

Subject: [radiojove-data] 26 Feb 2015 non-Io-B, non-Io-A, interesting RCP and LCP arc pairs

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Date: 02/28/2015 04:31

To: RadioJove-Data <radiojove-data@lists.nasa.gov>

Adding to Tom & Jim & Wes & David's nice reports, here's a group of interesting non-Io emissions from Thursday morning.

Two groups of emission events: non-Io-B and non-Io-A.

Both groups had their own RCP and LCP events, so four emission events in all.

Interesting that the non-Io-B events, both RCP and LCP appeared with upward drifting frequency (vertex early arcs), while the non-Io-A events appeared with downward drifting frequency (vertex late arcs). The upward sweeping vertex early arcs are thought to originate as the leading edge of an emission cone sweeps past Earth, while the downward sweeping vertex late arcs are thought to originate as the trailing edge of an emission cone sweeps past Earth.

The 2h15m difference between the occurrence of similarly polarized vertex early and late arcs may indicate the minimum angle between the leading and trailing edges of the emission cones (one cone for RCP in the northern hemisphere and one cone for LCP in the southern hemisphere). Jupiter rotates 82° in that time. The Io-controlled emission cone opening angle is presently thought to be about 120° in a circular pattern (Imai, 2002), or 86° in one direction and 164° in the orthogonal direction in an elliptical pattern (Galoiseau & Boudjada, 2011). The present observation is non-Io-controlled emission, so things may be different. If the timing of these arcs does indicate the minimum opening angles of the emission cones, then the two cones inferred from the present observations -- RCP (northern) and LCP (southern) -- have a minimum opening angle of about 82° . The similarity itself is interesting, because there is no guarantee that both cones (north & south) should sweep past Earth with the same "vertical" offset -- i.e., why should we see the same chord length through both emission cones when the cones are generated in two different regions on Jupiter and aim in two very different directions north and south of the ecliptic? Mere coincidence?

Non-Io-B:

RCP dominant L bursting 0253-0339 UTC from 16 to 26 MHz, vertex early.

LCP dominant L bursting 0334-0457 UTC from 16 to 24 MHz, vertex early.

Non-Io-A:

RCP dominant L bursting 0529-0540 UTC from 16 to 24 MHz, vertex late.

LCP dominant L bursting 0601-0659 UTC from 16 to 22 MHz, vertex late.

Heavy line noise throughout. Strip charts not of much use.

