

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

IASI monitoring team

08/09/2025 00:00:00 - 09/09/2025 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 08/09/2025 00:00:00 - 09/09/2025 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 08/09/2025 00:00:00 - 09/09/2025 00:00:00

Product Type	Number	Action
L0 HKTU PDUs	481	-
L0 IASI PDUs	480	-
L1 ENG PDUs	479	-
L1 ENG distinct GEPSGranule	479	-
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)	6149	6200	20250908024018.501	20250908024032.555
PX1 (130)	511	0	20250908104458.442	20250908104908.164
PX2 (135)	6149	6200	20250908024018.501	20250908024032.555
PX2 (135)	511	0	20250908104458.442	20250908104908.164
PX3 (140)	6149	6200	20250908024018.501	20250908024032.555
PX3 (140)	511	0	20250908104458.442	20250908104908.164
PX4 (145)	6149	6199	20250908024018.501	20250908024032.341
PX4 (145)	511	0	20250908104458.442	20250908104908.164
IMG (150)	14065	14123	20250908024018.501	20250908024032.341
IMG (150)	6587	0	20250908104459.739	20250908104908.164
VER (160)	5874	5885	20250908024010.505	20250908024034.501
VER (160)	7670	2700	20250908104458.442	20250908120145.161
VER (160)	2700	2705	20250908120145.161	20250908120145.161
VER (160)	2705	2710	20250908120145.161	20250908120145.161
VER (160)	2710	2715	20250908120145.161	20250908120145.161
VER (160)	2715	2701	20250908120145.161	20250908120145.161
VER (160)	2701	2706	20250908120145.161	20250908120145.161
VER (160)	2706	2711	20250908120145.161	20250908120145.161
VER (160)	2711	2716	20250908120145.161	20250908120145.161

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	2716	2702	20250908120145.161	20250908120145.161
VER (160)	2702	2707	20250908120145.161	20250908120145.161
VER (160)	2707	2712	20250908120145.161	20250908120145.161
VER (160)	2712	2717	20250908120145.161	20250908120145.161
VER (160)	2717	2703	20250908120145.161	20250908120145.161
VER (160)	2703	2708	20250908120145.161	20250908120145.161
VER (160)	2708	2713	20250908120145.161	20250908120145.161
VER (160)	2713	2718	20250908120145.161	20250908120145.161
VER (160)	2718	2704	20250908120145.161	20250908120145.161
VER (160)	2704	2709	20250908120145.161	20250908120145.161
VER (160)	2709	2714	20250908120145.161	20250908120145.161
VER (160)	2714	2719	20250908120145.161	20250908120145.161
AUX (180)	14266	14269	20250908024010.934	20250908024034.934
AUX (180)	1518	0	20250908104458.876	20250908104914.867

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
08/09/2025 00:00:09	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	480	-
L1 ENG PDUs	479	-
L1 ENG distinct GEPSGranule	479	-
GQisFlagQual set (PX1)	99.64 %	-
GQisFlagQual set (PX2)	99.73 %	-
GQisFlagQual set (PX3)	99.73 %	-
GQisFlagQual set (PX4)	99.64 %	-
GQisFlagQual set (all)	99.69 %	-

