



16 November 2023 (report covers data release for 1 August – 31 August 2023)

Report Version	1	L2 ground processing software version:	V2.26.1
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Data Summary

MAG was powered on for July. Burst Mode (BM) 64 vectors/s was available for 4 hours a day up until the 21st, where BM was available at 64 vectors/s for 24 hours per day. High cadence monitoring for SWA HIS test was conducted on 23/08 & 16/08, so the following periods have burst mode at 128Hz 2023-08-23 09:58:55-10:04:06, 2023-08-16 09:58:55-10:04:06.

A period of 4 hours has been quality flagged to level 2 from the 26/08/2023 02:30. This is due to a solar array movement on 26/08/2023 03:35-03:39 disturbing the thermal environment of the boom and affecting the sensor offsets. We use IBS-OBS as a tool to assess our offset calculations, and this event caused this metric to fall outside of the (generally) desired range of +/-0.5nT. We have set the quality flag this to level 2 during this period as we are not confident that we have captured and corrected the impact on the offset.

The spacecraft started the month at 0.91AU on the 1st of August and at the end of the month it was at 0.70AU from the Sun.

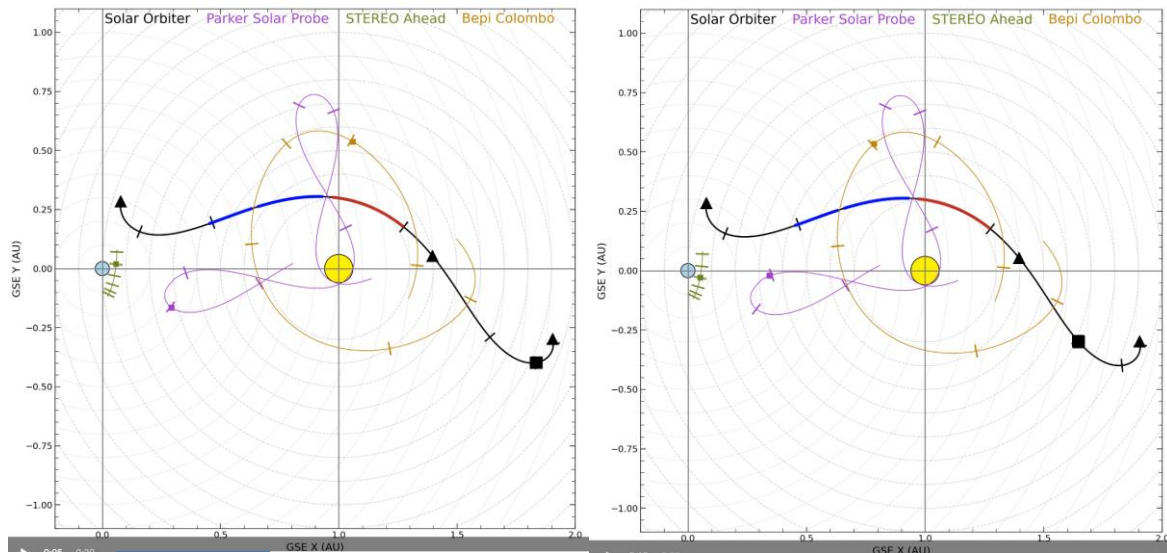
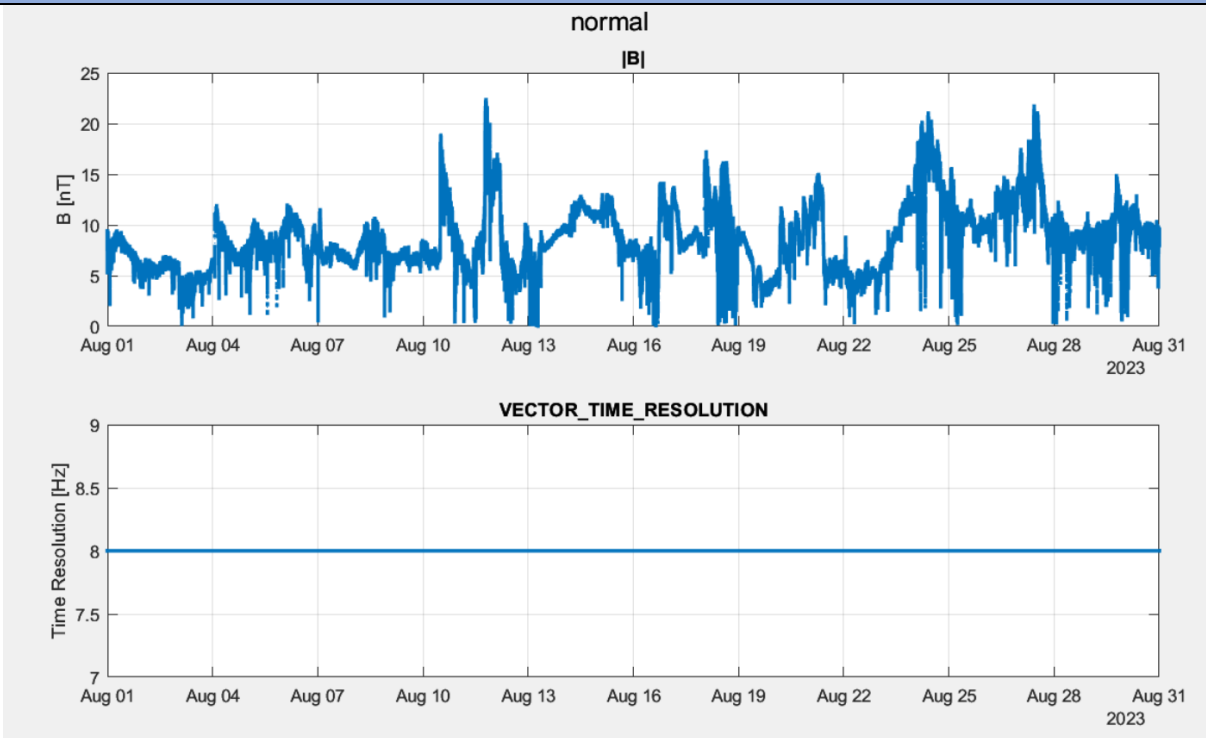


