

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

IASI monitoring team

10/08/2023 00:00:00 - 11/08/2023 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 10/08/2023 00:00:00 - 11/08/2023 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 10/08/2023 00:00:00 - 11/08/2023 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	414	e
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)	386	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	4032	5199	20230810000259.882	20230810012100.087
PX1 (130)	11274	11765	20230810014759.326	20230810030300.074
PX1 (130)	7530	1947	20230810035659.851	20230810044500.065
PX1 (130)	6075	6077	20230810050321.478	20230810050321.907
PX2 (135)	4032	5199	20230810000259.882	20230810012100.087
PX2 (135)	11274	11765	20230810014759.326	20230810030300.074
PX2 (135)	7530	1947	20230810035659.851	20230810044500.065
PX3 (140)	4032	5199	20230810000259.882	20230810012100.087
PX3 (140)	11274	11765	20230810014759.326	20230810030300.074
PX3 (140)	7530	1947	20230810035659.851	20230810044500.065
PX4 (145)	4032	5199	20230810000259.882	20230810012100.087
PX4 (145)	11274	11765	20230810014759.326	20230810030300.074
PX4 (145)	7530	1947	20230810035659.851	20230810044500.065
IMG (150)	888	4395	20230810000259.882	20230810012100.087
IMG (150)	11280	14021	20230810014759.975	20230810030300.074
IMG (150)	11406	7263	20230810035659.851	20230810044500.065
VER (160)	4267	7193	20230810000255.343	20230810012103.333
VER (160)	8207	11018	20230810014759.326	20230810030303.320
VER (160)	13042	14843	20230810035655.308	20230810044503.307

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	16382	0	20230810052559.316	20230810052607.316
VER (160)	3	16383	20230810052607.316	20230810052607.316
VER (160)	-1	4	20230810052607.316	20230810052615.316
VER (160)	16379	0	20230810195943.237	20230810195951.237
VER (160)	0	16380	20230810195951.237	20230810195951.237
VER (160)	-1	1	20230810195951.237	20230810195959.237
AUX (180)	7405	7991	20230810000255.777	20230810012103.762
AUX (180)	8193	8756	20230810014759.760	20230810030303.750
AUX (180)	9160	9521	20230810035655.741	20230810044503.737

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
10/08/2023 00:00:09	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	414	e
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	481	-
GQisFlagQual set (PX1)	99.61 %	-
GQisFlagQual set (PX2)	99.63 %	-
GQisFlagQual set (PX3)	99.65 %	-
GQisFlagQual set (PX4)	99.58 %	-
GQisFlagQual set (all)	99.62 %	-

