

# IMPERIAL MAG Data Release Report 2406



26 September 2024 (report covers data release for 1 June– 30 June 2024)

Report Version	1	L2 ground processing software version:	V2.27
MAG PI	Tim Horbury <a href="mailto:t.horbury@imperial.ac.uk">t.horbury@imperial.ac.uk</a>		
MAG IM	Helen O'Brien <a href="mailto:h.obrien@imperial.ac.uk">h.obrien@imperial.ac.uk</a>		
Report prepared by	Jean Morris <a href="mailto:j.morris23@imperial.ac.uk">j.morris23@imperial.ac.uk</a>		

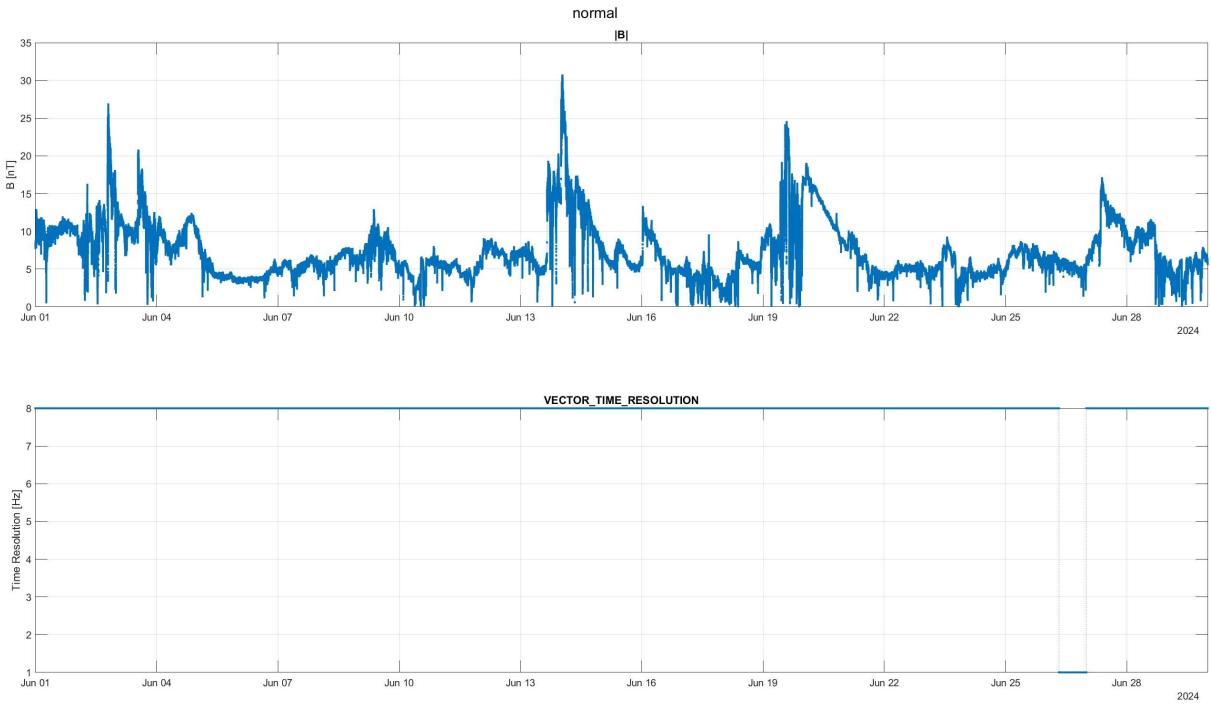
## Data Summary

MAG was powered on for June. Burst Mode (BM) was available at 64 vectors/s for 4 hours per day between 1-26 May, and then at 64 vectors/s for 24 hours per day for the remainder of the month.

Occasionally, we will observe interference from the spacecraft of unknown origin in our data. For June, between 23-30/06, there was a regular interference signal (occurring at the same period of the heaters, although with a high frequency element with an irregular period) in our IBS sensor. This was not present in the OBS sensor; therefore, we have released the data with a data quality flag of 2. Please see the section below about Spacecraft Interference for more information.

