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

IASI monitoring team

23/09/2025 00:00:00 - 24/09/2025 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 23/09/2025 00:00:00 - 24/09/2025 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 23/09/2025 00:00:00 - 24/09/2025 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	357	e
L1 ENG PDUs	355	e
L1 ENG distinct GEPSGranule	354	a
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	355	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	9411	9633	20250923061748.063	20250923061846.692
PX1 (130)	9818	9848	20250923061935.773	20250923061943.770
PX1 (130)	9881	9884	20250923061952.418	20250923061954.582
PX2 (135)	9411	9633	20250923061748.063	20250923061846.692
PX2 (135)	9818	9848	20250923061935.773	20250923061943.770
PX2 (135)	9867	9869	20250923061949.395	20250923061949.824
PX2 (135)	9874	9876	20250923061950.906	20250923061951.340
PX2 (135)	9881	9884	20250923061952.418	20250923061954.582
PX3 (140)	9411	9633	20250923061748.063	20250923061846.692
PX3 (140)	9817	9848	20250923061935.555	20250923061943.770
PX3 (140)	9867	9869	20250923061949.395	20250923061949.824
PX3 (140)	9881	9884	20250923061952.418	20250923061954.582
PX4 (145)	9411	9633	20250923061748.063	20250923061846.692
PX4 (145)	9817	9848	20250923061935.555	20250923061943.770
PX4 (145)	9853	9855	20250923061946.367	20250923061946.797
PX4 (145)	9869	9871	20250923061949.824	20250923061950.258
PX4 (145)	9876	9878	20250923061951.340	20250923061951.773

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	9881	9884	20250923061952.418	20250923061954.582
IMG (150)	4099	4349	20250923061748.063	20250923061846.692
IMG (150)	4557	4592	20250923061935.555	20250923061943.770
IMG (150)	4603	4605	20250923061946.797	20250923061947.231
IMG (150)	4610	4612	20250923061948.313	20250923061948.746
IMG (150)	4612	4614	20250923061948.746	20250923061949.176
IMG (150)	4617	4619	20250923061949.824	20250923061950.258
IMG (150)	4619	4621	20250923061950.258	20250923061950.691
IMG (150)	4626	4628	20250923061951.773	20250923061952.203
IMG (150)	4629	4636	20250923061952.418	20250923061954.582
VER (160)	1557	1593	20250923061744.387	20250923061848.422
VER (160)	1622	1628	20250923061928.422	20250923061944.422
VER (160)	1632	1638	20250923061944.422	20250923062000.422
VER (160)	6118	6120	20250923081928.399	20250923143416.356
AUX (180)	6863	6871	20250923061744.821	20250923061848.856
AUX (180)	6876	6878	20250923061928.856	20250923061944.852
AUX (180)	6878	6880	20250923061944.852	20250923062000.852

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
23/09/2025 00:00:06	-	Normal operation
23/09/2025 08:19:34	Normal operation	Auxiliary ASE synchronised
23/09/2025 08:21:42	Auxiliary ASE synchronised	Heater 2
23/09/2025 14:13:10	Heater 2	Auxiliary ASE synchronised
23/09/2025 14:34:14	Auxiliary ASE synchronised	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	357	e
L1 ENG PDUs	355	e
L1 ENG distinct GEPSGranule	354	a
GQisFlagQual set (PX1)	99.71 %	-
GQisFlagQual set (PX2)	99.79 %	-
GQisFlagQual set (PX3)	99.80 %	-
GQisFlagQual set (PX4)	99.73 %	-
GQisFlagQual set (all)	99.76 %	-

