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BAA Radio Astronomy Section.

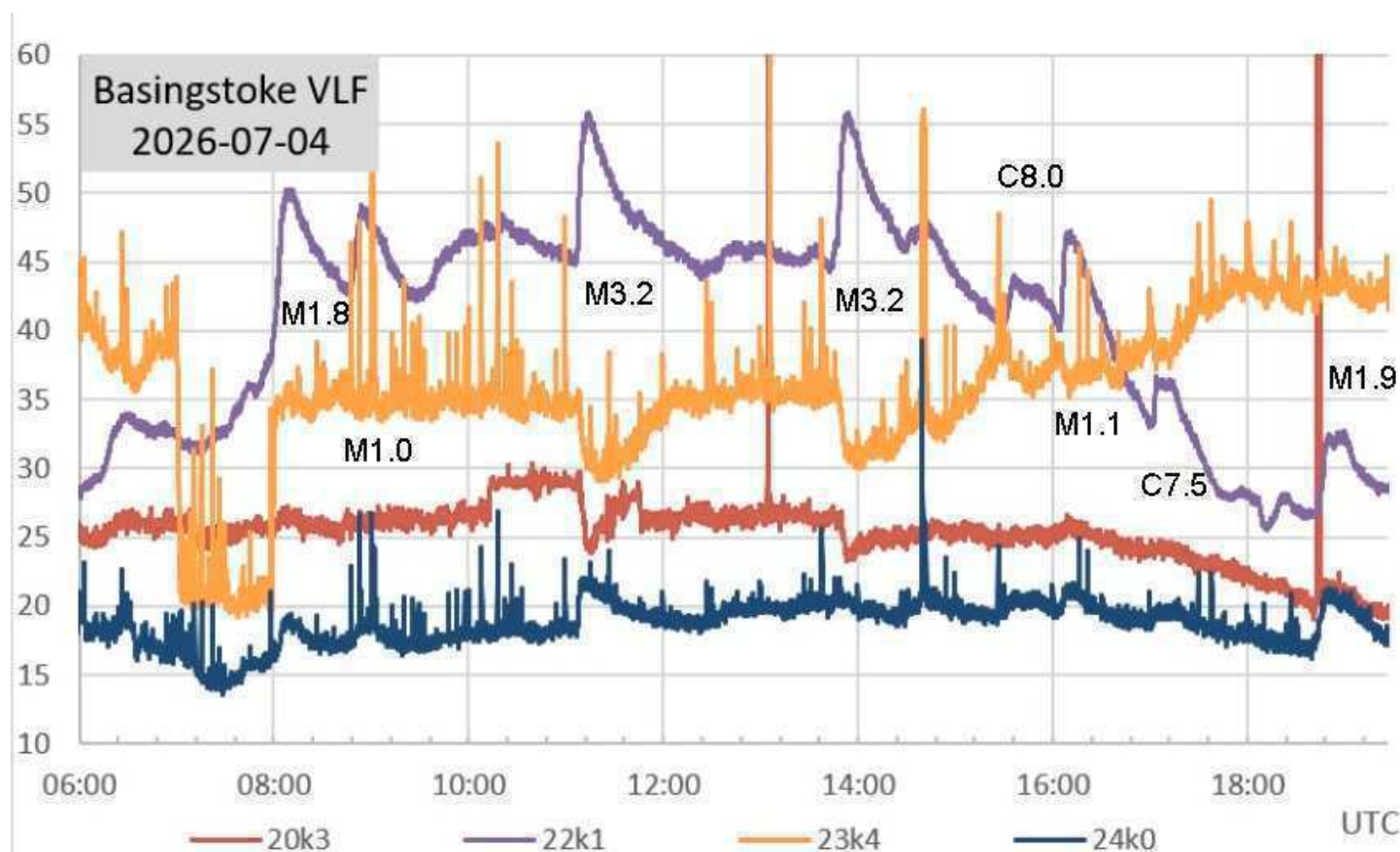
Director Paul Hearn.

RADIO SKY NEWS

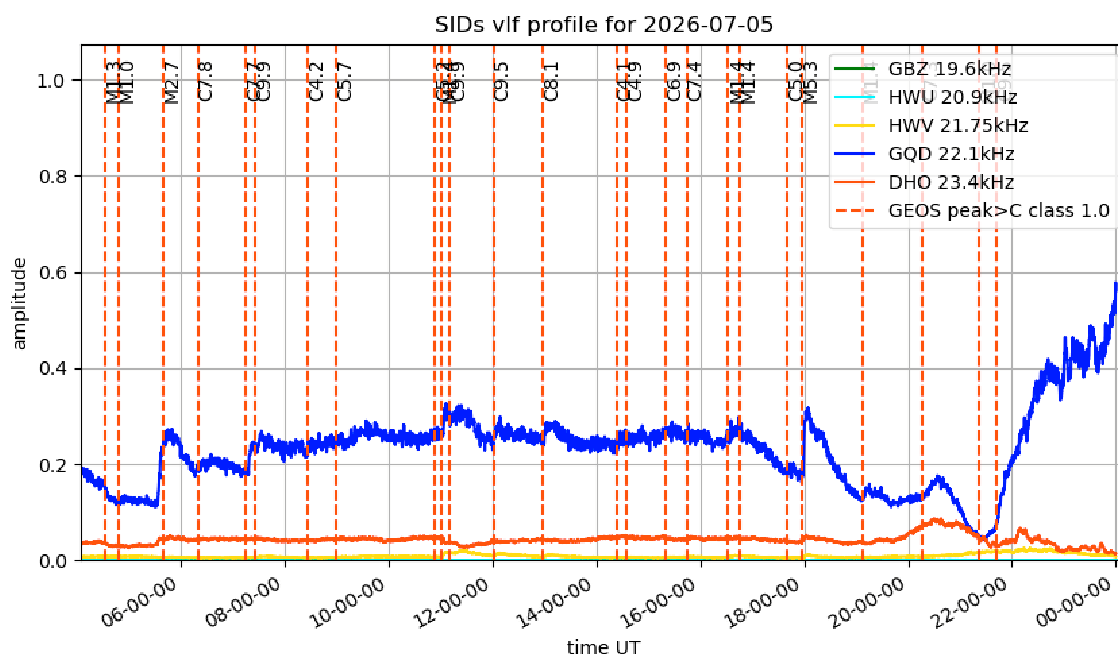
2026 JULY.

VLF SID OBSERVATIONS.