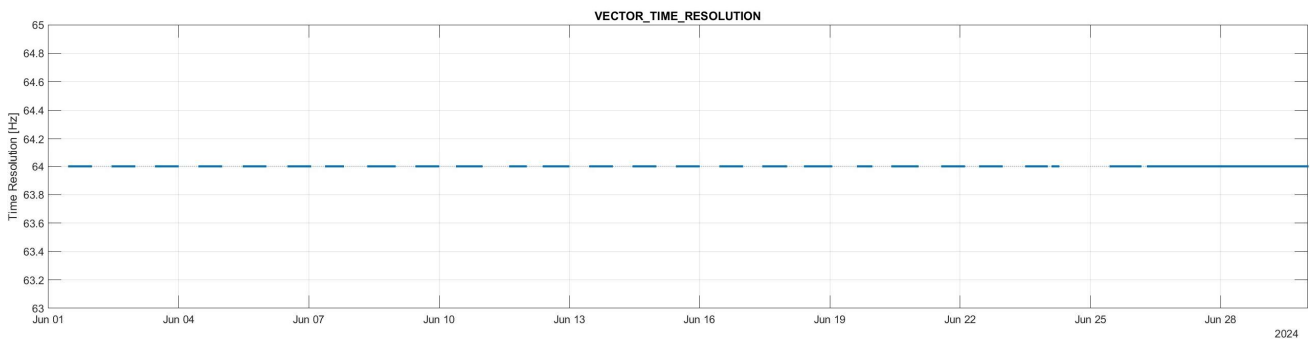
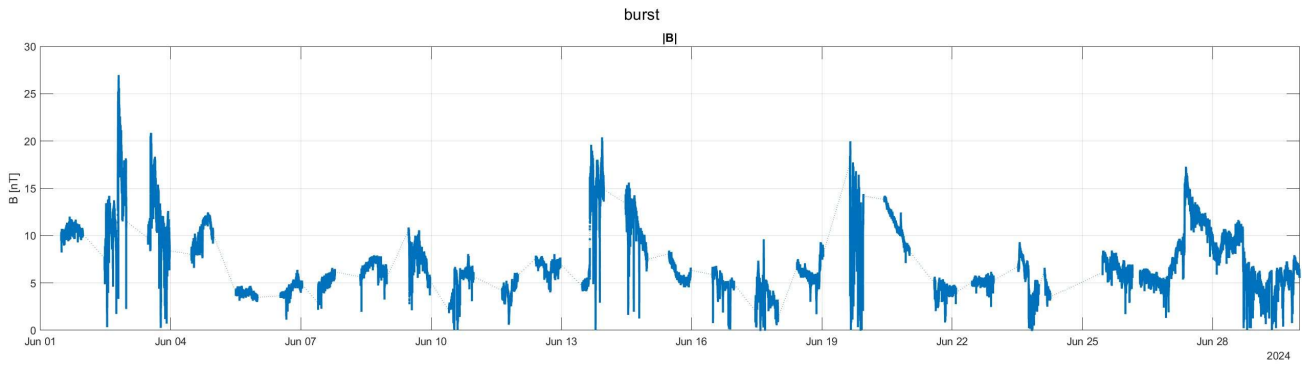
The spacecraft started the month at 0.86AU on the 1st of June and at the end of the month it was at 0.95AU.

