

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

IASI monitoring team

12/01/2023 00:00:00 - 13/01/2023 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 12/01/2023 00:00:00 - 13/01/2023 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 12/01/2023 00:00:00 - 13/01/2023 00:00:00

Product Type	Number	Action
L0 HKTU PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	480	-
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)	16379	0	20230112090817.460	20230112090825.460
VER (160)	0	16380	20230112090825.460	20230112090825.460
VER (160)	-1	1	20230112090825.460	20230112090833.460
VER (160)	16380	0	20230112162513.435	20230112162521.435
VER (160)	1	16381	20230112162521.435	20230112162521.435
VER (160)	-1	2	20230112162521.435	20230112162529.435
VER (160)	16381	0	20230112234209.413	20230112234217.413
VER (160)	2	16382	20230112234217.413	20230112234217.413
VER (160)	-1	3	20230112234217.413	20230112234225.413
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
12/01/2023 00:00:04	-	External calibration
12/01/2023 00:26:12	External calibration	Auxiliary ASE synchronised
12/01/2023 00:28:04	Auxiliary ASE synchronised	Normal operation
12/01/2023 01:35:32	Normal operation	Auxiliary ASE synchronised
12/01/2023 01:37:40	Auxiliary ASE synchronised	External calibration
12/01/2023 02:08:36	Auxiliary ASE synchronised	Normal operation
12/01/2023 03:19:47	Normal operation	Auxiliary ASE synchronised
12/01/2023 03:21:55	Auxiliary ASE synchronised	External calibration
12/01/2023 05:06:59	Auxiliary ASE synchronised	External calibration

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	480	-
GQisFlagQual set (PX1)	99.54 %	-
GQisFlagQual set (PX2)	99.32 %	-
GQisFlagQual set (PX3)	98.58 %	-
GQisFlagQual set (PX4)	98.43 %	-
GQisFlagQual set (all)	98.97 %	-

