Imperial College London

MAG Data Release Report 2011

25 February 2020 (report covers data release for 1-30 Nov)

Report Version	3	L2 ground processing software version:	1.15
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Data Summary

MAG was on for the whole month. Data released has some exceptions:

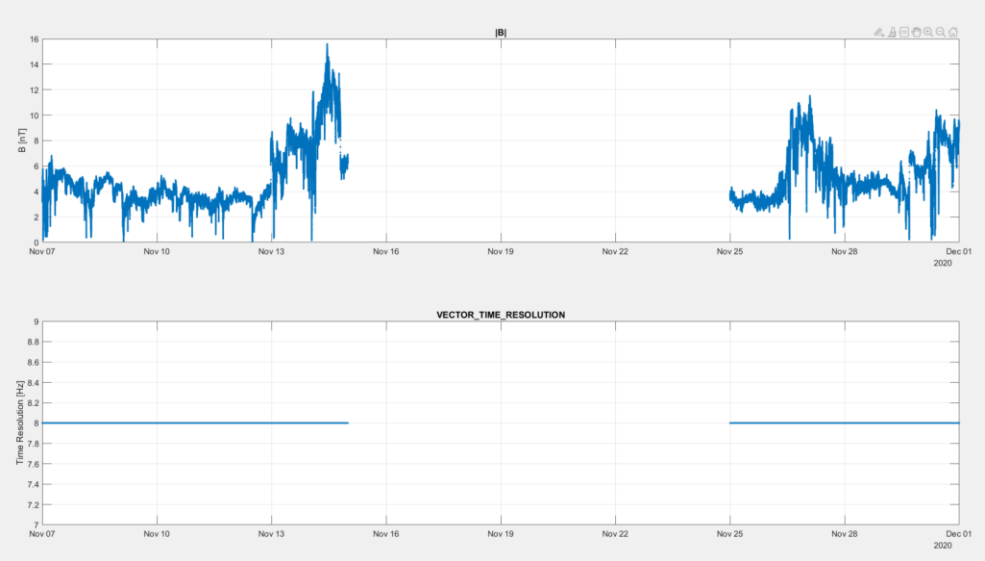
1-6 November are characterized by some MAG and SC events:

- 2/11 Change of MAG heater set points
- 3/11 Solar Arrays Lubrication
- 4/11 De Icing slew
- 5/11 MAG reboot

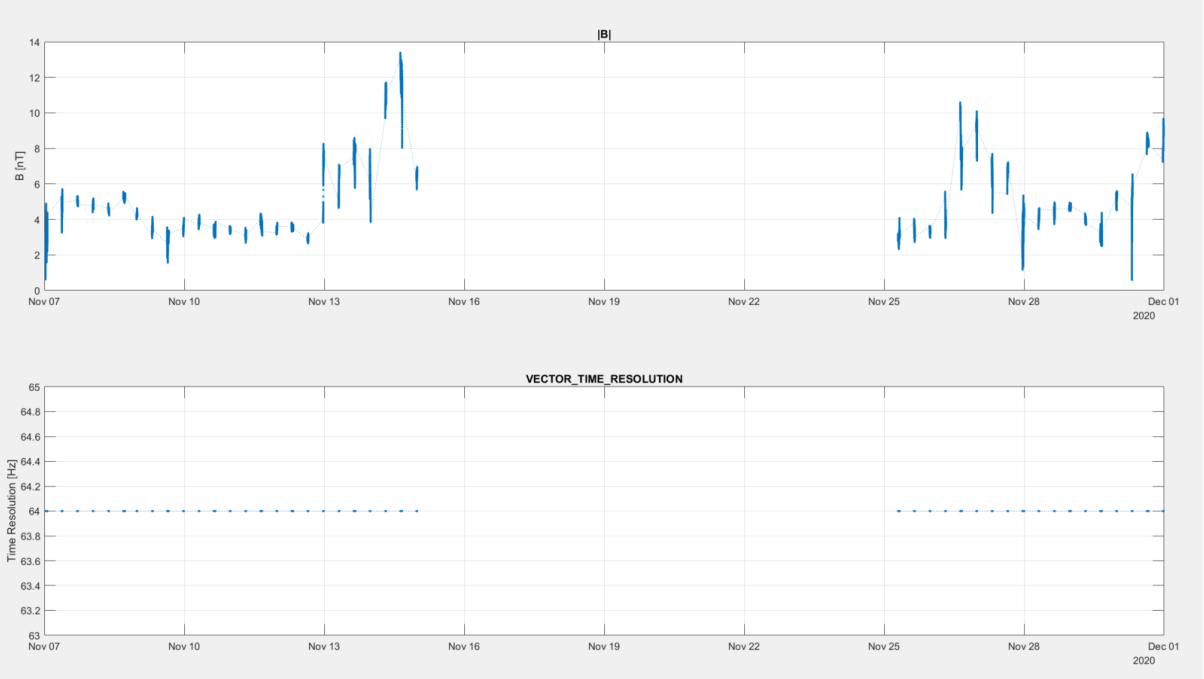
These features have impacted the sensor offsets and algorithms to remove the contaminations and therefore data from 1-5 Nov will not be released. If some parts of this period are of interest, please contact the MAG team to discuss release possibilities.

