

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

IASI monitoring team

03/09/2023 00:00:00 - 04/09/2023 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 03/09/2023 00:00:00 - 04/09/2023 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 03/09/2023 00:00:00 - 04/09/2023 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)	-	-	-	-
PX2 (135)	-	-	-	-
PX3 (140)	-	-	-	-
PX4 (145)	-	-	-	-
IMG (150)	-	-	-	-
VER (160)	16380	0	20230903044556.328	20230903044604.328
VER (160)	1	16381	20230903044604.328	20230903044604.328
VER (160)	-1	2	20230903044604.328	20230903044612.328
VER (160)	16381	0	20230903120252.306	20230903120300.306
VER (160)	2	16382	20230903120300.306	20230903120300.306
VER (160)	-1	3	20230903120300.306	20230903120308.306
VER (160)	16379	0	20230903193332.263	20230903193340.263
VER (160)	0	16380	20230903193340.263	20230903193340.263
VER (160)	-1	1	20230903193340.263	20230903193348.263
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
03/09/2023 00:00:06	-	Normal operation
03/09/2023 15:03:02	Normal operation	Auxiliary ASE synchronised
03/09/2023 15:27:50	External calibration	Auxiliary ASE synchronised
03/09/2023 15:29:58	Auxiliary ASE synchronised	Normal operation
03/09/2023 17:12:38	External calibration	Auxiliary ASE synchronised
03/09/2023 17:14:30	Auxiliary ASE synchronised	Normal operation
03/09/2023 18:57:42	External calibration	Auxiliary ASE synchronised
03/09/2023 18:59:50	Auxiliary ASE synchronised	Normal operation
03/09/2023 20:43:18	External calibration	Auxiliary ASE synchronised
03/09/2023 20:45:26	Auxiliary ASE synchronised	Normal operation
03/09/2023 22:28:54	External calibration	Auxiliary ASE synchronised
03/09/2023 22:31:02	Auxiliary ASE synchronised	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)	99.25 %	-
GQisFlagQual set (PX2)	99.49 %	-
GQisFlagQual set (PX3)	99.48 %	-
GQisFlagQual set (PX4)	95.75 %	-
GQisFlagQual set (all)	98.49 %	-

