

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

IASI monitoring team

11/05/2024 00:00:00 - 12/05/2024 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 11/05/2024 00:00:00 - 12/05/2024 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 11/05/2024 00:00:00 - 12/05/2024 00:00:00

Product Type	Number	Action
L0 HKTU PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	479	-
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)	-	-	-	-
PX2 (135)	-	-	-	-
PX3 (140)	-	-	-	-
PX4 (145)	-	-	-	-
IMG (150)	-	-	-	-
VER (160)	7068	10749	20240511141125.512	20240511155109.310
VER (160)	10749	10754	20240511155109.310	20240511155109.310
VER (160)	10754	10759	20240511155109.310	20240511155109.310
VER (160)	10759	10764	20240511155109.310	20240511155109.310
VER (160)	10764	10769	20240511155109.310	20240511155109.310
VER (160)	10769	10774	20240511155109.310	20240511155109.310
VER (160)	10774	10779	20240511155109.310	20240511155109.310
VER (160)	10779	10784	20240511155109.310	20240511155109.310
VER (160)	10784	10789	20240511155109.310	20240511155109.310
VER (160)	10789	10794	20240511155109.310	20240511155109.310
VER (160)	10794	10799	20240511155109.310	20240511155109.310
VER (160)	10799	10750	20240511155109.310	20240511155109.310
VER (160)	10750	10755	20240511155109.310	20240511155109.310
VER (160)	10755	10760	20240511155109.310	20240511155109.310

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	10760	10765	20240511155109.310	20240511155109.310
VER (160)	10765	10770	20240511155109.310	20240511155109.310
VER (160)	10770	10775	20240511155109.310	20240511155109.310
VER (160)	10775	10780	20240511155109.310	20240511155109.310
VER (160)	10780	10785	20240511155109.310	20240511155109.310
VER (160)	10785	10790	20240511155109.310	20240511155109.310
VER (160)	10790	10795	20240511155109.310	20240511155109.310
VER (160)	10795	10800	20240511155109.310	20240511155109.310
VER (160)	10800	10751	20240511155109.310	20240511155109.310
VER (160)	10751	10756	20240511155109.310	20240511155109.310
VER (160)	10756	10761	20240511155109.310	20240511155109.310
VER (160)	10761	10766	20240511155109.310	20240511155109.310
VER (160)	10766	10771	20240511155109.310	20240511155109.310
VER (160)	10771	10776	20240511155109.310	20240511155109.310
VER (160)	10776	10781	20240511155109.310	20240511155109.310
VER (160)	10781	10786	20240511155109.310	20240511155109.310
VER (160)	10786	10791	20240511155109.310	20240511155109.310
VER (160)	10791	10796	20240511155109.310	20240511155109.310
VER (160)	10796	10801	20240511155109.310	20240511155109.310
VER (160)	10801	10752	20240511155109.310	20240511155109.310
VER (160)	10752	10757	20240511155109.310	20240511155109.310
VER (160)	10757	10762	20240511155109.310	20240511155109.310
VER (160)	10762	10767	20240511155109.310	20240511155109.310
VER (160)	10767	10772	20240511155109.310	20240511155109.310
VER (160)	10772	10777	20240511155109.310	20240511155109.310
VER (160)	10777	10782	20240511155109.310	20240511155109.310
VER (160)	10782	10787	20240511155109.310	20240511155109.310
VER (160)	10787	10792	20240511155109.310	20240511155109.310
VER (160)	10792	10797	20240511155109.310	20240511155109.310
VER (160)	10797	10802	20240511155109.310	20240511155109.310
VER (160)	10802	10753	20240511155109.310	20240511155109.310
VER (160)	10753	10758	20240511155109.310	20240511155109.310
VER (160)	10758	10763	20240511155109.310	20240511155109.310
VER (160)	10763	10768	20240511155109.310	20240511155109.310
VER (160)	10768	10773	20240511155109.310	20240511155109.310
VER (160)	10773	10778	20240511155109.310	20240511155109.310
VER (160)	10778	10783	20240511155109.310	20240511155109.310
VER (160)	10783	10788	20240511155109.310	20240511155109.310
VER (160)	10788	10793	20240511155109.310	20240511155109.310
VER (160)	10793	10798	20240511155109.310	20240511155109.310
VER (160)	10798	10803	20240511155109.310	20240511155109.310
VER (160)	5734	9500	20240511205245.490	20240511223504.703
VER (160)	9500	9505	20240511223504.703	20240511223504.703
VER (160)	9505	9510	20240511223504.703	20240511223504.703
VER (160)	9510	9515	20240511223504.703	20240511223504.703
VER (160)	9515	9520	20240511223504.703	20240511223504.703
VER (160)	9520	9525	20240511223504.703	20240511223504.703
VER (160)	9525	9530	20240511223504.703	20240511223504.703
VER (160)	9530	9535	20240511223504.703	20240511223504.703
VER (160)	9535	9540	20240511223504.703	20240511223504.703
VER (160)	9540	9545	20240511223504.703	20240511223504.703
VER (160)	9545	9550	20240511223504.703	20240511223504.703
VER (160)	9550	9555	20240511223504.703	20240511223504.703

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	9555	9560	20240511223504.703	20240511223504.703
VER (160)	9560	9565	20240511223504.703	20240511223504.703
VER (160)	9565	9501	20240511223504.703	20240511223504.703
VER (160)	9501	9506	20240511223504.703	20240511223504.703
VER (160)	9506	9511	20240511223504.703	20240511223504.703
VER (160)	9511	9516	20240511223504.703	20240511223504.703
VER (160)	9516	9521	20240511223504.703	20240511223504.703
VER (160)	9521	9526	20240511223504.703	20240511223504.703
VER (160)	9526	9531	20240511223504.703	20240511223504.703
VER (160)	9531	9536	20240511223504.703	20240511223504.703
VER (160)	9536	9541	20240511223504.703	20240511223504.703
VER (160)	9541	9546	20240511223504.703	20240511223504.703
VER (160)	9546	9551	20240511223504.703	20240511223504.703
VER (160)	9551	9556	20240511223504.703	20240511223504.703
VER (160)	9556	9561	20240511223504.703	20240511223504.703
VER (160)	9561	9566	20240511223504.703	20240511223504.703
VER (160)	9566	9502	20240511223504.703	20240511223504.703
VER (160)	9502	9507	20240511223504.703	20240511223504.703
VER (160)	9507	9512	20240511223504.703	20240511223504.703
VER (160)	9512	9517	20240511223504.703	20240511223504.703
VER (160)	9517	9522	20240511223504.703	20240511223504.703
VER (160)	9522	9527	20240511223504.703	20240511223504.703
VER (160)	9527	9532	20240511223504.703	20240511223504.703
VER (160)	9532	9537	20240511223504.703	20240511223504.703
VER (160)	9537	9542	20240511223504.703	20240511223504.703
VER (160)	9542	9547	20240511223504.703	20240511223504.703
VER (160)	9547	9552	20240511223504.703	20240511223504.703
VER (160)	9552	9557	20240511223504.703	20240511223504.703
VER (160)	9557	9562	20240511223504.703	20240511223504.703
VER (160)	9562	9567	20240511223504.703	20240511223504.703
VER (160)	9567	9503	20240511223504.703	20240511223504.703
VER (160)	9503	9508	20240511223504.703	20240511223504.703
VER (160)	9508	9513	20240511223504.703	20240511223504.703
VER (160)	9513	9518	20240511223504.703	20240511223504.703
VER (160)	9518	9523	20240511223504.703	20240511223504.703
VER (160)	9523	9528	20240511223504.703	20240511223504.703
VER (160)	9528	9533	20240511223504.703	20240511223504.703
VER (160)	9533	9538	20240511223504.703	20240511223504.703
VER (160)	9538	9543	20240511223504.703	20240511223504.703
VER (160)	9543	9548	20240511223504.703	20240511223504.703
VER (160)	9548	9553	20240511223504.703	20240511223504.703
VER (160)	9553	9558	20240511223504.703	20240511223504.703
VER (160)	9558	9563	20240511223504.703	20240511223504.703
VER (160)	9563	9568	20240511223504.703	20240511223504.703
VER (160)	9568	9504	20240511223504.703	20240511223504.703
VER (160)	9504	9509	20240511223504.703	20240511223504.703
VER (160)	9509	9514	20240511223504.703	20240511223504.703
VER (160)	9514	9519	20240511223504.703	20240511223504.703
VER (160)	9519	9524	20240511223504.703	20240511223504.703
VER (160)	9524	9529	20240511223504.703	20240511223504.703
VER (160)	9529	9534	20240511223504.703	20240511223504.703
VER (160)	9534	9539	20240511223504.703	20240511223504.703
VER (160)	9539	9544	20240511223504.703	20240511223504.703
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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	9544	9549	20240511223504.703	20240511223504.703
VER (160)	9549	9554	20240511223504.703	20240511223504.703
VER (160)	9554	9559	20240511223504.703	20240511223504.703
VER (160)	9559	9564	20240511223504.703	20240511223504.703
VER (160)	9564	9569	20240511223504.703	20240511223504.703
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
11/05/2024 00:00:03	-	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	479	-
GQisFlagQual set (PX1)	99.67 %	-
GQisFlagQual set (PX2)	99.72 %	-
GQisFlagQual set (PX3)	99.74 %	-
GQisFlagQual set (PX4)	99.65 %	-
GQisFlagQual set (all)	99.70 %	-

