

IASI L0 and L1 Daily Monitoring Report **Metop-C**

IASI monitoring team

07/10/2023 00:00:00 - 08/10/2023 00:00:00

1 Introduction

This report provides summary monitoring plots and figures from IASI instrument on the Metop-C satellite retrieved from the IASI L0 and L1 ENG product (3 minutes data packet) for 07/10/2023 00:00:00 - 08/10/2023 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 07/10/2023 00:00:00 - 08/10/2023 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	480	-
L0 IASI PDUs	480	-
L1 ENG PDUs	479	-
L1 ENG distinct GEPSGranule	478	-
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	479	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	14188	14567	20231007195426.965	20231007195607.070
PX1 (130)	6737	6741	20231007203407.950	20231007203410.328
PX1 (130)	6757	8238	20231007203413.786	20231007204049.668
PX2 (135)	14188	14567	20231007195426.965	20231007195607.070
PX2 (135)	6737	6740	20231007203407.950	20231007203410.110
PX2 (135)	6757	8238	20231007203413.786	20231007204049.668
PX3 (140)	14188	14566	20231007195426.965	20231007195606.855
PX3 (140)	6737	6740	20231007203407.950	20231007203410.110
PX3 (140)	6757	8238	20231007203413.786	20231007204049.668
PX4 (145)	14188	14566	20231007195426.965	20231007195606.855
PX4 (145)	6737	6740	20231007203407.950	20231007203410.110
PX4 (145)	6756	8238	20231007203413.571	20231007204049.668
IMG (150)	16316	358	20231007195426.965	20231007195606.855
IMG (150)	10053	10060	20231007203407.950	20231007203410.110
IMG (150)	10076	11758	20231007203413.571	20231007204049.668
VER (160)	16382	0	20231007040808.022	20231007040816.022
VER (160)	3	16383	20231007040816.022	20231007040816.022
VER (160)	-1	4	20231007040816.022	20231007040824.022
VER (160)	16379	0	20231007184151.940	20231007184159.940

Continued on next page

Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	0	16380	20231007184159.940	20231007184159.940
VER (160)	-1	1	20231007184159.940	20231007184207.940
VER (160)	2715	2776	20231007195423.938	20231007195607.933
VER (160)	4202	4456	20231007203407.950	20231007204055.937
AUX (180)	531	544	20231007195424.371	20231007195608.367
AUX (180)	828	880	20231007203400.383	20231007204056.371

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
07/10/2023 00:00:10	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	480	-
L1 ENG PDUs	479	-
L1 ENG distinct GEPSGranule	478	-
GQisFlagQual set (PX1)	99.58 %	-
GQisFlagQual set (PX2)	99.61 %	-
GQisFlagQual set (PX3)	99.62 %	-
GQisFlagQual set (PX4)	99.56 %	-
GQisFlagQual set (all)	99.59 %	-

