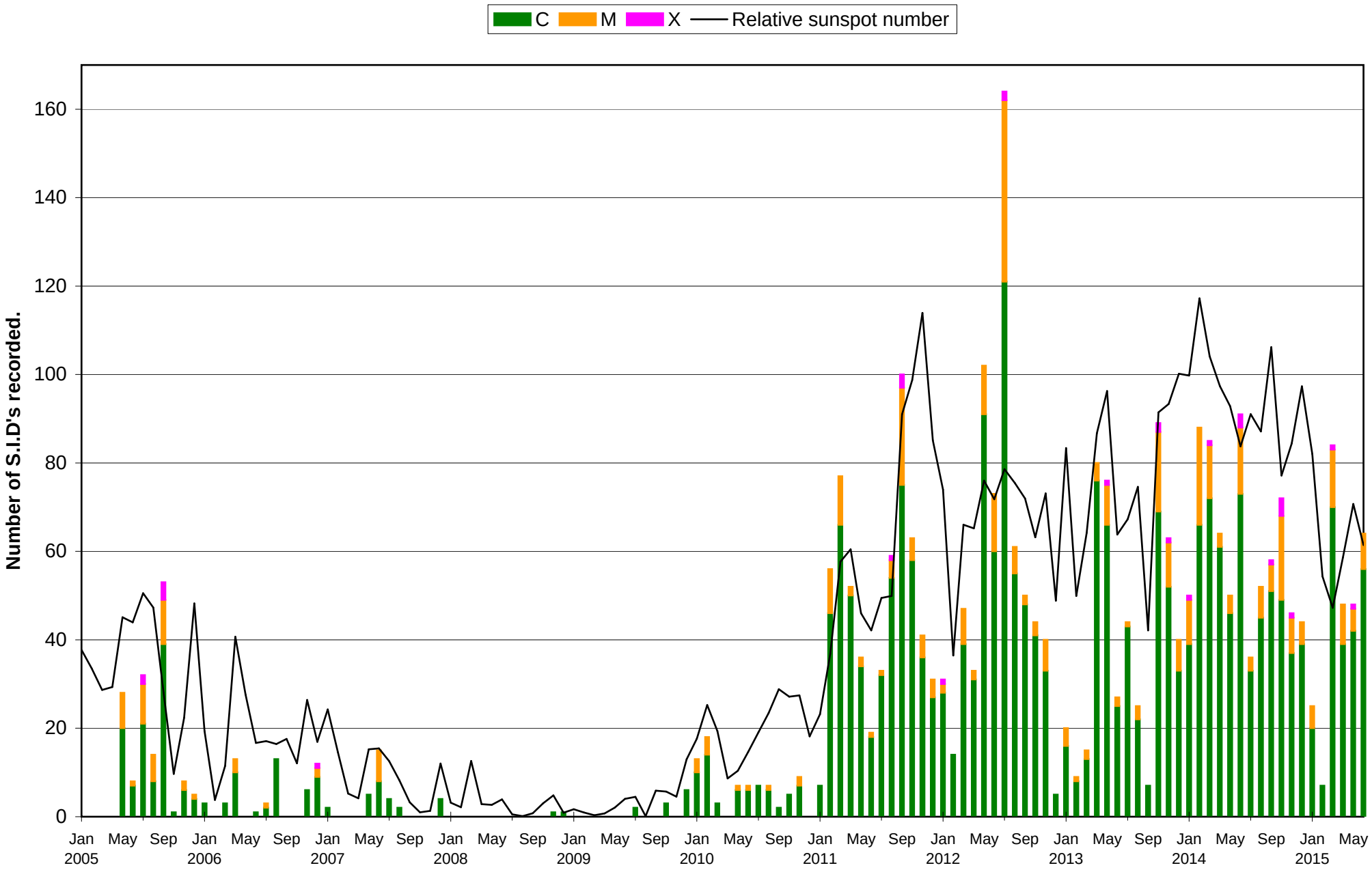
BAA Radio Astronomy Group. **2015 JUNE**

