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

IASI monitoring team

16/06/2024 00:00:00 - 17/06/2024 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 16/06/2024 00:00:00 - 17/06/2024 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 16/06/2024 00:00:00 - 17/06/2024 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	479	-
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)	448	451	20240616091506.818	20240616091507.466
PX1 (130)	452	511	20240616091507.681	20240616091523.466
PX1 (130)	511	513	20240616091523.466	20240616091523.896
PX2 (135)	446	448	20240616091506.384	20240616091506.818
PX2 (135)	450	507	20240616091507.247	20240616091522.599
PX2 (135)	507	510	20240616091522.599	20240616091523.247
PX2 (135)	511	513	20240616091523.466	20240616091523.896
PX2 (135)	513	515	20240616091523.896	20240616091524.329
PX3 (140)	449	506	20240616091507.032	20240616091522.384
PX3 (140)	507	509	20240616091522.599	20240616091523.032
PX4 (145)	447	450	20240616091506.599	20240616091507.247
PX4 (145)	452	508	20240616091507.681	20240616091522.817
PX4 (145)	509	511	20240616091523.032	20240616091523.466
PX4 (145)	513	515	20240616091523.896	20240616091524.329
IMG (150)	13498	13502	20240616091506.384	20240616091507.247
IMG (150)	13502	13504	20240616091507.247	20240616091507.681
IMG (150)	13504	13507	20240616091507.681	20240616091508.329
IMG (150)	13507	13560	20240616091508.329	20240616091520.872
IMG (150)	13560	13566	20240616091520.872	20240616091522.384

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	13566	13570	20240616091522.384	20240616091523.247
VER (160)	16382	0	20240616053759.797	20240616053807.797
VER (160)	3	16383	20240616053807.797	20240616053807.797
VER (160)	-1	4	20240616053807.797	20240616053815.797
VER (160)	8138	8149	20240616091503.790	20240616091527.790
VER (160)	16379	0	20240616201143.723	20240616201151.723
VER (160)	0	16380	20240616201151.723	20240616201151.723
VER (160)	-1	1	20240616201151.723	20240616201159.723
AUX (180)	11454	11457	20240616091504.224	20240616091528.220

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
16/06/2024 00:00:10	-	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	479	-
GQisFlagQual set (PX1)	99.59 %	-
GQisFlagQual set (PX2)	99.62 %	-
GQisFlagQual set (PX3)	99.64 %	-
GQisFlagQual set (PX4)	99.57 %	-
GQisFlagQual set (all)	99.60 %	-

