BAA Radio Astronomy Group. **2011 SEPTEMBER**

	Xray class	Observers	John Cook (23.4kHz/*22.1kHz*)				Roberto Battaiola (23.4kHz)				Andrew Lutley (23.4kHz)				Bob Middlefell (22.1kHz)				Mark Edwards (**22.1**/24.0/*37.5kHz*)			
			Tuned radio frequency receiver, 0.58m frame aerial.				Modified AAVSO receiver.				Tuned radios frequency receiver, 0.5m frame aerial.				Tuned radio frequency receiver, 0.5m frame aerial.				Spectrum Lab / PC 2m loop aerial.			
DAY			START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)	
1	C2.0	6																	12:46	12:51	13:25	2
1	C2.0	2																	18:19	18:25	19:20	2+
2	C1.8	5																	*15:16*	*15:20*	*15:48*	*1+*
3	C2.4	5																				
3	C1.0	3																				
3	C2.5	1																	17:36	17:39	18:02	1+
3	C1.2	1																				
4	C9.0	1																	*05:33*	*05:47*	*06:08*	*2*
4	?	1																	11:21	11:29	?	-
4	**M3.2**	9	11:38	11:46	13:16	3									11:25	11:32	11:55	1+	11:37	11:47	13:14	3
4	C5.8	6																	15:22	15:38	17:01	3
4	?	1																	17:04	17:12	17:32	1+
4	C1.4	1																				
5	**M1.6**	1																				
5	**M1.2**	7																	*07:38*	*08:03*	*09:25*	*3*
5	?	1																	10:21	10:33	10:39	1-
5	?	2																	10:58	11:01	11:09	1-
5	?	3																	11:15	11:49	12:31	2+
5	?	1																	13:28	13:49	?	-
5	?	2																	14:03	14:10	15:21	2+
5	?	1																	15:32	15:39	16:05	2
5	?	1																	16:57	17:02	17:31	2
7	**X1.8**	1																				
8	C1.7	6	10:44	10:55	?	-													10:43	10:54	11:40	2+
8	**M6.7**	10	15:39	15:47	16:45	2+													15:38	15:49	17:05	3
8	C2.5	1																	18:42	18:48	19:13	1+
9	**M2.7**	4	06:02	06:04	06:11	1-													***06:05***	***06:07***	***06:11***	***1-***
9	**M1.2**	7	12:42	12:57	14:10	3													12:43	12:52	14:38	3
9	C3.2	6													14:53	14:59	15:53	2+	14:48	15:04	16:03	2+
10	**M1.1**	6																	*07:25*	*07:40*	*08:46*	*2+*
10	C1.7	3																	17:25	17:28	17:43	1-
11	C6.6	7	08:45	08:57	?	-													*08:44*	*09:04*	*?*	-
11	?	1																	09:58	10:06	10:37	
11	C1.9	6	13:23	13:26	?	-													13:23	13:33	15:07	3
11	B9.7	1																				
12	C2.9	4	12:18	12:29	12:55	2													*12:17*	*12:31*	*13:44*	*3*
13	?	1																	12:13	12:50	14:29	3+
13	?	1																	17:30	17:36	17:46	1-
13	C1.5	3																	17:52	17:58	18:11	1
14	C1.9	2																				
14	C2.2	6	11:23	11:29	11:50	1+													11:22	11:28	?	-
14	C1.4	3	12:03	12:05	12:10	1-													11:50	11:55	12:07	1-
14	C1.8	3																	16:01	16:07	?	-
14	C4.2	6																	16:17	16:29	17:18	2+
14	C9.2	1																				
15	C1.4	2																	***10:46***	***10:48***	***?***	***-***
15	?	1																	***10:57***	***11:00***	***12:22***	***2+***
15	*	1																	***12:29***	***12:55***	***?***	***-***
15	C3.0	5																	16:23	16:30	17:03	2
15	C1.0	1																				
16	C1.8	2																				
16	C2.2	5																	**08:43**	**08:49**	**09:19**	**2**
16	C9.3	9	11:34	11:40	12:30	2+									11:21	11:24	12:55	3	11:34	11:39	12:18	2
16	C2.0	4																	15:07	15:10	?	-
16	C2.0	5																	15:30	15:36	15:44	1-
16	C2.2	2																	17:12	17:23	18:02	2+
16	*	1																				
16	*	1																				
17	C1.4	1	08:10	08:11	08:18	1-																
17	C1.1	2																	***11:14***	***11:16***	***11:35***	***1***
17	?	1																	**12:36**	**12:43**	**12:55**	**1**
17	*	1																	***15:17***	***15:25***	***15:43***	***1+***
17	?	1																	***16:38***	***16:41***	***16:49***	***1-***
18	C2.9	2																				
18	C3.8	3																	10:32	10:52	11:35	2+
18	*	1																	12:25	12:54	13:00	2
18	*	1																	13:04	13:10	13:34	1+
18	C2.0	2																	15:51	15:54	16:34	2
19	C6.2	2																				
19	C6.9	7	*15:39*	*15:44*	*16:01*	*1*													15:38	15:48	16:47	2+
20	C1.6	2																	11:52	11:56	12:08	1-
20	C1.7	2																	12:18	12:22	12:45	1+
20	C1.7	1																				
20	?	1																	12:59	13:20	13:41	2
20	C2.5	2																	13:52	13:59	14:06	1-
20	C1.5	2																				
20	C1.6	1																				
21	C3.9	5	11:19	11:27	11:50	1+													11:19	11:27	?	-
21	**M1.8**	7	12:07	12:15	13:50	3													12:06	12:18	13:35	3
21	*	2																				
21	C2.7	3	14:24	14:40	?	-																
21	C2.8	2	15:21	15:25	15:40	1																
21	C2.3	1																				
22	C8.9	8	09:03	09:07	?	-													*09:02*	*09:08*	*09:50*	*2+*
22	**M1.1**	6	09:55	10:01	?	-													09:56	10:03	10:08	1-
22	**X1.4**	9	10:31	10:54	14:10	3+													*10:32*	*10:49*	*15:34*	*3+*
22	*	1																	15:39	15:49	16:40	2+
22	C4.0	1																				
22	C5.5	1																				
23	C2.7	4																				
23	C6.9	8	08:44	08:51	09:55	2+									08:51	08:55	09:23	1+	*08:45*	*08:54*	*10:34*	*3*
23	C3.2	5																	12:14	12:26	?	-
23	?	1																	12:34	12:39	13:19	2
23	*	2																	**13:36**	**13:40**	**14:23**	**2+**
23	C2.1	3																	15:04	15:07	15:23	1
23	*	1																	15:31	15:36	16:11	2

