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BAA Radio Astronomy Section.

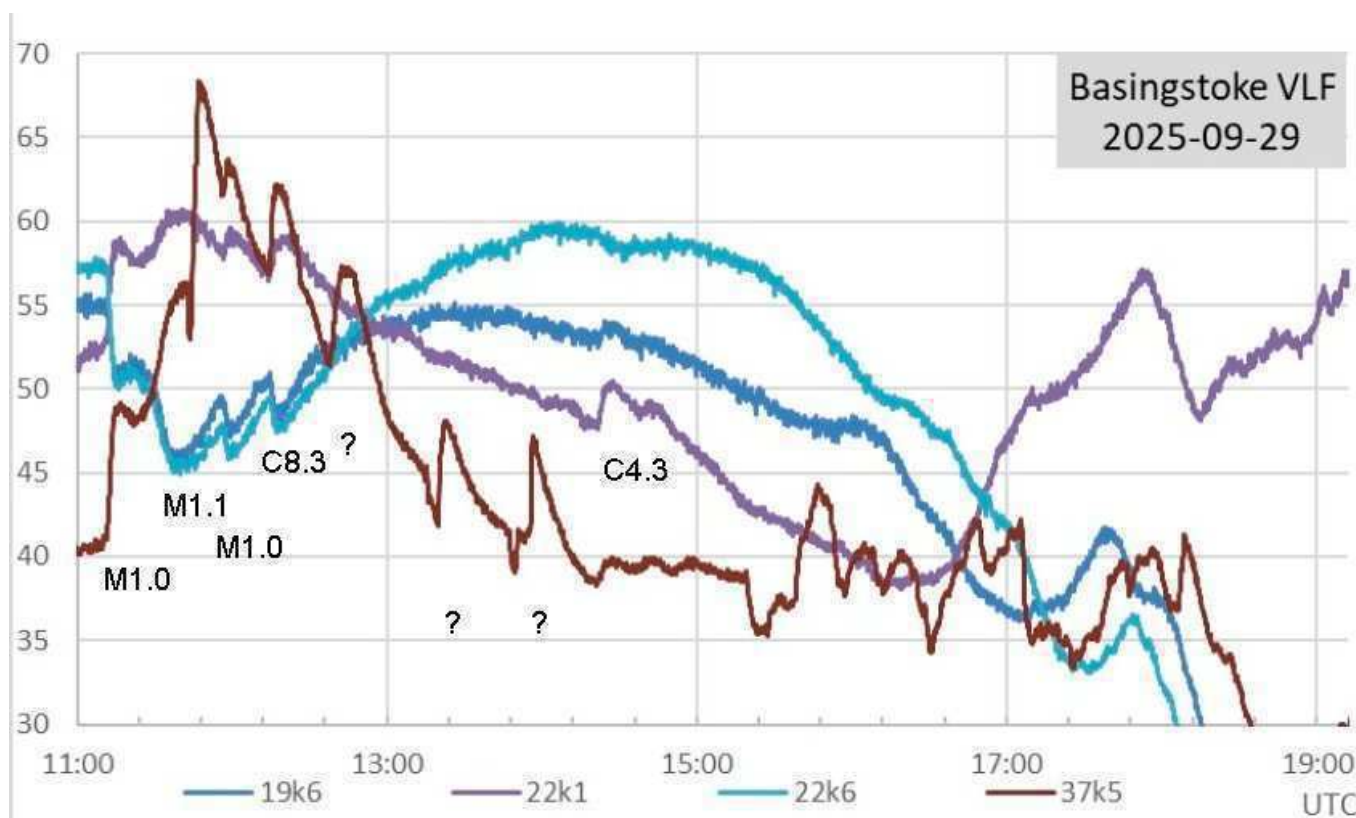
Director Paul Hearn.

RADIO SKY NEWS

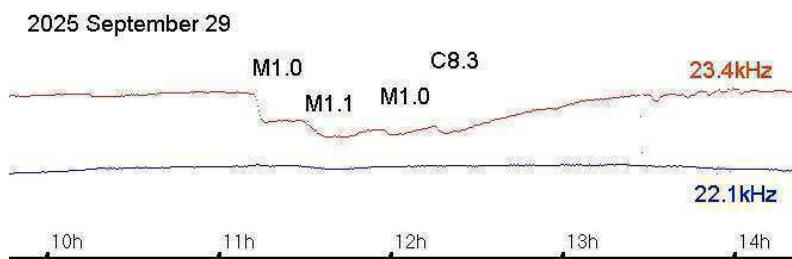
2025 SEPTEMBER.

VLF SID OBSERVATIONS.

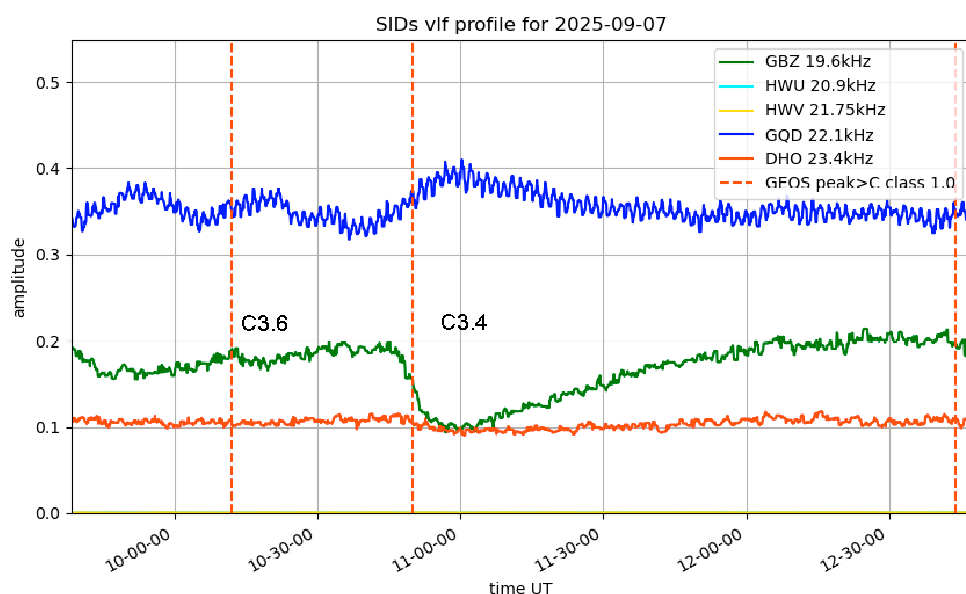
Flaring activity in September was again very low, approaching levels last recorded in 2022. We recorded 26 C-class flares and 10 M-class. There were no X-flares shown in the GOES satellite data. The shorter day length at this time of year does reduce our observing period, so counts will generally be a little lower than during the summer months. Visual observations of sunspot counts have also shown less activity, so the effect is real.



