

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

IASI monitoring team

22/09/2023 00:00:00 - 23/09/2023 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 22/09/2023 00:00:00 - 23/09/2023 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 22/09/2023 00:00:00 - 23/09/2023 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	480	-
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	479	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	7994	8773	20230922151046.209	20230922151414.013
PX1 (130)	8848	8850	20230922151433.260	20230922151433.689
PX1 (130)	159	718	20230922154845.999	20230922155115.616
PX1 (130)	721	1493	20230922155116.264	20230922155441.014
PX1 (130)	1584	1586	20230922155505.233	20230922155505.662
PX2 (135)	7994	8773	20230922151046.209	20230922151414.013
PX2 (135)	8848	8850	20230922151433.260	20230922151433.689
PX2 (135)	8857	8859	20230922151436.717	20230922151437.150
PX2 (135)	8864	8866	20230922151438.232	20230922151438.662
PX2 (135)	8880	8882	20230922151441.689	20230922151443.635
PX2 (135)	159	718	20230922154845.999	20230922155115.616
PX2 (135)	721	1493	20230922155116.264	20230922155441.014
PX2 (135)	1568	1570	20230922155501.772	20230922155502.205
PX2 (135)	1577	1579	20230922155503.717	20230922155504.150
PX2 (135)	1593	1595	20230922155508.690	20230922155509.123
PX3 (140)	7993	8773	20230922151045.994	20230922151414.013
PX3 (140)	158	718	20230922154845.780	20230922155115.616
PX3 (140)	721	1493	20230922155116.264	20230922155441.014
PX4 (145)	7993	8773	20230922151045.994	20230922151414.013

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	8850	8852	20230922151433.689	20230922151435.635
PX4 (145)	8859	8861	20230922151437.150	20230922151437.584
PX4 (145)	8866	8868	20230922151438.662	20230922151439.095
PX4 (145)	8882	8884	20230922151443.635	20230922151444.068
PX4 (145)	158	718	20230922154845.780	20230922155115.616
PX4 (145)	721	1493	20230922155116.264	20230922155441.014
PX4 (145)	1579	1581	20230922155504.150	20230922155504.584
PX4 (145)	1595	1597	20230922155509.123	20230922155509.557
IMG (150)	3837	4721	20230922151045.994	20230922151414.013
IMG (150)	4809	4812	20230922151434.556	20230922151435.635
IMG (150)	4812	4814	20230922151435.635	20230922151436.068
IMG (150)	4821	4823	20230922151437.584	20230922151438.013
IMG (150)	4828	4830	20230922151439.095	20230922151439.529
IMG (150)	4842	4845	20230922151442.338	20230922151443.205
IMG (150)	4846	4848	20230922151443.635	20230922151444.068
IMG (150)	13526	14158	20230922154845.780	20230922155114.319
IMG (150)	14164	15037	20230922155116.049	20230922155441.014
IMG (150)	15128	15130	20230922155502.635	20230922155503.068
IMG (150)	15137	15139	20230922155504.584	20230922155505.014
IMG (150)	15157	15159	20230922155509.557	20230922155509.986
VER (160)	16381	0	20230922010441.986	20230922010449.986
VER (160)	2	16382	20230922010449.986	20230922010449.986
VER (160)	-1	3	20230922010449.986	20230922010457.986
VER (160)	16382	0	20230922082137.928	20230922082145.929
VER (160)	3	16383	20230922082145.929	20230922082145.929
VER (160)	-1	4	20230922082145.929	20230922082153.929
VER (160)	15338	15469	20230922151041.877	20230922151417.908
VER (160)	15478	15489	20230922151425.908	20230922151449.908
VER (160)	379	471	20230922154841.889	20230922154845.999
VER (160)	474	600	20230922154845.999	20230922155441.881
VER (160)	614	620	20230922155457.881	20230922155513.881
VER (160)	16379	0	20230922225521.848	20230922225529.848
VER (160)	0	16380	20230922225529.848	20230922225529.848
VER (160)	-1	1	20230922225529.848	20230922225537.848
AUX (180)	3056	3083	20230922151042.307	20230922151418.338
AUX (180)	3341	3360	20230922154842.323	20230922155114.319
AUX (180)	3360	3386	20230922155114.319	20230922155442.315

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
22/09/2023 00:04:12	-	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	480	-
GQisFlagQual set (PX1)	99.52 %	-
GQisFlagQual set (PX2)	99.57 %	-
GQisFlagQual set (PX3)	99.58 %	-
GQisFlagQual set (PX4)	99.51 %	-
GQisFlagQual set (all)	99.54 %	-