			John Cook (23.4kHz/*22.1kHz*)				Roberto Battaiola (18.3kHz)				Paul Hyde (22.1/23.4kHz)				Mark Edwards (**19.6**/24.0/*20.9kHz*)				Colin Clements (23.4kHz/*22.1kHz*)			
	Xray class	Observers	Tuned radio frequency receiver, 0.58m frame aerial.				Modified AAVSO receiver.				Tuned radio frequency receiver, 0.96m frame aerial.				Spectrum Lab / PC 2m loop aerial.				AAVSO receiver, 0.76m screened loop aerial.			
DAY			START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)	
2	C1.9	2									06:55	07:01	07:30	2	**06:55**	**07:04**	**07:30**	**2**				
4	C8.1	7	09:41	09:48	11:00	2+					09:38	09:53	11:11	3	09:39	09:52	10:25	2+	09:37	09:52	11:07	3
4	?	1													11:20	11:38	11:55	2				
4	?	1													14:46	15:02	?	-				
4	C2.7	2													15:21	15:23	15:59	2				
5	C2.1	3	09:34	09:37	09:50	1-									09:31	09:41	10:11	2				
5	C3.5	4													17:28	17:39	18:07	2	17:49	17:50	18:09	1
7	C1.6	2	10:25	10:34	11:10	2									10:25	10:41	11:06	2				
7	C1.3	1													17:54	18:02	18:23	1+				
10	?	1													12:36	12:51	?	-				
10	C3.3	3	12:58	13:09	13:34	2									12:57	13:07	13:47	2+	12:34	13:07	14:44	3+
10	?	1													16:40	16:43	?	-				
10	C1.2	1													16:49	16:53	17:10	1				
10	C2.2	1													18:03	18:09	18:28	1				
10	?	1													20:22	20:25	20:46	1				
11	C1.3	1	08:16	08:18	08:26	1-																
11	C2.4	1	08:39	08:41	08:48	1-																
11	**M1.0**	7	08:52	08:56	10:06	2+					08:51	08:56	10:30	3	08:51	08:57	09:34	2	08:50	08:58	09:33	2
11	C3.8	5	11:28	11:33	?	-					11:28	11:36	?	-	11:28	11:37	?	-	11:24	11:37	11:58	2
11	C4.5	5	11:59	12:02	12:45	2+					11:59	12:02	12:57	2+	11:58	12:03	12:48	2+	11:58	12:01	12:33	2
11	C8.7	6	14:33	14:38	?	-					14:33	14:40	?	-	14:33	14:39	?	-	14:32	14:39	15:14	2
11	C7.0	6	15:16	15:20	16:00	2					15:17	15:21	15:50	2	15:15	15:21	15:51	2	15:14	15:20	15:41	1+
11	C4.5	3													17:21	17:28	17:54	2	17:20	17:27	18:01	2
11	C1.7	1													18:05	18:09	18:15	1-				
11	?	1													18:55	18:56	18:58	1-				
12	C2.9	3													11:56	11:59	?	-	11:46	12:00	12:45	2+
12	*	1													12:15	12:23	12:35	1				
12	?	1													15:24	15:28	?	-				
12	C3.9	3													15:31	15:34	16:02	1+	15:17	15:35	16:13	2+
13	*	1	05:34	05:35	05:41	1-																
13	C4.3	3	06:18	06:30	?	-									*06:24*	*06:28*	*06:51*	*1+*				
13	**M1.3**	3													07:23	07:42	08:39	2+				
13	C5.8	6	09:41	09:47	?	-					09:41	09:47	10:28	2+	09:41	09:47	?	-	09:37	09:46	10:25	2+
13	C2.4	4	10:27	10:29	11:10	2									10:26	10:32	10:51	1	10:25	10:32	10:52	1+
13	C1.3	2	11:54	12:01	12:10	1-													11:56	12:10	12:32	2
13	C2.2	5	12:35	12:41	13:14	2					12:34	12:41	13:59	2+	12:35	12:40	?	-	12:32	12:49	13:13	2
13	?	1													12:49	12:51	?	-				
13	?	1													12:59	13:04	?	-				
13	?	2													13:13	13:18	13:41	1+	13:13	13:18	14:26	2+
13	C4.9	5	14:28	14:38	15:30	2+					14:29	14:40	15:21	2+	14:27	14:40	15:10	2	14:26	14:37	15:49	2+
13	?	1													15:54	16:07	16:28	2				
13	C1.3	1													17:31	17:36	17:43	1-				
13	C2.6	1													19:17	19:26	19:54	2				
