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

IASI monitoring team

06/12/2025 00:00:00 - 07/12/2025 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 06/12/2025 00:00:00 - 07/12/2025 00:00:00 .

The monitoring data are extracted on PDU basis.

2   Data quantity 06/12/2025 00:00:00 - 07/12/2025 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	477	-
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)	10843	10887	20251206183411.214	20251206183422.242
PX1 (130)	10887	10889	20251206183422.242	20251206183422.675
PX1 (130)	10975	10977	20251206183445.808	20251206183446.242
PX1 (130)	10979	11103	20251206183446.671	20251206183521.050
PX1 (130)	11103	11106	20251206183521.050	20251206183521.699
PX1 (130)	11149	11160	20251206183532.511	20251206183536.402
PX2 (135)	10844	10888	20251206183411.433	20251206183422.456
PX2 (135)	10888	10890	20251206183422.456	20251206183424.406
PX2 (135)	10974	10976	20251206183445.593	20251206183446.027
PX2 (135)	10978	11104	20251206183446.456	20251206183521.265
PX2 (135)	11105	11107	20251206183521.484	20251206183521.917
PX2 (135)	11149	11160	20251206183532.511	20251206183536.402
PX3 (140)	10844	10887	20251206183411.433	20251206183422.242
PX3 (140)	10975	10977	20251206183445.808	20251206183446.242
PX3 (140)	10978	11104	20251206183446.456	20251206183521.265
PX3 (140)	11104	11106	20251206183521.265	20251206183521.699
PX3 (140)	11149	11160	20251206183532.511	20251206183536.402
PX4 (145)	10843	10889	20251206183411.214	20251206183422.675
PX4 (145)	10973	10975	20251206183445.374	20251206183445.808
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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	10976	10979	20251206183446.027	20251206183446.671
PX4 (145)	10979	11103	20251206183446.671	20251206183521.050
PX4 (145)	11103	11105	20251206183521.050	20251206183521.484
PX4 (145)	11149	11160	20251206183532.511	20251206183536.402
IMG (150)	12287	12334	20251206183411.214	20251206183422.027
IMG (150)	12439	12583	20251206183446.671	20251206183521.050
IMG (150)	12584	12586	20251206183521.265	20251206183521.699
IMG (150)	12633	12644	20251206183532.511	20251206183535.105
VER (160)	9996	10003	20251206183406.675	20251206183422.675
VER (160)	10016	10042	20251206183438.675	20251206183526.671
VER (160)	10046	10050	20251206183526.671	20251206183532.511
AUX (180)	8552	8554	20251206183407.109	20251206183423.109
AUX (180)	8556	8561	20251206183439.105	20251206183519.105

Table 2: L0 data gaps

3   Instrument modes

Time	Transition from	Transition to
06/12/2025 00:00:13	-	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	477	-
GQisFlagQual set (PX1)	99.67 %	-
GQisFlagQual set (PX2)	99.73 %	-
GQisFlagQual set (PX3)	99.74 %	-
GQisFlagQual set (PX4)	99.67 %	-
GQisFlagQual set (all)	99.70 %	-

