

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

IASI monitoring team

09/03/2023 00:00:00 - 10/03/2023 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 09/03/2023 00:00:00 - 10/03/2023 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 09/03/2023 00:00:00 - 10/03/2023 00:00:00

Product Type	Number	Action
L0 HKTU 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)	3218	3220	20230309025132.232	20230309025132.666
PX1 (130)	9606	9608	20230309043244.653	20230309043245.086
PX2 (135)	2519	2521	20230309024824.779	20230309024825.209
PX3 (140)	2519	2521	20230309024824.779	20230309024825.209
PX4 (145)	7882	7884	20230309031215.265	20230309031215.699
IMG (150)	15657	15659	20230309025131.798	20230309025132.451
IMG (150)	4558	4560	20230309031215.265	20230309031215.699
IMG (150)	13007	13009	20230309034523.141	20230309034523.790
VER (160)	12797	12799	20230309032722.522	20230309032722.522
VER (160)	13431	13433	20230309034418.493	20230309034418.493
VER (160)	14541	14543	20230309041354.522	20230309041354.522
VER (160)	16380	0	20230309050250.482	20230309050258.509
VER (160)	1	16381	20230309050258.509	20230309050258.509
VER (160)	-1	2	20230309050258.509	20230309050306.517
VER (160)	16381	0	20230309121946.459	20230309121954.459
VER (160)	2	16382	20230309121954.459	20230309121954.459
VER (160)	-1	3	20230309121954.459	20230309122002.459
VER (160)	16382	0	20230309193642.436	20230309193650.436
VER (160)	3	16383	20230309193650.436	20230309193650.436

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	-1	4	20230309193650.436	20230309193658.436
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
09/03/2023 00:00:13	-	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)	99.61 %	-
GQisFlagQual set (PX3)	99.64 %	-
GQisFlagQual set (PX4)	99.57 %	-
GQisFlagQual set (all)	99.60 %	-