Normal Mode



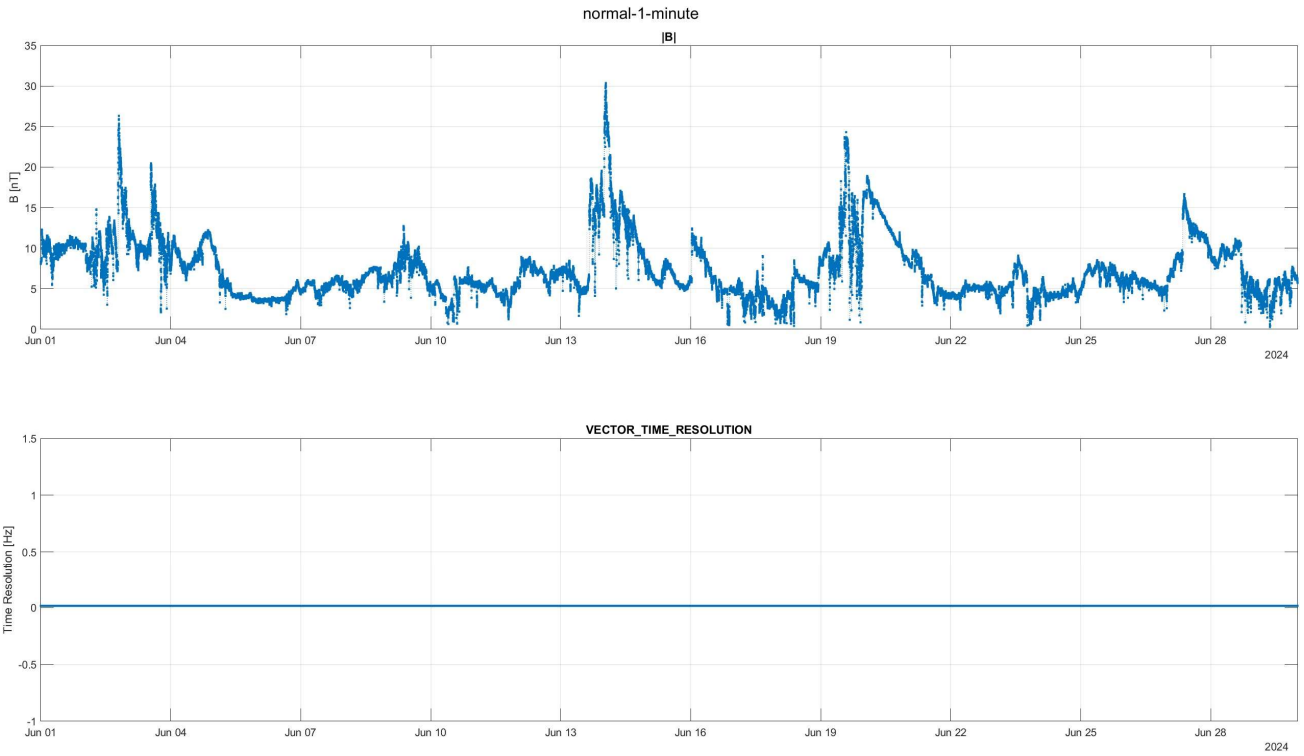
Operations	1 June – 30 June	Science phase throughout period, normal data produced.
Operational Events of Note		

## Burst Mode

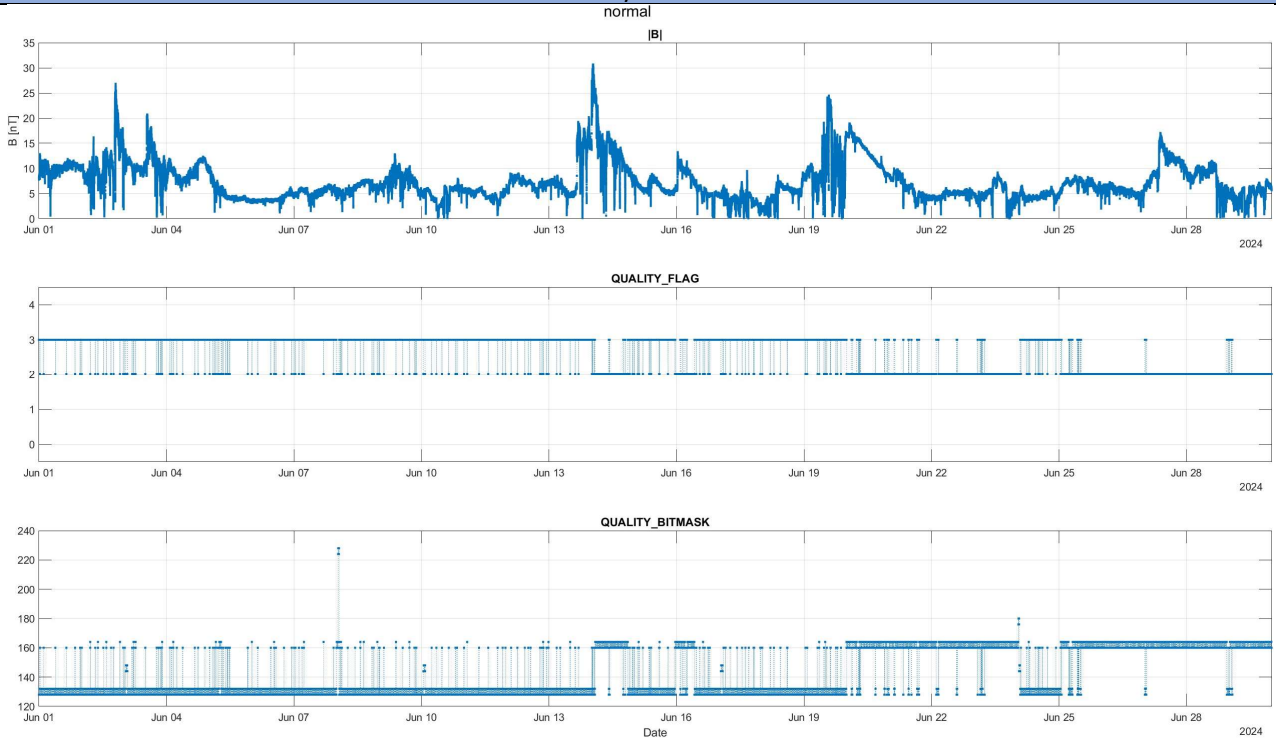


Coverage	From	To	Coverage
	01/06	26/06	4h per day of 64 vectors/s
	26/06	30/06	24h per day of 64 vectors/s

