HNRAO Observing Log
40.673181 N – 80.437885 W
EN90sq

Date: 21 December 2016

Object: Jupiter – Non-Io-A

Observer: Unattended

Start of pass:	**1028 UT**		
Jupiter Altitude:	**34.7 degrees**	**Jupiter Azimuth:**	**140.9 degrees**
Jupiter CML:	**231.85**	**Jupiter Io Phase:**	**146.55**
Jupiter RA:	**13:14**	**Jupiter Dec:**	**-06:27**
Sun Altitude:	**-23.0 degrees**	**Sun Azimuth:**	**101.8 degrees**
Sun RA:	**17:52**	**Sun Dec:**	**-23.26**

End of pass:	**1157 UT**		
Jupiter Altitude:	**42.1 degrees**	**Jupiter Azimuth:**	**167.8 degrees**
Jupiter CML:	**285.65**	**Jupiter Io Phase**	**159.03**
Jupiter RA:	**13:14**	**Jupiter Dec:**	**-06:27**
Sun Altitude:	**-07.0 degrees**	**Sun Azimuth:**	**115.0 degrees**
Sun RA:	**17:52**	**Sun Dec:**	**-23.26**

Observations made using:

1. FSX-8S fed by the TFD array
    a. Initially connect to array through HNRAO Multicoupler #1 and #2, port 2
        i. HNRAO Multicoupler #1 – TFD/LCP
        ii. HNRAO Multicoupler #2 – TFD/RCP
        iii. Port 1 having 10 dB of gain, all other ports on Multicoupler have approximately 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’ – phased for 2016-17 season
    a. Calibrated 28 Nov. 2016
    b. Connected to dipoles through HNRAO Multicoupler #3, port 1.
4. Icom R75 receiver fed by experimental DDRR antenna directly.
    a. Calibrated 28 Nov. 2016

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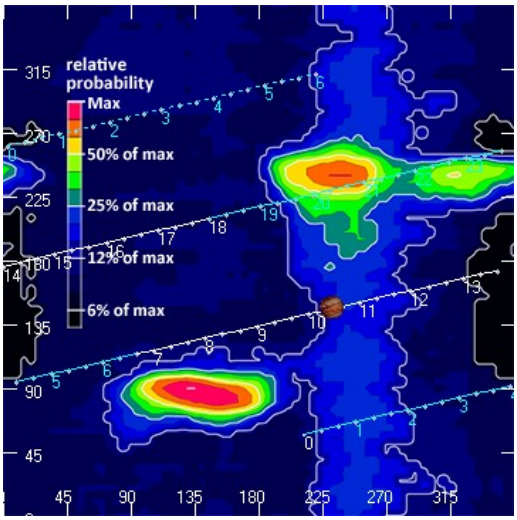
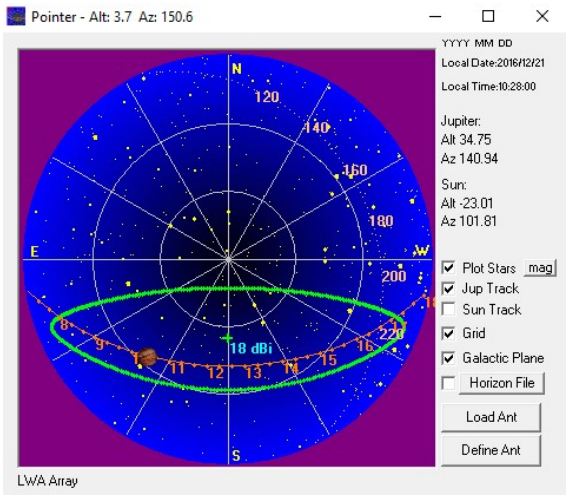
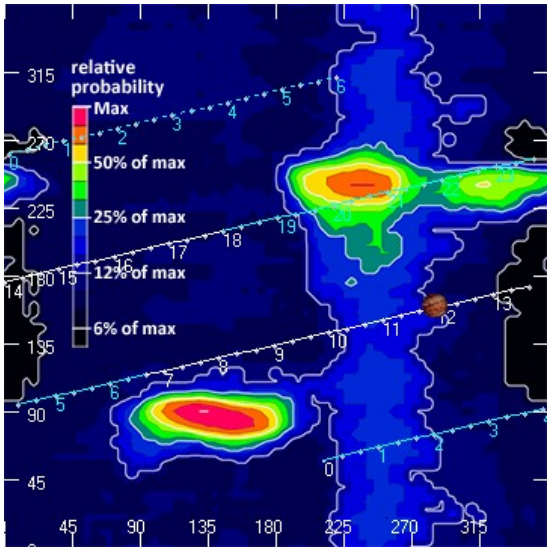
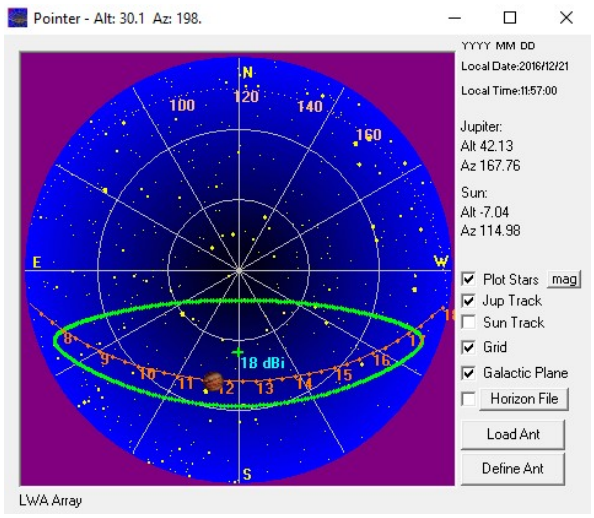




