

RFI Report for Tony Casalvieri & Fabian Ruiz

Dave Typinski, March 2015

This report details the appearance of line noise RFI between 16 and 32 MHz.

The records shown are daily pairs of spectrograms.

One spectrogram is always 24 hours wide. This provides an overview of the daily RF environment.

The other spectrogram of each pair is a zoomed-in view, 110 seconds long. This is the greatest detail this particular radio telescope can provide.

Note that the horizontal axis time stamps on the spectrograms are in UTC, which is 4 hours ahead of EDT. These spectrograms all start and end at 8:00pm local (EDT). The vertical axis indicates frequency in MHz. The colors within the spectrogram indicate signal strength.

It can be seen that the appearance is semi-random, with a preference for more line noise appearing at night.

The level of line noise varies, in two or three discrete steps, indicating that there are two or three different sources at work.

I provided additional spectrograms for March 18th, to show better the RF environment over the two-hour span while Tony and Fabian were chasing the problem with their equipment.

It appears there is a higher occurrence probability and higher line noise amplitude at 5:00am local (0900 UTC) than there is at 10:00am local (1400 UTC).

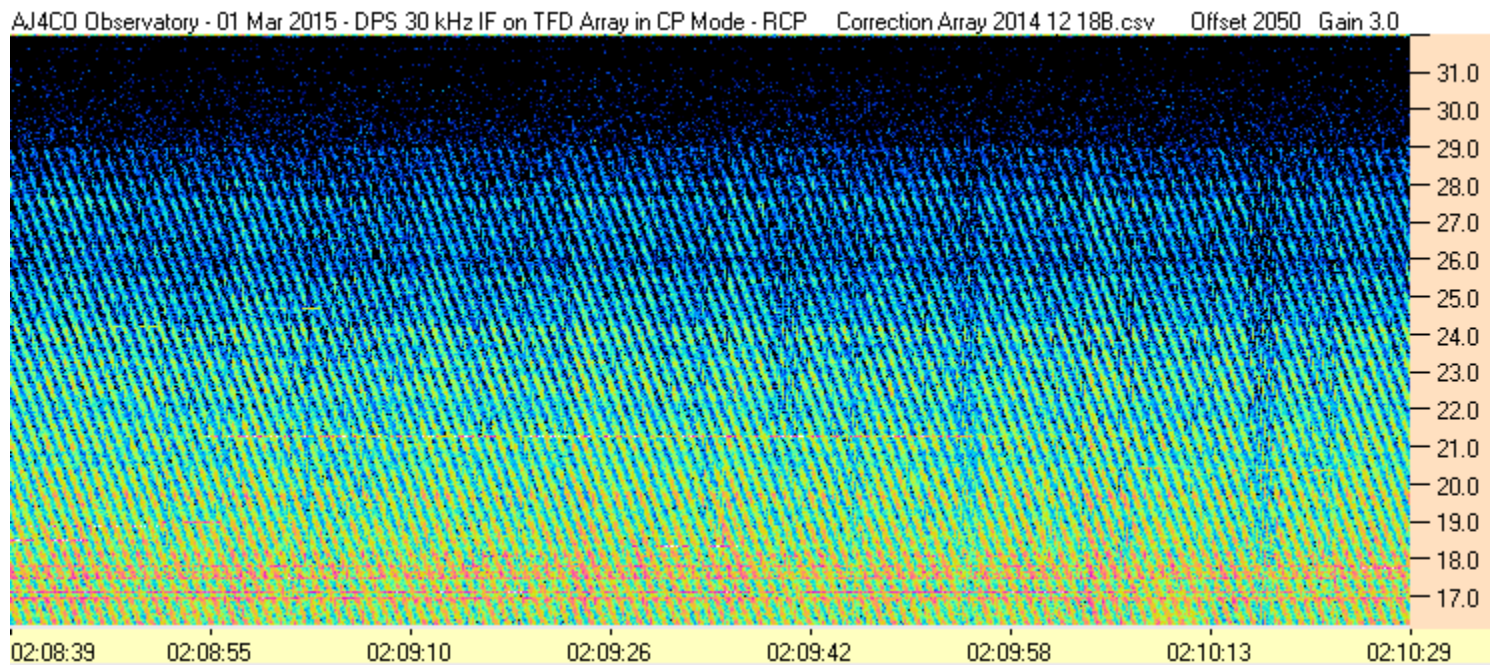
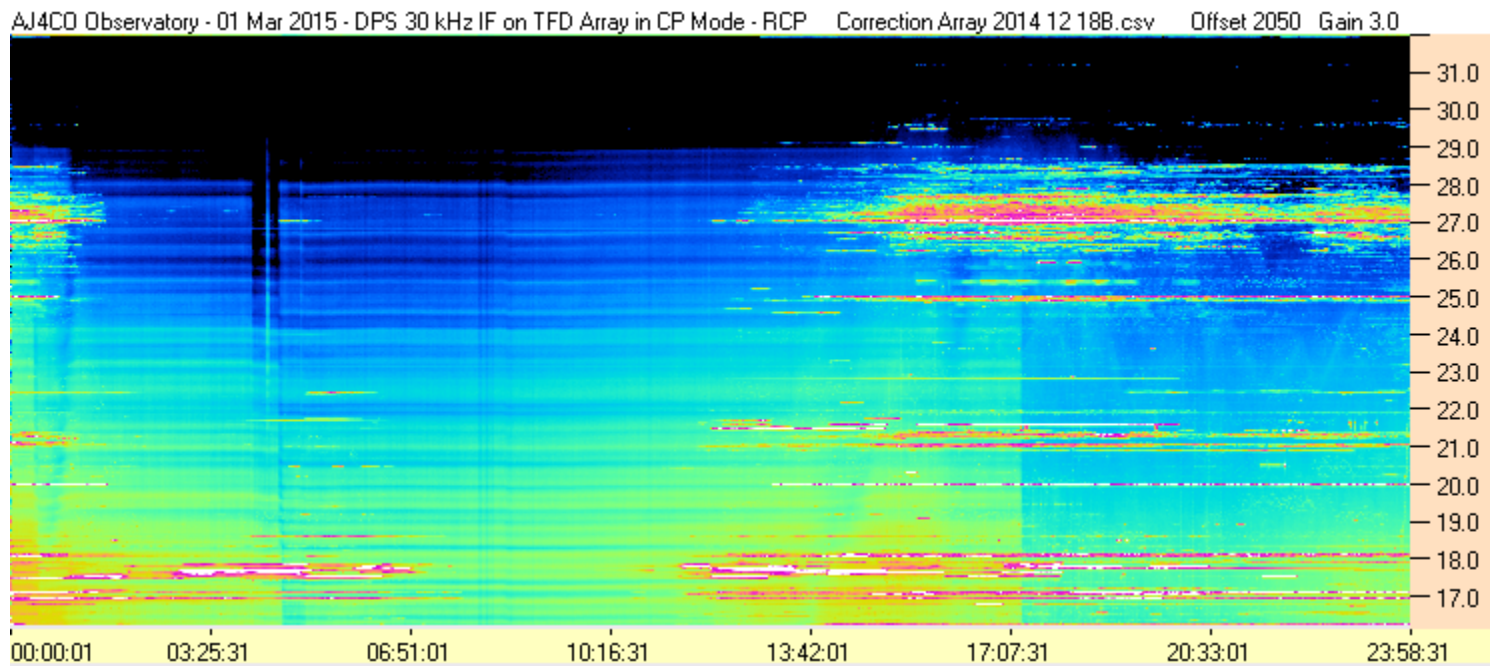
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Line Noise Occurrences, May 2015

1 8pm – 12 noon 0000-1715 UTC	2 NONE	3 NONE	4 NONE	5 2am – 7am 0600-1100 UTC	6 NONE	7 NONE
8 NONE	9 ALL DAY	10 ALL DAY	11 ALL DAY	12 8pm – 2am, 6am – 8pm 0000-0600, 1000-2400 UTC	13 ALL DAY	14 ALL DAY
15 8pm – 10:30am 0000-1430 UTC	16 8pm – 12 noon 0000-1700 UTC	17 ALL DAY	18 3am – 10:30am 0700-1430 UTC INSPECTION 9am – 11am	19 8pm – 10am 0000-1400 UTC	20 8pm – 12:30pm 0000-1630 UTC	21 8pm – 4am, 8am – 9am 0000-0800, 1200-1300 UTC
22 8pm – 12 noon 0000-1600 UTC	23 8pm – 4:30am 0000-0930 UTC	24 8pm – 10:30am 0000-1430 UTC	25 ALL DAY	26 ALL DAY	27 8pm – 6:43am 0000-1043 UTC	28 NONE
29 NONE	30 NONE	31 NONE				

01 March 2015

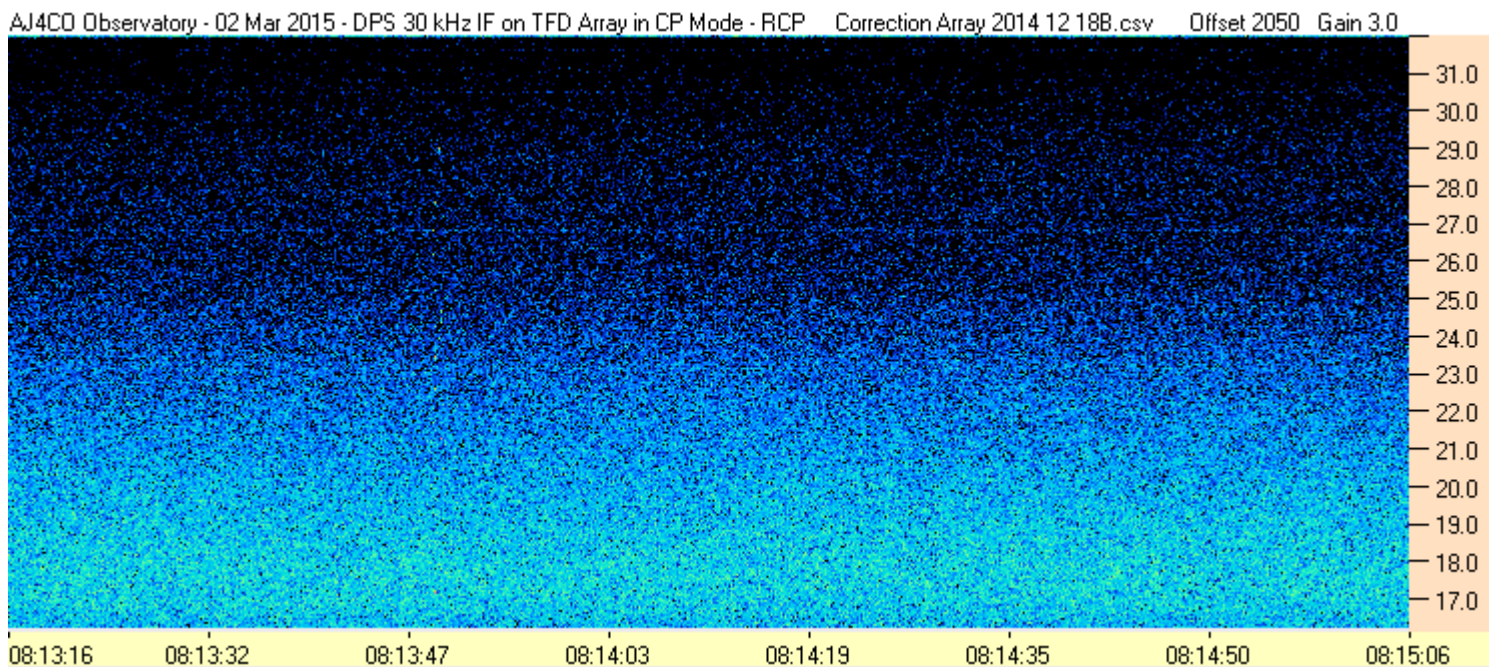
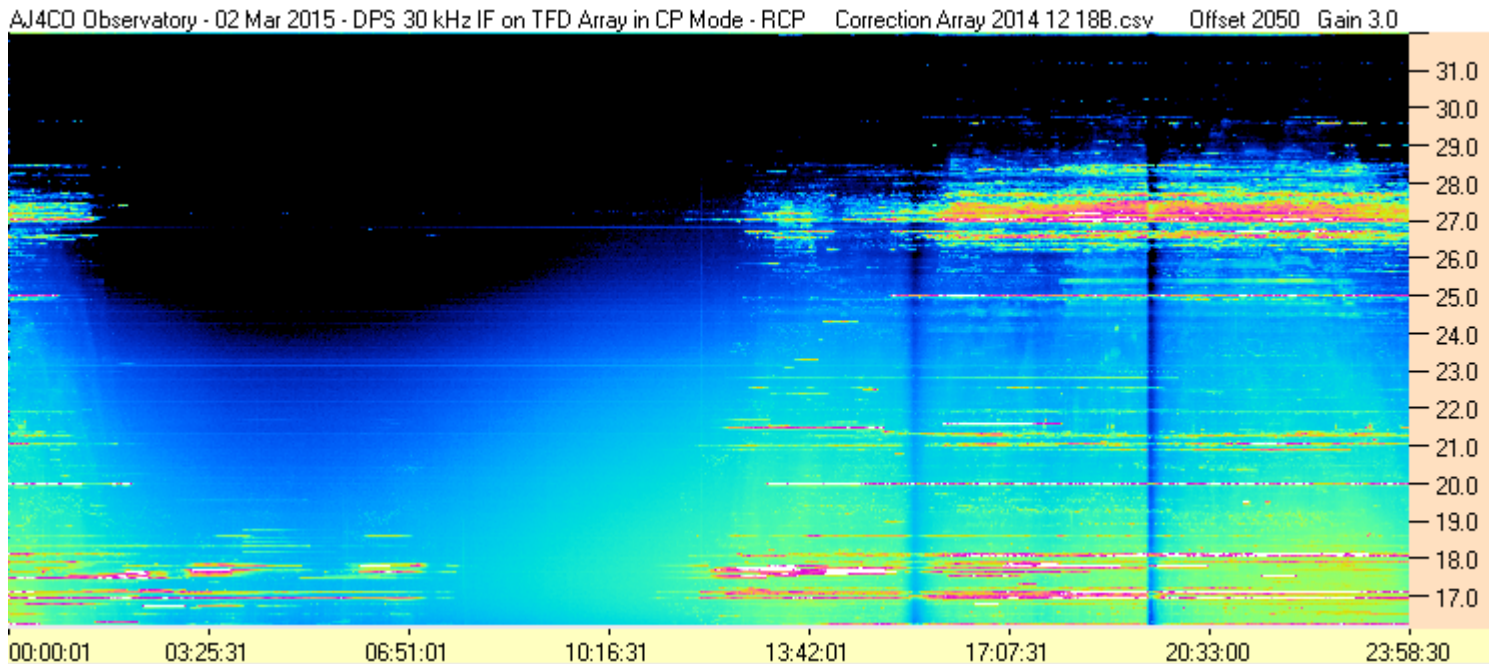
Lots of line noise with an abrupt stop at around 1710 UTC.



02 Mar 2015

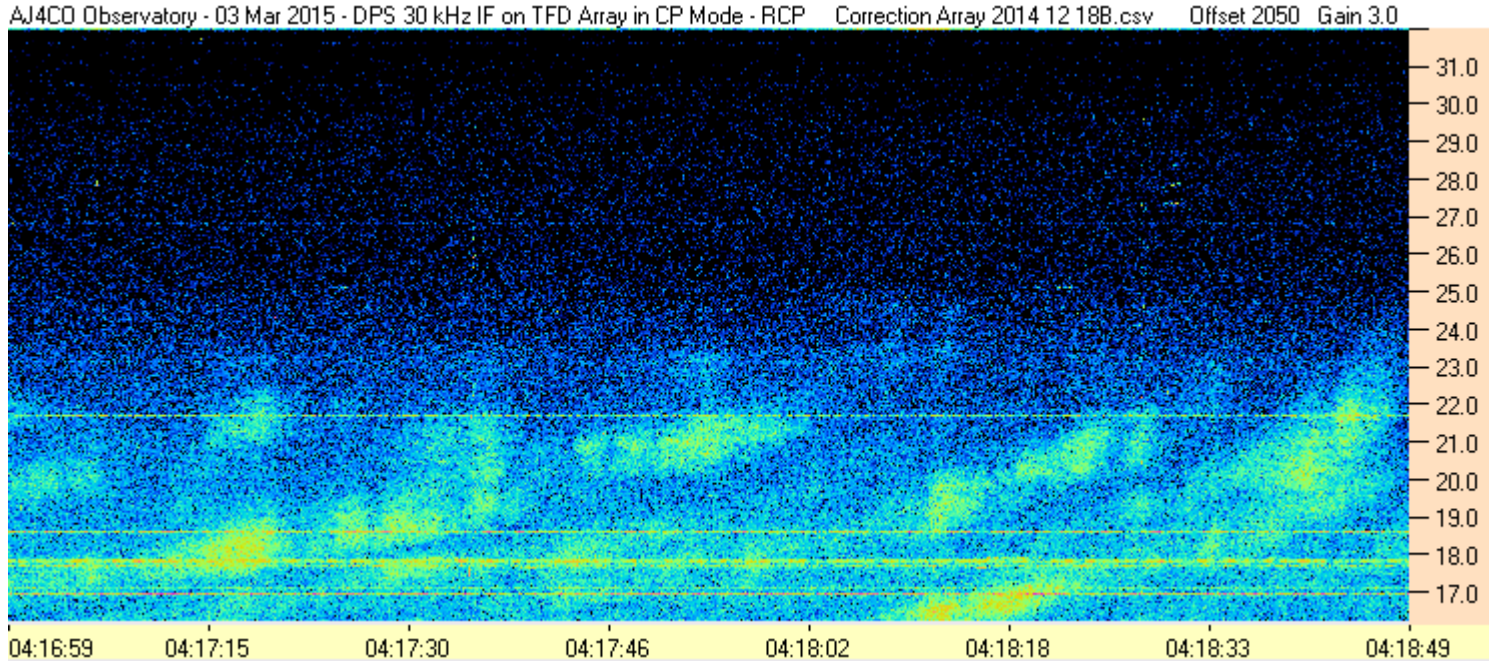
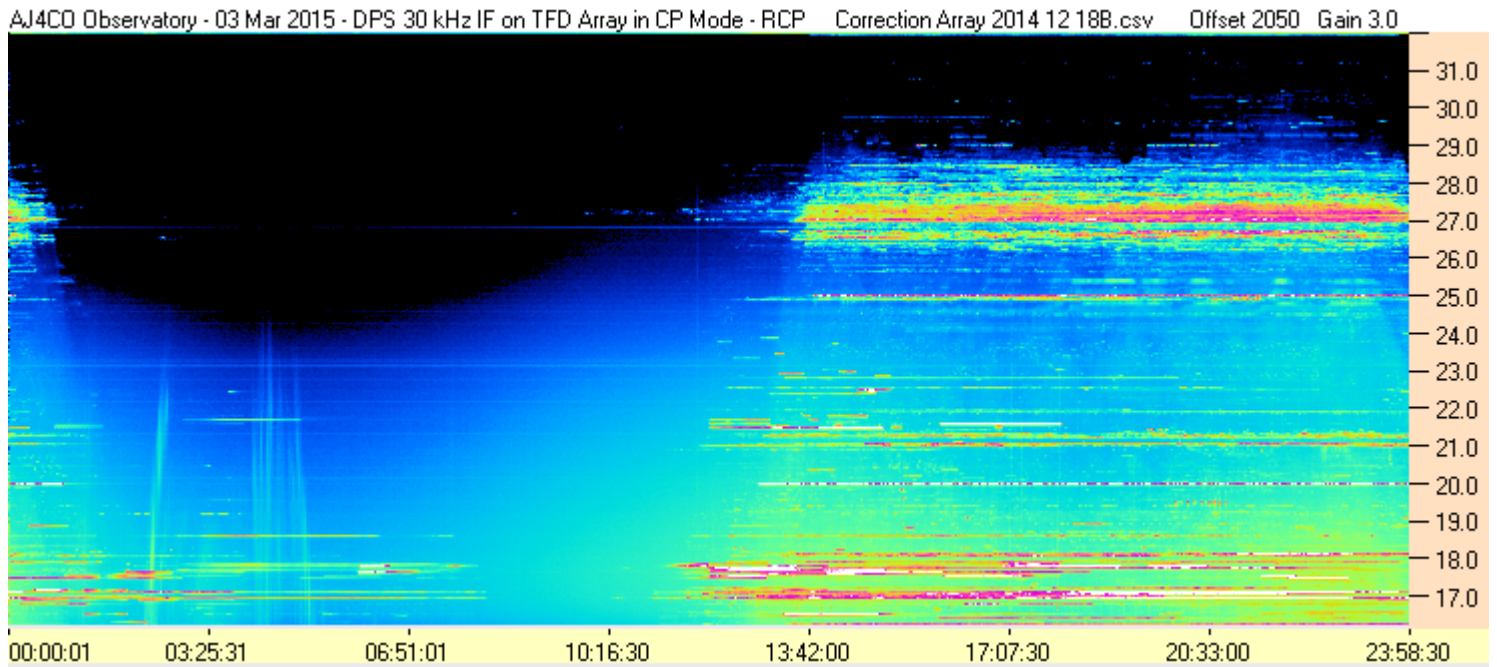
No line noise. Bottom spectrogram shows a perfect example of pure galactic background radiation.

Top spectrogram shows two radio blackouts due to solar flares.



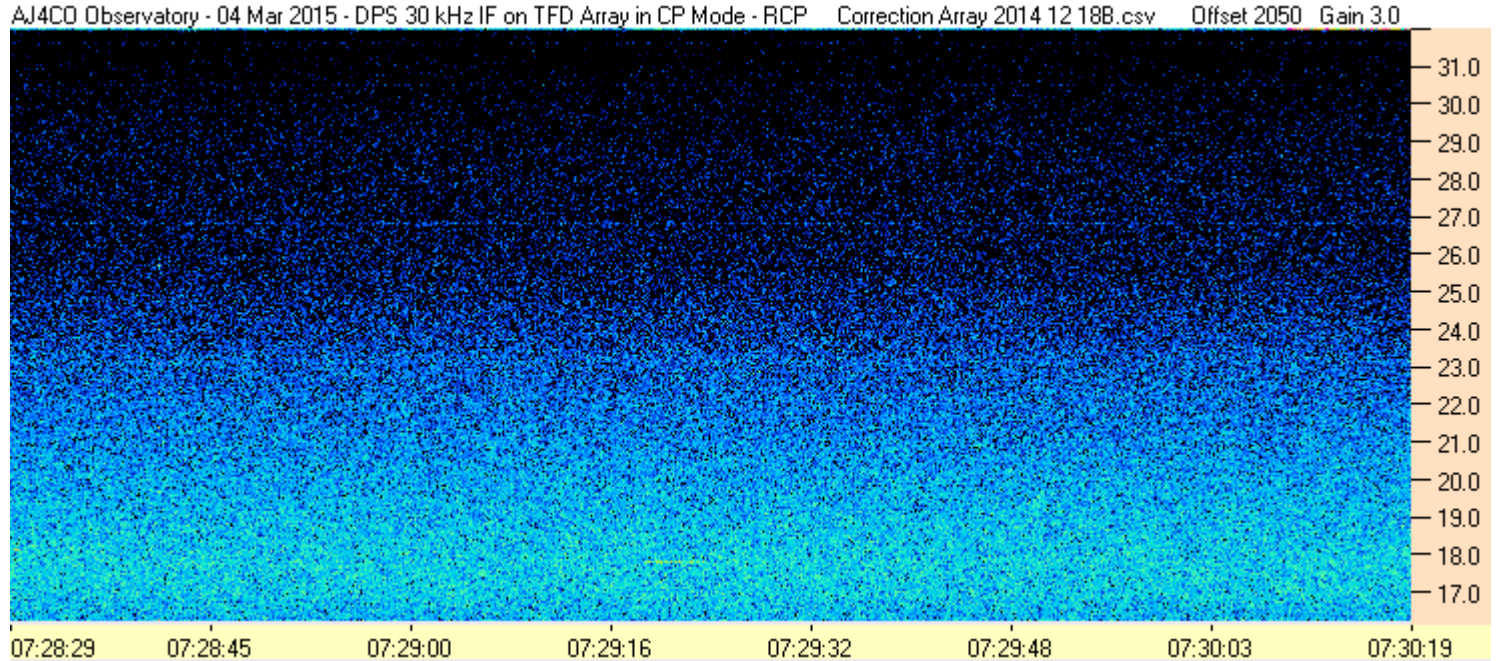
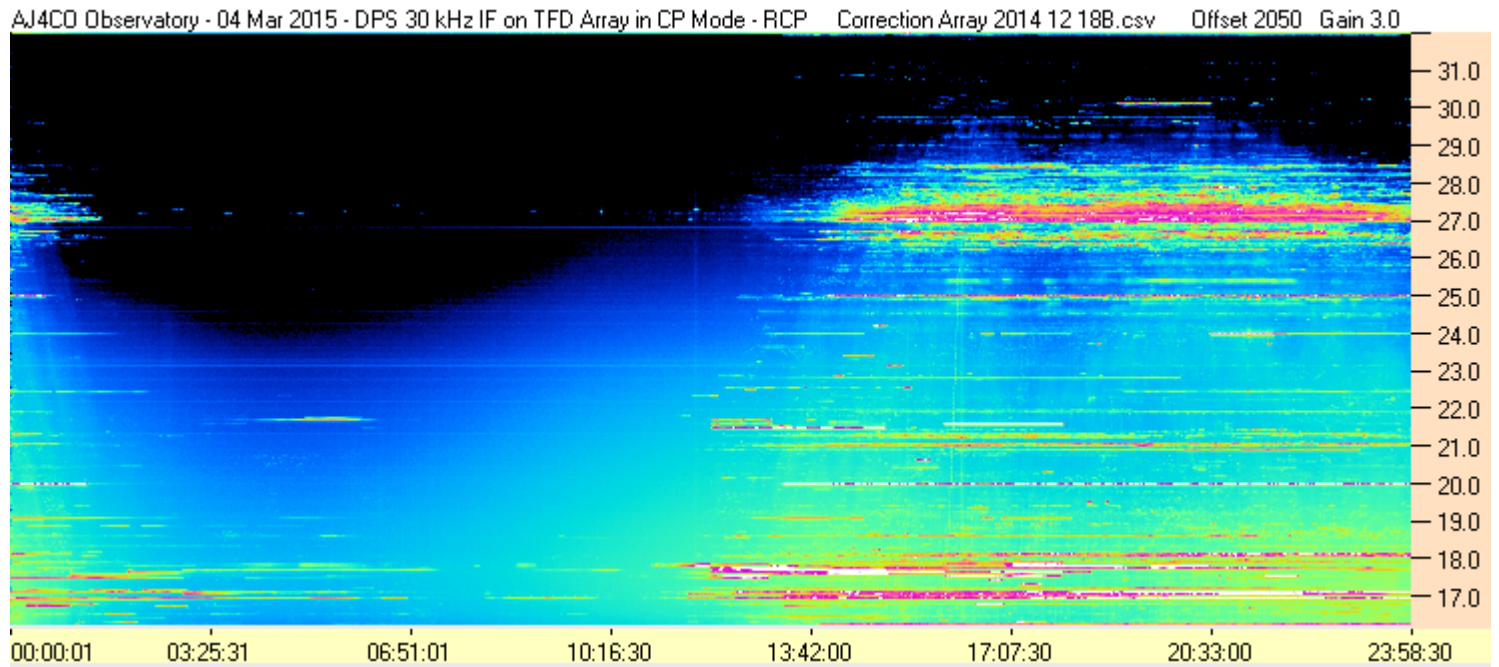
03 Mar 2015

No line noise. Jupiter radio emission from 0200 to 0530 UTC.



