

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

IASI monitoring team

21/04/2024 00:00:00 - 22/04/2024 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 21/04/2024 00:00:00 - 22/04/2024 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 21/04/2024 00:00:00 - 22/04/2024 00:00:00

Product Type	Number	Action
L0 HKTm PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	481	-
L1 ENG distinct GEPSGranule	480	-
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	481	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	2480	2482	20240421005721.718	20240421005722.148
PX1 (130)	5049	5051	20240421010845.807	20240421010846.240
PX1 (130)	4619	4621	20240421021940.508	20240421021940.941
PX1 (130)	14226	14228	20240421030222.031	20240421030222.461
PX1 (130)	14697	14699	20240421030428.082	20240421030428.511
PX1 (130)	1462	1464	20240421031827.842	20240421031828.276
PX2 (135)	15964	15966	20240421015716.724	20240421015717.154
PX2 (135)	14226	14228	20240421030222.031	20240421030222.461
PX2 (135)	7557	7559	20240421034532.918	20240421034533.348
PX3 (140)	521	523	20240421020128.607	20240421020129.040
PX4 (145)	4374	4376	20240421033124.290	20240421033124.724
IMG (150)	15096	15098	20240421013134.023	20240421013134.457
VER (160)	12208	12211	20240421003422.689	20240421003430.689
VER (160)	2027	2030	20240421031950.651	20240421031958.651
VER (160)	16379	0	20240421094230.641	20240421094238.641
VER (160)	0	16380	20240421094238.641	20240421094238.641
VER (160)	-1	1	20240421094238.641	20240421094246.641
VER (160)	16380	0	20240421165926.584	20240421165934.584
VER (160)	1	16381	20240421165934.584	20240421165934.584

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	-1	2	20240421165934.584	20240421165942.584
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
21/04/2024 00:00:17	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	481	-
L1 ENG PDUs	481	-
L1 ENG distinct GEPSGranule	480	-
GQisFlagQual set (PX1)	99.64 %	-
GQisFlagQual set (PX2)	99.68 %	-
GQisFlagQual set (PX3)	99.67 %	-
GQisFlagQual set (PX4)	99.62 %	-
GQisFlagQual set (all)	99.65 %	-

