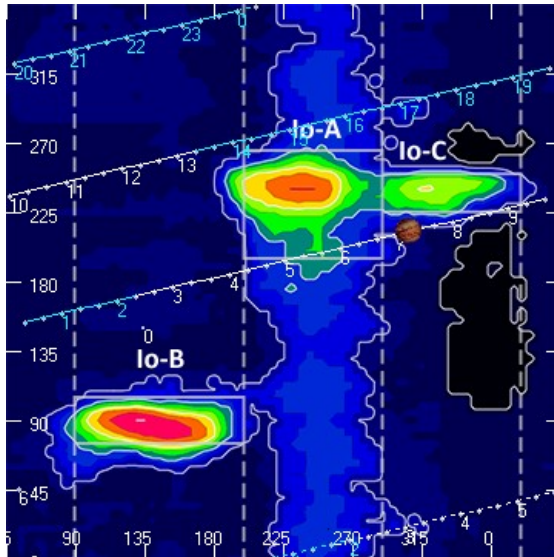
Start of pass:	0713 UT	Planetary K-index:	5
Jupiter Altitude:	41.2 degrees	Jupiter Azimuth:	165.7 degrees
Jupiter CML:	306.28	Jupiter Io Phase:	212.66
Jupiter RA:	13:23	Jupiter Dec:	-07:08
Hour Angle:	-00:43	Polarization	LCP
Sun Altitude:	-48.8 degrees	Sun Azimuth:	042.6 degrees
Sun RA:	22:54	Sun Dec:	-07:03

End of pass:	0813 UT		
Jupiter Altitude:	42 degrees	Jupiter Azimuth:	185.7 degrees
Jupiter CML:	342.56	Jupiter Io Phase	221.20
Hour Angle:	00:17		
Sun Altitude:	-40.0 degrees	Sun Azimuth:	059.4 degrees

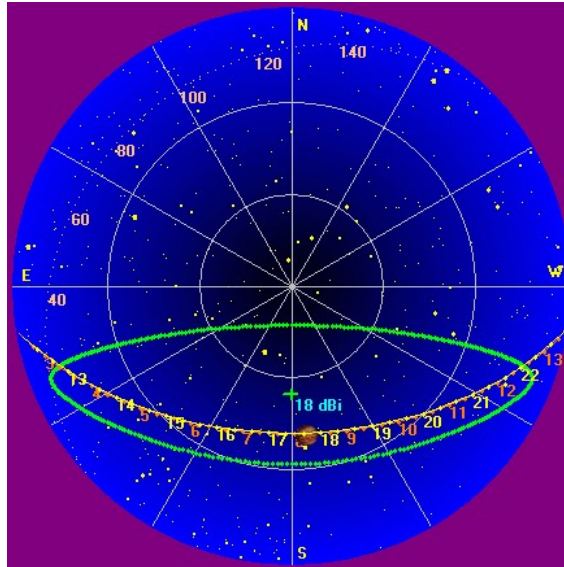
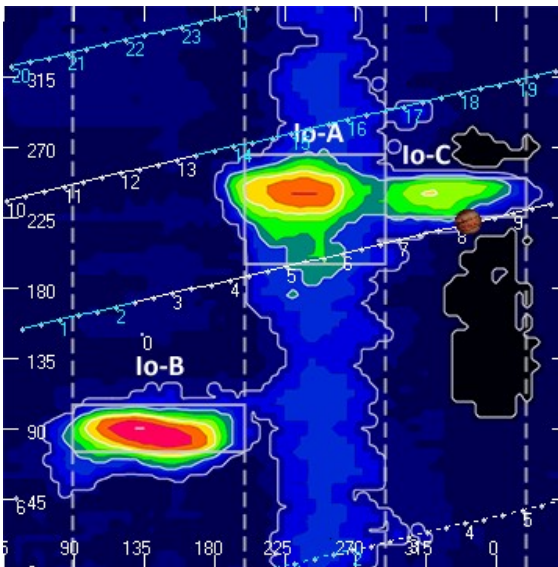
Observations made using:

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 4 February 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 4 February 2017
5. SDRPlay
 - a. RSP1 and RSP2

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Beginning of Pass



End of Pass

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A weak, low, Io-C pass spanning 16-22 MHz. Not particularly strong, except for the apparent S-burst group at 0725 UT. At the resolution of the image, a negative drift rate of about -6 kHz/sec as measured at 0717 UT. and between 0725 UT and 0740 UT, the resolution of the images indicates a negative drift rate of -5 kHz/sec was measured. L-bursts and S-bursts with modulation lanes present.

The SDRPlay, RSP1 was connected to the LCP side of the TFD. The resultant spectra are below. They show strong emission in the LCP mode. However, the FSX-8S was connected to both the RCP and LCP sides of the TFD simultaneously scanning both polarizations. The FSX-8S spectrographs show stronger RCP emissions between 0725 UT and 0740 UT, preceded by LCP emission from 0711 UT through 0717 UT.

FSX-8S/TFD: RCP drift rate at 0730 UT is measured at -6 kHz/sec.

SDRPlay/RSP1: LCP drift rate at 0730 UT is measured -5 kHz/sec.

I have confirmed that the SDRPlay/RSP1 was indeed being fed by the LCP side of the TFD during this part of the pass and the FSX-8S TFD to spectrograph are polarization correct.

