

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

IASI monitoring team

12/08/2025 00:00:00 - 13/08/2025 00:00:00

1 Introduction

This report provides summary monitoring plots and figures from IASI instrument on the Metop-B satellite retrieved from the IASI L0 and L1 ENG product (3 minutes data packet) for 12/08/2025 00:00:00 - 13/08/2025 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 12/08/2025 00:00:00 - 13/08/2025 00:00:00

Product Type	Number	Action
L0 HKTU PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	477	-
L1 ENG distinct GEPSGranule	476	-
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	477	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	2345	2350	20250812025227.914	20250812025228.996
PX2 (135)	2345	2350	20250812025227.914	20250812025228.996
PX3 (140)	2345	2350	20250812025227.914	20250812025228.996
PX4 (145)	2345	2349	20250812025227.914	20250812025228.781
IMG (150)	4332	4337	20250812025227.699	20250812025228.781
VER (160)	1649	5410	20250812075718.247	20250812093818.800
VER (160)	5410	5415	20250812093818.800	20250812093818.800
VER (160)	5415	5420	20250812093818.800	20250812093818.800
VER (160)	5420	5425	20250812093818.800	20250812093818.800
VER (160)	5425	5430	20250812093818.800	20250812093818.800
VER (160)	5430	5411	20250812093818.800	20250812093818.800
VER (160)	5411	5416	20250812093818.800	20250812093818.800
VER (160)	5416	5421	20250812093818.800	20250812093818.800
VER (160)	5421	5426	20250812093818.800	20250812093818.800
VER (160)	5426	5431	20250812093818.800	20250812093818.800
VER (160)	5431	5412	20250812093818.800	20250812093818.800
VER (160)	5412	5417	20250812093818.800	20250812093818.800
VER (160)	5417	5422	20250812093818.800	20250812093818.800
VER (160)	5422	5427	20250812093818.800	20250812093818.800

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	5427	5432	20250812093818.800	20250812093818.800
VER (160)	5432	5413	20250812093818.800	20250812093818.800
VER (160)	5413	5418	20250812093818.800	20250812093818.800
VER (160)	5418	5423	20250812093818.800	20250812093818.800
VER (160)	5423	5428	20250812093818.800	20250812093818.800
VER (160)	5428	5433	20250812093818.800	20250812093818.800
VER (160)	5433	5414	20250812093818.800	20250812093818.800
VER (160)	5414	5419	20250812093818.800	20250812093818.800
VER (160)	5419	5424	20250812093818.800	20250812093818.800
VER (160)	5424	5429	20250812093818.800	20250812093818.800
VER (160)	5429	5434	20250812093818.800	20250812093818.800
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
12/08/2025 00:00:12	-	Normal operation
12/08/2025 19:32:28	Normal operation	Auxiliary ASE synchronised
12/08/2025 20:01:16	External calibration	Auxiliary ASE synchronised
12/08/2025 20:03:24	Auxiliary ASE synchronised	Normal operation
12/08/2025 21:12:28	Normal operation	Auxiliary ASE synchronised
12/08/2025 21:14:20	Auxiliary ASE synchronised	External calibration
12/08/2025 21:41:48	External calibration	Auxiliary ASE synchronised
12/08/2025 21:43:40	Auxiliary ASE synchronised	Normal operation
12/08/2025 22:52:12	Normal operation	Auxiliary ASE synchronised
12/08/2025 22:54:04	Auxiliary ASE synchronised	External calibration
12/08/2025 23:22:04	External calibration	Auxiliary ASE synchronised
12/08/2025 23:24:12	Auxiliary ASE synchronised	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	481	-
L1 ENG PDUs	477	-
L1 ENG distinct GEPSGranule	476	-
GQisFlagQual set (PX1)	99.61 %	-
GQisFlagQual set (PX2)	99.71 %	-
GQisFlagQual set (PX3)	99.46 %	-
GQisFlagQual set (PX4)	99.08 %	-
GQisFlagQual set (all)	99.47 %	-