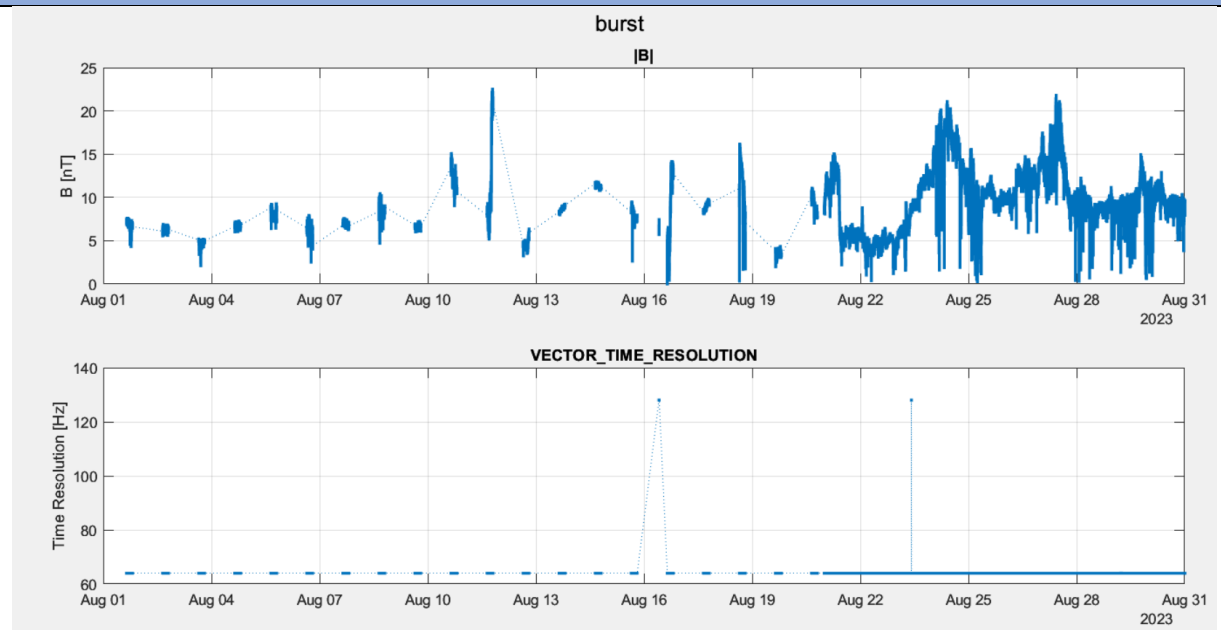
Figure 1 - Orbit plot Aug 1 (left) and Aug 31 (right) where Solar Orbiter is represented by the black square.

