

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

IASI monitoring team

30/05/2025 00:00:00 - 31/05/2025 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 30/05/2025 00:00:00 - 31/05/2025 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 30/05/2025 00:00:00 - 31/05/2025 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	478	-
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	480	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	1657	1659	20250530082542.373	20250530082542.807
PX1 (130)	1660	1718	20250530082543.021	20250530082558.588
PX1 (130)	1718	1726	20250530082558.588	20250530082600.318
PX1 (130)	1726	1728	20250530082600.318	20250530082600.752
PX2 (135)	1659	1661	20250530082542.807	20250530082543.240
PX2 (135)	1661	1720	20250530082543.240	20250530082559.021
PX2 (135)	1721	1726	20250530082559.240	20250530082600.318
PX2 (135)	1726	1729	20250530082600.318	20250530082600.971
PX2 (135)	1735	1737	20250530082603.779	20250530082604.213
PX3 (140)	1657	1659	20250530082542.373	20250530082542.807
PX3 (140)	1662	1664	20250530082543.455	20250530082543.889
PX3 (140)	1665	1719	20250530082544.103	20250530082558.807
PX3 (140)	1719	1723	20250530082558.807	20250530082559.670
PX3 (140)	1723	1726	20250530082559.670	20250530082600.318
PX3 (140)	1727	1729	20250530082600.537	20250530082600.971
PX4 (145)	1655	1657	20250530082541.943	20250530082542.373
PX4 (145)	1659	1718	20250530082542.807	20250530082558.588
PX4 (145)	1718	1722	20250530082558.588	20250530082559.455
PX4 (145)	1722	1726	20250530082559.455	20250530082600.318
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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	1726	1730	20250530082600.318	20250530082602.697
PX4 (145)	1734	1736	20250530082603.564	20250530082603.994
IMG (150)	11996	11998	20250530082542.158	20250530082542.592
IMG (150)	12002	12070	20250530082543.455	20250530082559.455
IMG (150)	12070	12073	20250530082559.455	20250530082600.103
IMG (150)	12074	12076	20250530082600.318	20250530082600.752
VER (160)	4742	4753	20250530082536.967	20250530082600.971
VER (160)	4753	4756	20250530082600.971	20250530082600.971
AUX (180)	10776	10779	20250530082537.400	20250530082601.400

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
30/05/2025 00:00:07	-	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	478	-
GQisFlagQual set (PX1)	99.65 %	-
GQisFlagQual set (PX2)	99.76 %	-
GQisFlagQual set (PX3)	99.75 %	-
GQisFlagQual set (PX4)	99.65 %	-
GQisFlagQual set (all)	99.70 %	-