Table 4: Quality flags

European Organisation for the Exploitation of Meteorological Satellites
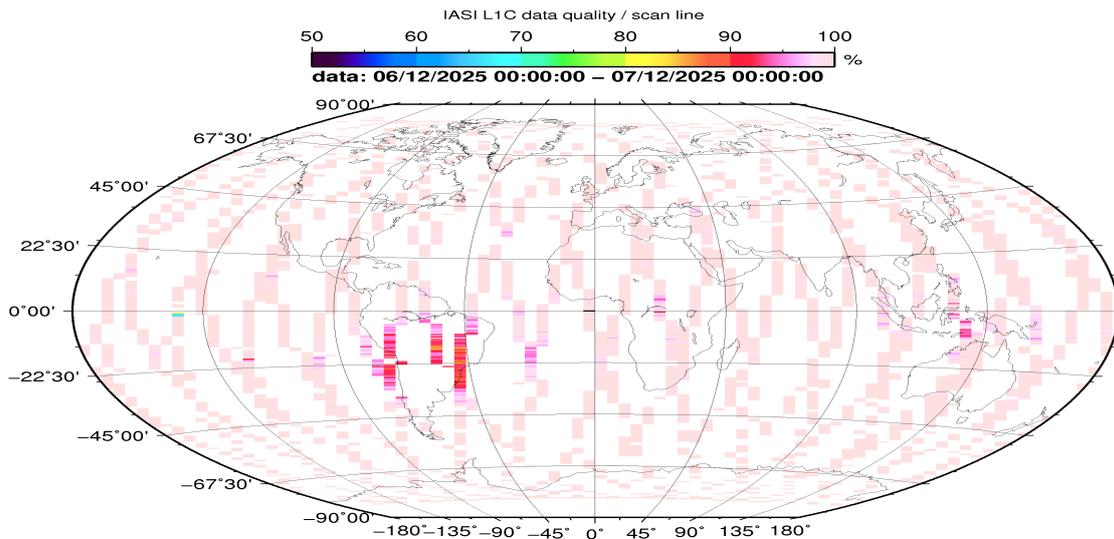
Figure 1: L1C data quality
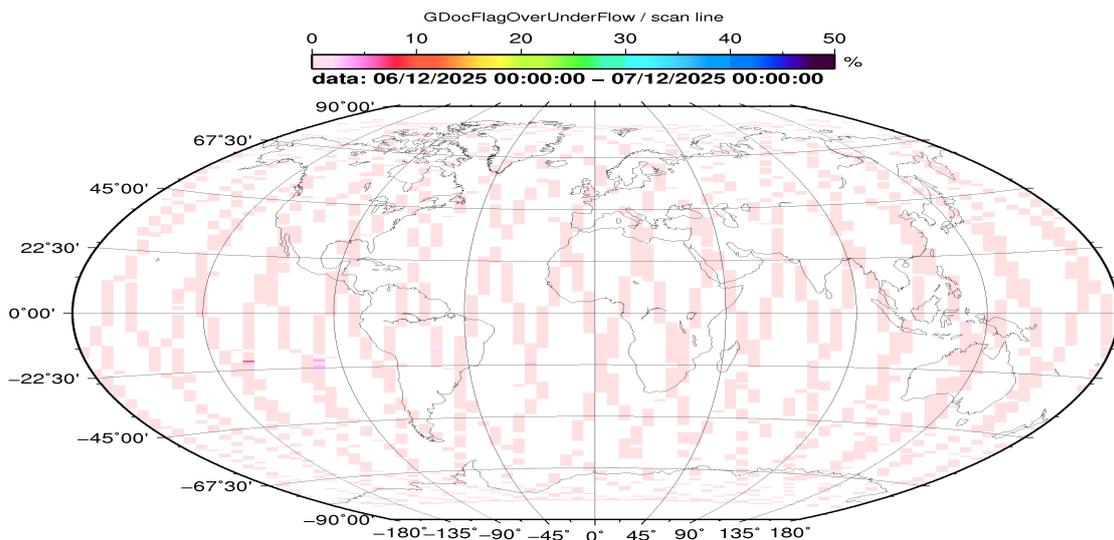
Figure 2: Flag of Over and Under Flows
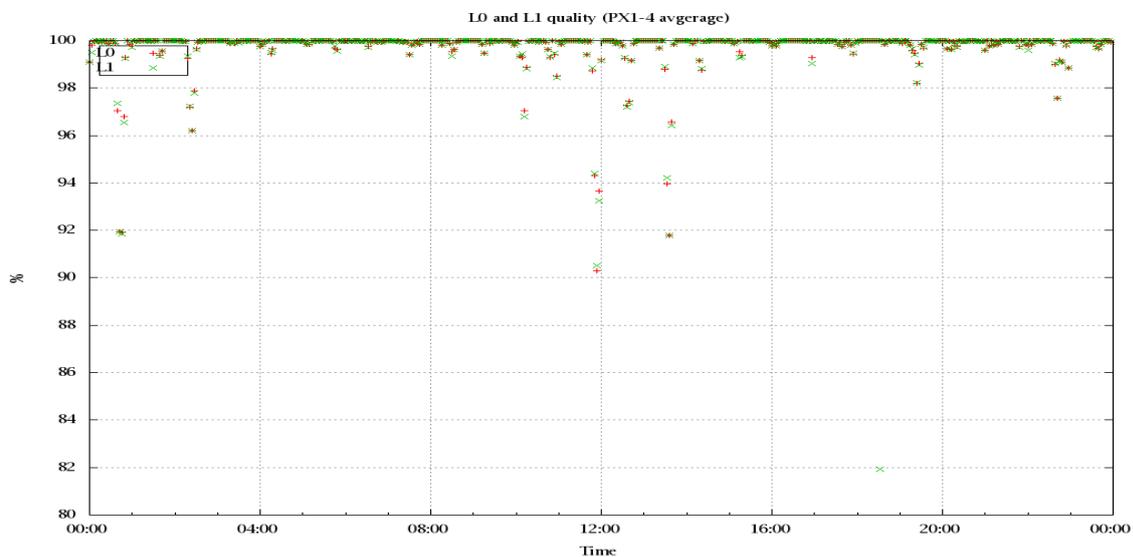
Figure 3: Level 0 and 1C overall quality
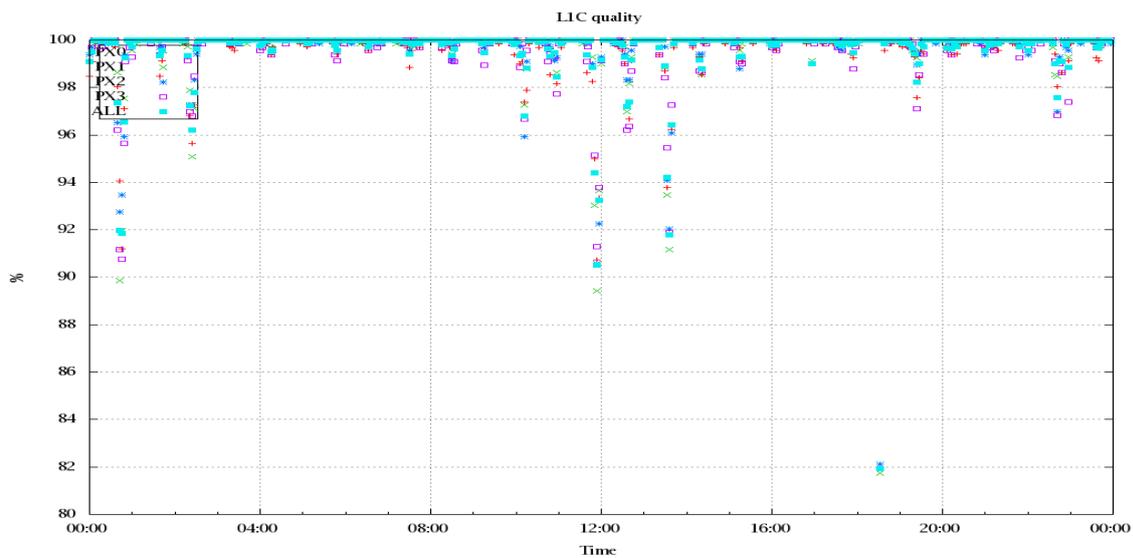
Figure 4: Level 1C quality
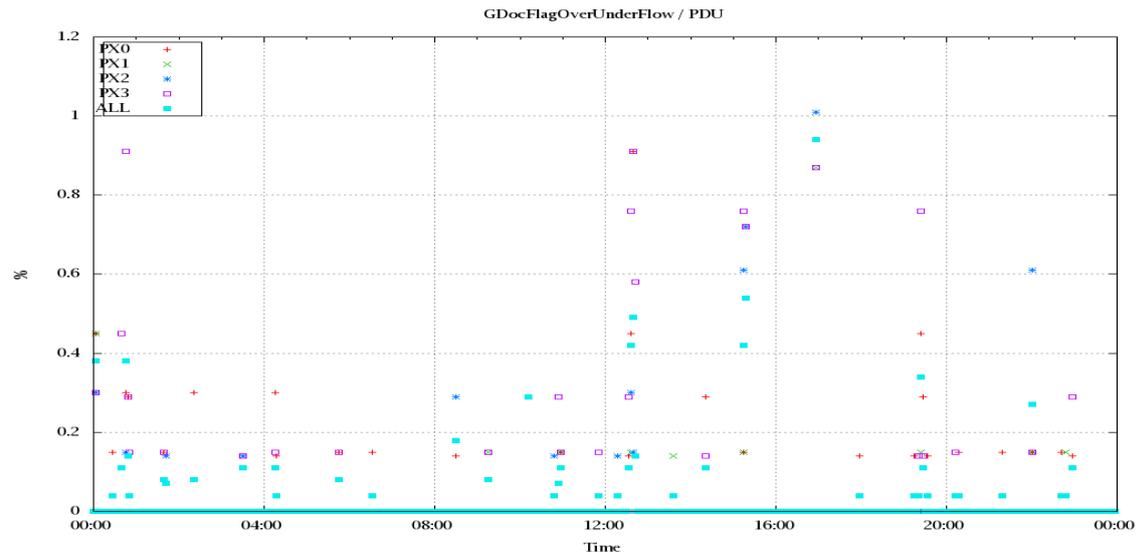
Figure 5: Timeseries of flag of Over and Under Flows

