

IMPERIAL MAG Data Release Report 2407



3 December 2024 (report covers data release for 1 July– 31 July 2024)

Report Version	1	L2 ground processing software version:	v2.27.1/ v2.29
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Data Summary

MAG was powered on for July. Burst Mode (BM) was available at 64 vectors/s for 24 hours per day between 1-3 July, and then at 64 vectors/s for 4 hours per day for the remainder of the month.

There were two spacecraft events that resulted in large disturbances to the MAG sensors offsets due to large temperature variations, which we have not been able to fully characterise and correct:

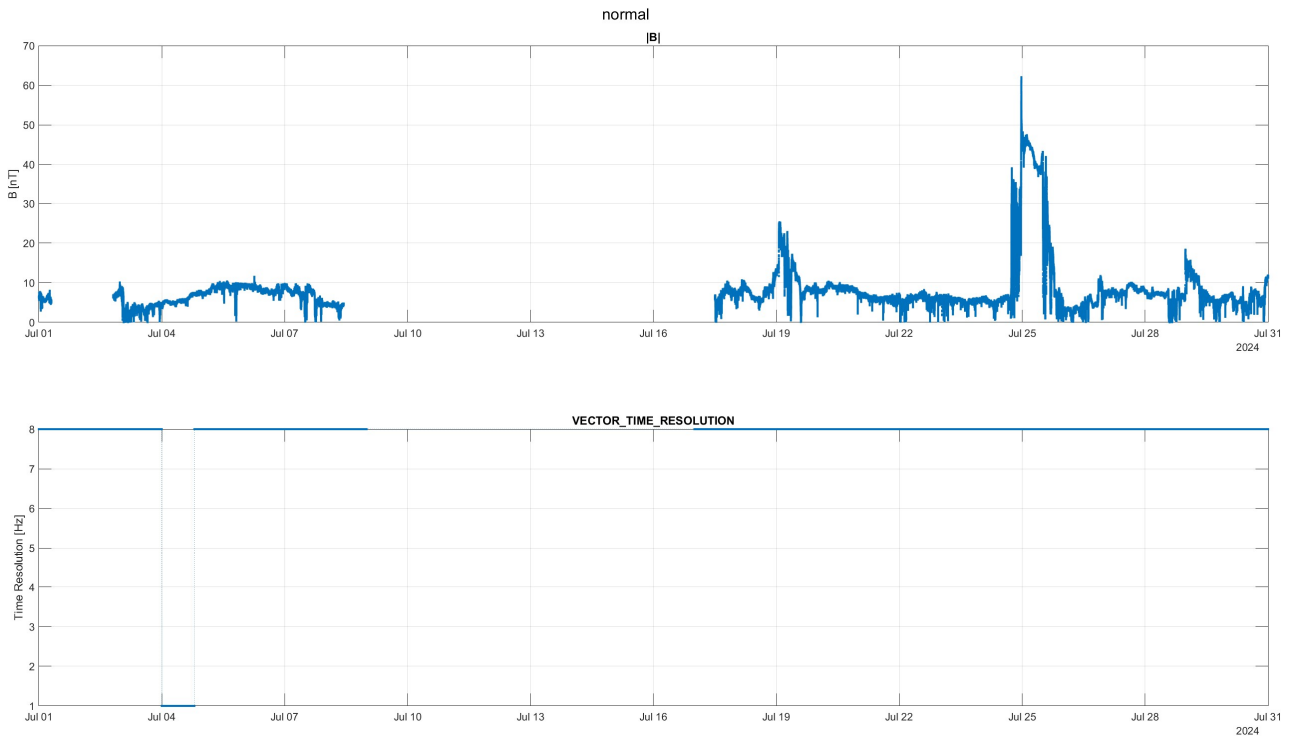
1. A trajectory correction manoeuvre and attitude maintenance activity on the 1st -2nd of July.
2. A de-icing manoeuvre on the 8th of July. The de-icing manoeuvre resulted in the spacecraft performing a large slew (210 degrees) around the Y axis in the -Y direction, and the same in reverse to return to the standard position.