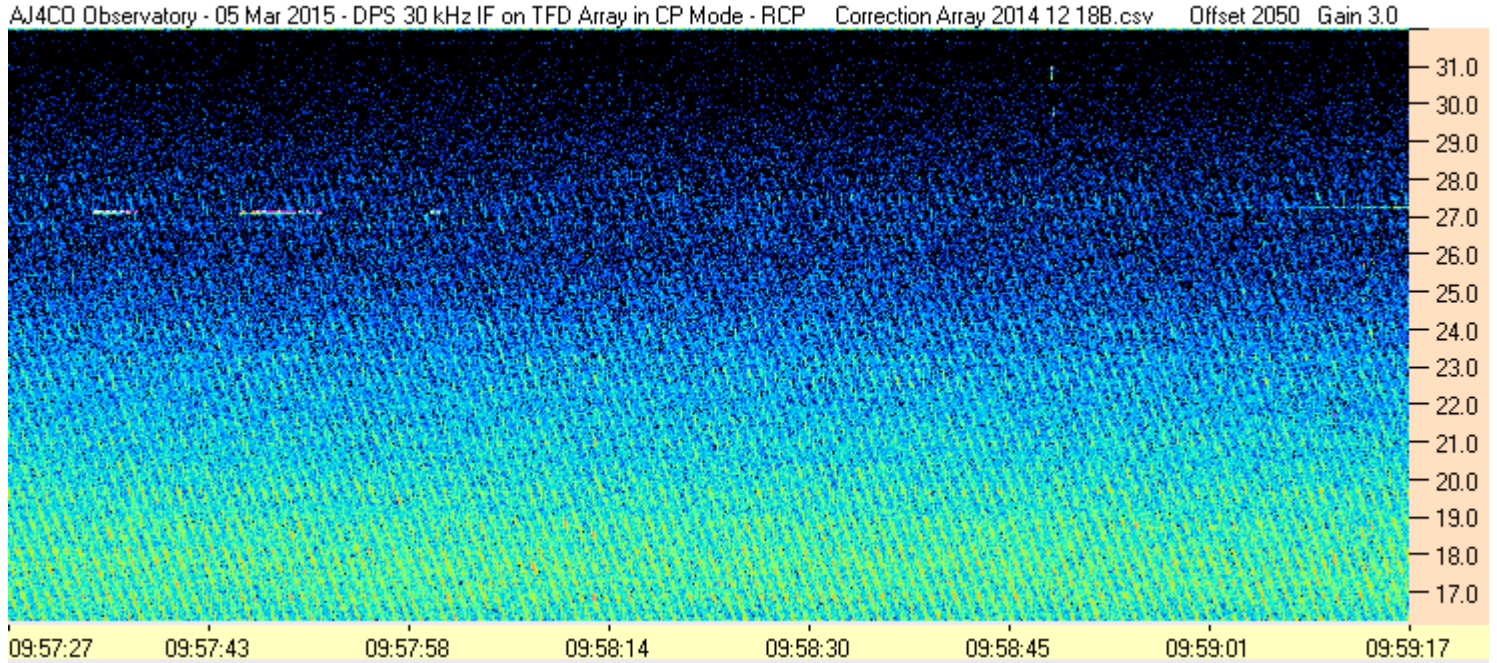
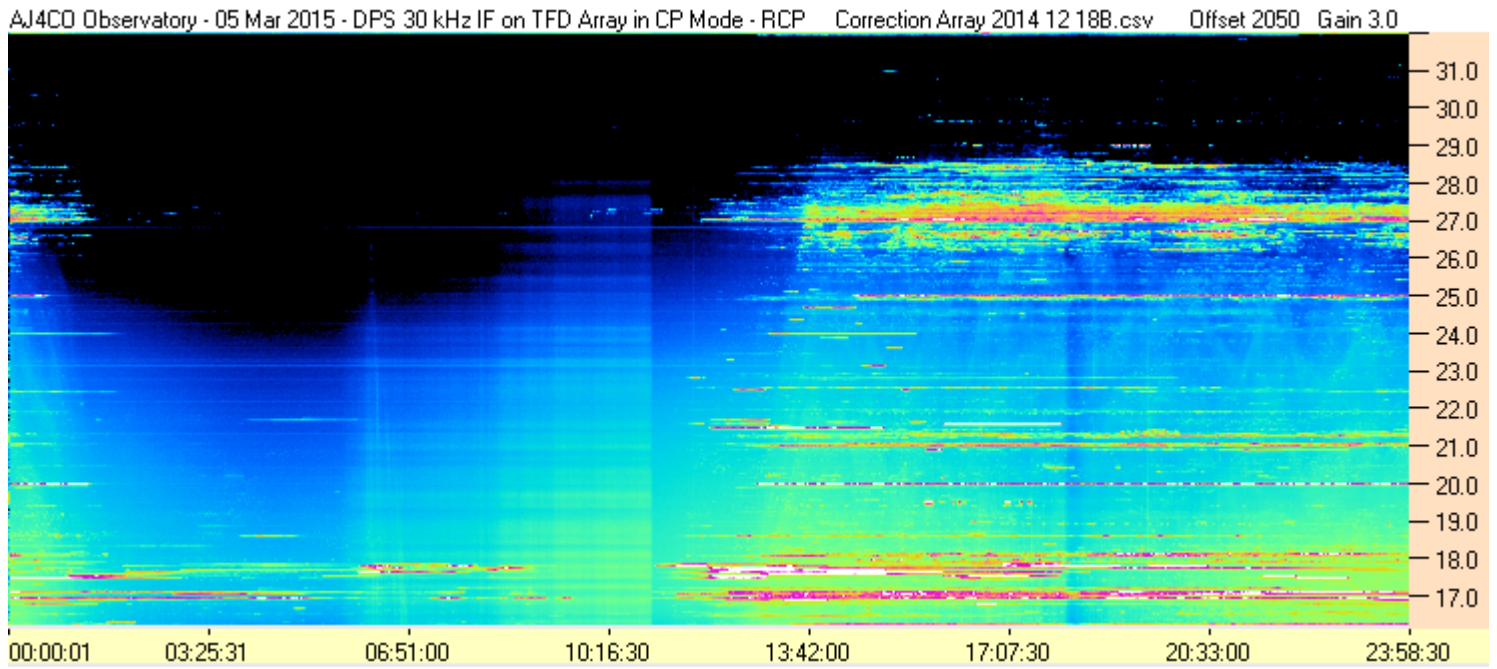
04 Mar 2015

No line noise, very clean record.



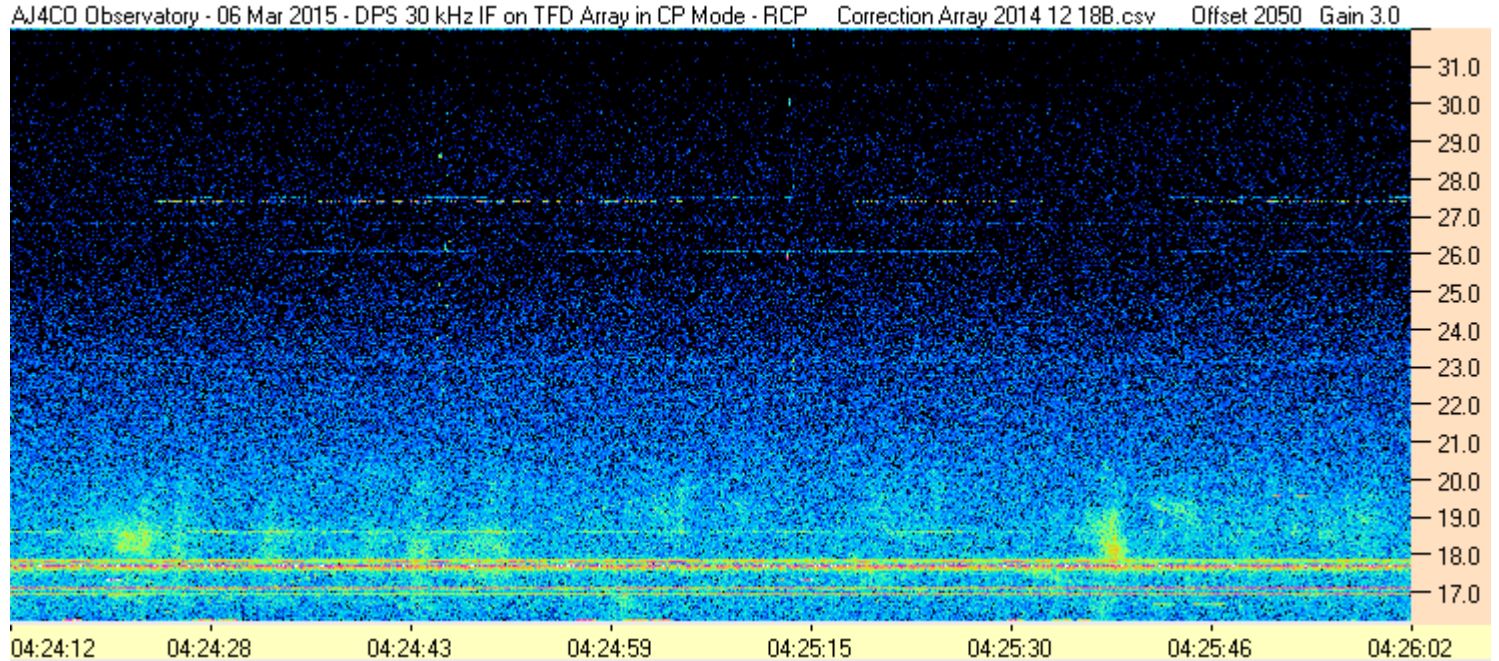
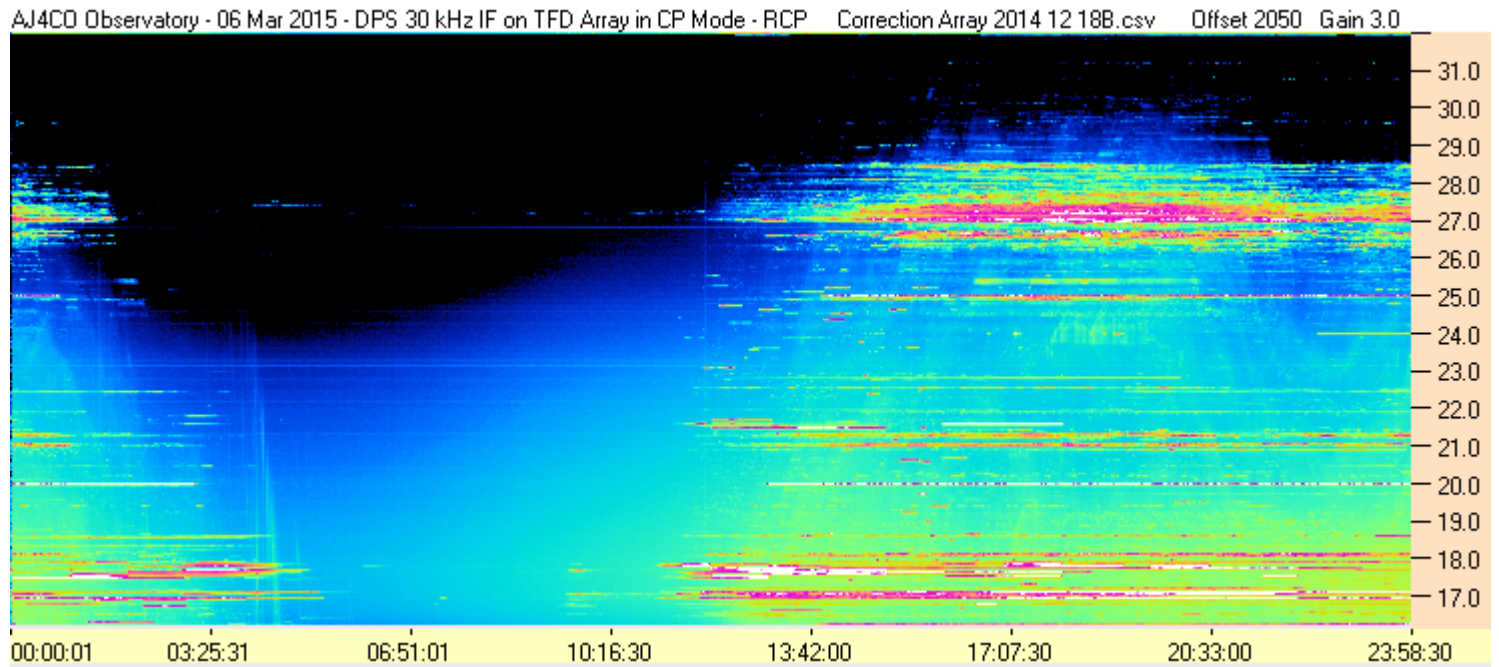
05 Mar 2015

Line noise starts gradually at 0600, stops abruptly at 1100. Solar flare radio blackout at 1800.



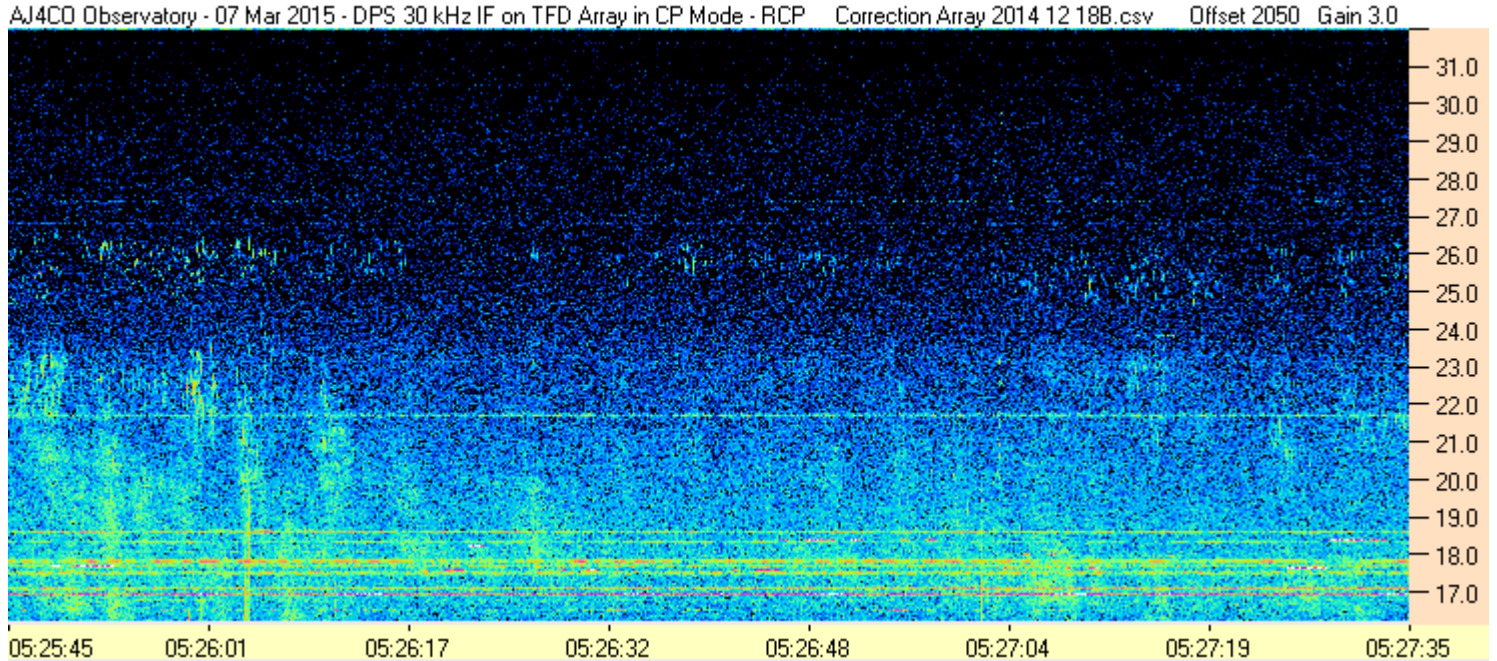
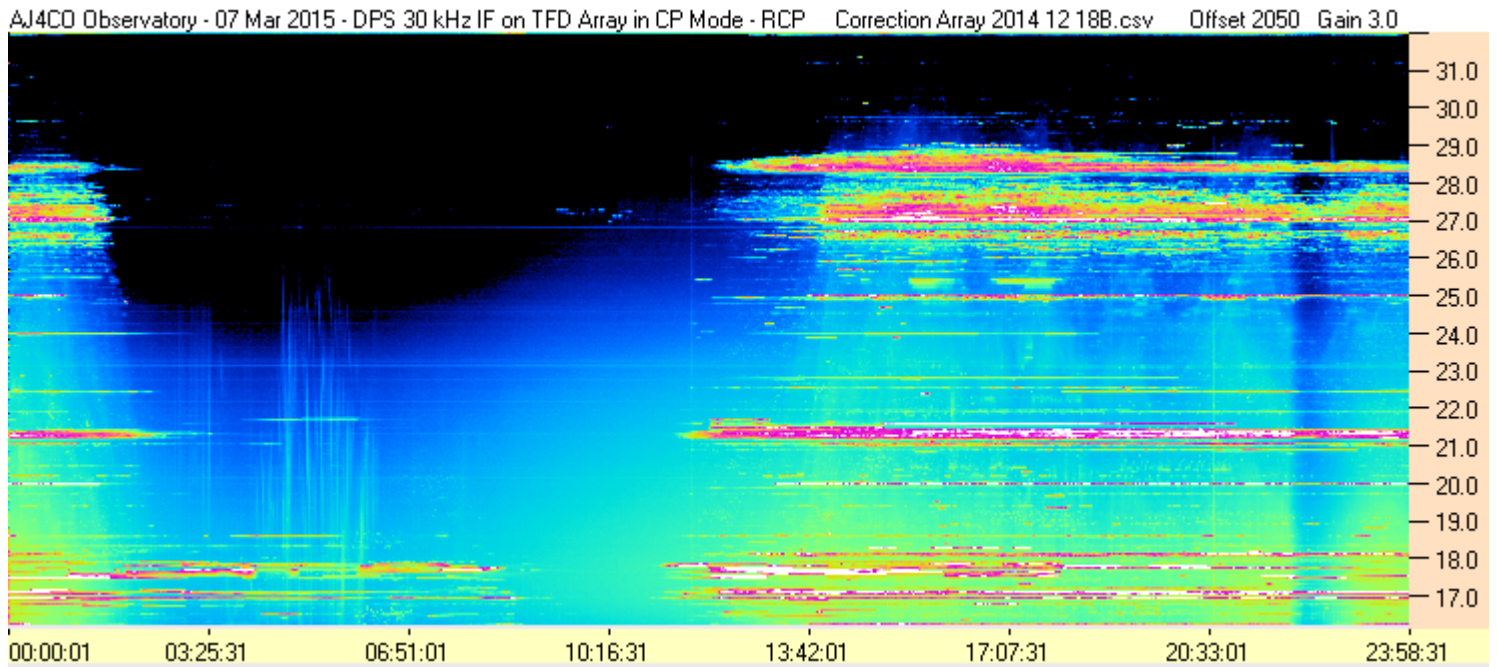
06 Mar 2015

No line noise. Jupiter emission 0400 to 0500.



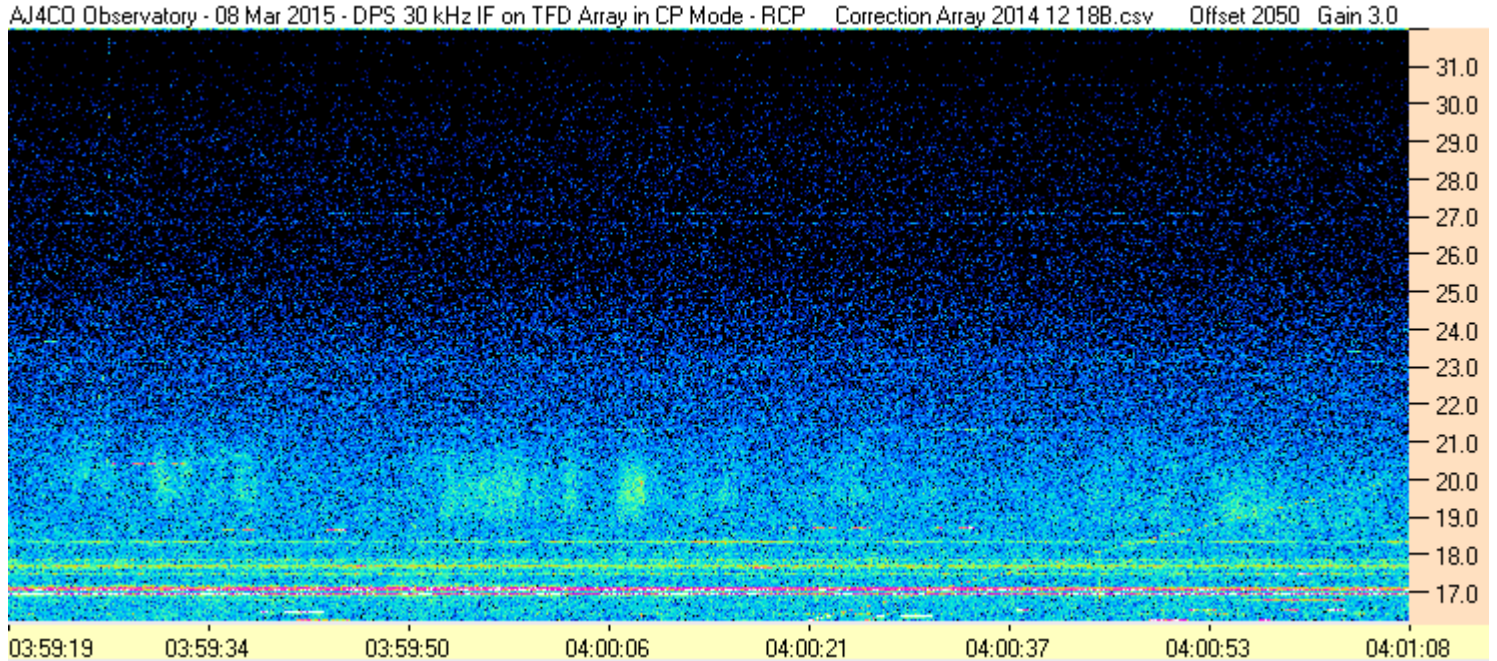
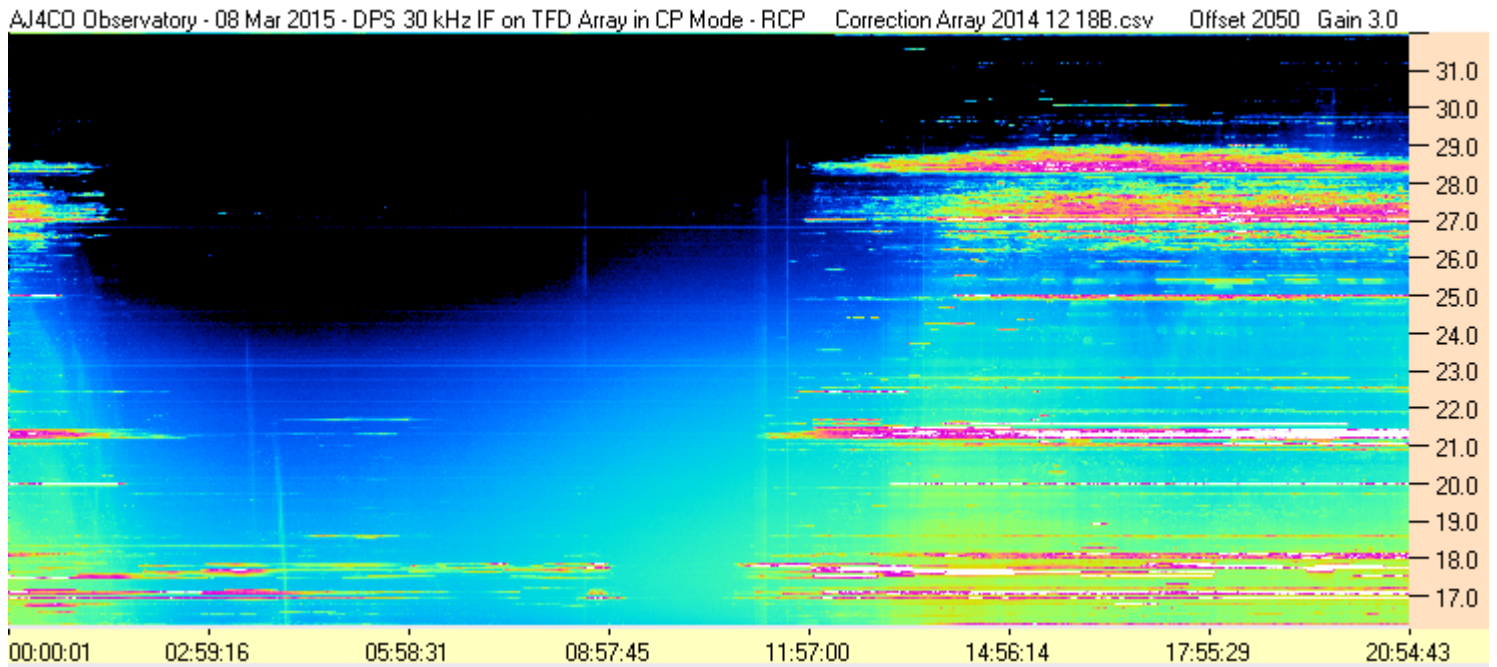
07 Mar 2015

No line noise. Jupiter emission 0300 to 0600. Solar flare radio blackout around 2130.