14	C1.9	1													11:05	11:13	11:36	1+				
15	C2.5	6	10:26	10:34	11:01	2					10:26	10:35	11:06	2	10:27	10:34	10:58	1+	10:24	10:34	11:02	2
15	C1.8	2	13:54	13:57	14:06	1-													16:04	16:19	17:47	3
16	C1.9	1													20:15	20:18	?	-				
16	C1.7	1													20:25	20:33	20:48	1				
17	C1.4	1													13:31	13:36	13:43	1-				
17	*	1													13:46	13:48	13:53	1-				
17	C1.0	1													16:46	16:52	16:57	1-				
18	C3.5	6	13:08	13:12	13:27	1					13:09	13:14	13:55	2+	13:08	13:14	?	-	13:08	13:14	13:38	1+
18	?	1													13:36	13:43	13:53	1-				
18	C1.7	3	14:06	14:08	14:22	1-					14:05	14:08	14:34	1+	14:05	14:11	?	-				
18	?	1													14:15	14:18	14:21	1-				
18	*	1													15:38	15:53	16:09	1+				
18	?	1													**16:32**	**16:59**	**?**	**-**				
18	**M3.0**	4	16:35	17:19	?	-									16:29	17:23	19:35	3+	16:28	17:23	19:13	3+
19	C8.1	7	09:23	09:28	10:16	2+					09:21	09:30	10:11	2+	09:22	09:32	10:16	2+	09:20	09:31	10:23	2+
19	?	1													10:31	10:36	?	-				
19	C1.8	3													10:41	10:47	11:04	1	15:34	15:37	15:53	1
19	?	1													11:21	11:25	11:34	1-				
19	C1.8	3									15:34	15:36	15:55	1	15:35	15:36	15:52	1-				
19	C1.1	1													17:41	17:45	17:50	1-				
19	C1.5	1													18:02	18:05	18:12	1-				
20	**M1.0**	4	*06:32*	*06:39*	*07:57*	*2+*					06:30	06:45	08:18	3	**06:30**	**06:47**	**07:56**	**3**				
20	C1.2	1													19:09	19:16	19:22	1-				
21	**M3.8**	7	09:40	09:46	11:22	3					09:41	09:46	10:47	2+	09:41	09:47	?	-	09:40	09:46	10:47	2+
21	*	1													10:47	10:54	11:33	2+				
21	C1.3	2									13:30	13:35	14:02	1+	13:31	13:33	13:45	1-				
21	*	2									14:32	14:34	14:48	1-	14:32	14:36	15:03	1+				
21	C2.6	2	16:27	16:29	16:45	1-									16:11	16:36	17:07	2+				
21	**M1.1**	5									18:13	18:23	18:59	2+	18:12	18:23	19:15	2+	18:13	18:22	18:52	2
22	C7.5	3	05:13	05:19	05:40	1+					05:13	05:23	06:10	2+	**05:14**	**05:26**	**05:57**	**2**				
22	C1.6	1									07:37	07:42	07:56	1								
22	C3.9	4	*17:23*	*17:29*	*?*	-					17:23	17:29	?	-					17:21	17:29	17:39	1-
22	?	1													**17:47**	**18:05**	**?**	**-**				
22	**M6.5**	6	17:51	18:02	19:10	2+					17:42	18:02	19:50	3+	**18:12**	**18:17**	**19:18**	**2+**	17:39	18:17	19:19	3
22	CME	4													**19:56**	**20:05**	**20:53**	**2+**	19:53	20:03	20:53	2+
23	C1.9	4									12:13	12:20	12:42	1+	12:12	12:19	12:41	1+	12:09	12:21	12:48	2
24	C5.6	5	15:15	15:27	16:02	2+					15:17	15:28	16:26	2+	15:19	15:32	16:03	2	15:16	15:29	16:34	2+
25	**M7.9**	8	08:10	08:19	11:15	3+					08:07	08:18	11:37	3+	**08:11**	**08:19**	**11:59**	**3+**	08:07	08:19	10:54	3+
28	C1.9	1													17:12	17:14	17:21	1-				
29	B9.6	1									07:36	07:39	07:48	1-								
29	C1.5	4									10:03	10:09	10:42	2	10:04	10:08	10:30	1+				
29	C1.1	3									13:44	13:50	13:59	1-								
29	C2.3	6	14:49	14:55	15:24	2					14:48	14:57	15:34	2+	**14:50**	**14:57**	**15:13**	**1**	14:46	14:57	16:45	3
29	C2.4	3	*18:04*	*18:07*	*18:19*	*1-*					18:04	18:08	18:20	1-	*18:05*	*18:07*	*18:17*	*1-*				
30	C1.4	2													12:34	12:46	13:20	2+	12:05	12:48	13:26	2+