Table 4: Quality flags

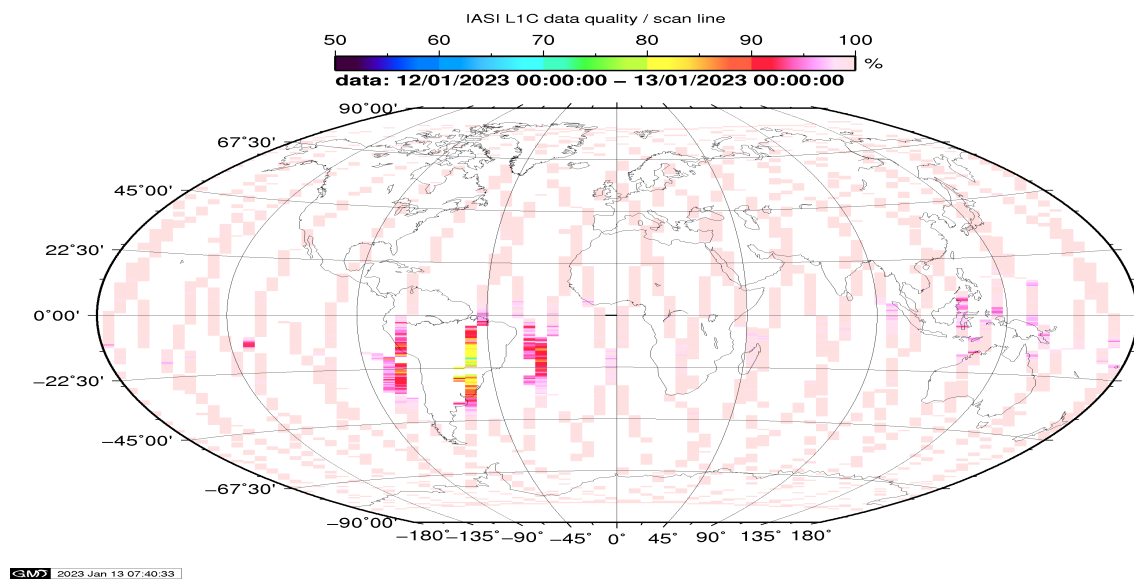


Figure 1: L1C data quality

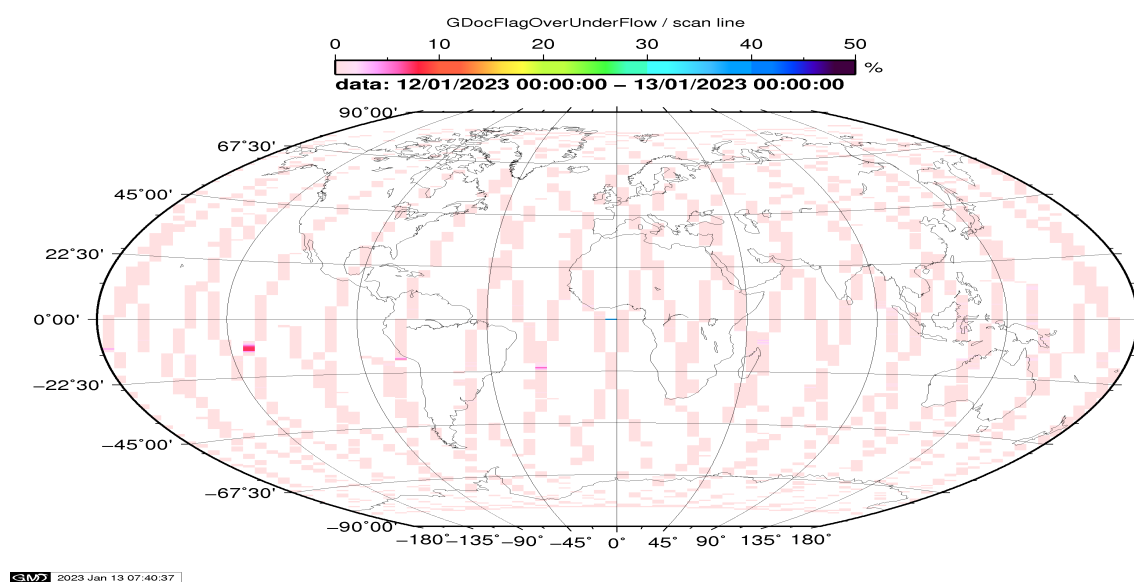


Figure 2: Flag of Over and Under Flows

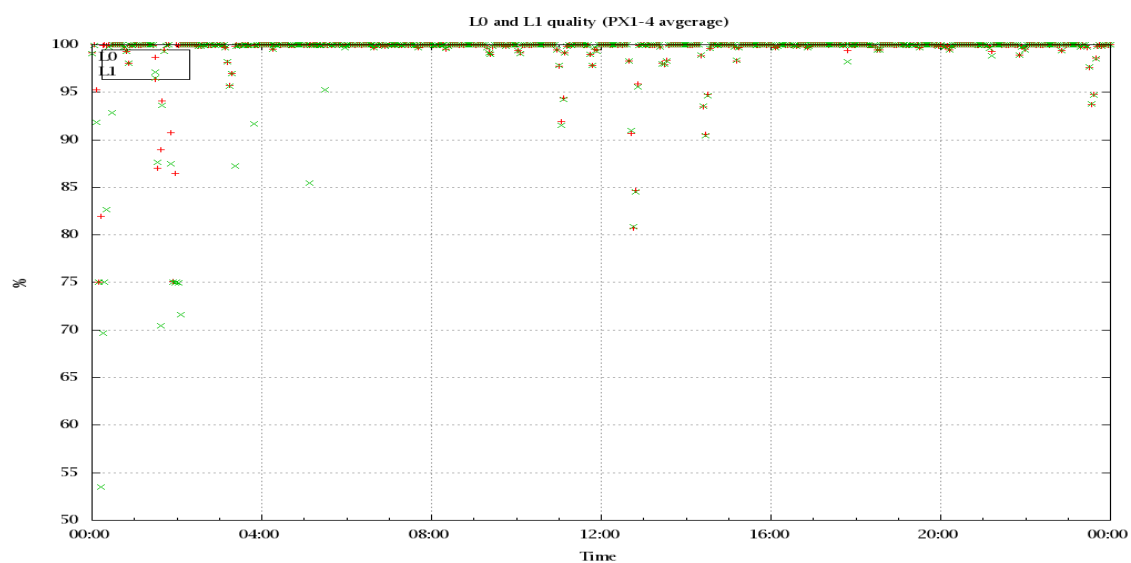


Figure 3: Level 0 and 1C overall quality