Table 4: Quality flags

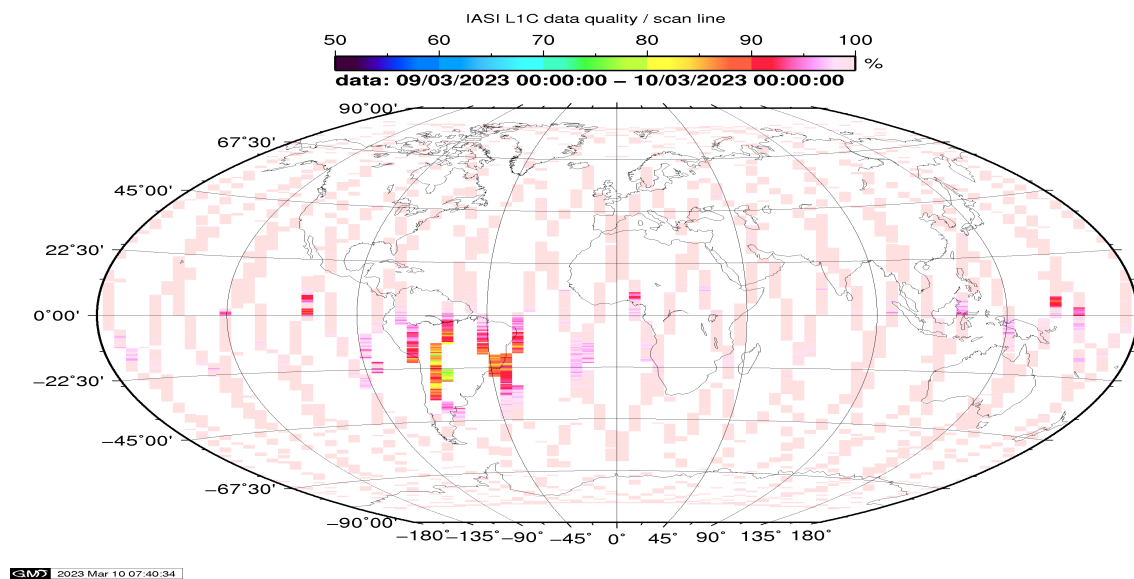


Figure 1: L1C data quality

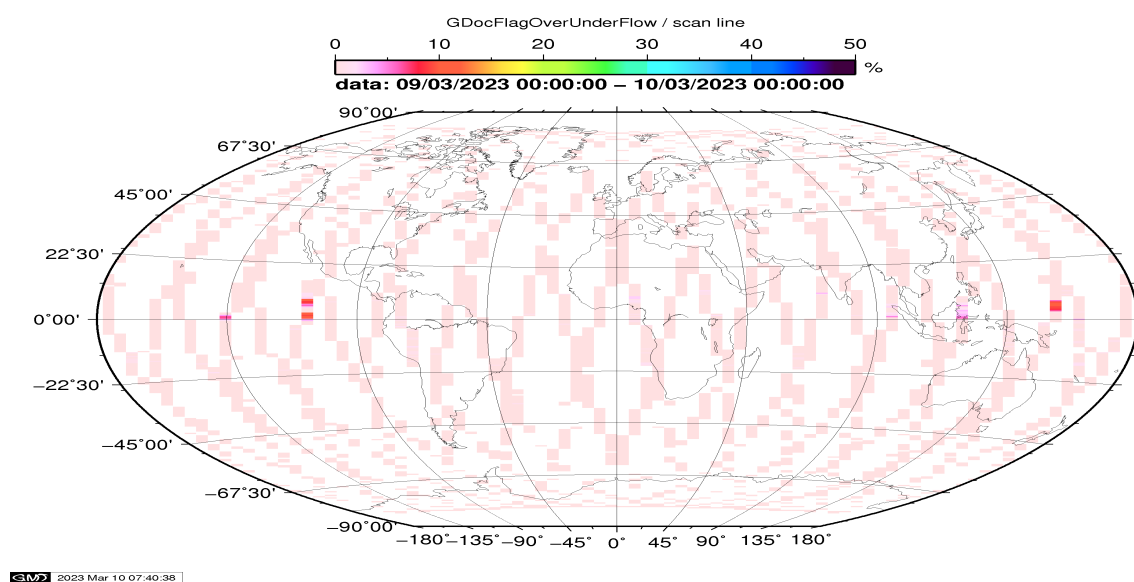


Figure 2: Flag of Over and Under Flows

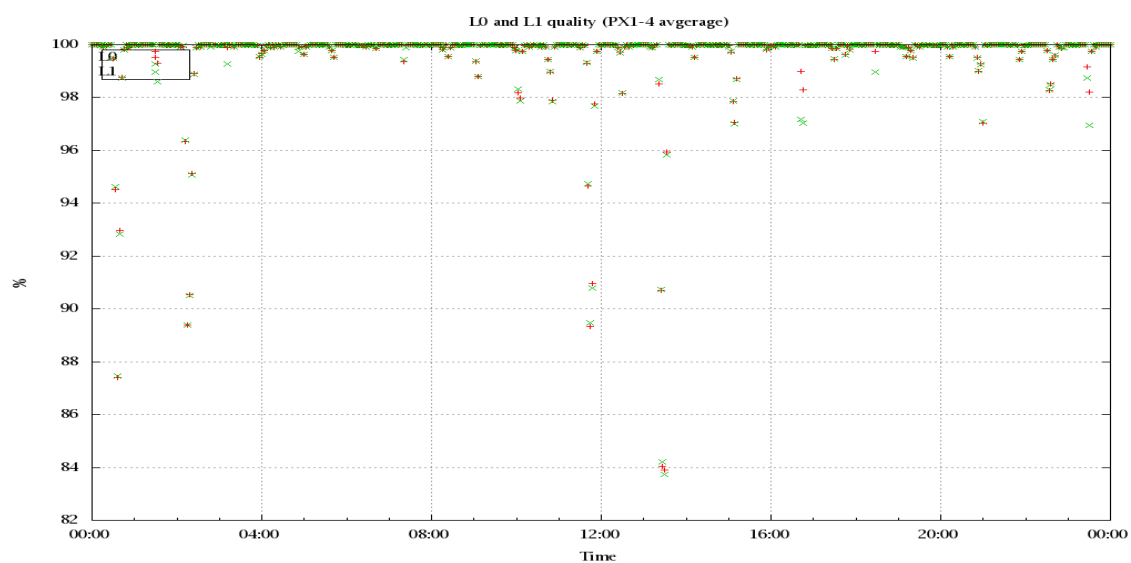


Figure 3: Level 0 and 1C overall quality