Table 4: Quality flags

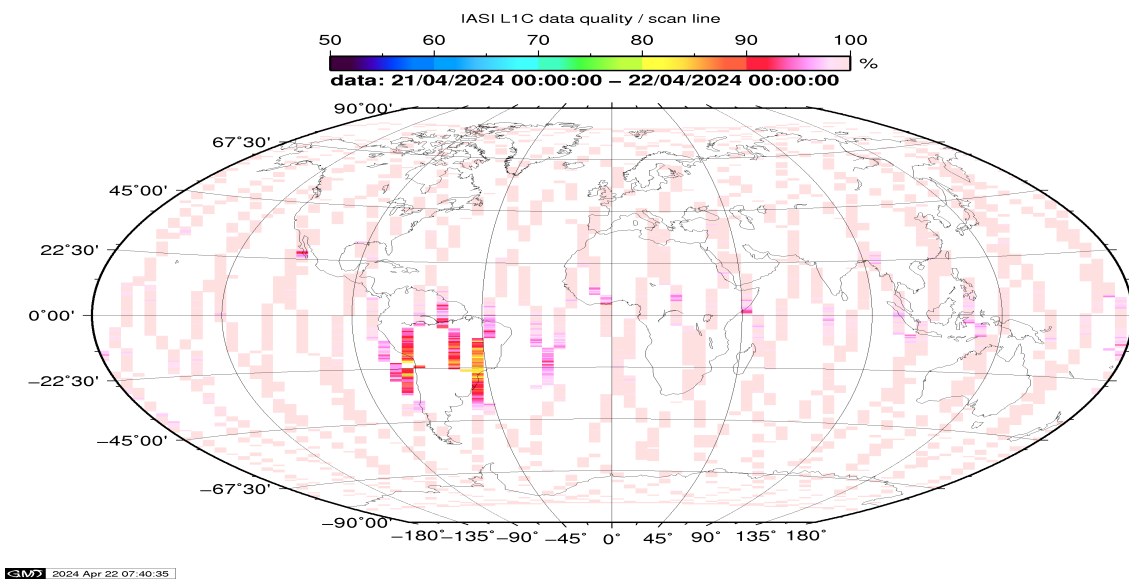


Figure 1: L1C data quality

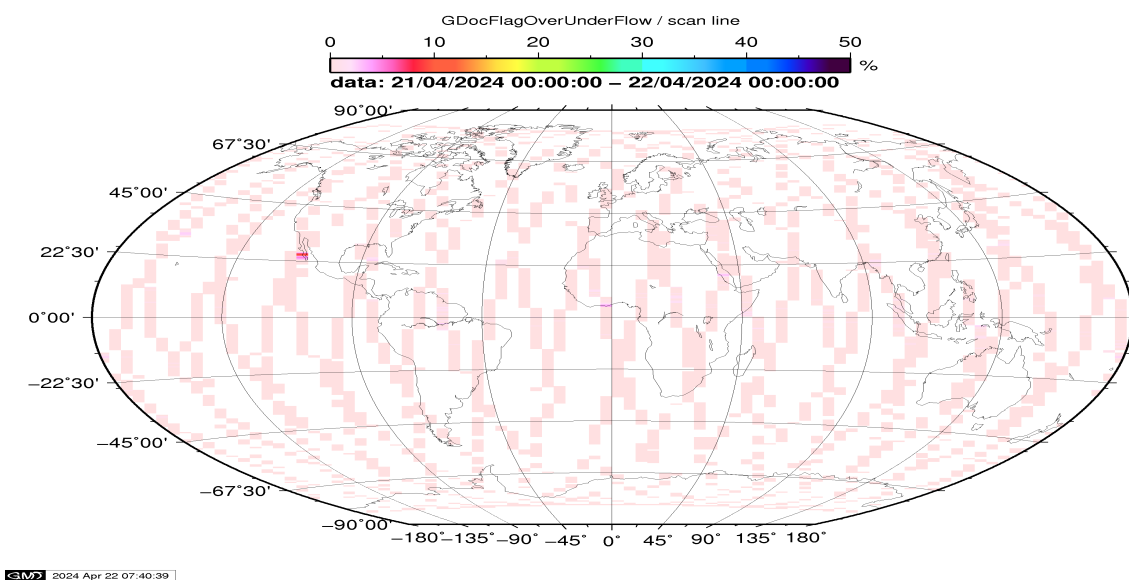


Figure 2: Flag of Over and Under Flows

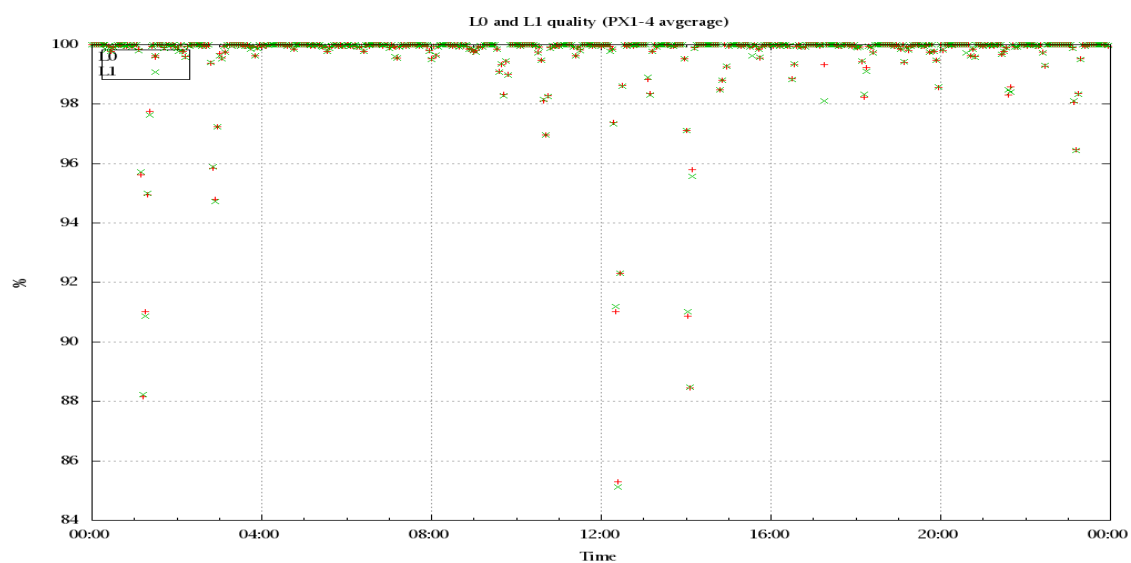


Figure 3: Level 0 and 1C overall quality