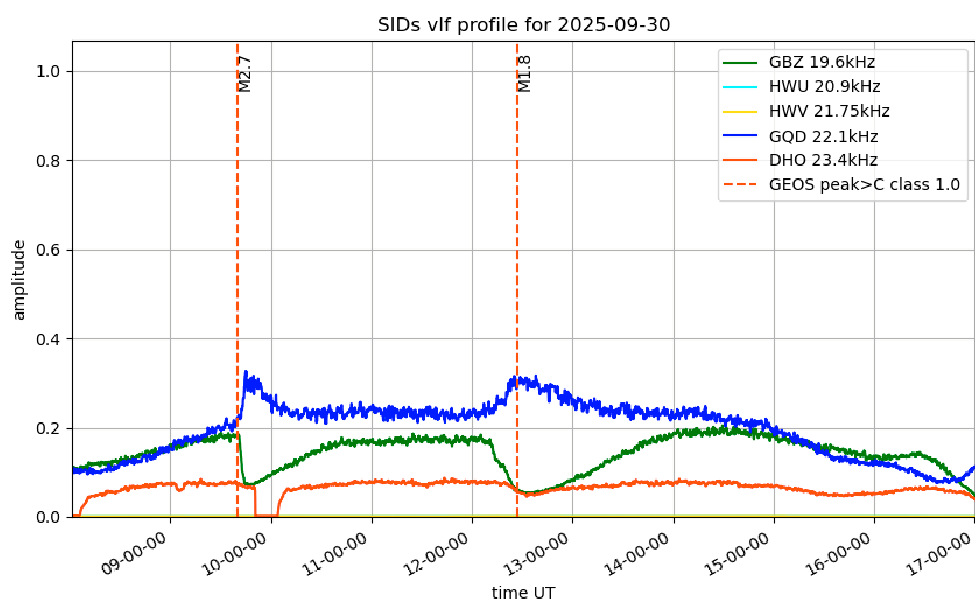
Flaring did increase in the last week of the month, the 29th being particularly active. Paul Hyde's recording shows a very complex series of M-flares around 11 to 12UT. These were all from different active regions. The 37.5kHz signal from Grindavik also shows some SID-like effects that are not seen on the other signals, so presumably not solar related. The 37.5kHz activity after 15:00UT may well be from active magnetic conditions, see the chart on page 5 of this report.



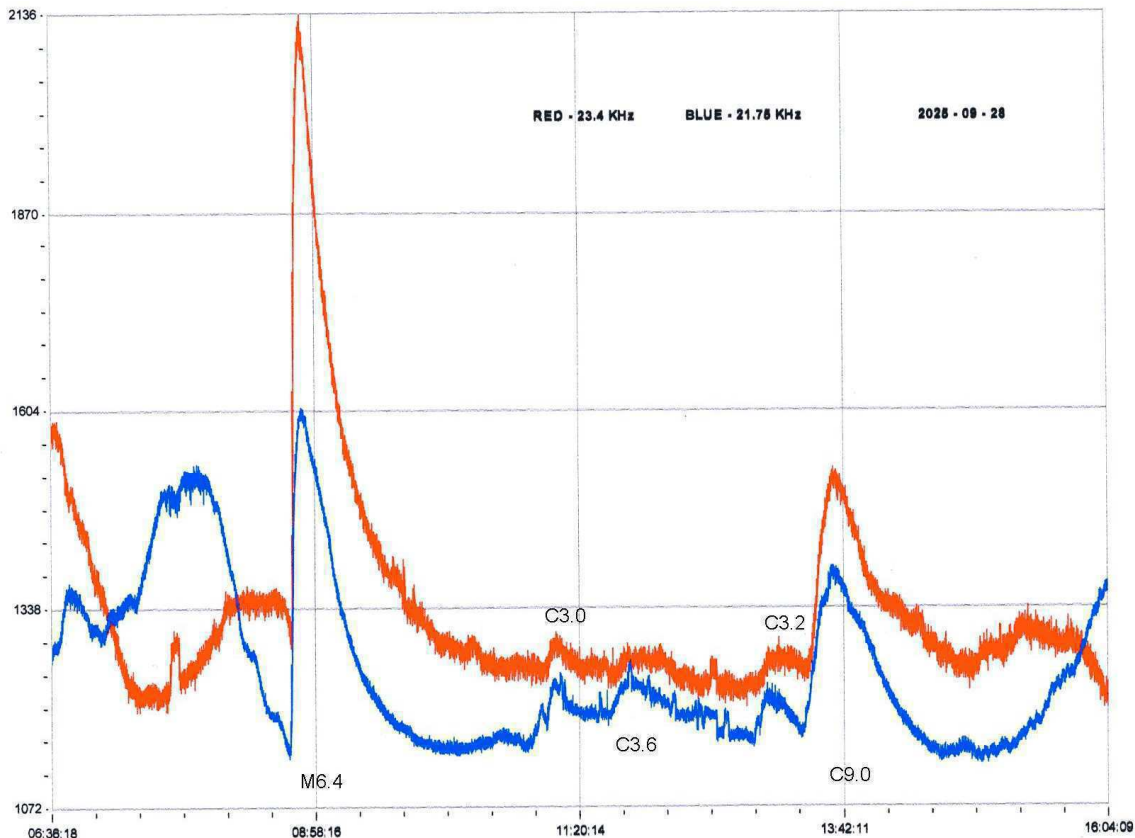
My own recording shows all four flares merging at 23.4kHz, with almost no evidence at 22.1kHz.