Table 4: Quality flags

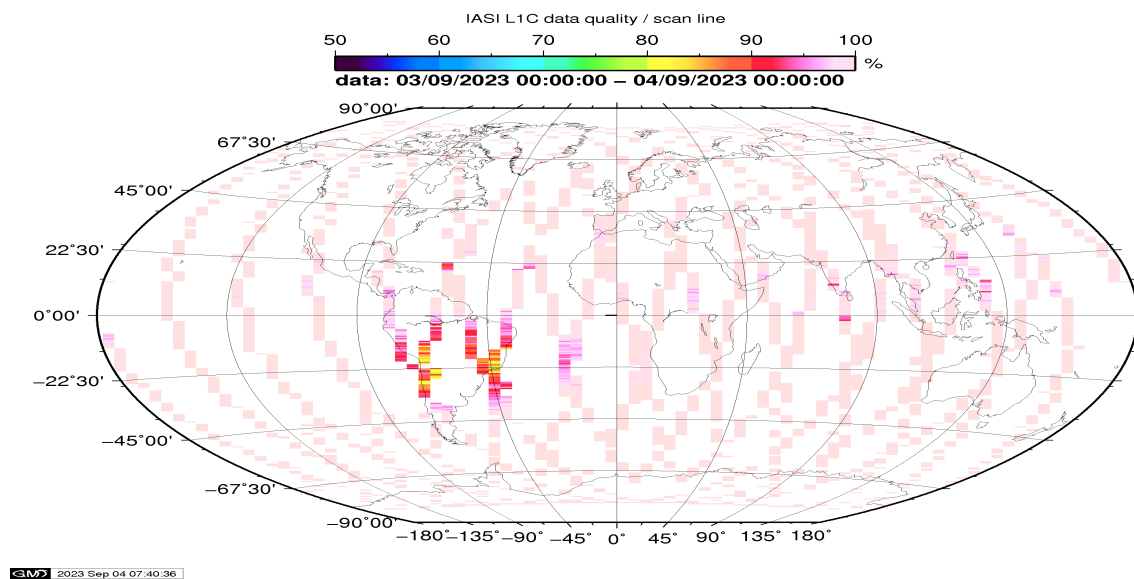


Figure 1: L1C data quality

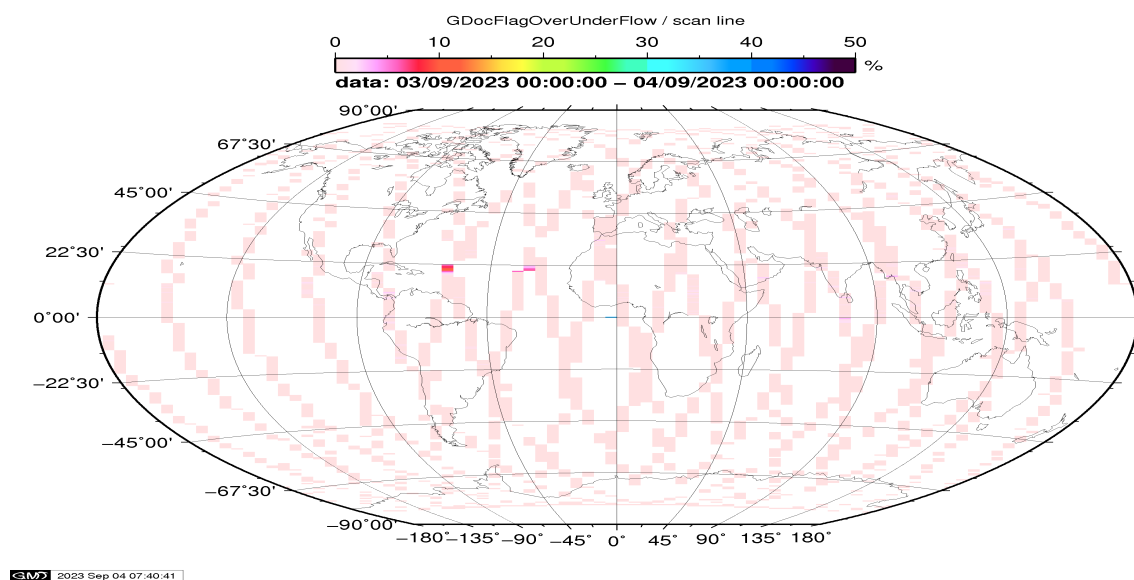


Figure 2: Flag of Over and Under Flows

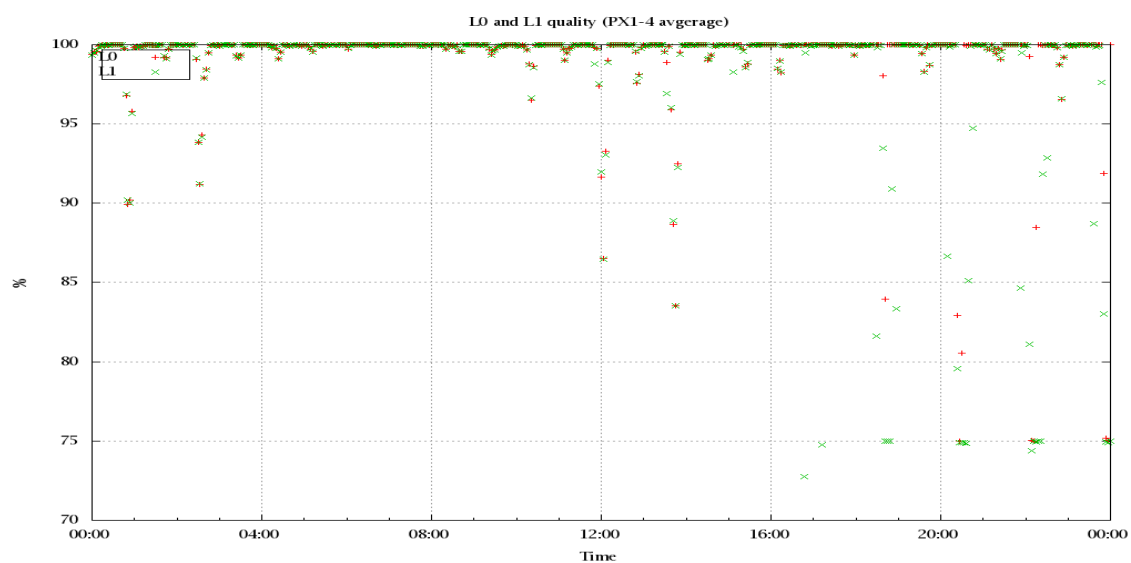


Figure 3: Level 0 and 1C overall quality

