

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

IASI monitoring team

28/04/2022 00:00:00 - 29/04/2022 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 28/04/2022 00:00:00 - 29/04/2022 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 28/04/2022 00:00:00 - 29/04/2022 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	411	e
L0 IASI PDUs	413	e
L1 ENG PDUs	412	e
L1 ENG distinct GEPSGranule	412	a
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	259	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	5278	12074	20220428081658.257	20220428100000.080
PX1 (130)	7617	14710	20220428131838.984	20220428150300.155
PX2 (135)	5278	12074	20220428081658.257	20220428100000.080
PX2 (135)	7617	14710	20220428131838.984	20220428150300.155
PX3 (140)	5278	12074	20220428081658.257	20220428100000.080
PX3 (140)	7617	14710	20220428131838.984	20220428150300.155
PX4 (145)	5278	12074	20220428081658.257	20220428100000.080
PX4 (145)	7617	14710	20220428131838.984	20220428150300.155
IMG (150)	13919	7423	20220428081658.257	20220428100000.080
IMG (150)	8926	2767	20220428131838.984	20220428150300.155
VER (160)	16381	0	20220428032834.267	20220428032842.263
VER (160)	2	16382	20220428032842.263	20220428032842.263
VER (160)	-1	3	20220428032842.263	20220428032850.263
VER (160)	10808	14673	20220428081658.257	20220428100002.244
VER (160)	16382	0	20220428104530.244	20220428104538.244
VER (160)	3	16383	20220428104538.244	20220428104538.244
VER (160)	-1	4	20220428104538.244	20220428104546.244

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	5738	9654	20220428131834.226	20220428150306.209
AUX (180)	2159	2933	20220428081650.691	20220428100002.674
AUX (180)	4422	5206	20220428131834.660	20220428150306.643

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
28/04/2022 00:00:15	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	413	e
L1 ENG PDUs	412	e
L1 ENG distinct GEPSGranule	412	a
GQisFlagQual set (PX1)	99.61 %	-
GQisFlagQual set (PX2)	99.64 %	-
GQisFlagQual set (PX3)	99.62 %	-
GQisFlagQual set (PX4)	99.58 %	-
GQisFlagQual set (all)	99.61 %	-