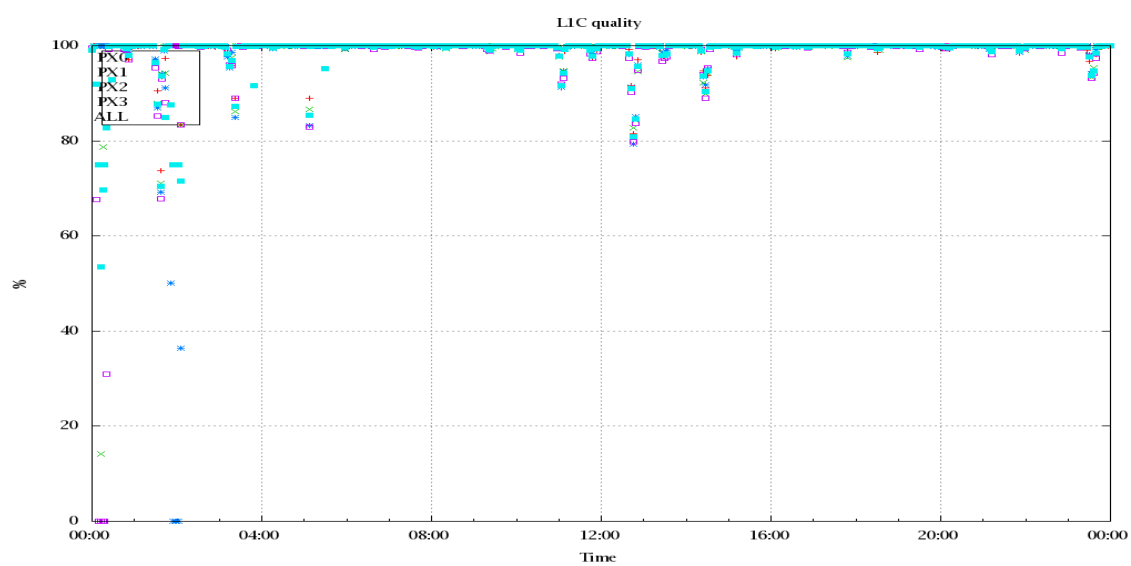


Figure 4: Level 1C quality

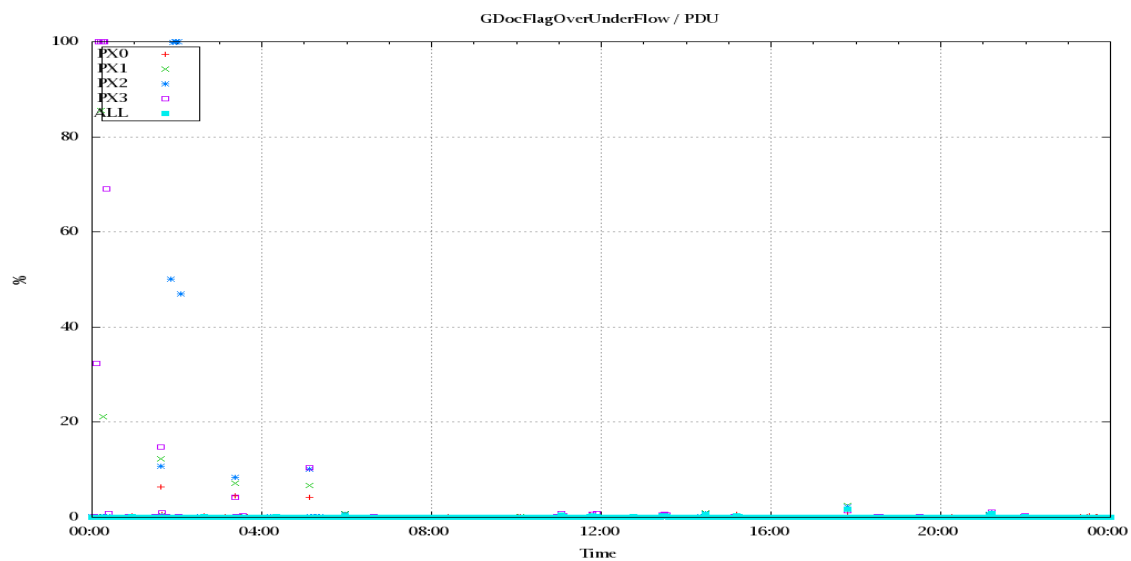


Figure 5: Timeseries of flag of Over and Under Flows

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.

