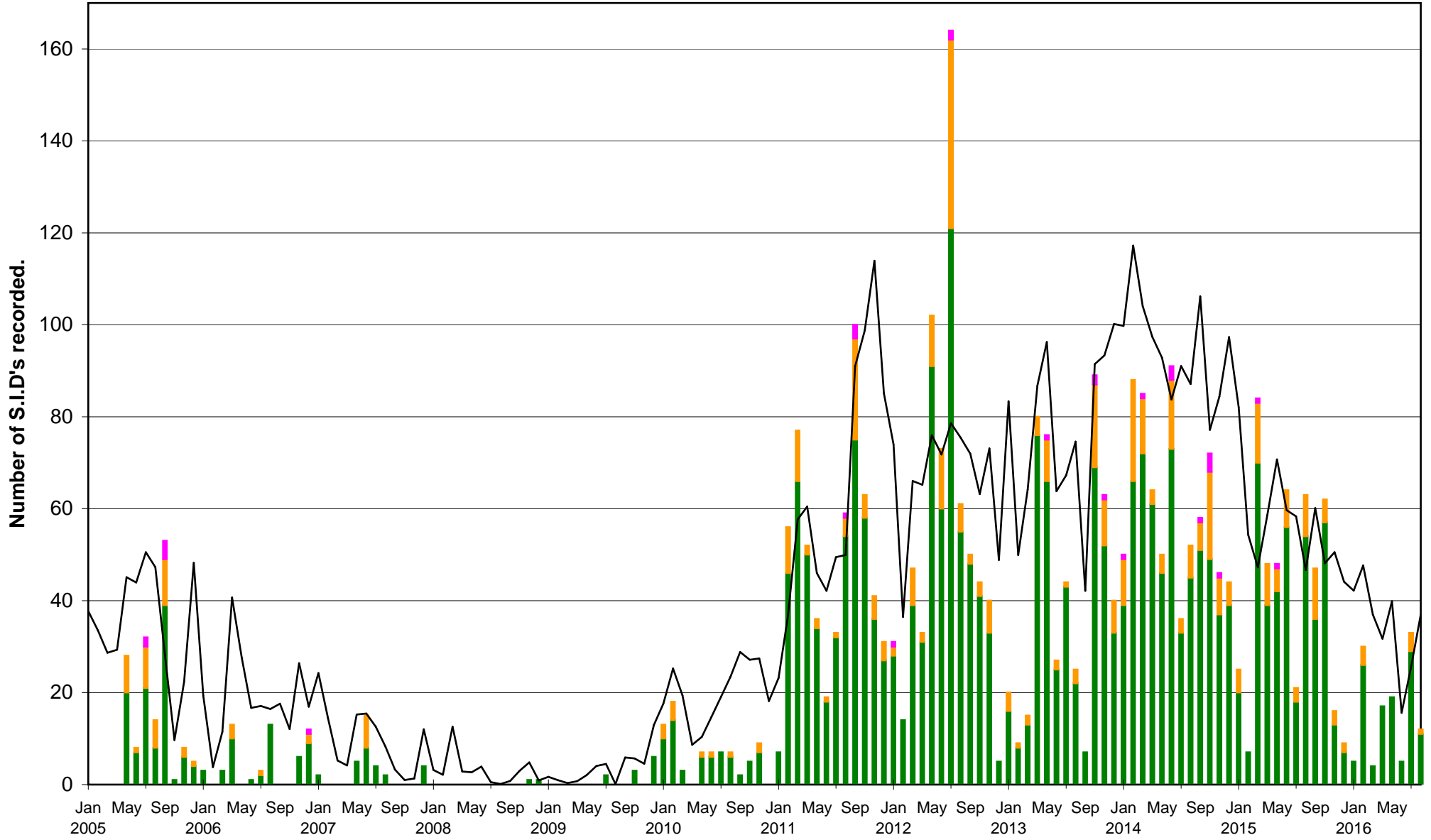


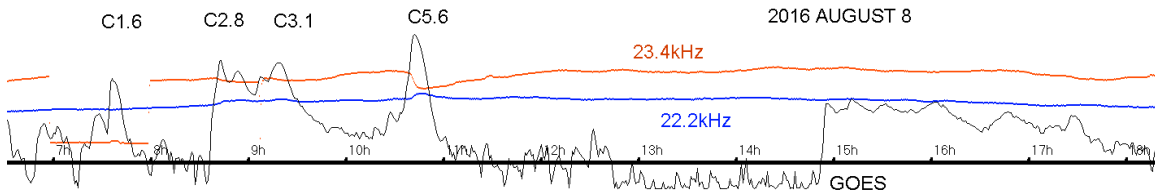
DAY	Xray class	Observers	John Cook (23.4kHz/22.1kHz)	Roberto Battaiola (21.75kHz)	Paul Hyde (22.1kHz)	Mark Edwards (20.9/24.0/19.6kHz)	Colin Clements (23.4kHz/22.1kHz)
			Tuned radio frequency receiver, 0.58m frame aerial.	Modified AAVSO receiver.	Spectrum Lab / PC 1.5m frame aerial.	Spectrum Lab / PC 2m loop aerial.	AAVSO receiver, 0.76m screened loop aerial.
			START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)
5	C1.4	2			10:12 10:16 10:32 1	10:12 10:15 10:49 2	
7	C1.6	5	10:23 10:24 10:27 1-		10:22 10:27 11:07 2	10:21 10:28 10:49 1+	10:19 10:25 10:41 1
7	C2.4	5	13:33 13:41 14:23 2+		13:31 13:42 14:24 2+	13:32 13:42 14:36 2+	13:29 13:41 14:39 2+
7	M1.3	5	14:40 14:45 ? -		14:40 14:48 ? -	14:40 14:45 ? -	14:39 14:45 15:04 1
7	C8.5	5	15:06 15:09 15:45 2		15:07 15:11 15:56 2+	15:06 15:13 16:08 2+	15:04 15:08 17:04 3
8	C1.6	1			07:37 07:41 07:57 1		
8	C2.8	3	08:40 08:45 ? -		08:39 08:48 ? -	08:41 08:49 ? -	
8	?	1				08:52 08:58 ? -	
8	?	1				09:07 09:11 ? -	
8	C3.1	5	09:14 09:21 09:35 1		09:16 09:23 09:52 2	09:16 09:22 ? -	09:12 09:22 09:49 2