24	C5.9	4	*07:02*	*07:06*	*07:14*	*1-*				**07:03**	**07:08**	**07:26**	**1**
24	C3.1	2											
24	C2.2	3								***08:40***	***08:54***	***09:21***	***2***
24	**X1.9**	8	09:34	09:41	11:25	3				09:35	09:42	11:08	3
24	C2.7	4								11:29	11:40	12:05	2
24	**M7.1**	9	12:30	13:05	15:40	3+				12:29	13:07	15:13	3+
24	?	3								16:37	16:43	?	-
24	**M1.7**	4	17:11	17:20	?	-				16:51	16:59	17:20	1+
24	**M3.1**	7	17:27	17:33	?	-				17:23	17:26	17:59	2
24	**M2.8**	2								18:03	18:11	19:13	2+
24	**M3.0**	1											
24	**M1.2**	1											
25	*	4								*08:36*	*08:42*	*?*	-
25	**M3.1**	8	08:48	08:52	?	-				*08:47*	*08:52*	*?*	-
25	**M1.5**	6	09:26	09:33	10:30	2+				09:31	09:43	11:16	3
25	C5.7	7								11:26	11:32	12:06	2
25	*	1								13:43	13:49	?	-
25	?	1								14:10	14:14	14:37	1+
25	?	2								14:59	15:11	?	-
25	**M3.7**	8	15:31	15:34	?	-				*15:26*	*15:38*	*16:48*	*2+*
25	*	2								16:11	16:19	?	-
25	**M2.2**	6	16:53	17:03	17:22	1+				16:54	17:02	18:11	2+
25	*****	1											
26	C8.8	7	*07:48*	*07:53*	*08:07*	*1*				**07:48**	**07:53**	**08:06**	**1-**
26	C3.3	4								09:41	09:45	?	-
26	C3.3	3								10:00	10:18	?	-
26	?	1								10:44	10:48	11:26	2
26	?	1								**13:10**	**13:16**	**13:21**	**1-**
26	C5.1	4								*13:29*	*13:46*	*14:25*	*2+*
26	**M2.6**	7	14:41	14:48	15:14	2				*14:40*	*14:50*	*15:40*	*2+*
26	C4.8	5	*16:45*	*16:52*	*17:16*	*1+*				**16:46**	**16:54**	**17:07**	**1**
27	C3.3	5								**07:43**	**07:51**	**08:02**	**1**
27	C2.4	3											
27	C1.8	6	10:52	10:56	?	-				10:54	10:56	11:05	1-
27	C1.3	6	11:45	11:48	11:58	1-				11:46	11:50	12:12	1+
27	*	1											
28	C1.4	3								**08:24**	**08:27**	**08:31**	**1-**
28	B9.7	1											
28	C9.3	8	12:29	12:33	?	-				12:30	12:35	13:18	2+
28	**M1.2**	8	13:26	13:30	14:40	2+				13:26	13:30	14:13	2+
29	C1.3	2											
29	C2.7	4	12:27	12:45	13:13	2+				12:26	12:45	16:00	3+
30	*	1											
30	**M1.0**	1											

BAA Radio Astronomy Group. **2011 SEPTEMBER**

			Colin Clements (23.4kHz/*37.5kHz*)				Peter Meadows (23.4kHz)				Mike King (20.9kHz)				John Wardle (19.6/23.4kHz)				Peter King (18.3kHz)			
			AAVSO receiver, 0.76m screened loop aerial.				Tuned radio frequency receiver, 0.58m frame aerial.				AAVSO receiver. Tuned loop aerial.				PC soundcard, long wire aerial.				Own designed receiver, 1.4m loop aerial.			
DAY			START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)	
1	C2.0		12:43	12:50	13:26	2									12:44	12:52	13:04	1	12:45	12:50	12:55	1-
1	C2.0																		18:15	18:22	18:30	1-
2	C1.8														15:12	15:17	15:25	1-	15:10	15:15	15:20	1-
3	C2.4		07:52	08:00	08:20	1+									07:50	08:00	08:29	2	07:48	07:55	08:05	1-
3	C1.0														14:08	14:17	14:29	1	13:56	14:14	14:25	1+
3	C2.5																					
3	C1.2																		18:40	18:45	18:50	1-
4	C9.0																					
4	?																					
4	**M3.2**		11:38	11:48	13:15	3									11:37	11:47	12:40	2+	11:20	11:45	11:50	1+
4	C5.8		15:15	15:37	16:39	2+									15:23	15:35	16:15	2+	15:20	15:35	15:55	2
4	?																					
4	C1.4																					
5	**M1.6**																					
5	**M1.2**		07:24	08:03	08:49	2+									07:32	08:03	08:49	2+	07:23	08:00	08:05	2
5	?																					
5	?																					
5	?		10:56	11:49	12:45	3																
5	?																					
5	?		13:24	14:11	15:22	3																
5	?																					
5	?																					
7	**X1.8**																					
8	C1.7		10:38	10:56	11:33	2+									10:44	10:56	11:13	1+	10:40	10:50	11:00	1
8	**M6.7**		15:38	15:48	18:05	3+									15:36	15:47	16:18	2	15:30	15:45	15:54	1
8	C2.5																					
9	**M2.7**														06:08	06:15	06:24	1-				
9	**M1.2**		12:42	12:53	14:48	3+									12:41	12:51	13:38	2+				
9	C3.2		14:48	15:04	15:53	2+									14:48	15:03	15:35	2+				
10	**M1.1**		07:24	07:46	09:02	3									07:21	07:41	09:00	3	07:20	07:40	07:55	2
10	C1.7																		17:20	17:25	17:30	1-
11	C6.6		08:45	08:58	09:43	2+									08:43	08:54	09:44	2+	08:40	08:50	09:30	2+
11	?																					
11	C1.9														13:20	13:30	13:41	1	13:18	13:26	13:36	1-
11	B9.7																					
12	C2.9																		12:15	12:30	12:40	1
13	?																					
13	?																					
13	C1.5																		17:27	18:01	18:21	2+
14	C1.9																		08:29	08:36	08:42	1-
14	C2.2		11:21	11:29	11:52	1+													11:17	11:26	11:33	1-
14	C1.4																		11:50	11:53	11:56	1-
14	C1.8																		15:57	16:06	16:14	1-
14	C4.2														16:23	16:27	16:35	1-	16:15	16:25	16:50	2
14	C9.2																					
15	C1.4																		10:55	11:00	11:04	1-
15	?																					
15	*																					
15	C3.0														16:21	16:28	16:35	1-	16:20	16:25	16:40	1
15	C1.0																		18:25	18:30	18:40	1-
16	C1.8																		08:05	08:10	08:14	1-
16	C2.2														08:44	08:50	08:58	1-	08:40	08:45	08:45	1-
16	C9.3		11:38	11:40	12:28	2+									11:33	11:36	12:31	2+	11:30	11:35	11:40	1-
16	C2.0																		15:05	15:10	15:14	1-
16	C2.0																		17:10	17:20	17:30	1
16	C2.2																					
16	*																		18:00	18:05	18:13	1-
16	*																					
17	C1.4																					
17	C1.1																		10:48	10:50	10:55	1-
17	?																					
17	*																					
17	?																					
18	C2.9																					
18	C3.8																		09:50	10:58	11:20	3
18	*																					
18	*																					
18	C2.0																		15:50	15:54	16:00	1-
19	C6.2		07:22	07:34	08:31	2+													07:20	07:40	09:14	3
19	C6.9		15:41	15:44	16:09	1+																
20	C1.6																		11:50	11:55	11:58	1-
20	C1.7																		12:15	12:20	12:25	1-
20	C1.7																		12:30	12:35	12:40	1-
20	?																					
20	C2.5																		12:45	13:55	14:25	3
20	C1.5																		15:45	16:35	16:57	2+
20	C1.6																		17:35	17:45	17:50	1-
21	C3.9														11:19	11:24	11:57	2	11:17	11:25	11:30	1-
21	**M1.8**														12:06	12:19	13:15	2+	12:05	12:24	12:45	2
21	*																		14:20	14:23	14:25	1-
21	C2.7																		14:36	14:38	14:40	1-
21	C2.8																					
21	C2.3																					
22	C8.9		09:04	09:11	09:45	2									09:02	09:07	09:47	2	08:50	09:05	09:10	1
22	**M1.1**														09:55	09:59	10:31	2	09:55	10:00	10:10	1-
22	**X1.4**		?	10:40	?	-									10:30	10:45	13:30	3+	10:30	11:00	11:45	2+
22	*																					
22	C4.0																					
22	C5.5																					
23	C2.7														08:15	08:22	08:37	1	08:13	08:20	08:35	1
23	C6.9														08:44	08:54	09:51	2+	08:40	08:50	08:55	1-
23	C3.2														12:13	12:24	12:59	2+	12:10	12:25	12:40	1+
23	?																					
23	*																					
23	C2.1																					
23	*																					

