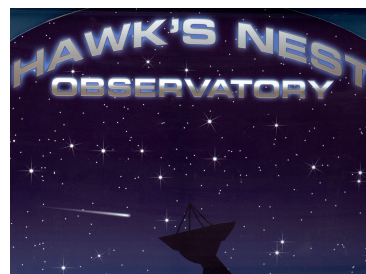


HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: March 29, 2019

Object: Jupiter – Non-IO-A

Observer: Unattended

Start - Time UT:	1011	Planetary K-index:	2
Jupiter Altitude (deg):	26.5	Jupiter Azimuth (deg):	175.1
Jupiter CML:	244.18	Jupiter Io Phase:	090.13
Jupiter RA (hr/min):	17:33	Jupiter Dec (hr/min):	-22:40
Hour Angle (hr/min):	-00:19	Polarization	RCP
Sun Altitude (deg):	-11.4	Sun Azimuth (deg):	076.5
Sun RA (hr/min):	00:24	Sun Dec (hr/min):	02:35

End – Time UT:	1028	De:	-2.8
Jupiter Altitude (deg):	26.6	Jupiter Azimuth (deg):	179.8
Jupiter CML:	255.06	Jupiter Io Phase	092.06
Hour Angle (hr/min):	-00:01	Duration (min):	17
Sun Altitude (deg):	-08.0	Sun Azimuth (deg):	079.6
Max Frequency MHz	24	Min Frequency MHz	16

Data from Radio-Jupiter Pro 3.8.2

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	08/21/2018
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

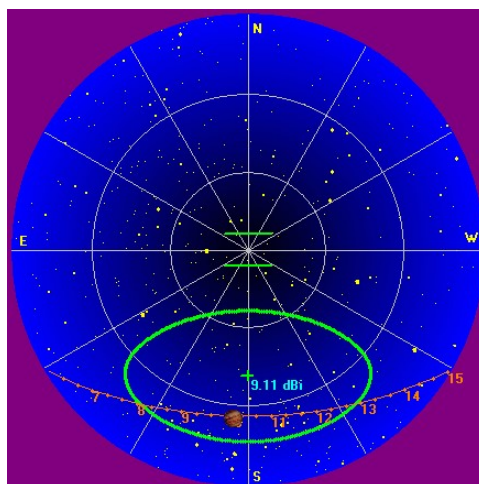
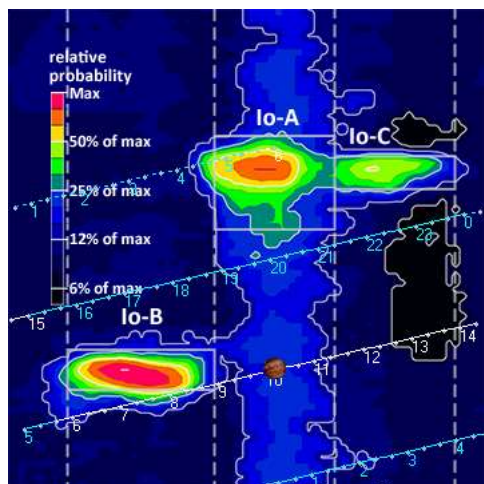
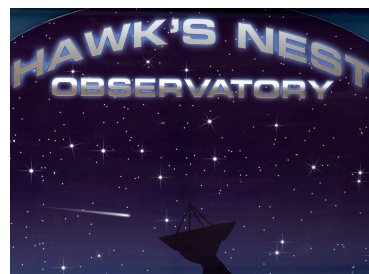
* Used for testing and evaluating antenna systems

Software Radio Sky Spectrograph 2.8.50

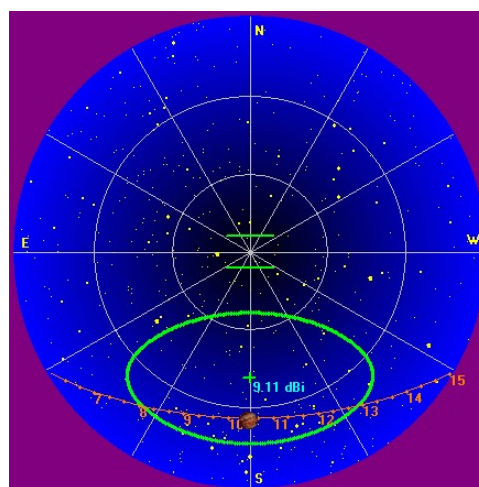
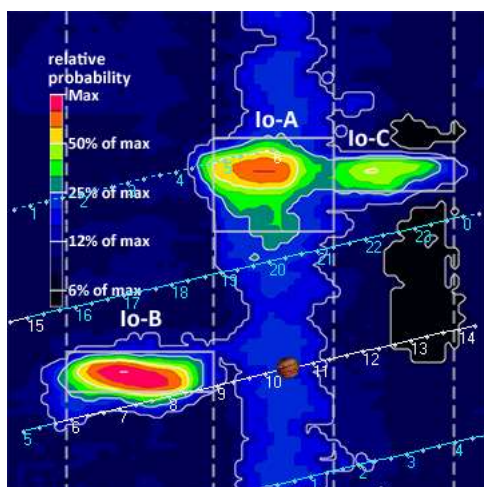
Red = Offline

