

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

IASI monitoring team

30/07/2023 00:00:00 - 31/07/2023 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 30/07/2023 00:00:00 - 31/07/2023 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 30/07/2023 00:00:00 - 31/07/2023 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	481	-
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	480	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	9453	9455	20230730021828.577	20230730021829.007
PX1 (130)	14397	14399	20230730024027.282	20230730024027.712
PX2 (135)	8627	8629	20230730010158.748	20230730010159.181
PX2 (135)	9453	9455	20230730021828.577	20230730021829.007
PX3 (140)	-	-	-	-
PX4 (145)	-	-	-	-
IMG (150)	14668	14670	20230730023534.099	20230730023534.533
VER (160)	16380	0	20230730000024.679	20230730000032.678
VER (160)	1	16381	20230730000032.678	20230730000032.678
VER (160)	-1	2	20230730000032.678	20230730000040.678
VER (160)	4551	4553	20230730020152.672	20230730020200.672
VER (160)	4741	4743	20230730020656.703	20230730020704.703
VER (160)	5321	5323	20230730022224.678	20230730022232.678
VER (160)	5901	5903	20230730023752.689	20230730023800.689
VER (160)	16381	0	20230730071720.657	20230730071728.657
VER (160)	2	16382	20230730071728.657	20230730071728.657
VER (160)	-1	3	20230730071728.657	20230730071736.657
VER (160)	16382	0	20230730143416.640	20230730143424.636
VER (160)	3	16383	20230730143424.636	20230730143424.636

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	-1	4	20230730143424.636	20230730143432.636
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
30/07/2023 00:00:11	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	481	-
GQisFlagQual set (PX1)	99.59 %	-
GQisFlagQual set (PX2)	99.62 %	-
GQisFlagQual set (PX3)	99.62 %	-
GQisFlagQual set (PX4)	99.58 %	-
GQisFlagQual set (all)	99.60 %	-

