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

IASI monitoring team

12/07/2024 00:00:00 - 13/07/2024 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 12/07/2024 00:00:00 - 13/07/2024 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 12/07/2024 00:00:00 - 13/07/2024 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)	7528	7530	20240712021756.443	20240712021758.388
PX1 (130)	5815	5817	20240712032308.668	20240712032310.613
PX2 (135)	-	-	-	-
PX3 (140)	-	-	-	-
PX4 (145)	2821	2823	20240712015702.601	20240712015703.034
PX4 (145)	9859	9861	20240712034107.381	20240712034107.811
IMG (150)	10966	10968	20240712015341.093	20240712015341.741
VER (160)	16382	0	20240712003500.674	20240712003508.674
VER (160)	3	16383	20240712003508.674	20240712003508.674
VER (160)	-1	4	20240712003508.674	20240712003516.674
VER (160)	16379	0	20240712150844.596	20240712150852.596
VER (160)	0	16380	20240712150852.596	20240712150852.596
VER (160)	-1	1	20240712150852.596	20240712150900.596
VER (160)	16380	0	20240712222540.578	20240712222548.578
VER (160)	1	16381	20240712222548.578	20240712222548.578
VER (160)	-1	2	20240712222548.578	20240712222556.575
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
12/07/2024 00:00:07	-	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)	99.61 %	-
GQisFlagQual set (PX2)	99.67 %	-
GQisFlagQual set (PX3)	99.66 %	-
GQisFlagQual set (PX4)	99.60 %	-
GQisFlagQual set (all)	99.63 %	-