Normal Mode

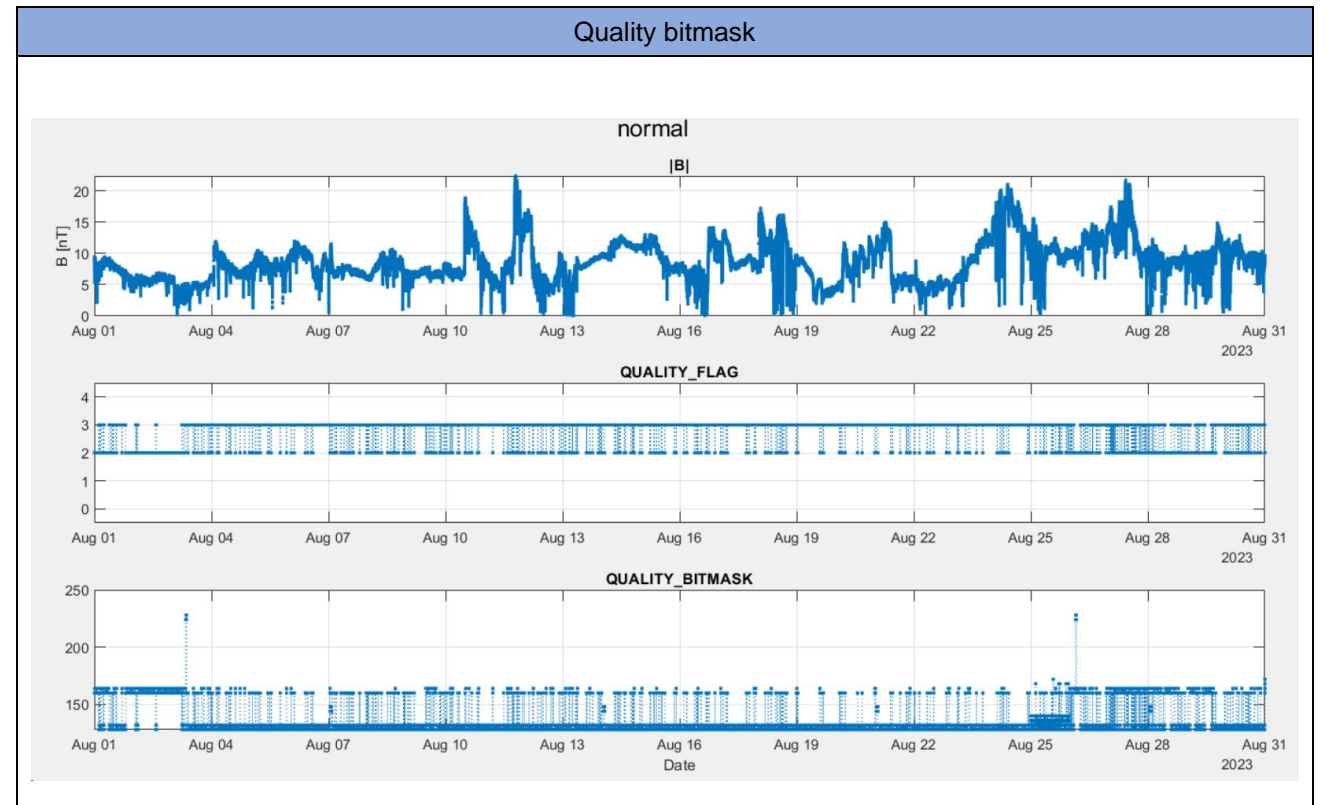
