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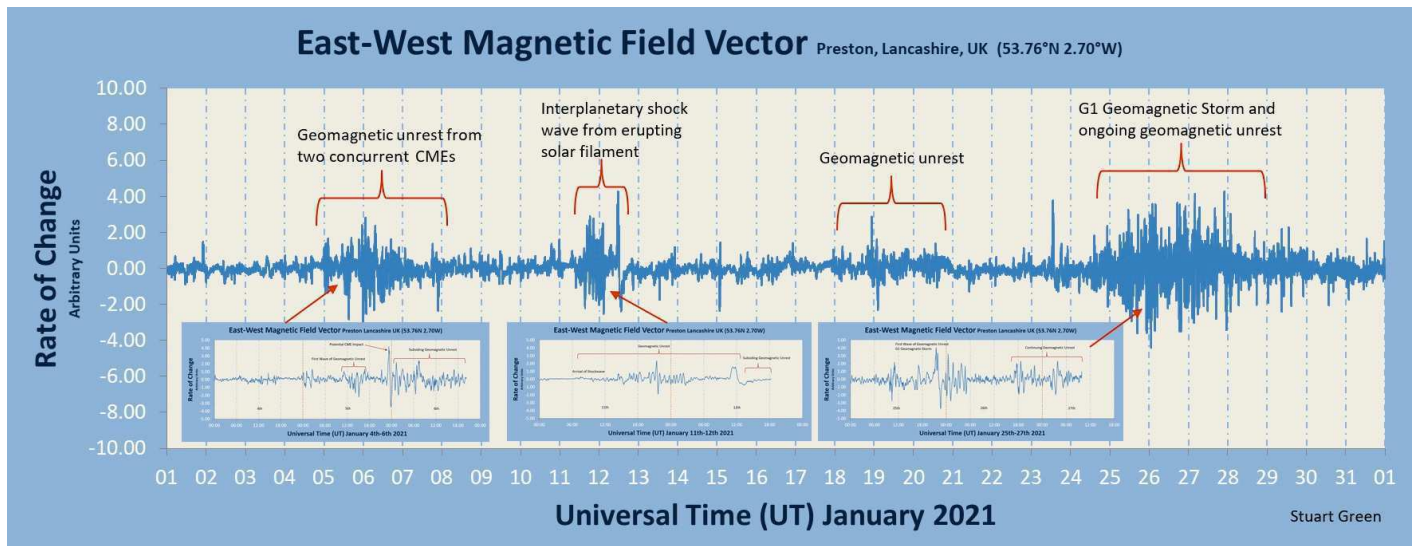
Please send all reports and observations to jacook@jacook.plus.com

BAA Radio Astronomy Section.

2021 JANUARY.

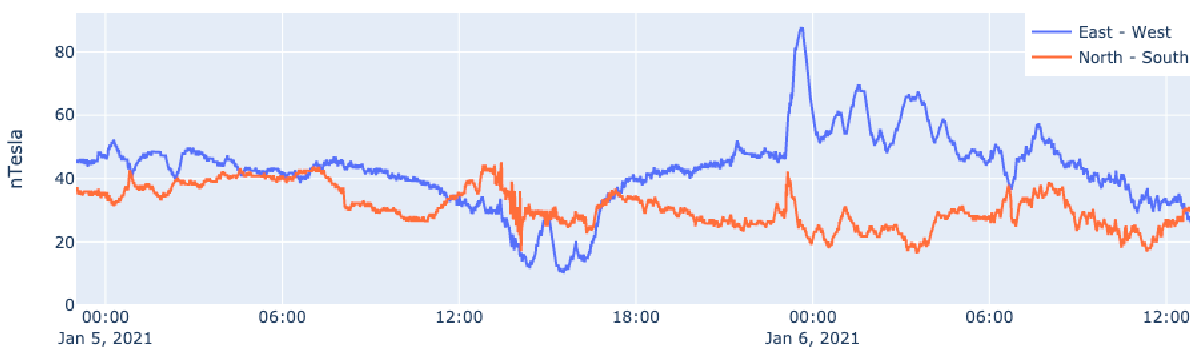
Solar activity through January was very low, with a short period mid-month of small B-class flares. The strongest flare listed in the space weather bulletins was C1.4 peaking at 12:53UT on the 20th. Although well timed for detection, it was not recorded on the very noisy signals typical at this time of year. The 23.4kHz signal has also shown some large and rapid changes in signal strength towards the end of the month that have not helped.