Table 4: Quality flags

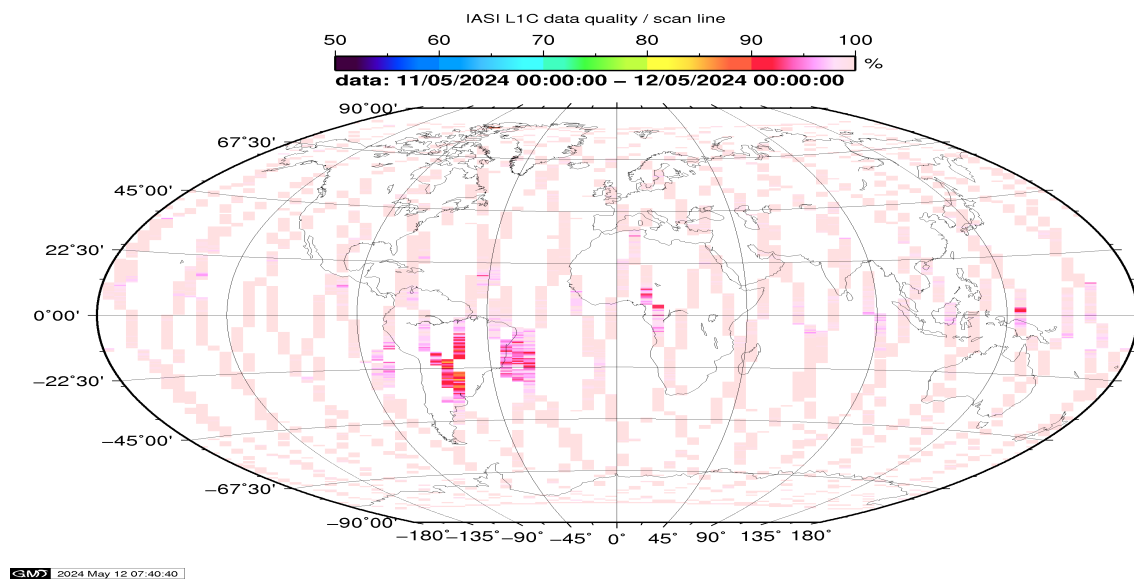


Figure 1: L1C data quality

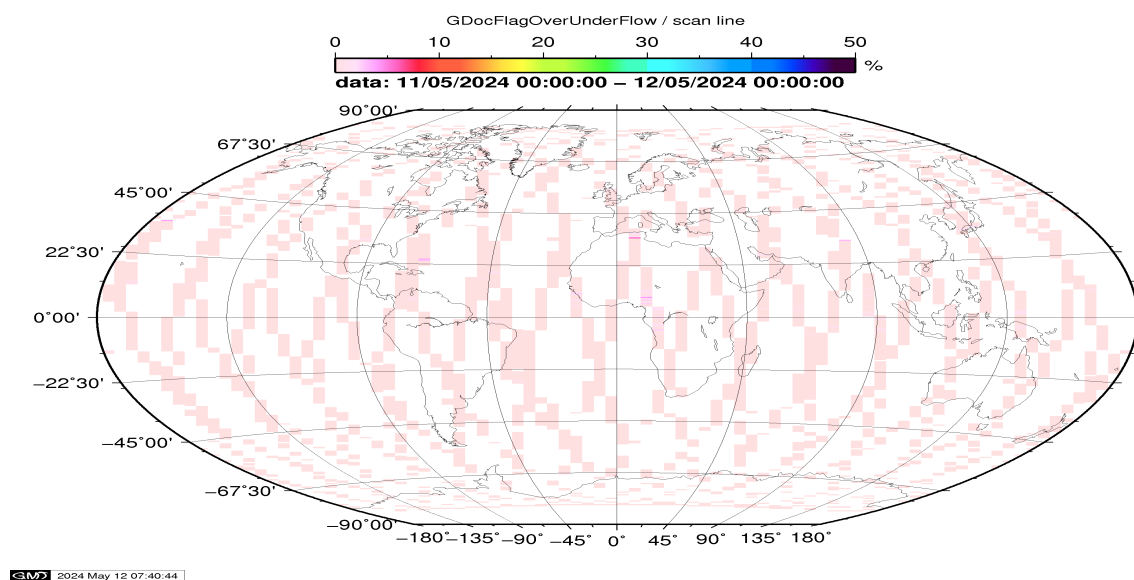


Figure 2: Flag of Over and Under Flows

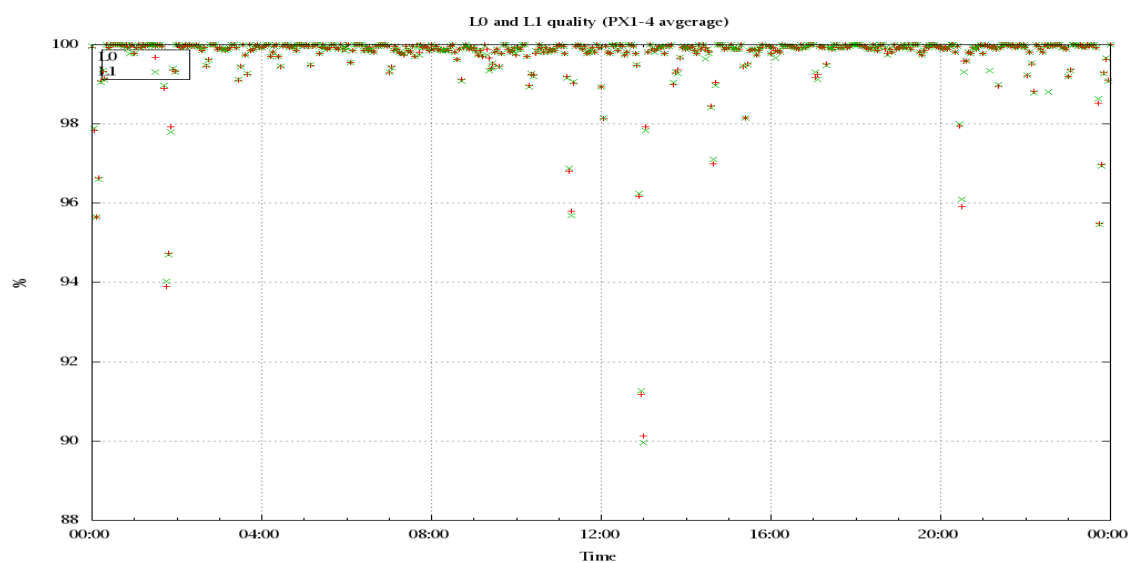


Figure 3: Level 0 and 1C overall quality

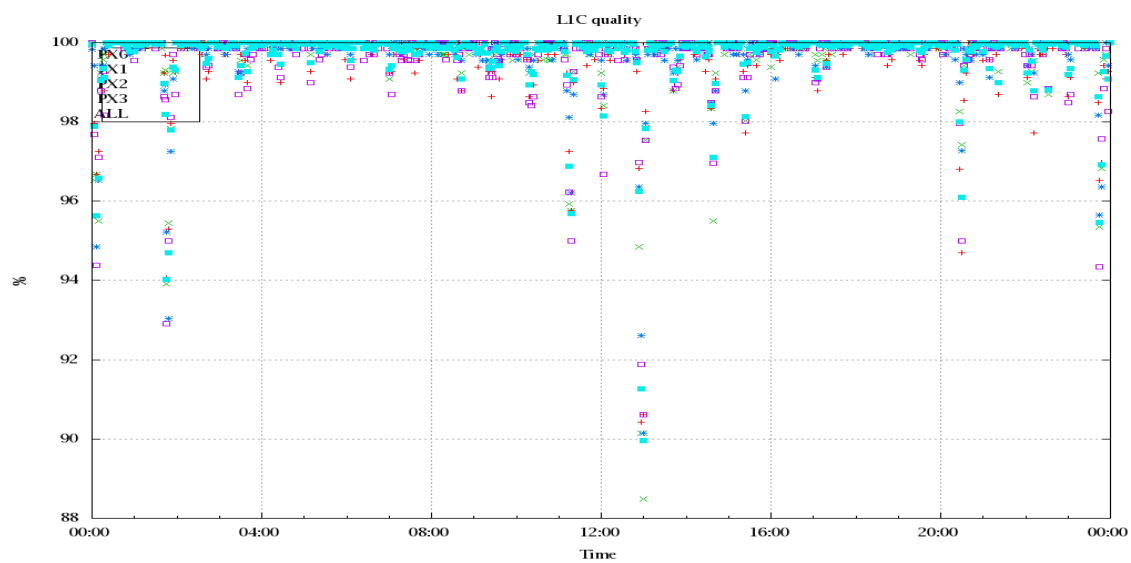


Figure 4: Level 1C quality

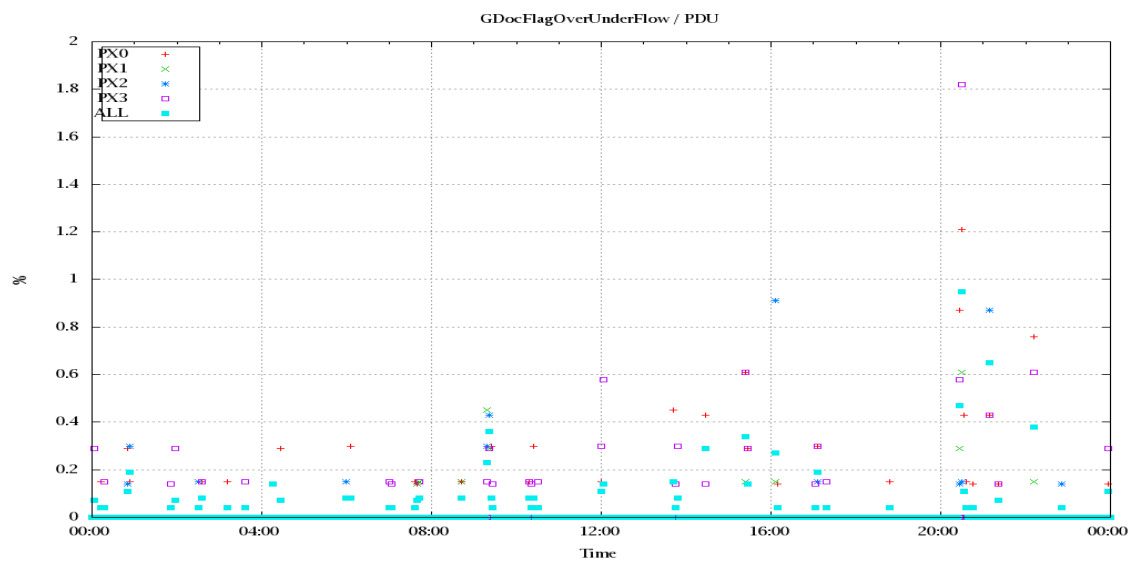


Figure 5: Timeseries of flag of Over and Under Flows

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.