Table 4: Quality flags

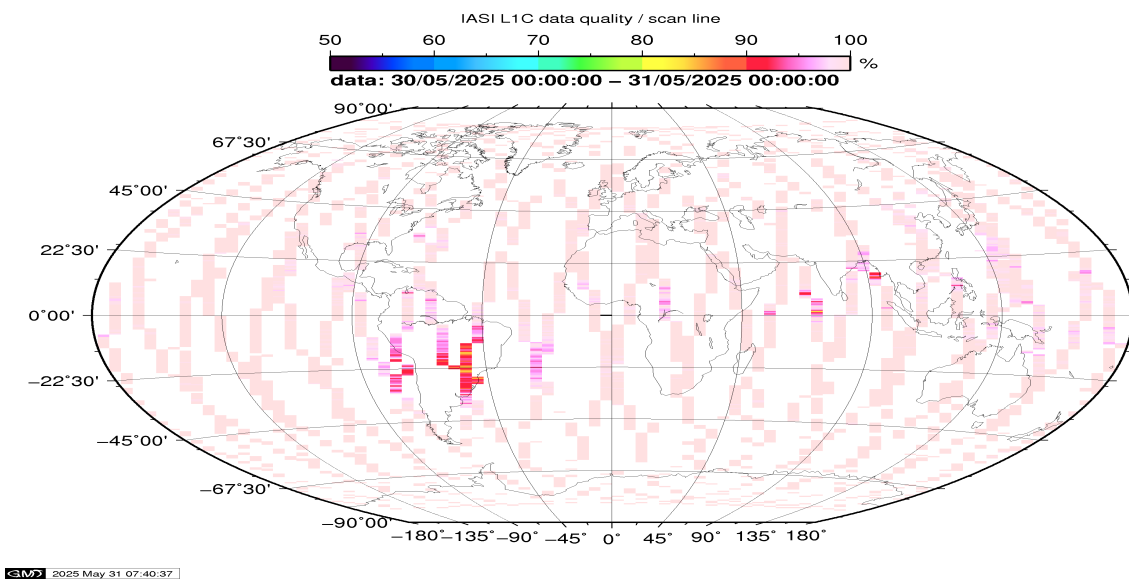


Figure 1: L1C data quality

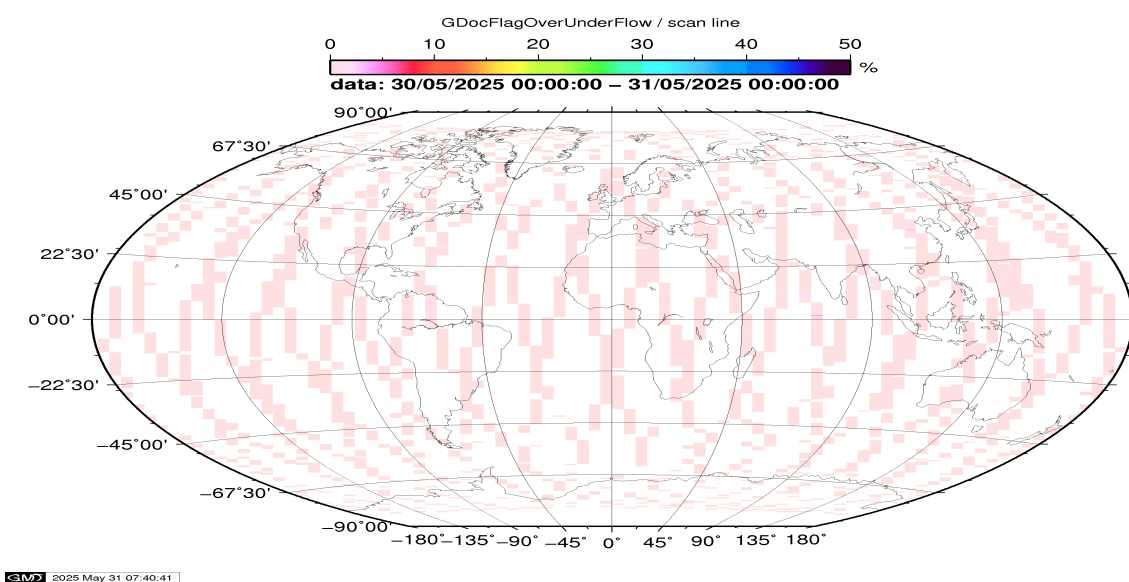


Figure 2: Flag of Over and Under Flows

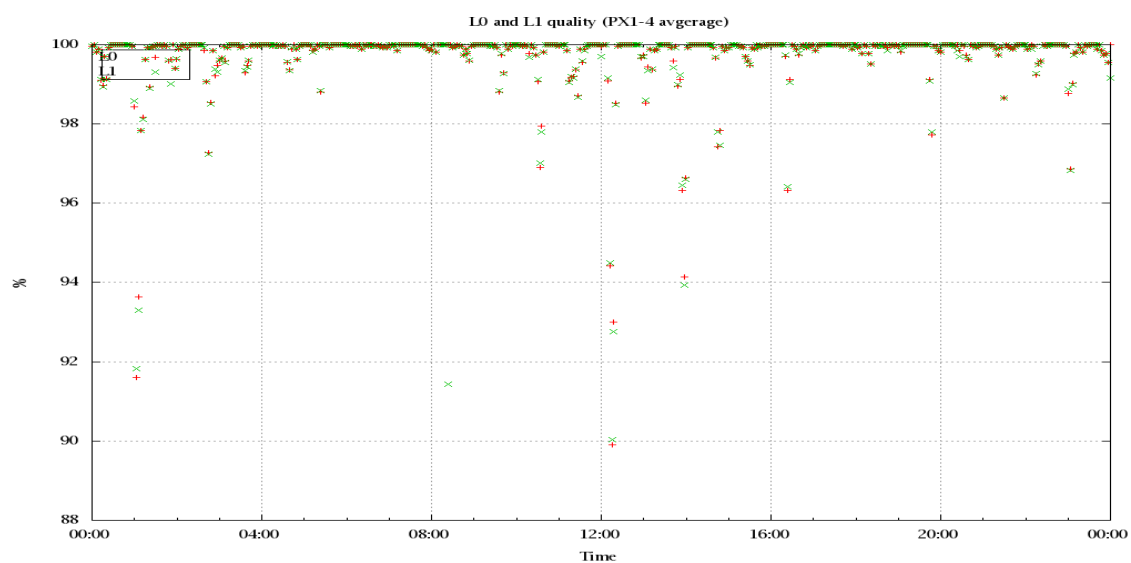


Figure 3: Level 0 and 1C overall quality

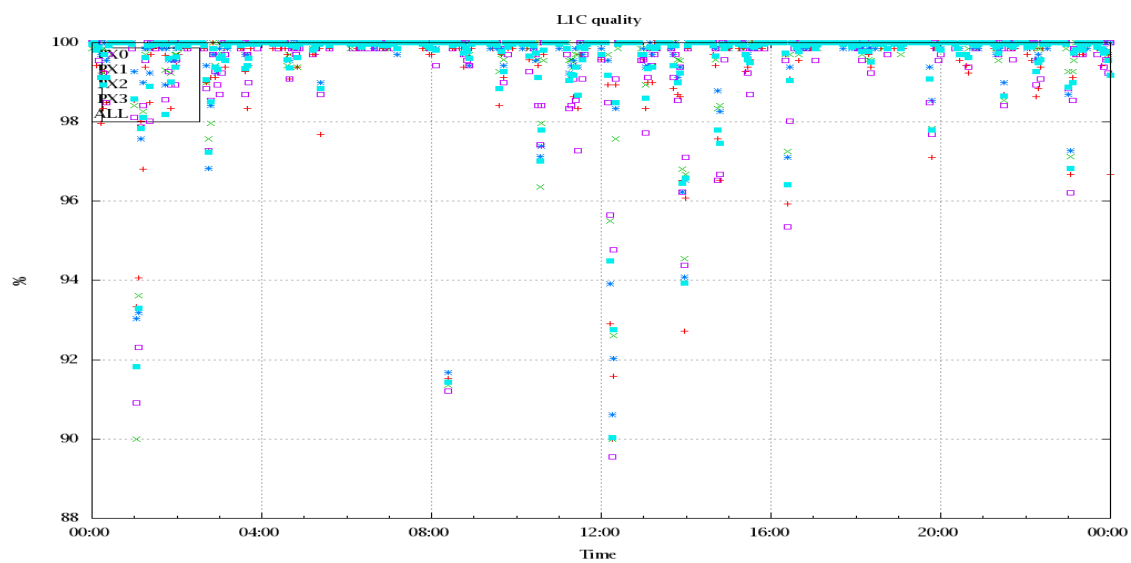


Figure 4: Level 1C quality

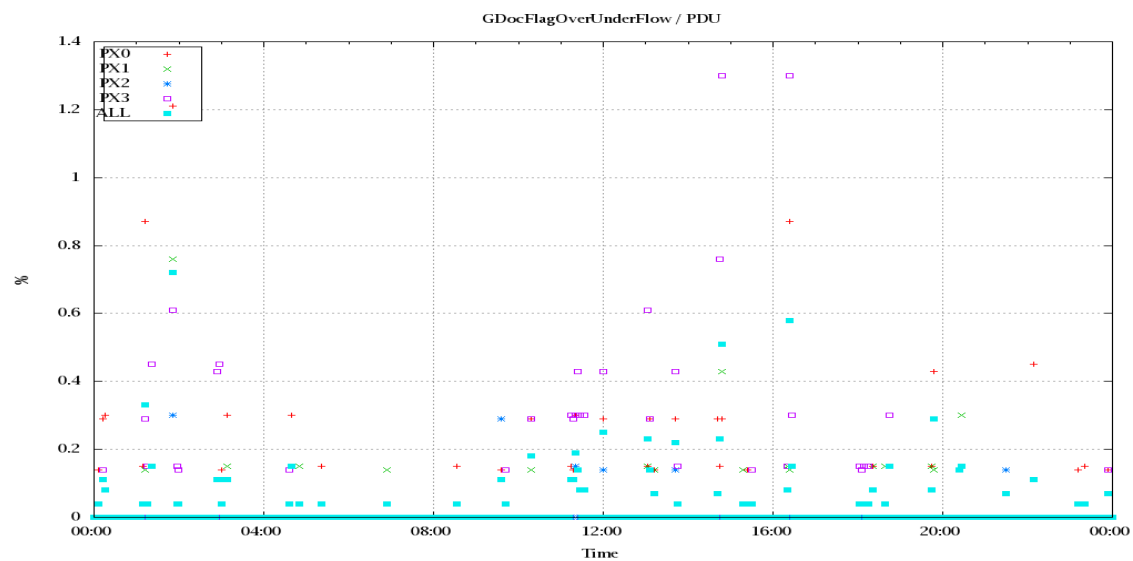


Figure 5: Timeseries of flag of Over and Under Flows

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.