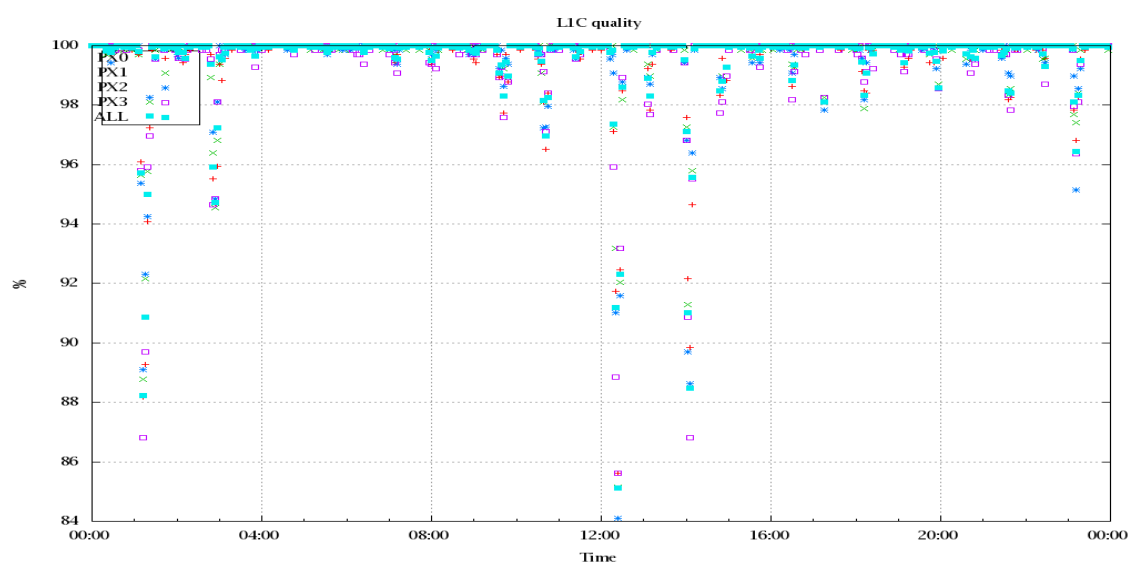


Figure 4: Level 1C quality

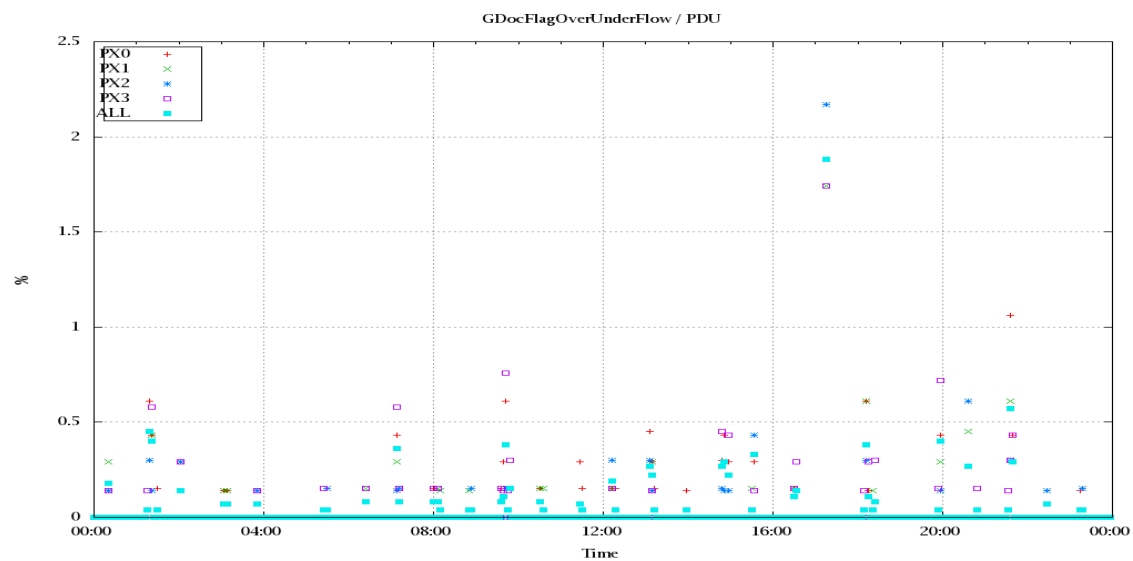


Figure 5: Timeseries of flag of Over and Under Flows

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.