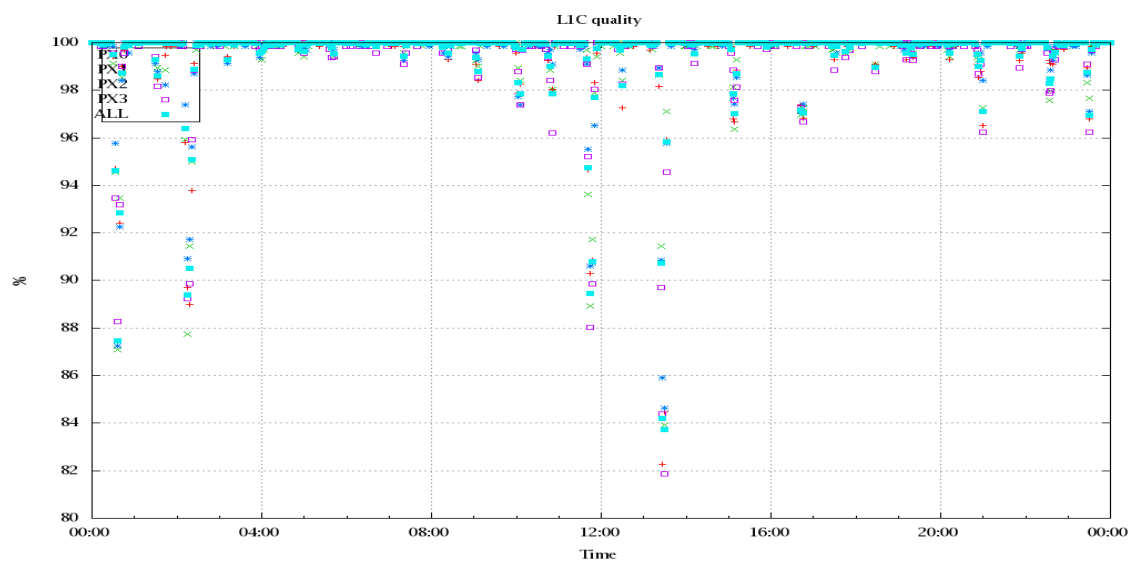


Figure 4: Level 1C quality

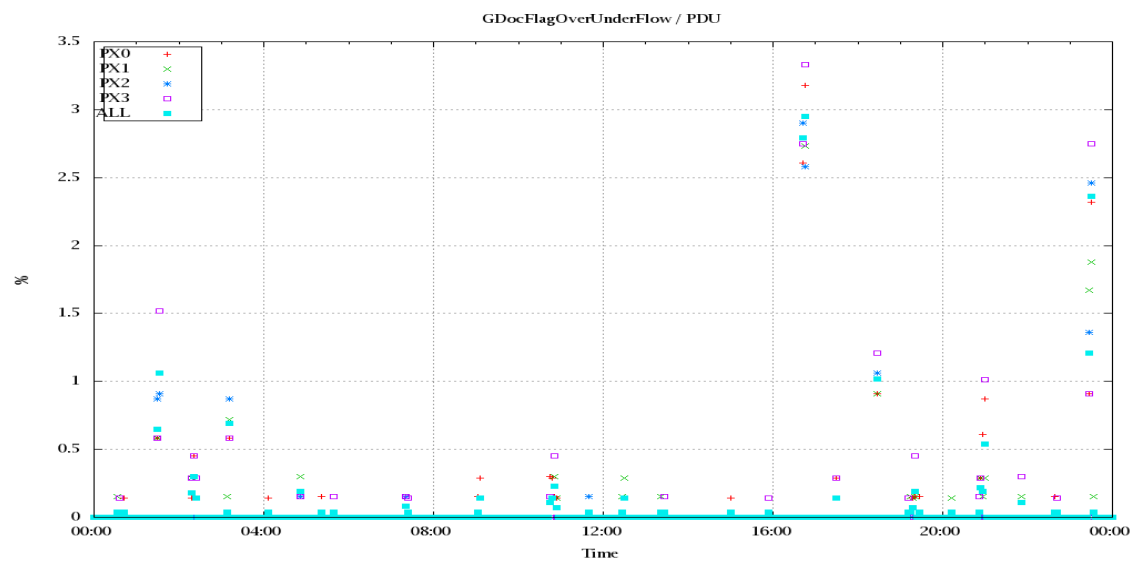


Figure 5: Timeseries of flag of Over and Under Flows

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.

