

BAA Radio Astronomy Group.

2014 APRIL

DAY	X ray class	Observers	John Cook (23.4kHz/22.1kHz)				Roberto Battaiola (18.3kHz)				Paul Hyde (22.1kHz)				Bob Middlefell (22.1kHz)				Mark Edwards (18.3/24.0/20.27kHz)			
			Tuned radio frequency receiver, 0.58m frame aerial.				Modified AAVSO receiver.				Tuned radio frequency receiver, 0.96m frame aerial.				Tuned radio frequency receiver, 0.5m frame aerial.				Spectrum Lab / PC 2m loop aerial.			
			START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)	
2	C3.2	2							06:21	06:27	06:32	1-						06:23	06:29	06:35	1-	
2	C1.6	1																<b>12:21</b>	<b>12:26</b>	<b>12:31</b>	<b>1-</b>	
2	M6.5	6	13:18	14:00	16:00	3+	13:16	14:00	15:18	3							<b>13:18</b>	<b>14:04</b>	<b>16:02</b>	<b>3+</b>		
3	C1.8	5	10:12	10:19	10:27	1-	10:11	10:18	10:24	1-	10:12	10:19	10:32	1			10:16	10:18	10:27	1-		
3	C1.2	3											15:18	15:22	15:34	1-		15:19	15:23	15:27	1-	
4	C1.2	1					11:13	11:17	11:27	1-												
4	C8.3	7	13:37	13:50	14:42	2+	13:36	13:48	14:27	2+	13:38	13:48	14:44	2+			13:37	13:49	14:44	2+		
4	?	1															<b>14:18</b>	<b>14:21</b>	<b>14:40</b>	<b>1</b>		
4	C6.2	7	14:40	14:55	15:44	2+	14:48	14:55	15:22	2	14:49	14:56	16:03	2+			14:50	14:57	15:28	2		
5	C1.6	6	09:55	09:57	10:05	1-	09:50	09:59	10:19	1+	09:53	09:59	10:26	2			09:55	09:58	10:05	1-		
5	?	2															<b>10:05</b>	<b>10:08</b>	<b>10:27</b>	<b>1</b>		
5	C1.9	6	10:43	10:50	11:00	1-	10:43	10:51	11:09	1+	10:42	10:52	11:12	1+			10:43	10:52	11:05	1		
7	C4.0	2					06:13	06:26	06:33	1							<b>06:26</b>	<b>06:29</b>	<b>06:38</b>	<b>1-</b>		
7	?	1															<b>13:25</b>	<b>13:27</b>	<b>?</b>	<b>-</b>		
7	C1.7	4					13:18	13:37	13:50	1+	13:19	13:29	13:54	2			<b>13:29</b>	<b>13:37</b>	<b>13:52</b>	<b>1</b>		
10	C3.6	2																18:00	18:12	18:53	2+	
11	C1.9	3					09:24	09:31	09:38	1-	09:23	09:31	09:59	2			<b>09:26</b>	<b>09:35</b>	<b>09:47</b>	<b>1</b>		
11	C9.4	8	11:20	11:29	12:05	2	11:18	11:22	11:51	2	11:20	11:26	12:11	2+			11:21	11:26	12:08	2+		
11	C5.3	7	14:50	15:01	15:19	1+	14:26	15:00	15:27	2+	14:34	15:00	15:45	2+			14:35	15:01	15:45	2+		
13	C1.1	1					12:00	12:20	12:43	2												
14	C5.2	5	?	08:05	08:21	-	07:48	08:09	08:30	2	07:47	08:09	08:55	2+			<b>07:54</b>	<b>08:08</b>	<b>08:32</b>	<b>2</b>		
14	C1.8	5	08:59	09:01	09:06	1-	08:57	09:01	09:04	1-	08:59	09:01	09:08	1-			08:58	09:03	09:07	1-		
14	C2.5	6	09:09	09:13	?	-	09:06	09:15	09:23	1-	09:09	09:15	09:41	1+			09:10	09:15	09:21	1-		
14	C1.5	1															09:27	09:30	09:38	1-		
14	C3.3	6	12:19	12:29	12:48	1+	12:18	12:29	12:43	1	12:18	12:30	13:04	2+			<b>12:20</b>	<b>12:30</b>	<b>?</b>	<b>-</b>		
14	*	1															<b>12:53</b>	<b>12:54</b>	<b>13:10</b>	<b>1-</b>		
14	?	2															<b>15:33</b>	<b>15:35</b>	<b>?</b>	<b>-</b>		
14	C1.8	2											15:40	15:47	16:07	1+	<b>15:39</b>	<b>15:44</b>	<b>15:53</b>	<b>1-</b>		
15	C3.6	4	06:45	06:48	?	-	12:43	12:47	13:00	1-	06:46	06:50	07:06	1			<b>06:46</b>	<b>06:50</b>	<b>06:58</b>	<b>1-</b>		
15	C1.3	1									08:56	08:59	09:06	1-								
15	C8.6	6	09:20	09:24	?	-					09:20	09:24	?	-			09:19	09:24	09:45	1+		
15	C4.4	5	09:55	10:06	10:43	2+					09:55	10:00	10:32	2			09:56	10:07	10:23	1+		
15	C3.6	5	12:44	12:47	13:05	1					12:44	12:47	13:13	1+			12:44	12:47	13:07	1		
15	C1.5	4	13:25	13:30	13:48	1	13:23	13:30	13:40	1-	13:26	13:27	13:40	1-			<b>13:25</b>	<b>13:29</b>	<b>13:41</b>	<b>1-</b>		