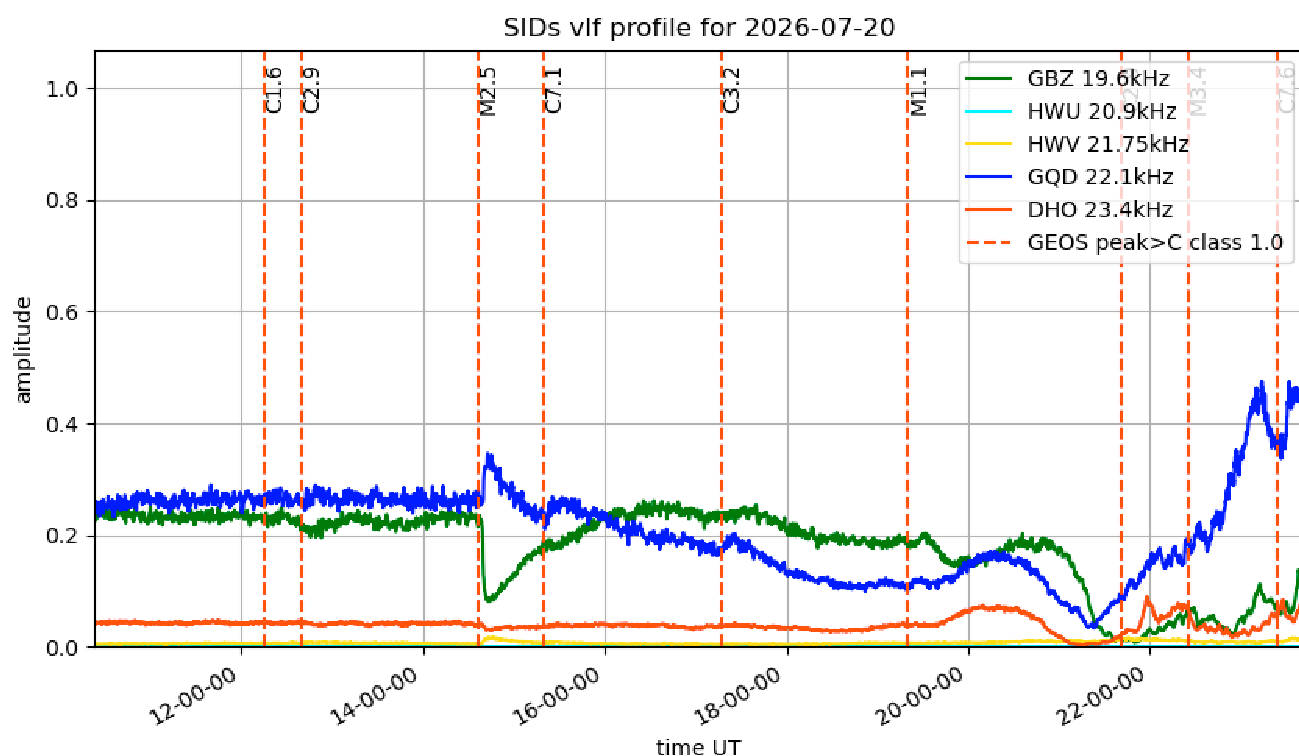
The majority of the activity in July was during the first week, the remainder of the month being very quiet. It is also only the second time in this solar cycle that we have recorded more M-flares than C-flares. In 2026 February 56% of our recorded flares were M-class, in July 53% were M-class. No X-flares were recorded, the only one shown in the satellite lists being at 20:41UT on the 4th. This was just a little too late for us to record as a SID.



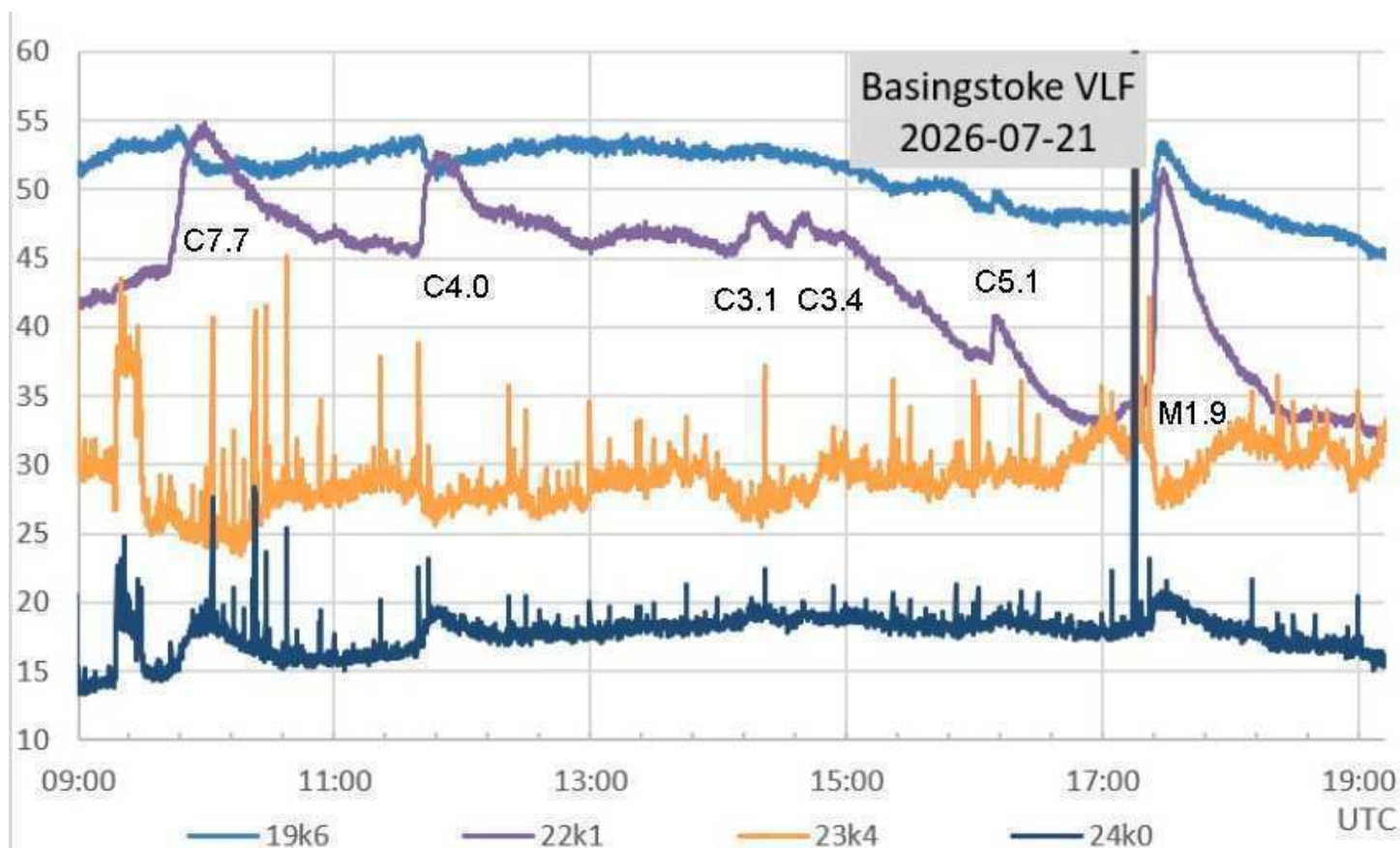
Paul Hyde's recording shows activity on the 4th. 22.1kHz shows all of the M-class flares, along with some of the C-flares. The satellite lists include more C-flares, but they are mostly hidden by the stronger events. The other signals are very noisy, hiding much of the activity.