8	C5.6	5	10:41 10:44 11:50 2+		10:39 10:47 12:00 2+	10:37 10:48 11:30 2+	10:35 10:48 11:46 2+
9	C2.5	4	08:52 08:55 09:04 1-		08:52 09:00 09:30 2	08:53 08:58 09:43 2+	
10	B8.4	2			14:33 14:50 15:19 2+	14:37 14:51 15:21 2	
11	C2.4	3	16:39 16:44 16:59 1		16:37 16:45 17:30 2+	16:38 16:44 17:16 2	
14	C1.1	1				19:34 19:38 19:50 1-	
30	?	1				14:15 14:26 ? -	
30	?	1				14:28 14:30 14:48 1	
30	?	1				18:23 18:42 19:43 2+	

DAY	Xray class	Observers	Steve Parkinson (Various)	John Wardle (19.6/23.4kHz)	Phil Rourke (23.4kHz)	Jim Barber	John Elliott (18.3kHz)
			Tuned radio frequency receiver, frame aerials.	PC soundcard, 0.7m frame aerial.	Spectrum Lab, 0.6m frame aerial.	Spectrum Lab, 0.6m frame aerial.	Tuned radio frequency receiver, 0.5m frame aerial.
			START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)
5	C1.4						
7	C1.6		10:22 10:25 10:43 1				
7	C2.4		13:31 13:40 14:30 2+				
7	M1.3		14:40 14:46 ? -				
7	C8.5		15:06 15:10 15:38 1+				
8	C1.6						
8	C2.8						
8	?						
8	?						
8	C3.1		09:16 09:23 09:50 2				
8	C5.6		10:39 10:47 11:30 2+				
9	C2.5		08:52 08:58 09:15 1				
10	B8.4						
11	C2.4						
14	C1.1						
30	?						
30	?						
30	?						

