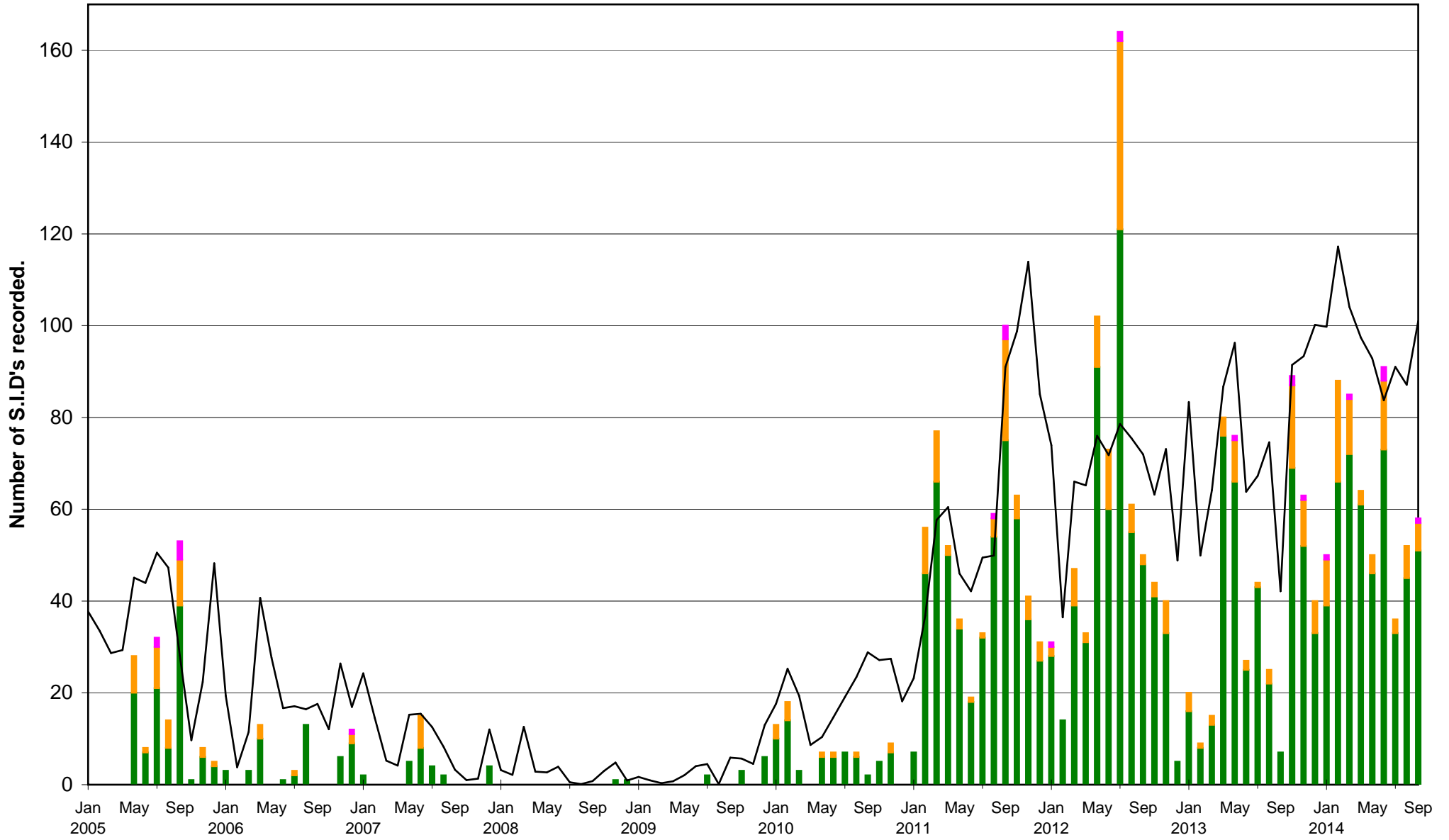
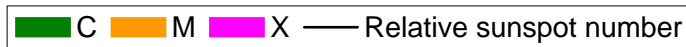




