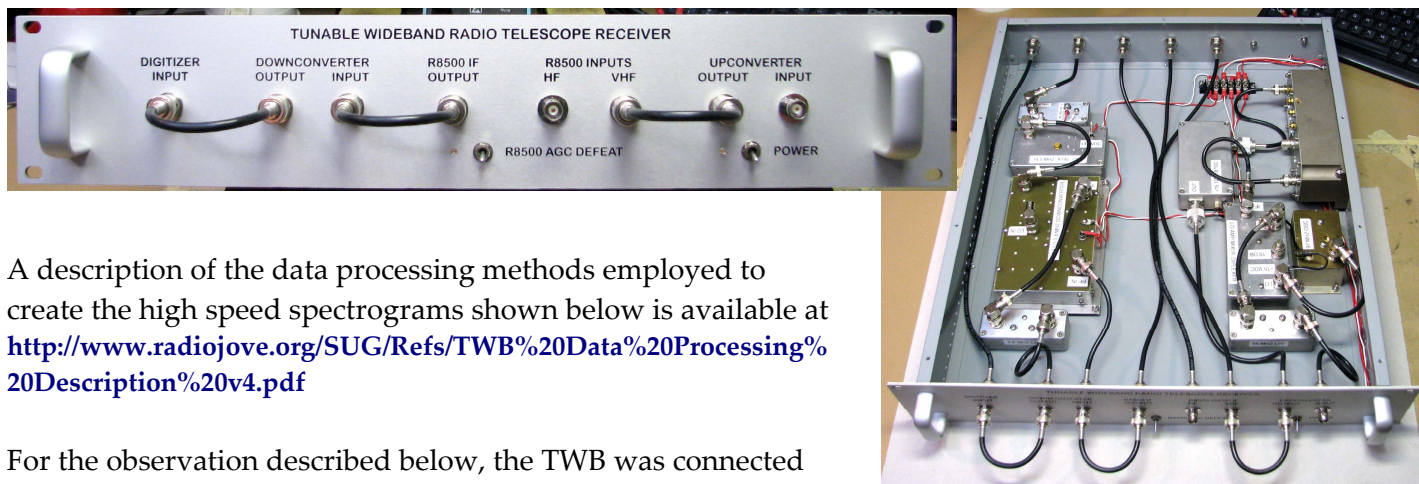


TWB Preview — Io-B Storm of 30 Nov 2013

TWB Overview

The tunable wideband receiver (TWB) can be manually tuned to any frequency of interest between 17 and 33 MHz. The receiver has a 2 MHz wide IF output, centered on 3.8 MHz. This undetected IF output signal is sampled by a Gage CS1220 high speed analog to digital converter (ADC) using GageScope software. The digitizer is configured to sample the IF output waveform at a rate of 10 million samples per second (100 nsec sample period) with 12-bit resolution.



A description of the data processing methods employed to create the high speed spectrograms shown below is available at <http://www.radiojove.org/SUG/Refs/TWB%20Data%20Processing%20Description%20v4.pdf>

For the observation described below, the TWB was connected to the TFD array's east-west elements. This configuration is a four-element array similar in physical layout to the SuperJove array. As such, the input to the TWB was linearly polarized in the east-west direction.

Observation Overview

Observatory: AJ4CO Observatory
Location: High Springs, Florida
Observer: Dave Typinski