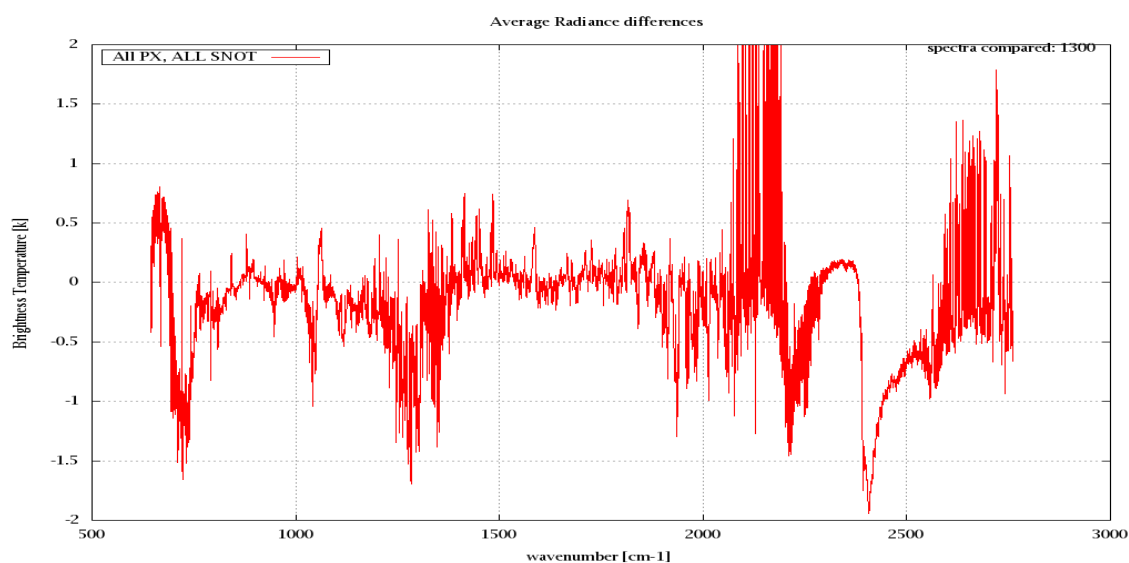


Figure 6: Average Radiance differences: OBS-CAL

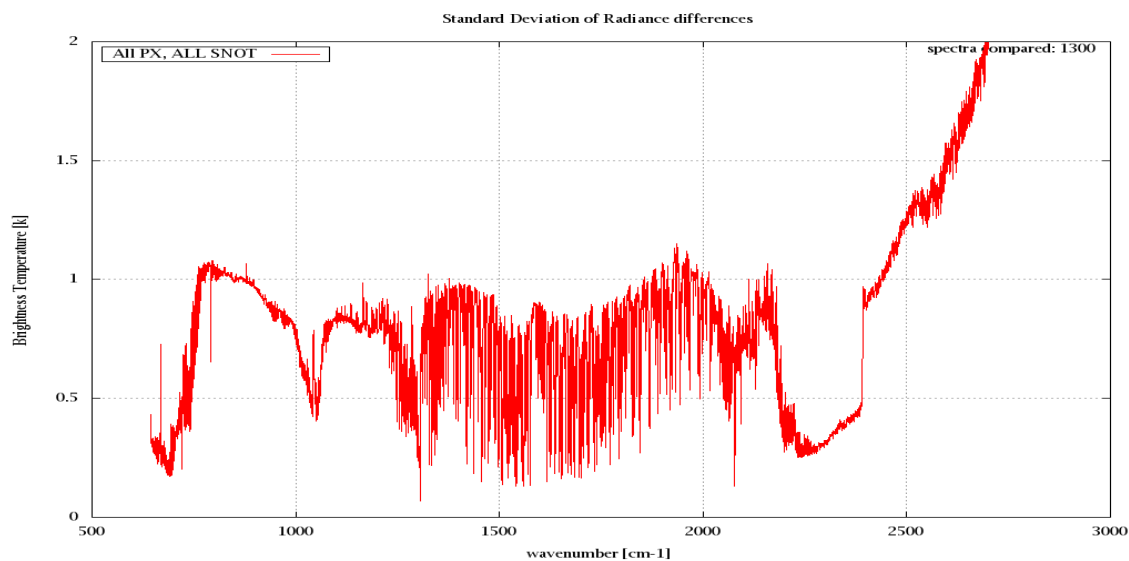


Figure 7: Standard Deviation of Radiance differences

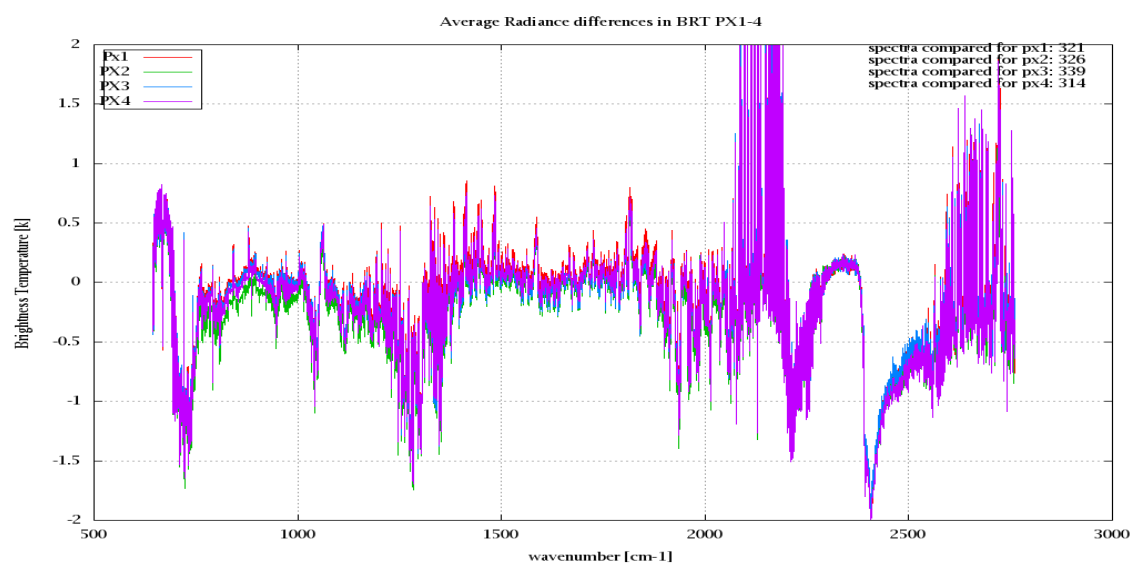


Figure 8: Average Radiance differences: OBS-CAL

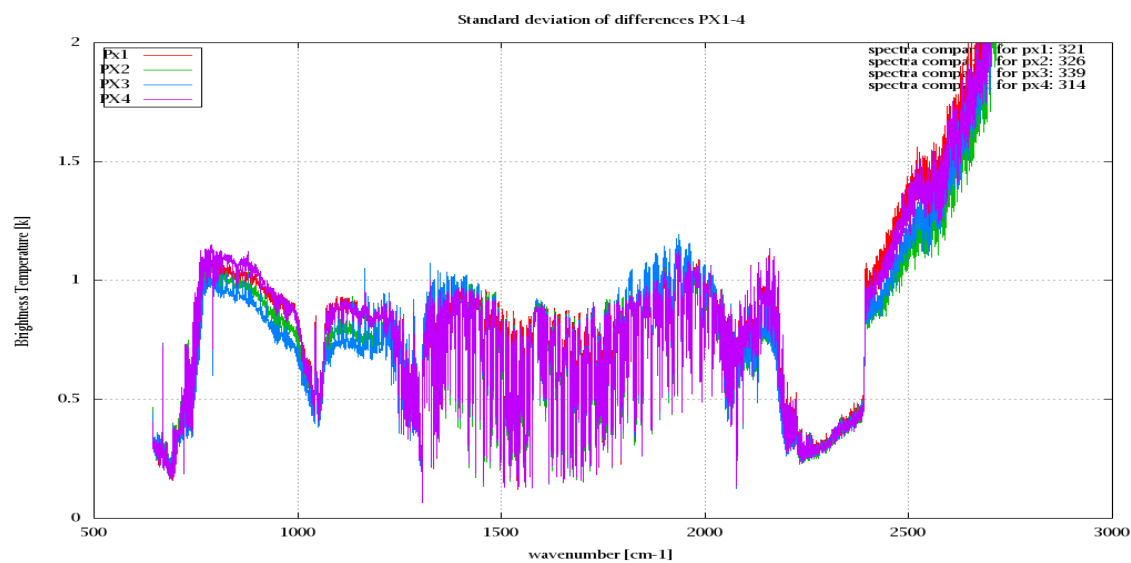


Figure 9: Standard Deviation of Radiance differences

