

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

IASI monitoring team

27/02/2024 00:00:00 - 29/02/2024 23:59:59

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 27/02/2024 00:00:00 - 29/02/2024 23:59:59 .

The monitoring data are extracted on PDU basis.

2 Data quantity 27/02/2024 00:00:00 - 29/02/2024 23:59:59

Product Type	Number	Action
L0 HKTm PDUs	1328	-
L0 IASI PDUs	1329	-
L1 ENG PDUs	1329	-
L1 ENG distinct GEPSGranule	1330	-
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	1329	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	11221	5022	20240229012117.351	20240229065751.067
PX2 (135)	11221	5022	20240229012117.351	20240229065751.067
PX3 (140)	11221	5022	20240229012117.351	20240229065751.067
PX4 (145)	11221	5022	20240229012117.351	20240229065751.067
IMG (150)	9033	12930	20240229012117.351	20240229065749.770
VER (160)	16380	0	20240227031357.609	20240227031405.609
VER (160)	1	16381	20240227031405.609	20240227031405.609
VER (160)	-1	2	20240227031405.609	20240227031413.609
VER (160)	16381	0	20240227103053.585	20240227103101.585
VER (160)	2	16382	20240227103101.585	20240227103101.585
VER (160)	-1	3	20240227103101.585	20240227103109.585
VER (160)	16382	0	20240227174749.526	20240227174757.526
VER (160)	3	16383	20240227174757.526	20240227174757.526
VER (160)	-1	4	20240227174757.526	20240227174805.522
VER (160)	16379	0	20240228082133.443	20240228082141.439
VER (160)	0	16380	20240228082141.439	20240228082141.439
VER (160)	-1	1	20240228082141.439	20240228082149.439
VER (160)	16380	0	20240228153829.419	20240228153837.419
VER (160)	1	16381	20240228153837.419	20240228153837.419

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	-1	2	20240228153837.419	20240228153845.419
VER (160)	16381	0	20240228225525.395	20240228225533.395
VER (160)	2	16382	20240228225533.395	20240228225533.395
VER (160)	-1	3	20240228225533.395	20240228225541.395
VER (160)	5464	1704	20240229012117.351	20240229065757.336
VER (160)	16379	0	20240229204605.250	20240229204613.250
VER (160)	0	16380	20240229204613.250	20240229204613.250
VER (160)	-1	1	20240229204613.250	20240229204621.250
VER (160)	7016	7019	20240229235325.252	20240229235325.252
AUX (180)	7644	10169	20240229012109.781	20240229065749.770

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
27/02/2024 00:00:08	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	1329	-
L1 ENG PDUs	1329	-
L1 ENG distinct GEPSGranule	1330	-
GQisFlagQual set (PX1)	99.61 %	-
GQisFlagQual set (PX2)	99.65 %	-
GQisFlagQual set (PX3)	99.64 %	-
GQisFlagQual set (PX4)	99.58 %	-
GQisFlagQual set (all)	99.62 %	-