Table 4: Quality flags

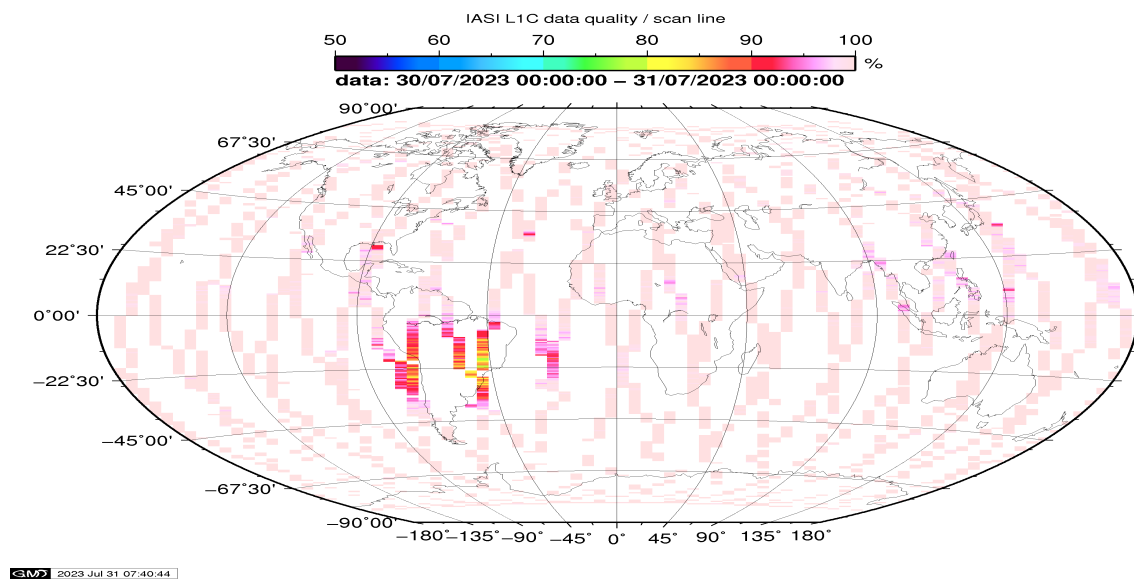


Figure 1: L1C data quality

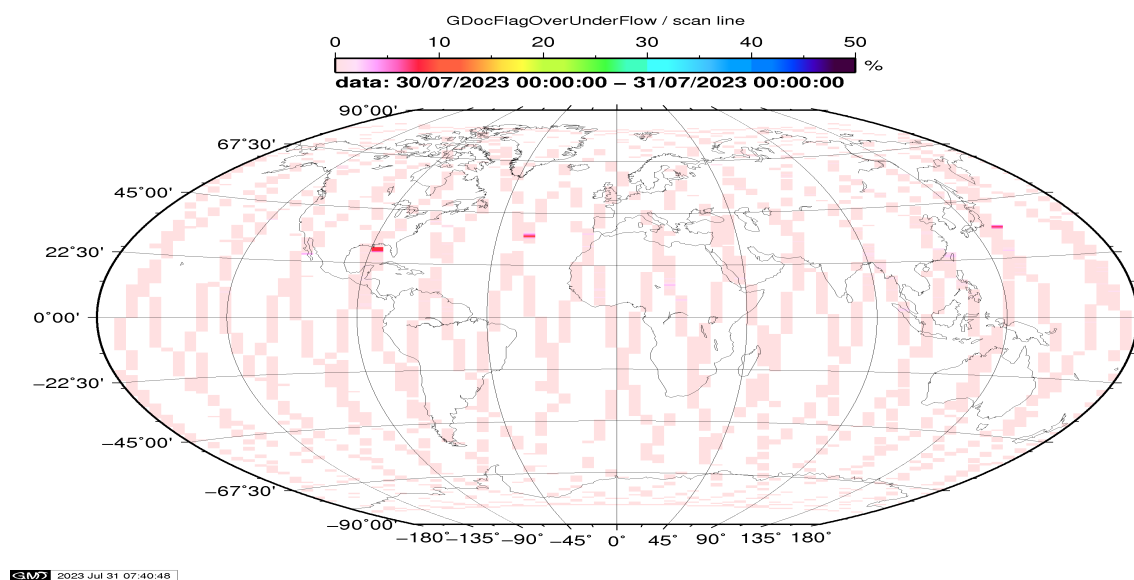


Figure 2: Flag of Over and Under Flows

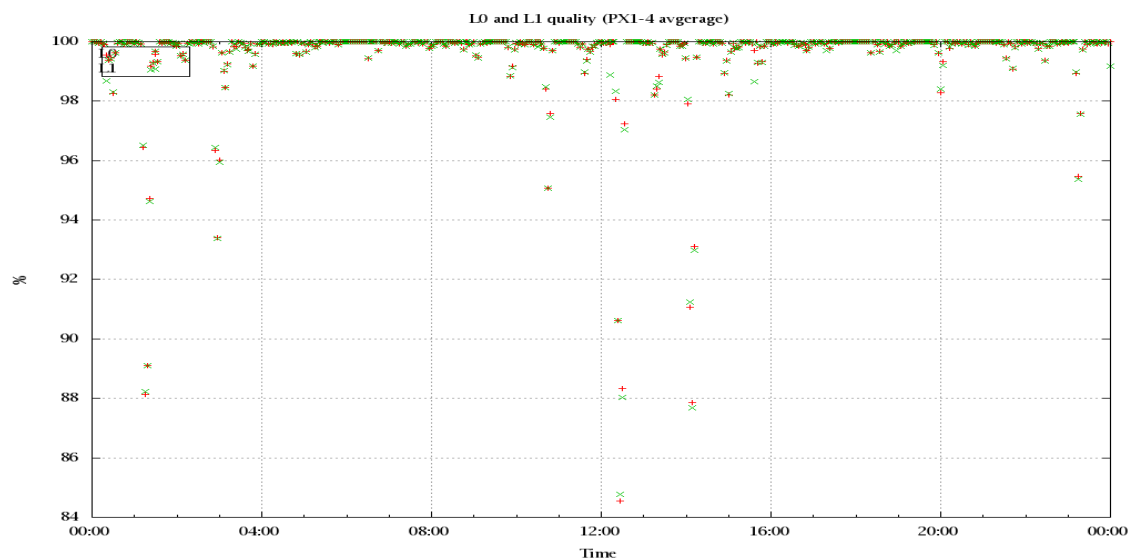


Figure 3: Level 0 and 1C overall quality