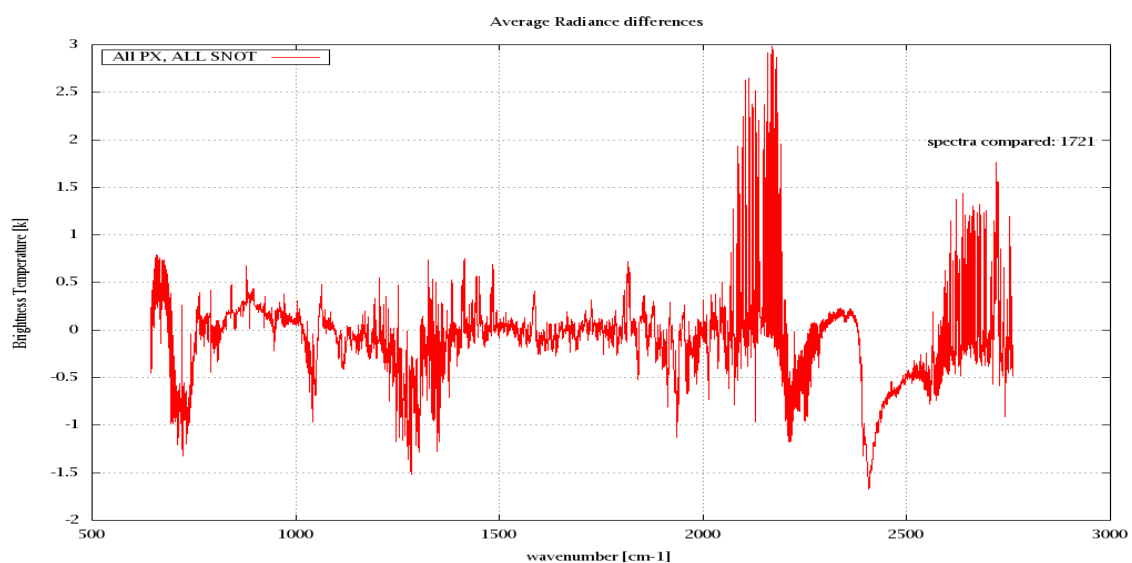


Figure 6: Average Radiance differences: OBS-CAL

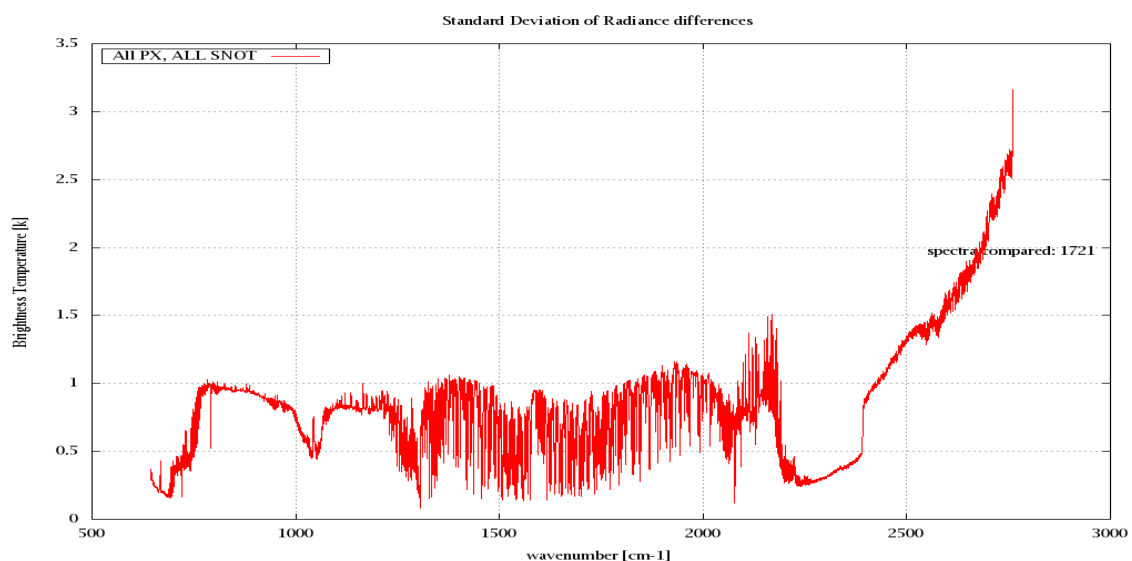


Figure 7: Standard Deviation of Radiance differences