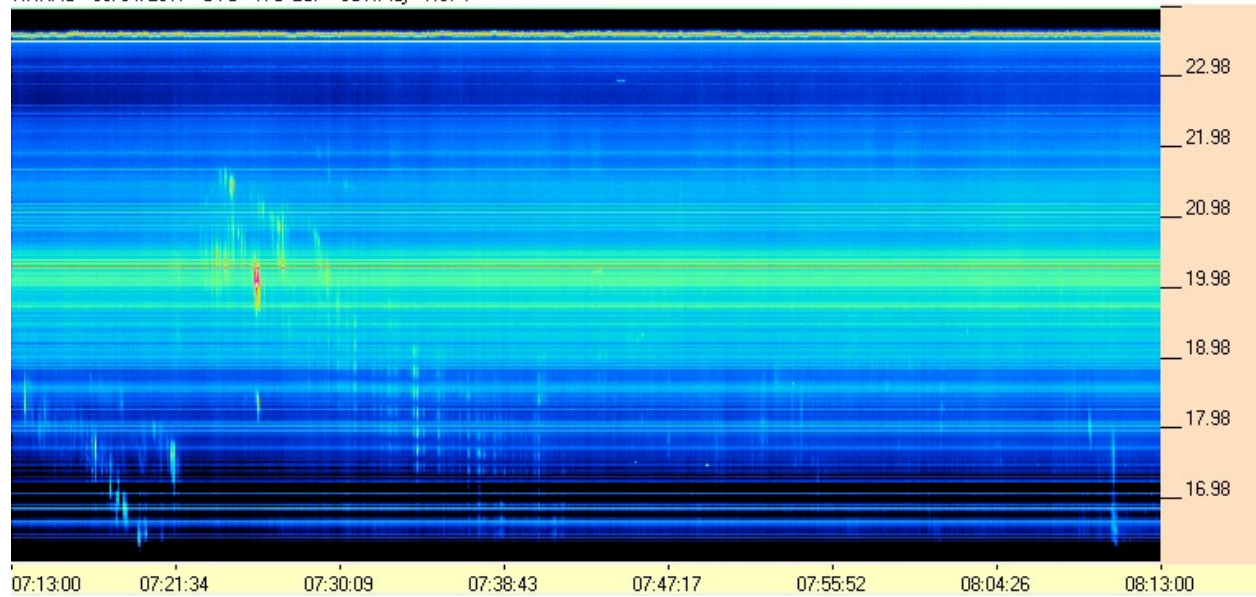
I am at a loss to explain this discrepancy.

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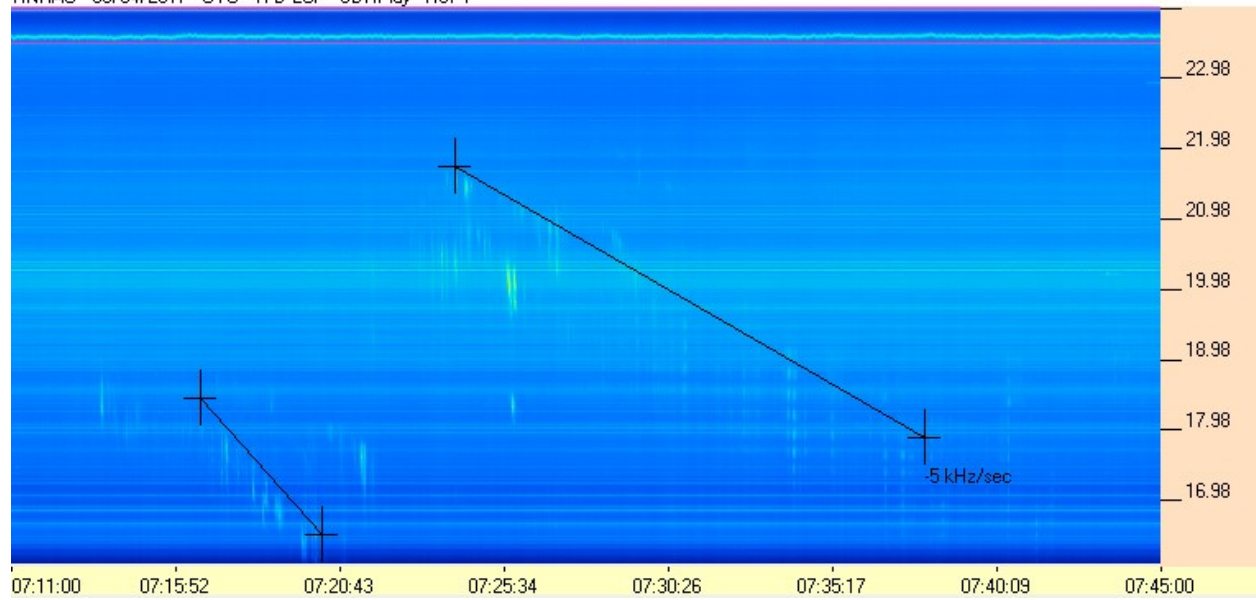


SDRPlay/RSP1/TFD/LCP Pair

HNRAO - 03/04/2017 - UTC - TFD LCP - SDRPlay - RSP1



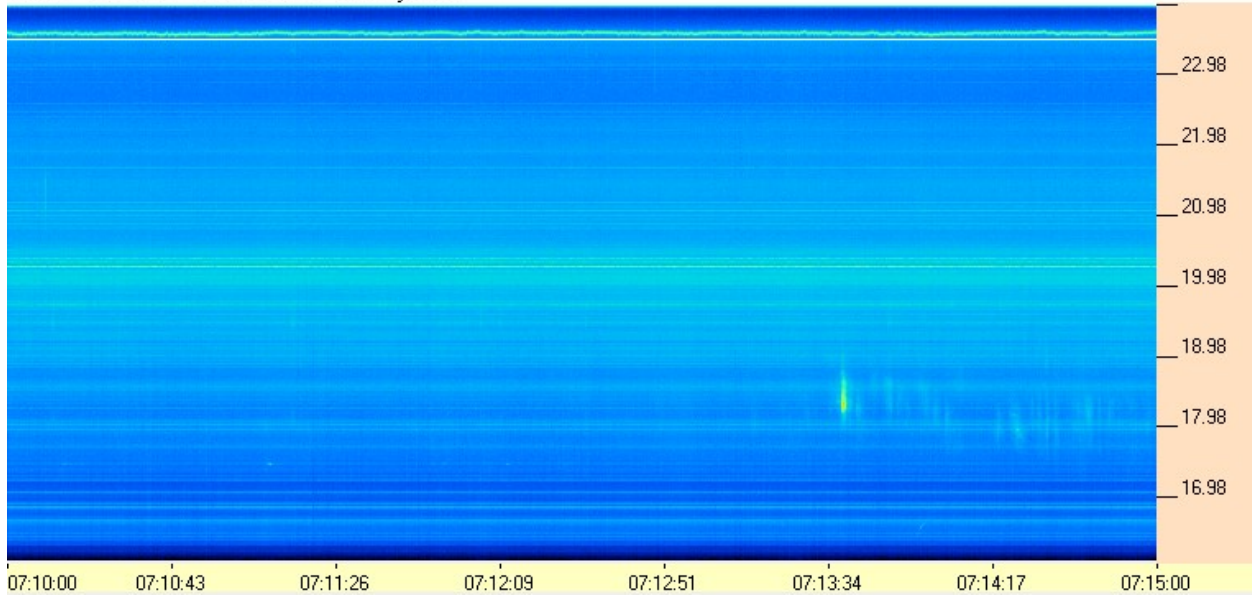
HNRAO - 03/04/2017 - UTC - TFD LCP - SDRPlay - RSP1



