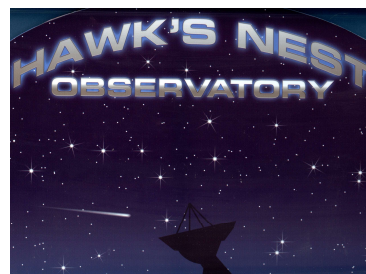


HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



Date: December 10, 2018

Object: Jupiter – Io-B

Observer: Unattended

Start - Time UT:	1638	Planetary K-index:	3
Jupiter Altitude (deg):	28.5	Jupiter Azimuth (deg):	183.1
Jupiter CML:	130.26	Jupiter Io Phase:	096.42
Jupiter RA (hr/min):	16:18	Jupiter Dec (hr/min):	-20:44
Hour Angle (hr/min):	00:11	Polarization	RCP
Sun Altitude (deg):	26.3	Sun Azimuth (deg):	172.9
Sun RA (hr/min):	16:58	Sun Dec (hr/min):	-22:40

End – Time UT:	1657	De:	-2.9
Jupiter Altitude (deg):	28.2	Jupiter Azimuth (deg):	188.1
Jupiter CML:	141.74	Jupiter Io Phase	099.12
Hour Angle (hr/min):	00:31	Duration (min):	20
Sun Altitude (deg):	26.6	Sun Azimuth (deg):	177.7
Max Frequency MHz	24	Min Frequency MHz	18

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

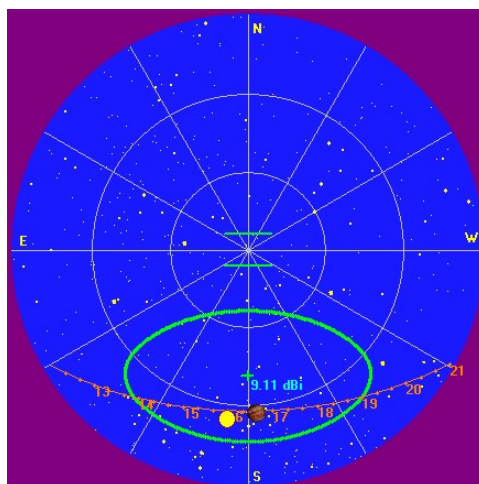
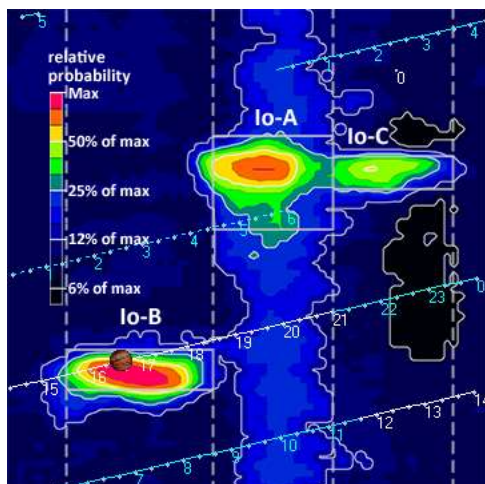
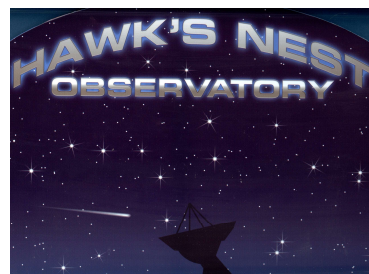
LWA antenna phased @ 35 degrees and orientation for observation: 45 degrees