Table 4: Quality flags

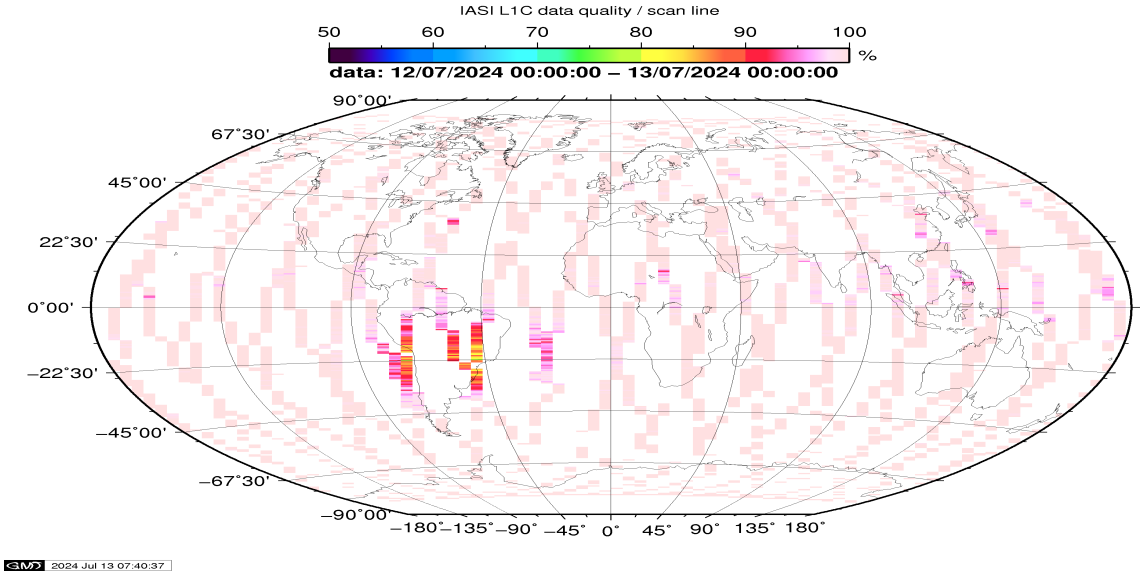

Figure 1: L1C data quality

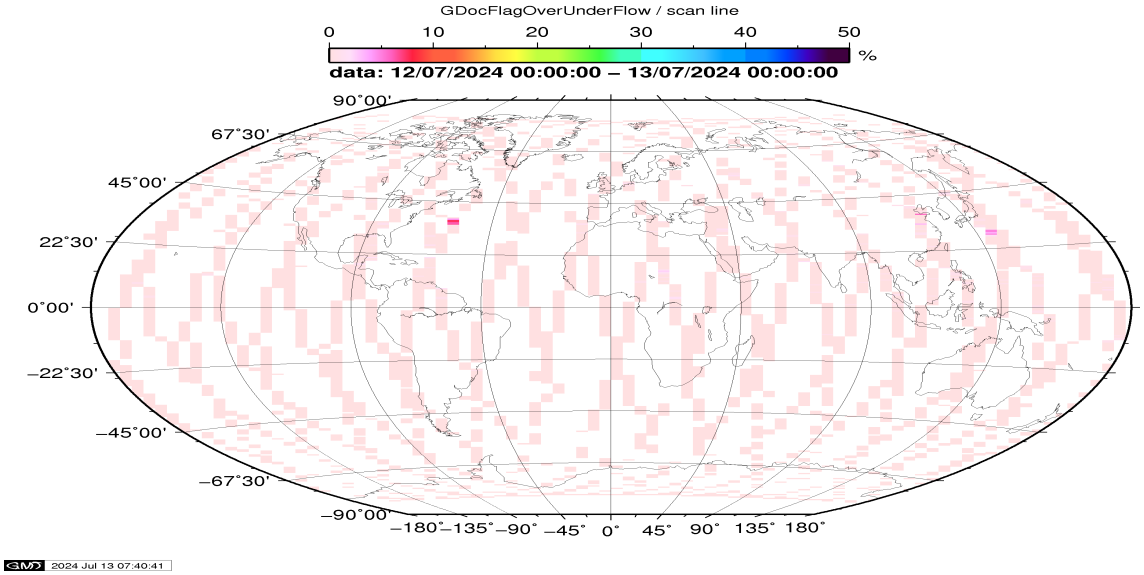

Figure 2: Flag of Over and Under Flows

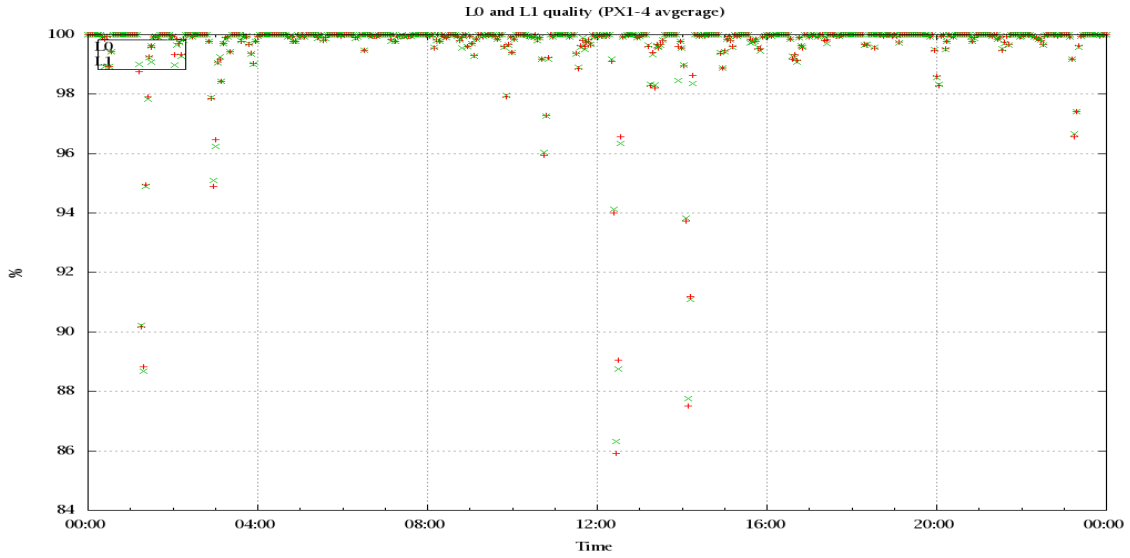

Figure 3: Level 0 and 1C overall quality