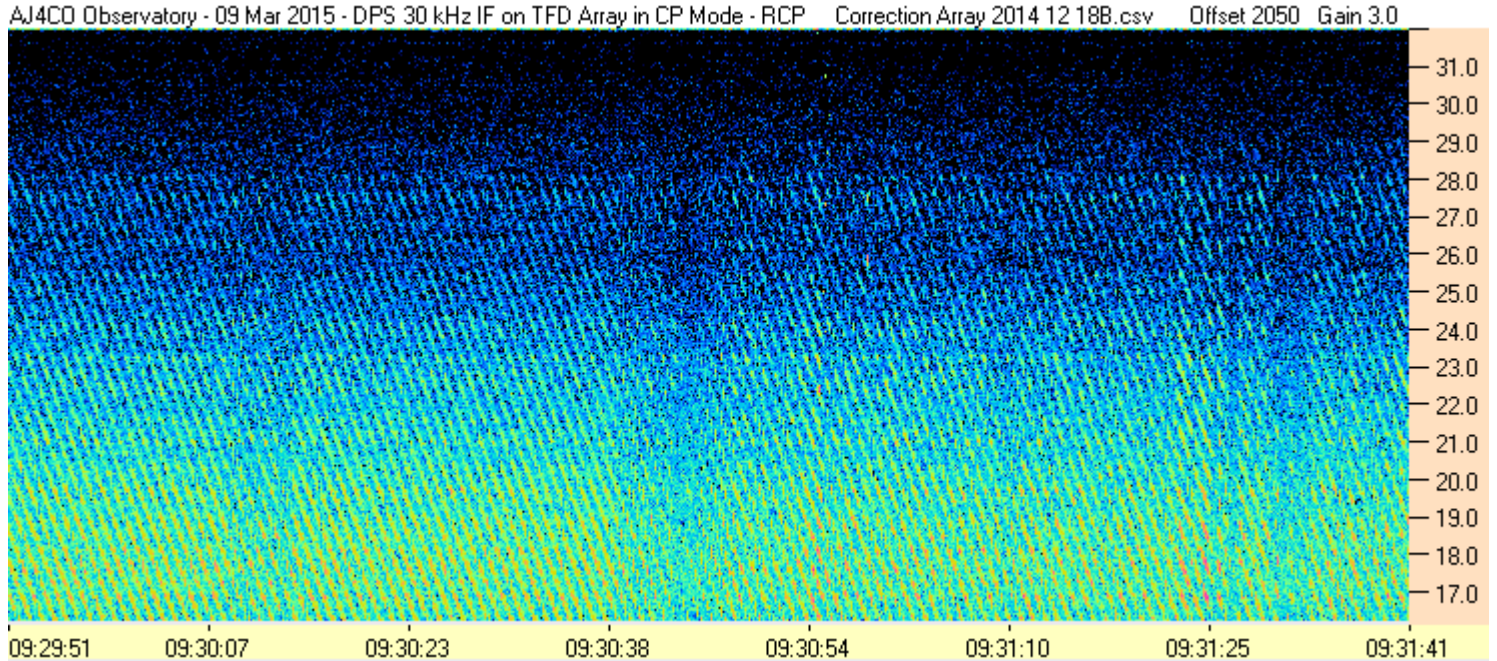
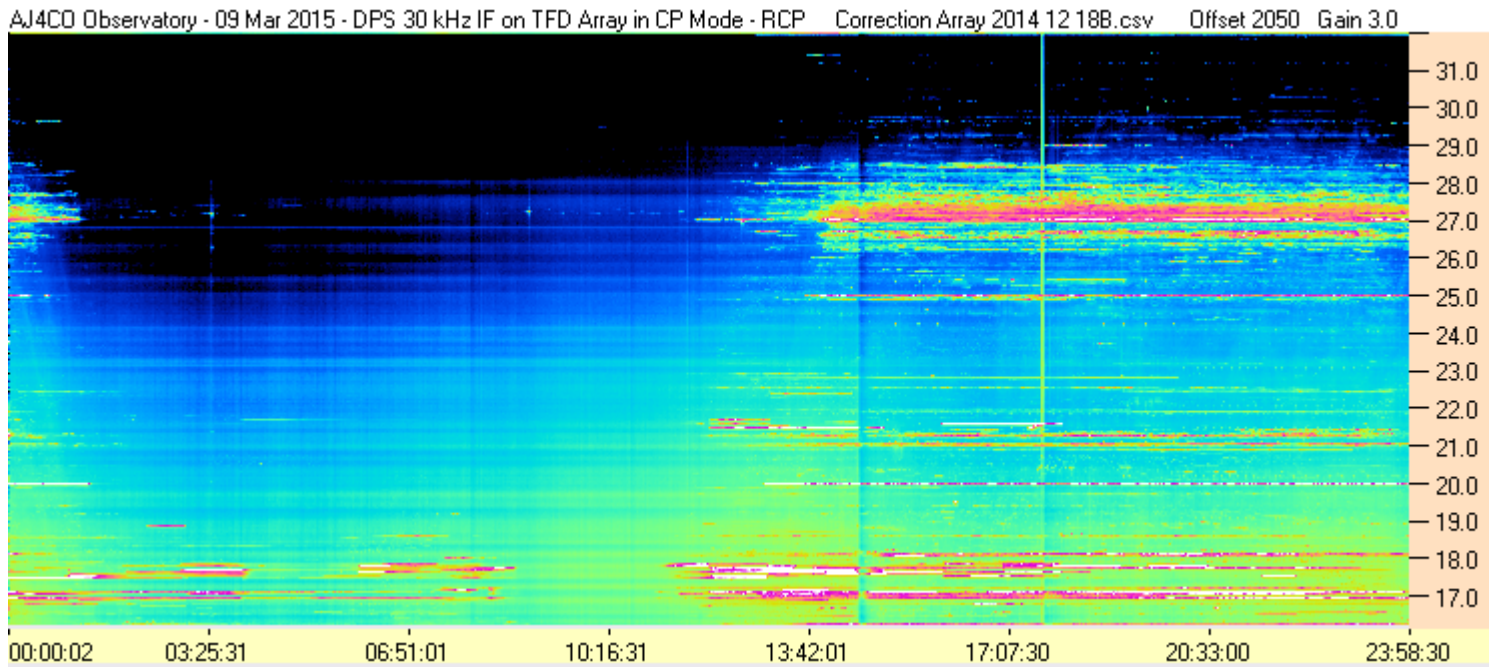
08 Mar 2015

No line noise present. Jupiter 0300 to 0400.



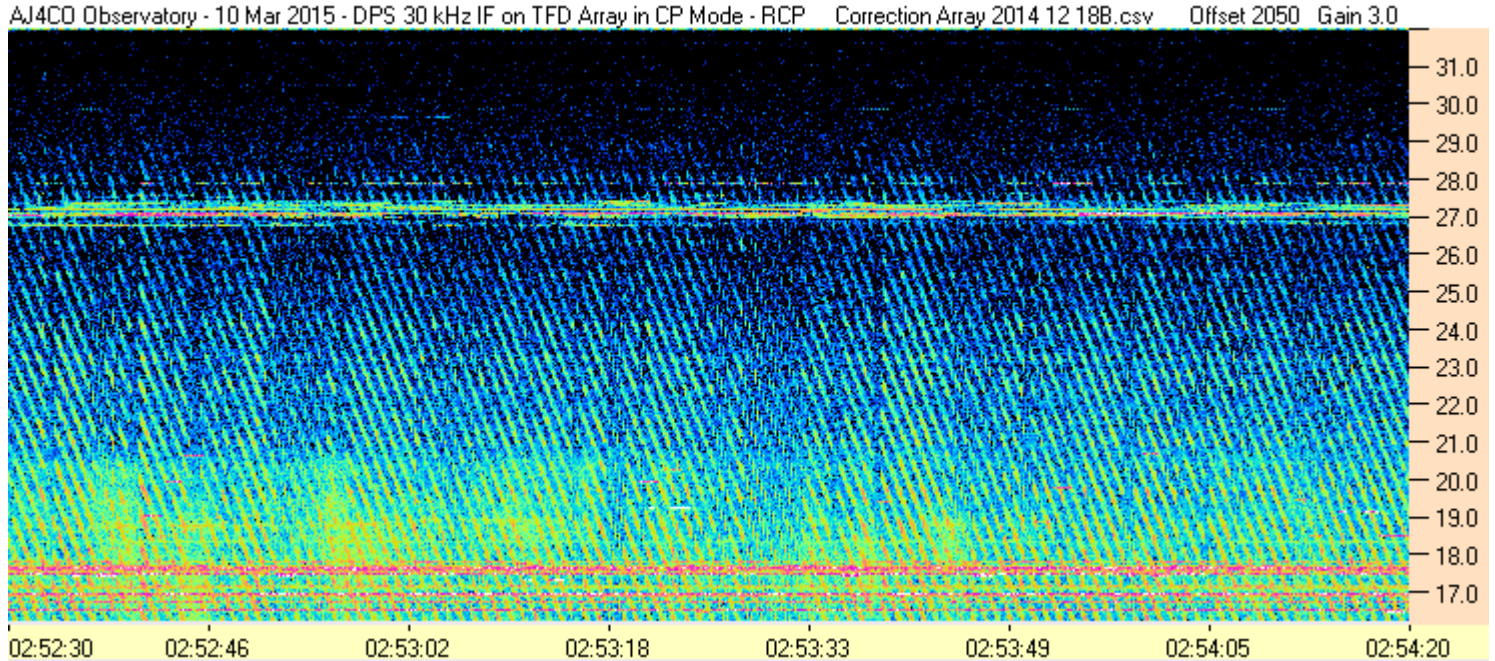
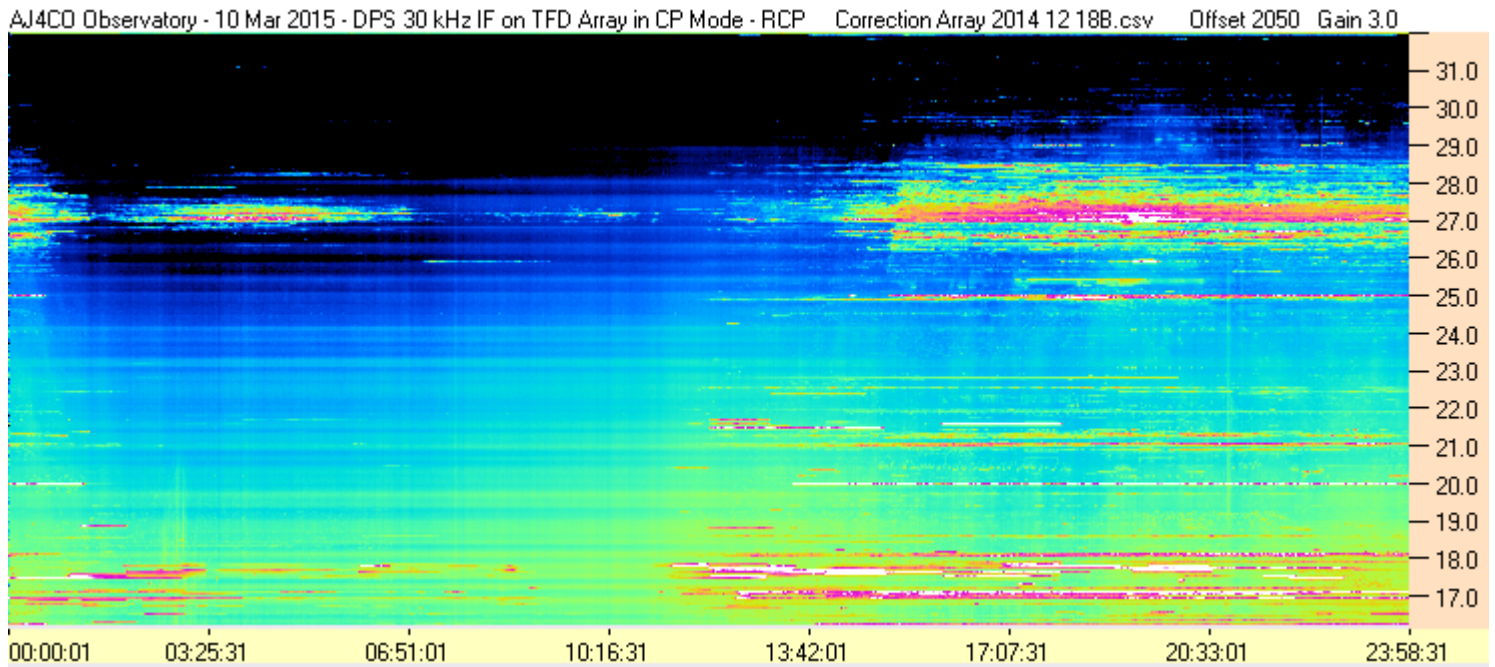
09 Mar 2015

Heavy line noise present. Weak solar flare radio blackout at 1400, solar HF burst at 1730.



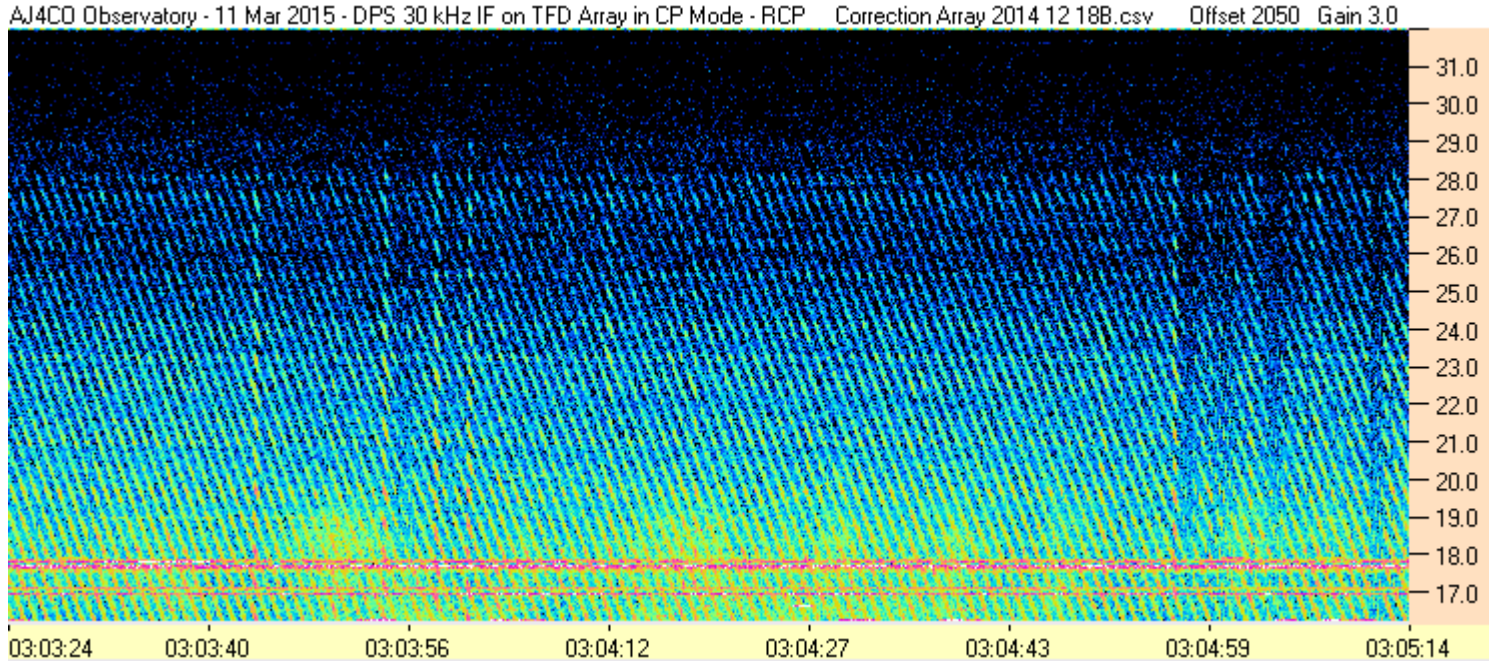
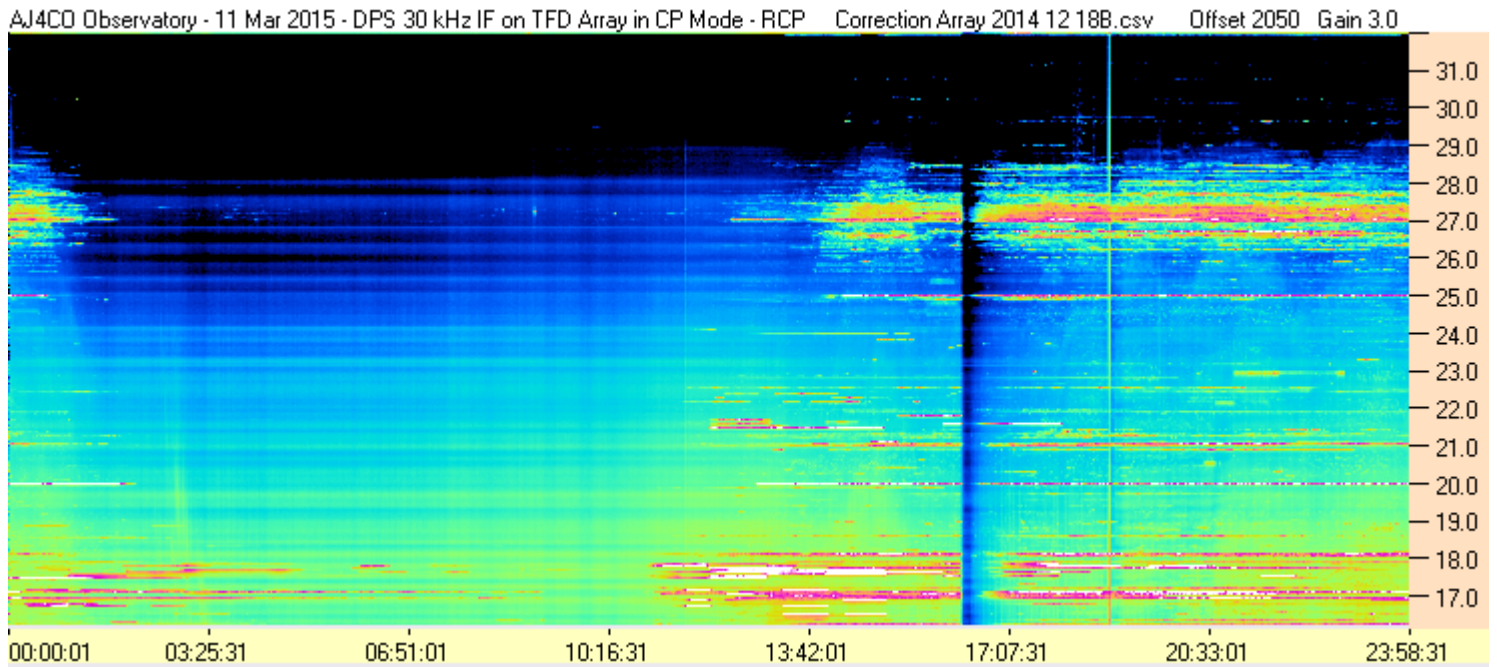
10 Mar 2015

Heavy line noise present. Jupiter at 0300. Note two different levels of line noise indicating two sources.