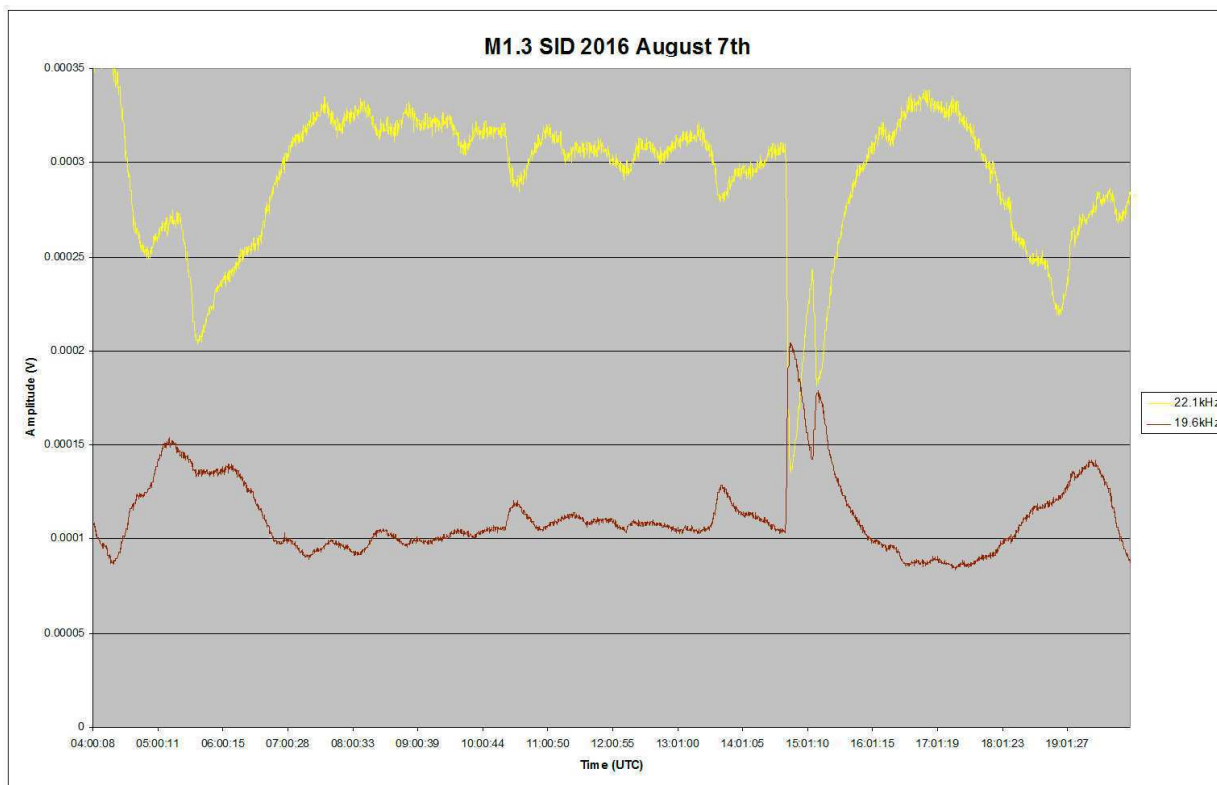
VLF flare activity 2005/16.



Flare activity in August is down again with just 13 SIDs classified. The total SID count is a little higher, partly due to a multi-peaked flare on the 8th.