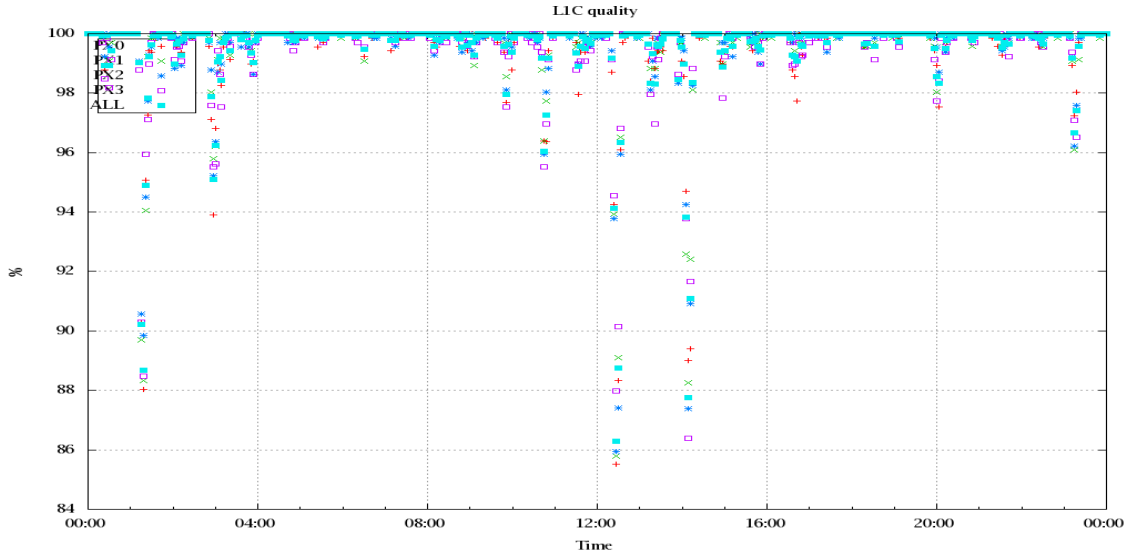

Figure 4: Level 1C quality

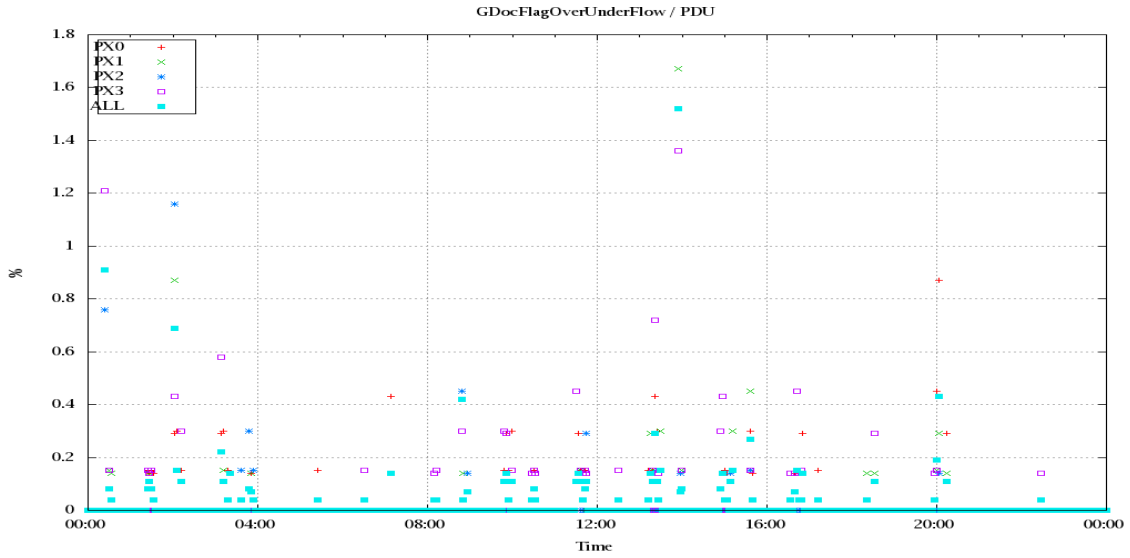

Figure 5: Timeseries of flag of Over and Under Flows

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.