Table 4: Quality flags

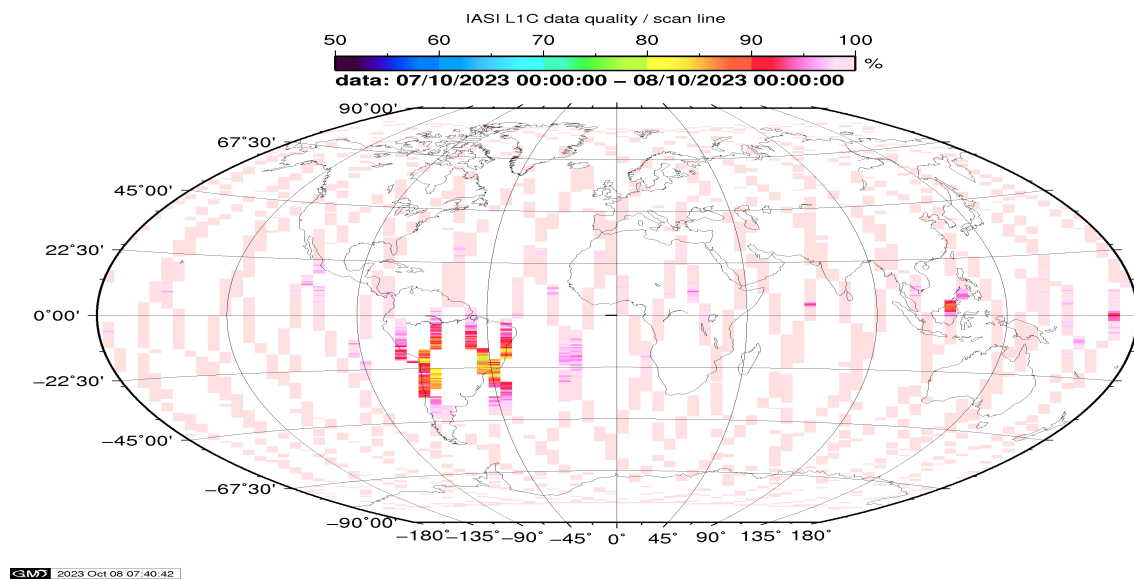


Figure 1: L1C data quality

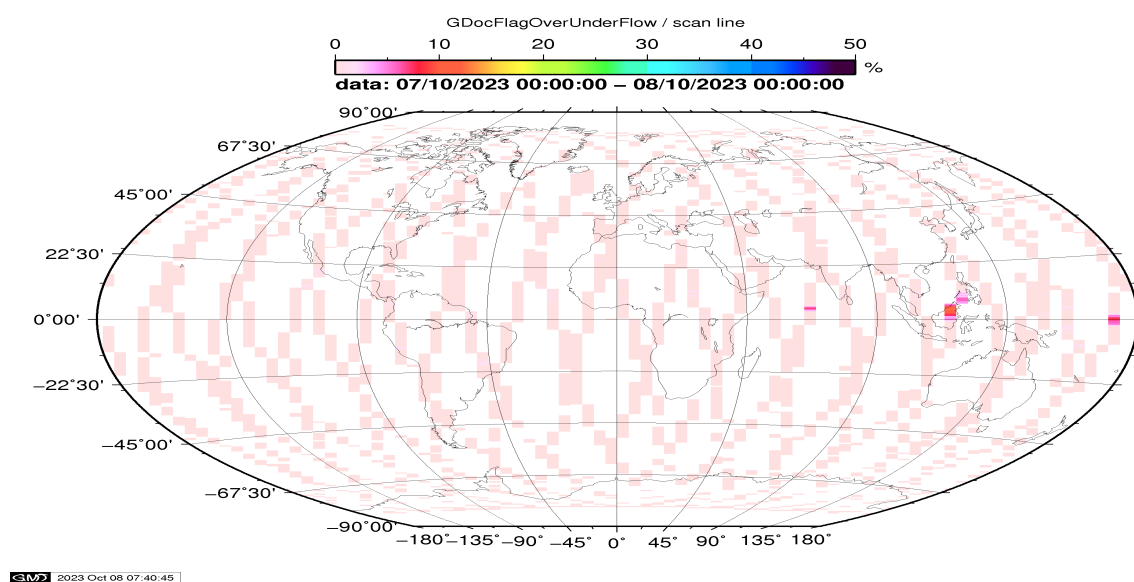


Figure 2: Flag of Over and Under Flows

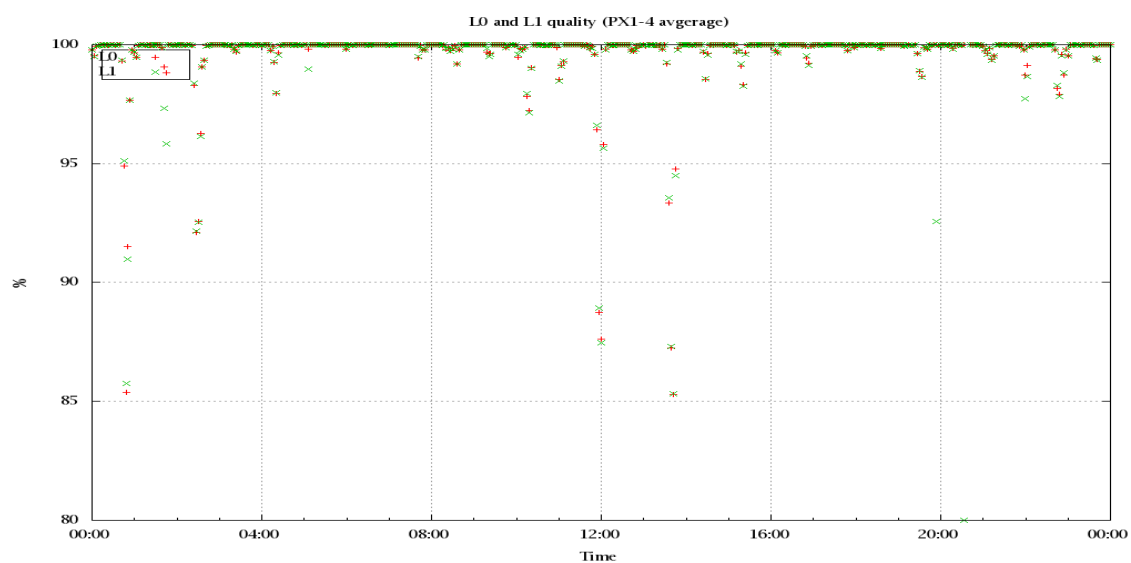


Figure 3: Level 0 and 1C overall quality

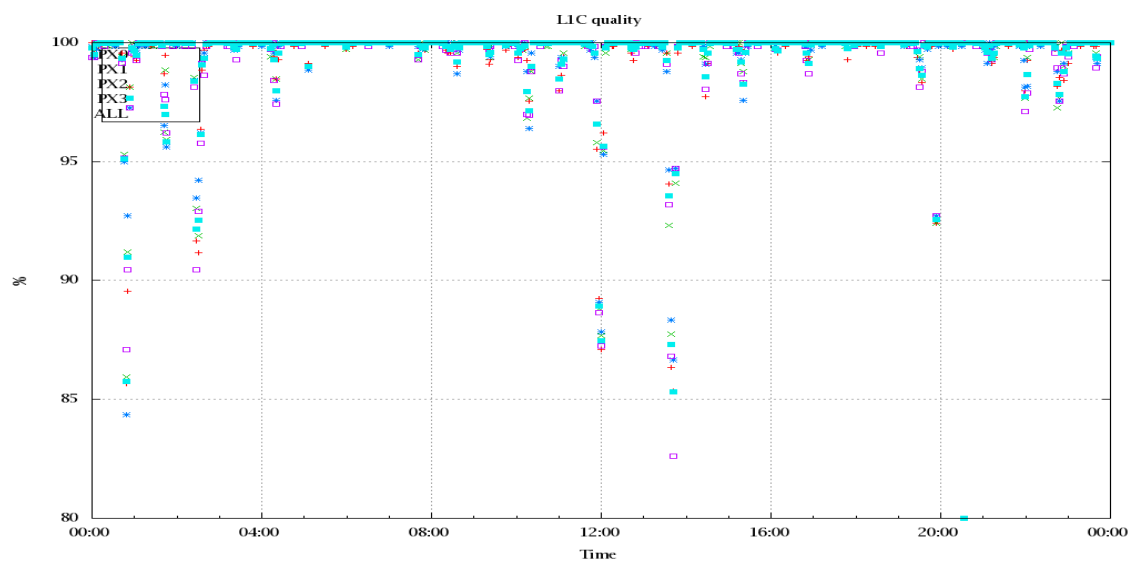


Figure 4: Level 1C quality

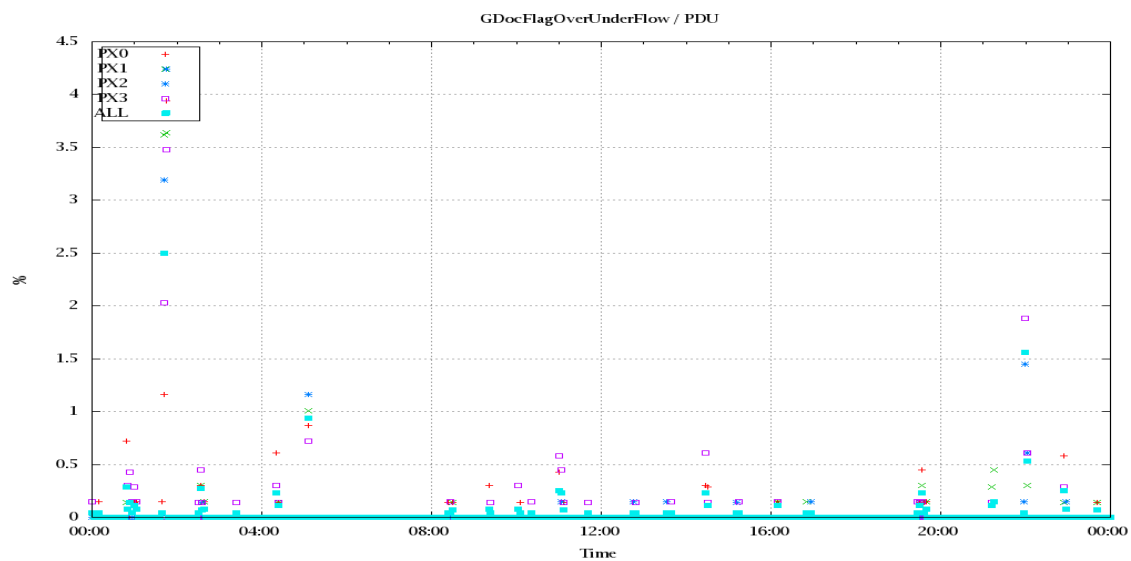


Figure 5: Timeseries of flag of Over and Under Flows

5 Radiance monitoring based on NWP

The radiance monitoring compares the IASI measurements (L1C-eps-products) obtained under clear sky situation over sea with modeled radiances. Cloud identification is based on cloud flag of co-located AVHRR L1B data in addition to information from the IASI L1C clustering analysis here only homogenous situations are taken into account (99.0 percent in first class).

A radiative transfer model (RTM) is feed with co-located ECMWF profiles of T, water vapor and Ozone. Between March 2007 and the 18th of May 2010 RTIASI in Version 4.0 is used. After that date the RTTOV model in V9.3 is used.

Information about the SST is obtained from the AVHRR L1B or taken from AVHRR scenes analysis (CGS only). In the following figures 28 to 34, the so-called radiance anomaly is shown. The radiance anomaly is defined as the difference between the quarter daily radiance average OBS-CAL (over all pixels and scan positions 10 to 20) and the average bias OBS-CAL (over all pixels and scan positions 10 to 20) of the last 30 days.