Table 4: Quality flags

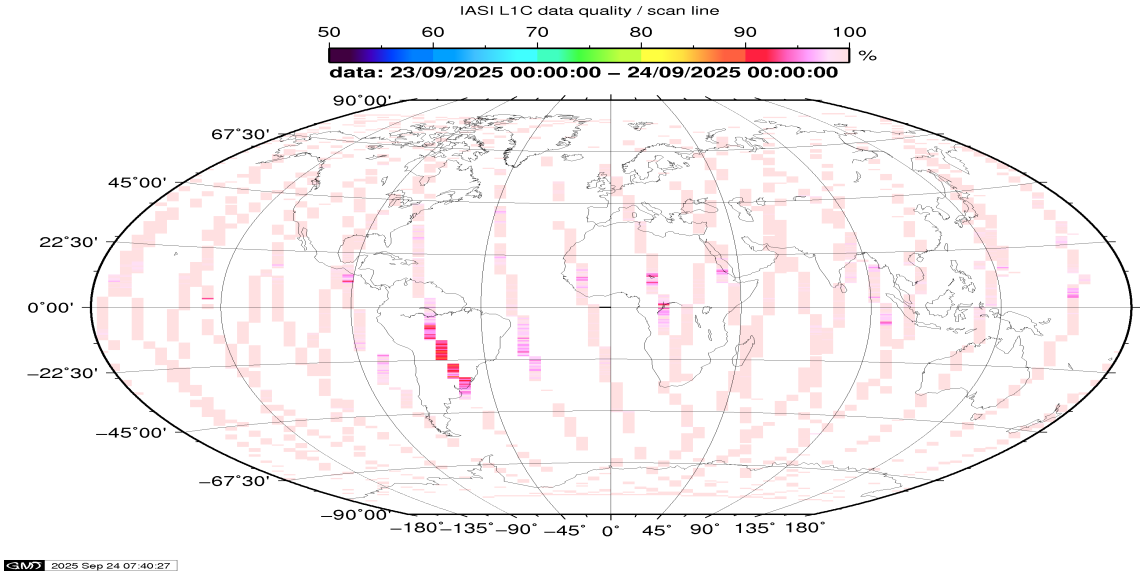

Figure 1: L1C data quality

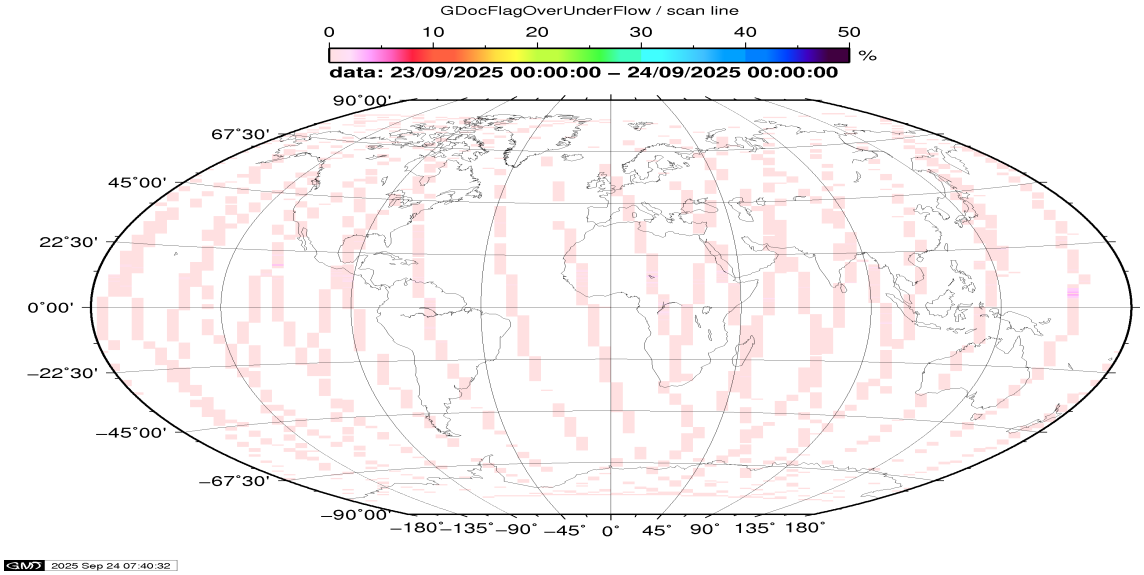

Figure 2: Flag of Over and Under Flows

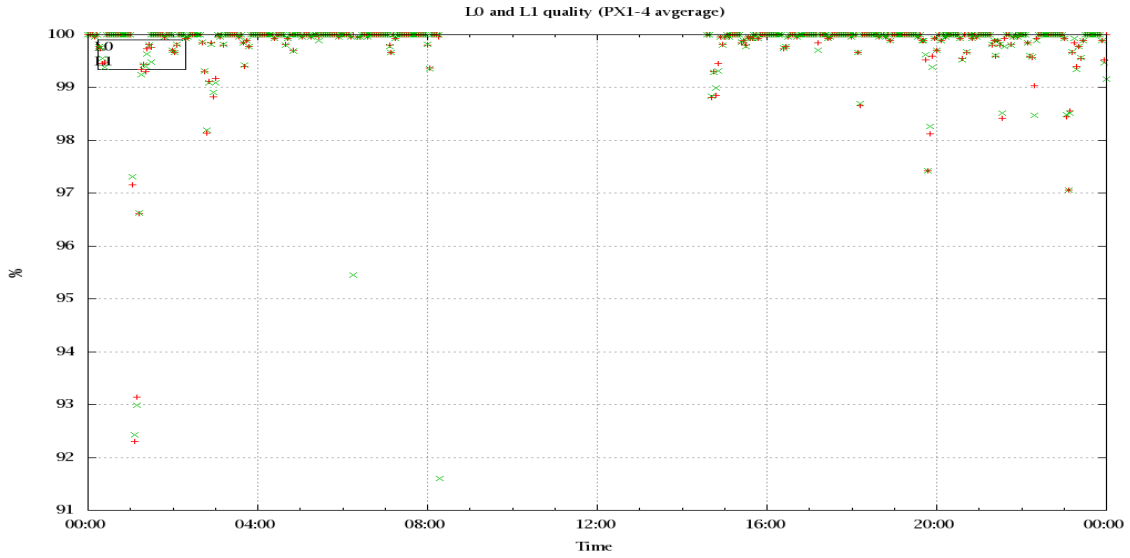

Figure 3: Level 0 and 1C overall quality

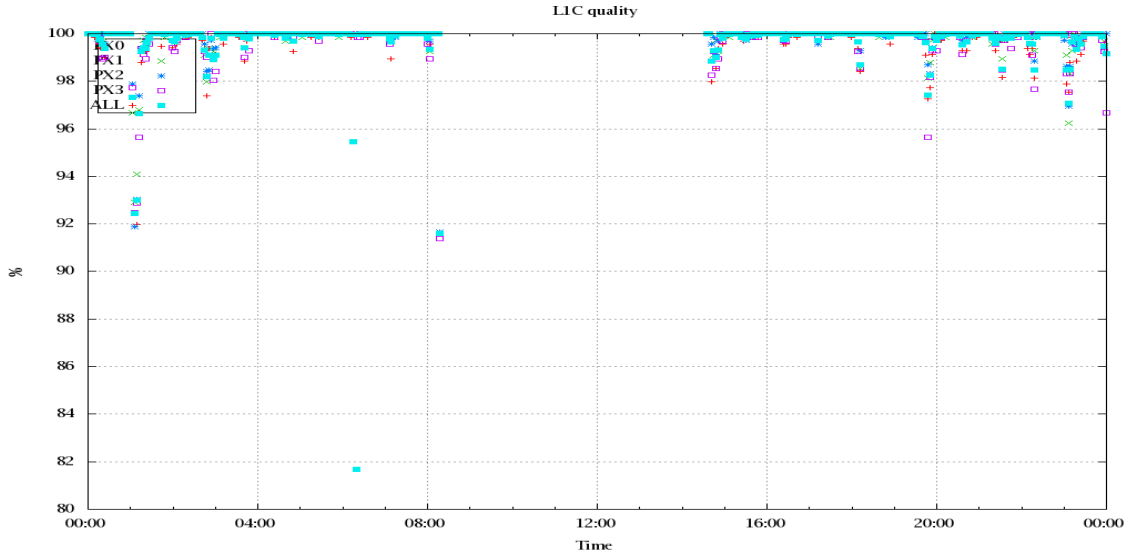

Figure 4: Level 1C quality

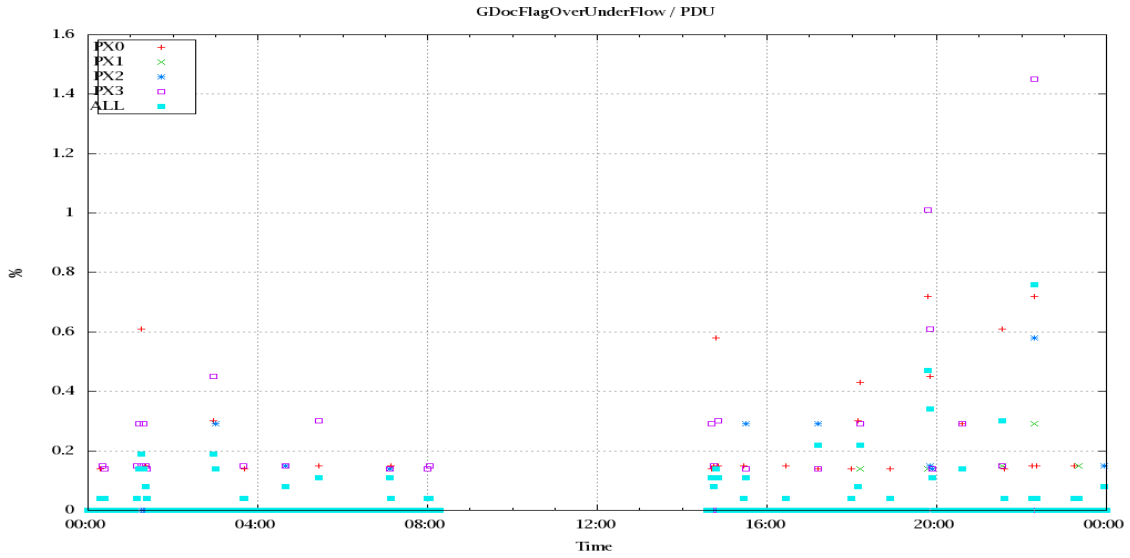

Figure 5: Timeseries of flag of Over and Under Flows

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 indentification 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.