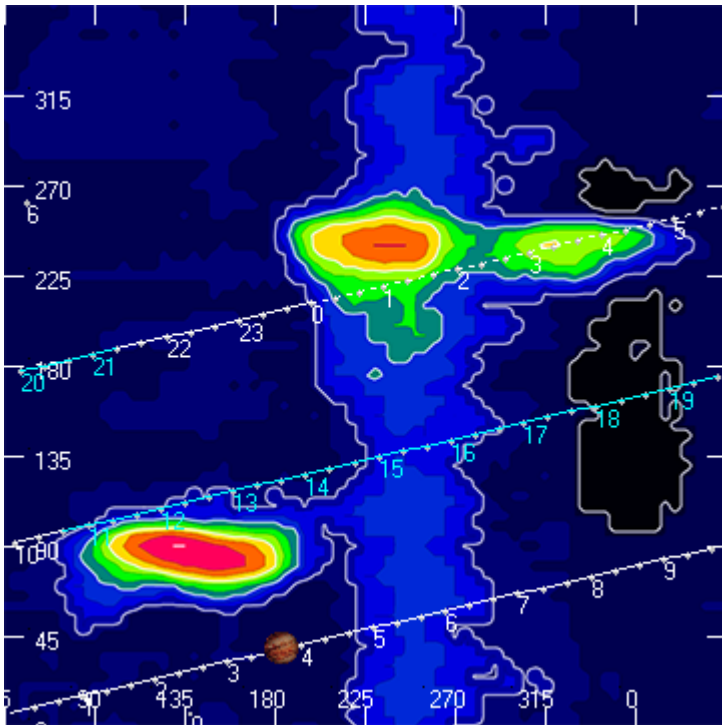
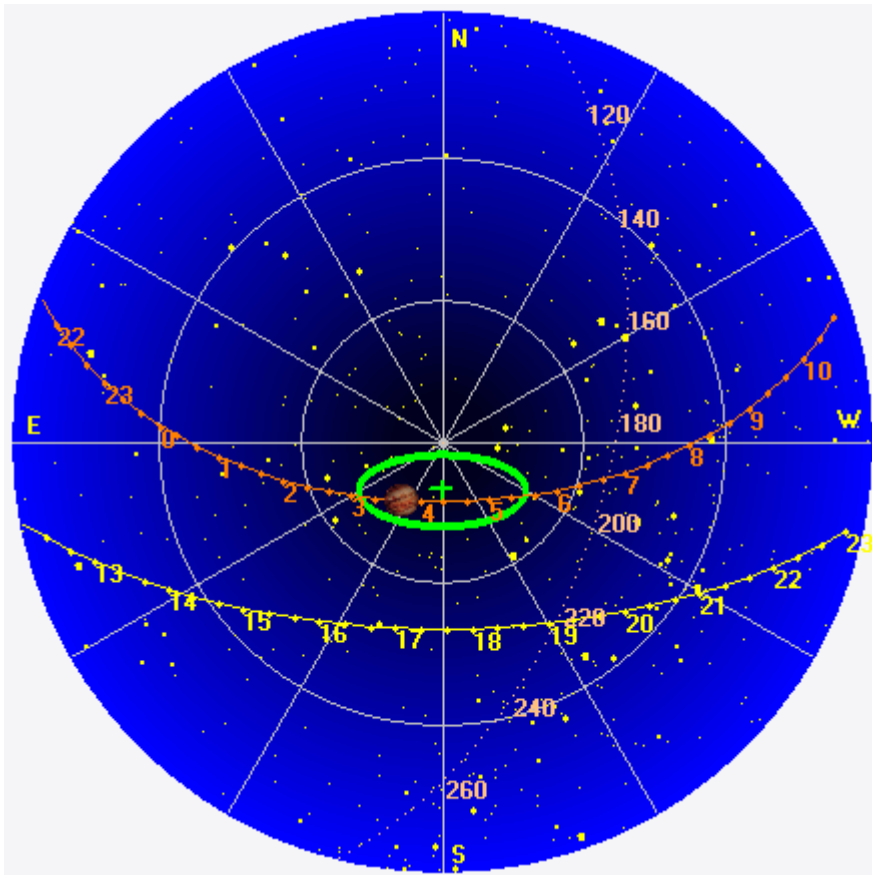
Jupiter was -21° to $+38^\circ$ off axis.

Jupiter was trailing the Sun by 158° .