Mark Prescott recorded some unusual oscillations on the 22.1kHz signal on the 7th. There appears to be about 34 cycles per hour. The signal had been off-air during August, but came back on September 4th. There have not been any other reports of this, so it may be local interference.

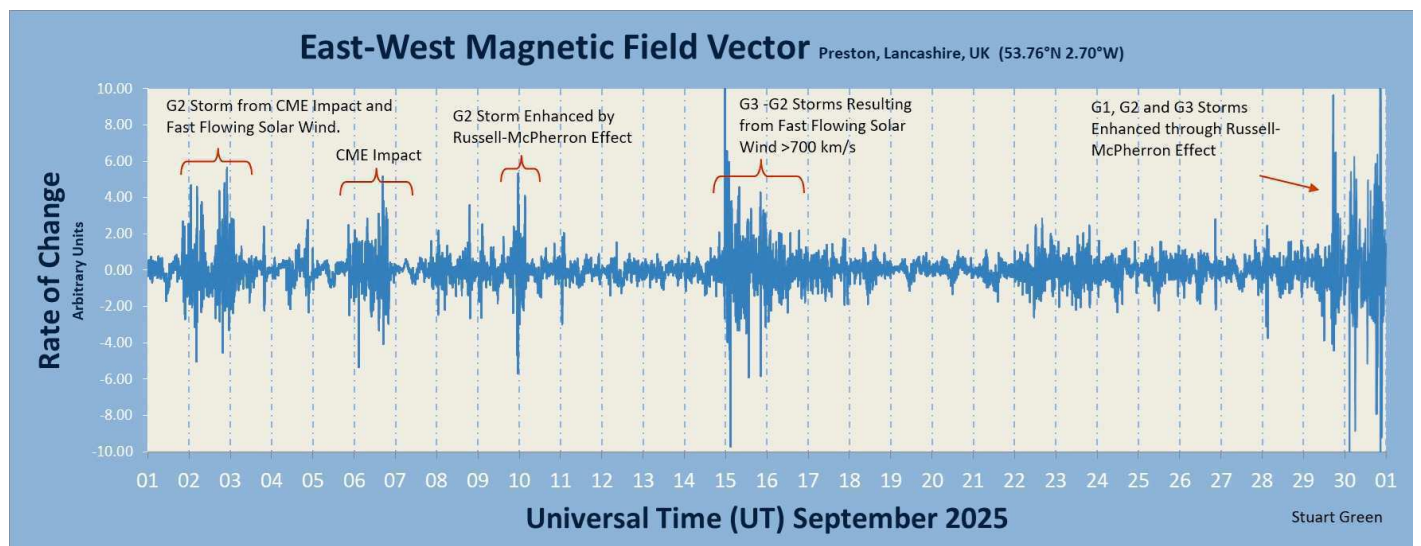


The month ended with a pair of M-flares, producing clear mirror-SIDs in Mark's recording on the 30th. 22.1kHz shows some very mild instability, but not as clear as on the 7th.



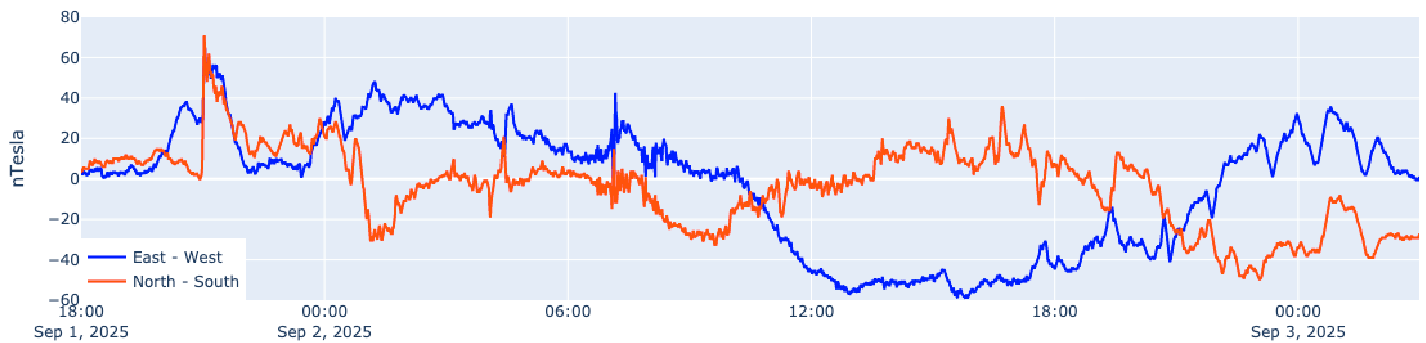
The strongest flare recorded in September was the M6.4 early on the 28th, shown here recorded by Colin Clements. It was followed by three small C-flares and then a C9.0 flare, all with clear SIDs on both signals.

MAGNETIC OBSERVATIONS.