15	C7.3	5	17:52	17:58	18:00	1-	17:58	18:00	18:03	1-	17:58	18:01	?	-			17:58	18:01	18:26	1+		
16	C2.9	1									07:20	07:25	07:35	1-								
16	C4.5	6	08:15	08:18	08:27	1-	08:13	08:19	08:29	1-	08:14	08:18	08:32	1-			<b>08:14</b>	<b>08:18</b>	<b>08:33</b>	<b>1</b>		
16	C5.2	6	08:38	08:45	09:17	2	08:37	08:44	09:05	1+	08:38	08:44	09:16	2			<b>08:38</b>	<b>08:45</b>	<b>09:18</b>	<b>2</b>		
16	C7.5	8	12:45	12:51	13:29	2	12:45	12:53	13:10	1	12:45	12:51	13:37	2+			12:45	12:51	13:20	2		
16	C2.0	2									17:29	17:37	?	-			17:33	17:36	17:44	1-		
16	M1.0	5															19:57	20:02	20:12	1-		
17	C3.9	5	11:46	11:56	12:45	2+	11:42	11:55	12:22	2							11:40	11:57	?	-		
17	?	1															12:00	12:01	12:33	2		
17	?	1															<b>13:18</b>	<b>13:23</b>	<b>13:39</b>	<b>1</b>		
17	C2.4	2															16:28	16:33	16:45	1-		
18	C4.8	7	08:06	08:13	08:50	2	08:02	08:14	08:37	2	08:04	08:14	09:04	2+			<b>08:05</b>	<b>08:14</b>	<b>08:43</b>	<b>2</b>		
18	?	3	11:49	11:56	12:23	2					11:50	11:54	12:25	2			11:50	11:54	12:25	2		
18	M7.3	7	12:40	13:02	14:40	3	12:29	12:50	13:27	2+	12:35	13:04	16:17	3+			12:35	13:02	13:56	2+		
19	C1.6	1																<b>09:35</b>	<b>09:41</b>	<b>10:04</b>	<b>1+</b>	
19	C2.0	2					12:24	12:34	12:41	1-							12:30	12:33	12:45	1-		
19	C1.7	1															12:52	12:58	13:13	1		
19	C1.6	1															17:18	17:20	17:32	1-		
19	C4.7	1															19:31	19:33	19:48	1-		
20	C6.4	7	08:10	08:16	?	-	08:07	08:15	08:20	1-	08:10	08:16	?	-			<b>08:10</b>	<b>08:15</b>	<b>?</b>	<b>-</b>		
20	C3.9	6	08:22	08:28	08:46	1	08:21	08:29	08:42	1	08:23	08:29	09:00	2			<b>08:22</b>	<b>08:26</b>	<b>08:58</b>	<b>2</b>		
20	C1.8	1															11:39	11:44	11:56	1-		
20	C2.2	5					11:44	12:10	12:21	2	12:03	12:10	12:27	1			12:04	12:09	12:18	1-		
20	C2.8	7	13:36	13:41	14:00	1	13:31	13:42	13:53	1	13:36	13:42	13:53	1-			13:36	13:43	14:08	1+		
20	*	3					14:38	14:51	14:59	1							14:40	14:47	15:07	1+		
21	C1.2	1	06:38	06:40	06:45	1-																
22	C2.9	3	08:00	08:04	08:13	1-					08:00	08:06	?	-			<b>08:01</b>	<b>08:07</b>	<b>08:09</b>	<b>1-</b>		
22	?	2									08:18	08:24	08:43	1			08:24	08:34	08:38	1-		
22	C3.8	6	08:46	08:50	09:04	1-					08:46	08:51	09:12	1+			08:47	08:51	09:02	1-		
22	?	1															<b>09:17</b>	<b>09:25</b>	<b>09:32</b>	<b>1-</b>		
22	C2.4	6	09:37	09:40	10:00	1					09:36	09:40	10:04	1+			09:38	09:41	09:54	1-		
22	C8.8	6	11:32	11:29	12:27	2+					11:31	11:39	12:10	2			11:32	11:39	12:17	2		
22	*	7	15:14	15:17	15:28	1-	15:11	15:18	15:36	1	15:13	15:18	16:12	2+			15:14	15:19	?	-		
22	?	1															15:32	15:35	15:57	1		
22	C2.5	3															18:36	18:38	18:56	1		
23	C1.6	6	08:38	08:42	09:06	1+	08:37	08:43	09:01	1	08:37	08:43	09:02	1			08:41	08:46	08:53	1-		
23	C2.3	6	12:08	12:13	12:32	1	12:05	12:16	12:30	1	12:07	12:14	12:35	1+			12:08	12:13	13:32	2+		
23	C5.1	8	12:50	13:06	14:03	2+	12:43	13:02	13:42	2+	12:47	13:06	13:50	2+			12:49	13:06	14:11	2+		
23	C1.5	2															15:15	15:18	15:32	1-		
24	C2.9	7	10:08	10:18	10:44	2	10:05	10:18	11:01	2+	10:04	10:17	11:04	2+			10:10	10:20	11:00	2+		
25	C3.3	7	11:57	12:08	12:50	2+	11:58	12:11	12:44	2+	11:57	12:06	13:09	2+			11:57	12:08	12:39	2		
25	?	5	13:22	13:32	13:55	2	13:20	13:33	13:54	2							13:22	13:33	14:00	2		
26	C2.4	6					14:48	14:58	15:16	1+	14:48	15:02	15:16	1+			14:50	15:01	15:57	2+		
28	B7.3	3	12:23	12:31	12:50	1+</																