Table 4: Quality flags

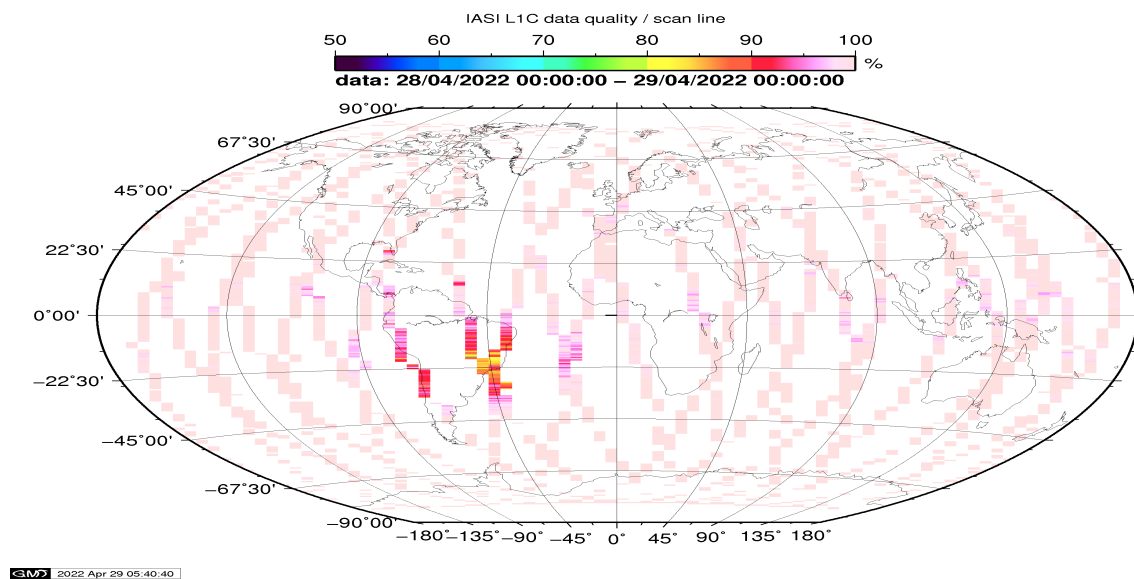


Figure 1: L1C data quality

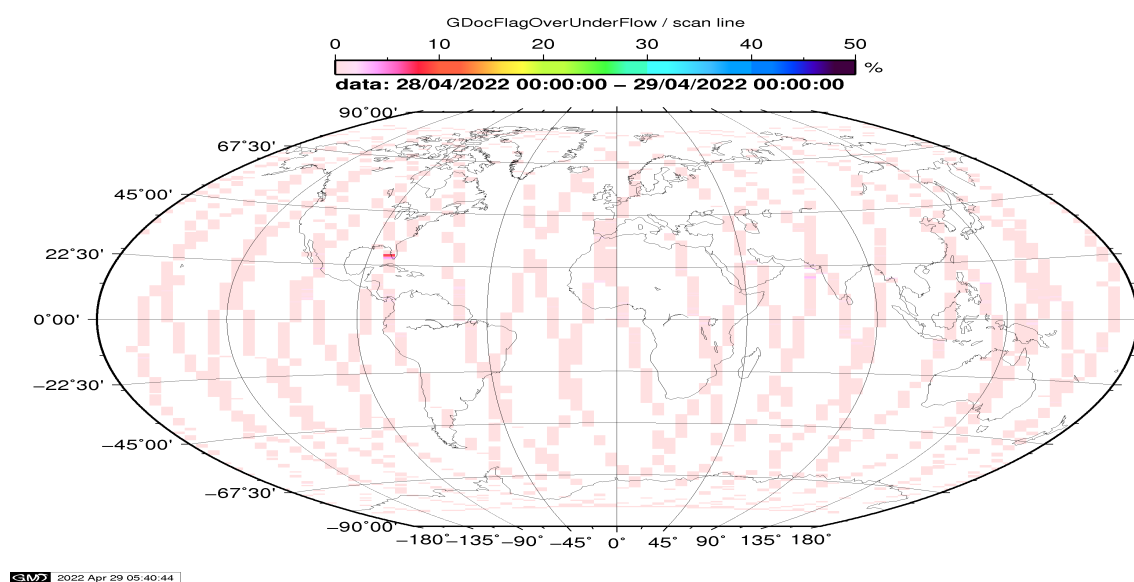


Figure 2: Flag of Over and Under Flows

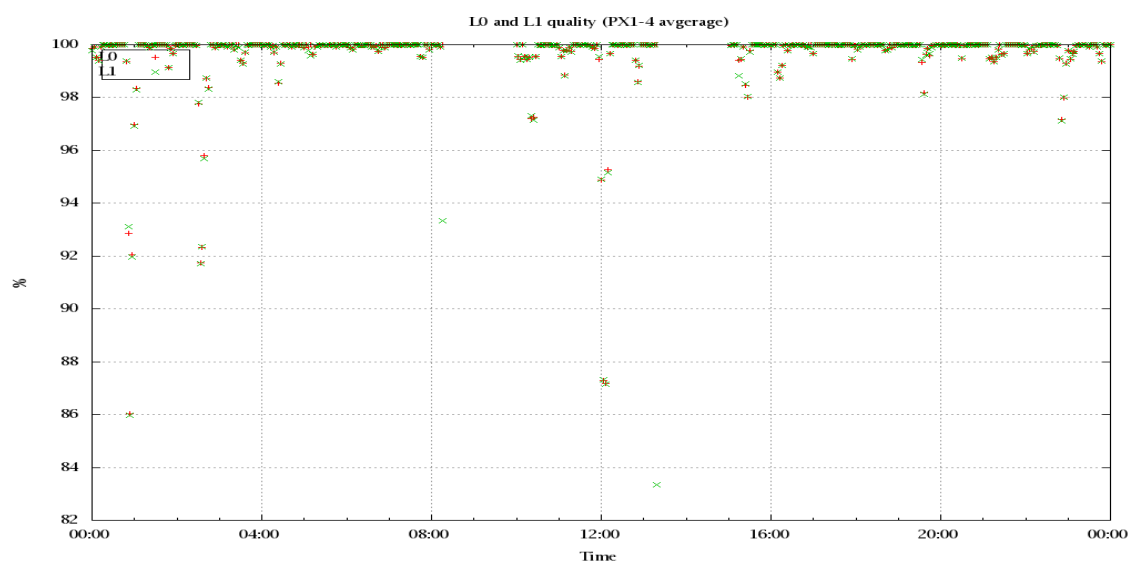


Figure 3: Level 0 and 1C overall quality