24	C5.9										07:00	07:07	07:21	1			
24	C3.1														07:20	07:25	07:30	1-
24	C2.2														08:40	08:45	08:55	1-
24	**X1.9**										09:34	09:56	11:00	3	09:20	09:40	09:50	1+
24	C2.7										11:28	11:35	11:44	1-	11:25	11:30	11:38	1-
24	**M7.1**										12:37	12:51	?	-	12:35	13:20	14:10	3
24	?										12:51	13:10	15:00	3+				
24	**M1.7**														16:35	17:00	17:15	2
24	**M3.1**										17:12	17:19	17:23	1-	17:20	17:25	17:30	1-
24	**M2.8**										17:55	18:14	18:26	1+				
24	**M3.0**										19:22	19:31	19:38	1-				
24	**M1.2**																	
25	*																	
25	**M3.1**		08:49	08:53	09:23	2					08:47	08:51	09:30	2	08:45	08:50	08:53	1-
25	**M1.5**										09:26	09:45	10:31	2+	09:25	09:35	09:55	1+
25	C5.7		11:30	11:32	12:12	2					11:26	11:39	11:53	1+	11:25	11:30	11:35	1-
25	*																	
25	?																	
25	?		14:49	15:00	15:06	1-												
25	**M3.7**		15:31	15:39	16:06	2					15:30	15:36	15:56	1+	15:25	15:35	15:40	1-
25	*																	
25	**M2.2**														16:50	17:00	17:10	1
25	*****																	
26	C8.8										07:48	07:52	08:03	1-	07:45	07:50	07:55	1-
26	C3.3										09:42	09:46	09:55	1-				
26	C3.3														10:00	10:02	10:13	1-
26	?																	
26	?																	
26	C5.1										13:29	13:45	14:15	2+				
26	**M2.6**										14:40	14:53	15:14	2	14:38	14:45	15:35	2+
26	C4.8														16:45	16:55	17:05	1
27	C3.3										07:44	07:49	08:00	1-	07:40	07:50	07:55	1-
27	C2.4										08:13	08:18	08:22	1-	08:05	08:15	08:20	1-
27	C1.8										10:51	10:57	11:04	1-	10:50	10:55	11:00	1-
27	C1.3										11:45	11:53	12:08		11:40	11:48	11:52	1-
27	*																	
28	C1.4														08:20	08:25	08:30	1-
28	B9.7																	
28	C9.3		12:31	12:37	13:14	2					12:29	12:34	13:10	2	12:25	12:34	12:40	1-
28	**M1.2**		13:28	13:32	13:56	1+					13:25	13;31	14:09	2	13:25	13:28	13:30	1-
29	C1.3														10:20	10:23	10:25	1-
29	C2.7														12:08	12:49	13:20	2+
30	*																	
30	**M1.0**																	

