

Subject: [radiojove-data] 09 Jan 2015 non-Io-A and a hide-the-line-noise trick
From: Dave Typinski <davetyp@typnet.net>
Date: 01/11/2015 01:34
To: RadioJove-Data <radiojove-data@lists.nasa.gov>

Here's some non-Io-A from Friday morning.

RCP dominant L bursting from 16 to 23 MHz. No modulation lanes visible.

There was some line noise which would normally kill the strip chart... but...

A few days ago, Dick suggested that polarization measurements might be nice, so a third channel in Sky Pipe was added to record the difference between the RCP and LCP Jove receivers. That was well timed as the line noise started a couple days later -- and it turns out that comparing RCP to LCP in the strip chart does a fair job of nulling out the line noise and making the Jovian emission more easily visible. See the strip chart with the green trace, below.

This trick only works for emission that is strongly circularly polarized (i.e., RCP or LCP) like that from Jupiter -- but hey, it works. The math is simply $10 * \log (\text{Ant temp RCP} - \text{Ant temp LCP})$.

To replicate this, one would need two Jove receivers and at minimum two dipoles in an orthogonal (crossed) layout, and a hybrid ring to extract RCP and LCP. The receivers' outputs feed the left and right audio channels of the computer sound card. Such a setup would have better directivity with a square array of four Jove dipoles. Might be useful for those with RFI backgrounds up to a few hundred kK.

Note well that this will not dig unpolarized emission, such as solar bursts, out of the line noise. Also, it is unclear how well it would work for stronger line noise, if at all. Sure hope nobody encounters any opportunities to find out.

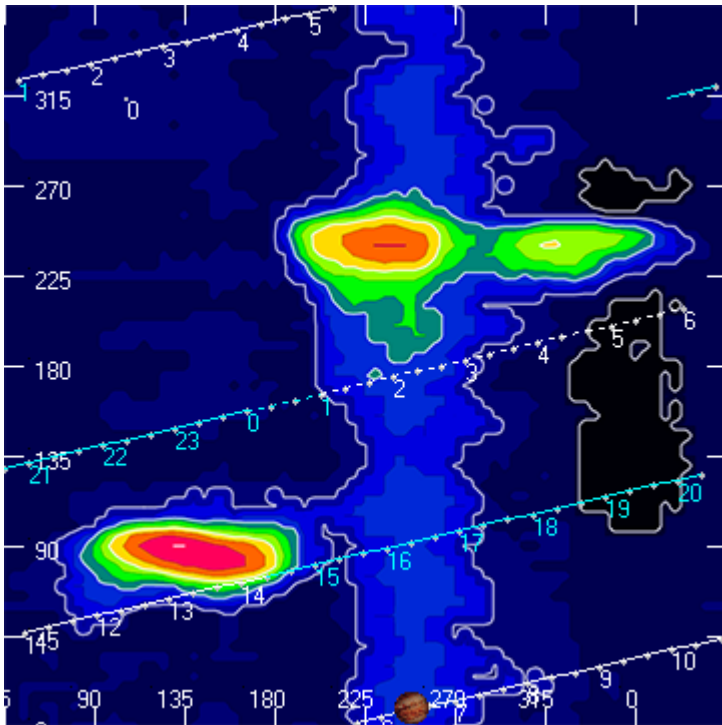
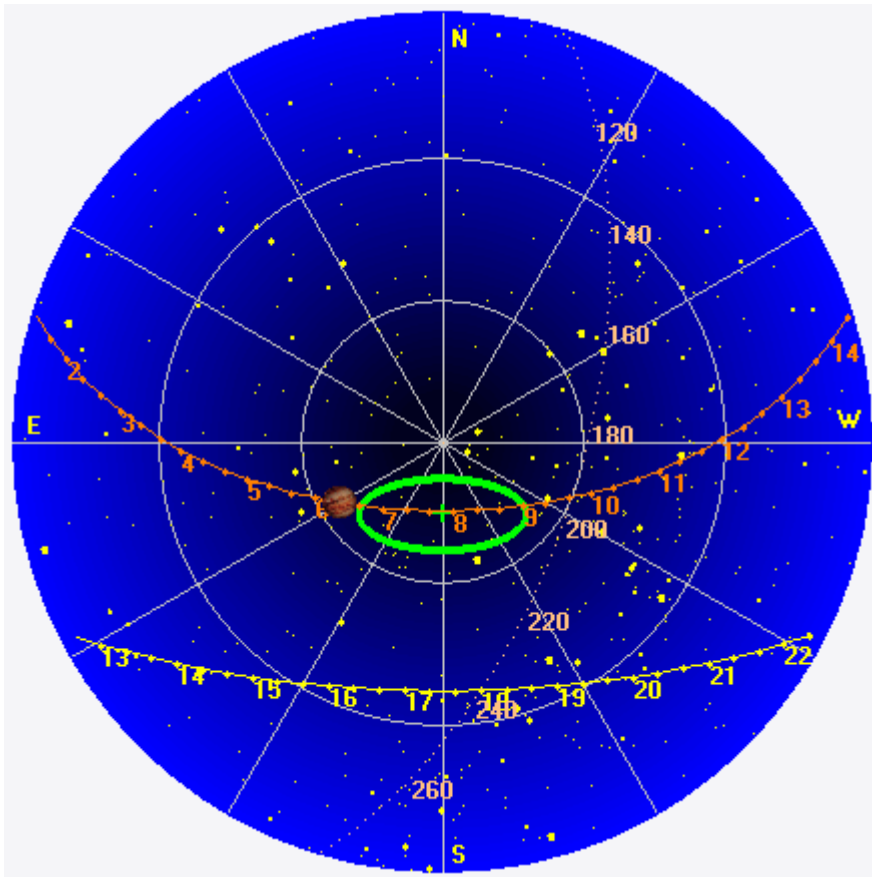
Jupiter was -28° to -13° off axis.