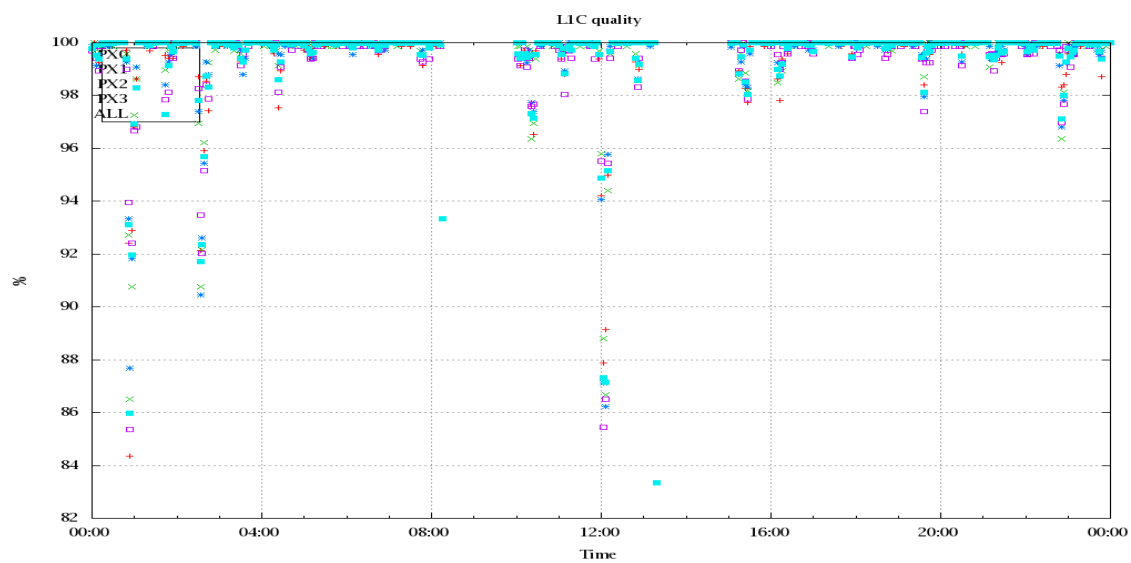


Figure 4: Level 1C quality

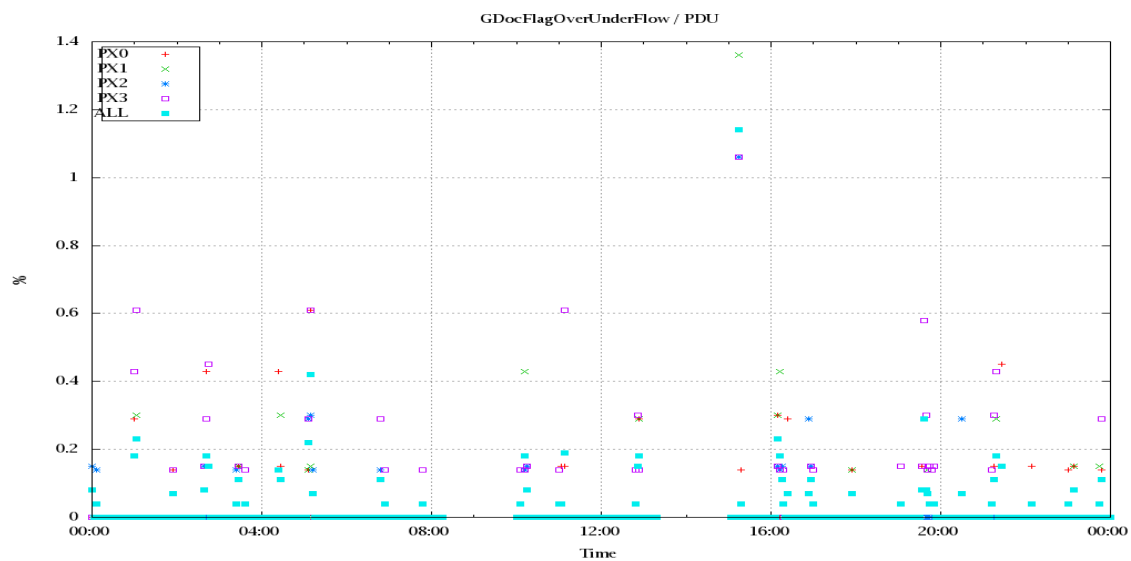


Figure 5: Timeseries of flag of Over and Under Flows

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.

