

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

IASI monitoring team

12/05/2024 00:00:00 - 13/05/2024 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 12/05/2024 00:00:00 - 13/05/2024 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 12/05/2024 00:00:00 - 13/05/2024 00:00:00

Product Type	Number	Action
L0 HKTU PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	481	-
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)	8570	12361	20240512052517.419	20240512070739.268
VER (160)	12361	12366	20240512070739.268	20240512070739.268
VER (160)	12366	12371	20240512070739.268	20240512070739.268
VER (160)	12371	12376	20240512070739.268	20240512070739.268
VER (160)	12376	12381	20240512070739.268	20240512070739.268
VER (160)	12381	12386	20240512070739.268	20240512070739.268
VER (160)	12386	12391	20240512070739.268	20240512070739.268
VER (160)	12391	12396	20240512070739.268	20240512070739.268
VER (160)	12396	12401	20240512070739.268	20240512070739.268
VER (160)	12401	12362	20240512070739.268	20240512070739.268
VER (160)	12362	12367	20240512070739.268	20240512070739.268
VER (160)	12367	12372	20240512070739.268	20240512070739.268
VER (160)	12372	12377	20240512070739.268	20240512070739.268
VER (160)	12377	12382	20240512070739.268	20240512070739.268

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APID	Seq from	Seq to	Time from	Time to
VER (160)	12382	12387	20240512070739.268	20240512070739.268
VER (160)	12387	12392	20240512070739.268	20240512070739.268
VER (160)	12392	12397	20240512070739.268	20240512070739.268
VER (160)	12397	12402	20240512070739.268	20240512070739.268
VER (160)	12402	12363	20240512070739.268	20240512070739.268
VER (160)	12363	12368	20240512070739.268	20240512070739.268
VER (160)	12368	12373	20240512070739.268	20240512070739.268
VER (160)	12373	12378	20240512070739.268	20240512070739.268
VER (160)	12378	12383	20240512070739.268	20240512070739.268
VER (160)	12383	12388	20240512070739.268	20240512070739.268
VER (160)	12388	12393	20240512070739.268	20240512070739.268
VER (160)	12393	12398	20240512070739.268	20240512070739.268
VER (160)	12398	12403	20240512070739.268	20240512070739.268
VER (160)	12403	12364	20240512070739.268	20240512070739.268
VER (160)	12364	12369	20240512070739.268	20240512070739.268
VER (160)	12369	12374	20240512070739.268	20240512070739.268
VER (160)	12374	12379	20240512070739.268	20240512070739.268
VER (160)	12379	12384	20240512070739.268	20240512070739.268
VER (160)	12384	12389	20240512070739.268	20240512070739.268
VER (160)	12389	12394	20240512070739.268	20240512070739.268
VER (160)	12394	12399	20240512070739.268	20240512070739.268
VER (160)	12399	12404	20240512070739.268	20240512070739.268
VER (160)	12404	12365	20240512070739.268	20240512070739.268
VER (160)	12365	12370	20240512070739.268	20240512070739.268
VER (160)	12370	12375	20240512070739.268	20240512070739.268
VER (160)	12375	12380	20240512070739.268	20240512070739.268
VER (160)	12380	12385	20240512070739.268	20240512070739.268
VER (160)	12385	12390	20240512070739.268	20240512070739.268
VER (160)	12390	12395	20240512070739.268	20240512070739.268
VER (160)	12395	12400	20240512070739.268	20240512070739.268
VER (160)	12400	12405	20240512070739.268	20240512070739.268
VER (160)	7381	11077	20240512121029.390	20240512135018.122
VER (160)	11077	11082	20240512135018.122	20240512135018.122
VER (160)	11082	11087	20240512135018.122	20240512135018.122
VER (160)	11087	11092	20240512135018.122	20240512135018.122
VER (160)	11092	11097	20240512135018.122	20240512135018.122
VER (160)	11097	11102	20240512135018.122	20240512135018.122
VER (160)	11102	11107	20240512135018.122	20240512135018.122
VER (160)	11107	11112	20240512135018.122	20240512135018.122
VER (160)	11112	11117	20240512135018.122	20240512135018.122
VER (160)	11117	11078	20240512135018.122	20240512135018.122
VER (160)	11078	11083	20240512135018.122	20240512135018.122
VER (160)	11083	11088	20240512135018.122	20240512135018.122
VER (160)	11088	11093	20240512135018.122	20240512135018.122
VER (160)	11093	11098	20240512135018.122	20240512135018.122
VER (160)	11098	11103	20240512135018.122	20240512135018.122
VER (160)	11103	11108	20240512135018.122	20240512135018.122
VER (160)	11108	11113	20240512135018.122	20240512135018.122
VER (160)	11113	11118	20240512135018.122	20240512135018.122
VER (160)	11118	11079	20240512135018.122	20240512135018.122
VER (160)	11079	11084	20240512135018.122	20240512135018.122
VER (160)	11084	11089	20240512135018.122	20240512135018.122
VER (160)	11089	11094	20240512135018.122	20240512135018.122

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APID	Seq from	Seq to	Time from	Time to
VER (160)	11094	11099	20240512135018.122	20240512135018.122
VER (160)	11099	11104	20240512135018.122	20240512135018.122
VER (160)	11104	11109	20240512135018.122	20240512135018.122
VER (160)	11109	11114	20240512135018.122	20240512135018.122
VER (160)	11114	11119	20240512135018.122	20240512135018.122
VER (160)	11119	11080	20240512135018.122	20240512135018.122
VER (160)	11080	11085	20240512135018.122	20240512135018.122
VER (160)	11085	11090	20240512135018.122	20240512135018.122
VER (160)	11090	11095	20240512135018.122	20240512135018.122
VER (160)	11095	11100	20240512135018.122	20240512135018.122
VER (160)	11100	11105	20240512135018.122	20240512135018.122
VER (160)	11105	11110	20240512135018.122	20240512135018.122
VER (160)	11110	11115	20240512135018.122	20240512135018.122
VER (160)	11115	11120	20240512135018.122	20240512135018.122
VER (160)	11120	11081	20240512135018.122	20240512135018.122
VER (160)	11081	11086	20240512135018.122	20240512135018.122
VER (160)	11086	11091	20240512135018.122	20240512135018.122
VER (160)	11091	11096	20240512135018.122	20240512135018.122
VER (160)	11096	11101	20240512135018.122	20240512135018.122
VER (160)	11101	11106	20240512135018.122	20240512135018.122
VER (160)	11106	11111	20240512135018.122	20240512135018.122
VER (160)	11111	11116	20240512135018.122	20240512135018.122
VER (160)	11116	11121	20240512135018.122	20240512135018.122
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
12/05/2024 00:00:02	-	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	481	-
GQisFlagQual set (PX1)	99.66 %	-
GQisFlagQual set (PX2)	99.71 %	-
GQisFlagQual set (PX3)	99.73 %	-
GQisFlagQual set (PX4)	99.66 %	-
GQisFlagQual set (all)	99.69 %	-