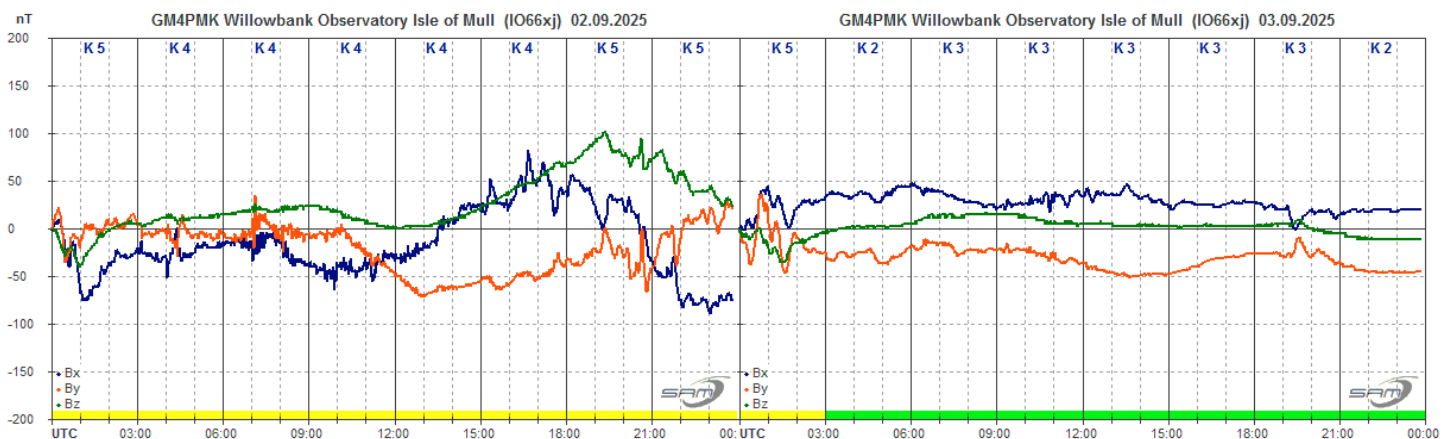


Stuart Green's summary of magnetic activity in September shows several periods of disturbance. Most of the activity was from coronal hole solar winds, made more effective by the alignment of the Sun's magnetic field with the Earth's field at this time of year. This is known as the Russell-McPherron effect. There were also CMEs from some of the stronger flares.

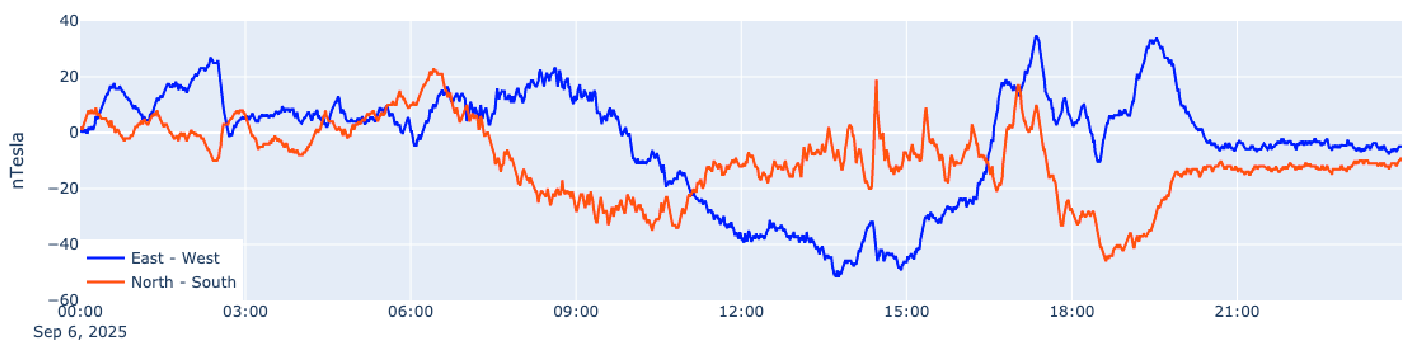
The first CME impact was recorded at 07:05UT on the 2nd, with a clear spike shown in Nick Quinn's recording:
 Steyning Magnetometer (50.8 North, 0.3 West)



The source of the CME is not clear, as several were detected in satellite images. The impact is also seen in Roger Blackwell's recording. The strong solar wind had started late on the 1st, causing a mild disturbance before the CME arrived. Its effect did not last very long though, fading out by 3AM on the 3rd.

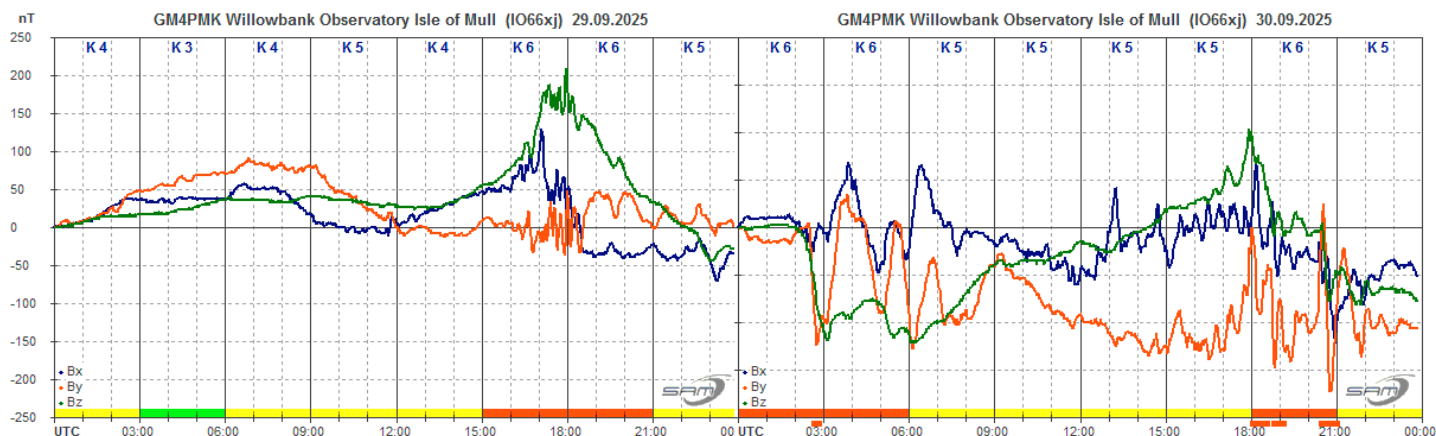


Steyning Magnetometer (50.8 North, 0.3 West)