Table 4: Quality flags

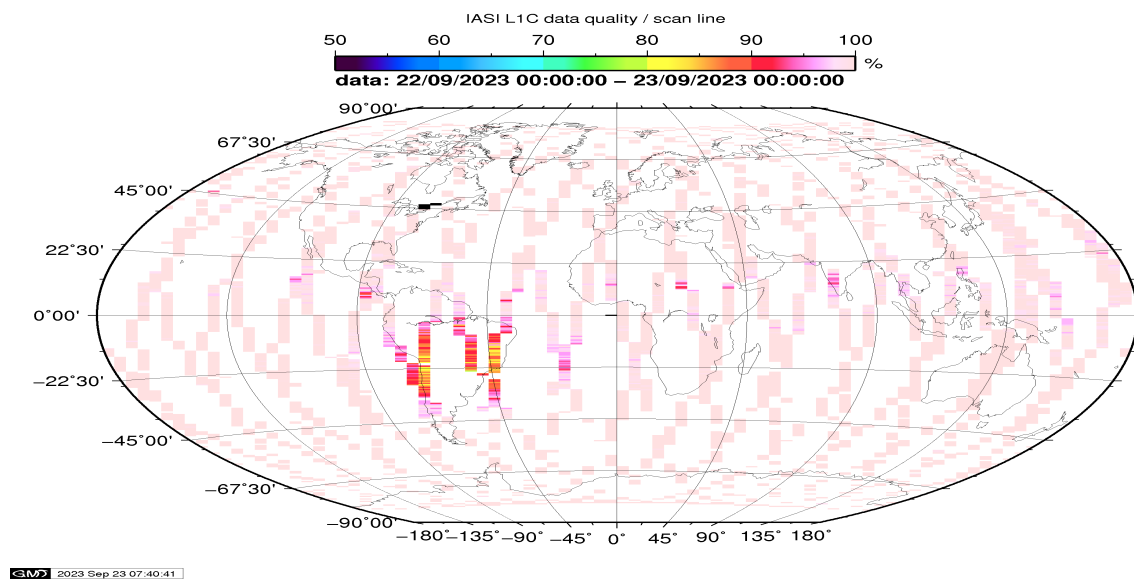


Figure 1: L1C data quality

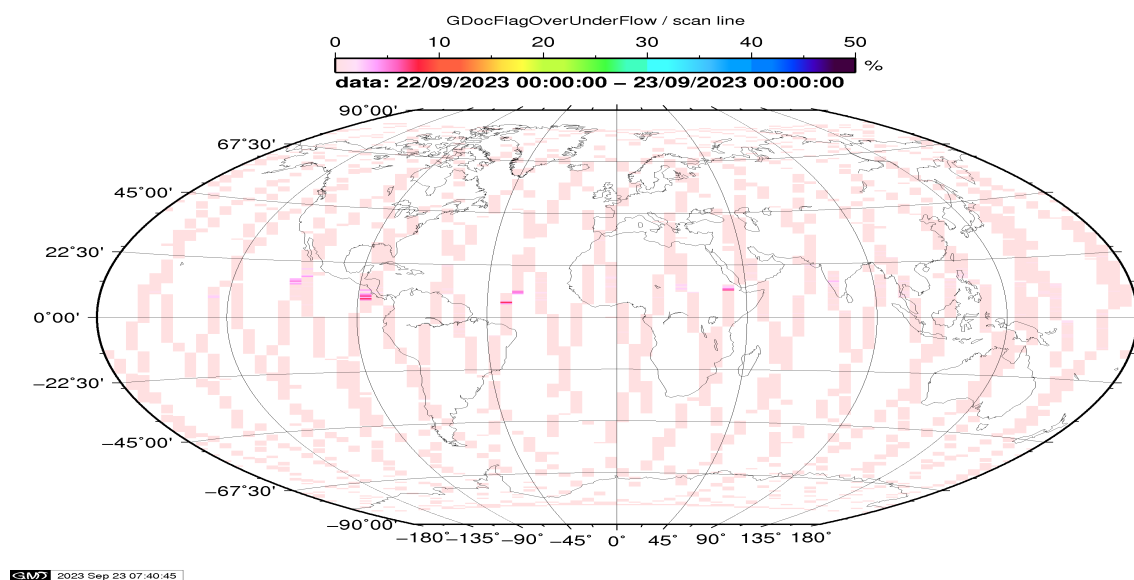


Figure 2: Flag of Over and Under Flows

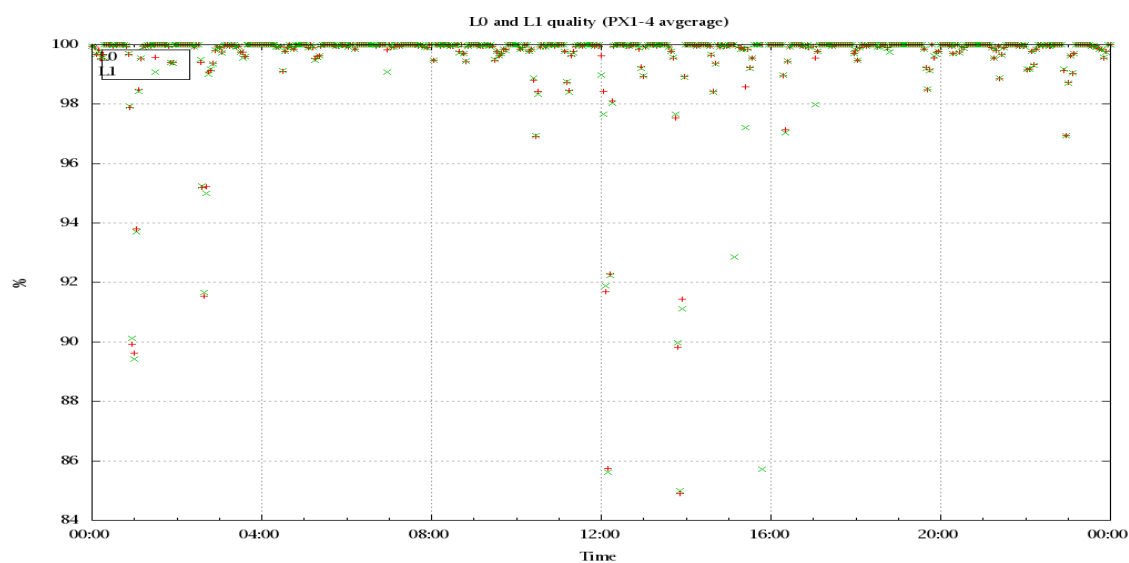


Figure 3: Level 0 and 1C overall quality