Table 4: Quality flags

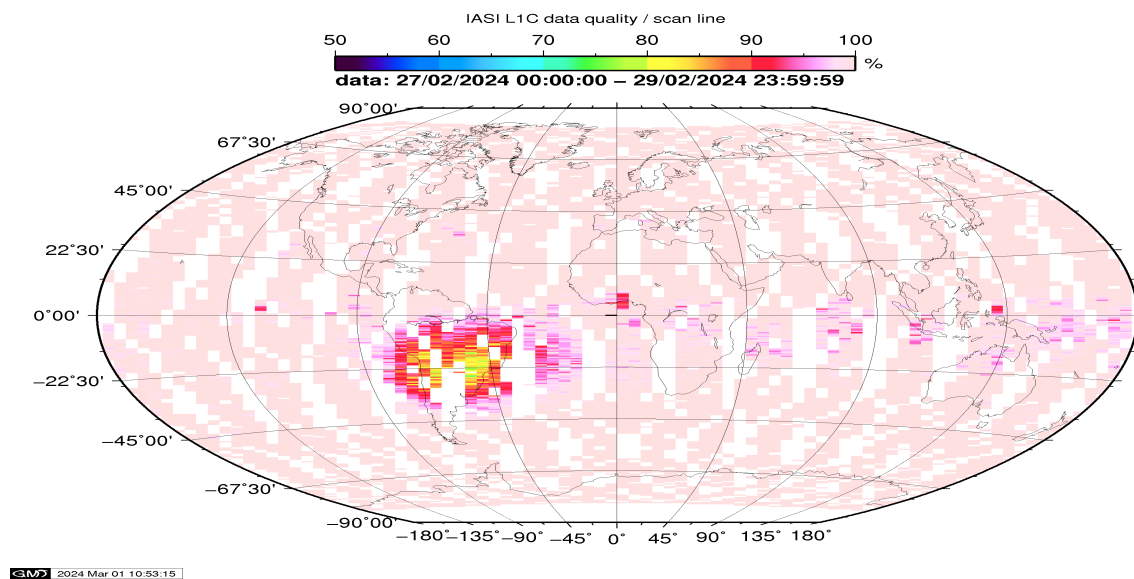


Figure 1: L1C data quality

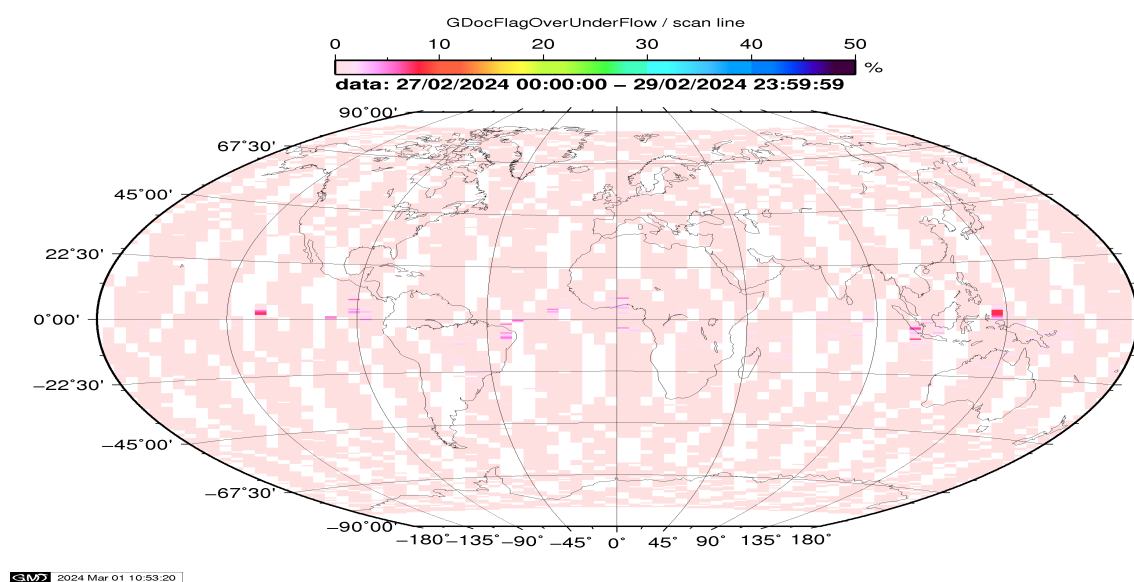


Figure 2: Flag of Over and Under Flows

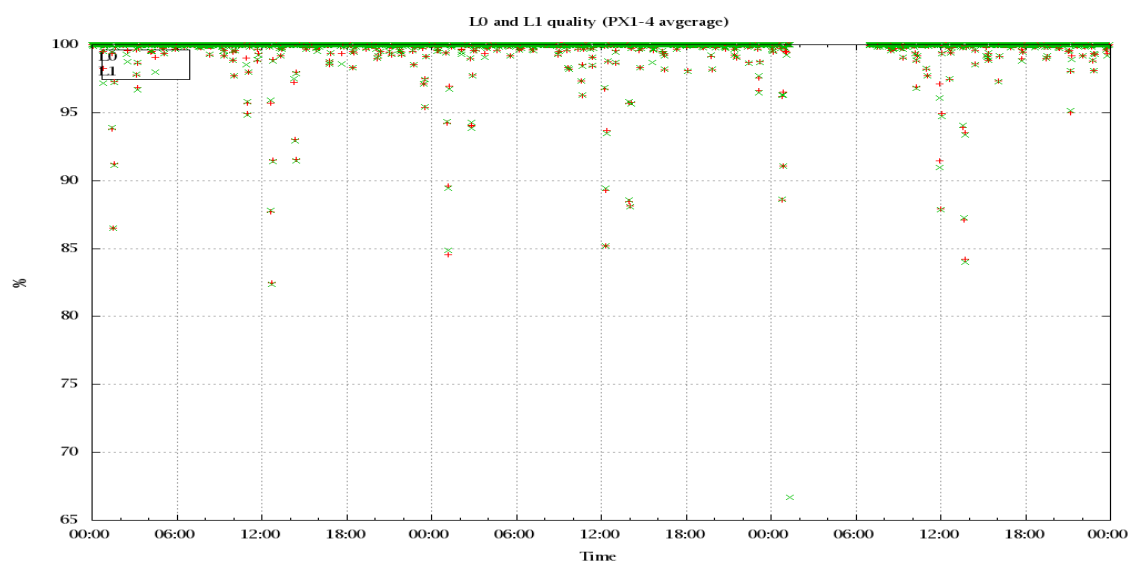


Figure 3: Level 0 and 1C overall quality