* Used for testing and evaluating antenna systems

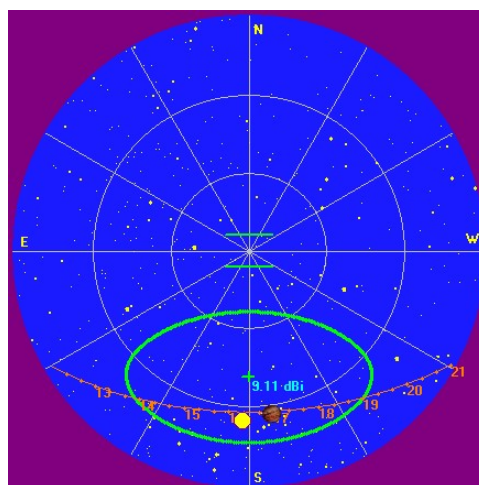
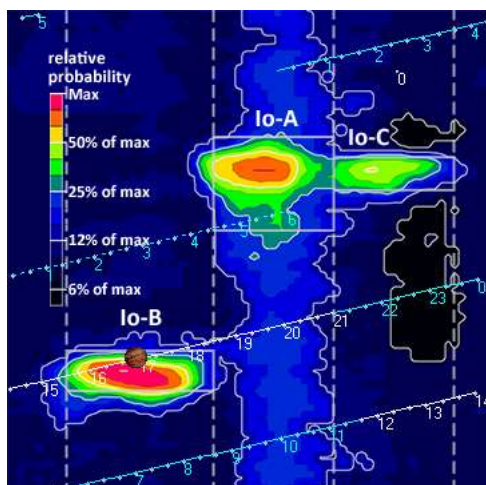
Software Radio Sky Spectrograph 2.8.50

Red = Offline

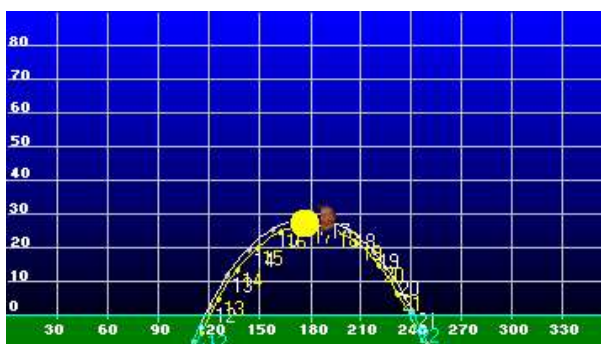
HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



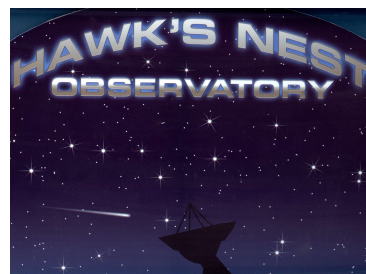
Beginning of Pass



End of Pass



HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq

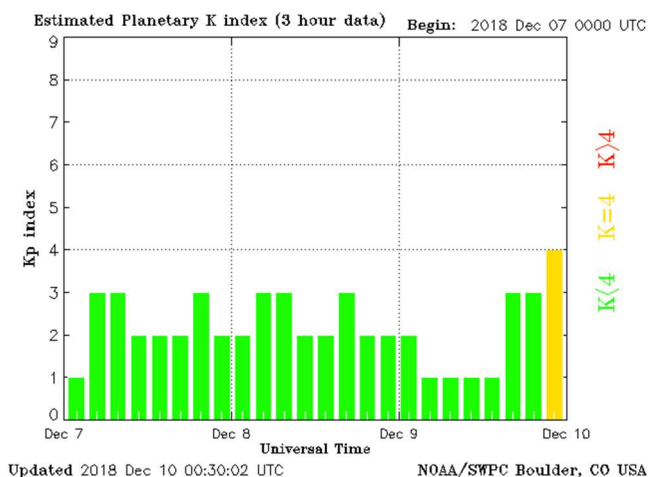


MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360	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
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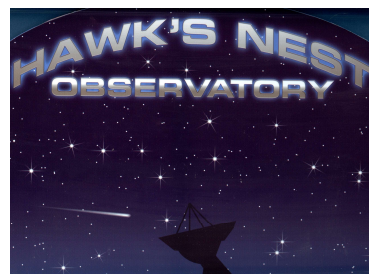
A 20-minute Io-B storm with RCP L-bursts. Modulation lanes present and measurable. Both L3 and L4 modulation lanes visible.