Table 4: Quality flags

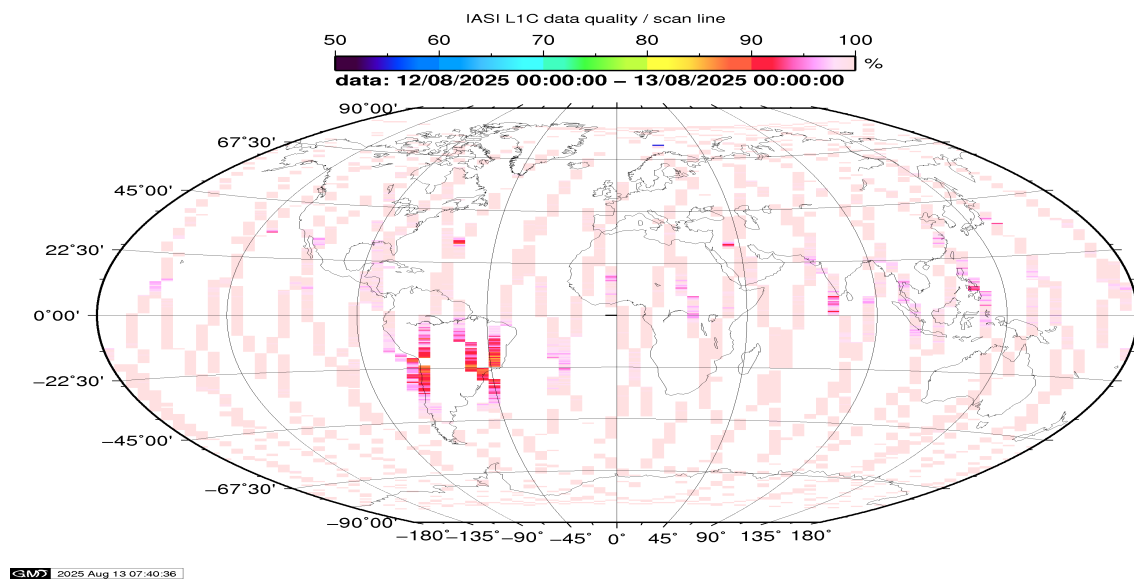


Figure 1: L1C data quality

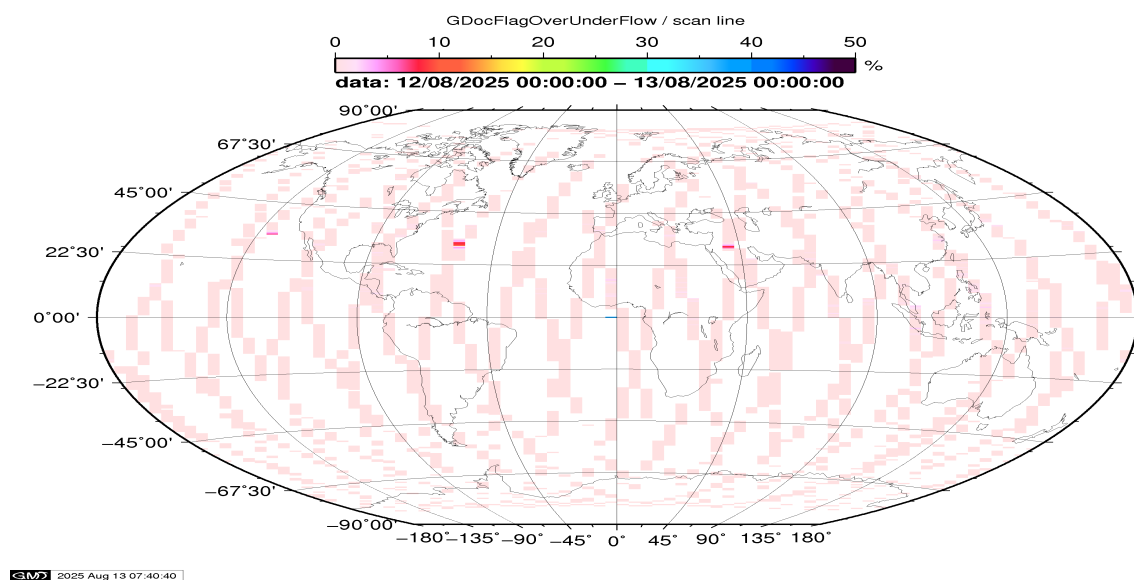


Figure 2: Flag of Over and Under Flows

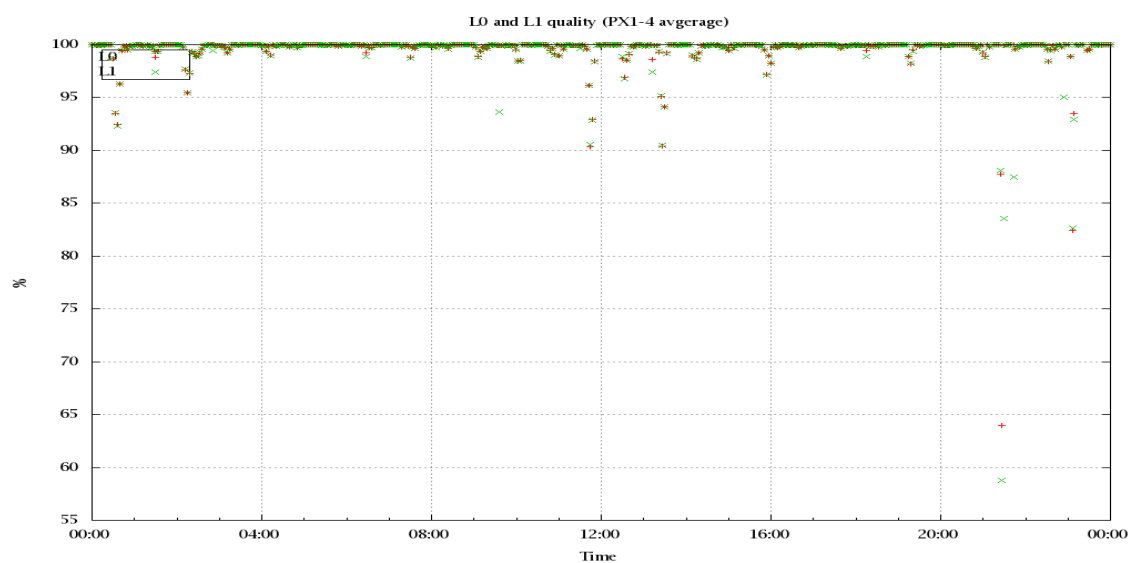


Figure 3: Level 0 and 1C overall quality