Normal – 1min



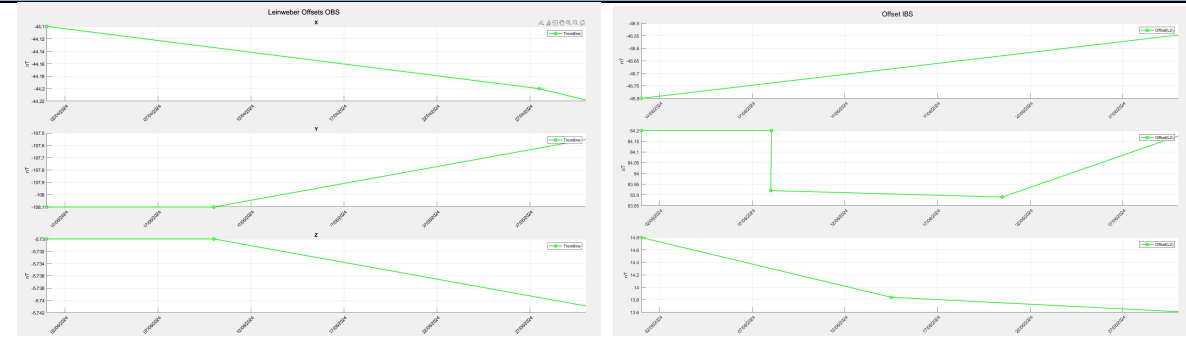
## Quality bitmask



### Quality bit mask events

SC events which disturb the field	<ol style="list-style-type: none"> <li>1. Solar array movements (solar array angle is changed, and then remains at new angle due to sun-SC distance thermal constraints)</li> <li>2. High gain antenna movements</li> <li>3. Battery Top Up</li> </ol>		
SC related issues	StartTime	EndTime	Comment
	22/06/2024 05:25	22/06/2024 06:25	Battery top up event interference affecting IBS
	23/06/2024 06:00	24/06/2024 01:00	SC interference affecting IBS sensor
	25/06/2024 21:53	26/06/2024 10:19	SC interference affecting IBS sensor
	27/06/2024 07:29	28/06/2024 05:25	SC interference affecting IBS sensor
	28/06/2024 10:20	28/06/2024 21:18	SC interference affecting IBS sensor
	29/06/2024 04:20	30/06/2024 04:53	SC interference affecting IBS sensor
	30/06/2024 11:57	30/06/2024 23:57	SC interference affecting IBS sensor

## Offsets



### 1 June – 30 June

The OBS offsets remained stable throughout the month, changing by a maximum of +/- 0.1nT in the X and Z axes. The OBS Y offset displayed the expected recovery behaviour, increasing by 0.7nT as has previously been observed. The IBS offsets were primarily disturbed by the solar array event on the 8<sup>th</sup>.

OffsetNumber	Date	OBSX	OBSY	OBSZ	IBSX	IBSY	IBSZ	Comment
220991	01/06/2024 00:00	-44.1	-108.1	-5.73	-48.8	84.2	14.8	Start of month offsets
220993	08/06/2024 00:55					84.2		IBS offset change SA event
220994	08/06/2024 00:01					83.92		IBS offset change SA event
220995	10/06/2024 00:00		-108.1	-5.73				OBS trend
220996	14/06/2024 12:00						13.84	IBS Z trend
220997	20/06/2024 12:00					83.89		IBS Y trend
220998	27/06/2024 12:00	-44.2						OBS X trend
220999	30/06/2024 12:00		-107.5			84.19		IBS Y trend
221000	01/07/2024 00:00	-44.2	-107.4	-5.74	-48.5	83.91	13.59	End of month offsets

## Spacecraft Interference

At a period of approximately ~15mins we have observed an interference signal in our IBS data (see Figure 1) that is not present in the OBS data.