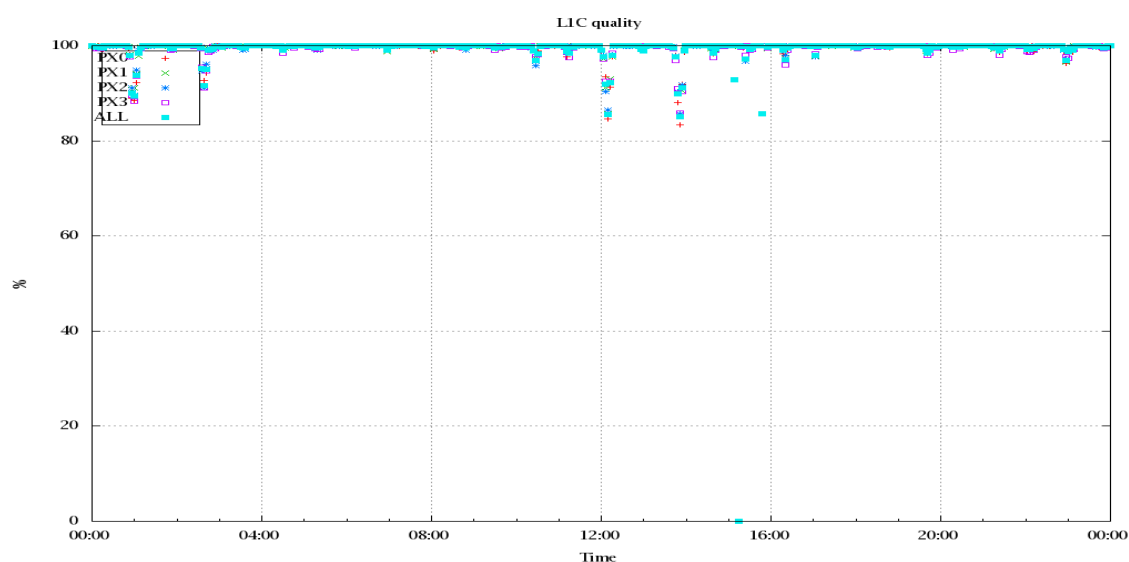


Figure 4: Level 1C quality

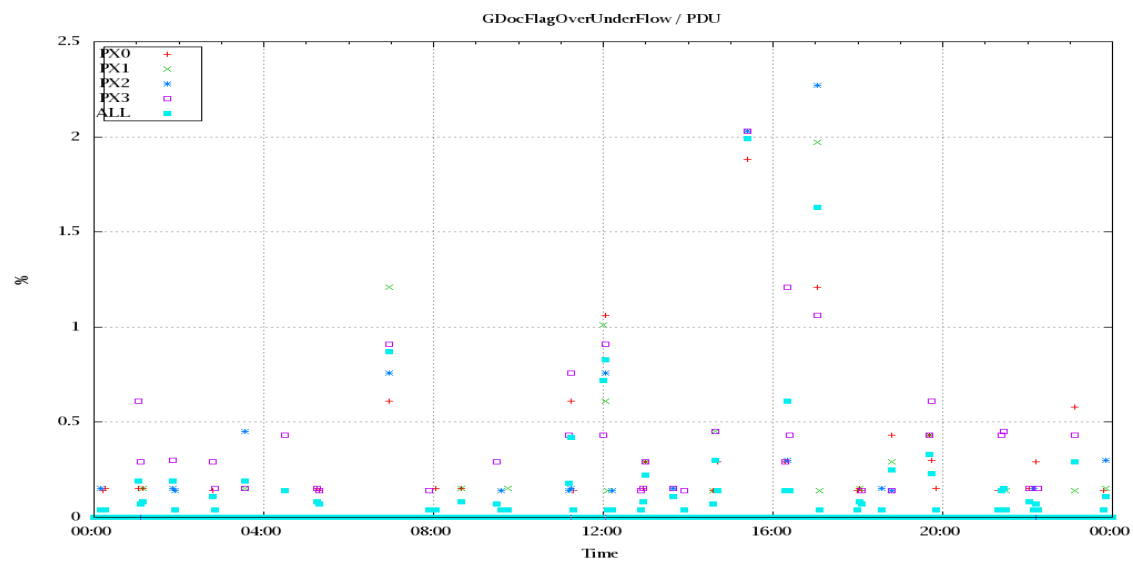


Figure 5: Timeseries of flag of Over and Under Flows

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.