BAA Radio Astronomy Group. **2011 SEPTEMBER**

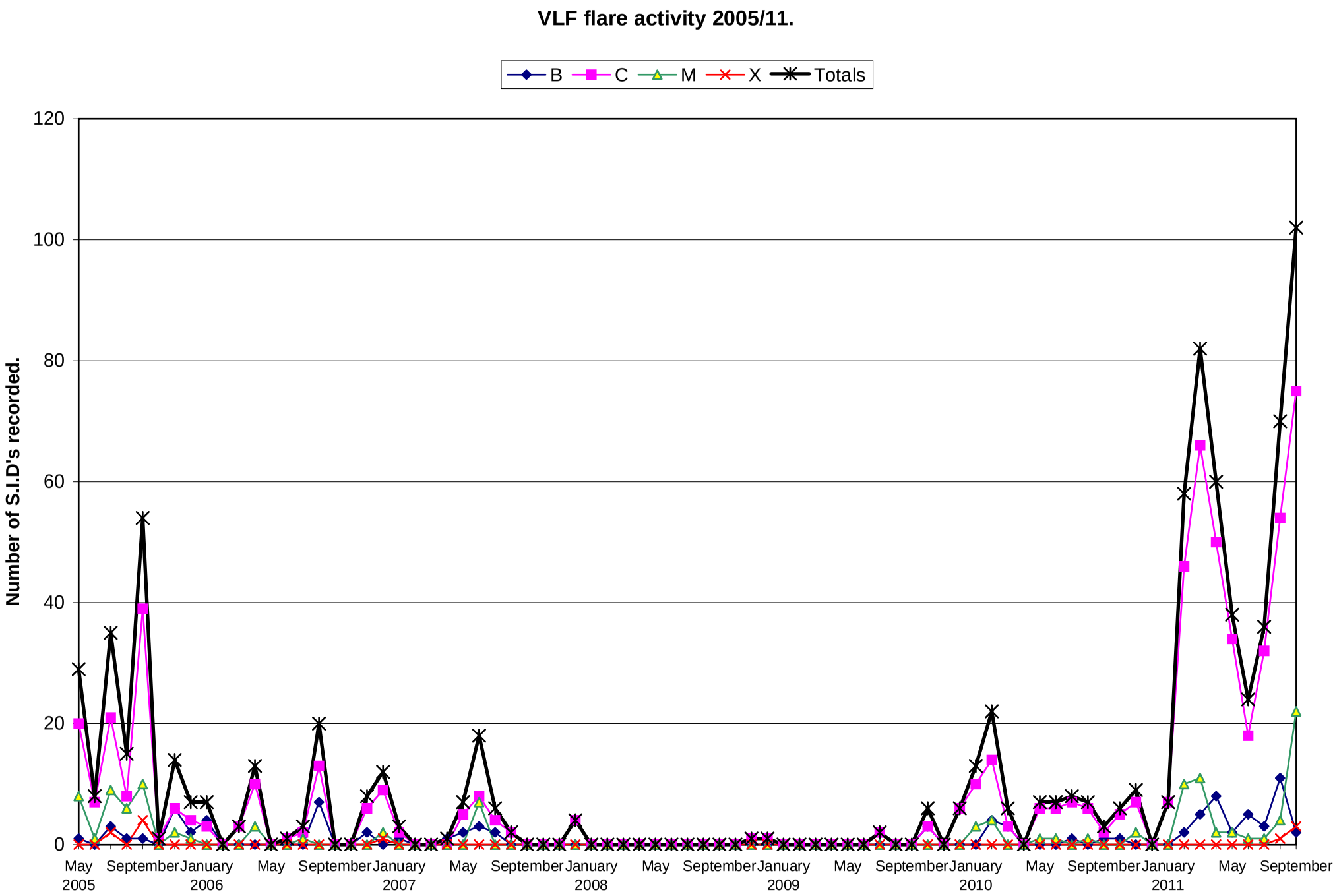
			Paul Hyde (22.1kHz)				Gordon Fiander (23.4kHz)				John Elliott (21.7kHz)				Martyn Kinder (19.6kHz/*22.1khz*)				Mark Horn (23.4kHz)			
			Tuned radio frequency receiver, 0.96m frame aerial.				PC sound card.				Tuned radio frequency receiver, 0.5m frame aerial.				Tuned radio frequency receiver, 0.58m frame aerial.				Tuned radio frequency receiver, 0.58m frame aerial.			
DAY			START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)	
1	C2.0		12:46	12:49	13:13	1+																
1	C2.0																					
2	C1.8		15:12	15:19	15:33	1																
3	C2.4		07:52	08:00	08:22	1+									07:51	07:58	08:12	1				
3	C1.0																					
3	C2.5																					
3	C1.2																					
4	C9.0																					
4	?																					
4	**M3.2**		11:24	11:46	13:11	3					11:35	11:43	12:48	2+								
4	C5.8		15:22	15:35	16:16	2+																
4	?																					
4	C1.4																					
5	**M1.6**														04:09	04:29	04:36	1+				
5	**M1.2**		07:31	07:45	08:02	1+									07:32	07:57	08:07	2				
5	?																					
5	?																					
5	?		11:17	11:27	12:24	2+																
5	?																					
5	?																					
5	?																					
5	?																					
7	**X1.8**																					
8	C1.7		10:44	10:54	11:01	1-																
8	**M6.7**		15:37	15:48	17:08	3					15:31	15:48	16:41	2+	15:32	15:48	16:09	2				
8	C2.5																					
9	**M2.7**		06:02	06:06	06:11	1-																
9	**M1.2**		12:43	12:51	14:25	3					12:37	12:50	13:43	2+	12:41	12:50	13:01	1				
9	C3.2										15:03	15:07	15:48	2								
10	**M1.1**		07:24	07:30	07:46	1									07:19	07:45	08:31	2+				
10	C1.7		17:24	17:27	17:33	1-																
11	C6.6		08:44	08:54	10:45	3									08:42	08:52	08:58	1-				
11	?																					
11	C1.9		13:22	13:29	13:40	1-									13:19	13:28	13:36	1-				
11	B9.7																					
12	C2.9		12:02	12:35	13:05	2+																
13	?																					
13	?																					
13	C1.5														17:35	17:52	18:19	2				
14	C1.9														08:32	08:41	08:51	1				
14	C2.2		11:21	11:26	11:42	1									11:19	11:26	11:34	1-				
14	C1.4																					
14	C1.8														15:57	16:08	16:17	1				
14	C4.2		16:20	16:29	16:52	1+									16:19	16:28	16:45	1+				
14	C9.2																					
15	C1.4																					
15	?																					
15	*																					
15	C3.0		16:22	16:29	16:50	1+									16:21	16:26	16:37	1-				
15	C1.0																					
16	C1.8		08:10	08:12	08:17	1-																
16	C2.2		08:44	08:53	09:10	1+									08:44	08:48	08:54	1-				
16	C9.3		11:34	11:40	12:53	2+									11:33	11:37	11:39	1-				
16	C2.0		15:07	15:11	?	-									15:06	15:11	15:16	1-				
16	C2.0		15:30	15:34	15:44	1-									15:28	15:33	15:35	1-				
16	C2.2														*17:12*	*17:17*	*17:20*	*1-*				
16	*																					
16	*																					
17	C1.4																					
17	C1.1																					
17	?																					
17	*																					
17	?																					
18	C2.9		07:34	07:36	07:57	1									07:35	07:36	07:45	1-				
18	C3.8		10:32	10:54	11:07	2																
18	*																					
18	*																					
18	C2.0																					
19	C6.2																					
19	C6.9		15:39	15:46	17:00	2+									15:35	15:44	16:15	2				
20	C1.6																					
20	C1.7																					
20	C1.7																					
20	?																					
20	C2.5																					
20	C1.5																					
20	C1.6																					
21	C3.9		11:20	11:27	12:02	2																
21	**M1.8**		12:06	12:18	14:16	3+					12:03	12:13	13:03	2+								
21	*		14:22	14:26	14:34	1-																
21	C2.7		14:36	14:41	14:51	1-																
21	C2.8		15:24	15:28	?	-																
21	C2.3		16:15	16:18	16:25	1-																
22	C8.9		09:00	09:08	?	-									08:51	09:05	09:16	1				
22	**M1.1**		09:55	10:03	?	-									*09:55*	*10:00*	*10:05*	*1-*				
22	**X1.4**		10:30	10:57	15:31	3+					10:35	11:01	13:00	3+	*10:29*	*10:45*	*13:17*	*3+*				
22	*																					
22	C4.0																					
22	C5.5																					
23	C2.7		08:16	08:23	?	-									*08:13*	*08:21*	*08:25*	*1-*				
23	C6.9		08:42	08:54	09:59	2+									08:41	08:49	09:41	2+				
23	C3.2		12:13	12:24	13:15	2+									12:11	12:19	12:34	1				
23	?																					
23	*		13:35	13:43	13:57	1																
23	C2.1		15:03	15:08	15:24	1									15:03	15:07	15:14	1-				
23	*																					

