

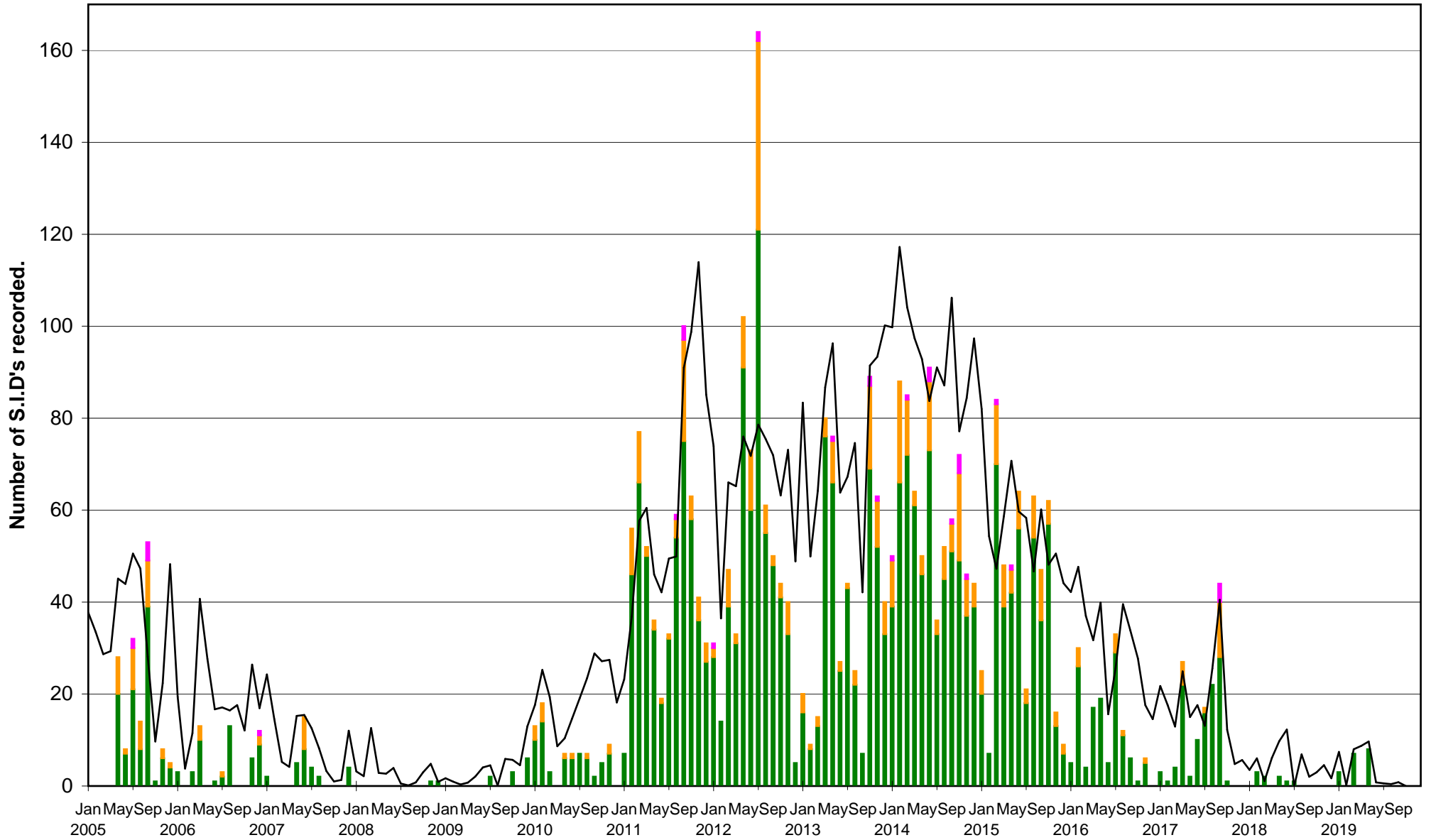
	Xray class	Observers	John Cook (23.4kHz/22.1kHz)	Roberto Battaiola (20.9kHz)	Paul Hyde (22.1kHz/24kHz)	Mark Edwards (24.0kHz)	Colin Clements (23.4kHz/18.3kHz)
			Tuned radio frequency receiver, 0.58m frame aerial.	Modified AAVSO receiver.	Spectrum Lab / PC 1.5m frame aerial.	Spectrum Lab / PC 2m loop aerial.	Tuned Radio Frequency receivers, 0.76m screened loop aerial.
DAY		0	START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)