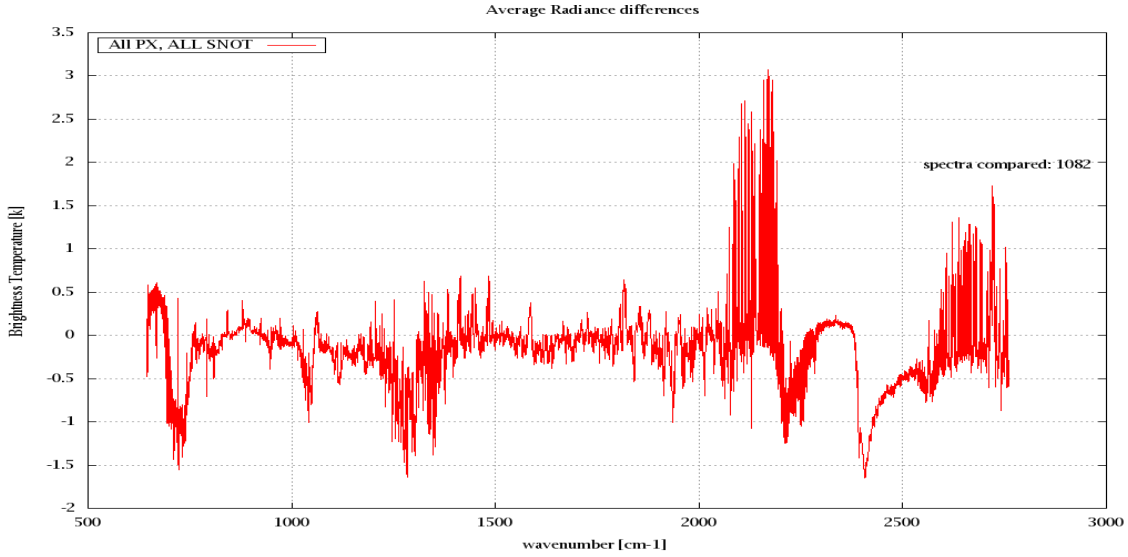

Figure 6: Average Radiance differences: OBS-CAL

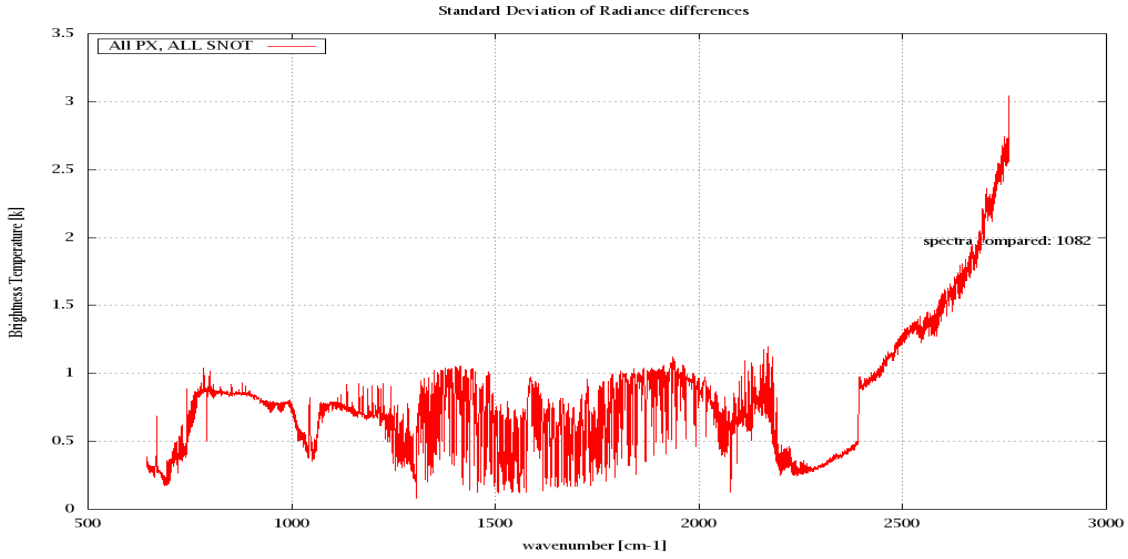

Figure 7: Standard Deviation of Radiance differences