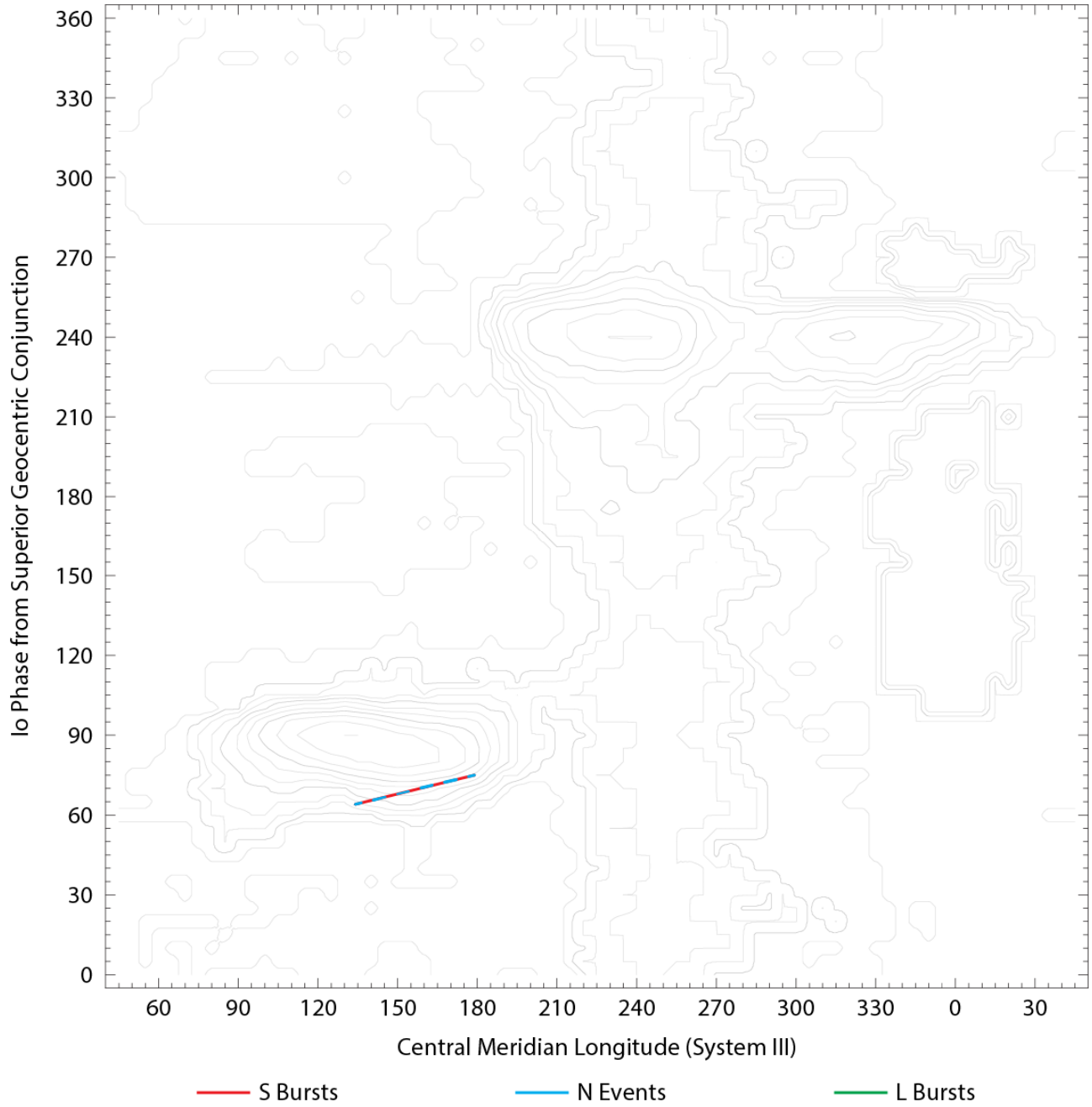
Instrumentation: TWB on TFD Array E-W Elements
 Gage CS1220 Digitizer
 DPS on TFD Array

Storm Activity (UTC)	CML-III	$I_o \phi$	Off Axis	D_E	$J \rightarrow S \angle$	$\Delta J \rightarrow E$
Begin: 0558	134°	64°	32°	+1.61°	-139°	4.40 AU
End: 0707	179°	75°	20°			