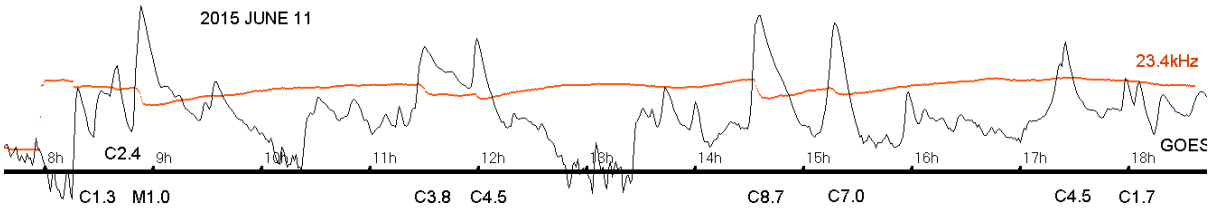
BAA Radio Astronomy Group **2015 JUNE**

			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.			
DAY			START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)	
2	C1.9																					
4	C8.1		09:40	09:49	11:10	3	09:43	09:52	10:08	1	09:42	09:50	10:15	2								
4	?																					
4	?																					
4	C2.7						15:38	15:46	15:54	1-												
5	C2.1						09:33	09:46	10:00	1+												
5	C3.5		17:29	17:35	17:55	1+	17:28	17:39	17:52	1												
7	C1.6																					
7	C1.3																					
10	?																					
10	C3.3																					
10	?																					
10	C1.2																					
10	C2.2																					
10	?																					
11	C1.3																					
11	C2.4																					
11	**M1.0**		08:52	08:56	09:28	2	08:53	08:57	09:12	1	08:54	08:56	09:15	1								
11	C3.8		11:28	11:34	?	-																
11	C4.5		11:59	12:03	12:16	1-																
11	C8.7		14:33	14:40	?	-	14:31	14:40	14:55	1												
11	C7.0		15:16	15:22	15:50	2	15:18	15:24	15:40	1												
11	C4.5		17:24	17:29	17:56	1+																
11	C1.7																					
11	?																					
12	C2.9						11:55	12:00	12:05	1-												
12	*																					
12	?																					
12	C3.9						15:34	15:40	15:48	1-												
13	*																					
13	C4.3						06:21	06:28	06:41	1												
13	**M1.3**		07:23	07:29	08:40	2+	07:25	07:32	07:43	1-												
13	C5.8		09:41	09:48	?	-	09:42	09:48	10:13	1+												
13	C2.4		10:26	10:31	10:45	1																
13	C1.3																					
13	C2.2		12:34	12:40	?	-																
13	?																					
13	?																					
13	?																					
13	C4.9		14:29	14:39	15:20	2+																
13	?																					
13	C1.3																					
13	C2.6																					
14	C1.9																					
15	C2.5		10:26	10:33	11:05	2	10:31	10:38	11:00	1+												
15	C1.8																					
16	C1.9																					
16	C1.7																					
17	C1.4																					
17	*																					
17	C1.0																					
18	C3.5		13:09	13:13	13:36	1+	13:07	13:12	13:37	1+												
18	?																					
18	C1.7																					
18	?																					
18	*																					
18	?																					
18	**M3.0**						16:26	16:42	17:20	2+												
19	C8.1		09:22	09:28	10:20	2+	09:20	09:29	10:30	2+	09:25	09:30	09:51	1+								
19	?																					
19	C1.8		15:34	15:36	15:47	1-																
19	?																					
19	C1.8						15:33	15:38	15:47	1-												
19	C1.1																					
19	C1.5																					
20	**M1.0**		06:31	06:48	08:05	3																
20	C1.2																					
21	**M3.8**		09:41	09:48	11:40	3	09:40	09:48	11:00	2+	09:42	09:46	10:18	2								
21	*																					
21	C1.3																					
21	*																					
21	C2.6																					
21	**M1.1**		18:15	18:22	19:05	2+	18:14	18:22	18:48	2												
22	C7.5																					
22	C1.6																					
22	C3.9		17:24	17:30	?	-																
22	?																					
22	**M6.5**		17:43	18:03	19:40	3	17:41	17:56	18:21	2												
22	CME		19:58	20:05	?	-					19:36	10:03	?	-								
23	C1.9		12:14	12:23	13:05	2+																
24	C5.6						15:17	15:30	16:55	3												
25	**M7.9**		08:11	08:20	12:00	3+	08:10	08:19	10:00	3	08:11	08:16	10:00	3	08:11	08:16	12:44	3+				
28	C1.9																					
29	B9.6																					
29	C1.5		10:03	10:11	10:35	1+	10:00	10:06	10:30	1+												
29	C1.1		13:46	13:51	14:15	1+	13:45	13:49	14:00	1-												
29	C2.3		14:47	14:58	15:26	2	14:48	14:56	15:32	2												
29	C2.4																					
30	C1.4																					


VLF flare activity 2005/15.
C
M
X
Relative sunspot number
Number of S.I.D's recorded.
0
20
40
60
80
100
120
140
160
Jan 2005
May
Sep
Jan 2006
May
Sep
Jan 2007
May
Sep
Jan 2008
May
Sep
Jan 2009
May
Sep
Jan 2010
May
Sep
Jan 2011
May
Sep
Jan 2012
May
Sep
Jan 2013
May
Sep
Jan 2014
May
Sep
Jan 2015
May

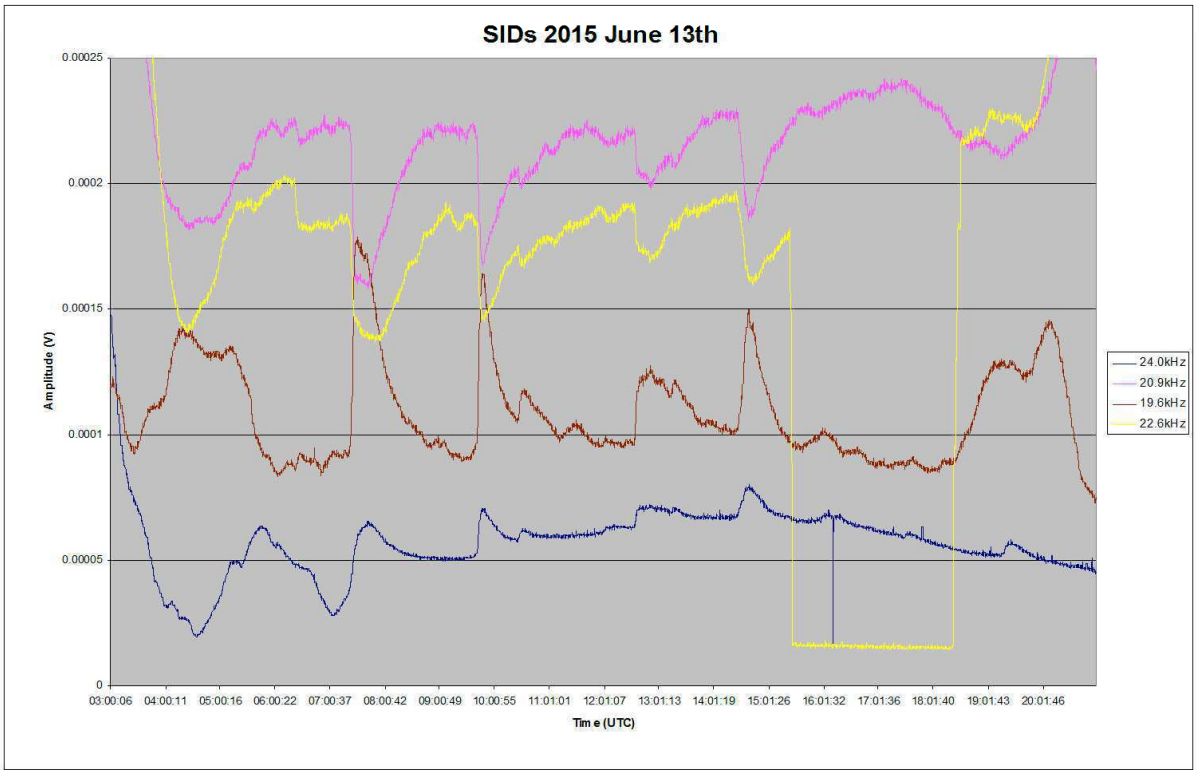
BAA Radio Astronomy Group. **2015 JUNE.**