Table 4: Quality flags

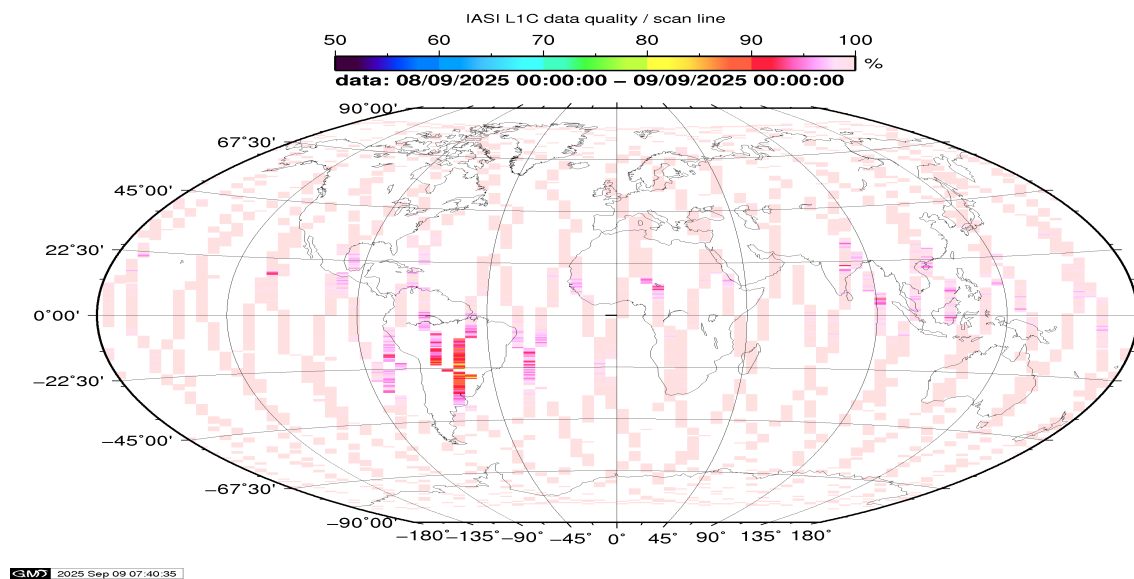


Figure 1: L1C data quality

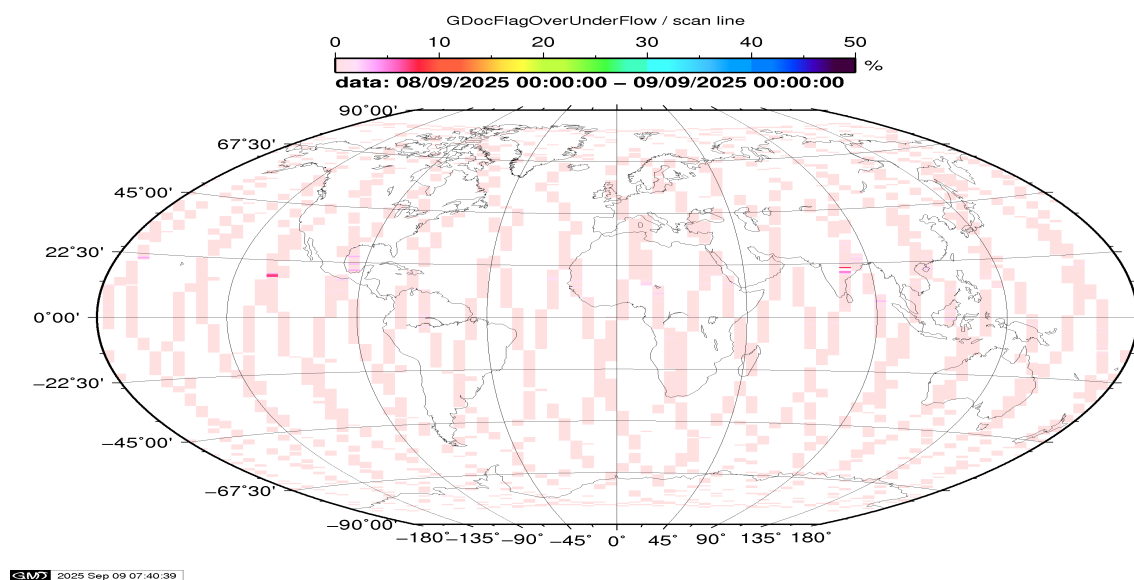


Figure 2: Flag of Over and Under Flows

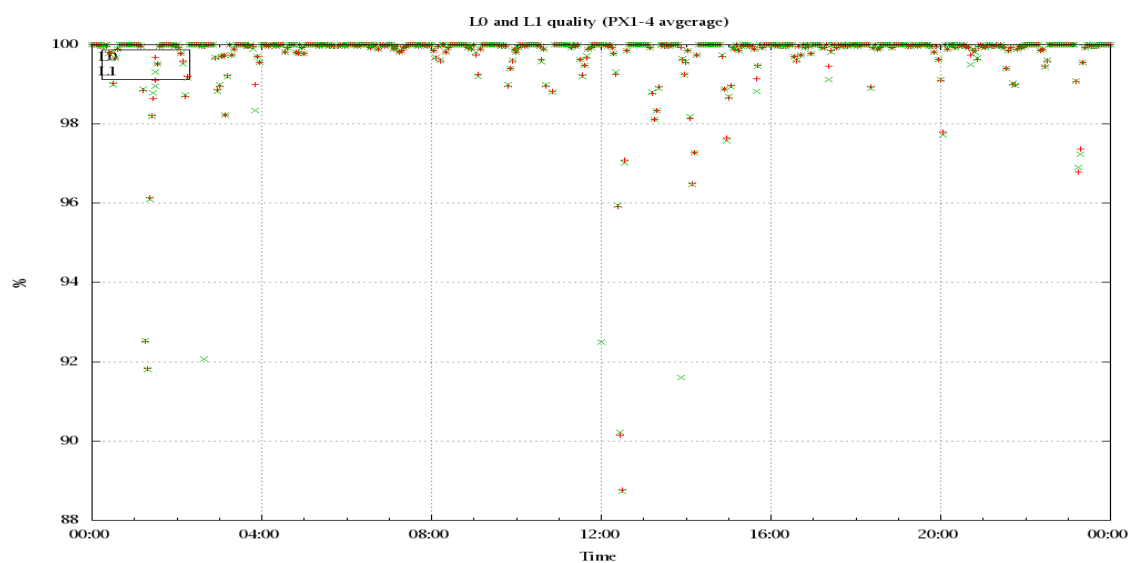


Figure 3: Level 0 and 1C overall quality

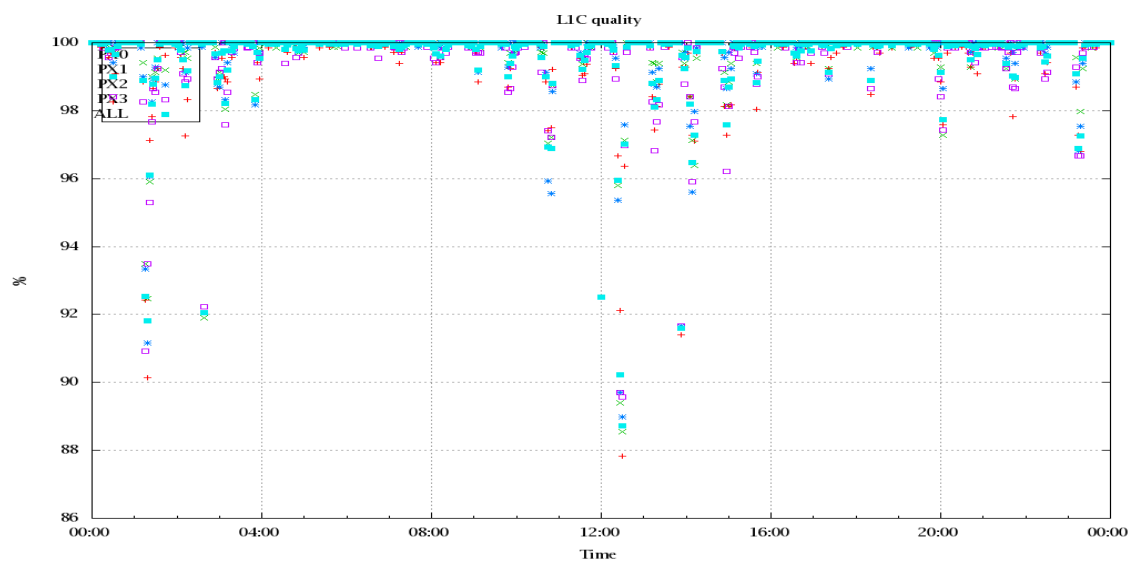


Figure 4: Level 1C quality

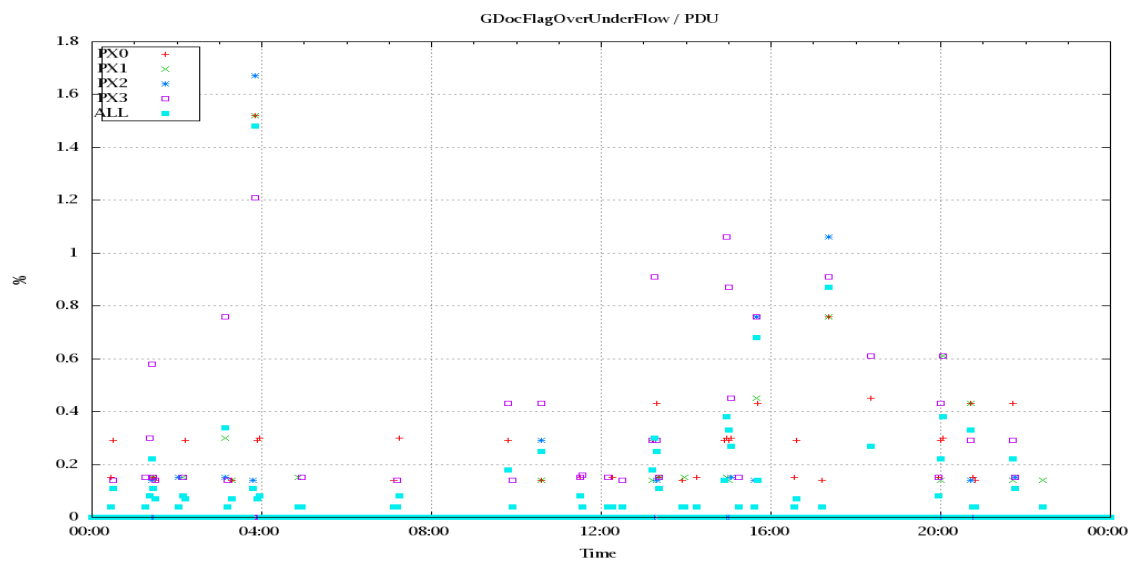


Figure 5: Timeseries of flag of Over and Under Flows

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.

