

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

IASI monitoring team

02/03/2025 00:00:00 - 03/03/2025 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 02/03/2025 00:00:00 - 03/03/2025 00:00:00 .

The monitoring data are extracted on PDU basis.

## 2 Data quantity 02/03/2025 00:00:00 - 03/03/2025 00:00:00

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

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	6205	6237	20250302070621.203	20250302070631.148
PX1 (130)	6416	6445	20250302070718.933	20250302070725.203
PX1 (130)	6469	6471	20250302070731.906	20250302070732.339
PX1 (130)	6475	6504	20250302070733.203	20250302070740.988
PX2 (135)	6205	6237	20250302070621.203	20250302070631.148
PX2 (135)	6416	6445	20250302070718.933	20250302070725.203
PX2 (135)	6464	6466	20250302070730.824	20250302070731.257
PX2 (135)	6471	6473	20250302070732.339	20250302070732.769
PX2 (135)	6475	6504	20250302070733.203	20250302070740.988
PX3 (140)	6205	6237	20250302070621.203	20250302070631.148
PX3 (140)	6415	6445	20250302070717.203	20250302070725.203
PX3 (140)	6457	6459	20250302070729.312	20250302070729.742
PX3 (140)	6464	6466	20250302070730.824	20250302070731.257
PX3 (140)	6471	6473	20250302070732.339	20250302070732.769
PX3 (140)	6475	6504	20250302070733.203	20250302070740.988
PX4 (145)	6205	6237	20250302070621.203	20250302070631.148
PX4 (145)	6415	6445	20250302070717.203	20250302070725.203
PX4 (145)	6466	6468	20250302070731.257	20250302070731.687
PX4 (145)	6473	6475	20250302070732.769	20250302070733.203

Continued on next page

Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	6475	6504	20250302070733.203	20250302070740.988
IMG (150)	3349	3389	20250302070621.203	20250302070631.148
IMG (150)	3591	3621	20250302070718.499	20250302070725.203
IMG (150)	3639	3641	20250302070729.742	20250302070730.175
IMG (150)	3641	3643	20250302070730.175	20250302070730.609
IMG (150)	3646	3648	20250302070731.257	20250302070731.687
IMG (150)	3648	3650	20250302070731.687	20250302070732.120
IMG (150)	3653	3655	20250302070732.769	20250302070733.203
IMG (150)	3655	3688	20250302070733.203	20250302070740.988
VER (160)	12821	12830	20250302070621.203	20250302070637.203
VER (160)	12864	12870	20250302070725.203	20250302070741.203
AUX (180)	15669	15672	20250302070613.636	20250302070637.636
AUX (180)	15678	15680	20250302070725.636	20250302070741.632

Table 2: L0 data gaps

### 3 Instrument modes

Time	Transition from	Transition to
02/03/2025 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	480	-
GQisFlagQual set (PX1)	99.64 %	-
GQisFlagQual set (PX2)	99.71 %	-
GQisFlagQual set (PX3)	99.73 %	-
GQisFlagQual set (PX4)	99.64 %	-
GQisFlagQual set (all)	99.68 %	-