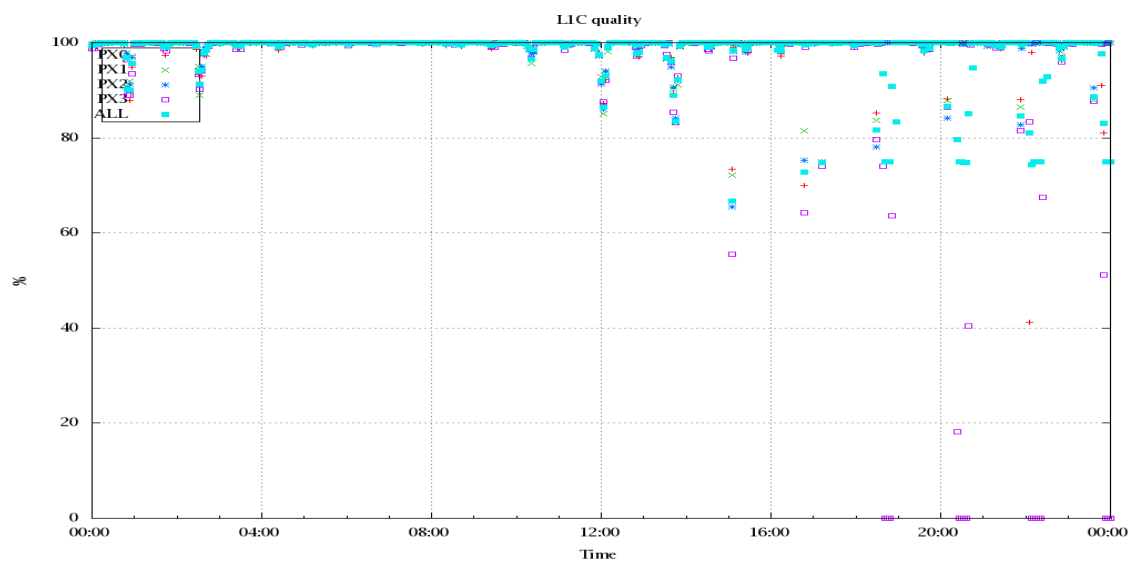


Figure 4: Level 1C quality

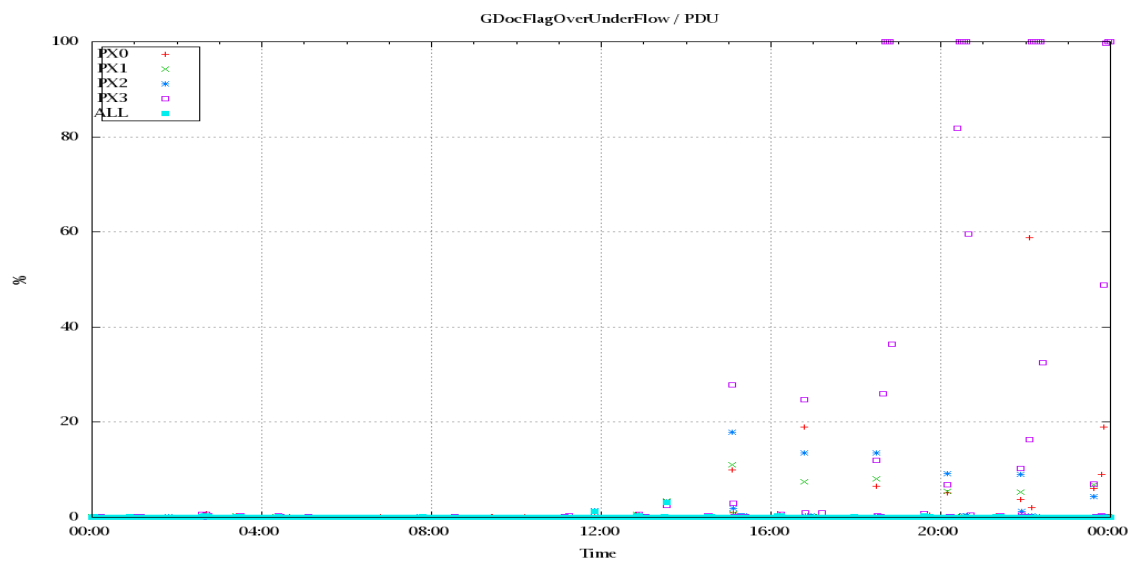


Figure 5: Timeseries of flag of Over and Under Flows

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.