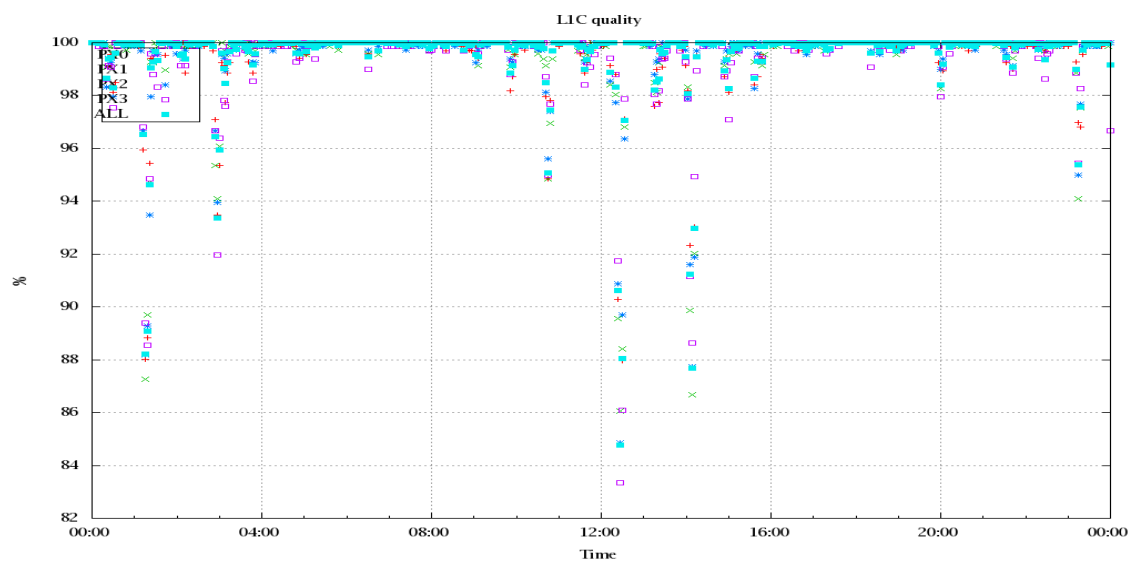


Figure 4: Level 1C quality

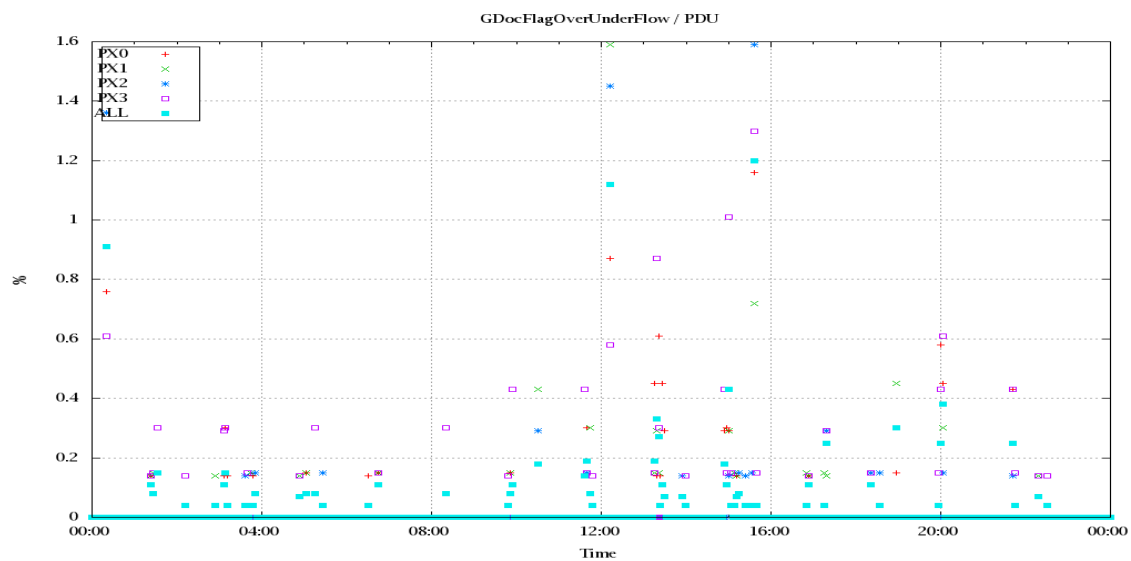


Figure 5: Timeseries of flag of Over and Under Flows

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.