As it was not possible to characterise the offsets during these periods, and for a temperature recovery period following the events, the data has not been released between the following dates:

StartTime	EndTime	Comment
01/07/2024 07:20	02/07/2024 19:30	TCM
08/07/2024 10:35	17/07/2024 12:00	De-icing

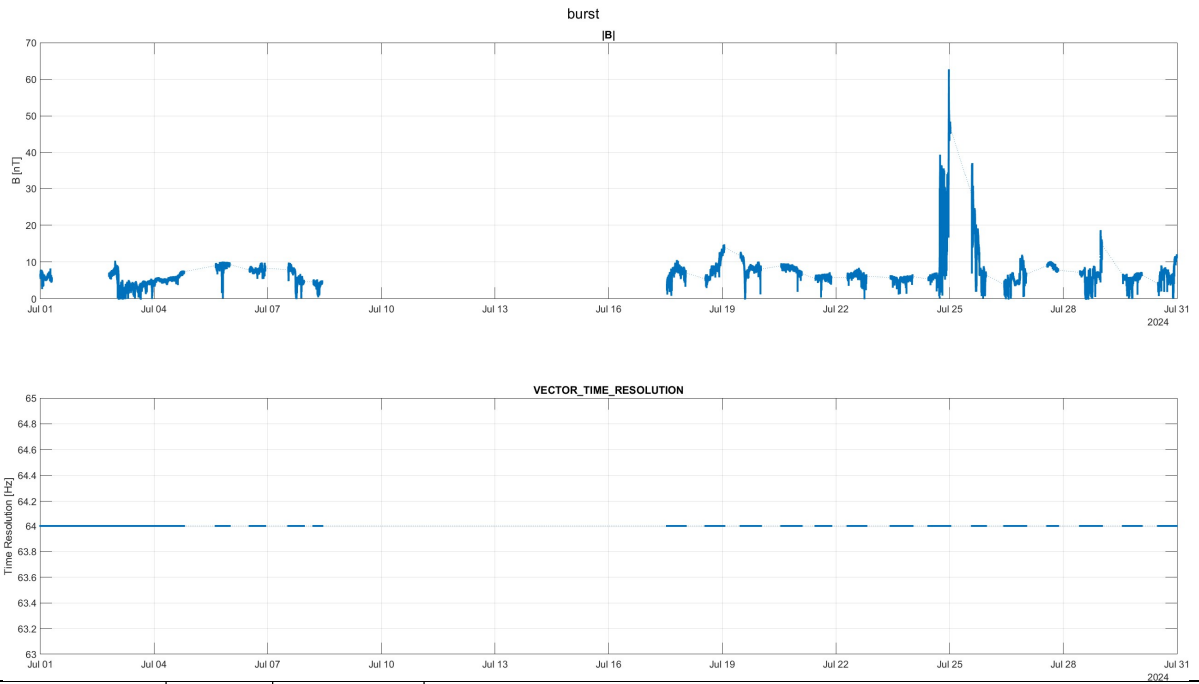
The spacecraft started the month at 0.95AU on the 1st of July and at the end of the month it was at 0.88AU.

Normal Mode



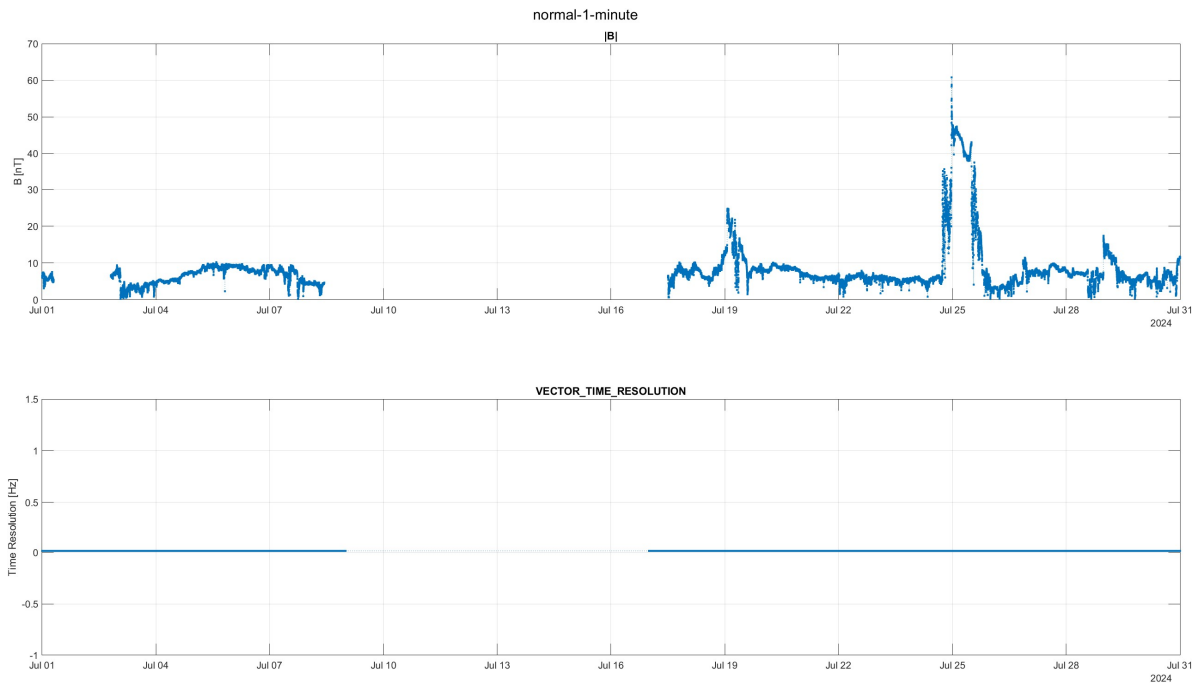
Operations	1 July – 31 July	Science phase throughout period, normal data produced.
Operational Events of Note	01/07/2024 07:20 08/07/2024 10:35	TCM De-icing manoeuvre