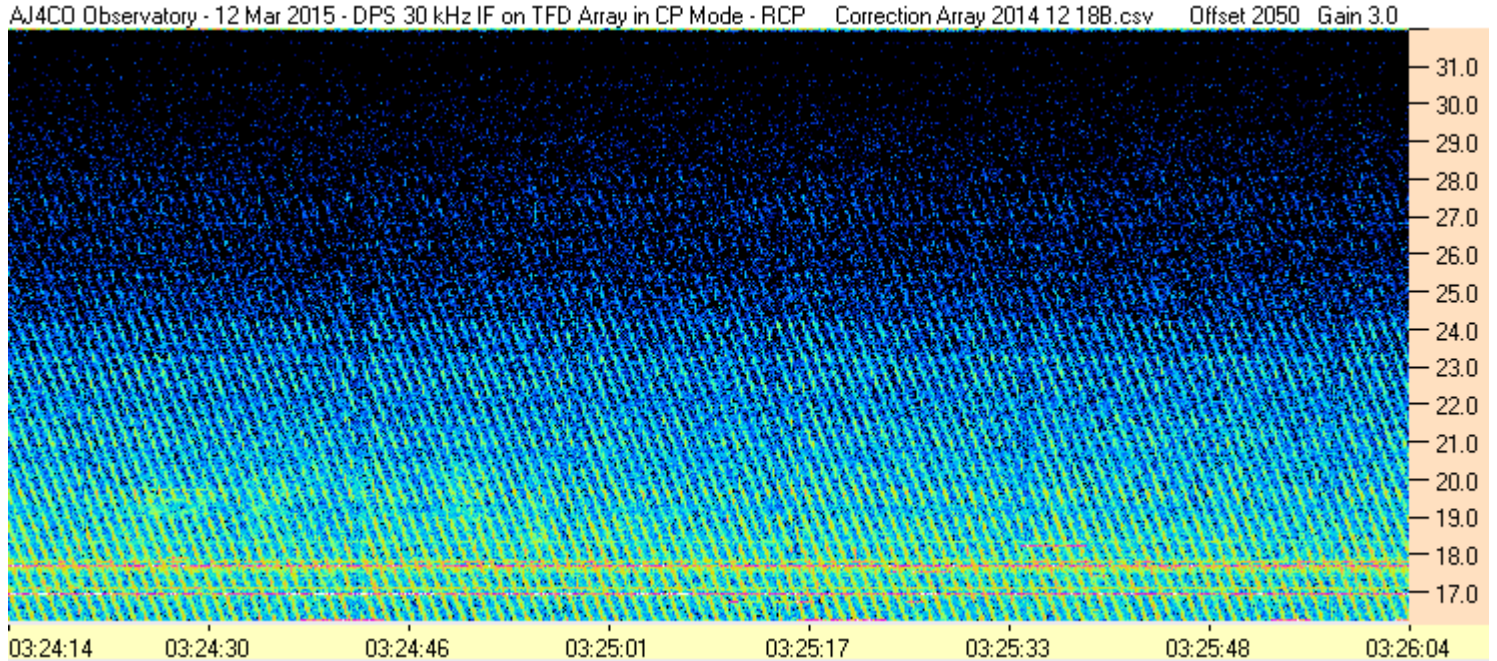
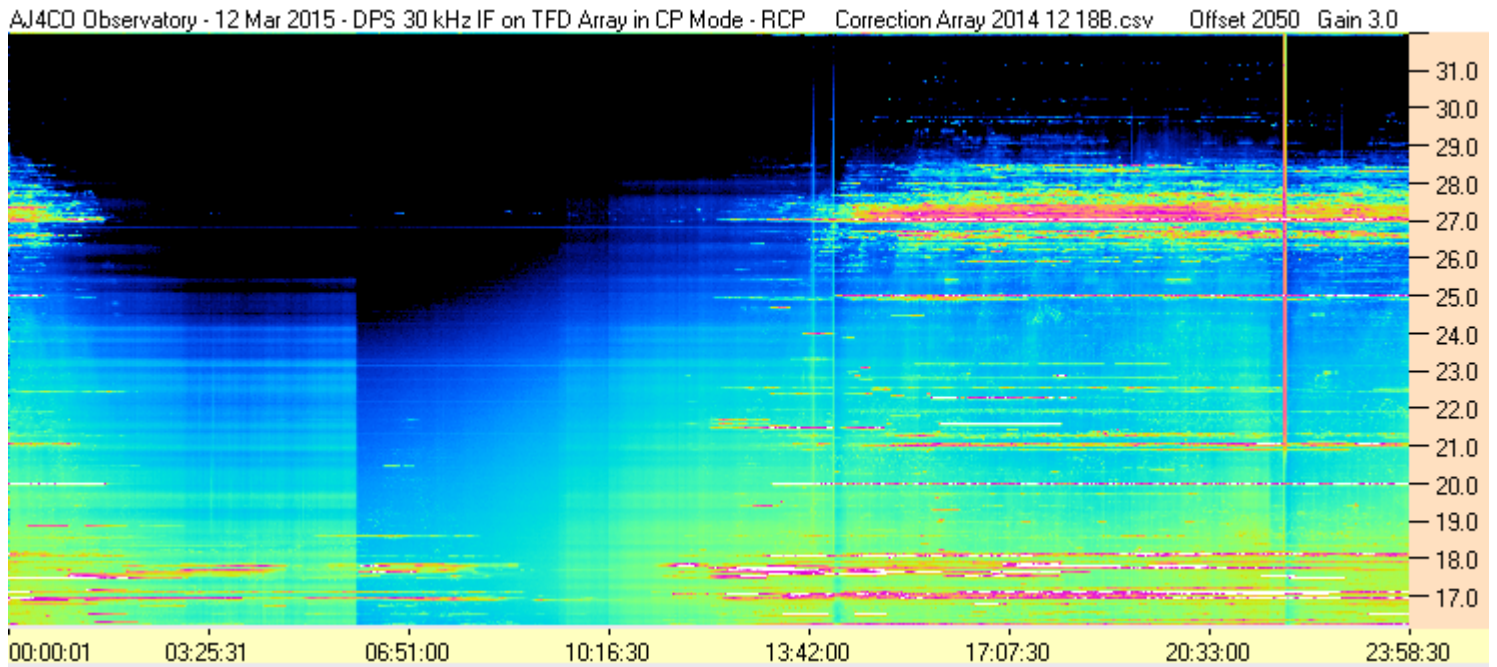
11 Mar 2014

Heavy line noise. Jupiter at 0300. Solar flare radio blackout at 1630, solar HF burst at 1800.



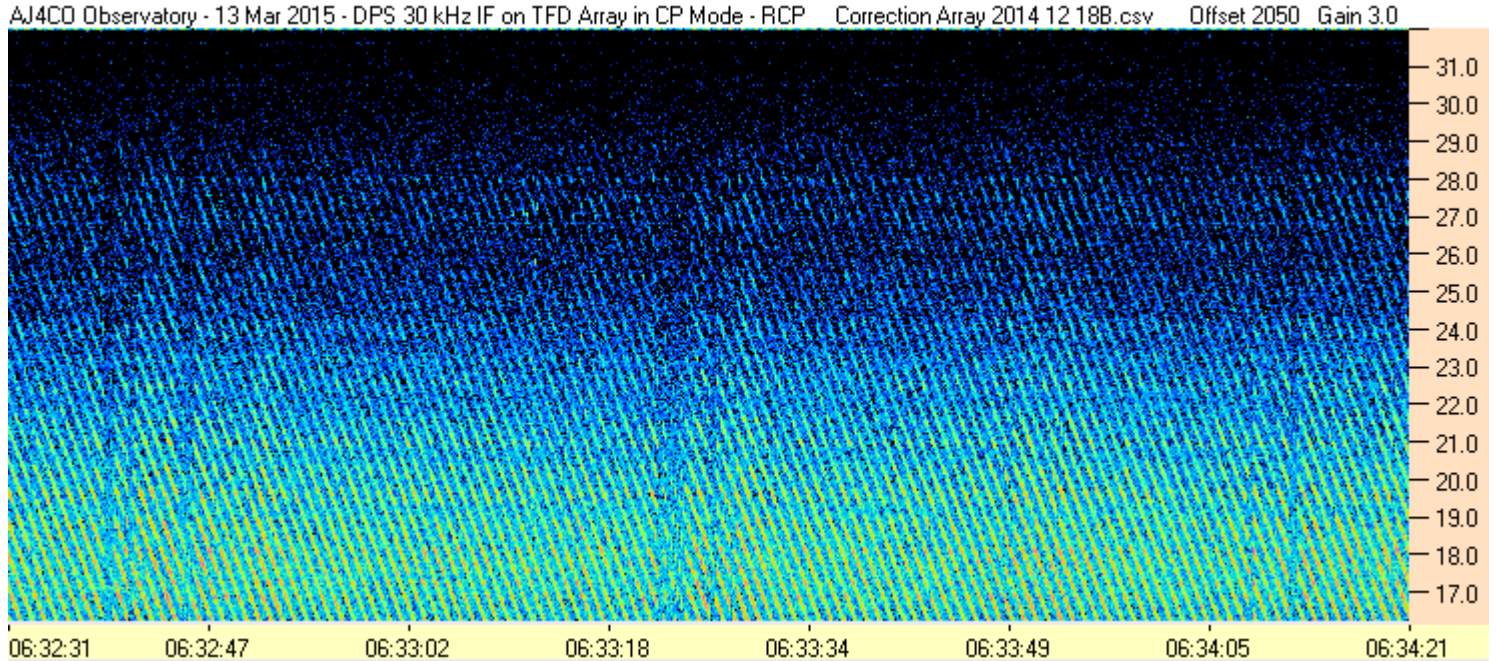
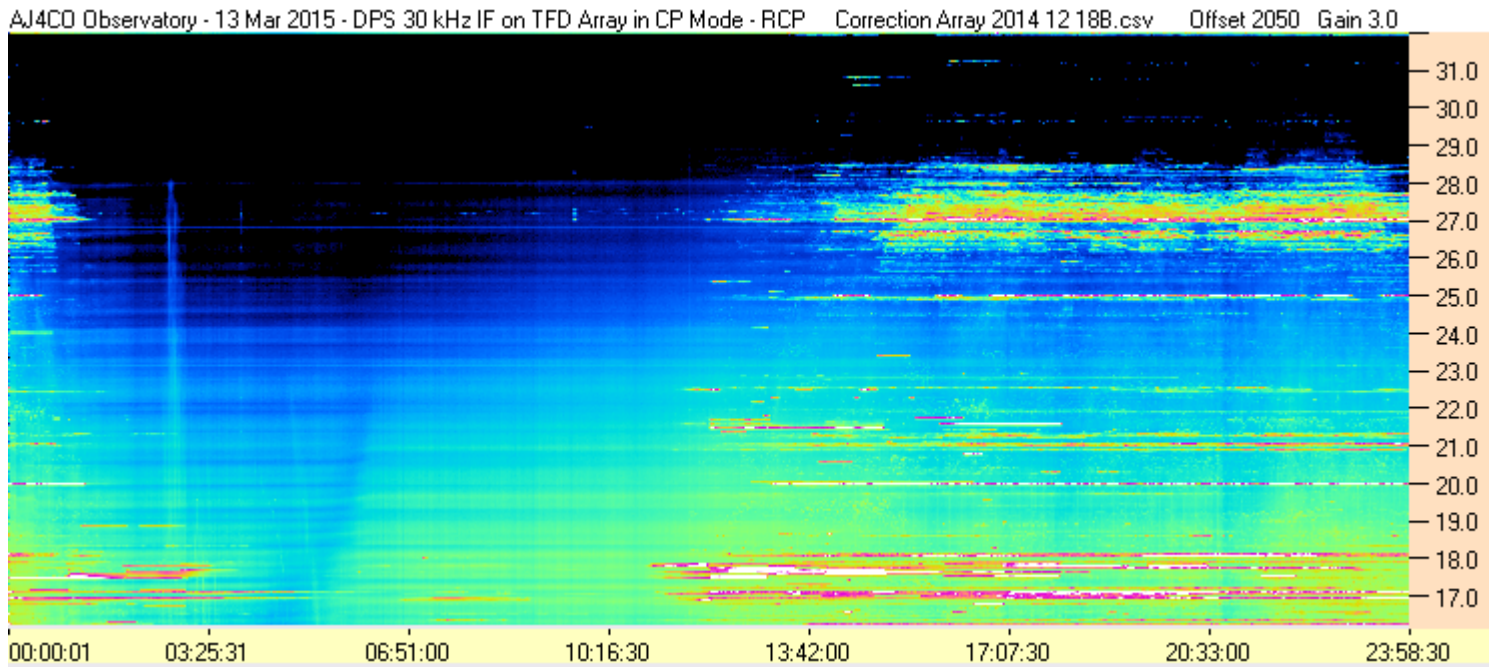
12 Mar 2015

Line noise stops abruptly at 0600, restarts at 1000; note multiple line noise amplitudes. Jupiter at 0320 covered mostly by line noise.



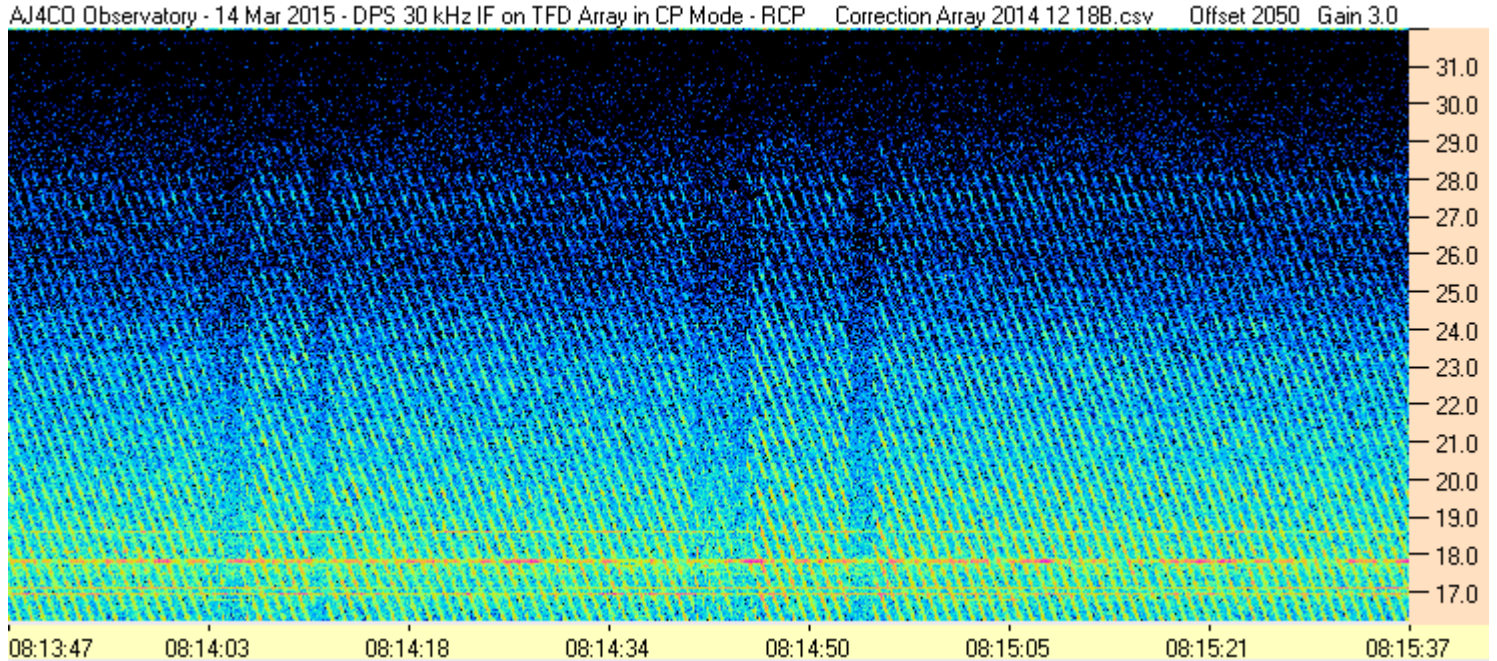
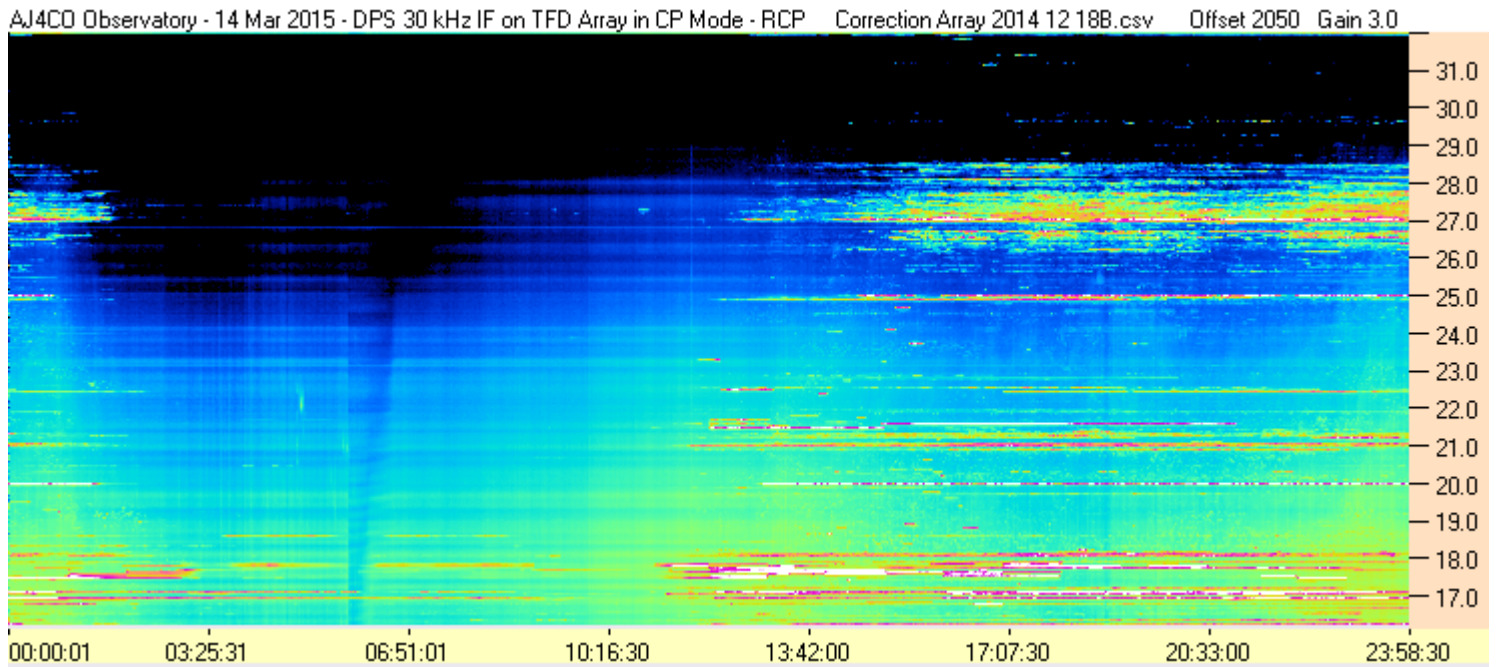
13 Mar 2015

Heavy line noise all day. Jupiter at 0300 & 0500 covered by line noise.



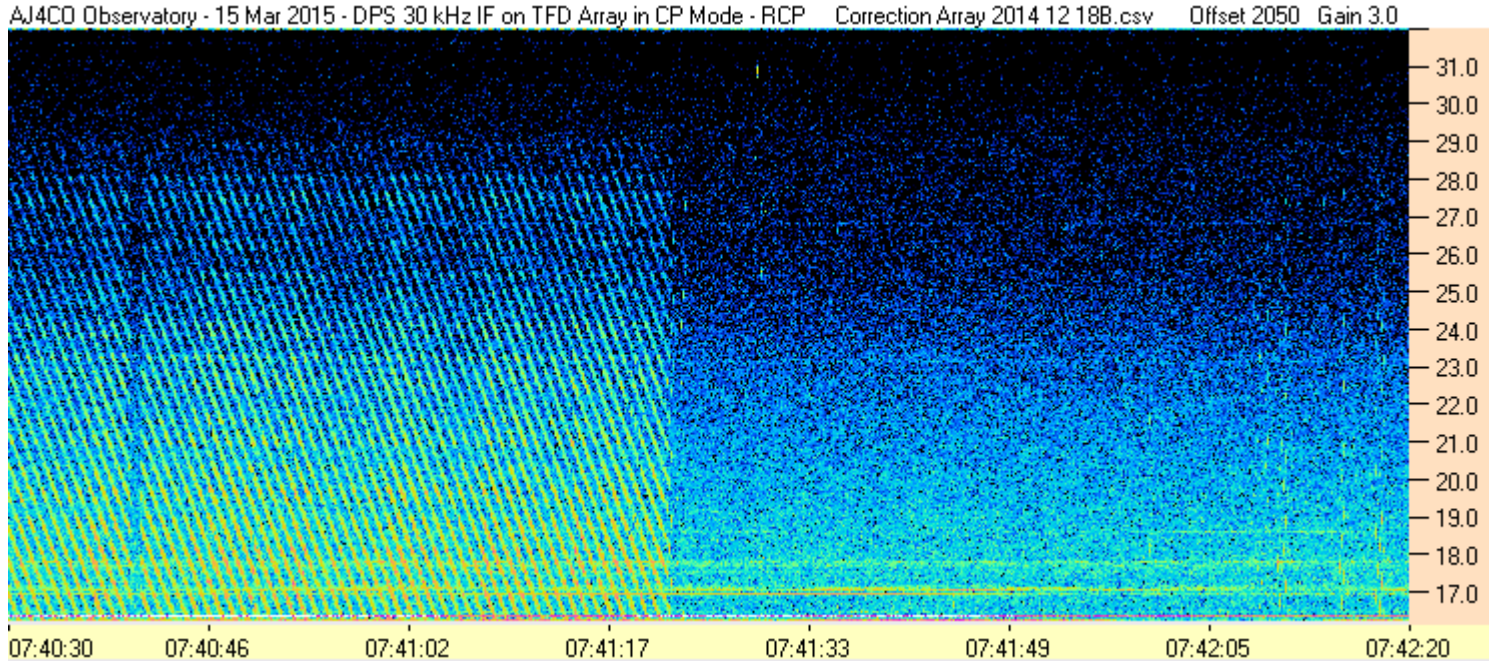
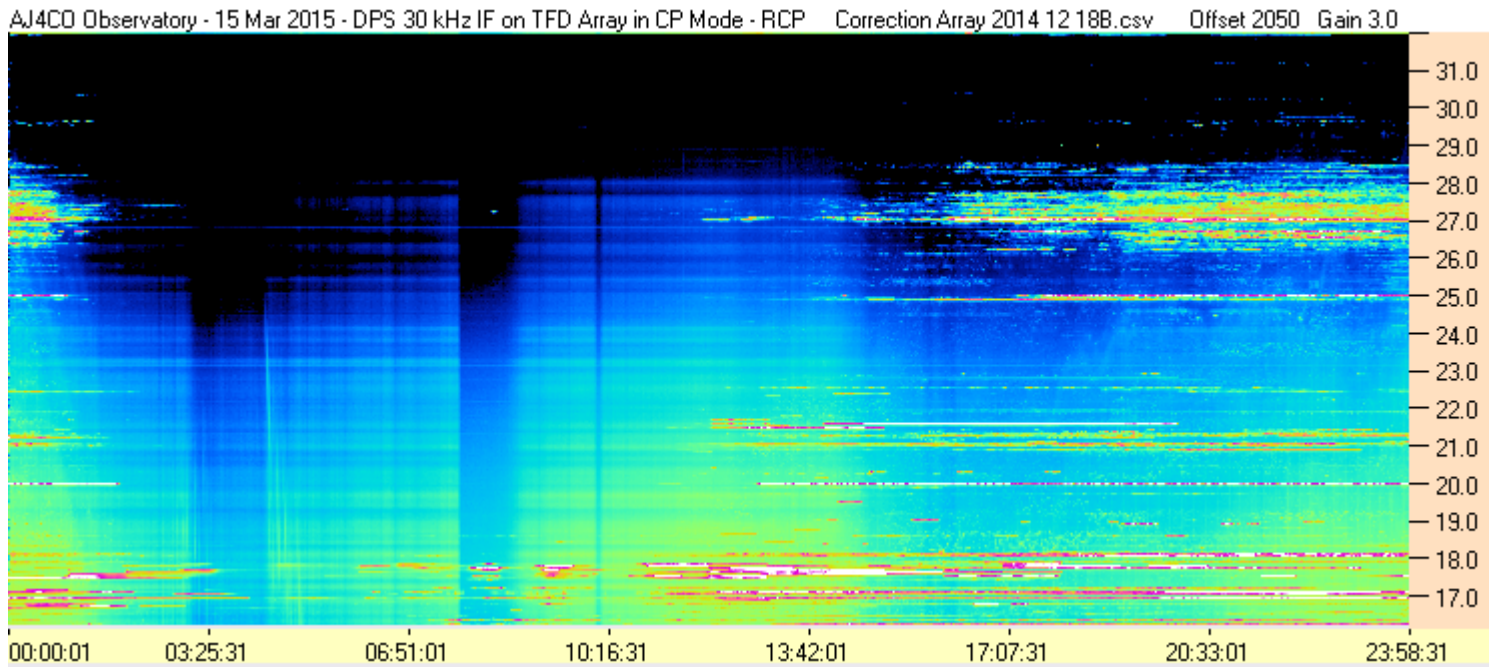
14 Mar 2015

Heavy line noise all day.