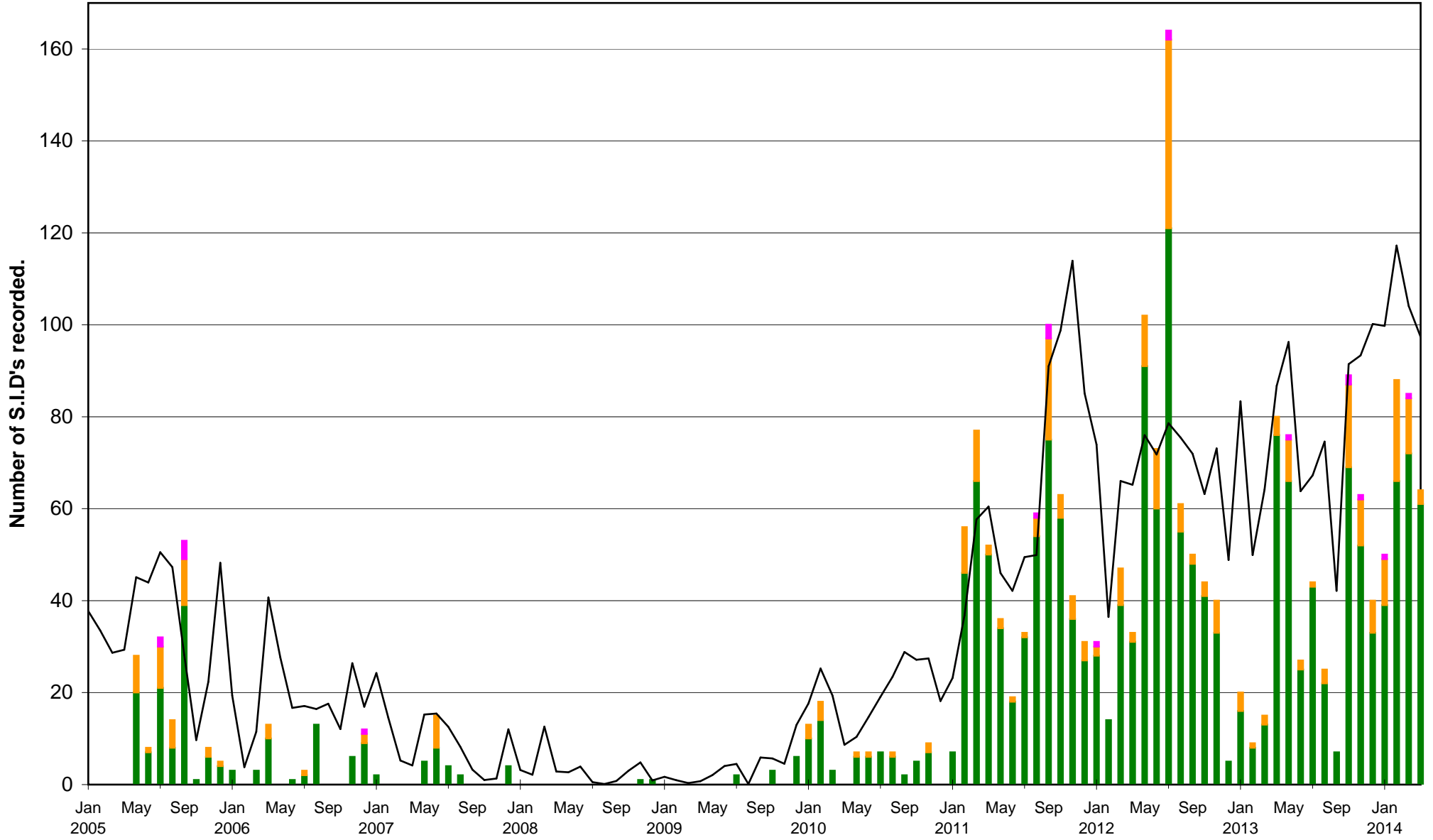
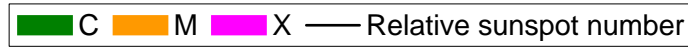
BAA Radio Astronomy Group.