All times are synced with a local GPS locked NTP server.

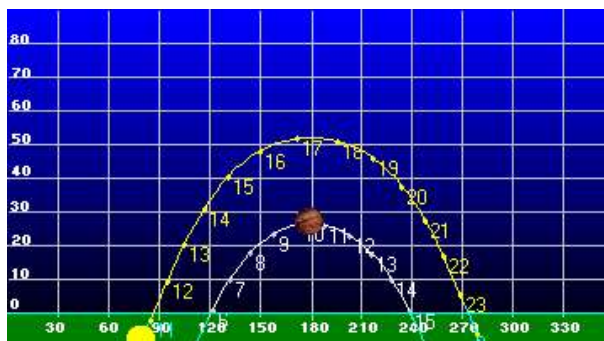
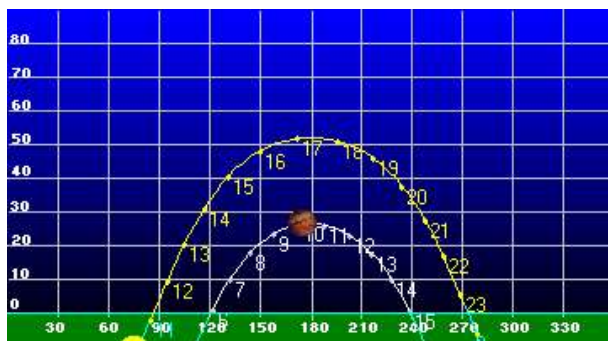
HNRAO Observing Log
 40.673181 N – 80.437885 W
 EN90sq



Beginning of Pass



End of Pass



HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq

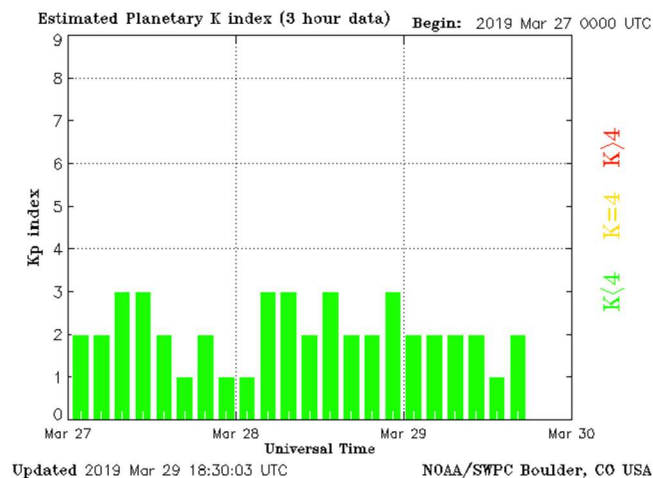


MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360	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



HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



All observatory radio telescopes were operation during this storm. Weather conditions were cloudy and changed to rain sometime after the storm. All three RCP spectrographs recorded these emissions although the SDRPLay RSP2/TFD array pair were the most sensitive. There was no indication of this event on the SkyPipe record.

This was a brief Non-Io-A storm following an earlier Io-B storm. It consisted of negative drift L-bursts. Emissions began to be seen at 16 MHz at this observatory. L-bursts at the beginning were slightly above GB. Stronger emissions at 1019:40. There were no apparent modulation lanes.