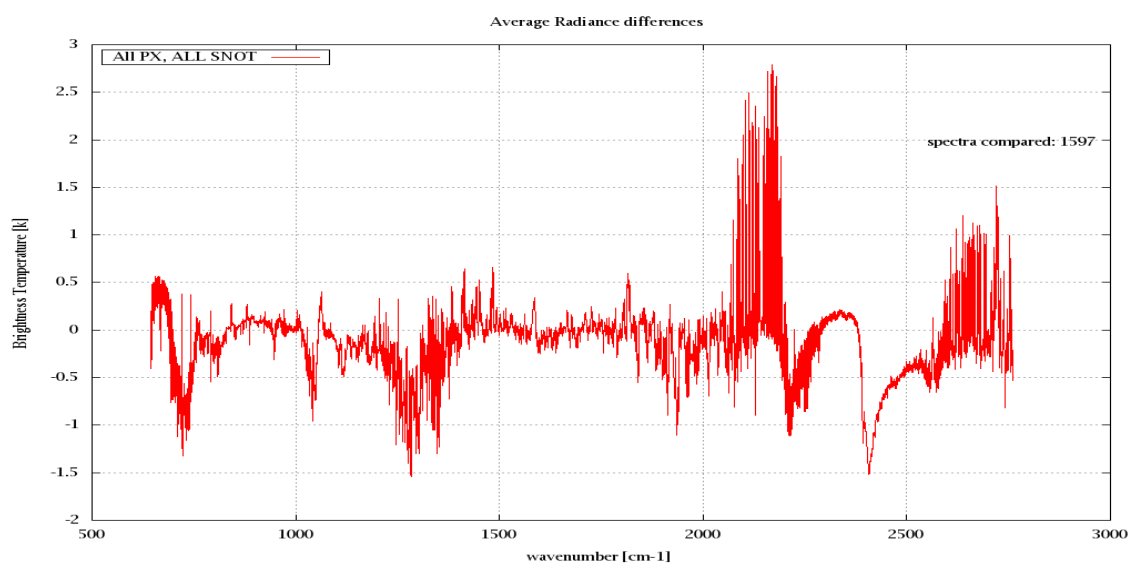


Figure 6: Average Radiance differences: OBS-CAL

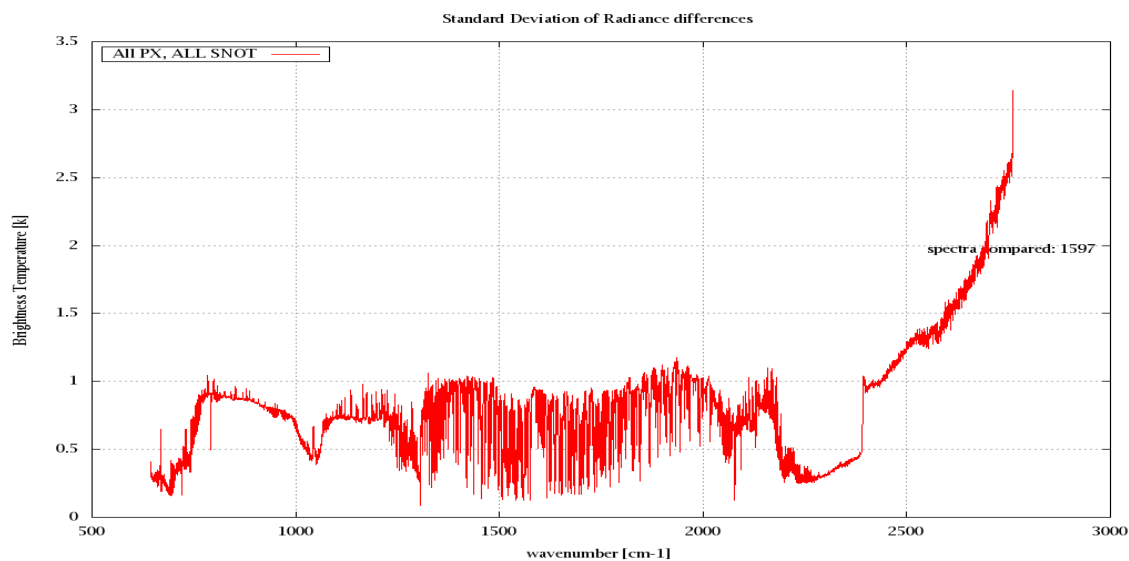


Figure 7: Standard Deviation of Radiance differences