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.
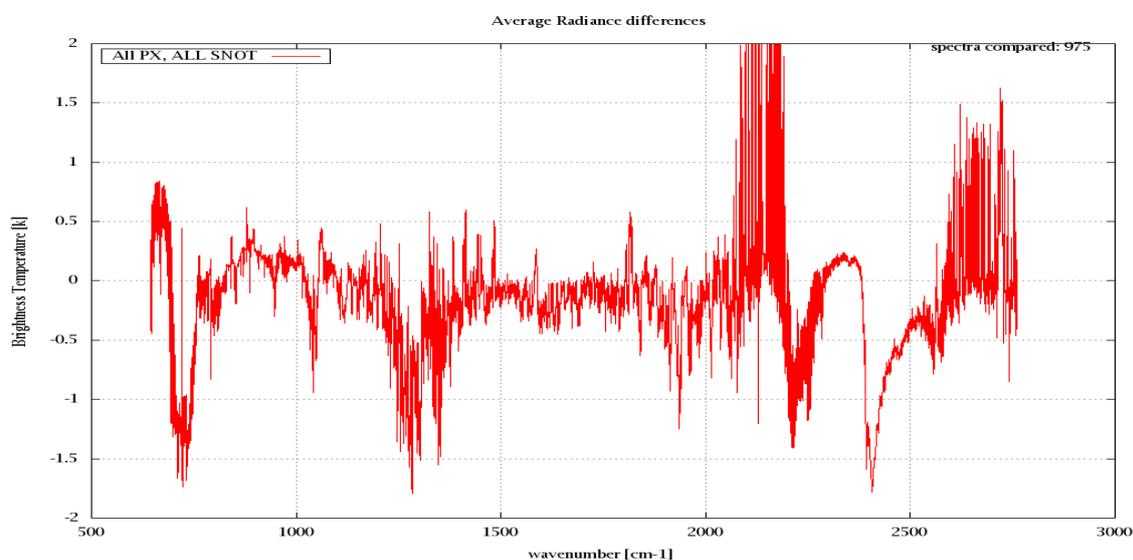
Figure 6: Average Radiance differences: OBS-CAL
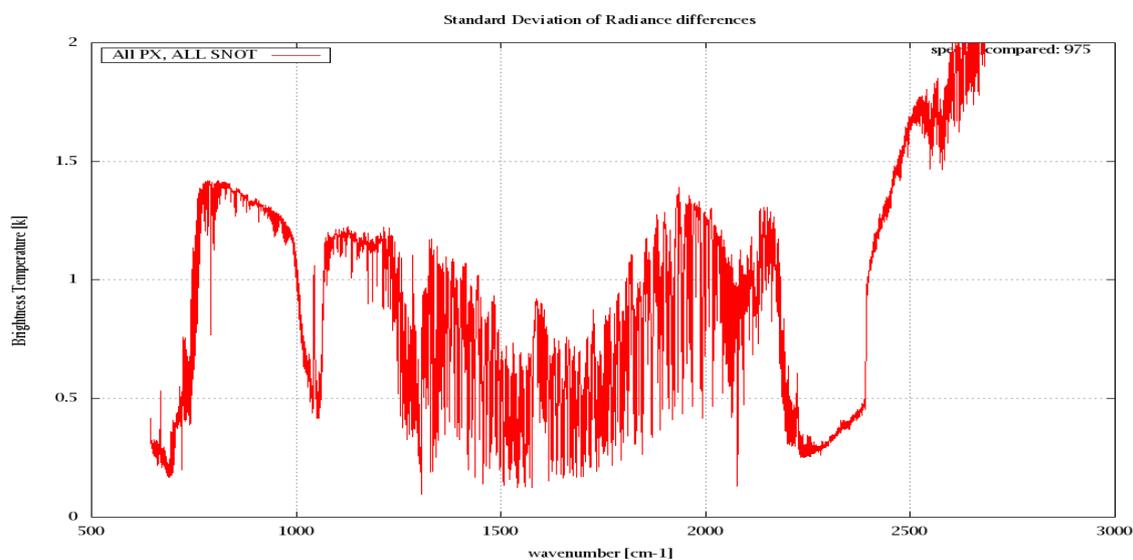
Figure 7: Standard Deviation of Radiance differences
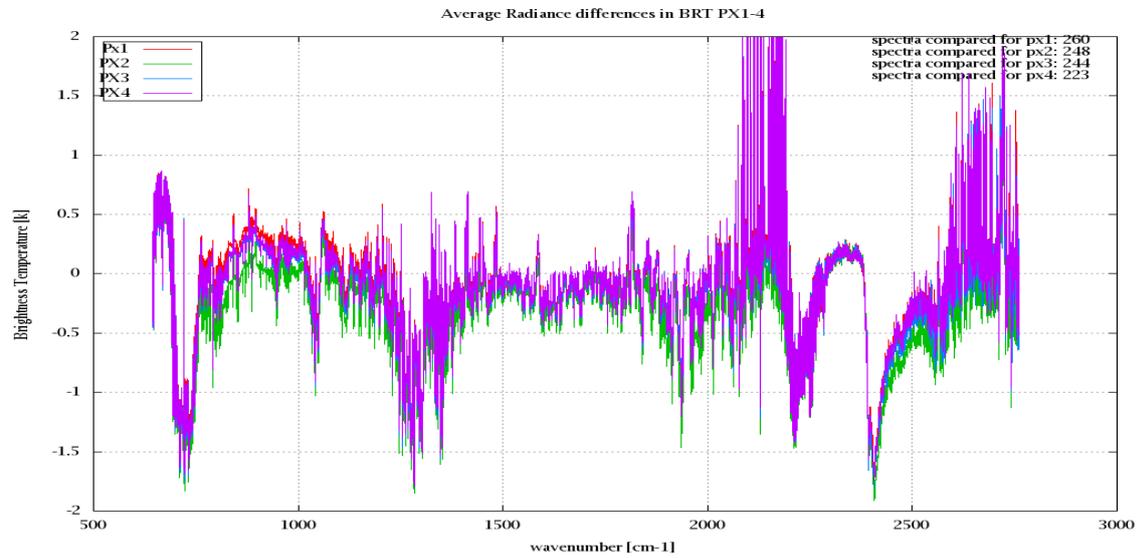
Figure 8: Average Radiance differences: OBS-CAL
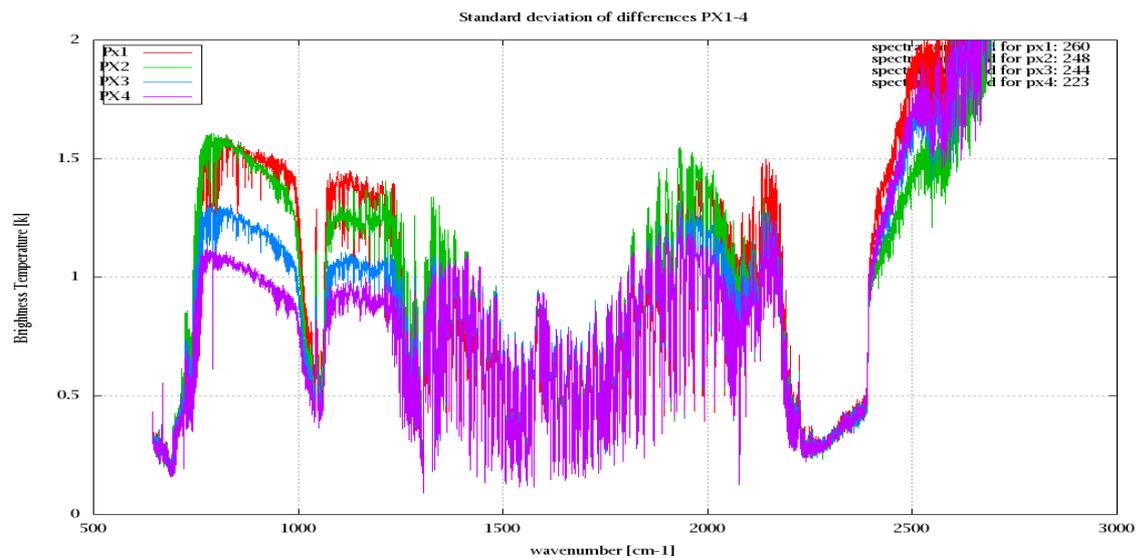