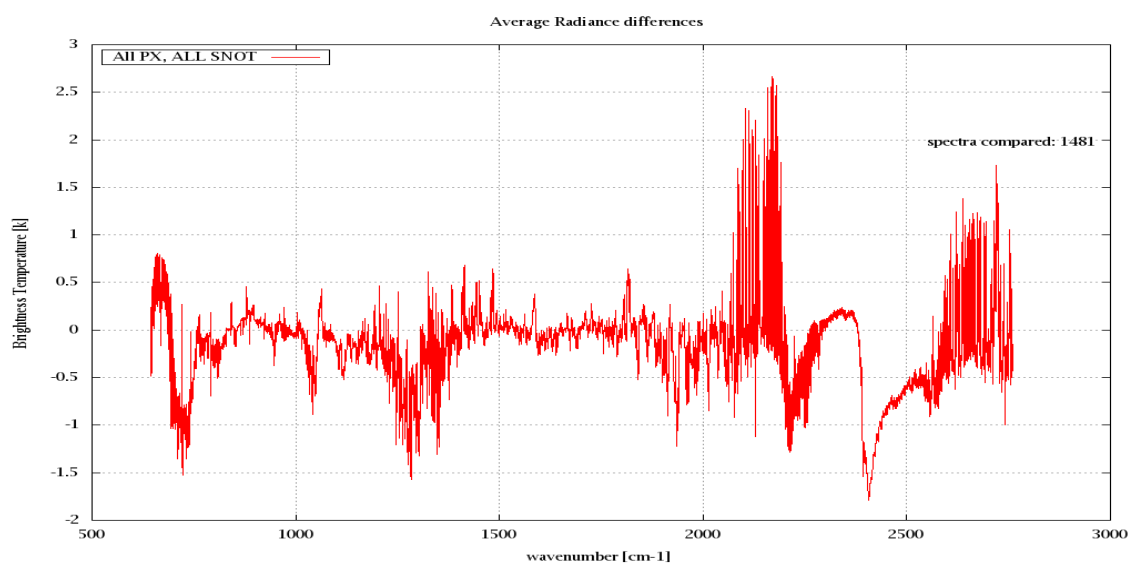


Figure 6: Average Radiance differences: OBS-CAL

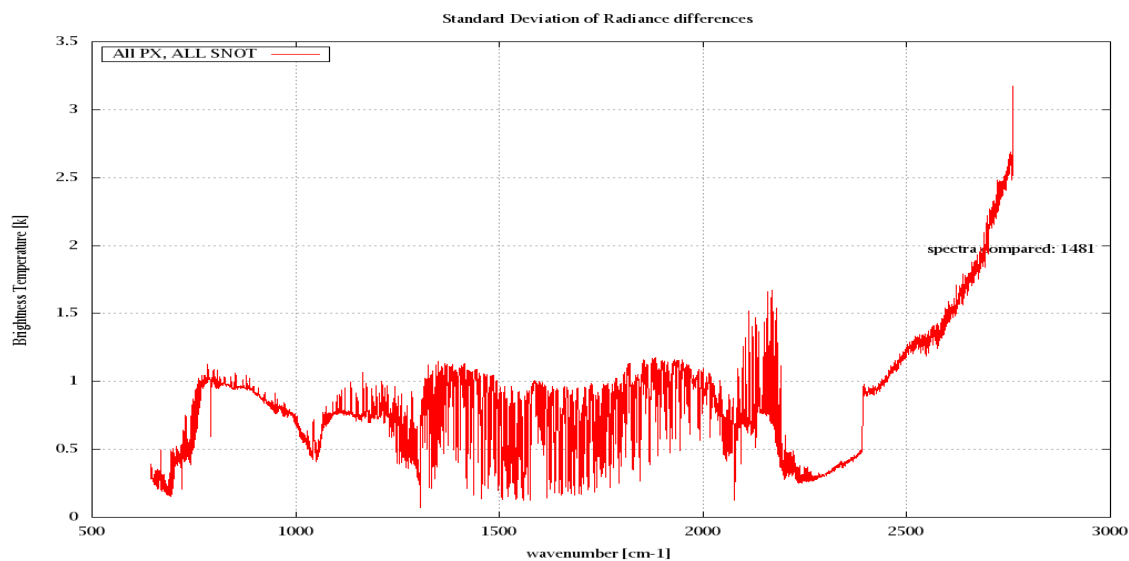


Figure 7: Standard Deviation of Radiance differences