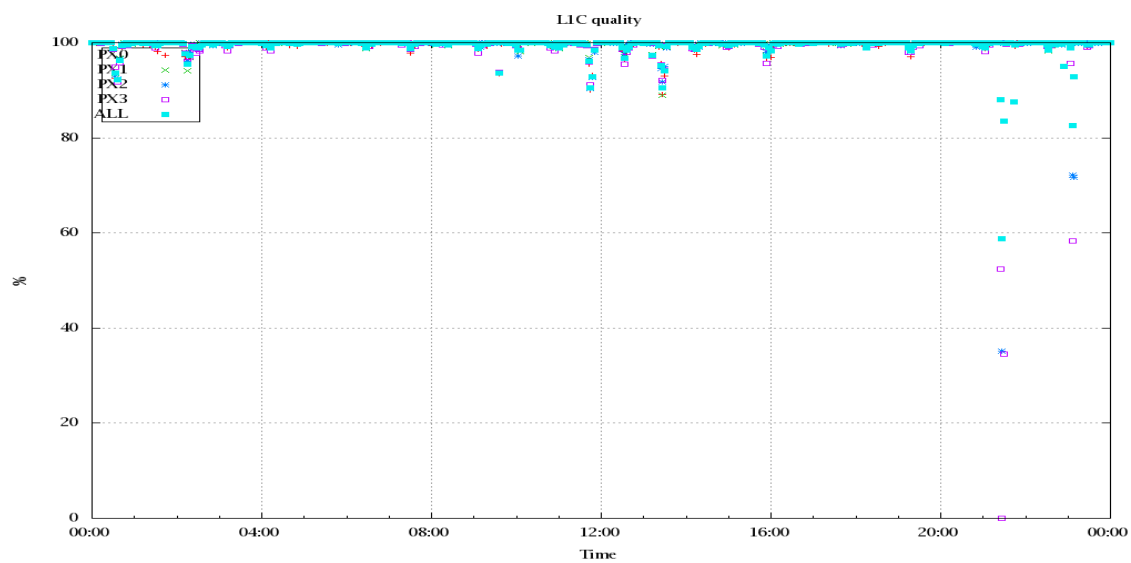


Figure 4: Level 1C quality

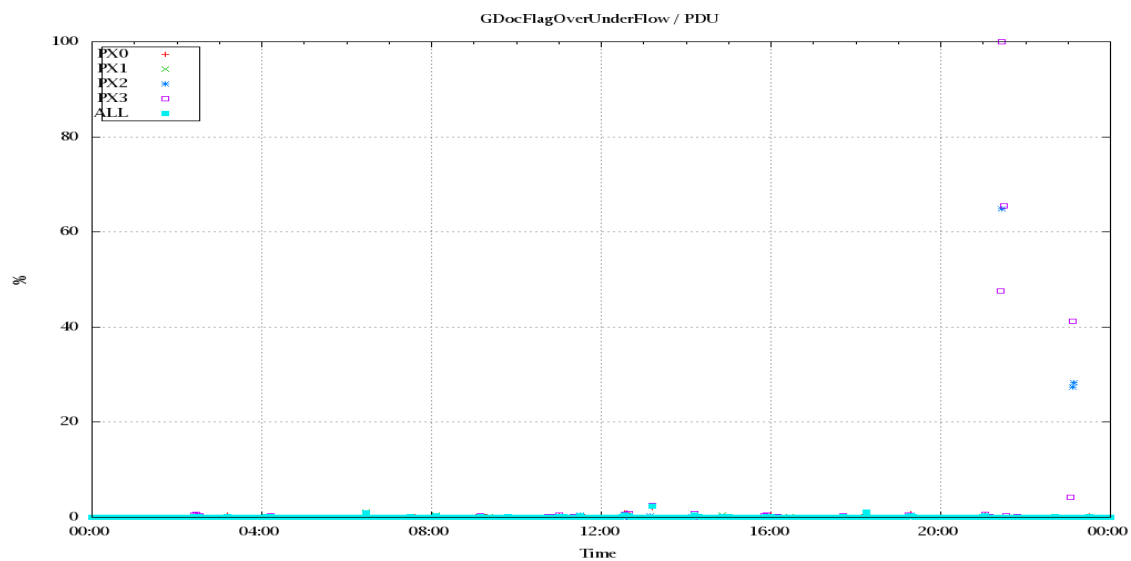


Figure 5: Timeseries of flag of Over and Under Flows

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.