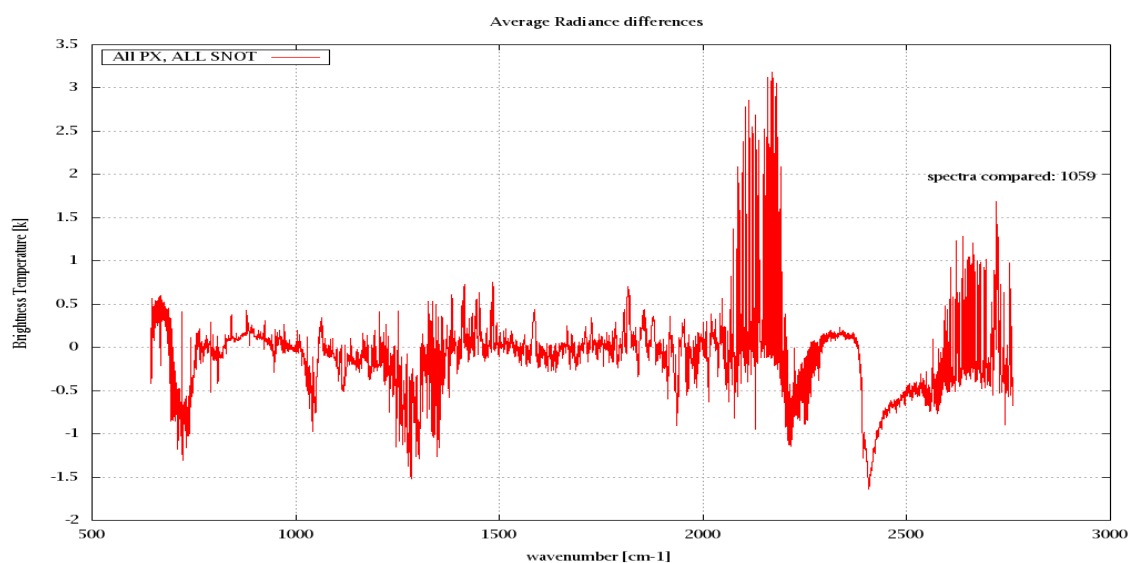


Figure 6: Average Radiance differences: OBS-CAL

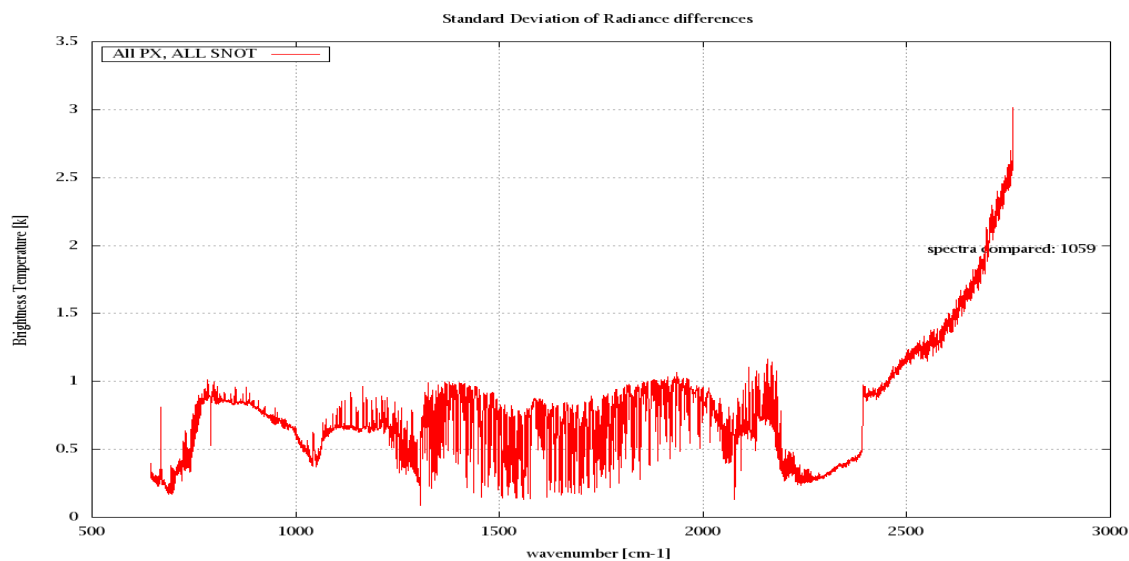


Figure 7: Standard Deviation of Radiance differences