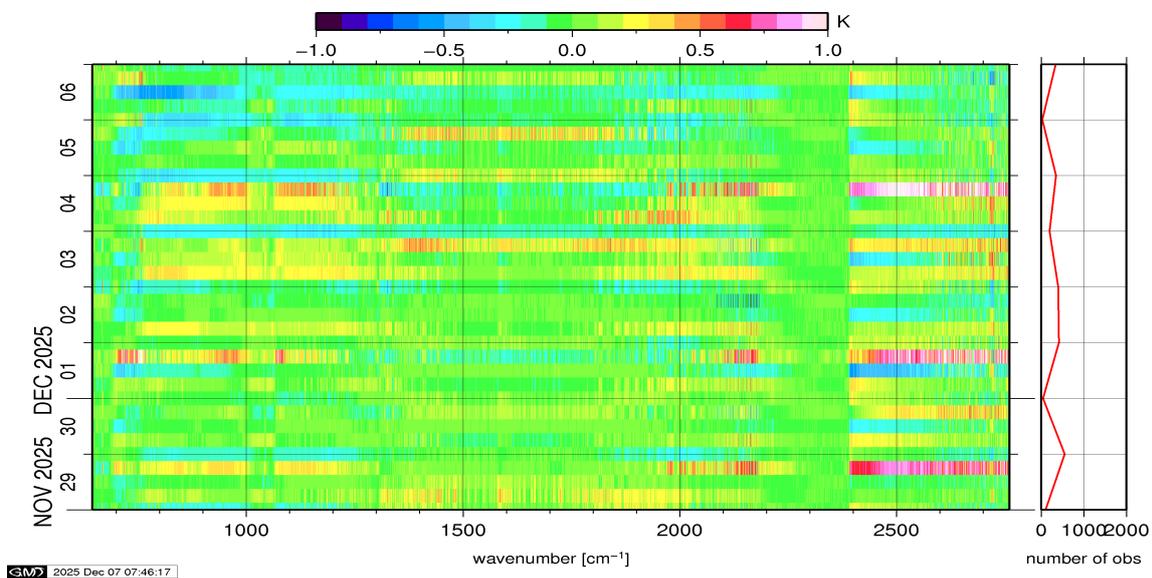Figure 9: Standard Deviation of Radiance differences

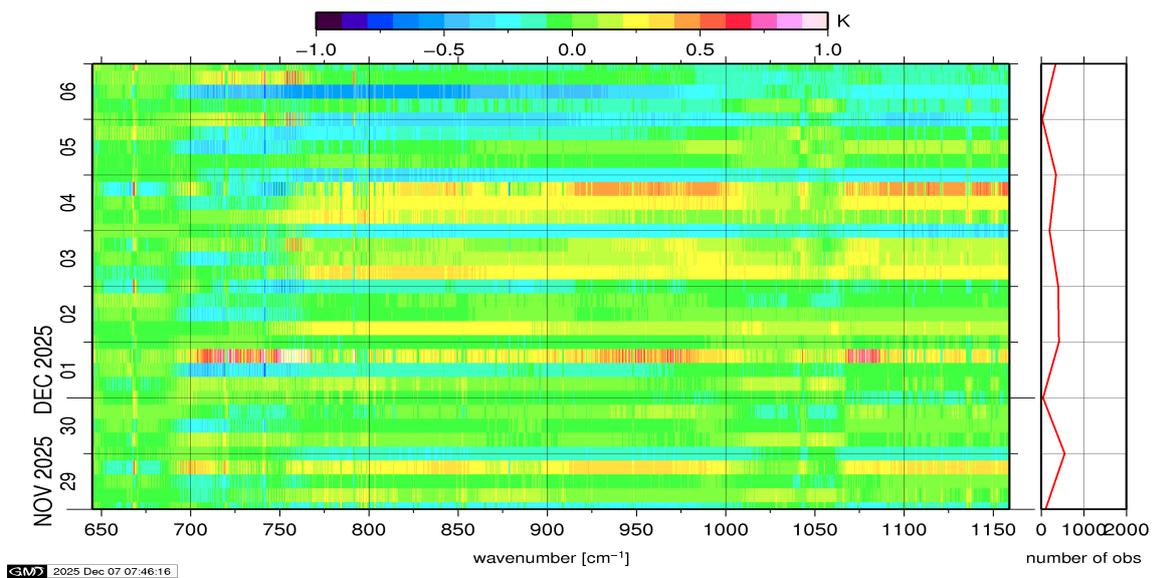Figure 10: Radiance Anomaly in BT: All Channels

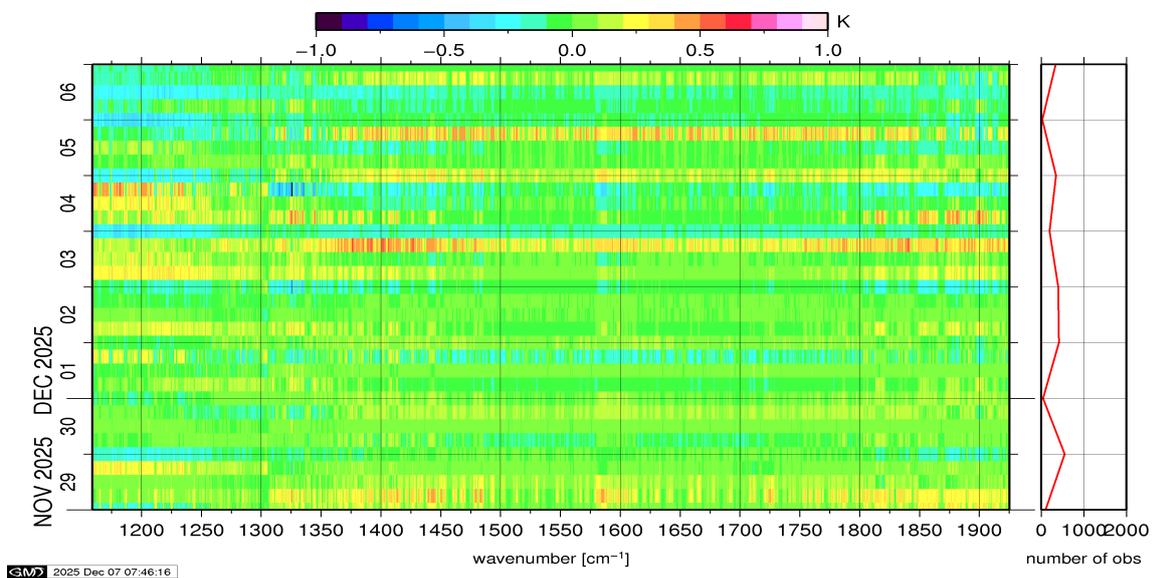Figure 11: Radiance Anomaly in BT: IASI Band 1