Observation was daylight conditions with no precipitation in the area. The proximity of Jupiter to the Sun is what makes this observation interesting.

The only event in this storm of note were the L3 cross hatched modulation lanes at 1642 UT.

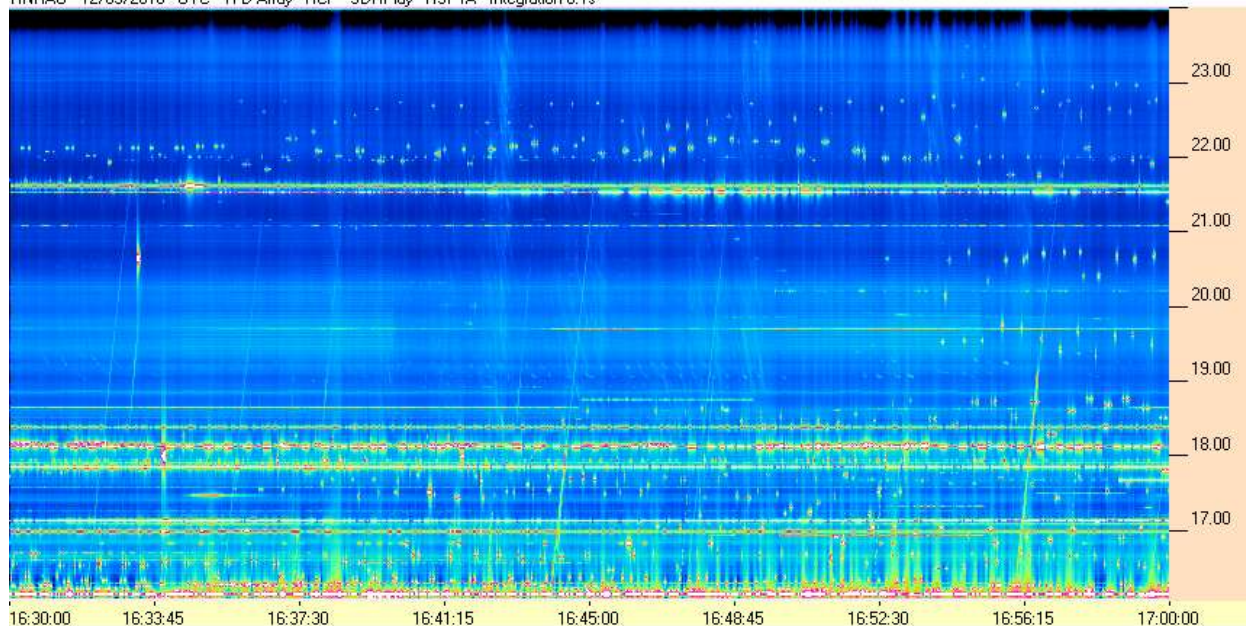
EOR

HNRAO Observing Log
40.673181 N – 80.437885 W