MAGNETIC OBSERVATIONS.

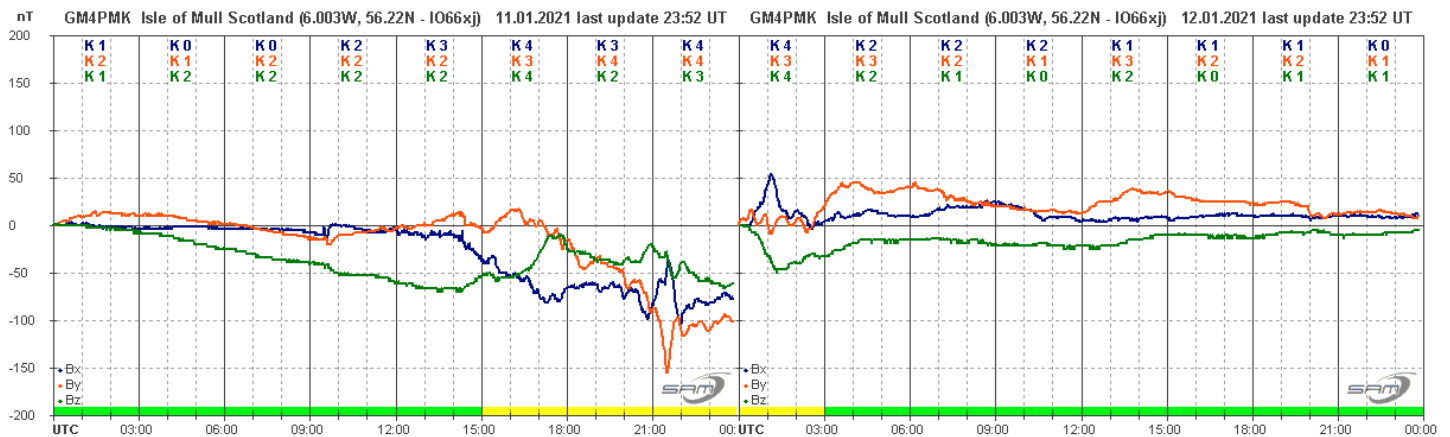


This chart shows the month's activity recorded by Stuart Green. Despite the lack of flare activity, there were some CMEs recorded in satellite images. These were from filament eruptions, and fairly mild. Combining with coronal hole high speed winds they did result in some magnetic disturbances in the first half of the month.

Steyning Magnetometer (50.8 North, 0.3 West)