Jupiter was leading the Sun by 148° .

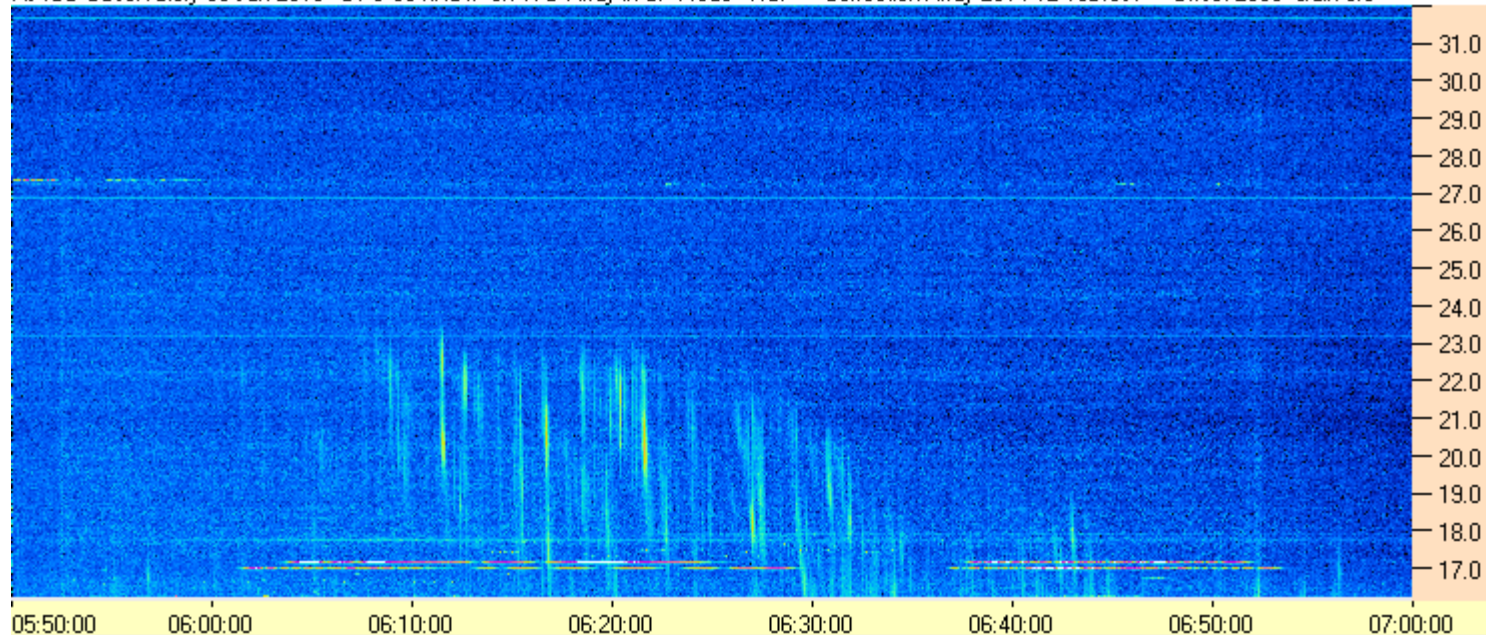
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Dave