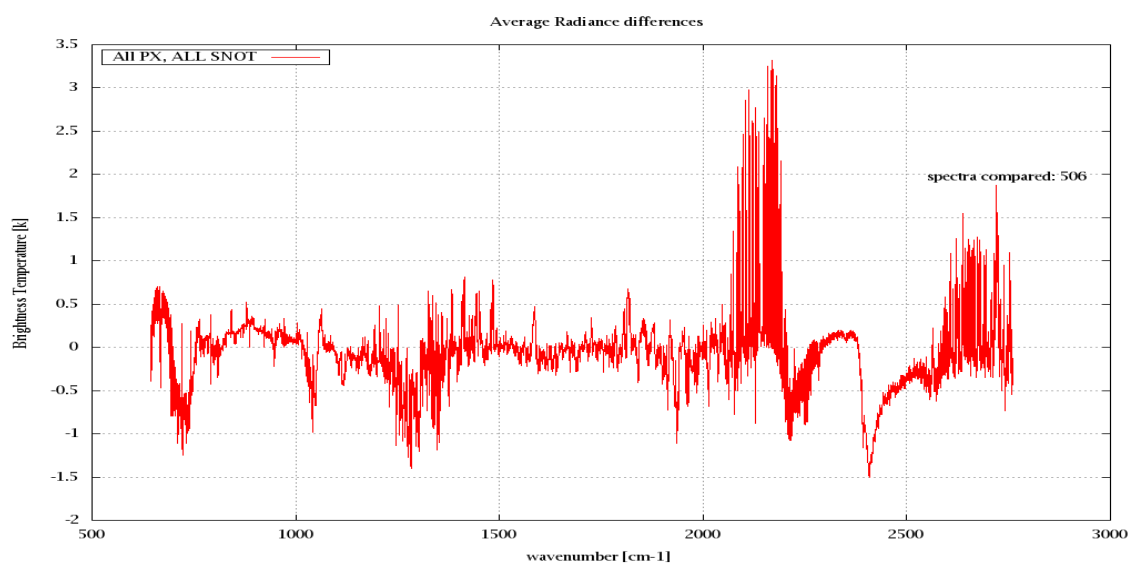


Figure 6: Average Radiance differences: OBS-CAL

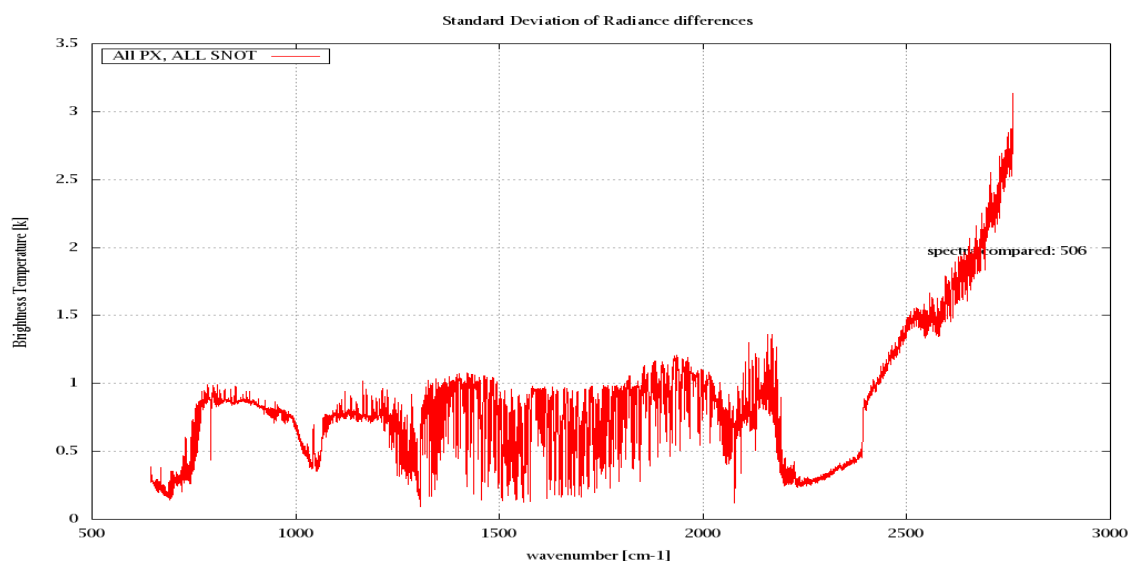


Figure 7: Standard Deviation of Radiance differences