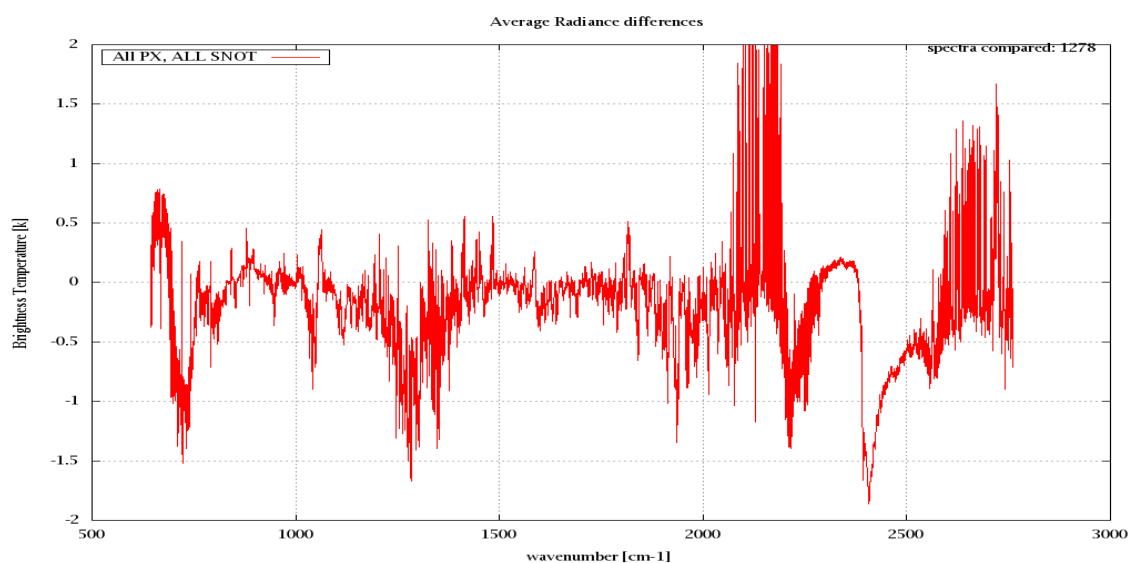


Figure 6: Average Radiance differences: OBS-CAL

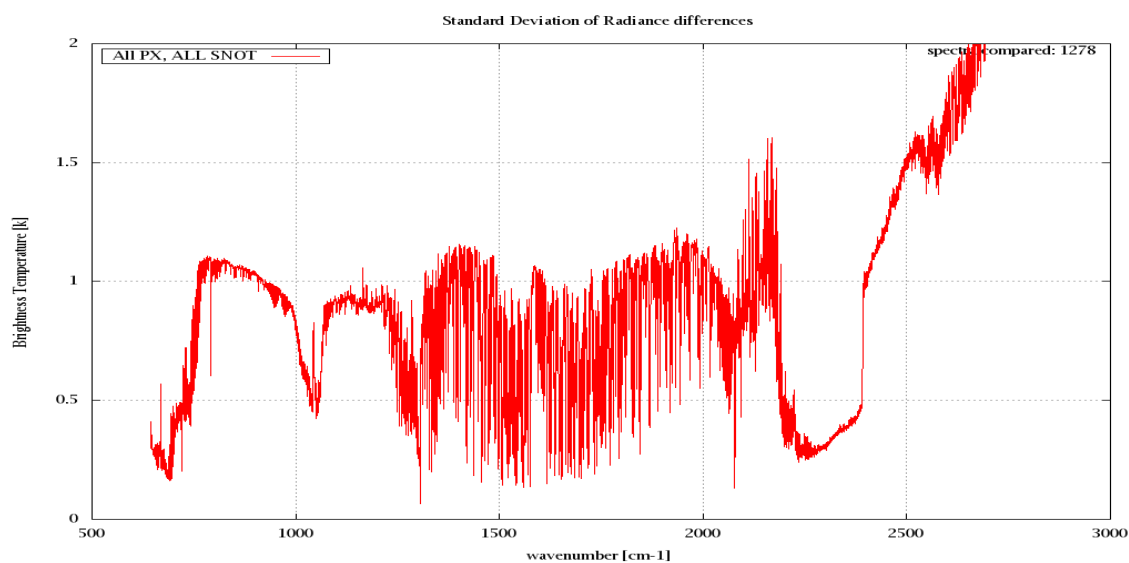


Figure 7: Standard Deviation of Radiance differences

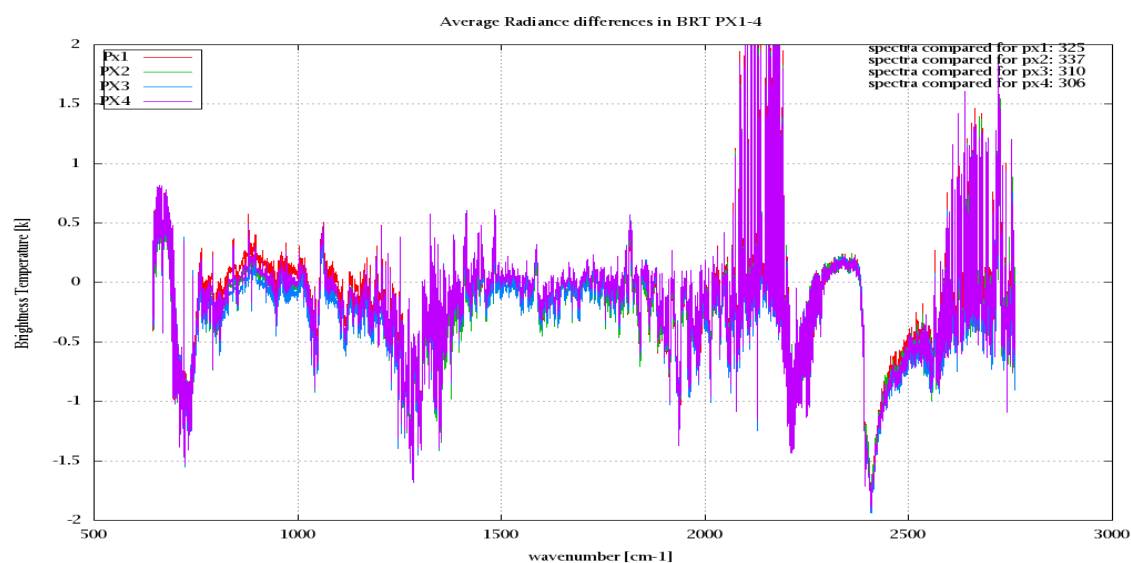


Figure 8: Average Radiance differences: OBS-CAL

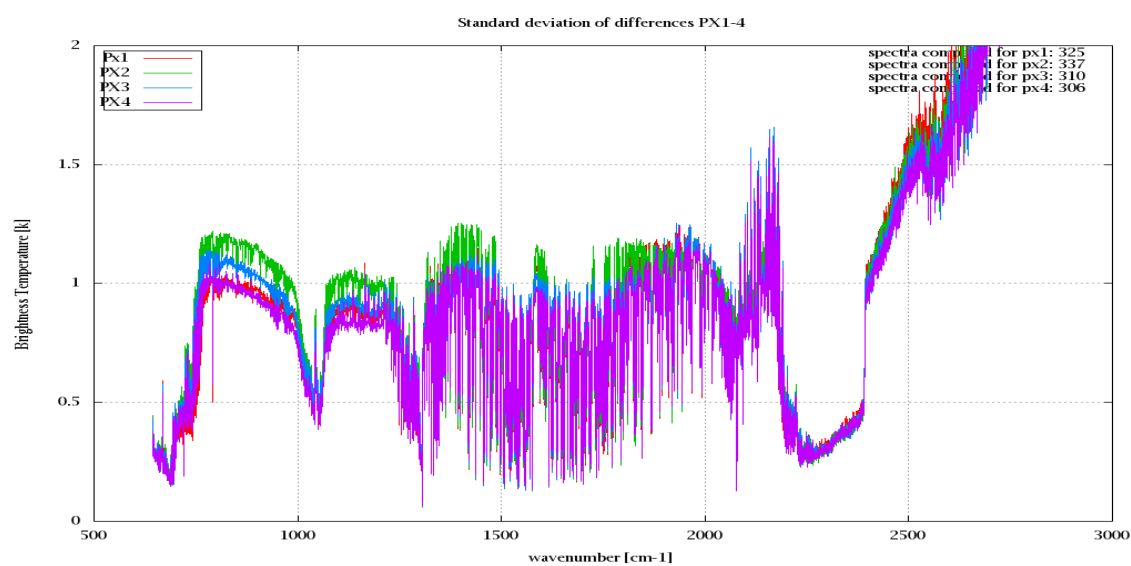


Figure 9: Standard Deviation of Radiance differences