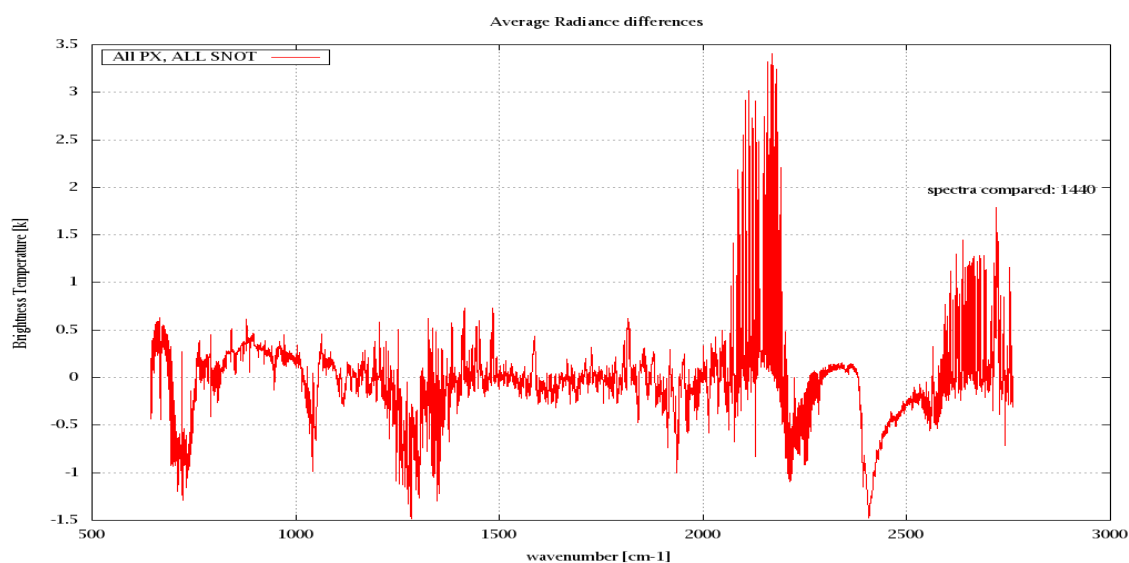


Figure 6: Average Radiance differences: OBS-CAL

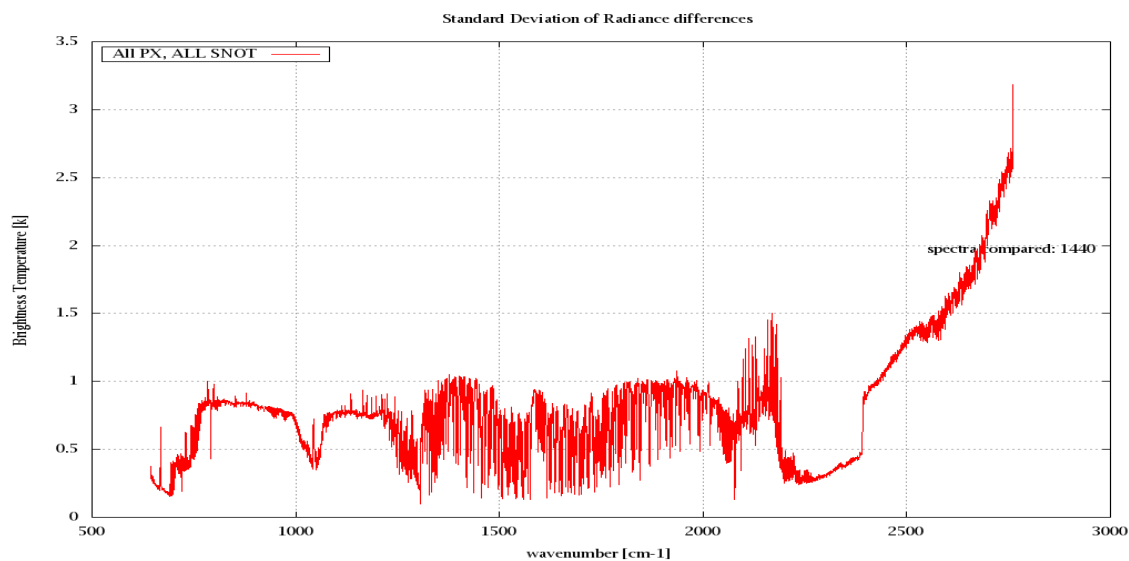


Figure 7: Standard Deviation of Radiance differences