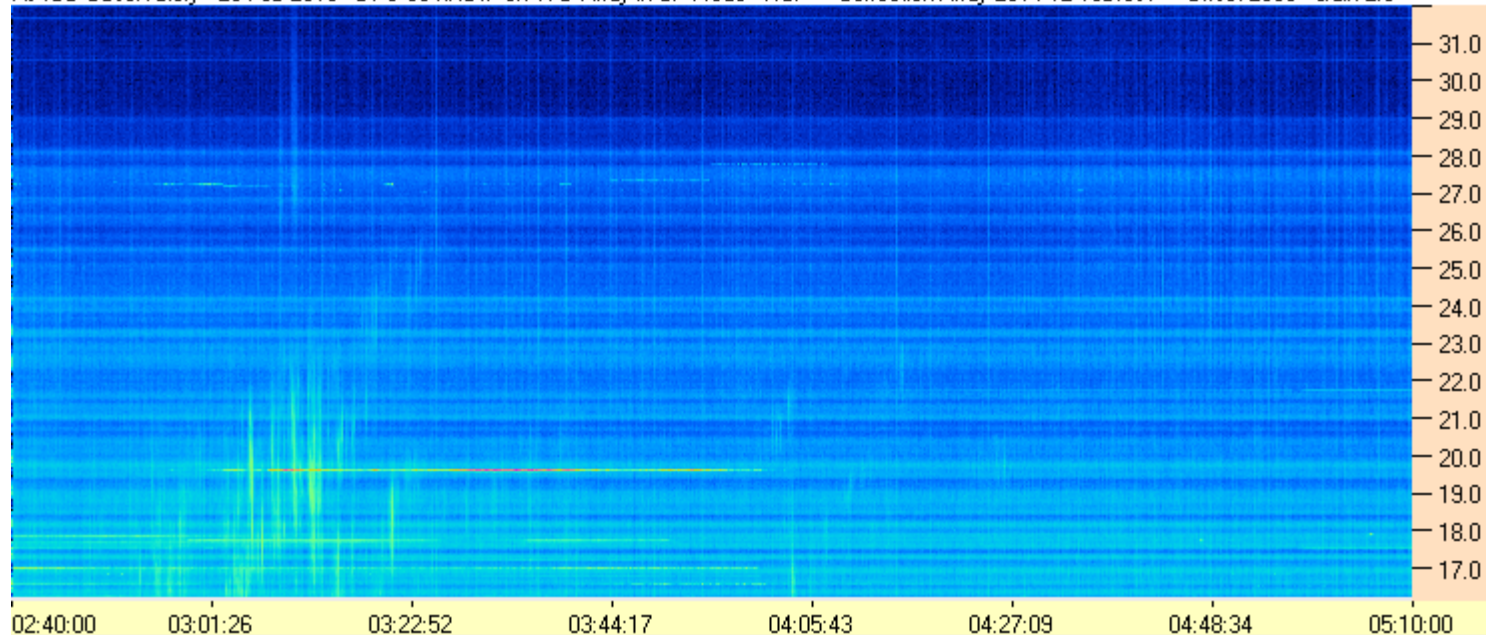
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Dave

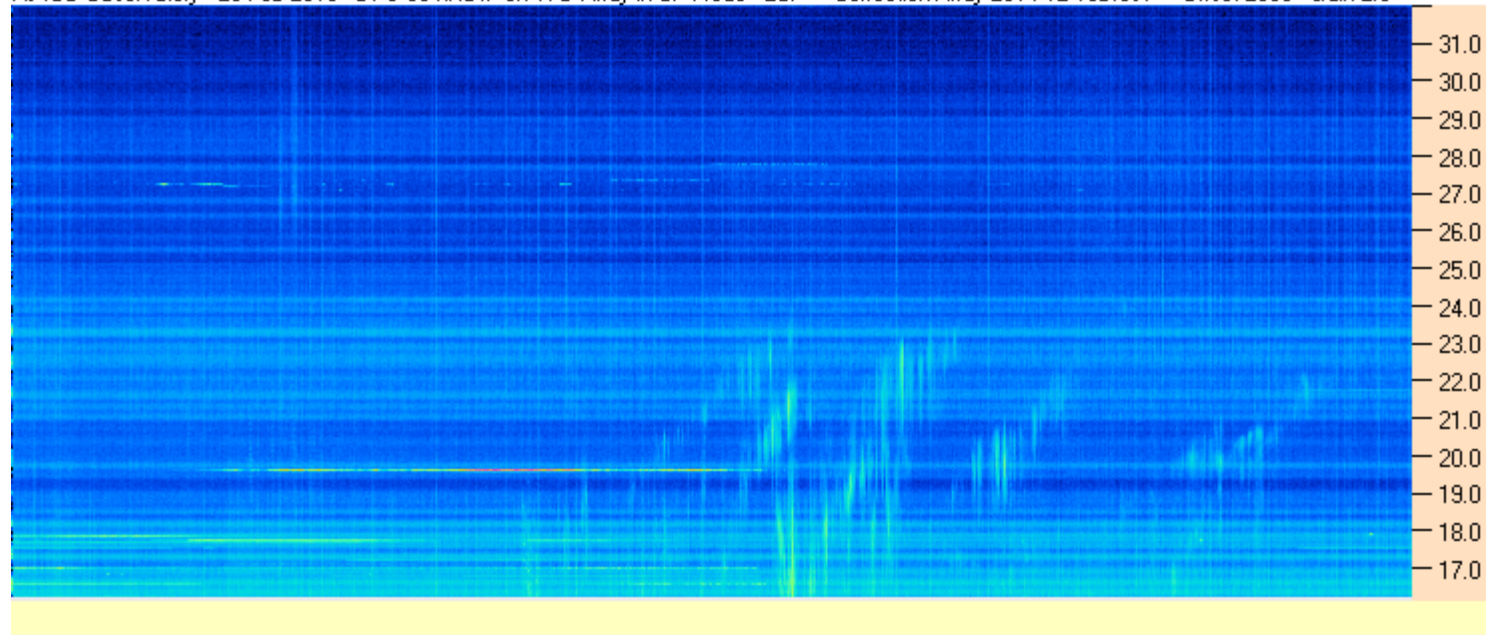
AJ4CO Observatory 26 Feb 2015, log entry 345-48