Table 4: Quality flags

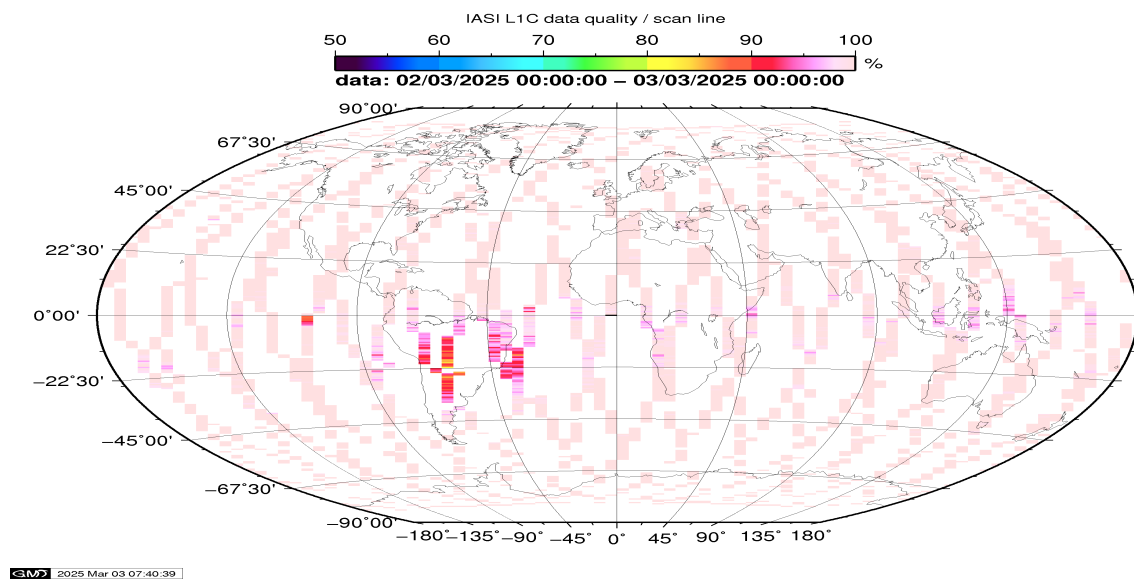


Figure 1: L1C data quality

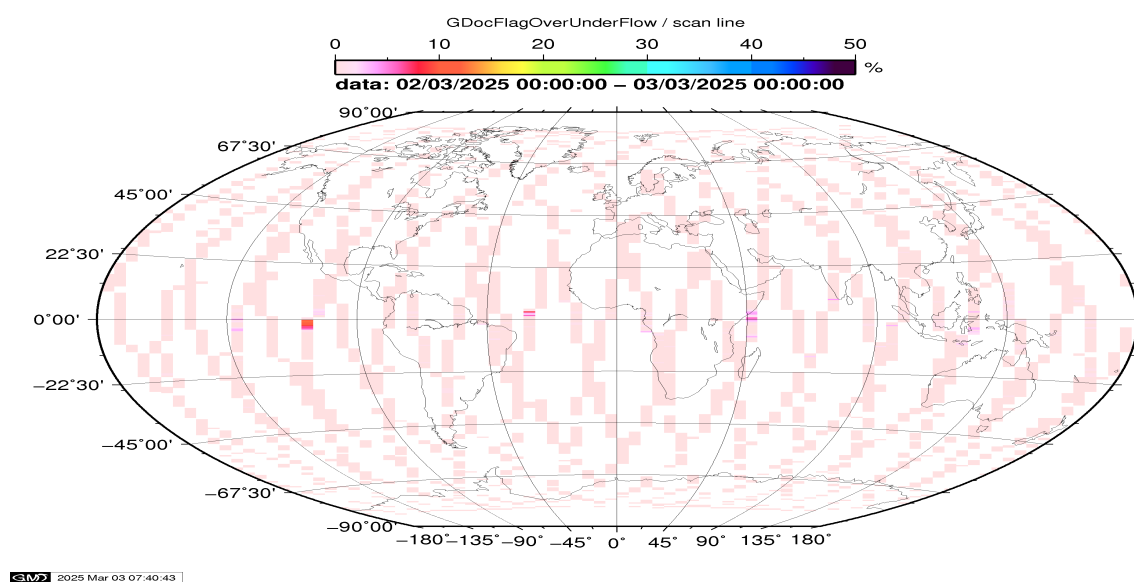


Figure 2: Flag of Over and Under Flows

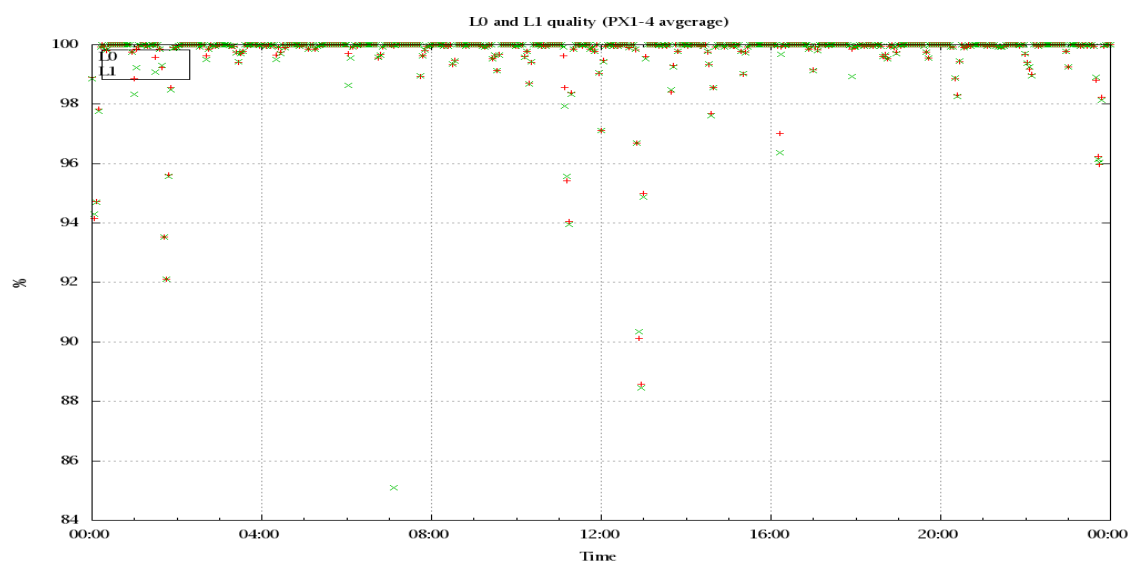


Figure 3: Level 0 and 1C overall quality