Beginning of Pass





End of Pass

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Another unattended Non-Io-A event lasting about 1 ½ hours. Composed of weak L-bursts, with one period of stronger bursting.

Once again the LWA/FSX-2 pairing recorded the emissions as stronger than the TFD/FSX-8S pair.

Being an unattended observation, no galactic background temperature measurements were taken from other observatories. Galactic background temperature at HNRAO at the strongest period of emissions was shown on the JOVE dipoles/JOVE 2 receiver (calibrated) to be aproximately 32 kK. SkyPipe data uploaded to Radio JOVE archive.

1) 1026 UT
   a) First emissions detected.
   b) Weak L-bursts.
   c) Near vertical in emissions.
   d) From 16-19 MHz
   e) Beginning of an arc that peaks at 24 MHz then decends to 16 MHz by the end of the emissions.
2) 1035 UT
   a) Very weak single emissions @ 24 MHz
      i) Nothing visible until next emissions @ 1041 UT
3) 1041 UT
   a) One slightly stronger emissions at 24 MHz.
      i) Arc apparently begins it's decent here.
4) 1149 UT
   a) Strongest emisisons of the event occure.
      i) Stronger L-bursts.
      ii) No modulation lanes detected
      iii) Vertical emisisons spanning 22.5 MHz -19 MHz
      iv) Arc continues decending
5) 1152 UT
   a) Another sequence of L-bursts.
      i) Slightly weaker than the bursts at 1149 UT
      ii) Near vertical in shape
      iii) 21 MHz -19 MHz
      iv) Emissions fade until 1056 UT
6) 1056 UT
   a) End of the event with a brief series of vertical L-bursts through the end of the emisions.
   b) 18 MHz – 16 MHz

