IMPERIAL MAG Data Release Report 2405

24 September 2024 (report covers data release for 1 April– 30 April 2024)

Report Version	1	L2 ground processing software version:	V2.27.1
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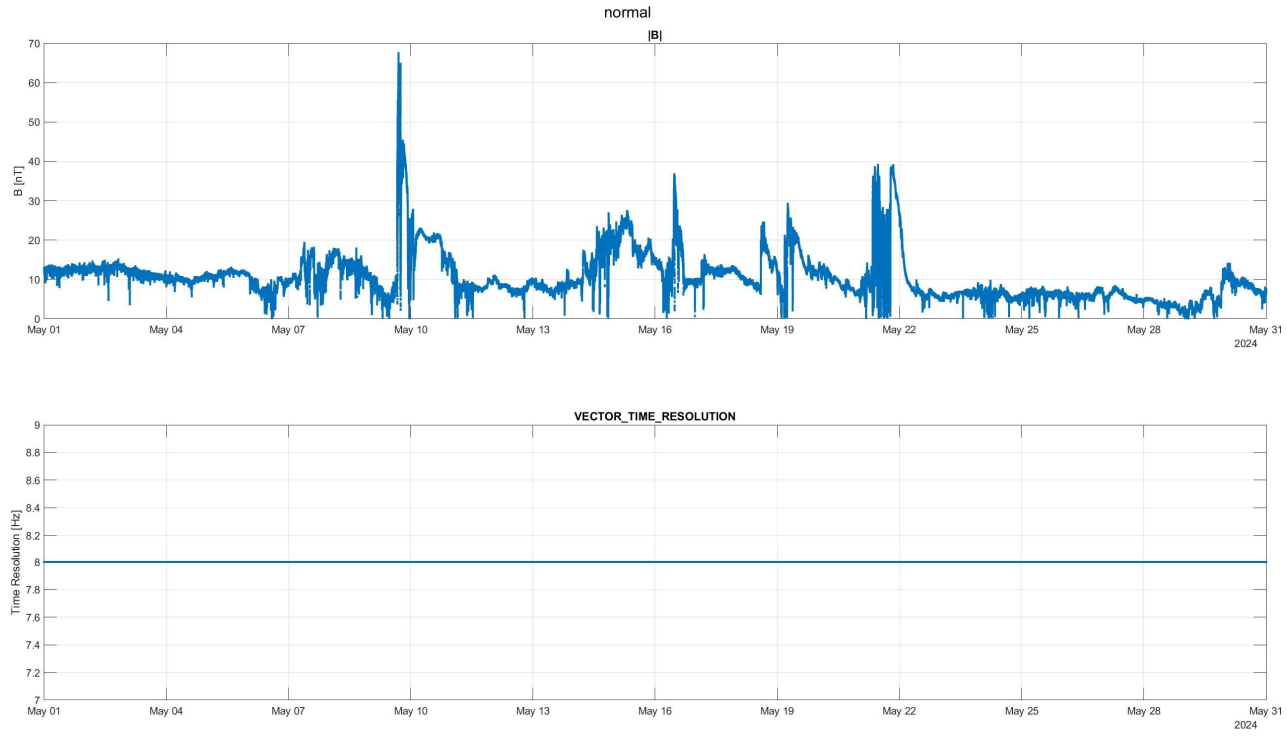
Data Summary

MAG was powered on for May. Burst Mode (BM) was available at 64 vectors/s for 24 hours per day between 1-22 May, and then at 64 vectors/s for 4 hours per day for the remainder of the month.

There was a CME with a magnitude ~60nT on the 9th of May, and a CIR on the 21st. There was a large (-26deg) SA angle change on the 16th, as Solar Orbiter moved further away from the sun, causing the IBS sensor temperature to drop by 2 degrees.