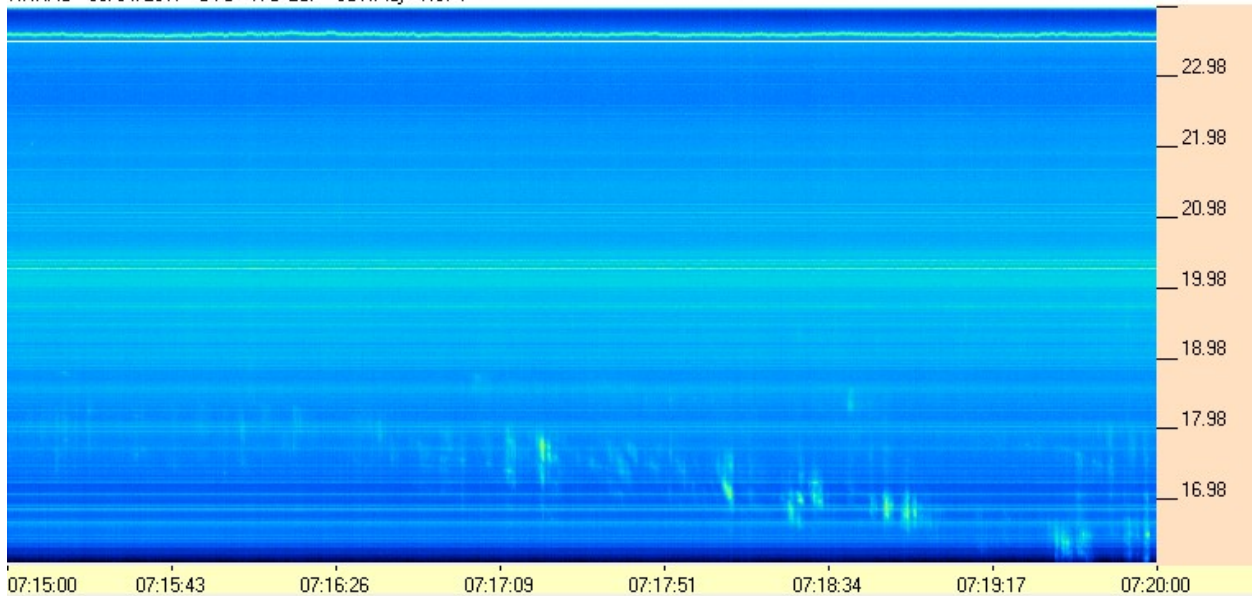
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HNRAO - 03/04/2017 - UTC - TFD LCP - SDRPlay - RSP1



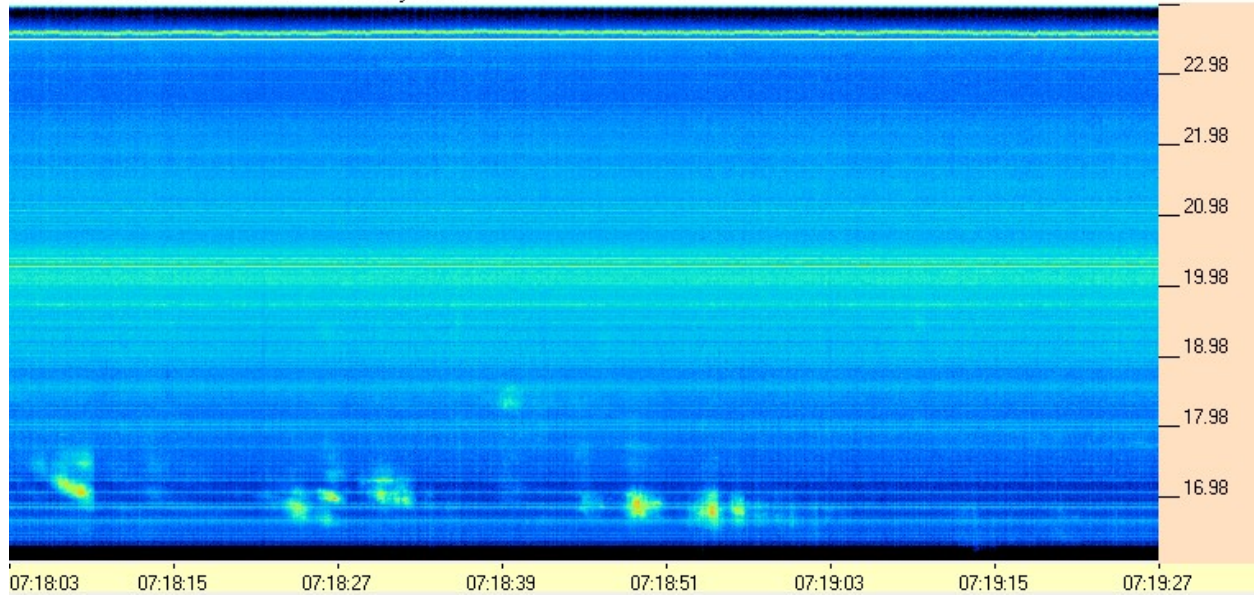
HNRAO - 03/04/2017 - UTC - TFD LCP - SDRPlay - RSP1