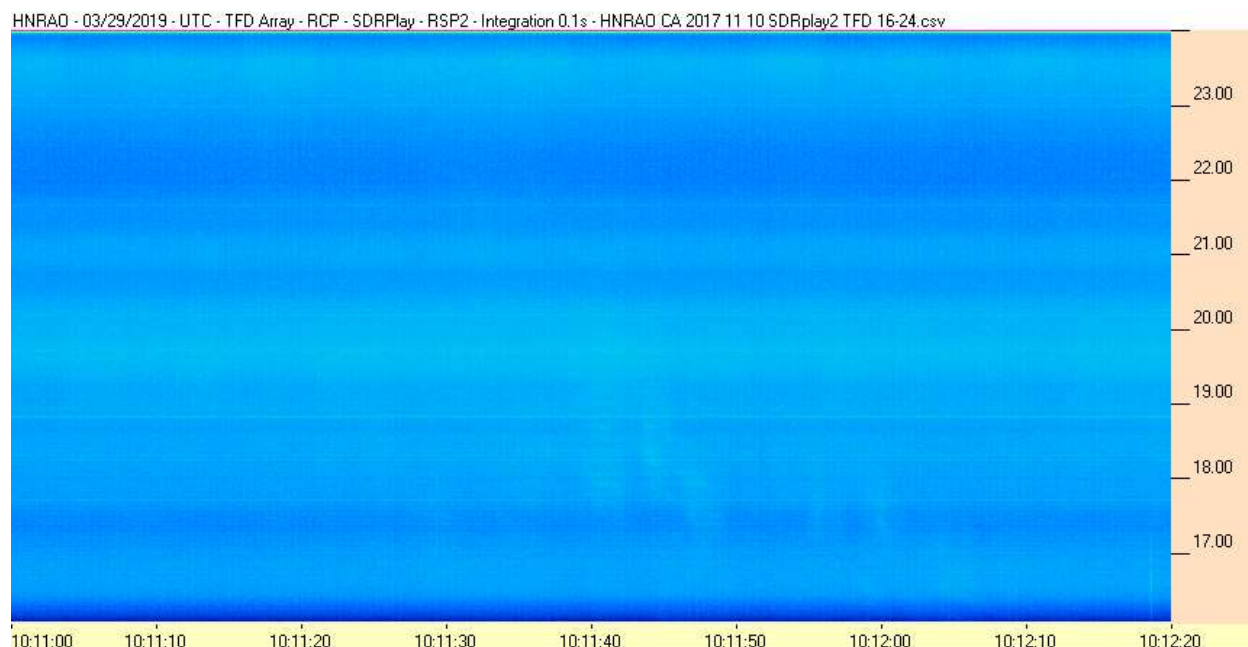
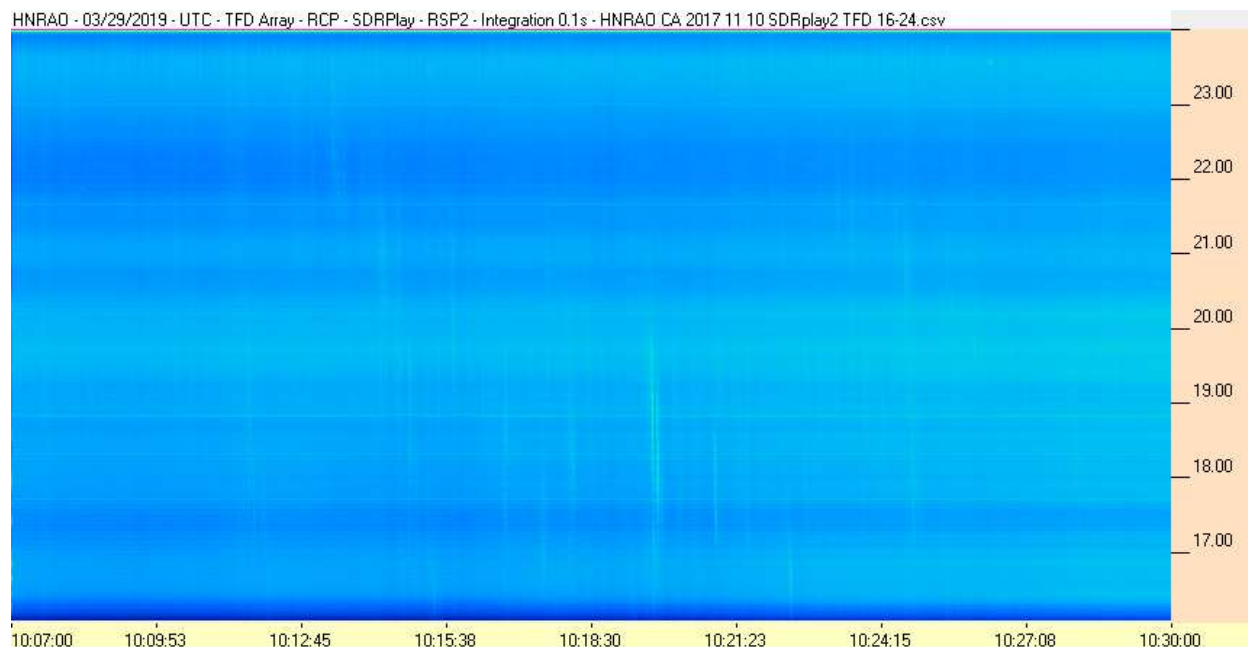
Nothing else of note.