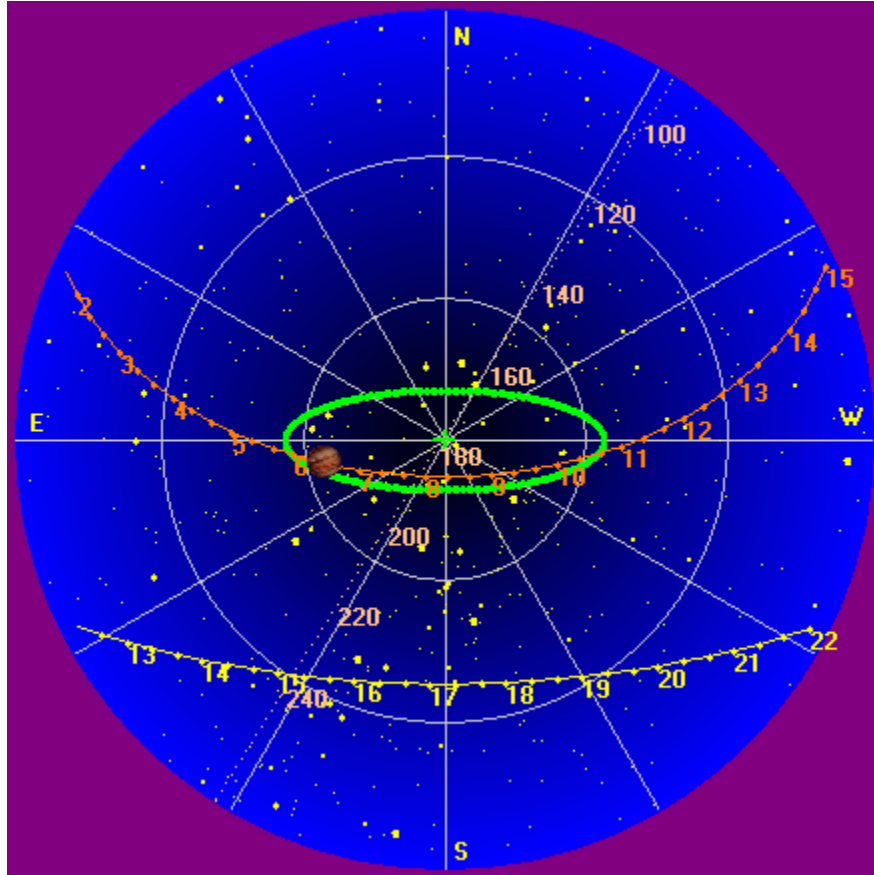
Observer Notes

Many S-N events, also some plain N events (narrow band L bursts). A few brief sessions of S bursting at lower frequencies. All RCP dominant emission.