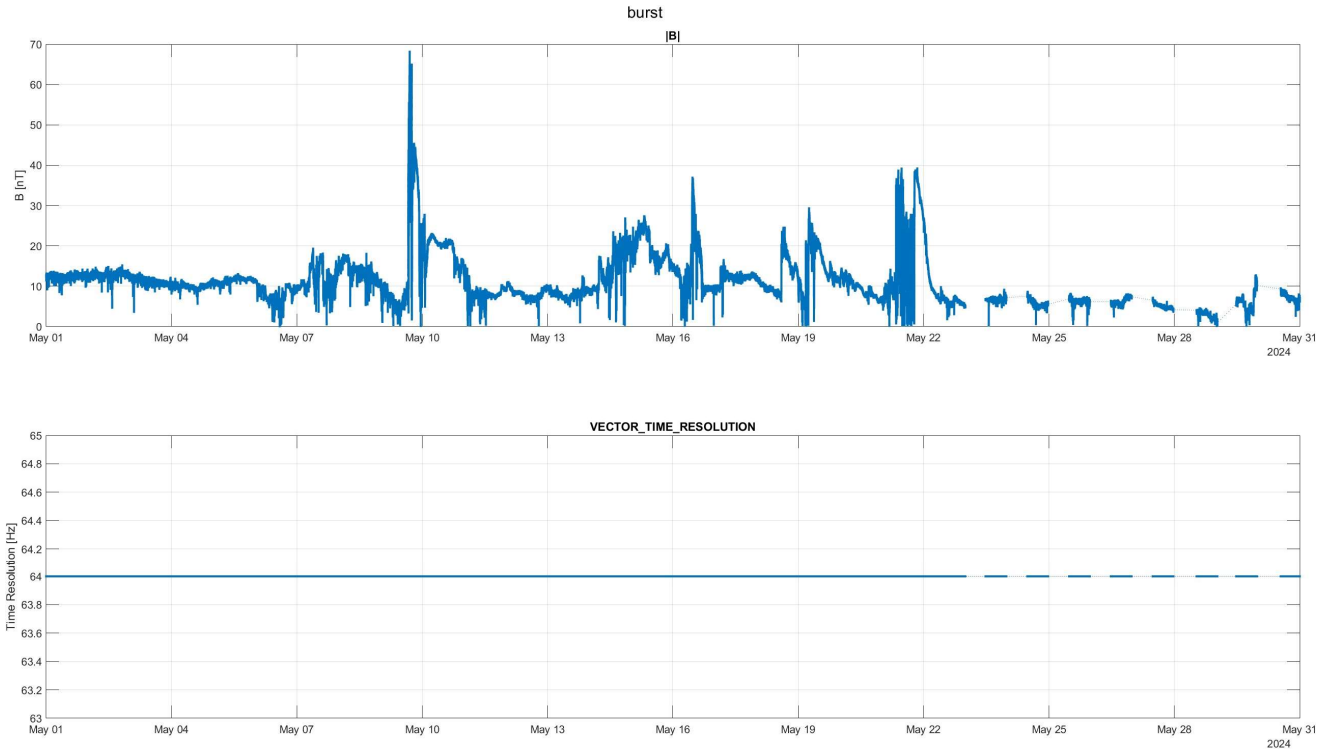
The spacecraft started the month at 0.59AU on the 1st of May and at the end of the month it was at 0.86AU.