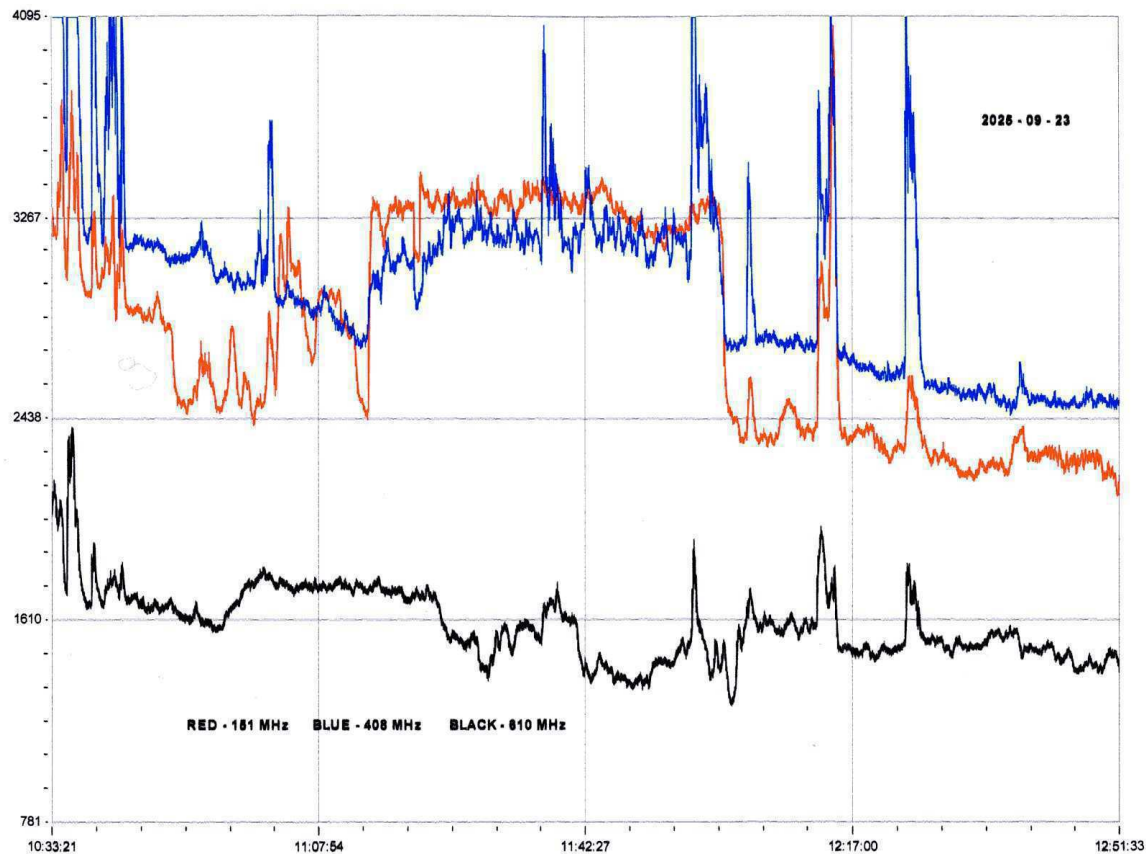
The CME on the 6th does not seem to have a clear impact recorded. Nick Quinn's chart shows a small disturbance through most of the day, but without any clear spike to mark the impact time. The STCE bulletin gives a source for the CME as a flare in the evening of the 4th, rather too late for us to record as a SID.

The most active period began in the afternoon of the 29th with a very strong solar wind well aligned with the Earth's magnetic field. Roger Blackwell's charts on the next page show a very rapid turbulence around 18UT on the 29th, followed by +100nT / -200nT swings on the 30th. This continued into the start of October.