EOR

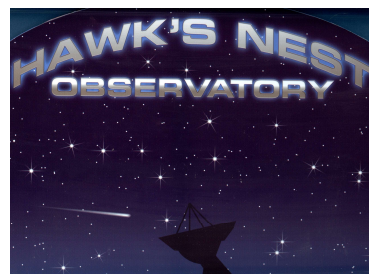
HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



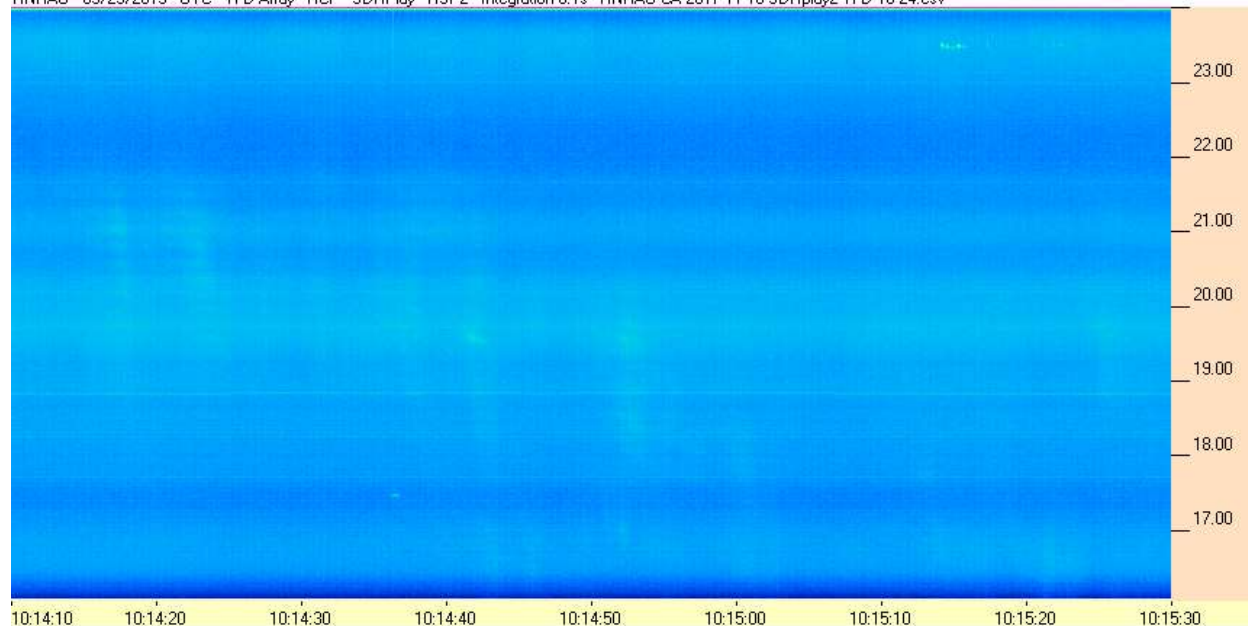
SDRPlay RSP2/TFD Array



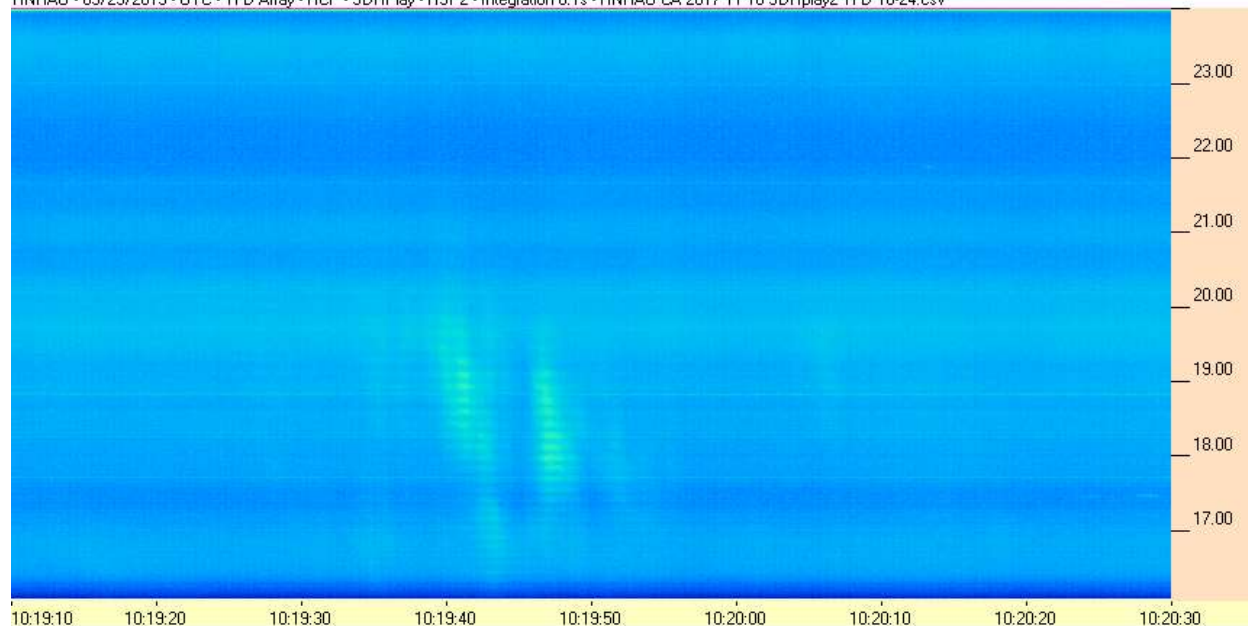
HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