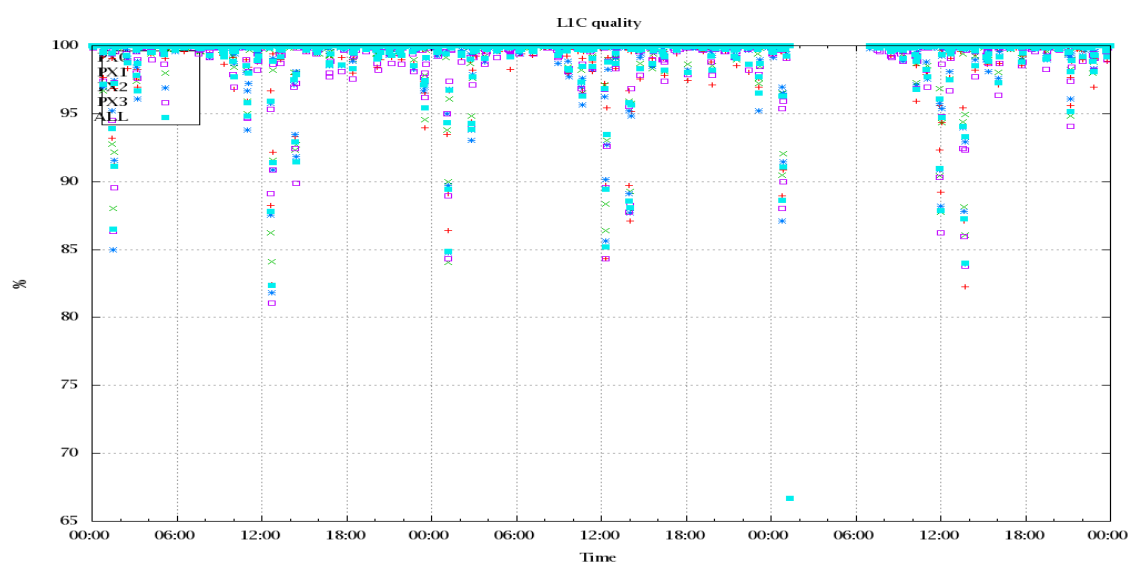


Figure 4: Level 1C quality

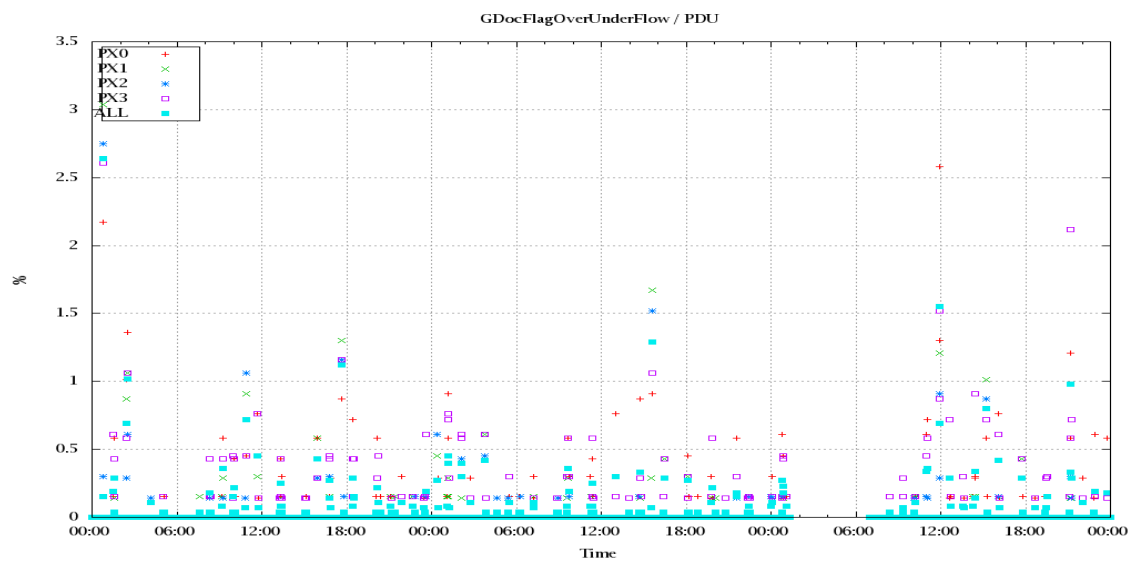


Figure 5: Timeseries of flag of Over and Under Flows

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.