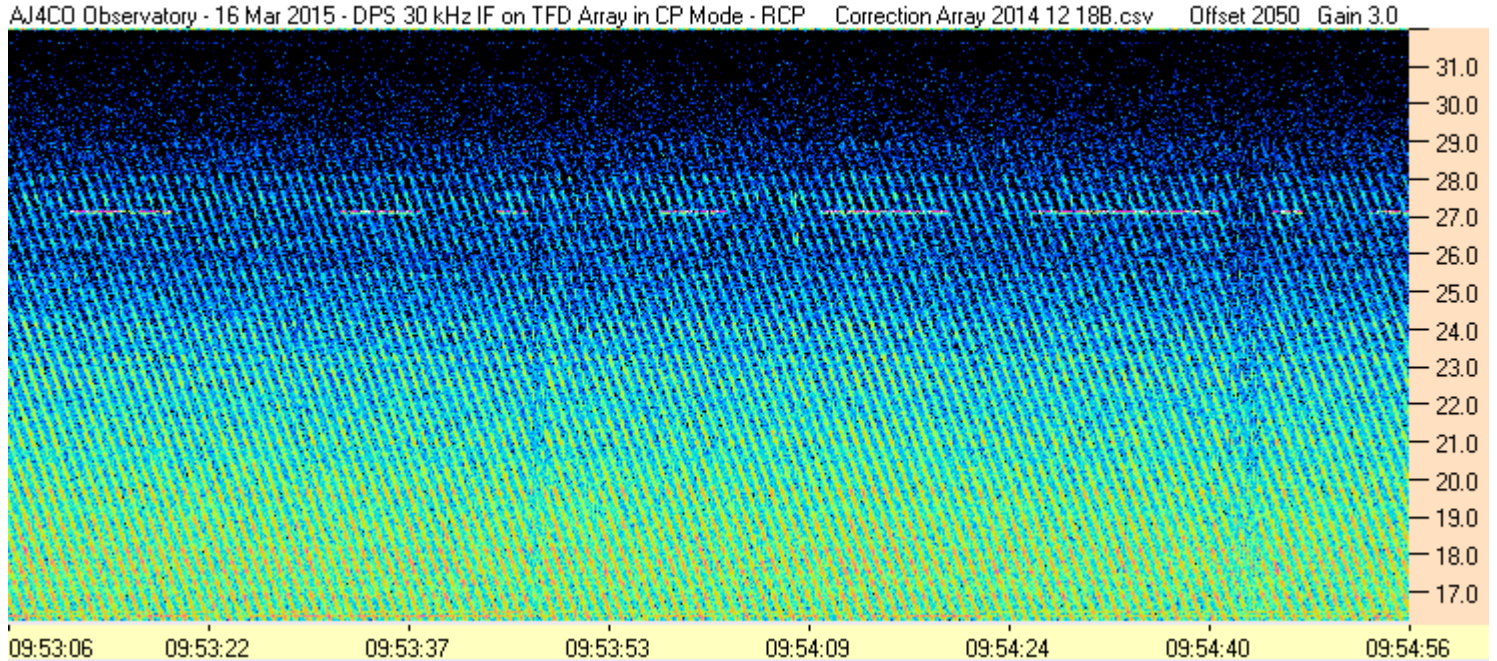
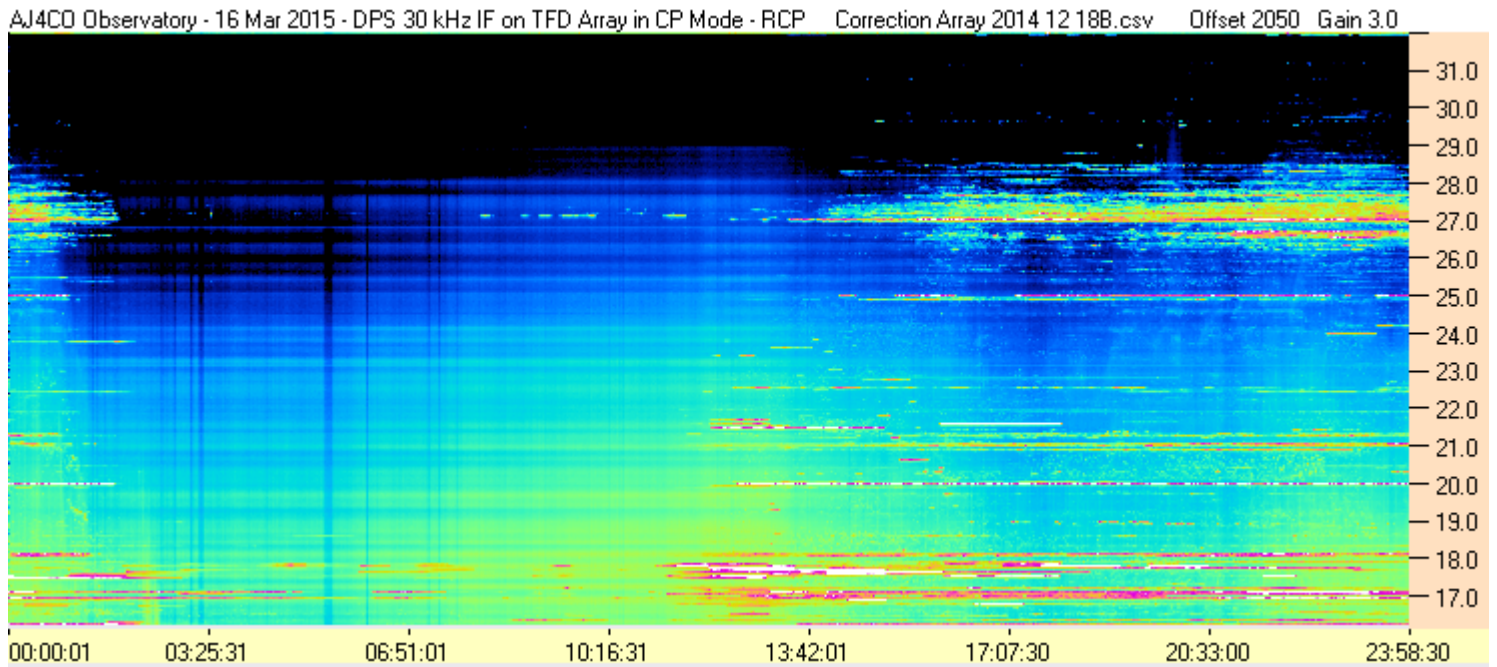
15 Mar 2015

Line noise intermittent until 1430. Jupiter at 0430 covered by line noise.



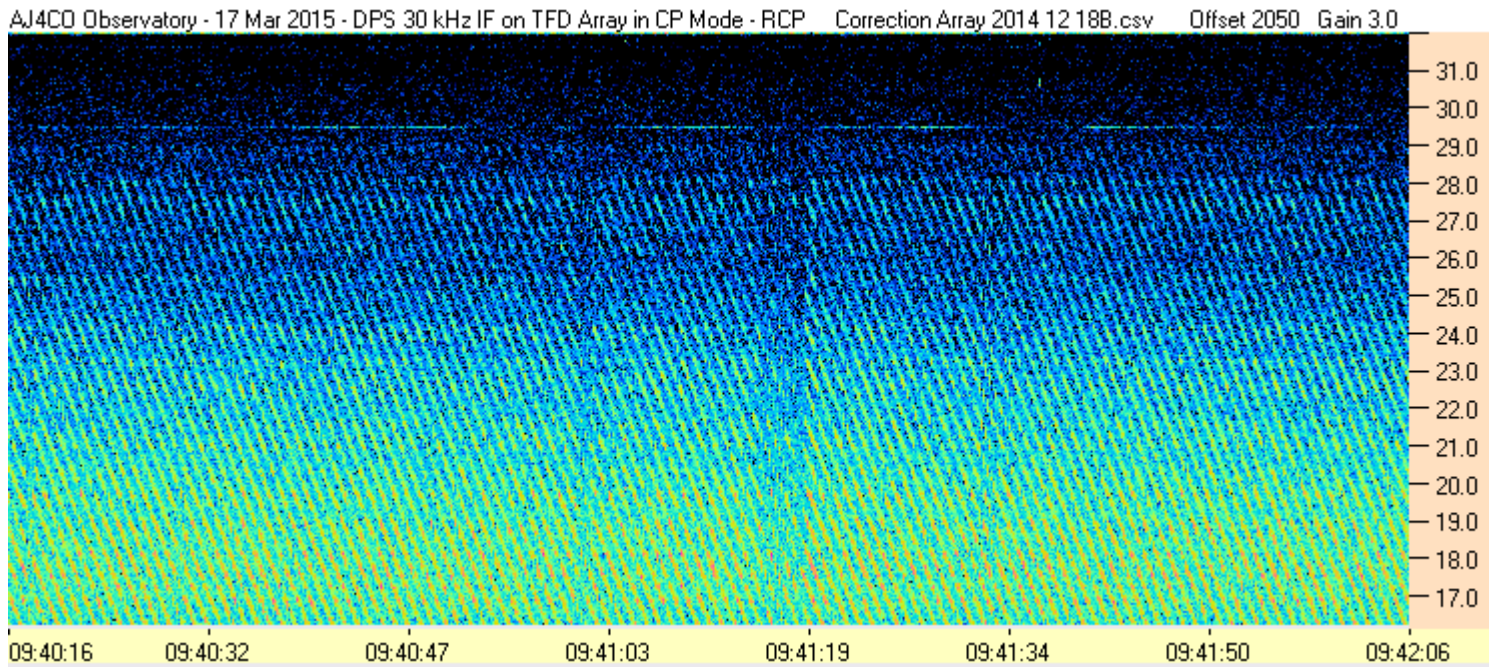
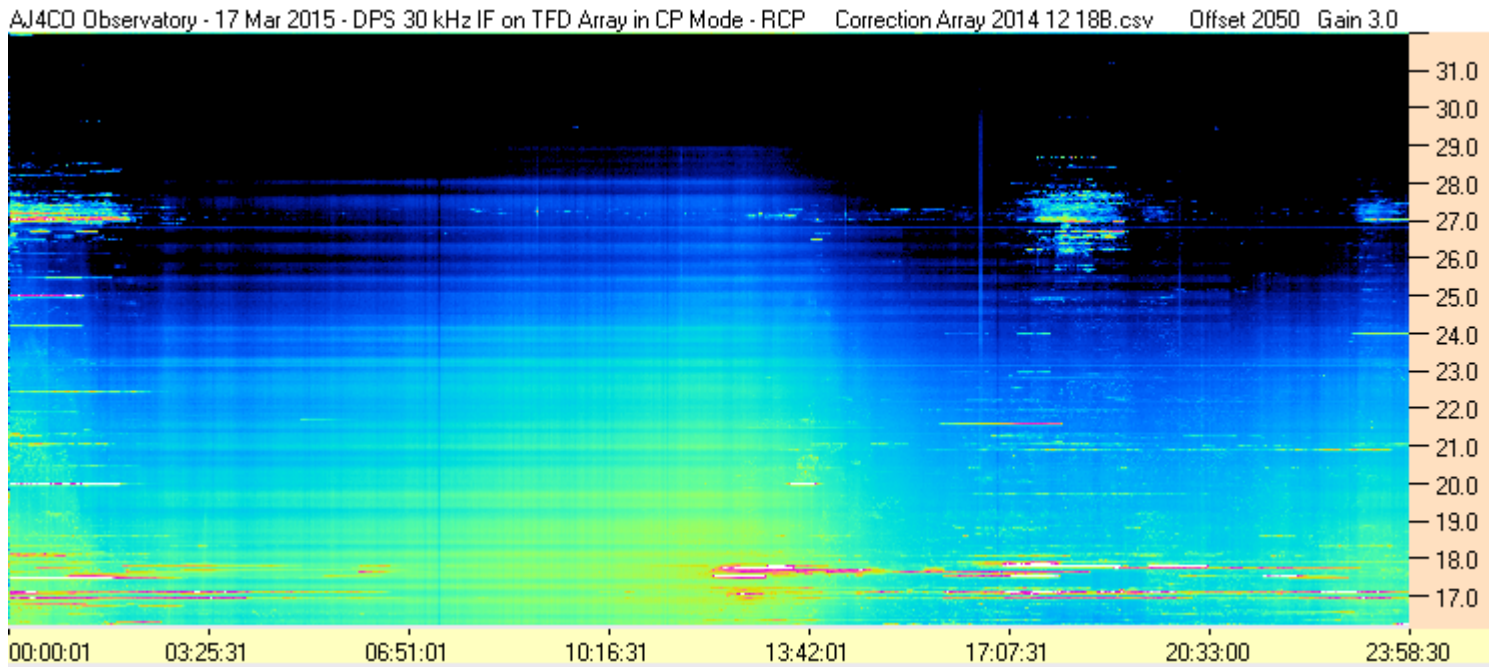
16 Mar 2015

Line noise intermittent (95% on) until 1700.



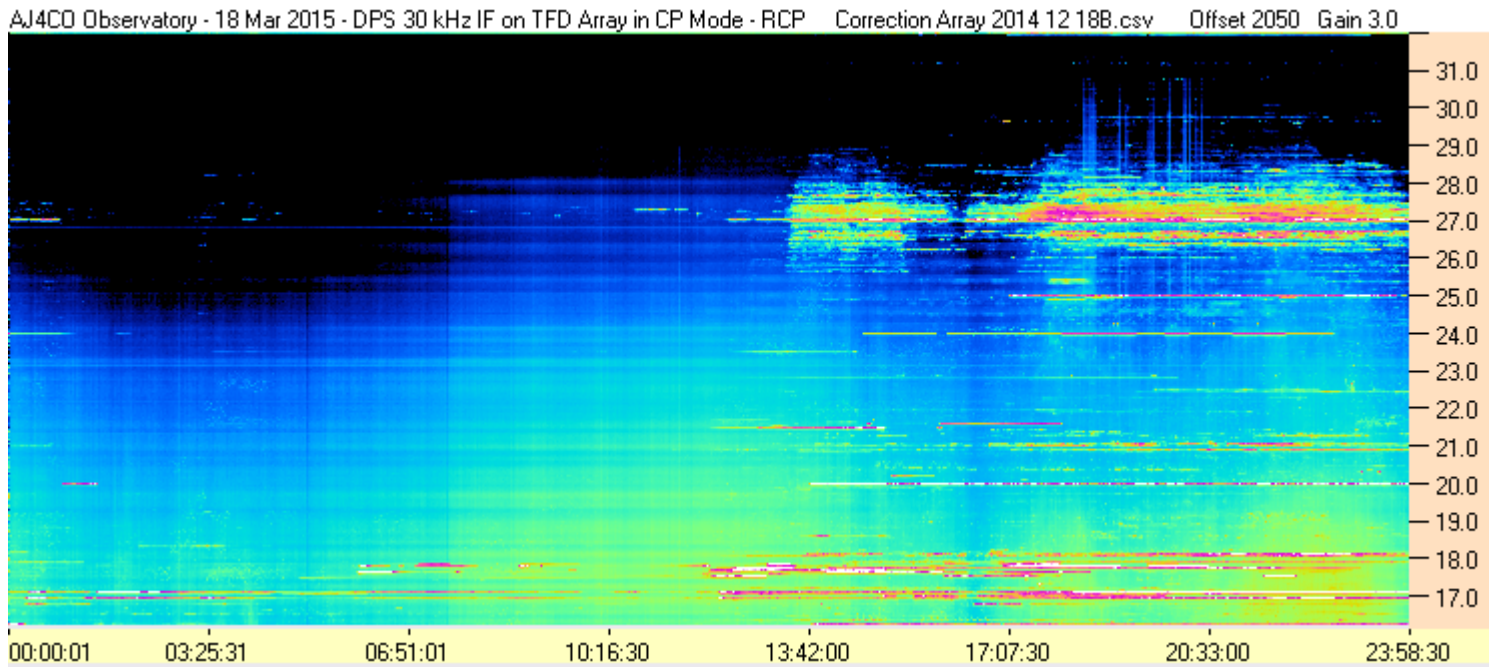
17 Mar 2015

Line noise present all day at several distinct amplitudes.

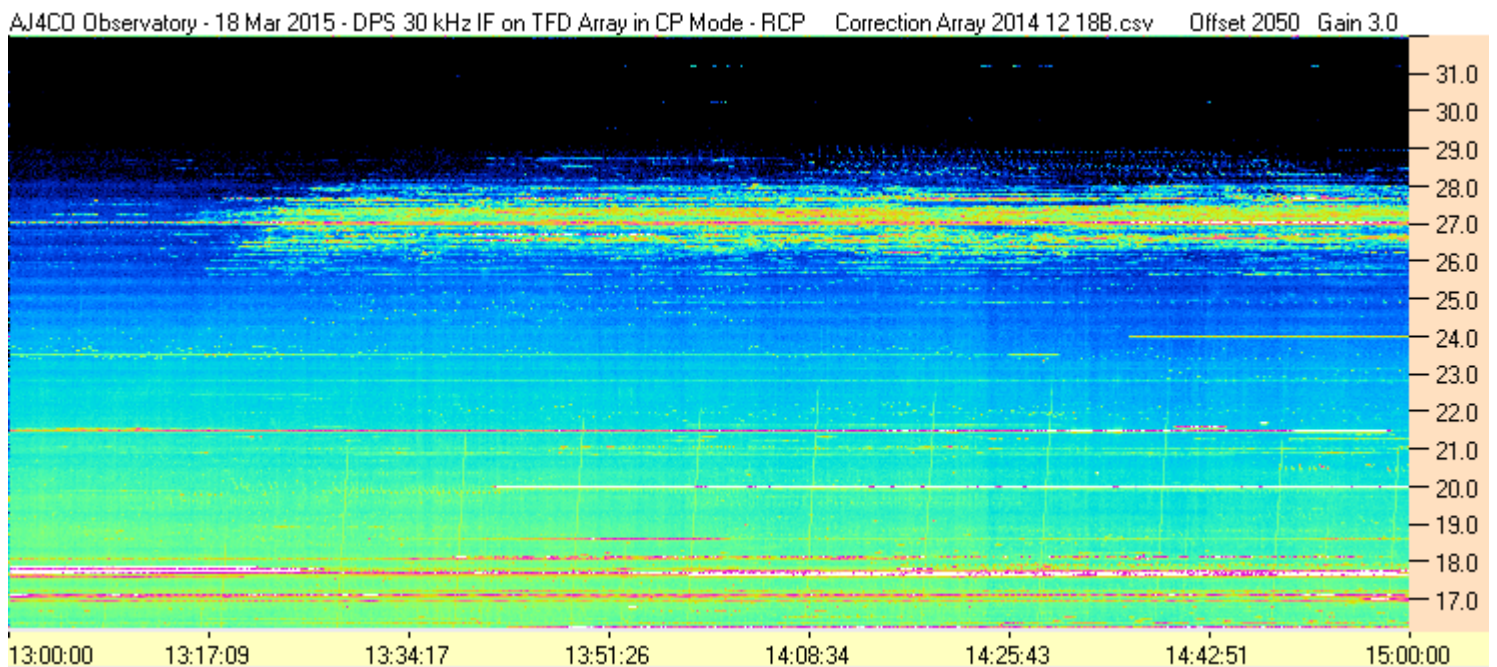


18 Mar 2015

Line noise intermittent all day at several distinct amplitudes.

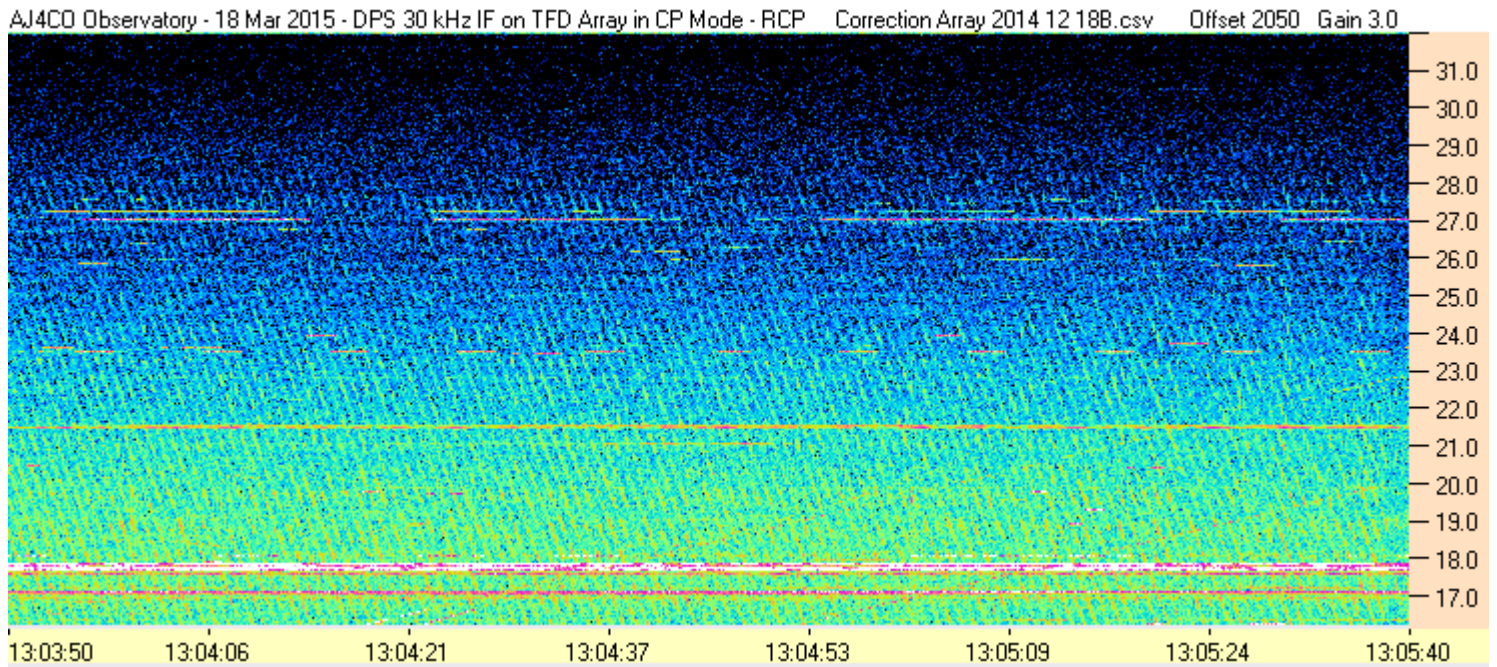


Tony and Fabian looked for line noise this day from 1300 to 1500 UTC (9am to 11am local).

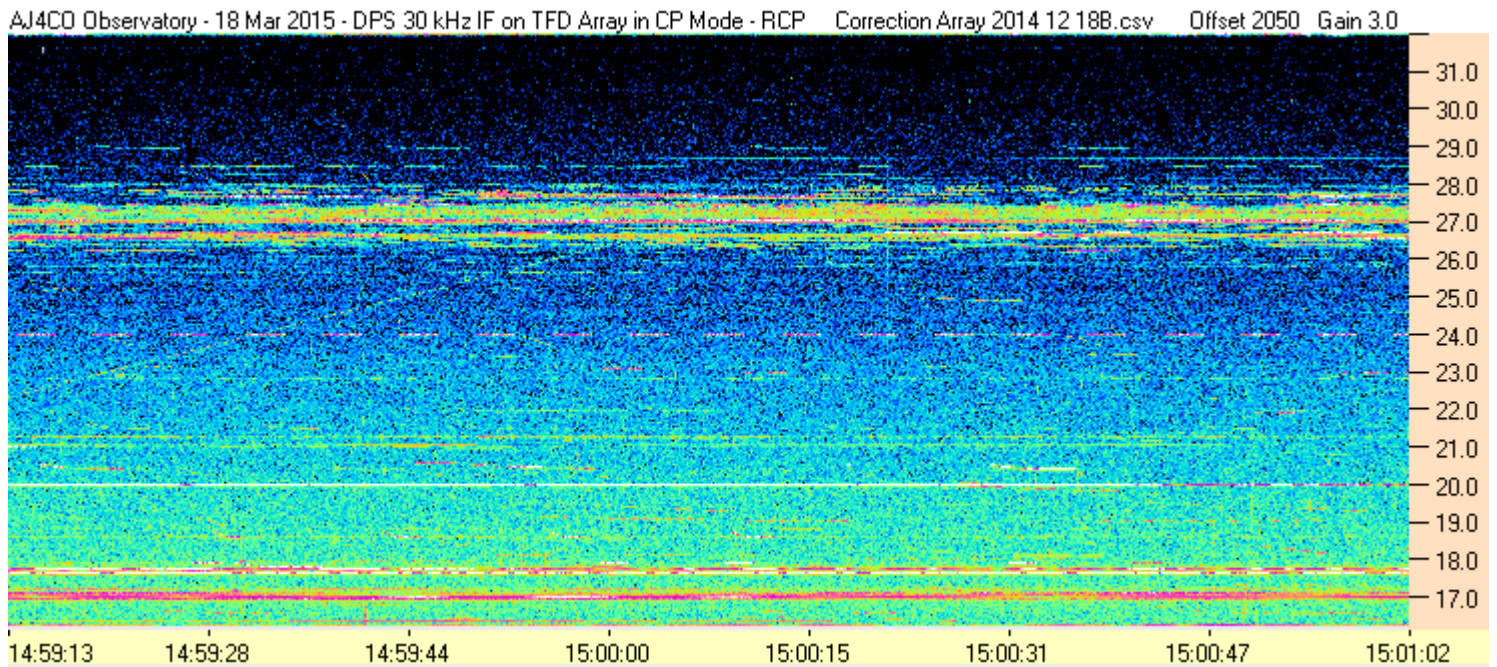


18 Mar 2015 Continued

The situation at 9am local when Tony and Fabian started work. Line noise present.