Io-CML Phase Plane

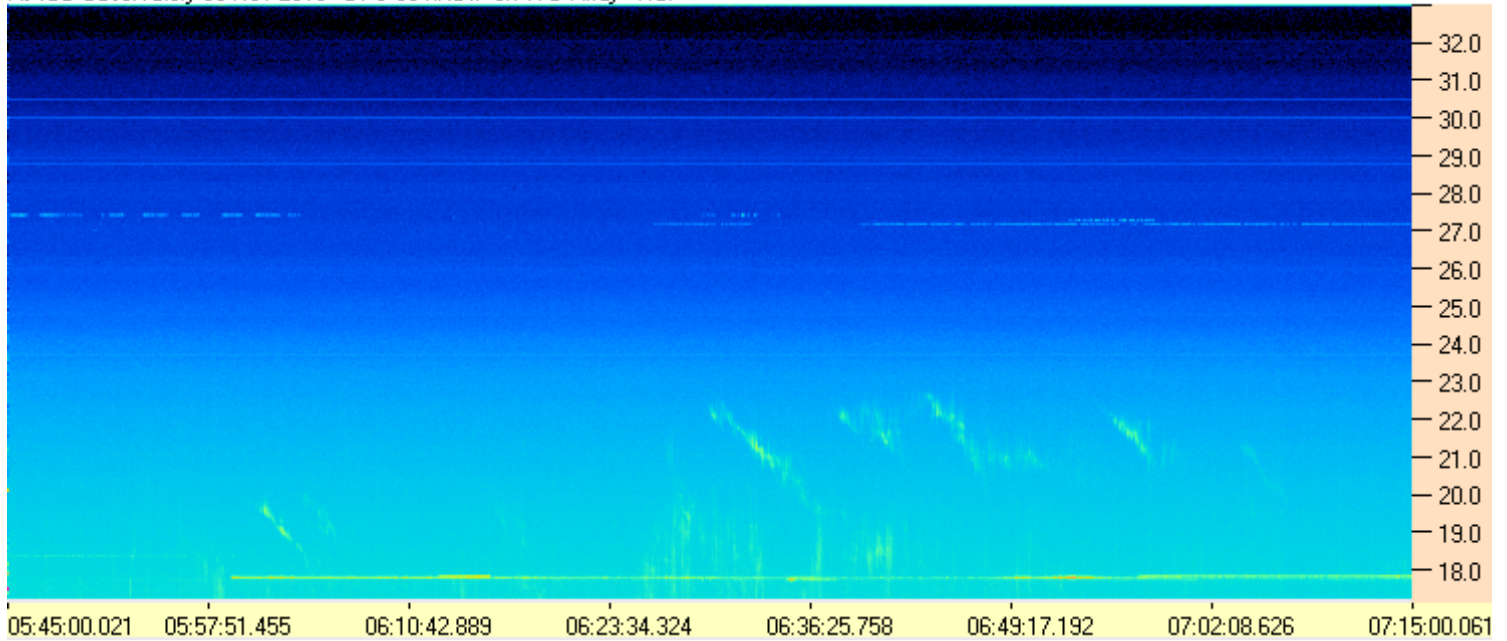


RJP Sky View

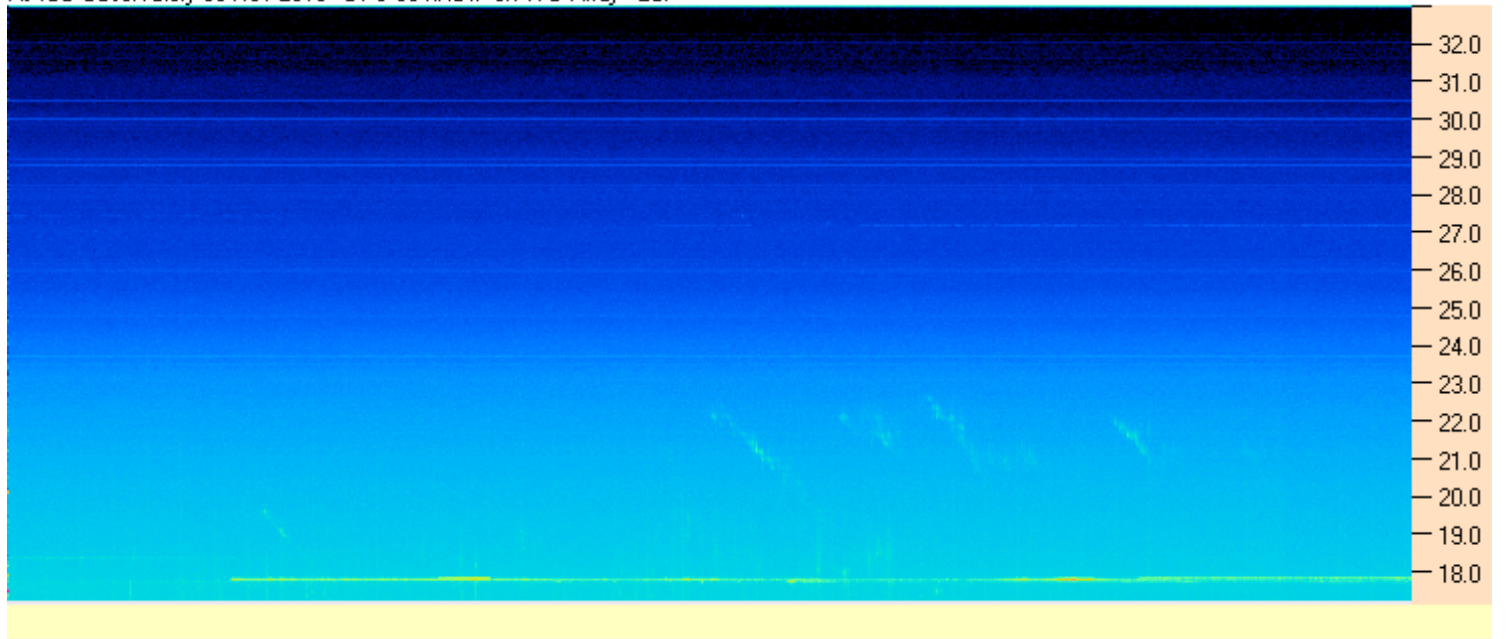


Overview Spectrogram

AJ4CO Observatory 30 Nov 2013 - DPS 60 kHz IF on TFD Array - RCP



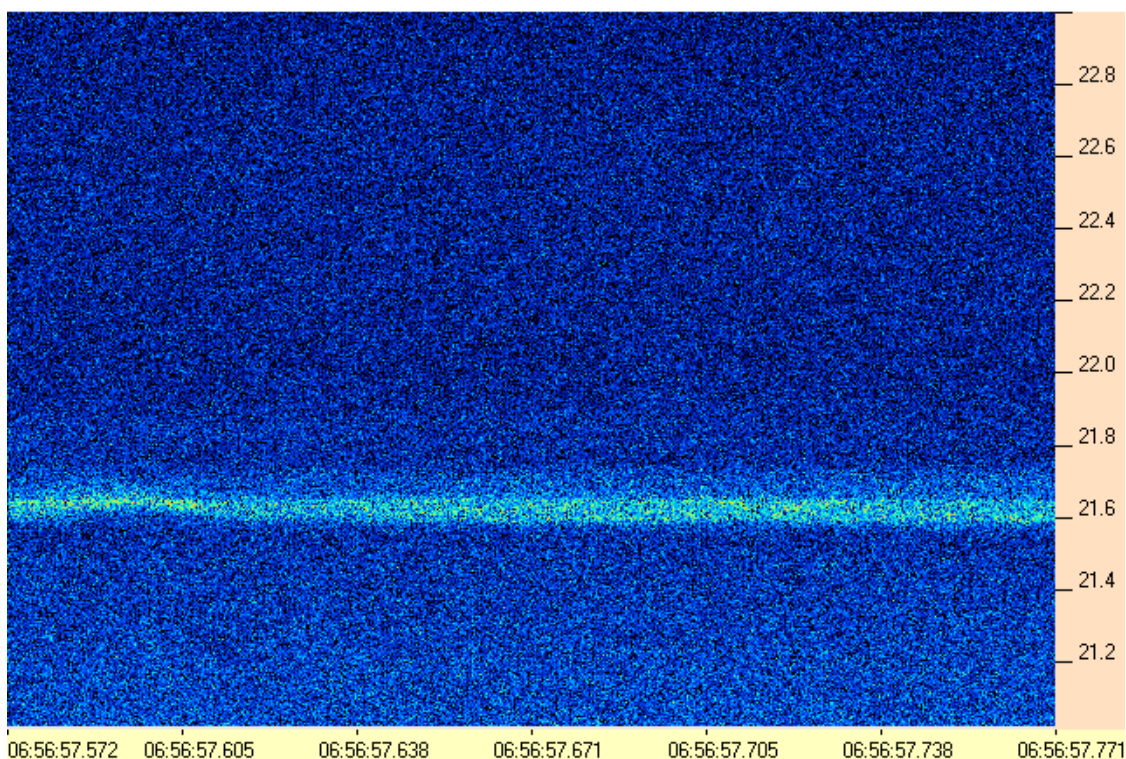
AJ4CO Observatory 30 Nov 2013 - DPS 60 kHz IF on TFD Array - LCP