Table 4: Quality flags

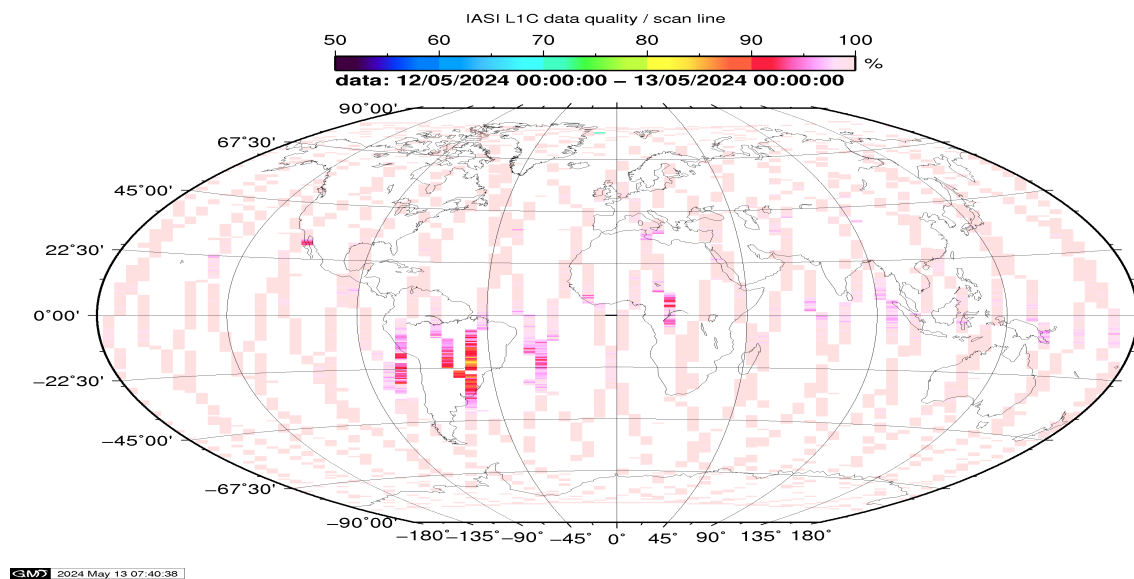


Figure 1: L1C data quality

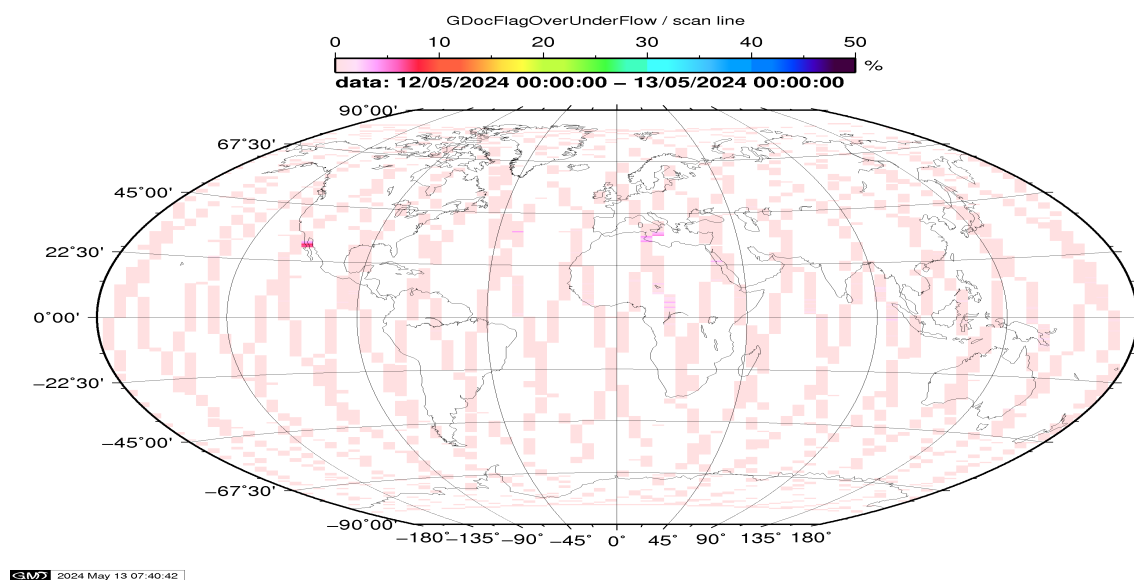


Figure 2: Flag of Over and Under Flows

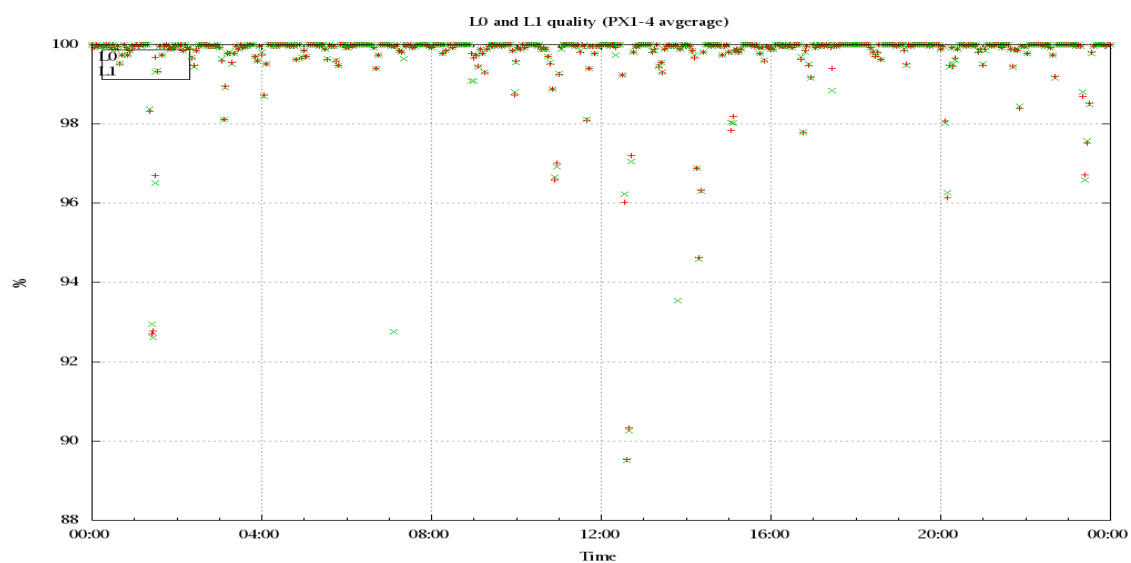


Figure 3: Level 0 and 1C overall quality

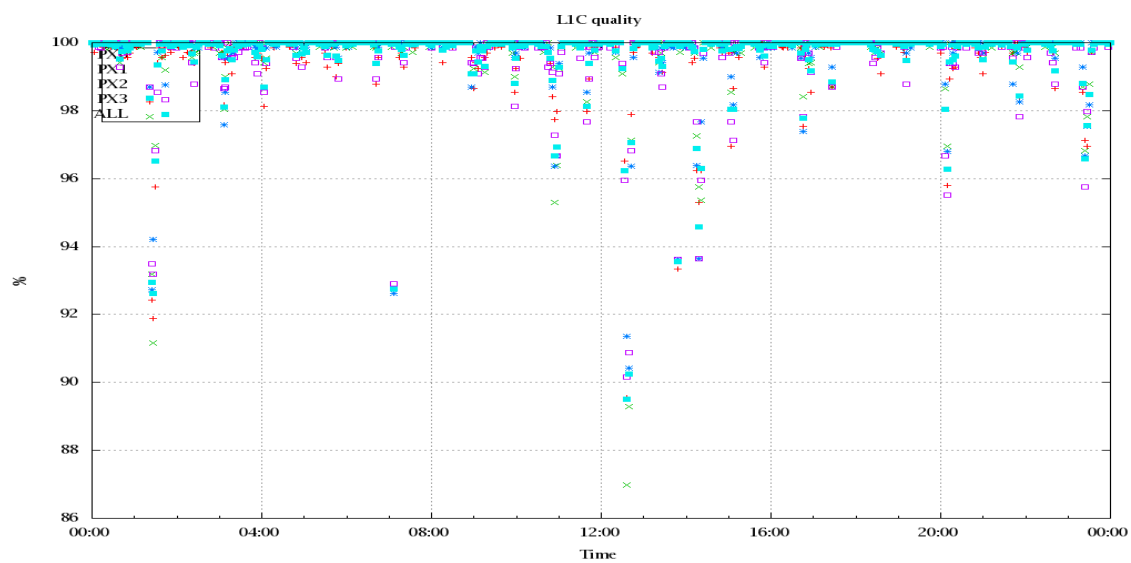


Figure 4: Level 1C quality

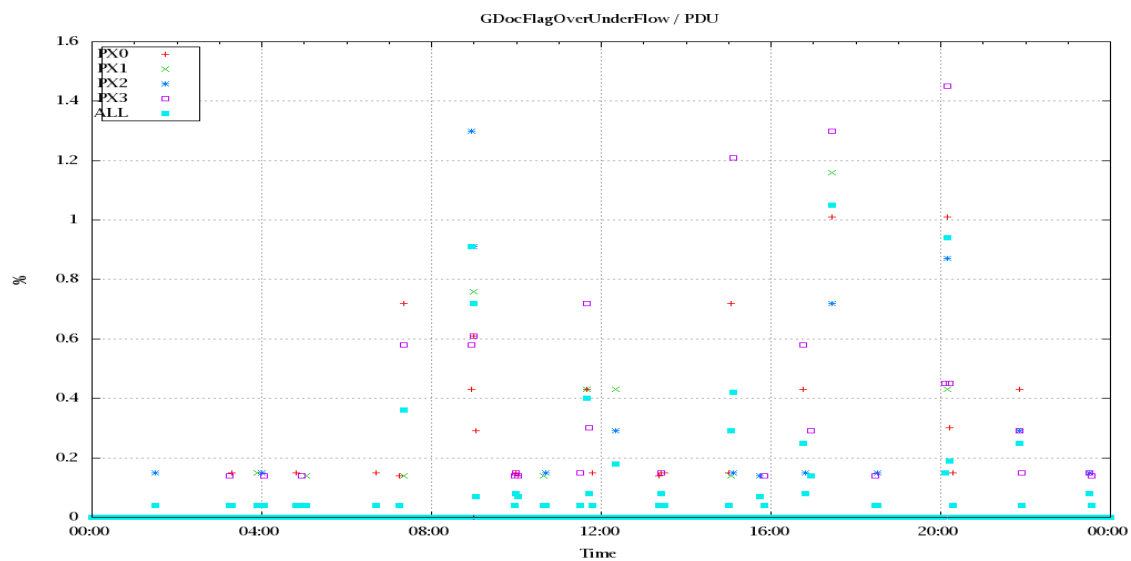


Figure 5: Timeseries of flag of Over and Under Flows

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.