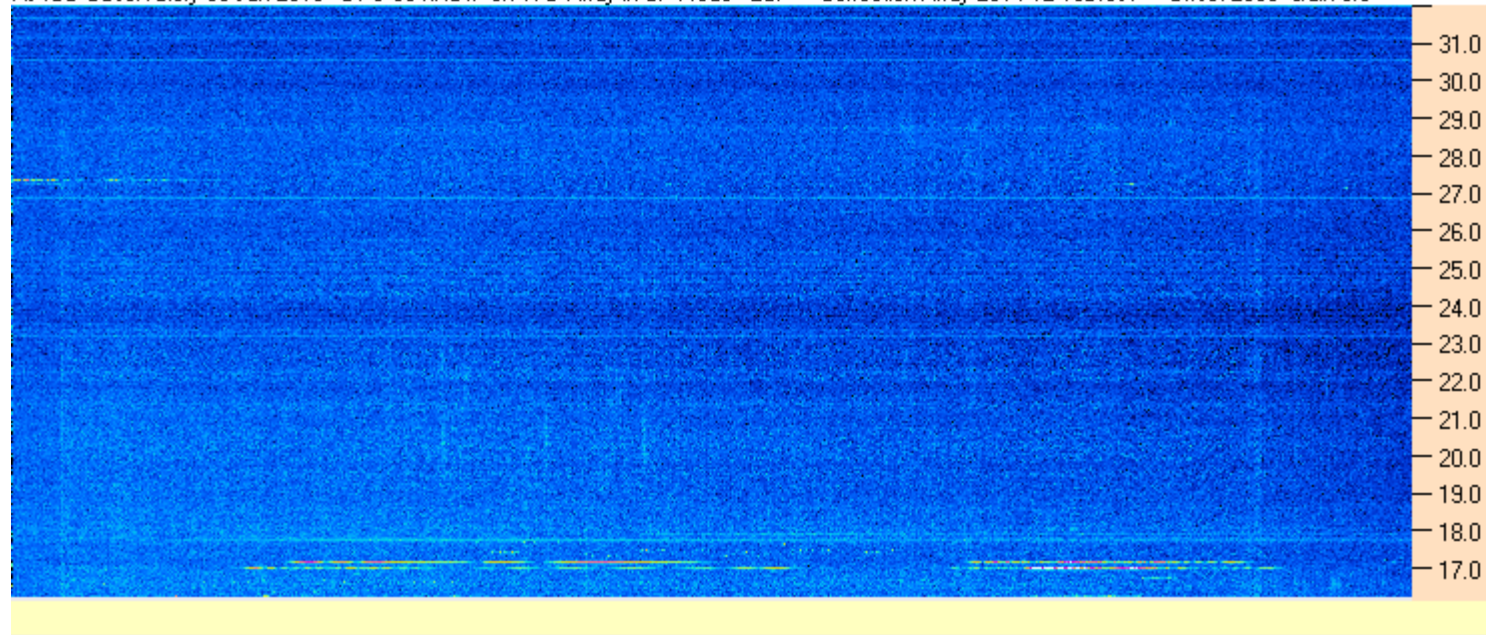
AJ4CO Observatory 09 Jan 2015, log entry 271