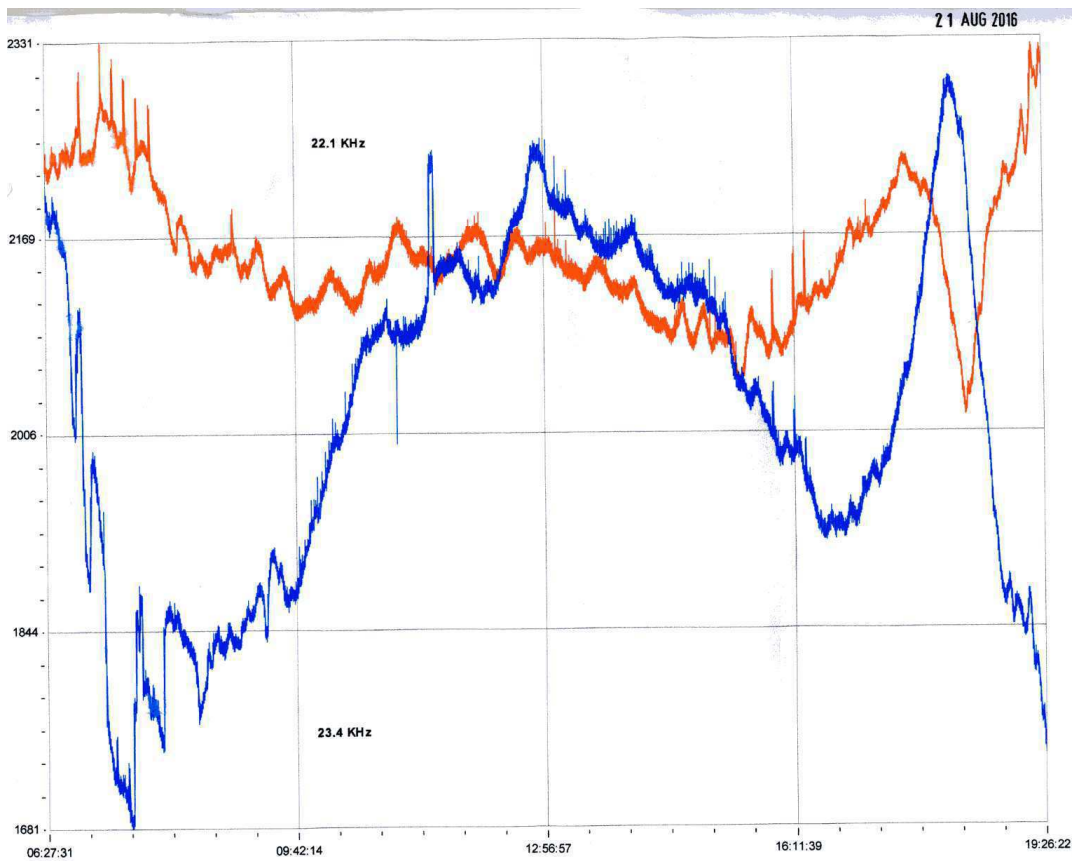
I have added the GOES X-ray data to my own recording, showing the extra peaks around 09UT. AR12572 was responsible for the C2.8 flare, while AR12574 created the C3.1 peak.



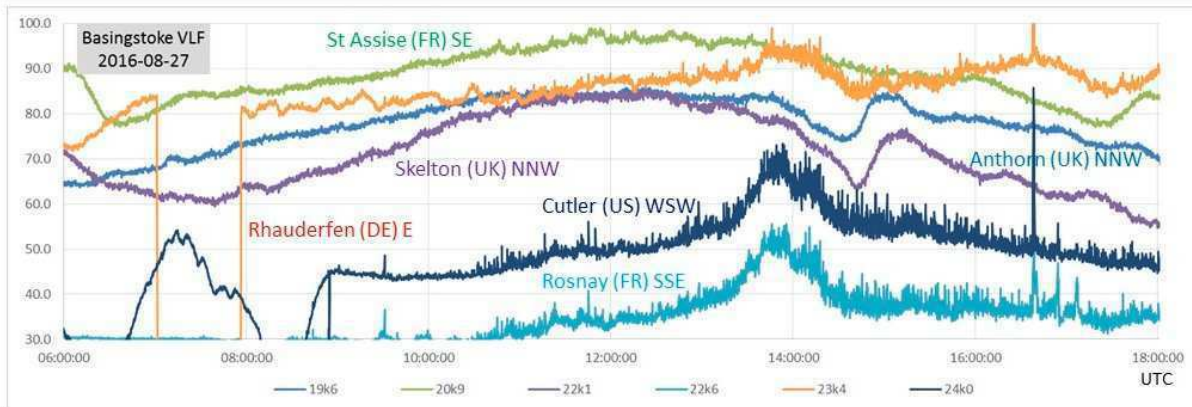
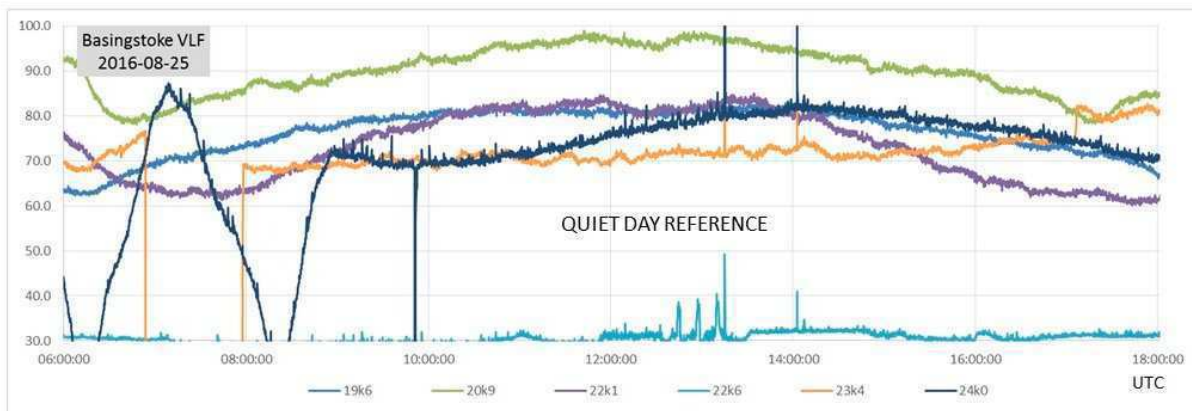
This recording by Mark Edwards shows the M1.3 flare peaking at 14:45, followed rapidly by the C8.5 flare at 15:13UT. Both appear to be from AR12572, which was right on the western limb at the time. Although it was a very small active region, it was magnetically complex and continued flaring as it rotated out of view.