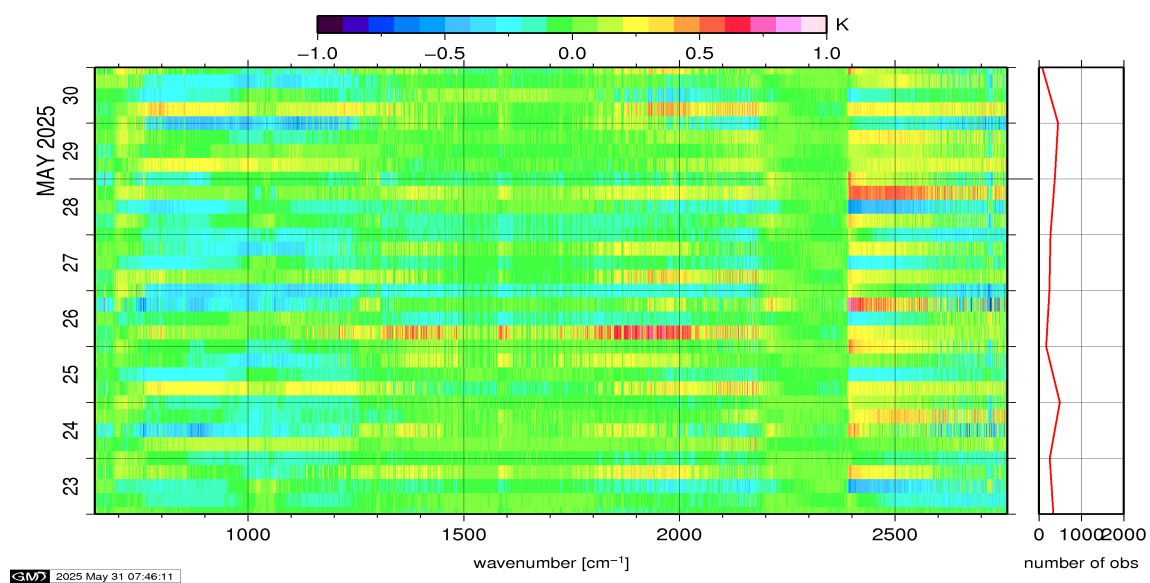


Figure 10: Radiance Anomaly in BT: All Channels

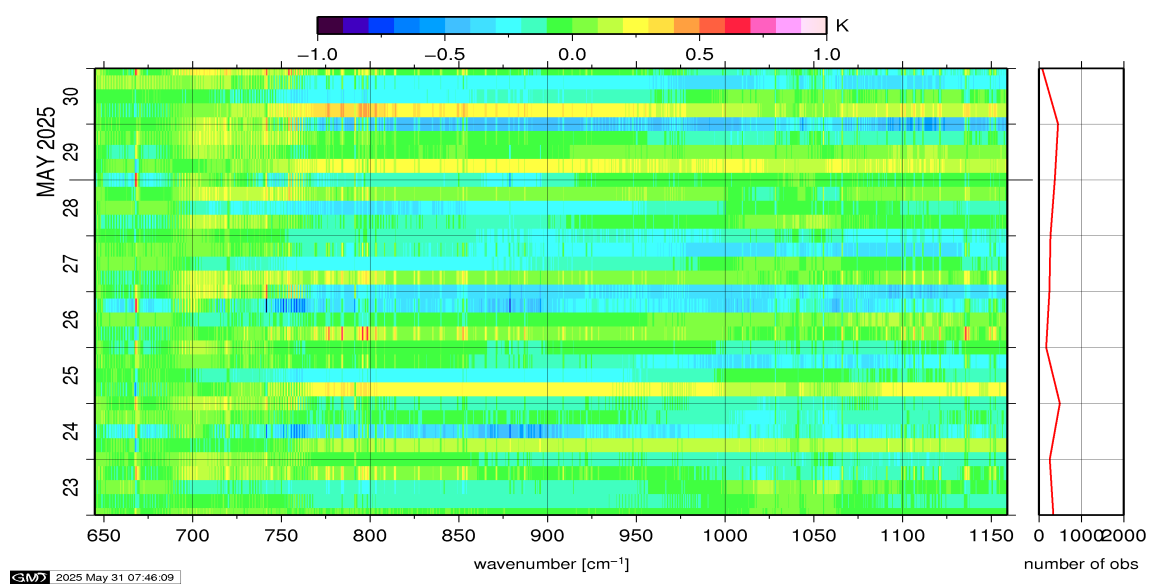


Figure 11: Radiance Anomaly in BT: IASI Band 1

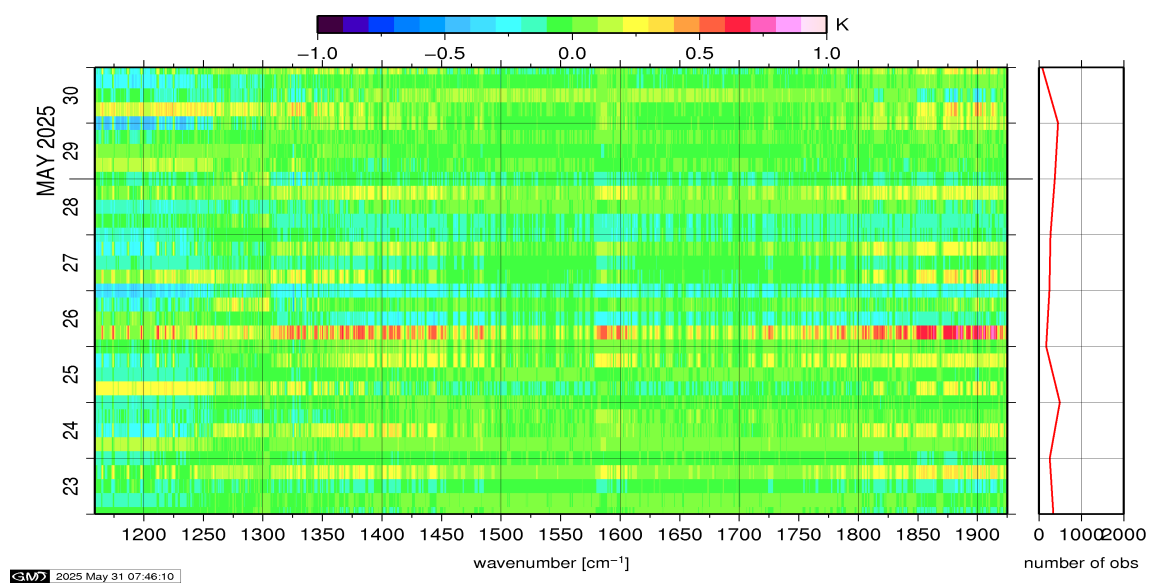


Figure 12: Radiance Anomaly in BT: IASI Band 2

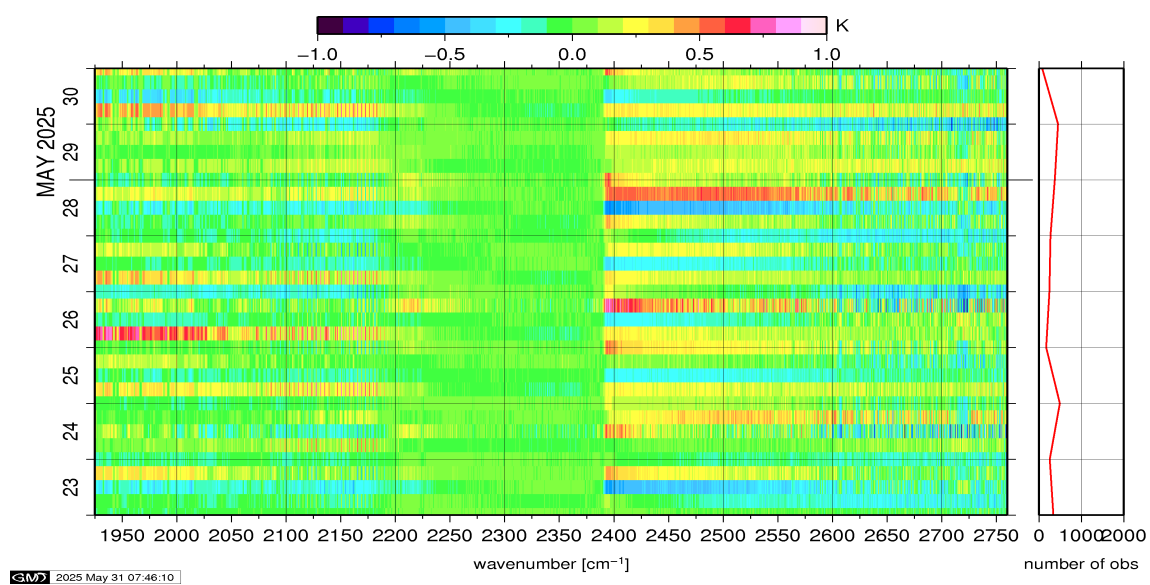