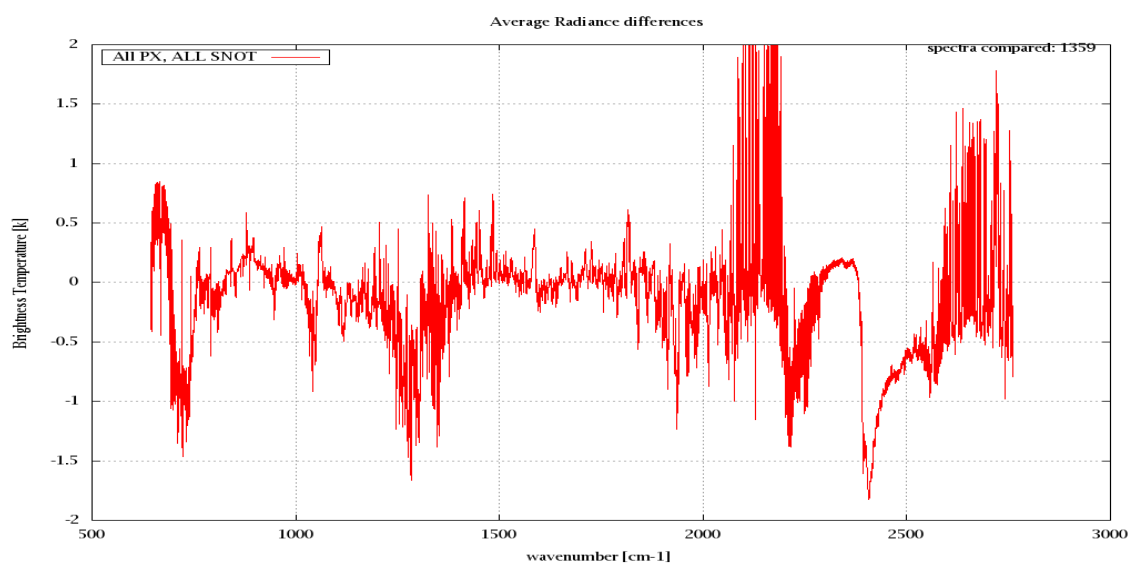


Figure 6: Average Radiance differences: OBS-CAL

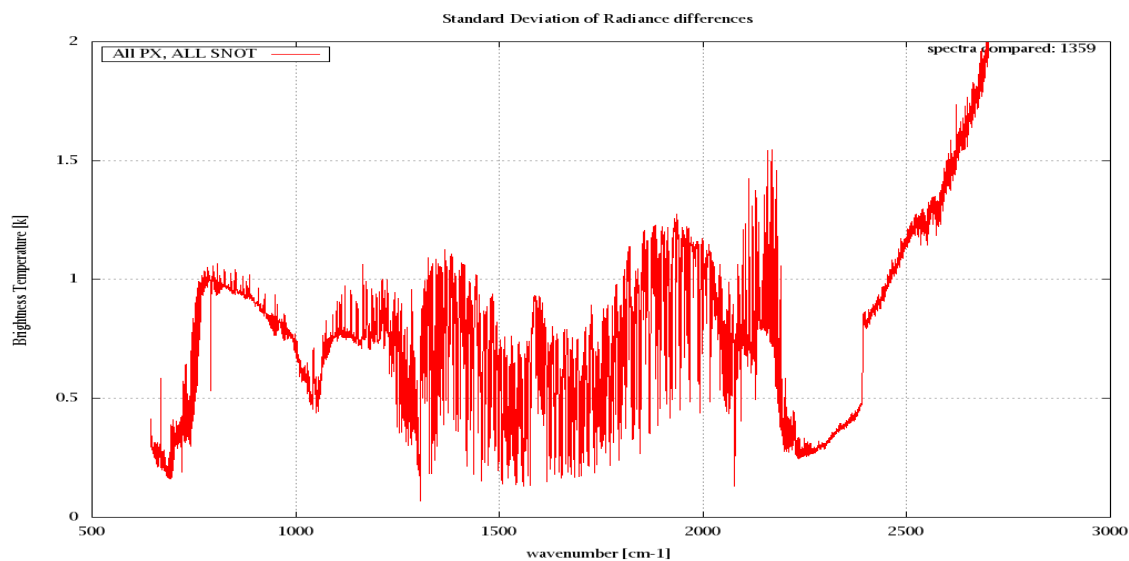


Figure 7: Standard Deviation of Radiance differences

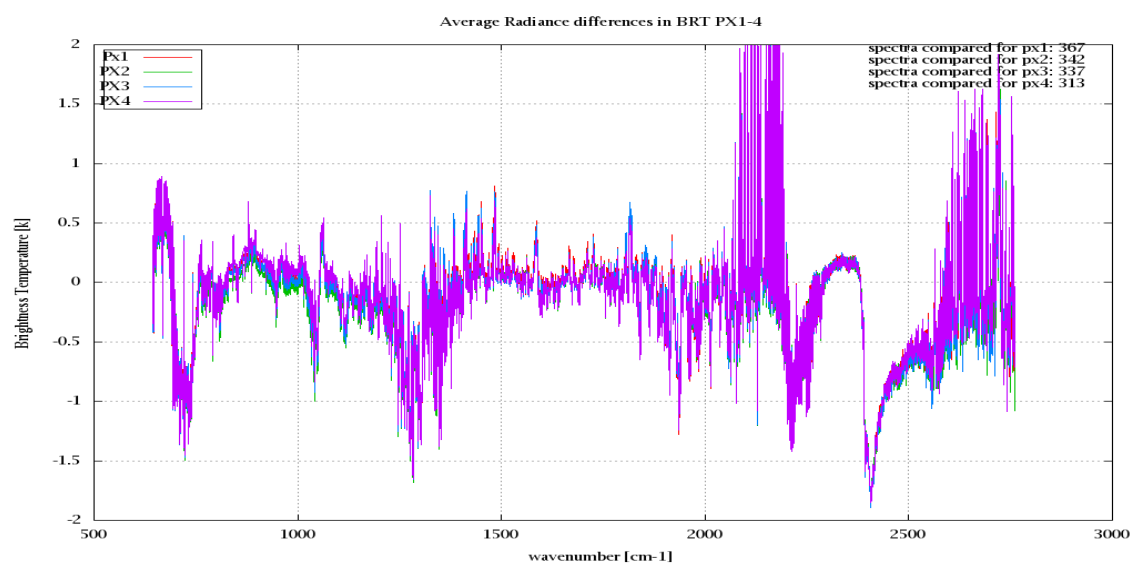


Figure 8: Average Radiance differences: OBS-CAL

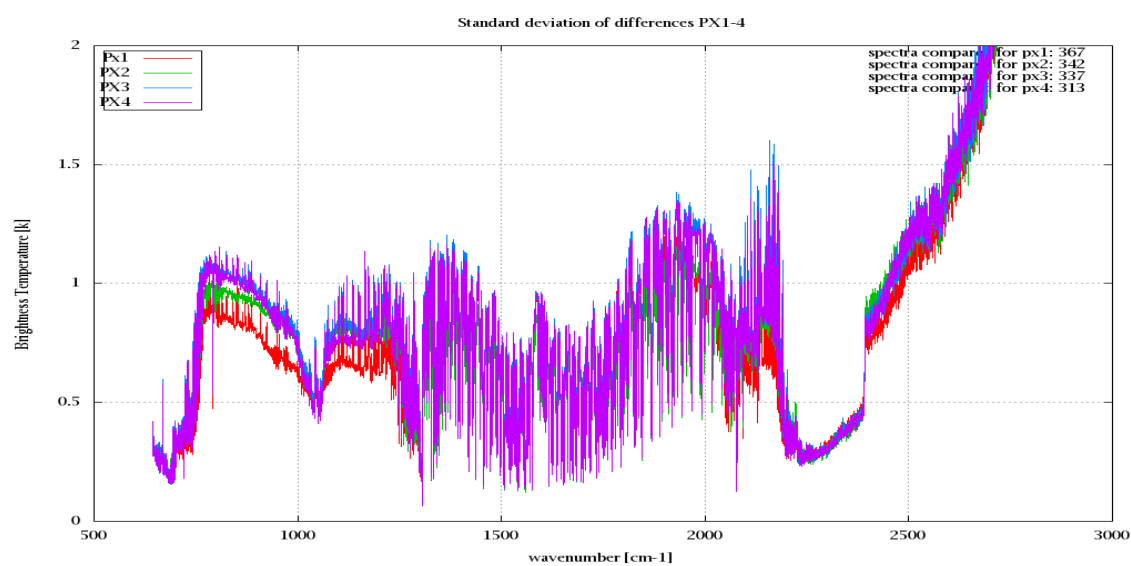


Figure 9: Standard Deviation of Radiance differences