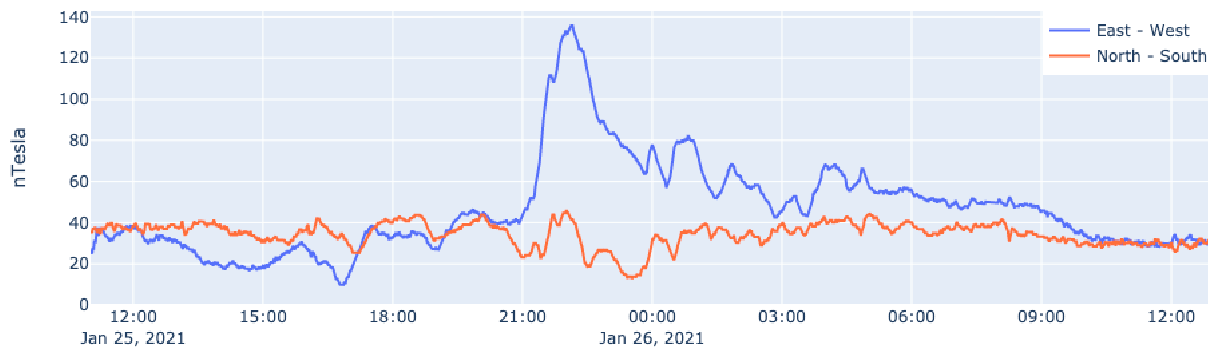
This recording by Nick Quinn shows the CME arrival just before midnight on the 5th, following a day of mild disturbance from the CHSS. Nick is using a fluxgate sensor buried 0.6m underground to reduce thermal effects. The disturbance faded out during the 6th. The second CME / CHSS combination arrived on the 11th, shown here by Roger Blackwell:



There was clearly quite a strong shift in the magnetic field in the evening of the 11th, although the turbulence produced was fairly mild. The sensor is reset at midnight, hence the apparent break in the trace.

The magnetic disturbance starting on the 25th was entirely due to coronal hole effects, shown in this recording by Nick Quinn:

Steying Magnetometer (50.8 North, 0.3 West)