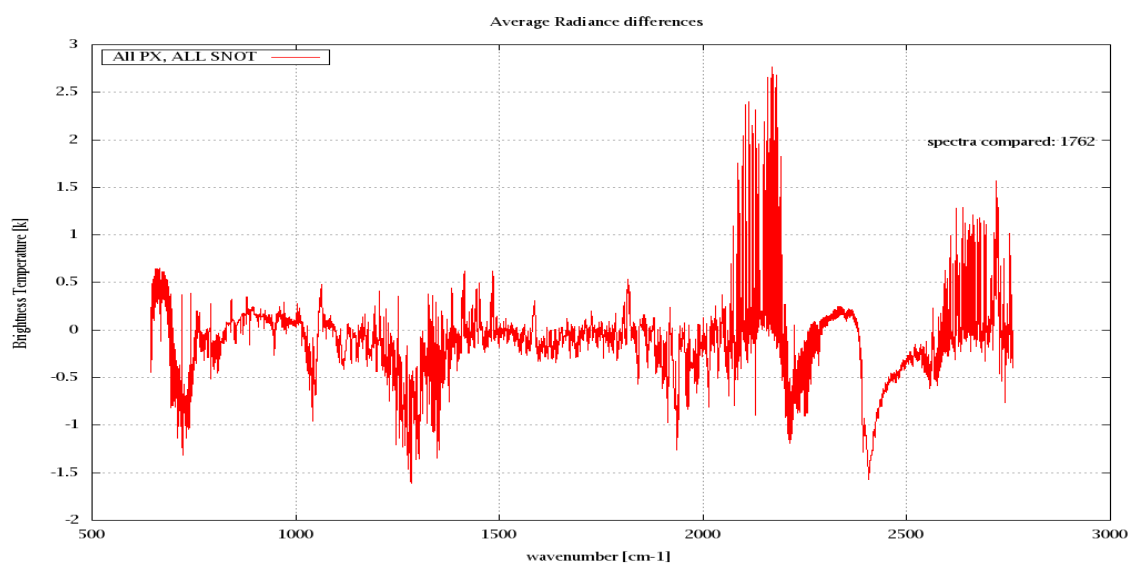


Figure 6: Average Radiance differences: OBS-CAL

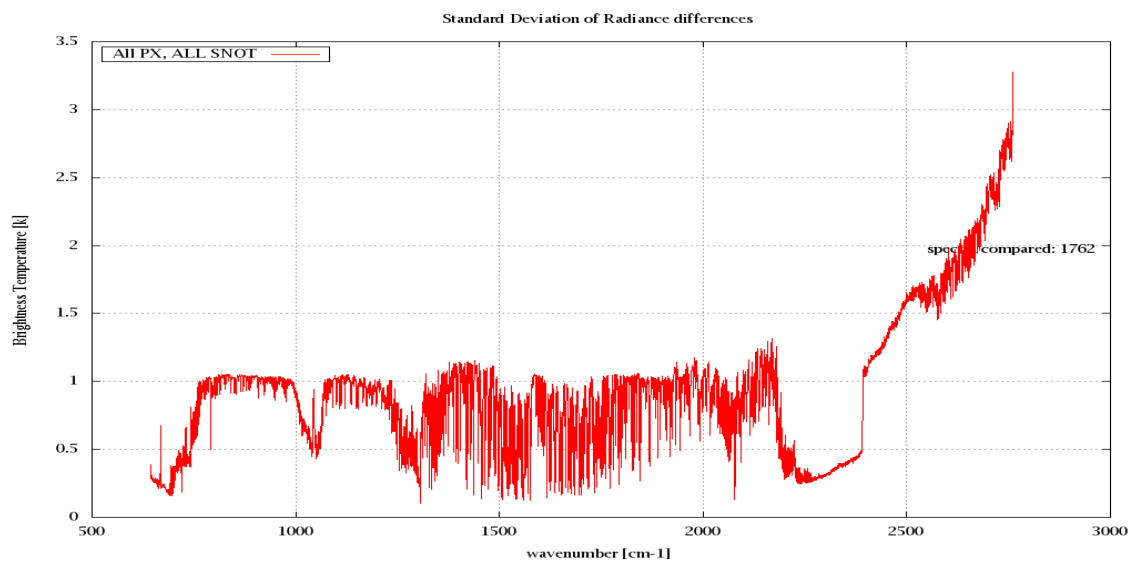


Figure 7: Standard Deviation of Radiance differences