	Xray class		Steve Parkinson (Various)	Andrew Thomas (23.4kHz)	Phil Rourke (23.4kHz)	Jim Barber	John Elliott (18.3kHz)
			Tuned radio frequency receiver, frame aeralis.	Tuned radio frequency receiver, 0.6m frame aerial.	Spectrum Lab, 0.6m frame aerial.	Spectrum Lab, 0.6m frame aerial.	Tuned radio frequency receiver, 0.5m frame aerial.
DAY			START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)

	Xray class		Colin Briden (22.1kHz)				
			Spectrum Lab / PC, 1.2m frame aerial.				
DAY			START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)

# VLF flare activity 2005/19.

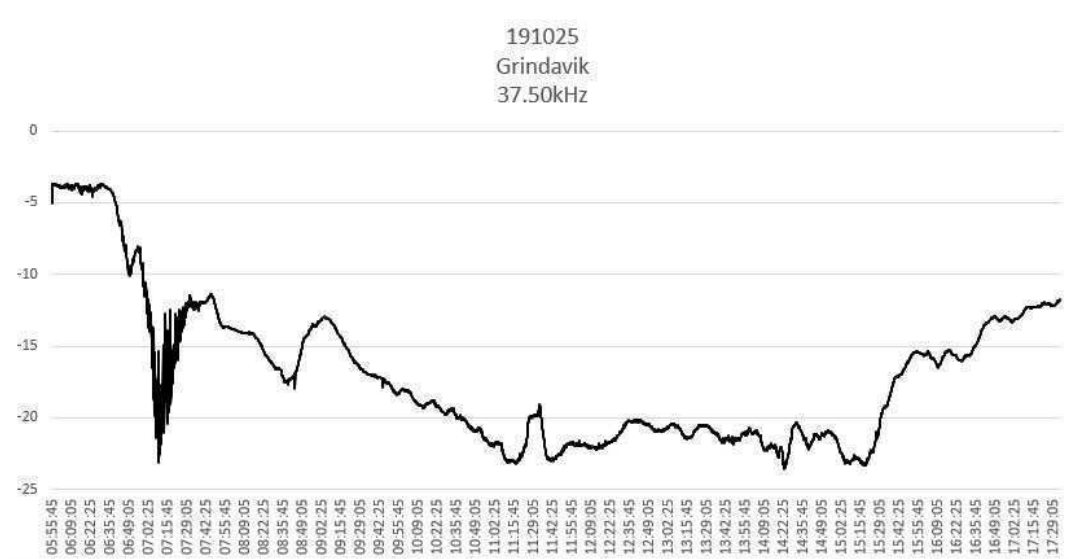
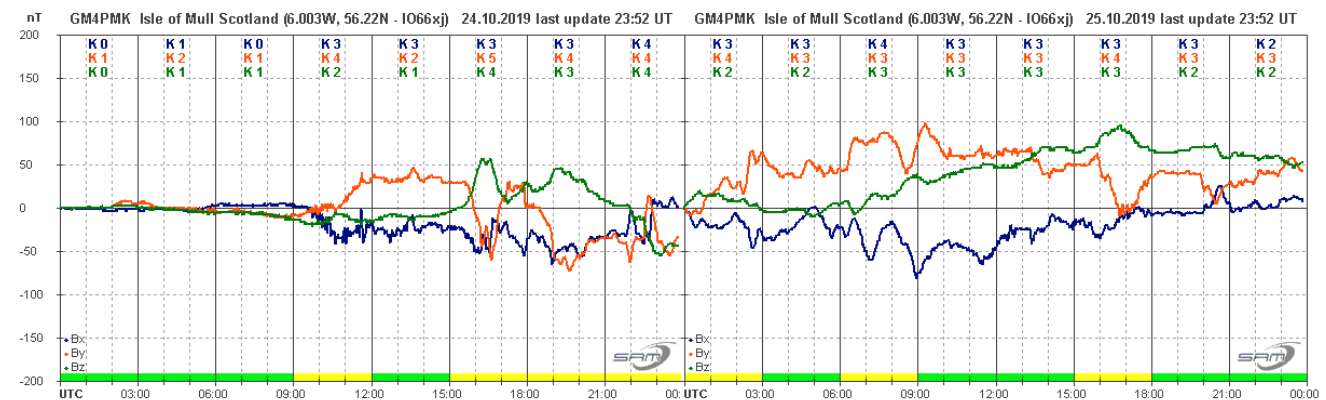
C M X — Relative sunspot number