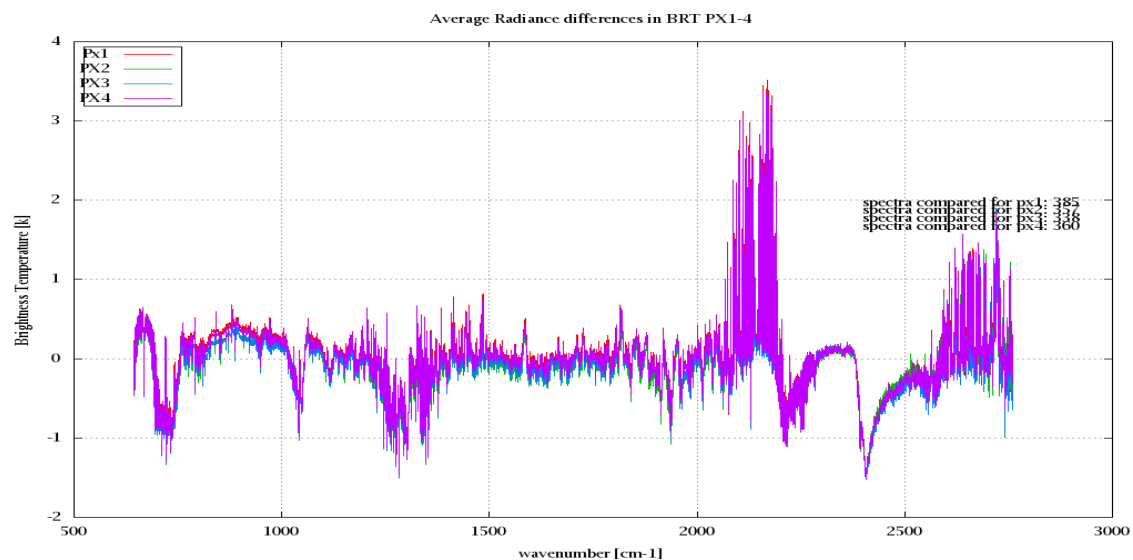


Figure 8: Average Radiance differences: OBS-CAL

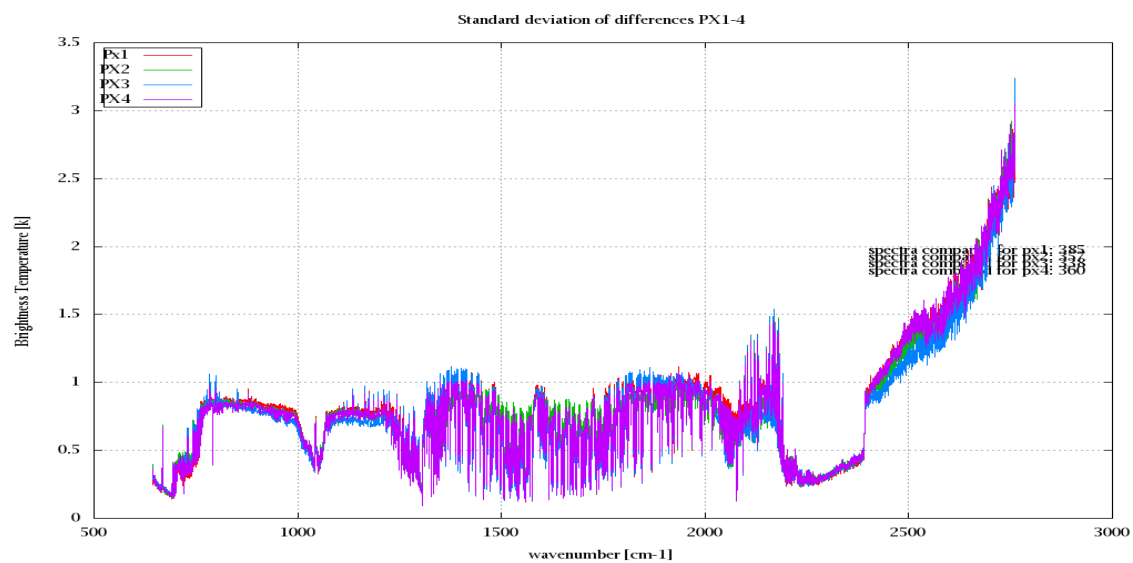


Figure 9: Standard Deviation of Radiance differences