Burst Mode

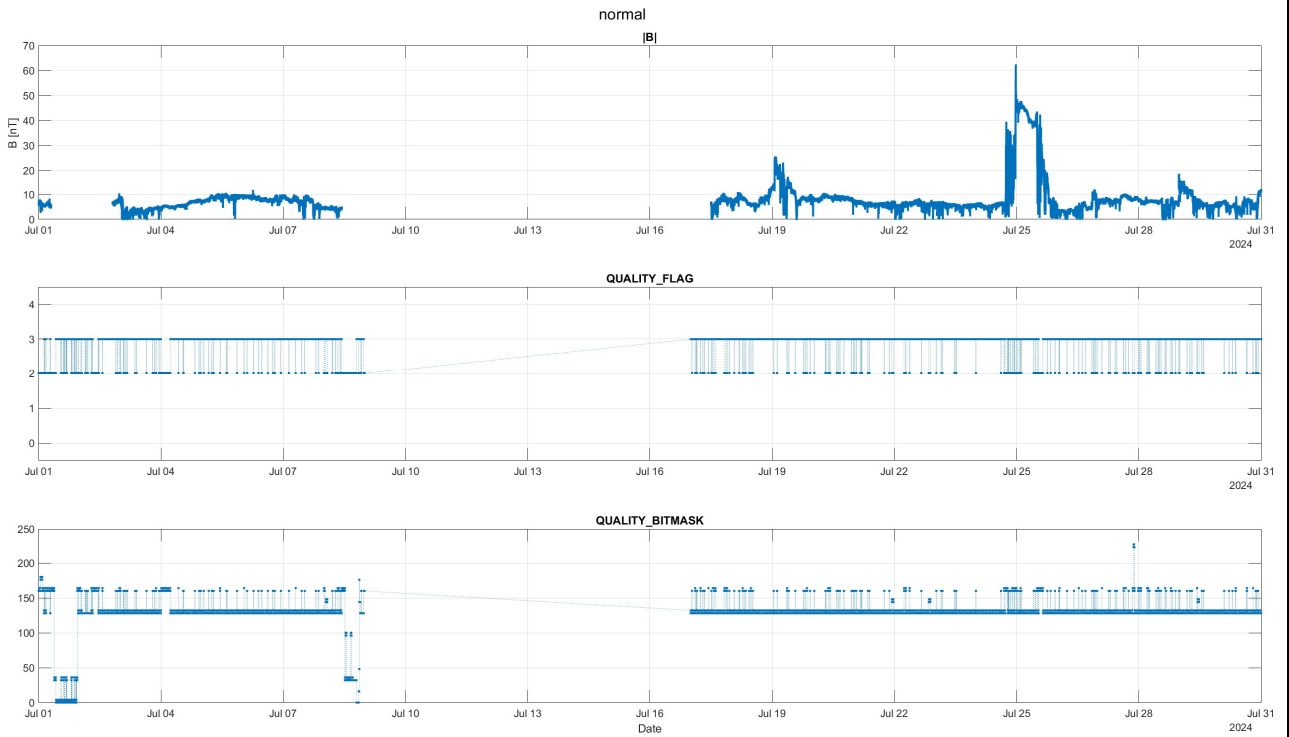


Coverage	From	To	Coverage
	01/07	03/07	24h per day of 64 vectors/s
	04/07	31/07	24h per day of 64 vectors/s