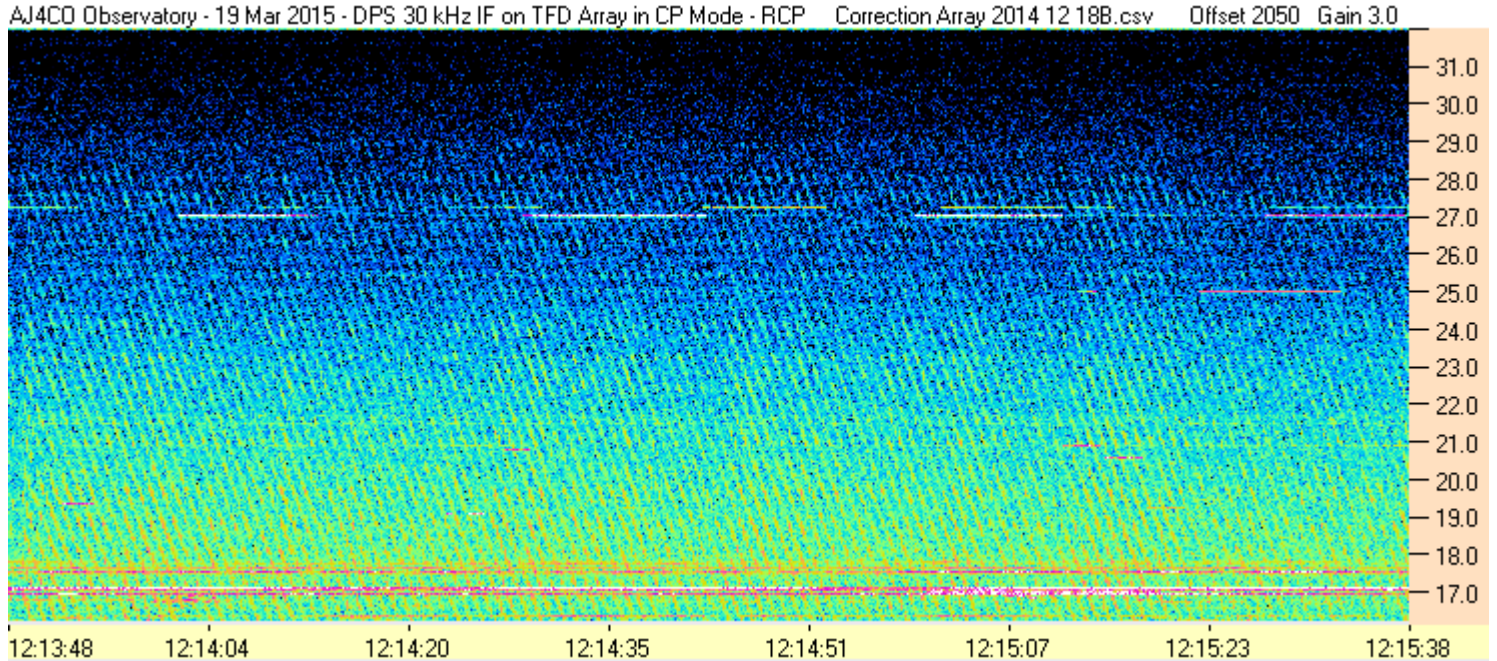
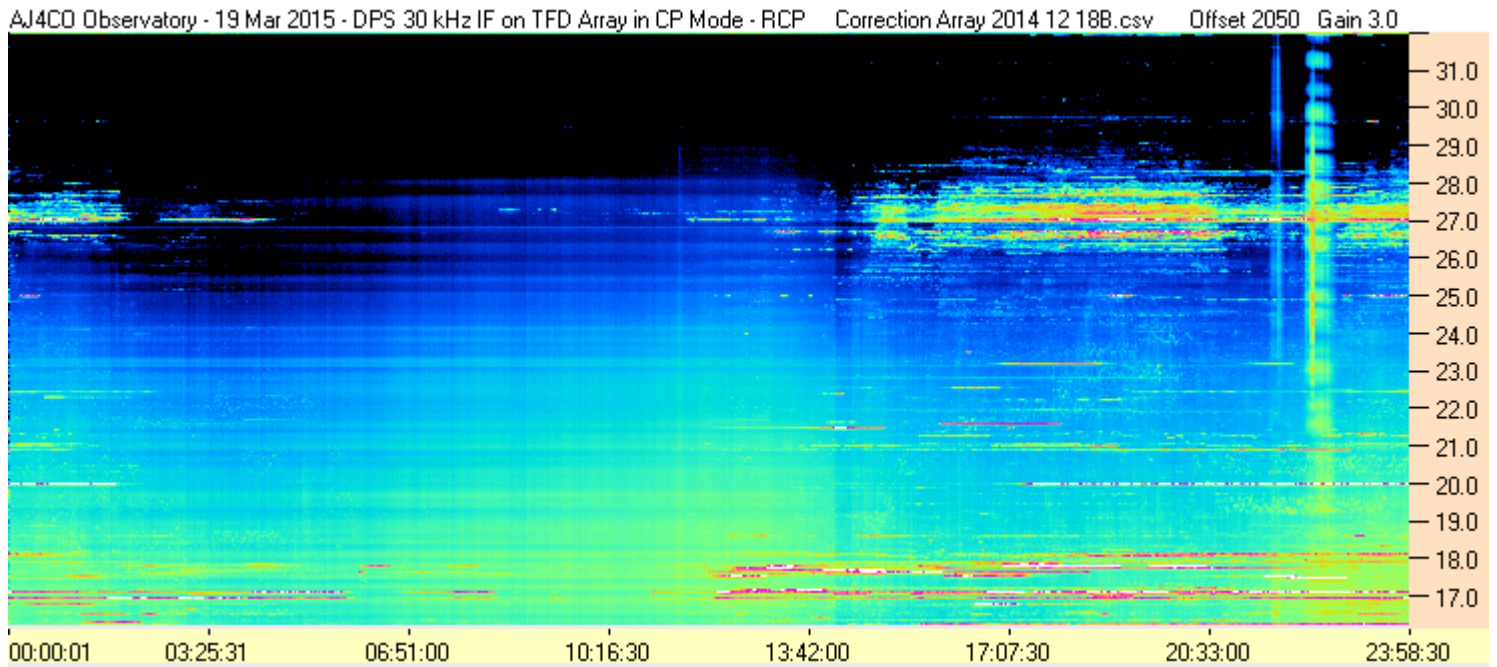


The situation at 11am local when Tony and Fabian declared no joy. There is no line noise present.



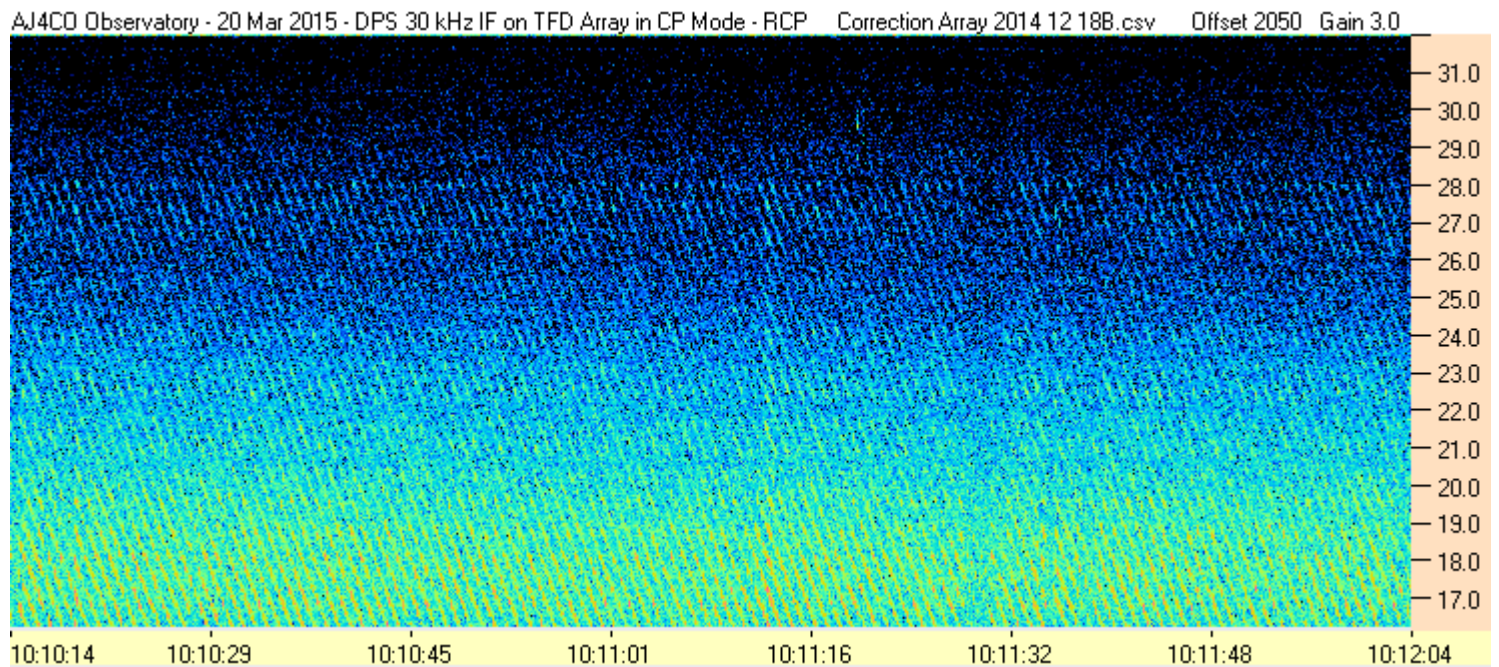
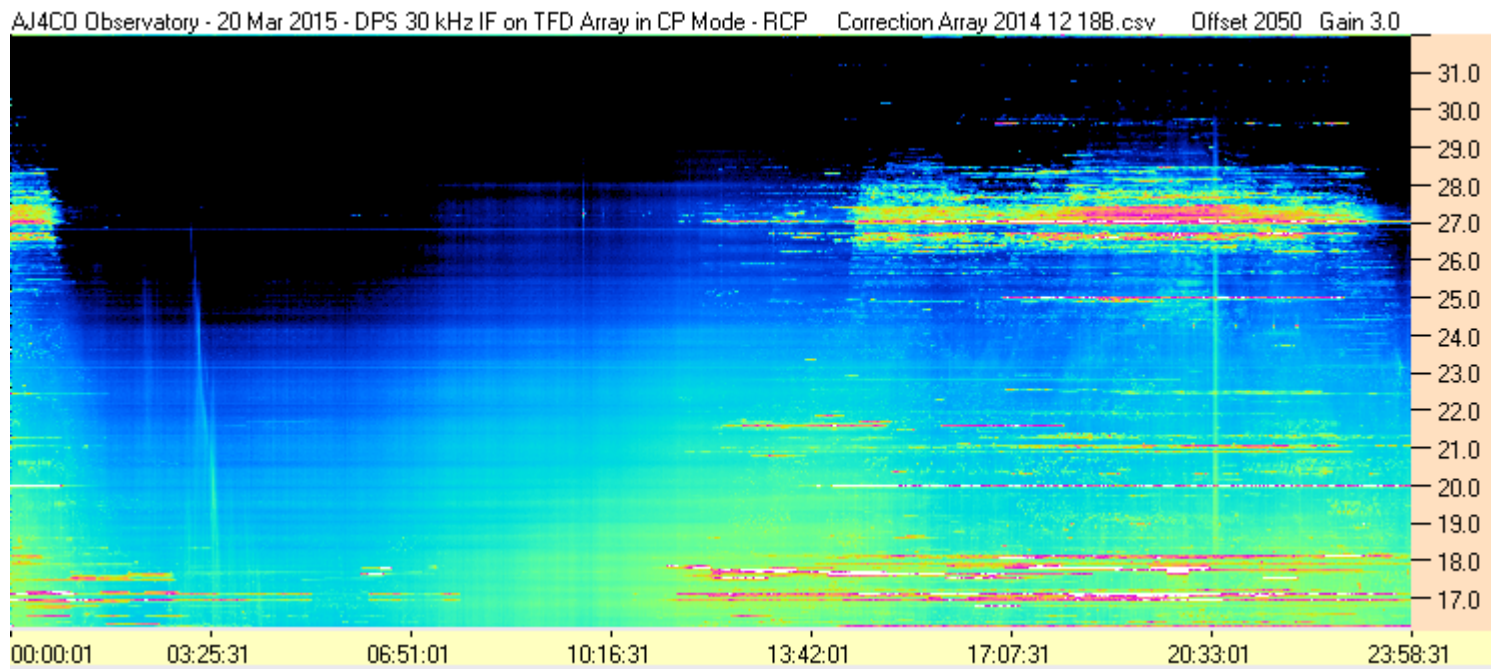
19 Mar 2015

Line noise present until 1400. Very heavy line noise present around 2200 due to rain storm.



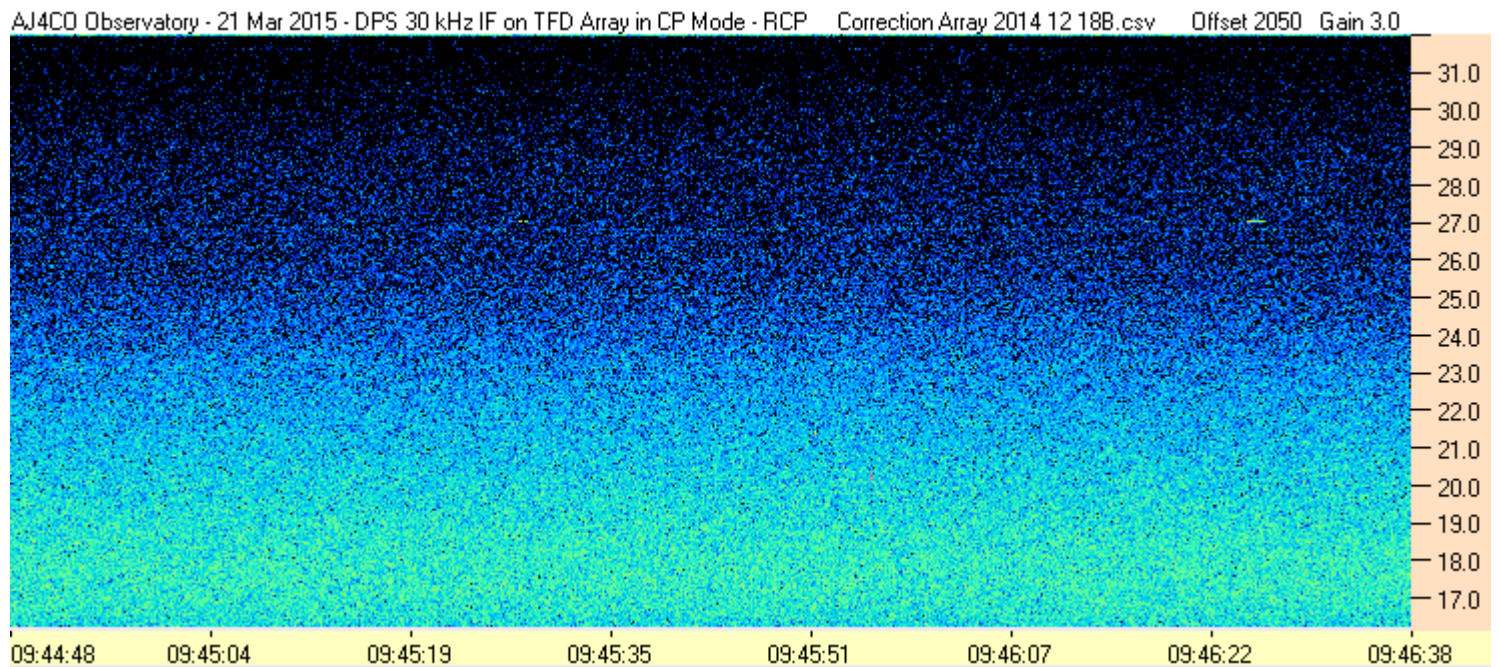
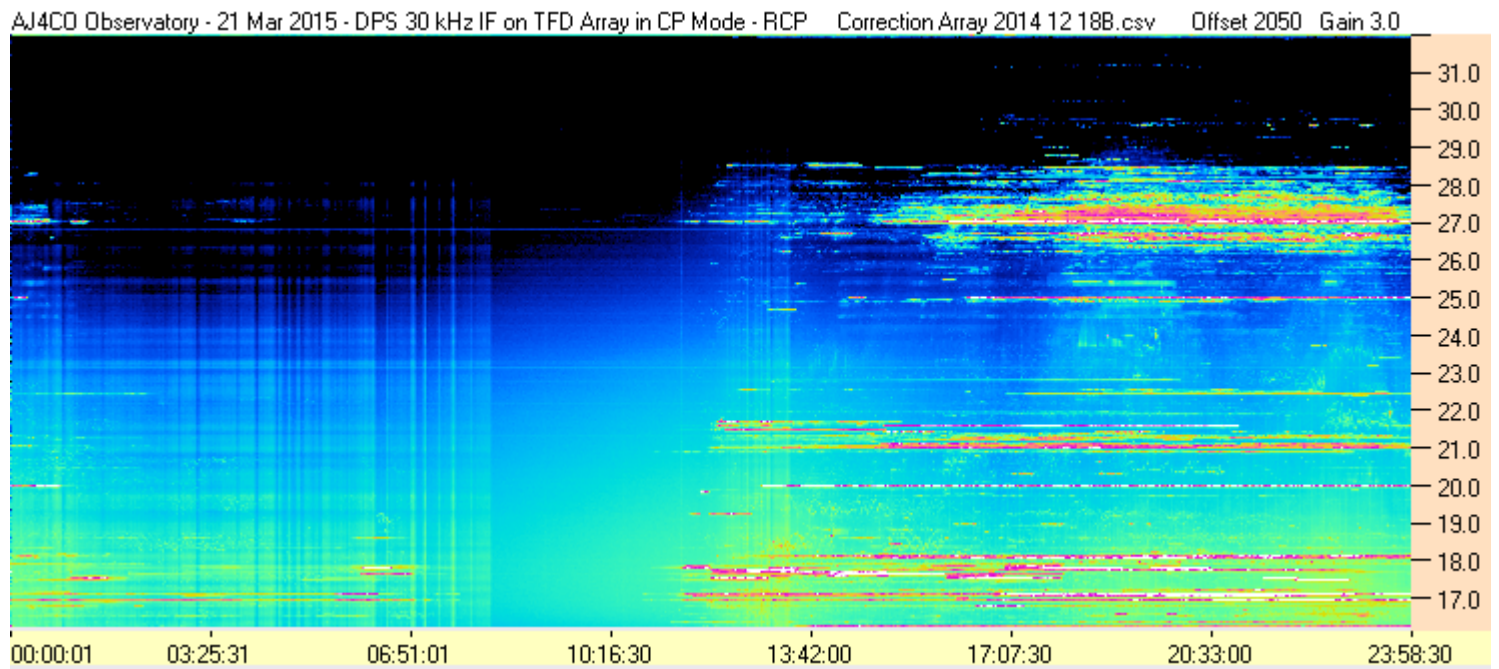
20 Mar 2015

Moderate line noise present until 1630. Jupiter emission 0200 to 0400.



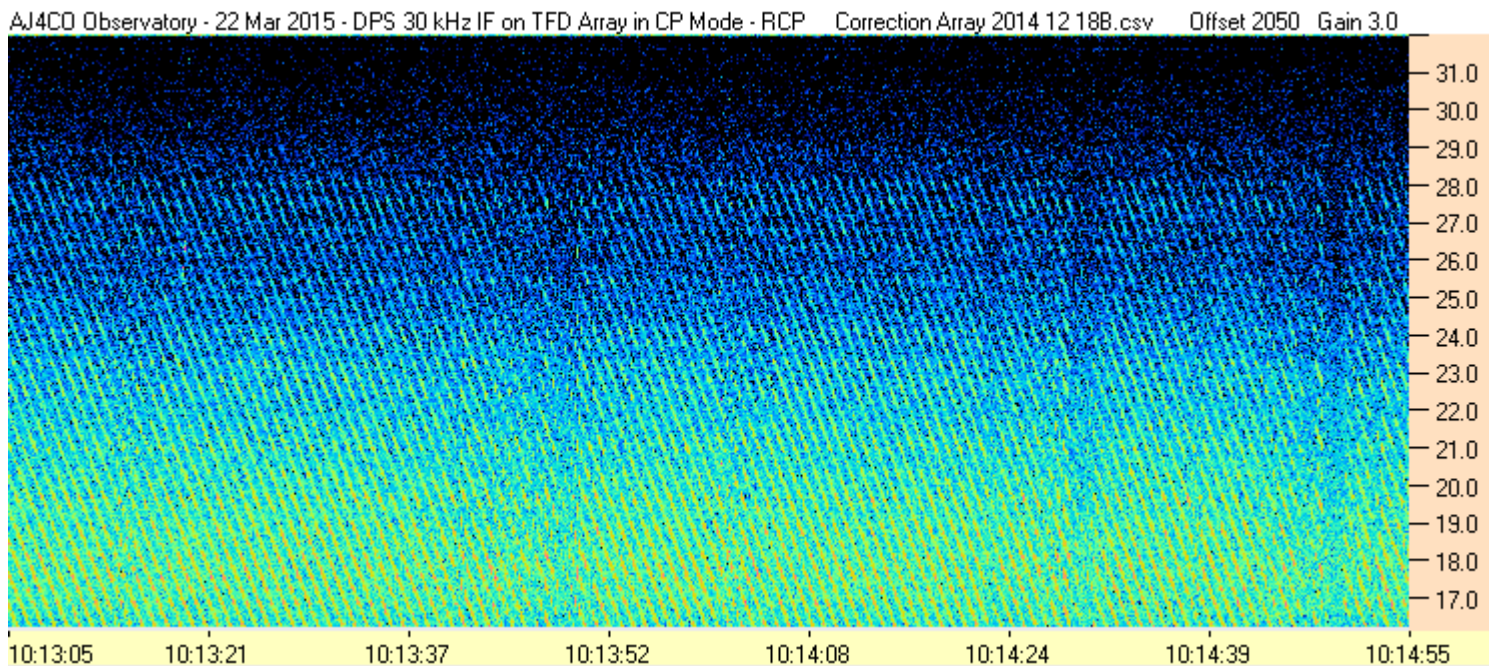
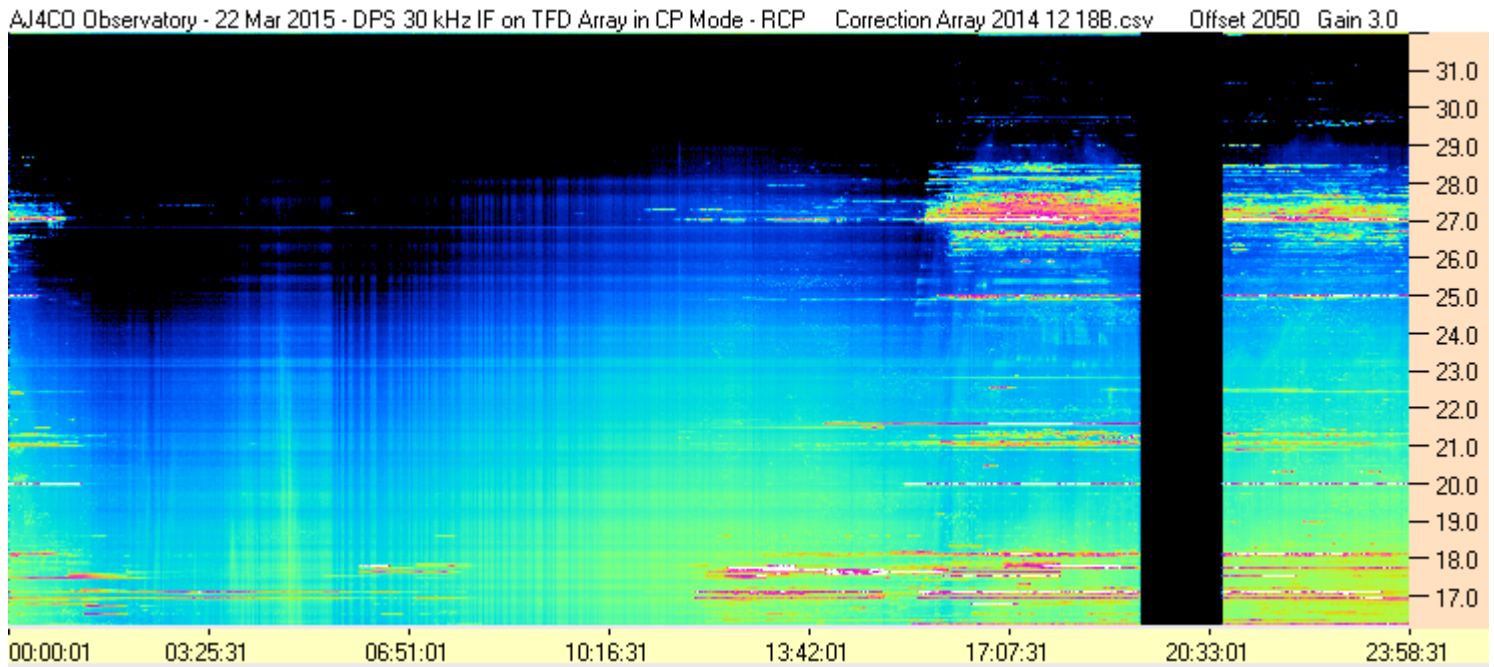
21 Mar 2015

Intermittent line noise until 0800, then again from 1200 to 1300.