Figure 13: Radiance Anomaly in BT: IASI Band 3

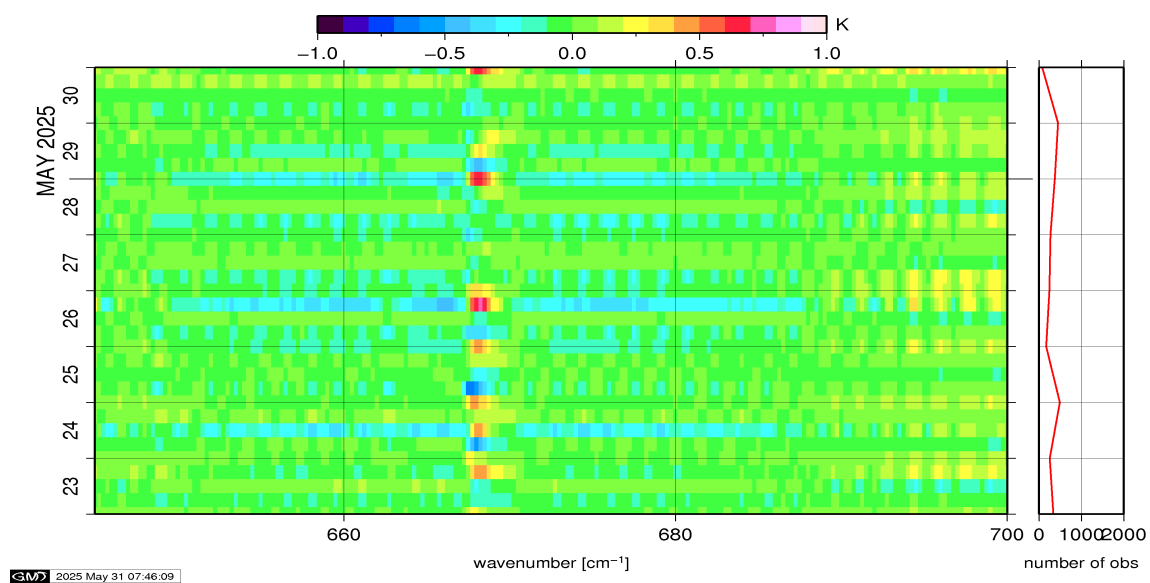


Figure 14: Radiance Anomaly in BT: CO2 14

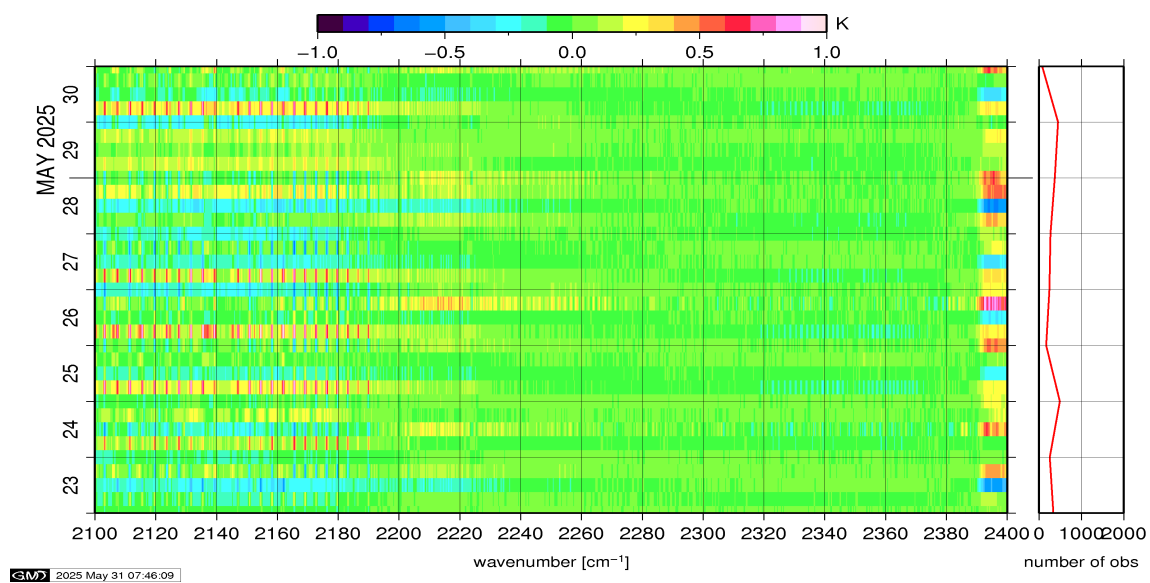


Figure 15: Radiance Anomaly in BT: CO2 4.3

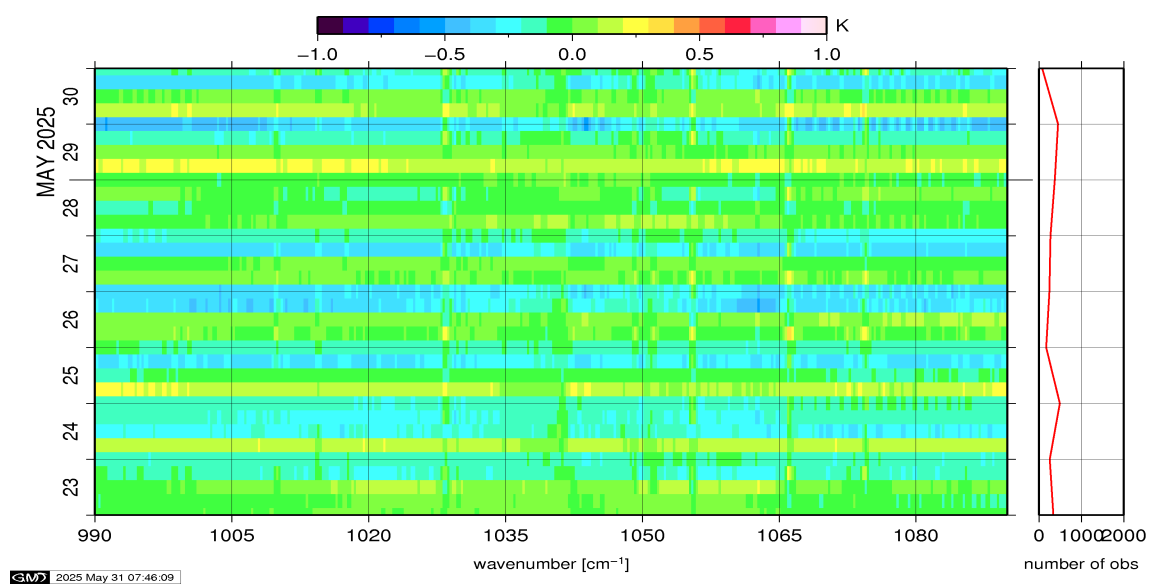


Figure 16: Radiance Anomaly in BT: O3

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.