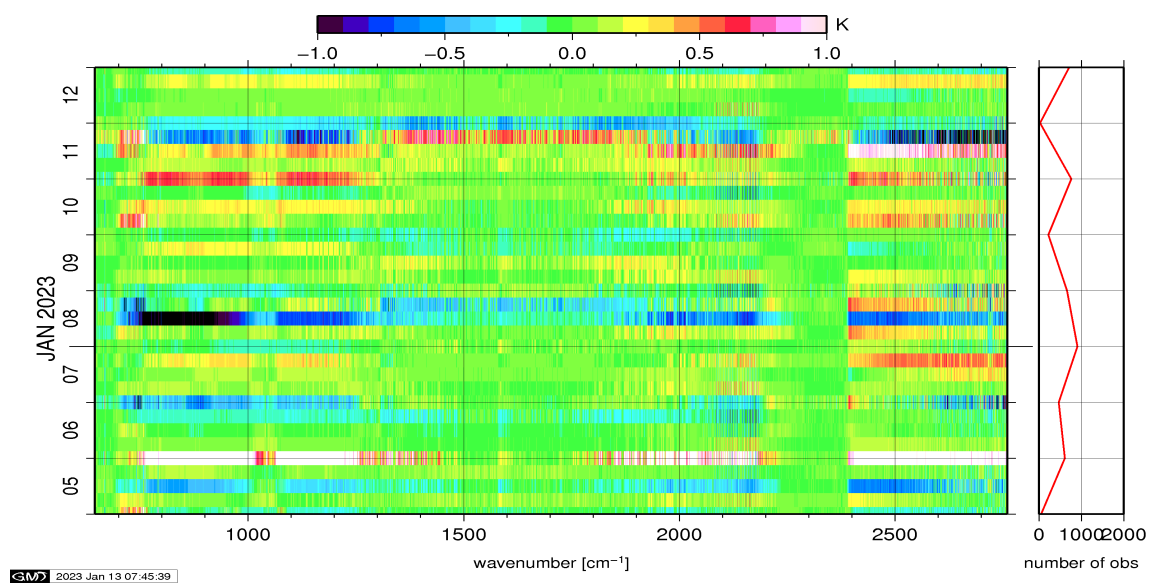


Figure 10: Radiance Anomaly in BT: All Channels

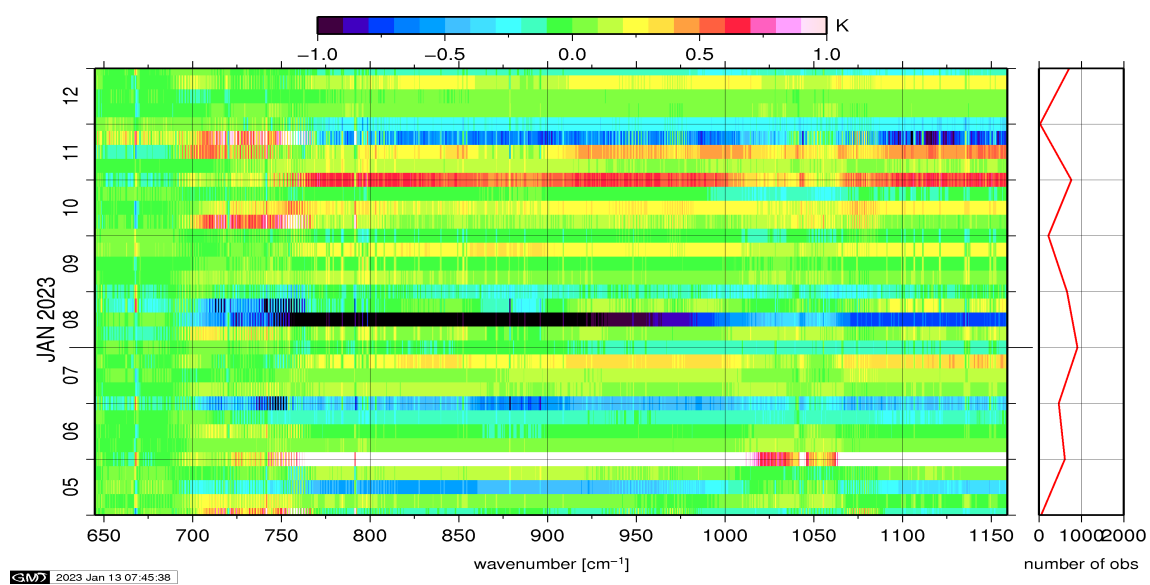


Figure 11: Radiance Anomaly in BT: IASI Band 1

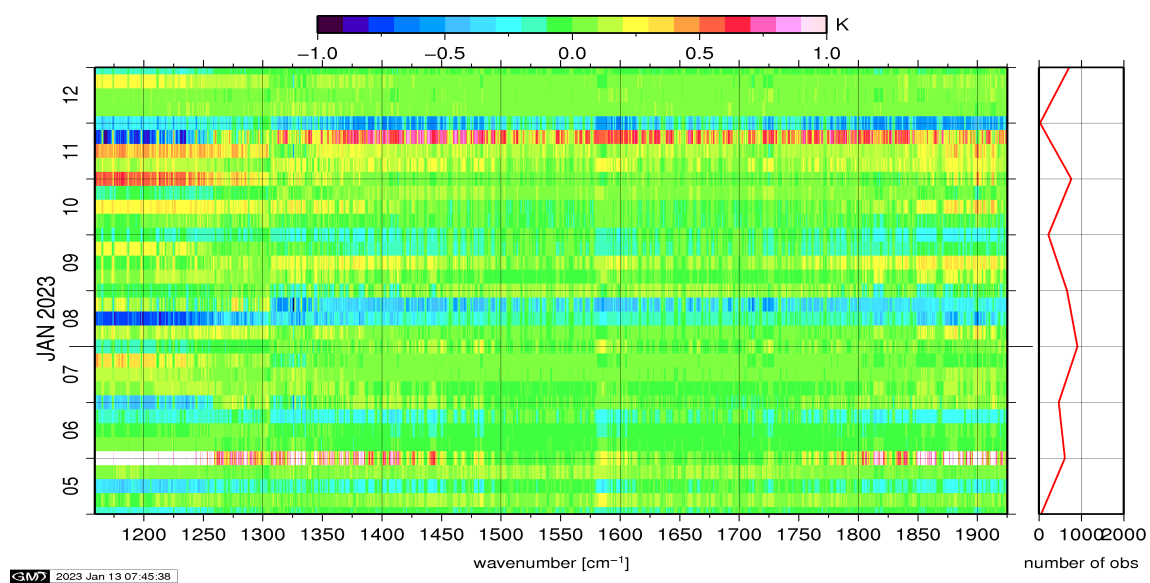