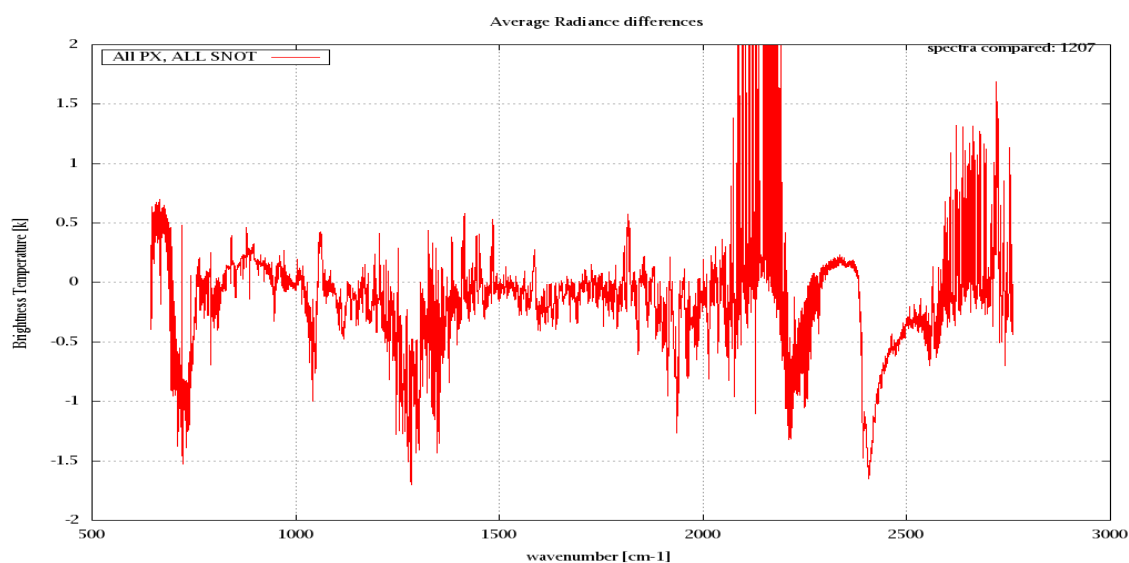


Figure 6: Average Radiance differences: OBS-CAL

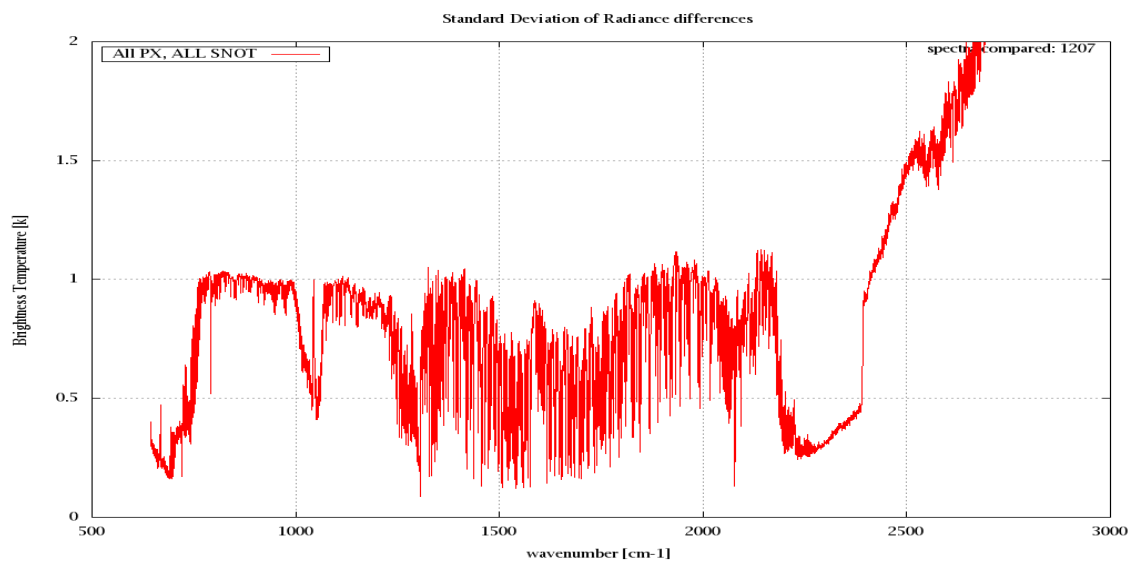


Figure 7: Standard Deviation of Radiance differences

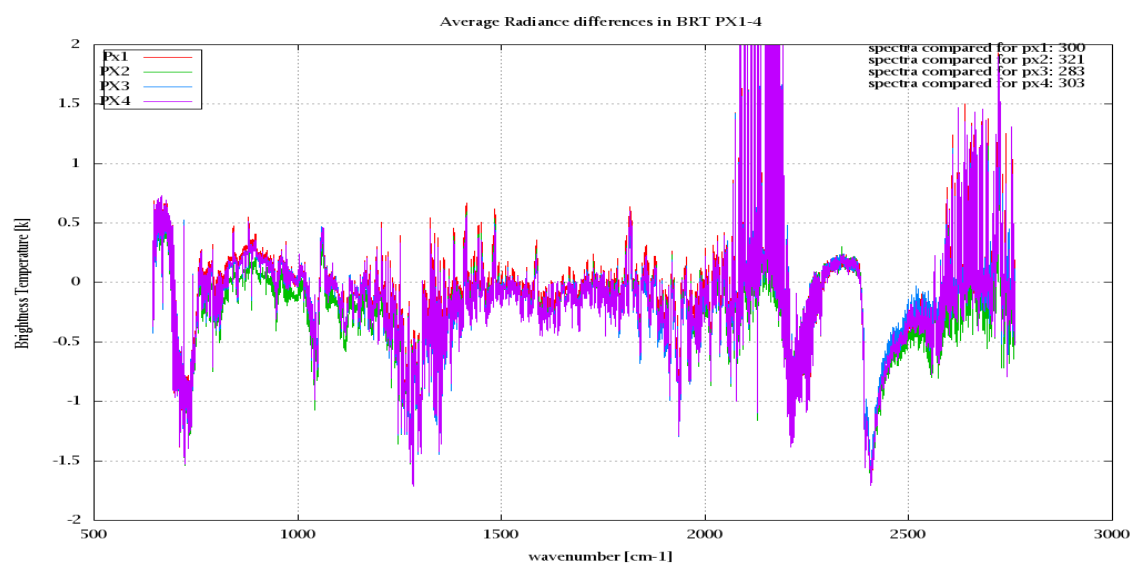


Figure 8: Average Radiance differences: OBS-CAL

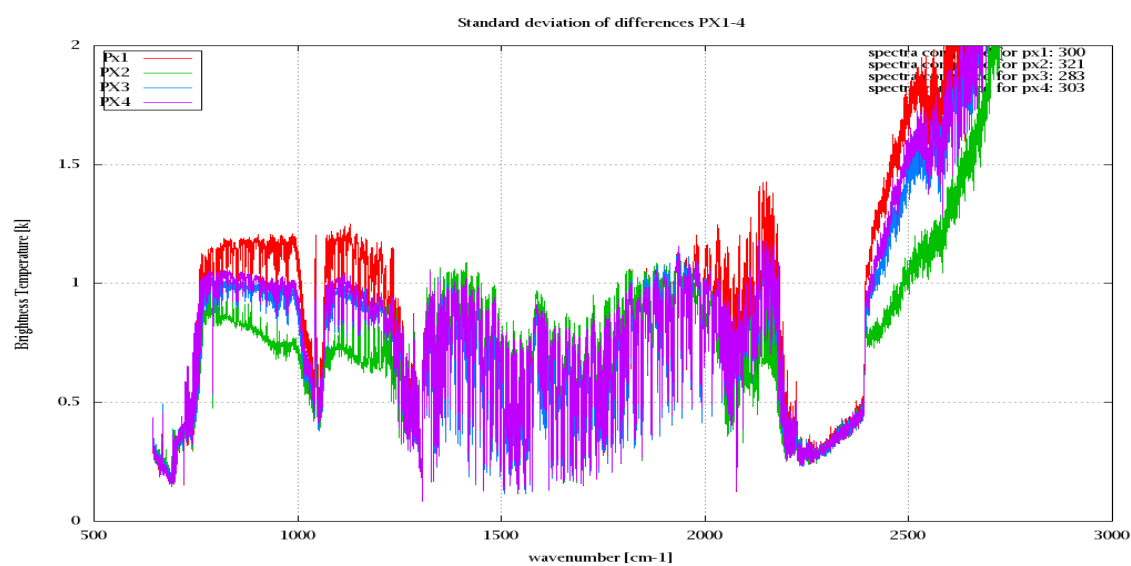


Figure 9: Standard Deviation of Radiance differences

