HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq

Date: July 13, 2019

Object: Jupiter – Non-Io-B

Observer: Unattended

Start - Time UT:	**0333**	**Planetary K-index:**	**0**
Jupiter Altitude (deg):	**26.6**	**Jupiter Azimuth (deg):**	**189.3**
Jupiter CML:	**132.16**	**Jupiter Io Phase:**	**012.85**
Jupiter RA (hr/min):	**16:58**	**Jupiter Dec (hr/min):**	**-22:11**
Hour Angle (hr/min):	**00:36**	**Polarization**	**RCP**
Sun Altitude (deg):	**-22.5**	**Sun Azimuth (deg):**	**333.3**
Sun RA (hr/min):	**07:21**	**Sun Dec (hr/min):**	**22:09**

End – Time UT:	**0405**	**De:**	**-2.8**
Jupiter Altitude (deg):	**25.2**	**Jupiter Azimuth (deg):**	**197.4**
Jupiter CML:	**151.51**	**Jupiter Io Phase**	**017.37**
Hour Angle (hr/min):	**01:08**	**Duration (min):**	**32**
Sun Altitude (deg):	**-24.8**	**Sun Azimuth (deg):**	**341.0**
Max Frequency MHz	**19**	**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	4/19/2019
SDRPlay RSP1	Experimental*					

JOVE dipoles phased @ 32 degrees for 2018-2019 season
TFD array phased @ 35 degrees for 2018-2019 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.

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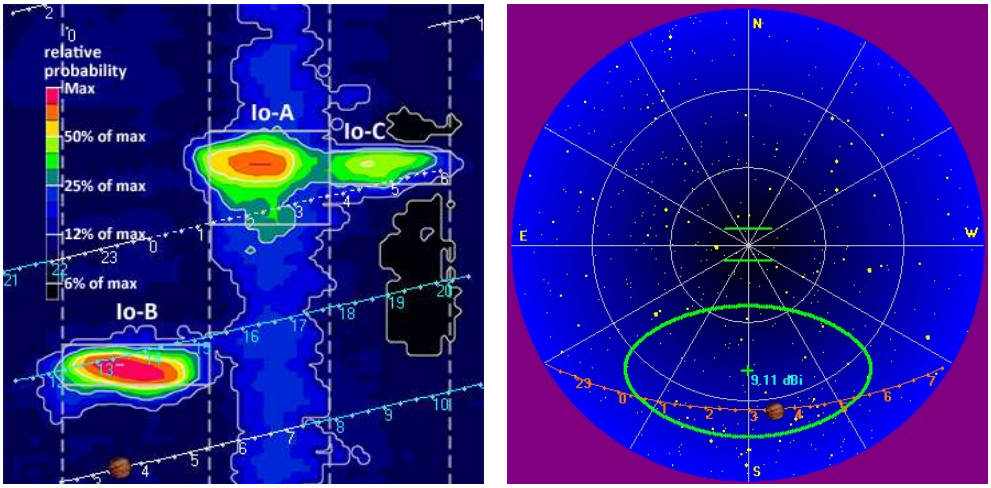
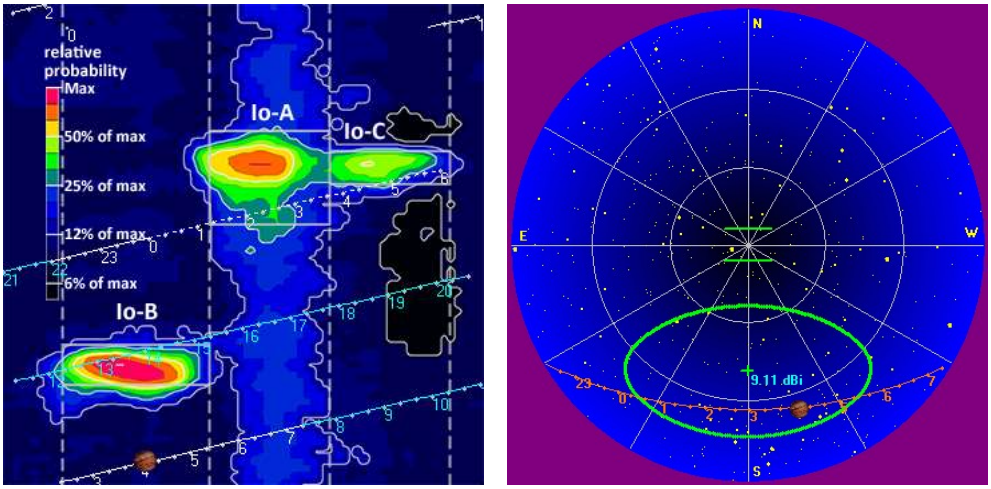
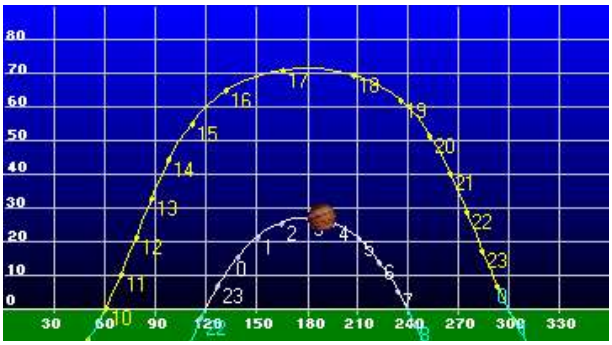