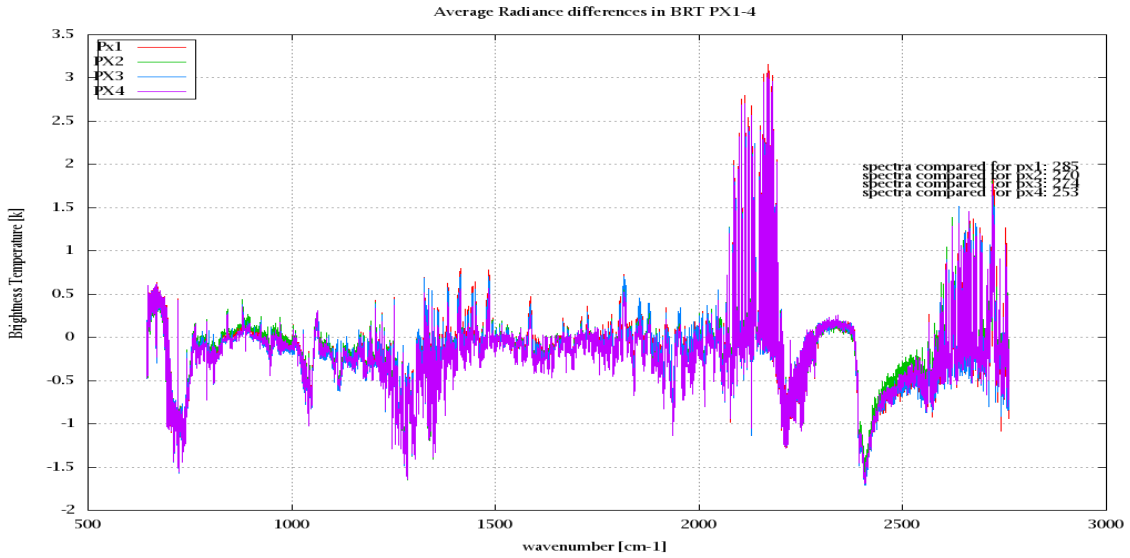

Figure 8: Average Radiance differences: OBS-CAL

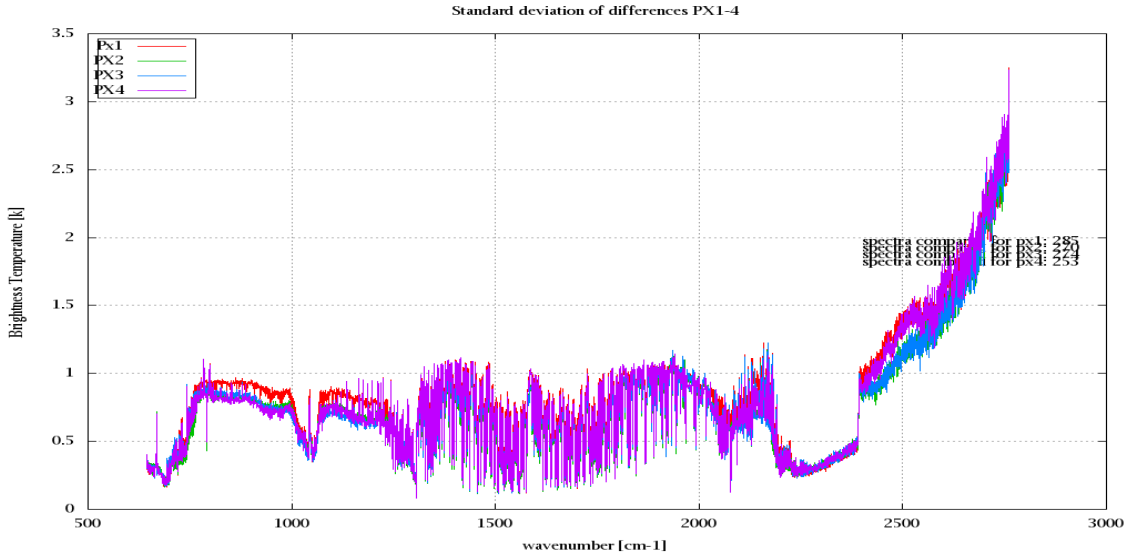

Figure 9: Standard Deviation of Radiance differences