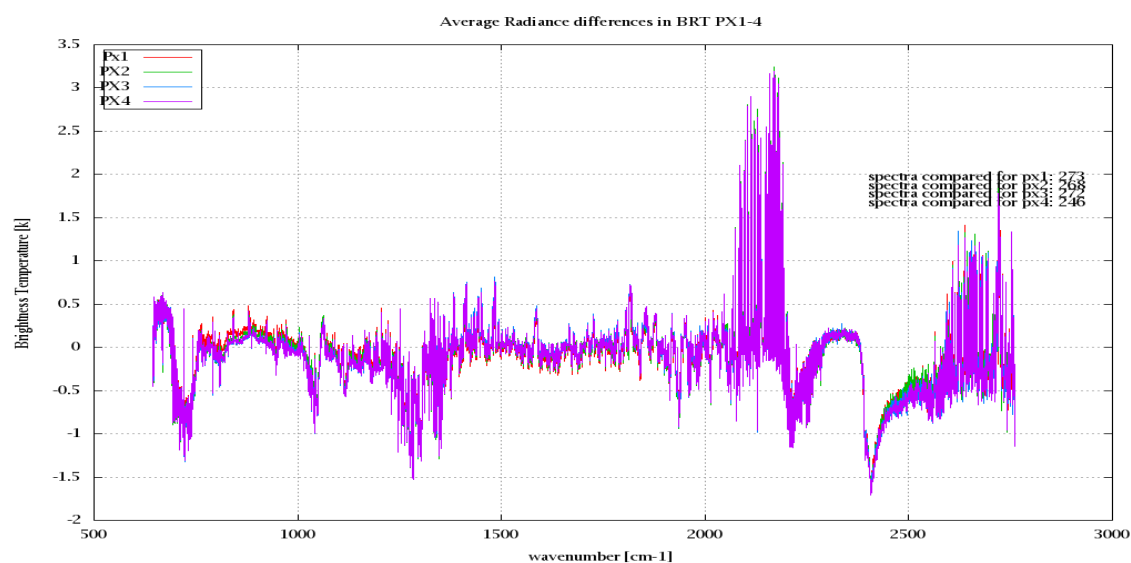


Figure 8: Average Radiance differences: OBS-CAL

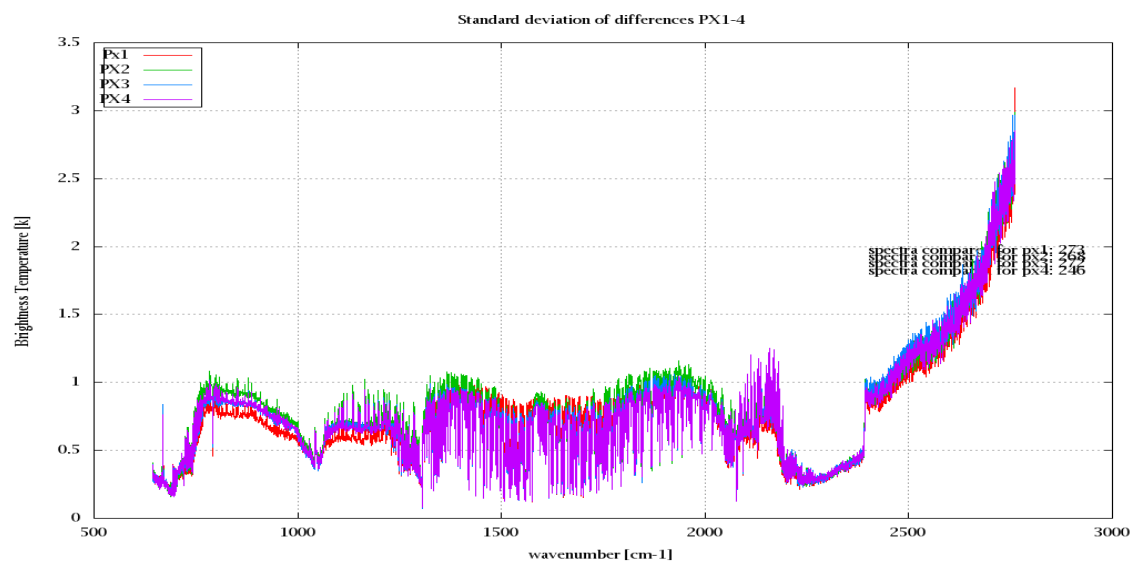


Figure 9: Standard Deviation of Radiance differences