Beginning of Pass



End of Pass



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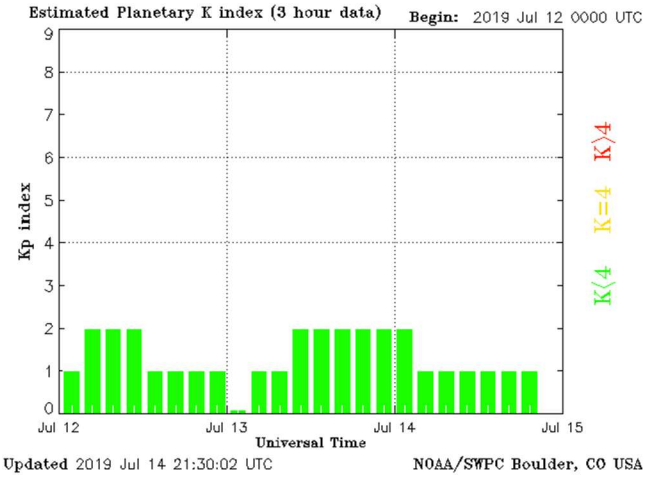
MODE	CML RANGE	Io RANGE	MAX F	POLAR	ARC	NOTES
Io-D	0-200	95-130	18	LH	Early	Also called "fourth source"
Io-B	(105 - 185)	(80-110)	39.5	RH	Early	Also called "early source"
non Io-B	80-200	0-360	38	RH	Early	Voyager info
Io-A	(200-270)	(205-260)	38	RH	Late	Also called "main source"
non-Io-A	(230-280)	0-360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



A brief and very weak Non-Io-B storm. All observatory spectrographs and antennas performing normally. No known issues. Emissions slightly above GB as observed here. No visible arc, but there were positive slope modulation lanes. Storm consisted of L-bursts. No S-bursts observed. The strongest emissions were at 036:45 UT. Nothing else of note.