End of Report

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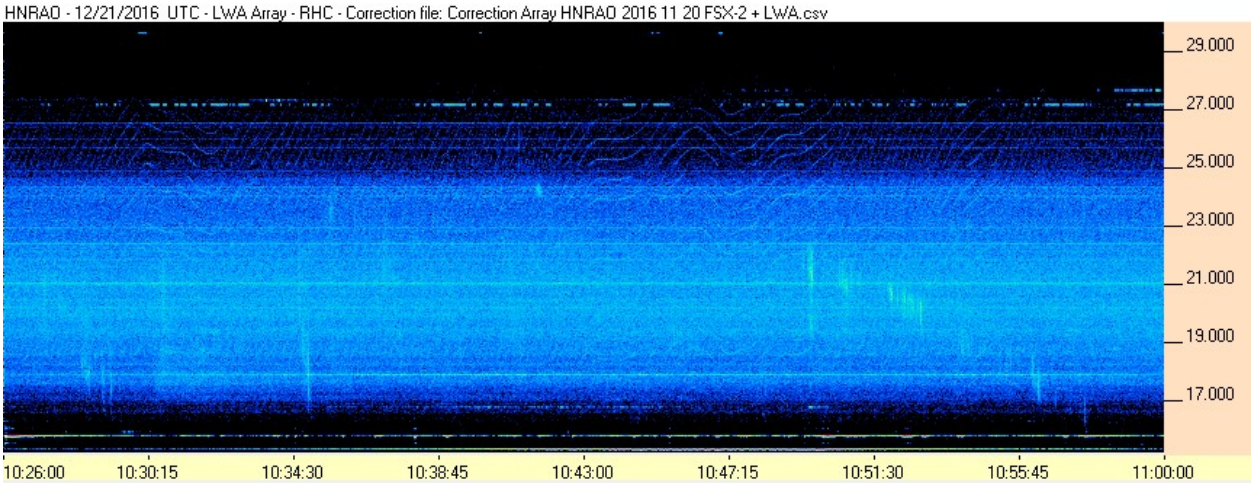
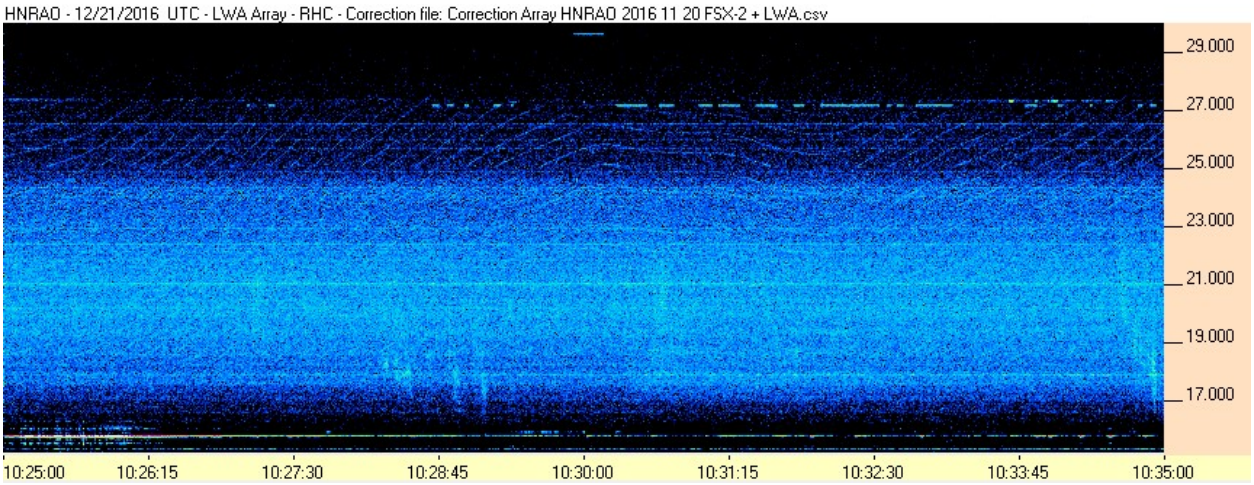
FSX-2