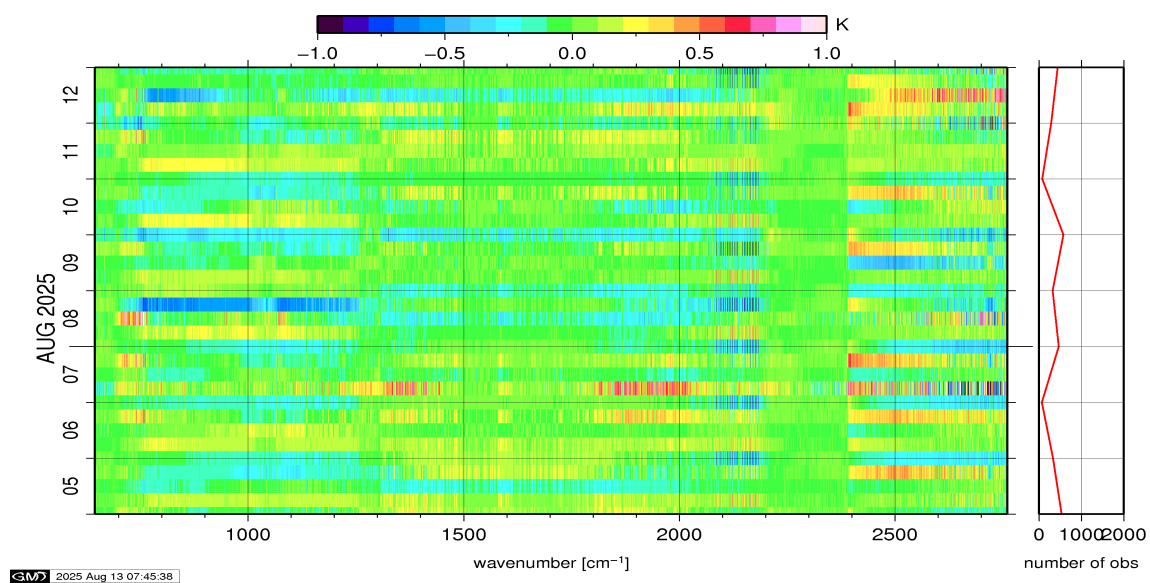


Figure 10: Radiance Anomaly in BT: All Channels

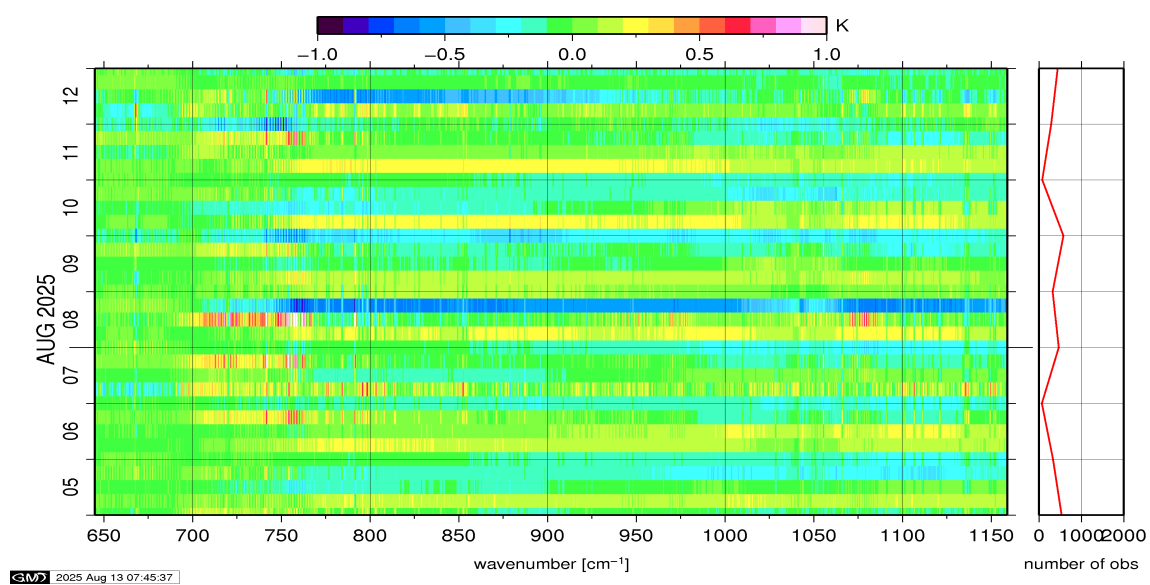


Figure 11: Radiance Anomaly in BT: IASI Band 1

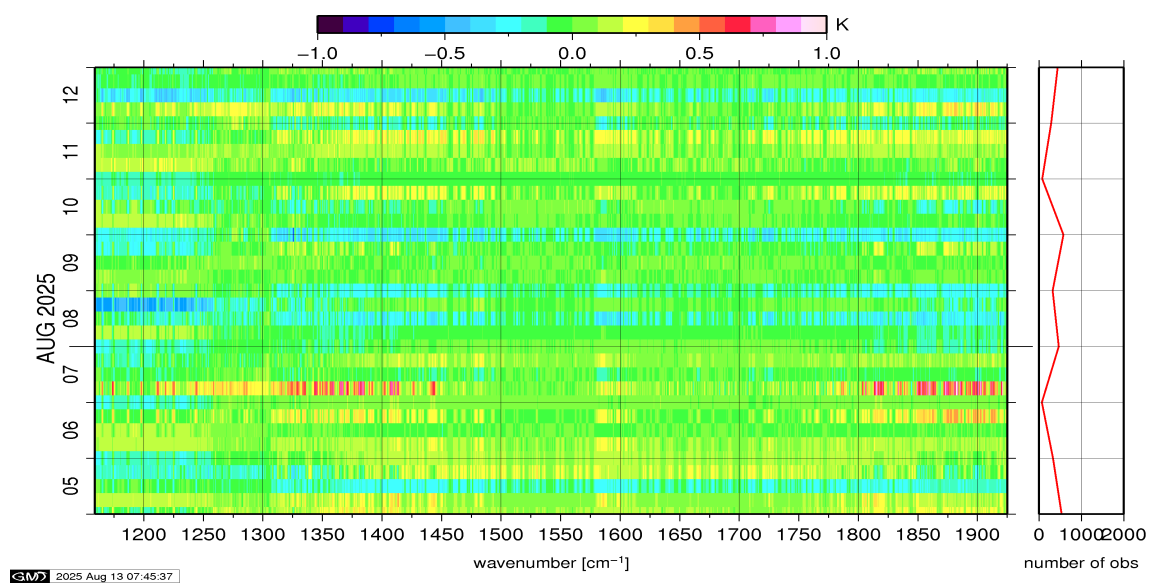


Figure 12: Radiance Anomaly in BT: IASI Band 2

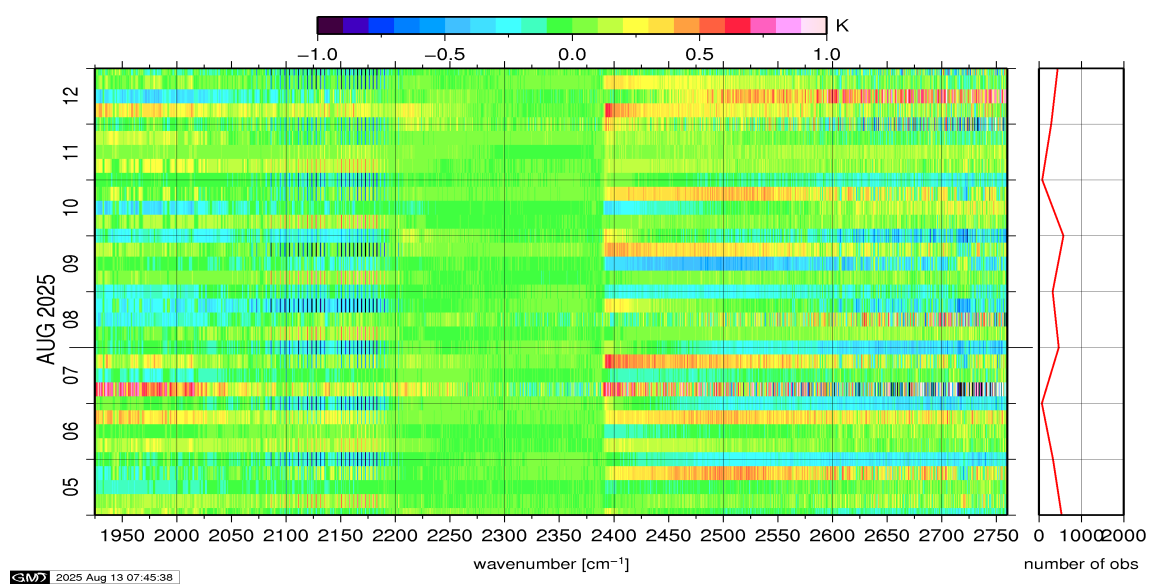