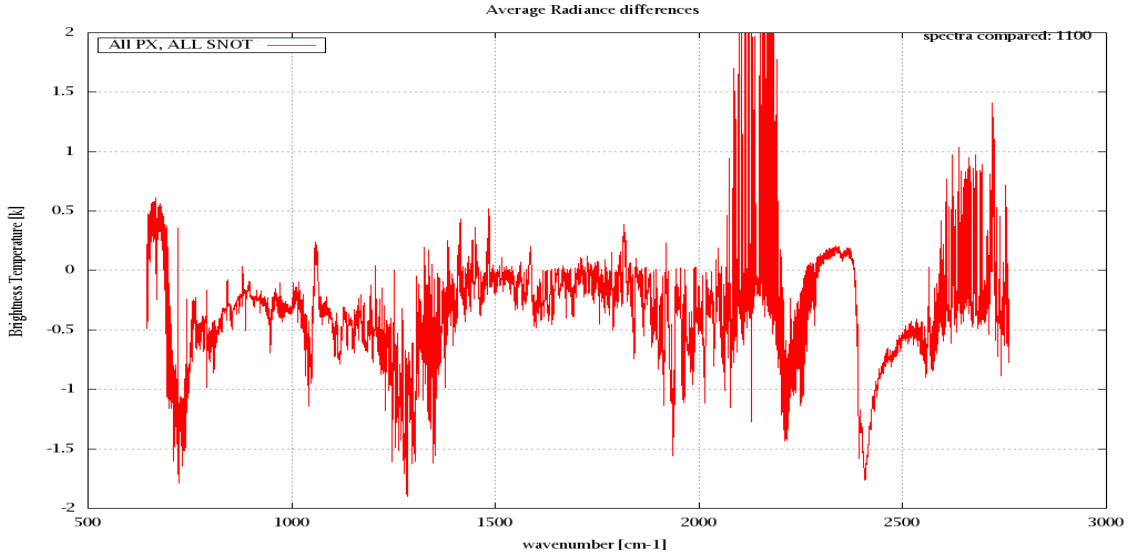

Figure 6: Average Radiance differences: OBS-CAL

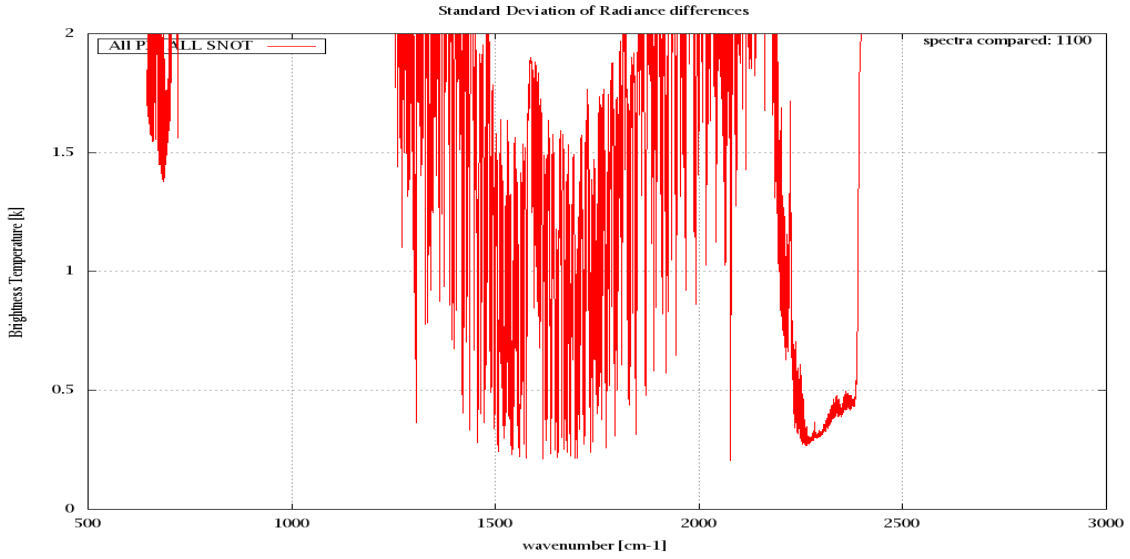

Figure 7: Standard Deviation of Radiance differences

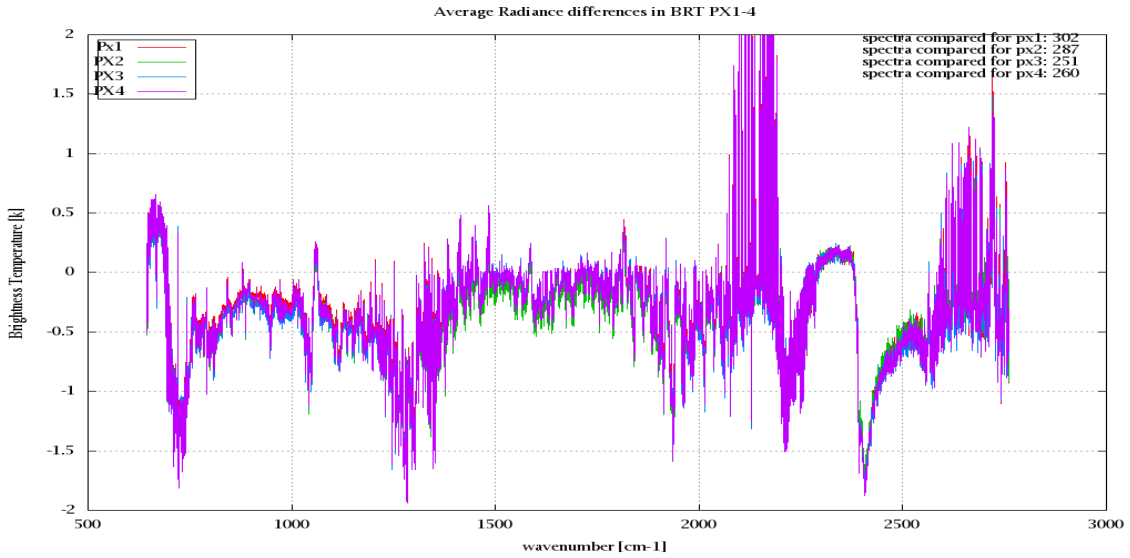

Figure 8: Average Radiance differences: OBS-CAL

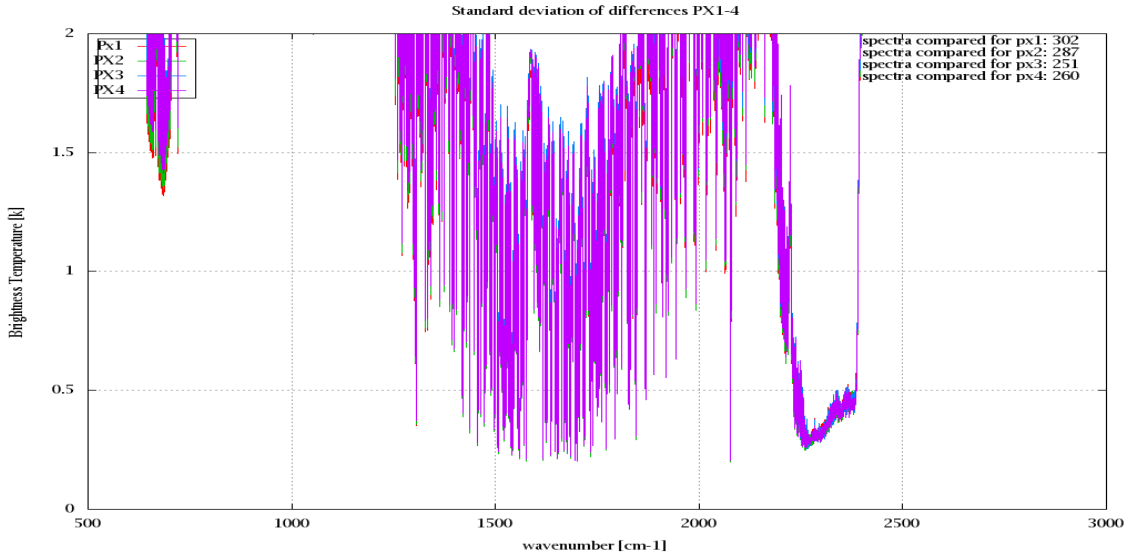

Figure 9: Standard Deviation of Radiance differences