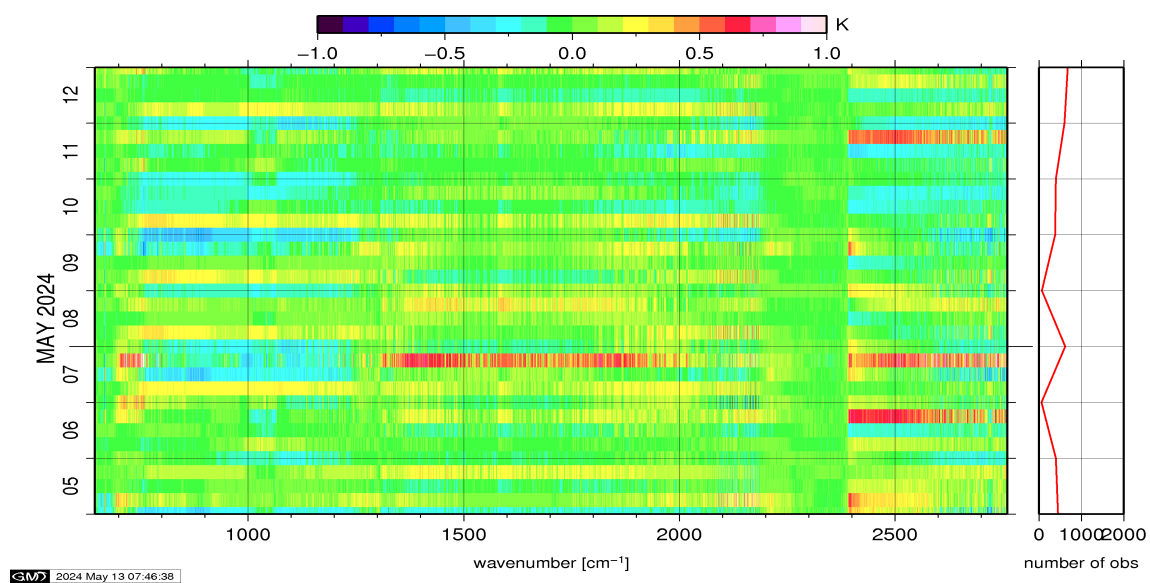


Figure 10: Radiance Anomaly in BT: All Channels

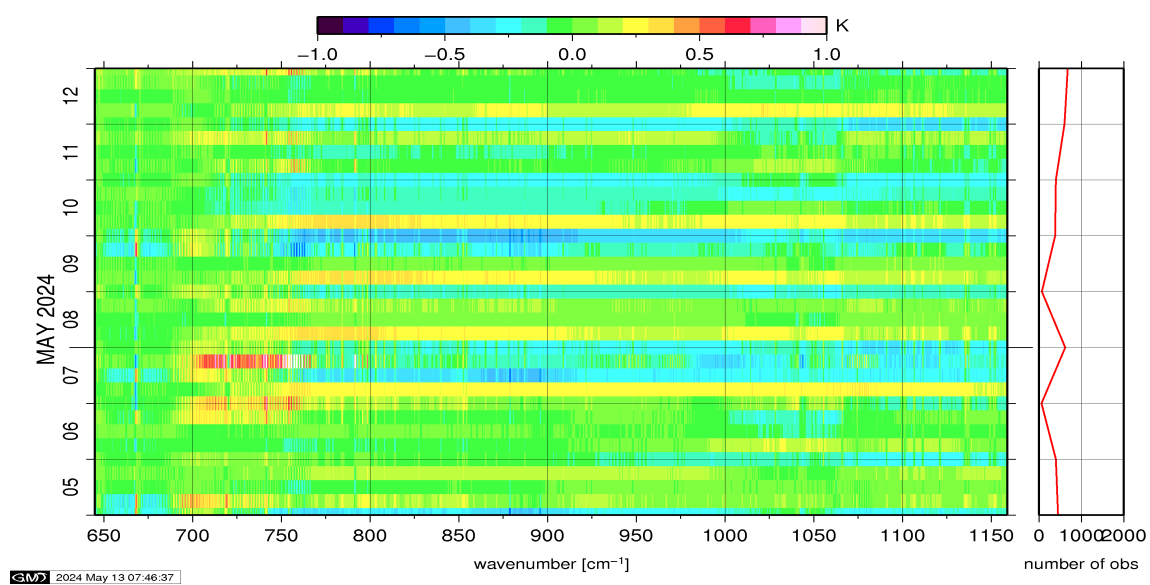


Figure 11: Radiance Anomaly in BT: IASI Band 1

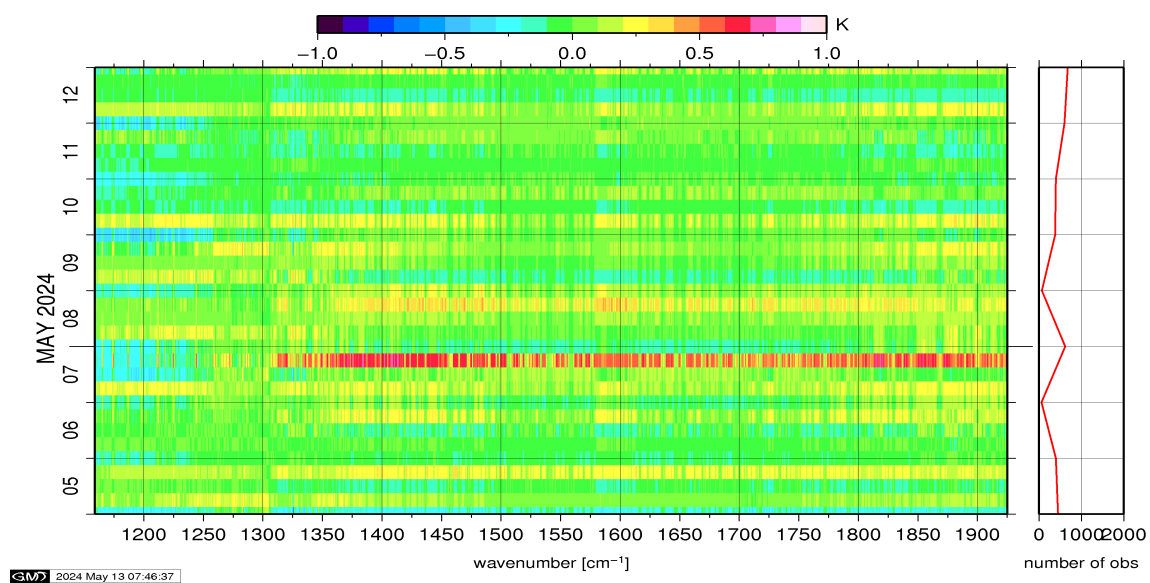


Figure 12: Radiance Anomaly in BT: IASI Band 2

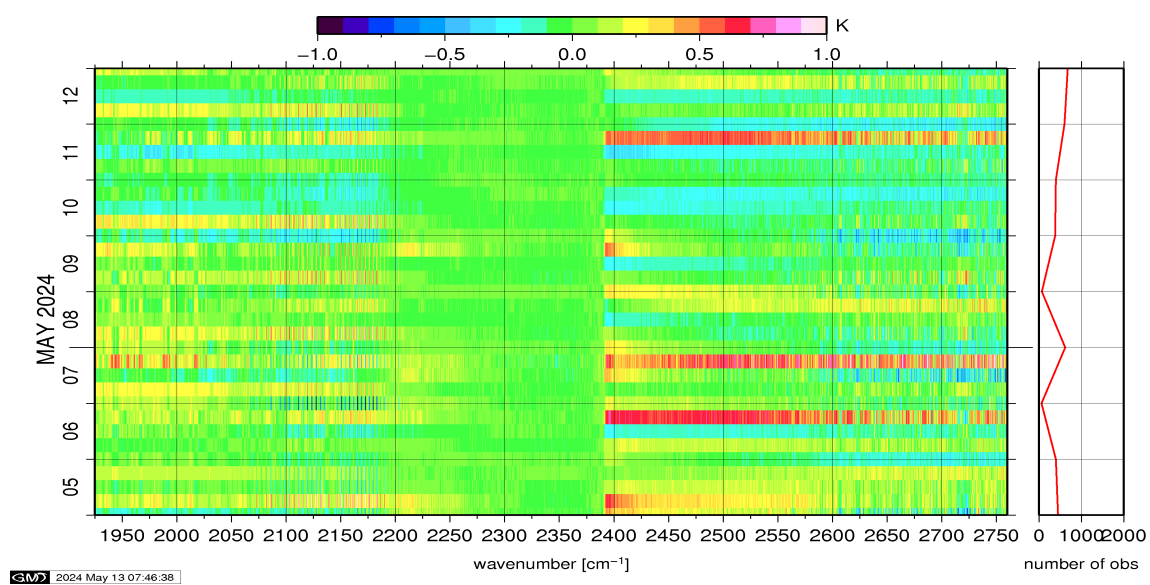