Figure 13: Radiance Anomaly in BT: IASI Band 3

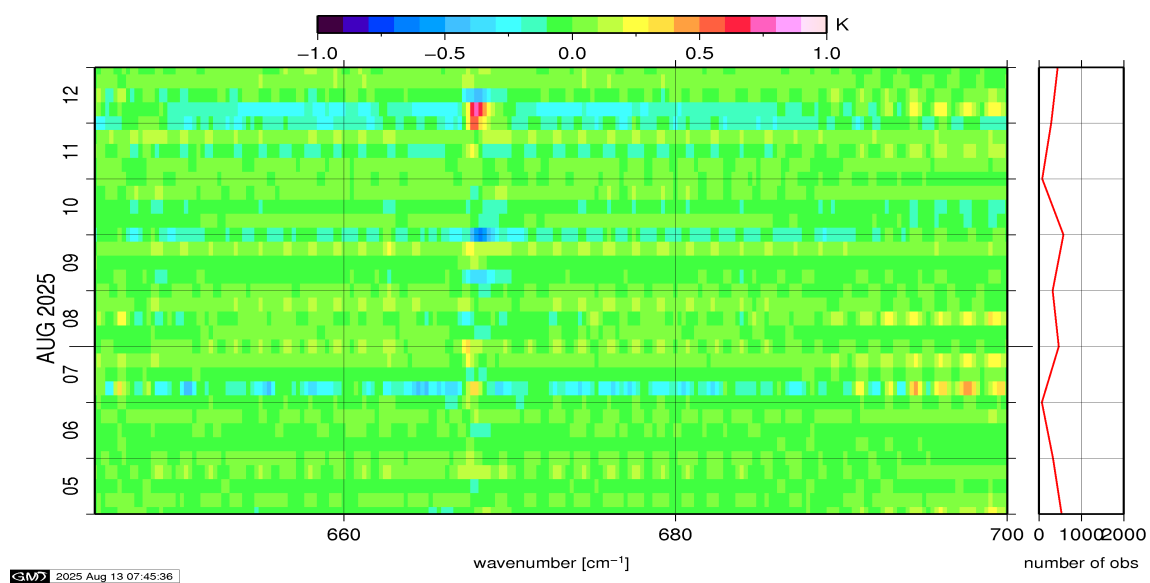


Figure 14: Radiance Anomaly in BT: CO2 14

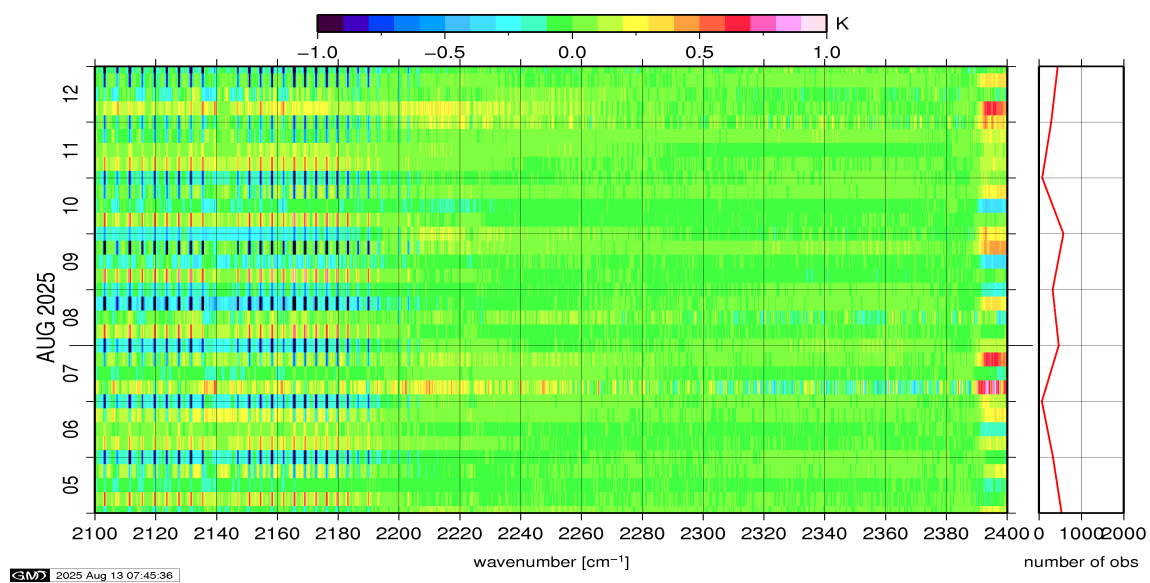


Figure 15: Radiance Anomaly in BT: CO2 4.3

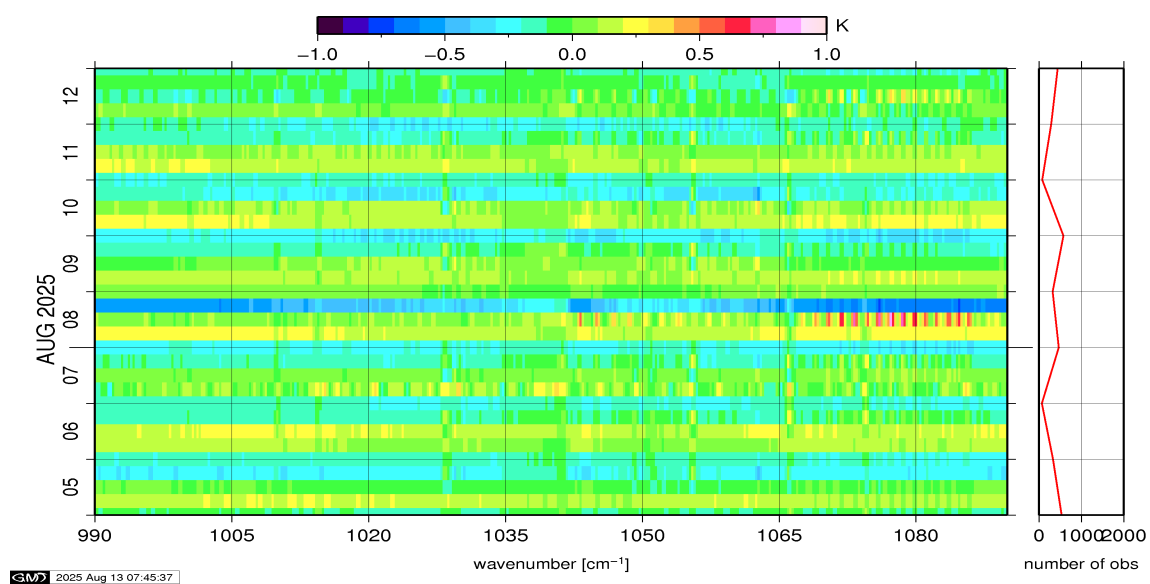


Figure 16: Radiance Anomaly in BT: O3

6 IASI-HIRS radiance comparison Channel 1-19