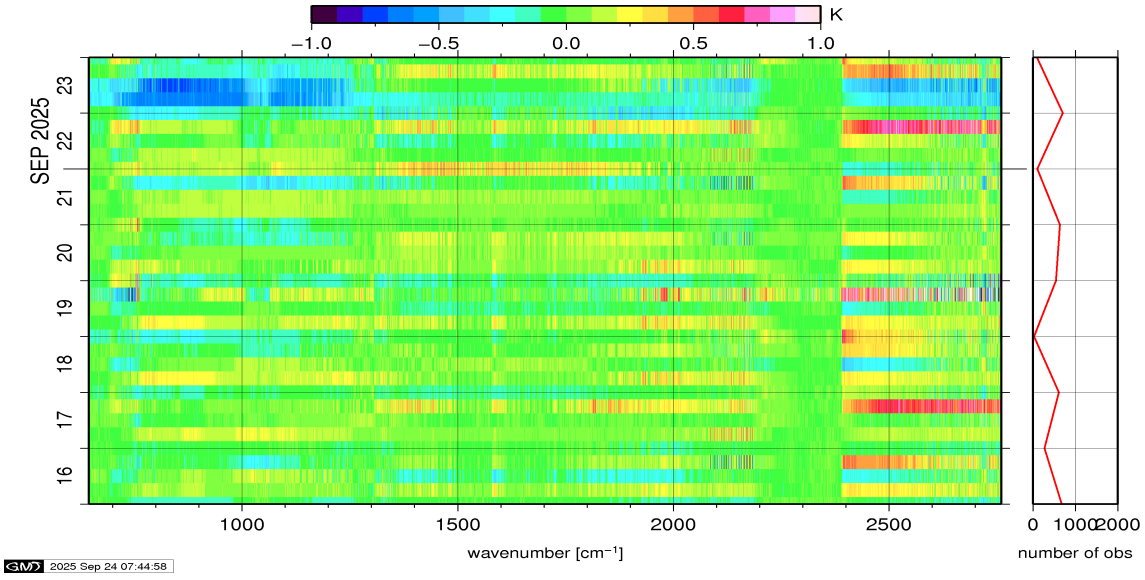

Figure 10: Radiance Anomaly in BT: All Channels

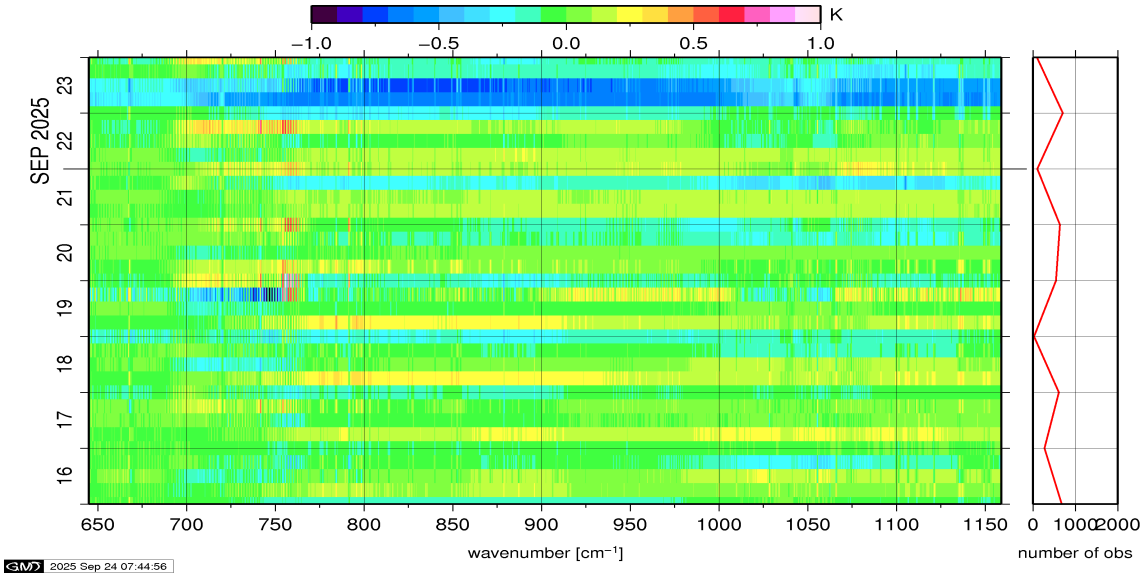

Figure 11: Radiance Anomaly in BT: IASI Band 1

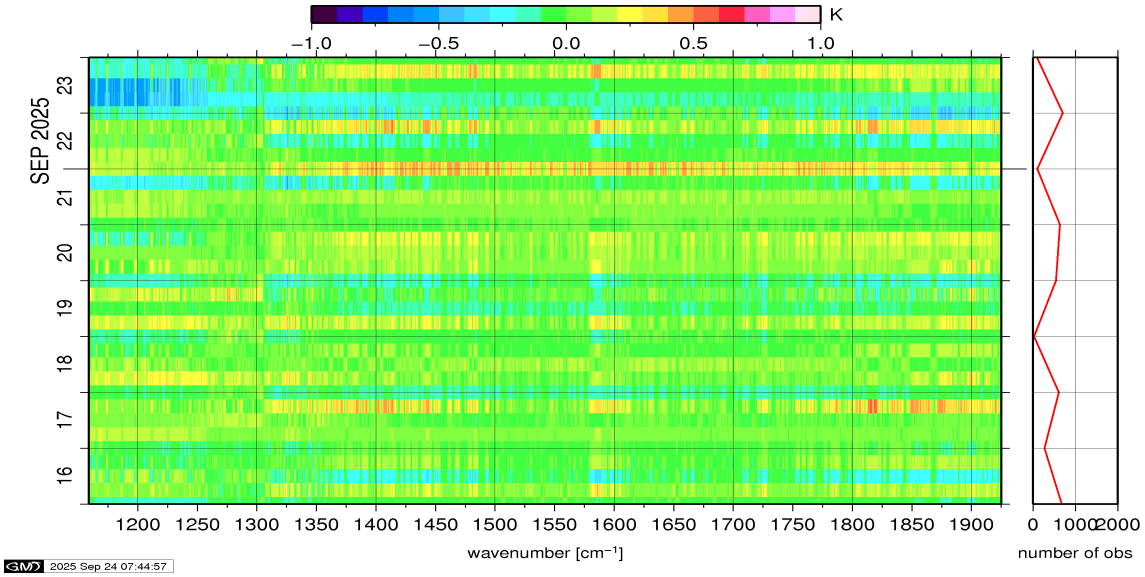

Figure 12: Radiance Anomaly in BT: IASI Band 2

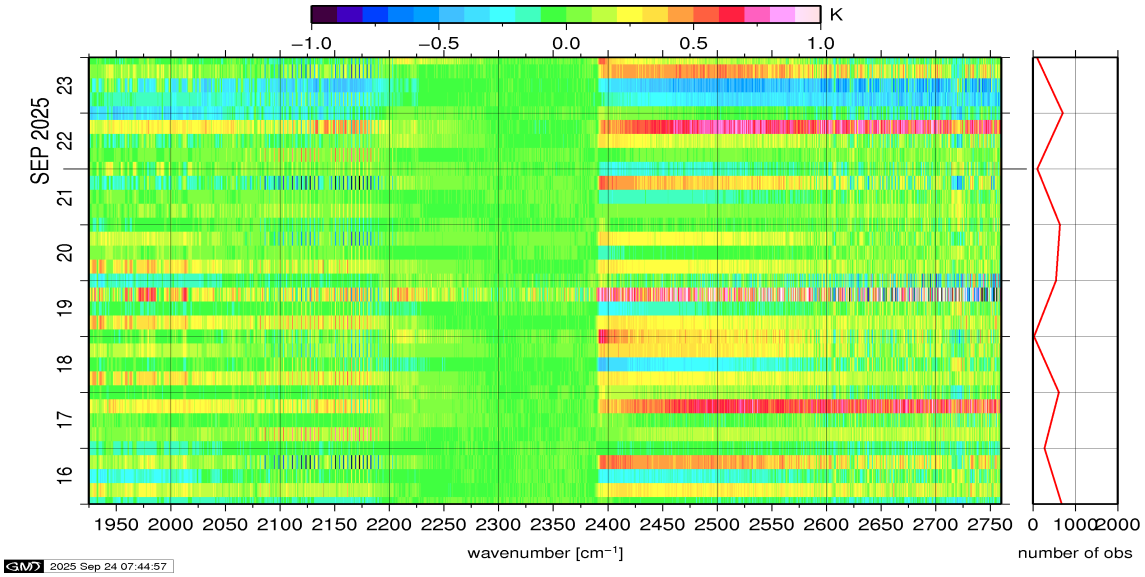