Table 4: Quality flags

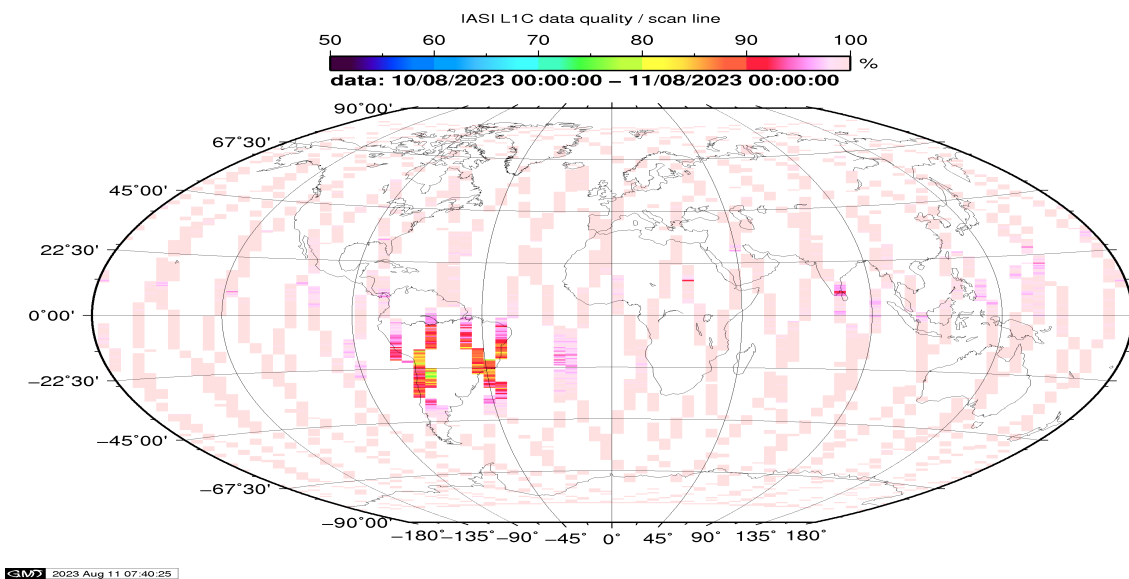


Figure 1: L1C data quality

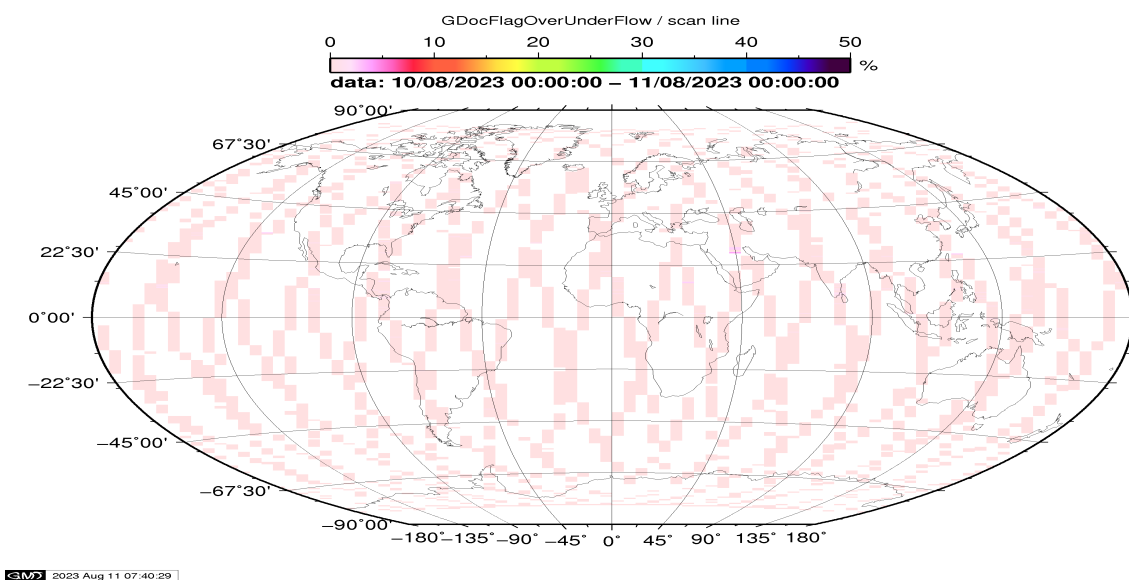


Figure 2: Flag of Over and Under Flows

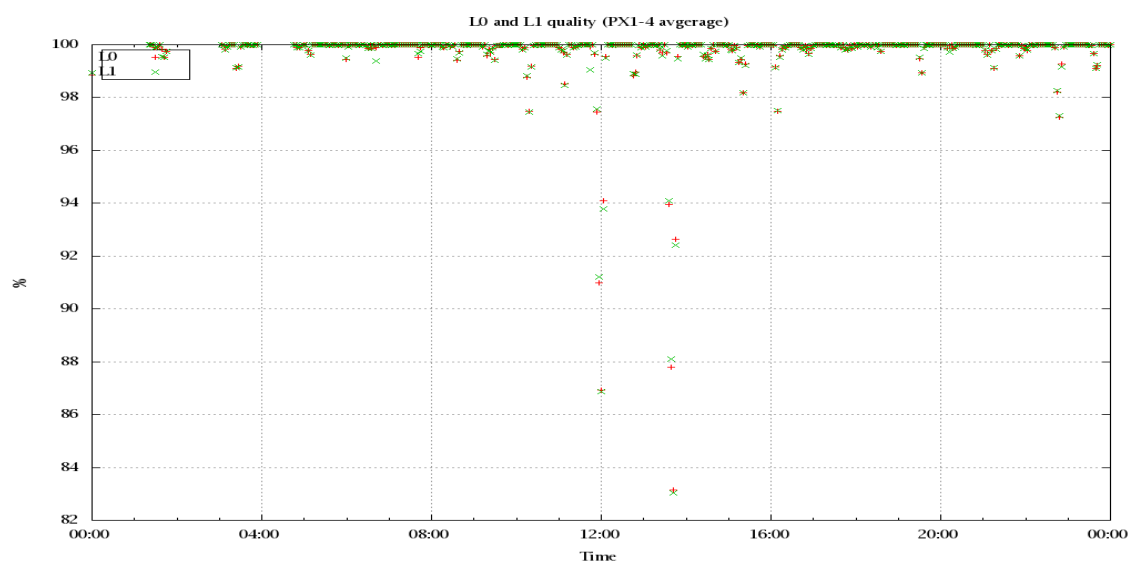


Figure 3: Level 0 and 1C overall quality