24	C5.9														07:02	07:04	07:07	1-	
24	C3.1														07:21	07:24	07:28	1-	
24	C2.2		08:39	08:46	09:08	1+													
24	**X1.9**		09:34	09:37	11:41	3+					09:37	09:50	11:11	3	09:33	09:37	09:51	1-	
24	C2.7														*11:27*	*11:32*	*11:39*	*1-*	
24	**M7.1**		12:30	12:46	16:32	3+	12:33	13:30	14:30	3	12:37	13:07	14:26	3	12:36	12:51	14:56	3+	
24	?		16:36	16:43	?	-													
24	**M1.7**		16:51	16:58	17:17	1+													
24	**M3.1**		17:21	17:26	17:47	1+	17:20	17:27	17:35	1-					*17:20*	*17:23*	*17:33*	*1-*	
24	**M2.8**																		
24	**M3.0**																		
24	**M1.2**																		
25	*		08:35	08:52	?	-	08:46	08:51	09:02	1-									
25	**M3.1**		09:22	09:40	10:21	2+									08:47	08:48	08:51	1-	
25	**M1.5**														09:20	09:29	09:42	1	
25	C5.7		11:28	11:32	12:02	2									11:26	11:30	11:37	1-	
25	*																		
25	?																		
25	?																		
25	**M3.7**		15:31	15:37	16:18	2+									15:28	15:32	15:36	1-	
25	*																		
25	**M2.2**		16:53	17:04	?	-									16:53	16:56	17:03	1-	
25	*****																		
26	C8.8		07:47	07:53	08:36	2+									07:46	07:50	08:06	1	
26	C3.3		09:42	09:47	?	-									09:41	09:45	?	-	
26	C3.3		10:00	10:04	11:13	2+													
26	?																		
26	?																		
26	C5.1		13:27	13:46	14:33	2+									13:27	13:39	14:11	2	
26	**M2.6**		14:39	14:50	15:59	2+									14:39	14:42	14:50	1-	
26	C4.8		16:45	16:51	17:25	2									*16:44*	*16:48*	*16:52*	*1-*	
27	C3.3		07:43	07:49	?	-									*07:43*	*07:48*	*08:00*	*1-*	
27	C2.4		08:07	08:15	08:33	1+													
27	C1.8		10:53	10:56	11:18	1									10:52	10:56	11:02	1-	
27	C1.3		10:45	11:50	12:13	3									11:44	11:48	11:53	1-	
27	*																		
28	C1.4														*08:20*	*08:25*	*08:32*	*1-*	
28	B9.7														10:18	10:24	10:34	1-	
28	C9.3		12:29	12:34	13:15	2+									12:27	12:31	12:37	1-	
28	**M1.2**		13:26	13:30	14:12	2+									13:25	13:28	13:33	1-	
29	C1.3		10:22	10:25	10:40	1-													
29	C2.7		12:25	12:44	13:44	2+													
30	*		13:46	13:51	14:02	1-													
30	**M1.0**																		

BAA Radio Astronomy Group. **2011 SEPTEMBER**

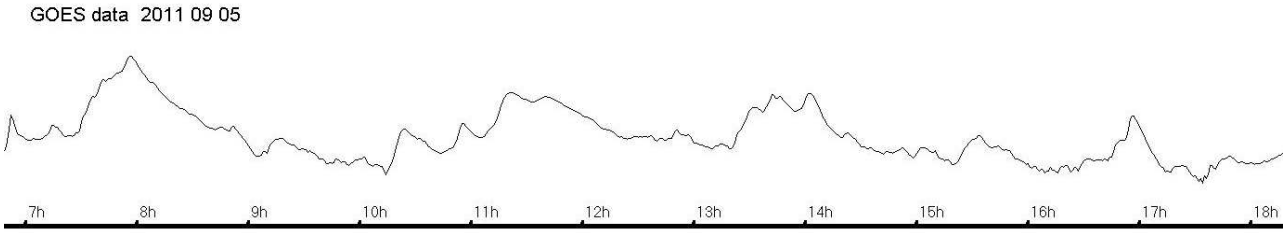
			Steve Parkinson (23.4kHz)				Simon Dawes (various)				Gonzalo Vargas (Various)											
			Tuned radio frequency receiver, 0.58m frame aerial.				PC soundcard and TRF receiver with 1m loop aerial.				Spectrum Lab.											
DAY			START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)		START	PEAK	END (UT)	
1	C2.0										12:32	12:33	12:38	1-								
1	C2.0																					
2	C1.8										14:58	14:59	15:05	1-								
3	C2.4																					
3	C1.0										13:33	13:34	13:39	1-								
3	C2.5																					
3	C1.2																					
4	C9.0																					
4	?																					
4	**M3.2**						11:11	11:17	12:04	2+												
4	C5.8						14:55	15:06	15:46	2+												
4	?																					
4	C1.4										19:53	19:54	19:58	1-								
5	**M1.6**																					
5	**M1.2**						07:19	07:40	08:08	2+												
5	?																					
5	?						10:45	10:55	12:35	3												
5	?																					
5	?																					
5	?																					
5	?																					
5	?																					
7	**X1.8**										22:28	22:29	22:35	1-								
8	C1.7																					
8	**M6.7**						15:46	15:52	16:29	2	15:51	15:52	16:00	1-								
8	C2.5																					
9	**M2.7**																					
9	**M1.2**																					
9	C3.2										14:44	14:47	14:59	1-								
10	**M1.1**																					
10	C1.7																					
11	C6.6																					
11	?																					
11	C1.9																					
11	B9.7										20:47	20:48	20:52	1-								
12	C2.9																					
13	?																					
13	?																					
13	C1.5																					
14	C1.9																					
14	C2.2																					
14	C1.4																					
14	C1.8																					
14	C4.2										16:36	16:37	16:40	1-								
14	C9.2										20:47	20:48	20:49	1-								
15	C1.4																					
15	?																					
15	*																					
15	C3.0																					
15	C1.0																					
16	C1.8																					
16	C2.2																					
16	C9.3						11:29	11:33	12:05	2												
16	C2.0																					
16	C2.0										15:37	15:39	15:43	1-								
16	C2.2																					
16	*																					
16	*										21:46	21:47	21:53	1-								
17	C1.4																					
17	C1.1																					
17	?																					
17	*																					
17	?																					
18	C2.9																					
18	C3.8																					
18	*																					
18	*																					
18	C2.0																					
19	C6.2																					
19	C6.9						15:37	15:41	16:10	2	15:53	15:54	16:03	1-								
20	C1.6																					
20	C1.7																					
20	C1.7																					
20	?																					
20	C2.5																					
20	C1.5										16:22	16:24	16:28	1-								
20	C1.6																					
21	C3.9																					
21	**M1.8**						12:05	12:17	14:05	3												
21	*																					
21	C2.7																					
21	C2.8																					
21	C2.3																					
22	C8.9						08:56	09:07	09:39	2												
22	**M1.1**																					
22	**X1.4**						10:37	10:56	12:35	3												
22	*																					
22	C4.0										20:38	20:39	20:44	1-								
22	C5.5										22:23	22:24	22:30	1-								
23	C2.7																					
23	C6.9						08:44	08:49	09:51	2+												
23	C3.2																					
23	?																					
23	*																					
23	C2.1																					
23	*																					