HNRAO - 03/29/2019 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s - HNRAO CA 2017 11 10 SDRplay2 TFD 16-24.csv



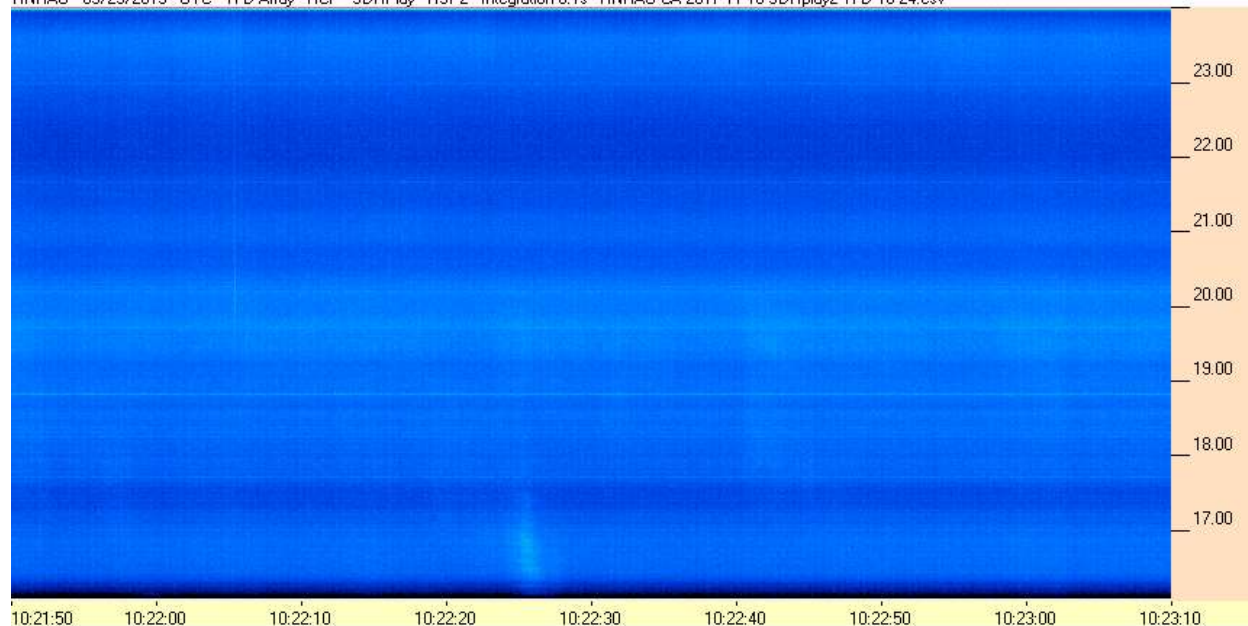
HNRAO - 03/29/2019 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s - HNRAO CA 2017 11 10 SDRplay2 TFD 16-24.csv



