HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq

Date: August 4, 2019

Object: Jupiter – Non-Io-A

Observer: Unattended

Start - Time UT:	**0331:40**	**Planetary K-index:**	**1**
Jupiter Altitude (deg):	**20.6**	**Jupiter Azimuth (deg):**	**211.4**
Jupiter CML:	**203.17**	**Jupiter Io Phase:**	**169.42**
Jupiter RA (hr/min):	**16:53**	**Jupiter Dec (hr/min):**	**-22:06**
Hour Angle (hr/min):	**02:07**	**Polarization**	**RCP**
Sun Altitude (deg):	**-26.3**	**Sun Azimuth (deg):**	**331.0**
Sun RA (hr/min):	**08:48**	**Sun Dec (hr/min):**	**7:51**

End – Time UT:	**0401:25**	**De:**	**-2.6**
Jupiter Altitude (deg):	**17.4**	**Jupiter Azimuth (deg):**	**217.9**
Jupiter CML:	**221.15**	**Jupiter Io Phase**	**173.62**
Hour Angle (hr/min):	**02:37**	**Duration (min):**	**30**
Sun Altitude (deg):	**-28.7**	**Sun Azimuth (deg):**	**338.5**
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 #1	TFD	RCP	-8.35 dB	#2 RCP	Port 2 +3dB	Twice daily
SDRPlay RSP2 #2	TFD	LCP	-7.59 dB	#1 LCP	Port 2 +3dB	Twice daily
JOVE II HNRAO #2	Jove dipoles	Linear	-3.66 dB	#3 Linear	Port 4 +3 dB	7/19/2019

Radio JOVE dipoles phased @ 32 degrees for 2018-2019 season
Typinski AN-TFD-24-4 array phased @ 35 degrees for 2018-2019 season
Four LWA antenna array phased @ 35 degrees and orientation for observation: 45 degrees
Radio Sky Spectrograph software version 2.9.26
Radio-SkyPipe software version 2.7.33
Radio-Jupiter Pro software version 3.8.2
Network Time Server GpsNtp-Pi, Reeve Engineering

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

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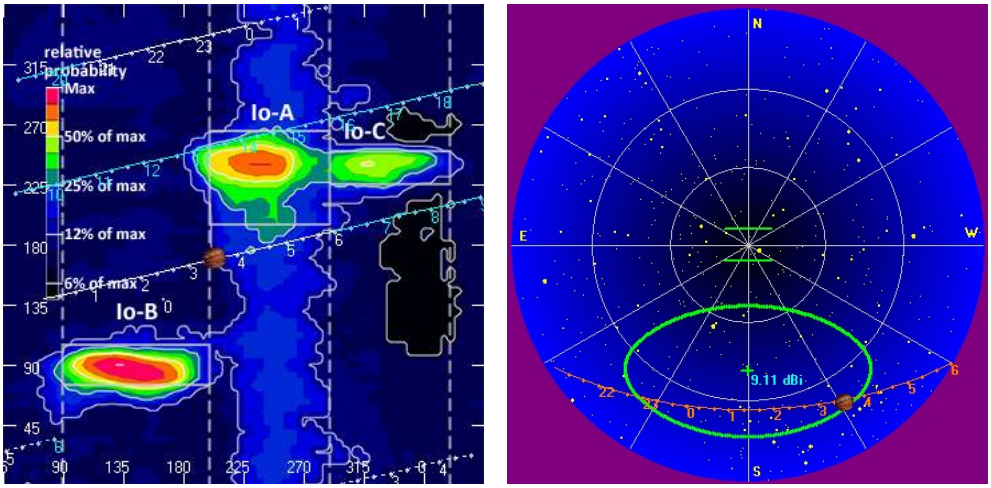
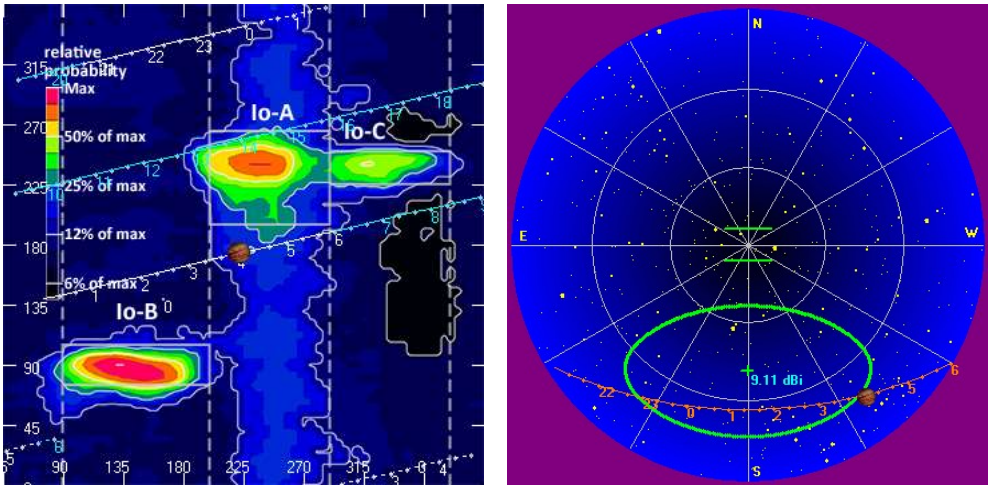