Figure 13: Radiance Anomaly in BT: IASI Band 3

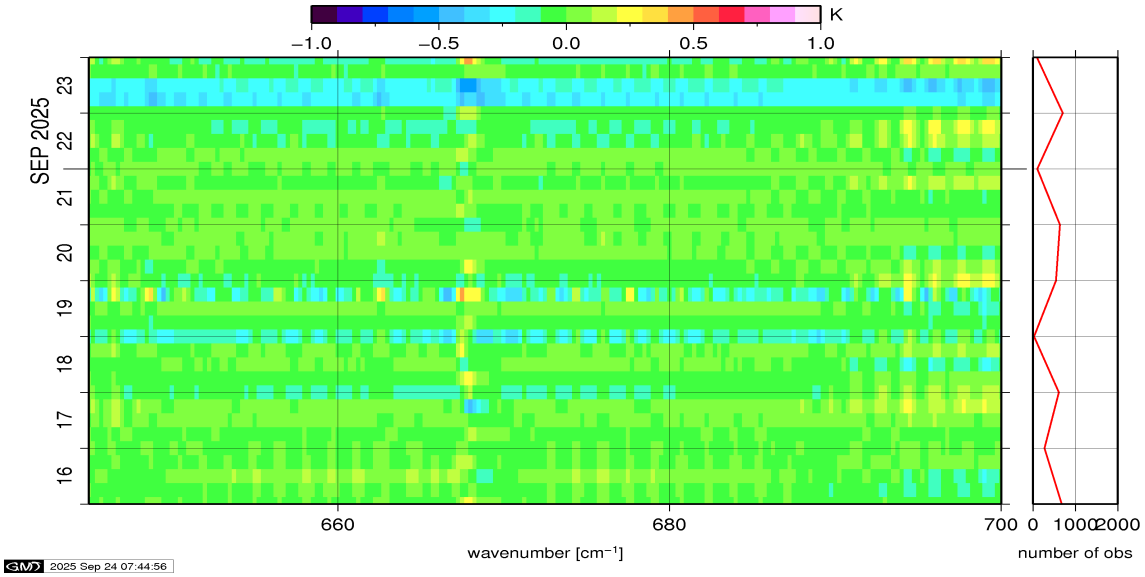

Figure 14: Radiance Anomaly in BT: CO2 14

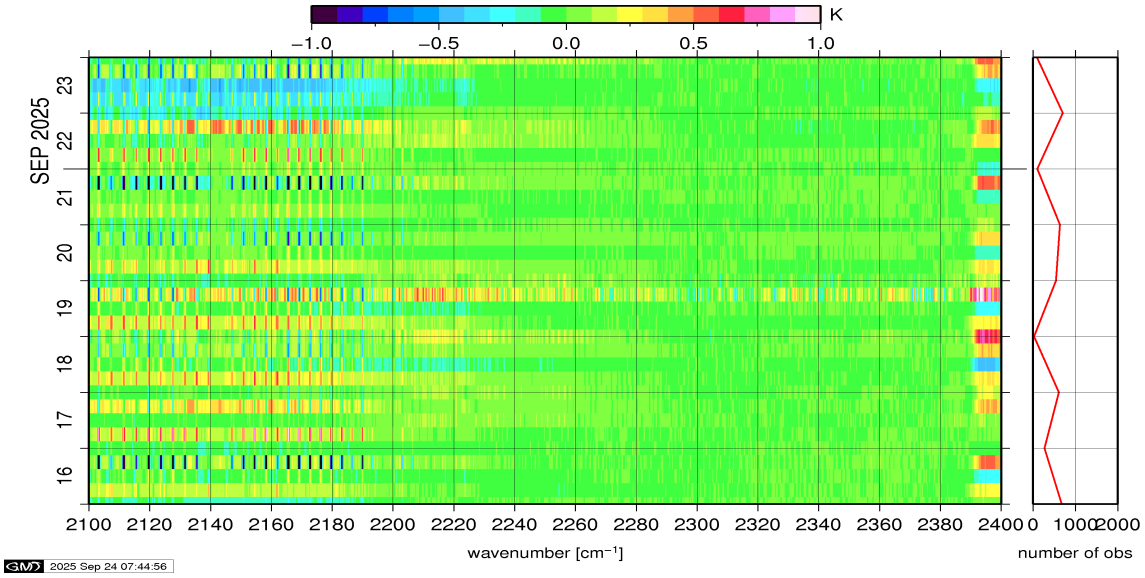

Figure 15: Radiance Anomaly in BT: CO2 4.3

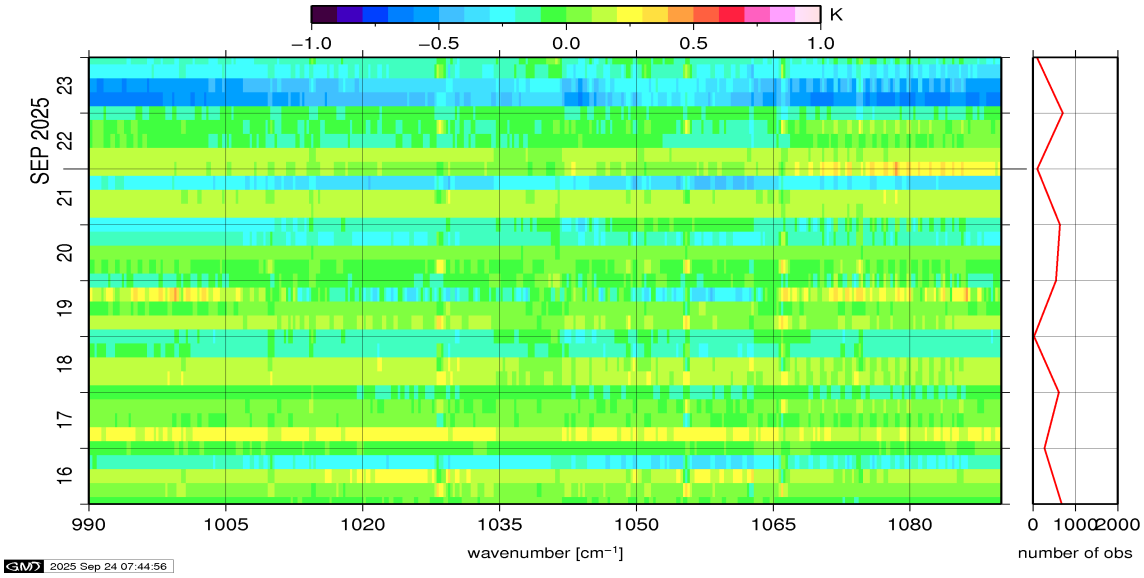

Figure 16: Radiance Anomaly in BT: O3

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.