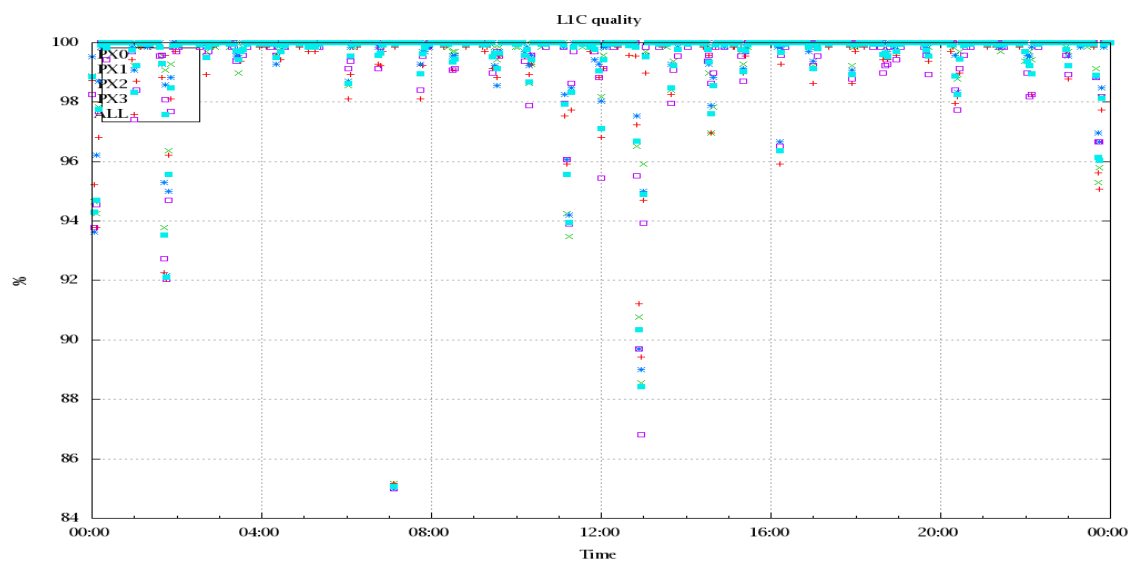


Figure 4: Level 1C quality

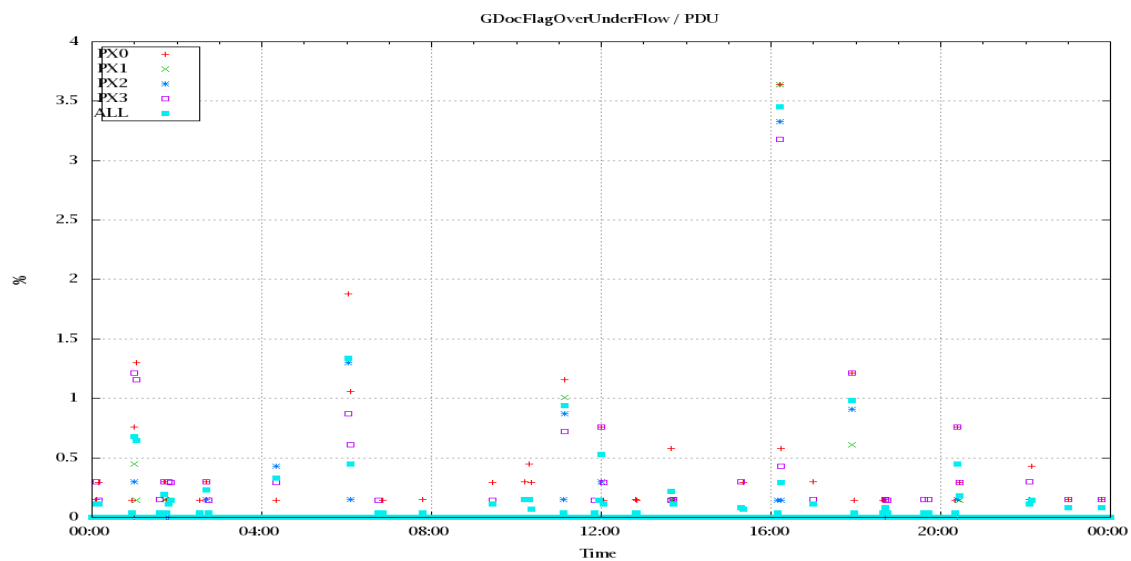


Figure 5: Timeseries of flag of Over and Under Flows

## 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.

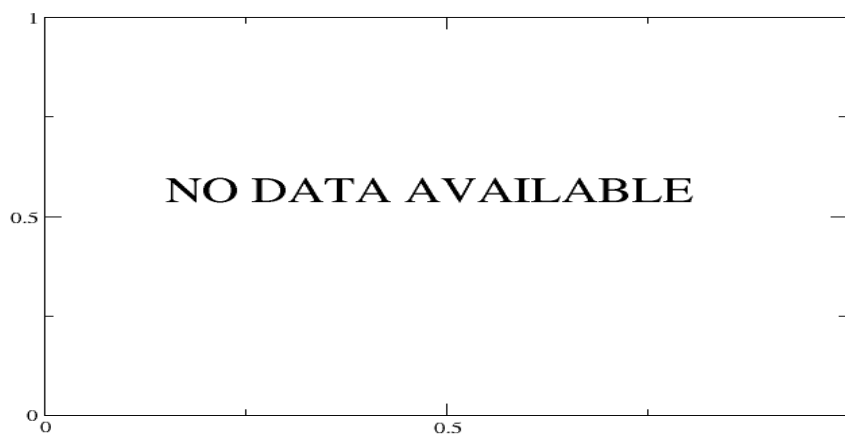