EOR
SDRPlay RSP2 / TFD Array

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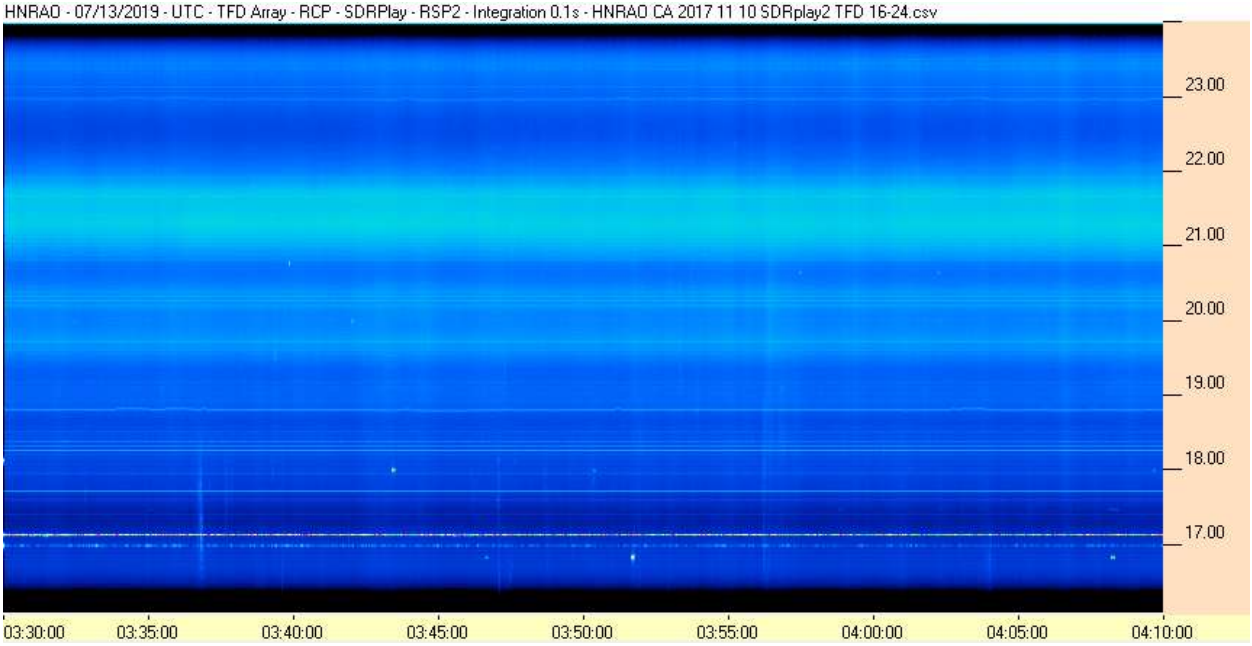
HNRAO - 07/13/2019 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s - HNRAO CA 2017 11 10 SDRplay2 TFD 16-24.csv
23.00
22.00
21.00
20.00
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17.00
03:30:00
03:35:00
03:40:00
03:45:00
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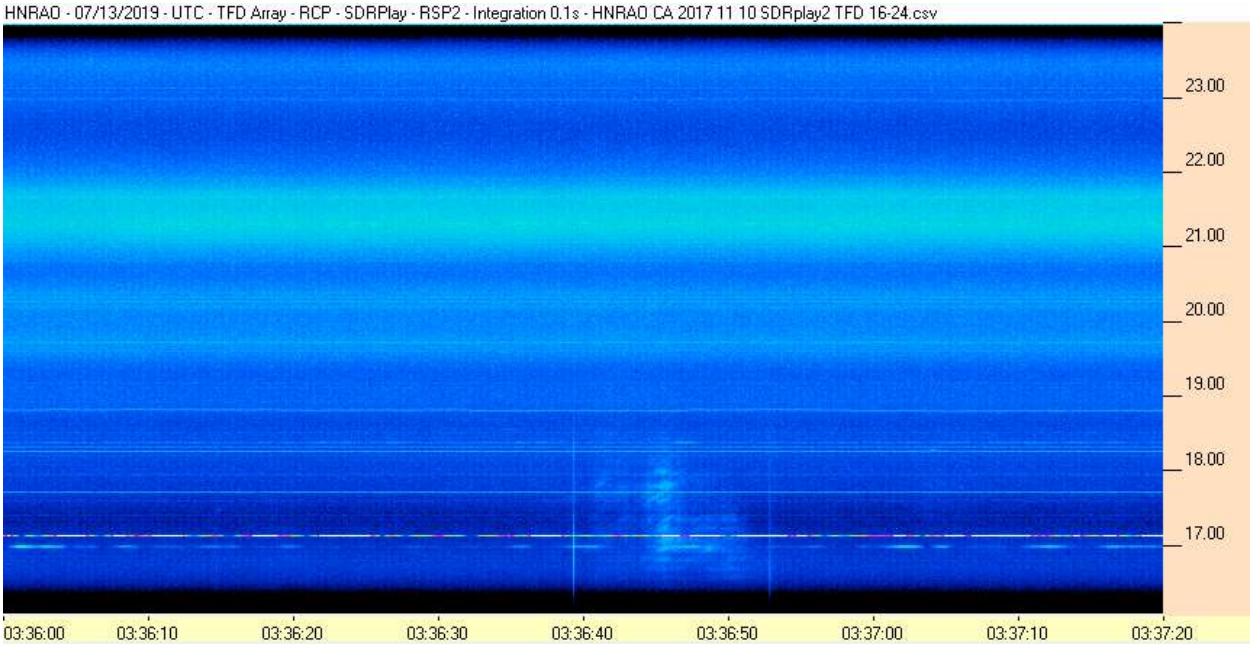
03:55:00
04:00:00
04:05:00
04:10:00


HNRAO - 07/13/2019 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s - HNRAO CA 2017 11 10 SDRplay2 TFD 16-24.csv
23.00
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03:36:10
03:36:20
03:36:30
03:36:40
03:36:50
03:37:00
03:37:10
03:37:20