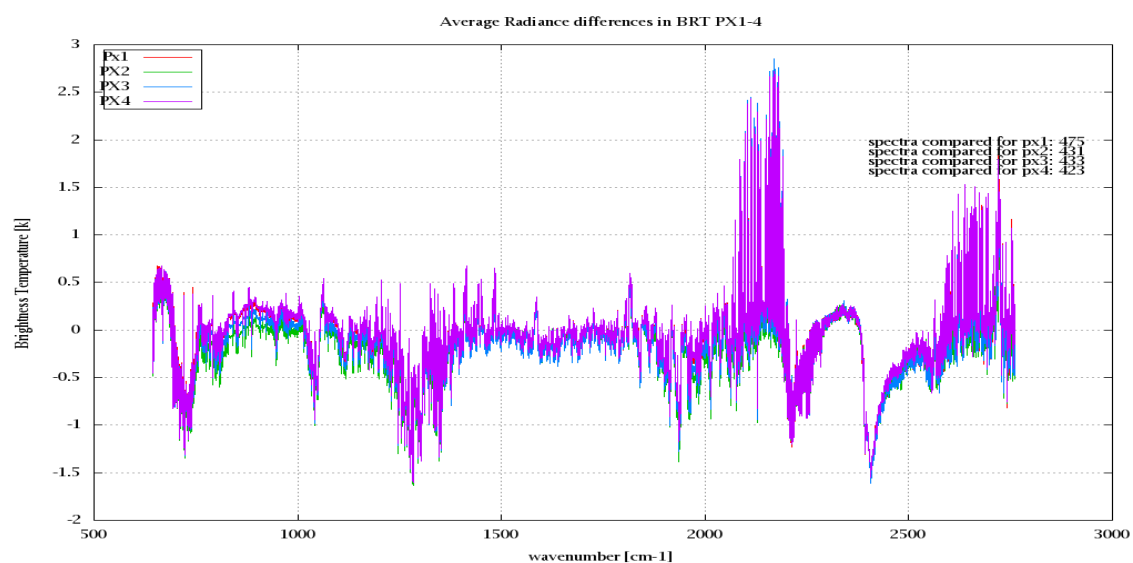


Figure 8: Average Radiance differences: OBS-CAL

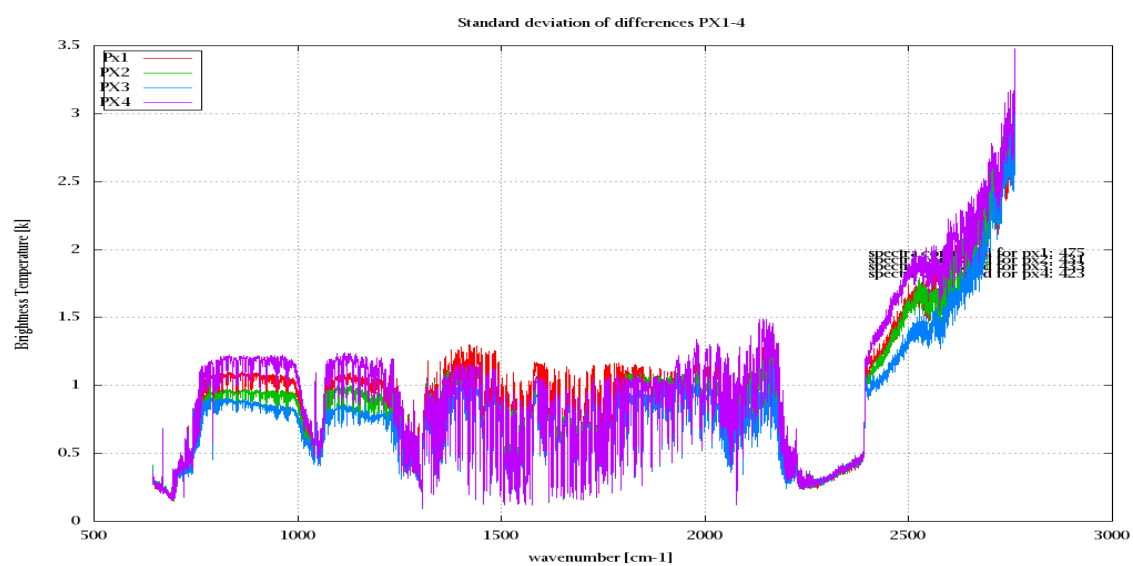


Figure 9: Standard Deviation of Radiance differences