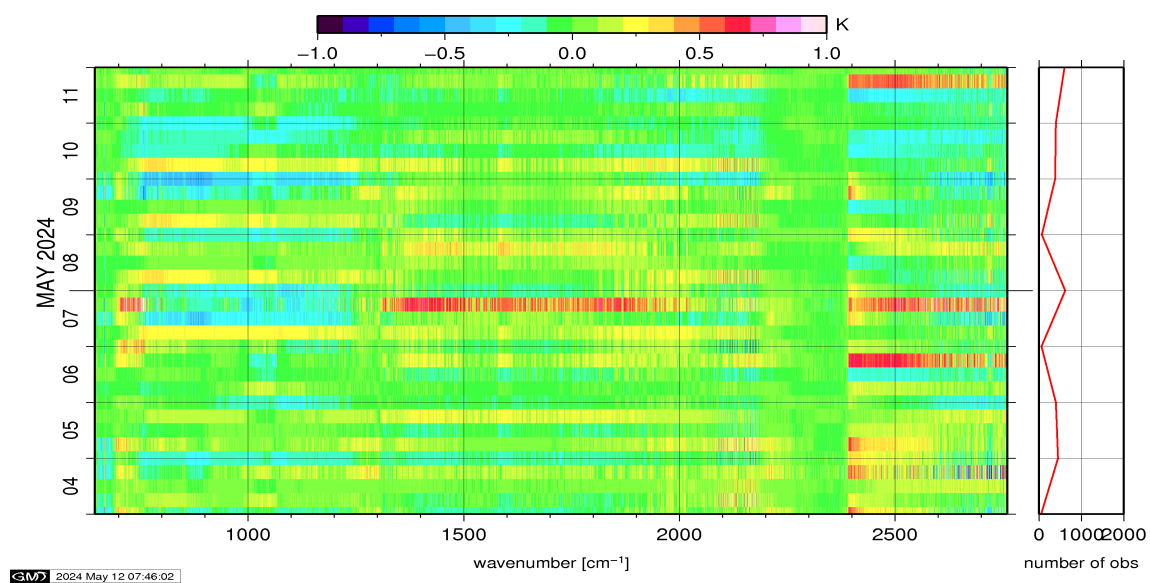


Figure 10: Radiance Anomaly in BT: All Channels

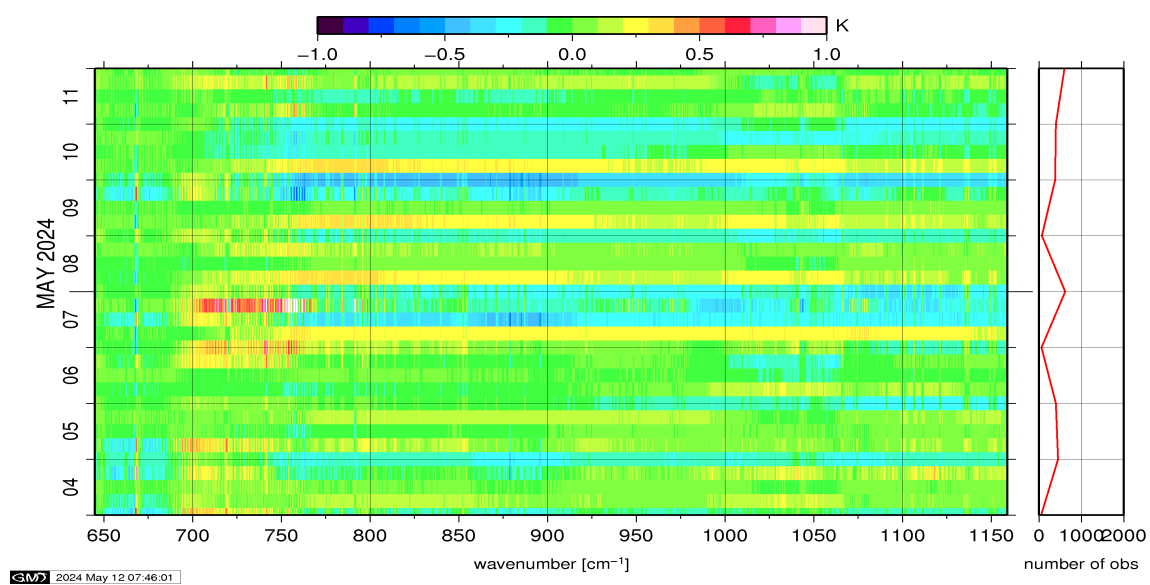


Figure 11: Radiance Anomaly in BT: IASI Band 1

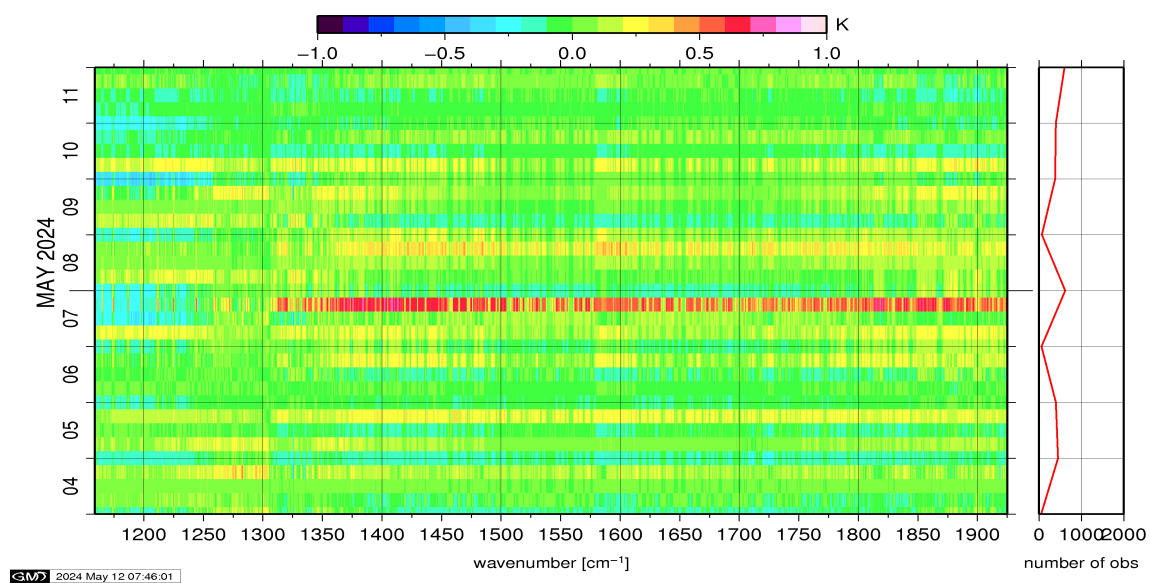


Figure 12: Radiance Anomaly in BT: IASI Band 2

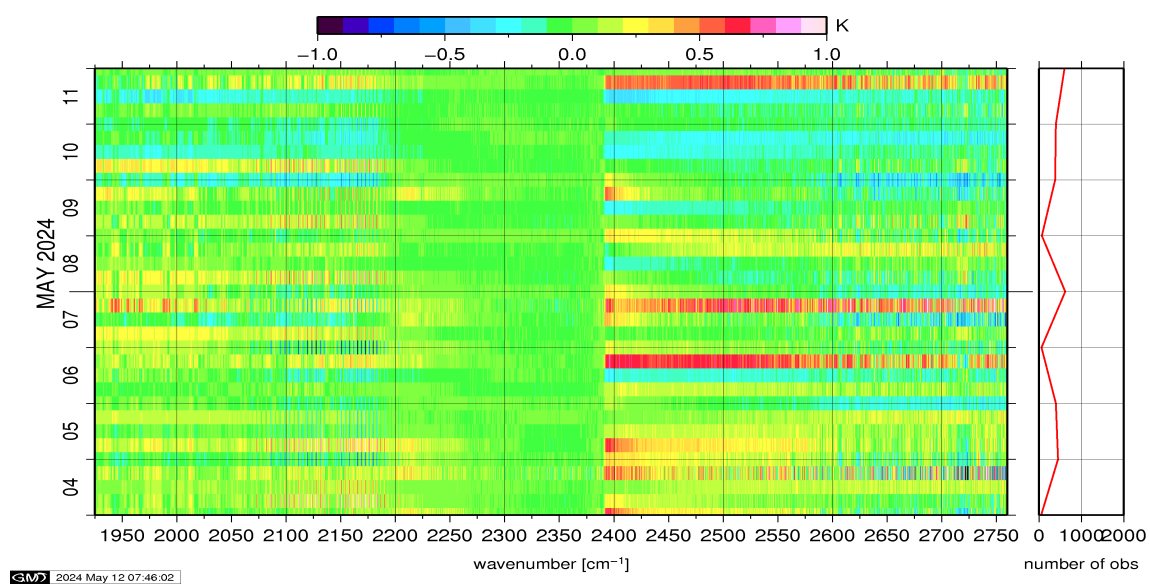