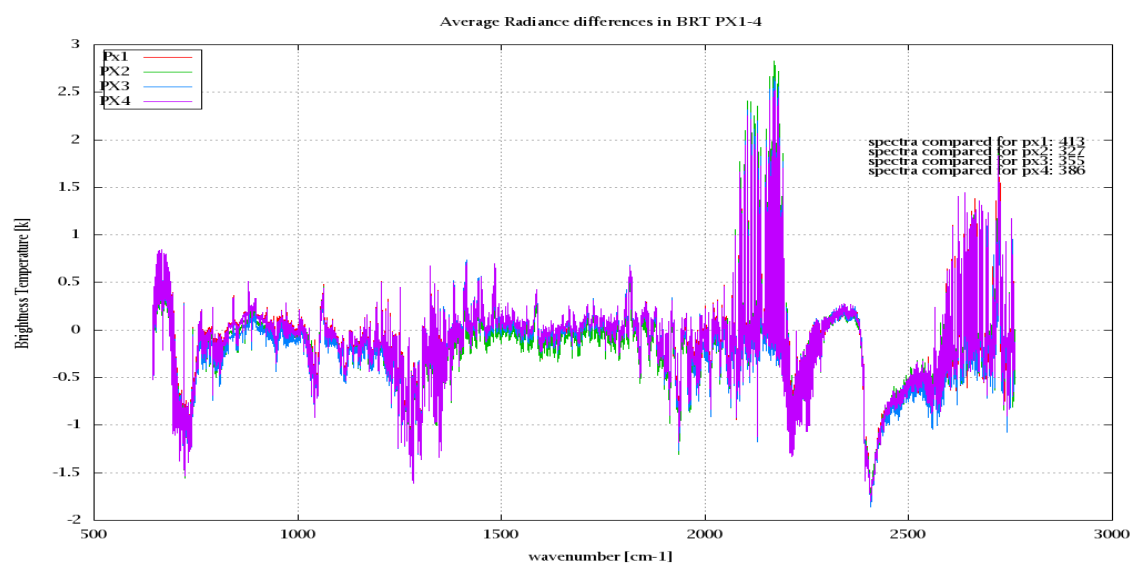


Figure 8: Average Radiance differences: OBS-CAL

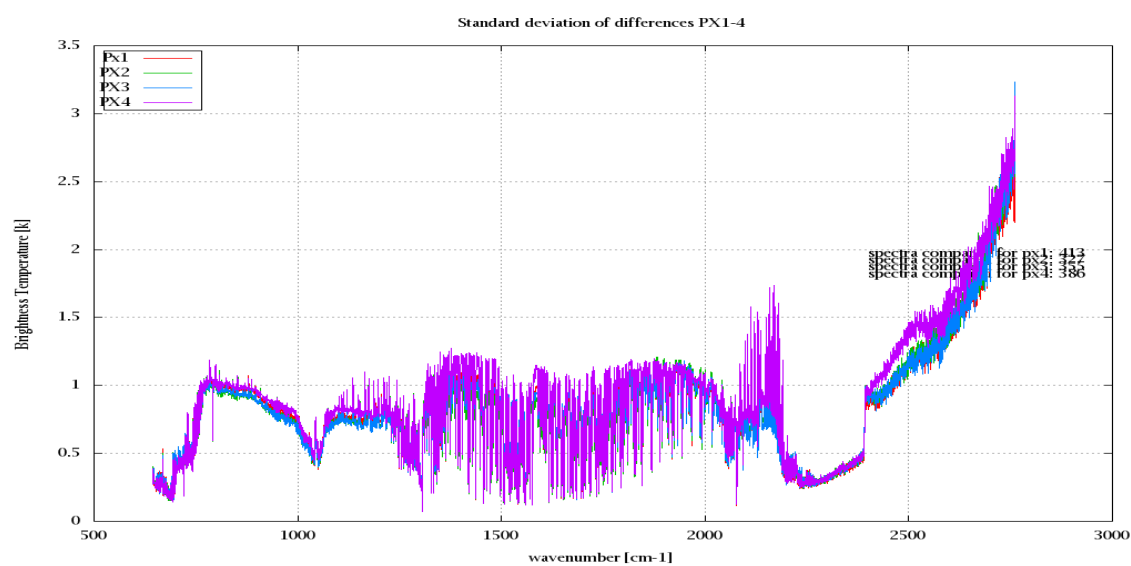


Figure 9: Standard Deviation of Radiance differences