Figure 13: Radiance Anomaly in BT: IASI Band 3

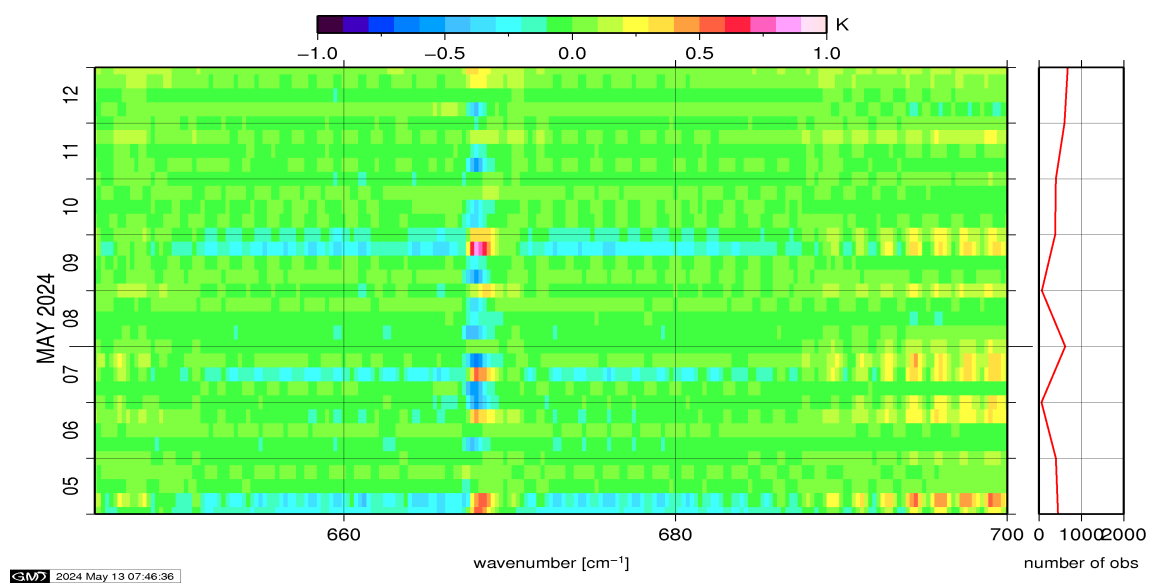


Figure 14: Radiance Anomaly in BT: CO2 14

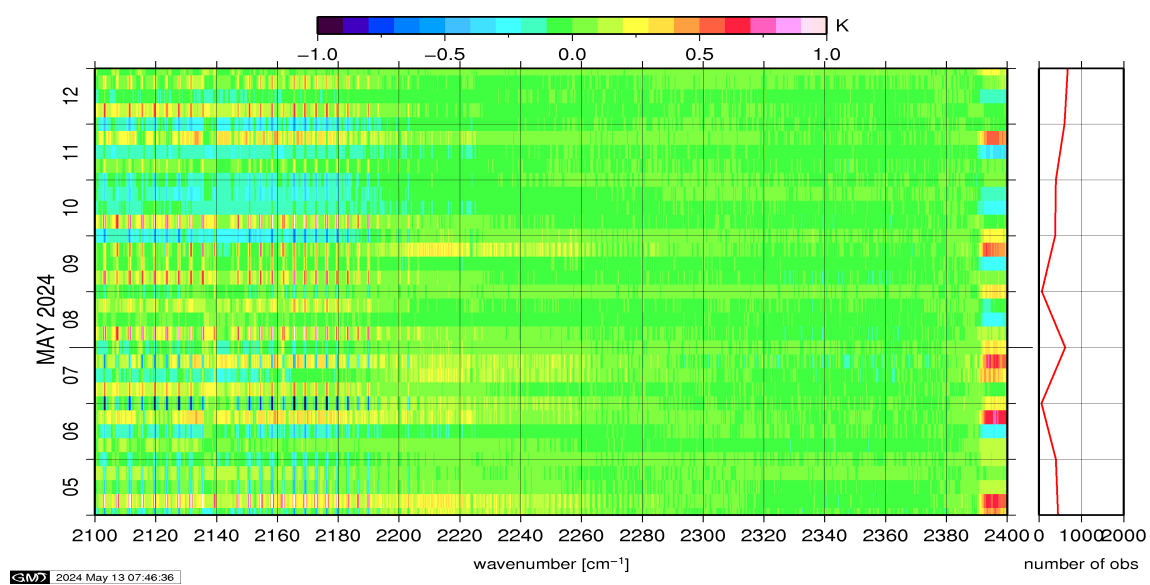


Figure 15: Radiance Anomaly in BT: CO2 4.3

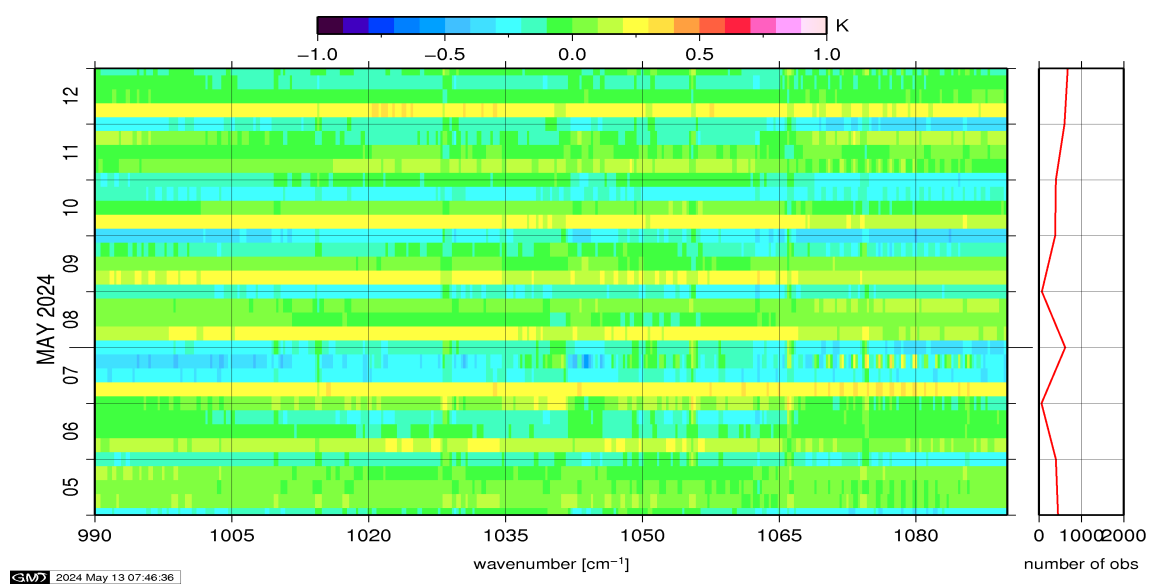


Figure 16: Radiance Anomaly in BT: O3

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.