Figure 13: Radiance Anomaly in BT: IASI Band 3

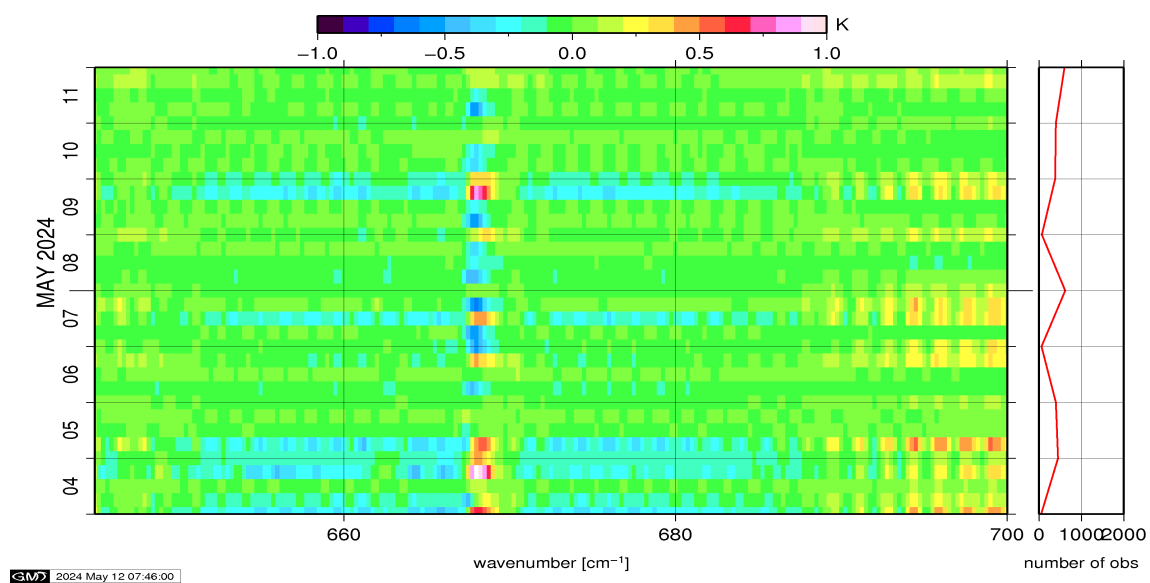


Figure 14: Radiance Anomaly in BT: CO2 14

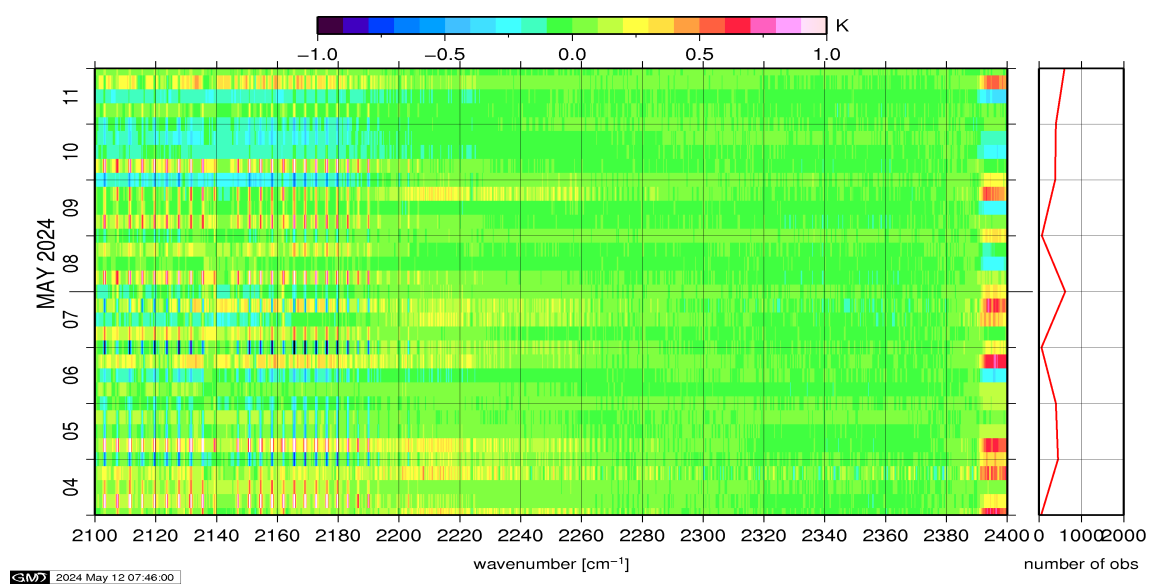


Figure 15: Radiance Anomaly in BT: CO2 4.3

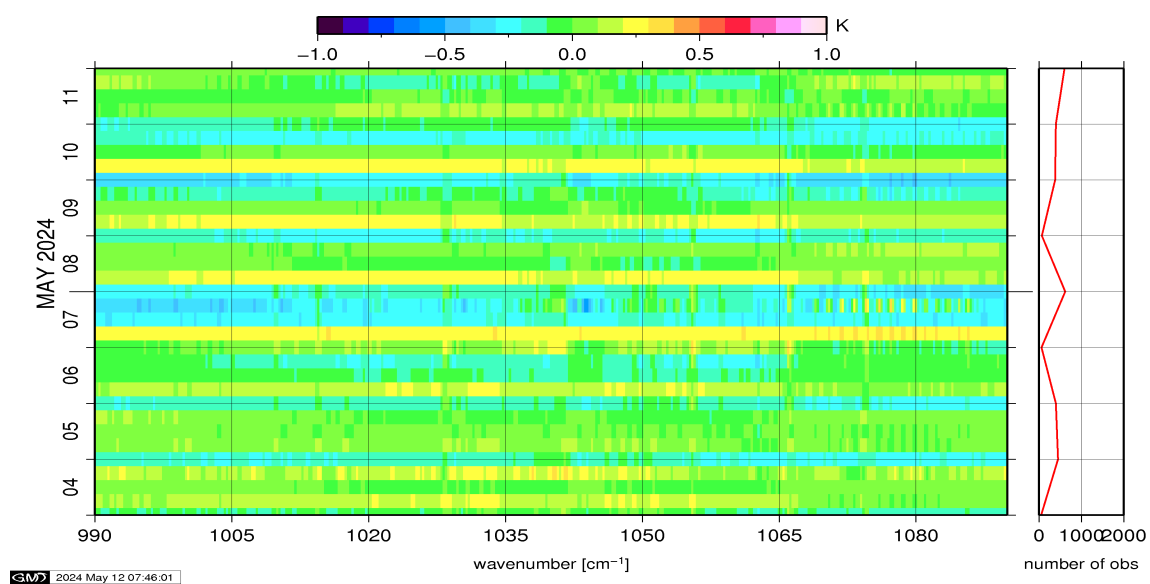


Figure 16: Radiance Anomaly in BT: O3

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.