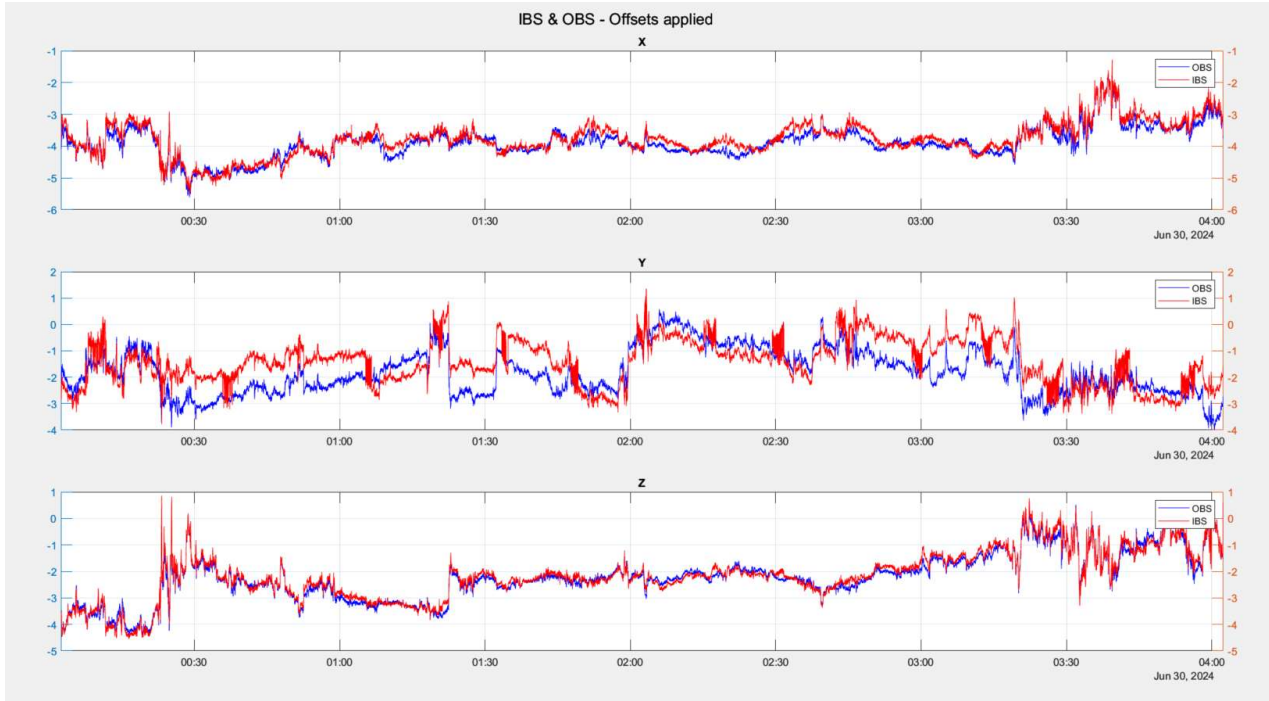


Figure 1 - IBS & OBS signal

We have also produced a spectrogram of the IBS and OBS data, to evaluate whether this signal was present in the OBS data, see Figure 2 and Figure 3. From these figures, we can conclude this signal is only present in the IBS data and therefore we have released the data.