Table 4: Quality flags

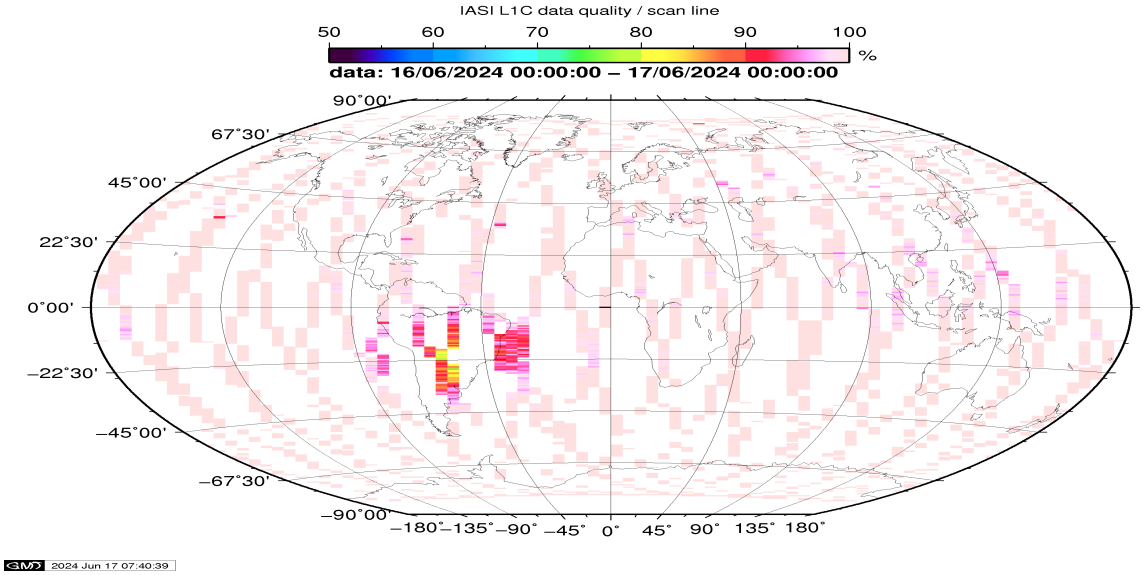

Figure 1: L1C data quality

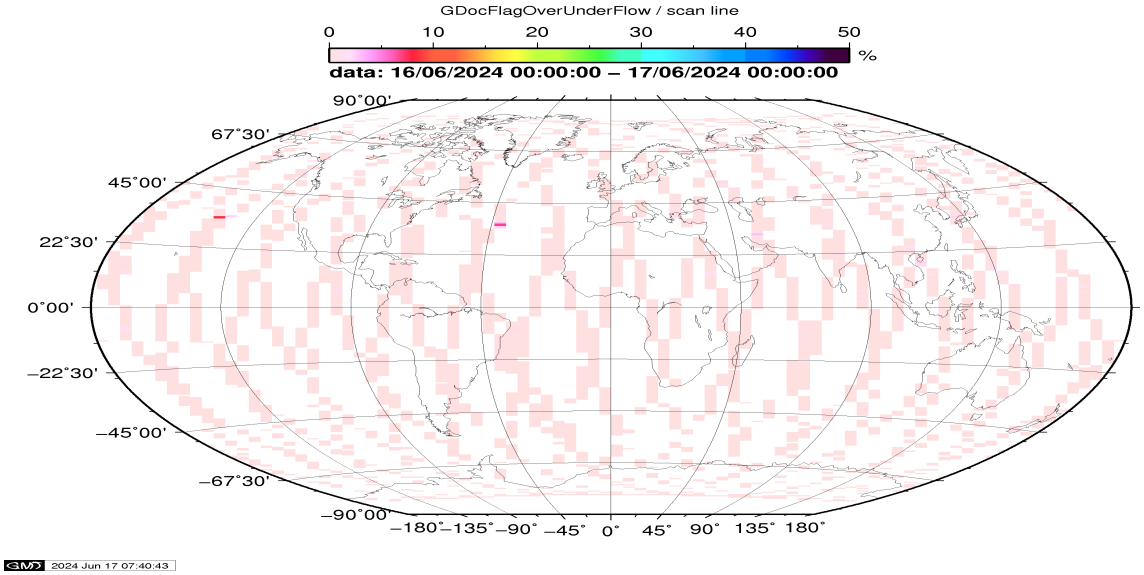

Figure 2: Flag of Over and Under Flows

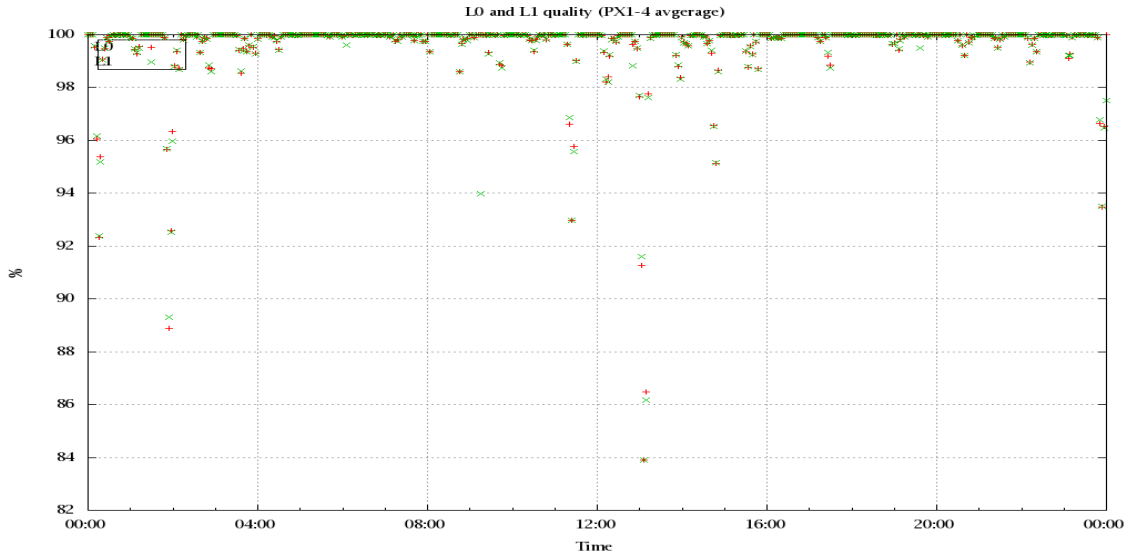

Figure 3: Level 0 and 1C overall quality