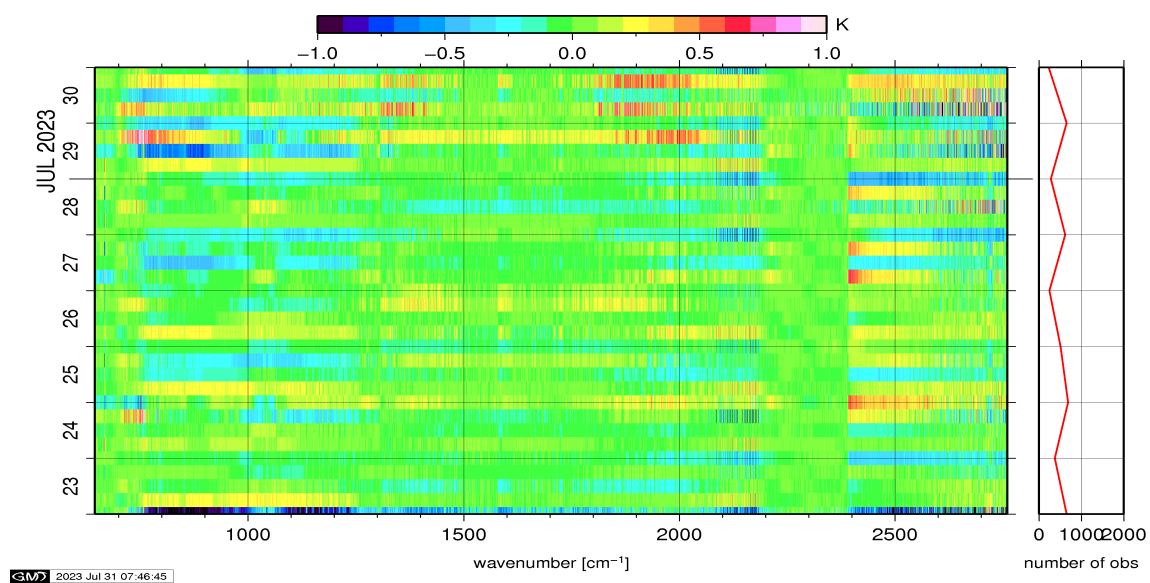


Figure 10: Radiance Anomaly in BT: All Channels

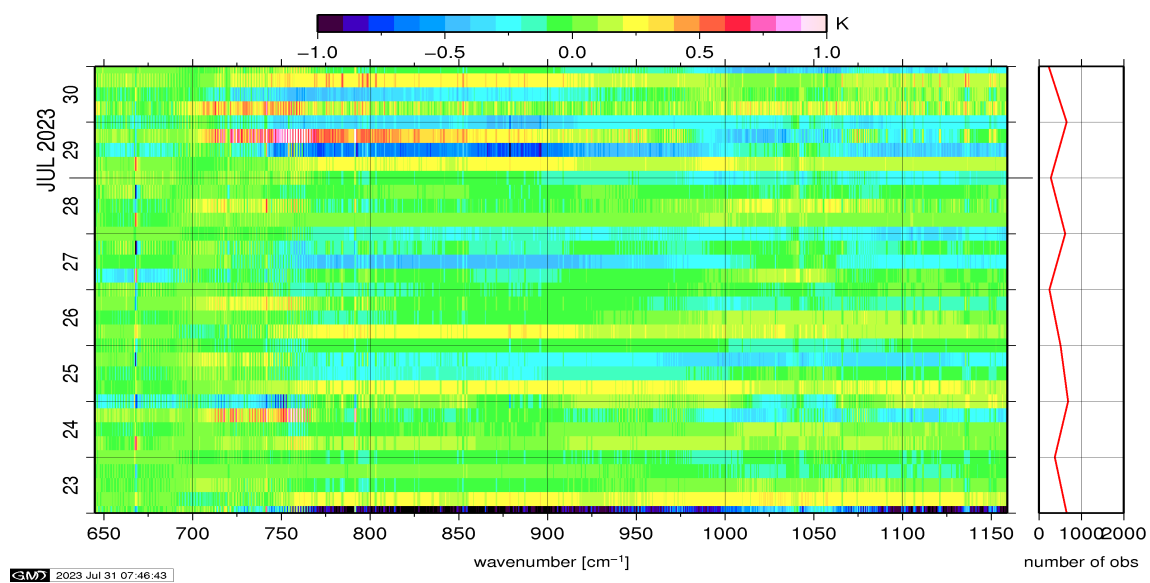


Figure 11: Radiance Anomaly in BT: IASI Band 1

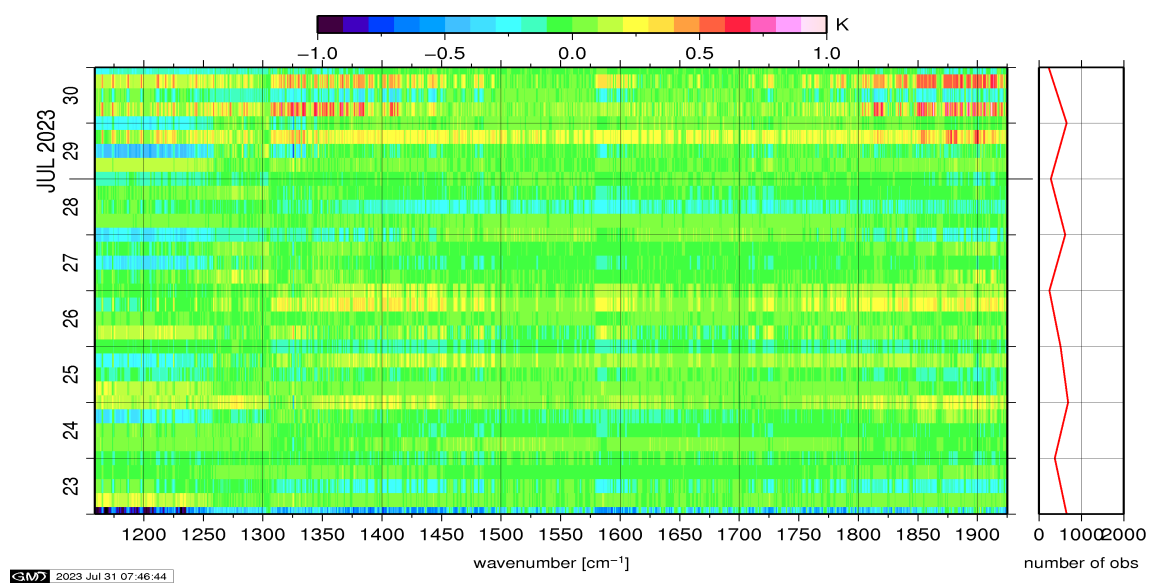