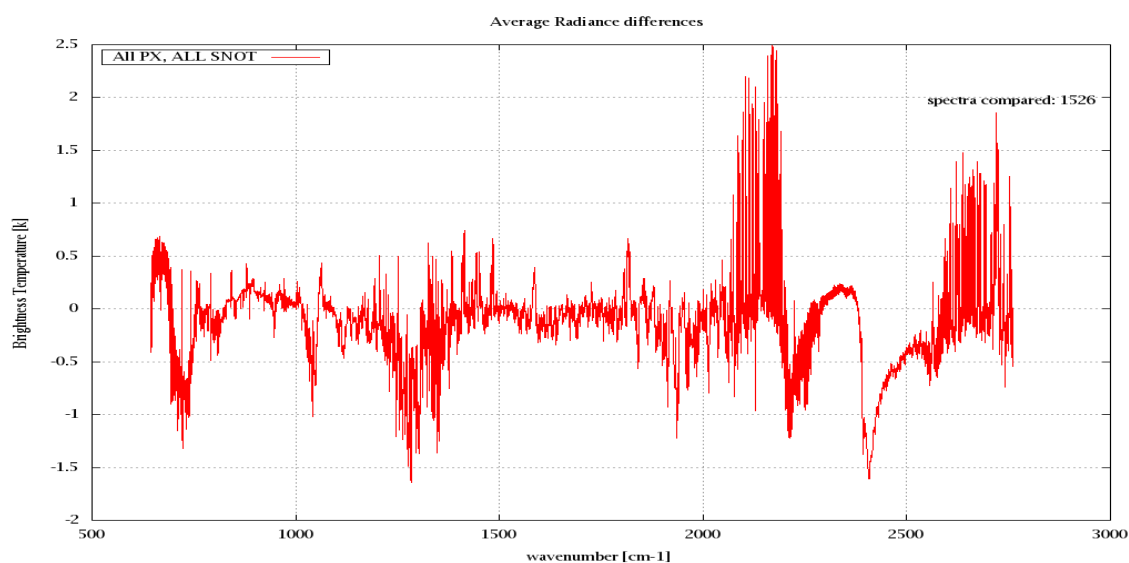


Figure 6: Average Radiance differences: OBS-CAL

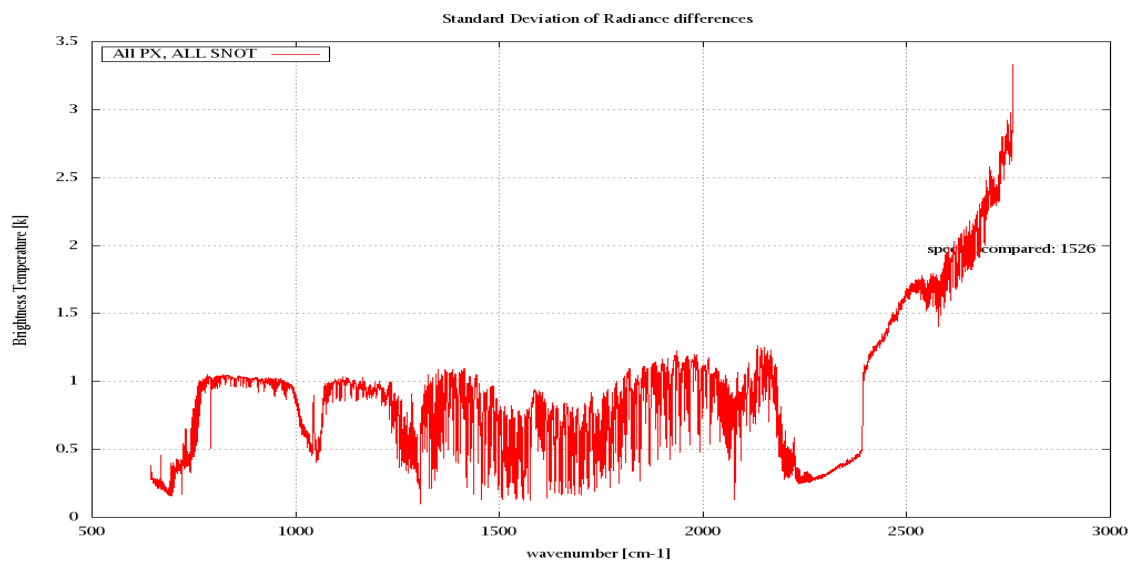


Figure 7: Standard Deviation of Radiance differences