Normal – 1min



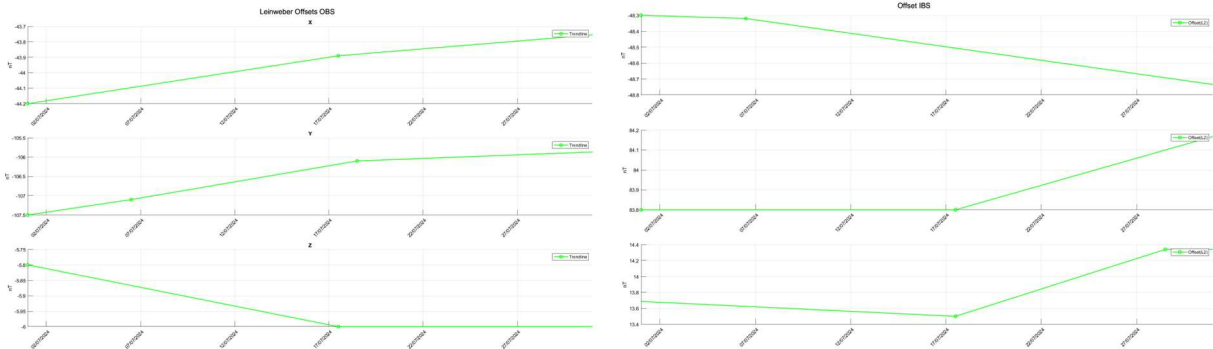
Quality bitmask



Quality bit mask events

SC events which disturb the field	<ol style="list-style-type: none"> 1. Solar array movements (solar array angle is changed, and then remains at new angle due to sun-SC distance thermal constraints) 2. High gain antenna movements 3. Battery Top Up 		
SC related issues	StartTime	EndTime	Comment
	01/07/2024 00:05	01/07/2024 03:04	Battery top up event interference affecting IBS

Offsets



1 July – 31 July

Both the IBS & OBS X & Y offsets were primarily disturbed due to the de-icing manoeuvre on the 8th of July, which resulted in the instrument temperature being set to non-nominal temperature (~-60C). The offsets only become stable on the 17th of July, after the instrument returned to nominal temperatures (~-90C). A trajectory correction manoeuvre was performed on the 1st of July which also changed the instrument's temperature to ~-60C.

OffsetNumber	Date	OBSX	OBSY	OBSZ	IBSX	IBSY	IBSZ	Comment
220991	17/06/2024 12:00						13.84	IBS Z trend
220992	27/06/2024 12:00	-44.2						
220993	30/06/2024 12:00		-107.54					
220994	01/07/2024 00:00	-44.2	-107.5	-5.8	-48.3	83.8		
220995	06/07/2024 12:00		-107.1		-48.32			
220996	13/07/2024 12:00							
220997	17/07/2024 12:00	-43.89		-6		83.8	13.5	Post De-icing offsets
220998	18/07/2024 12:00		-106.1					Post De-icing offsets
220999	28/07/2024 12:00						14.34	IBS Z trend
221001	30/08/2024 12:00	-43.45	-105.3	-6	-49.25	85	14.34	End of month offsets

Appendix

Appendix A: Files within this release

Filename
solo_L2_mag-rtn-burst_20240701_V01.cdf
solo_L2_mag-rtn-burst_20240702_V01.cdf
solo_L2_mag-rtn-burst_20240703_V01.cdf
solo_L2_mag-rtn-burst_20240704_V01.cdf
solo_L2_mag-rtn-burst_20240705_V01.cdf
solo_L2_mag-rtn-burst_20240706_V01.cdf
solo_L2_mag-rtn-burst_20240707_V01.cdf
solo_L2_mag-rtn-burst_20240708_V01.cdf
solo_L2_mag-rtn-burst_20240709_V01.cdf
solo_L2_mag-rtn-burst_20240710_V01.cdf

solo_L2_mag-rtn-burst_20240711_V01.cdf
solo_L2_mag-rtn-burst_20240712_V01.cdf
solo_L2_mag-rtn-burst_20240713_V01.cdf
solo_L2_mag-rtn-burst_20240714_V01.cdf
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