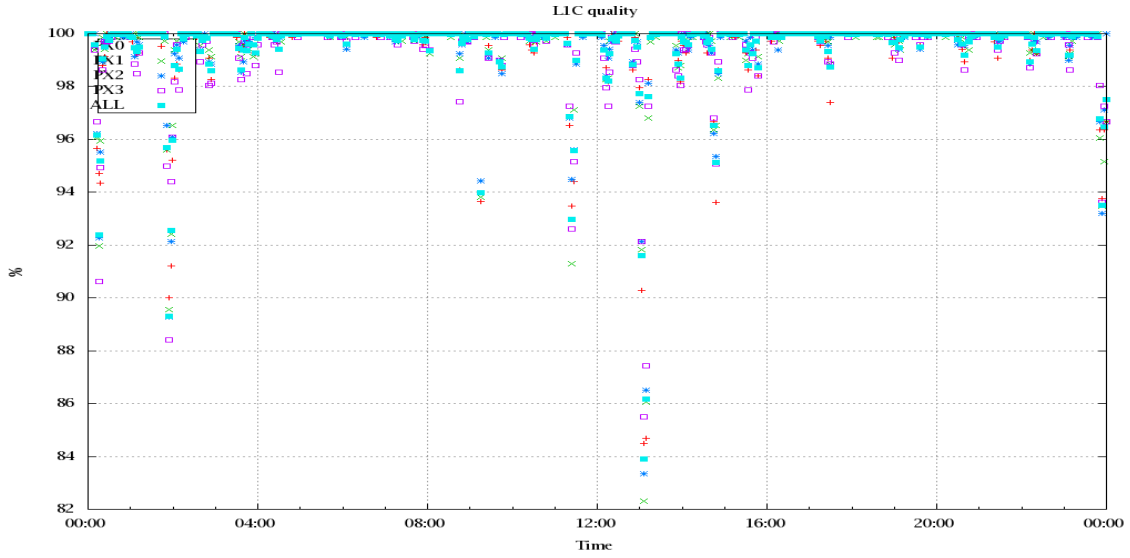

Figure 4: Level 1C quality

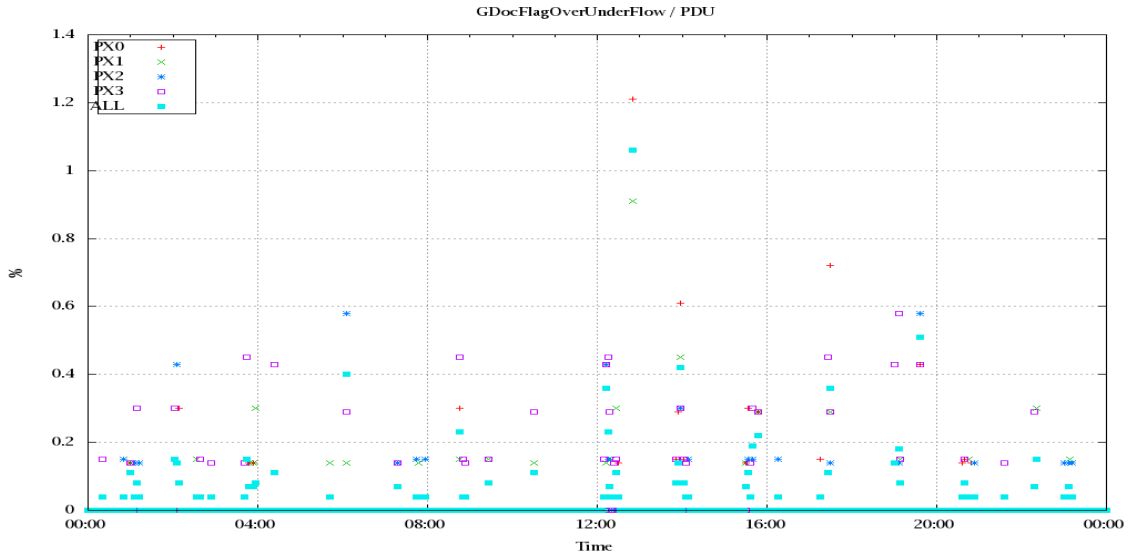

Figure 5: Timeseries of flag of Over and Under Flows

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 indentification 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.