June started quietly with a few C-class flares amongst mostly B-class flares. The number and magnitude of flares increased as the month progressed, culminating with an M7.9 flare on the 25th. There are no X-class flares in the GOES record. June 11th was particularly busy, with a total of ten SIDs reported. My own chart shows the activity at 23.4kHz:



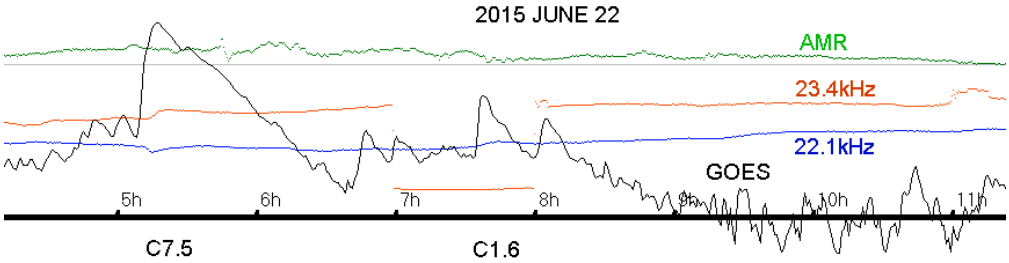
The final SID occurred after my recording ended.

The 13th was also very busy with 14 SIDs reported.



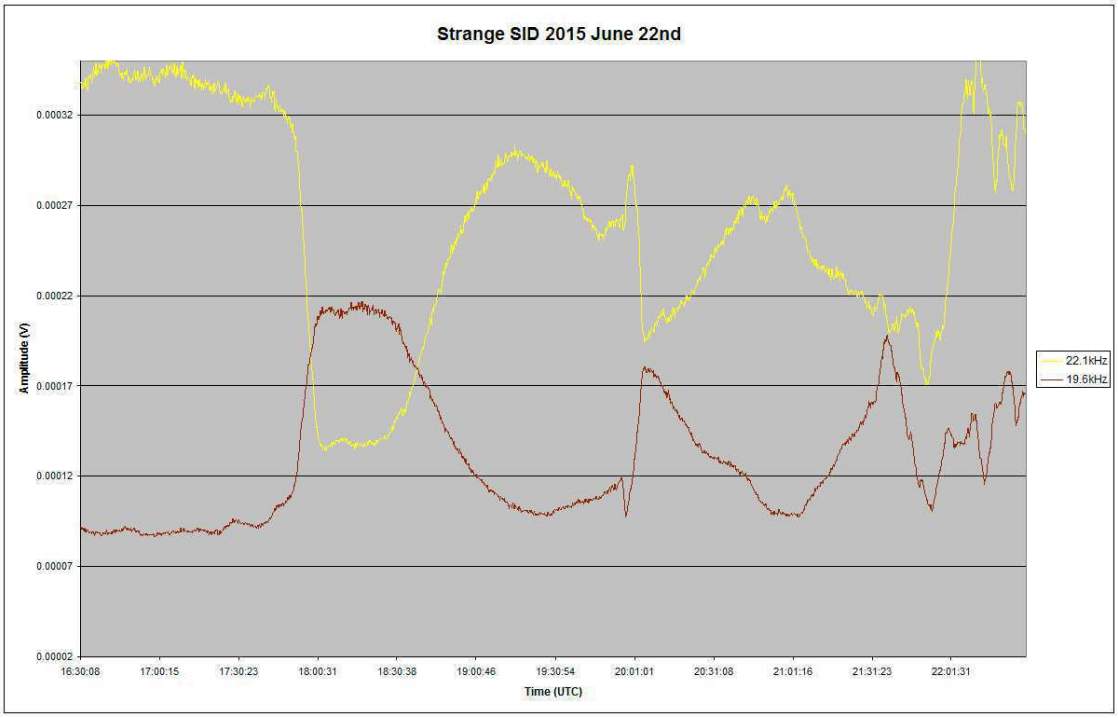
This recording by Mark Edwards shows 24kHz (blue), 19.6kHz (brown), 22.6kHz (yellow) and 20.9kHz (magenta). 22.1kHz was off-air until 14UT on the 18th.