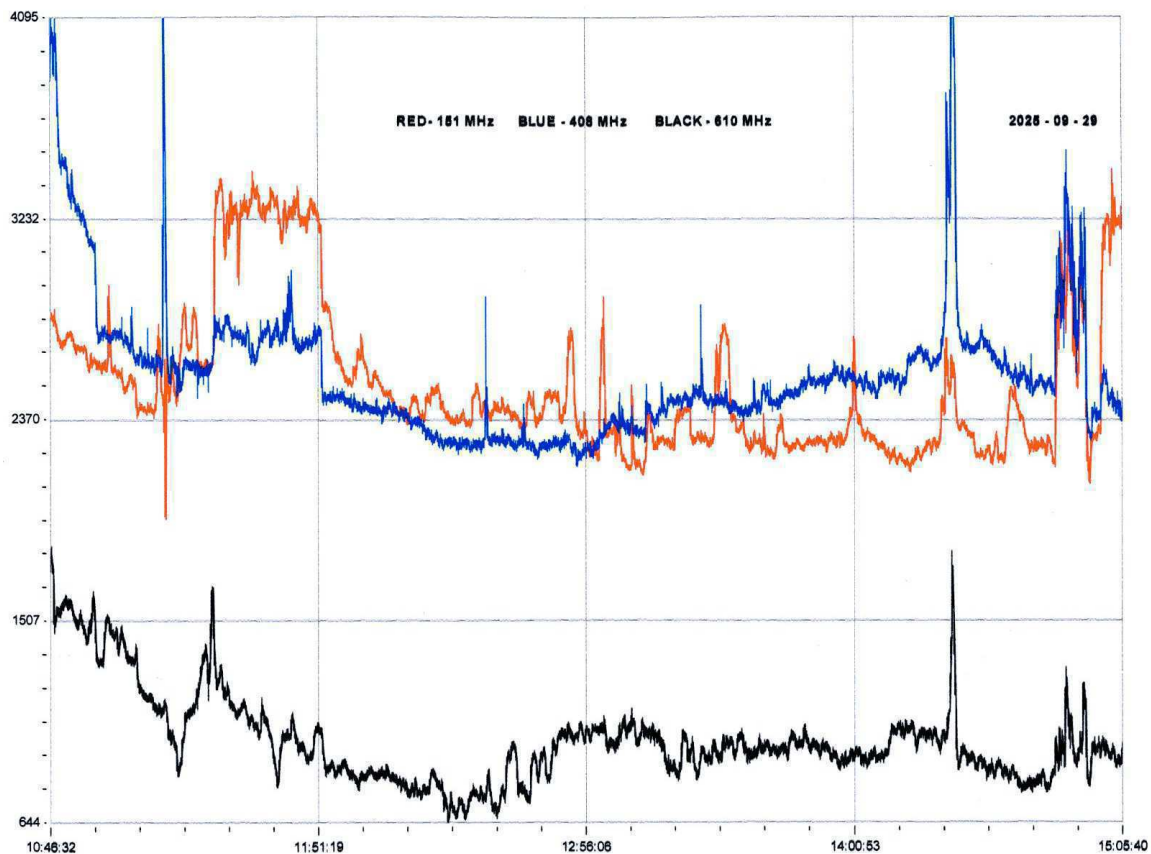


Magnetic observations received from Roger Blackwell, Stuart Green, Nick Quinn and John Cook.