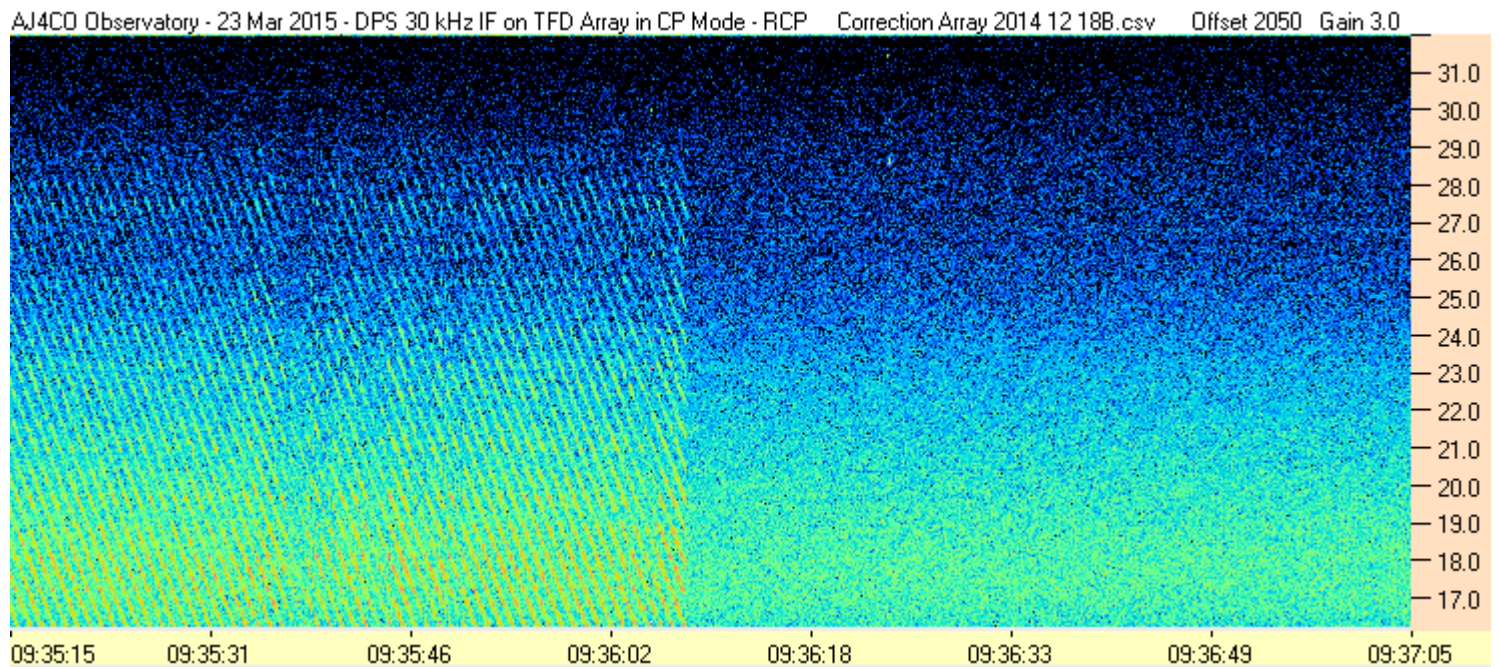
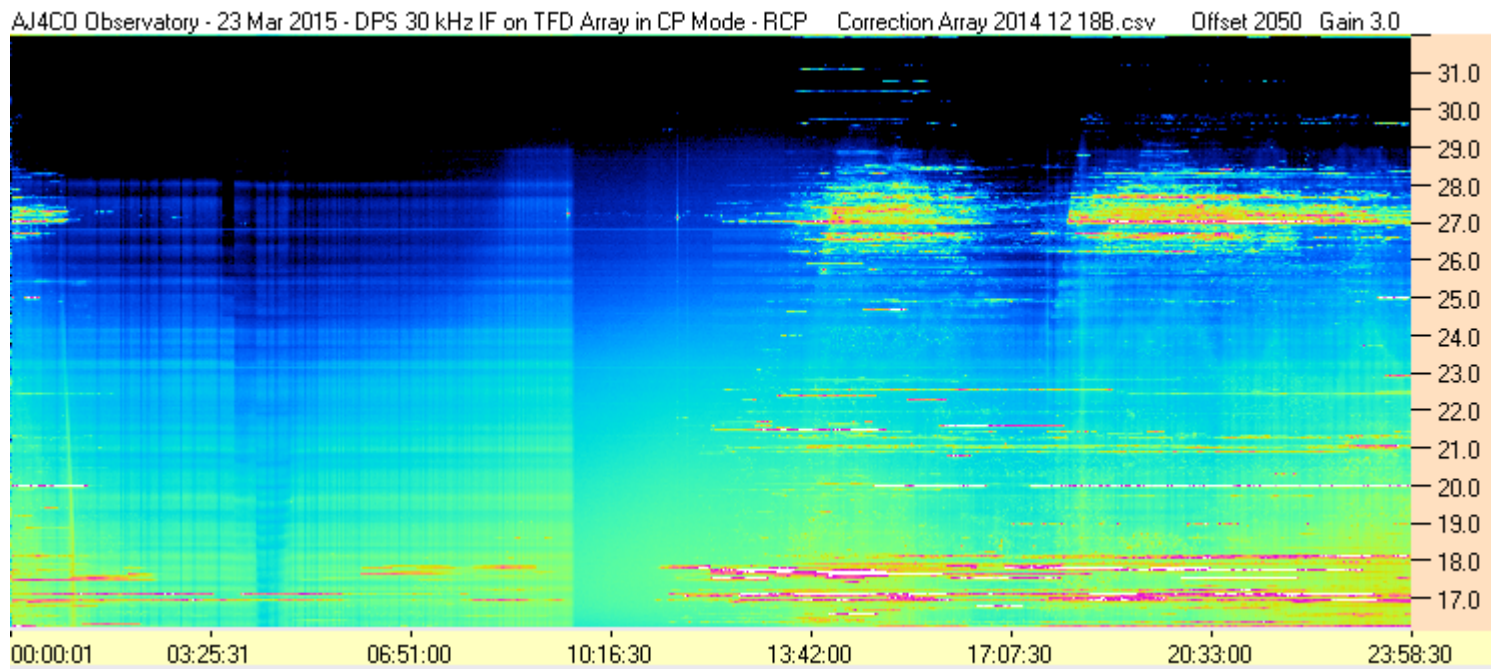
22 Mar 2015

Intermittent line noise all morning until 1600. Jupiter emission 0200 to 0500. No data from 1940 to 2045 due to telescope maintenance.



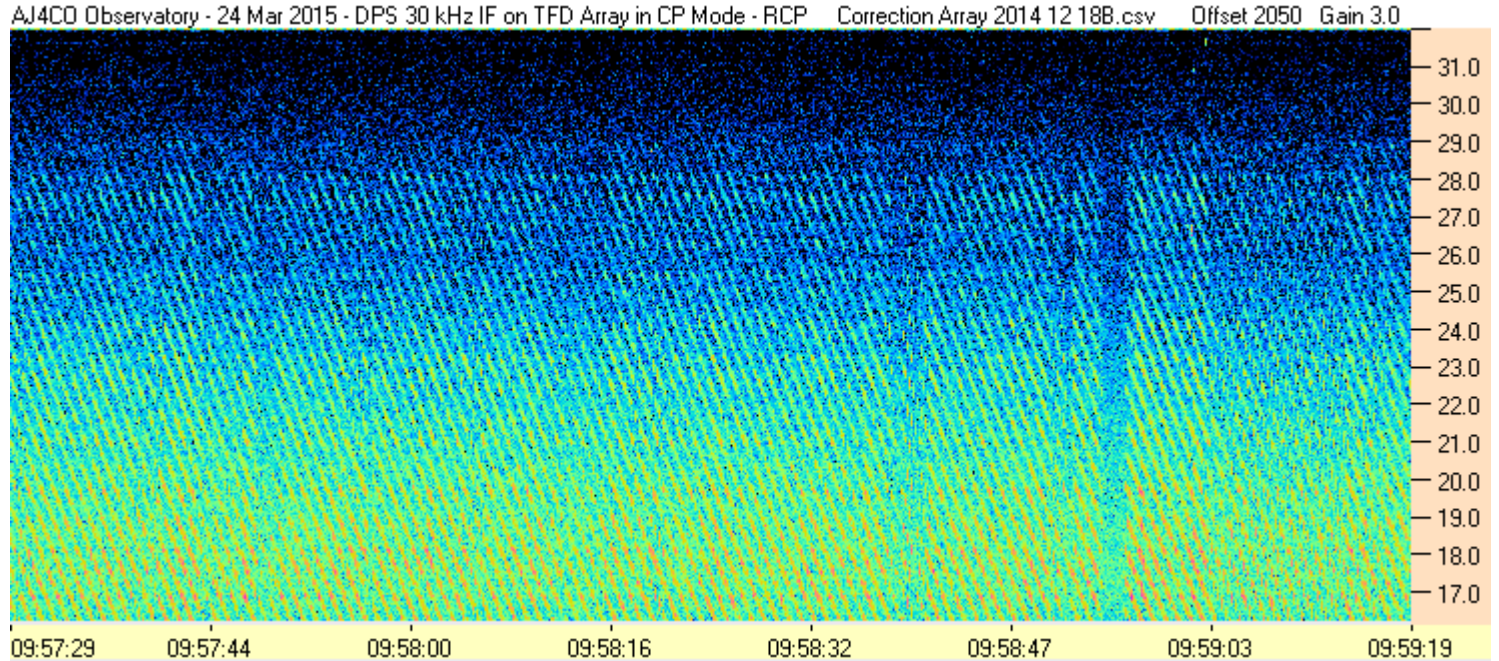
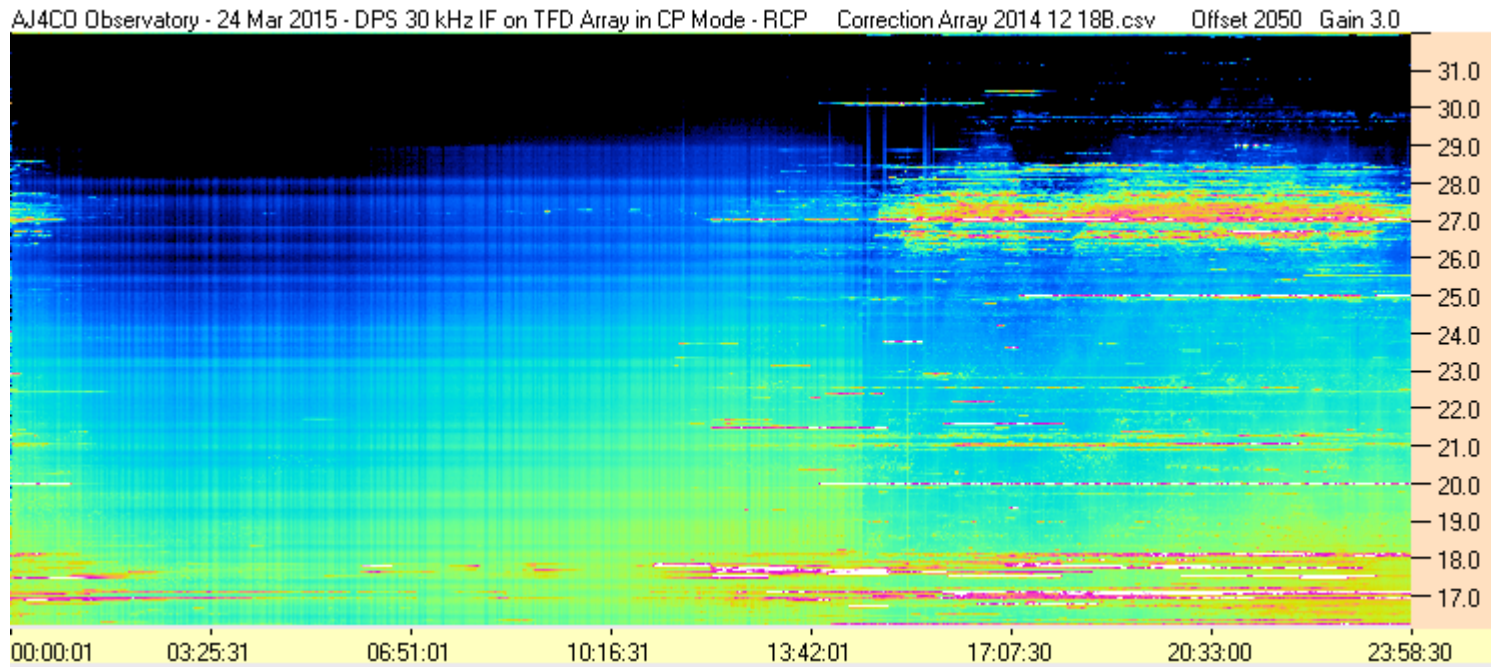
23 Mar 2015

Line noise stops abruptly at 0936. Jupiter at 0100 to 0130.



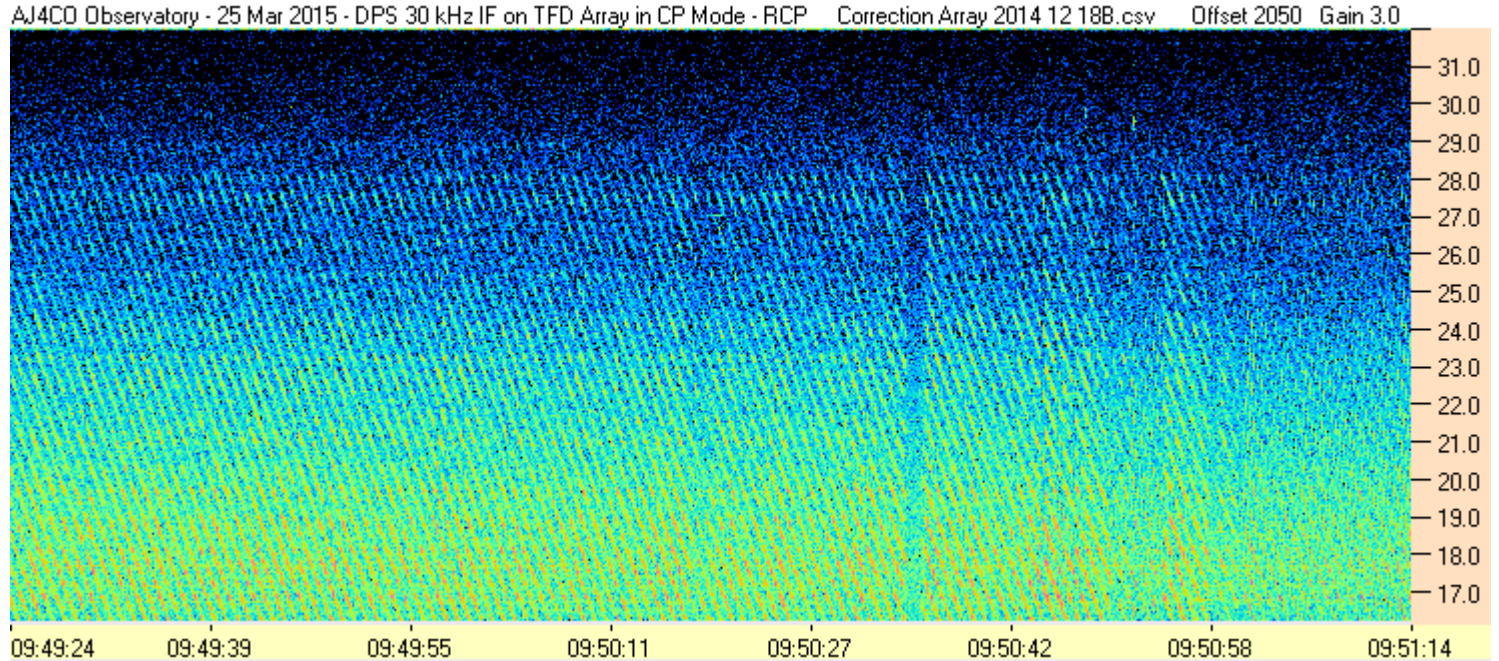
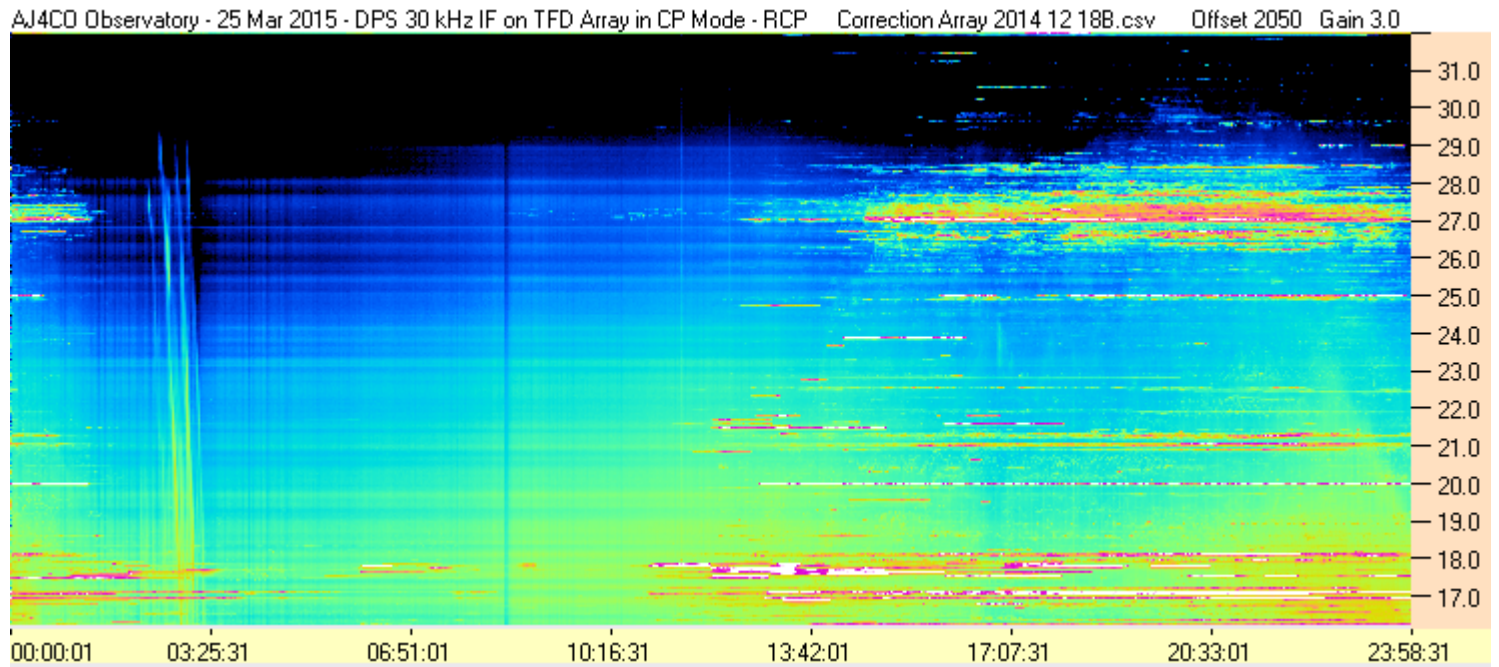
24 Mar 2015

Line noise present until 1435.



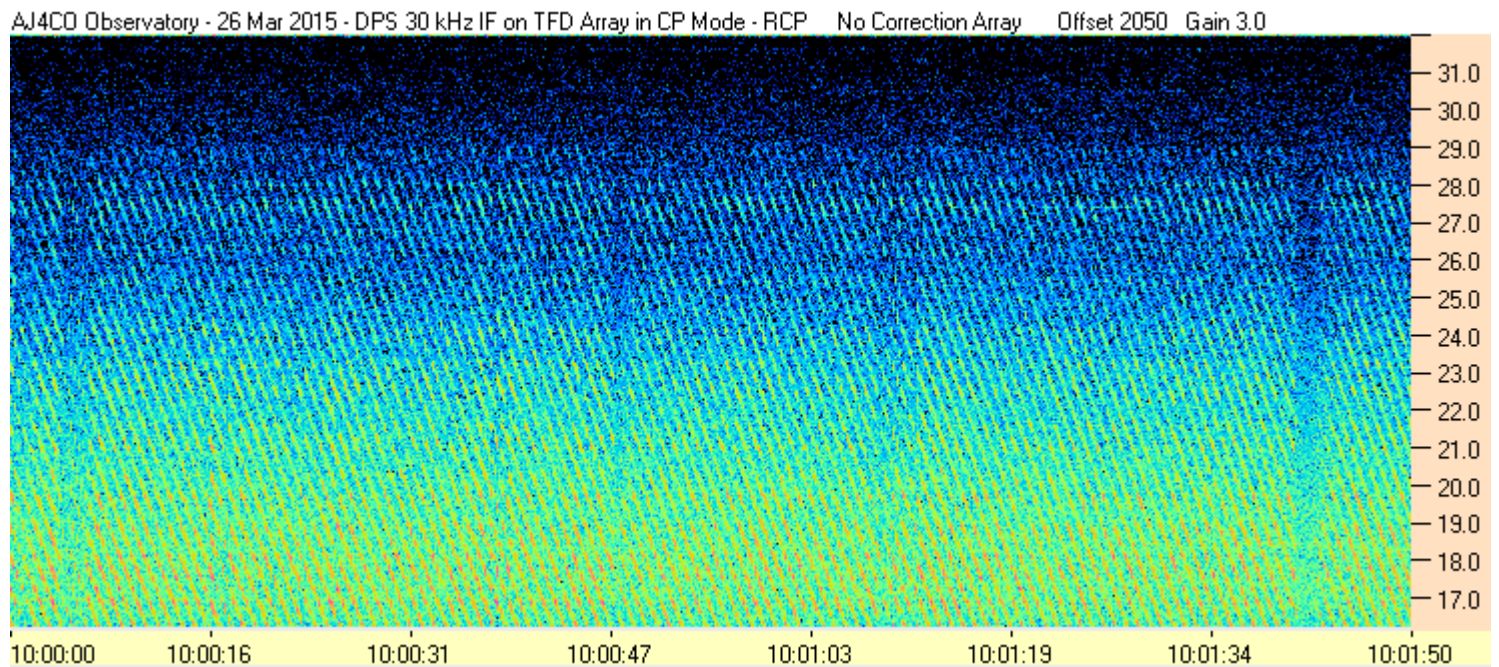
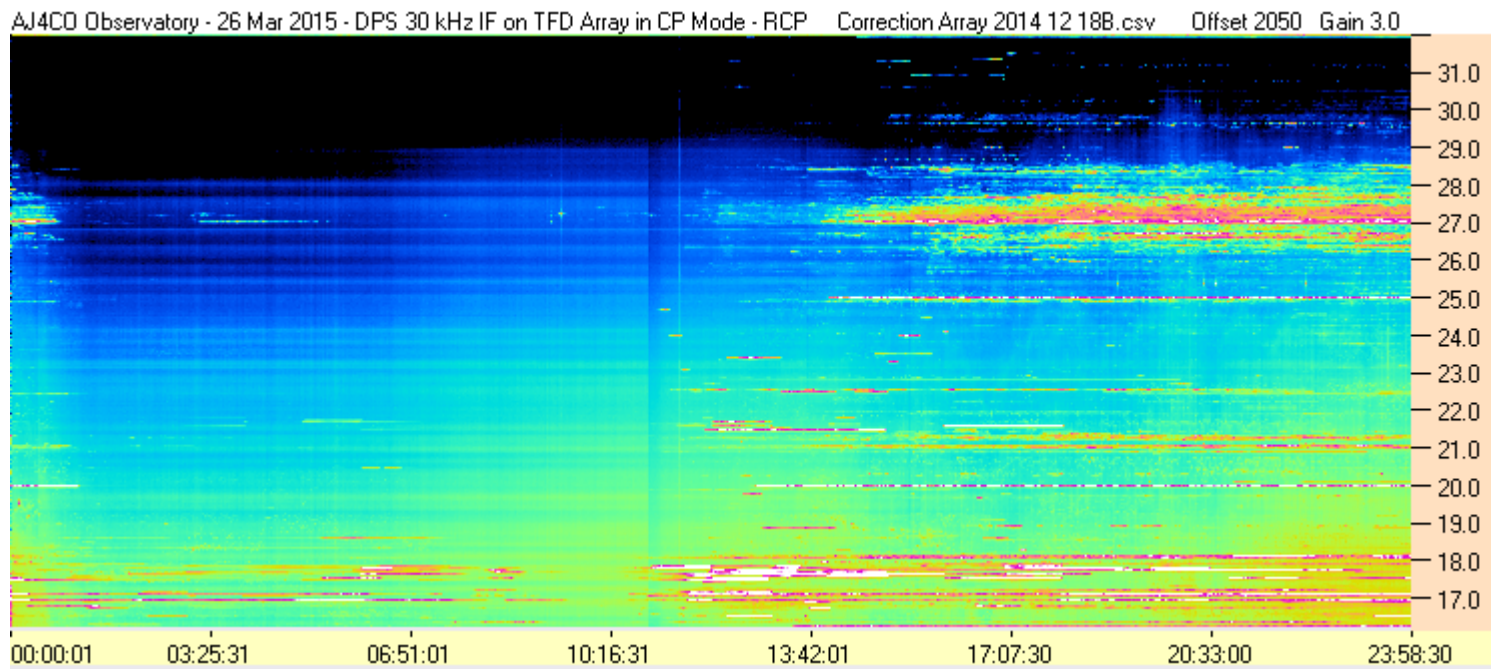
25 Mar 2015

Line noise present all day.