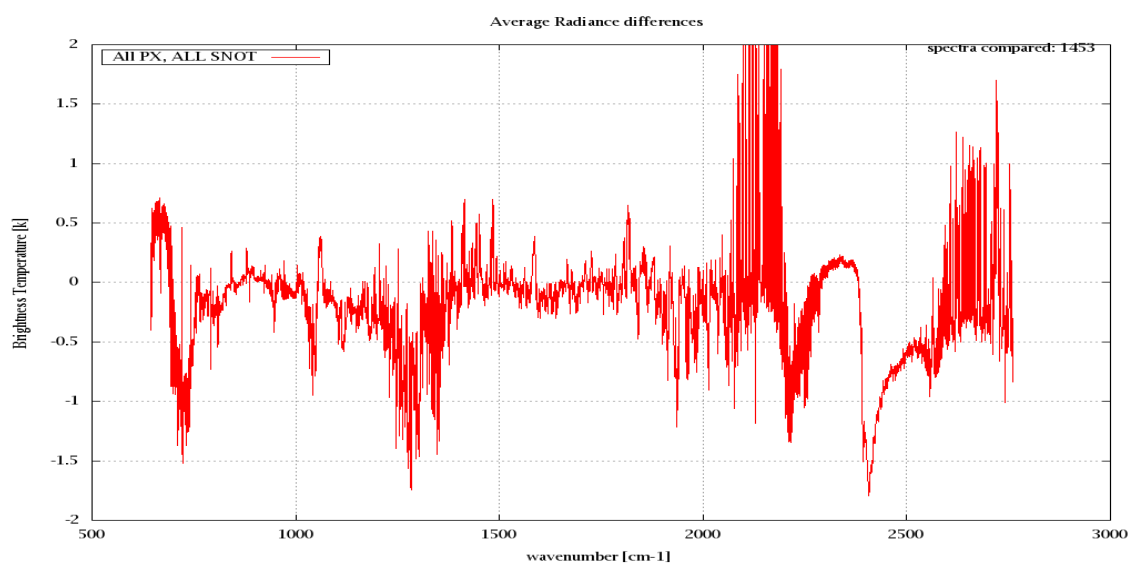


Figure 6: Average Radiance differences: OBS-CAL

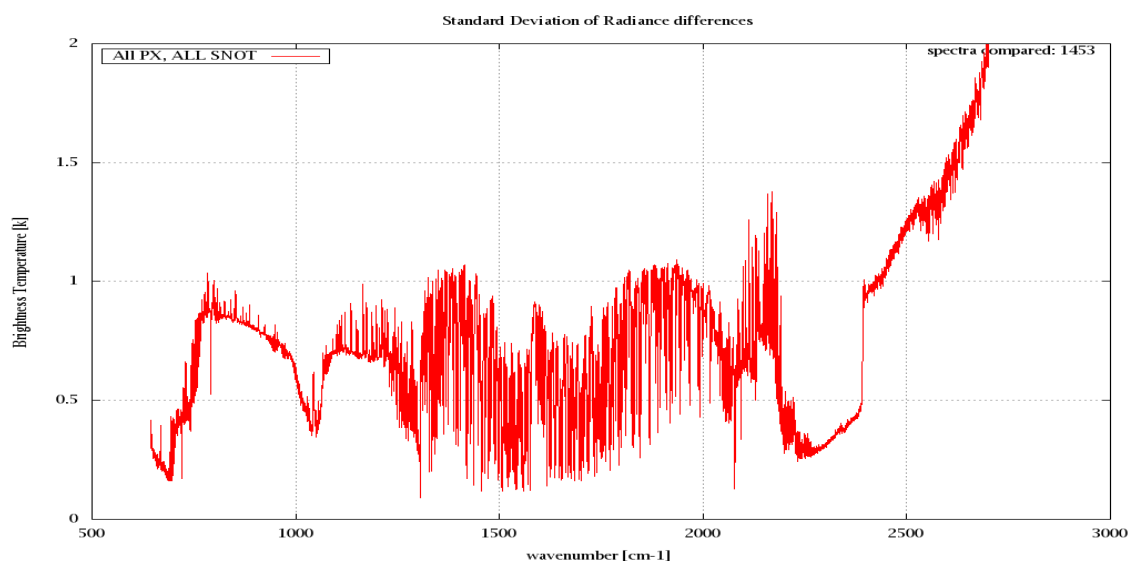


Figure 7: Standard Deviation of Radiance differences

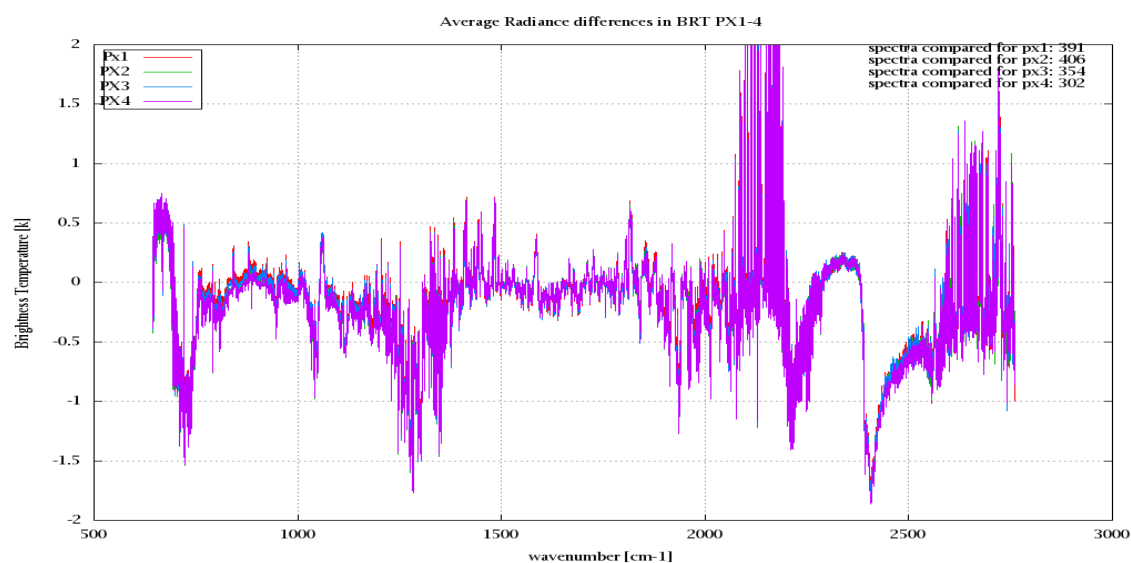


Figure 8: Average Radiance differences: OBS-CAL

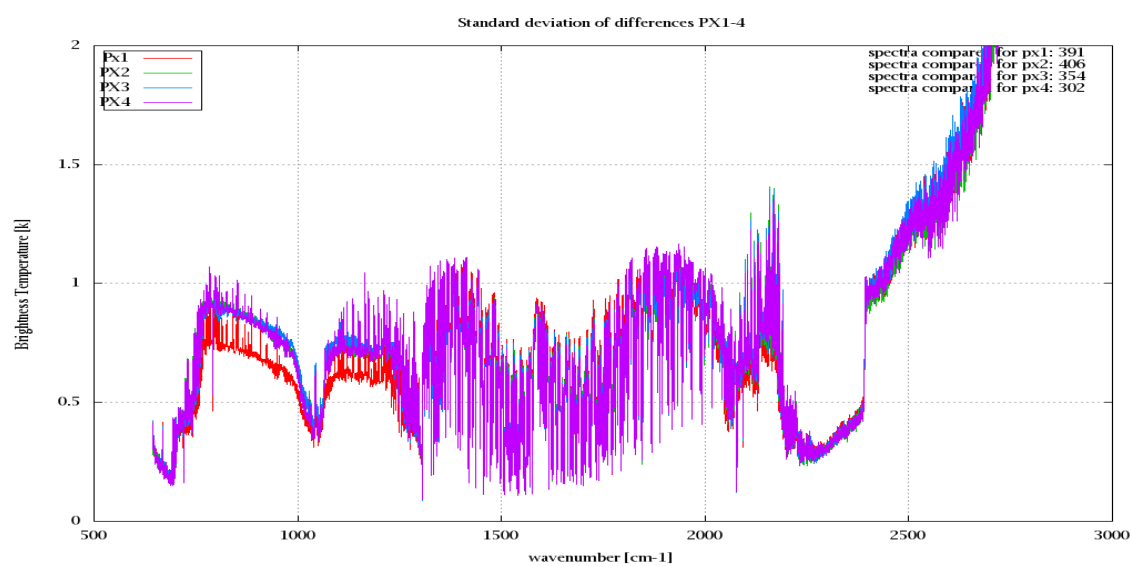


Figure 9: Standard Deviation of Radiance differences