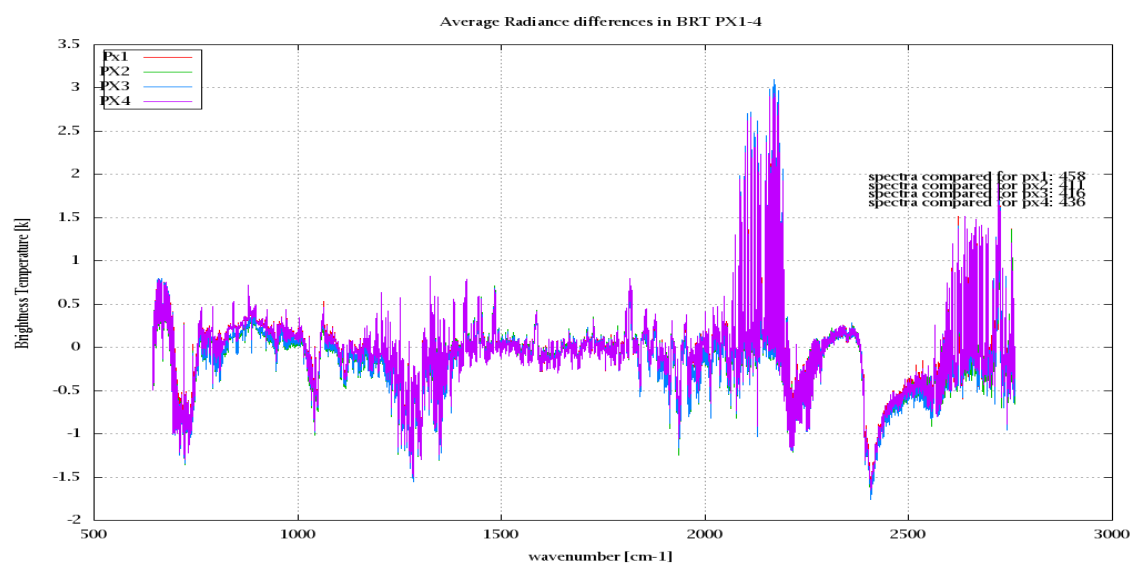


Figure 8: Average Radiance differences: OBS-CAL

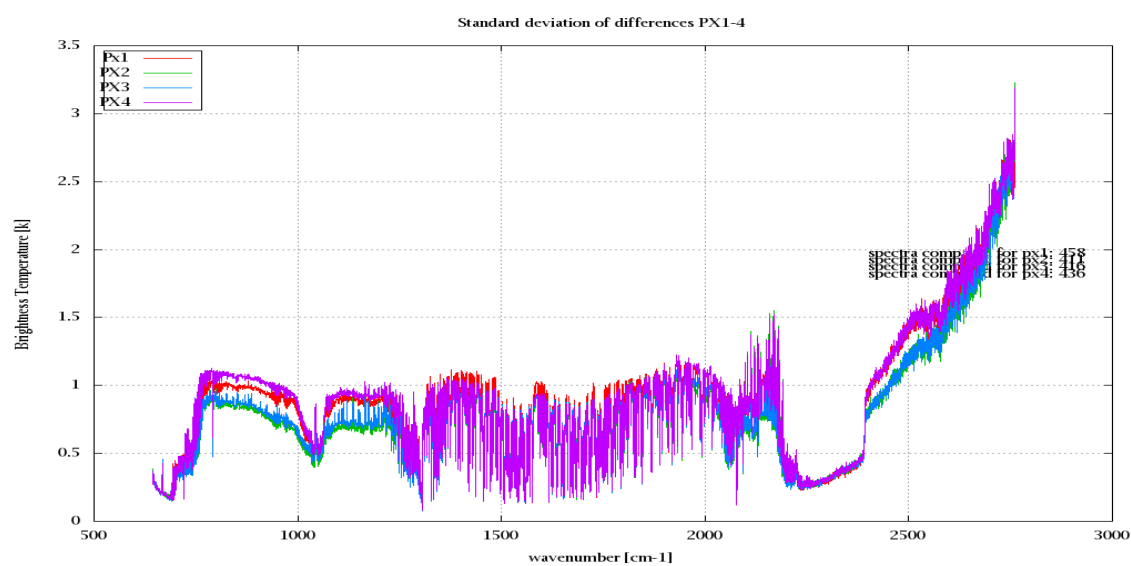


Figure 9: Standard Deviation of Radiance differences