Figure 12: Radiance Anomaly in BT: IASI Band 2

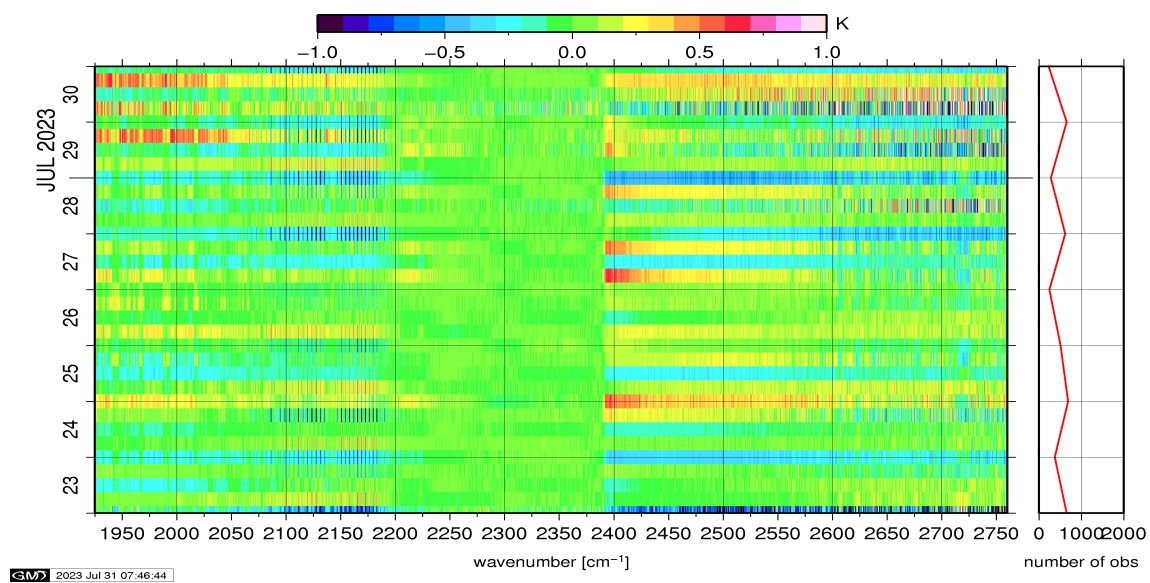


Figure 13: Radiance Anomaly in BT: IASI Band 3

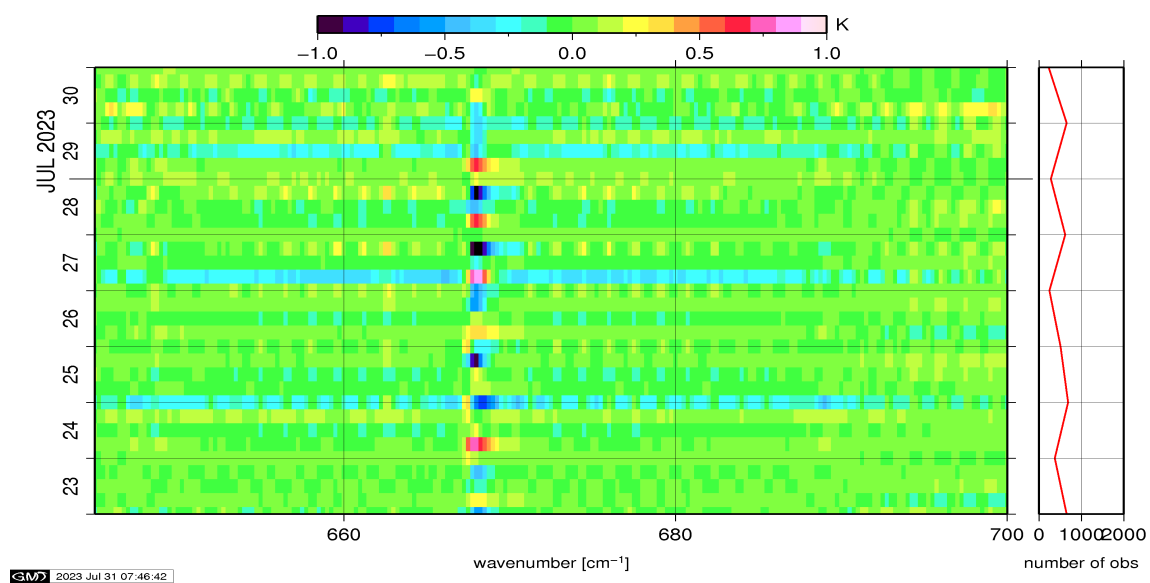