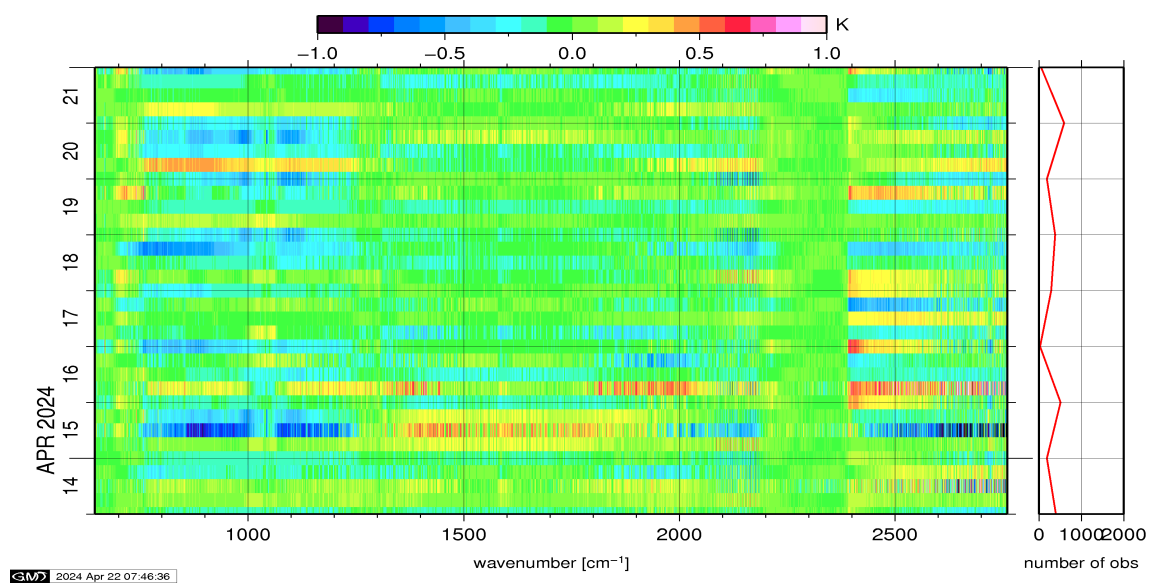


Figure 10: Radiance Anomaly in BT: All Channels

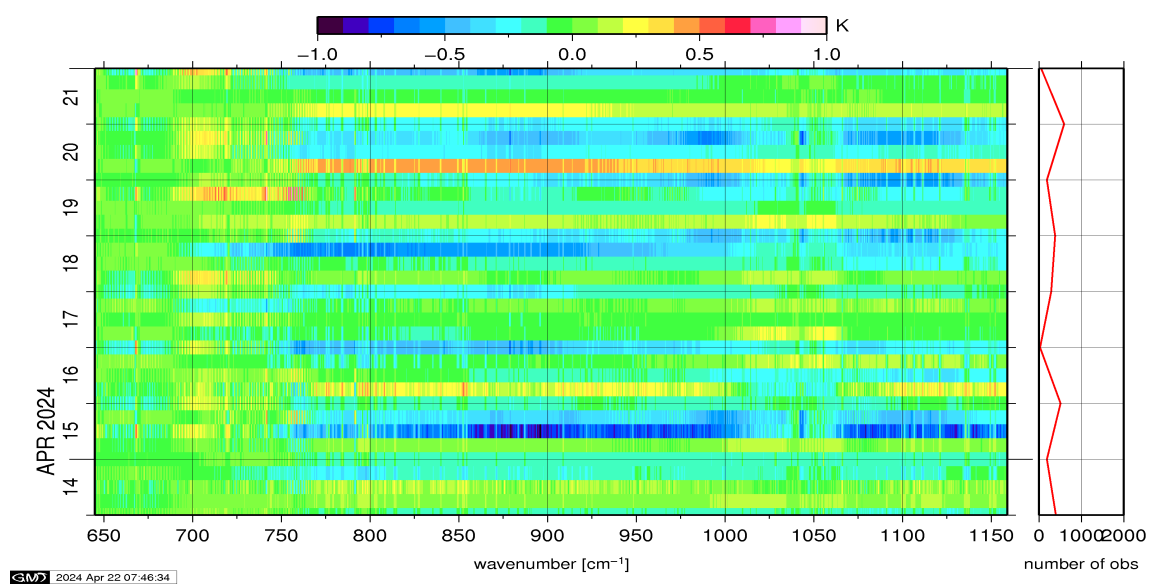


Figure 11: Radiance Anomaly in BT: IASI Band 1

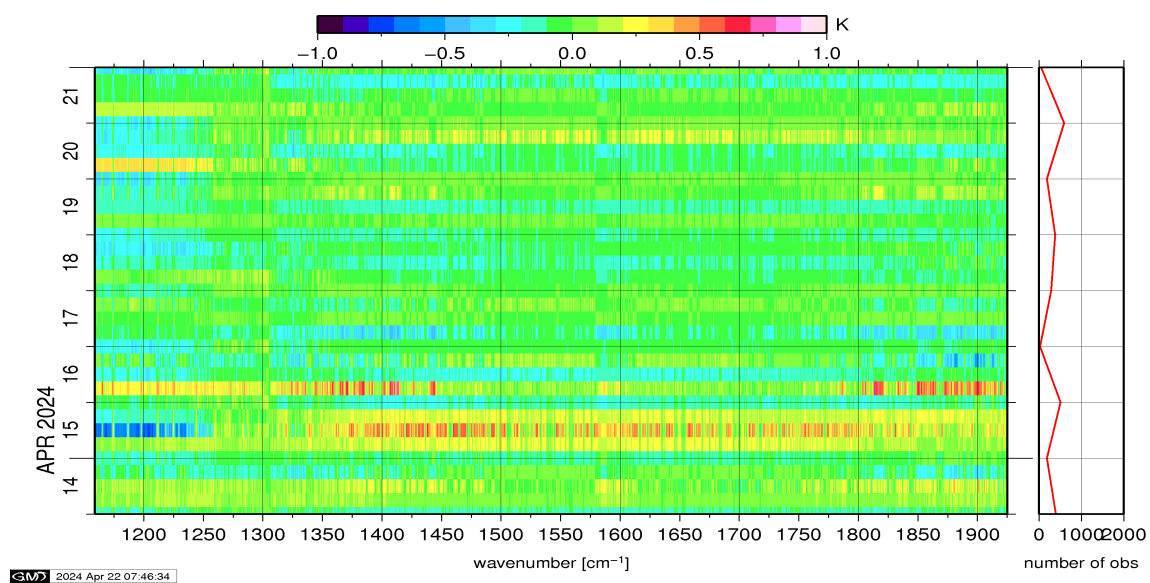