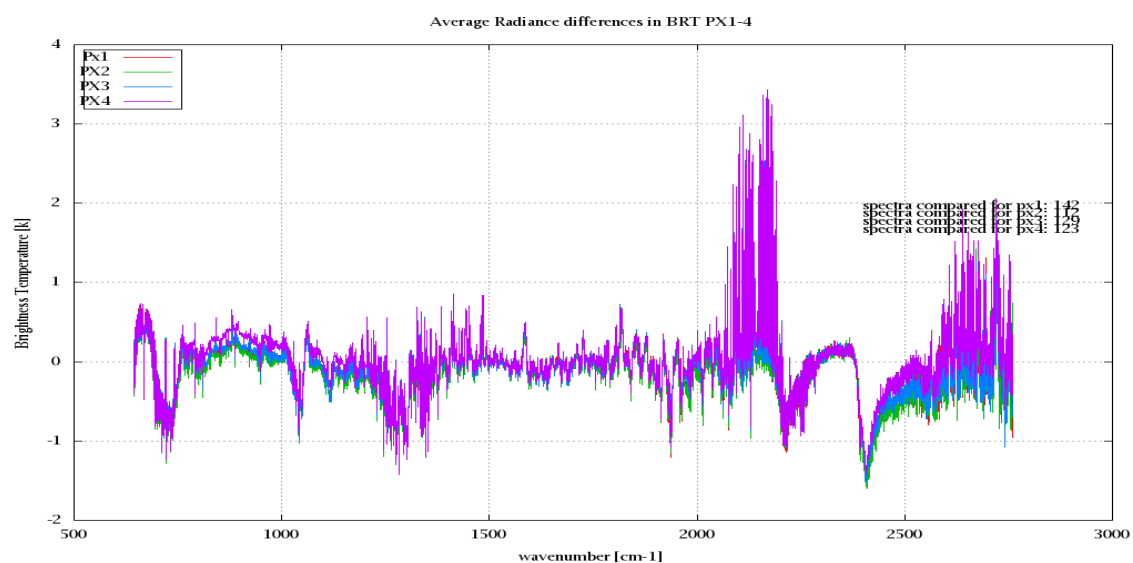


Figure 8: Average Radiance differences: OBS-CAL

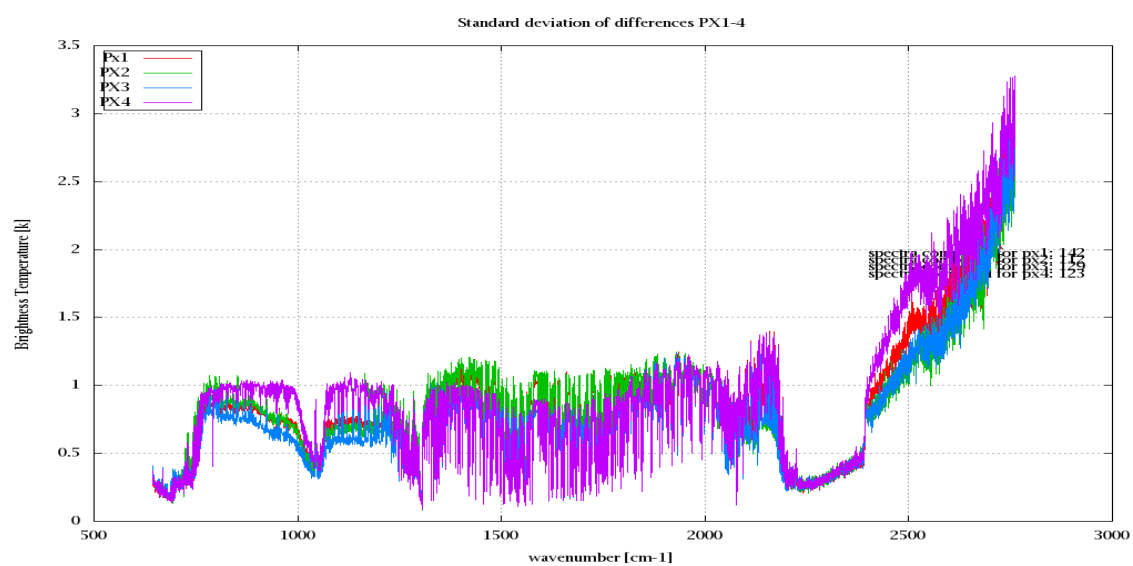


Figure 9: Standard Deviation of Radiance differences