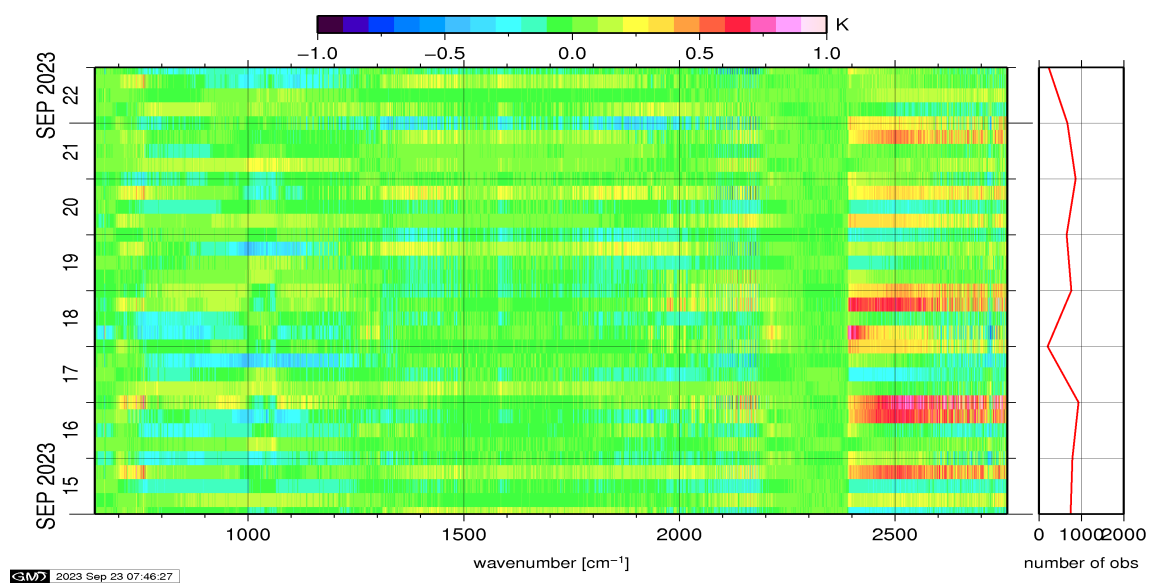


Figure 10: Radiance Anomaly in BT: All Channels

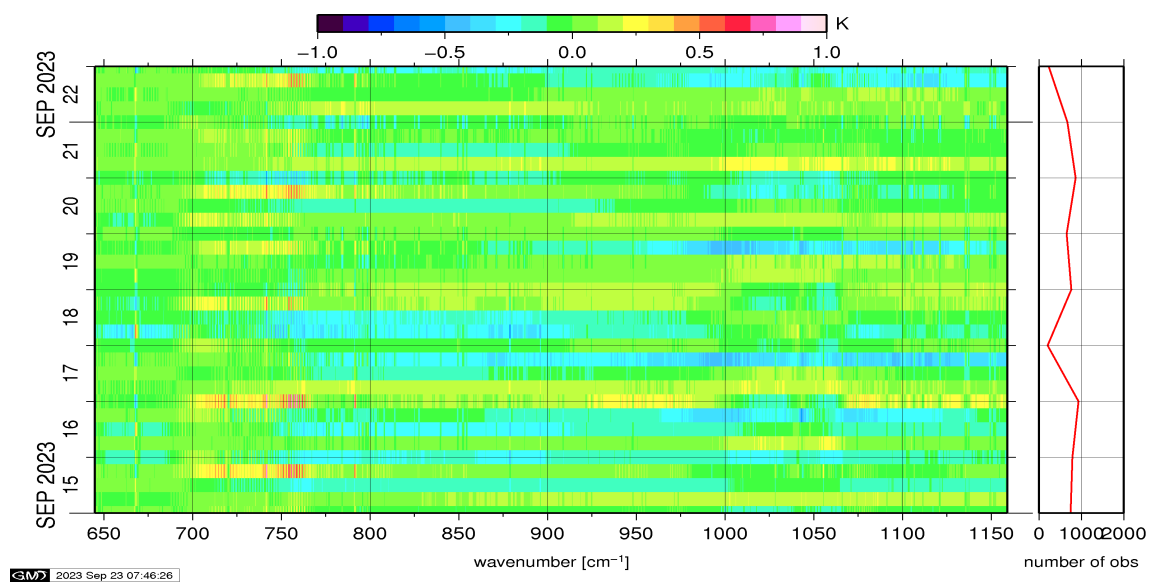


Figure 11: Radiance Anomaly in BT: IASI Band 1

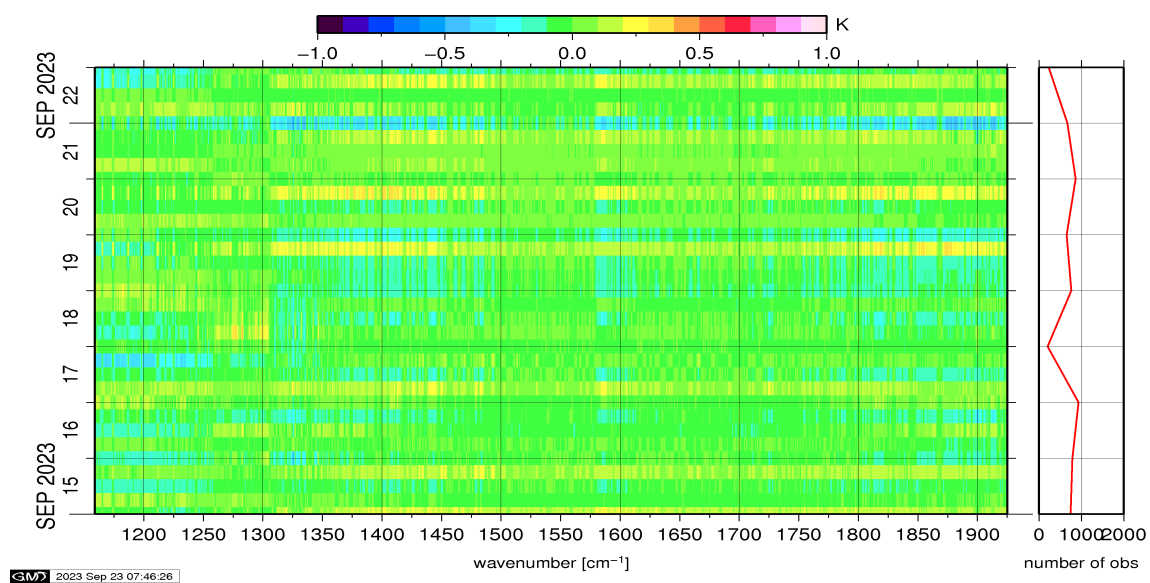