The 5th was also very active, but with more C-flares. Mark Prescott has marked all of the events in the satellite data, many of which do not show distinct SIDs. The M2.7 at 05:40 and the M5.3 at 17:57 both show clearly at 22.1kHz, while the other signals are mostly unresponsive.



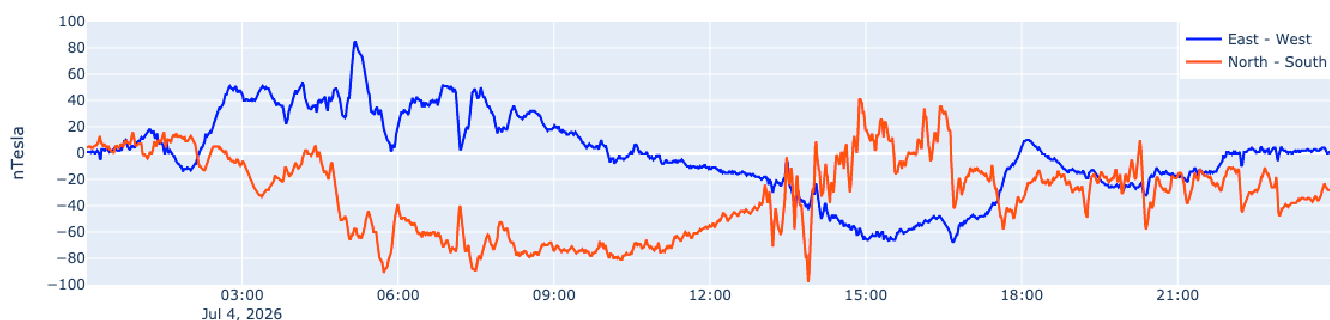
Mark's recording from the 20th shows a much quieter day, with a matched pair of SIDs from the M2.5 flare at 14:43 UT. 22.1kHz also shows a small response from the C7.1 flare at 15:22. The M1.1 flare later in the evening was a little too late, merging into the start of the sunset.



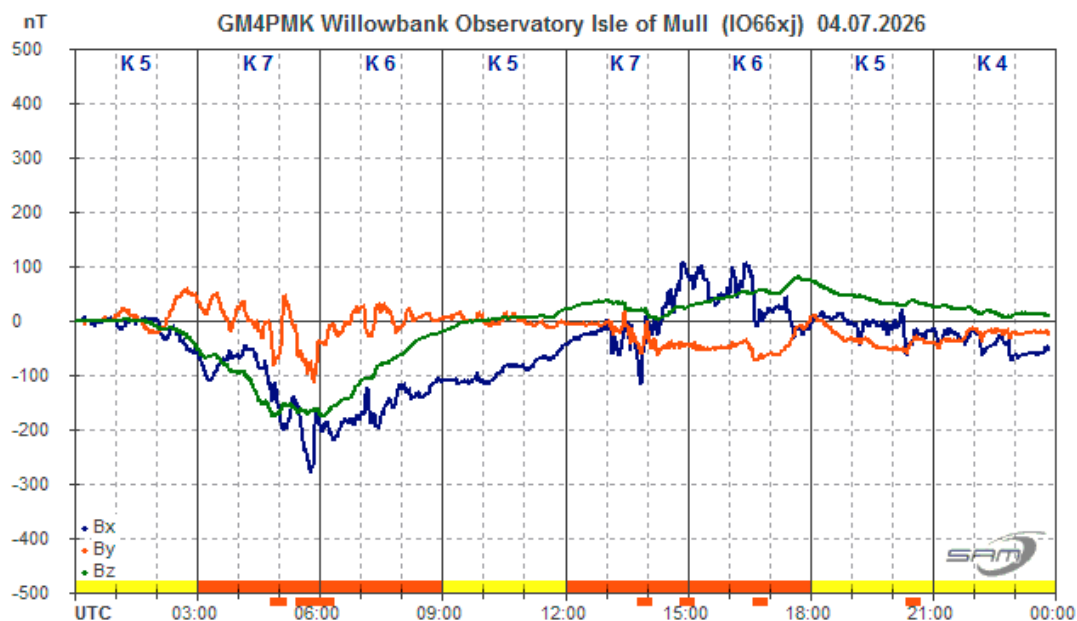
Paul Hyde's recording from the 21st is interesting, comparing 19.6kHz and 22.1kHz. The C7.7 and C4.0 flares have produced pairs of mirror-SIDs, while the later M1.9 flare at 17:29 shows matched SIDs. Both of these signals are from transmitters near the Solway firth, about 30km apart, and so they have very similar paths to Basingstoke (19.6kHz, Skelton is the shorter). The C5.1 flare at 16:11 also has matching SIDs, although the 19.6kHz response is much weaker.

MAGNETIC OBSERVATIONS.

Steyning Magnetometer (50.8 North, 0.3 West)

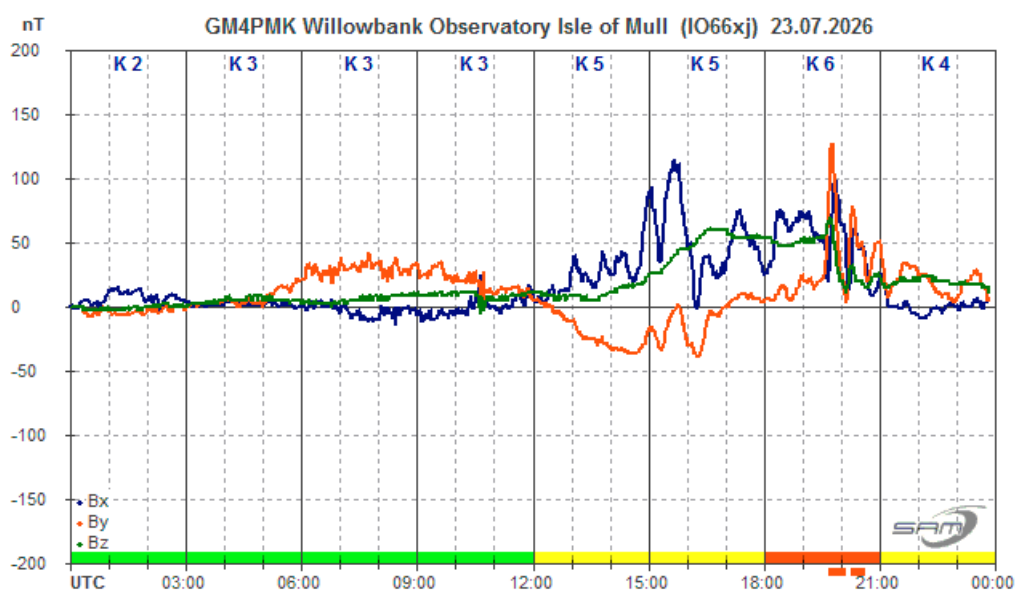
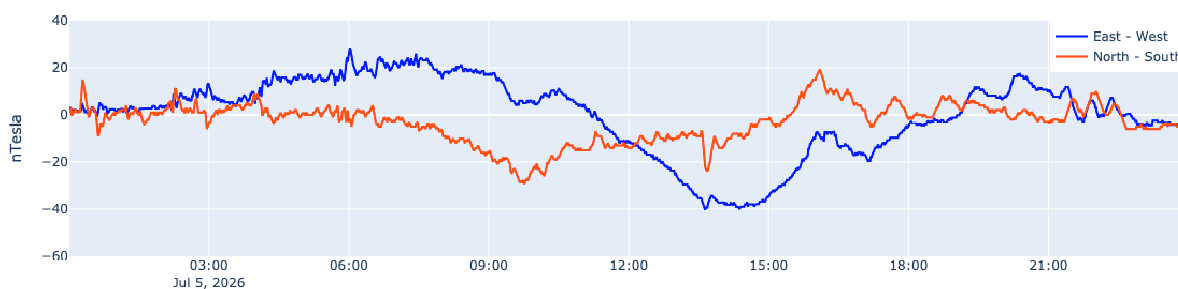