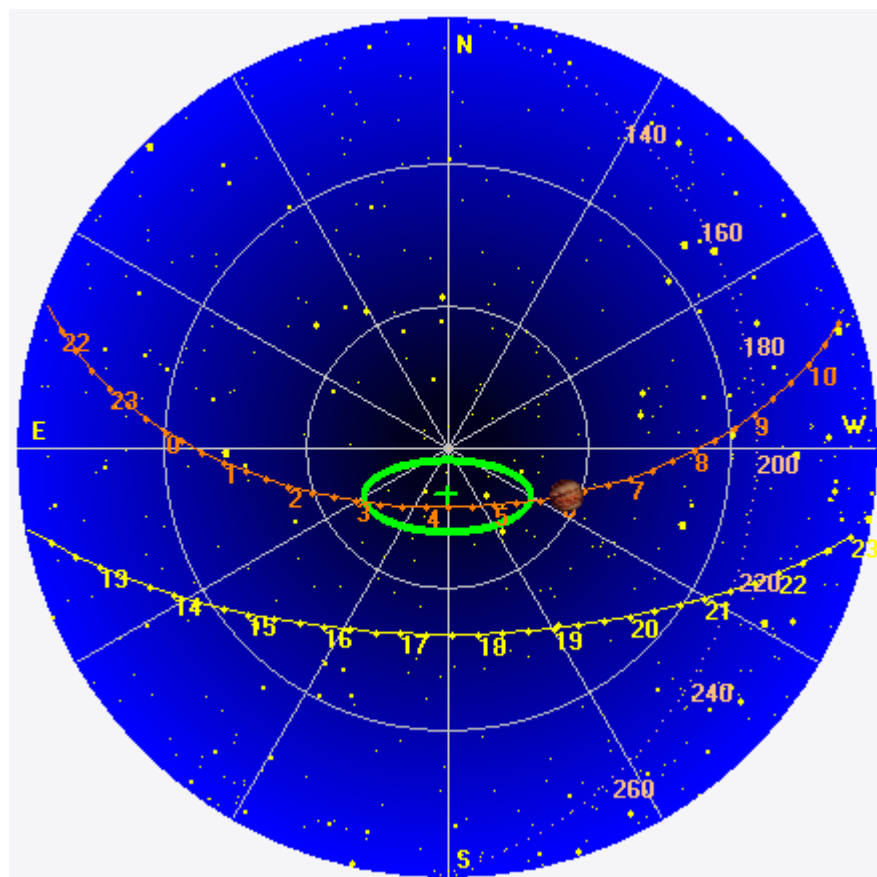
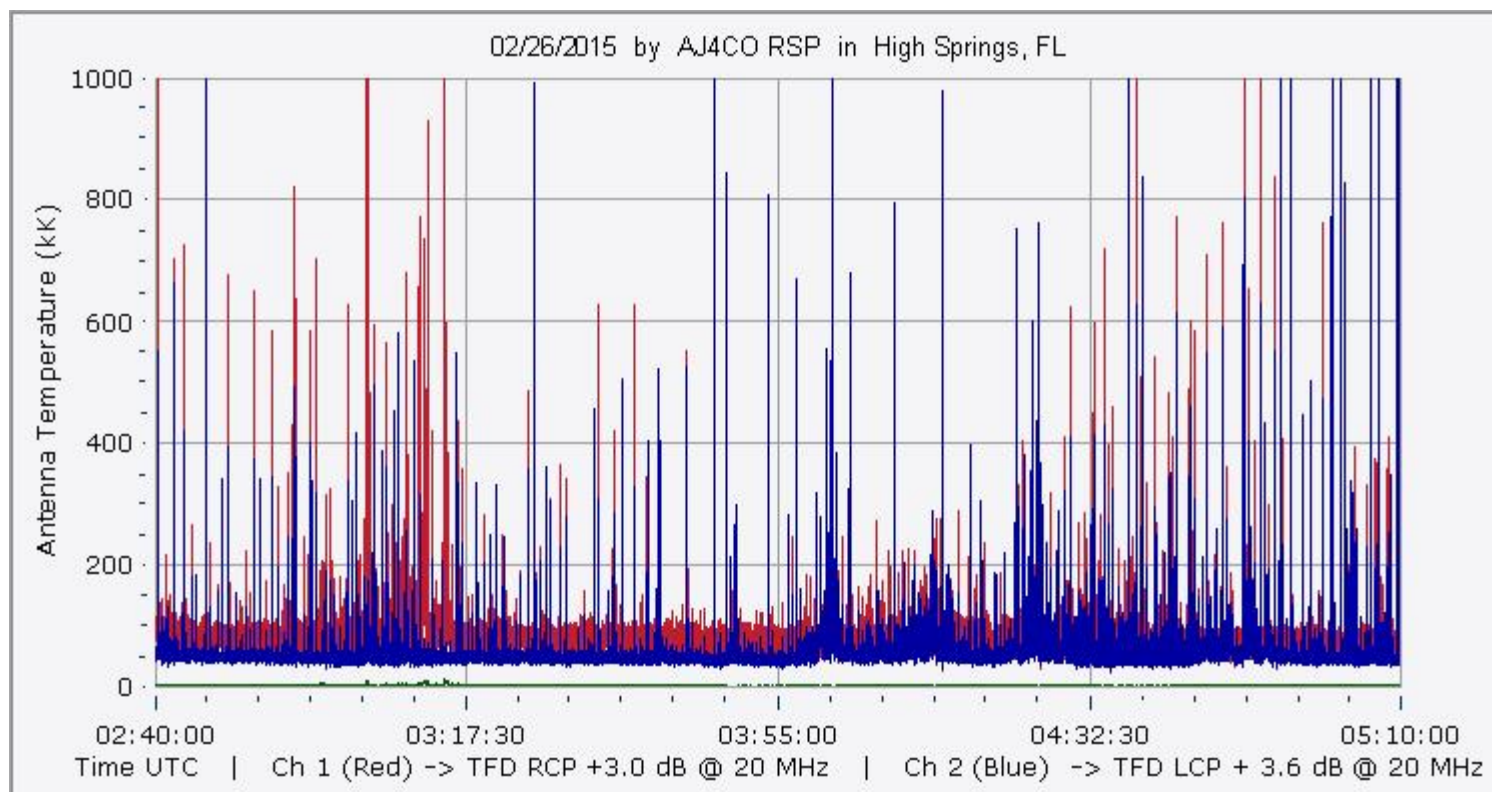