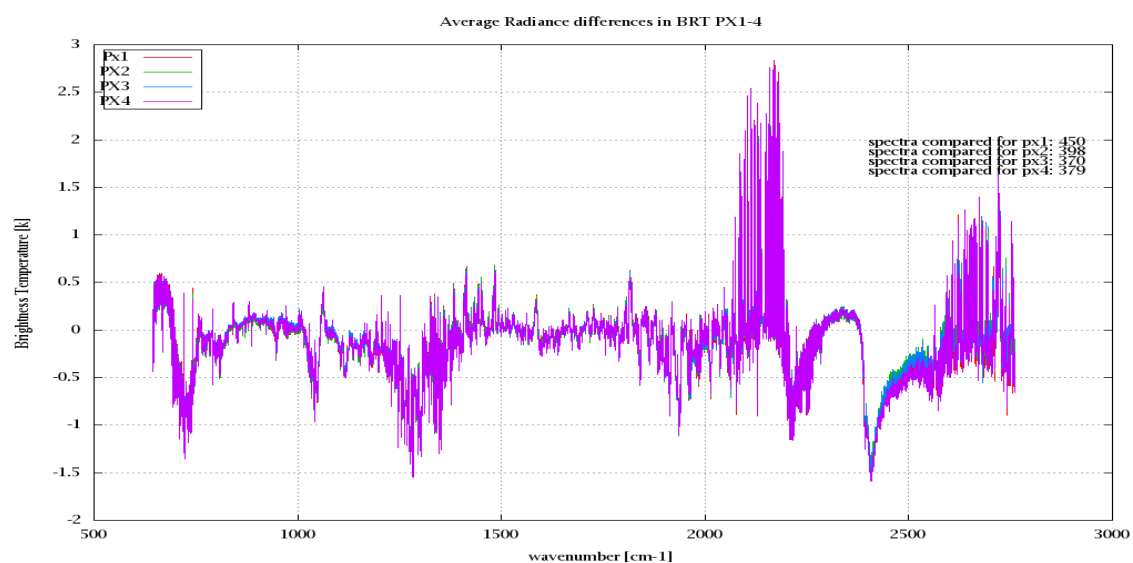


Figure 8: Average Radiance differences: OBS-CAL

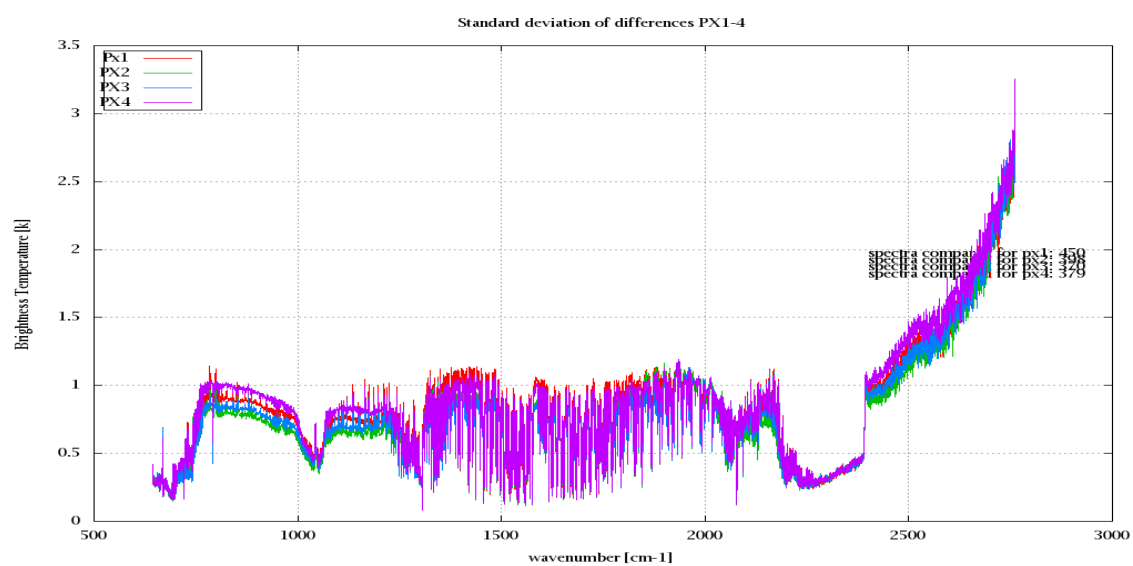


Figure 9: Standard Deviation of Radiance differences