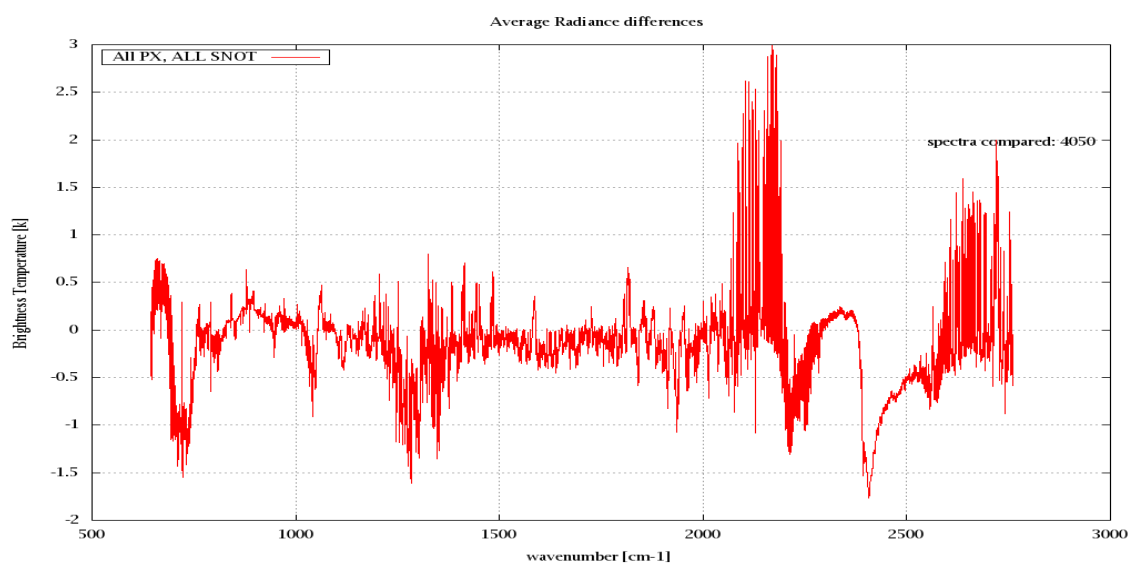


Figure 6: Average Radiance differences: OBS-CAL

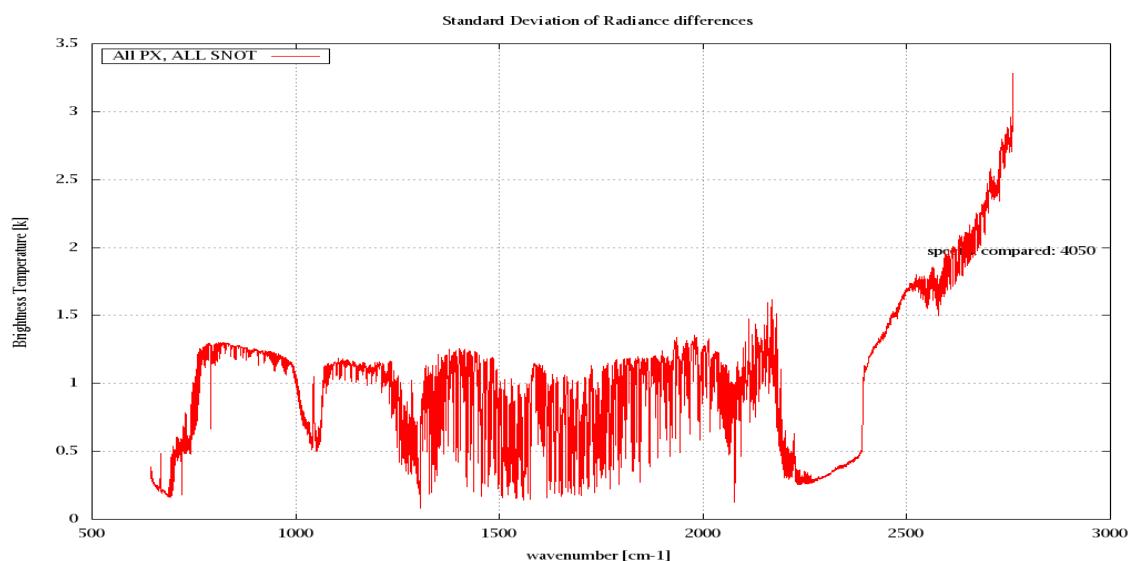


Figure 7: Standard Deviation of Radiance differences