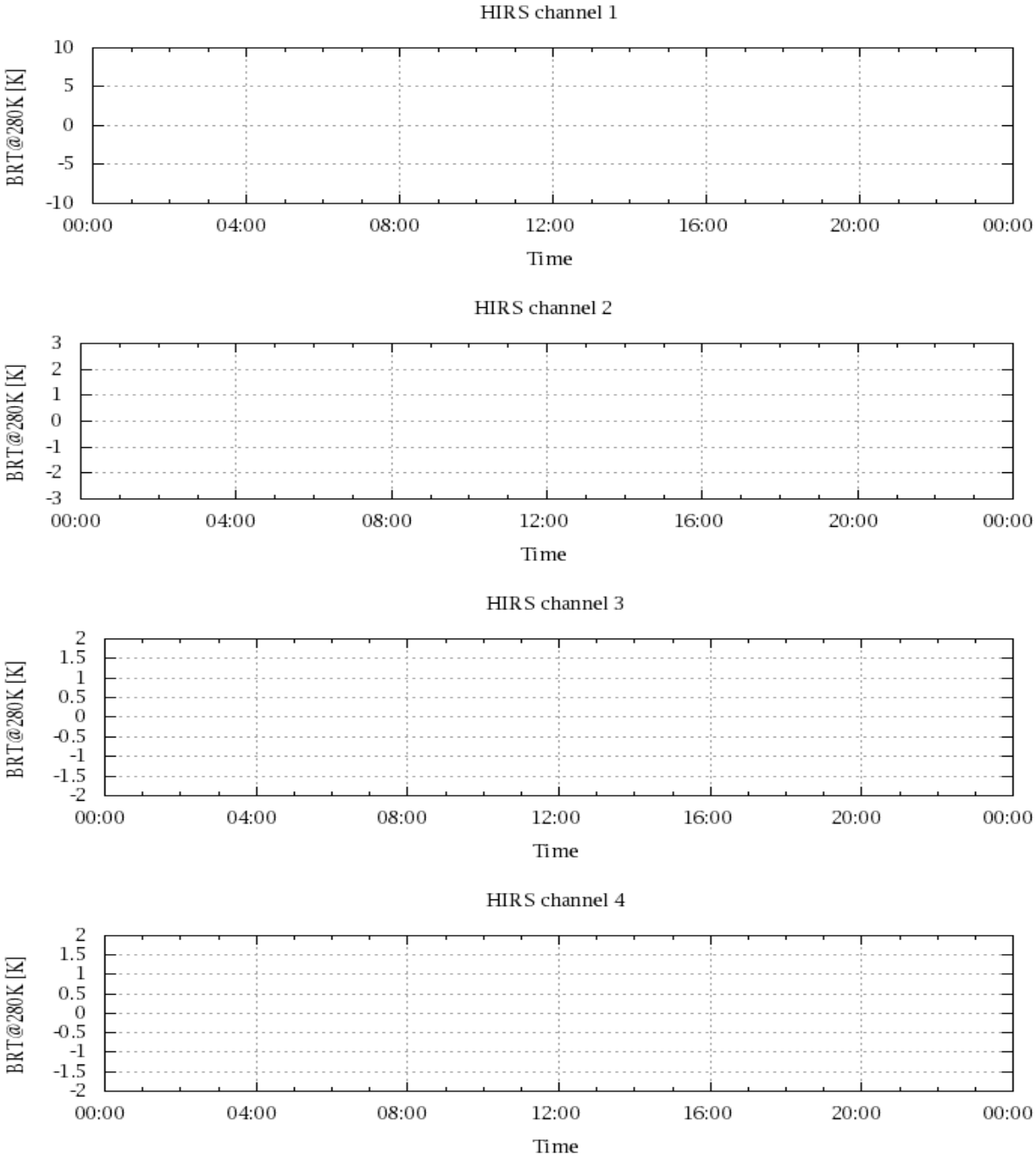

Figure 17: Radiance Differences in BT

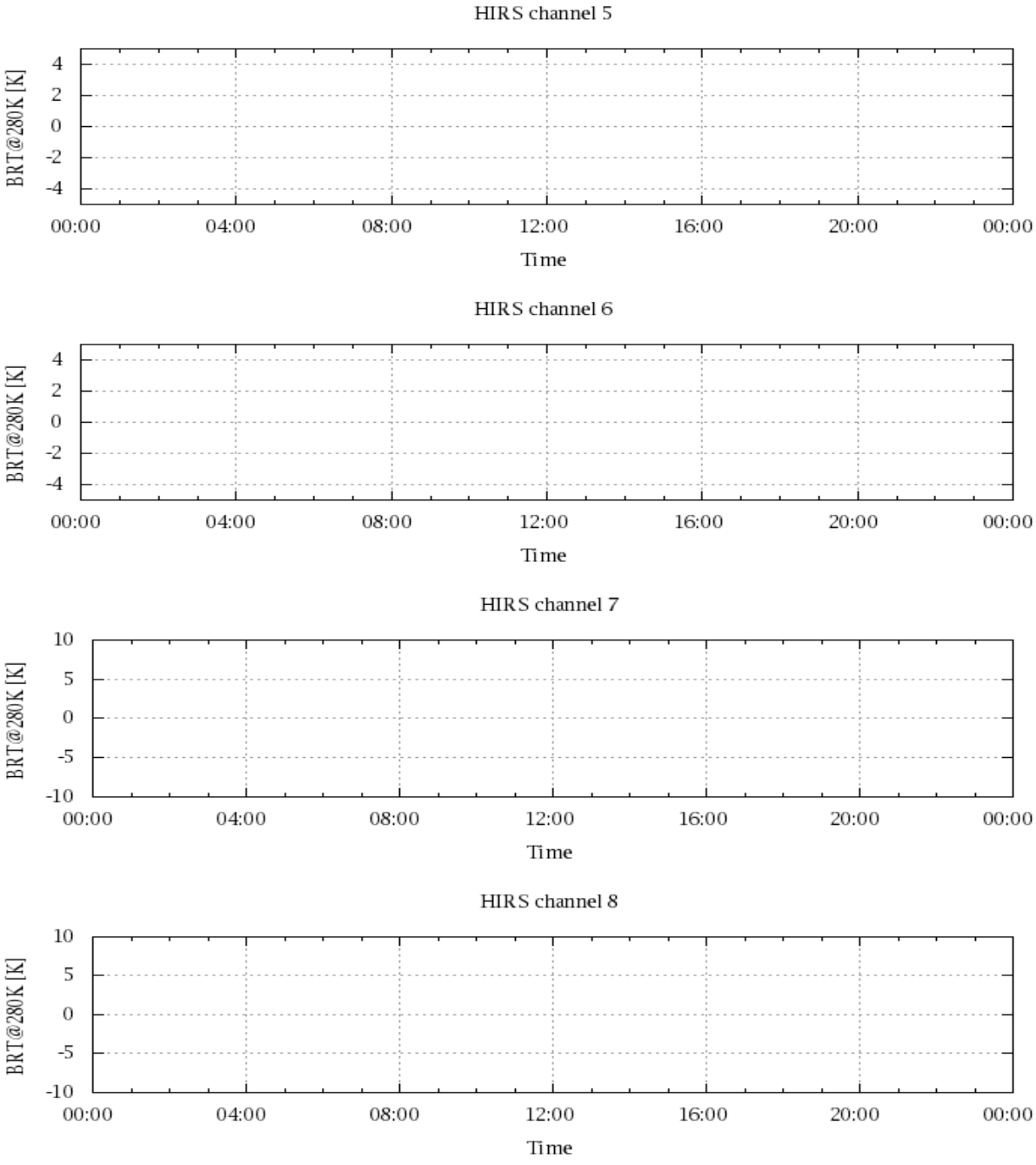