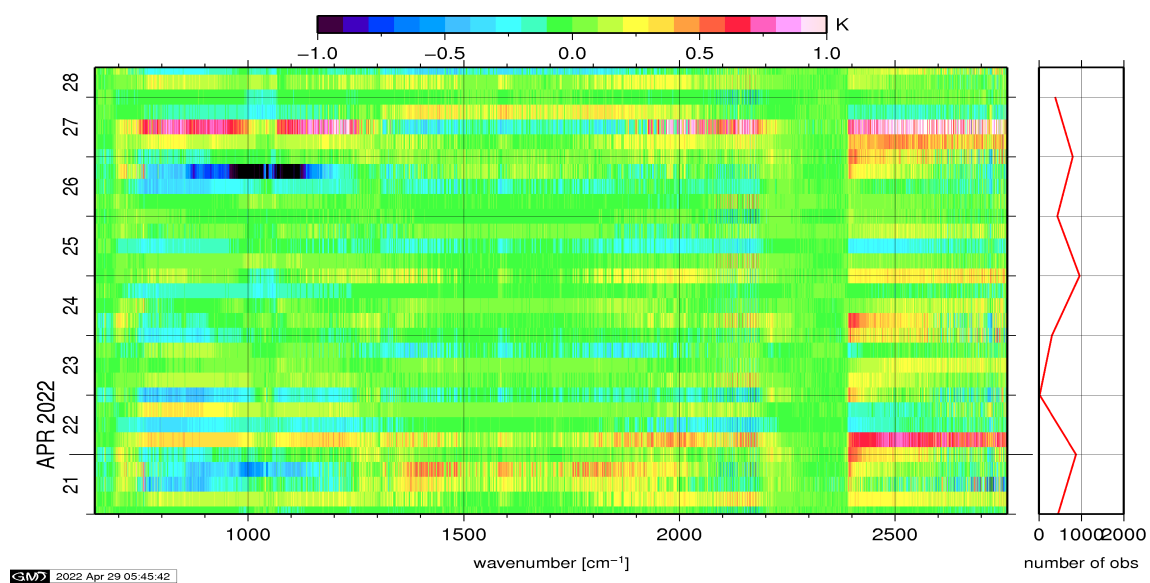


Figure 10: Radiance Anomaly in BT: All Channels

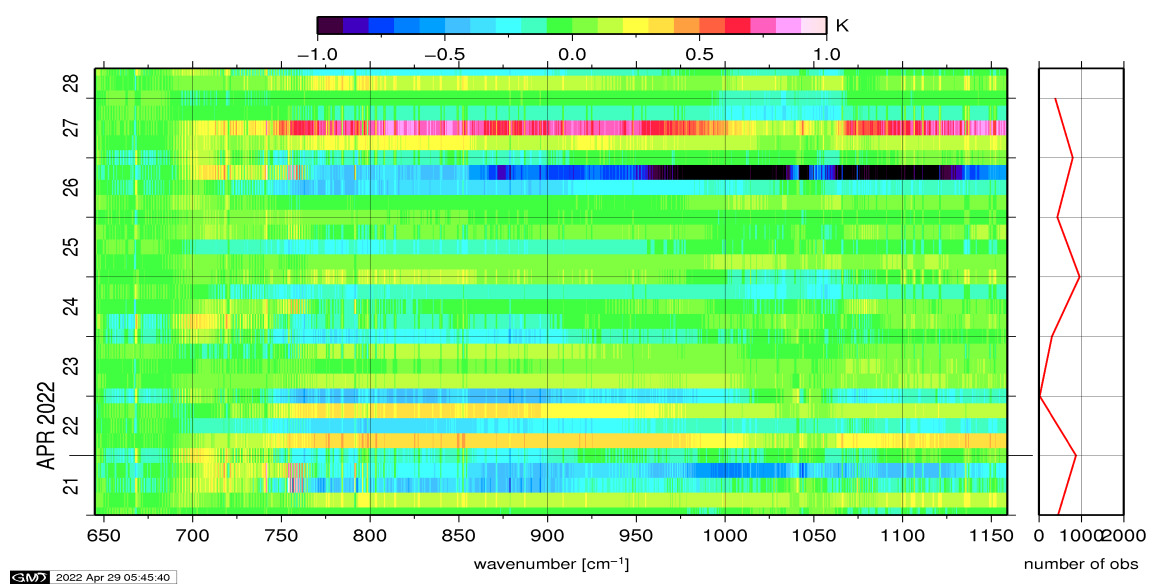


Figure 11: Radiance Anomaly in BT: IASI Band 1

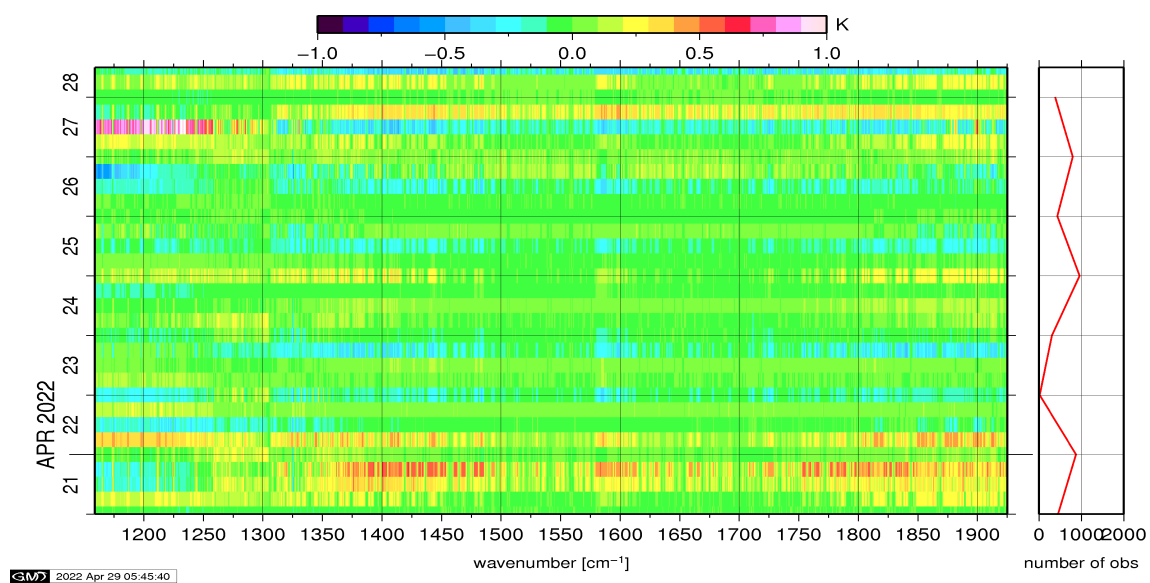