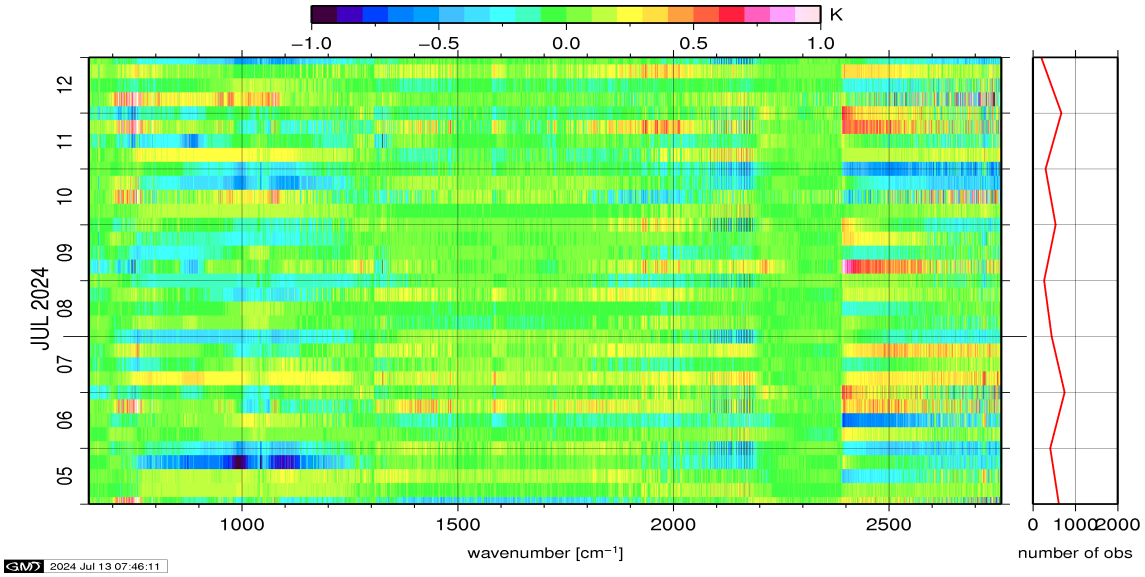

Figure 10: Radiance Anomaly in BT: All Channels

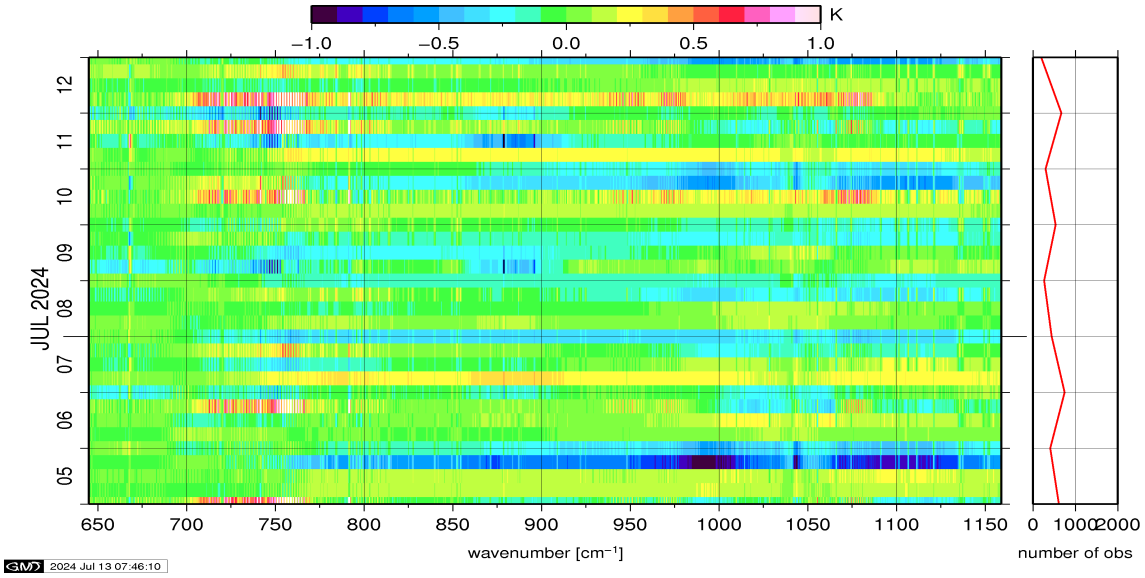

Figure 11: Radiance Anomaly in BT: IASI Band 1

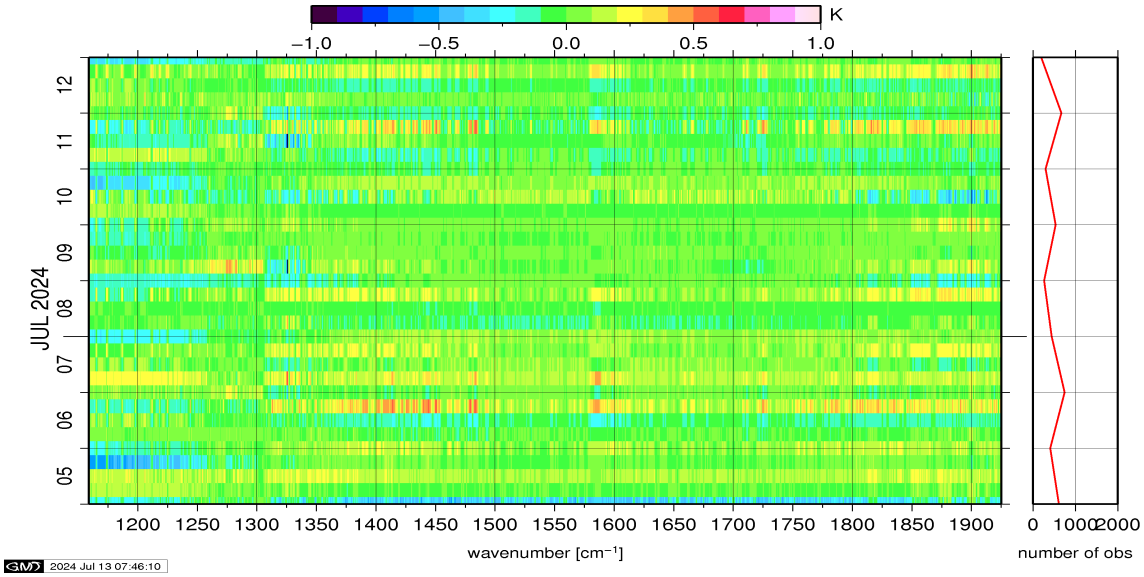