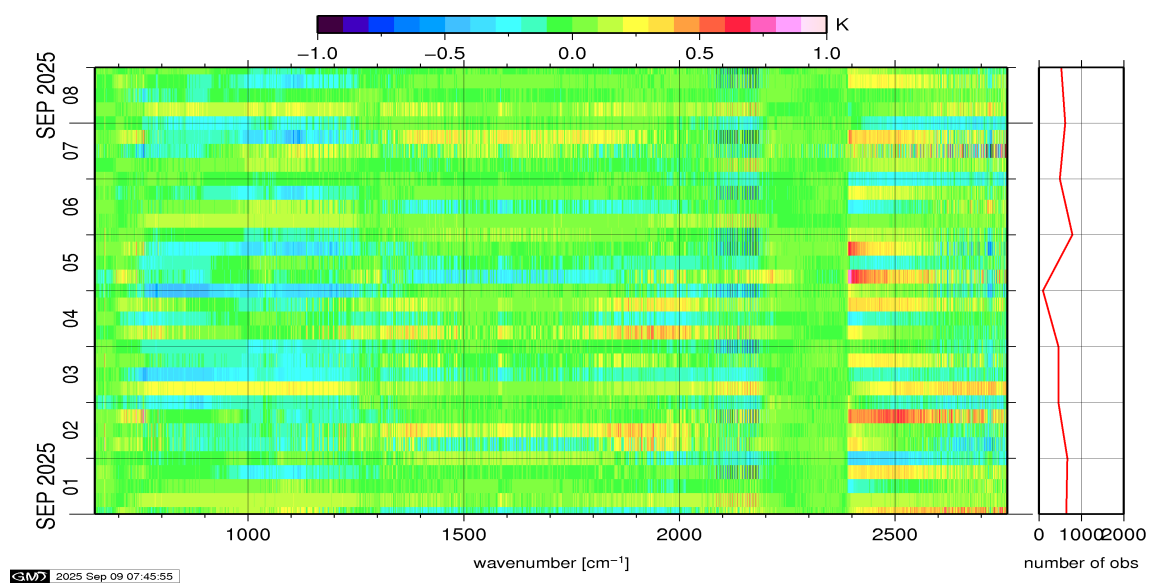


Figure 10: Radiance Anomaly in BT: All Channels

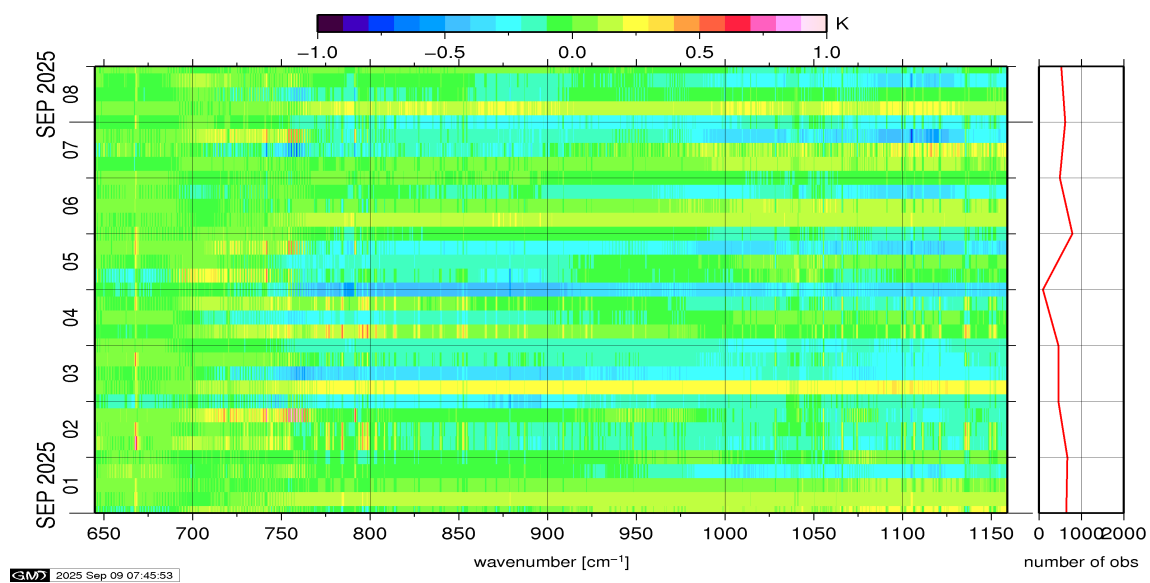


Figure 11: Radiance Anomaly in BT: IASI Band 1

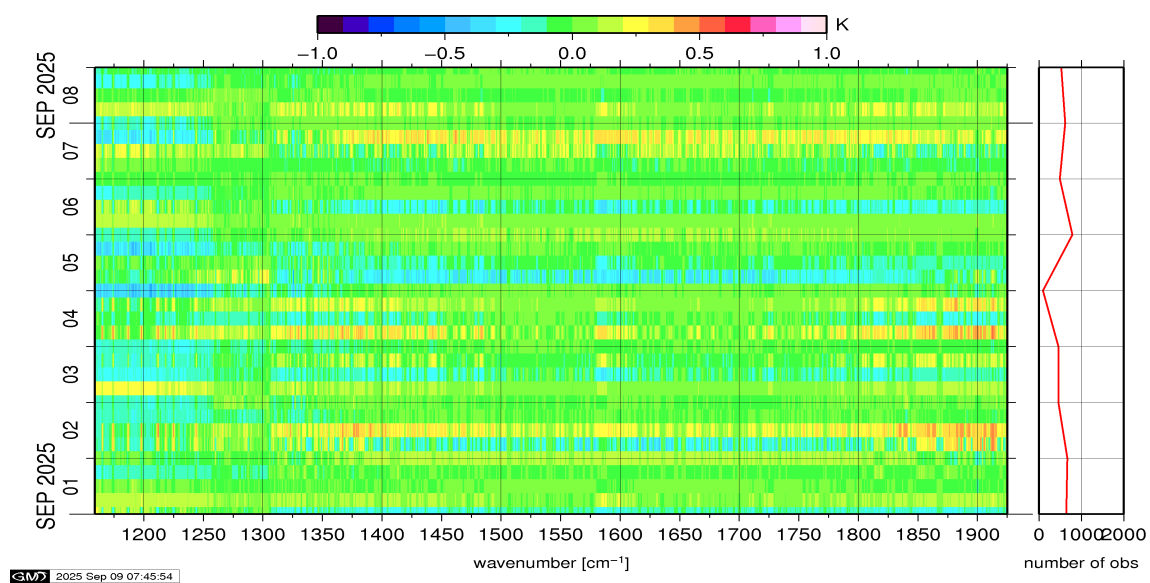


Figure 12: Radiance Anomaly in BT: IASI Band 2

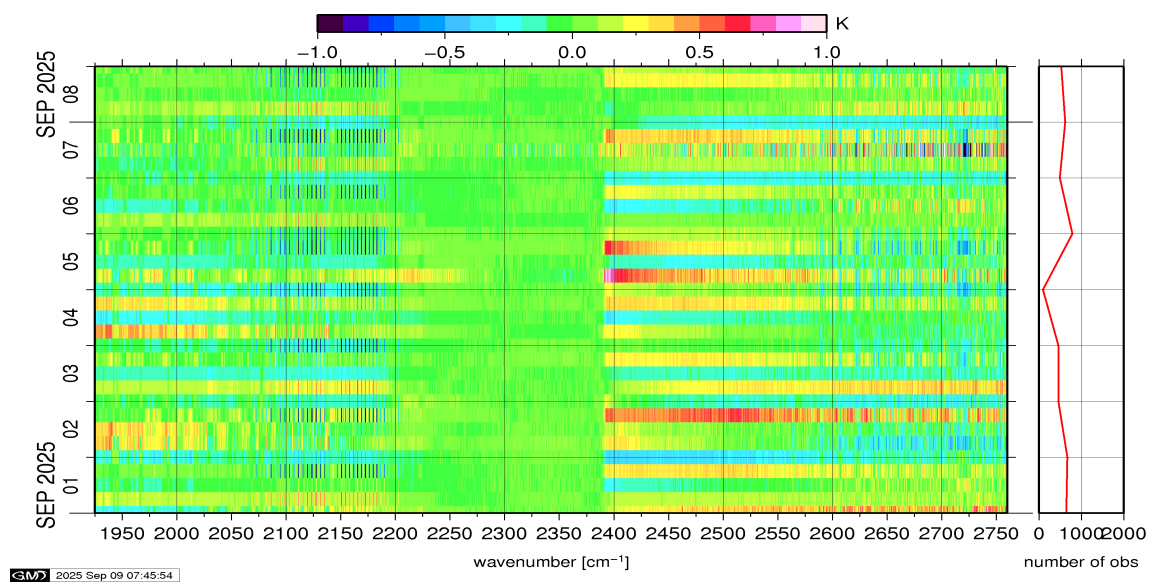