Figure 12: Radiance Anomaly in BT: IASI Band 2

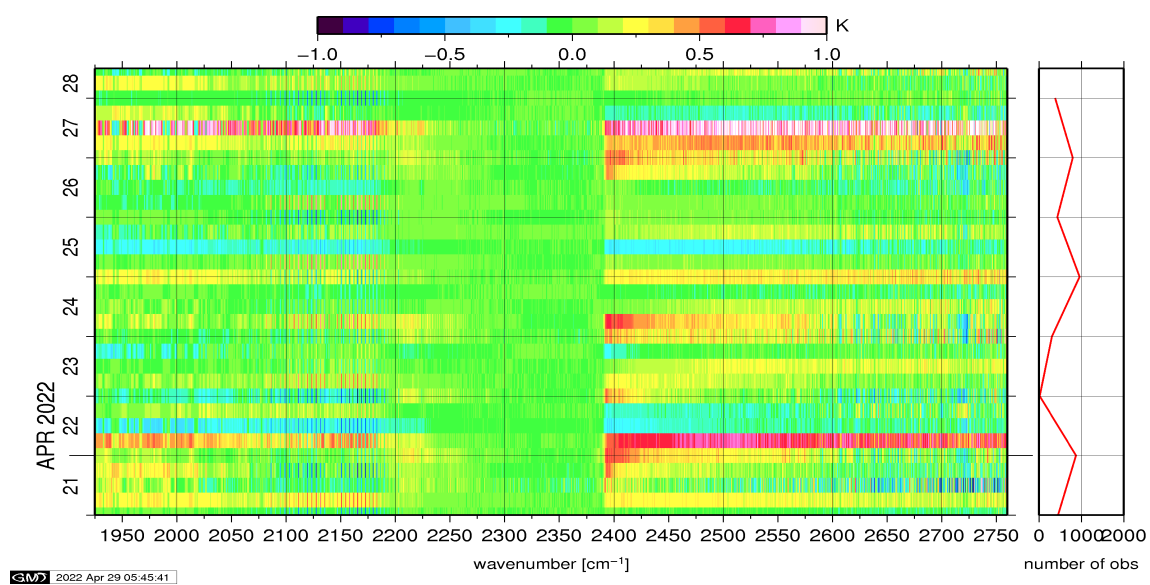


Figure 13: Radiance Anomaly in BT: IASI Band 3

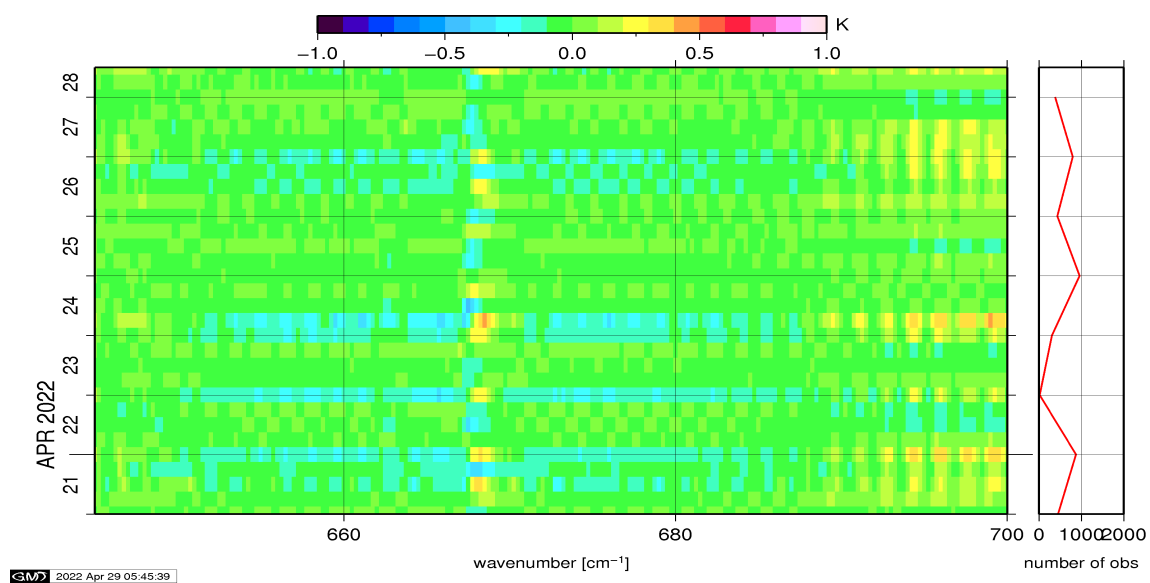