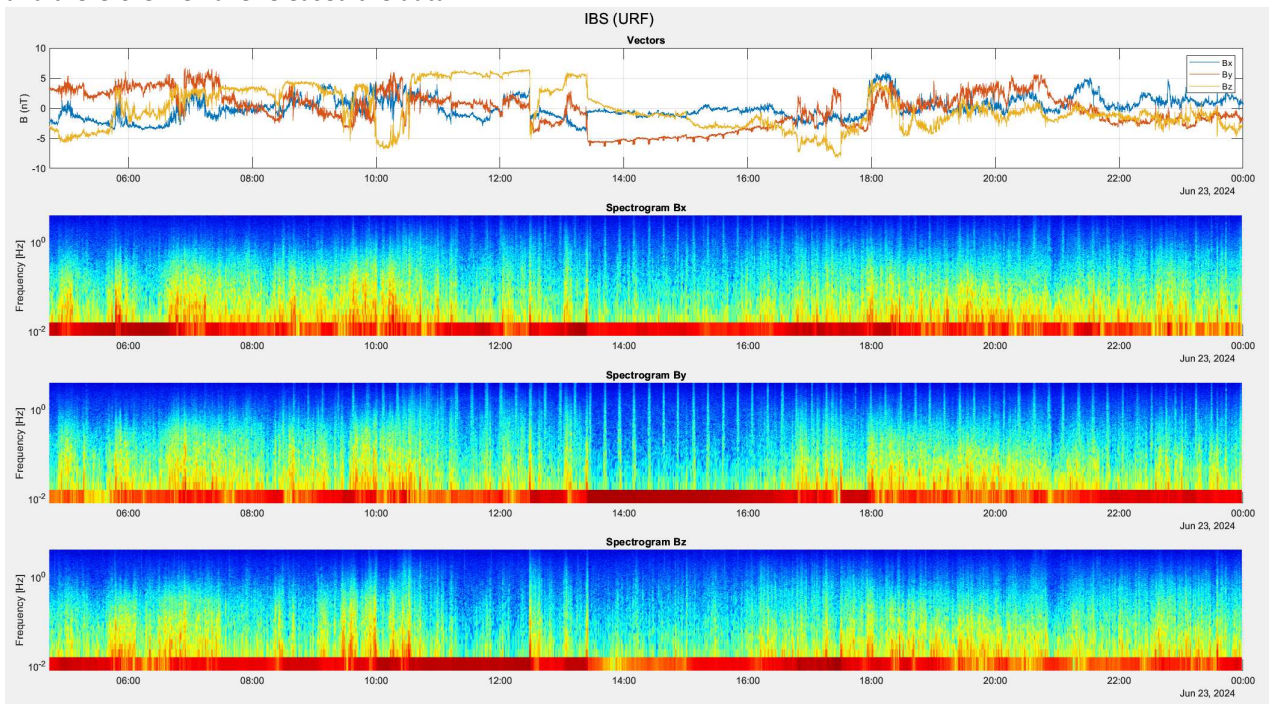
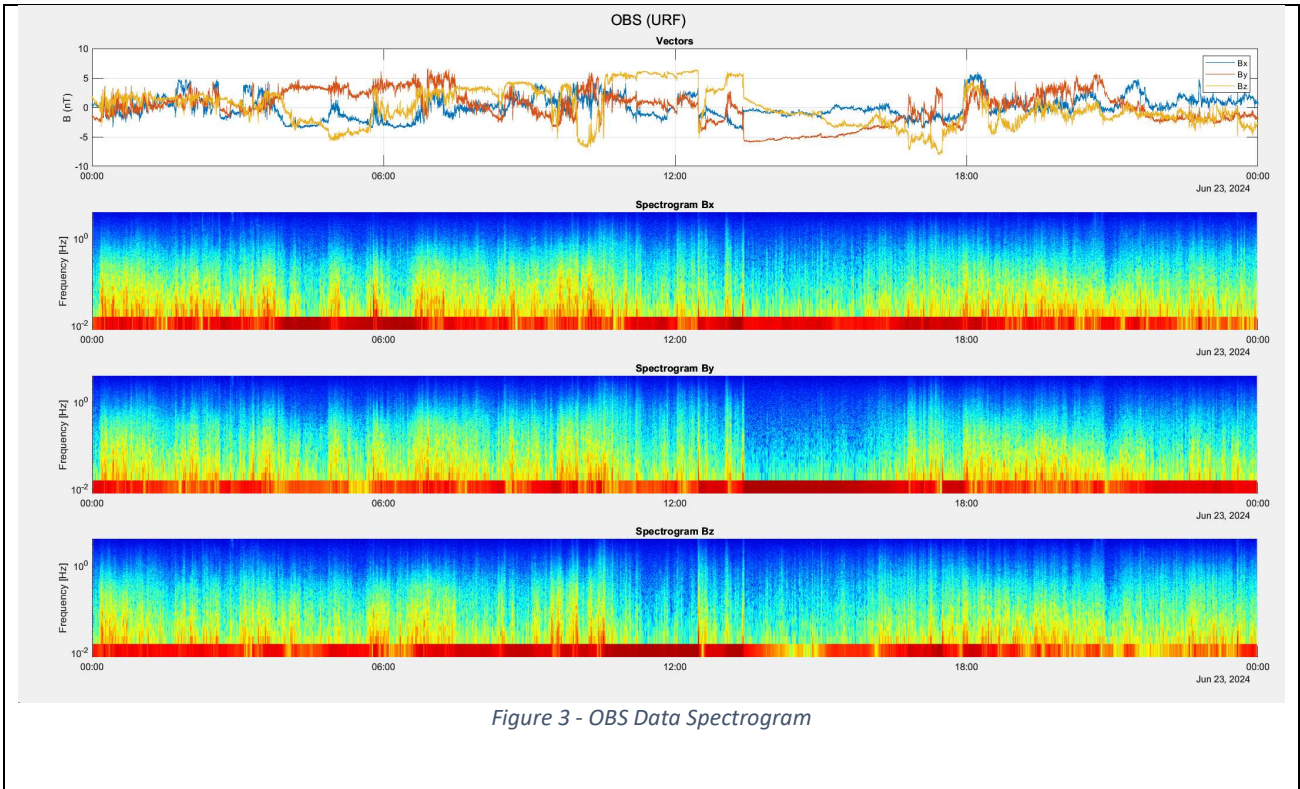