Figure 12: Radiance Anomaly in BT: IASI Band 2

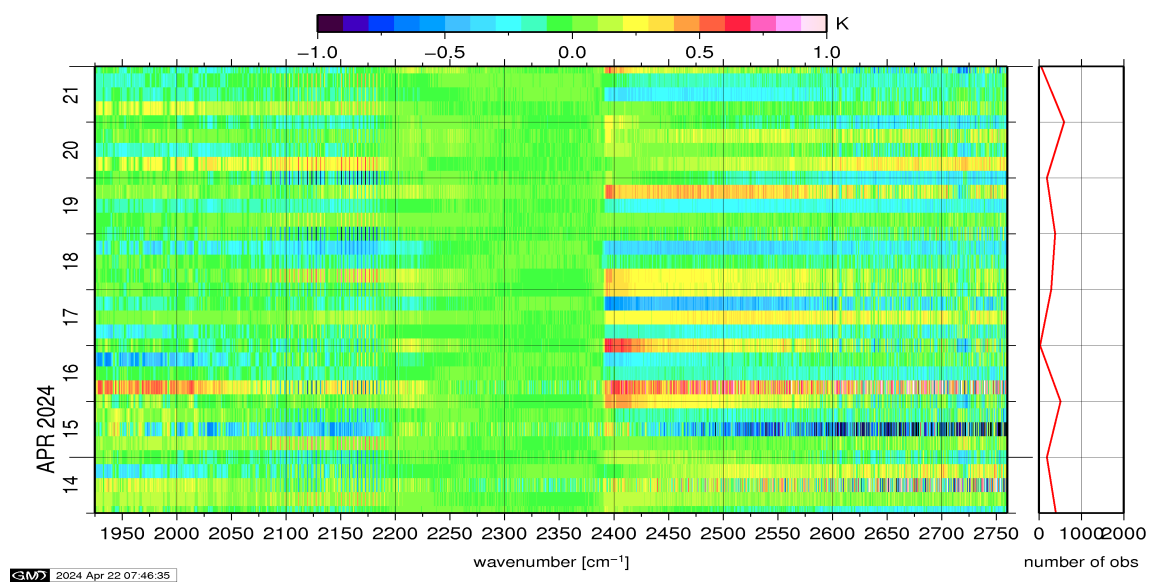


Figure 13: Radiance Anomaly in BT: IASI Band 3

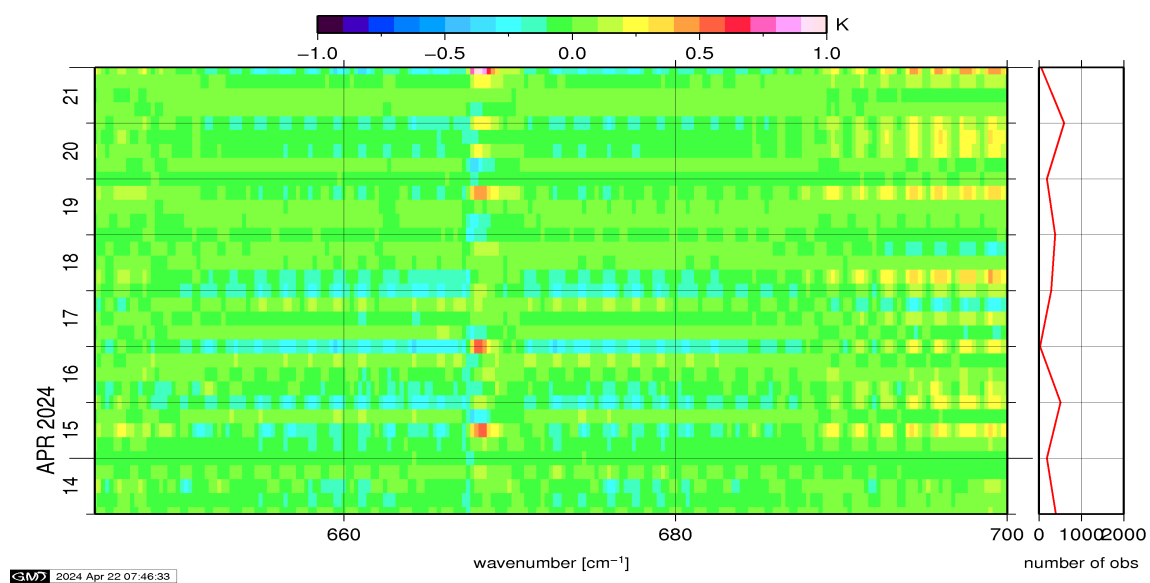