After this short burst of solar activity, the background X-ray flux level dropped to about B1 or B2, allowing the B8.4 flare on the 10th to be recorded. The background dropped even further, reaching A9 by the 16th. There were just a few very weak flares over the next two weeks, the background rising again by the 28th as new active regions appeared. The three SIDs recorded on the 30th are not listed in the SWPC bulletin, although the X-ray data shows them to have been at least of C2 magnitude. 23.4kHz was off-air for most of the day on the 30th, and so I have no chart to show.

The low activity level allowed some strong oscillations to be recorded. Mark Edwards reported oscillations on the 18th, strongest at 19.6 and 22.1kHz, possibly associated with a depression crossing the country at the time. Colin Clements observed them on the 21st, strongest at 22.1kHz, shown in his chart:



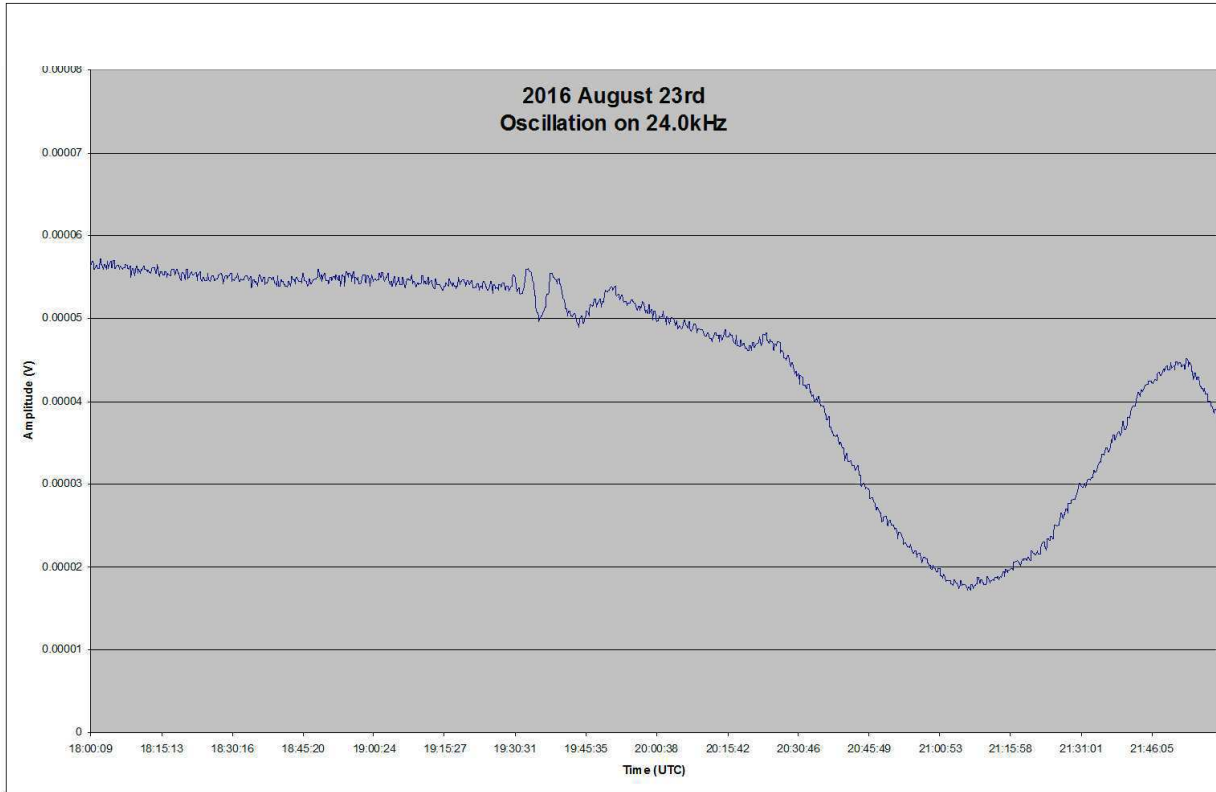
Paul Hyde recorded the following chart on August 27th, with one from the 25th as comparison:



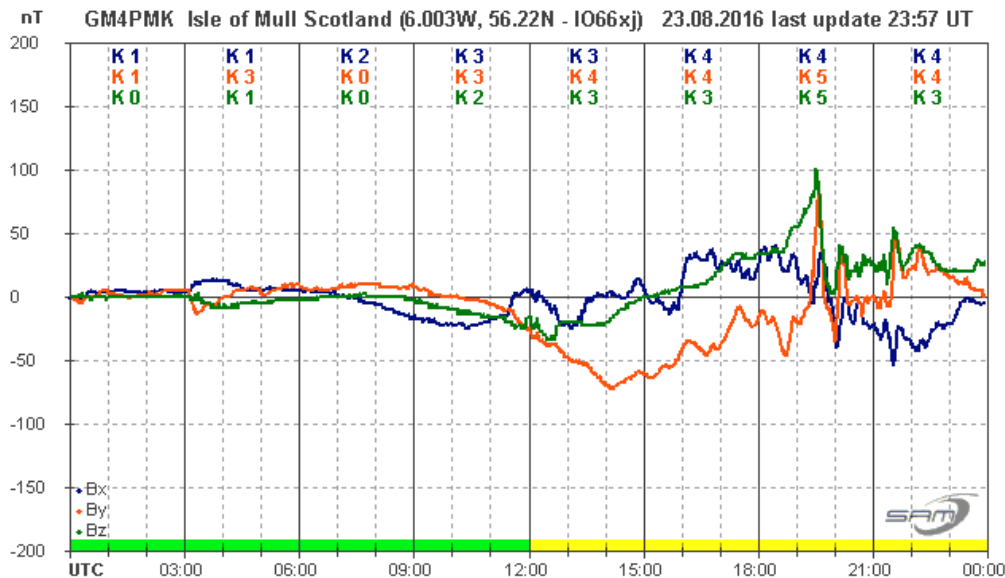
The two UK signals show similar pulses with dips followed by peaks around 15UT, while Rosnay, Cutler and Rhauderfen show a strong peak around 14UT. I have recorded similar behaviour two or three hours before

the sunset dip in signal strength, Rhauderfen usually occurring an hour before Anthorn. I have assumed that this is due to the westwards progress of sunset through the ionosphere although I have seen no other reference to this. The similarity of response from Cutler to the west and Rhauderfen to the east in Paul's chart puts a question mark on that idea, so I would be interested to hear if anyone has another suggestion as to its cause. There was no unusual magnetic activity at the time.

MAGNETIC OBSERVATIONS.