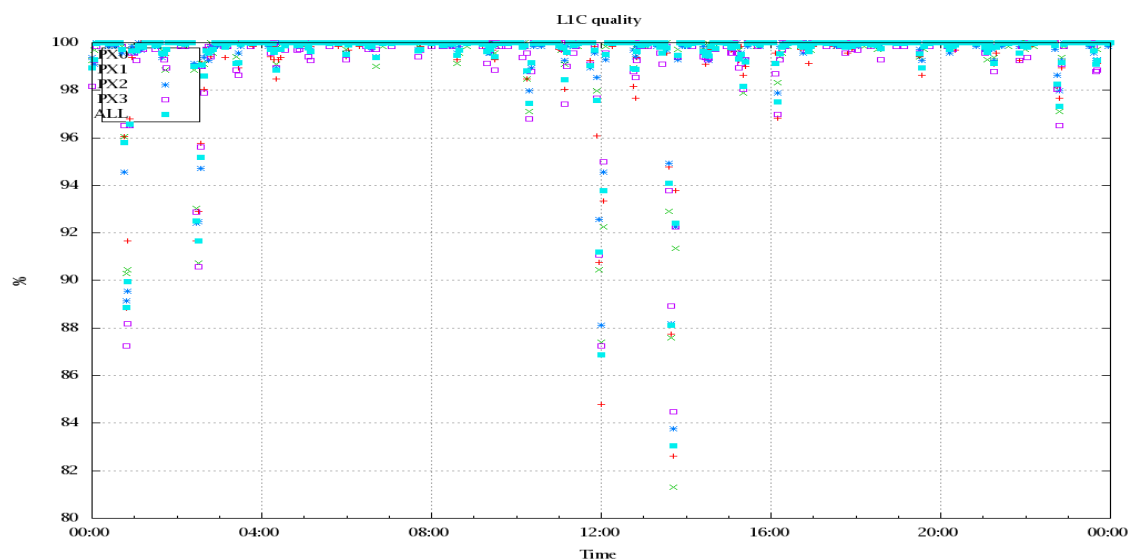


Figure 4: Level 1C quality

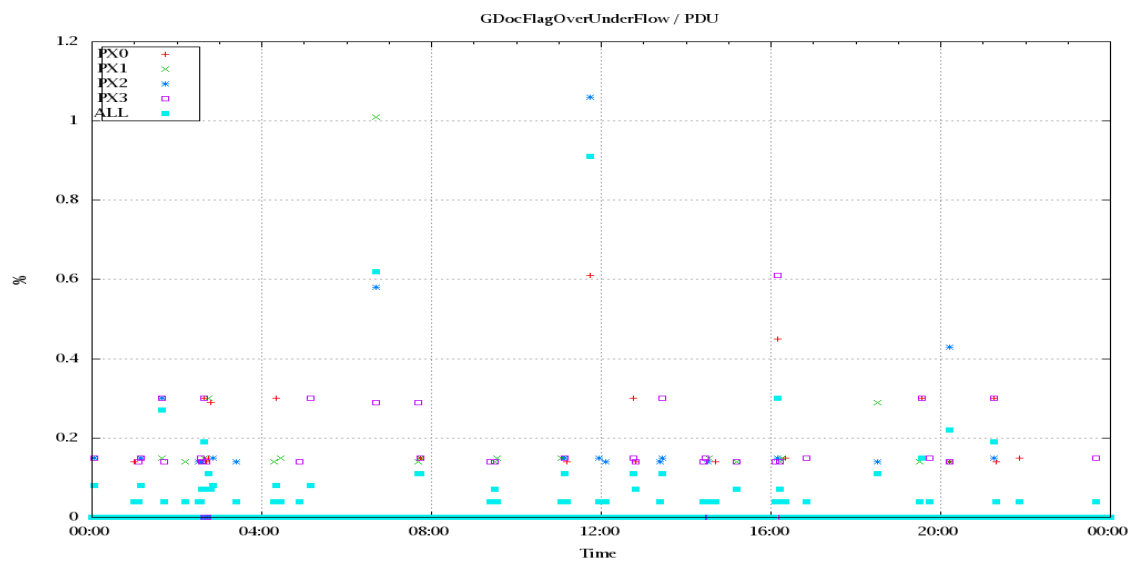


Figure 5: Timeseries of flag of Over and Under Flows

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.