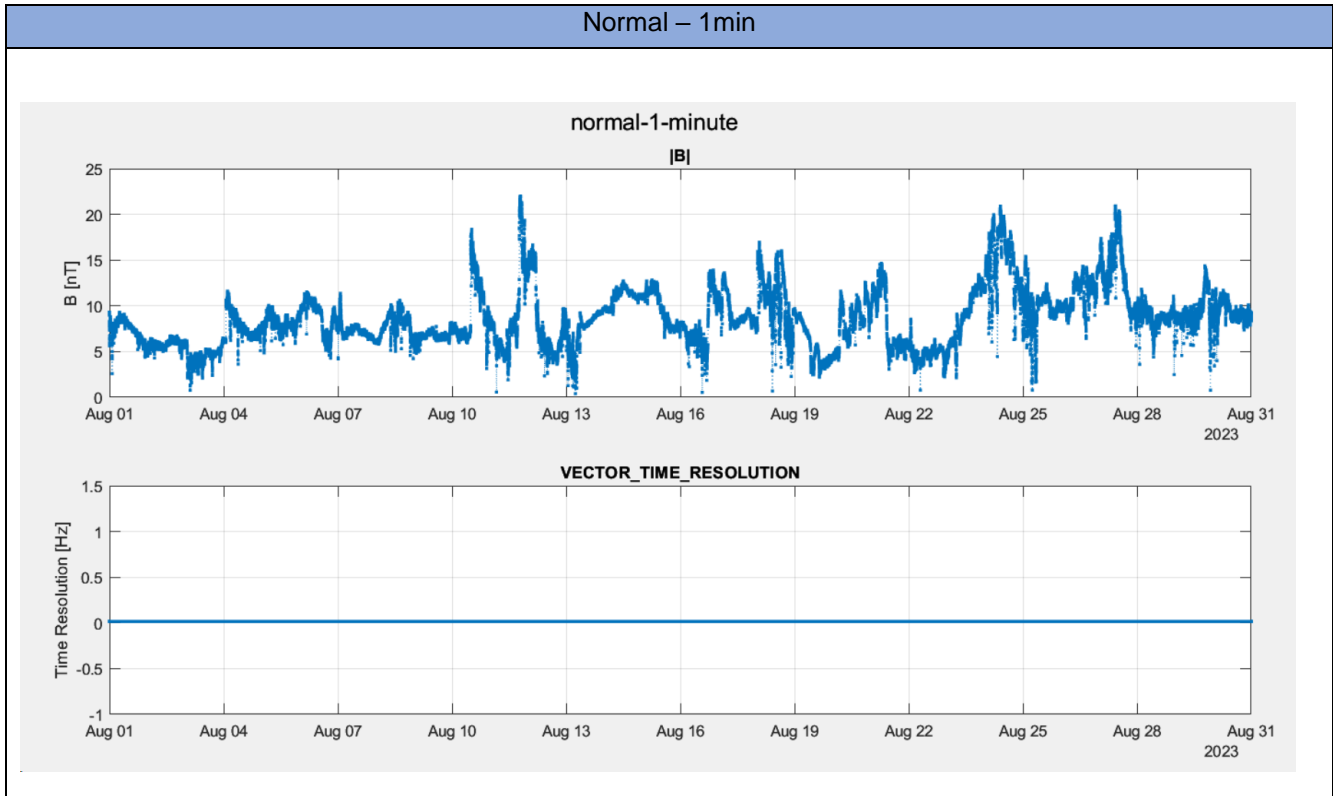