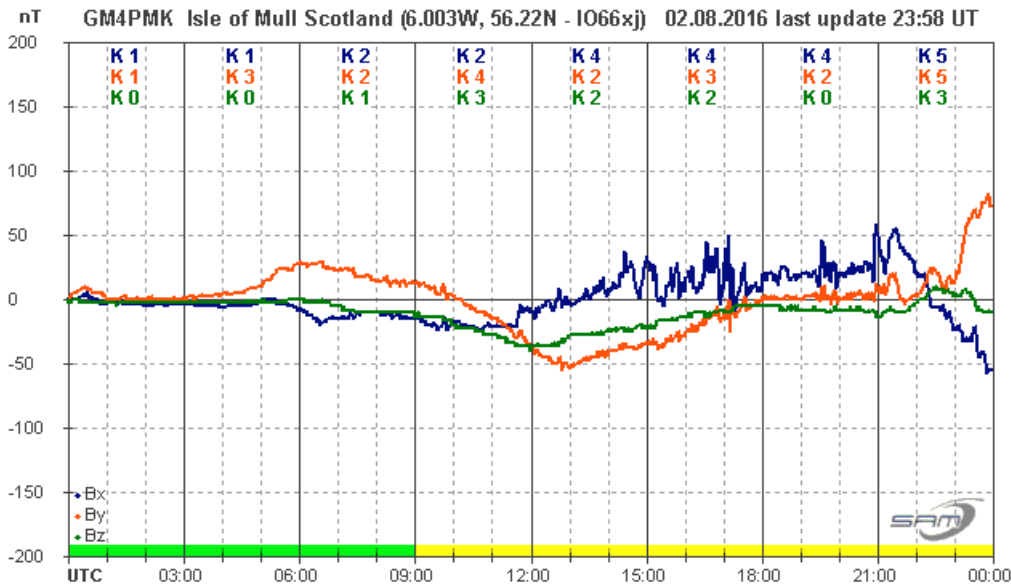


This chart recorded by Mark Edwards on August 23rd shows a very strong VLF oscillation from 19:30 to 19:45UT. Unlike the pulse in Paul's chart, this one ties in strongly with a large magnetic transient well recorded by Roger Blackwell:

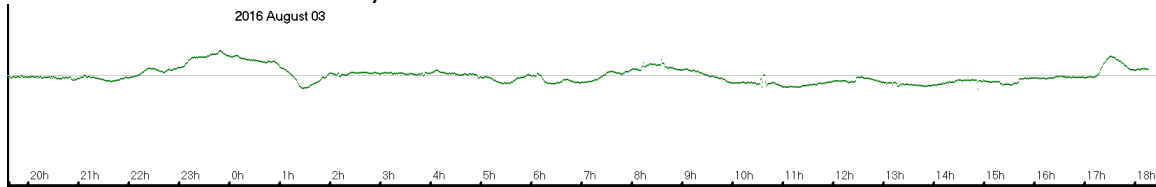


Both the B_y and B_z components show rapid changes of about 100nT at this time. A very similar effect was seen on 2015 August 26th when there was another strong magnetic transient with associated VLF pulses. On that occasion there had also been some strong C-class flares earlier in the afternoon. Charts were included in the 2015 August summary.

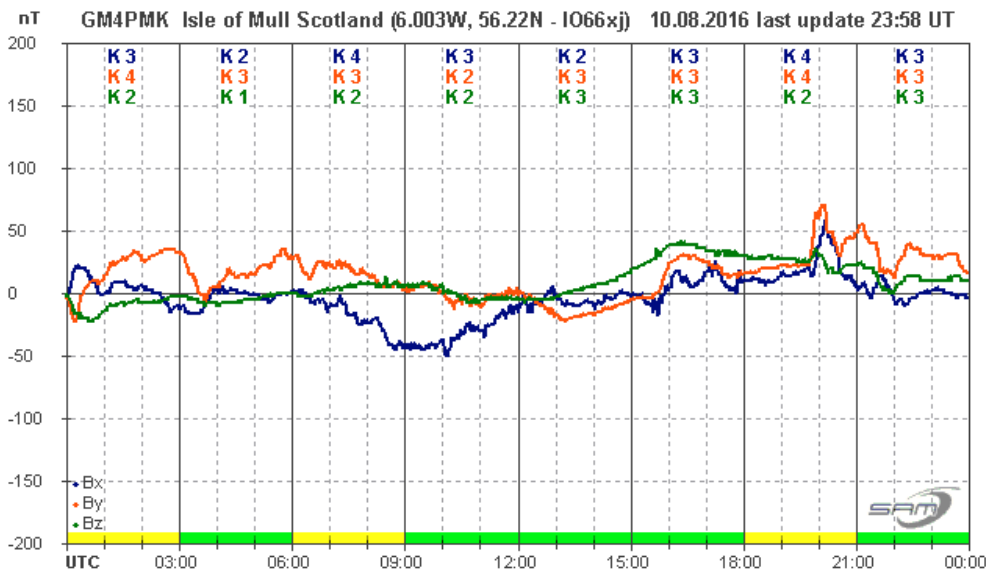
The Bartels diagram shows a long period of magnetic disturbance from the 2nd to the 12th. This started with the arrival of a CME at 11:40UT, shown clearly in the B_x (blue) channel of Roger Blackwell's recording:



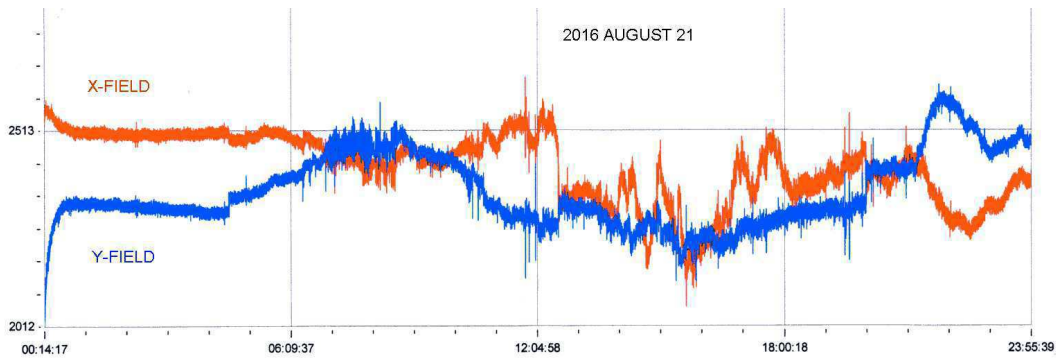
The cause of the CME was a filament eruption on 28th July for which we have no SID recorded. The disturbance continued into the 3rd, with some stronger activity noted by Gonzalo Vargas in Bolivia. My own recording shows more subdued activity:



Solar wind from a large northern coronal hole added to the CME, followed later by a smaller southern coronal hole, so that there was still some significant disturbance present on the 10th in Roger Blackwell's recording:



Quiet conditions had returned by the early hours of the 12th. By the 21st there were several polar and equatorial coronal holes present, producing a minor disturbance as recorded by Colin Clements:



This combination of coronal holes produced a much stronger magnetic impact on the 23rd, as shown in connection with the VLF pulse, above. The declining phase of the solar cycle often produces numerous coronal holes, and the autumn season is usually good aurora watching time, so we can hope for some good displays to overcome the local light pollution.

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

BARTELS DIAGRAM

ROTATION	KEY:	DISTURBED.	ACTIVE	SFE	B, C, M, X = FLARE MAGNITUDE.	Synodic rotation start (carrington's).
2460	F	19 20 21 22 23 24 25 26 27 28 29 30	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		2013 December	
2461	F	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		2014 January	
2462	F	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		2014 February	
2463	F	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		2014 March	
2464	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	1 2 3 4 5 6		2014 April	
2465	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	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		2014 May	
2466	F	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 26	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		2014 June	
2467	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		2014 July	
2468	F	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 19		2014 August	
2469	F	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		2014 September	
2470	F	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		2014 October	
2471	F	12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	1 2 3 4 5 6 7 8		2014 November	
2472	F	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		2015 December	
2473	F	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 31		2015 January	
2474	F	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	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		2015 February	
2475	F	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	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24		2015 March	
2476	F	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		2015 April	
2477	F	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		2015 May	
2478	F	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		2015 June	
2479	F	16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	1 2 3 4 5 6 7 8 9 10 11 12		2015 July	
2480	F	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		2015 August	
2481	F	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		2015 September	
2482	F	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 31		2015 October	
2483	F	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	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		2015 November	
2484	F	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	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24		2015 December	
2485	F	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	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21		2016 January	
2486	F	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	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17		2016 February	
2487	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	1 2 3 4 5 6 7 8 9 10 11 12 13 14		2016 March	
2488	F	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	1 2 3 4 5 6 7 8 9 10		2016 April	
2489	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	1 2 3 4 5 6		2016 May	
2490	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	1 2 3 4		2016 June	
2491	F	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 31		2016 July	
2492	F	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	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		2016 August	
2493	F	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	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24		2016 September	
2494	F	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	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20			
2495	F	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	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17			
2496	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	1 2 3 4 5 6 7 8 9 10 11 12 13			
2497	F	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	1 2 3 4 5 6 7 8 9			