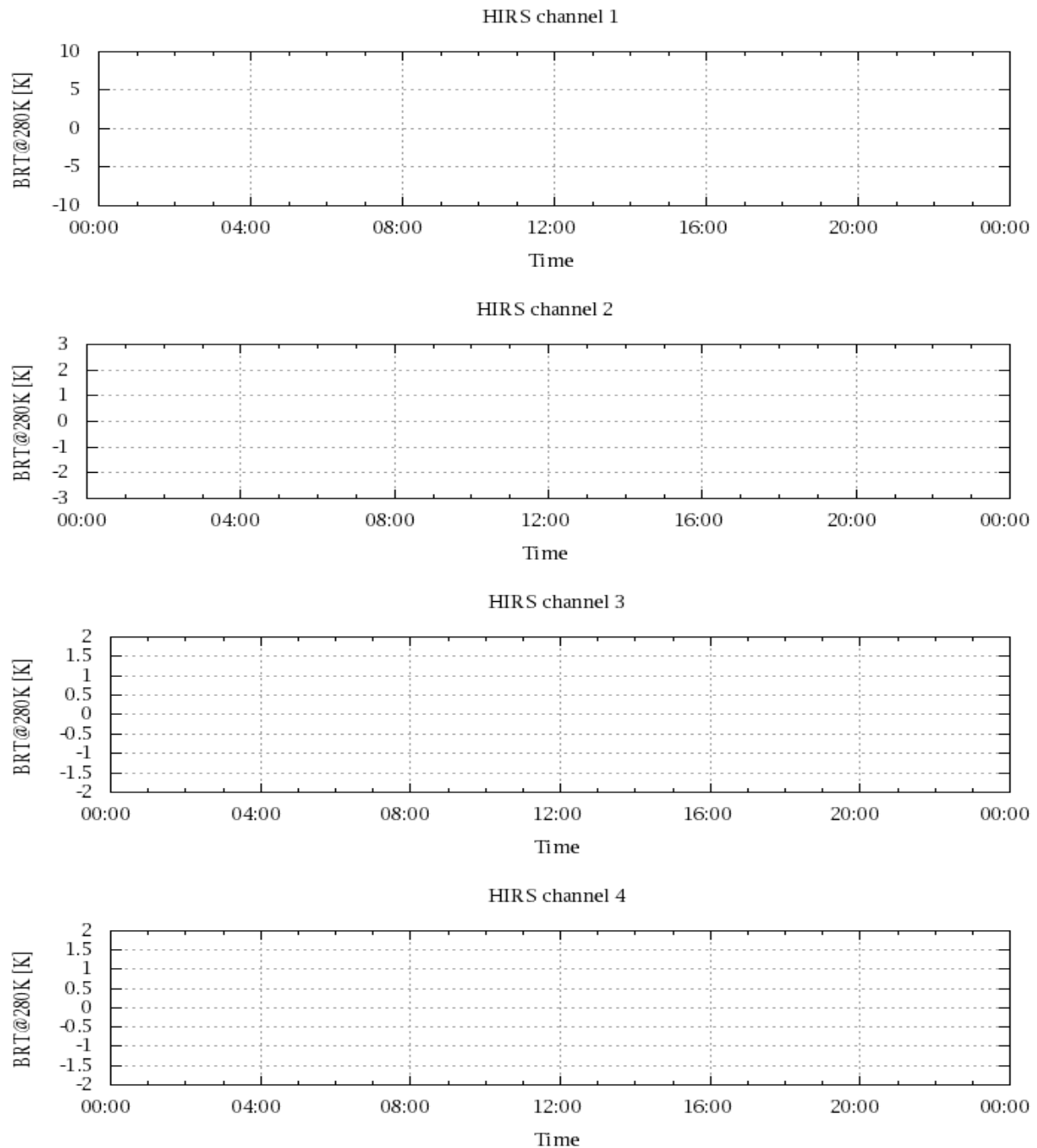


Figure 17: Radiance Differences in BT

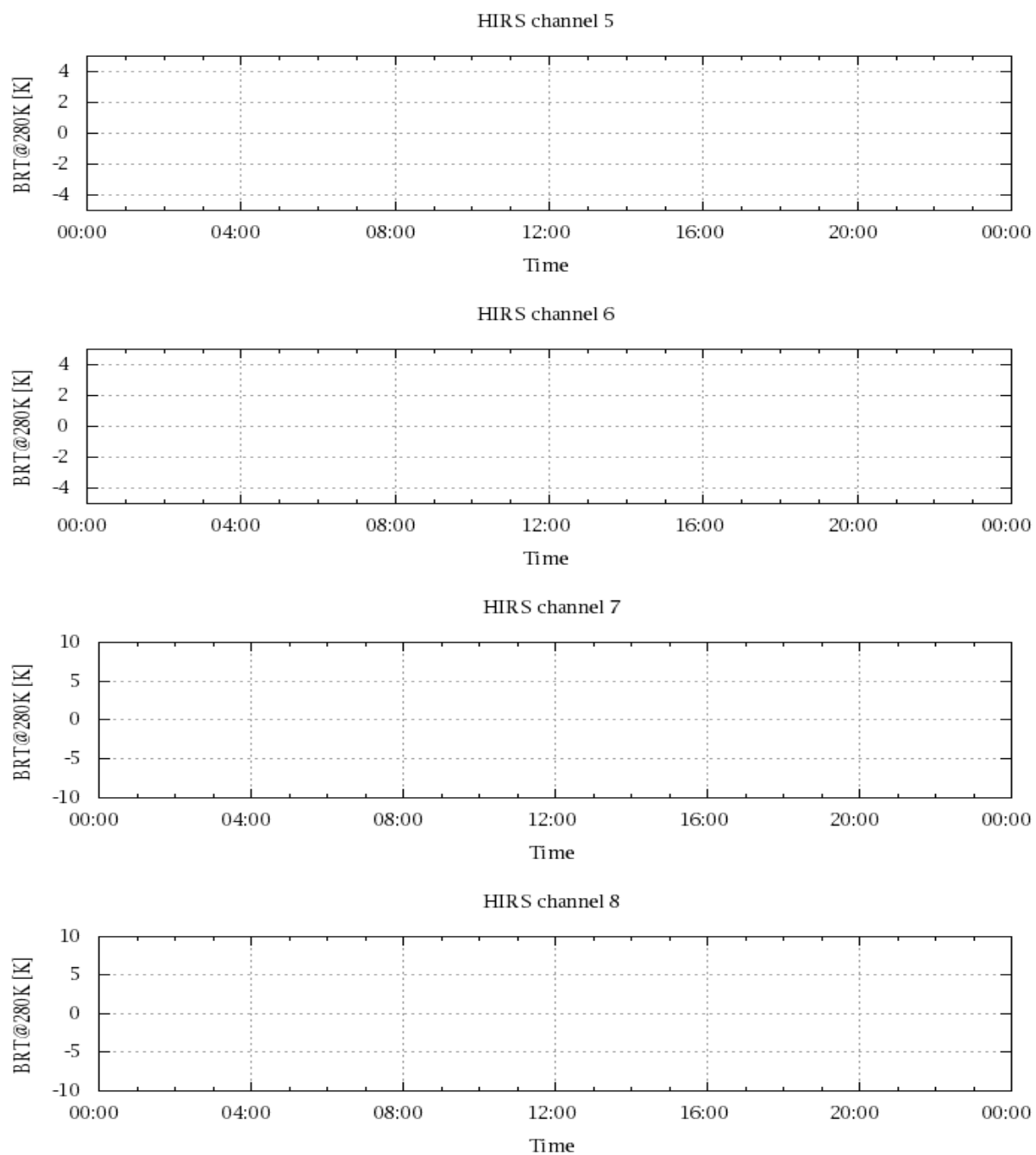