Operations	1 August – 31 August	Science phase throughout period, normal data produced.
Operational Events of Note		

Burst Mode



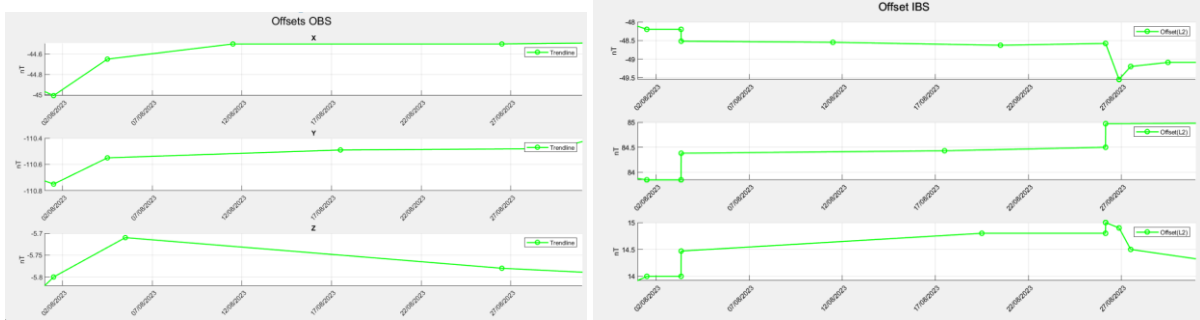
Coverage	From	To	Coverage
	01/08	31/08	4h per day of 64 vectors/s until the 21 st , where after this date 24h per day vectors/s were available. The short periods of 128Hz were for the SWA HIS test.



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	26/08/2023 02:30-06:30 – SA event affecting the thermal environment of the boom, especially in IBS.

Offsets



1 Aug – 31 Aug:

The OBS offsets followed a trend at the beginning of the month after an SA event on the 3rd the month. This trend was most likely due to the change in thermal environment due to the SA movement. For the remainder of the month the OBS offsets were stable. The IBS offsets were also stable, except for the two SA events (03/08 and 26/08), with the first causing a step change and the second inducing a larger temperature change in IBS resulting in a slope in the IBS offsets.

OffsetNumber	Date	OBSX	OBSY	OBSZ	IBSX	IBSY	IBSZ	Comment
220974	31/07/2023 12:00	-44.93	-110.7	-5.84	-48.03	83.9	13.84	July Offsets
220975	01/08/2023 12:00	-45.01	-110.75	-5.8	-48.2	83.85	14	OBS & IBS trend
220976	03/08/2023 08:12				-48.2	83.85	14	SA event
220977	03/08/2023 08:20				-48.52	84.38	14.47	SA event
220978	04/08/2023 12:00	-44.65	-110.55					OBS trend following SA event
220979	05/08/2023 12:00			-5.71				OBS Z trend
220980	11/08/2023 12:00	-44.5			-48.55			OBS & IBS X trend
220981	17/08/2023 12:00		-110.49			84.43		OBS & IBS Z trend
220982	19/08/2023 12:00						14.8	IBS Z trend
220983	20/08/2023 12:00				-48.63			IBS X trend
220984	26/08/2023 03:35				-48.58	84.5	14.8	SA event
220985	26/08/2023 03:39					84.97	15	SA event
220986	26/08/2023 12:00	-44.5		-5.78				OBS X & Z slight change
220987	26/08/2023 21:00				-49.55		14.9	IBS trend
220988	27/08/2023 12:00				-49.2		14.5	IBS trend
220989	29/08/2023 12:00		-110.48		-49.09			IBS trend
220990	31/08/2023 12:00	-44.49		-5.79	-49.09	84.98	14.3	IBS & OBS trend

Appendix

Appendix A: Files within this release

Filename
solo_L2_mag-rtn-burst_20230801_V01.cdf
solo_L2_mag-rtn-burst_20230802_V01.cdf
solo_L2_mag-rtn-burst_20230803_V01.cdf
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