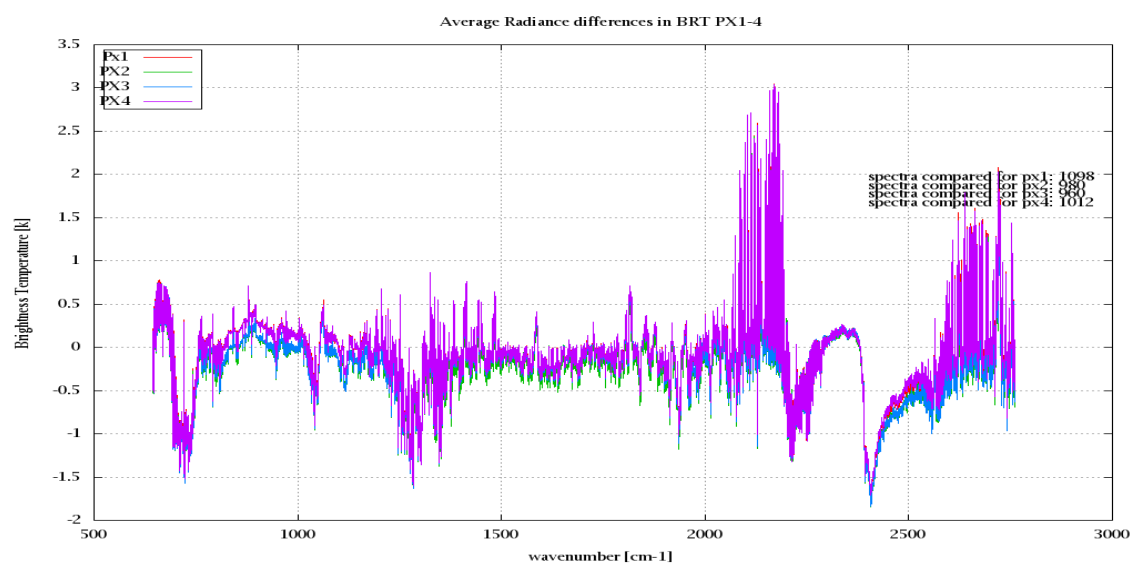


Figure 8: Average Radiance differences: OBS-CAL

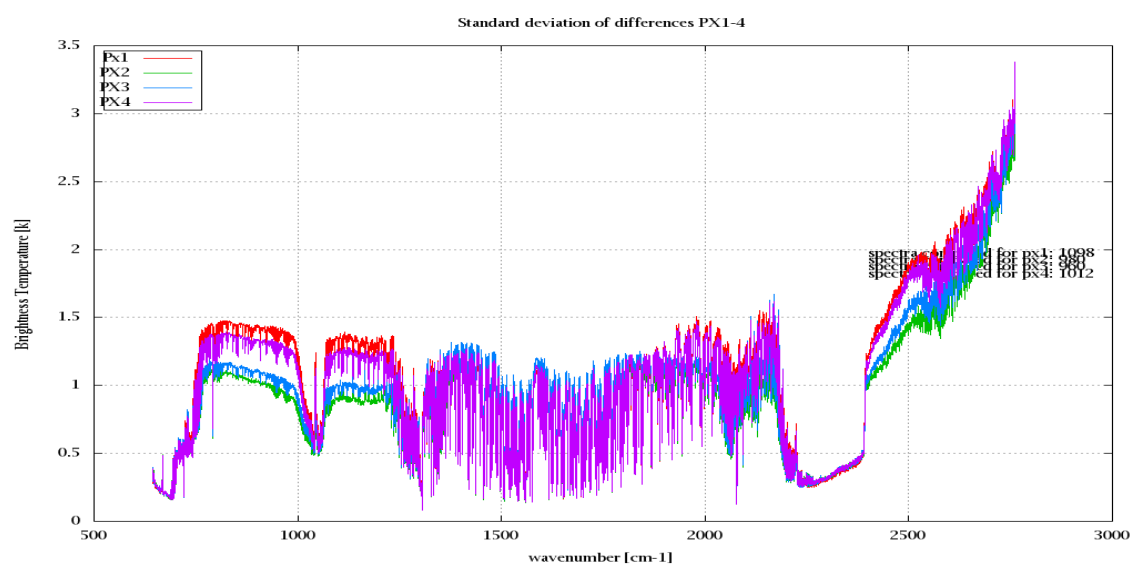


Figure 9: Standard Deviation of Radiance differences