Normal Mode



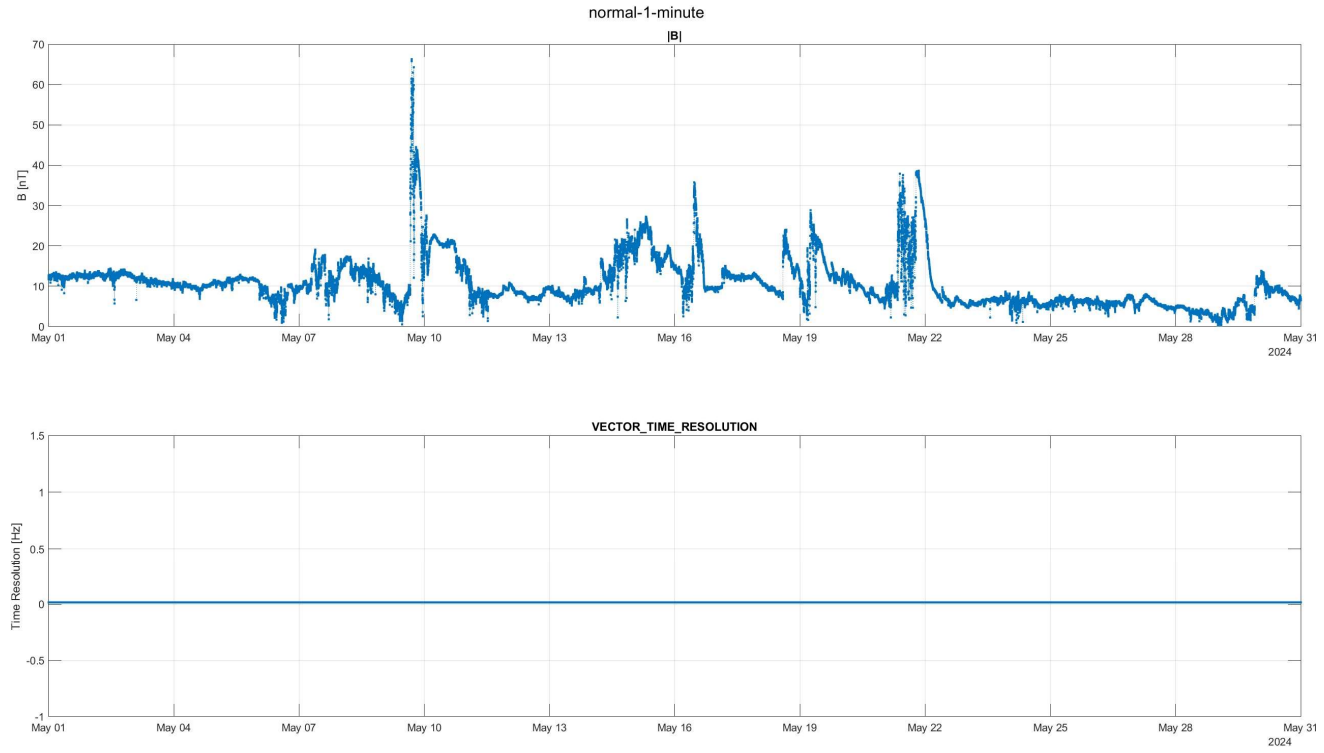
Operations	1 May– 30 May	Science phase throughout period, normal data produced.
Operational Events of Note		

Burst Mode



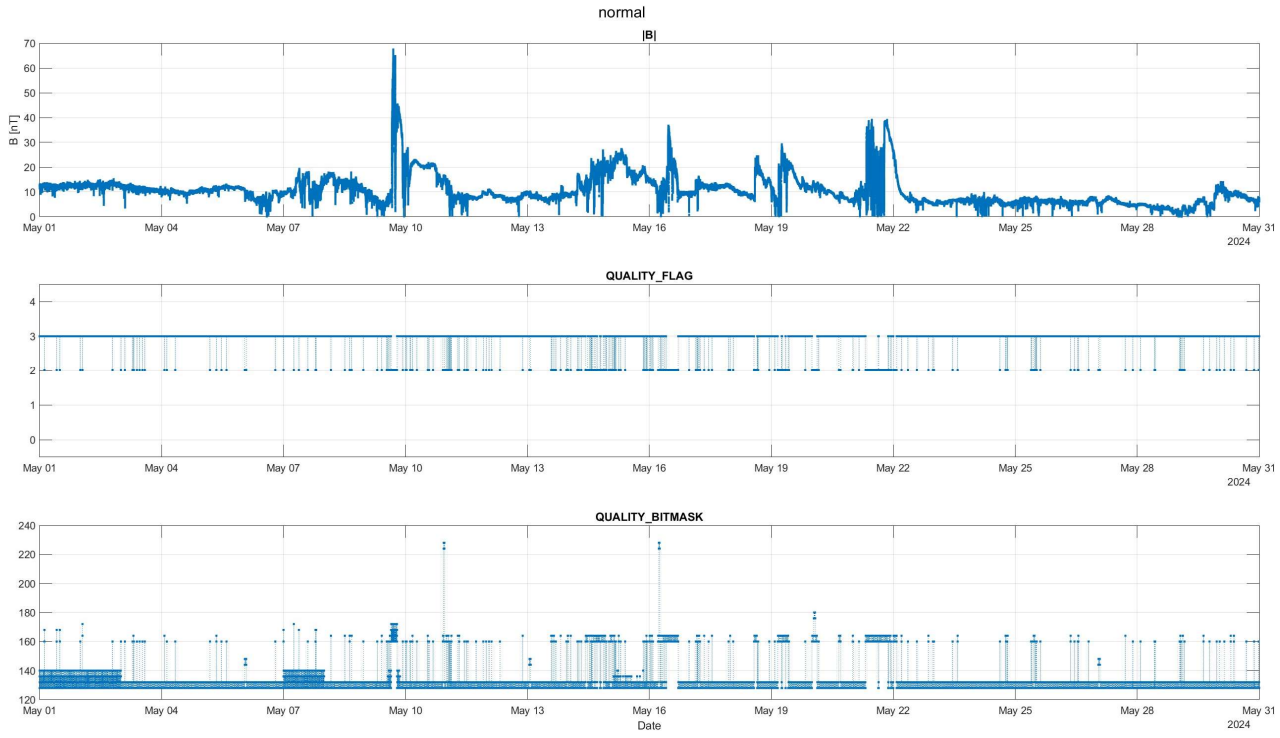
Coverage	From	To	Coverage
	01/05	22/05	24h per day of 64 vectors/s
	23/05	31/05	4h per day of 64 vectors/s