Figure 6: Average Radiance differences: OBS-CAL

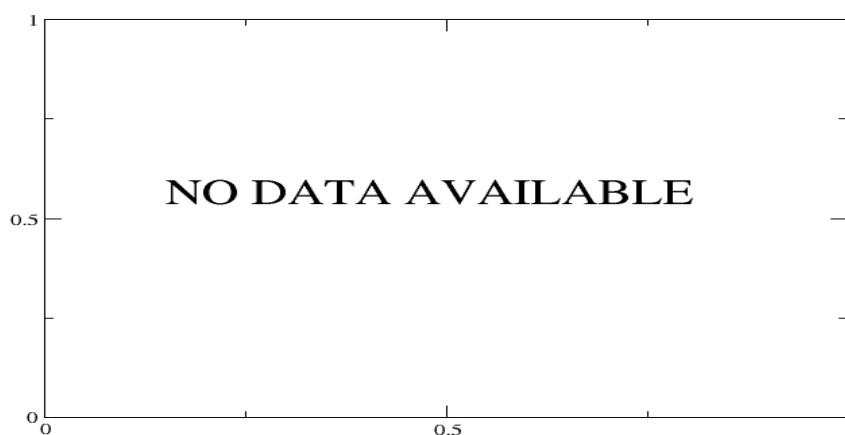


Figure 7: Standard Deviation of Radiance differences

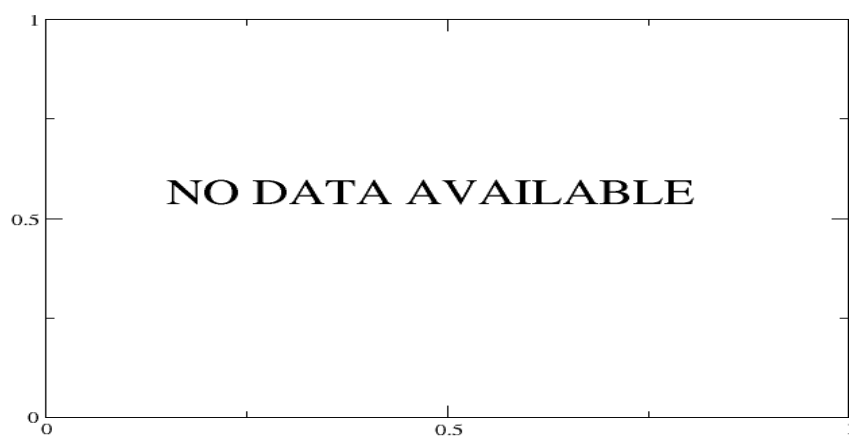


Figure 8: Average Radiance differences: OBS-CAL

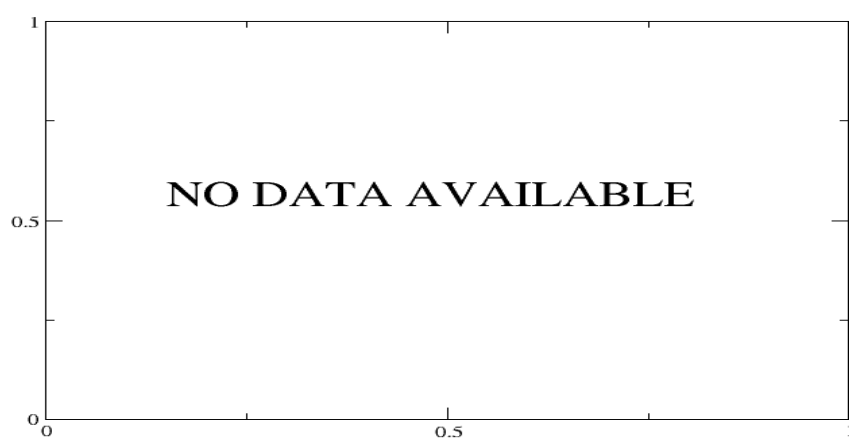