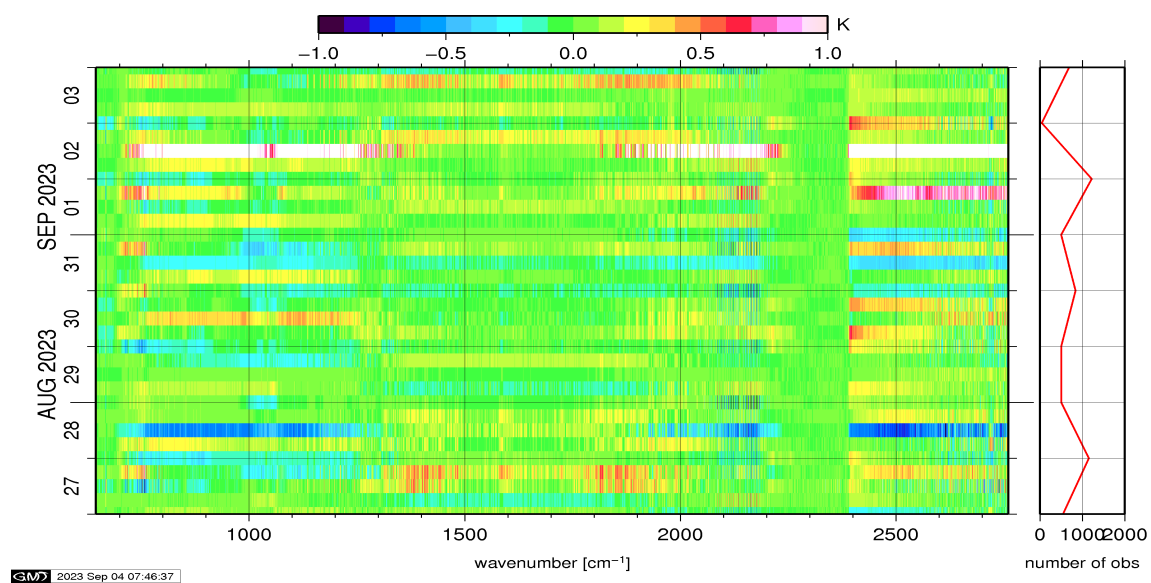


Figure 10: Radiance Anomaly in BT: All Channels

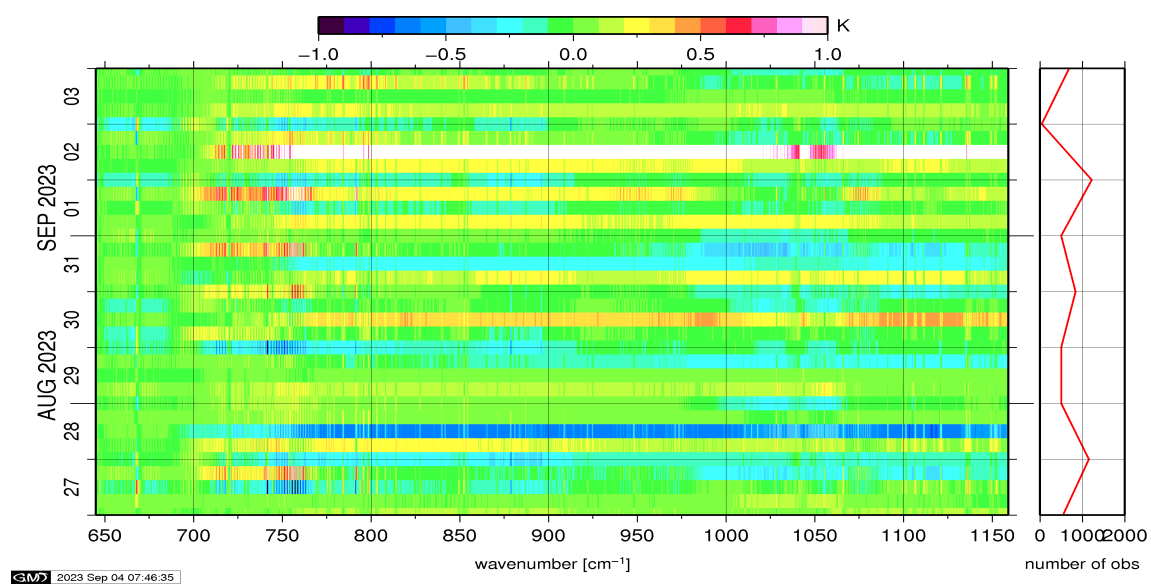


Figure 11: Radiance Anomaly in BT: IASI Band 1

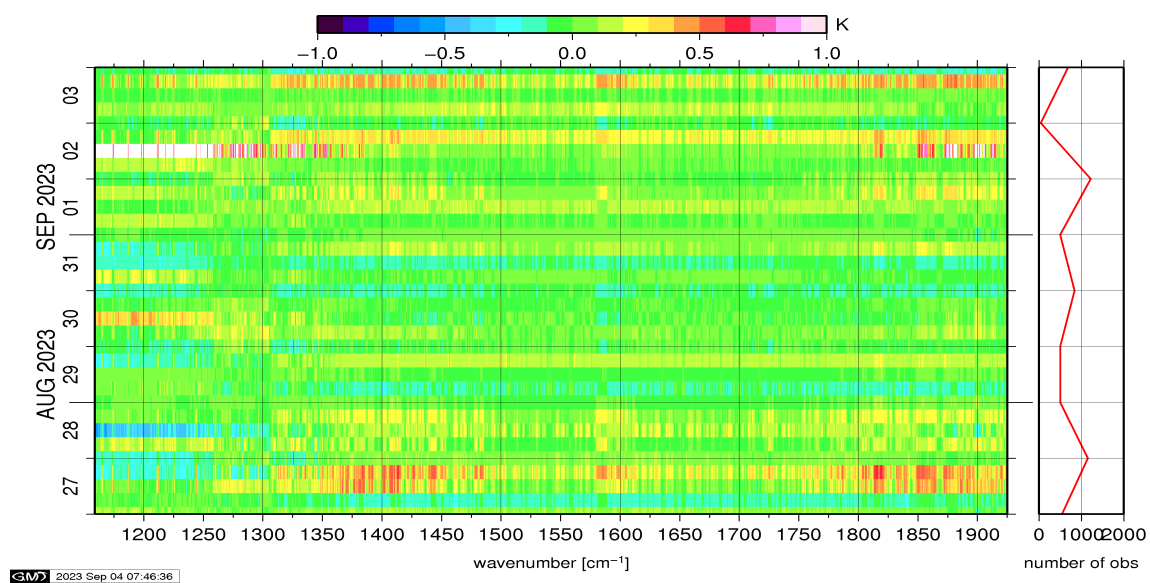