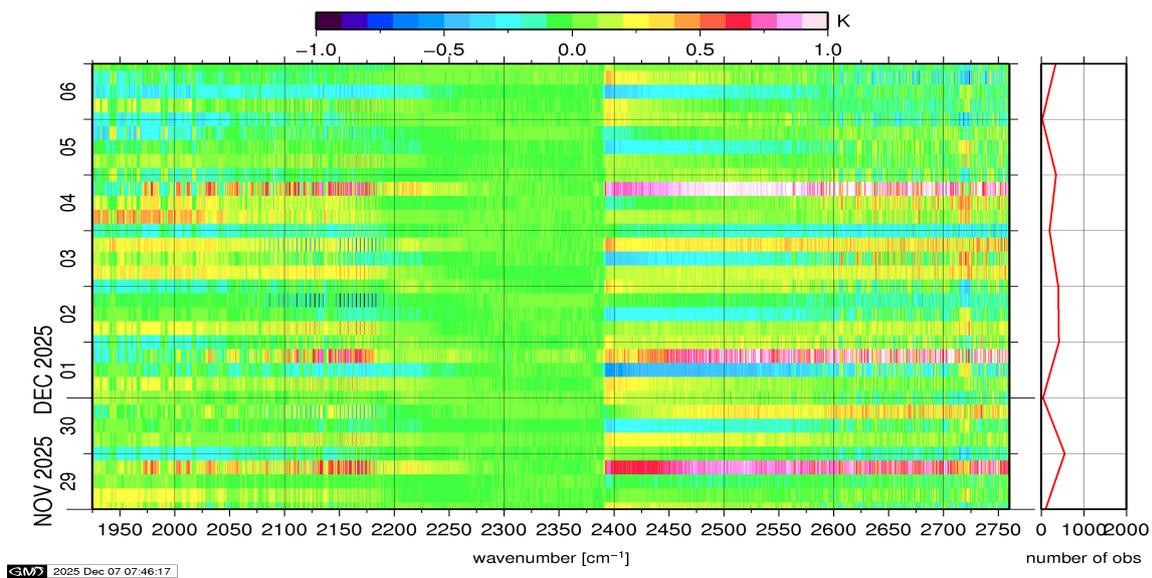Figure 12: Radiance Anomaly in BT: IASI Band 2
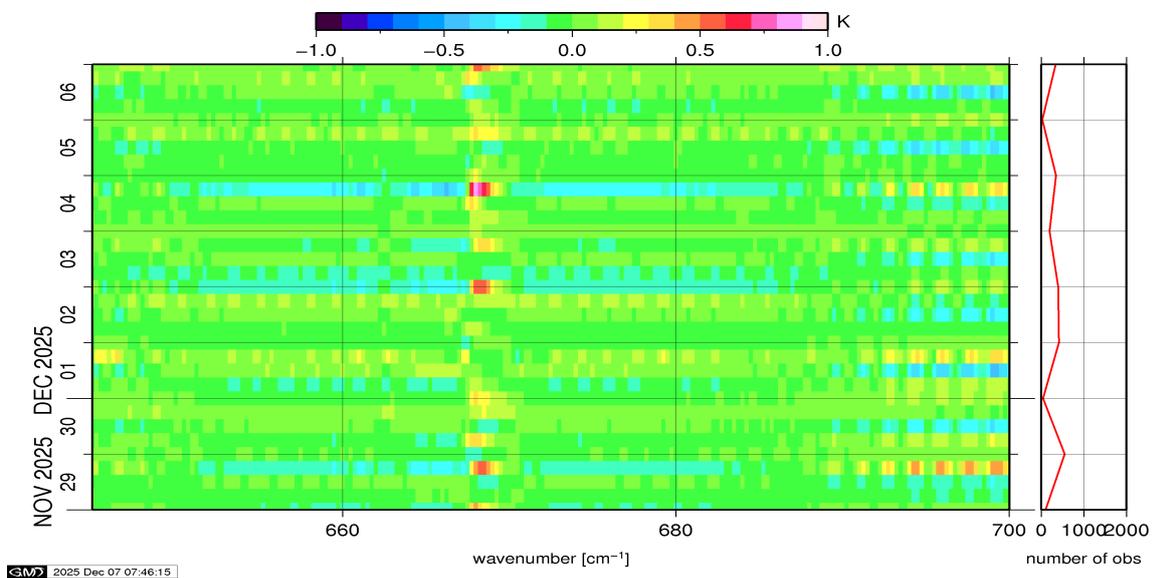

Figure 13: Radiance Anomaly in BT: IASI Band 3

Figure 14: Radiance Anomaly in BT: CO2 14

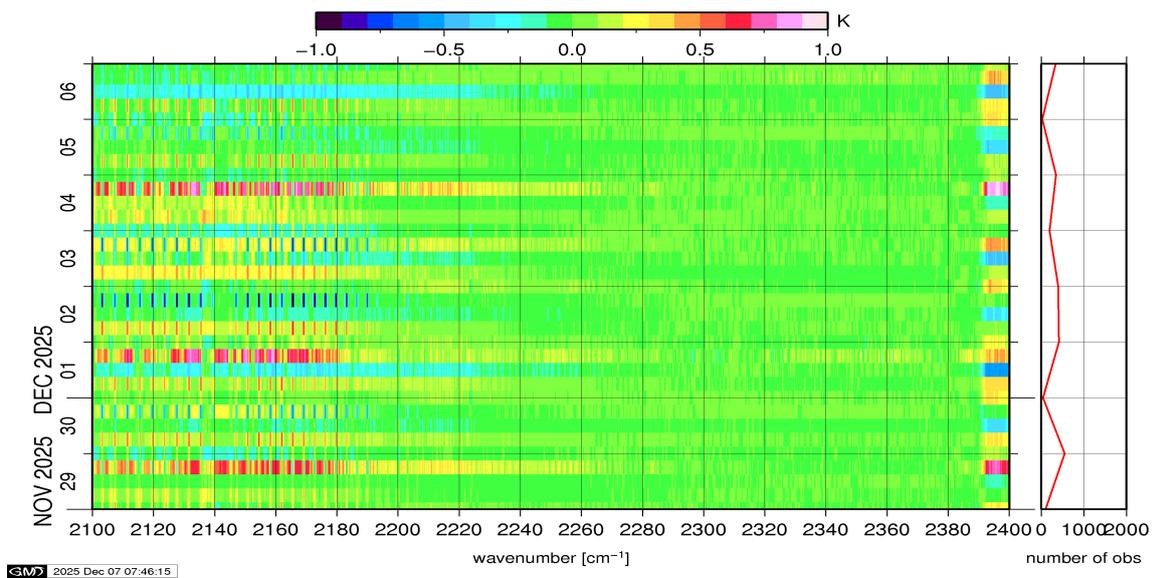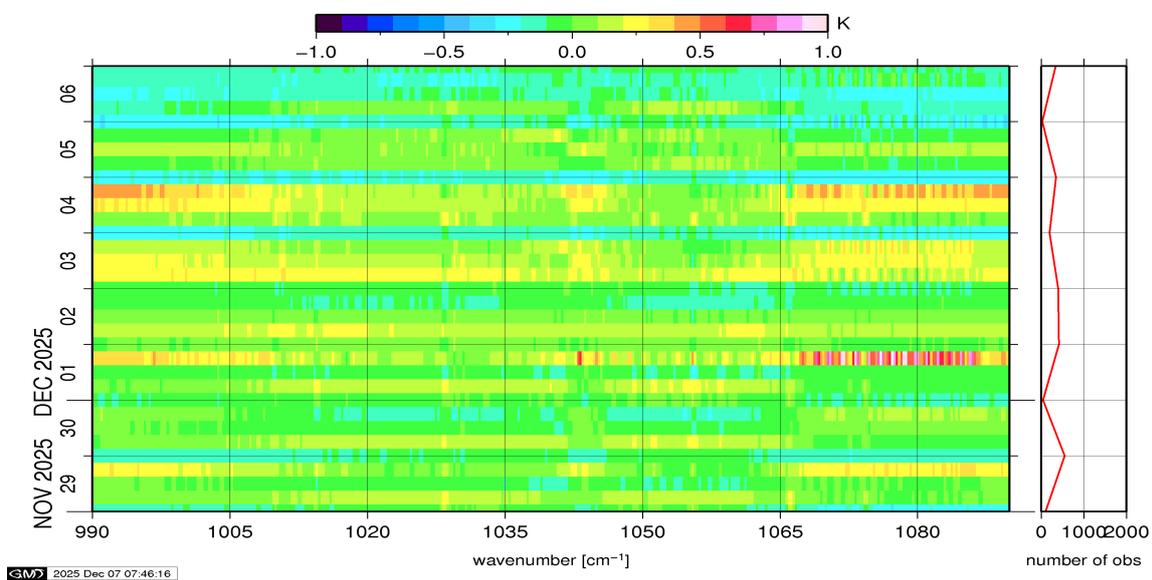Figure 15: Radiance Anomaly in BT: CO2 4.3