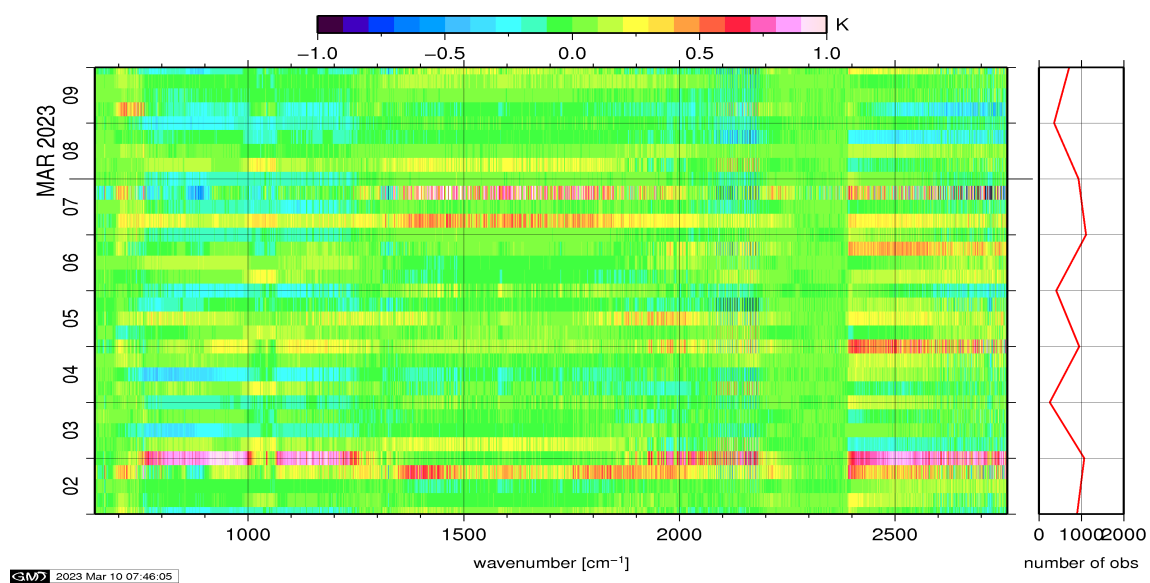


Figure 10: Radiance Anomaly in BT: All Channels

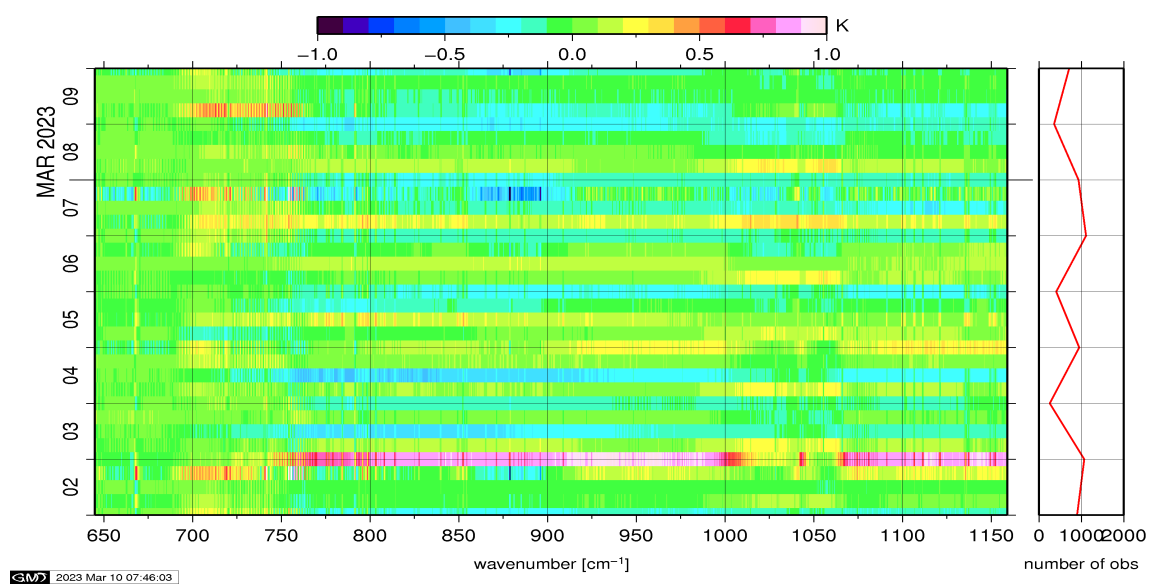


Figure 11: Radiance Anomaly in BT: IASI Band 1

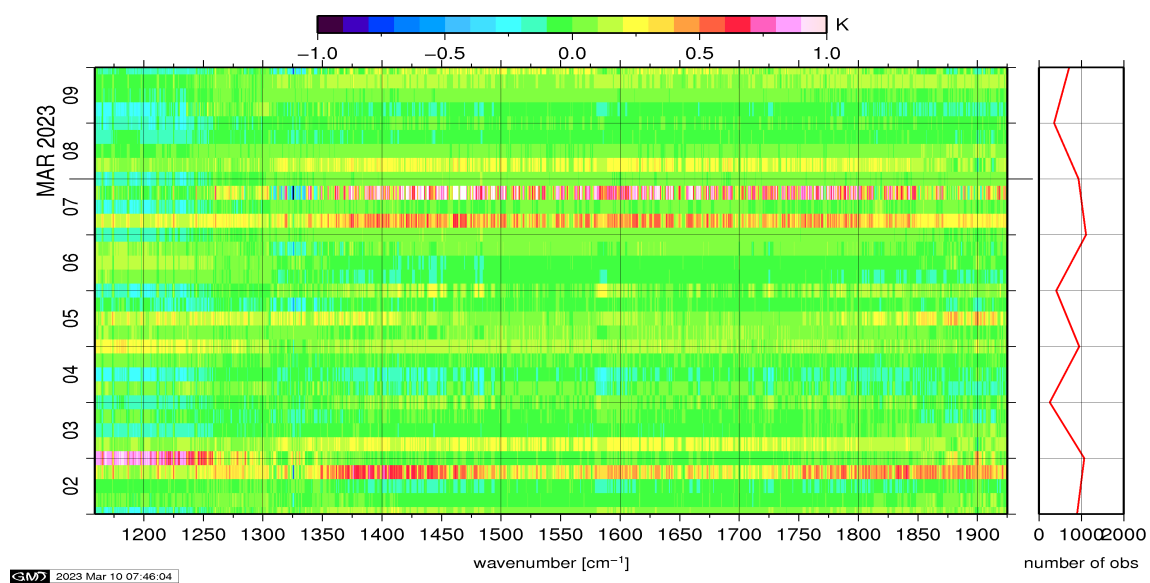