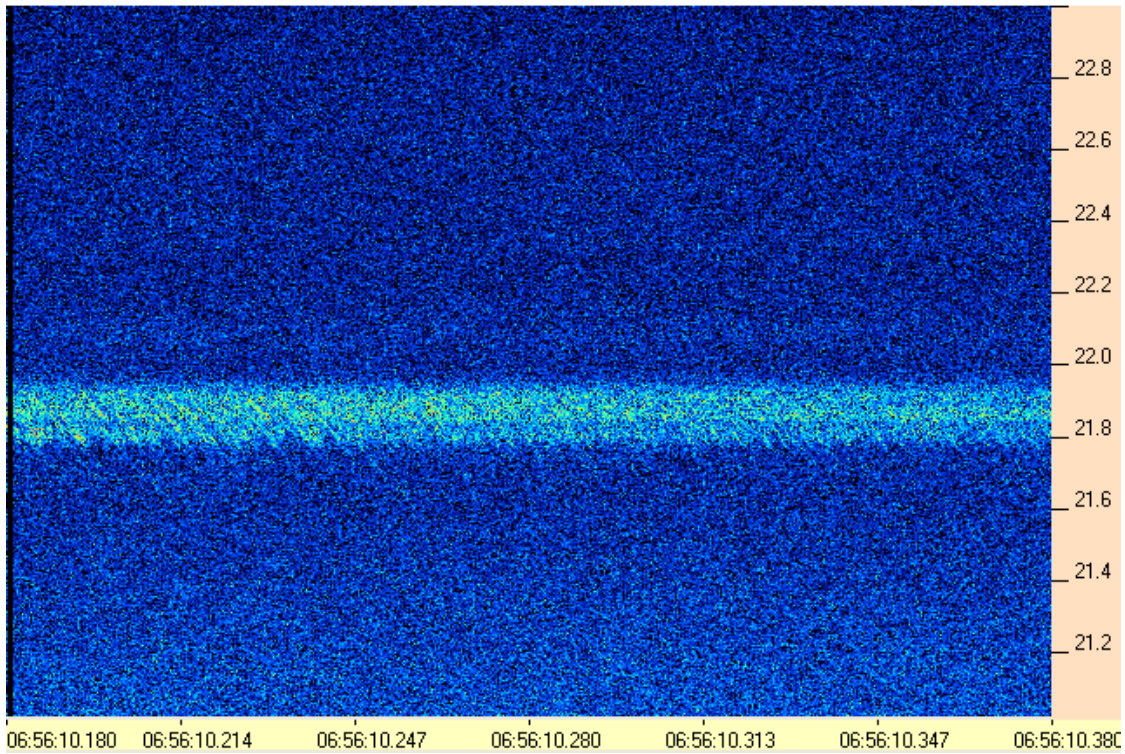
TWB High Speed Spectrograms

The spectrograms below were produced from analysis of TWB digitized data. Most of the images below span 200 milliseconds left to right. Since the imaged data spans 600 pixels, each pixel in width represents 333 microseconds. The waterfall data contains 411 channels to cover 2 MHz. The resolution bandwidth is just under 5 kHz.