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.
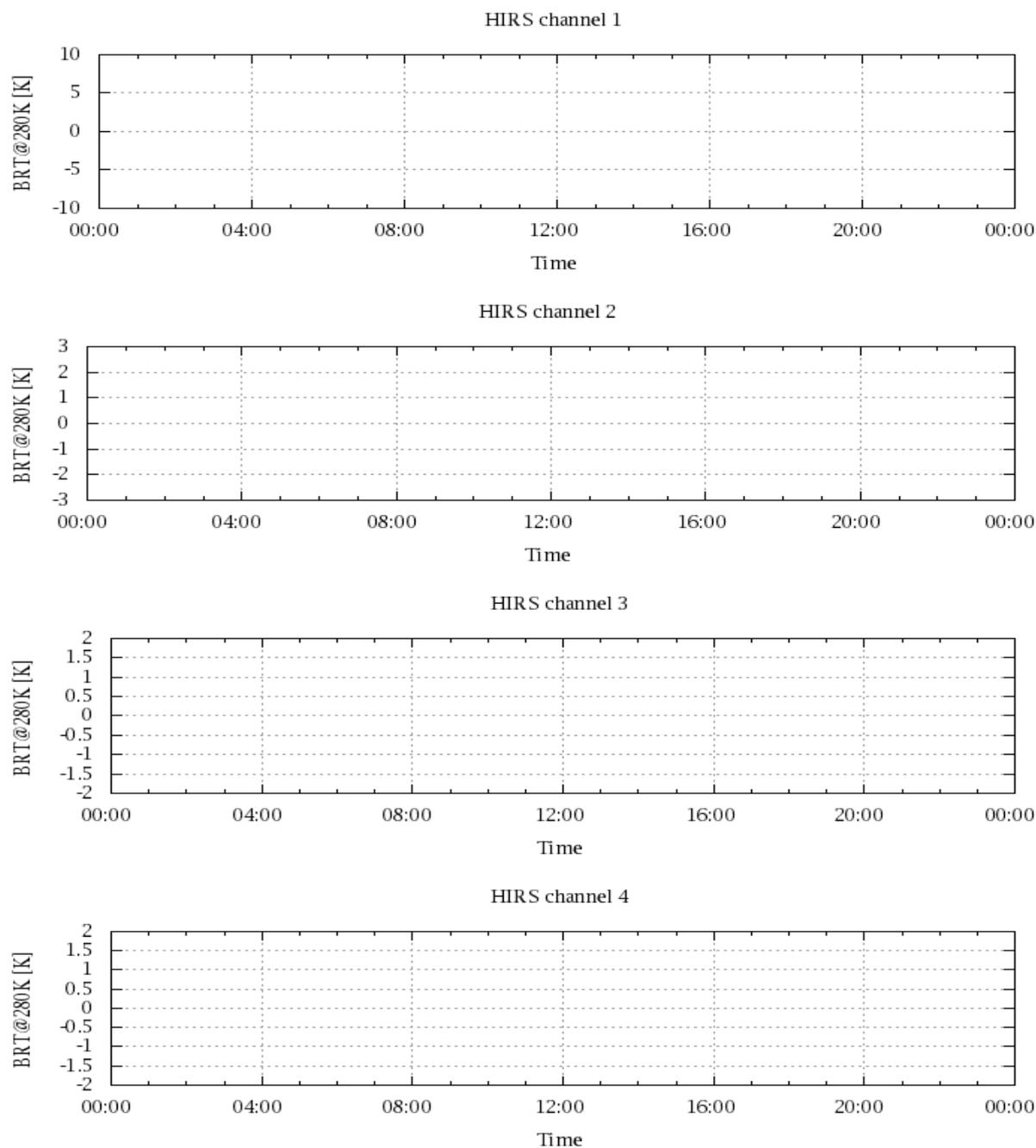