15– 24 November: There was a remote sensing checkout window and subsequent SPROUT operations. These operations are responsible for interference in the data. For this reason, further investigation is needed and MAG intends to do further work on this data prior to release.

The spacecraft started November at 0.97AU and ended November at 0.87AU.

Normal Mode			
			
For whole month, MAG was on with 8Hz cadence normal mode data returned, for exceptions see below.			
Operations	1-30 Nov	Cruise phase throughout month	
Operational Events of Note	15-23 Nov	RSCW	
Data Gaps	From	To	Duration
	11/11/2020 13:31:51	11/11/2020 13:32:07	16 seconds

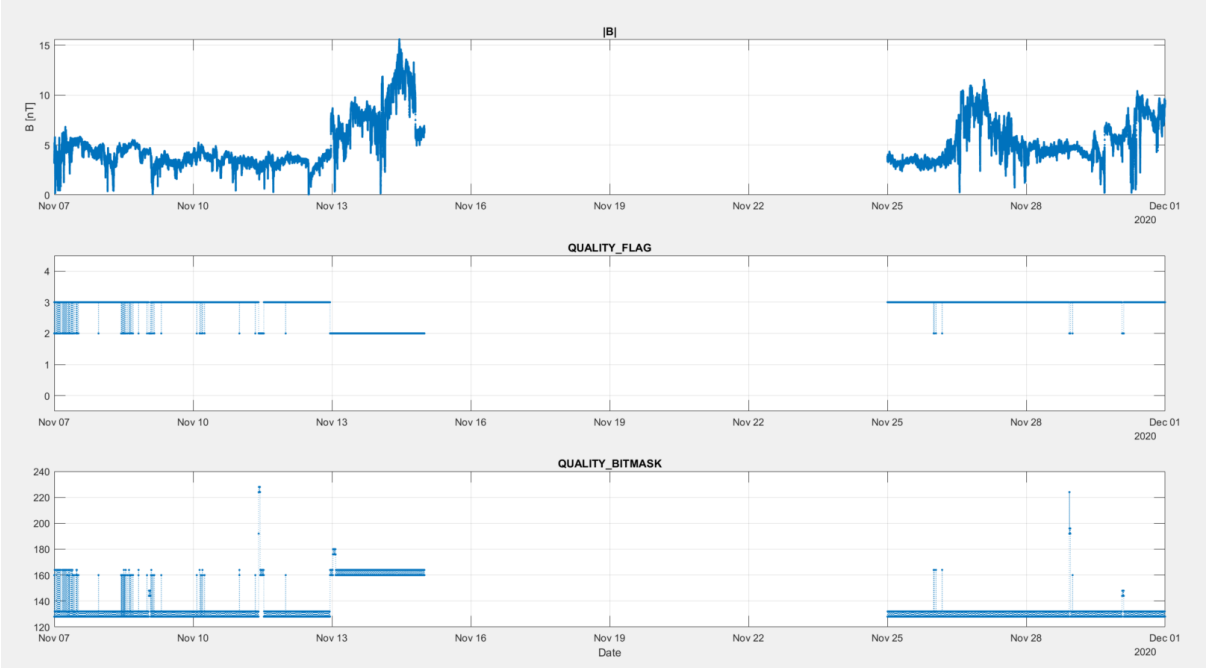
Burst Mode



Coverage is not continuous. Data, where available, at 64 Hz and 128 Hz cadence.

	From	To	
Coverage	7/11	15/11	• 1hr of B64 to fill the co-ordinated burst window for each day (if one is scheduled) • 2/3 x 30 mins of B64 centred at the mid-point of the other EMC quiet windows.
	16/11	22/11	24 hours per day 128 Hz – not yet released
	23/11	30/11	• 1hr of B64 to fill the co-ordinated burst window for each day (if one is scheduled) • 2 x 30 mins of B64 centred at the mid-point of the other EMC quiet windows.