2014 APRIL

		Colin Clements (23.4kHz/22.1kHz)	Gordon Fiander (19.6/22.1kHz)	Richard Kaye (Various)	John Wardle (19.6/23.4kHz)	Steve Parkinson (Various)
		AAVSO receiver, 0.76m screened loop aerial.	PC sound card.	Pre-amplifier + PC software receiver.	PC soundcard, 0.7m frame aerial.	Tuned radio frequency receiver, Spectrum Lab, frame aeral.
DAY		START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)	START PEAK END (UT)
2	C3.2					
2	C1.6					
2	<b>M6.5</b>	13:05 14:02 16:24 3+		13:21 14:02 15:56 3+	14:10 15:04 17:00 3+	
3	C1.8	10:11 10:19 10:33 1				
3	C1.2			15:19 15:25 15:33 1-		
4	C1.2					
4	C8.3	13:35 13:48 14:48 2+		13:38 13:49 14:28 2+	13:38 13:49 14:25 2+	
4	?					
4	C6.2	14:48 14:55 15:47 2+		14:49 14:57 15:17 1+	14:49 14:56 15:28 2	
5	C1.6	09:51 09:58 10:04 1-		09:56 09:59 10:09 1-		
5	?	10:04 10:12 10:19 1-				
5	C1.9	10:35 10:52 11:03 1+		10:43 10:52 11:19 2		
7	C4.0					
7	?					
7	C1.7			13:04 13:32 14:03 2+		
10	C3.6			18:00 18:13 18:43 2		
11	C1.9					
11	C9.4	11:19 11:27 12:12 2+		11:21 11:28 12:26 2+	11:20 11:30 12:10 2+	
11	C5.3	14:31 15:01 15:40 2+		14:37 15:02 15:46 2+	14:38 15:01 15:30 2+	
13	C1.1					
14	C5.2	07:55 08:08 08:48 2+				
14	C1.8	08:58 09:00 09:07 1-			09:09 09:15 09:34 1	
14	C2.5	09:07 09:15 09:24 1-				
14	C1.5					
14	C3.3	12:16 12:28 14:54 3+			12:19 12:30 12:55 2	
14	*					
14	?					
14	C1.8					
15	C3.6					
15	C1.3					
15	C8.6	09:16 09:24 09:53 2		09:20 09:24 09:51 1+	09:18 09:24 09:54 2	
15	C4.4	09:53 10:06 10:40 2+		09:56 10:08 10:33 2		
15	C3.6	12:41 12:46 13:24 2		12:44 12:47 13:13 1+		
15	C1.5					
15	C7.3			17:57 18:00 18:30 2		
16	C2.9					
16	C4.5	08:14 08:18 08:34 1			08:15 08:20 08:33 1-	
16	C5.2	08:34 08:44 09:10 2			08:37 08:46 09:12 2	
16	C7.5	12:43 12:50 13:36 2+		12:45 12:52 13:21 2	12:45 12:52 13:26 2	
16	C2.0					
16	<b>M1.0</b>					
17	C3.9	11:36 11:59 12:48 2+		11:45 11:58 12:41 2+		
17	?					
17	?					
17	C2.4			16:28 16:34 16:45 1-		
18	C4.8	08:06 08:14 08:45 2		08:08 08:16 08:34 1+	08:07 08:14 08:48 2	
18	?	11:40 11:57 12:17 2				
18	<b>M7.3</b>	12:34 13:00 14:56 3+		12:40 13:01 14:28 3	12:37 13:00 14:33 3	
19	C1.6					
19	C2.0					
19	C1.7					
19	C1.6					
19	C4.7					
20	C6.4	08:10 08:14 08:22 1-		08:09 08:15 08:53 2	08:10 08:17 08:23 1-	
20	C3.9	08:22 08:28 08:54 1+			08:23 08:31 08:45 1	
20	C1.8					
20	C2.2			12:02 12:10 12:21 1	12:01 12:11 12:30 1+	
20	C2.8	13:33 13:41 14:37 2+		13:34 13:43 13:55 1	13:35 13:41 14:08 2	
20	*			14:39 14:49 15:05 1+		
21	C1.2					
22	C2.9					
22	?					
22	C3.8	08:44 08:51 09:07 1		08:45 08:50 09:00 1-	08:46 08:52 09:05 1	
22	?					
22	C2.4	09:34 09:39 10:02 1+		09:37 09:44 10:03 1+	09:39 09:44 10:00 1	
22	C8.8	11:29 11:38 12:28 2+		11:32 11:40 12:16 2	11:31 11:39 12:23 2+	
22	*	15:08 15:18 16:22 2+		15:14 15:20 15:43 1+	15:13 15:20 15:36 1	
22	E					
22	C2.5	17:48 18:46 19:07 2+		18:36 18:41 18:57 1		
23	C1.6	08:34 08:45 09:09 2		08:40 08:46 08:57 1-		
23	C2.3	12:04 12:17 12:42 2		12:09 12:16 12:39 1+		
23	C5.1	12:42 13:05 15:09 3+		12:49 13:03 14:09 2+	12:46 13:00 13:44 2+	
23	C1.5			15:15 15:19 15:28 1-		
24	C2.9	10:03 10:19 10:55 2+		10:09 10:20 11:01 2+	10:07 10:18 11:05 2+	
25	C3.3	11:56 12:08 13:17 2+		11:58 12:08 12:46 2+		
25	?	13:17 13:33 14:08 2+		13:22 13:32 13:51 1+		
26	C2.4	14:44 14:59 15:56 2+		14:50 15:02 15:14 1	14:51 15:00 15:14 1	
28	B7.3					
28	C3.4	15:14 15:27 16:05 2+		15:17 15:29 16:10 2+	15:18 15:29 16:00 2	
29	B9.7					
30	B6.0	14:49 14:50 16:01 2+				