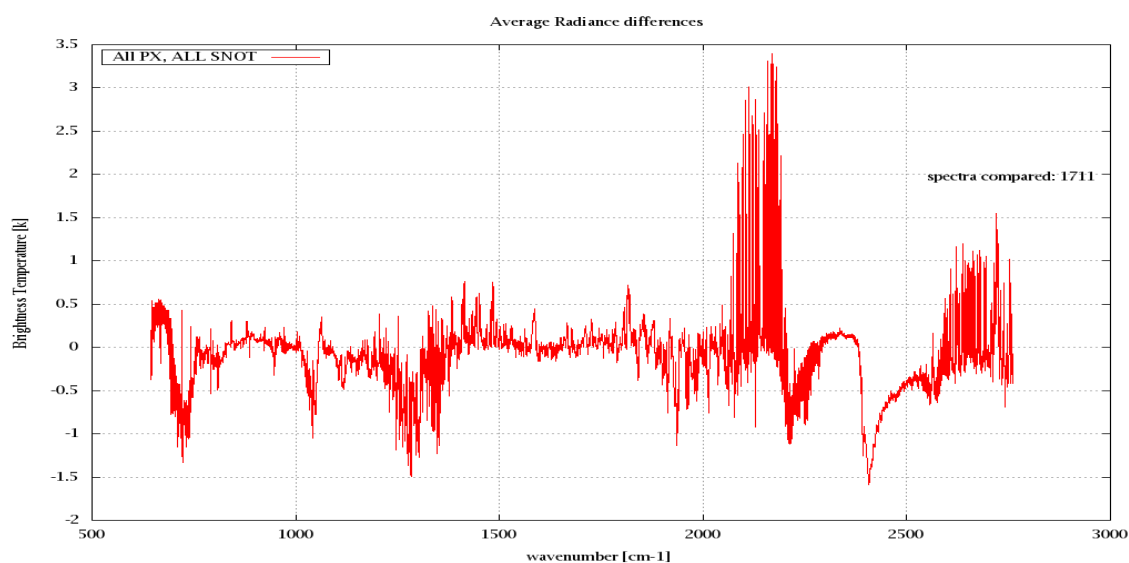


Figure 6: Average Radiance differences: OBS-CAL

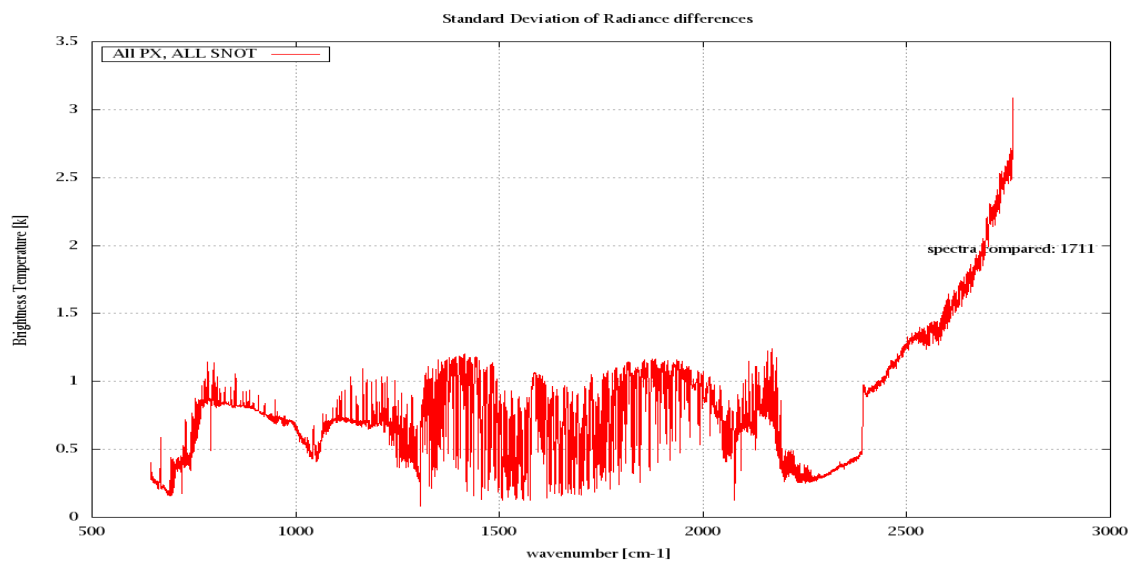


Figure 7: Standard Deviation of Radiance differences