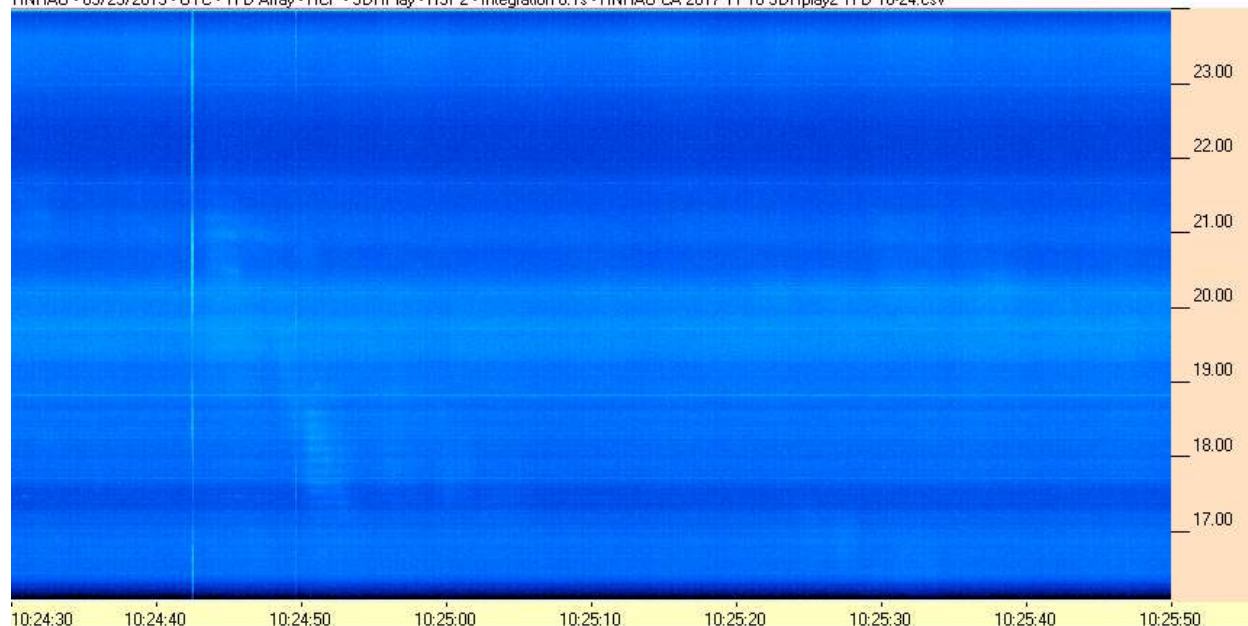
HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



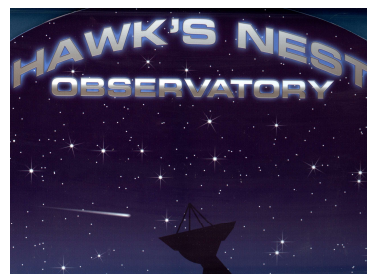
HNRAO - 03/29/2019 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s - HNRAO CA 2017 11 10 SDRplay2 TFD 16-24.csv