Figure 12: Radiance Anomaly in BT: IASI Band 2

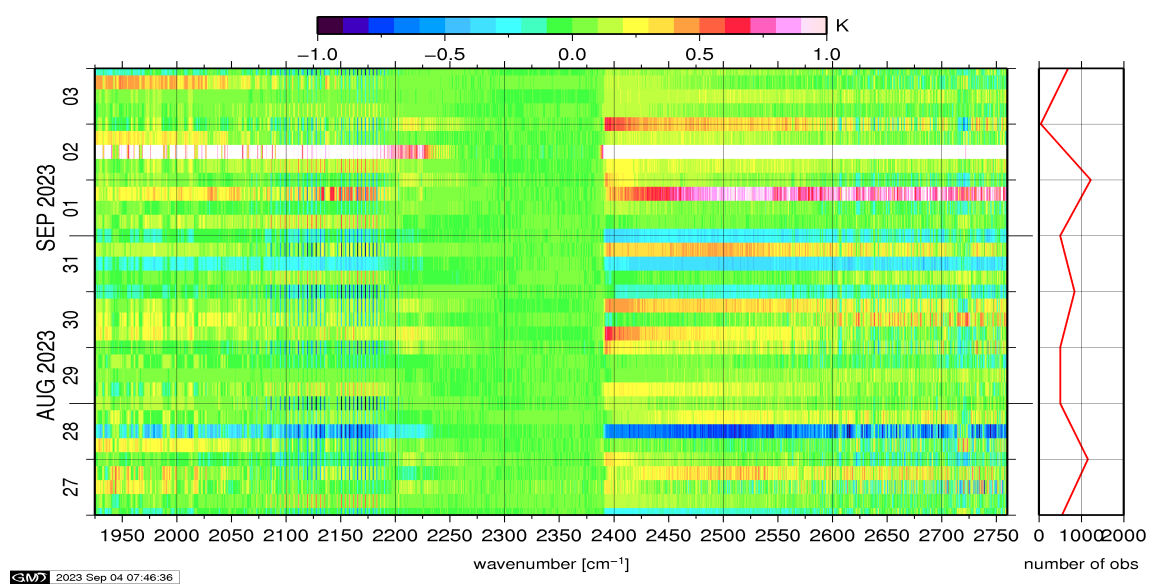


Figure 13: Radiance Anomaly in BT: IASI Band 3

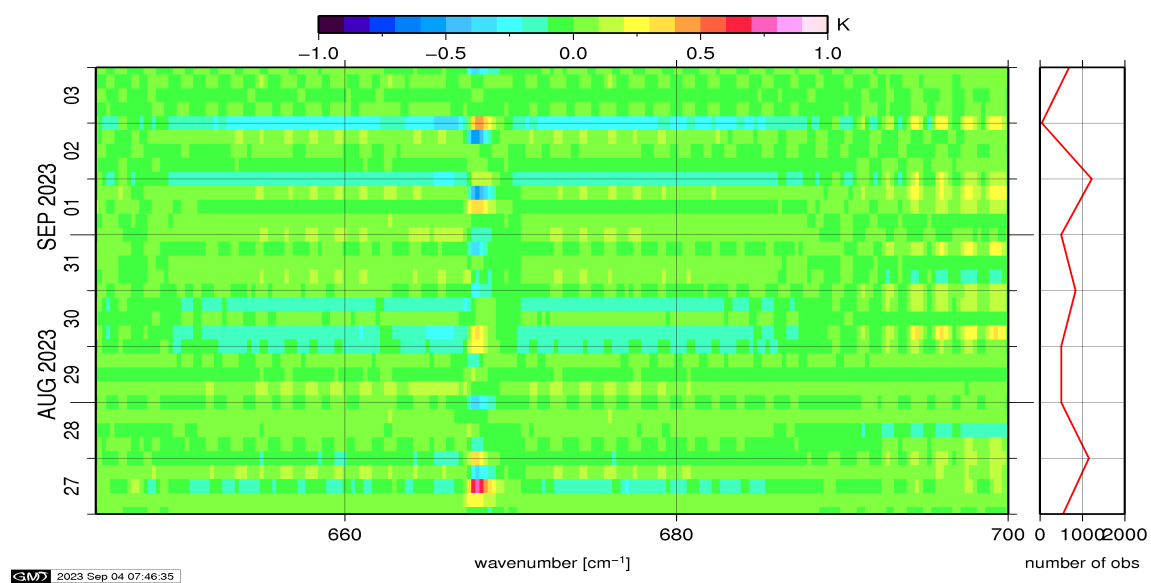


