



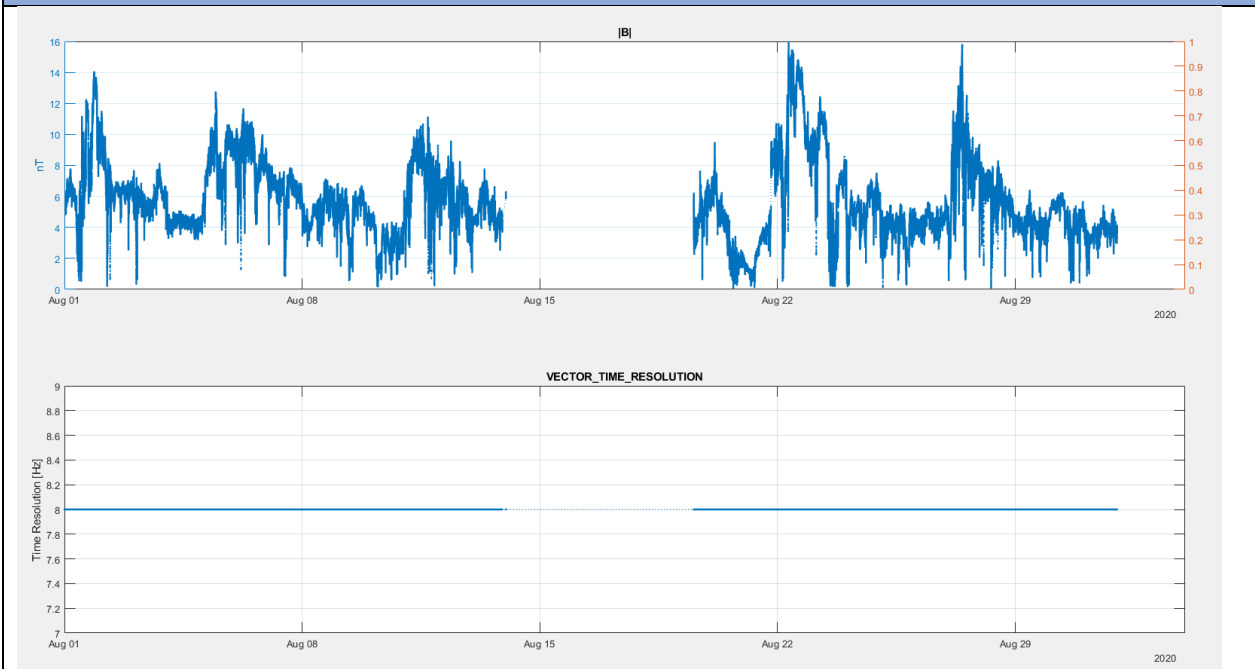
5 October 2020 (report covers data release for 1 Aug - 31 Aug 2020)

Report Version	0.1	L2 software version:	1.5
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Data Summary

The operational philosophy of the MAG instrument was to be on throughout the period. There was a disruption to operations due to a Spacecraft autonomous shut down of all instruments on 14 August. MAG was rebooted following this shutdown on 19 August. The spacecraft started August at 0.75AU and finished at 0.9AU. Burst mode was acquired for a few hours per day.