Figure 9: Standard Deviation of Radiance differences



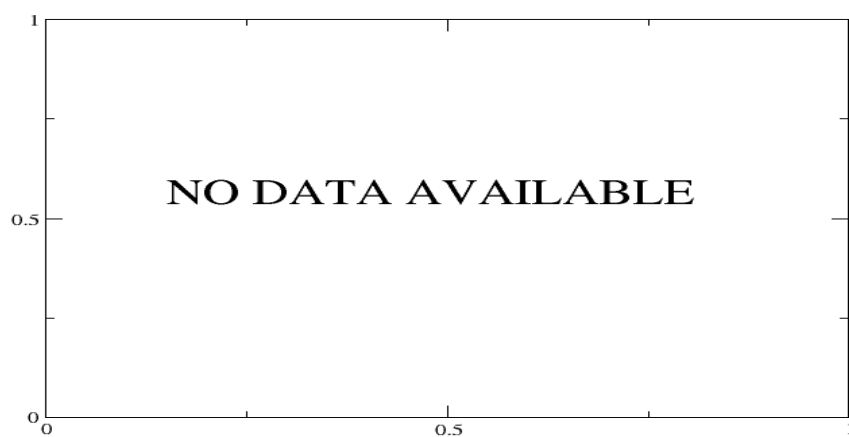


Figure 10: Radiance Anomaly in BT: All Channels



Figure 11: Radiance Anomaly in BT: IASI Band 1

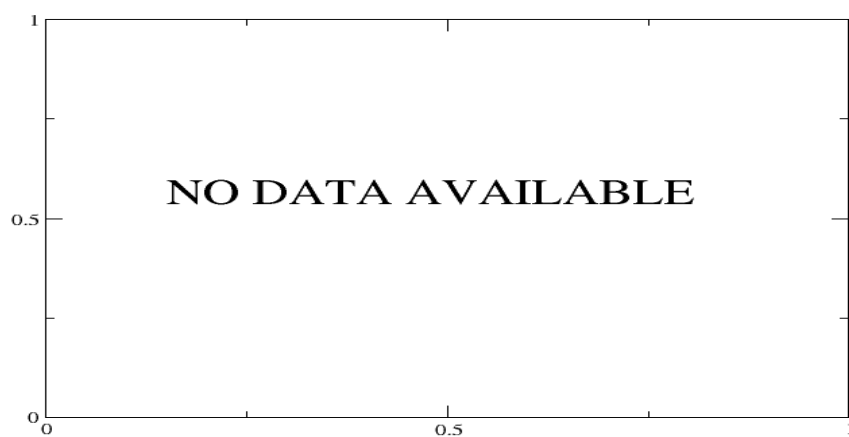


Figure 12: Radiance Anomaly in BT: IASI Band 2