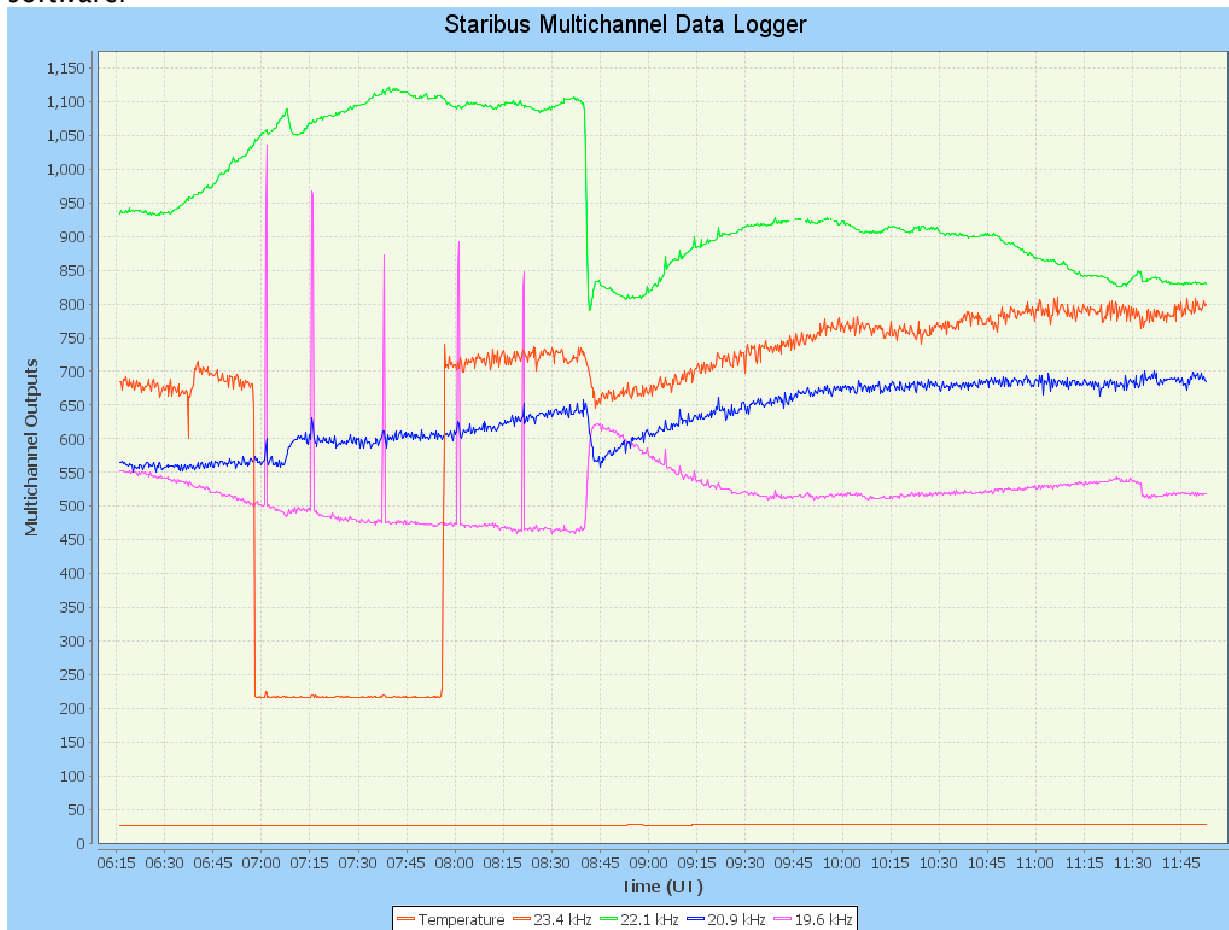
		Colin Clements (23.4kHz/22.1kHz)	Gordon Fiander (19.6/22.1kHz)	Richard Kaye (Various)	John Wardle (19.6/23.4kHz)	Steve Parkinson (19.6-23.4kHz)
		AAVSO receiver, 0.76m screened loop aerial.	PC sound card.	Pre-amplifier + PC software receiver.	PC soundcard, 0.7m frame aerial.	Tuned radio frequency receivers, frame aerials.
DAY		START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)
1	C1.4					
1	C1.7					
2	C2.2	11:58 12:10 12:59 2+				
2	C3.7	12:59 13:15 13:41 2				
2	?	13:41 13:58 14:29 2+				
2	?					
2	?					
3	C1.3					
3	C1.6					
3	M2.5	13:10 13:46 16:42 3+				13:19 13:48 15:30 3+
4	C3.1					10:02 10:12 10:30 1+
4	?					
4	C2.2					
4	C1.8					
4	C6.3	13:10 13:30 14:42 3				13:14 13:32 14:00 2+
4	C1.5					
4	C5.7					16:23 16:34 17:10 2+
4	C3.9					
5	*					
5	C3.2	09:27 09:37 10:16 2+				06:53 07:16 07:44 2+
5	C1.8					09:31 09:35 09:50 1
6	C8.0					08:00 08:20 ? -
6	*					
6	C2.5					11:26 11:31 ? -
6	M1.1	16:51 17:09 17:34 2				16:54 17:10 17:53 2+
6	C4.7					
7	C2.2					10:03 10:13 10:24 1
7	C2.2					12:04 12:16 12:48 2
7	*					
7	?					
7	?					
7	?					
7	C3.3	14:33 14:41 16:15 3				14:37 14:43 15:06 1+
7	?					
8	C2.7					
9	C3.2	12:17 12:28 13:00 2				12:23 12:30 13:00 2