The radiance comparison of IASI and HIRS/4 on-board Metop is performed on all pixels with distances smaller than 3 km between IASI and HIRS. All sky conditions are covered. The radiance differences IASI - HIRS are given in brightness temperatures at 280K reference NeDT. All conditions (clear, cloudy, day and night) are given in red in the following figures. The clear sky conditions at night are given in green and the clear sky cases during daylight are displayed in blue.

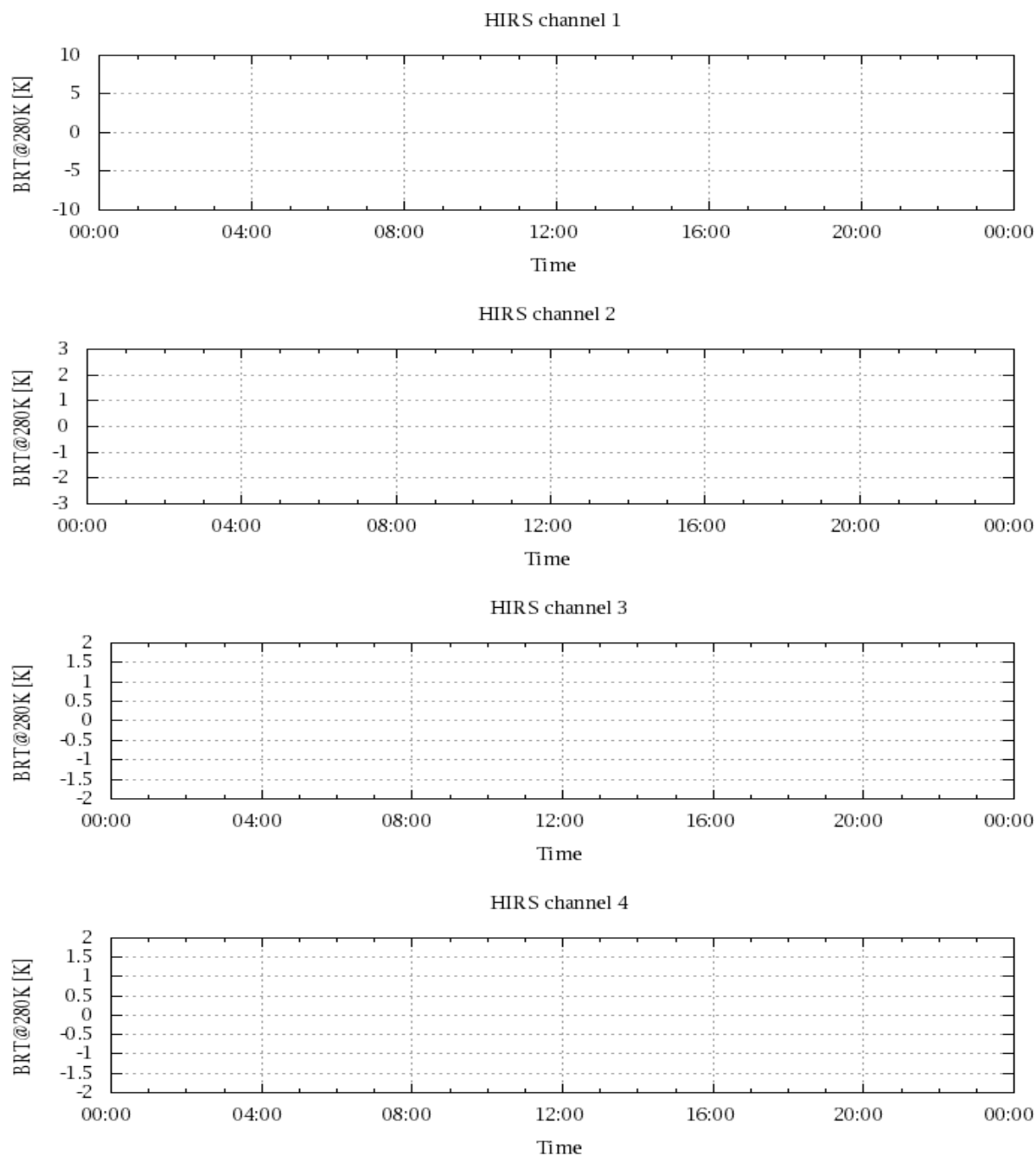


Figure 17: Radiance Differences in BT



Figure 18: Radiance Differences in BT



Figure 19: Radiance Differences in BT



Figure 20: Radiance Differences in BT



Figure 21: Radinace Differences in BT