Figure 18: Radiance Differences in BT

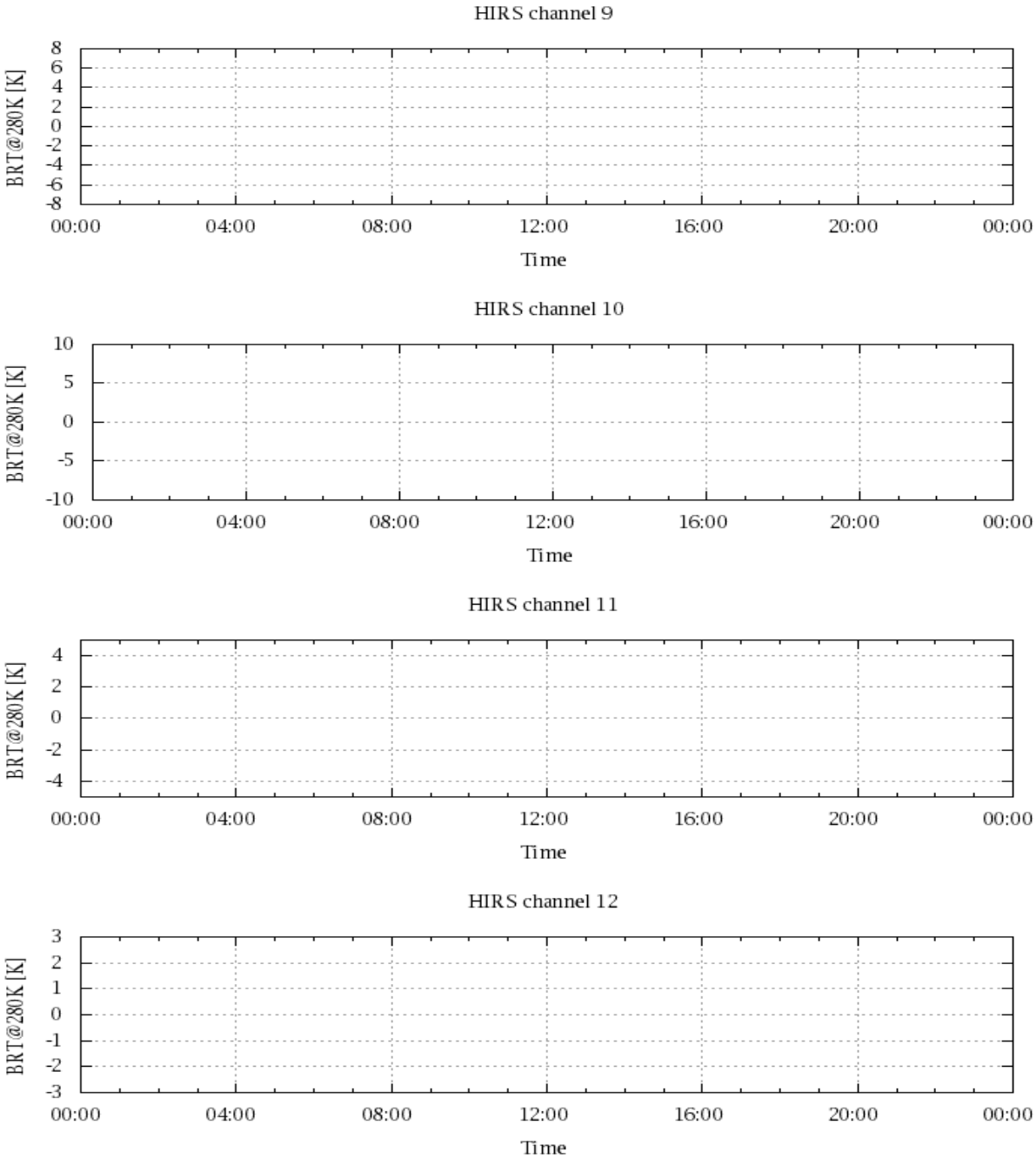

Figure 19: Radiance Differences in BT

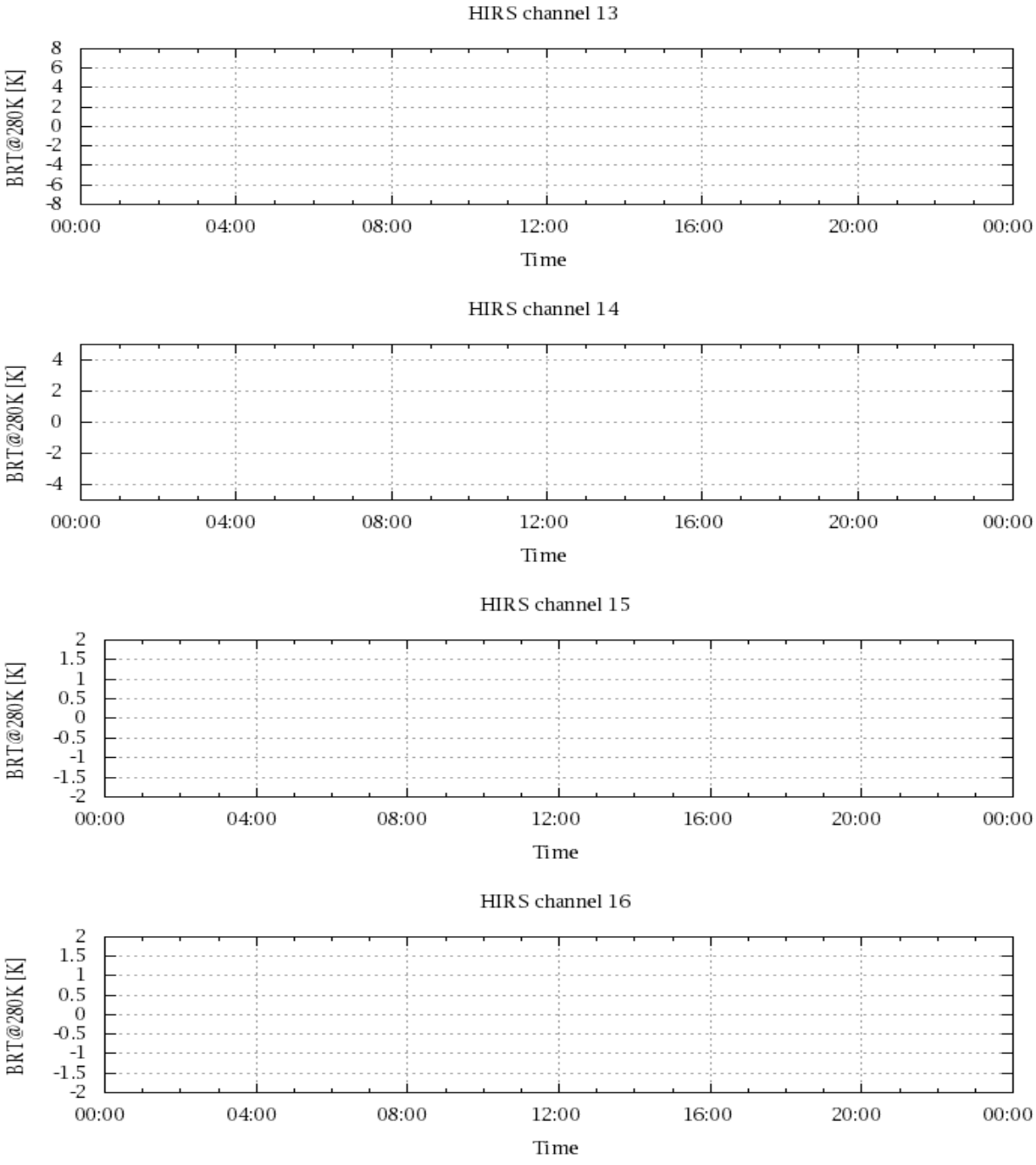