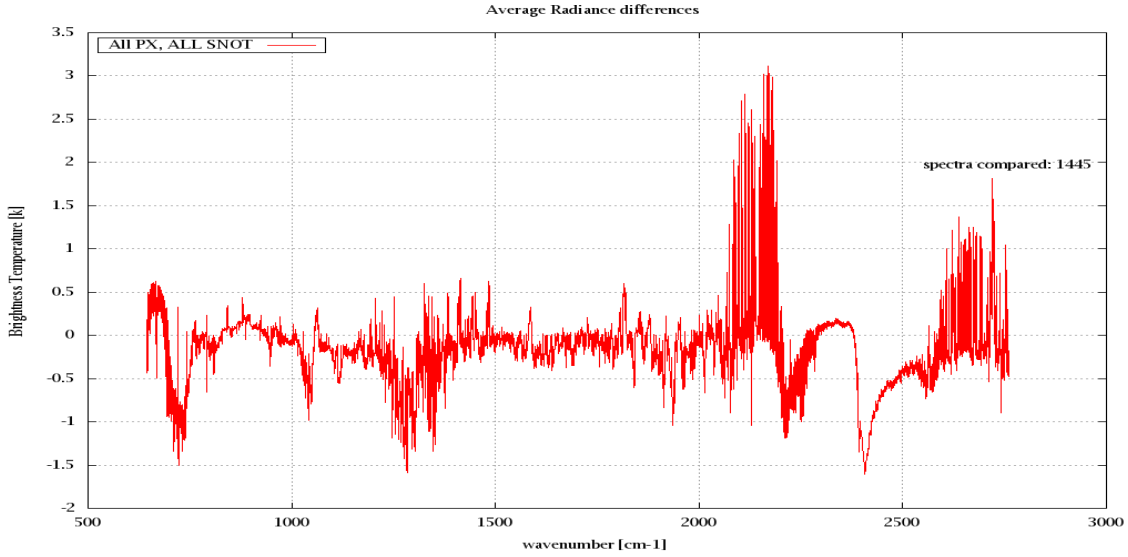

Figure 6: Average Radiance differences: OBS-CAL

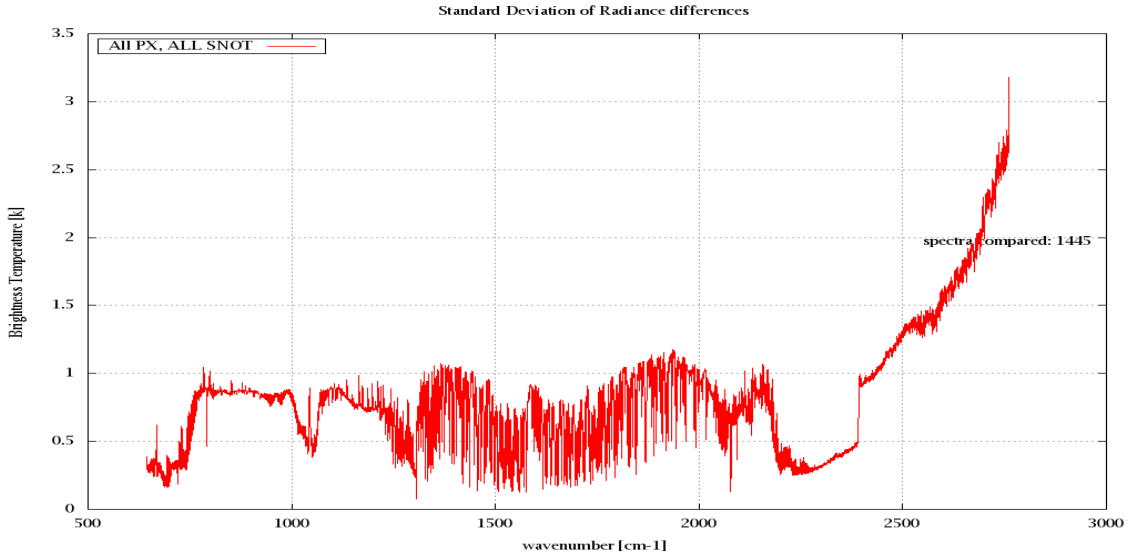

Figure 7: Standard Deviation of Radiance differences