Figure 18: Radiance Differences in BT

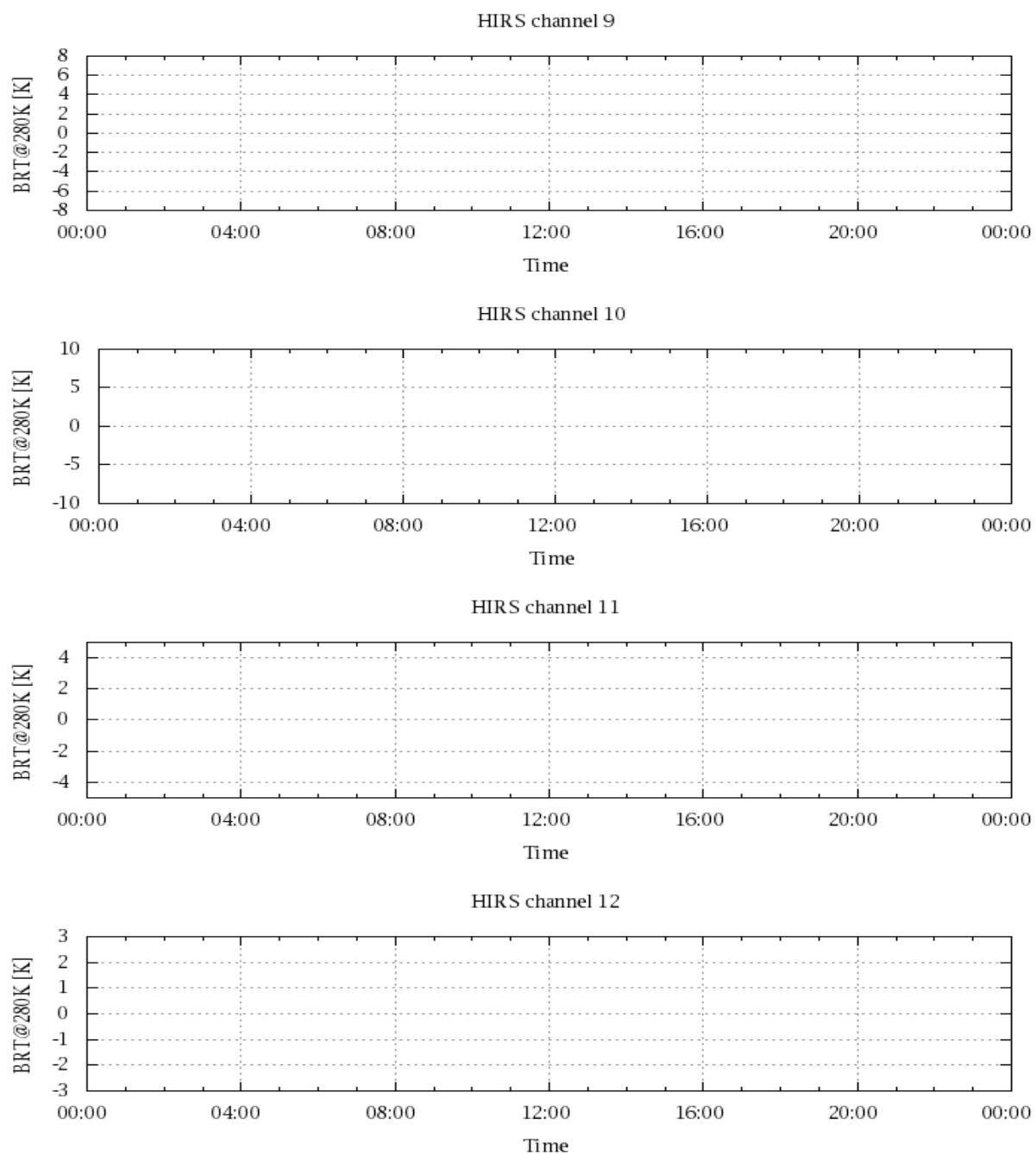


Figure 19: Radiance Differences in BT

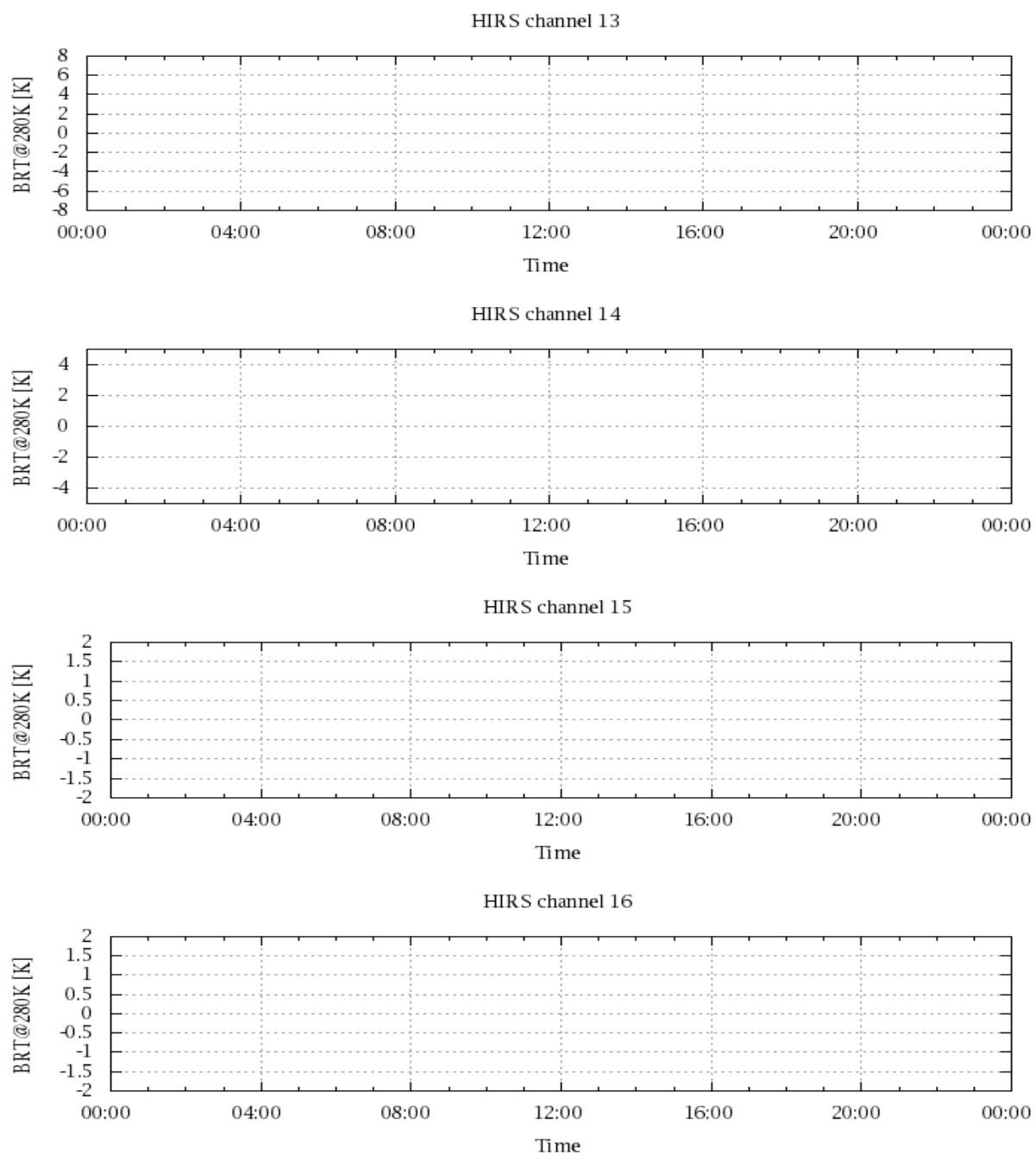