Beginning of Pass



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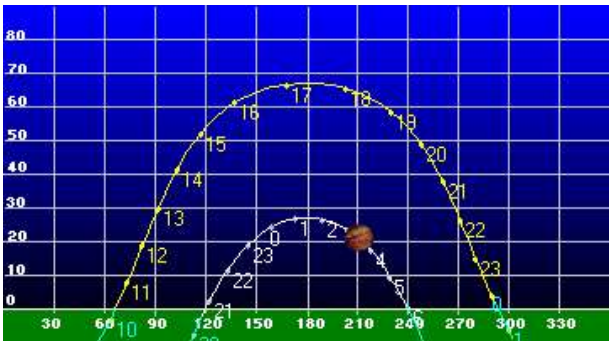

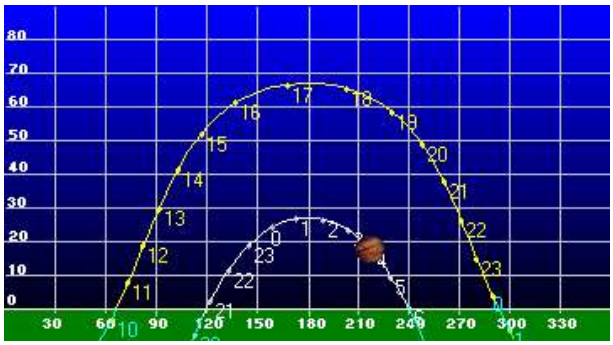

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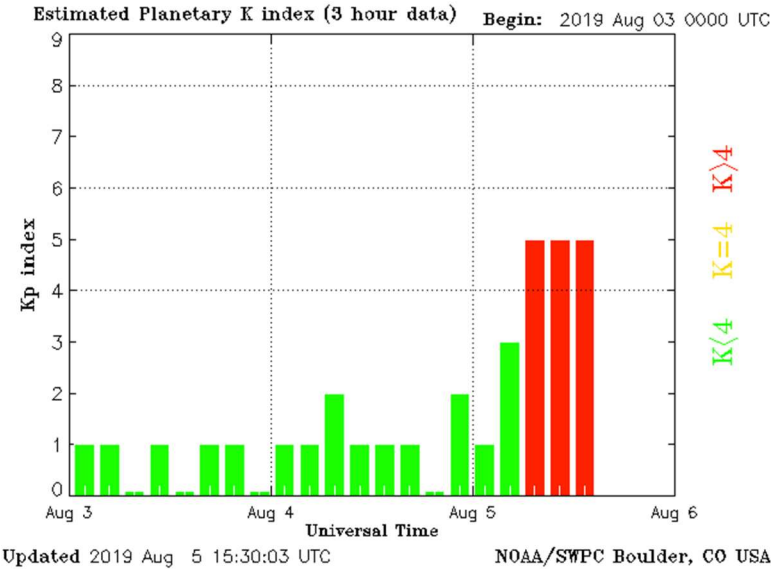
MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360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



Jupiter / Sun Angular Separation = 124.9 degrees

All spectrographs and receivers operating. All antennas functioning. No known issues.