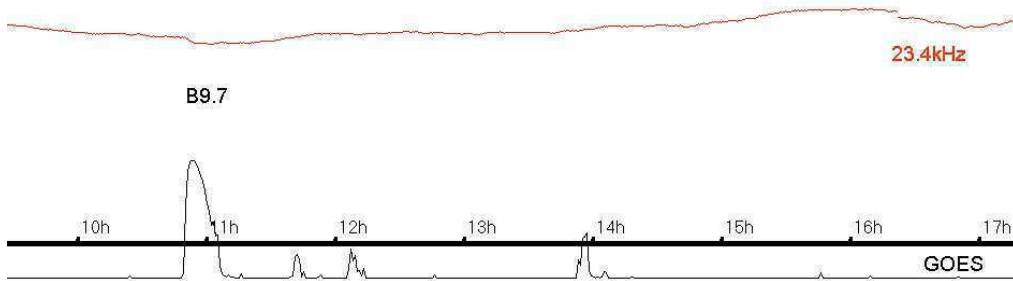


### VLF flare activity 2005/14.

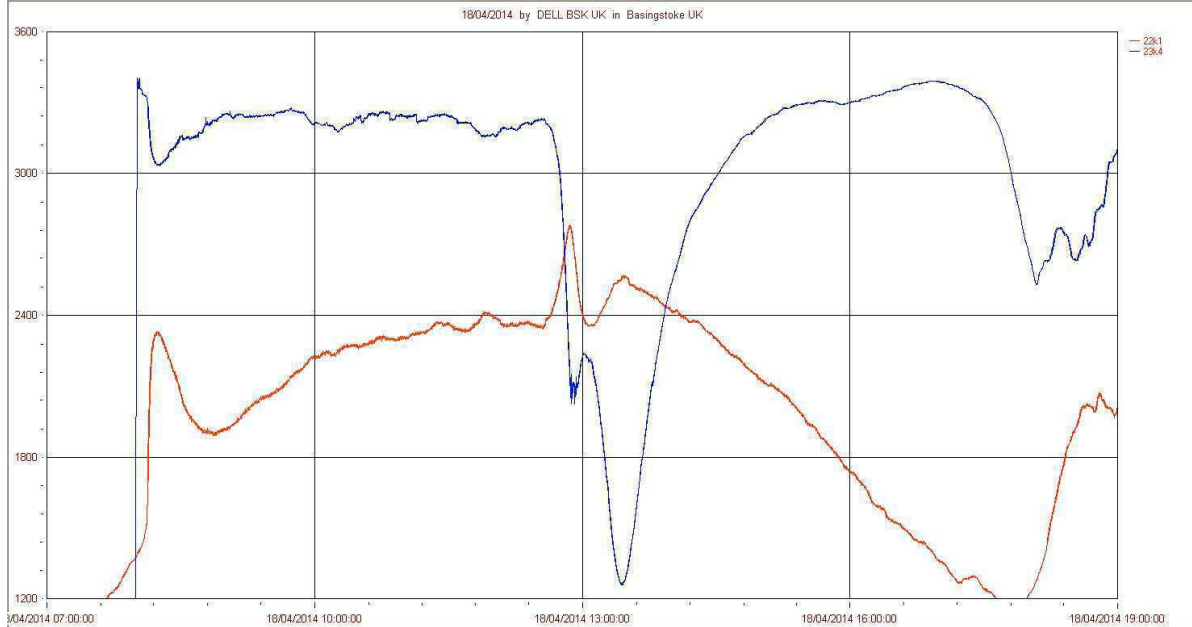


Activity in April was down a little on March, with 67 flares recorded as SIDs. There was a single X1.3 flare at 00:27UT on the 25th, too early to record as a SID, although we did manage to capture three B-class flares during a quiet period at the end of the month. My own recording, below, shows the B9.7 flare at 23.4kHz. The X-ray flux was at a very low level for most of the day, allowing the flare to be seen.

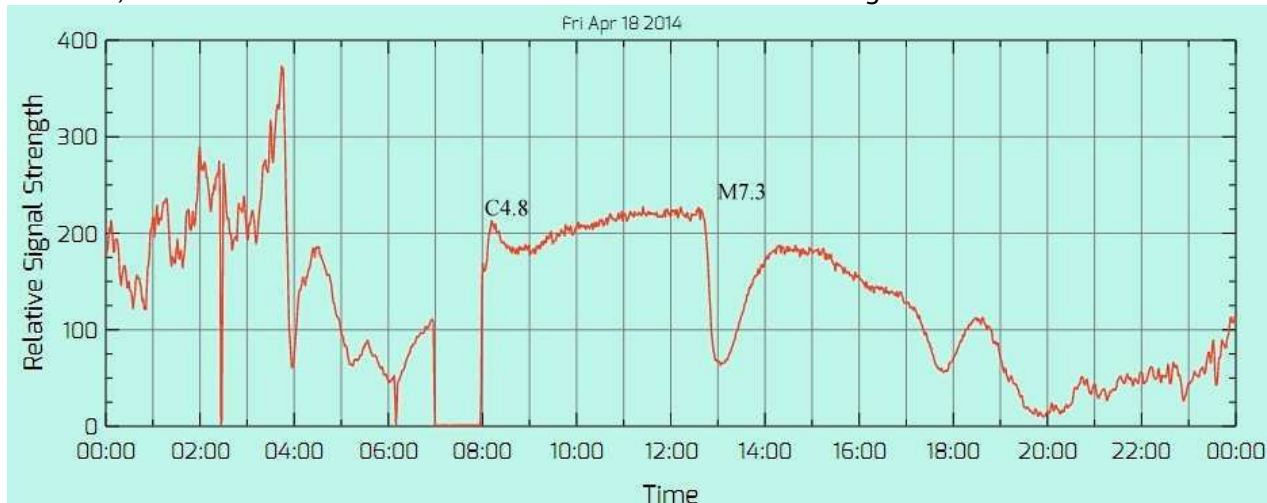
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There were plenty of more energetic events too, including a good M7.3 flare on the 18th:

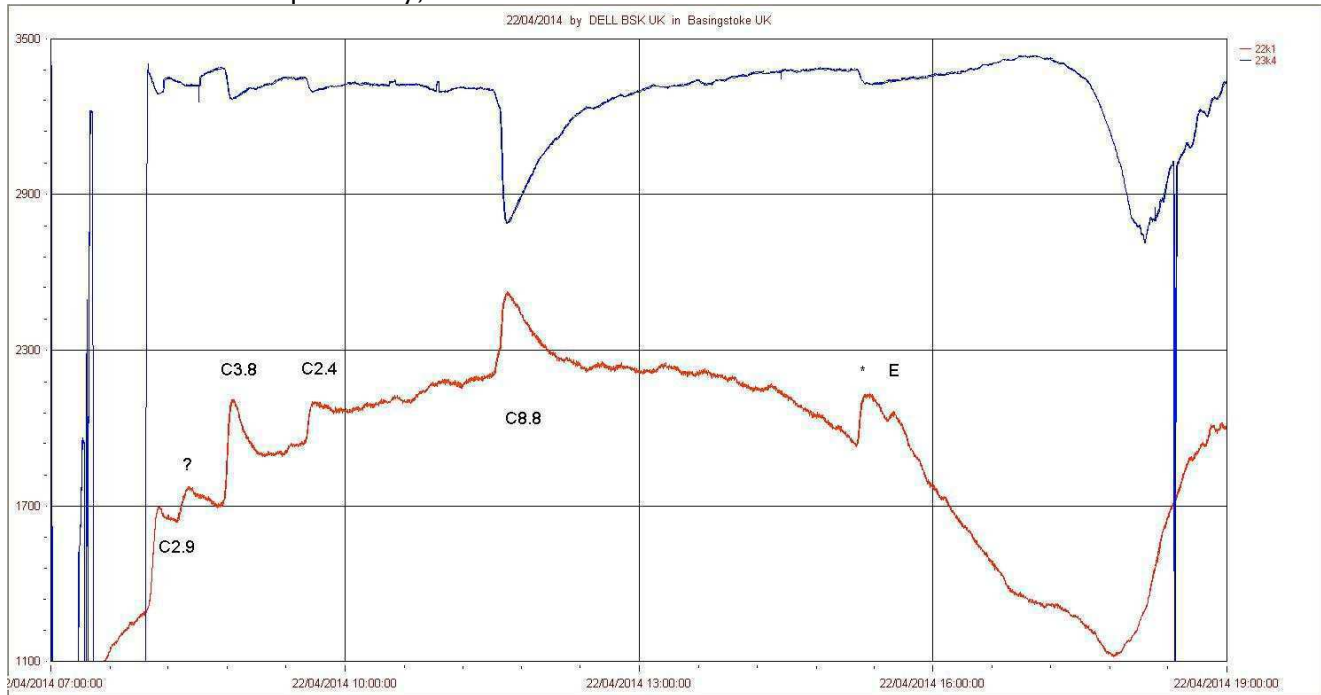


This recording was made by Paul Hyde, showing a nice mirror-pair of SIDs peaking at 13:04UT. Red is 22.1kHz, blue is 23.4kHz. Peter Meadows has also sent a recording from the 18th:



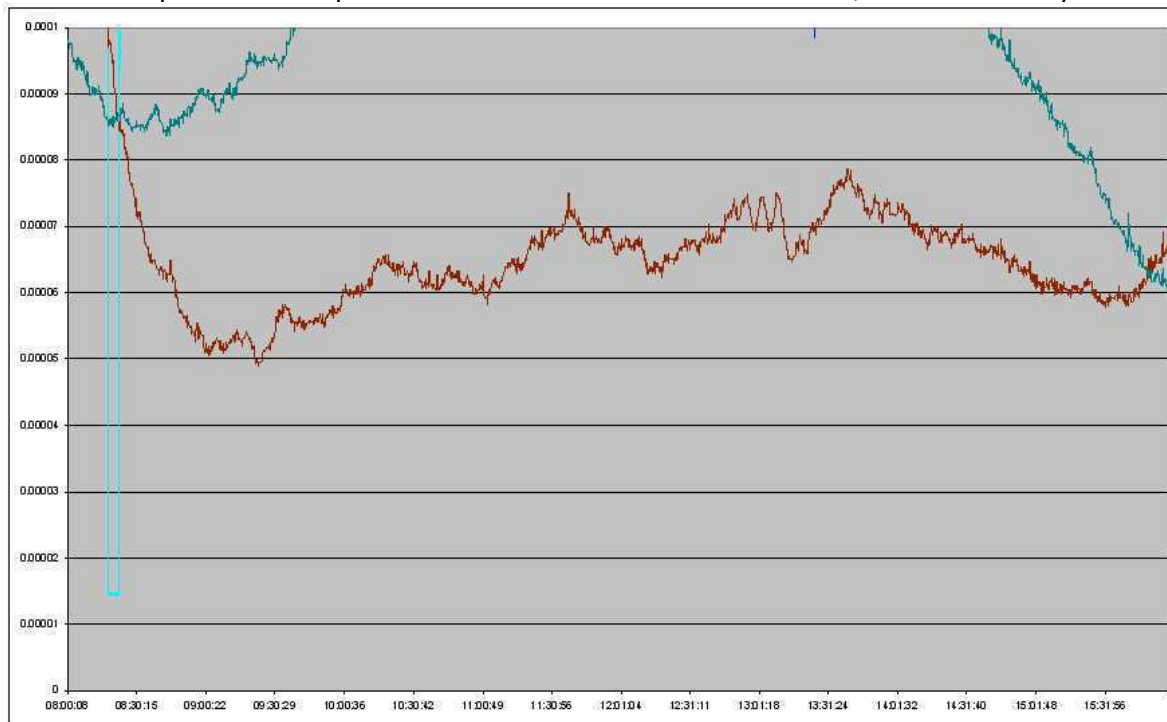
The earlier C4.8 flare also appears in Peter's recording, although interestingly it shows a rising SID while the M7.3 flare shows a falling SID. Polarities remain the same for both SIDs in Paul's recording.