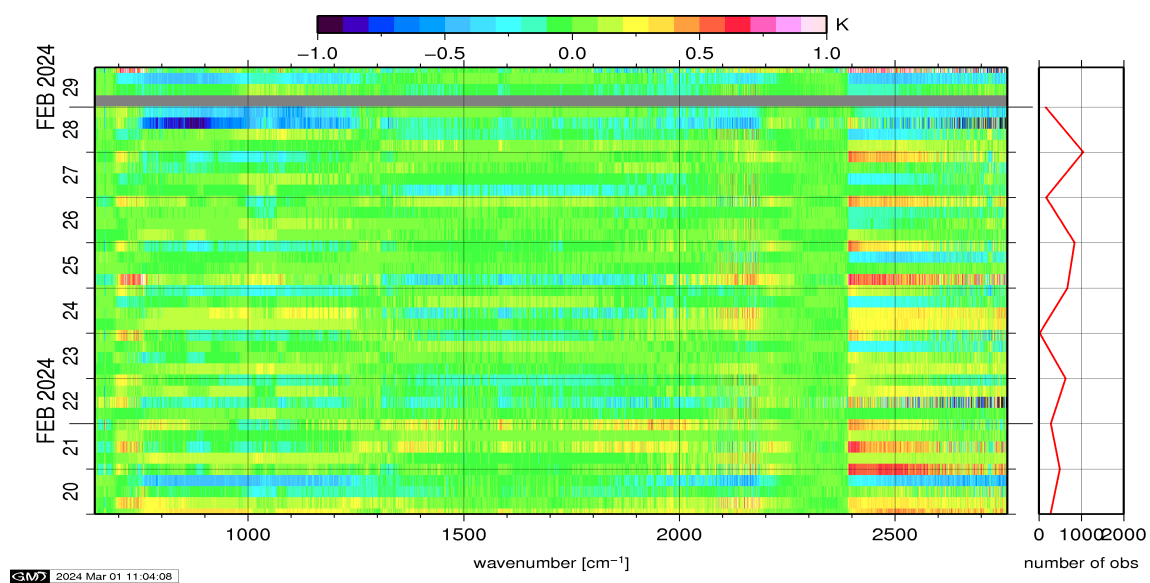


Figure 10: Radiance Anomaly in BT: All Channels

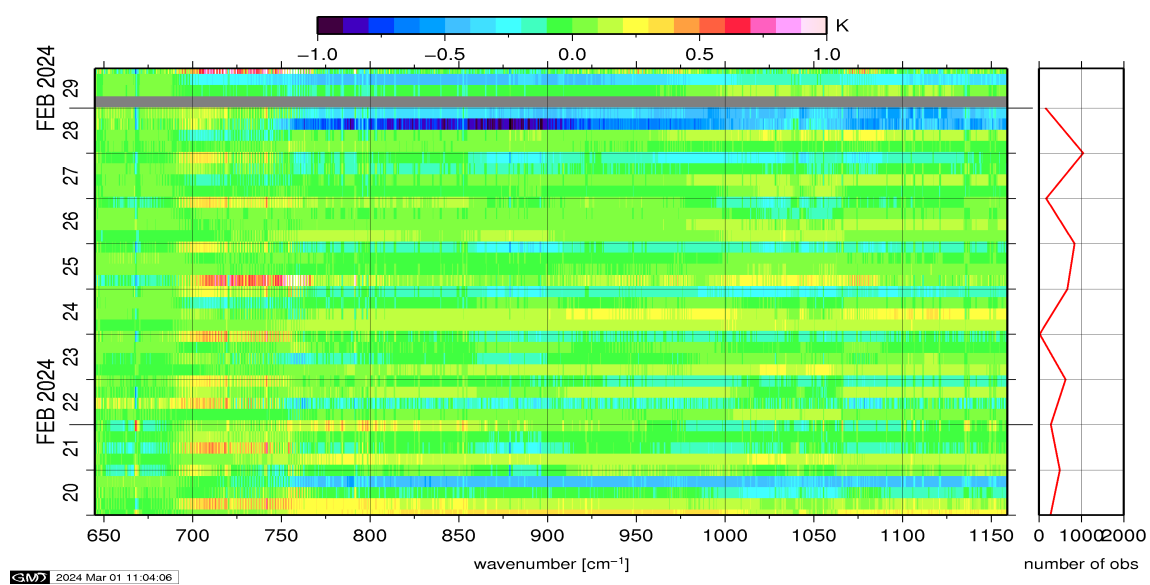


Figure 11: Radiance Anomaly in BT: IASI Band 1

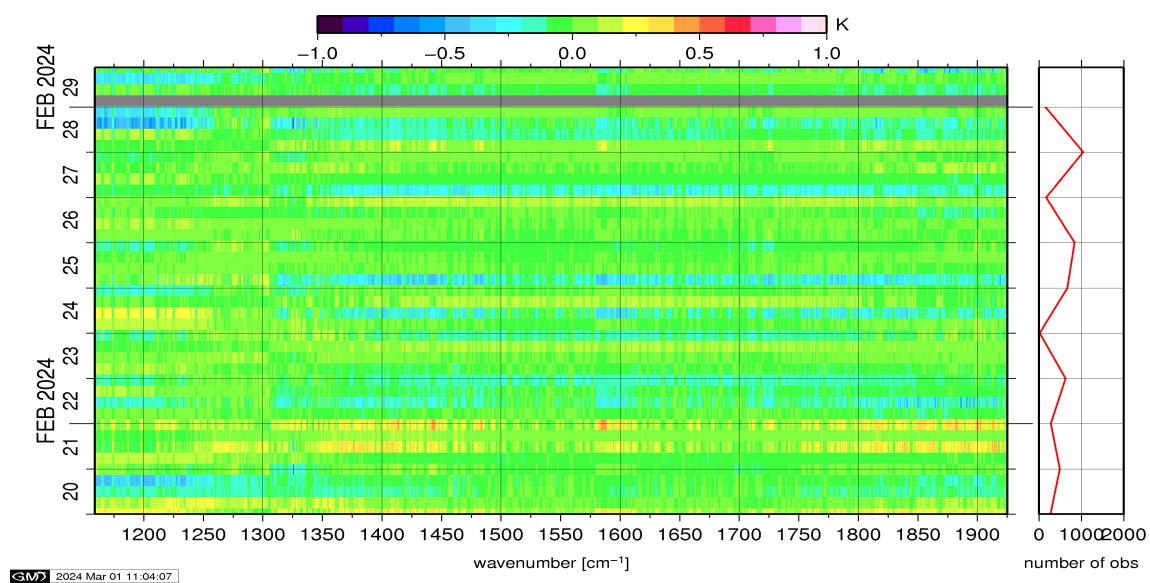