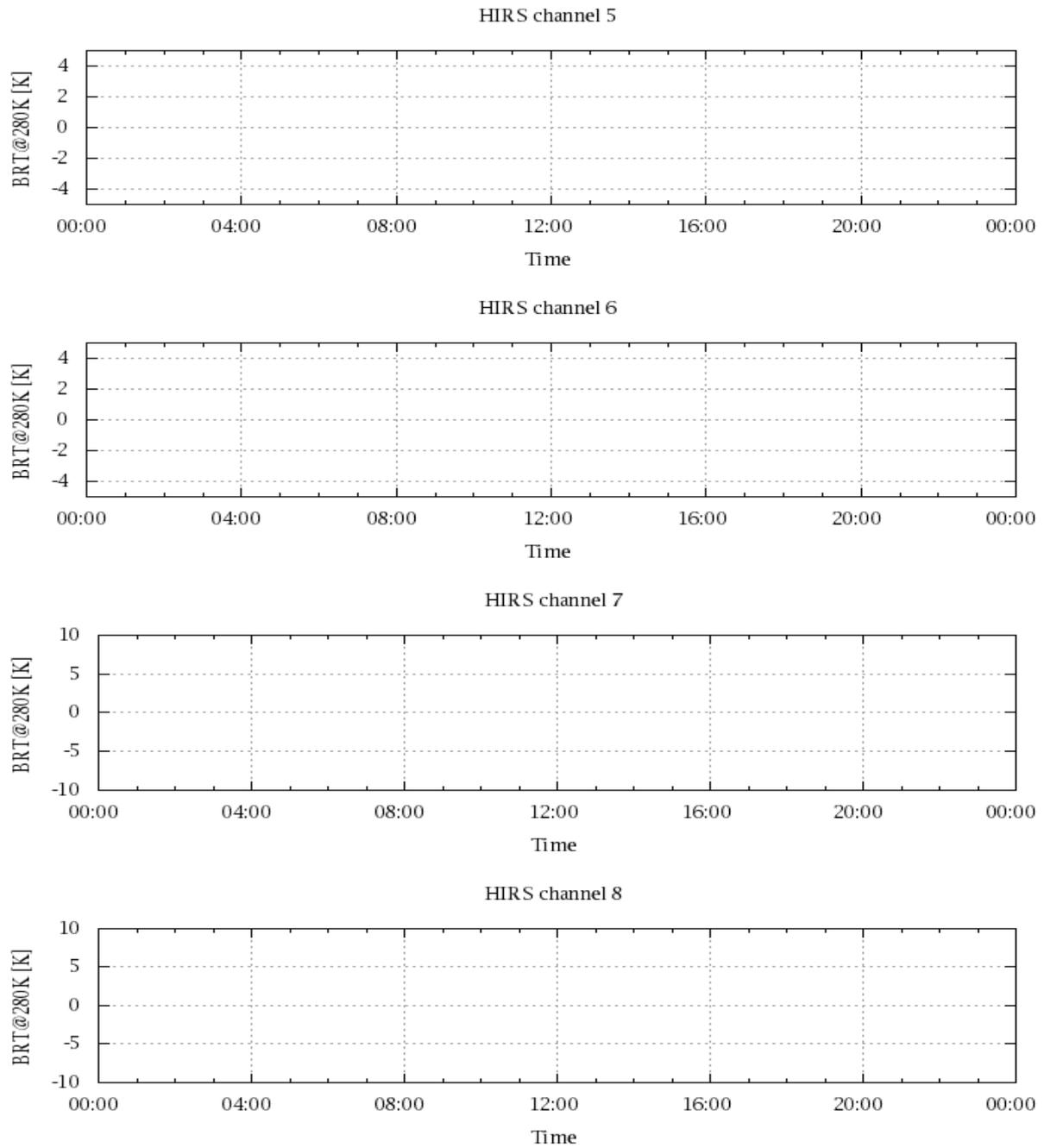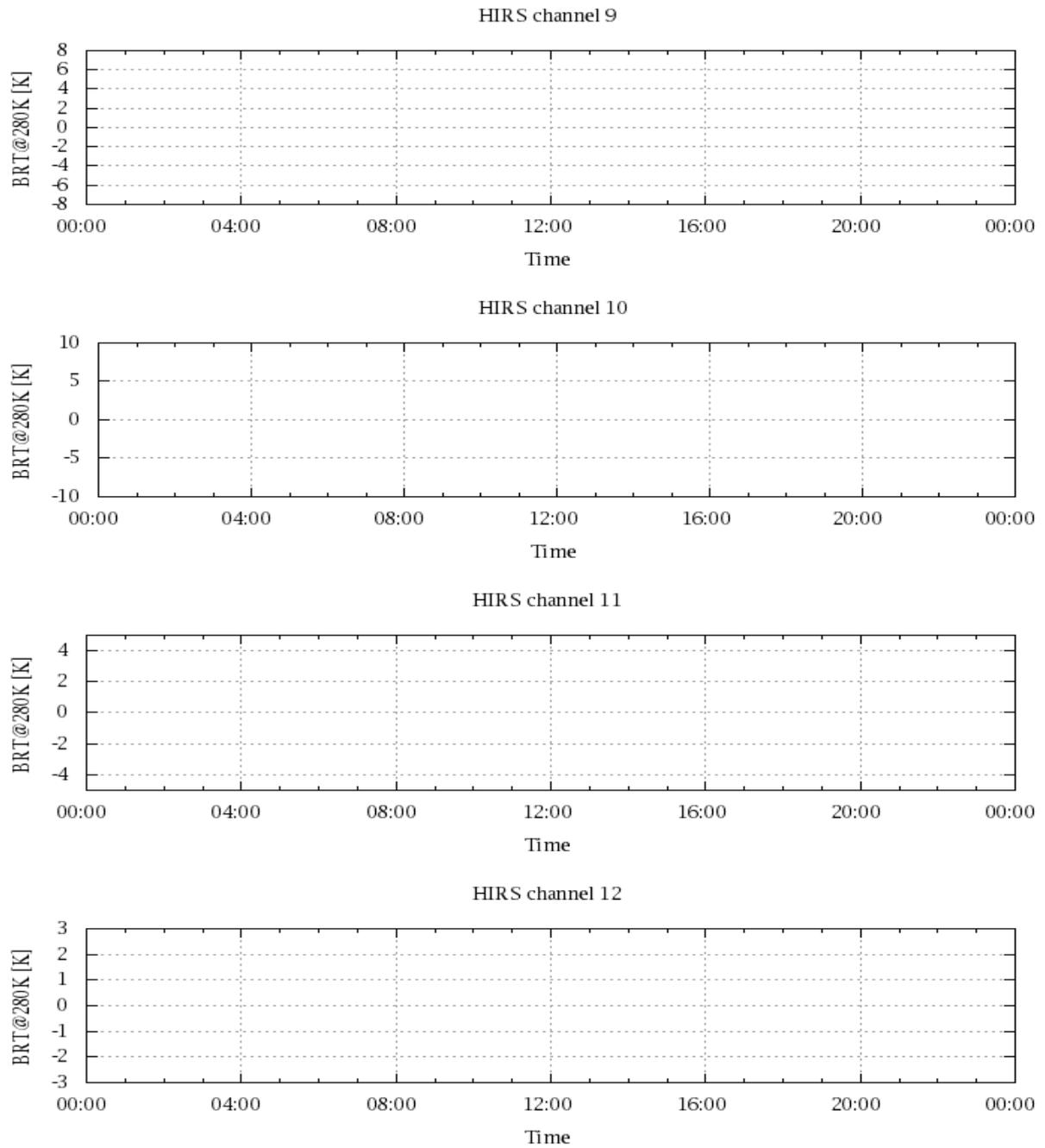Figure 17: Radiance Differences in BT