Figure 14: Radiance Anomaly in BT: CO2 14

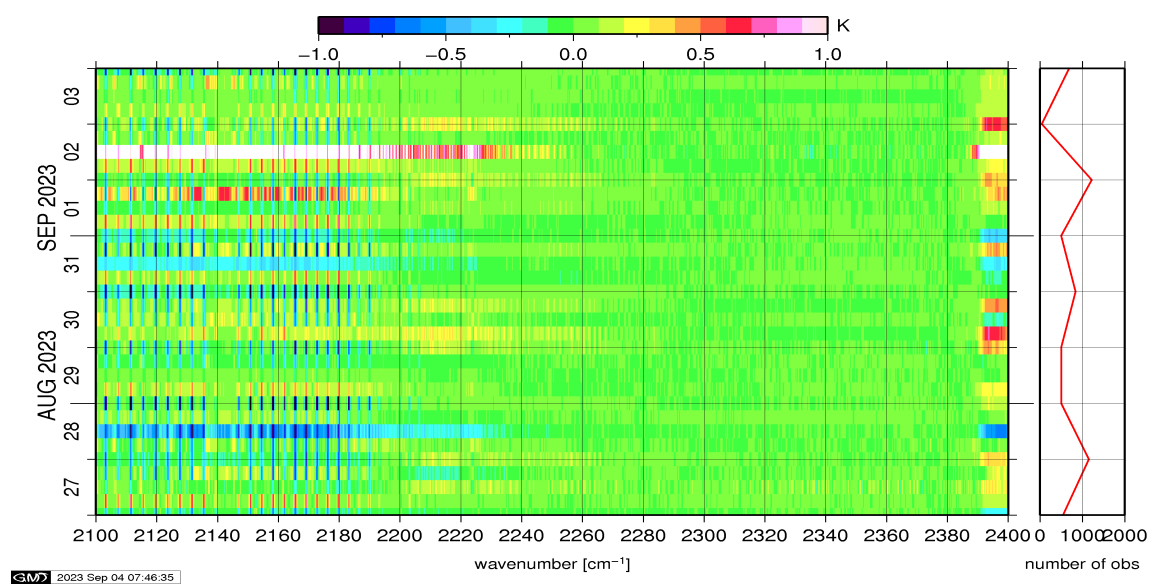


Figure 15: Radiance Anomaly in BT: CO2 4.3

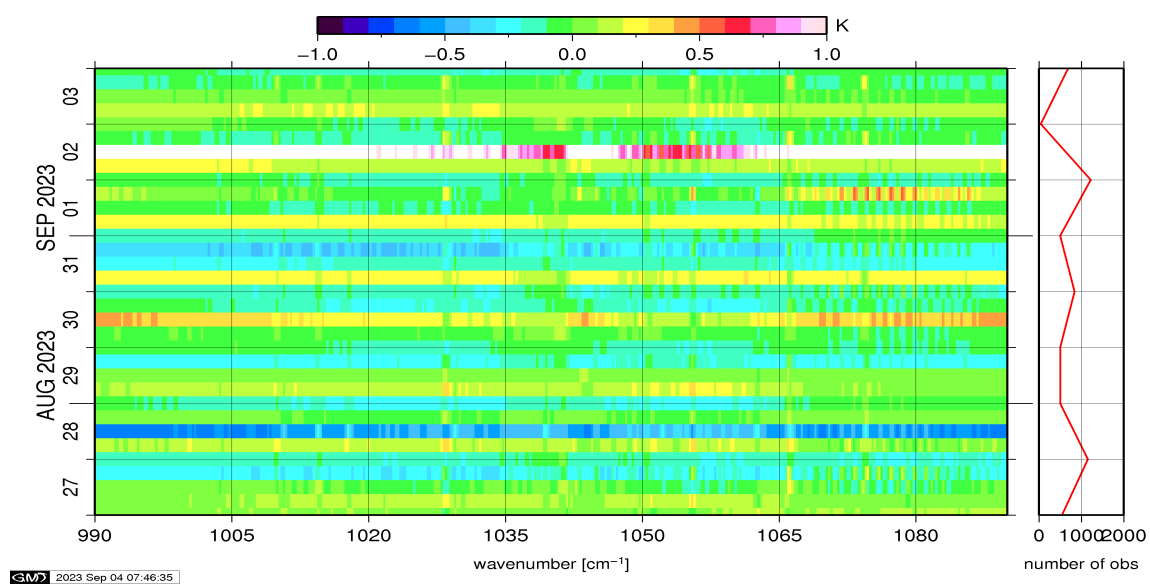


Figure 16: Radiance Anomaly in BT: O3