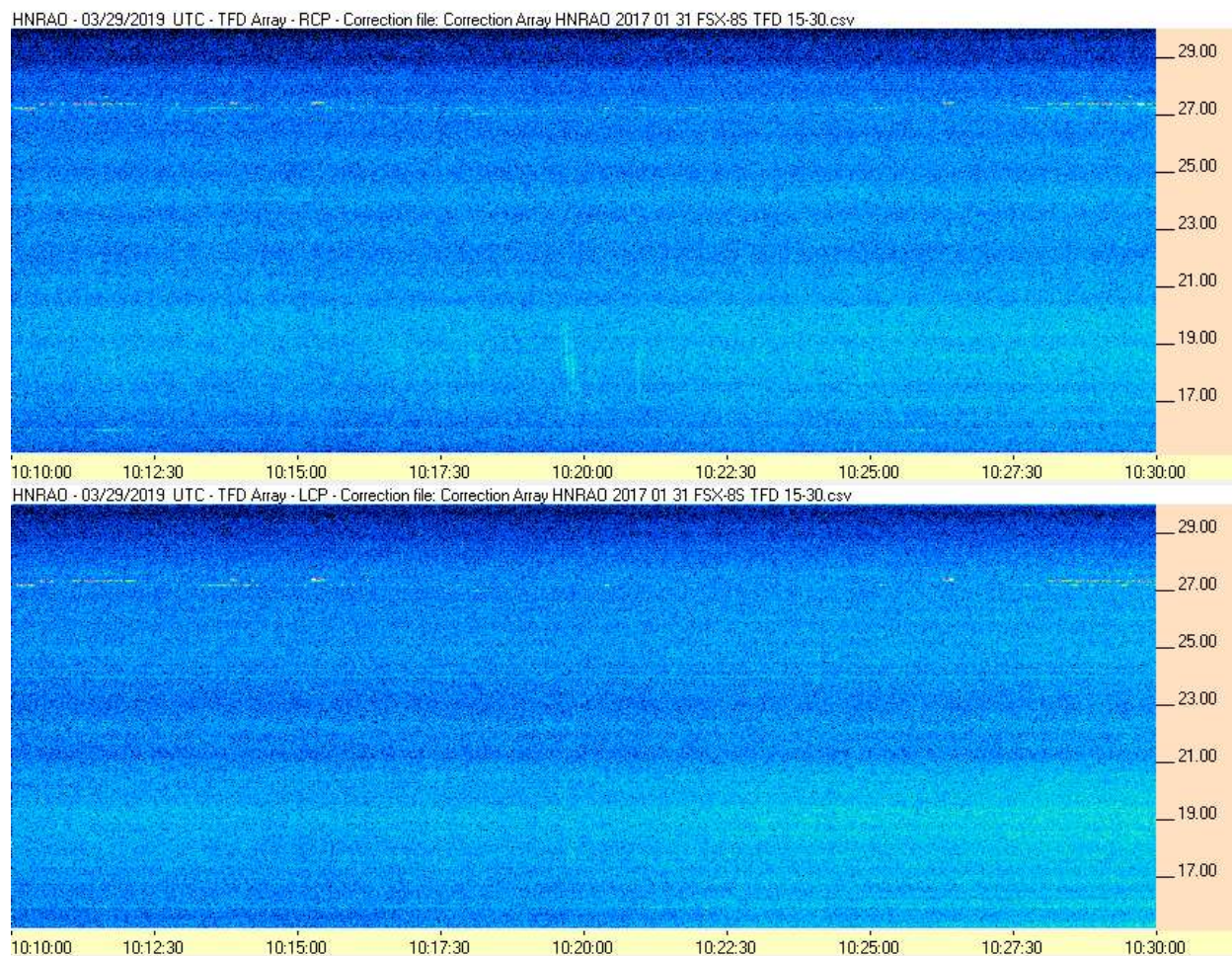
HNRAO - 03/29/2019 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s - HNRAO CA 2017 11 10 SDRplay2 TFD 16-24.csv



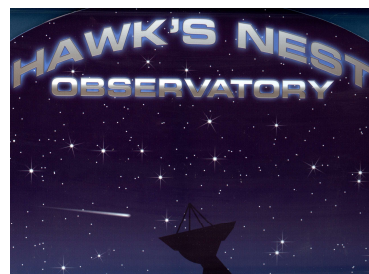
HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