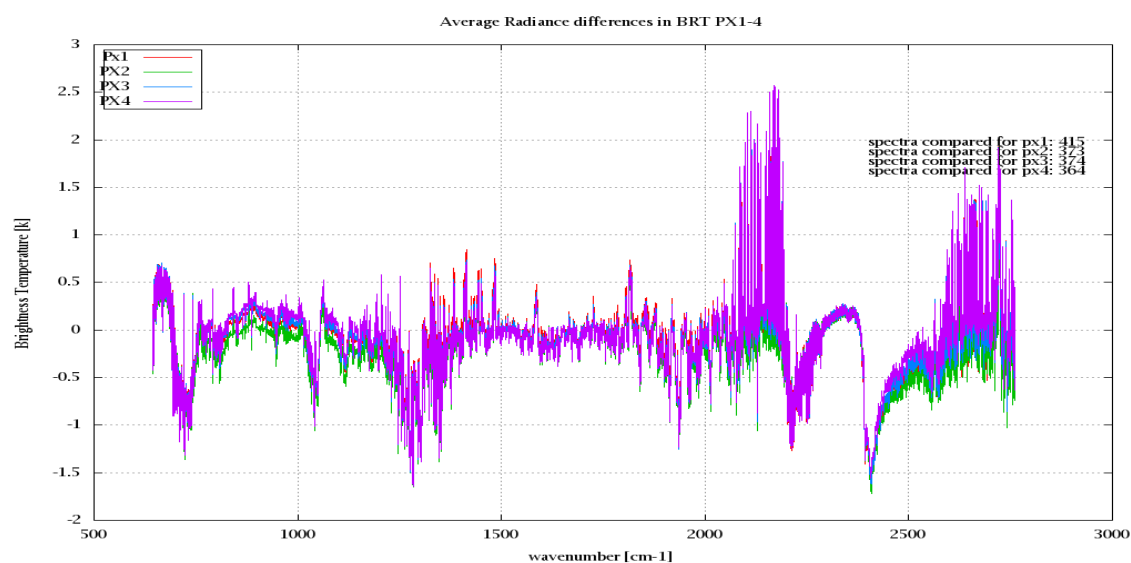


Figure 8: Average Radiance differences: OBS-CAL

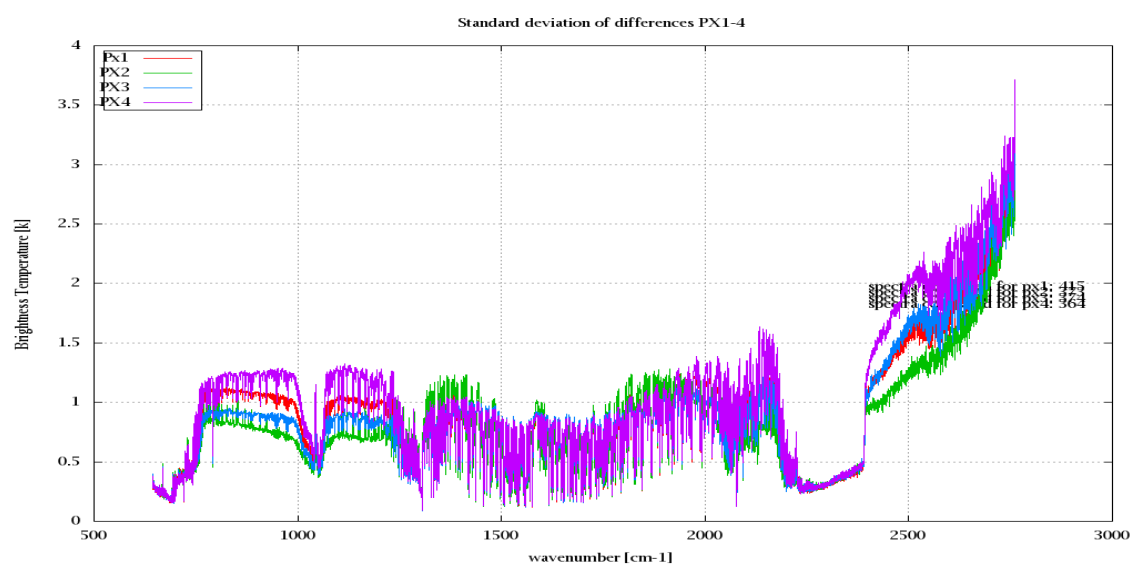


Figure 9: Standard Deviation of Radiance differences