Bright horizontal bands are unknown RFI source in spectrograph charts. Positive drift diagonal band is Cygnus A or Cass A scintillation.

A brief Non-Io-A storm consisting of weak L-bursts and L4 modulation lanes. Emissions were at or 1-2 dB above GB.

Nothing significant or remarkable about this storm.

EOR

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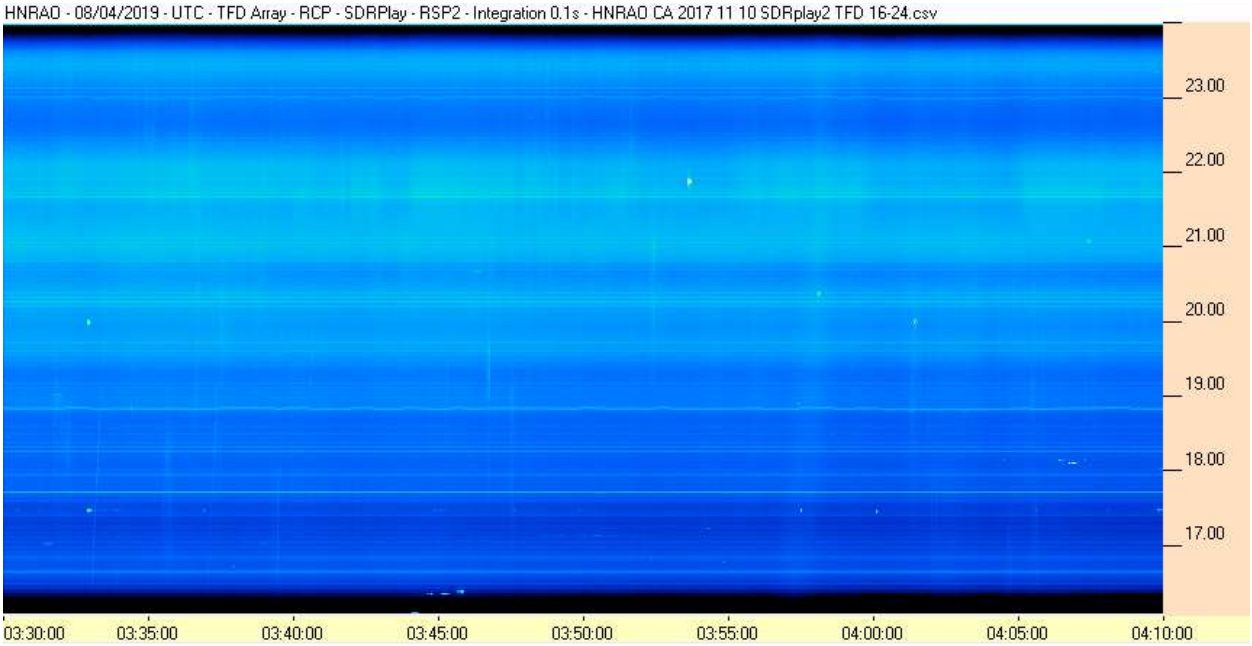
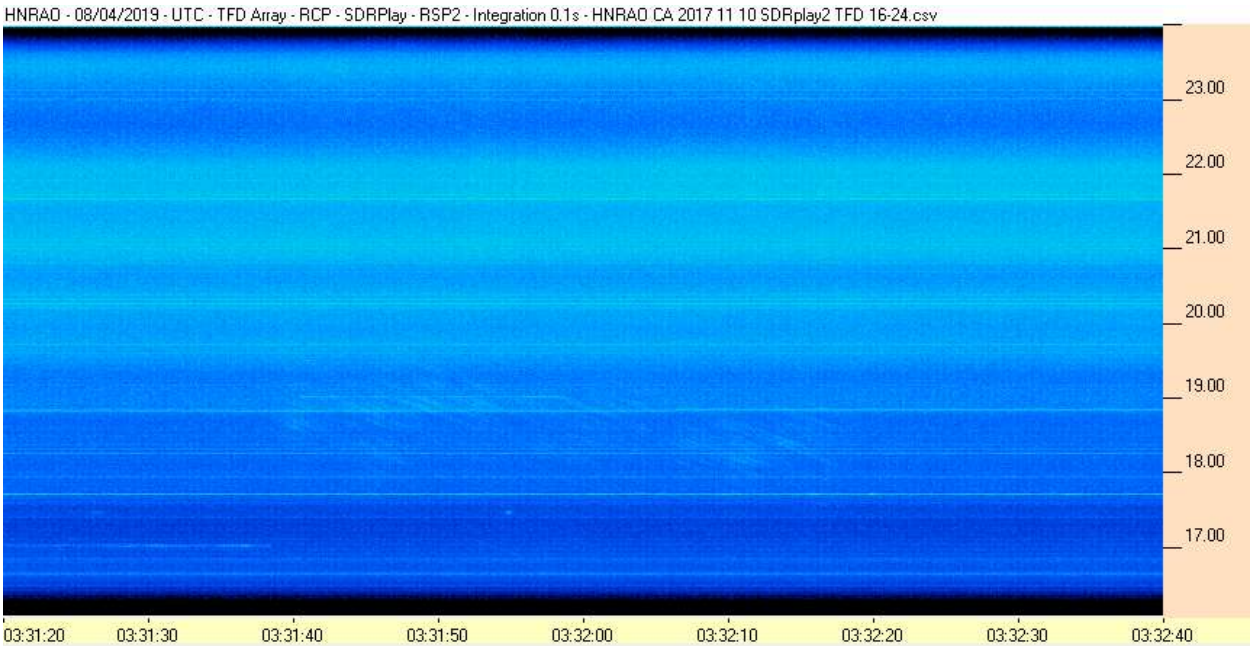
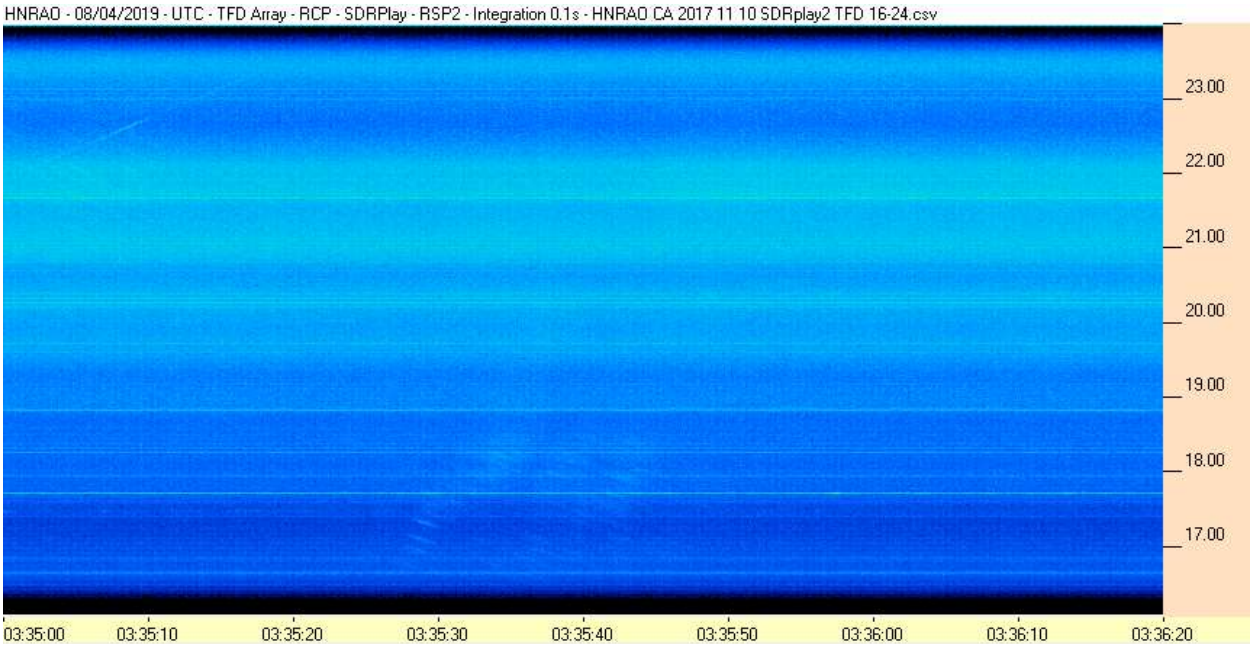
SDRPlay RSP2 / TFD Array