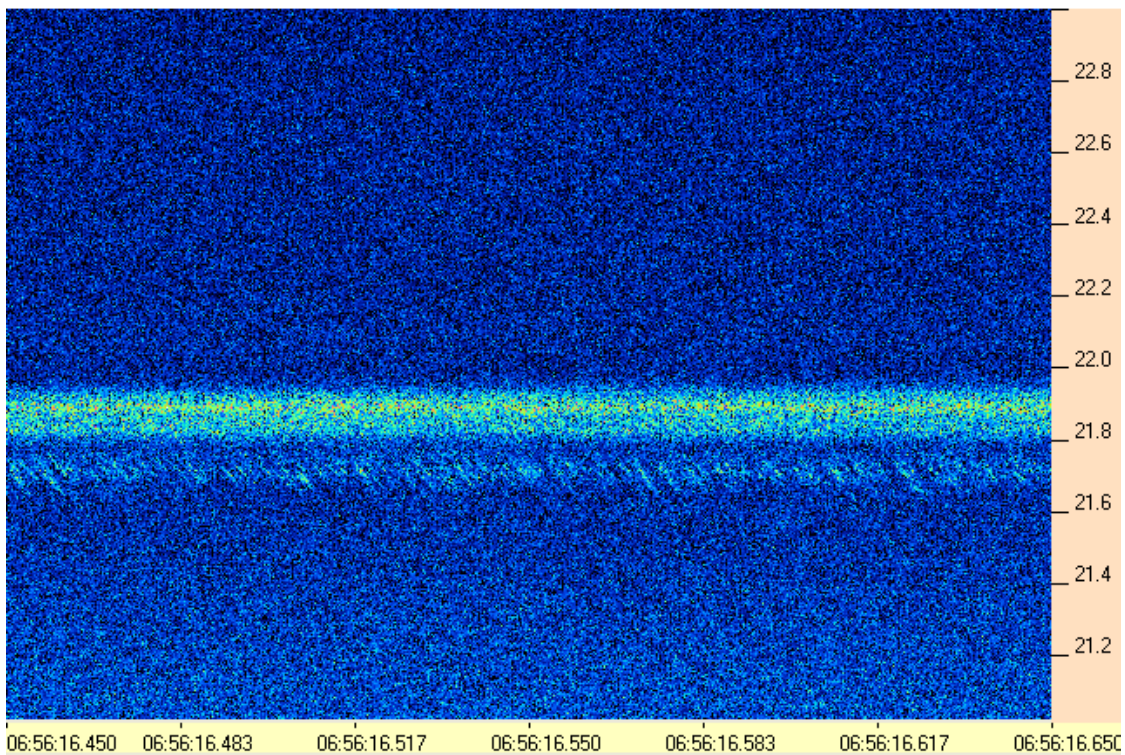
A description of the data processing methods employed to create the high speed spectrograms shown below is available at <http://www.radiojove.org/SUG/Refs/TWB%20Data%20Processing%20Description%20v4.pdf>



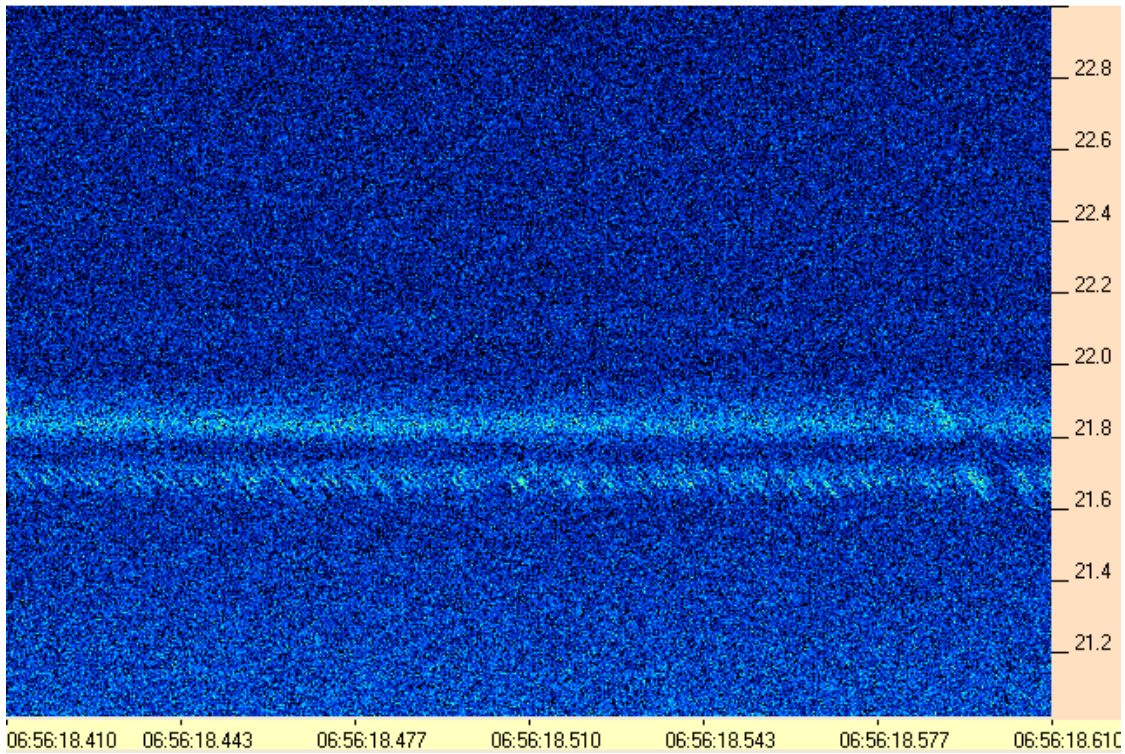
11/30/13 N-event – Instantaneous bandwidth less than 100 kHz. Smooth quasi-continuous emission band. Image duration 200 milliseconds.