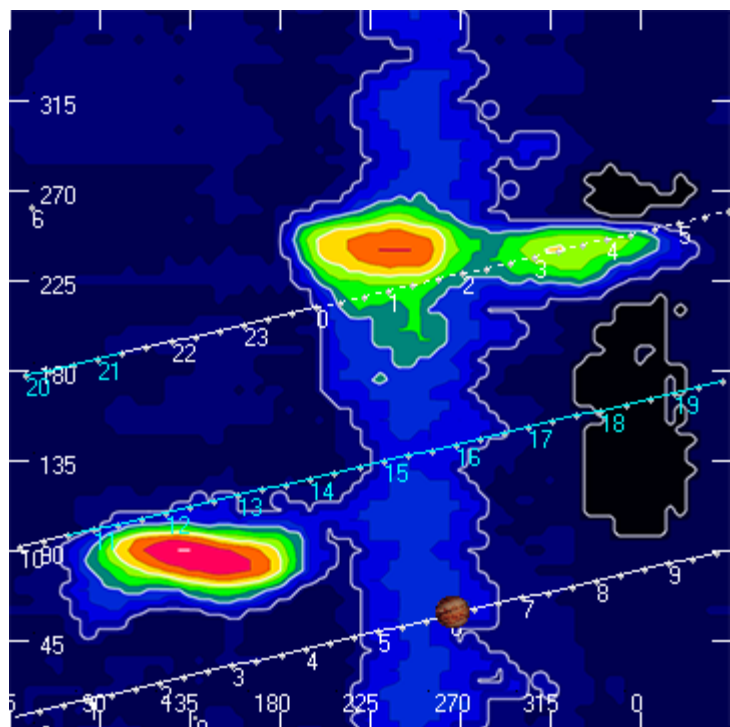
AJ4CO Observatory - 26 Feb 2015 - DPS 30 kHz IF on TFD Array in CP Mode - RCP Correction Array 2014 12 18B.csv Offset 2050 Gain 2.0