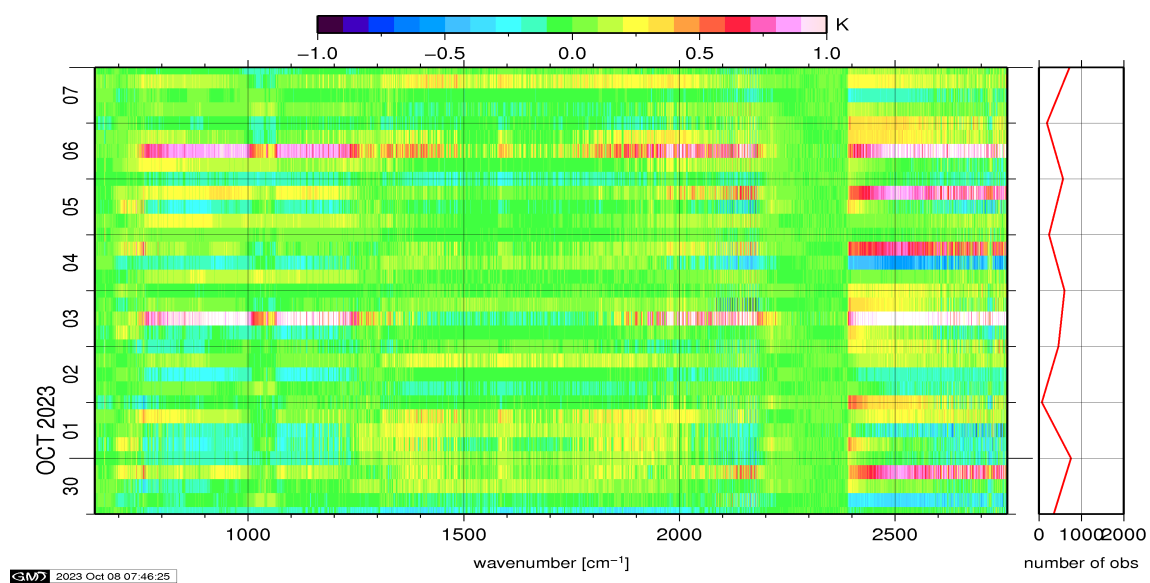


Figure 10: Radiance Anomaly in BT: All Channels

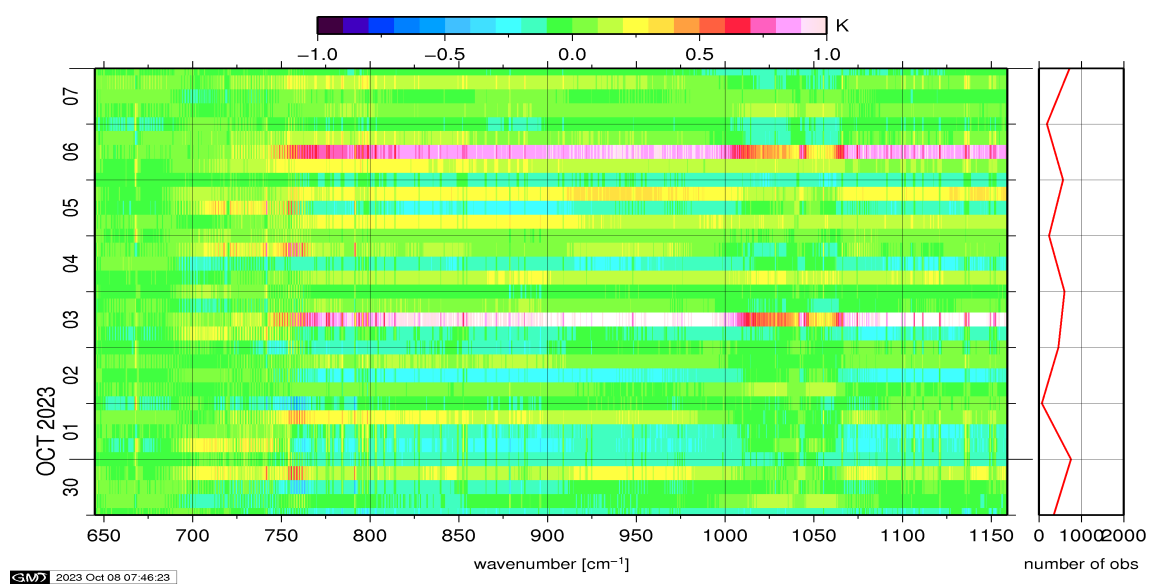


Figure 11: Radiance Anomaly in BT: IASI Band 1

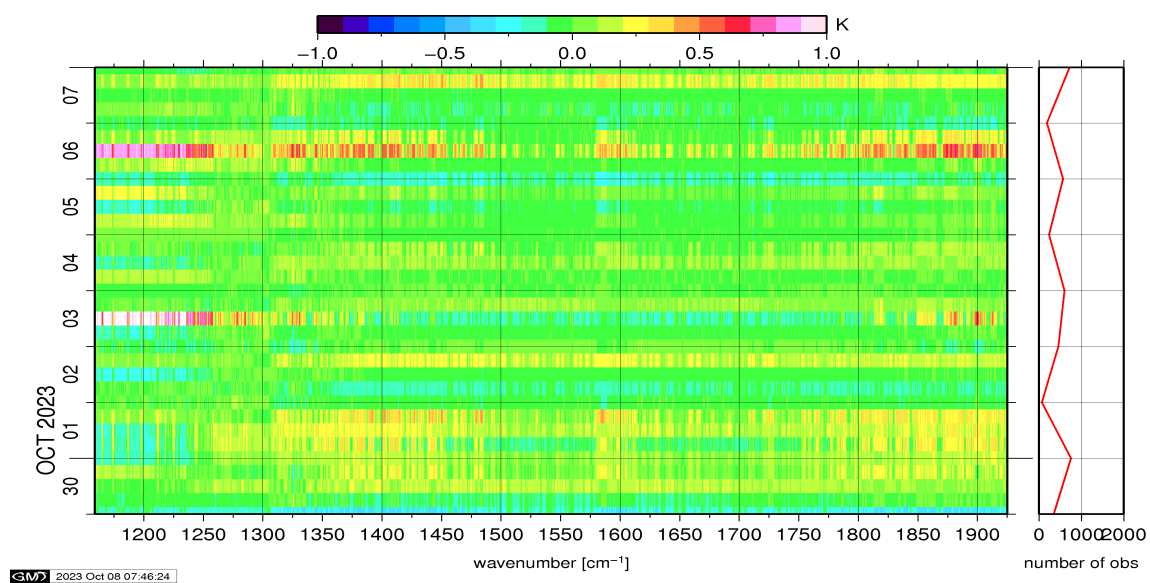