Figure 12: Radiance Anomaly in BT: IASI Band 2

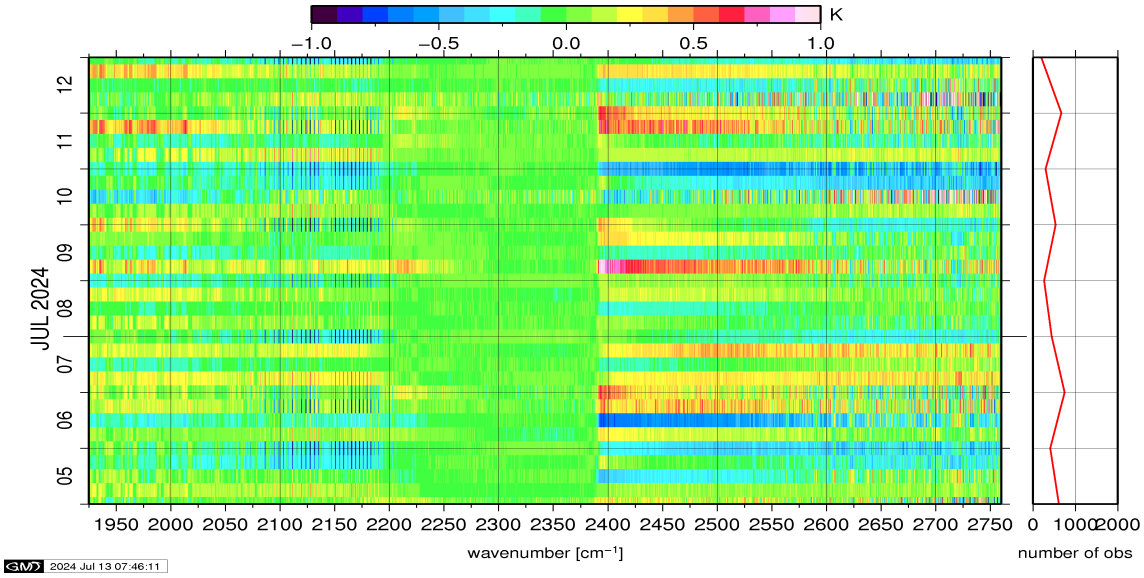

Figure 13: Radiance Anomaly in BT: IASI Band 3

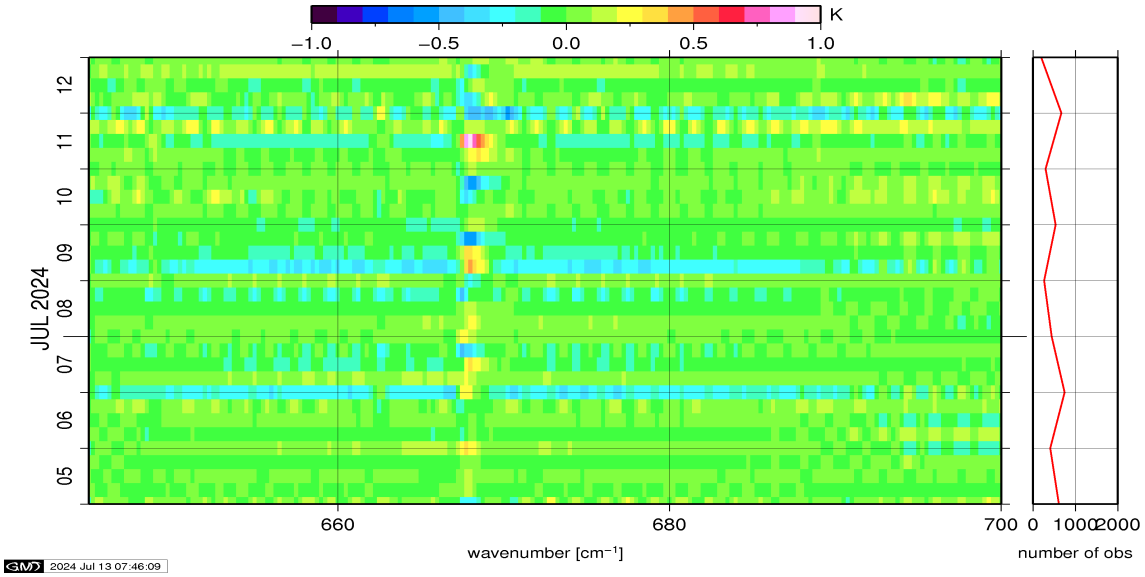