Figure 12: Radiance Anomaly in BT: IASI Band 2

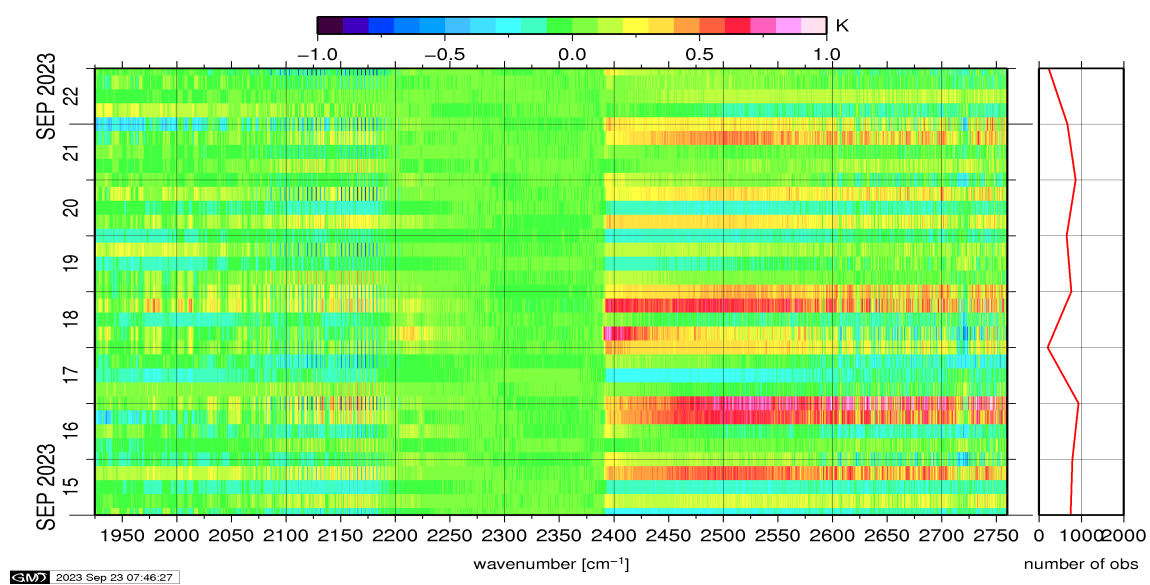


Figure 13: Radiance Anomaly in BT: IASI Band 3

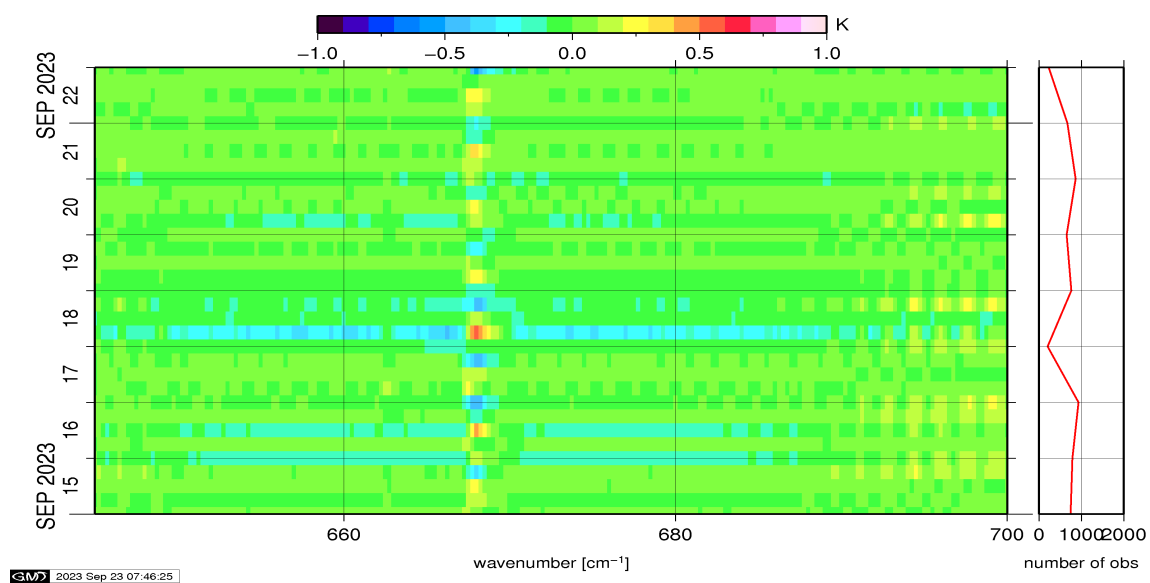