No flares were recorded in October, the sun remaining very quiet. The space weather bulletin reported a B1.7 flare early on October 1<sup>st</sup>. as a very small region AR 12749 appeared. This only lasted a few hours, the X-ray flux again remaining at very low levels. Andrew Thomas reported the appearance of a new signal at 19.1kHz, not shown in any of the frequency lists on the web. Mark Edwards showed that its diurnal response should place the source at a similar longitude to the UK, and bearings taken by Andrew and myself showed it to be somewhere to the south. Jean-Louis Rault (near Saint Assise, France) confirmed that it was from the Rosnay HWU transmitter. It is still present as I write this in mid-November.

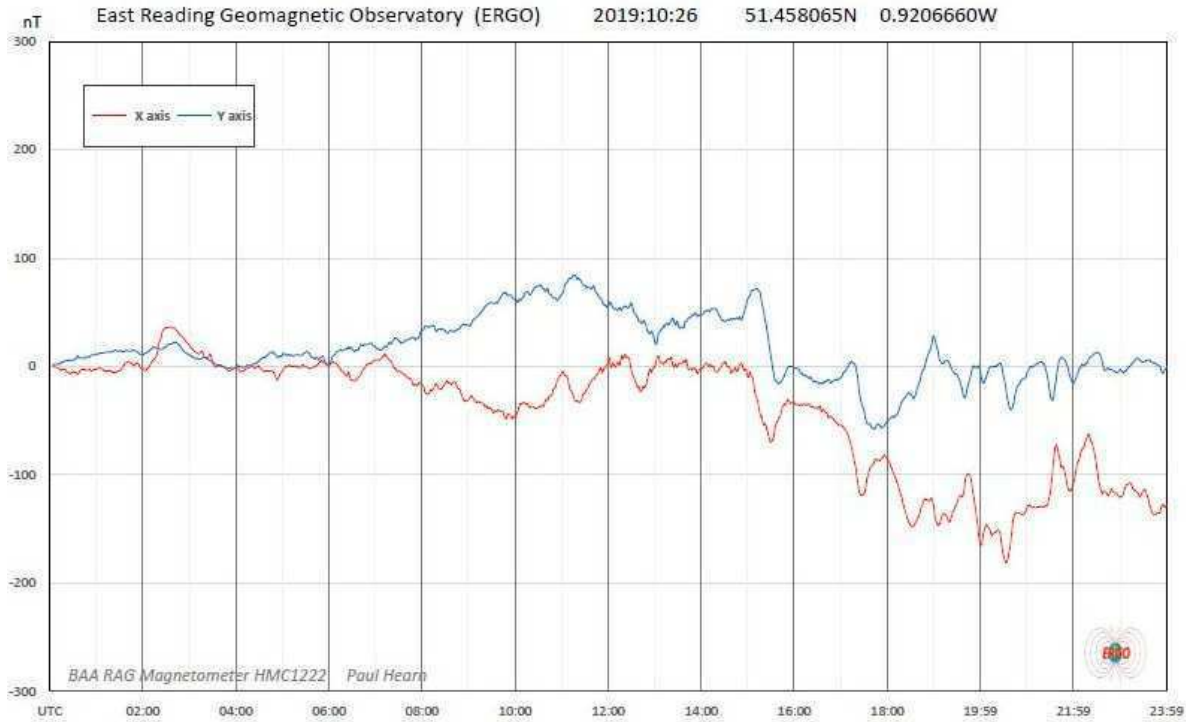
### MAGNETIC OBSERVATIONS.