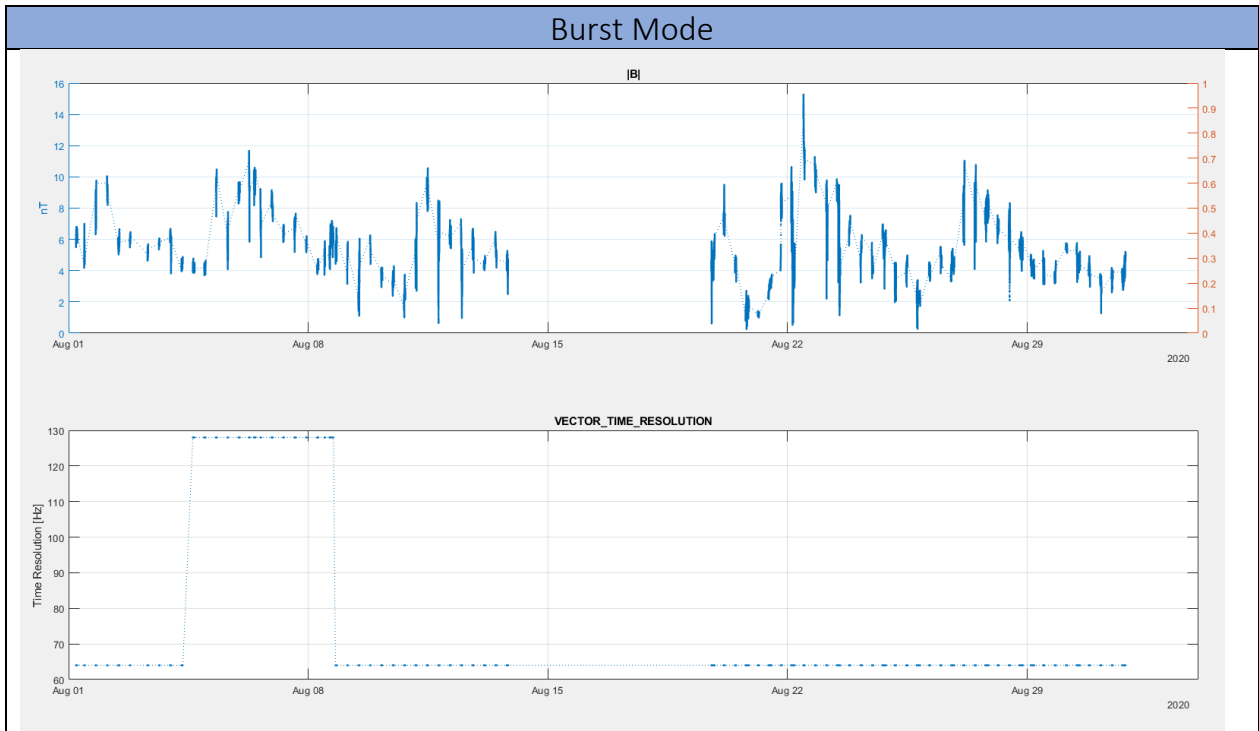
Normal Mode



For whole month, MAG was on with 8Hz cadence normal mode data returned, for exceptions see below.

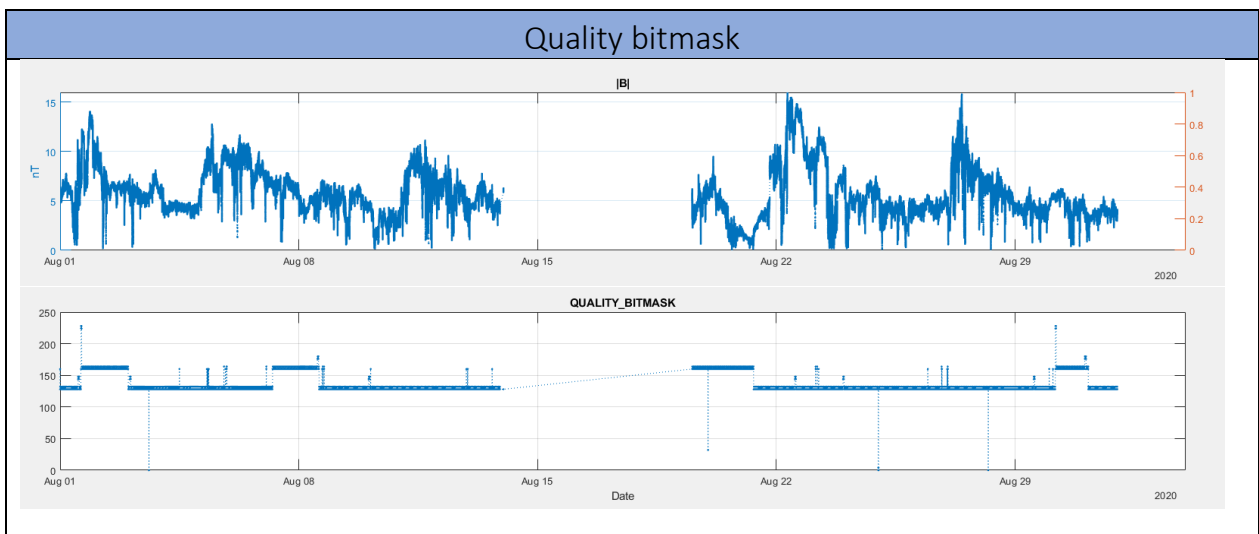
Operations	1-31 Aug	Cruise phase throughout moth
Operational Events of Note	1 Aug	Solar Array movement from 56 to 30 degrees. SA movements can have an impact of the spacecraft generated magnetic offset at the location of the OBS and IBS sensors.
	4-8 Aug	EUI Check out activities from 11:25 on 4/8 to 18:00 on 8/8. Expect some interference
	14 Aug	MAG powered down due to s/c SSMM FDIR event
	19 Aug	MAG powered back on. Data is flagged as quality level 2 until 21/08/2020 at 08:00 after reboot for offset stabilisation to occur.
	30 Aug	Solar Array movement from 30 to 0 degree. As for the movement on 01/08, data is flagged as quality level 2 for SA movement and until 31/08/2020 on 03:30 for offset stabilisation to occur.

Data Gaps	14 Aug on 00:00 – 19 Aug on ~12:43	Data gap due to power off.
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Coverage is not continuous and is a combination of 128Hz or 64 Hz cadence.