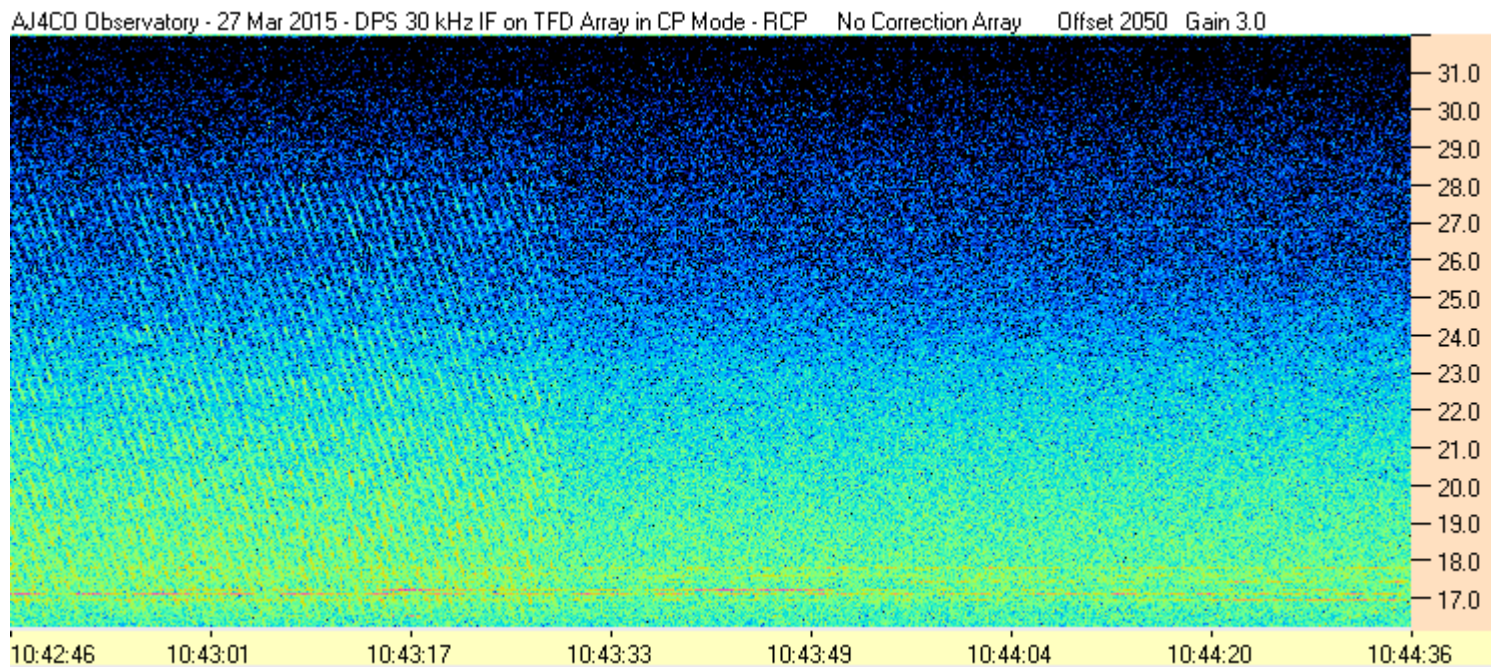
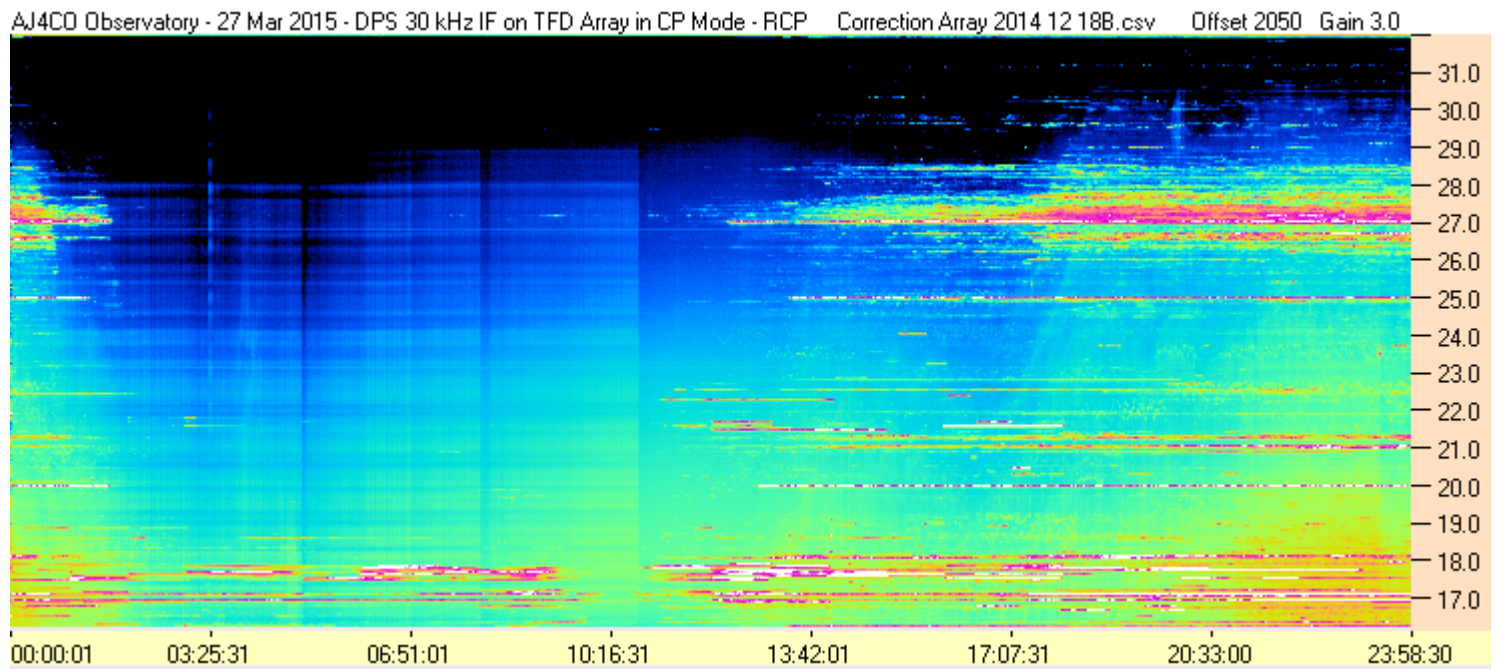
26 Mar 2015

Line noise present all day. Brief cessation around 1030.



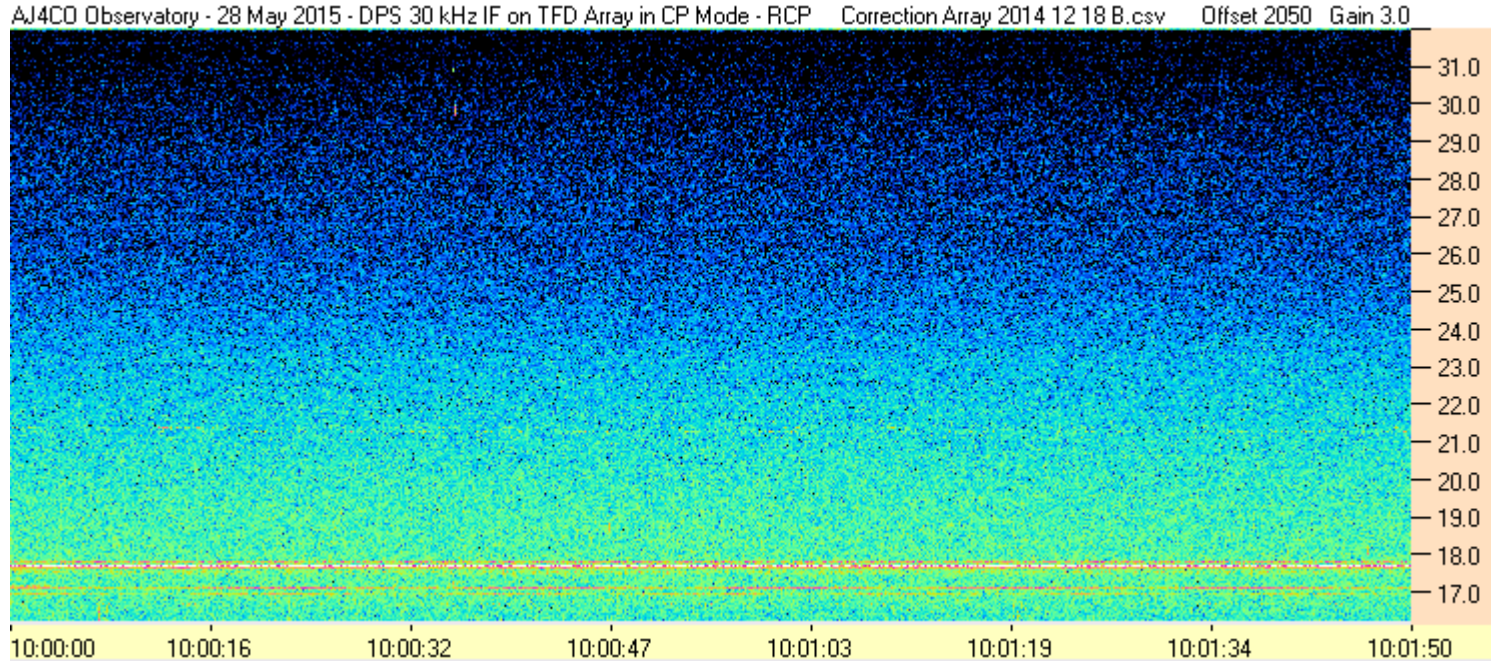
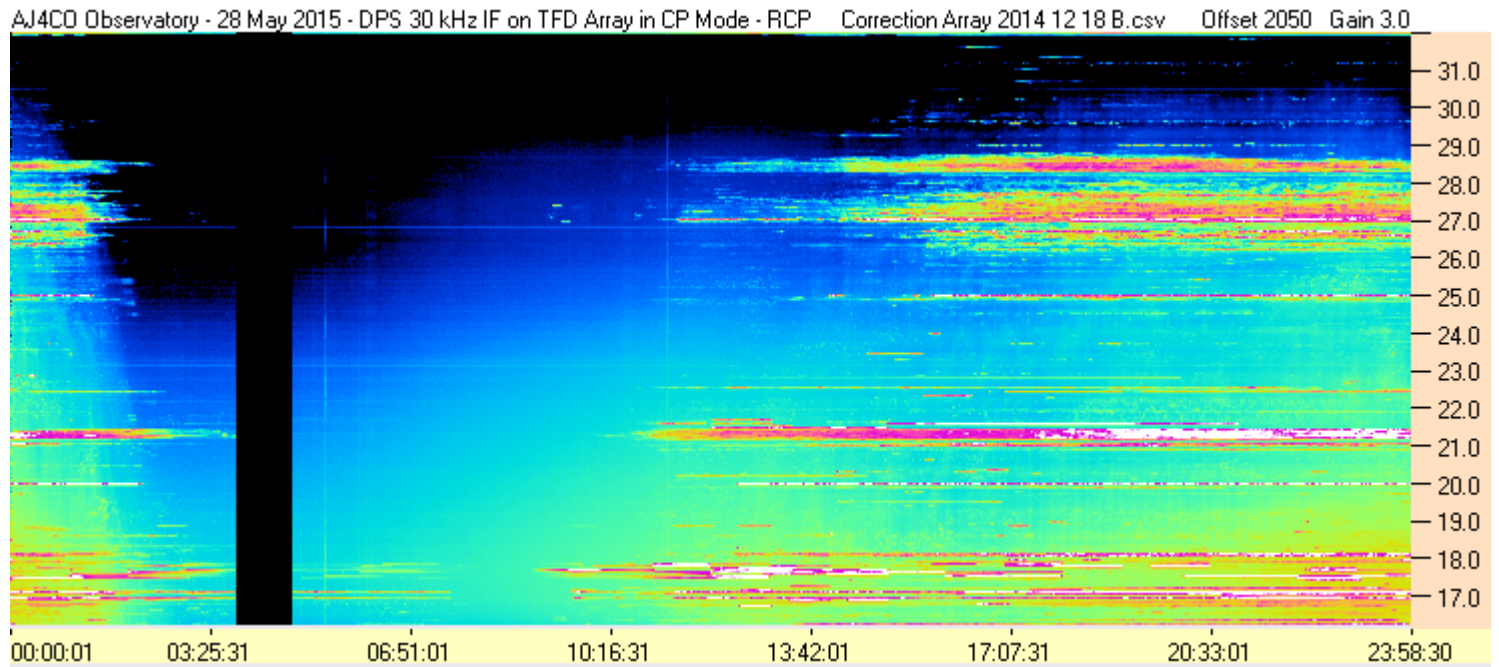
27 Mar 2015

Line noise all morning, stops abruptly at 1043.



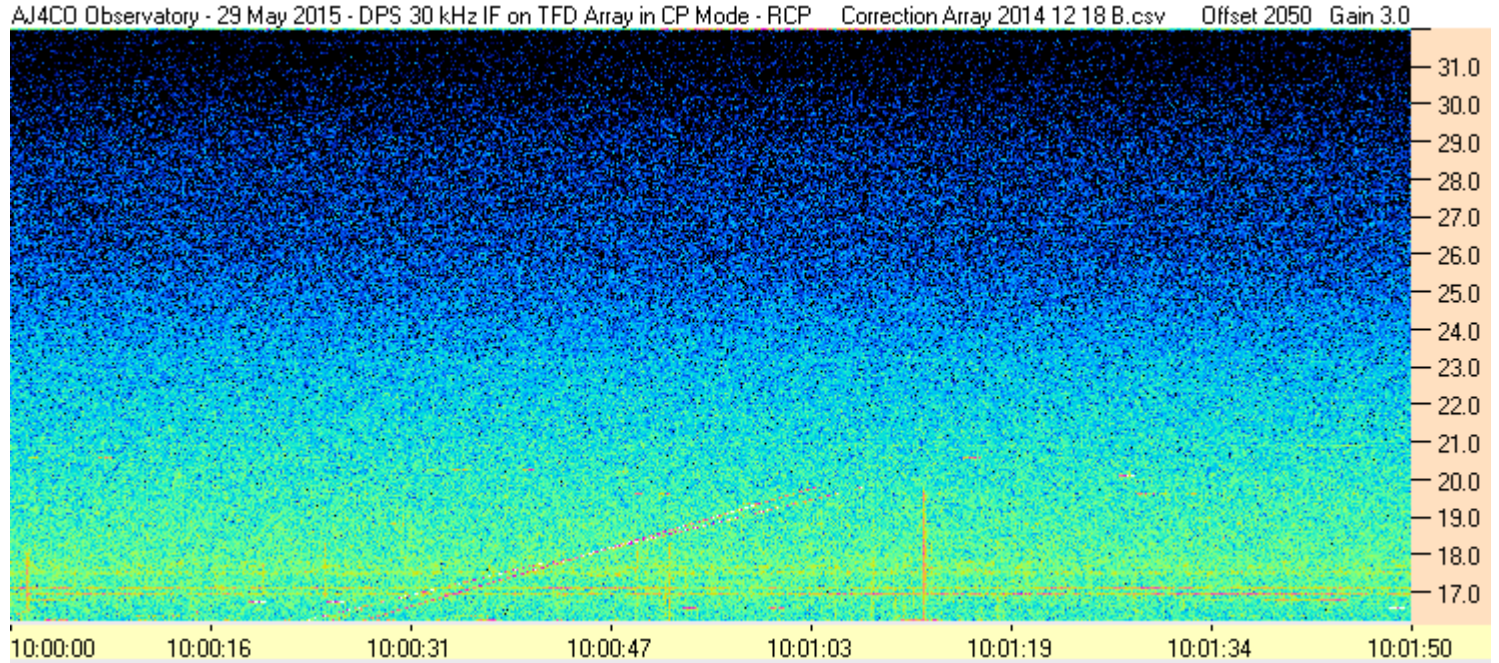
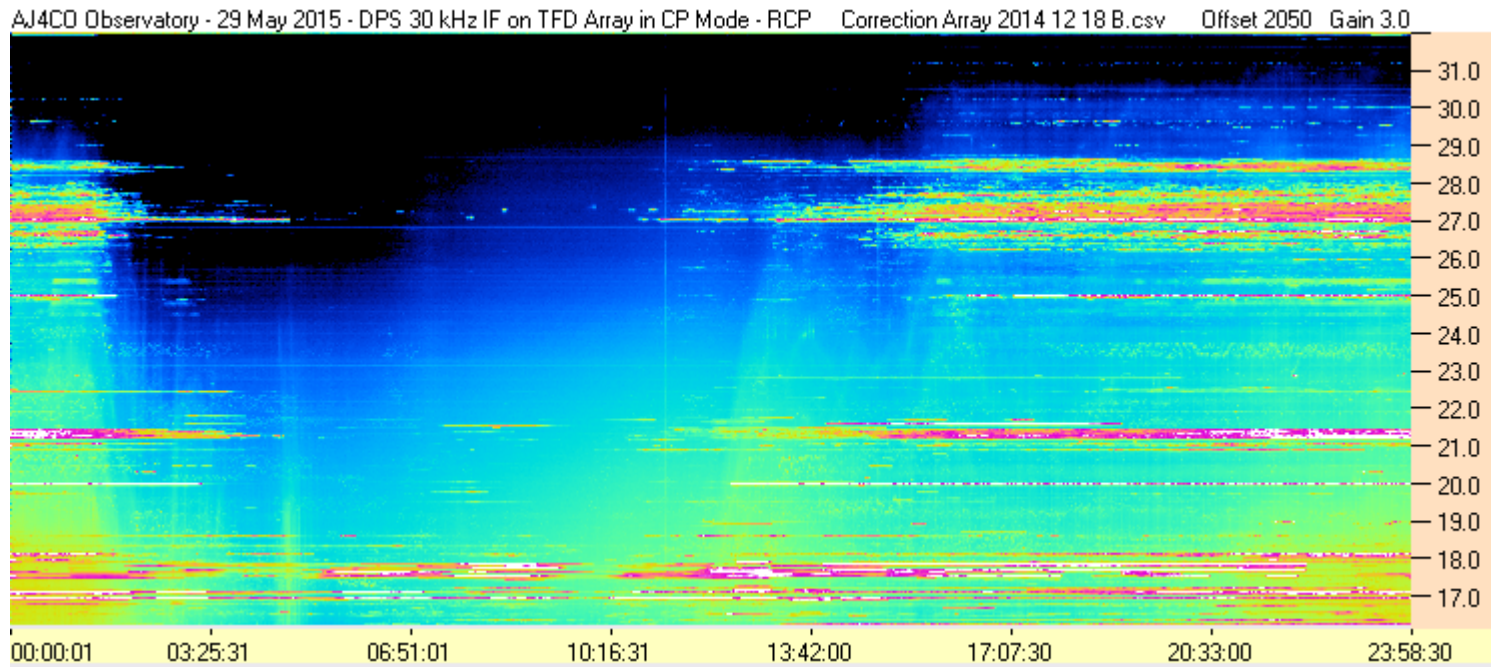
28 Mar 2015

No line noise present.



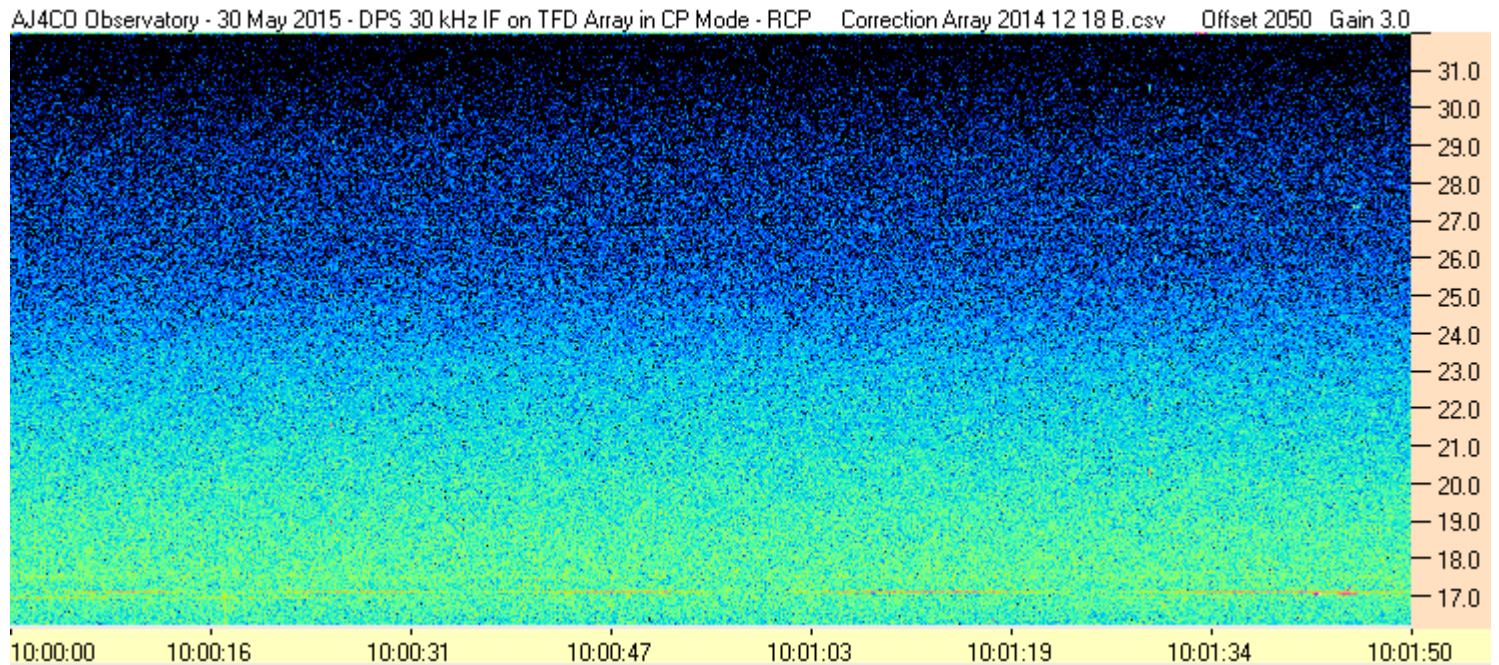
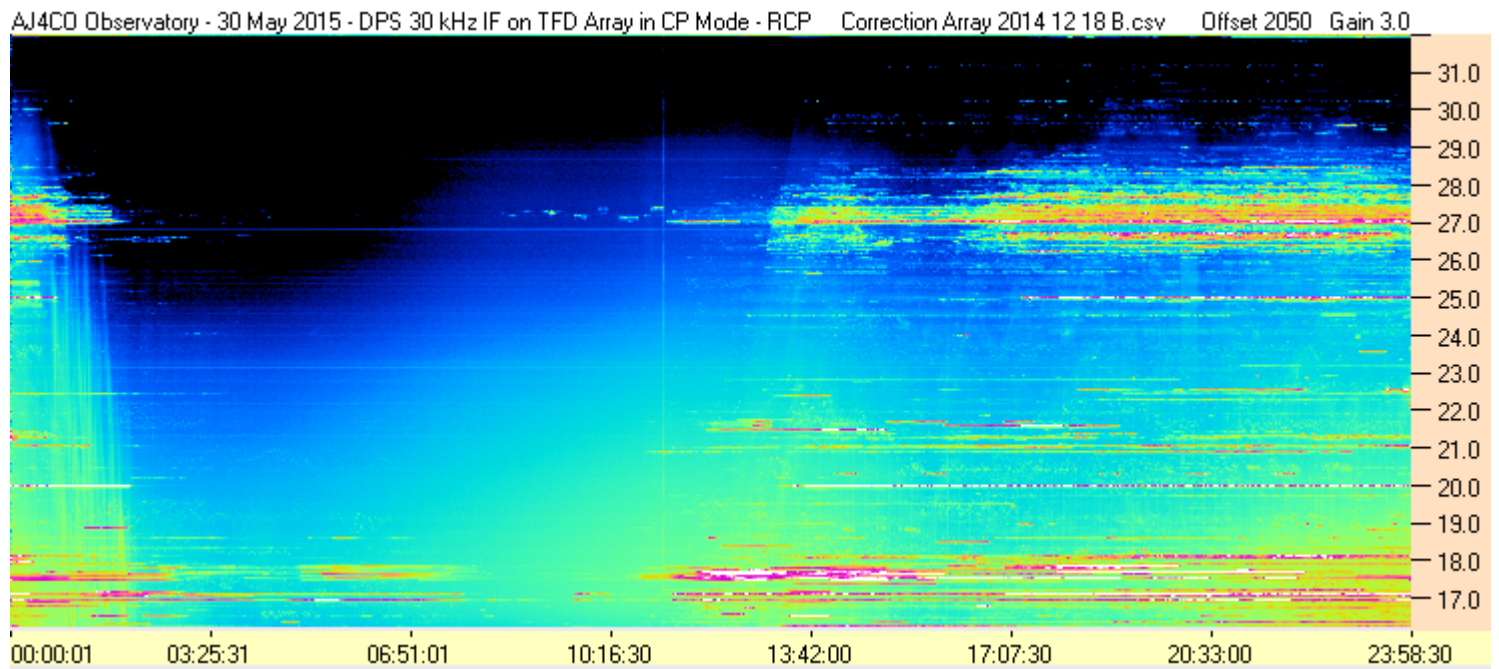
29 Mar 2015

No line noise present.



30 Mar 2015

No line noise present. Jupiter circa 0100 UTC.



31 Mar 2015

No line noise present.