Solar activity at the end of June and over the first week of July produced some active magnetic disturbance. Nick Quinn's recording shows two active periods on the 4th. This is from a combination of the strong solar wind at the end of June, and a number of CMEs. This activity recorded near the south coast was also recorded by Roger Blackwell on the Isle of Mull:



The sharp pulse at 13UT may be the CME arrival, although this is not certain. Mild activity continued on the 5th, with another possible impact feature at about 13:45, shown in Nick Quinn's recording:

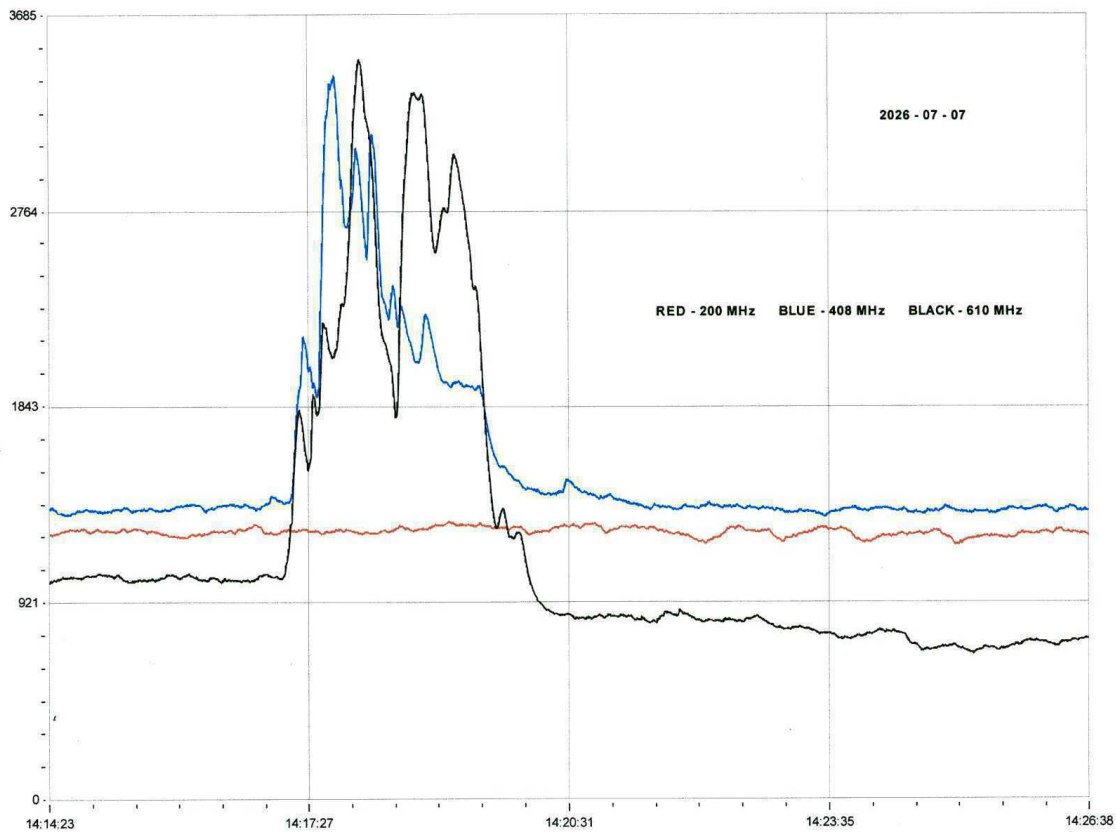
Steining Magnetometer (50.8 North, 0.3 West)



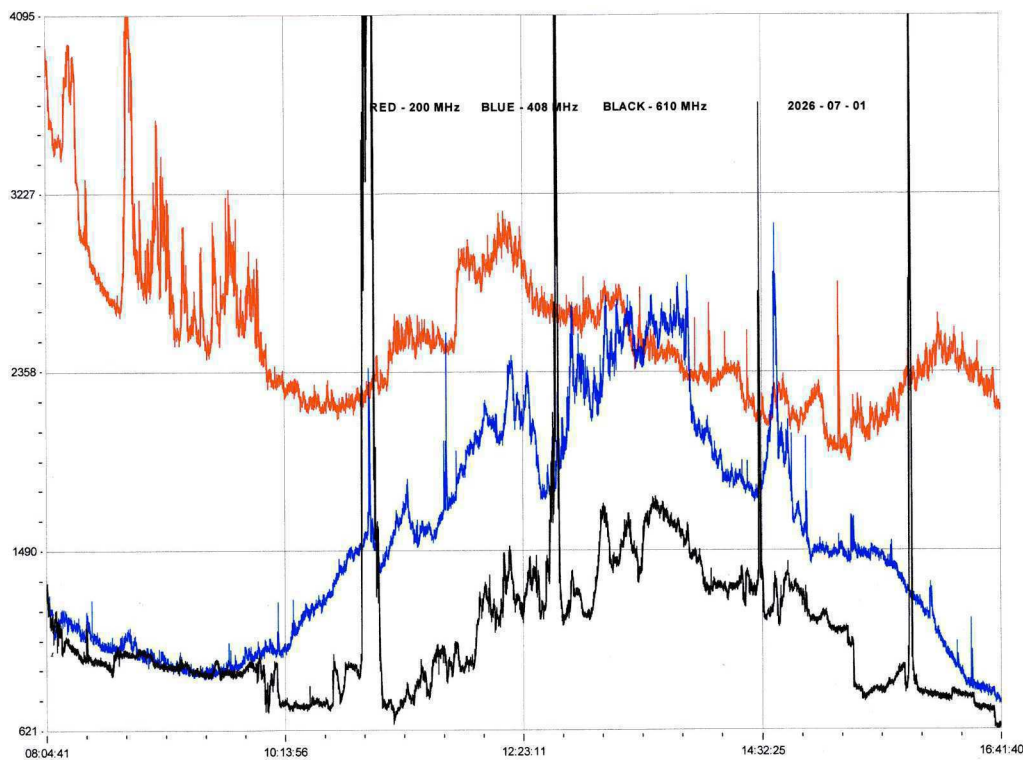
A second period of stronger activity was recorded on the 23rd, shown in Roger Blackwell's recording. This appears to be from a coronal hole high speed wind, the CME activity having faded out by this time. The other disturbed periods on the Bartels chart also appear to be from fast solar winds. Surprisingly few CME impacts were recorded given the number of strong M-flares.