Figure 14: Radiance Anomaly in BT: CO2 14

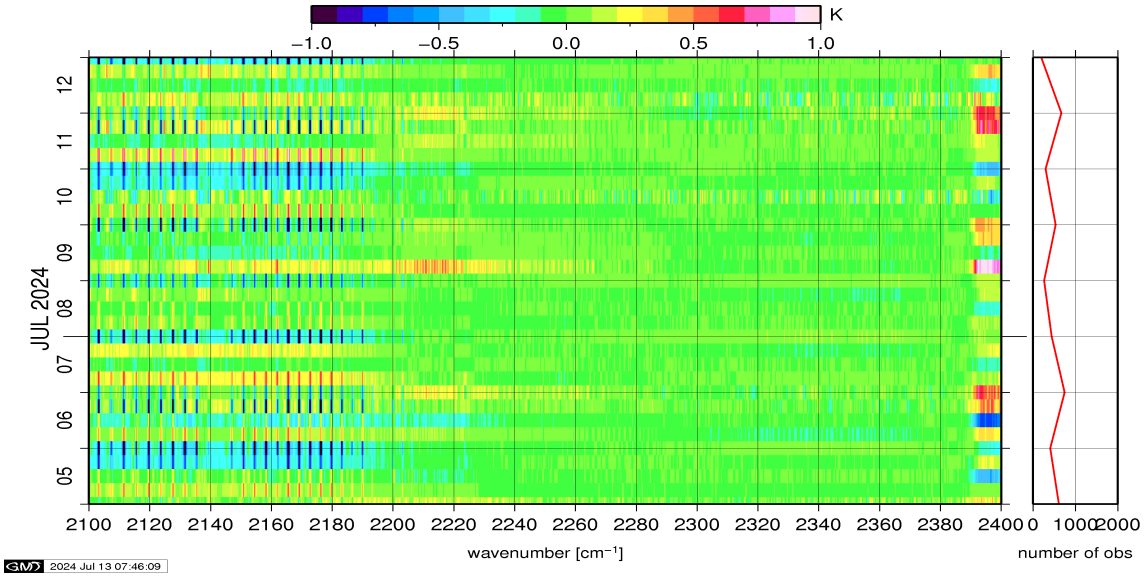

Figure 15: Radiance Anomaly in BT: CO2 4.3

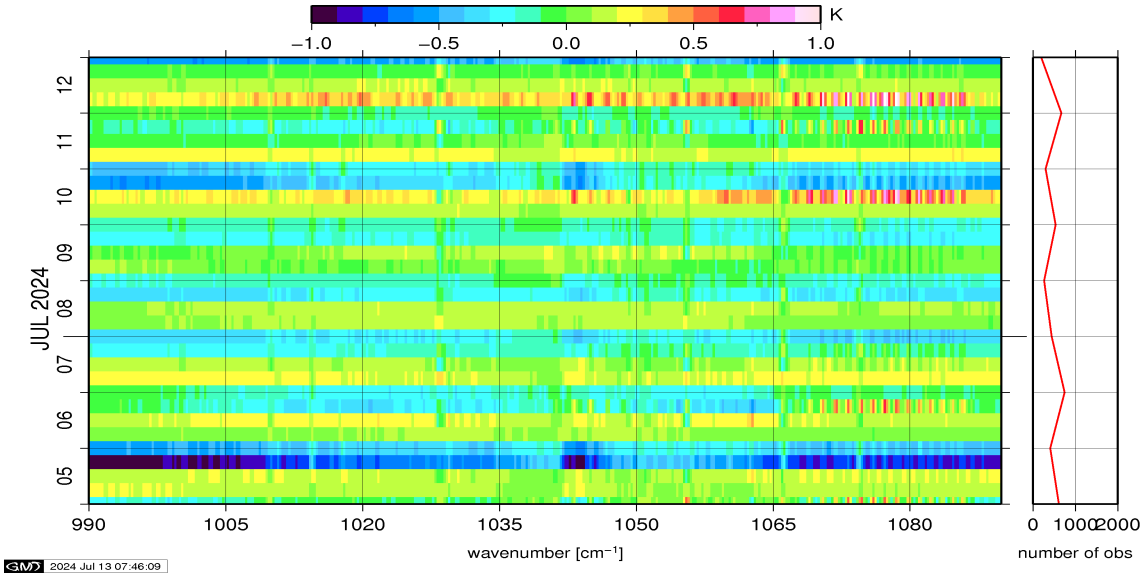

Figure 16: Radiance Anomaly in BT: O3