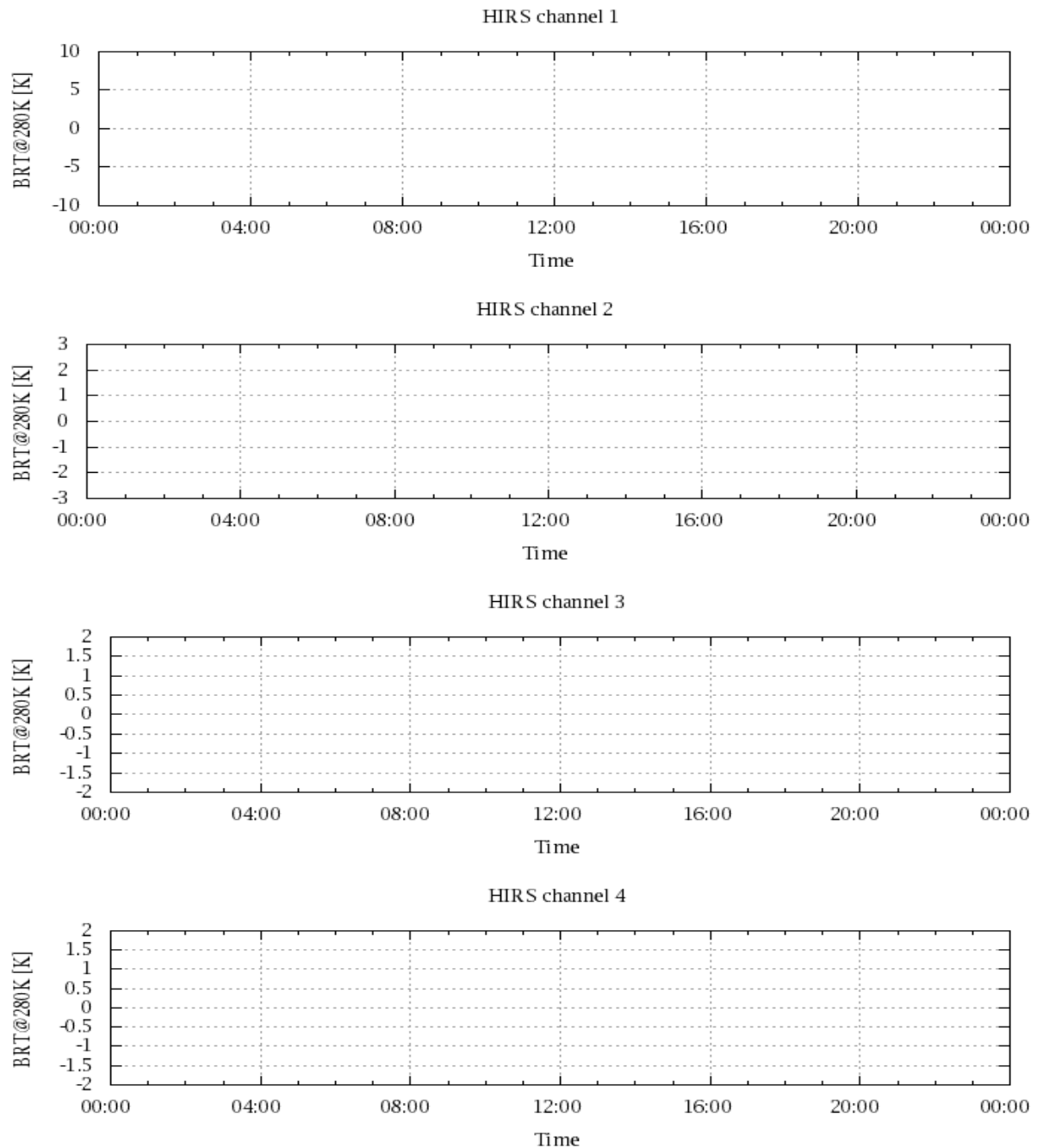


Figure 17: Radiance Differences in BT

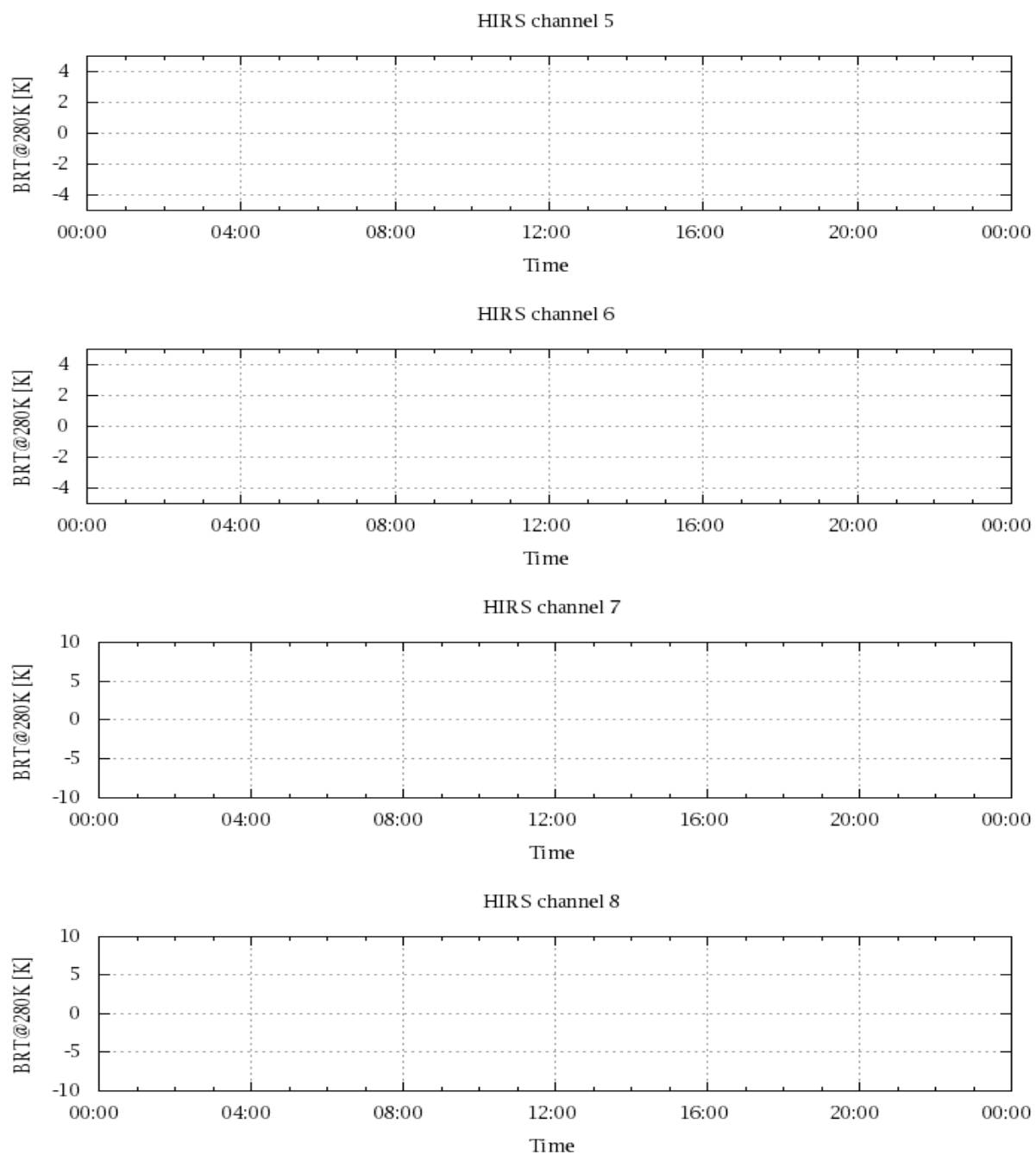