The 22<sup>nd</sup> was quite busy, with a total of 9 SIDs recorded. Paul's chart shows most of this activity:



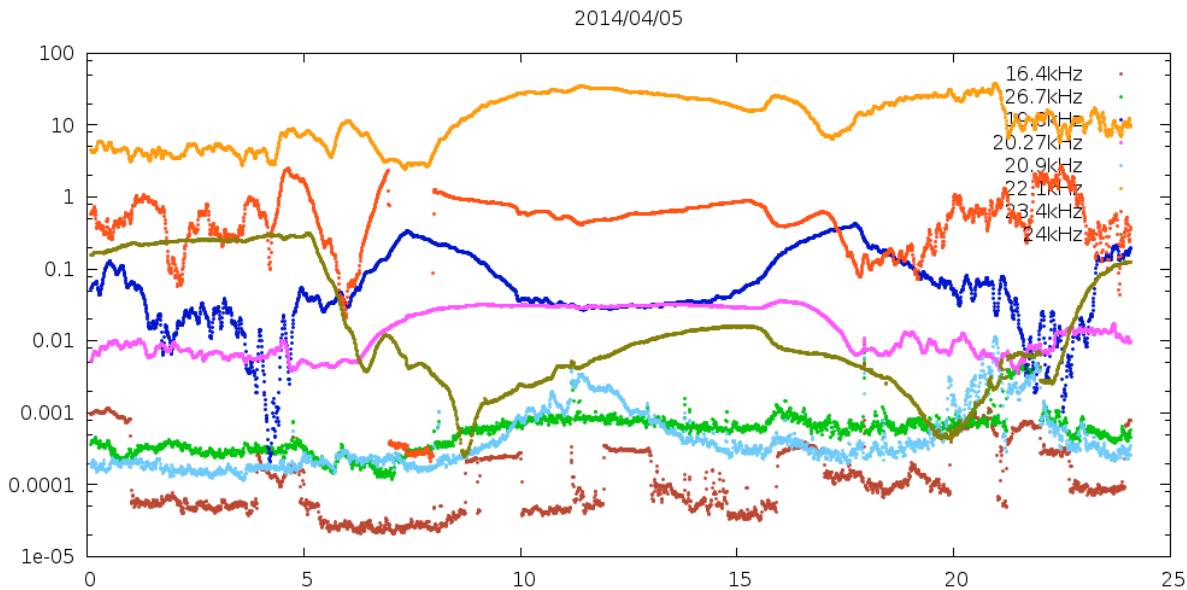
The 221.kHz (red) trace shows what appears to be a double-peaked SID at about 15:30UT. Unfortunately there is a three hour drop-out in X-ray data from GOES15 starting just after 14UT. The SWPC lists a single optical flare peaking at 15:22UT, while our timings for the second peak are nearer 15:35.

Compared to the quiet conditions at the end of the month, the 7<sup>th</sup> was very turbulent.



This recording by Mark Edwards at 22.1kHz shows a very turbulent day, including a period of more organised oscillation around 13:00UT. This was coincident with a period of minor magnetic disturbance, but any connection is unknown.

Richard Kaye also recorded some unusual activity on the 5th:

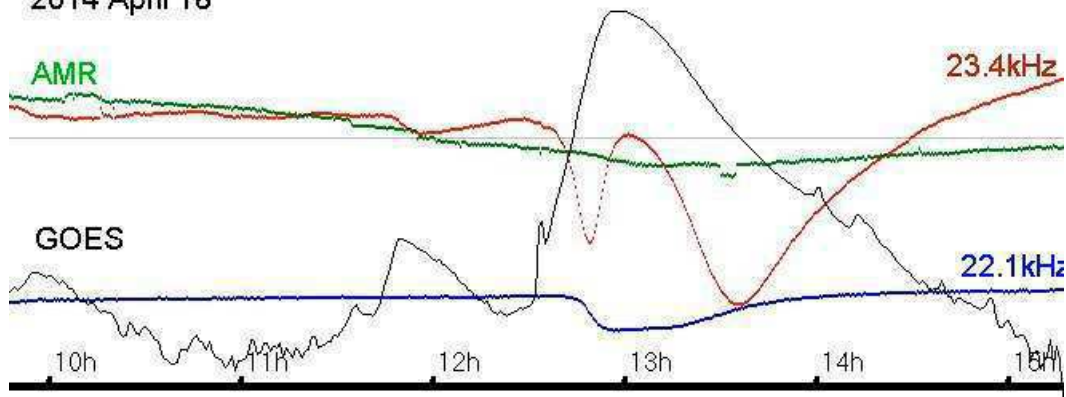


This is a logarithmic plot in order to show the effects at several frequencies. The usual diurnal curves seem very exaggerated, particularly at 22.1kHz (yellow), as does the sunset response. SIDs from the C1.6 and C1.9 flares in the morning are just about visible. The inverted response at 23.4kHz (red) seems to indicate that it is not local interference. My own recording was normal over this period, and I have not received similar reports from elsewhere, so the cause remains a mystery.

### MAGNETIC OBSERVATIONS.

There was a barely noticeable SFE associated with the M7.3 flare on the 18<sup>th</sup>.

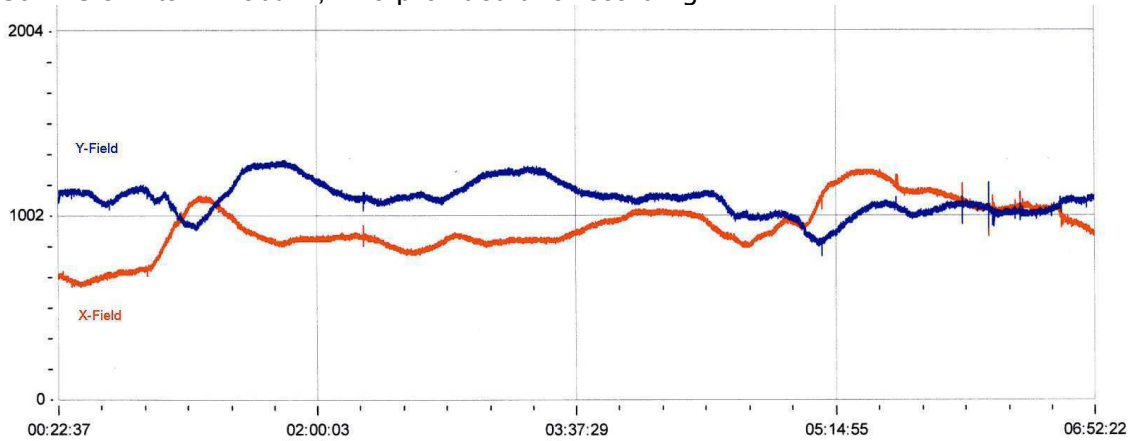
2014 April 18



My own recording shows a very gentle dip in the magnetometer trace (green) as the X-ray flux peaks (12:53–13:15UT). The 5 minute drop at 13:30 is from local interference. Without the addition of VLF and X-ray traces, this SFE would have passed unnoticed.