Magnetic observations received from Roger Blackwell, Nick Quinn and John Cook.

SOLAR EMISSIONS

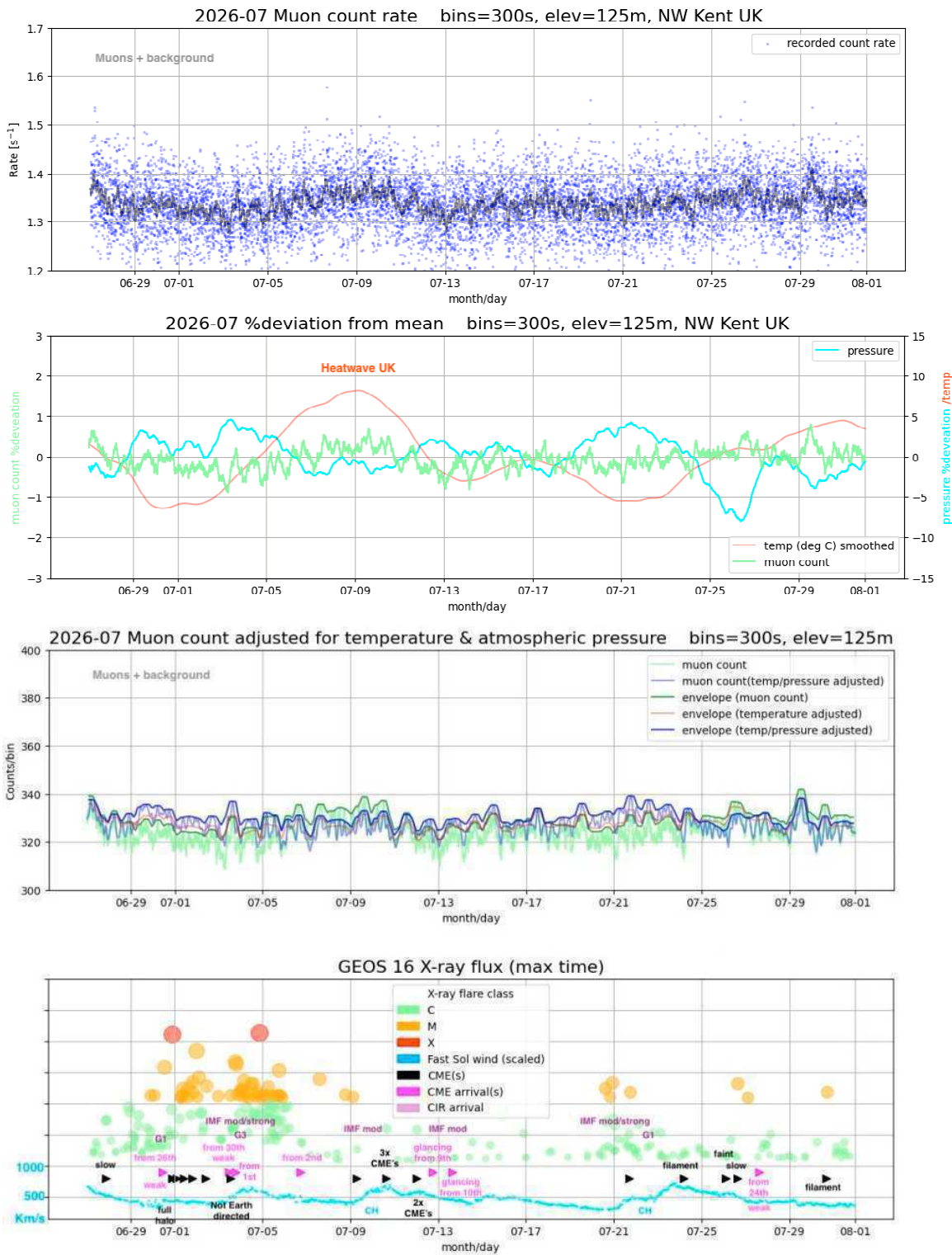


Colin Clements recorded strong radio emissions at 408MHz and 610MHz during the M4.0 flare on the 7th. The red trace is 200MHz, showing no activity. This expanded chart shows the start at roughly the same time as our SID-start time, but ending just as we recorded the SID peak.



Colin's recording on the 1st shows a much more complicated series of emissions. 200MHz appears to have started at quite a high level and then fading before peaking again around 11 to 14UT. 408MHz shows a peak around 13 to 14UT, while 610MHz has a series of short spikes through the afternoon. The SWPC satellite data includes numerous unclassified flares during the period covered by the recording, along with the flares that we recorded as SIDs. Colin also recorded emissions on the 20th.