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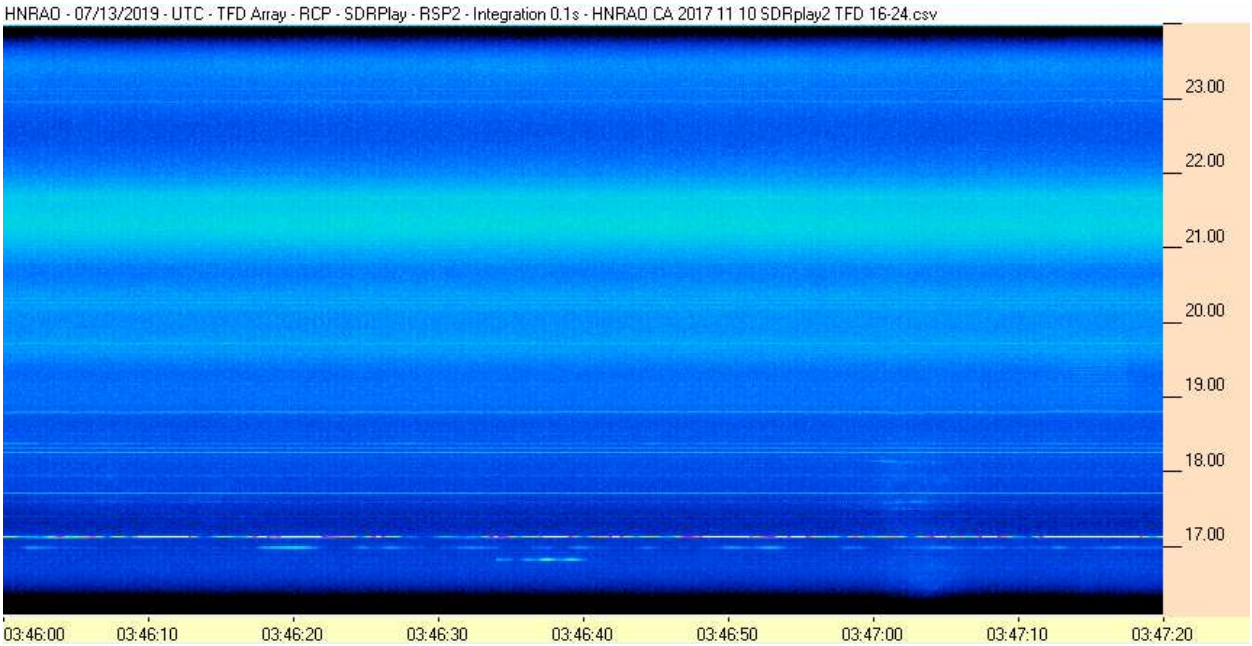
HNRAO - 07/13/2019 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s - HNRAO CA 2017 11 10 SDRplay2 TFD 16-24.csv
23.00
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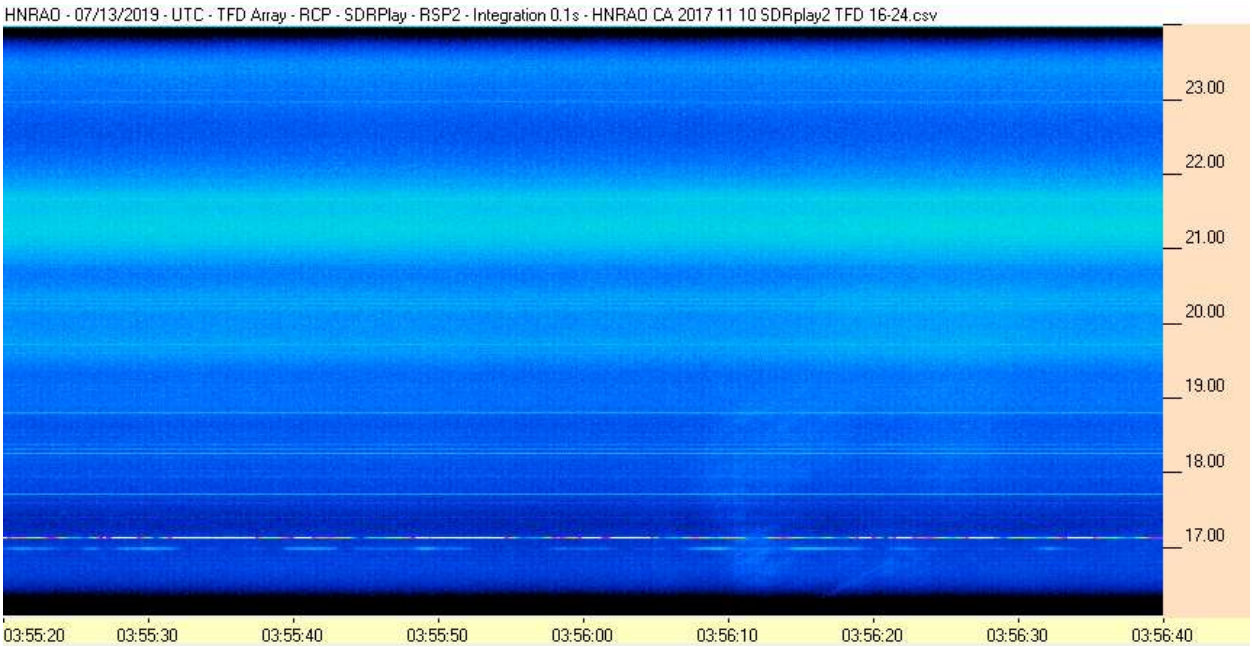
03:46:10
03:46:20
03:46:30
03:46:40
03:46:50
03:47:00
03:47:10
03:47:20