Figure 13: Radiance Anomaly in BT: IASI Band 3

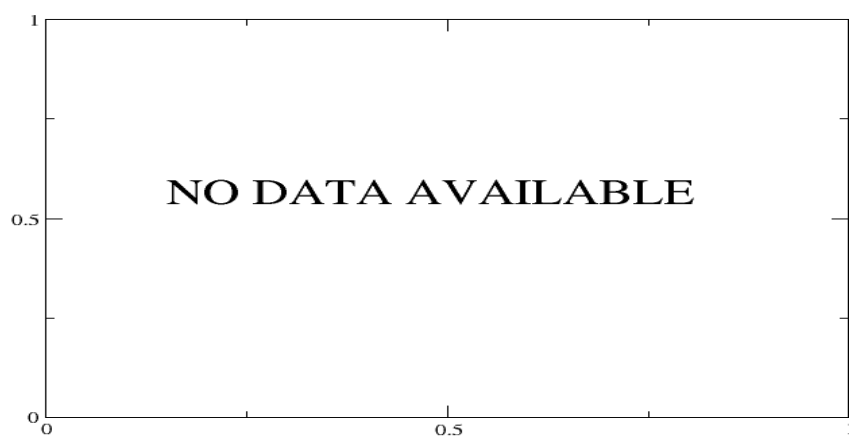


Figure 14: Radiance Anomaly in BT: CO2 14

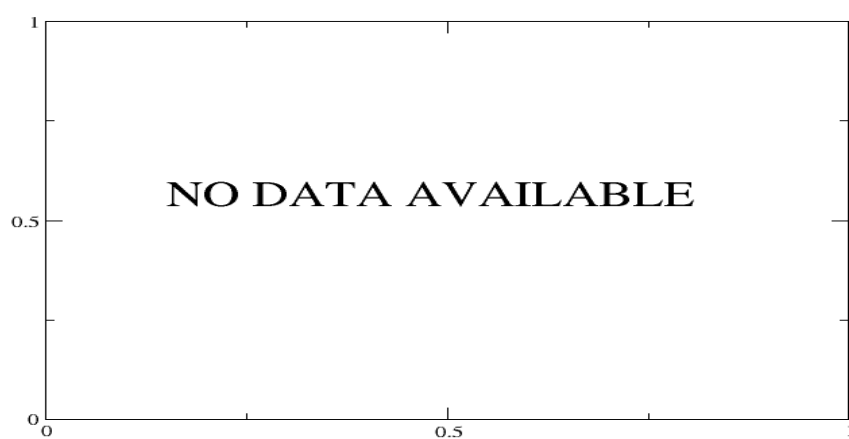


Figure 15: Radiance Anomaly in BT: CO2 4.3



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.