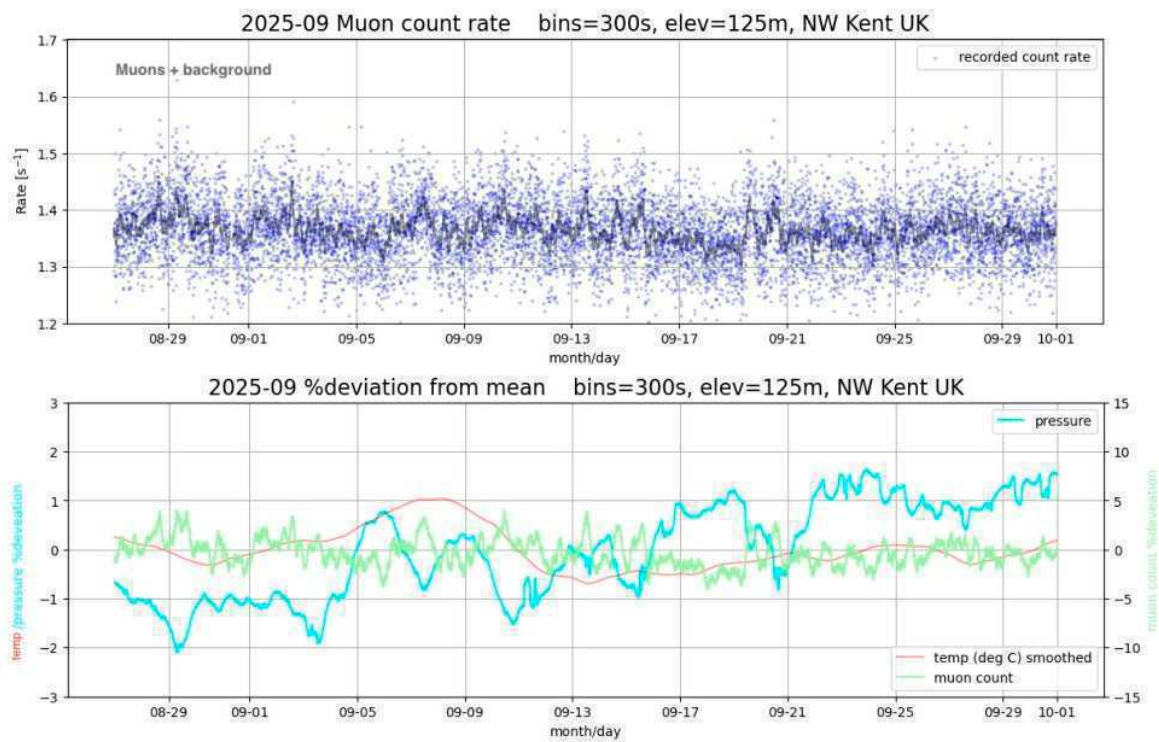
SOLAR EMISSIONS



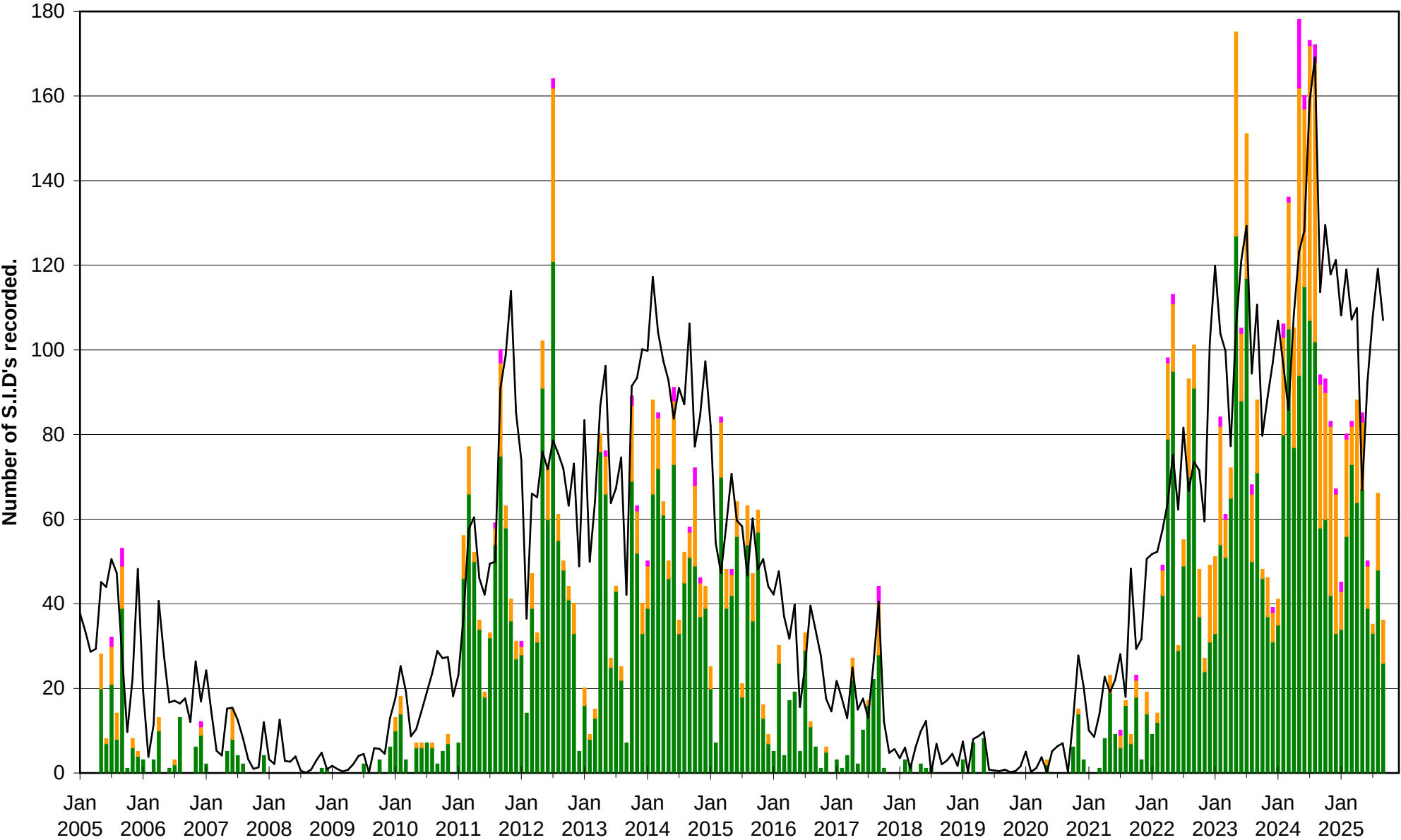
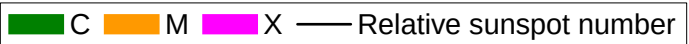
Colin Clements' VHF/UHF recording from the 23rd shows quite a strong emission at all three frequencies from the M1.0 flare peaking at 10:35UT. There is also a series of peaks at intervals up to 12:30. There are no other flares listed in the satellite data, so they appear to be linked to the M1.0 flare. Colin also made a recording on the 29th, although its link to the flaring activity is less clear. The 151MHz and 408MHz emission starts with the first M1.0 flare, continues through the M1.1 flare, and stops near the peak of the second M1.0 flare. 610MHz shows a small peak at the start of the sequence, but does not last long. The weaker C4.3 flare at 14:25 does match the strong 408MHz / 610MHz peaks in the recording.



MUONS



VLF flare activity 2005/25



BARTELS DIAGRAM

ROTATION	KEY:	DISTURBED.	ACTIVE	SFE	B, C, M, X = FLARE MAGNITUDE.	Synodic rotation start (carrington's).
2575						
2576						
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2620						