HNRAO - 07/13/2019 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s - HNRAO CA 2017 11 10 SDRplay2 TFD 16-24.csv
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03:55:30
03:55:40
03:55:50
03:56:00
03:56:10
03:56:20
03:56:30
03:56:40

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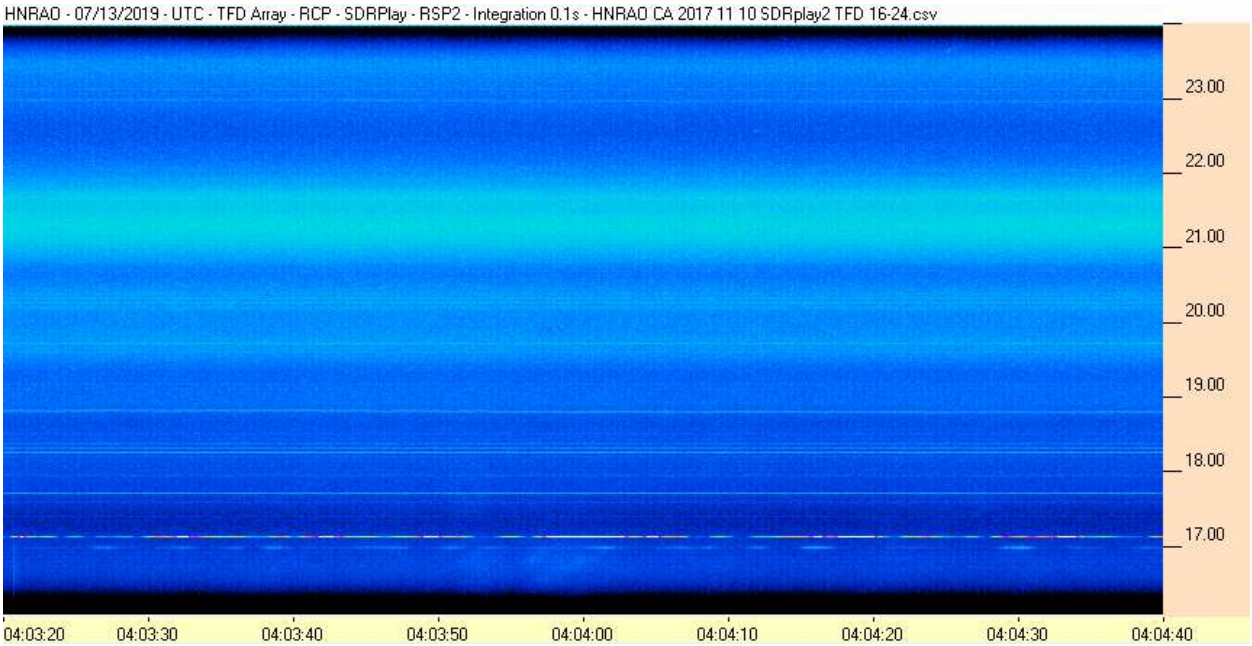
HNRAO - 07/13/2019 - UTC - TFD Array - RCP - SDRPlay - RSP2 - Integration 0.1s - HNRAO CA 2017 11 10 SDRplay2 TFD 16-24.csv
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04:03:40
04:03:50
04:04:00
04:04:10
04:04:20
04:04:30
04:04:40

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