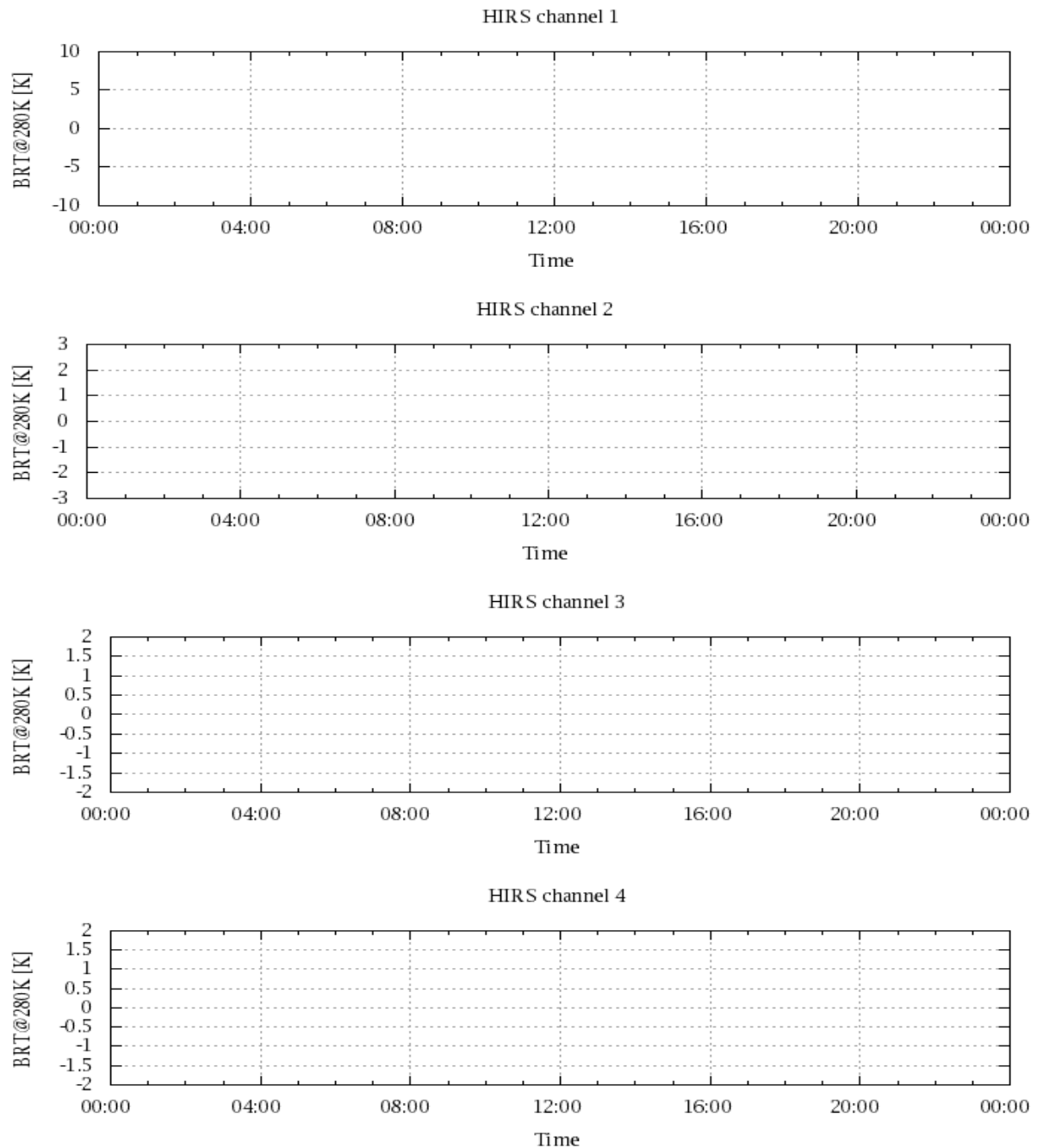


Figure 17: Radiance Differences in BT