10	?	10:48 10:58 12:03 2+				
10	*					10:52 10:59 11:15 1
10	*					
10	X1.6	17:22 17:37 18:57 3				17:25 17:41 ? -
11	C2.0					
11	?					
11	C2.4					14:34 14:40 14:55 1
11	M2.1	15:19 15:27 16:52 3				15:23 15:29 16:20 2+
12	C1.2					
12	C3.2					09:32 09:47 10:15 2
12	?					
12	C1.5					12:33 12:36 12:48 1-
12	C1.5					
12	C1.4					
13	C3.7	12:49 12:53 14:09 2+				12:52 12:55 13:20 1+
13	C1.1					
16	C1.4					
16	?					
16	C1.6					
18	C6.4					
18	M1.2	08:36 08:41 09:45 2+				08:40 08:44 09:30 2+
18	C3.4					
19	C1.4					
20	C1.1					
20	C1.1					
21	C2.0					
21	C5.2	11:31 12:07 13:07 3				11:34 12:00 12:50 2+
21	C2.0					
24	C1.8					
24	?					
24	C7.0					
24	?					
25	C2.5	13:51 13:54 14:50 2+				13:52 13:55 14:10 1-
25	?					
26	*					
26	*					
26	C3.7	12:36 12:54 13:18 2				
26	*	13:18 13:20 13:53 2				
26	C4.2	13:53 13:56 14:24 1+				13:53 13:59 14:18 1
26	?					
26	*					
26	?					
26	C7.9					16:16 16:21 16:40 1
27	M1.0	08:34 08:39 09:17 2				08:35 08:40 09:17 2
27	?					
27	*					
27	*					
27	*					
27	?					
28	C6.3					
28	*					
28	C2.9					10:58 11:02 11:30 1+
28	?					
28	?					
28	M1.0					
29	*					
29	C2.1	10:49 11:06 11:42 2+				10:56 11:05 11:30 2
29	*	12:03 12:24 13:01 2+				12:08 12:22 12:46 2
29	?					
29	?					
30	*					
30	?					