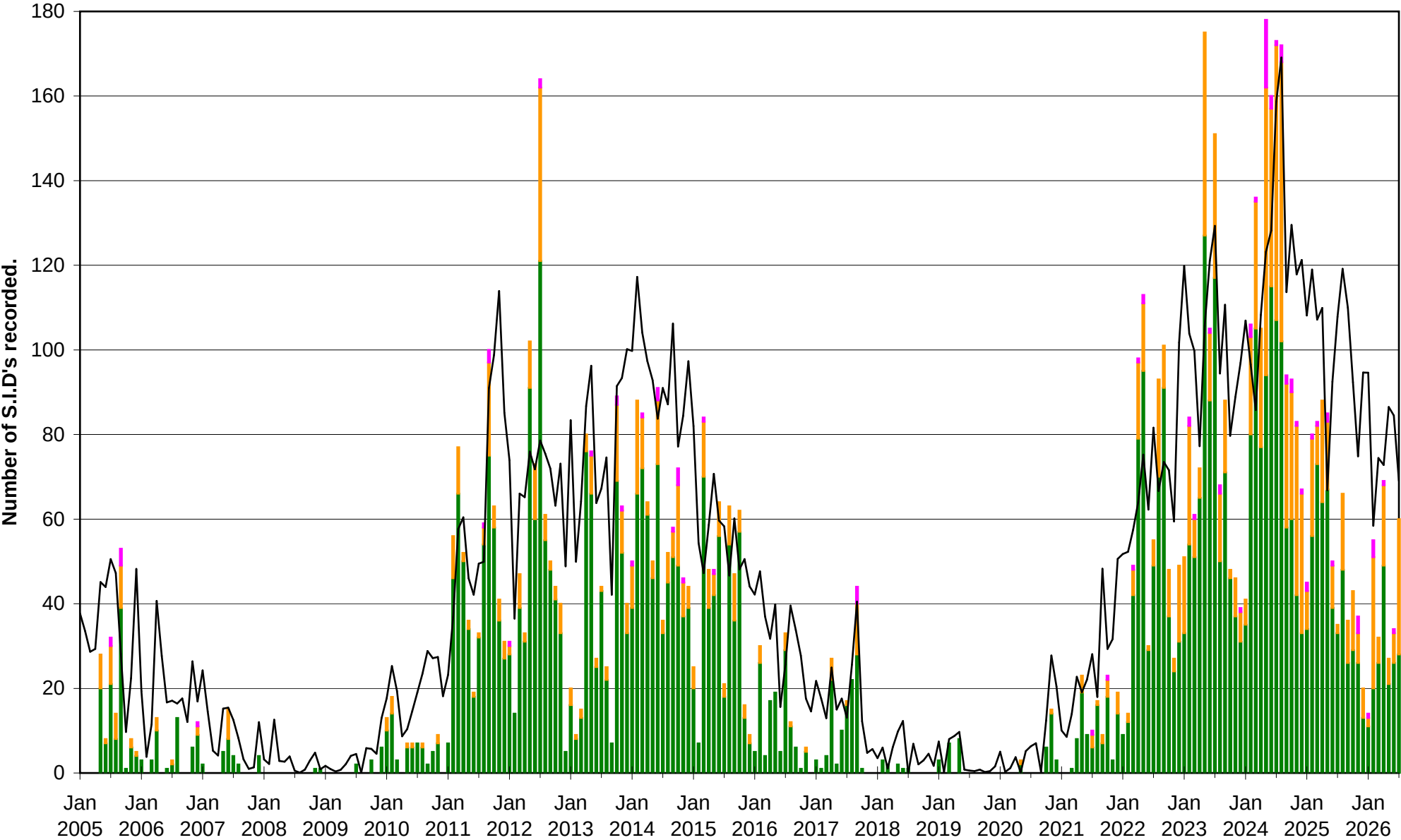
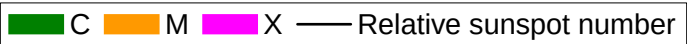
MUONS



Mark Prescott's muon charts show a fairly smooth pattern in July, gently modulated by yet another heat wave. This leaves a mostly diurnal variation in the temperature / pressure corrected chart. The stronger flaring in the first week has produced a small peak on the 3rd, with some small variations from the stronger solar winds visible afterwards. The peak on the 29th does not seem to tie in with any solar activity, so source unknown, although the SWPC alerts do show increased proton flux on the 30th.

August sees the peak of the Perseid meteor shower, so if you have any observations then please do send them in. It was quite a warm night, so I spent a couple of hours outside watching the sky. I cannot avoid the streetlights, but I did see a few meteor trails adding to the satellites and aeroplanes. Sharing our attention on the 12th was the partial solar eclipse. I think that most of the country had some clear skies, so I hope that you were able to watch. It did have an effect on our VLF signals, so please check to see if it is evident on your recordings.

VLF flare activity 2005/26



BARTELS DIAGRAM

ROTATION	KEY:		DISTURBED.			ACTIVE		SFE	B, C, M, X = FLARE MAGNITUDE.										Synodic rotation start (carrington's).														
2597		6	7	8	9	10	11	12	13	14	15	16	17	2280										1									
	F	C		CC		CM	CCM	C		CC				18	19	20	21	22	23	24	25	26	27	28	29	30	31	CC					
2598		2024 February													2281										28								
	F	CCCC	CCCC	MMMM	CC	CC	CCM	MMMM	CXM	C	C	CMCM	CC	MCCC	CCCC	XCC	C	C	CC	CC	CCCC	XCCM	CMMM	MMMM	CM	26	27	CC					
2599		29	1	2	3	4	5	6	7	8	9	10	11	12	2282										26								
	F			CCC		C	CC		CCCC	C		CMCC	CC	CCCC	13	14	15	16	17	18	19	20	21	22	23	24	25						
2600		27	28	29	30	31	2024 April							2283										22									
	F	MCCC	MMMX	CCCC	CCCC	CCCC	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22					
2601		23	24	25	26	27	28	29	30	1	2	3	4	5	2284										19								
	F	MCCM	CCMC	CMCM	CC	MC	CC	CCC	CCMM	MC	CCCM	CMCC	MMCM	MXMC	MMMM	XXMX	MXMX	XXMM	MXMM	MMMX	MMMM	XXCM	CMXX	M	CCC			MM					
2602		20	21	22	23	24	25	26	27	28	29	30	31	1	2285										15								
	F		CCCM	CC	MMMM	MCCC	C	CCCC	XCC	CCCC	MMXX	CMX	CMCC	1	2	3	4	5	6	7	8	9	10	11	12	13	14	CC					
2603		16	17	18	19	20	21	22	23	24	25	26	27	28	29	2286										12							
	F	CCCC	CMCM	CMCC	MCCC	CMCC	CCCC	MMCC	MMMC	MMCM	MC	C	CC	CC	CC	30	1	2	3	4	5	6	7	8	9	10	11	CC					
2604		13	14	15	16	17	18	19	20	21	22	23	24	25	26	2287										8							
	F	MMMM	MCCM	MMCC	MCXM	MMMM	MMCC	CMCM	MCCM	MCCM	MC	CM	MC	CCM	MCC	MMMM	MMMM	MMMM	MMMM	MMMM	MMMM	MMMX	CCCC	CCMM	MMMX								
2605		9	10	11	12	13	14	15	16	17	18	19	20	21	22	2288										4							
	F	MMMM	CCMM	MCCM	CC	CCM	XXMC	CCCC	CMC	MM	MCM	MCCC	CCM	MCCC	CCM	23	24	25	26	27	28	29	30	31	1	2	3	4					
2606		5	6	7	8	9	10	11	12	13	14	15	16	17	18	2289										1							
	F	MMMC	CCCC	MCCC	M	MMMM	CMC	MMMM	MXMM	MMMM	MCX	CC	C	C	C	19	20	21	22	23	24	25	26	27	28	29	30	CCC					
2607		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	2290										17						
	F	CCMC	MXM	MC	MMCC	CCM	C	MCC	CCX	CMCC	CCMM	C	MC	MCCM	MCM	17	18	19	20	21	22	23	24	25	26	27	28						
2608		29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	2291										24						
	F	CM	CC	CCMM	CMCM	MM	CMCM	MMMM	MMMM	MMMM	MMMX	CCCC	CCCC	M	C	13	14	15	16	17	18	19	20	21	22	23	24						
2609		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					
	F	MC	CC	CCCM		CC	C	2	MC	MMC	MCC	CCM	XXCM	C	MCM	MCCM	CCM	MCM															
2610		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					
	F	CM	M	MCMC		M	MM	MMMM	MMMM			C	C	X	CCX	MM																	
2611		18	19	20	21	22	23	24	25	26	27	28	29	30	31	2025 February										13							
	F	CCCC	CC	CC	M	MC	CC	CCC		CC	M	CC		CC	CCMC	1	2	3	4	5	6	7	8	9	10	11	12	CC					
2612		14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	1	2	2295										12				
	F	MC	C	C	CCMC	CC	C	CMMC	C	MMMX	MCC	M	CCC	C	CCC	CCCC	C		3	4	5	6	7	8	9	10	11	CC					
2613		13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	2296										8				
	F	CC	CCCC	CC	C	CCCC	C	CC	C	M	C	CCC	CC	CCC	MCCC	CCC	CCM	CCCC	30	31	1	2	3	4	5	6	7	CC					
2614		9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	2297										5				
	F	CCC	CCC	CCCM	MMMM	MMMM	MMCC	CMCM	C	CCC		C	CMC	M	M	C	CC		26	27	28	29	30	1	2	3	4	CC					
2615		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	2298										1				
	F	CCCC	CCCC	CCCC	C	CC	CCCC	CC	CX	MXMM	CM			M	CCCC	C		23	24	25	26	27	28	29	30	31	CC						
2616		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	2299										28			
	F	MC	M		CC	CC	CC	C		C	CCCC	C	C	CCM	MMCM	CCMM	CX	CCCC	CCCC	20	21	22	23	24	25	26	27						
2617		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					
	F				C								CCCC	CC	MMCC	CCC				CC	C	C	CCCC	CC	CC	C	CCC						
2618		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				CC		C	C	CMC	C	M	CCCM	CMC	CCC	CCM	CM	CCMM	CCCC	C	CCC												
2619		22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	2302										17			
	F	C	CM	MCM	CM	CC	CMM	C	CMM			C			M			C	CCCC	9	10	11	12	13	14	15	16						
2620		18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	2303										14			
	F	C			C	M	MC	C			MCC	MCCC	MMMC	CMM	CM	C	CCM		6	7	8	9	10	11	12	13	14	CC					
2621		15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	2025 November										10				
	F	MCCM	CCCM	CMMM	MCM	CC	C											1	2	3	4	5	6	7	8	9		CC					
2622		11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	2305										7	
	F	MCX	C	X		M			C	C	C	C							30	1	2	3	4	5	6			C					
2623		8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	2306										3		
	F	M	CCM	MCM	CC	C							M						27	28	29	30	31	1	2								
2624		4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	2307										30	
	F													C	MC	X	M	C															
2625		31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	2308										26	
	F	CCCC	MXMM	XXMM	MXMM	MXMM	CMMM	CC			MMMC	C	M															CCCM					
2626		27	28	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	2309										25	
	F	C	CCC	C	CCCC	C										C	CMCC	CCC	M	MC	M	CMCC	19	20	21	22	23	24					
2627		26	27	28	29	30	31	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	2310										21
	F	MCCC	CC	C				C	CCM	MCCM	MMCC			CC				C	M									CCCC					
2628		22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	7	8	9	10	11	12	2311										18
	F		CMMM	XXMM	MCCM	CMCC	MC	CMMM			C																	CCCC					
2629		19	20	21	22	23	24	25	26	27	28	29	30	31	1	2	3	4	5	6	7	8	2312										14
	F			CC	M	C						M	CC	31			CCMC	MCX										9					
2630		15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	1	2	3	4	5	2313										11
	F		C			M	M					CCC	CCC	CCC	C		CCC	MCCC	MMMM	CM	MCMM	MMMM	MMMM	6	7	8	9	10					
2631		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	2026 August										7	
	F	CM		CC	C					MC	CCCM	MCC				CM					M	C		1	2	3	4	5	6				