Normal – 1min


normal-1-minute
|B|
B [nT]
70
60
50
40
30
20
10
0
May 01
May 04
May 07
May 10
May 13
May 16
May 19
May 22
May 25
May 28
May 31
2024

VECTOR_TIME_RESOLUTION
Time Resolution [Hz]
1.5
1
0.5
0
-0.5
-1
May 01
May 04
May 07
May 10
May 13
May 16
May 19
May 22
May 25
May 28
May 31
2024

Quality bitmask



Quality bit mask events	
SC events which disturb the field	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
20/05/2024 00:06	20/05/2024 03:05	Battery top up event interference affecting IBS

Offsets

1 May – 31 May

The OBS offsets remained stable throughout the month, changing by a maximum of +/- 0.5nT in the X and Z axes. The OBS Y offset displayed the expected recovery behaviour, increasing by 0.2nT as has previously been observed. The IBS offsets were primarily disturbed by the decrease in the IBS sensor temperature due to the solar array events on the 16th.

OffsetNumber	Date	OBSX	OBSY	OBSZ	IBSX	IBSY	IBSZ	Comment
221067	01/05/2024 00:00	-44.2	-108.3	-5.7	-49.8	85.2	14.0	Beginning of month offsets
221069	07/05/2024 12:00		-108.3	-5.73	-49.7	85.24	14	OBS & IBS trend
221071	13/05/2024 12:00					85.17		IBS trend
221072	16/05/2024 05:36				-49.5	85.17	13.8	SA event affecting IBS
221073	16/05/2024 05:40				-48.9	84.25	14.2	SA event affecting IBS
221074	21/05/2024 12:00				-48.7	83.89		IBS trend
221075	23/05/2024 12:00						14.91	IBS trend
221077	01/06/2024 00:00	-44.2	-108.1	-5.73	-48.8	84.2	14.91	End of month offsets

Appendix

Appendix A: Files within this release

Filename
solo_L2_mag-rtn-burst_20240501_V01.cdf
solo_L2_mag-rtn-burst_20240502_V01.cdf
solo_L2_mag-rtn-burst_20240503_V01.cdf
solo_L2_mag-rtn-burst_20240504_V01.cdf
solo_L2_mag-rtn-burst_20240505_V01.cdf
solo_L2_mag-rtn-burst_20240506_V01.cdf
solo_L2_mag-rtn-burst_20240507_V01.cdf
solo_L2_mag-rtn-burst_20240508_V01.cdf
solo_L2_mag-rtn-burst_20240509_V01.cdf
solo_L2_mag-rtn-burst_20240510_V01.cdf
solo_L2_mag-rtn-burst_20240511_V01.cdf
solo_L2_mag-rtn-burst_20240512_V01.cdf
solo_L2_mag-rtn-burst_20240513_V01.cdf
solo_L2_mag-rtn-burst_20240514_V01.cdf
solo_L2_mag-rtn-burst_20240515_V01.cdf
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solo_L2_mag-rtn-burst_20240527_V01.cdf
solo_L2_mag-rtn-burst_20240528_V01.cdf
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