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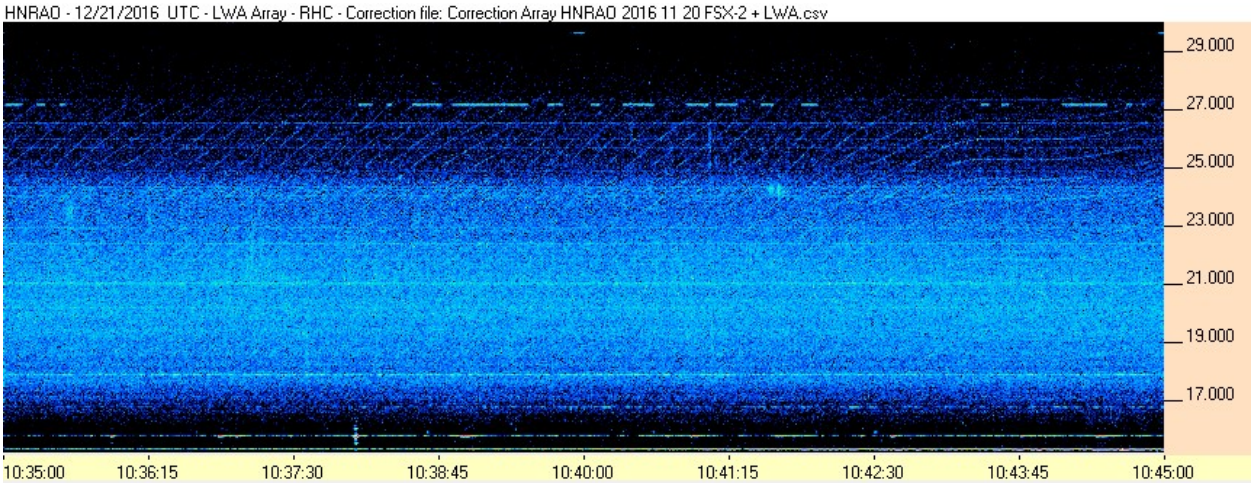