	Xray class	Observers	John Cook (23.4kHz/22.1kHz)				Roberto Battaiola (20.3kHz)				Paul Hyde (22.1kHz/24kHz)				Mark Edwards (24.0/18.3/37.5kHz)				Colin Clements (21.75kHz)			
			Tuned radio frequency receiver, 0.58m frame aerial.				Modified AAVSO receiver.				Spectrum Lab / PC 1.5m frame aerial.				Spectrum Lab / PC 2m loop aerial.				Tuned Radio Frequency receivers, 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)	
1	M1.1	4	06:25	06:29	?	-					06:24	06:30	?	-					06:26	06:28	06:40	1-
1	M1.0	4	06:40	06:44	06:59	1					06:40	06:45	07:16	2					06:40	06:44	07:07	1+
1	M1.5	5	07:33	07:36	08:05	1+	07:13	07:29	07:39	1+	07:31	07:38	08:13	2					07:27	07:37	08:12	2
1	M2.5	5	08:16	08:19	08:44	1+	08:12	08:19	08:38	1+	08:15	08:19	?	-					08:12	08:19	08:49	2
1	*	2	09:09	09:13	09:44	2					08:49	08:58	09:41	2+								
1	M1.3	4	10:07	10:09	10:44	2					10:05	10:10	10:37	1+					10:05	10:10	11:02	2+
1	M1.1	3	14:26	14:32	?	-					14:26	14:35	?	-					14:27	14:33	14:42	1-
1	M2.6	5	14:45	15:00	16:32	3	14:44	14:57	15:20	2	14:42	14:56	16:12	3					14:42	15:00	16:53	3+
1	C8.2	3	17:12	17:15	17:59	2+					17:11	17:17	18:14	2+								
1	M3.5	1	19:38	19:41	19:57	1																
2	C6.3	2	07:19	07:23	07:42	1					07:17	07:26	?	-								
2	*	1									07:34	07:42	07:52	1-								
2	M2.8	5	10:26	10:27	11:37	2+	10:23	10:27	10:44	1	10:26	10:30	11:15	2+					10:25	10:28	11:29	2+
3	C9.2	1																	09:14	09:57	10:18	2+
3	M1.4	4	13:13	13:16	14:13	2+					13:07	13:17	14:19	2+					12:53	13:17	14:24	3
3	C5.8	1									14:58	15:07	15:49	2+								
3	C6.5	2									16:34	16:48	17:32	2+					16:26	16:49	17:16	2+
3	M6.7	4	17:56	18:16	?	-					17:56	18:14	?	-					17:57	18:17	18:56	2+
3	M6.3	4	18:57	19:00	19:36	2					18:59	19:03	19:57	2+					18:56	19:02	19:19	1
4	M1.3	1					05:01	05:11	05:16	1-												
4	M1.8	4	08:00	08:06	08:26	1+					07:58	08:06	?	-					07:33	08:11	08:47	2+
4	M1.0	4	08:48	08:52	09:21	2					08:47	08:52	09:24	2					08:47	08:55	09:39	2+
4	M3.2	5	11:07	11:14	12:16	2+	11:04	11:13	11:42	2	11:06	11:14	12:26	2+					11:06	11:14	12:24	2+
4	M3.2	5	13:47	13:56	14:43	2+	13:45	13:53	14:14	1+	13:44	13:54	14:29	2					13:44	13:54	15:24	3
4	C8.0	1									15:29	15:34	15:43	1-								
4	M1.1	3	16:05	16:08	16:31	1+					16:05	16:10	?	-					16:05	16:11	17:02	2+
4	C7.5	2	17:02	17:04	17:11	1-					17:02	17:05	17:43	2								
4	M1.9	3	18:45	18:49	18:55	1-					18:44	18:50	19:19	2								
5	M2.7	2	05:29	05:40	06:15	2+																
5	C7.7	2	07:15	07:16	?	-					07:14	17:18	?	-								
5	C9.9	2	07:24	07:28	07:35	1-					07:23	07:28	?	-								
5	C4.2	2	08:25	08:28	08:36	1-					08:26	08:28	08:44	1-								
5	C5.7	1									08:50	09:02	09:12	1								
5	M1.4	4	10:58	11:02	?	-					10:58	11:02	?	-					10:58	11:03	11:09	1-
5	M1.0	4	11:14	11:17	?	-	11:13	11:19	11:38	1	11:14	11:20	?	-					11:15	11:21	11:57	2
5	C9.5	3	11:59	12:02	12:36	2					11:57	12:03	?	-					11:57	12:05	12:56	2+
5	?	1									12:24	12:31	12:50	1+								
5	C8.1	3	12:57	13:00	13:26	1+					12:55	13:02	?	-					12:56	13:04	14:06	2+
5	*	1									13:26	13:30	13:49	1								
5	C4.1	1									14:21	14:26	?	-								
5	*	1									14:33	14:39	14:44	1-								
5	C6.9	1									15:09	15:22	?	-								
5	?	1									15:35	15:46	?	-								
5	M1.4	3	16:23	16:33	17:37	2+					16:22	16:34	17:31	2+					16:23	16:35	17:53	3
5	M5.3	4	17:54	17:57	18:52	2+					17:54	17:59	?	-					17:53	18:01	19:14	2+
7	M4.0	4	14:17	14:21	15:45	3					14:15	14:22	16:51	3+					14:16	14:22	15:51	3
8	M1.5	3	17:53	17:59	18:50	2+					17:52	17:59	19:10	2+								
10	C6.0	2	14:49	14:55	15:17	1+					14:38	14:56	15:36	2+								
12	M1.1	2	07:59	08:09	?	-													07:26	08:14	09:08	3
12	C2.6	3					13:39	13:46	14:00	1	13:53	14:01	14:17	1					13:50	14:03	14:51	2+
14	C1.5	1									09:55	09:58	10:16	1								
14	C3.9	3	12:30	12:39	?	-					12:28	12:37	13:31	2+					12:30	12:51	13:26	2+
15	C3.3	1									08:38	08:48	09:10	1+								
20	M2.5	4	14:36	14:38	16:00	2+					14:34	14:38	?	-					14:36	14:41	15:18	2
20	C7.1	3	15:19	15:22	16:09	2+					15:18	15:23	16:23	2+					15:18	15:24	16:09	2+
21	C7.7	4	09:43	09:57	10:45	2+					09:42	09:57	10:55	2+					09:41	09:59	11:10	3
21	C4.0	4	11:41	11:45	12:26	2					11:39	11:49	12:09	1+					11:39	11:50	12:29	2+
21	C5.1	3	16:08	16:11	16:38	1+					16:07	16:11	16:34	1+					16:08	16:11	16:31	1
21	M1.9	6	17:23	17:27	18:47	2+	17:22	17:28	17:41	1	17:22	17:29	18:28	2+					17:22	17:29	18:01	2
22	M3.6	2	06:34	06:36	07:22	2+					06:32	06:36	07:34	2+								
22	C3.0	2	12:18	12:20	12:48	1+					12:17	12:20	12:33	1-								
22	C3.4	2	15:53	15:55	16:16	1					15:52	15:56	16:25	2								
26	C4.2	1	07:31	07:33	07:55	1																
26	M3.2	5	15:26	15:29	16:28	2+					15:23	15:31	16:20	2+					15:24	15:31	17:18	3
30	M1.4	2	15:54	16:47	18:15	3+					16:01	16:26	17:59	3								
31	C3.9	2									11:39	11:52	12:39	2+								