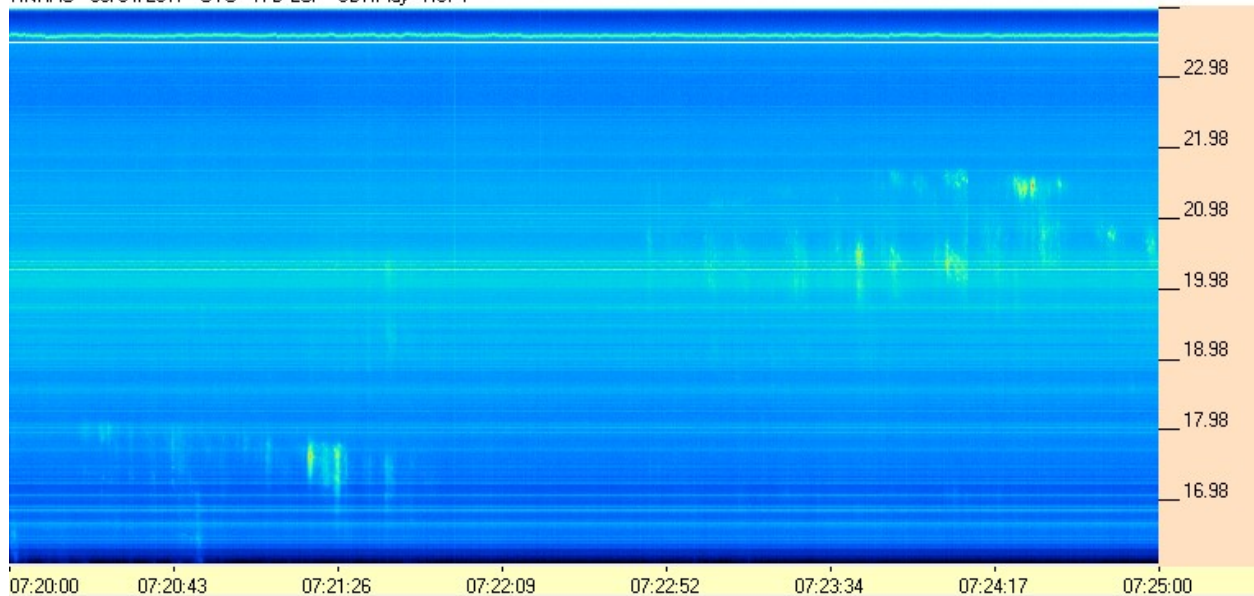
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HNRAO - 03/04/2017 - UTC - TFD LCP - SDRPlay - RSP1



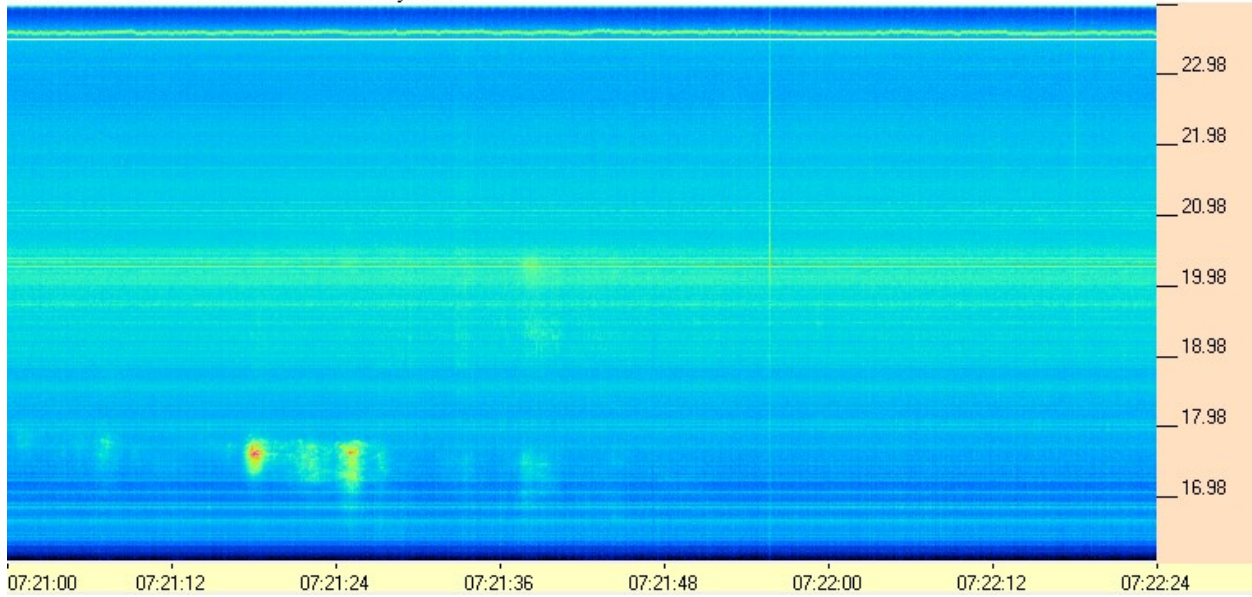
HNRAO - 03/04/2017 - UTC - TFD LCP - SDRPlay - RSP1



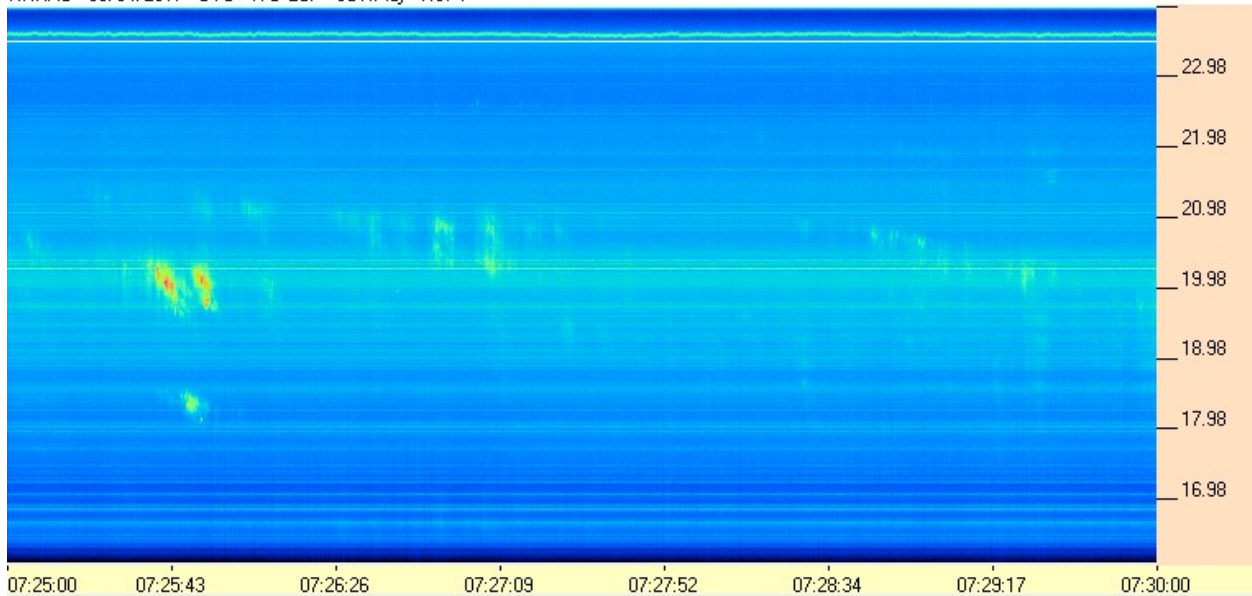
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HNRAO - 03/04/2017 - UTC - TFD LCP - SDRPlay - RSP1