Figure 12: Radiance Anomaly in BT: IASI Band 2

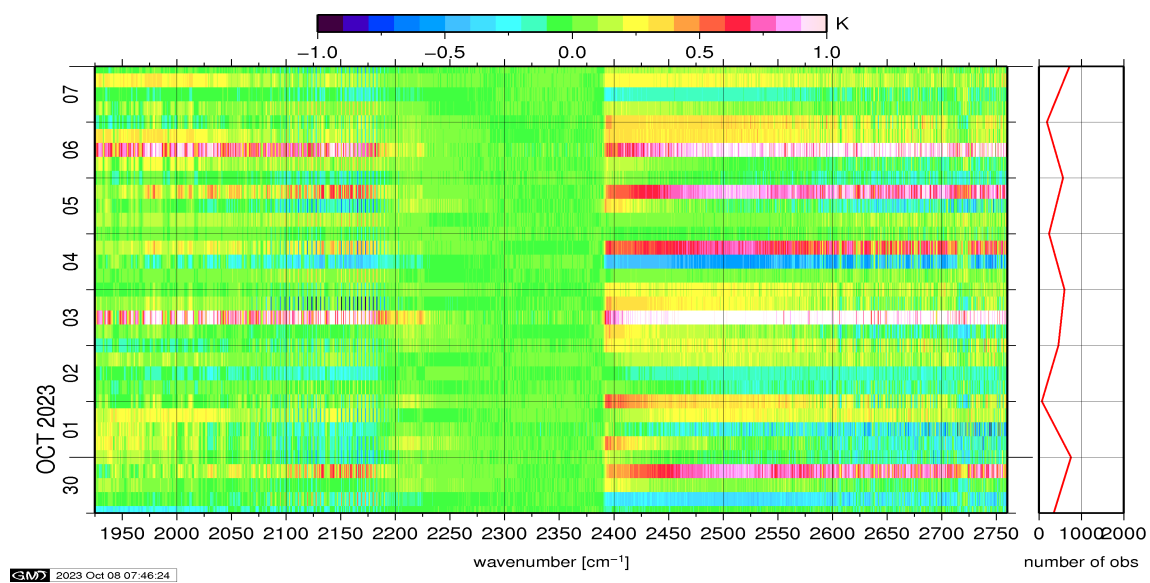


Figure 13: Radiance Anomaly in BT: IASI Band 3

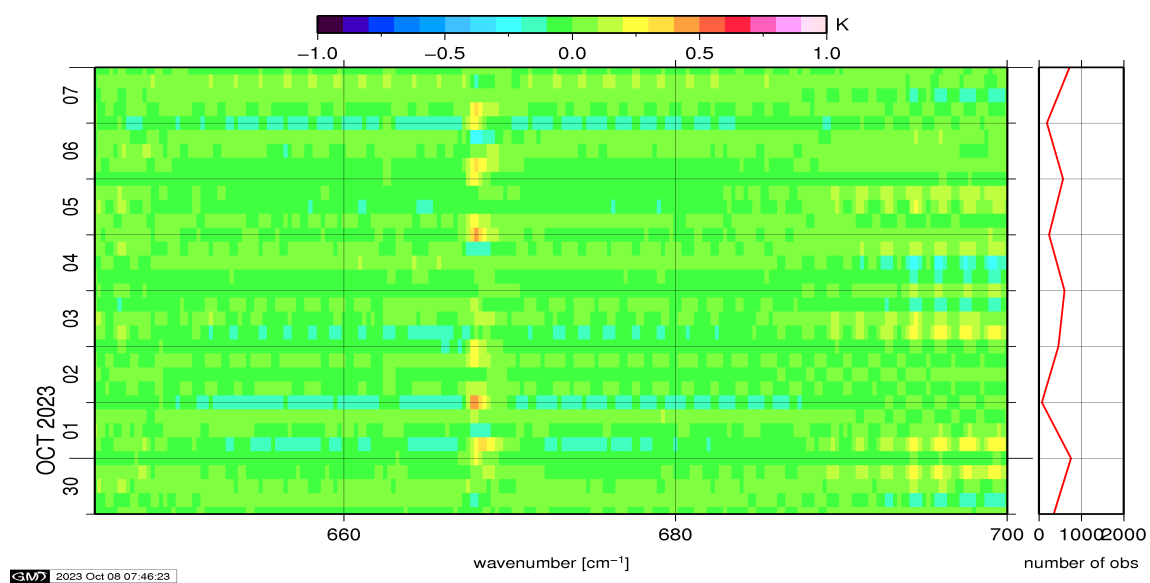