The magnetic disturbance from the end of September continued into the early hours of October 1<sup>st</sup> before fading out. The coronal hole responsible for that disturbance made yet another appearance (its fifth so far in our records) with activity present from October 22<sup>nd</sup> to the 28<sup>th</sup>.

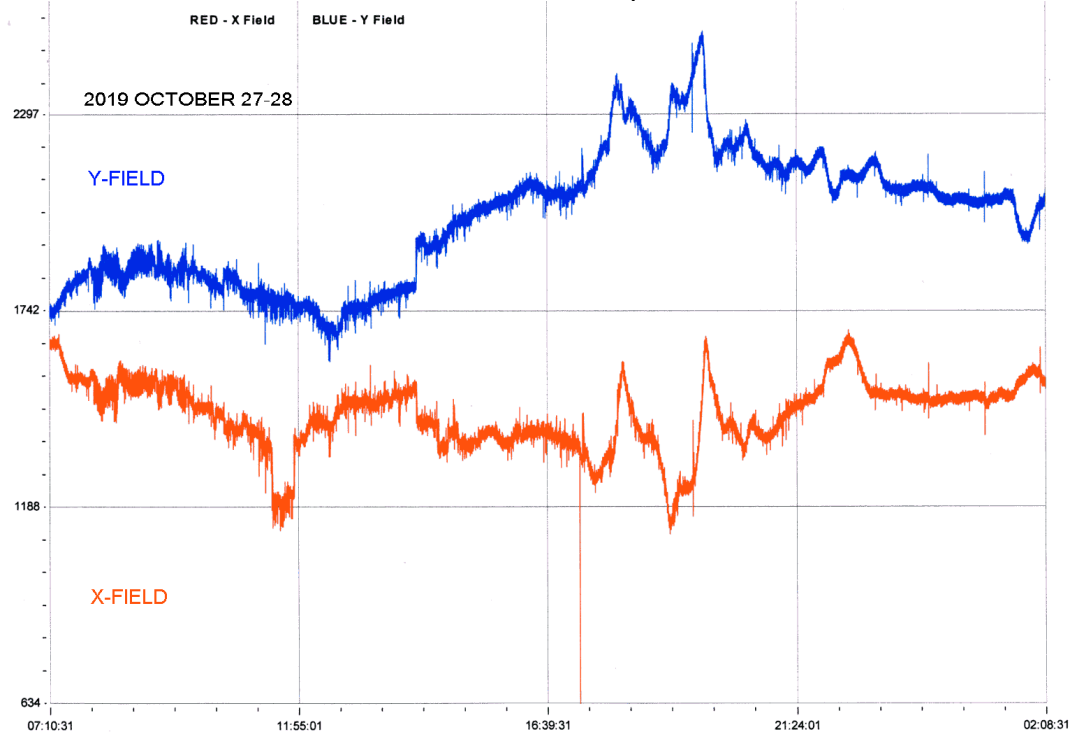


The top chart is the magnetometer recording for 24<sup>th</sup> and 25<sup>th</sup> by Roger Blackwell, the lower chart showing the Grindavik 37.5kHz signal monitored by Colin Briden on the 25<sup>th</sup>. The magnetic disturbance is probably too complex to match individual features, but the VLF signal is certainly very active. Colin used an Icom R75 receiver that tunes down to 30kHz, with an active loop aerial.