Figure 12: Radiance Anomaly in BT: IASI Band 2

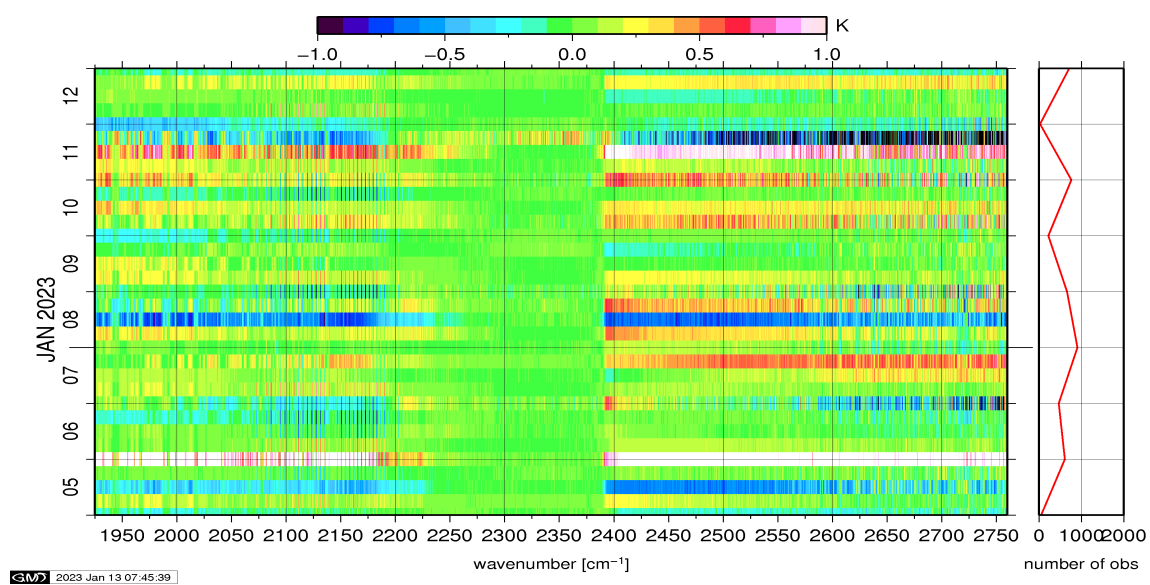


Figure 13: Radiance Anomaly in BT: IASI Band 3

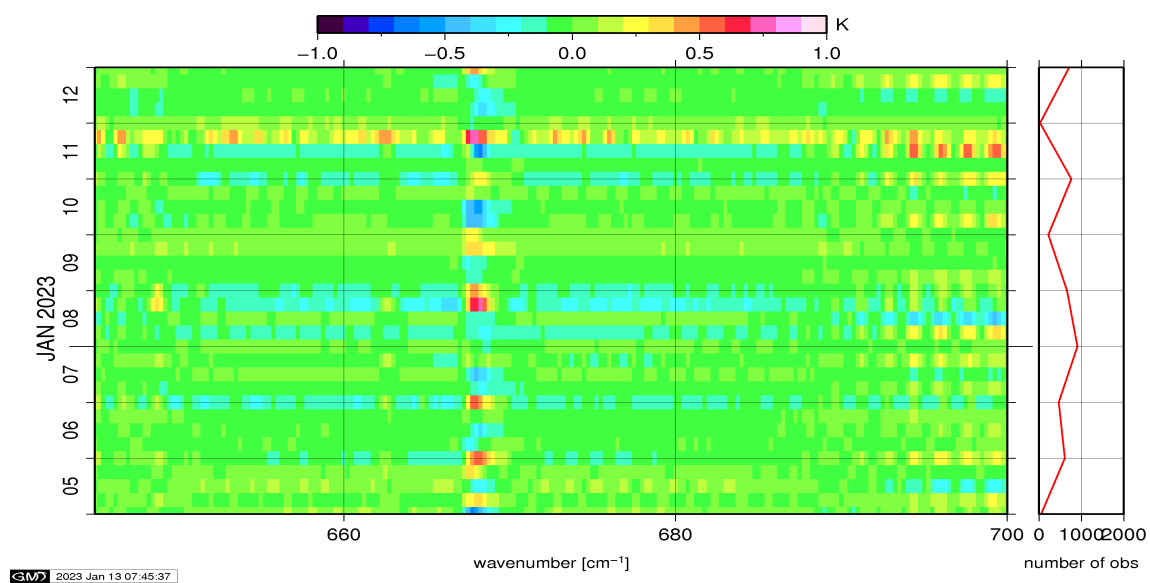