# VLF flare activity 2005/14.



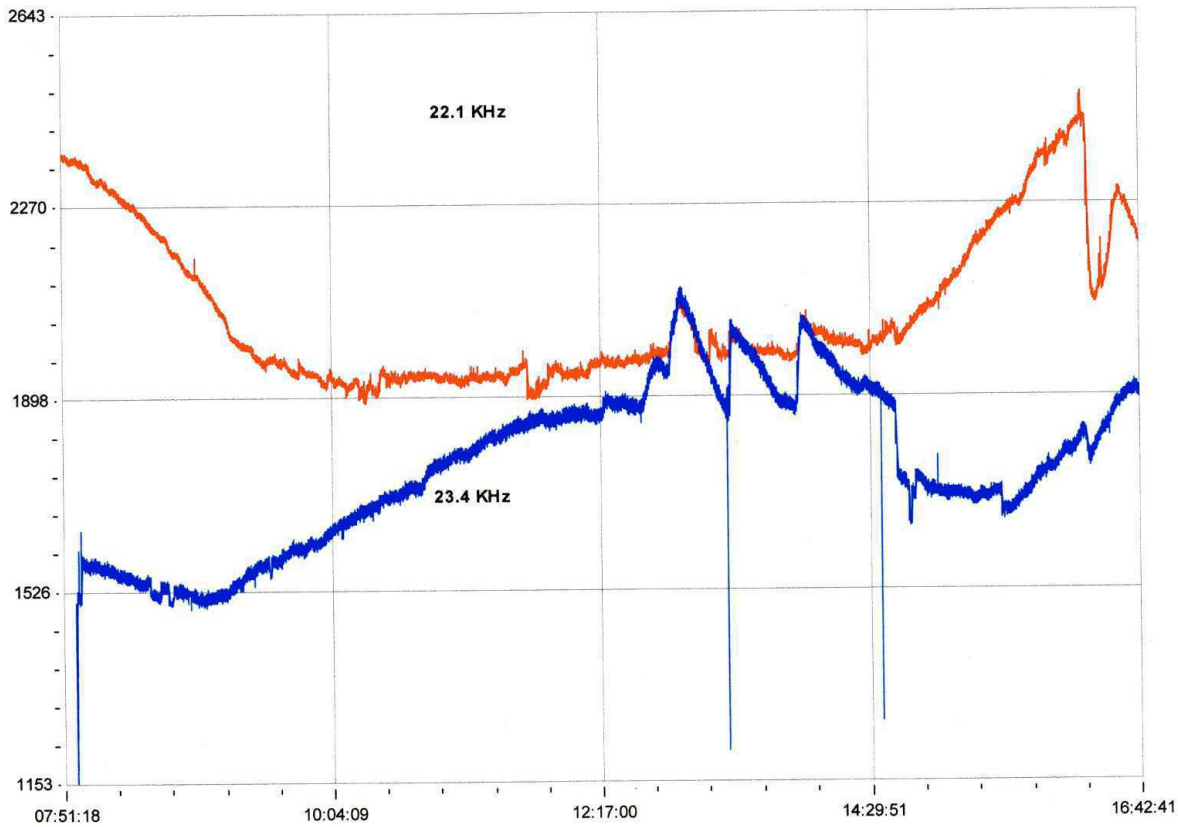
Along with a rise in Sunspot numbers, flare activity was also up again with 58 flares recorded as SIDs. Including multiple peaked flares and those not listed by the SWPC, there were a total of 98 SIDs recorded. The most energetic flare was an X1.6 event, recorded on the 10<sup>th</sup>. Although rather late in the afternoon at this time of year, it did show well just before sunset.

Satellite eclipses have again left some gaps in the GOES15 X-ray data. The M1.2 flare peaking at 08:40UT on the 18<sup>th</sup> fell into one of these gaps. It was well recorded by Steve Parkinson using Starbase software:



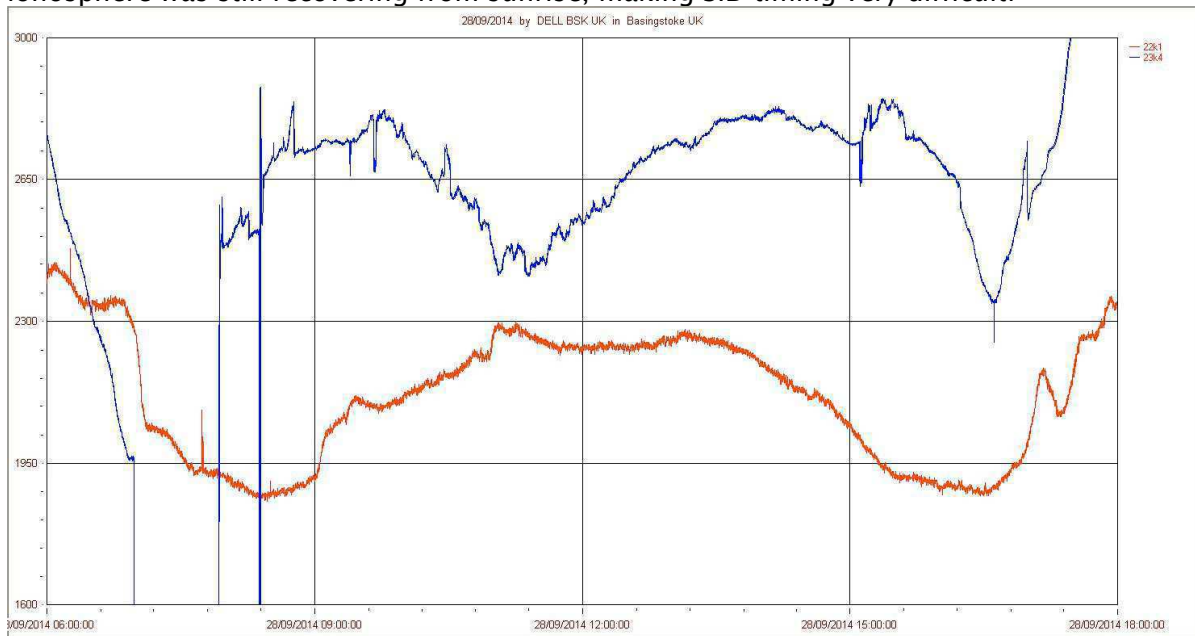
The strongest SID was seen at 22.1 kHz (green), with a strong response at 19.6 kHz (Magenta). The spikes prior to this were from local interference. Red is 23.4 kHz, blue is 20.9 kHz. The earlier C6.4 flare peaking at 07:10 is also visible as a SID at 22.1 and 20.9 kHz.

Activity increased considerably towards the end of September as more complex sunspot groups developed. On the 26<sup>th</sup>, Colin Clements recorded a nice trio of 'shark-fin' SIDs as shown in his chart at the top of the next page. Blue is 23.4 kHz, which shows them particularly well. There is also a hint of the earlier flares listed in the tables at 12:20 and 12:42 UT. AR 2172, AR 2175 and AR 2177 were responsible for the flares, with some overlap making timings a little difficult.



Colin Clements, September 26<sup>th</sup>.

AR2173 joined with AR2172 producing flares on the 28<sup>th</sup>. The first of these, at C6.3, occurred while the ionosphere was still recovering from sunrise, making SID timing very difficult:

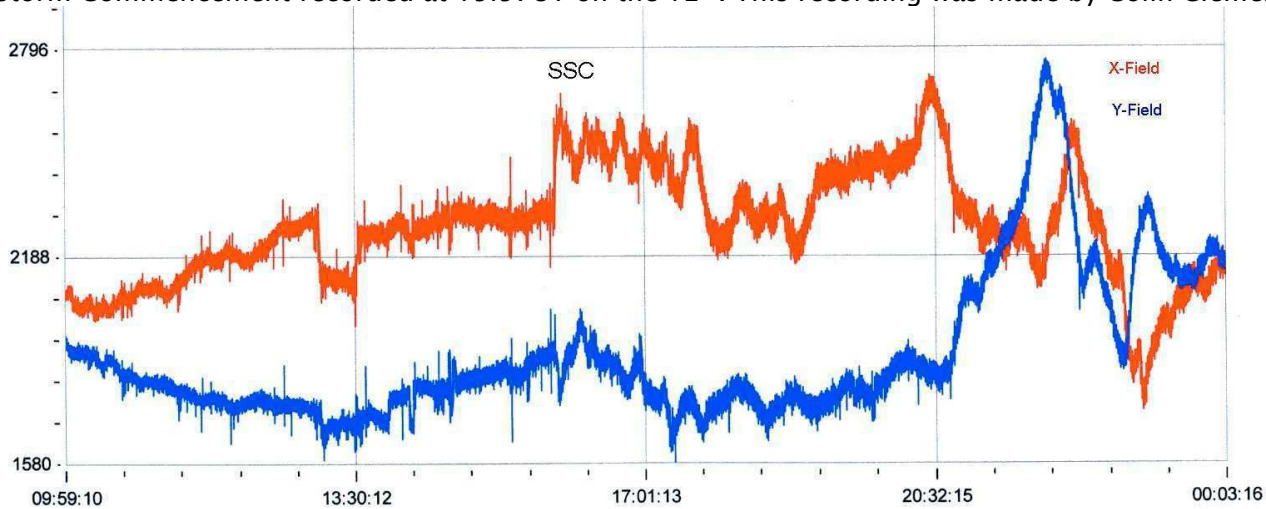


This recording by Paul Hyde shows 23.4kHz in blue and 22.1kHz in red. The C6.3 flare is lost in the 23.4kHz signal break, but the start and peak can be seen at 22.1kHz. A SID from the C2.9 flare at 11:02 is easier to see, while the SID from the M1.0 flare at 17:08 is distorted by sunset.

No reports of ionospheric oscillations were received for September.

## MAGNETIC OBSERVATIONS.

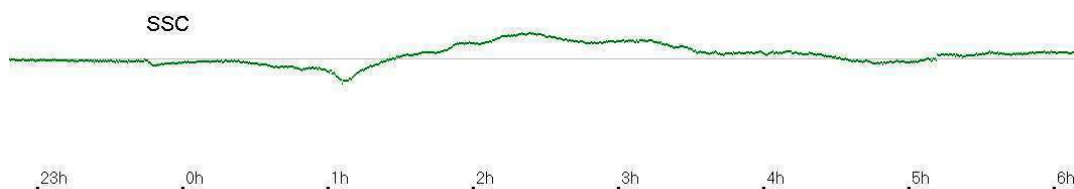
Increased flare activity led to increased magnetic activity, including a fast CME from the X1.6 flare on the 10<sup>th</sup>. Although the SID was quite late in the afternoon, the CME was Earth-directed and caused a Sudden Storm Commencement recorded at 15:57UT on the 12<sup>th</sup>. This recording was made by Colin Clements:



There is a local disturbance just before 13:30, but the SSC itself is quite clear in the X-field (red) at 15:57, followed by some rapid oscillations. The field becomes quite active after 20:30, and continues into the morning of the 13<sup>th</sup>. Taking the X-ray peak of the flare at 17:40UT gives a CME transit time of 49h 17m. This disturbance was also recorded by Roger Blackwell in Mull, and Gonzalo Vargas in Bolivia.

A smaller SSC was recorded at 23:46 UT on the 11<sup>th</sup>. This marked the arrival of a CME associated with an M4.5 flare peaking at 00:29UT on the 9<sup>th</sup>.

2014 September 12



We do not have a SID recorded from this flare, so using the GOES15 X-ray peak at 00:29 gives a transit time of 71h 17m. This CME hit with only a glancing blow, and so the magnetic disturbance was fairly gentle compared to that from the X1.6 flare. I measured a total shift of 96nT for this disturbance, compared to 145nT for the later event.

CHSS effects caused a disturbance through most of the 19<sup>th</sup>. A solar sector boundary crossing combined with a generally high solar wind speed caused numerous disturbances from the 22<sup>nd</sup> onwards. I believe that aurora were widely seen through Scandinavia and North America, but I have received no reports of visibility in the UK. There were no SFE's recorded in September.

Magnetic observations received from Roger Blackwell, Colin Clements, John Cook and Gonzalo Vargas.

BARTELS DIAGRAM

ROTATION	KEY:	DISTURBED.	ACTIVE	SFE	B, C, M, X = FLARE MAGNITUDE.	Synodic rotation start (carrington's).
2423	F	24 MCC	25 C	26 C	27 MC	2011 March 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
2424	F	23 BC	24 MCB	25 C	26 C	2011 April 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
2425	F	19 B	20 BBC	21 CCC	22 CCMCC	2011 May 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
2426	F	16 17	18 CCC	19	20	2011 June 1 2 3 4 5 6 7 8 9 10 11
2427	F	12	13 14	15	16 17	2011 July 1 2 3 4 5 6 7 8
2428	F	9 10 11 12	13 C	14 C	15 16 17 18	2011 August 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
2429	F	5 6 7	8 GMC	9 CMXC	10 CCCC	2011 September 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
2430	F	1 2	3 CCCC	4 CMCC	5 M	2011 October 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
2431	F	28 CCM	29 CC	30 M	2011 November 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	
2432	F	25	26 C	27 C	2011 December 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	
2433	F	21 C	22 C	23 C	2012 January 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	
2434	F	18 B	19 C	20 CCCC	2012 February 1 2 3 4 5 6 7 8 9 10 11 12 13	
2435	F	14 CMC	15 C	16 CC	2012 March 1 2 3 4 5 6 7 8 9	
2436	F	10 CC	11 CCCC	12 C	2012 April 1 2 3 4 5 6 7	
2437	F	8 C	9 CC	10 CCM	2012 May 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	
2438	F	4 C	5 BC	6 C	2012 June 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	
2439	F	1	2 CBCC	3 CC	2012 July 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	
2440	F	28 BB	29 C	30 CCCC	2012 August 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	
2441	F	24	25 C	26 CCCC	2012 September 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	
2442	F	21	22 CB	23 CCCC	2012 October 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	
2443	F	17 CMC	18 MCM	19	2012 November 1 2 3 4 5 6 7 8 9 10 11 12	
2444	F	13 CCC	14	15	2012 December 1 2 3 4 5 6 7 8 9	
2445	F	10 CMBC	11 CCC	12 CB	2013 January 1 2 3 4 5	
2446	F	6	7	8	2013 February 1 2	
2447	F	2131 3	4	5	2013 March 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20	
2448	F	2132 30 31	2013 April 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			
2449	F	2133 26 27 28 29 30 31	2013 May 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21			
2450	F	2134 22 23 24 25 26 27 28	2013 June 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20			
2451	F	2135 21 22 23 24 25 26 27 28 29 30 31	2013 July 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16			
2452	F	2136 17 18 19 20 21 22 23 24 25 26 27 28 29 30	2013 August 1 2 3 4 5 6 7 8 9 10 11 12 13			
2453	F	2137 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	2013 September 1 2 3 4 5 6 7 8 9			
2454	F	2138 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	2013 October 1 2 3 4 5 6			
2455	F	2139 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	2013 November 1 2			
2456	F	2140 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				
2457	F	2141 30 31	2013 December 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15			
2458	F	2142 26 27 28 29 30				
2459	F	2143 23 24 25 26 27 28 29 30 31				
2460	F	2144 19 20 21 22 23 24 25 26 27 28 29 30 31				

BARTELS DIAGRAM

	F	X	CC	M	C	CCM	CC		C	C		C	C		C	CCC	CC	C	CC	CC						
2461					2145																					
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	2014 January									
2462					2146																					
	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	2014 February					
2463					2147																					
	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	2014 March				
2464					2148																					
	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	2014 April
2465					2149																					
	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
2466		2014 May			2150																					
	30	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
2467					2014 June																					
	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
2468					2152																					
	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
2469					2153																					
	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
2470					2154																					
	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	2014 September									
2471					2155																					
	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	2014 October						