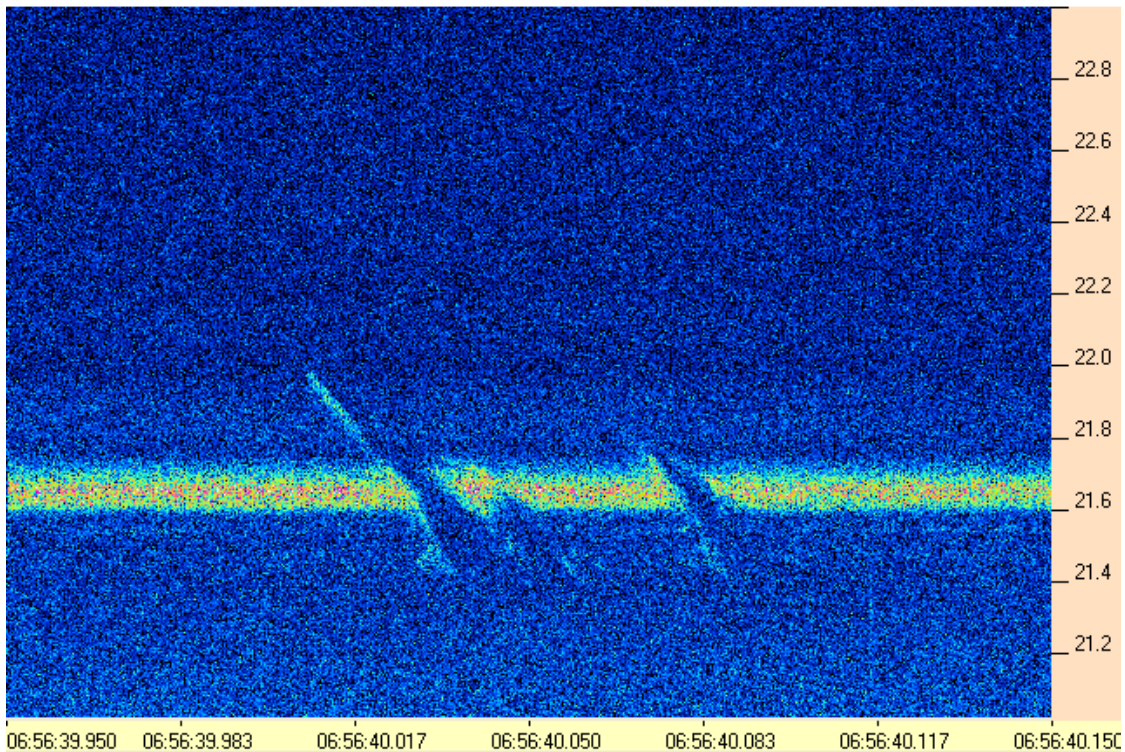
11/30/13 N-event seems to be made up of very short S-bursts



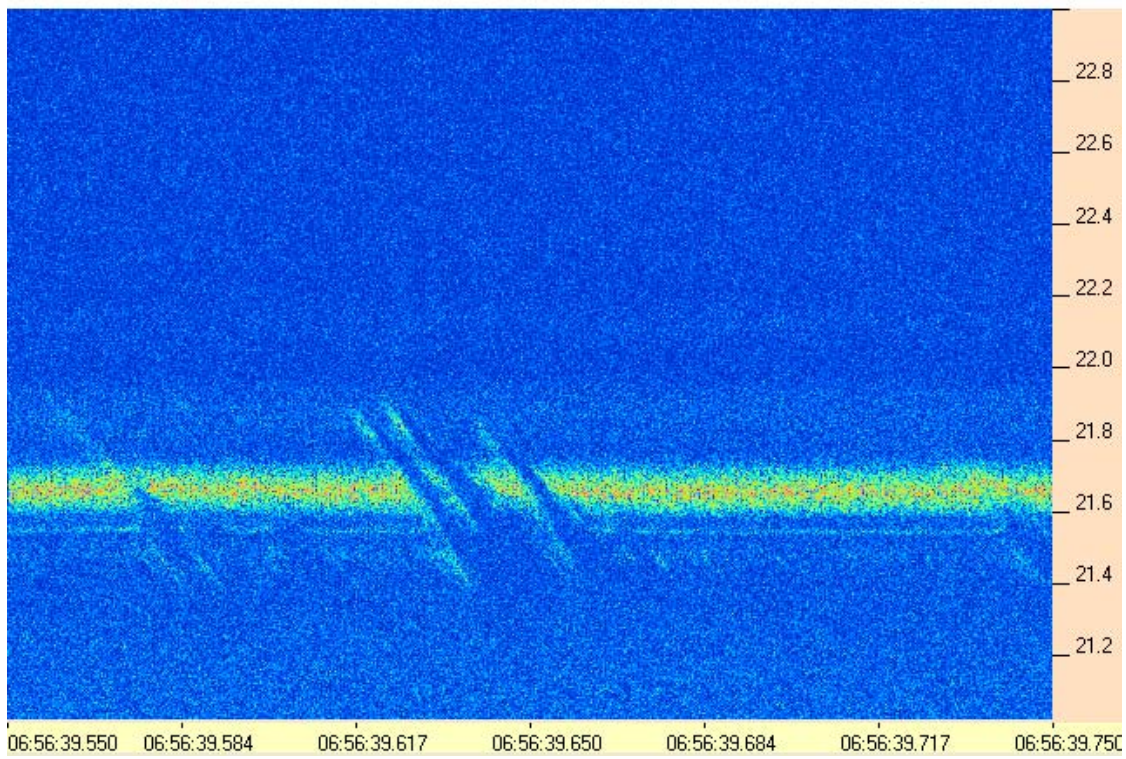
11/30/13 Bandlike emission with a quasi continuous emission band at the high frequency, a gap in emission at lower frequency and then a narrow train of S-bursts. S-burst occurrence rate likely exceeds 200 bursts/sec.