Figure 20: Radiance Differences in BT

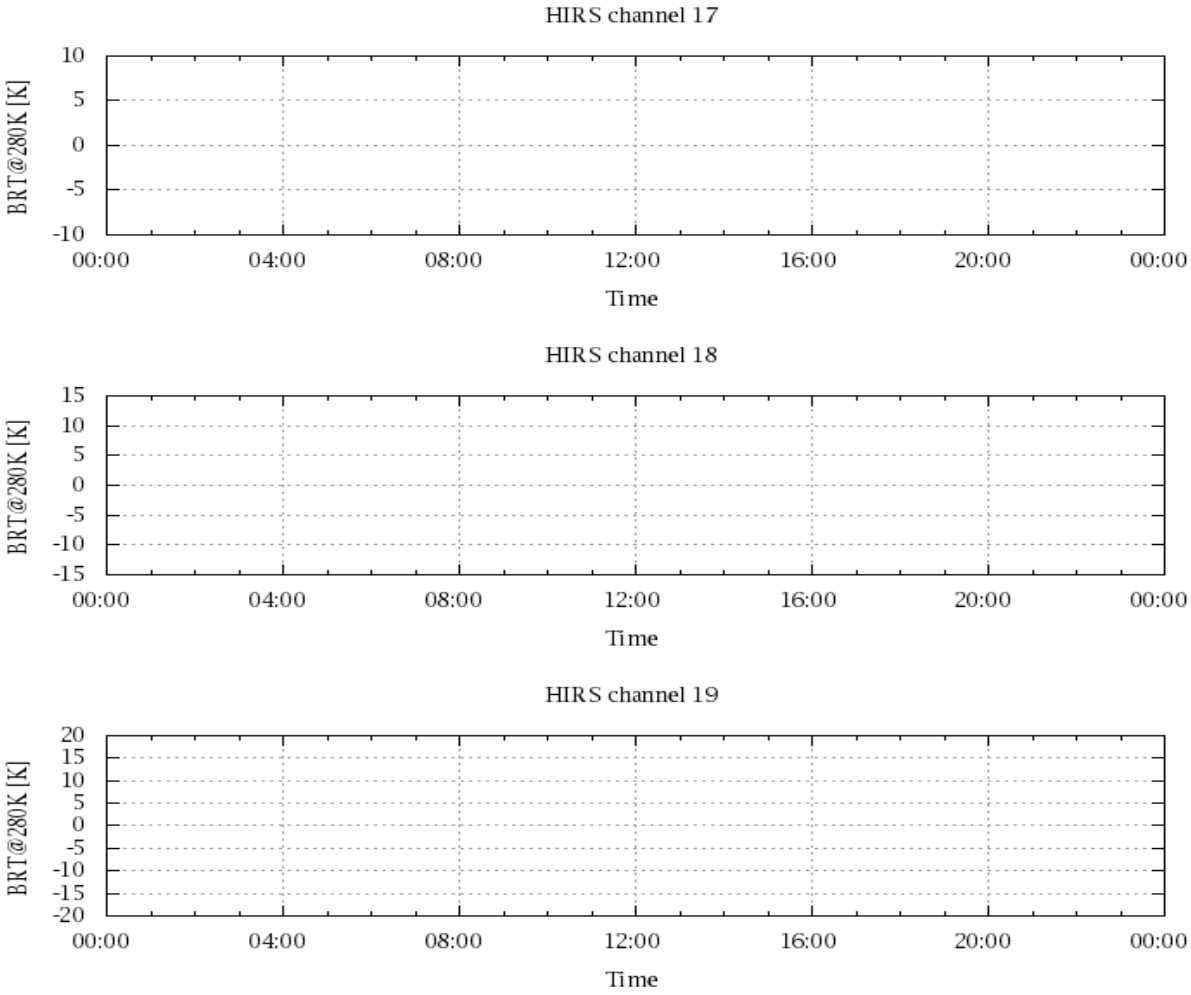

Figure 21: Radinace Differences in BT