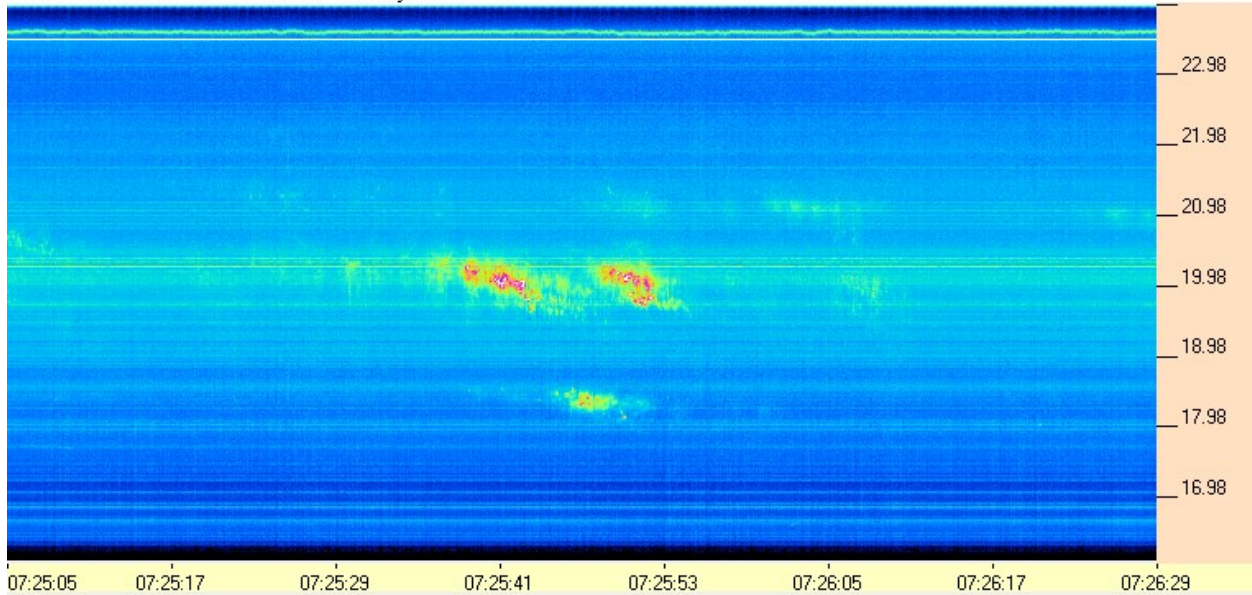
HNRAO - 03/04/2017 - UTC - TFD LCP - SDRPlay - RSP1



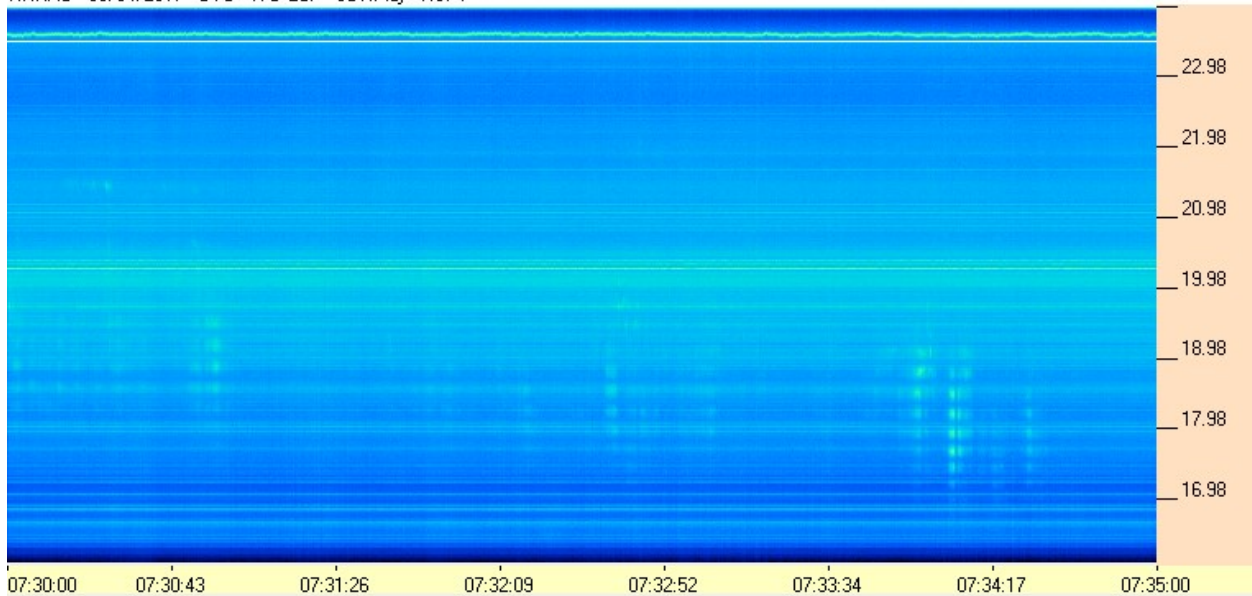
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HNRAO - 03/04/2017 - UTC - TFD LCP - SDRPlay - RSP1