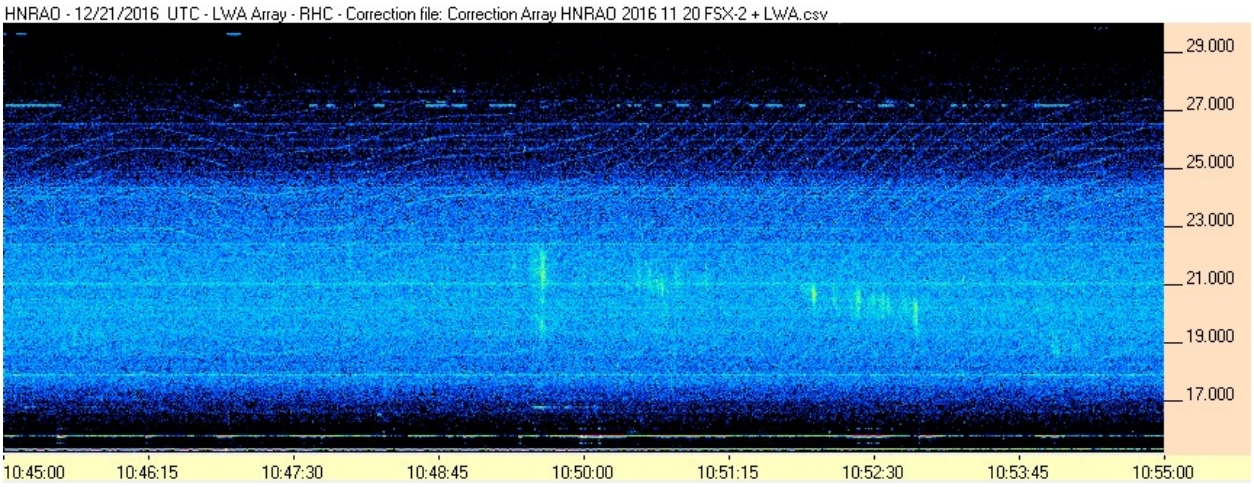

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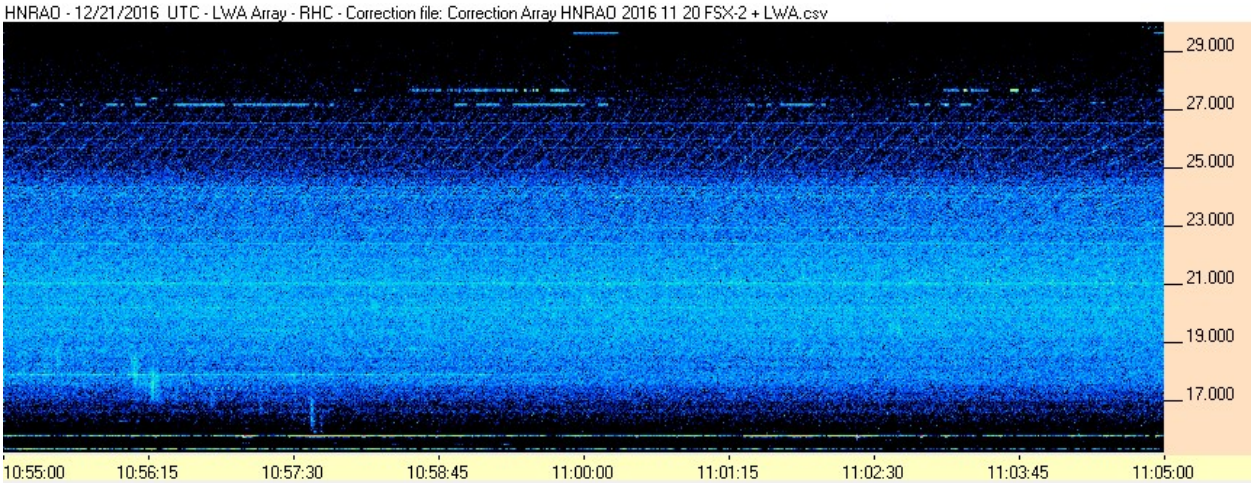