Figure 14: Radiance Anomaly in BT: CO2 14

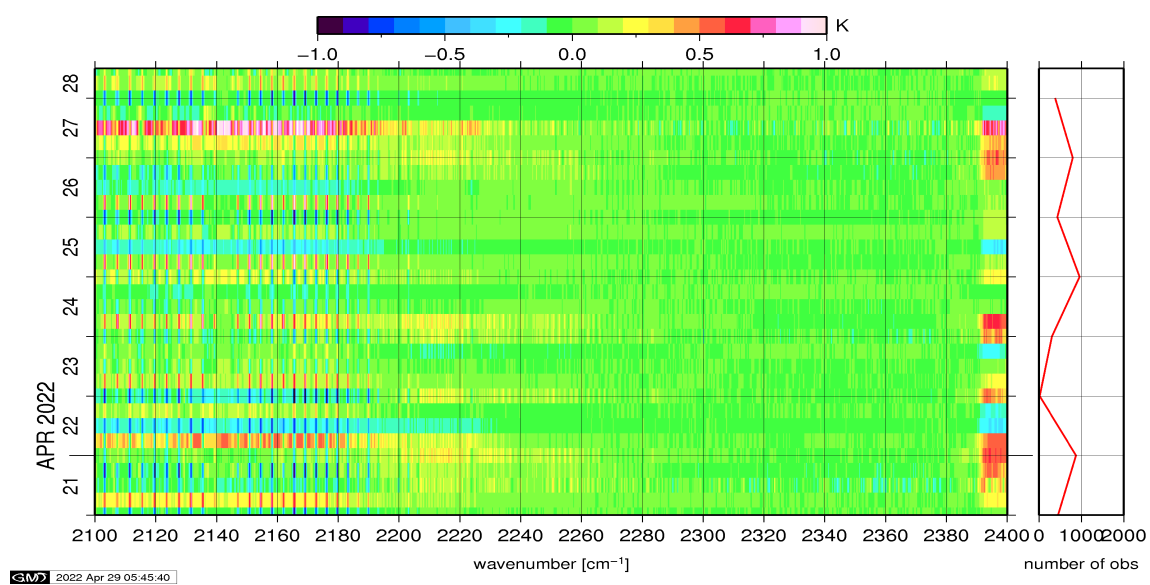


Figure 15: Radiance Anomaly in BT: CO2 4.3

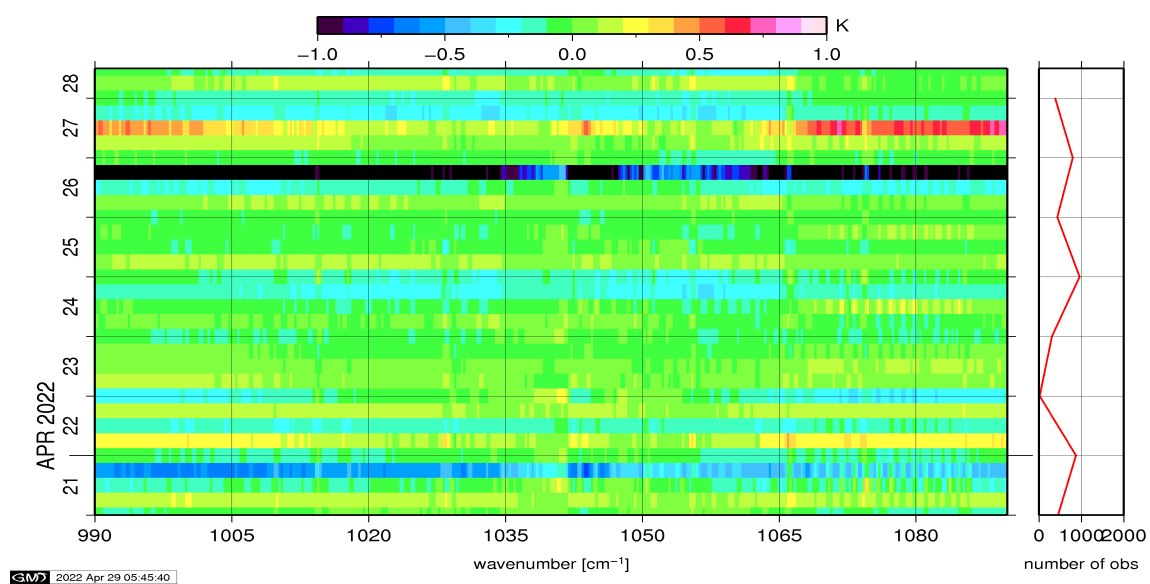


Figure 16: Radiance Anomaly in BT: O3