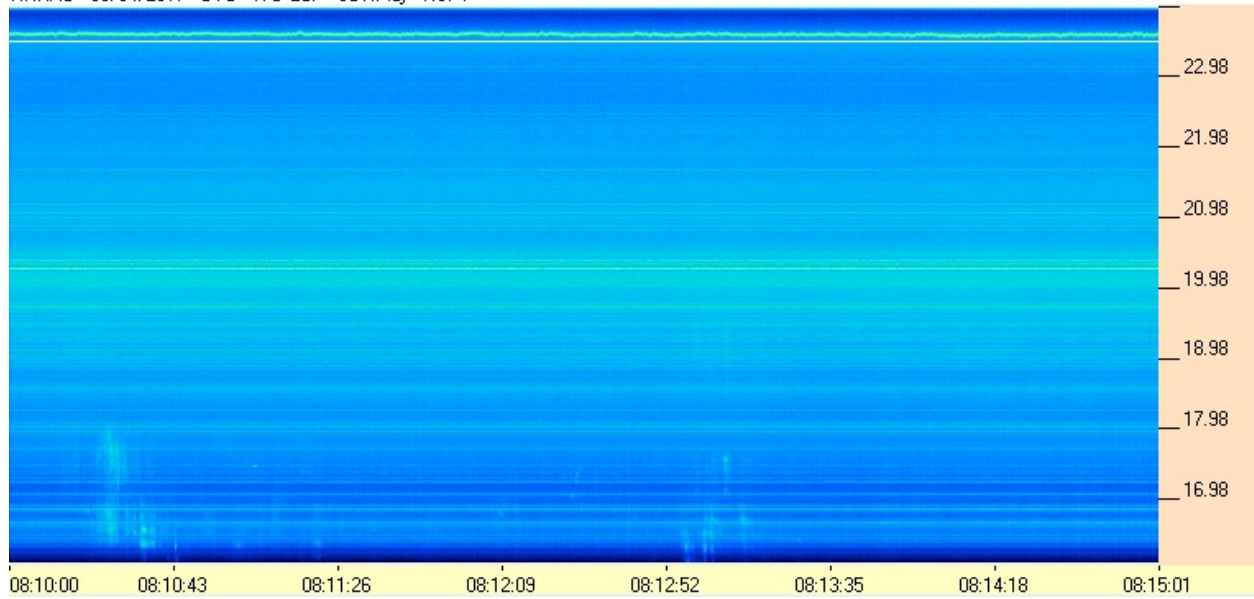
HNRAO - 03/04/2017 - UTC - TFD LCP - SDRPlay - RSP1



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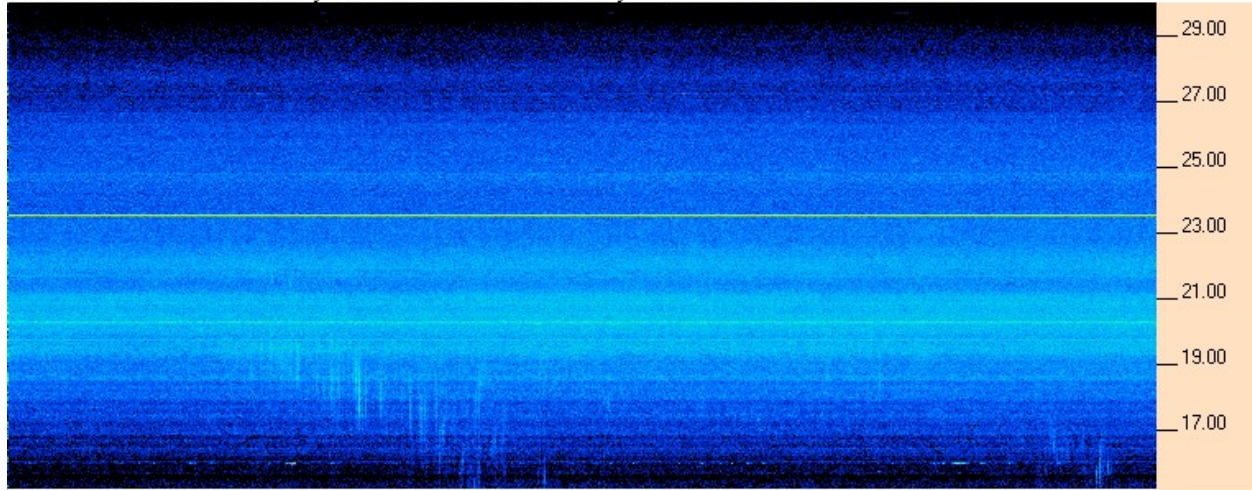


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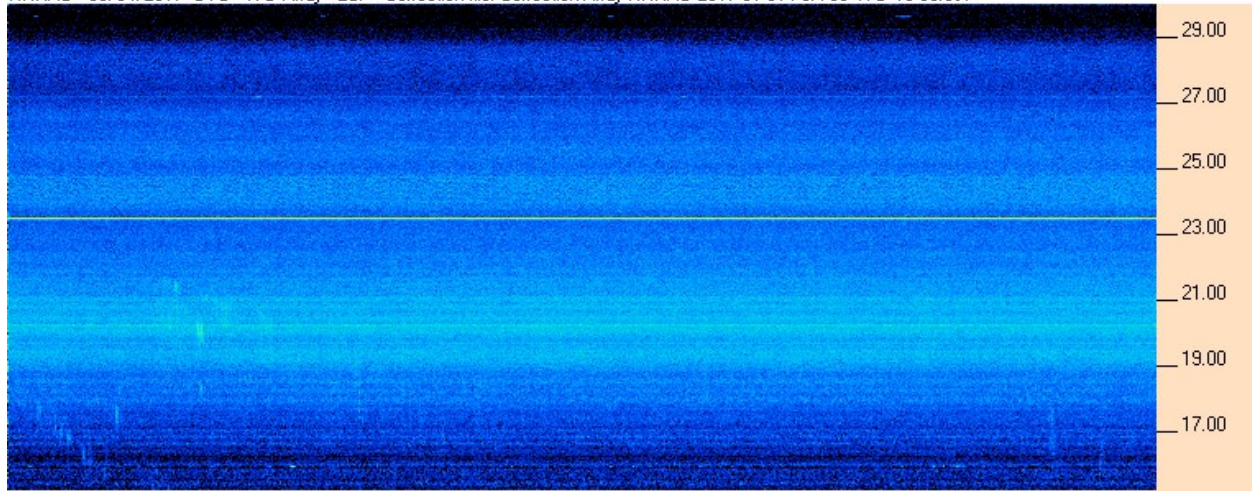
FSX-8S/TFD Pair

HNRAO - 03/04/2017 UTC - TFD Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv



07:13:00 07:21:34 07:30:09 07:38:43 07:47:17 07:55:52 08:04:26 08:13:00

HNRAO - 03/04/2017 UTC - TFD Array - LCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv

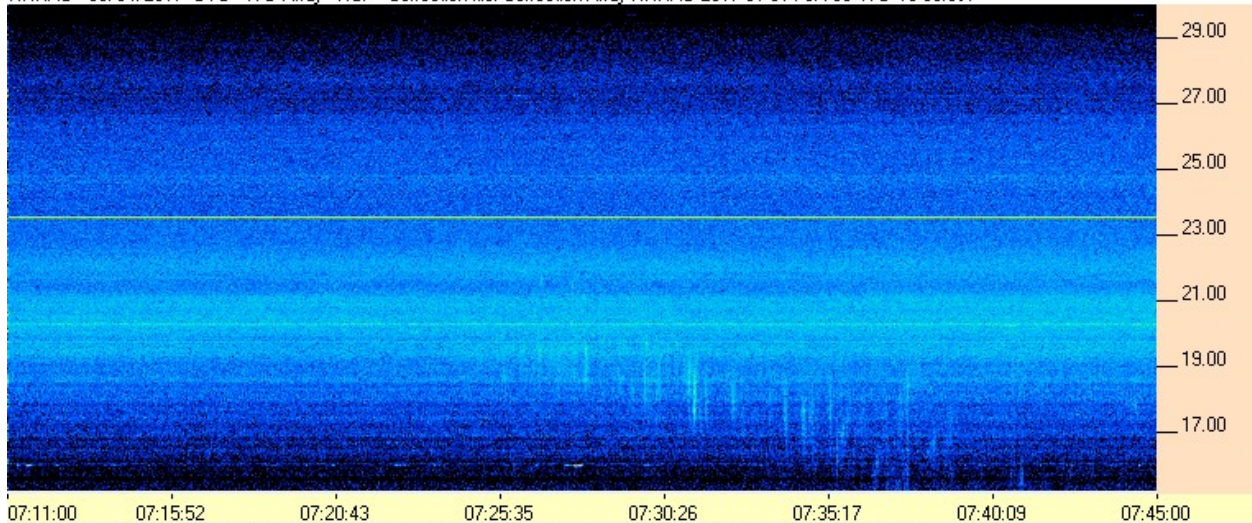


07:13:00 07:21:34 07:30:09 07:38:43 07:47:17 07:55:52 08:04:26 08:13:00

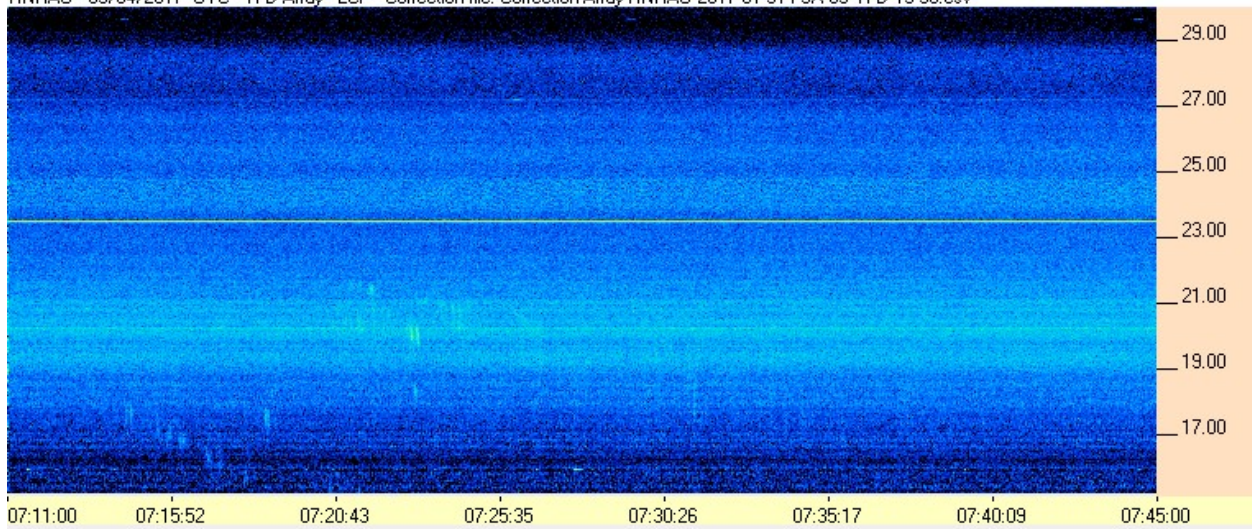
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HNRAO - 03/04/2017 UTC - TFD Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv



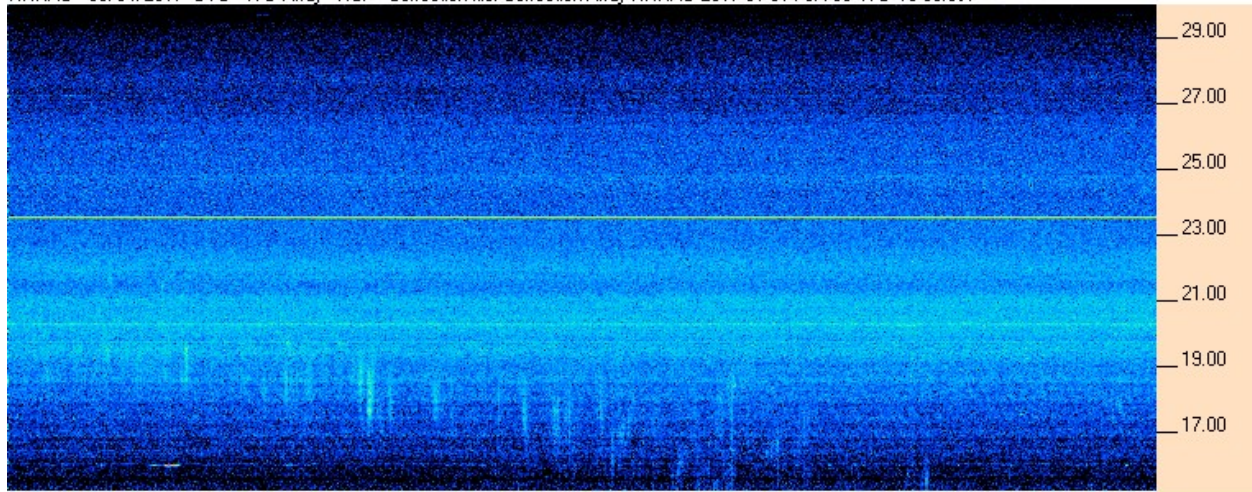
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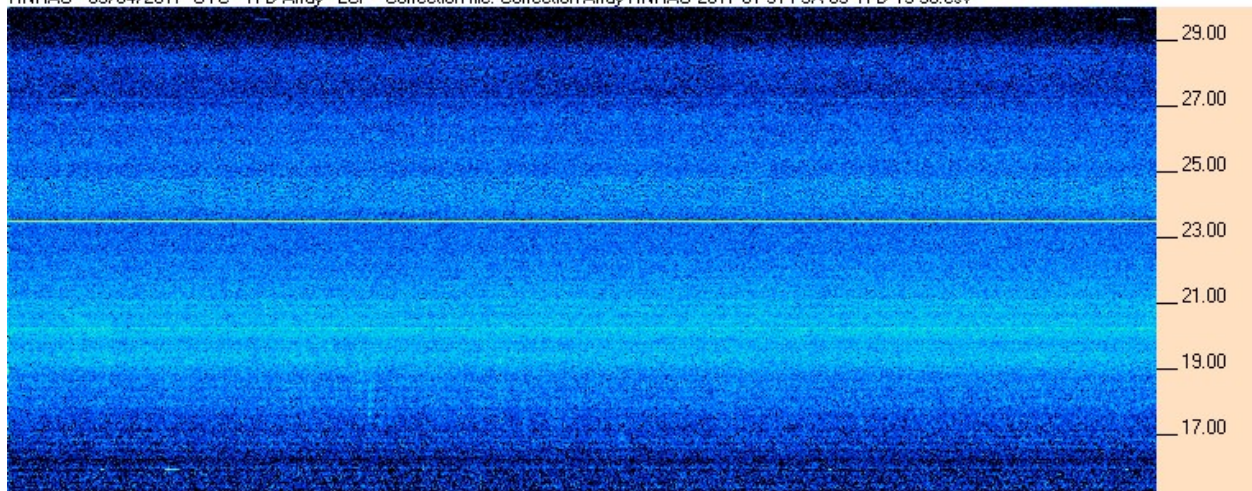


HNRAO - 03/04/2017 UTC - TFD Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv



07:25:00 07:27:52 07:30:43 07:33:34 07:36:26 07:39:17 07:42:09 07:45:00

HNRAO - 03/04/2017 UTC - TFD Array - LCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv



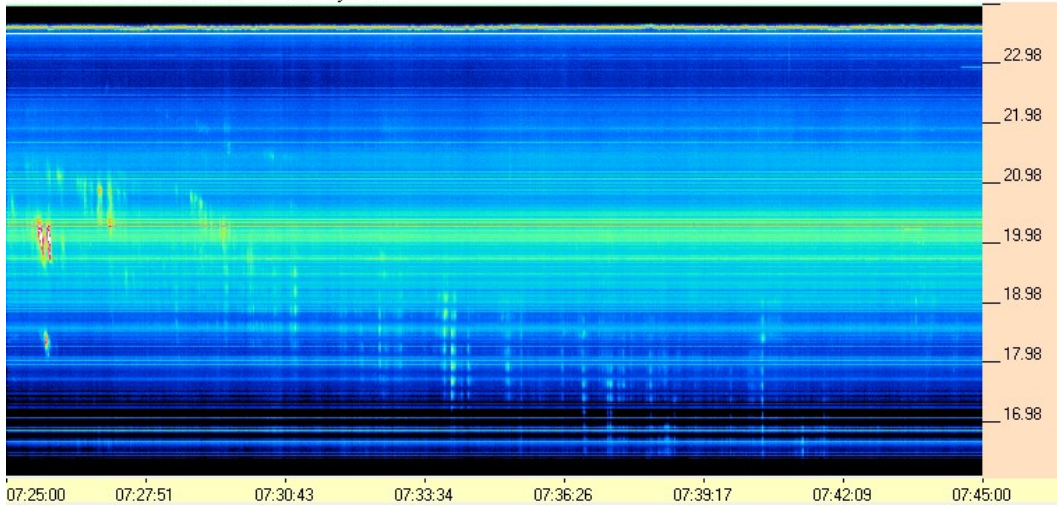
07:25:00 07:27:52 07:30:43 07:33:34 07:36:26 07:39:17 07:42:09 07:45:00

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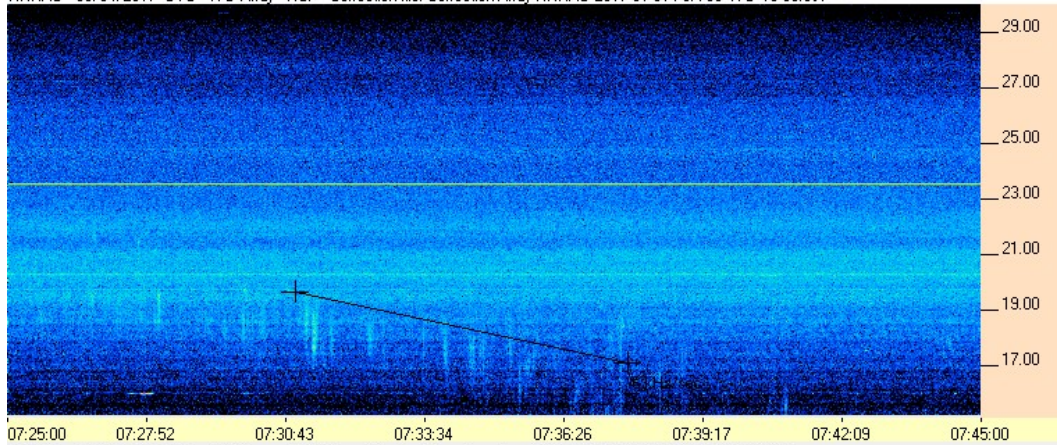


SDRPlay/RSP1/LCP/TFD and FSX-8S/TFD comparison – 0725 UT – 0745 UT

HNRAO - 03/04/2017 - UTC - TFD LCP - SDRPlay - RSP1



HNRAO - 03/04/2017 UTC - TFD Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv



HNRAO - 03/04/2017 UTC - TFD Array - LCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv