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23.00
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03:35:30
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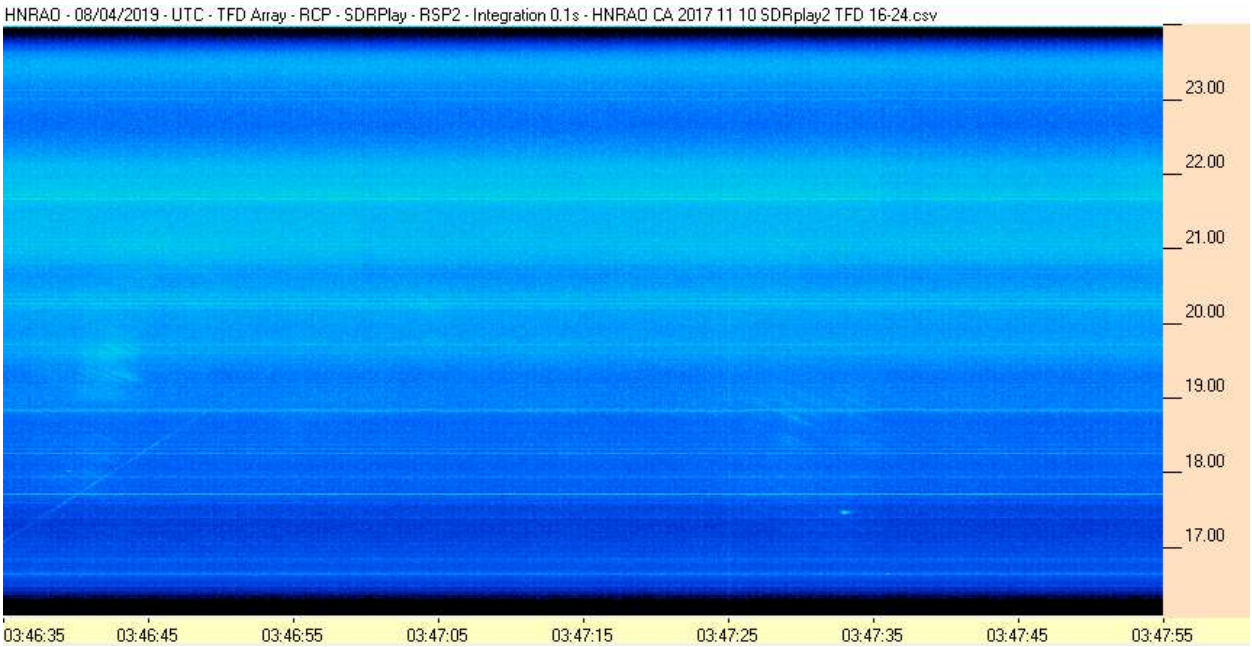
03:35:50
03:36:00
03:36:10
03:36:20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03:47:35
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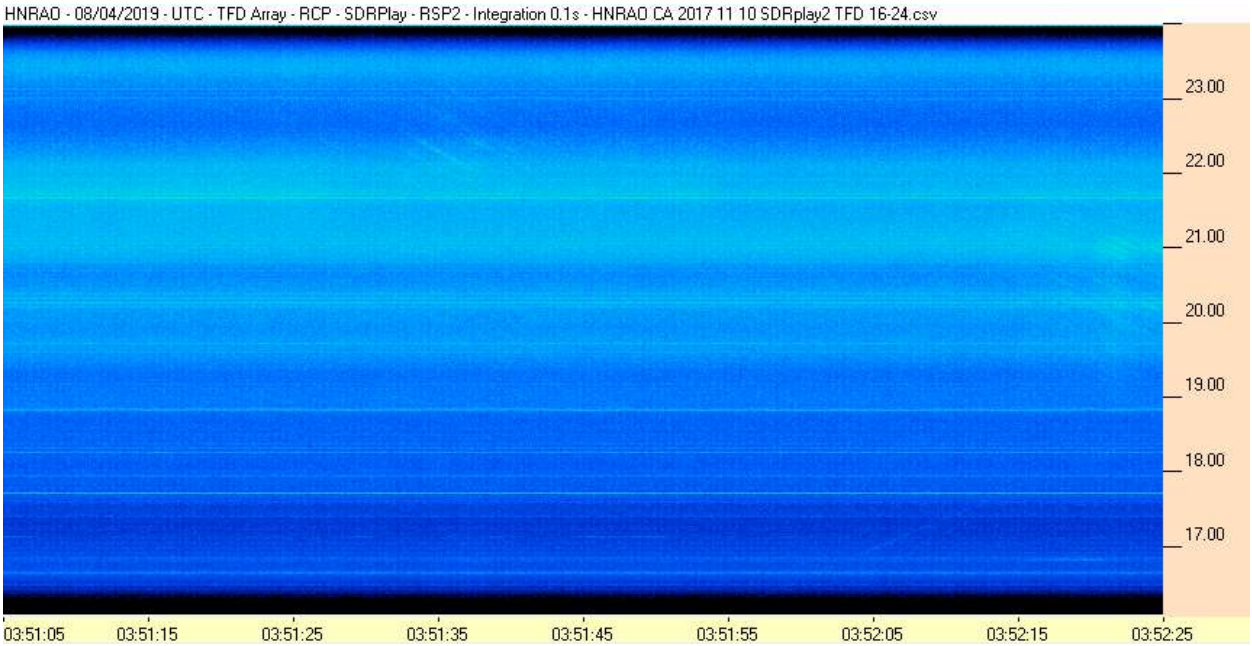