Figure 2 - IBS Data Spectrogram



## Appendix

Appendix A: Files within this release

Filename
solo_L2_mag-rtn-burst_20240601_V01.cdf
solo_L2_mag-rtn-burst_20240602_V01.cdf
solo_L2_mag-rtn-burst_20240603_V01.cdf
solo_L2_mag-rtn-burst_20240604_V01.cdf
solo_L2_mag-rtn-burst_20240605_V01.cdf
solo_L2_mag-rtn-burst_20240606_V01.cdf
solo_L2_mag-rtn-burst_20240607_V01.cdf
solo_L2_mag-rtn-burst_20240608_V01.cdf
solo_L2_mag-rtn-burst_20240609_V01.cdf
solo_L2_mag-rtn-burst_20240610_V01.cdf
solo_L2_mag-rtn-burst_20240611_V01.cdf
solo_L2_mag-rtn-burst_20240612_V01.cdf
solo_L2_mag-rtn-burst_20240613_V01.cdf
solo_L2_mag-rtn-burst_20240614_V01.cdf
solo_L2_mag-rtn-burst_20240615_V01.cdf
solo_L2_mag-rtn-burst_20240616_V01.cdf
solo_L2_mag-rtn-burst_20240617_V01.cdf
solo_L2_mag-rtn-burst_20240618_V01.cdf



solo_L2_mag-rtn-burst_20240619_V01.cdf
solo_L2_mag-rtn-burst_20240620_V01.cdf
solo_L2_mag-rtn-burst_20240621_V01.cdf
solo_L2_mag-rtn-burst_20240622_V01.cdf
solo_L2_mag-rtn-burst_20240623_V01.cdf
solo_L2_mag-rtn-burst_20240624_V01.cdf
solo_L2_mag-rtn-burst_20240625_V01.cdf
solo_L2_mag-rtn-burst_20240626_V01.cdf
solo_L2_mag-rtn-burst_20240627_V01.cdf
solo_L2_mag-rtn-burst_20240628_V01.cdf
solo_L2_mag-rtn-burst_20240629_V01.cdf
solo_L2_mag-rtn-burst_20240630_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240601_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240602_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240603_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240604_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240605_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240606_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240607_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240608_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240609_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240610_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240611_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240612_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240613_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240614_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240615_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240616_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240617_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240618_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240619_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240620_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240621_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240622_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240623_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240624_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240625_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240626_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240627_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240628_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240629_V01.cdf
solo_L2_mag-rtn-normal-1-minute_20240630_V01.cdf
solo_L2_mag-rtn-normal_20240601_V01.cdf
solo_L2_mag-rtn-normal_20240602_V01.cdf
solo_L2_mag-rtn-normal_20240603_V01.cdf
solo_L2_mag-rtn-normal_20240604_V01.cdf