Figure 13: Radiance Anomaly in BT: IASI Band 3

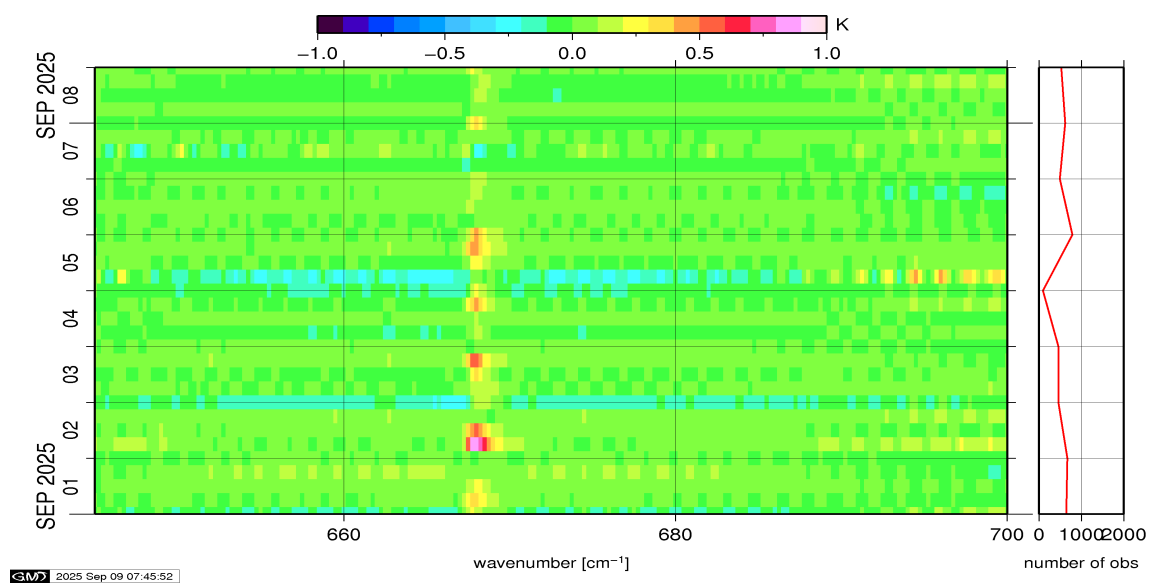


Figure 14: Radiance Anomaly in BT: CO2 14

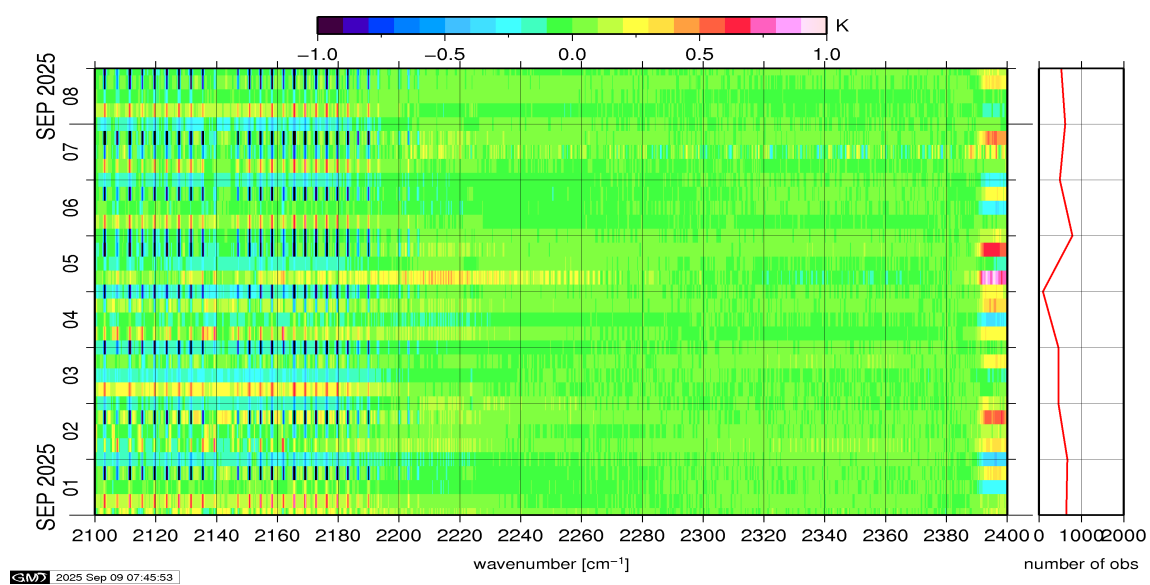


Figure 15: Radiance Anomaly in BT: CO2 4.3

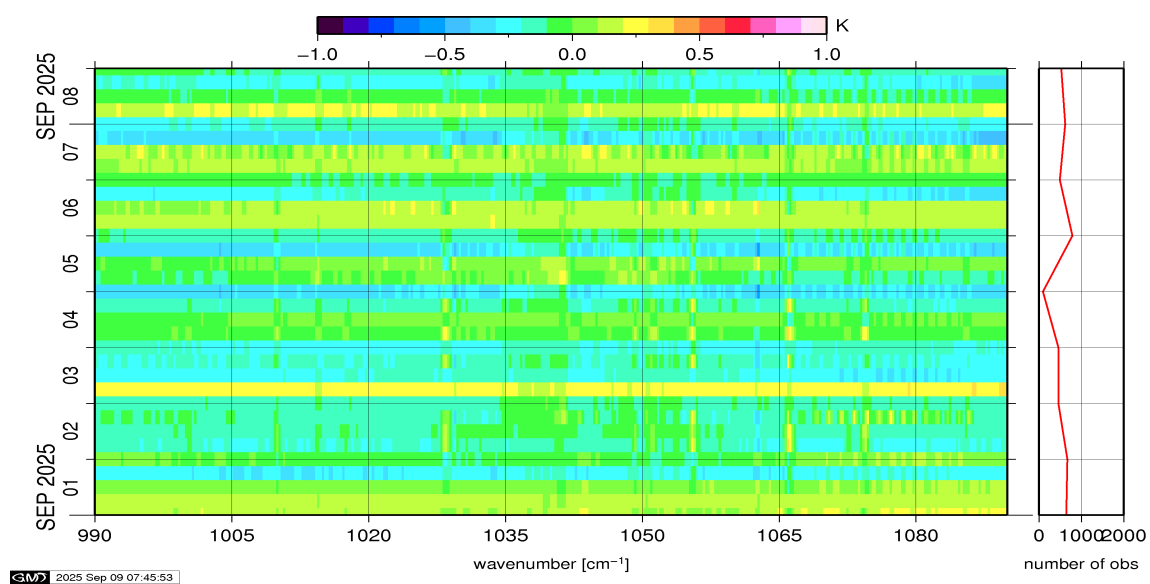


Figure 16: Radiance Anomaly in BT: O3

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.