03:47:55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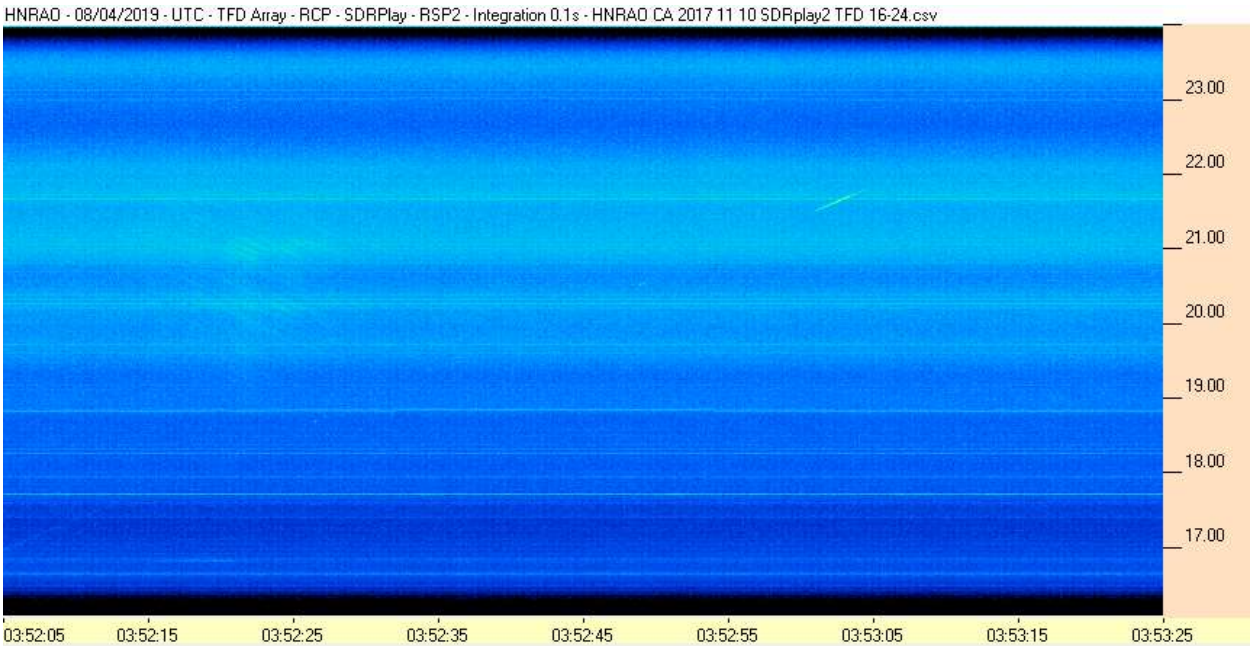
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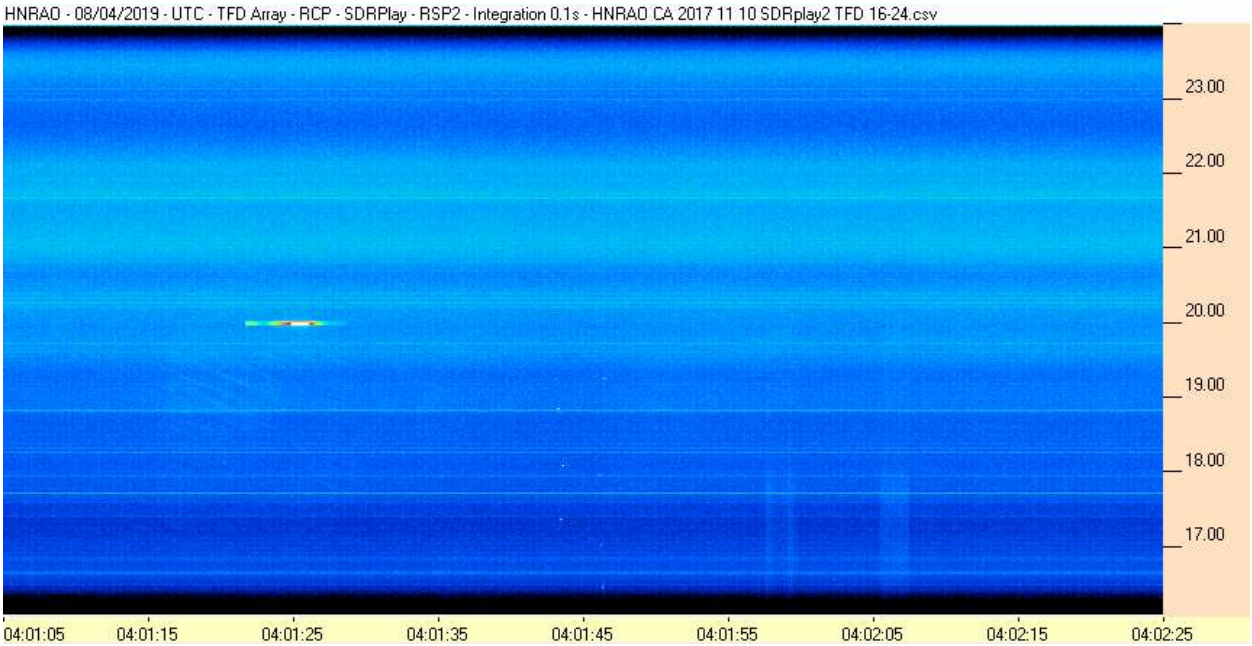
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