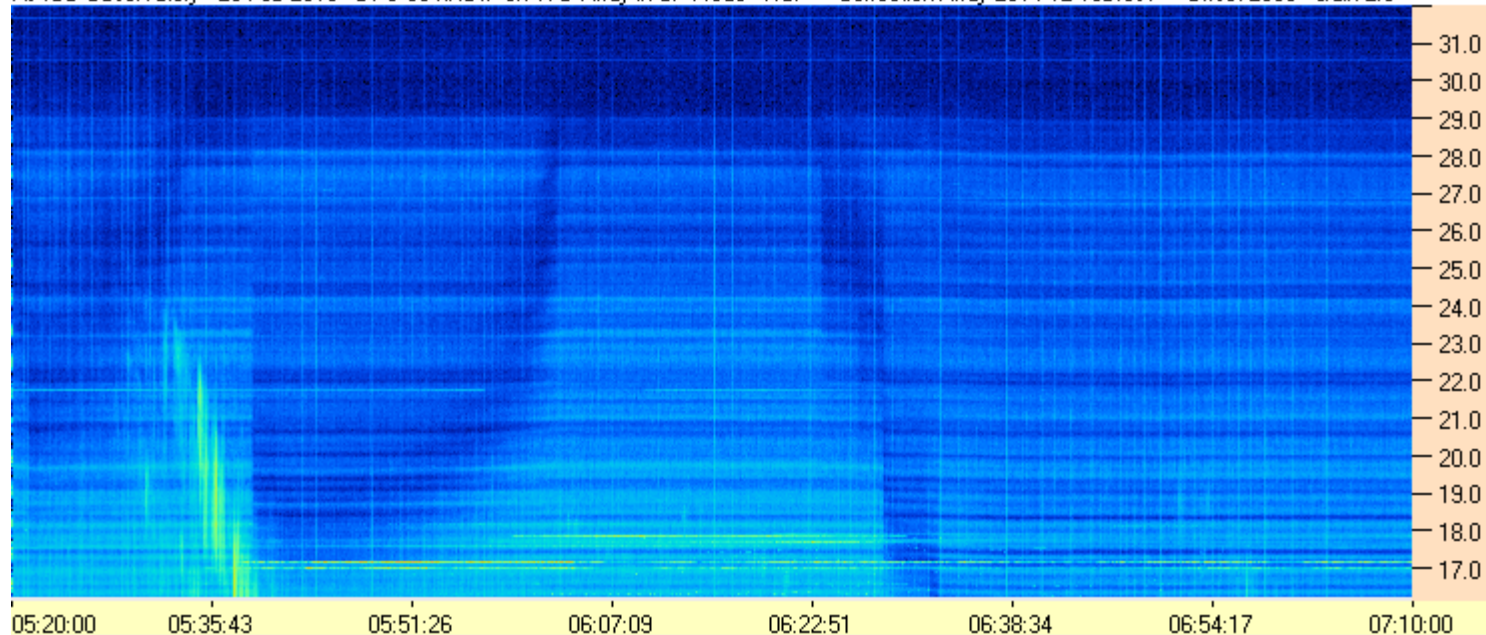
AJ4CO Observatory - 26 Feb 2015 - DPS 30 kHz IF on TFD Array in CP Mode - LCP Correction Array 2014 12 18B.csv Offset 2050 Gain 2.0







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