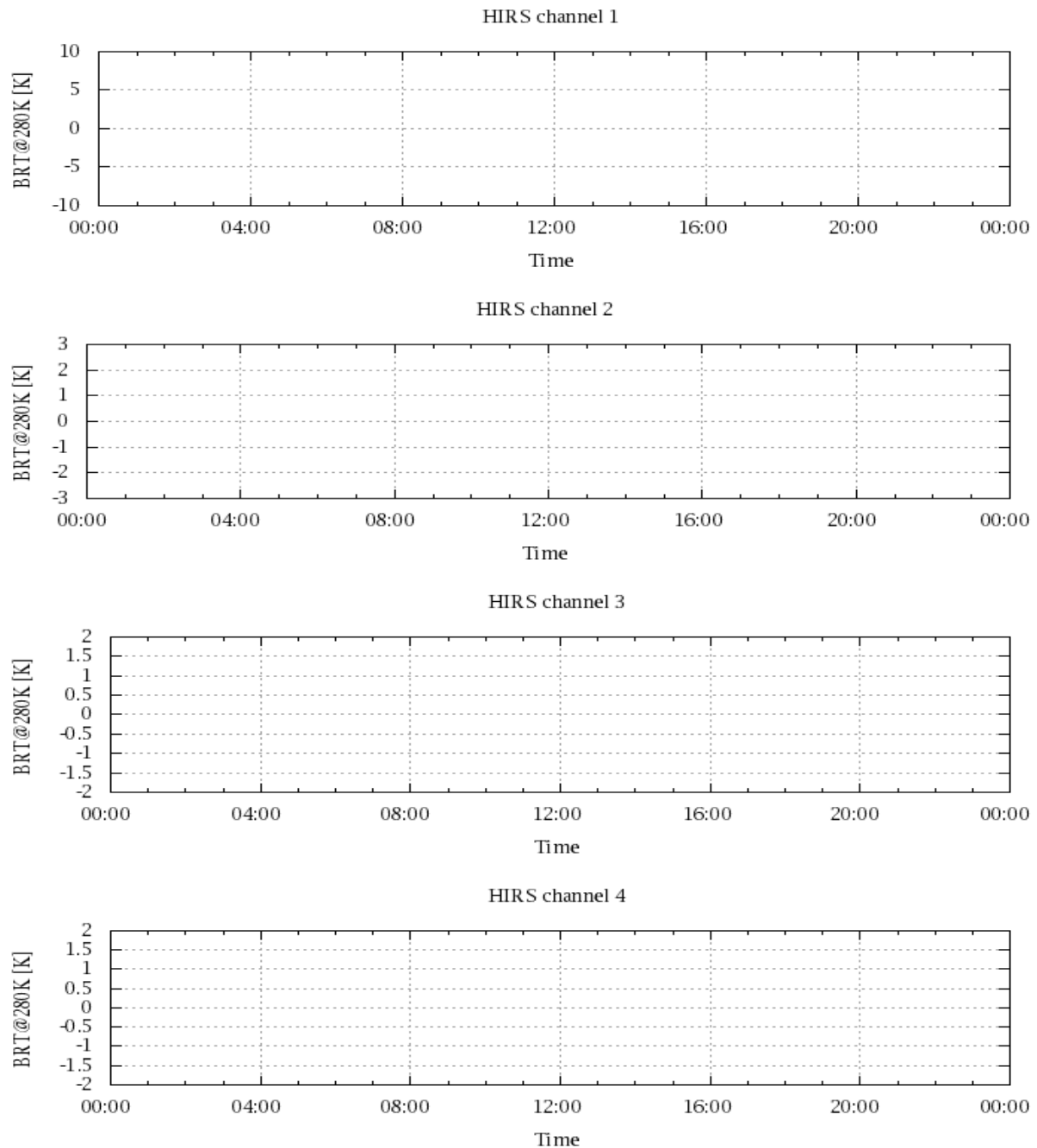


Figure 17: Radiance Differences in BT

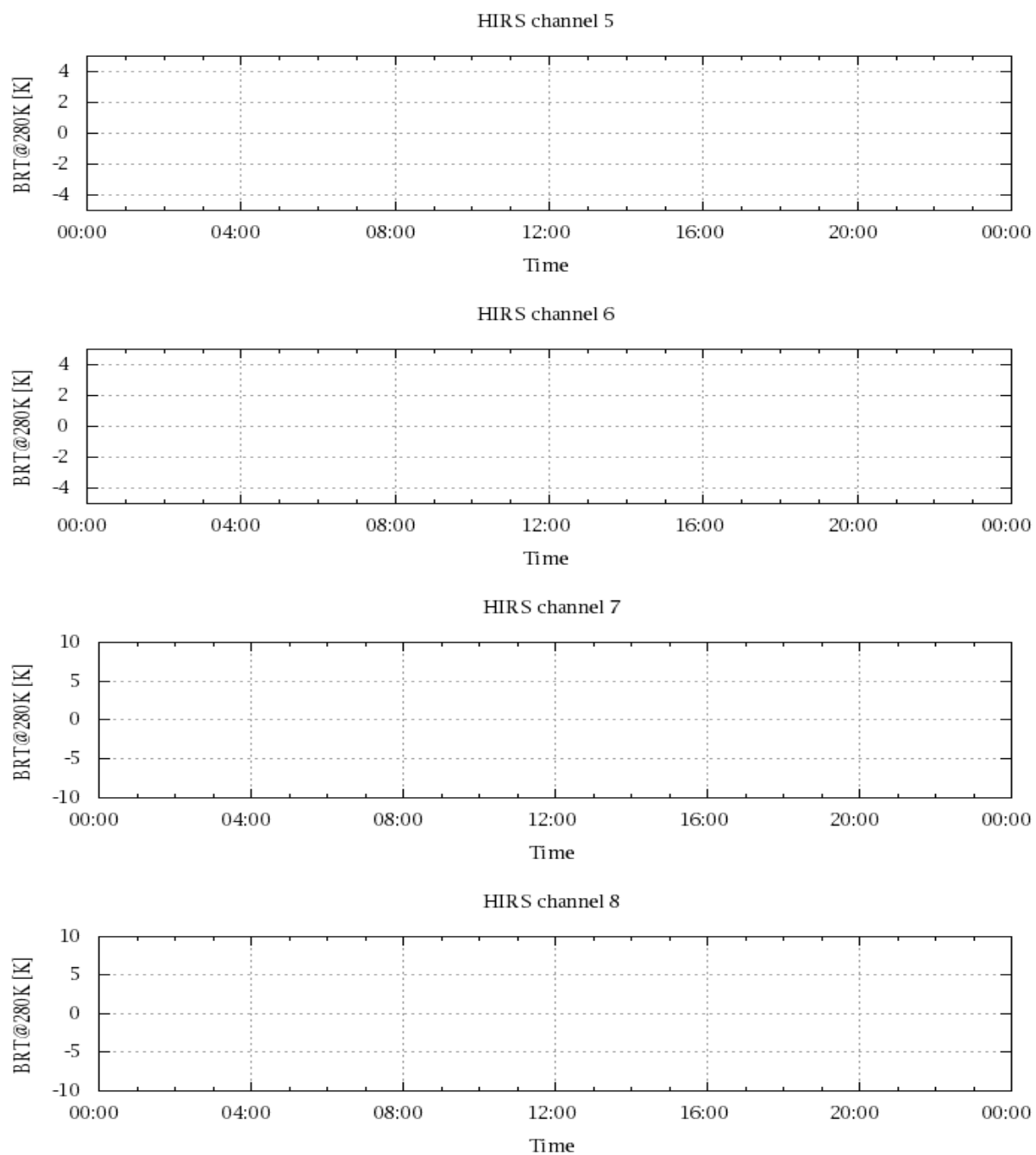