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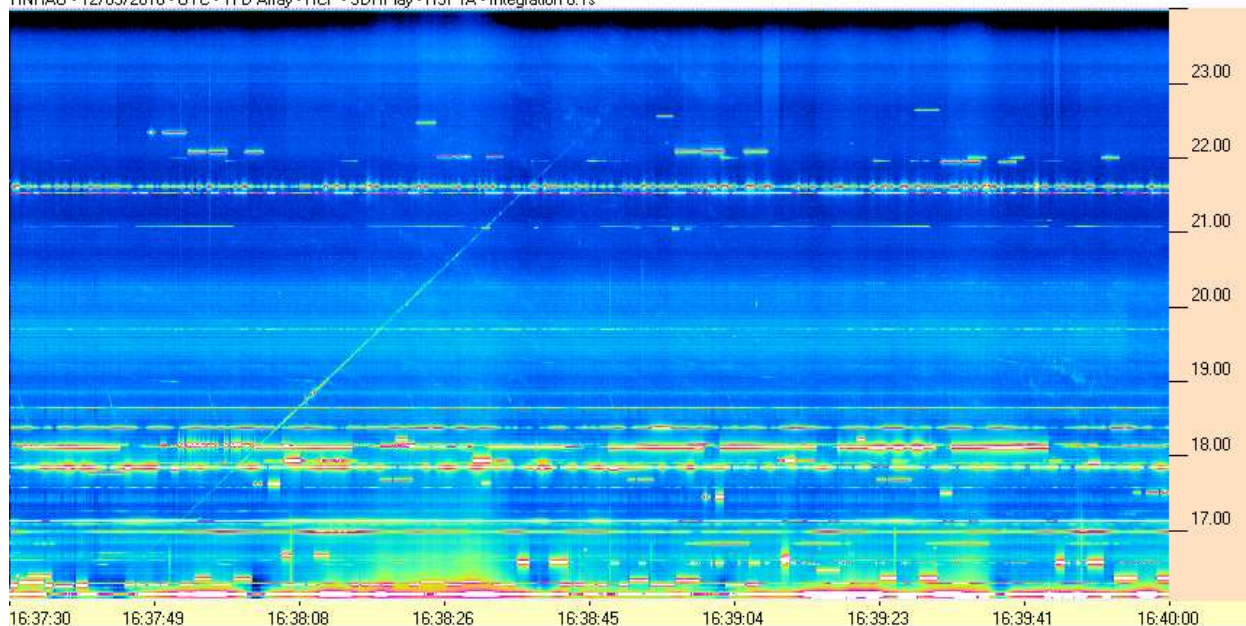


SDRPlay RSP2 / TFD Array

HNRAO - 12/09/2018 - UTC - TFD Array - RCP - SDRPlay - RSP1A - Integration 0.1s



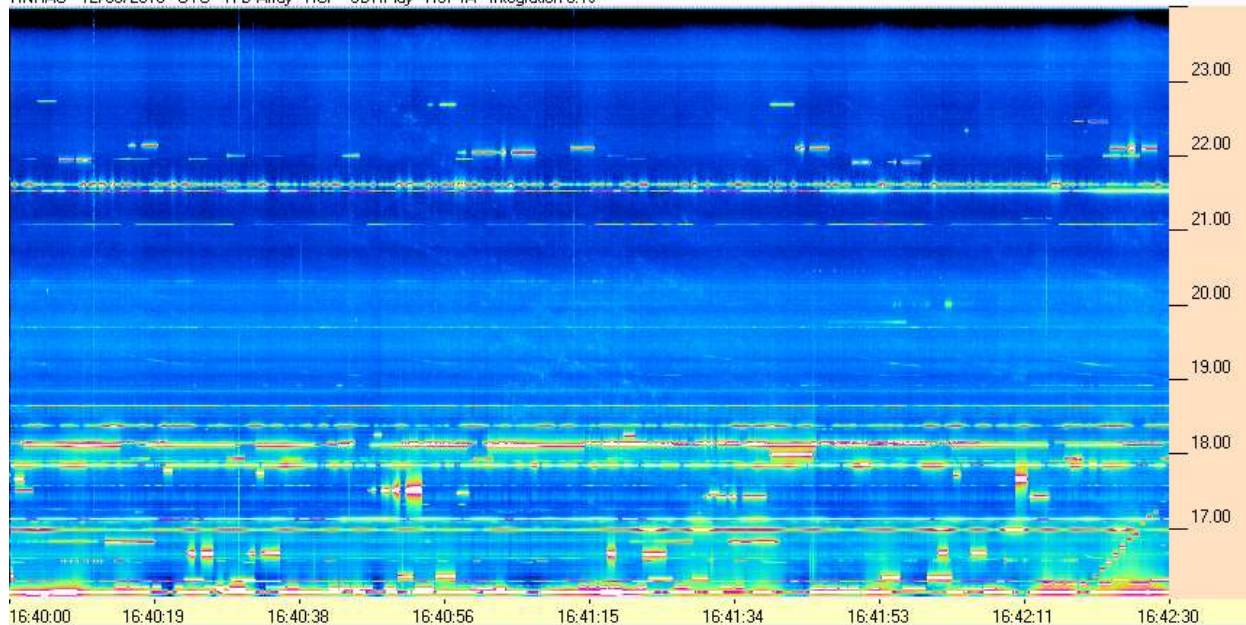
HNRAO - 12/09/2018 - UTC - TFD Array - RCP - SDRPlay - RSP1A - Integration 0.1s