The 22nd was also quite busy with a C7.5 flare at about 05:20UT. Luckily at this time of year it was after local sunrise, and so produced a small SID:

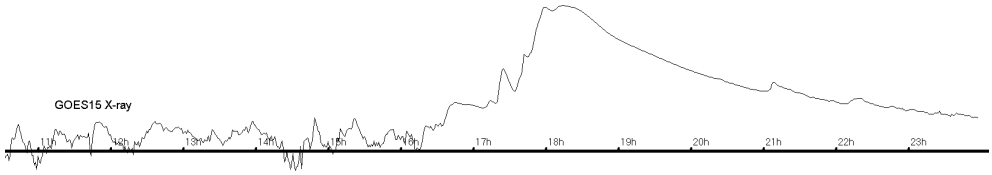


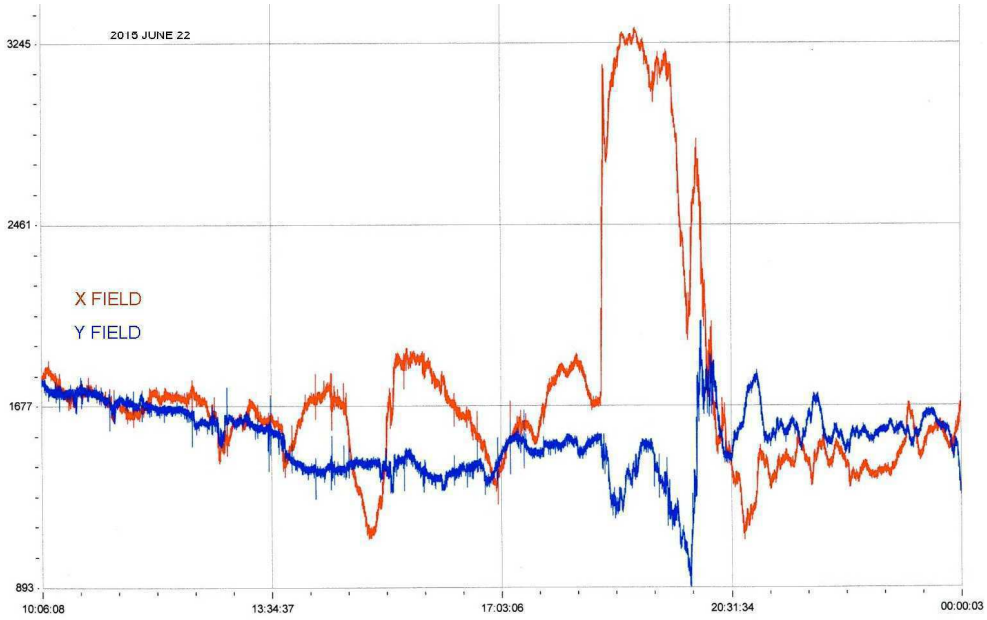
Despite being a good strength flare, the SID is quite small at both frequencies. The C1.6 is just visible at 22.1kHz, but is lost during the 23.4kHz break in transmission.

The rest of the day remained quiet until a C3.9 flare peaking at 17:29. This was followed at 18:05 by an M6.5 flare that decayed away over the next 3 hours. Four of our observers reported another SID at about20:05 without any matching flare.



This chart from Mark Edwards clearly shows a very sharp transient starting at 19:56 at both 22.1 and 19.6kHz.



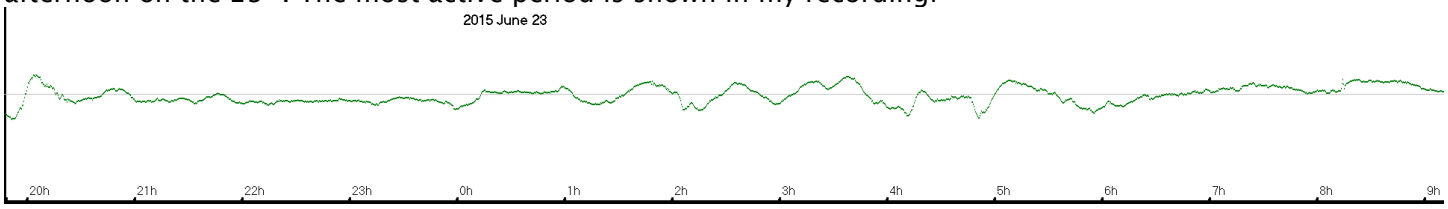


The X-ray flux (centre chart, previous page) clearly shows the major M6.5 flare with its long decay. The lower recording is the magnetogram from Colin Clements, showing a large X-field disturbance starting shortly after the peak of the X-ray flux. As this returns back to its original level, there is another very large transient in both channels of the magnetometer. Colin's magnetometer is not calibrated, but Roger Blackwell measured a 350nT change between 19:50 and 20:10UT. Rapid changes in magnetic field cause large currents to flow, heating the ionosphere. The warmer region becomes buoyant and will tend to rise, re-distributing the electron density in the ionosphere. This mimics the effect of a SID.

MAGNETIC OBSERVATIONS.