Figure 18: Radiance Differences in BT

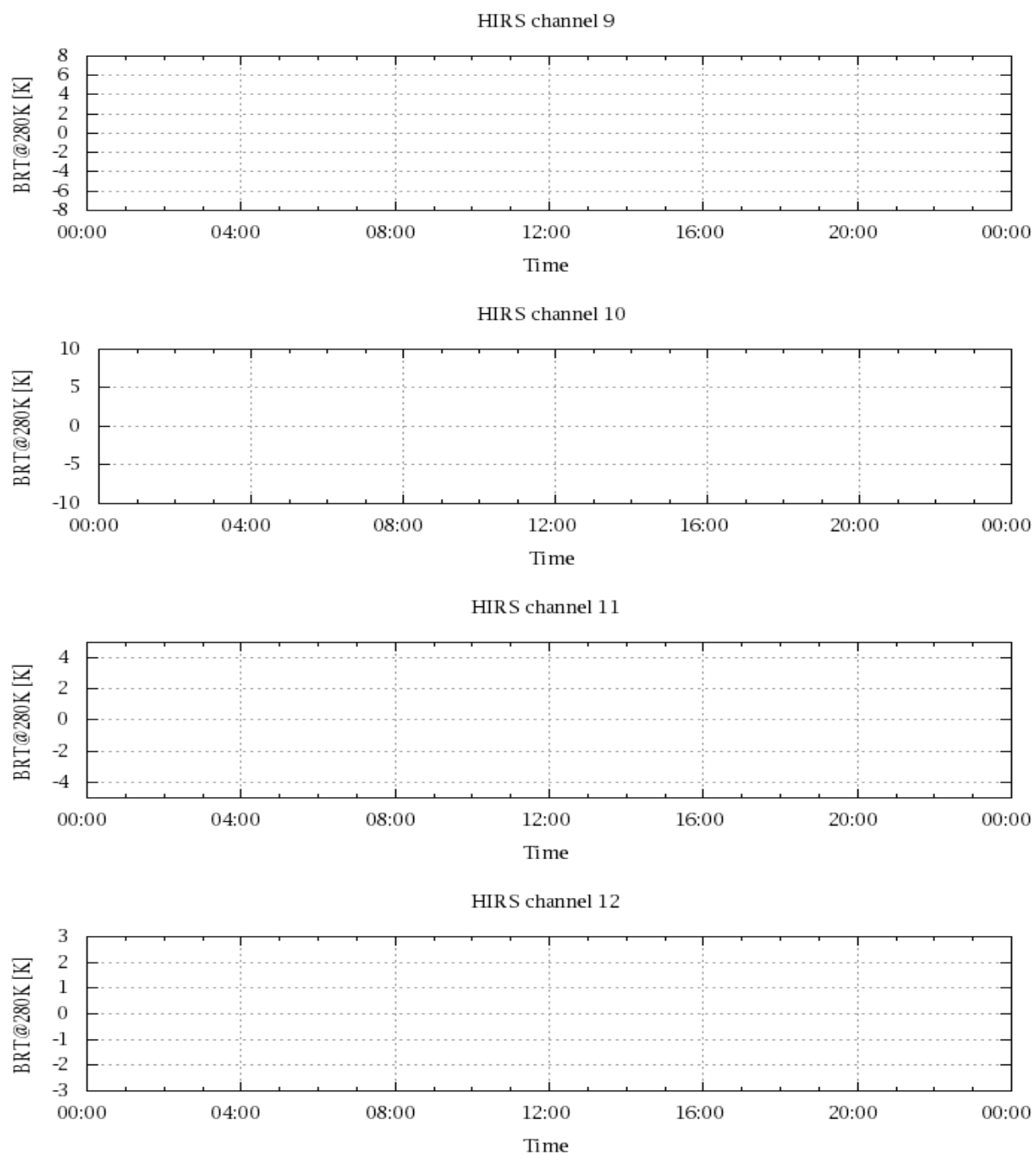


Figure 19: Radiance Differences in BT

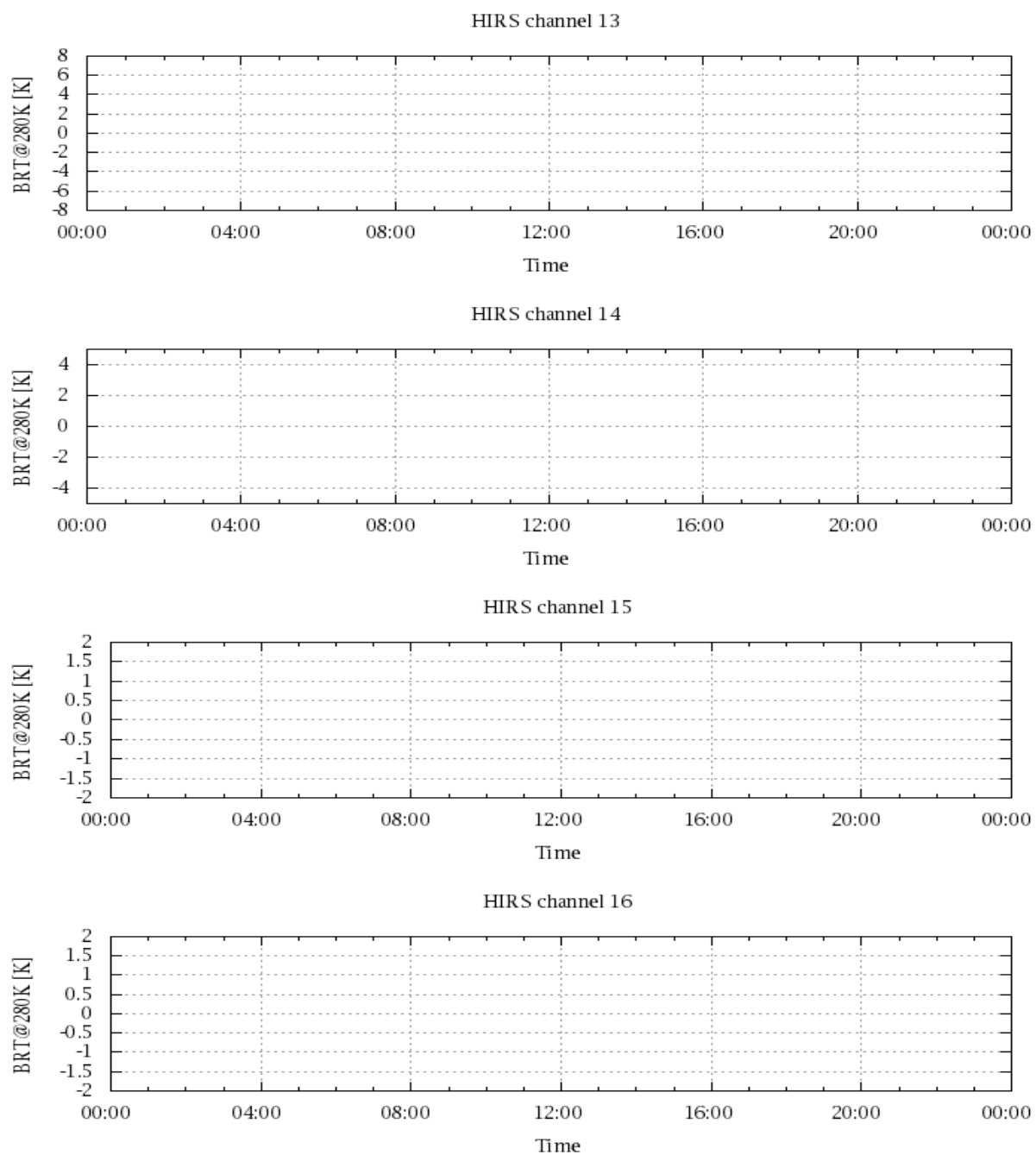