Figure 12: Radiance Anomaly in BT: IASI Band 2

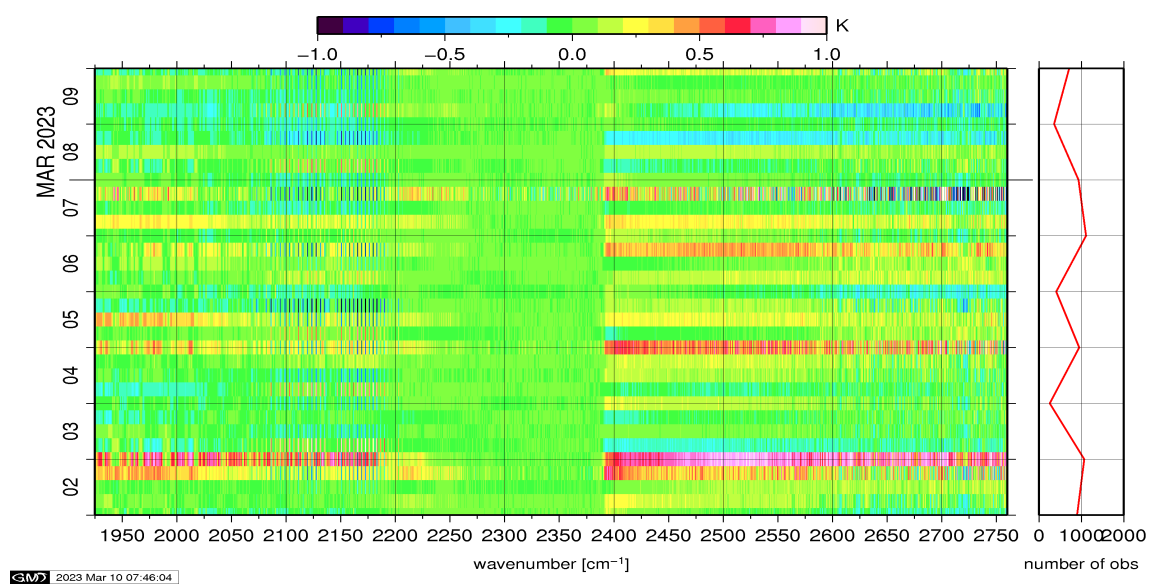


Figure 13: Radiance Anomaly in BT: IASI Band 3

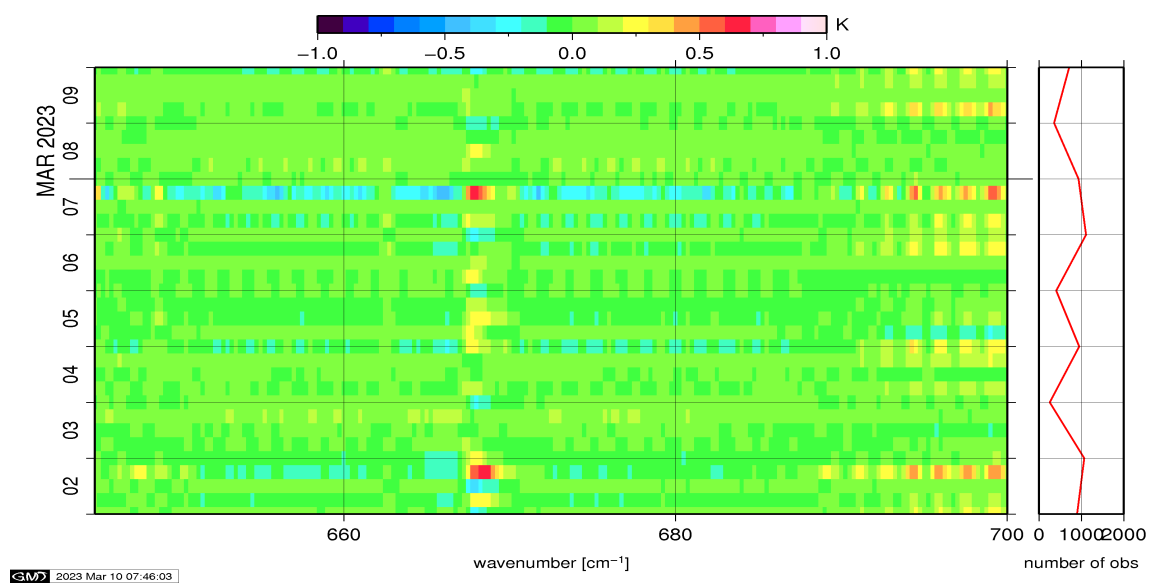