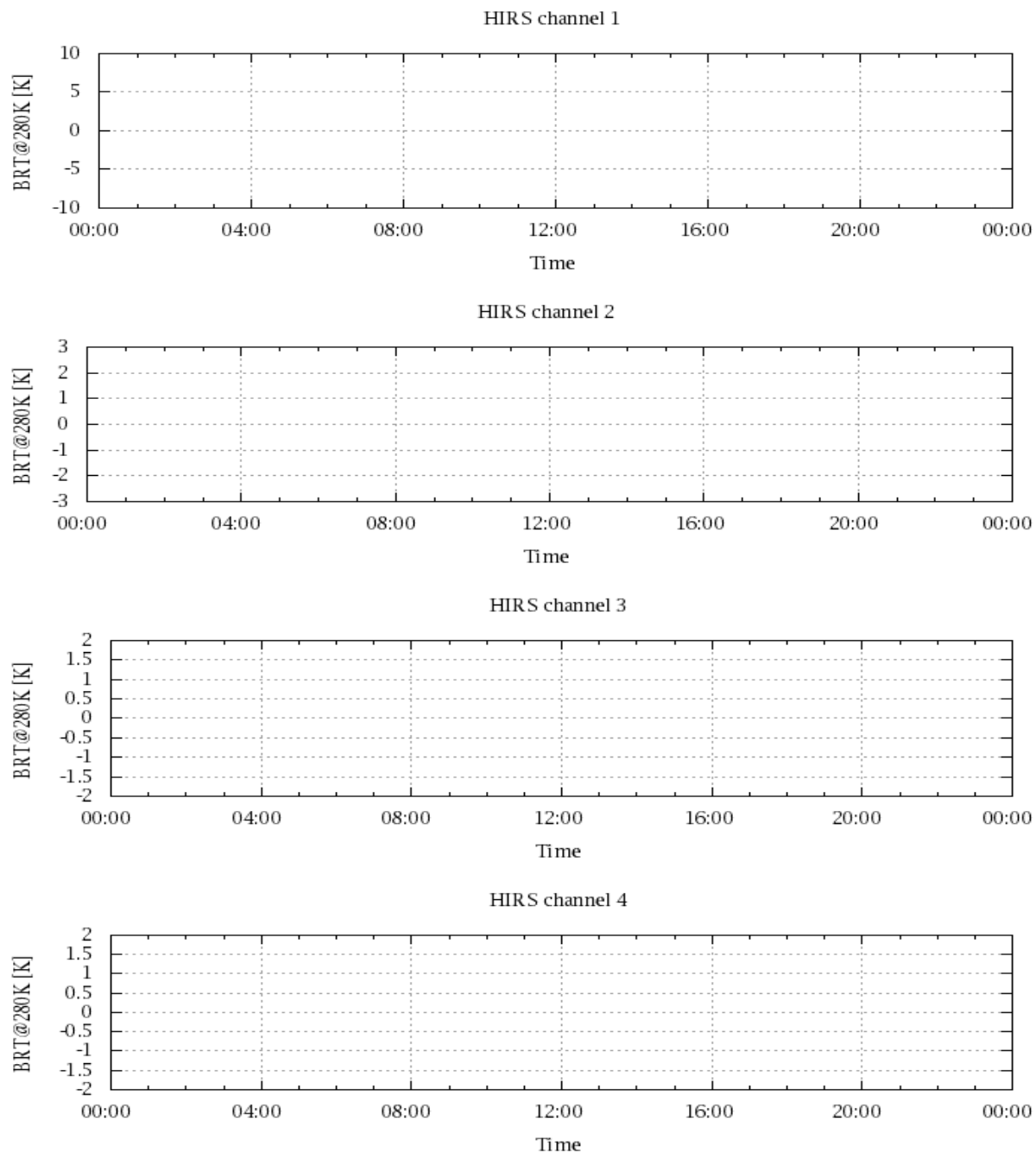


Figure 17: Radiance Differences in BT

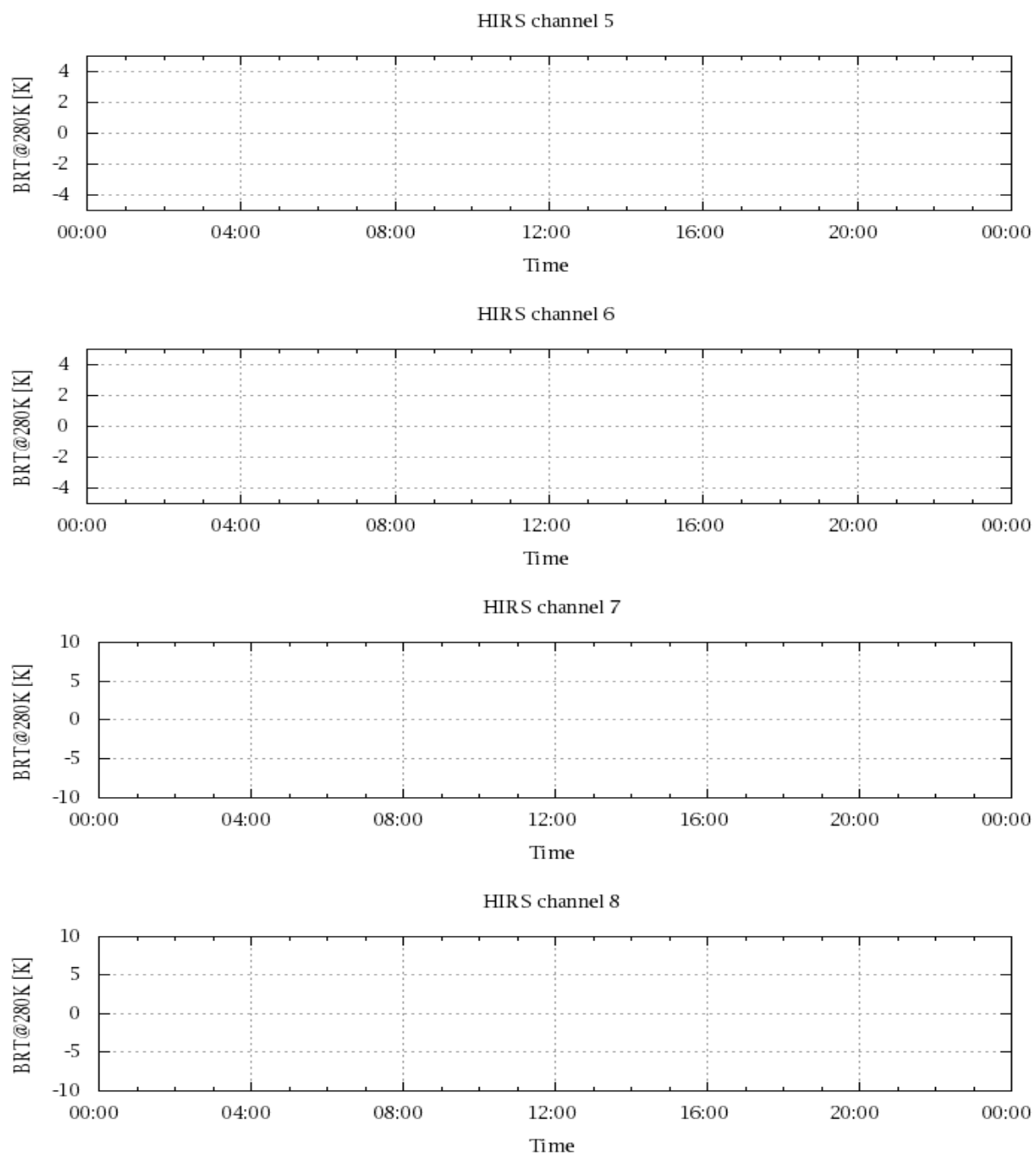