Figure 20: Radiance Differences in BT

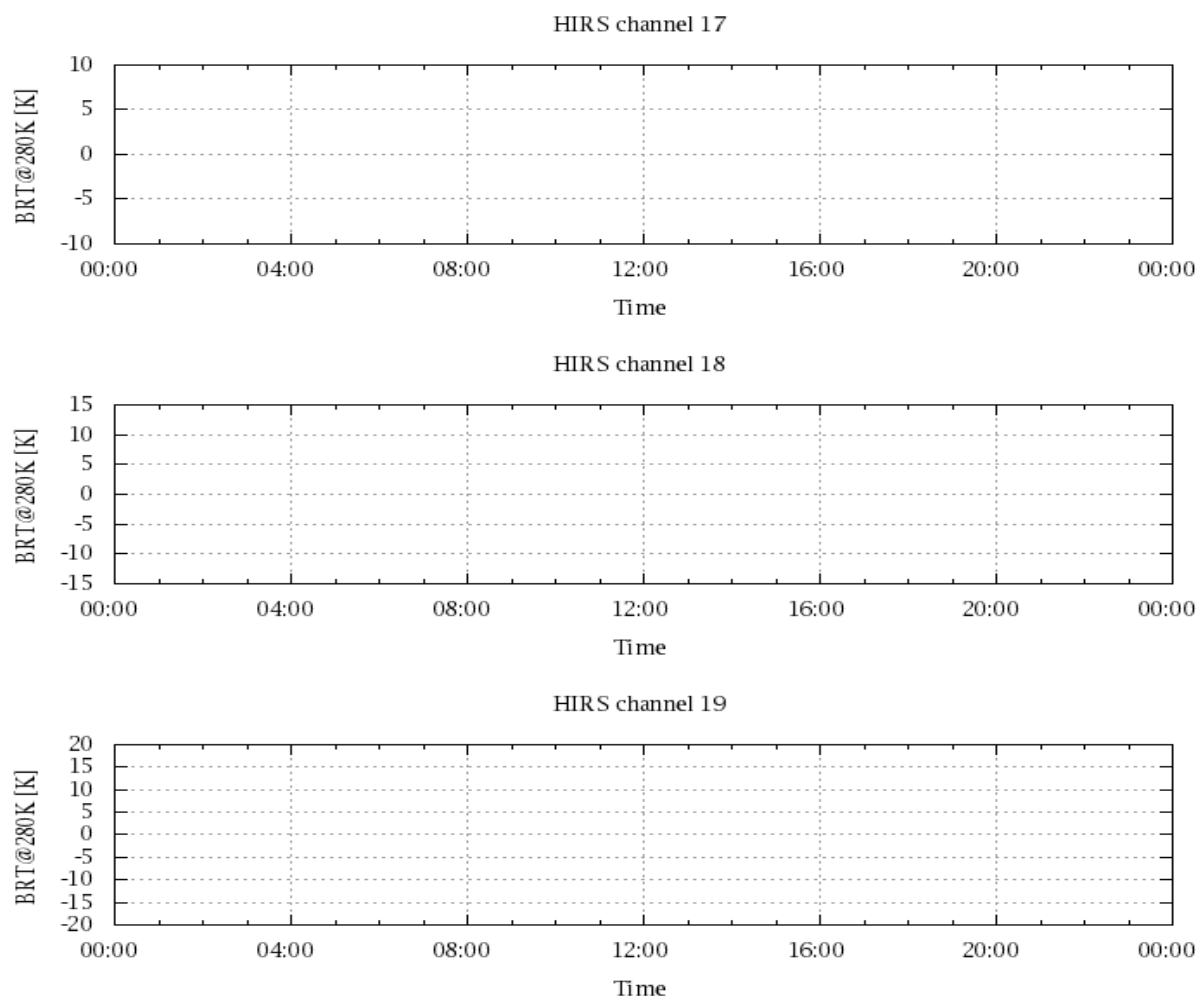


Figure 21: Radinace Differences in BT