24	C5.9												
24	C3.1												
24	C2.2												
24	**X1.9**			09:34	09:40	11:26	3						
24	C2.7												
24	**M7.1**			12:30	13:06	15:58	3+						
24	?												
24	**M1.7**												
24	**M3.1**												
24	**M2.8**												
24	**M3.0**												
24	**M1.2**							21:14	21:15	21:23	1-		
25	*			08:36	08:38	08:47	1-						
25	**M3.1**			08:47	08:51	09:25	2						
25	**M1.5**			09:25	09:39	11:09	3						
25	C5.7			11:25	11:31	12:13	2+						
25	*												
25	?												
25	?												
25	**M3.7**			15:30	15:34	16:06	2						
25	*							16:02	16:05	16:10	1-		
25	**M2.2**			16:54	17:01	17:33	2						
25	*****							20:35	20:36	20:47	1-		
26	C8.8			07:48	07:52	08:17	1+						
26	C3.3												
26	C3.3												
26	?												
26	?												
26	C5.1												
26	**M2.6**			14:40	14:48	16:02	2+						
26	C4.8												
27	C3.3												
27	C2.4												
27	C1.8												
27	C1.3												
27	*							15:34	15:35	15:41	1-		
28	C1.4												
28	B9.7												
28	C9.3			12:29	12:34	13:26	2+						
28	**M1.2**			13:26	13:31	14:34	2+						
29	C1.3												
29	C2.7												
30	*												
30	**M1.0**							19:11	19:!2	19:16	1-		

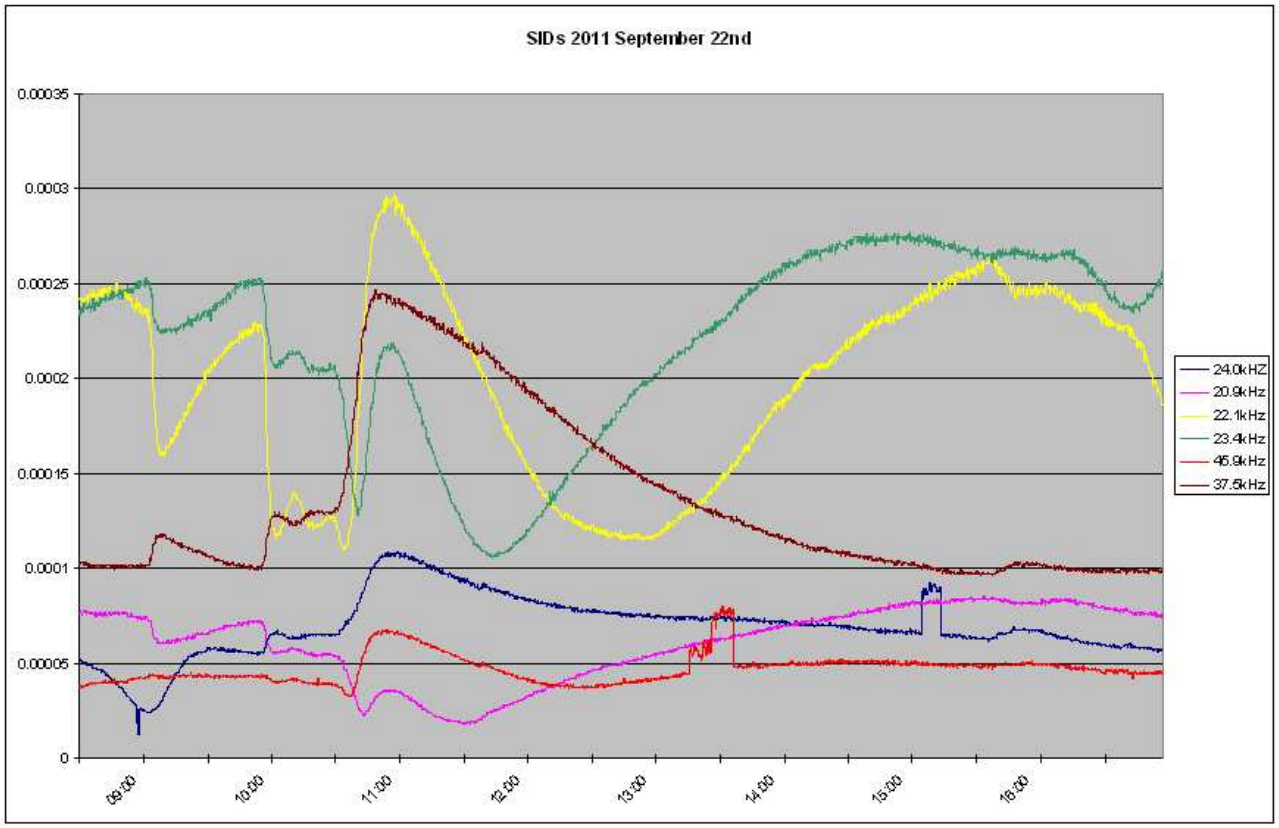

VLF flare activity 2005/11.
B
C
M
X
Totals
Number of S.I.D's recorded.
120
100
80
60
40
20
0
May 2005
September
January 2006
May
September
January 2007
May
September
January 2008
May
September
January 2009
May
September
January 2010
May
September
January 2011
May
September

2011 September

This month I have received a bumper crop of SID observations. Visual observers have recorded the highest relative sunspot number since 2003 January. The general solar background X-ray flux has been at a high level, and there have been numerous M and X class flares. On some days, it has been nearly impossible to sort out which flare any particular SID belongs to, some flares having multiple peaks to further complicate the picture. I hope that I have got things about right; it really has been a challenging time!