Figure 18: Radiance Differences in BT

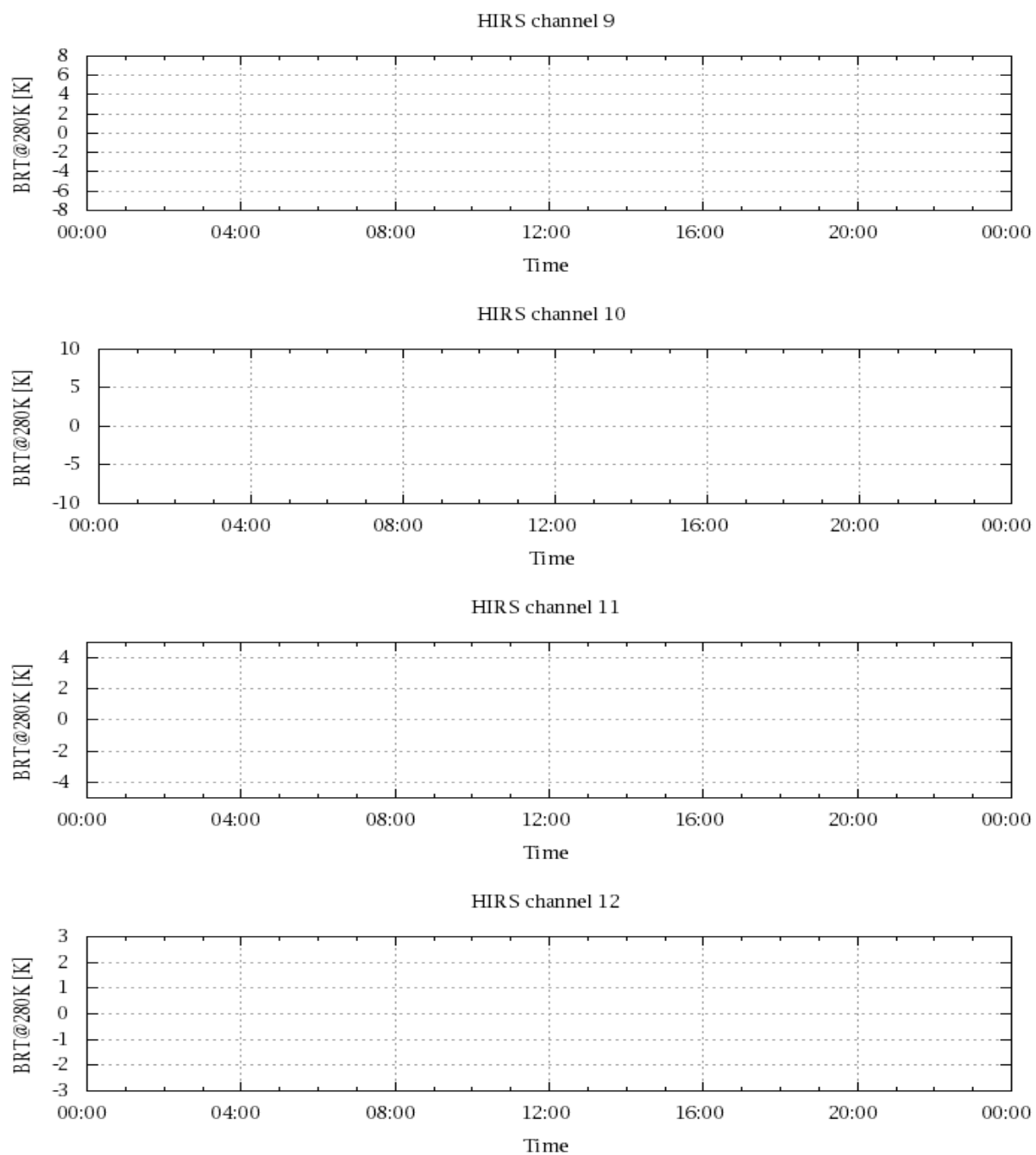


Figure 19: Radiance Differences in BT

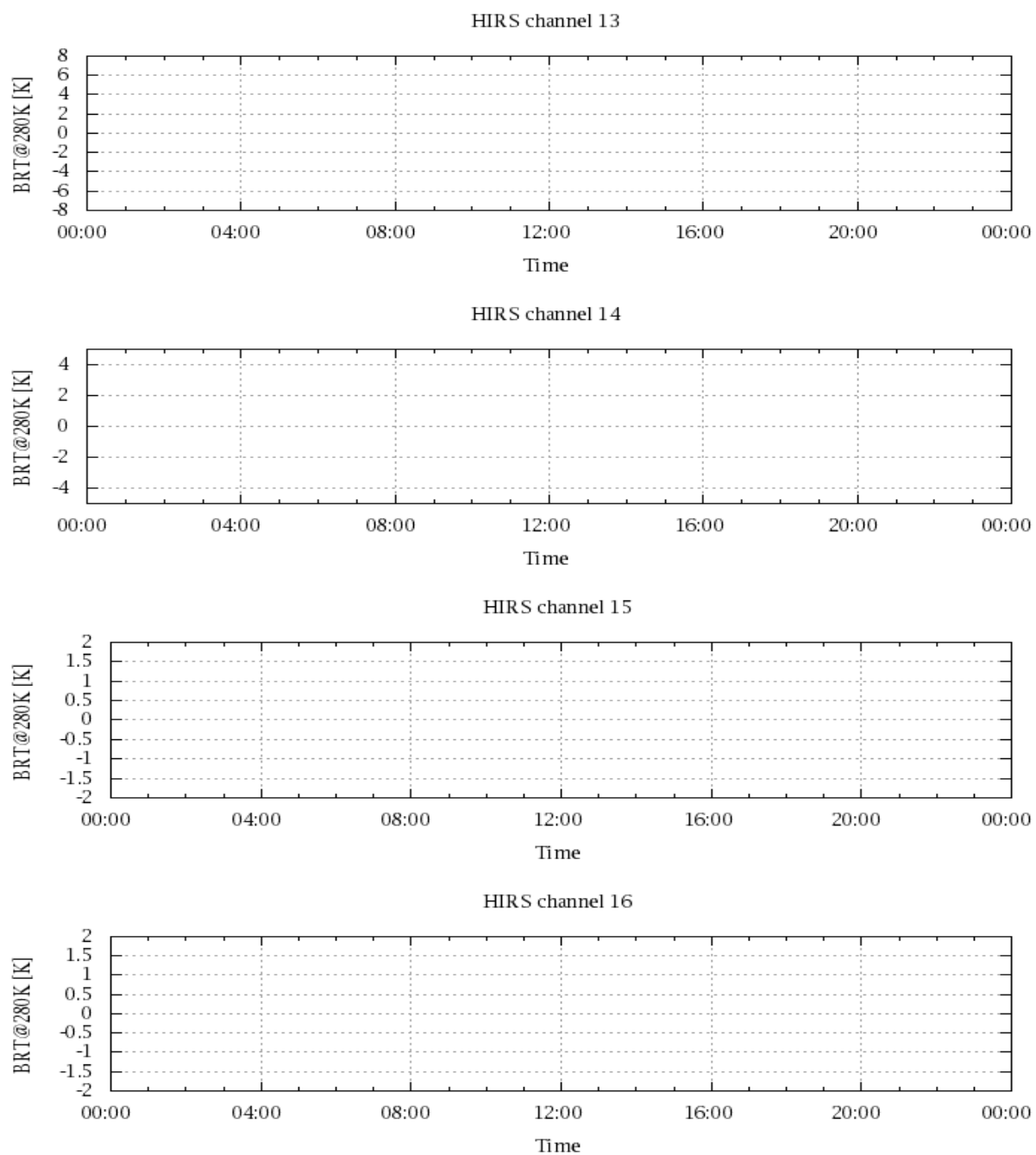


Figure 20: Radiance Differences in BT

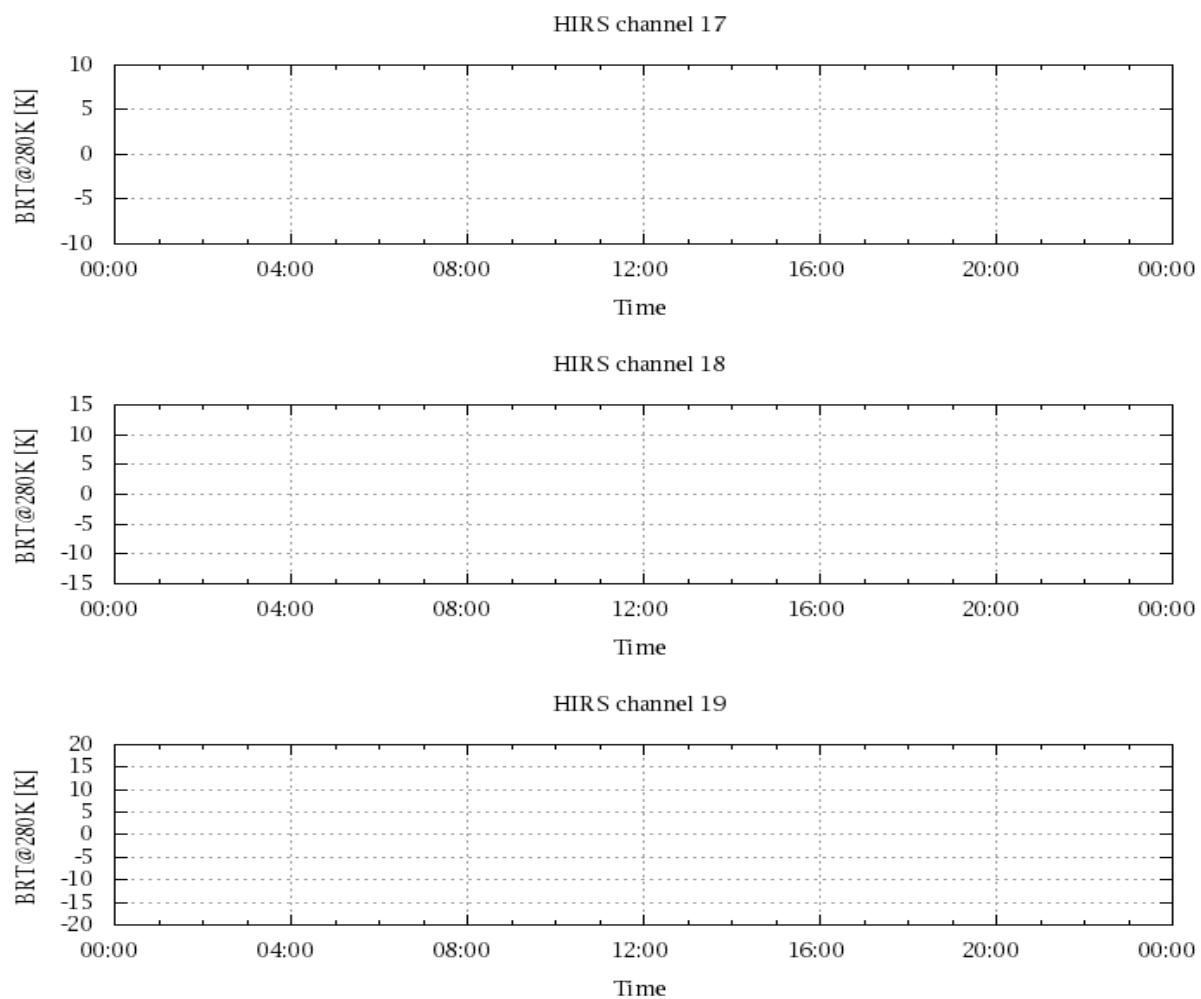


Figure 21: Radinace Differences in BT