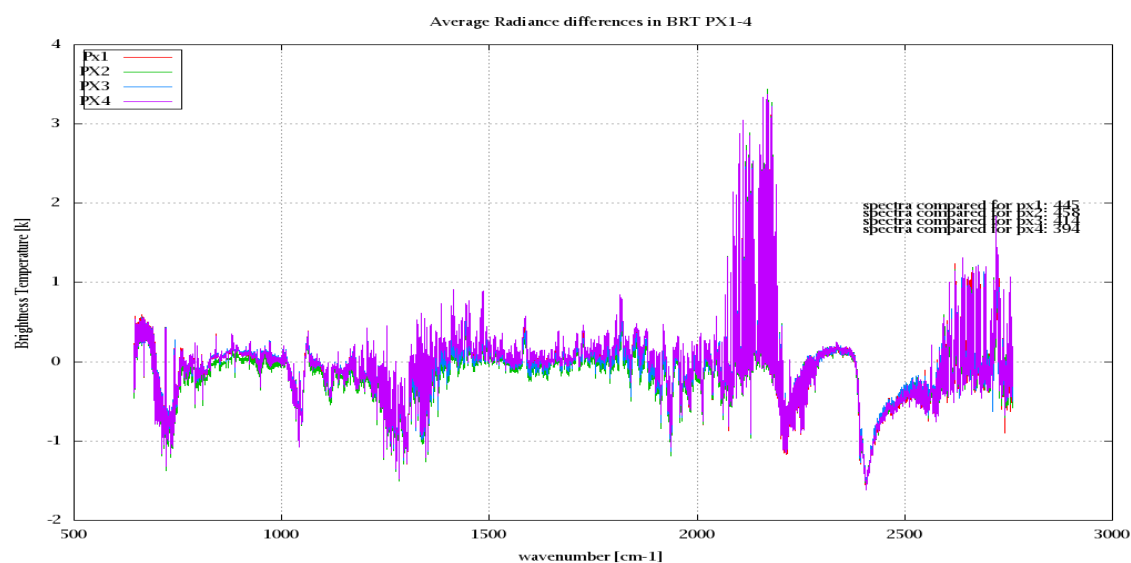


Figure 8: Average Radiance differences: OBS-CAL

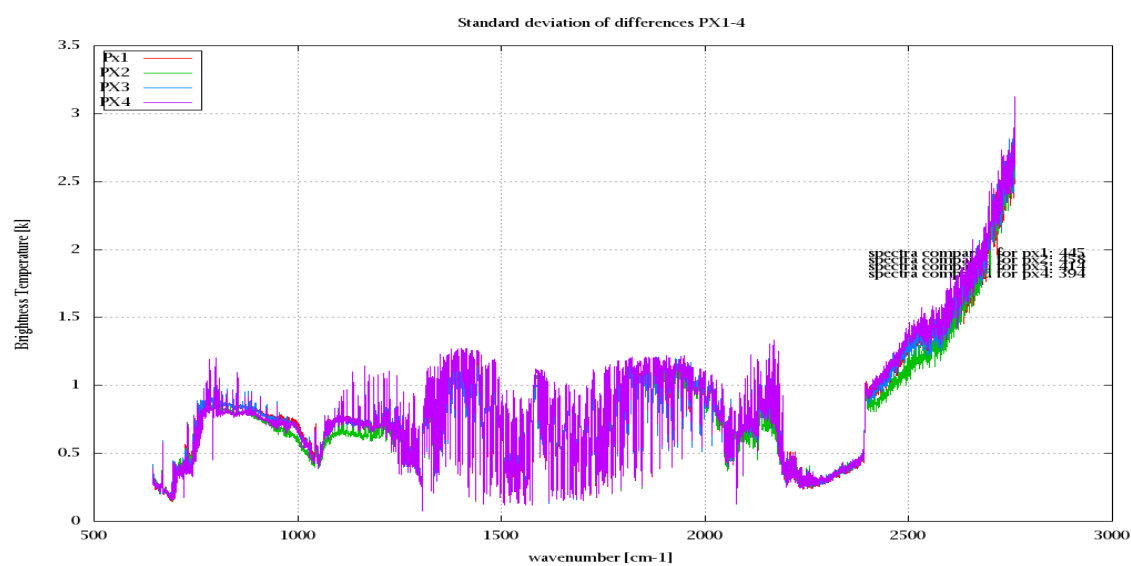


Figure 9: Standard Deviation of Radiance differences