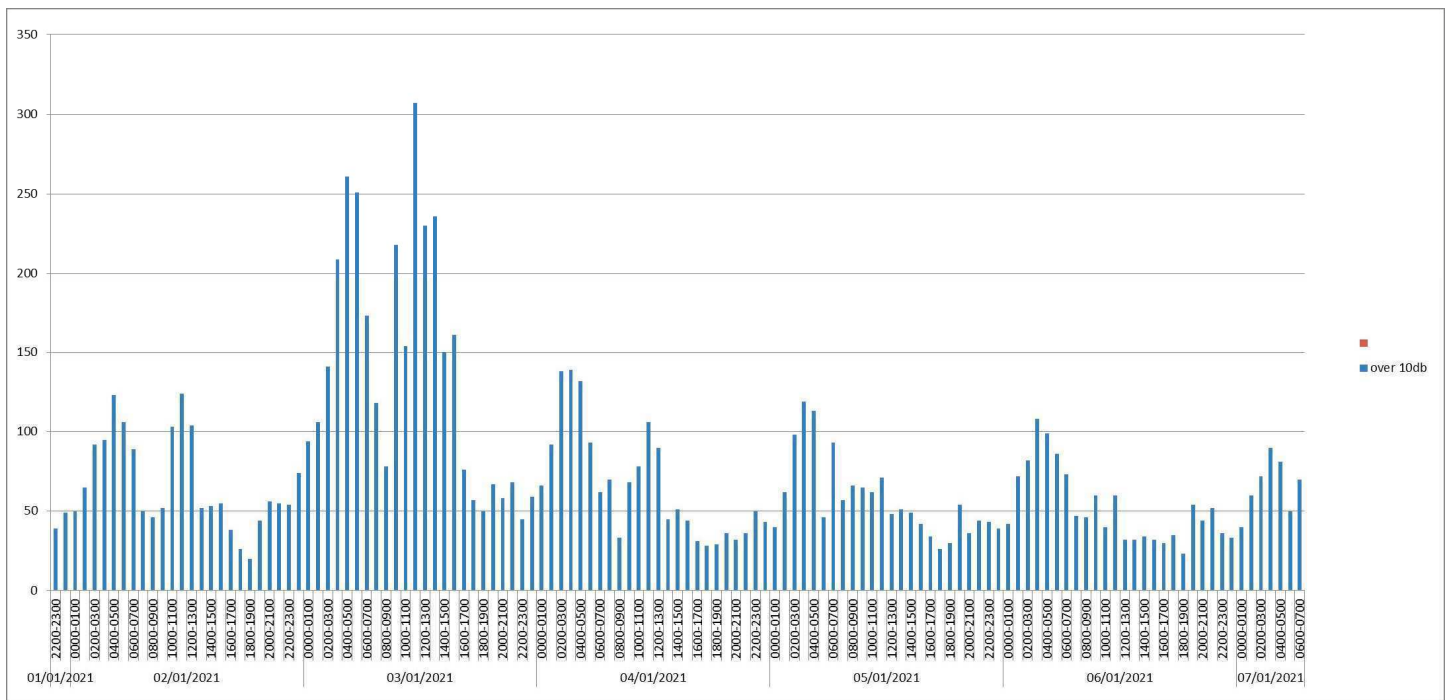


There was a very mild disturbance during the morning, increasing through the afternoon with a large shift in the east-west field just before midnight. The mild disturbance continued through the 26th, fading out in the morning of the 27th. There were no reports of any effects on the 37.5kHz signal from these magnetic disturbances as they were most active well after the winter sunset time.

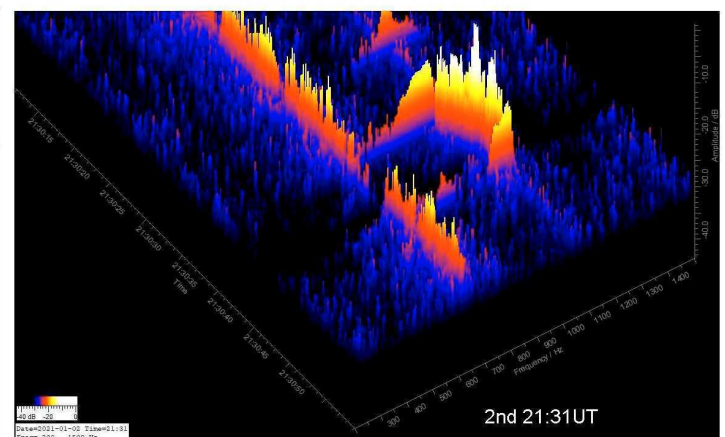
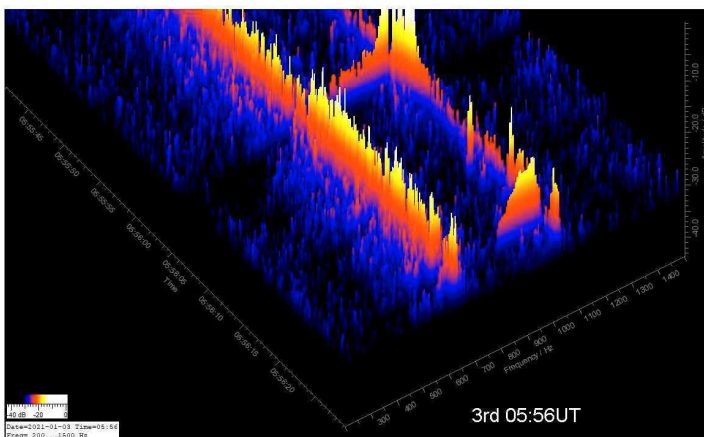
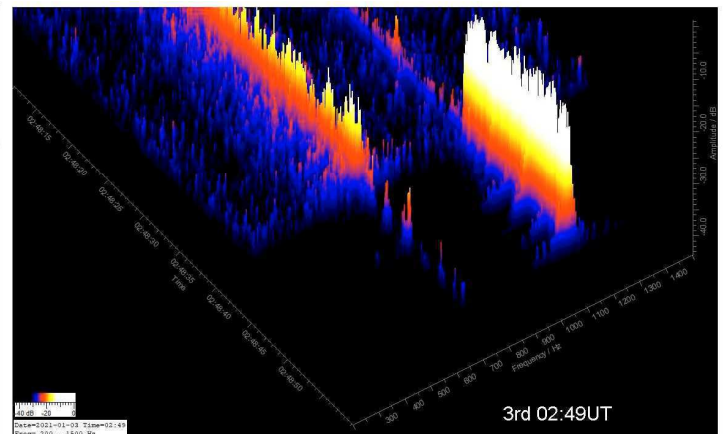
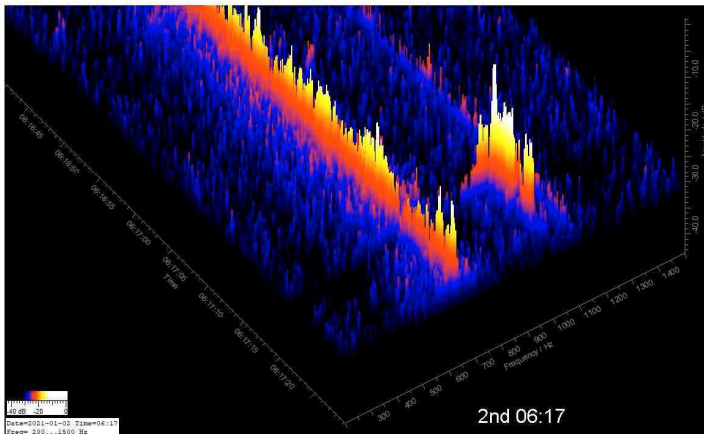
Magnetic observations received from Roger Blackwell, Chris Bailey, Colin Clements. Stuart Green, Paul Hearn, Andrew Thomas, Nick Quinn and John Cook.