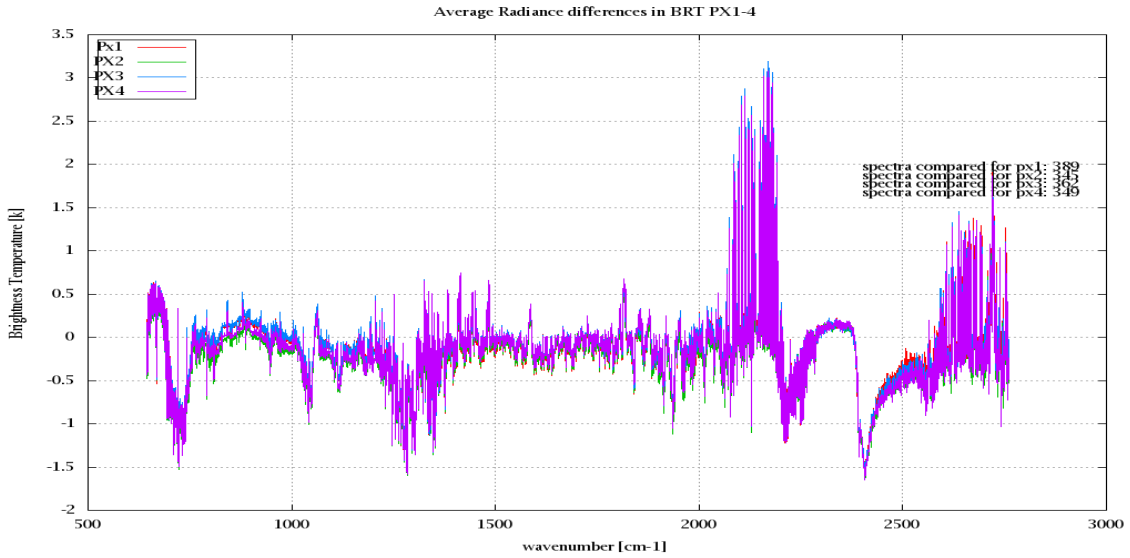

Figure 8: Average Radiance differences: OBS-CAL

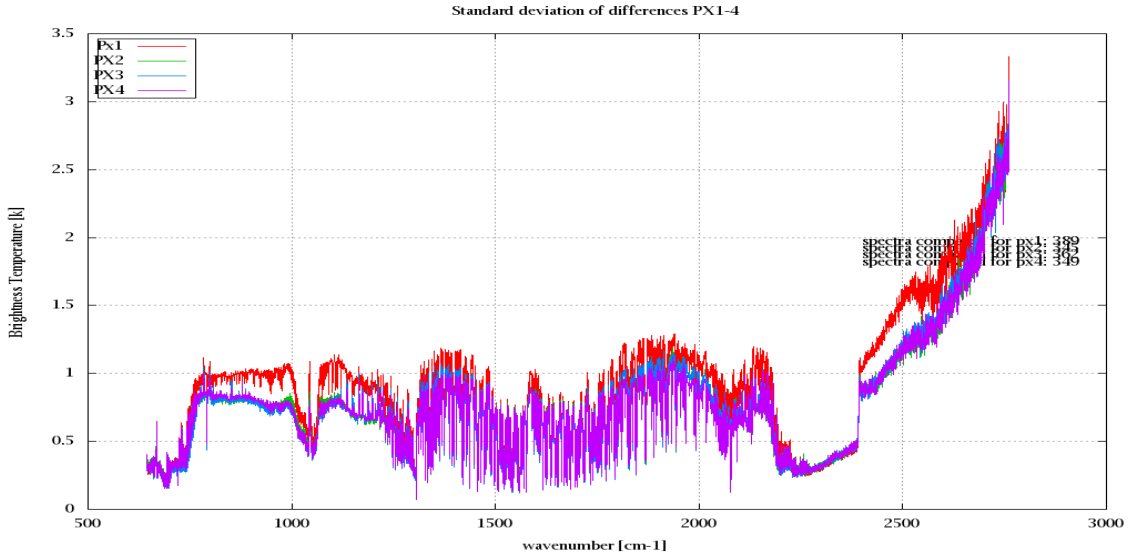

Figure 9: Standard Deviation of Radiance differences