	From	To	
Coverage	1/08	9/08	Variable amounts of BM (128 Hz or 64 Hz) to cover EUI activities
	10/08	13/08	3 hours per day 64Hz
	14/08	18/08	MAG was off
	19/08	23/08	4.5 hours per day 64 Hz
	24/08	30/08	4.5 hours per day 64 Hz
	31/08	31/08	4.5 hours per day 64 Hz

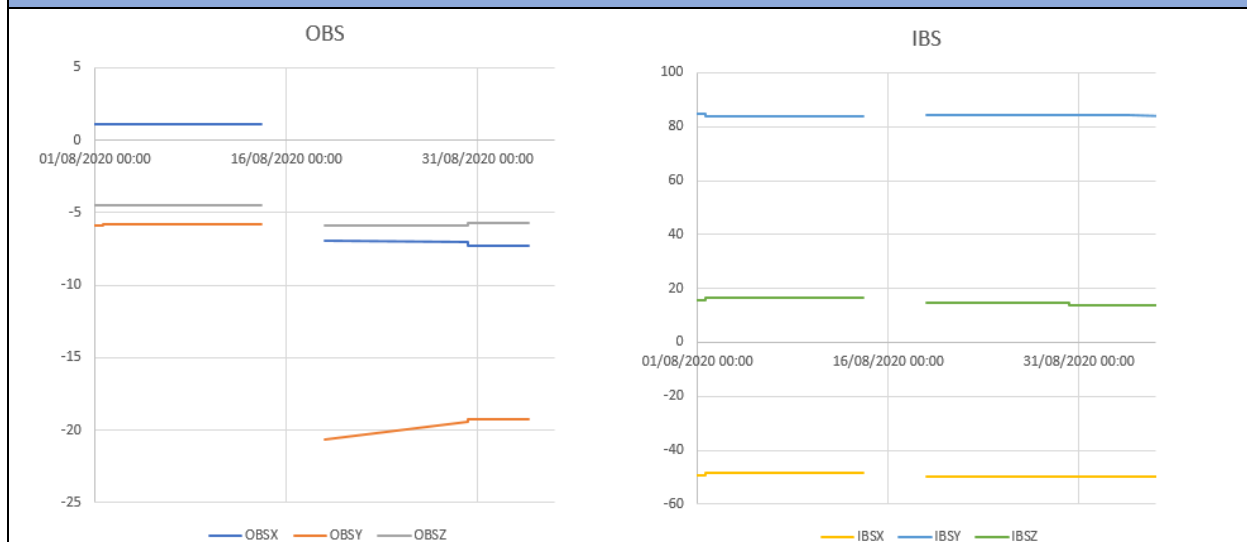


Quality bit mask events

1. SC events	<ul style="list-style-type: none"> • Thruster firings
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which disturb the field	<ul style="list-style-type: none"> Solar array lubrications (solar array is moved 15 degrees, then returned to original position) Solar array movements (solar array angle is changed, and then remains at new angle due to sun-SC distance thermal constraints) 		
2. SC related issues	01/08/2020 14:40	03/08/2020 00:00	SA movement : from 56 to 30 degrees
	07/08/2020 05:30	08/08/2020 14:15	EUI checkout activities
	19/08/2020 00:00	21/08/2020 08:00	Reboot
	30/08/2020 04:19	31/08/2020 03:30	SA movement : from 30 to 0 degrees

Offset



The reboot on the 19 August had a significant impact on the OBS offsets, particularly in the Y axis (jump from -5.8 to -20.7nT). There was a slight and gradual recovery in this offset in OBS in the period from 19 August – 30 August. This has been modelled as a linear trend. There was also a slight linear trend observed in the X axis for the same period.

The SA movement on 01 August and 31 August also had an impact on the offset, more significantly on IBS.

These offsets have been quantified and removed from the L2 data.

Offset	Date	OBSX	OBSY	OBSZ	IBSX	IBSY	IBSZ	
33	29/06/2020 18:56	1.13	-5.92	-4.45	-49.55	85.02	15.79	Constant OBS and IBS until 1 Aug
33	01/08/2020 14:40	1.13	-5.92	-4.45	-49.55	85.02	15.79	SA movement
44	01/08/2020 14:40	1.13	-5.82	-4.45	-48.25	83.92	16.39	After SA movement
44	14/08/2020 00:00	1.13	-5.82	-4.45	-48.25	83.92	16.39	Instrument power off, SC FDIR
45	19/08/2020 00:00	-6.94	-20.66	-5.84	-49.63	84.37	14.89	Instrument power on
46	30/08/2020 04:19	-7.04	-19.46	-5.84	-49.63	84.37	14.89	SA movement
47	30/08/2020 04:19	-7.24	-19.26	-5.74	-49.63	84.27	13.89	After SA MOVEMENT