Figure 14: Radiance Anomaly in BT: CO2 14

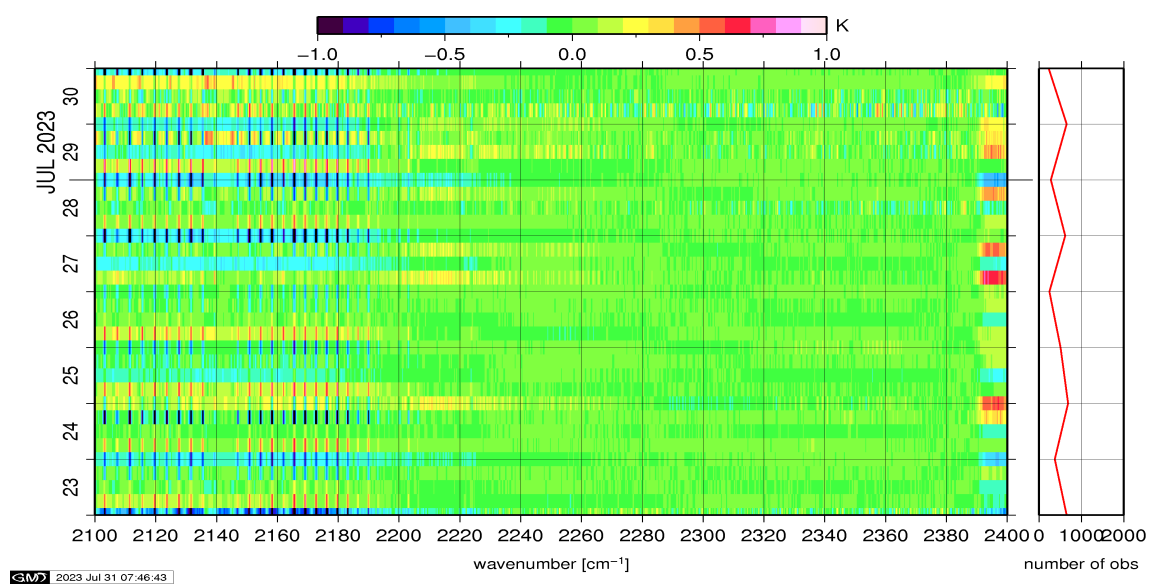


Figure 15: Radiance Anomaly in BT: CO2 4.3

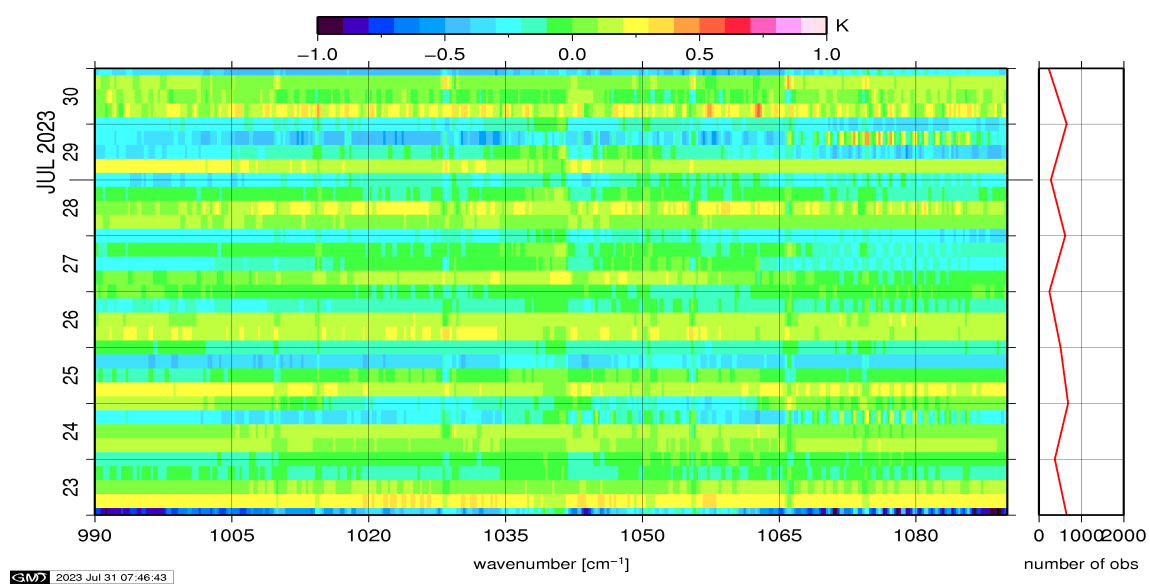


Figure 16: Radiance Anomaly in BT: O3