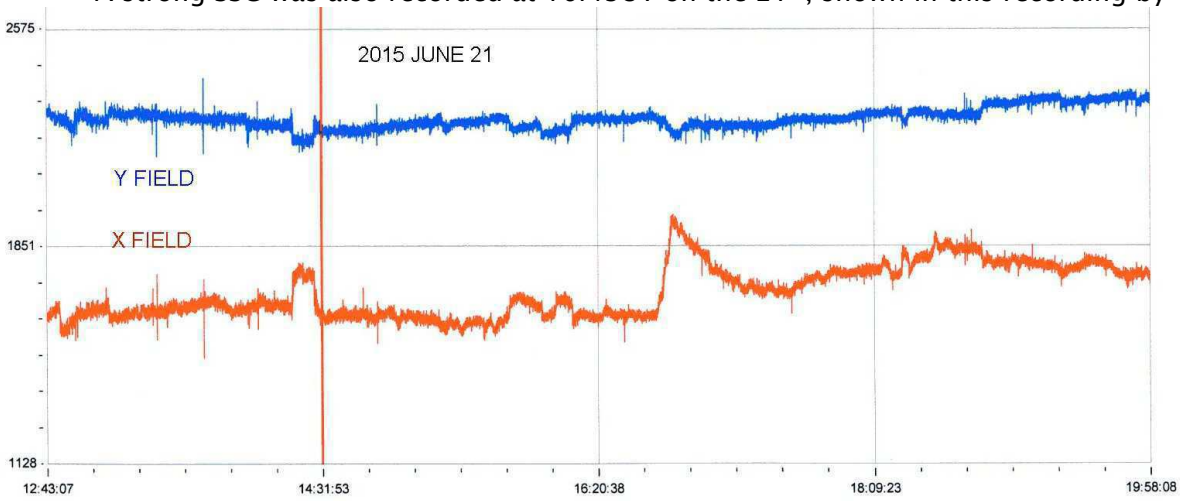
The above description highlights the link between magnetic and VLF observations. The reverse interaction in the form of an SFE was recorded with the M3.8 flare at 09:43 on the 21st. This was a much smaller magnetic disturbance, measuring just 6nT on my own recording.

Two SSCs were noted on the 22nd. As well as the event described above, a much more modest SSC was recorded at 05:45. Magnetic disturbances were present through most of the day, and continued until mid-afternoon on the 23rd. The most active period is shown in my recording:



The first of the SSCs was from a filament eruption on the 19th, while the second was due to a CME from an M2 class flare at 01:42 on the 21st.

A strong SSC was also recorded at 16:43UT on the 21st, shown in this recording by Colin Clements:



This was caused by a CME from the M3.0 flare recorded as a SID on the 18th. Using our measured peak at 17:23 gives a transit time of 71 hours 20 minutes. The remaining activity shown in the Bartels chart is from coronal-hole effects.

Gonzalo Vargas (Bolivia) noticed some very rapid magnetic variations on the 30th, continuing into July 1st. This appears to be local, as nothing unusual appears in recordings at European longitudes.

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

BAA Radio Astronomy Group

BARTELS DIAGRAM

ROTATION	KEY:	DISTURBED.	ACTIVE	SFE	B, C, M, X = FLARE MAGNITUDE.	Synodic rotation start (carrington's).

2440

	2012 June																					2125	
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
F BB		C	CCCC	C		C	M	CC	CCM	CCCC	CCMC	MCMC	M	CCCC	CCCC	CMCC	CCCM	CC	C	CC		CC	CC			

2441

							2012 July																	2126	
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	20
F		C	CCCC	CMC	CCMC	CCMCM	CCCM	CMCM	CCCC	MMMM	MMMM	MMMX	MMMC	MMMM	CCCC	MMCC	CCCC	CX	CCCC	MCCC	C	CCC	M	C	M	

2442

											2012 August													2127	
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
F		CB	CCCC		C	CCCM	CCM	MCC	CCCM	CCCC	CCCC	C	CCC	C		CCCC	CCCC	CCCC	CCC	CC	MC		CCC	C		C

2443

															2012 September										2128
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
F CMCM	MCCM											C	CCM	CCCC	CCC	CCC	CCC	C	CCC	MCCC	C	M	CC	CCC	CB	CC

2444

																			2012 October					2129	
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	9
F CCC				CCC	CC	CC					C	CC		C		CCCC	CCC	CCCC	C						CCMC	CCCC

2445

																							2012 November		2130	
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
F CMBC	CCC	CB	B			C	CCCC			CM	CCC	C	CCC	CCCC		CC					C					B

2446

																									2012 December	
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	1	2
F				C		CC	CMMC	CMC	CCCC	C		CC		CCMC	MCM		C	C		CCC	CCCM	C	CC	C	CC	

2447

2131																										
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
F									C		C											C				

2448

2132		2013 January																								
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
F						MC	CC	C		CC	CC	MM	MCCC		C	C			CC		C					

2449

2133						2013 February																				
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
F										C												CM		C	CC	B

2450

2134							2013 March																			
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
F C	C	C					C				M		C					CC	C		MC		C	C	CC	

2451

2135											2013 April															
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
F C	CBC											B	CBC	C	M	CCC	CC	C	CCCC	CCC	MCCC	CM	C		C	CC

2452

2136																	2013 May									
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	13
F	C	C	CC	CCCC	M	CCCC	CCCC	CCCC	CCCC	CCCC	CCCC	CC	CCC	CCCC	MC	CCMM	CCCC	CCCM		CBC		CCC	CMCC	CCCC	CCC	CCMX

2453

2137																		2013 June								
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
F C		CC	M	C	CCCC	CCCM			CCCC		C	C					M			C		M		CC	C	