BAA Radio Astronomy Section.

2026 JULY.

	Xray class		Steve Parkinson (Various)			Andrew Thomas (18.3kHz)			Phil Rourke (23.4kHz)			Mark Prescott (22.1/19.6kHz)				John Elliott (19.6kHz)			
			Tuned radio frequency receiver, frame aerals.			Tuned radio frequency receiver, 0.6m frame aerial.			Spectrum Lab, 0.6m frame aerial.			SpetrumLab/Starbase, mini-whip aerial.		Active	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)	
1	M1.1											06:28	06:35	?	-				
1	M1.0											06:44	06:55	07:15	1+				
1	M1.5											07:37	07:42	?	-				
1	M2.5											08:20	08:22	08:48	1+				
1	*																		
1	M1.3											10:11	10:12	10:39	1+				
1	M1.1																		
1	M2.6											14:49	14:52	16:00	2+				
1	C8.2											17:15	17:19	18:02	2+				
1	M3.5																		
2	C6.3																		
2	*																		
2	M2.8											10:30	10:32	10:50	1				
3	C9.2																		
3	M1.4											13:17	13:19	13:35	1-				
3	C5.8																		
3	C6.5																		
3	M6.7											18:04	18:15	?	-				
3	M6.3											19:02	19:12	19:42	2				
4	M1.3																		
4	M1.8											08:06	08:10	08:30	1				
4	M1.0											08:54	08:58	09:30	2				
4	M3.2											11:11	11:14	11:42	1+				
4	M3.2											13:52	13:55	14:21	1+				
4	C8.0																		
4	M1.1																		
4	C7.5																		
4	M1.9											18:48	18:54	19:28	2				
5	M2.7											05:33	05:45	?	-				
5	C7.7																		
5	C9.9																		
5	C4.2																		
5	C5.7																		
5	M1.4											11:03	11:06	11:45	2				
5	M1.0																		
5	C9.5																		
5	?																		
5	C8.1																		
5	*																		
5	C4.1																		
5	*																		
5	C6.9																		
5	?																		
5	M1.4																		
5	M5.3											17:59	18:05	18:50	2+				
7	M4.0											14:22	14:24	15:00	2				
8	M1.5											17:58	18:06	19:05	2+				
10	C6.0																		
12	M1.1																		
12	C2.6																		
14	C1.5																		
14	C3.9																		
15	C3.3																		
20	M2.5											14:40	14:43	15:15	2				
20	C7.1																		
21	C7.7											09:50	10:01	10:55	2+				
21	C4.0											11:45	11:52	12:30	2				
21	C5.1																		
21	M1.9											17:27	17:33	18:08	2	17:25	17:28	18:10 2	
22	M3.6																		
22	C3.0																		
22	C3.4																		
26	C4.2																		
26	M3.2											15:30	15:33	16:10	2	15:24	15:30	16:35 2+	
30	M1.4																		
31	C3.9											11:48	11:56	?	-				