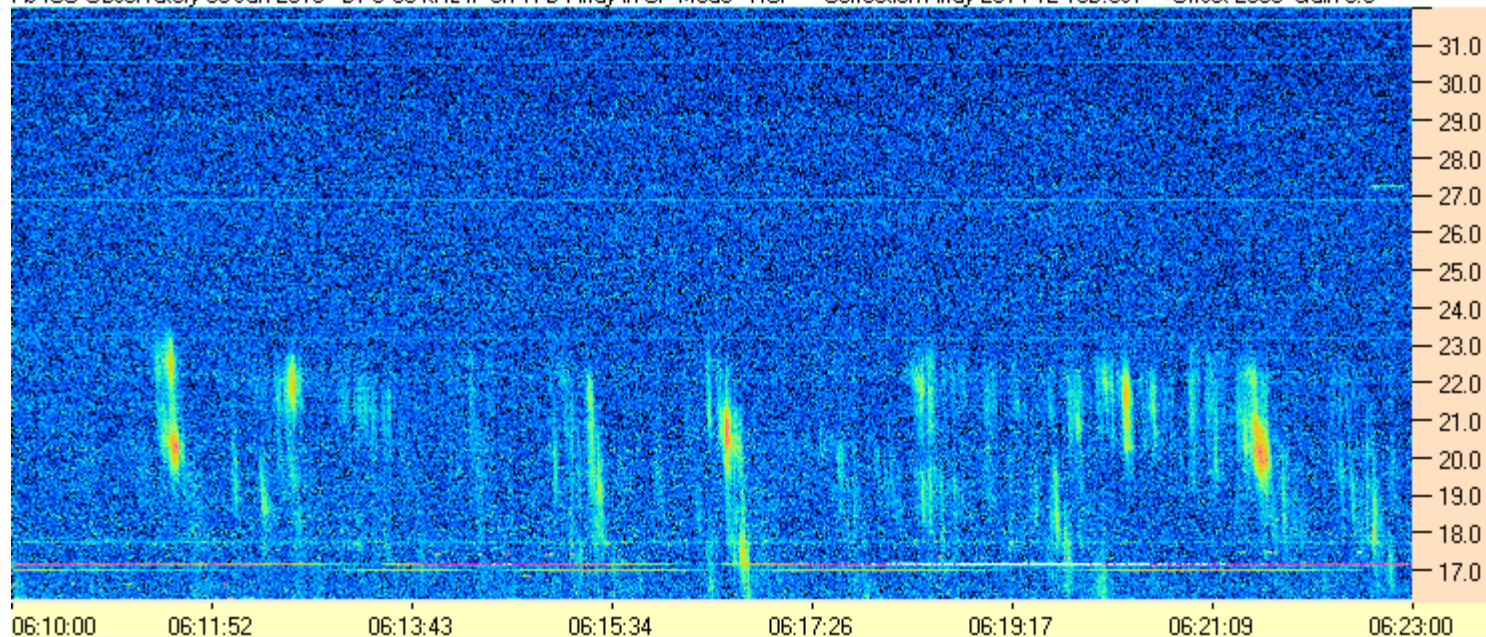
AJ4CO Observatory 09 Jan 2015 - DPS 30 kHz IF on TFD Array in CP Mode - RCP Correction Array 2014 12 18B.csv Offset 2050 Gain 5.0



AJ4CO Observatory 09 Jan 2015 - DPS 30 kHz IF on TFD Array in CP Mode - LCP Correction Array 2014 12 18B.csv Offset 2050 Gain 5.0



AJ4CO Observatory 09 Jan 2015 - DPS 30 kHz IF on TFD Array in CP Mode - RCP Correction Array 2014 12 18B.csv Offset 2050 Gain 5.0



AJ4CO Observatory 09 Jan 2015 - DPS 30 kHz IF on TFD Array in CP Mode - LCP Correction Array 2014 12 18B.csv Offset 2050 Gain 5.0