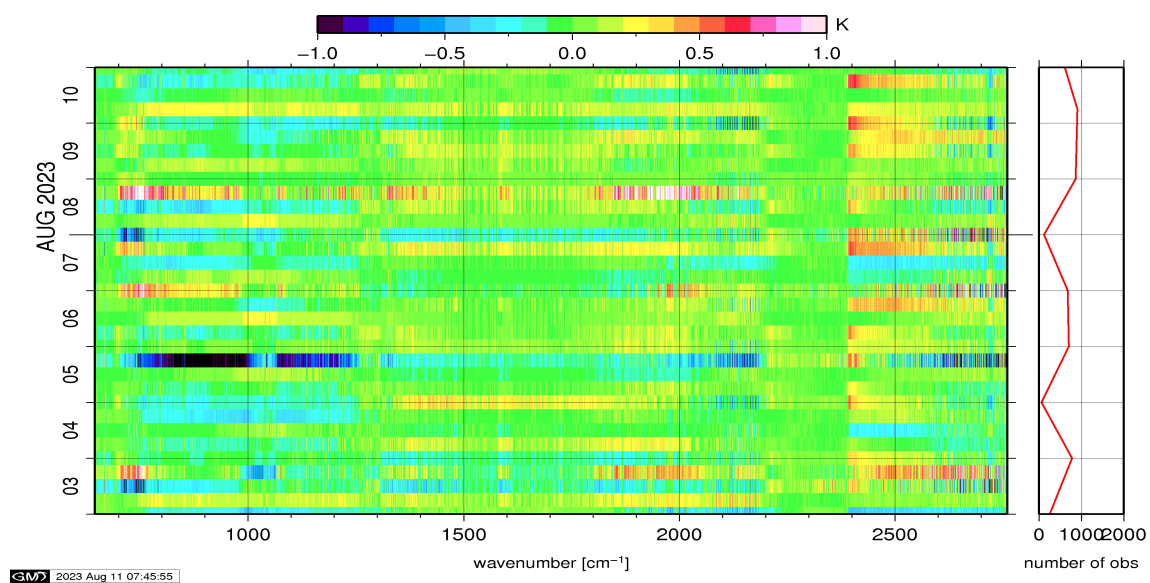


Figure 10: Radiance Anomaly in BT: All Channels

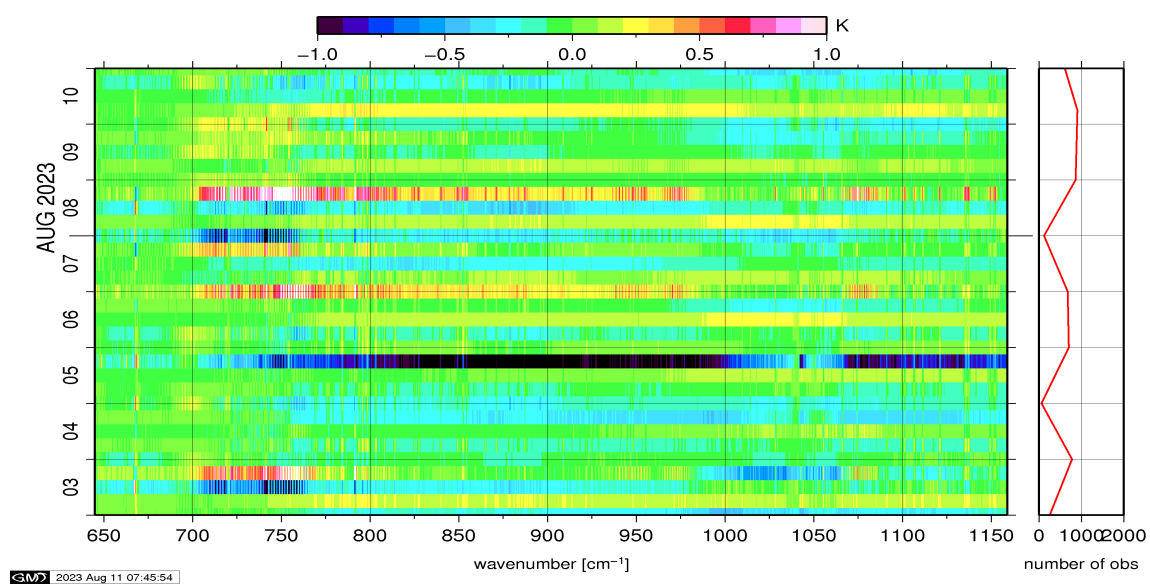


Figure 11: Radiance Anomaly in BT: IASI Band 1

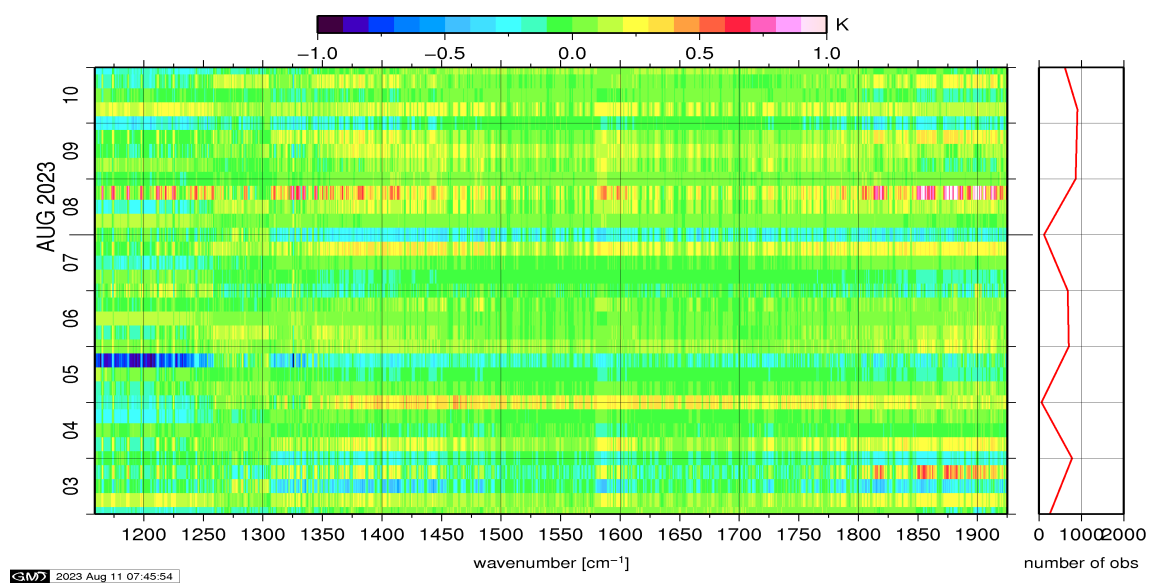