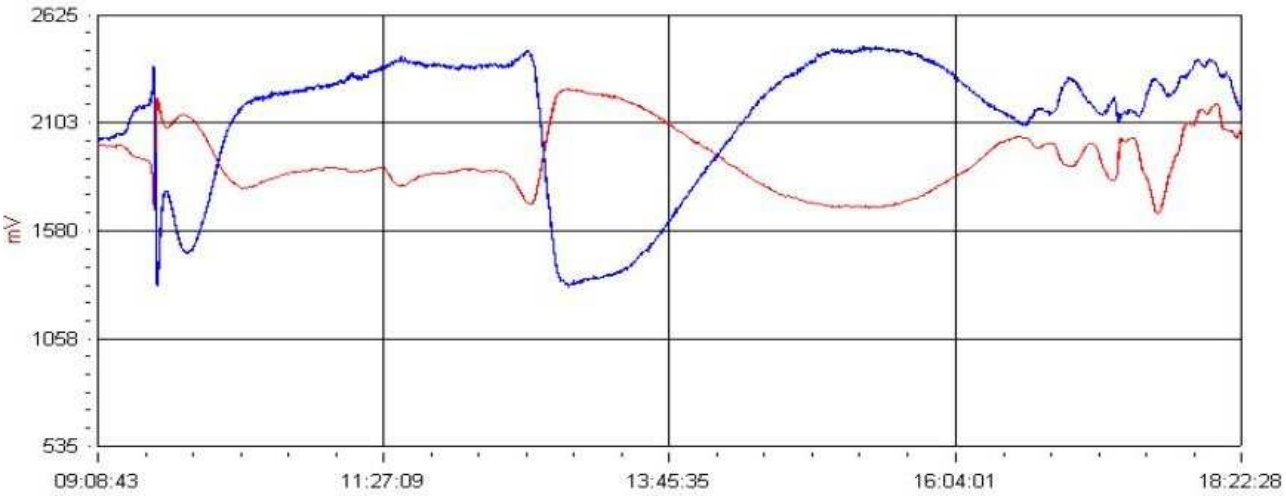


This graph is a plot of the GOES X-ray data on the 5th. The M1.2 flare at 07:58 is clear, but despite the numerous peaks, no flares are reported in the SWPC bulletin until 22:20. Seven of these have been recorded as SIDs, and are listed in the summary with '?' in the classification column. Those shown as '*' are listed, but without a classification.

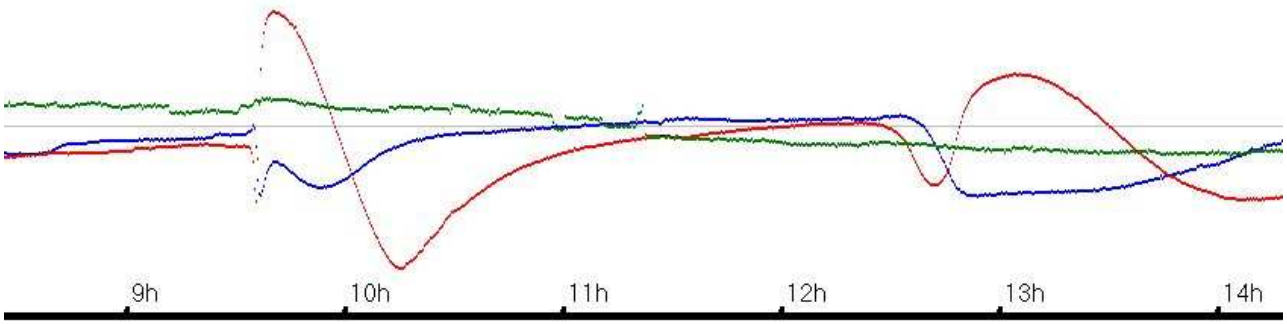


The recording on the previous page is by Mark Edwards, and shows the SID from the X1.4 flare on the 22nd dwarfing the earlier C8.9 and M1.1 flares. This flare has created a different shaped SID at each of the frequencies recorded.

The 24th. produced another set of contrasting SIDs.



The recording above is by Martyn kinder. The X1.9 at 09:37 was a very fast flare, compared to the much slower M7.1 flare at 12:51. Although is was less energetic, the SID shows a much longer recovery time for the ionosphere. My own chart also includes the magnetometer in green:

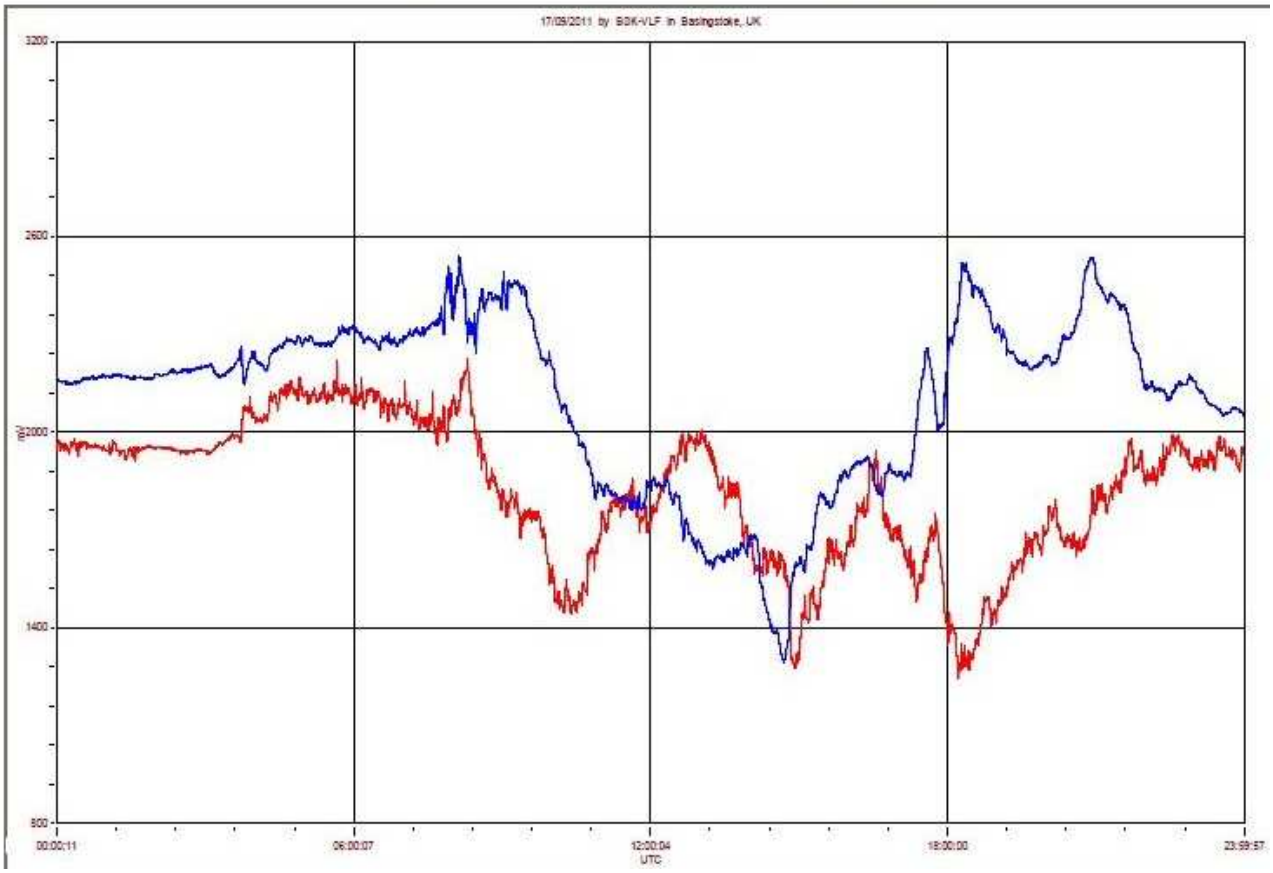


The response of my 22.1kHz receiver (blue) to the M7.1 flare is very odd, with a peak well before 13:00 compared to 13:05 for 23.4kHz (red).