Figure 12: Radiance Anomaly in BT: IASI Band 2

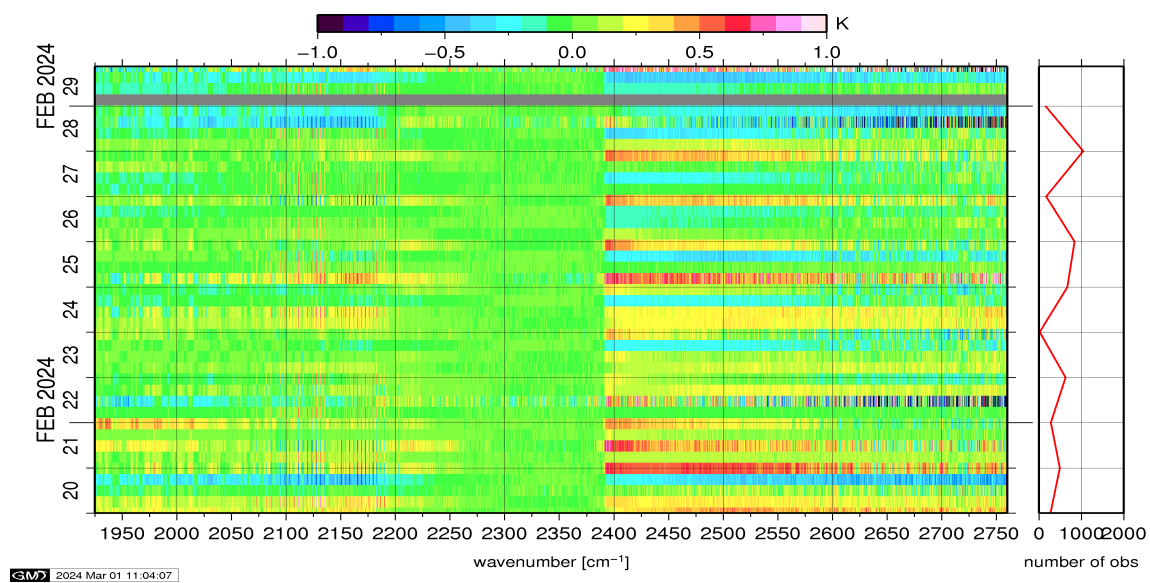


Figure 13: Radiance Anomaly in BT: IASI Band 3

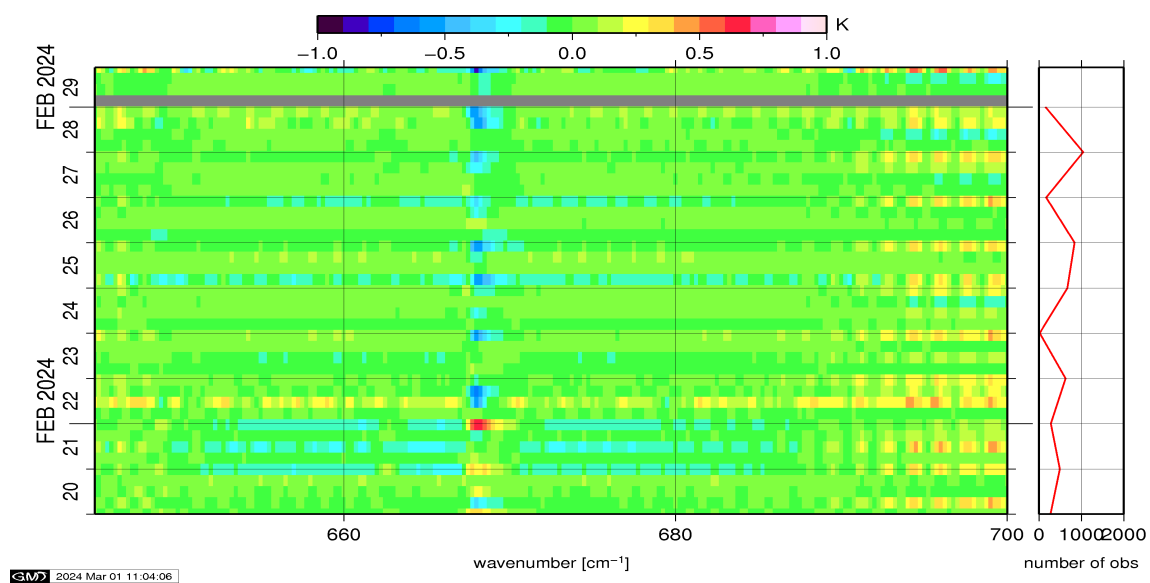