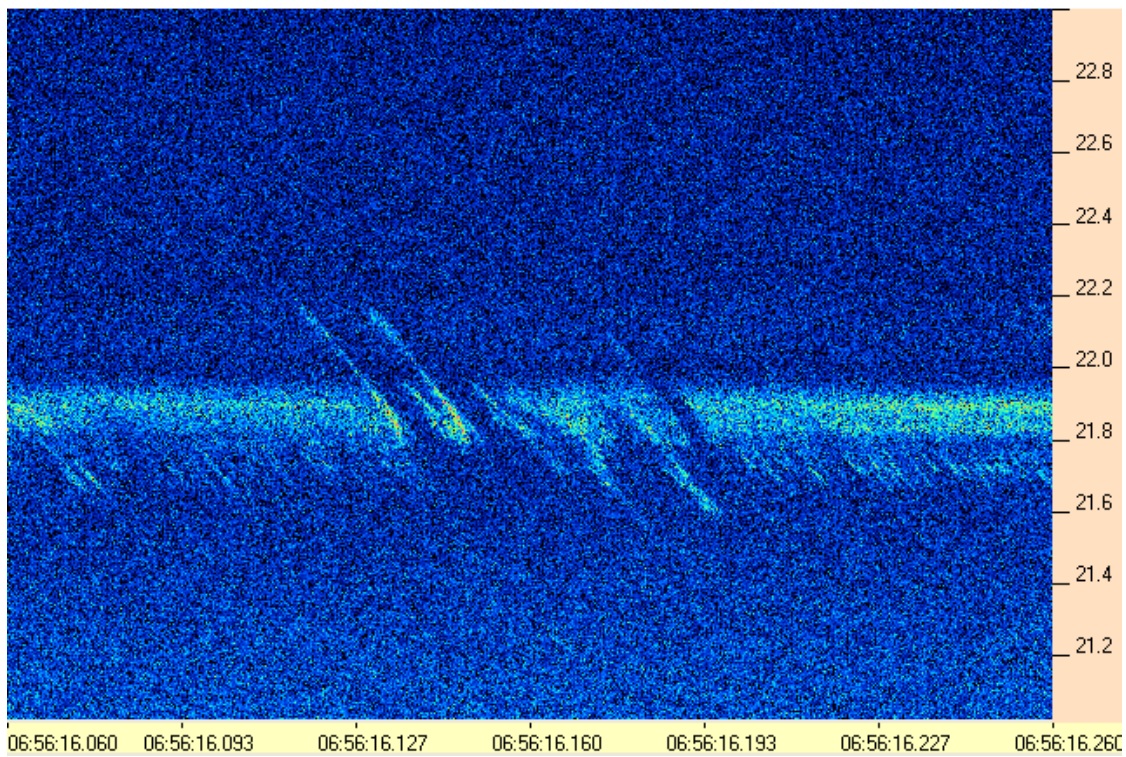
11/30/13 Bandlike emission with a quasi continuous emission band at the high frequency, a gap in emission at lower frequency and then a narrow train of S-bursts. S-burst occurrence rate likely exceeds 200 bursts/sec.



11/30/13 Tilted V, fast drift shadow events (FDS).



11/30/13 Tilted V, fast drift shadow events (FDS).



11/30/13 More complex interactions of drifting bursts with quasi-continuous emission bands.