Figure 12: Radiance Anomaly in BT: IASI Band 2

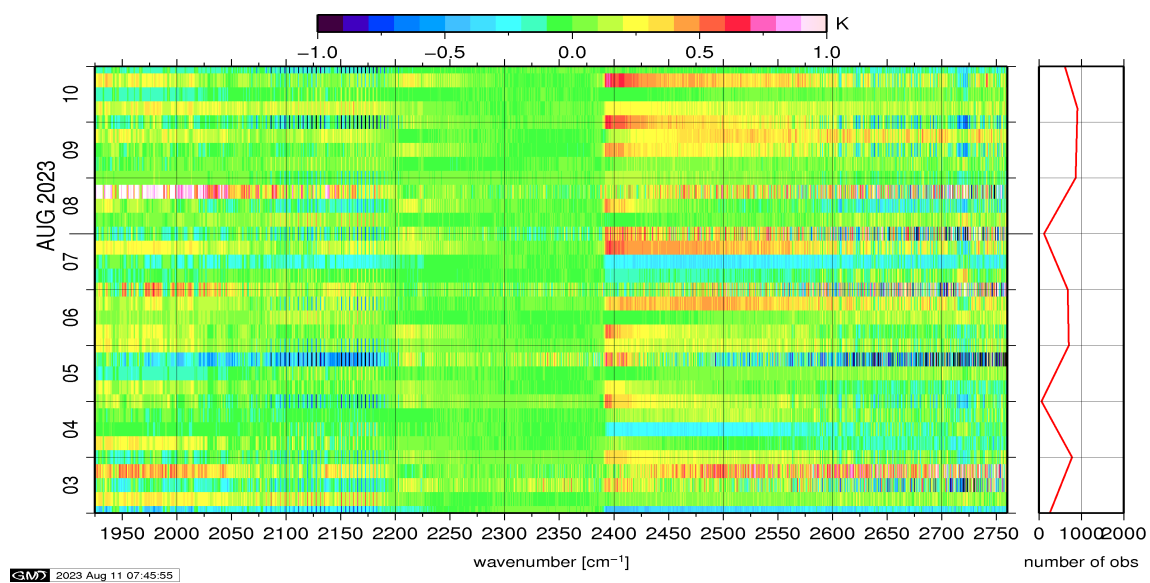


Figure 13: Radiance Anomaly in BT: IASI Band 3

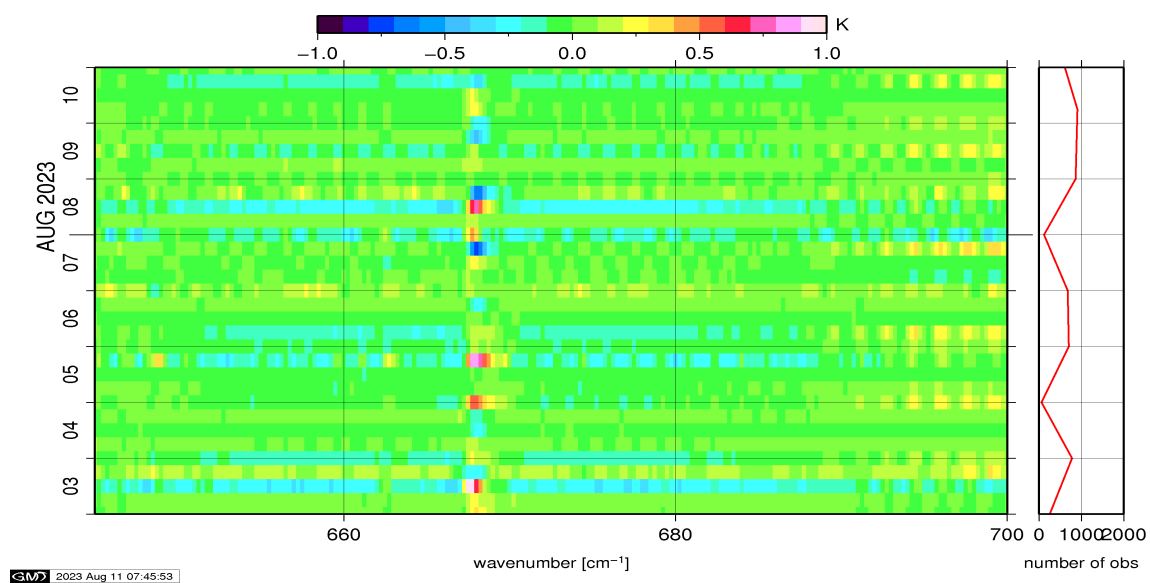