This activity continued into the 27<sup>th</sup>, shown here in the recording by Paul Hearn:

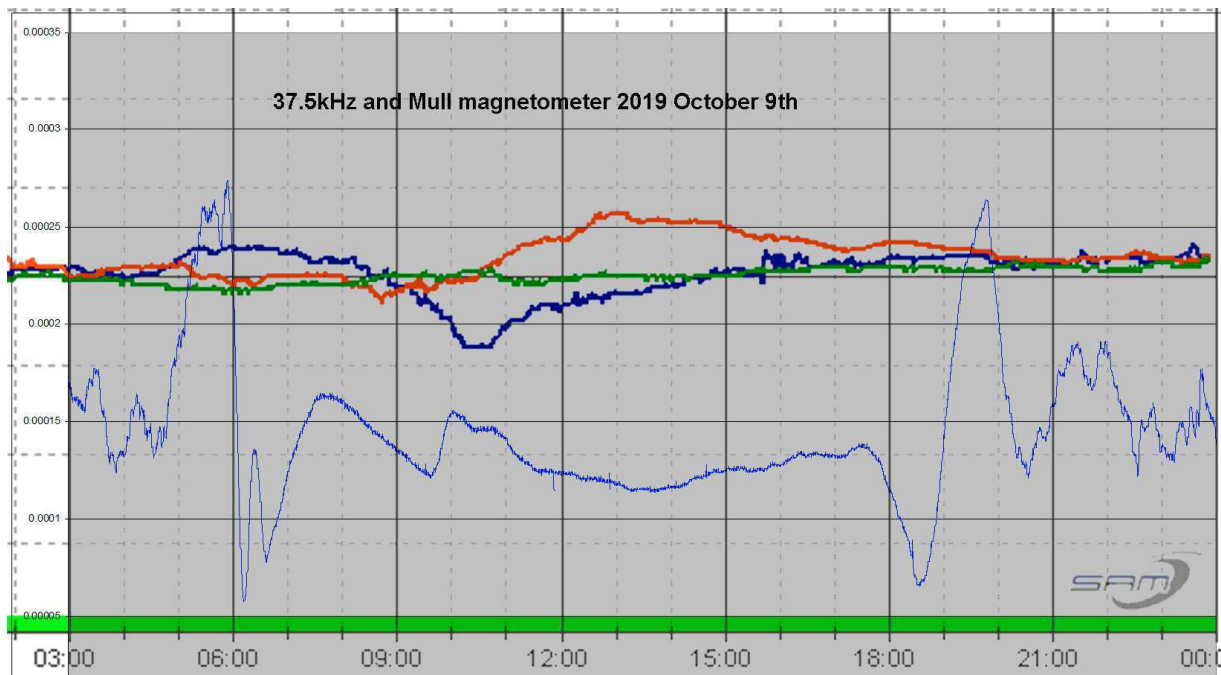


and into the 27<sup>th</sup> and 28<sup>th</sup>, shown in this chart by Colin Clements:



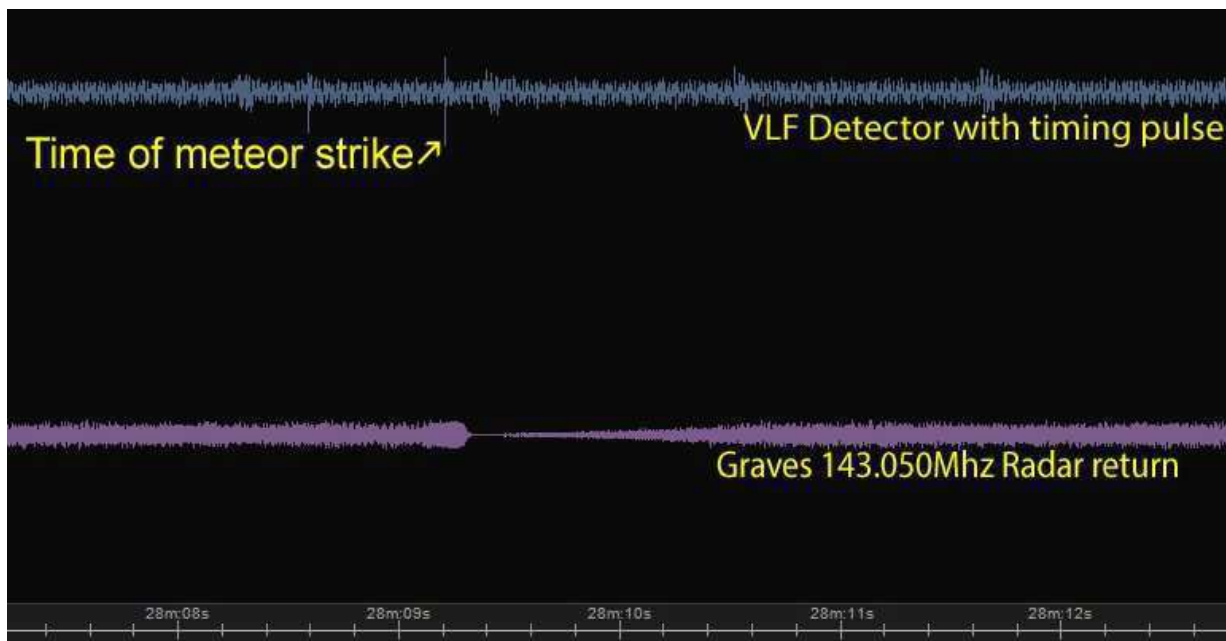
Minor magnetic disturbances continued into the 29<sup>th</sup>, but all was quiet again by the end of the month.

Changes in the polarity of the interplanetary magnetic field were recorded in satellite data on October 9<sup>th</sup>, giving rise to some very brief disturbances seen at 37.5kHz as well as by the magnetometers. Mark Edwards has combined his 37.5kHz signal with Roger Blackwell's magnetometer recording to show this activity:



The dip in the Bx (blue) trace matches well with the SID-like feature at 37.5kHz between 09 and 12UT.

A possible link between meteor activity and VLF emission has been discussed in the past, with a paper by David Morgan published on our old website in 2015. New member Christopher Bailey has been looking into this connection, making this recording in the morning of October 31<sup>st</sup>:



I have trimmed the image so that the sharp spike on the VLF trace is clearly visible above the GRAVES radar signal. There are also one second timing pulses present on the VLF trace, just visible above the background noise level. A site well away from local interference was used for this observation.

Magnetic observations received from Colin Clements, Paul Hearn, Roger Blackwell and John Cook.

BARTELS DIAGRAM

ROTATION	KEY:	DISTURBED.	ACTIVE	SFE	B, C, M, X = FLARE MAGNITUDE.	Synodic rotation start (carrington's).
2498	F	10 11 12 13 14	15 16 17 18 19 20 21 22	23 24 25 26 27 28 29 30	2182 21 CCB CCCC	2016 October 1 2 3 4 5 6
2499	F	7 8 9 10 11	12 13 14 15 16 17 18 19	20 21 22 23 24 25 26 27 28 29 30 31	2183	2016 November 1 2
2500	F	3 4 5 6 7 8	9 10 11 12 13 14 15	16 17 18 19 20 21 22 23 24 25 26 27 28 29	2184	2016 November C CCM
2501	F	30 CC 1 2 3 4 5	6 7 8 9 10 11 12 13	14 15 16 17 18 19 20 21 22 23 24 25 26	2185	
2502	F	27 28 29 30 31	1 2 3 4 5 6 7 8 9 10	11 12 13 14 15 16 17 18 19 20 21 22	2186	2017 January C CC
2503	F	23 24 25 26 27 28 29 30 31	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	19 20 21 22 23 24 25 26 27 28 29 30	2187	2017 February C
2504	F	19 20 21 22 23 24 25 26 27 28	29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	18 19 20 21 22 23 24 25 26 27 28 29 30	2188	2017 March BB C B
2505	F	18 19 20 21 22 23 24 25 26 27 28 29 30 31	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	2189 2190	2017 April CCCM CBCC CBB CC BC C
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2507	F	11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	2192	2017 June BB BC CCC C
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