HIRS channel 5

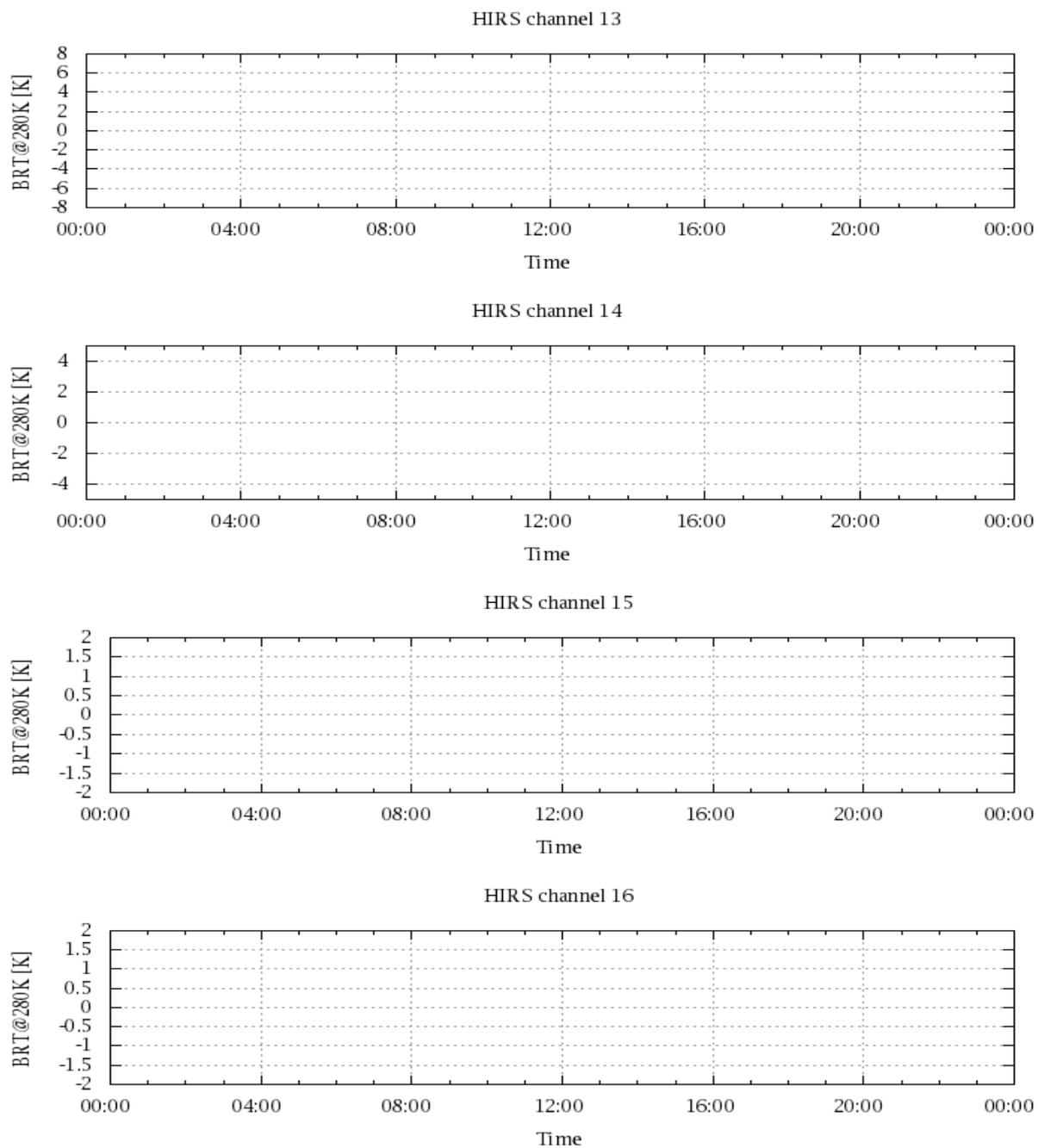HIRS channel 6

HIRS channel 7

HIRS channel 8

Figure 18: Radiance Differences in BT

Figure 19: Radiance Differences in BT

HIRS channel 13

HIRS channel 14

HIRS channel 15

HIRS channel 16

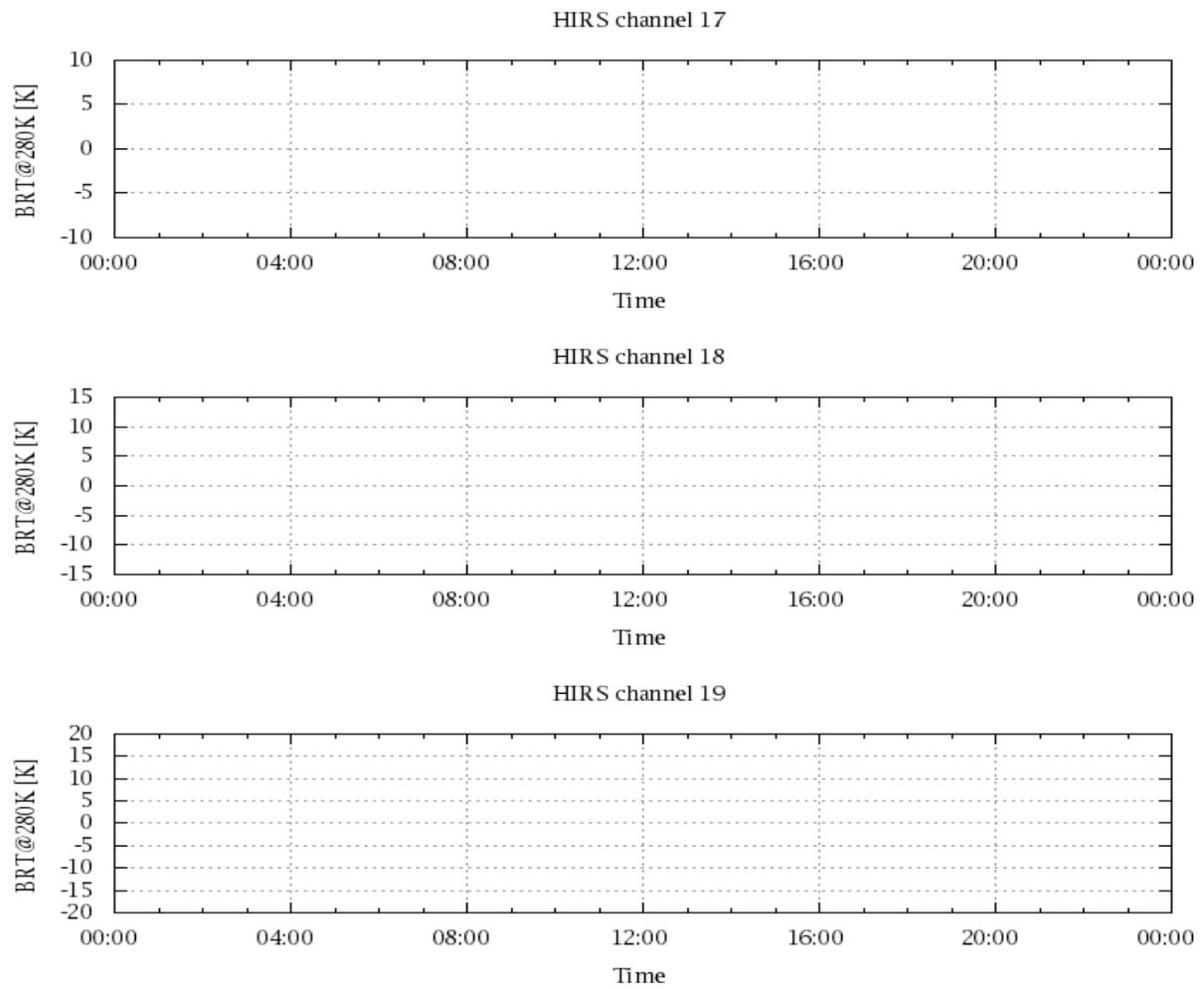Figure 20: Radiance Differences in BT

HIRS channel 17

HIRS channel 18

HIRS channel 19

Figure 21: Radinace Differences in BT