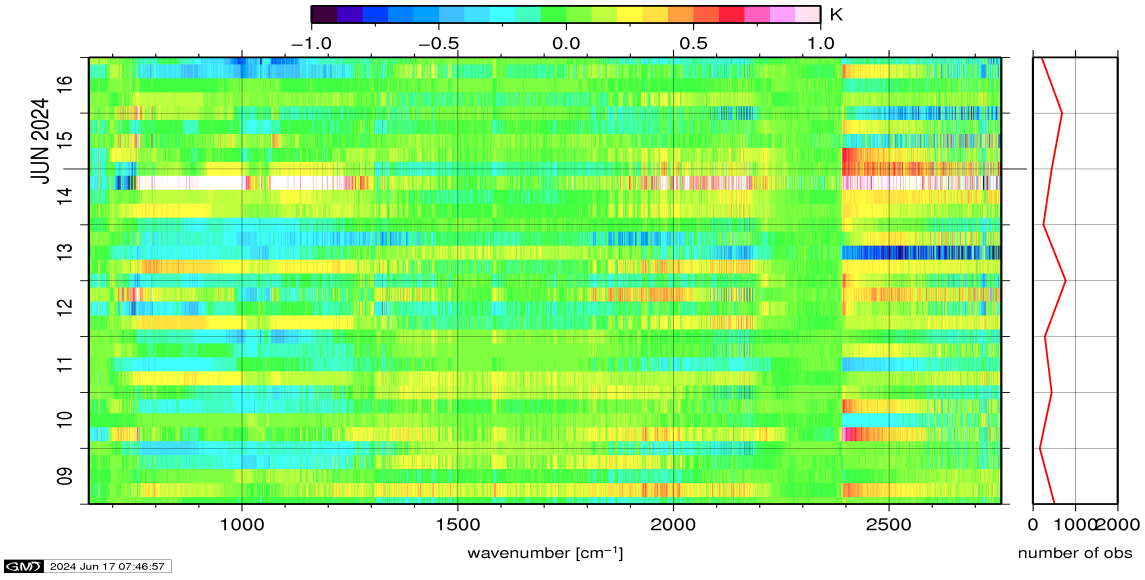

Figure 10: Radiance Anomaly in BT: All Channels

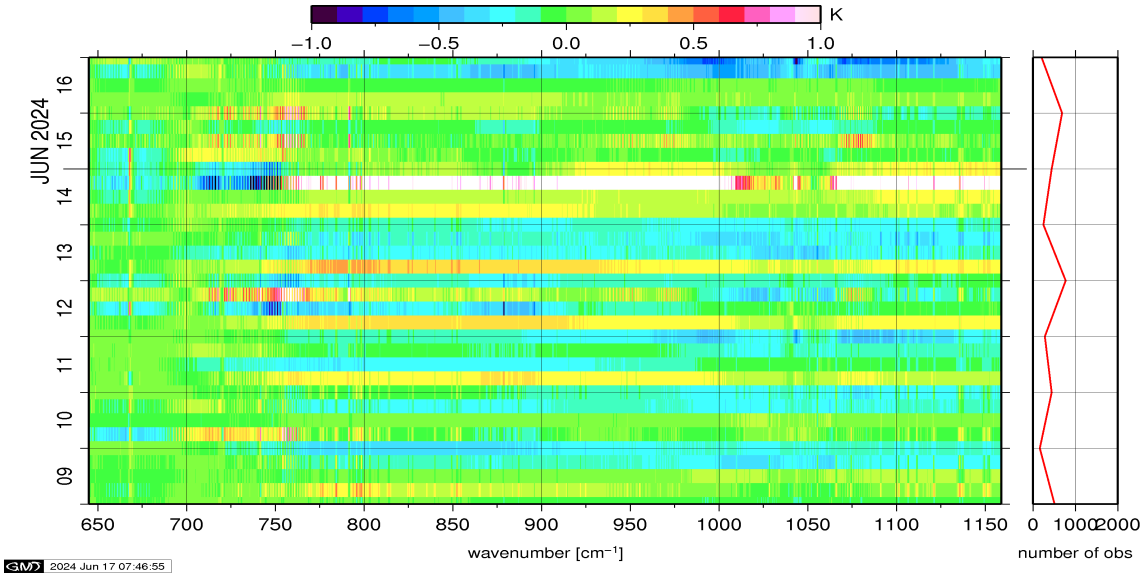

Figure 11: Radiance Anomaly in BT: IASI Band 1

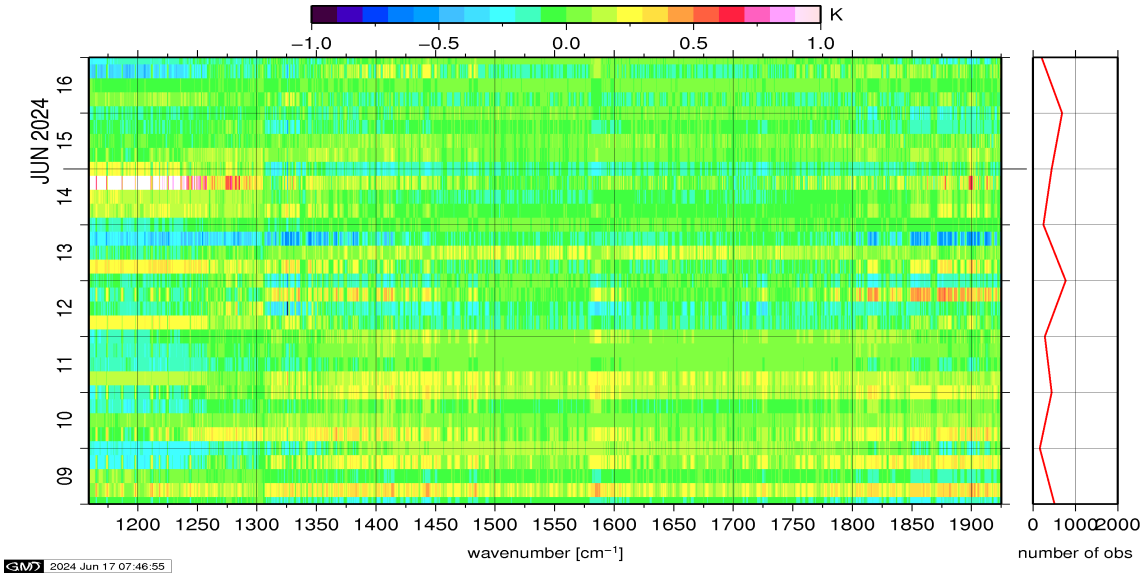