QUADRANTID METEORS.

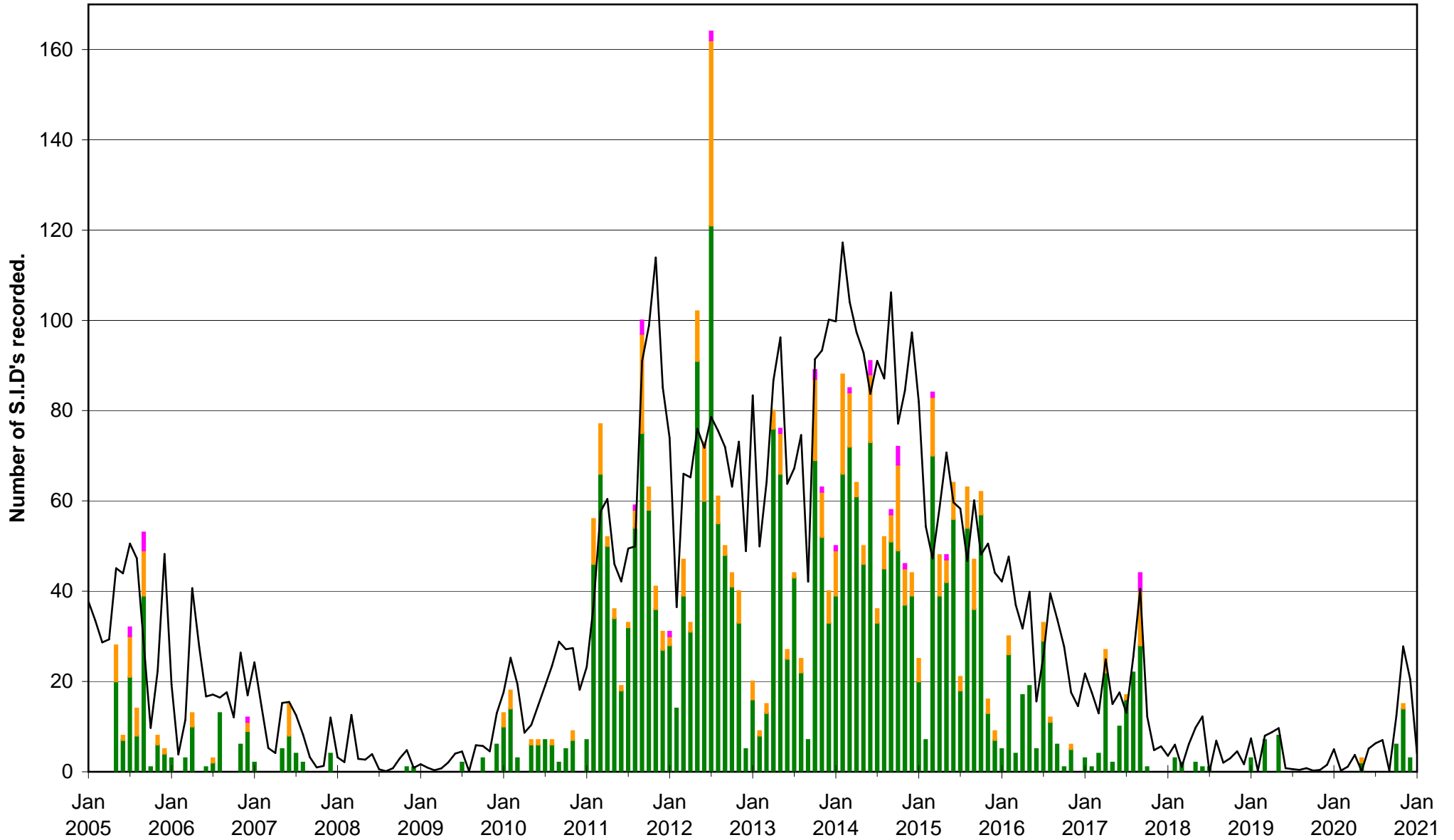
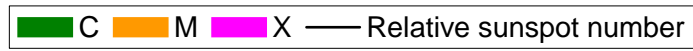
Chris Bailey has continued his meteor recording with the GRAVES radar signal to catch the January Quadrantids. His echo counts are shown in the chart on the next page:



The peak in the morning of the 3rd is in good agreement with the details in the BAA handbook, with over 300 radar reflections being detected between 10 and 11UT. Good rates were also recorded over the entire six day period shown. Some of the recordings are shown below. Note that the bright line underneath each echo is due to interference.



VLF flare activity 2005/21



BARTELS DIAGRAM

ROTATION	KEY:	DISTURBED.	ACTIVE	SFE	B, C, M, X = FLARE MAGNITUDE.	Synodic rotation start (carrington's).
2529	F	26	27 28 29 30 31	1 2 3	4 5 6 7 8 9 10 11 12 13 14 15 16	2213
	F	17	18 19 20 21	22 23 24 25 26	27 28 29 30 31	2214
2530	F	22	23 24 25	26 27 28 29 30	31 1 2 3 4 5 6 7 8 9 10 11 12	2215
	F	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	2216
2531	F	18	19 20 21 22 23 24 25 26	27 28	1 2 3 4 5 6 7 8 9 10 11 12	2217
	F	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	2218
2532	F	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	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	2219
	F	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	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	2220
2533	F	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	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	2221
	F	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	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	2222
2534	F	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 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	2223
	F	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	2224	
2535	F	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	2225	
	F	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	2226	
2536	F	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	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	2227
	F	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	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	2228
2541	F	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	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	2229
	F	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	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	2230
2542	F	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	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	2231
	F	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	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	2232
2543	F	2020 March	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	2233	
	F	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	2234	
2544	F	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	2235	
	F	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	2236	
2548	F	2020 June	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	2237	
	F	2032	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	2238	
2549	F	2033	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	2239	
	F	2020 August	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	2240	
2551	F	2234	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	2241	
	F	2235	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	2242	
2552	F	2236	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	2243	
	F	2237	2020 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	2244	
2554	F	2238	2020 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 30 31	2245	
	F	2239	2020 December	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	2246	
2555	F	2240	2021 January	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23	2247	
	F	2241	2021 January	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	2248	
2556	F	2242	2021 February	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	2249	
	F	2243	2021 February	25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	2250	