Figure 14: Radiance Anomaly in BT: CO2 14

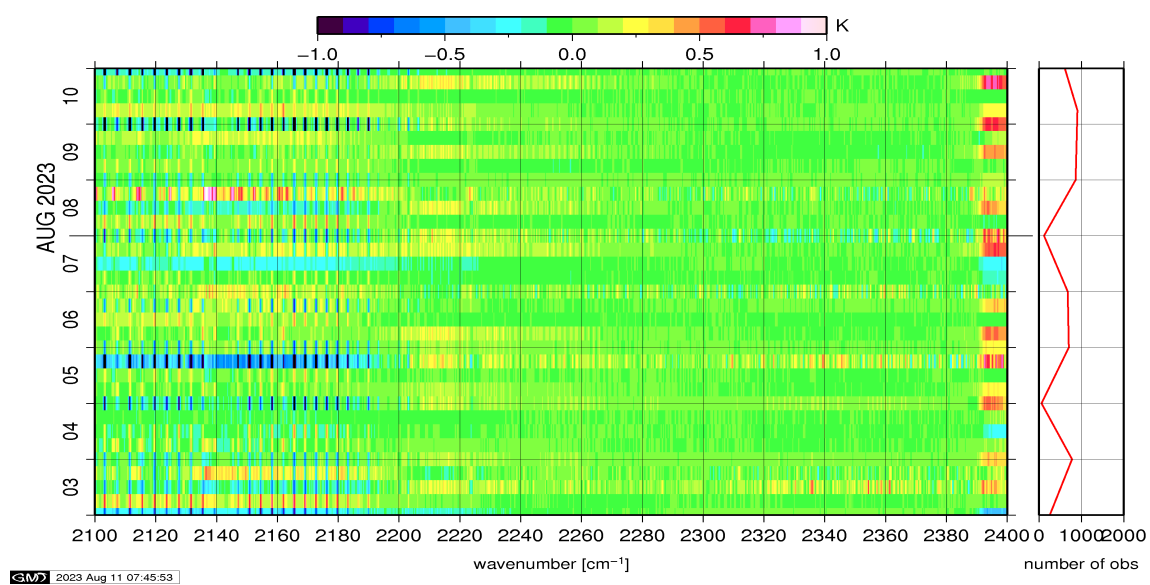


Figure 15: Radiance Anomaly in BT: CO2 4.3

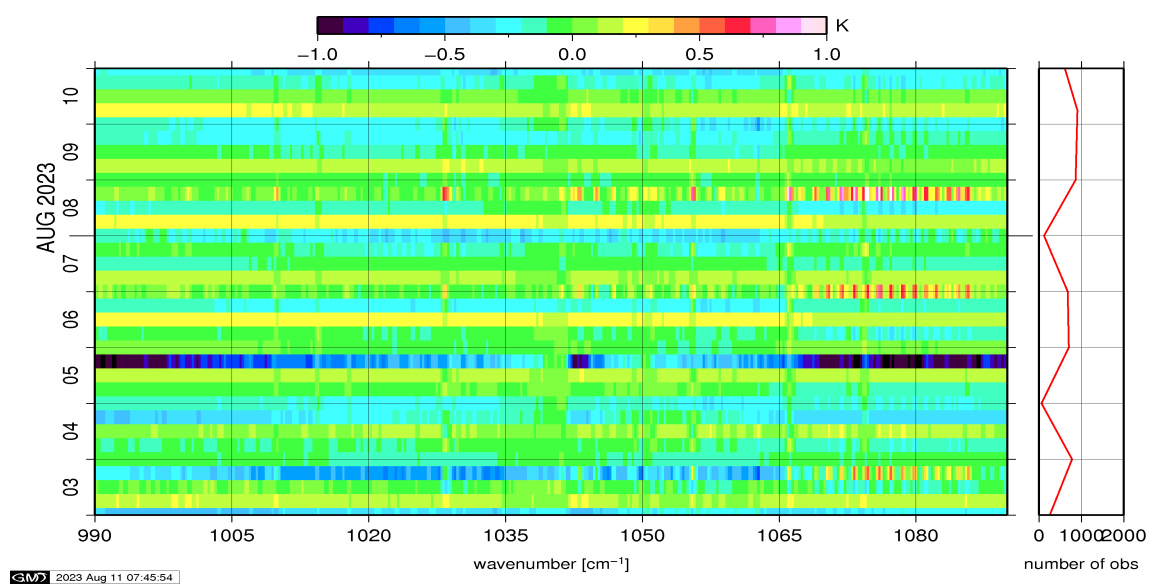


Figure 16: Radiance Anomaly in BT: O3