Figure 12: Radiance Anomaly in BT: IASI Band 2

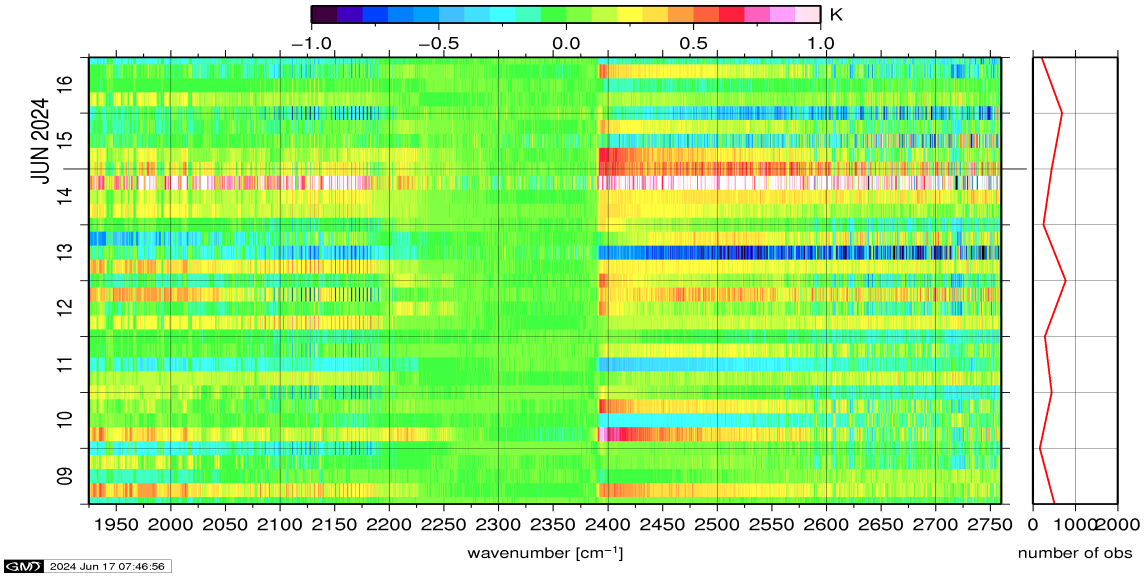

Figure 13: Radiance Anomaly in BT: IASI Band 3

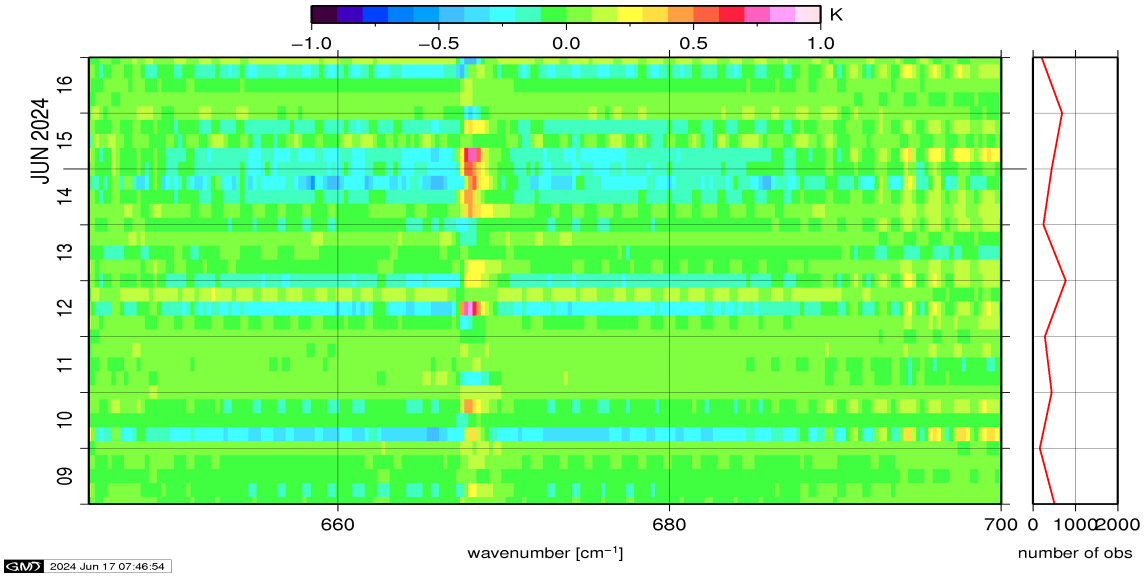