Figure 14: Radiance Anomaly in BT: CO2 14

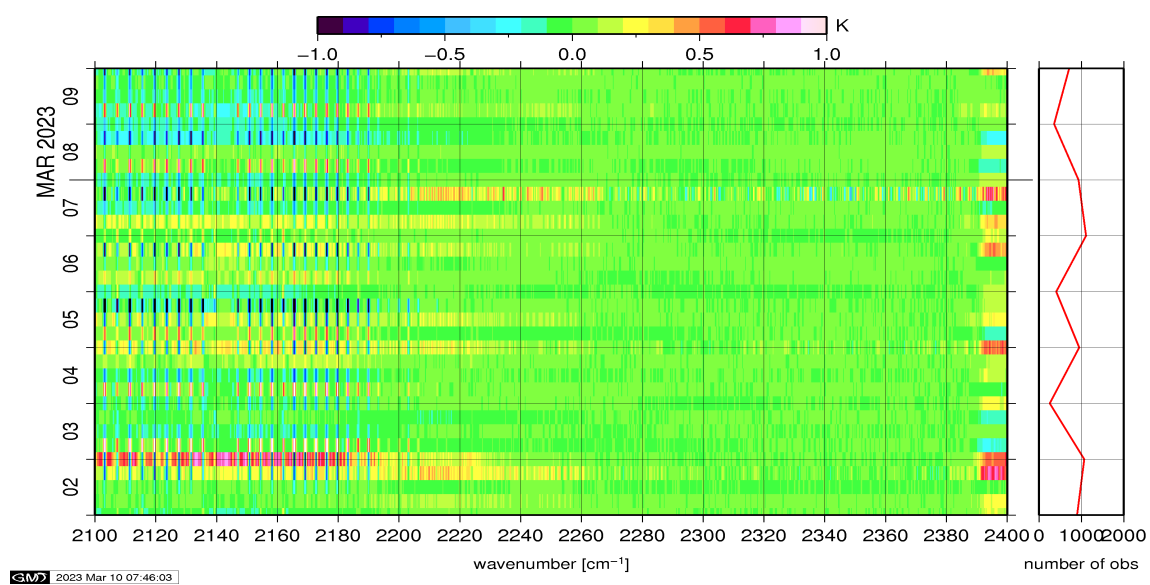


Figure 15: Radiance Anomaly in BT: CO2 4.3

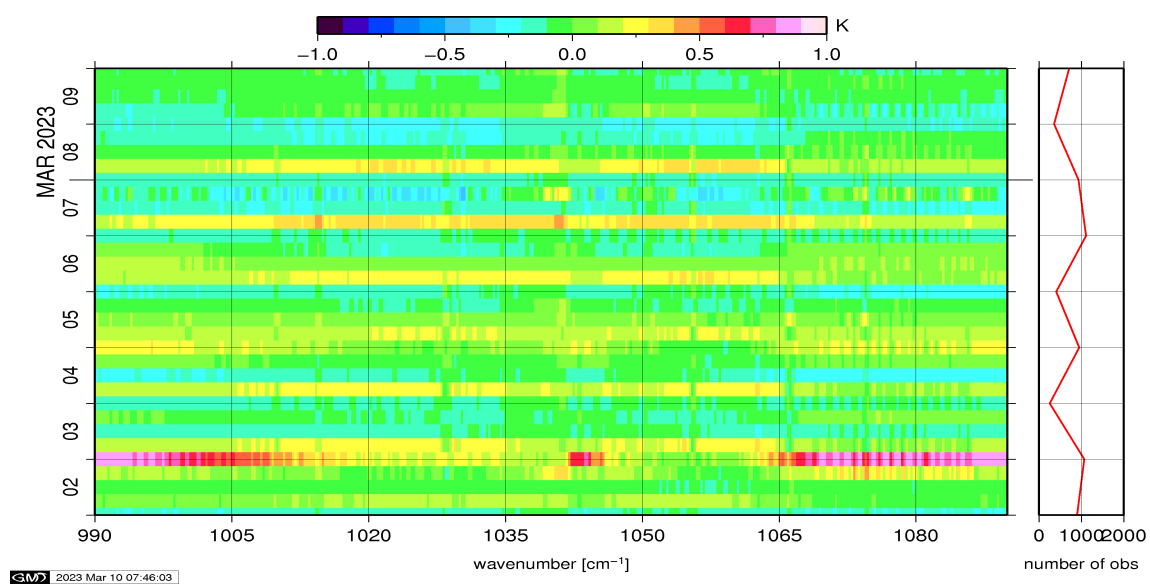


Figure 16: Radiance Anomaly in BT: O3