solo_L2_mag-rtn-normal_20240605_V01.cdf
solo_L2_mag-rtn-normal_20240606_V01.cdf
solo_L2_mag-rtn-normal_20240607_V01.cdf
solo_L2_mag-rtn-normal_20240608_V01.cdf
solo_L2_mag-rtn-normal_20240609_V01.cdf
solo_L2_mag-rtn-normal_20240610_V01.cdf
solo_L2_mag-rtn-normal_20240611_V01.cdf
solo_L2_mag-rtn-normal_20240612_V01.cdf
solo_L2_mag-rtn-normal_20240613_V01.cdf
solo_L2_mag-rtn-normal_20240614_V01.cdf
solo_L2_mag-rtn-normal_20240615_V01.cdf
solo_L2_mag-rtn-normal_20240616_V01.cdf
solo_L2_mag-rtn-normal_20240617_V01.cdf
solo_L2_mag-rtn-normal_20240618_V01.cdf
solo_L2_mag-rtn-normal_20240619_V01.cdf
solo_L2_mag-rtn-normal_20240620_V01.cdf
solo_L2_mag-rtn-normal_20240621_V01.cdf
solo_L2_mag-rtn-normal_20240622_V01.cdf
solo_L2_mag-rtn-normal_20240623_V01.cdf
solo_L2_mag-rtn-normal_20240624_V01.cdf
solo_L2_mag-rtn-normal_20240625_V01.cdf
solo_L2_mag-rtn-normal_20240626_V01.cdf
solo_L2_mag-rtn-normal_20240627_V01.cdf
solo_L2_mag-rtn-normal_20240628_V01.cdf
solo_L2_mag-rtn-normal_20240629_V01.cdf
solo_L2_mag-rtn-normal_20240630_V01.cdf
solo_L2_mag-srf-burst_20240601_V01.cdf
solo_L2_mag-srf-burst_20240602_V01.cdf
solo_L2_mag-srf-burst_20240603_V01.cdf
solo_L2_mag-srf-burst_20240604_V01.cdf
solo_L2_mag-srf-burst_20240605_V01.cdf
solo_L2_mag-srf-burst_20240606_V01.cdf
solo_L2_mag-srf-burst_20240607_V01.cdf
solo_L2_mag-srf-burst_20240608_V01.cdf
solo_L2_mag-srf-burst_20240609_V01.cdf
solo_L2_mag-srf-burst_20240610_V01.cdf
solo_L2_mag-srf-burst_20240611_V01.cdf
solo_L2_mag-srf-burst_20240612_V01.cdf
solo_L2_mag-srf-burst_20240613_V01.cdf
solo_L2_mag-srf-burst_20240614_V01.cdf
solo_L2_mag-srf-burst_20240615_V01.cdf
solo_L2_mag-srf-burst_20240616_V01.cdf
solo_L2_mag-srf-burst_20240617_V01.cdf
solo_L2_mag-srf-burst_20240618_V01.cdf
solo_L2_mag-srf-burst_20240619_V01.cdf
solo_L2_mag-srf-burst_20240620_V01.cdf

solo_L2_mag-srf-burst_20240621_V01.cdf
solo_L2_mag-srf-burst_20240622_V01.cdf
solo_L2_mag-srf-burst_20240623_V01.cdf
solo_L2_mag-srf-burst_20240624_V01.cdf
solo_L2_mag-srf-burst_20240625_V01.cdf
solo_L2_mag-srf-burst_20240626_V01.cdf
solo_L2_mag-srf-burst_20240627_V01.cdf
solo_L2_mag-srf-burst_20240628_V01.cdf
solo_L2_mag-srf-burst_20240629_V01.cdf
solo_L2_mag-srf-burst_20240630_V01.cdf
solo_L2_mag-srf-normal_20240601_V01.cdf
solo_L2_mag-srf-normal_20240602_V01.cdf
solo_L2_mag-srf-normal_20240603_V01.cdf
solo_L2_mag-srf-normal_20240604_V01.cdf
solo_L2_mag-srf-normal_20240605_V01.cdf
solo_L2_mag-srf-normal_20240606_V01.cdf
solo_L2_mag-srf-normal_20240607_V01.cdf
solo_L2_mag-srf-normal_20240608_V01.cdf
solo_L2_mag-srf-normal_20240609_V01.cdf
solo_L2_mag-srf-normal_20240610_V01.cdf
solo_L2_mag-srf-normal_20240611_V01.cdf
solo_L2_mag-srf-normal_20240612_V01.cdf
solo_L2_mag-srf-normal_20240613_V01.cdf
solo_L2_mag-srf-normal_20240614_V01.cdf
solo_L2_mag-srf-normal_20240615_V01.cdf
solo_L2_mag-srf-normal_20240616_V01.cdf
solo_L2_mag-srf-normal_20240617_V01.cdf
solo_L2_mag-srf-normal_20240618_V01.cdf
solo_L2_mag-srf-normal_20240619_V01.cdf
solo_L2_mag-srf-normal_20240620_V01.cdf
solo_L2_mag-srf-normal_20240621_V01.cdf
solo_L2_mag-srf-normal_20240622_V01.cdf
solo_L2_mag-srf-normal_20240623_V01.cdf
solo_L2_mag-srf-normal_20240624_V01.cdf
solo_L2_mag-srf-normal_20240625_V01.cdf
solo_L2_mag-srf-normal_20240626_V01.cdf
solo_L2_mag-srf-normal_20240627_V01.cdf
solo_L2_mag-srf-normal_20240628_V01.cdf
solo_L2_mag-srf-normal_20240629_V01.cdf
solo_L2_mag-srf-normal_20240630_V01.cdf