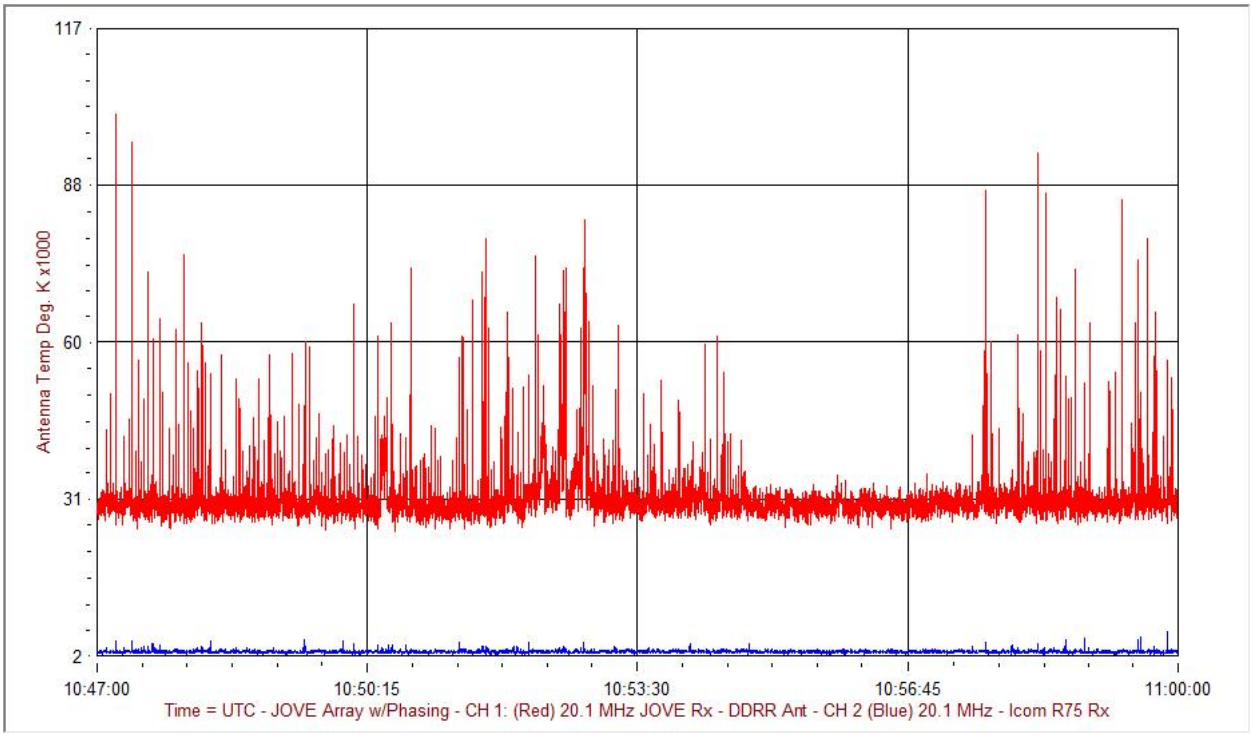

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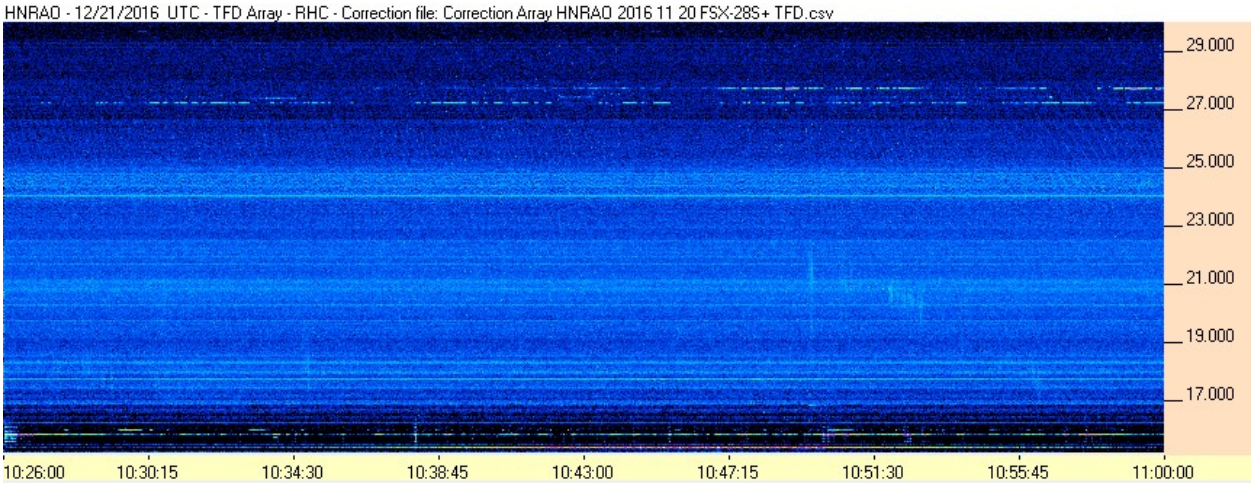
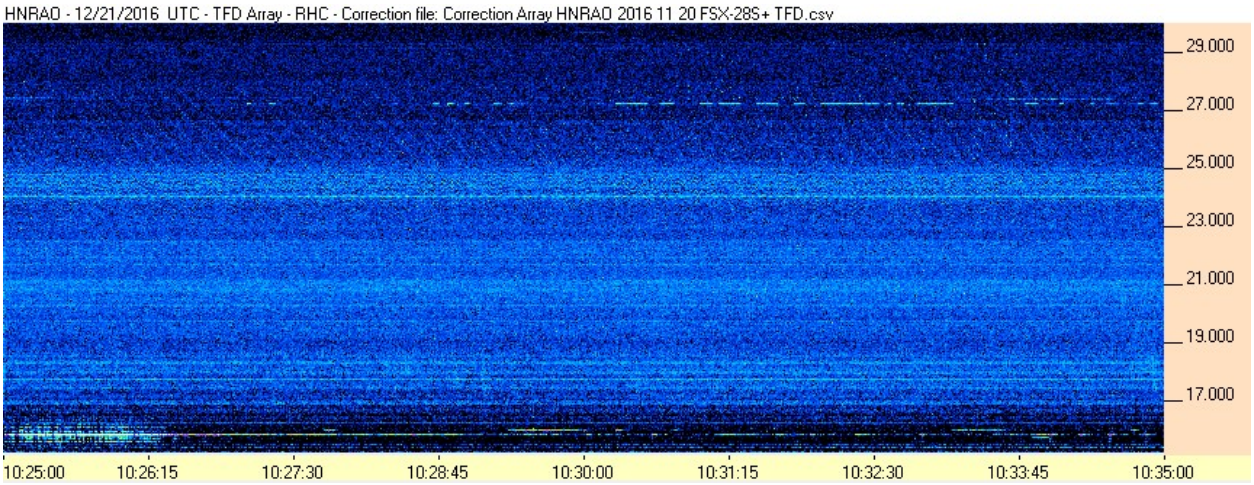
FSX-8S