Figure 14: Radiance Anomaly in BT: CO2 14

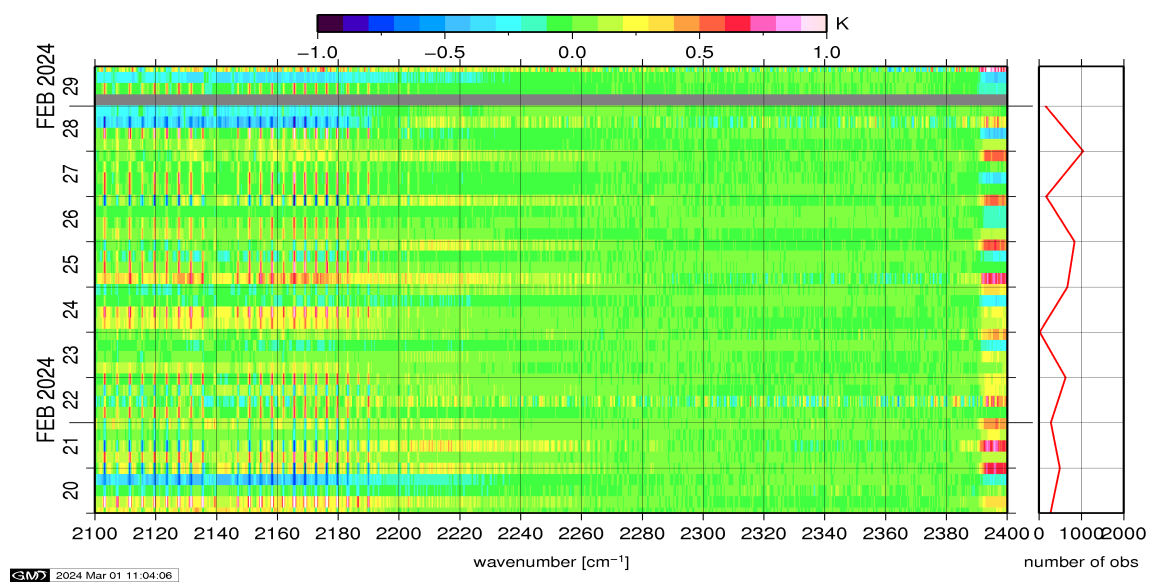


Figure 15: Radiance Anomaly in BT: CO2 4.3

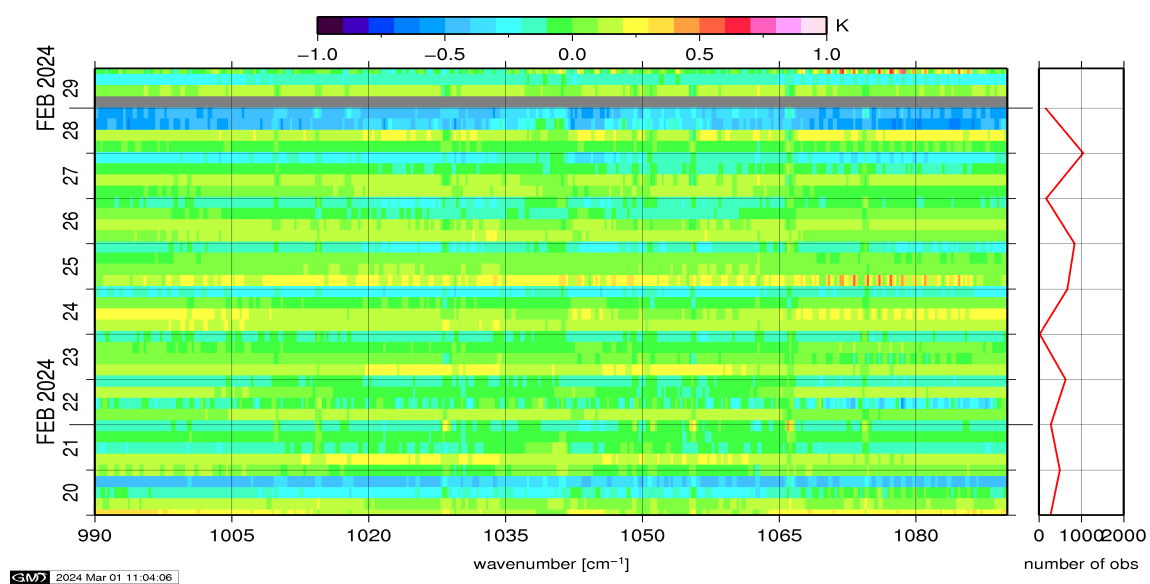


Figure 16: Radiance Anomaly in BT: O3