Figure 18: Radiance Differences in BT

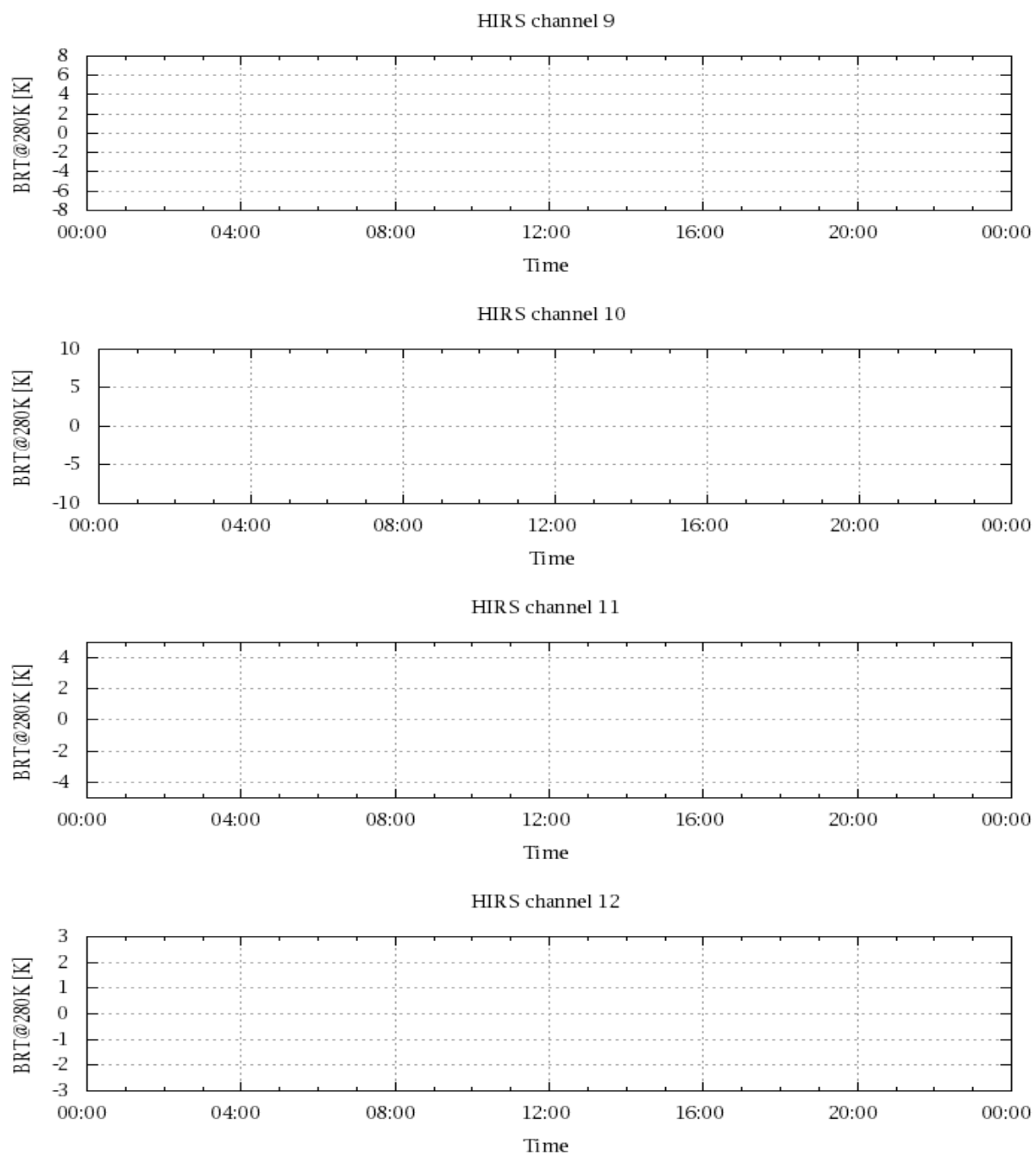


Figure 19: Radiance Differences in BT

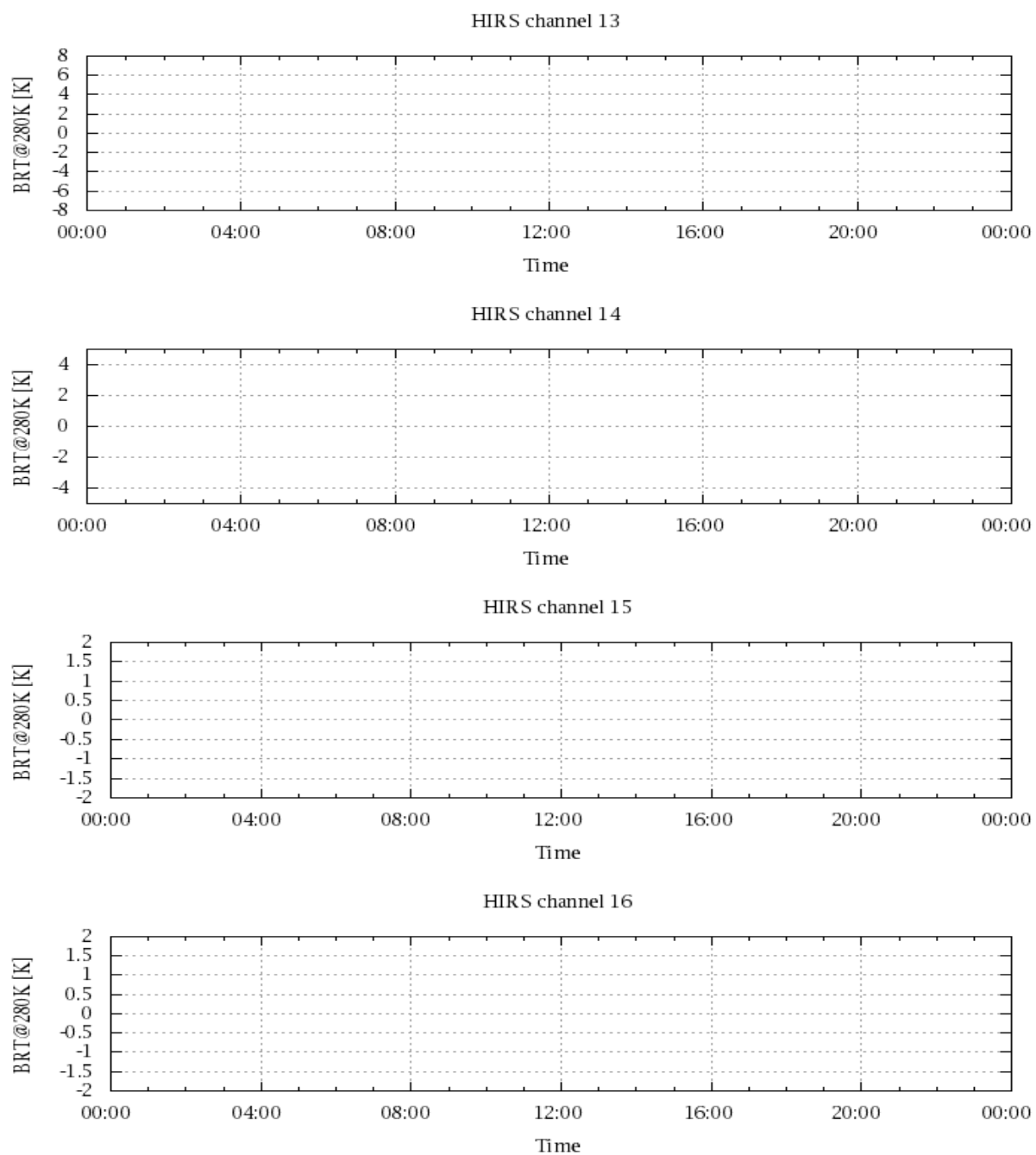