			John Cook (23.4kHz/22.1kHz)				Roberto Battaiola 20.3kHz				Paul Hyde				Mark Edwards (24.0/21.04/37.5kHz)				Colin Clements (21.75kHz/23.4kHz)			
	X-ray class	Observers	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)	
2	C6.1	8	14:45	14:55	15:31	2+	14:40	14:50	15:23	2	14:47	14:52	15:37	2+					14:44	14:57	15:33	2+
4	M1.0	8	13:41	13:46	14:13	1+	13:37	13:43	14:18	2	13:40	13:48	15:05	2+					13:42	13:52	14:53	2+
6	C4.9	6	10:38	10:43	11:07	1+	10:30	10:39	11:03	2	10:36	10:43	11:09	2					10:30	10:47	11:48	2+
7	C3.6	1					06:42	06:51	07:20	2												
7	C3.3	1					07:46	07:57	08:19	2												
7	C2.7	5									09:27	09:40	10:31	2+					09:19	09:46	10:43	2+
7	C3.4	6					10:36	10:58	11:52	2+	10:42	10:55	11:44	2+					10:43	11:01	11:41	2+
7	C3.6	3					12:34	12:48	13:07	2	12:40	12:47	13:21	2					12:20	12:52	13:21	2+
11	C7.6	8	15:16	15:21	15:40	1	15:12	15:22	16:03	2+	15:16	15:24	16:12	2+					15:18	15:30	16:23	2+
16	C3.5	1									11:58	12:01	12:26	1+								
18	C3.6	1									15:38	15:43	16:08	1+								
22	C4.2	1									16:03	16:08	16:29	1+								
23	M1.0	8	10:33	10:38	11:20	2+	10:25	10:35	11:00	2	10:30	10:35	11:12	2					10:26	10:41	12:16	3
24	M1.0	8	09:23	09:32	10:20	2+	09:16	09:29	10:18	2+	09:21	09:29	10:19	2+					09:26	09:38	10:23	2+
24	C5.3	6	12:49	12:51	12:54	1-					12:45	12:49	13:16	1+					12:47	12:55	13:19	1+
25	C3.4	3									13:57	14:02	14:13	1-					14:02	14:06	14:15	1-
27	M1.1	3	07:12	07:16	07:24	1-	07:10	07:14	07:26	1-	07:10	07:18	07:32	1								
27	C3.2	1									11:14	11:24	12:14	2+								
27	C7.3	7	13:10	13:20	13:46	2					13:02	13:20	14:07	2+					13:10	13:24	15:05	3
28	M6.4	8	08:41	08:47	09:58	2+	08:34	08:45	10:26	3	08:36	08:45	09:56	2+					08:43	08:50	10:12	3
28	?	1									10:50	10:55	?	-								
28	C3.0	6	10:58	11:02	11:14	1-	10:51	11:01	11:17	1+	10:56	11:01	11:21	1					10:52	11:07	11:34	2
28	C3.6	4					11:28	11:43	12:07	2	11:31	11:40	12:16	2					11:34	11:48	12:11	2
28	C3.2	4					12:48	12:59	13:10	1	12:49	12:56	13:13	1					12:54	13:00	13:19	1
28	C9.0	8	13:18	13:32	?	-	13:15	13:27	14:08	2+	13:17	13:30	?	-					13:19	13:37	14:37	2+
28	C9.9	1	13:37	13:39	14:04	1+																
28	C3.6	3	14:39	14:41	15:22	2					14:35	14:41	14:59	1								
29	C3.6	1									07:55	08:00	08:26	1+								
29	C3.0	1									09:08	09:17	09:32	1								
29	M1.0	5	11:13	11:16	?	-	11:09	11:15	11:24	1-	11:14	11:18	?	-					11:16	11:20	11:28	1-
29	M1.1	7	11:30	11:38	?	-	11:29	11:39	11:52	1									11:28	11:42	12:02	2
29	M1.0	4	11:58	12:00	?	-					11:56	12:00	?	-					12:02	12:05	12:20	1-
29	C8.3	4	12:16	12:19	13:09	2+					12:13	12:18	13:00	2+					12:20	12:25	14:25	3
29	C4.3	4					14:20	14:25	14:42	1	14:21	14:25	14:39	1-					14:25	14:34	14:42	1-
30	C3.6	1					04:47	04:54	05:02	1-												
30	M2.7	7	09:36	09:39	09:48	1-	09:34	09:41	09:57	1	09:36	09:44	10:46	2+					09:41	09:46	10:44	2+
30	M1.8	6	12:08	12:30	13:40	3					12:07	12:28	13:55	3					12:07	12:36	14:29	3+

	Xray class		Steve Parkinson (Various)				Andrew Thomas (18.3kHz)			Phil Rourke (23.4kHz)				Mark Prescott (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.				SpectrumLab/Starbase, Active mini-whip 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	C6.1		14:45	14:55	15:25	2				14:46	14:53	15:16	1+	14:50	14:54	15:20	1+	14:45	14:53	15:40	2+
4	M1.0		13:40	13:47	14:20	2				13:40	13:46	14:06	1+	13:46	13:50	14:28	2	13:40	13:45	14:30	2+
6	C4.9		10:38	10:44	11:15	2								10:41	10:44	?	-				
7	C3.6																				
7	C3.3																				
7	C2.7		09:29	09:41	10:08	2				09:35	09:45	10:05	1+	09:36	09:47	?	-				
7	C3.4		10:43	10:55	11:50	2+				10:41	10:54	11:34	2+	10:47	10:57	11:49	2+				
7	C3.6																				
11	C7.6		15:17	15:26	16:10	2+				15:19	15:27	15:46	1+	15:21	15:28	15:58	2	15:15	15:25	16:00	2
16	C3.5																				
18	C3.6																				
22	C4.2																				
23	M1.0		10:32	10:36	12:10	3				10:32	10:36	11:03	1+	10:36	10:40	11:15	2	10:32	10:36	11:35	2+
24	M1.0		09:24	09:35	10:17	2+				09:24	09:35	10:07	2	09:29	09:35	10:25	2+	09:24	09:33	10:30	2+
24	C5.3		12:49	12:51	13:20	1+								12:53	12:55	?	-	12:48	12:52	13:30	2
25	C3.4		14:00	14:03	14:13	1-															
27	M1.1																				
27	C3.2																				
27	C7.3		13:05	13:19	13:55	2+				13:01	13:18	13:39	2	13:17	13:23	13:58	2	13:00	13:20	13:55	2+
28	M6.4		08:34	08:46	09:50	2+				08:39	08:46	09:37	2+	08:43	08:51	09:50	2+	08:38	08:47	09:50	2+
28	?																				
28	C3.0		10:54	11:02	11:20	1+								11:02	11:06	?	-				
28	C3.6		11:33	11:34	12:12	2															
28	C3.2		12:51	12:57	?	-															
28	C9.0		13:19	13:33	14:30	2+				13:20	13:34	14:13	2+	13:24	13:36	14:20	2+	13:18	13:31	14:10	2+
28	C9.9																				
28	C3.6		14:38	14:42	14:53	1-															
29	C3.6																				
29	C3.0																				
29	M1.0													11:16	11:21	?	-				
29	M1.1		11:12	11:40	13:00	3				11:12	11:39	?	-	11:34	11:42	?	-	11:15	11:38	13:20	3
29	M1.0													12:02	12:04	?	-				
29	C8.3													12:19	12:25	12:55	2				
29	C4.3		14:23	14:28	14:40	1-															
30	C3.6																				
30	M2.7		09:37	09:43	10:40	2+								09:40	09:46	10:41	2+	09:38	09:43	10:50	2+
30	M1.8		12:08	12:30	13:30	2+								12:11	12:32	13:35	2+	12:05	12:28	13:35	3