Figure 14: Radiance Anomaly in BT: CO2 14

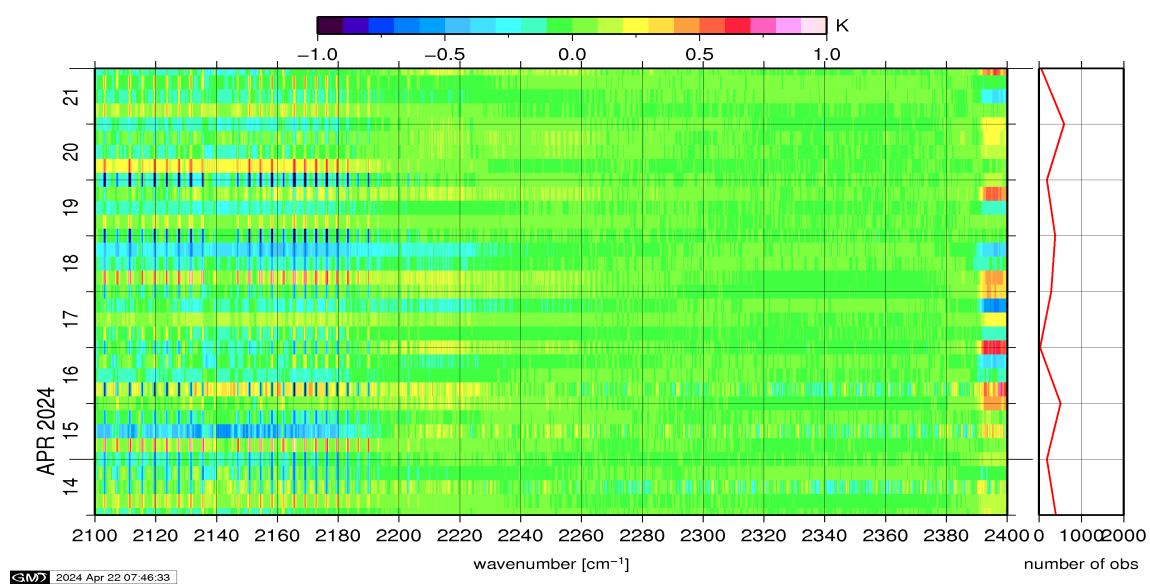


Figure 15: Radiance Anomaly in BT: CO2 4.3

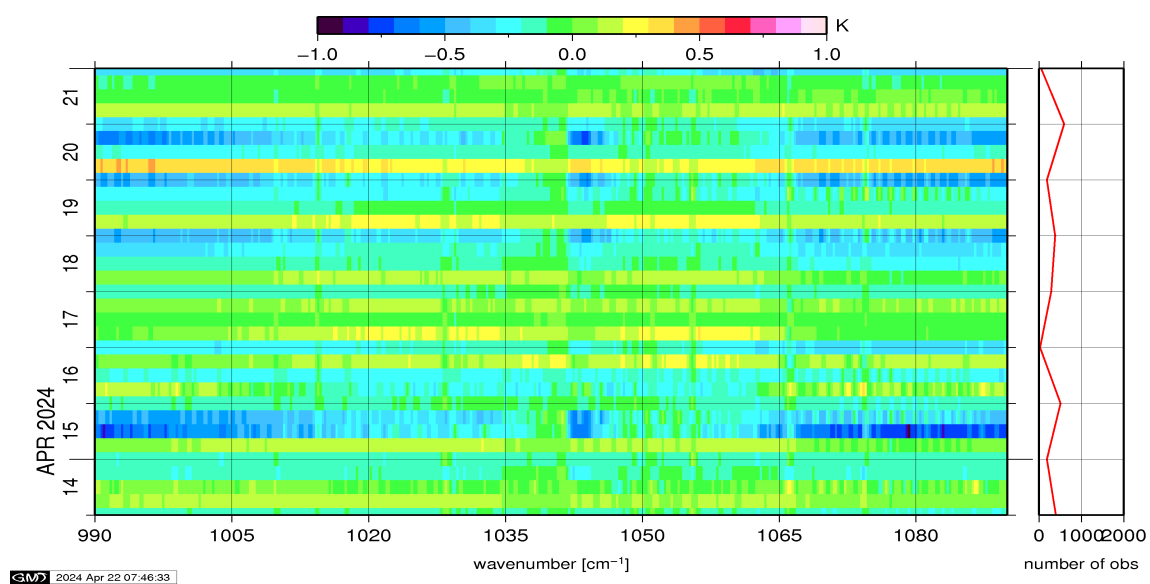


Figure 16: Radiance Anomaly in BT: O3