Figure 14: Radiance Anomaly in BT: CO2 14

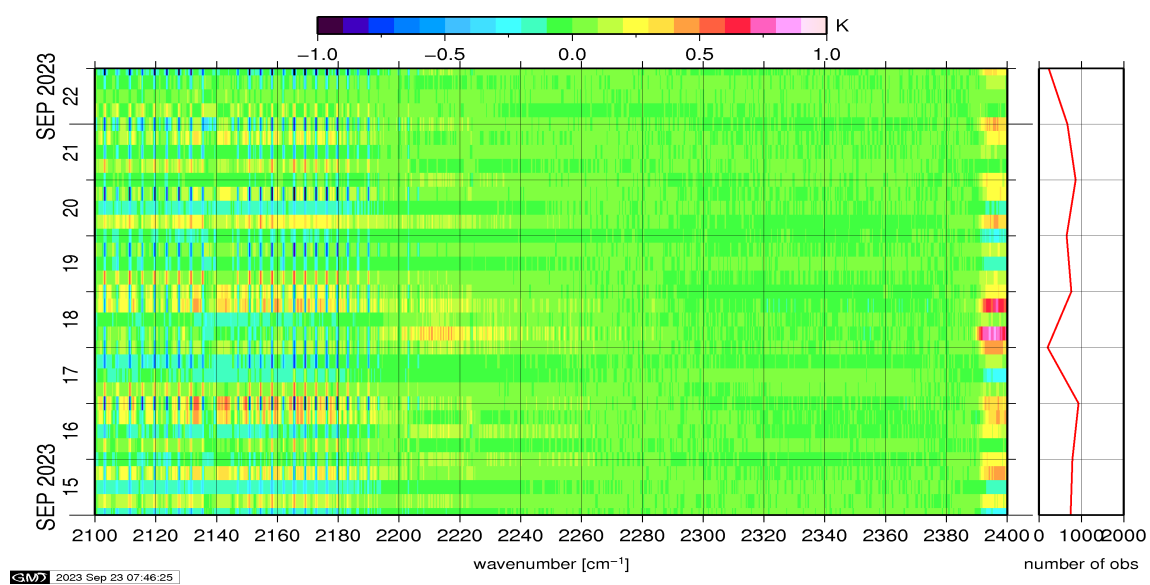


Figure 15: Radiance Anomaly in BT: CO2 4.3

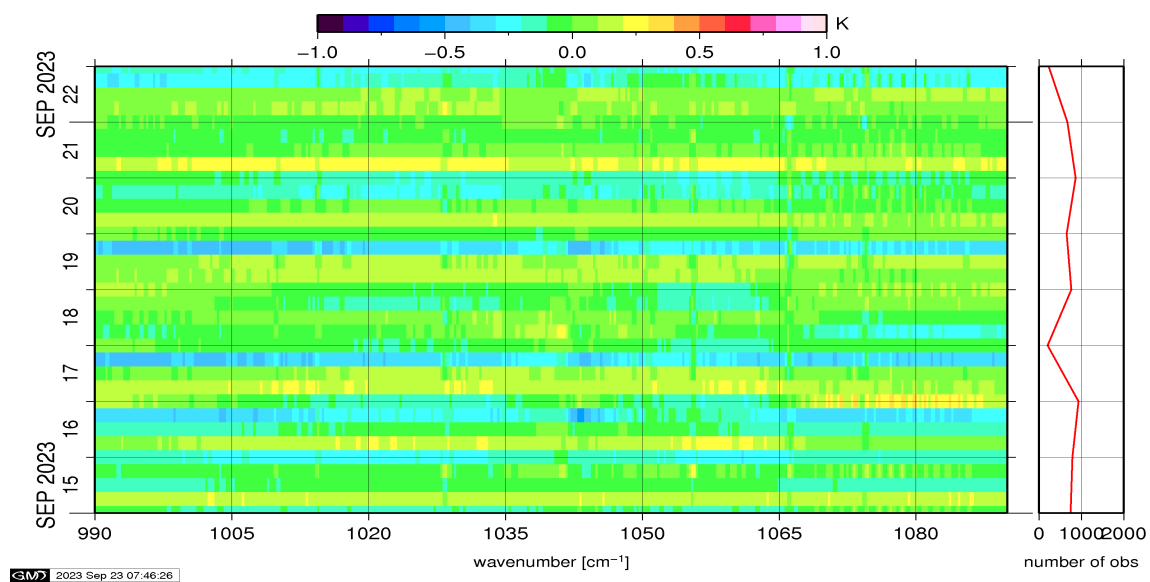


Figure 16: Radiance Anomaly in BT: O3