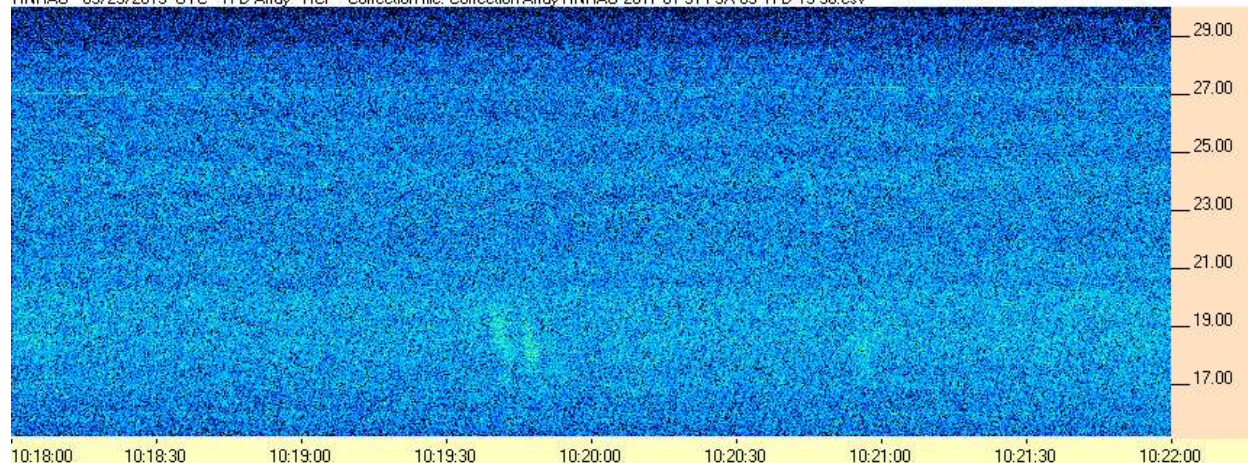
FSX-8S/TFD Array



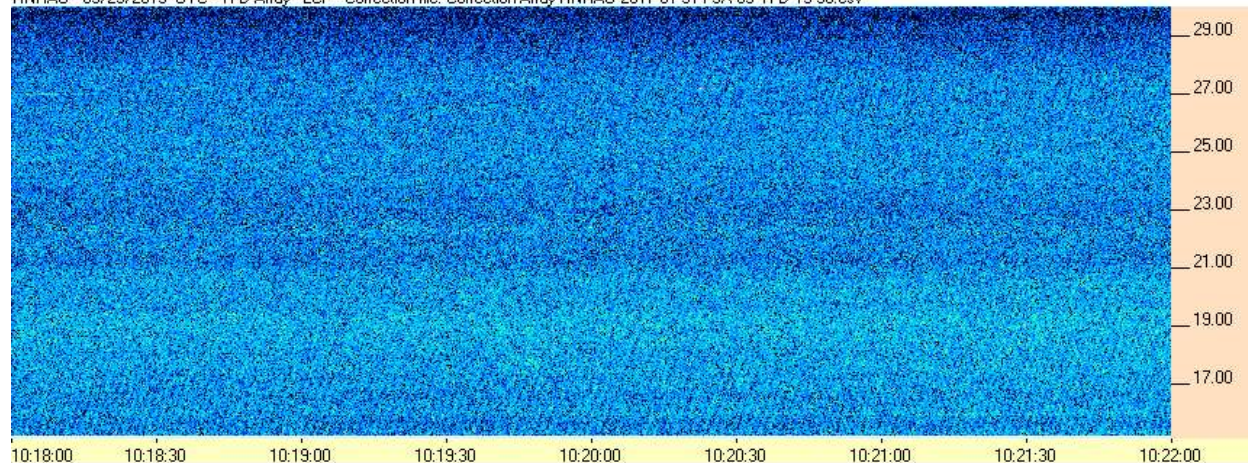
HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



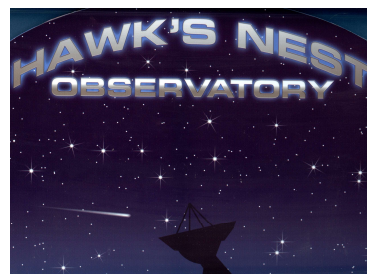
HNRAO - 03/29/2019 UTC - TFD Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv



HNRAO - 03/29/2019 UTC - TFD Array - LCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-8S TFD 15-30.csv

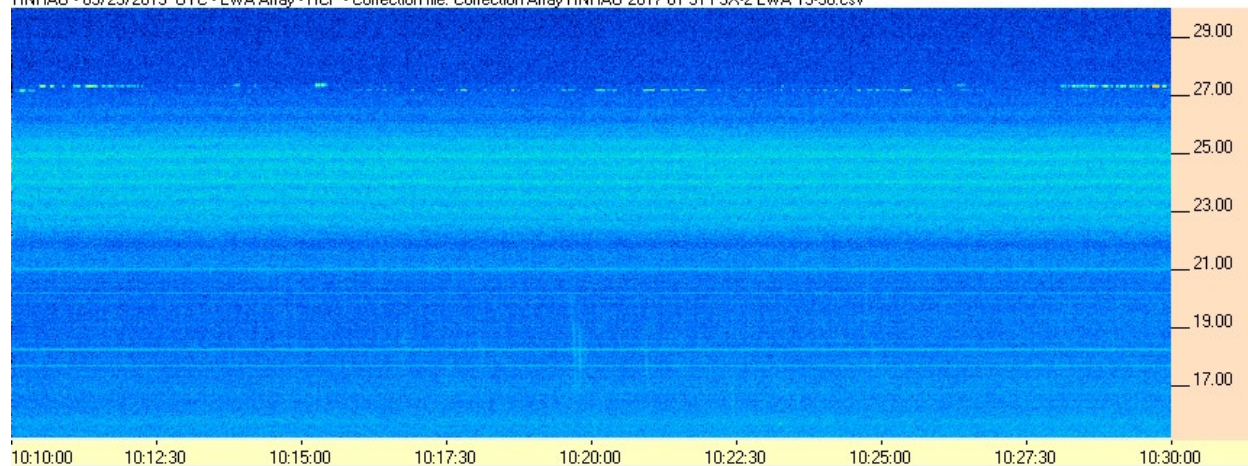


HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



FSX-2/LWA Array

HNRAO - 03/29/2019 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv



HNRAO - 03/29/2019 UTC - LWA Array - RCP - Correction file: Correction Array HNRAO 2017 01 31 FSX-2 LWA 15-30.csv