Figure 20: Radiance Differences in BT

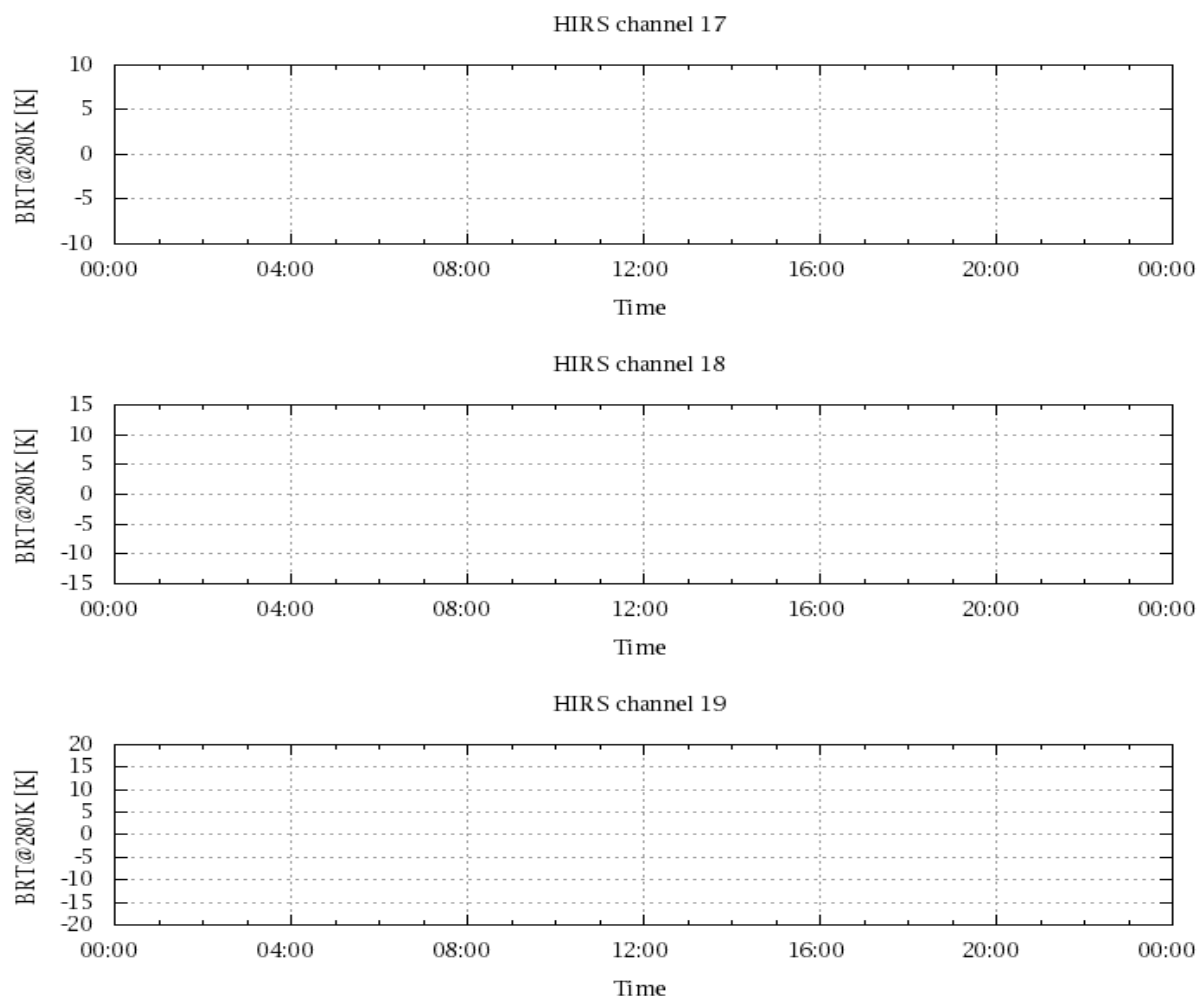


Figure 21: Radinace Differences in BT