Figure 14: Radiance Anomaly in BT: CO2 14

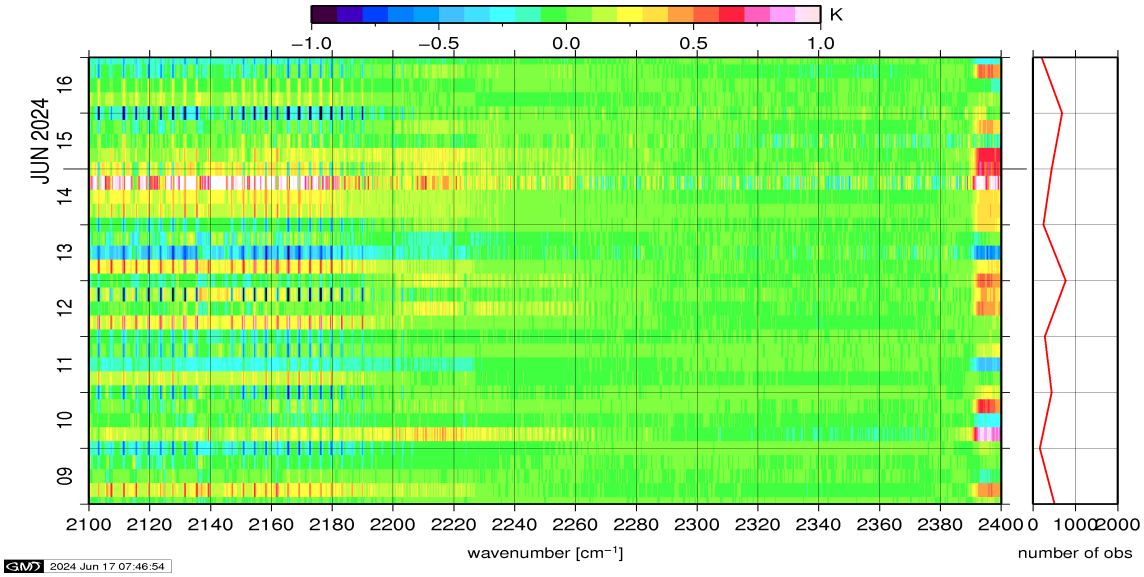

Figure 15: Radiance Anomaly in BT: CO2 4.3

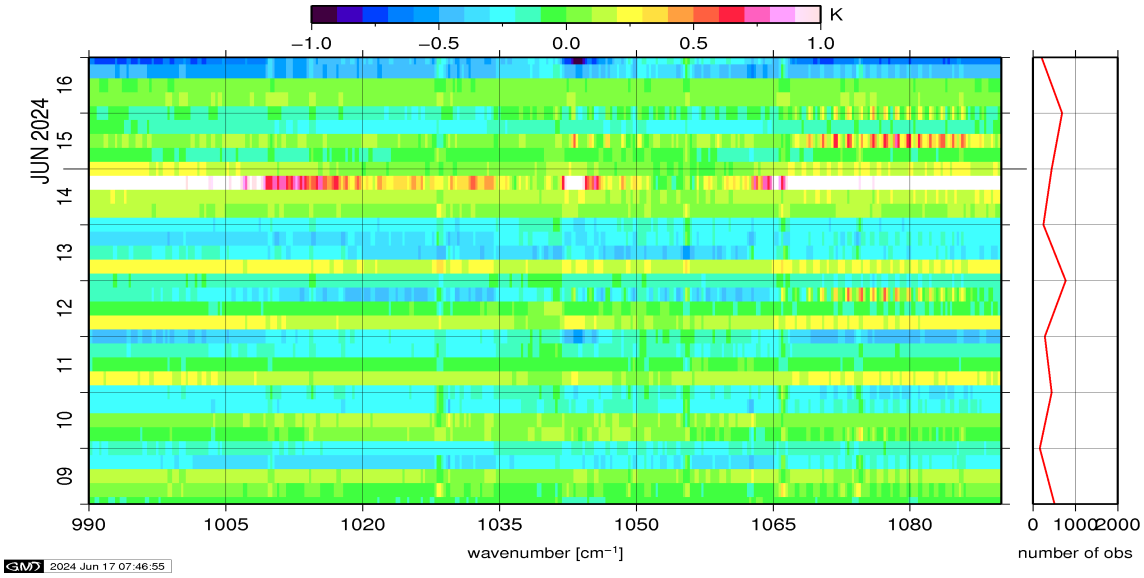

Figure 16: Radiance Anomaly in BT: O3