Gonzalo Vargas reports a sudden magnetic disturbance starting at 01:47UT on the 1<sup>st</sup>, coincident with the magnitude 8.2 earthquake in Chile. The epicentre of the earthquake was off the north coast of Chile, about 86 miles from Arica. Gonzalo is in Cochabamba, Bolivia. Effects from the earthquake were felt over parts of Peru and Bolivia, as well as Chile. No magnetic disturbances were recorded here in the UK.

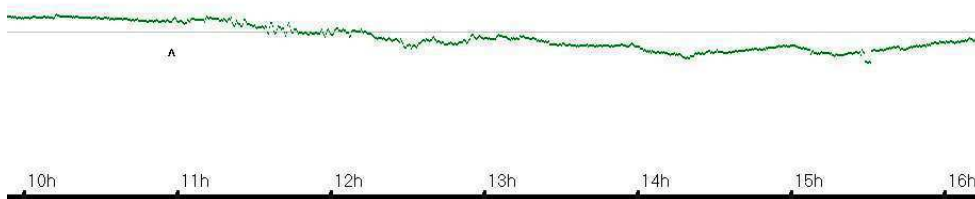
Gonzalo also recorded an active period on the 12<sup>th</sup> from 01:15 to 12:00UT. This was also recorded by Colin Clemnts in Lisburn, who provided this recording:



Caused by a strong southward-pointing Bz component in the Sun's magnetic field linking with the Earth's magnetosphere, the field returned to northwards after 09UT on the 12<sup>th</sup>.

The M7.3 flare on the 18<sup>th</sup> also caused a CME. This was recorded as a SSC at 10:58 on the 20<sup>th</sup>, giving a transit time of 41 hours 56 minutes. This is the third fastest CME recorded by the group. My chart shows the rather weak disturbance that followed, marked 'A':

2014 April 20



Activity on the 24<sup>th</sup> and 25<sup>th</sup> was from a CHSS, whilst a number of weak CME's caused very minor disturbances through the month.

Magnetic observations received from Colin Clements, John Cook, Gonzalo Vargas  
Contributions for this summary are welcome at [jacook@jacook.plus.com](mailto:jacook@jacook.plus.com)



ROTATION	KEY:	DISTURBED.	ACTIVE	SFE	B, C, M, X = FLARE MAGNITUDE.	Synodic rotation start (carrington's).
2423		2011 March	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22		CCCC CCCC CMMM CMM CMMM CCCC CCC BCCC CC CBCM CCCC	2108
2424		2011 April	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	2109
2425		2011 May	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15		CCCC CCCC CB C C 4 5 6 7 8 9 10 11 12 13 14 15	2110
2426		2011 June	1 2 3 4 5 6 7 8 9 10 11		BCCC CCCC CBCM CCC 1 2 3 4 5 6 7 8 9 10 11	2111
2427		2011 July	1 2 3 4 5 6 7 8		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	2112
2428		2011 August	1 2 3 4		CCCC CCCC CCCC MCCC MCCC CCCC 30 31 1 2 3 4	2113
2429		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		CCCC CCCC CCC CMC CMXC CCCC CC CB CC BC BB BC C C BC C 27 28 29 30 31	2114
2430		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		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	2115
2431		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		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24	2116
2432		2011 December	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	2117
2433		2012 January	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	2118
2434		2012 February	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	2119
2435		2012 March	1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9	2120
2436		2012 April	1 2 3 4 5 6 7		1 2 3 4 5 6 7	2121
2437		2012 May	1 2 3		1 2 3	2122
2438		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		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	2123
2439		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		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	2124
2440		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		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	2125
2441		2012 September	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	2126
2442		2012 October	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	2127
2443		2012 November	1 2 3 4 5 6 7 8 9 10 11 12		1 2 3 4 5 6 7 8 9 10 11 12	2128
2444		2012 December	1 2 3 4 5		1 2 3 4 5	2129
2445		2013 January	1 2 3 4		1 2 3 4	2130
2446		2013 February	1 2		1 2	2131
2447		2013 March	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		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	2132
2448		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		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	2133
2449		2013 May	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	2134
2450		2013 June	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	2135
2451		2013 July	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	2136
2452		2013 August	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	2137
2453		2013 September	1 2 3 4 5 6 7 8 9		1 2 3 4 5 6 7 8 9	2138
2454		2013 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 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	2139
2455		2013 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 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	2140
2456		2013 December	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		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	2141
2457		2014 January	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		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	2142
2458		2014 February	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22	2143
2459		2014 March	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18		1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	2144
2460		2014 April	1 2 3 4 5 6 7 8 9 10 11		1 2 3 4 5 6 7 8 9 10 11	2145
2461		2014 May	1 2 3 4 5 6 7 8 9 10 11		1 2 3 4 5 6 7 8 9 10 11	2146
2462		2014 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 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	2147
2463		2014 July	1 2 3 4 5 6		1 2 3 4 5 6	2148
2464		2014 August	1 2		1 2	2149
2465		2014 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		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	2150
2466		2014 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		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	2151