Figure 14: Radiance Anomaly in BT: CO2 14

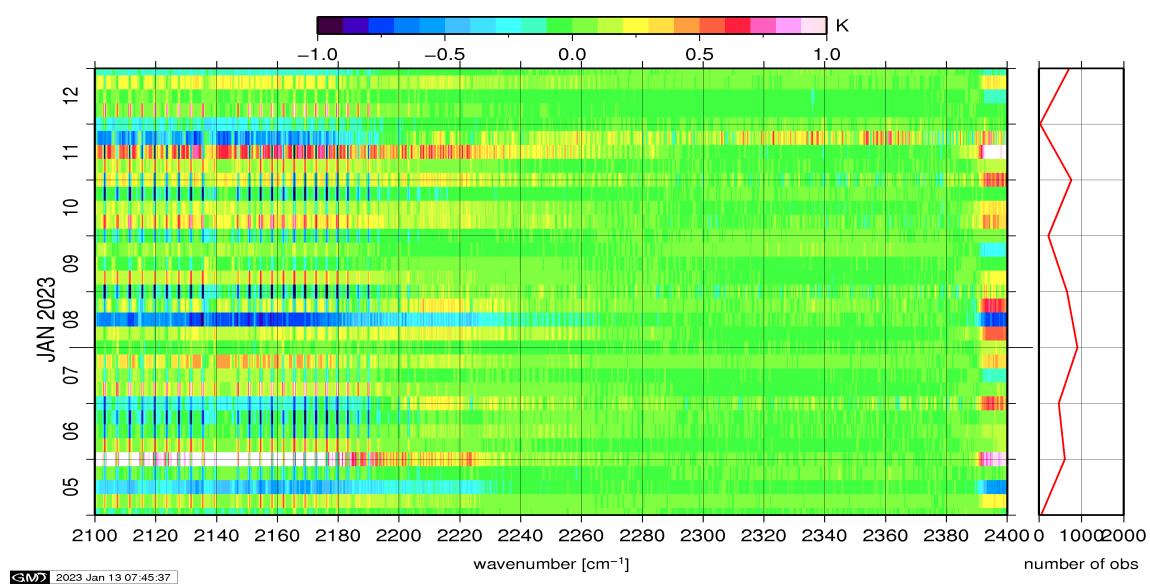


Figure 15: Radiance Anomaly in BT: CO2 4.3

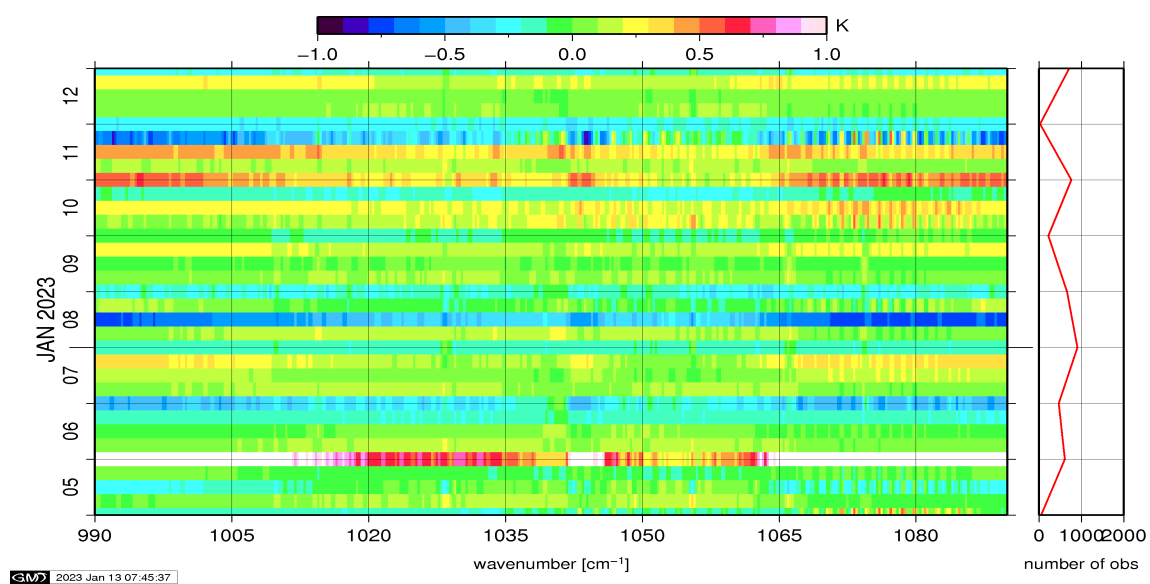


Figure 16: Radiance Anomaly in BT: O3