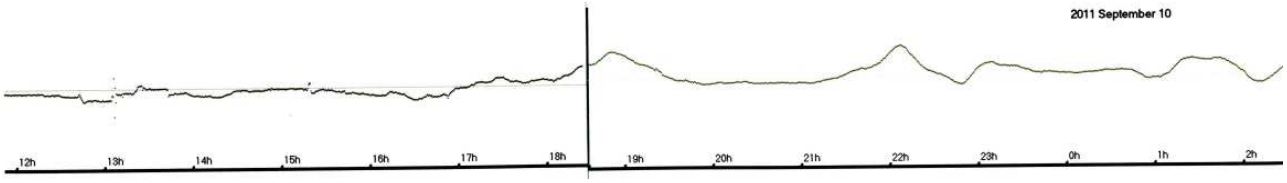
There have also been some interesting magnetic events this month. The British Geological Survey station at Hartland lists two Solar Flare Events (SFEs or crochets) in its monthly bulletin, one of which has shown up clearly on our own recordings. There is a definite rise in the magnetometer output coincident with the start of the X1.9 flare, above. There is some local interference just before this, which makes measurement difficult. The peak magnetic disturbance matches the peak

of SID in timing, and so the connection seems clear. This connection was also recorded by Paul Hyde. Paul has included a nice recording of a sudden storm commencement on the 17th. Timed at 03:44UT, the subsequent disturbance lasts for the rest of the day:

Magnetic storm - 17th September 2011

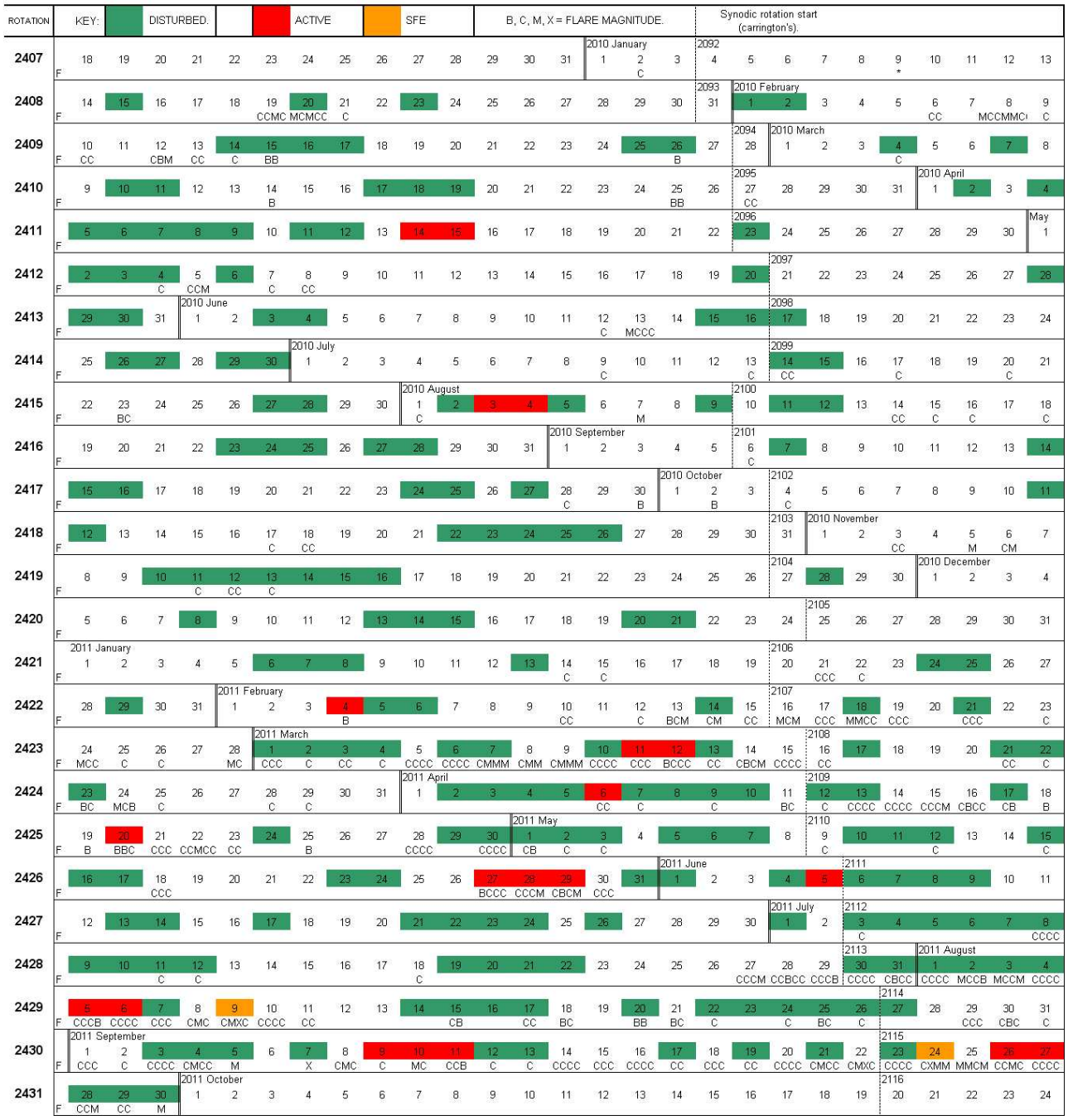


The origin of this storm was a CME on the 13th, observed in SOHO and STEREO images.



I recorded a similar SSC at 12:44UT on the 9th, the storm continuing well into the morning of the 10th. Although the initial magnetic disturbance measured just 12nT, the peaks at around 19:00 and 22:00UT are about 100nT, with a 60nT shift at 06:30UT. That represents a K-index of 5 and 4, respectively. This storm was a result of combined flare and CME activity on the 6th and 7th.

One of the problems in identifying these SSCs is that the initial disturbance is often very small, and easily lost in a noisy signal. The larger disturbance follows some while later.



Data for the Bartels diagram was provided by Paul Hyde, Colin Clements, Gonzalo Vargas and John Cook.