2454

2138																						2013 July				
10	11	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
F BC									CC	CCC	CC	C	M	CCCC	B	C	CBC	C		CCCC	CC	CC	MCCC	CCCC	CCCC	

2455

2139																								2013 August		
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
F CB		C	C	CC	C	C	C	CC	C	C	CC			C						C	CCCC	C				

2456

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
F								CCC	M	CCCC	CCC	CC	CC	CMM	C	C	C	CC	C							

2457

		2013 September																								
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
F	C	C		BC	C																CCCC					

2458

		2142			2013 October																					
26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
F										C	C		C	CCCC	MCCC	CCC	C	C	CMCC	CCC	CCCC	CCCC	CC		CCCM

2459

		2143							2013 November																	
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
F CCCC	CMMC	XMXM	MMMM	CCMC	MMMM	CCCC	C	MCC	C	CCC	C	CCC	MCCM	CCCM	CCMC	M	CC	CCC	CMC	CC	CCCM	CCC	C	MCC	CCC	CCC

2460

		2144										2013 December														
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
F X	CC	M	C	CCM	CC							C	C			C	C		C	CCC		CC	C		CC	CC

2461

			2145														2014 January									
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
F C			C	CMCC	C	MMMM	M		C		CC	CC	MCCC	C	C	C	C	CCMC	CCMC	C	C	CMCX	CCCC			CCC

2462

			2146																			2014 February				
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
F	CC	C		C	CCCC	CC								C	C	MMMM	CCC	MCC	CM	CCCC	MMMM	CCCC	MCCM	CCCM	CCC	CCMC

2463

				2147																			2014 March				
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
F CCC	M	CC	CM	CM	MCCM	CMMM		MCC	CCC	CC	C	M	CC	C	CC	MMC	C	CCM	CCCC	CCC	MC	CCC	CCCM	CCCC	C	

2464

					2148																				2014 April	
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
F		CCMM	CCCM	CMCC	CMC	CCM	C	CCC	CC	CCC	C	CCCC	CC	C	MCC	CC	CC		CC		CM	CCCX	M	MC		CCM

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	29
F CC	CCC	CCC		CC			C	CCC	C	C	CCCC	CCCC	CCCM	CC	CM	CCCC	CCCC	C	CCCC	CCCC	C	CC	C		BC	B

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	26
F B		CCC	CCCC	CCCC	C	MCC	CMC	M	CCCC	CCC	CCCC		C	CCC	C	CCC				B	C	C		M	C	CCC

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	22
F C				B	C	M	CCM				CC	CC	CCC	CCXX	MMXC	MMMM	MCCC	CCM	CMCC	CCCC	CBCC	CC	C	CC	C	B

2468

					2152			2014 July																		
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
F	BBB				CCCC	CCCC	CC	CCCM	C		C		CC	CC	CM	C	CC		CCC	CCCC						

2469

					2153								2014 August													
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
F	B				C	CCCB	CC		CC	CC	CMCC	CMM	CC	C		CCC			CCCC	C						CC

2470

							2154											2014 September								
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
F C		C		CCCC	CMCC	MCCC	CCCC	CMC	MM	C		CB	C	CCB	CCCC	CC	CC	CCM	CCCC	CC	CCMC	CCC	C	C	CCX	CCM

2471

							2155														2014 October					
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
F CCCC	CC			CC		CMC	C	CC	CCC			CC	C	CCC	M	CCMM	C			MM	CCC					C

2472

							2156																	2014 November		
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
F MCCC							CCM	CC	MCCC	CCCC	MCMM	CCCM	CCXM	MCC	MCC	CCCX	XCCM	CCMX	CCM	MMMM	CCCC		CCCC		M	MM

2473

							2157																			
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	1
F MC	C	MCCX		CCM	CC	C	C	C	CC	M	CCCM	C					C	C	C			CCC	C	CCCC	CC	

2474

2014 December							2158																			
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
F CCC	CCCC	MCM	CCM	C			CCCC		C	C	CCC	CC		CCC	CC	CCC	MC	C	M	C			C	C		C

2475

		2015 January					2159																			
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
F C		C			M	M	C	C	CC	C	C	C		CC	C	CM	CC						CCC		CC	

2476

							2015 February																			
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
F		CC	C	MC	M		C		CC	C																C

2477

								2015 March																		
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
F							CC	C	CMCCM	CC	CC	CM	MCCC		C	CCMC	CCCC	MMCX	CMMM	C	CCCC	MCCC	CCMC		CCCC	C

2478

								2162				2015 April														
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
F			C		CC	CC	CCC	CC	CCCC	CC									M	CCCC	CCCC	C	CMCC	CCC		C

2479

								2163								2015 May										
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
F CCCC	C	CCC			MMMM	CCMC	CMCC	C	C	C							C	CCC	MMMX	CCMC	CCCC	CC	CC	CCC		CC

2480

									2164													2015June				
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
F CCCC	CCCC			B		C	C			CC										C		CC	CC		CC	

2481

									2165														2015 July				
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5
F	CCC	CMCC	CC	MCCC	C	CC	CC	CC	CCM	CCCC	MC	MCCM	CCCM	C	C	M			C	CCCC	C					