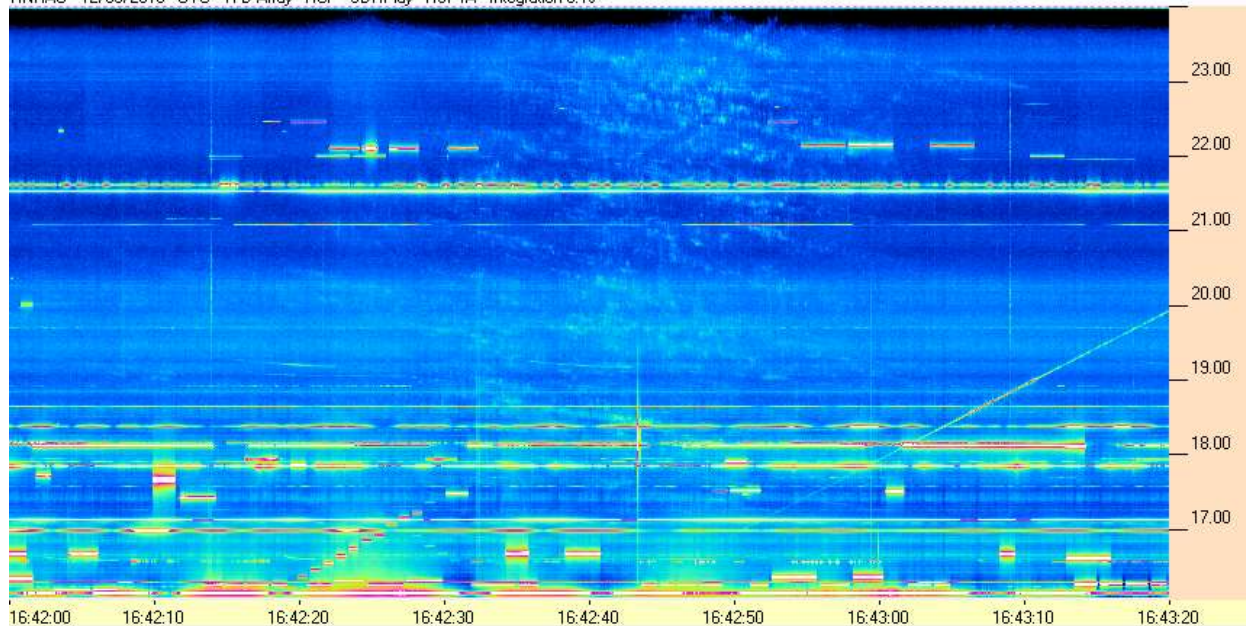
HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



HNRAO - 12/09/2018 - UTC - TFD Array - RCP - SDRPlay - RSP1A - Integration 0.1s



HNRAO - 12/09/2018 - UTC - TFD Array - RCP - SDRPlay - RSP1A - Integration 0.1s



HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq



HNRAO - 12/09/2018 - UTC - TFD Array - RCP - SDRPlay - RSP1A - Integration 0.1s