Figure 14: Radiance Anomaly in BT: CO2 14

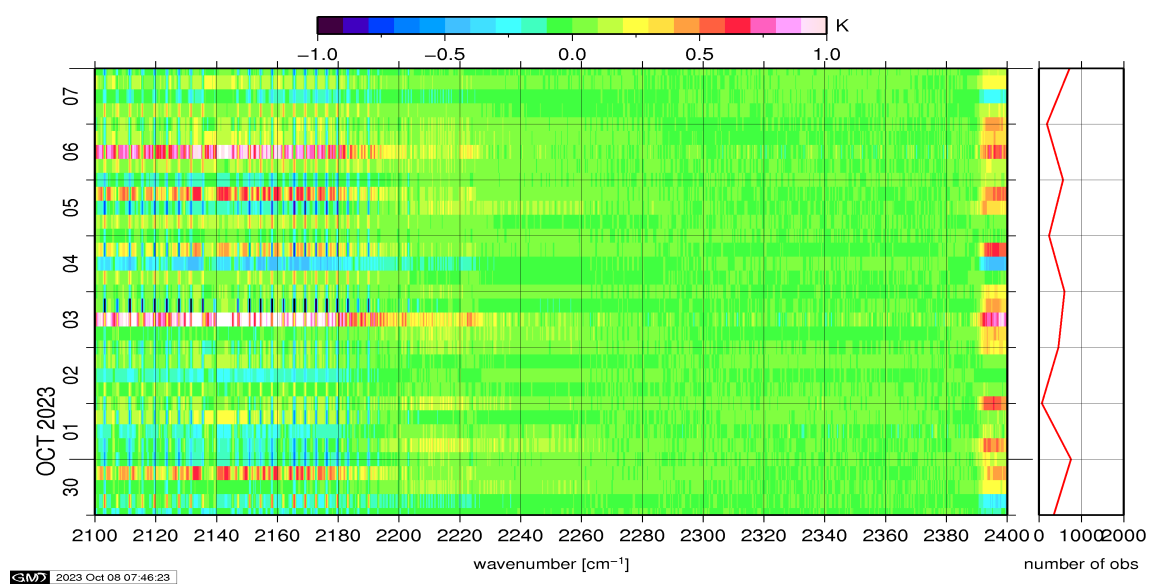


Figure 15: Radiance Anomaly in BT: CO2 4.3

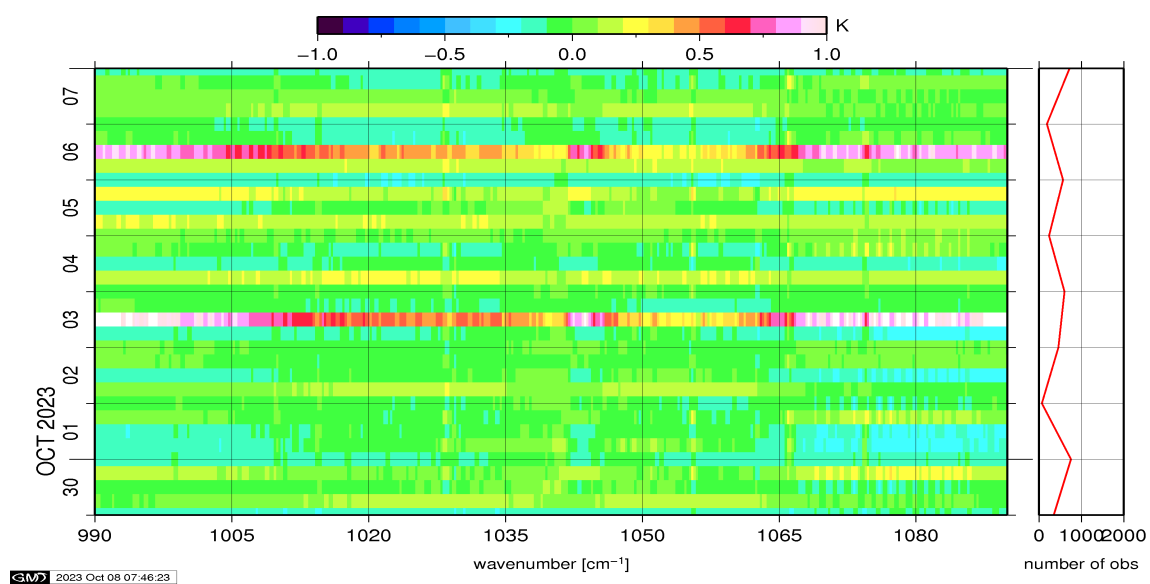


Figure 16: Radiance Anomaly in BT: O3