Quality bitmask



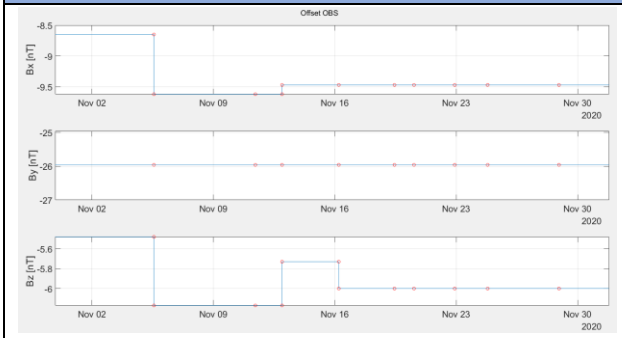
Quality bit mask events

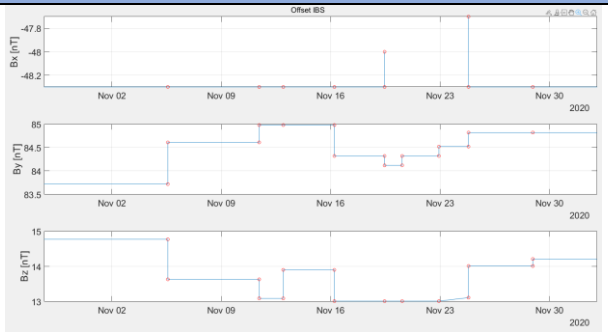
SC events which disturb the field	1. Thruster firings 2. Solar array lubrications (solar array is moved 15 degrees, then returned to original position) 3. Solar array movements (solar array angle is changed, and then remains at new angle due to sun-SC distance thermal constraints) 4. High gain antenna movements

SC related issues

StartTime	EndTime	Comment
11/11/2020 10:00	11/11/2020 12:40	Solar arrays characterization
12/11/2020 23:00	13/11/2020 02:50	High Gain Antenna movement
16/11/2020 05:30	16/11/2020 07:30	High Gain Antenna movement
24/11/2020 19:28	25/11/2020 00:00	Solar arrays movement: from 0 to 30 degrees
12/11/2020 23:00	16/11/2020 05:30	High gain antenna: offset disturbance in x
15/11/2020 09:45	24/11/2020 00:05	RSCW
22/11/2020 00:00	23/11/2020 00:00	Remote sensing Sprout Activities

Offset





7-30 Nov:
OBS offset was changed by instrument reboot, and HGA position changes. IBS offset is more variable as it is more influenced by the SC events: solar arrays and HGA movements, instruments operations (RSCW and SPROUT). These offsets have been quantified and removed from the L2 data.

Offset	Date	OBSX	OBSY	OBSZ	IBSX	IBSY	IBSZ	
63	05/11/2020 13:40	-8.65	-25.96	-5.48	-48.3	83.72	14.77	Pre Reboot
68	05/11/2020 13:40	-9.62	-25.96	-6.17	-48.3	84.61	13.63	Post reboot
68	11/11/2020 10:00	-9.62	-25.96	-6.17	-48.3	84.61	13.63	Pre Solar Array Characterization
69	11/11/2020 10:00	-9.62	-25.96	-6.17	-48.3	84.98	13.09	Post Solar Array Characterization
69	12/11/2020 23:00	-9.62	-25.96	-6.17	-48.3	84.98	13.09	Pre HGA movement between 2257-2312hrs
70	12/11/2020 23:00	-9.47	-25.96	-5.73	-48.3	84.98	13.9	Post HGA movement
70	16/11/2020 05:30	-9.47	-25.96	-5.73	-48.3	84.98	13.9	Pre HGA movement reversed between 0522-0537hrs
71	16/11/2020 05:30	-9.47	-25.96	-6	-48.3	84.32	13.01	Post HGA movement
71	19/11/2020 10:34	-9.47	-25.96	-6	-48.3	84.32	13.01	Pre SC event 1
72	19/11/2020 10:35	-9.47	-25.96	-6	-48	84.12	13.01	Post SC event 1
73	20/11/2020 13:34	-9.47	-25.96	-6		84.12	13.01	Pre SC event 2
74	20/11/2020 13:35	-9.47	-25.96	-6		84.32	13.01	Post SC event 2
75	22/11/2020 21:59	-9.47	-25.96	-6		84.32	13.01	Pre SC event 3
76	22/11/2020 22:00	-9.47	-25.96	-6		84.52	13.01	Post SC event 3
77	24/11/2020 19:30	-9.47	-25.96	-6	-47.7	84.52	13.11	Pre SA movement: from 0 to 30 degrees
78	24/11/2020 19:30	-9.47	-25.96	-6	-48.3	84.82	14.01	Post SA movement
78	28/11/2020 22:15	-9.47	-25.96	-6	-48.3	84.82	14.01	Pre SA lubrication
79	28/11/2020 22:15	-9.47	-25.96	-6	-48.3	84.82	14.21	Post SA lubrication

79	24/12/2020 19:30	-9.47	-25.96	-6	-48.3	84.82	14.21	Final offset