Figure 20: Radiance Differences in BT

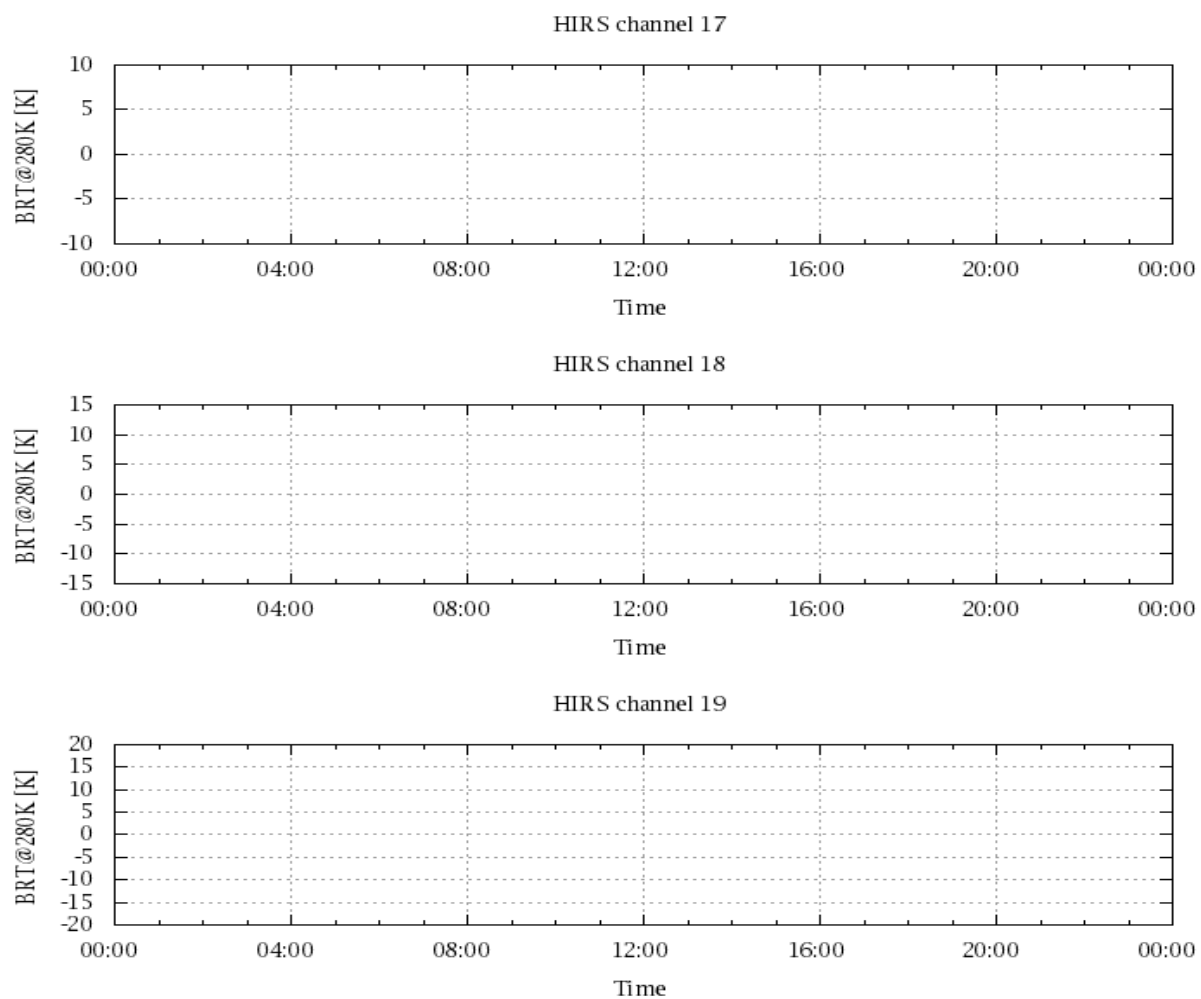


Figure 21: Radinace Differences in BT