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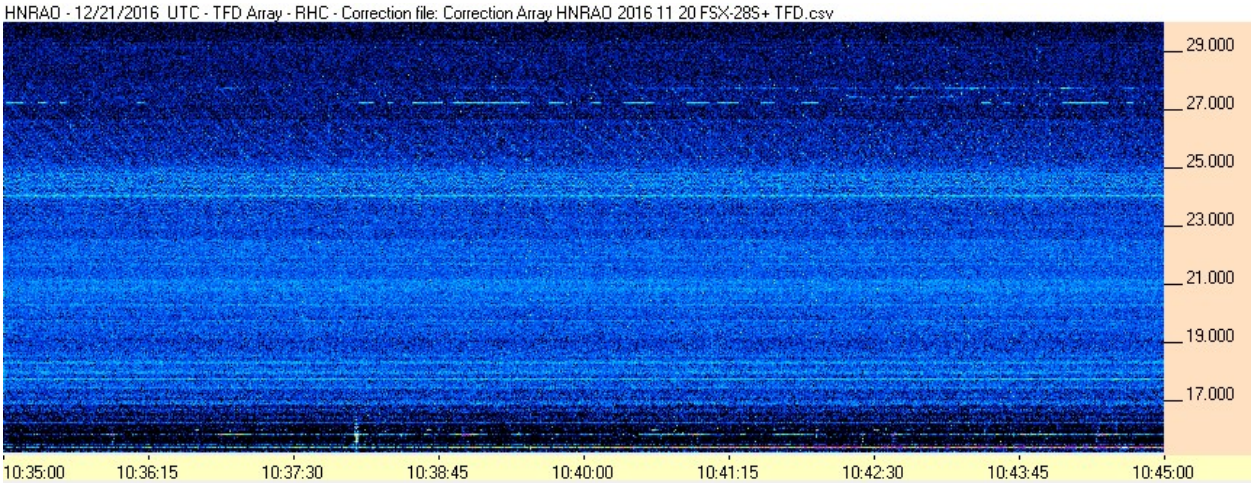

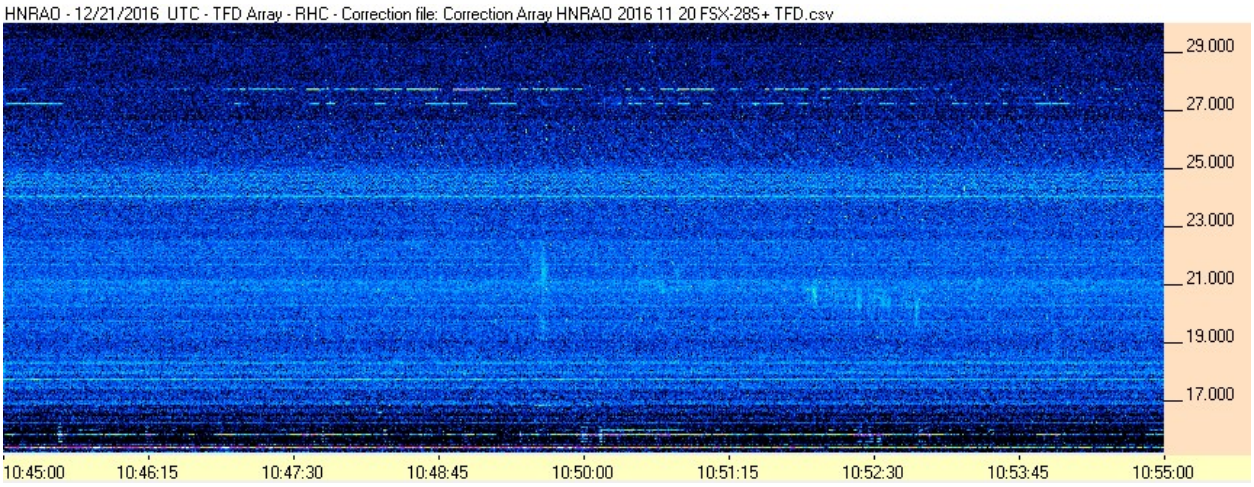

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