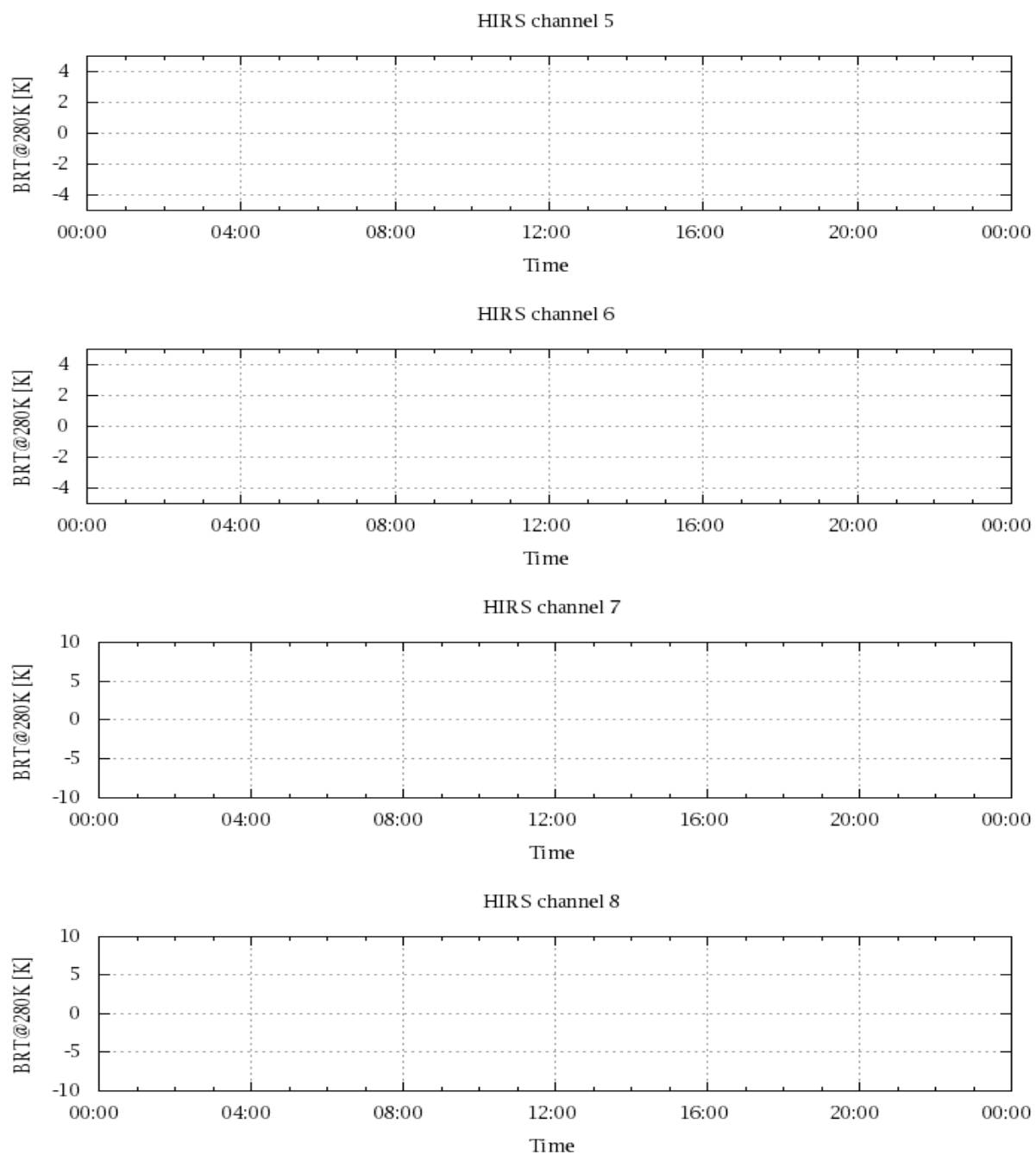


Figure 18: Radiance Differences in BT

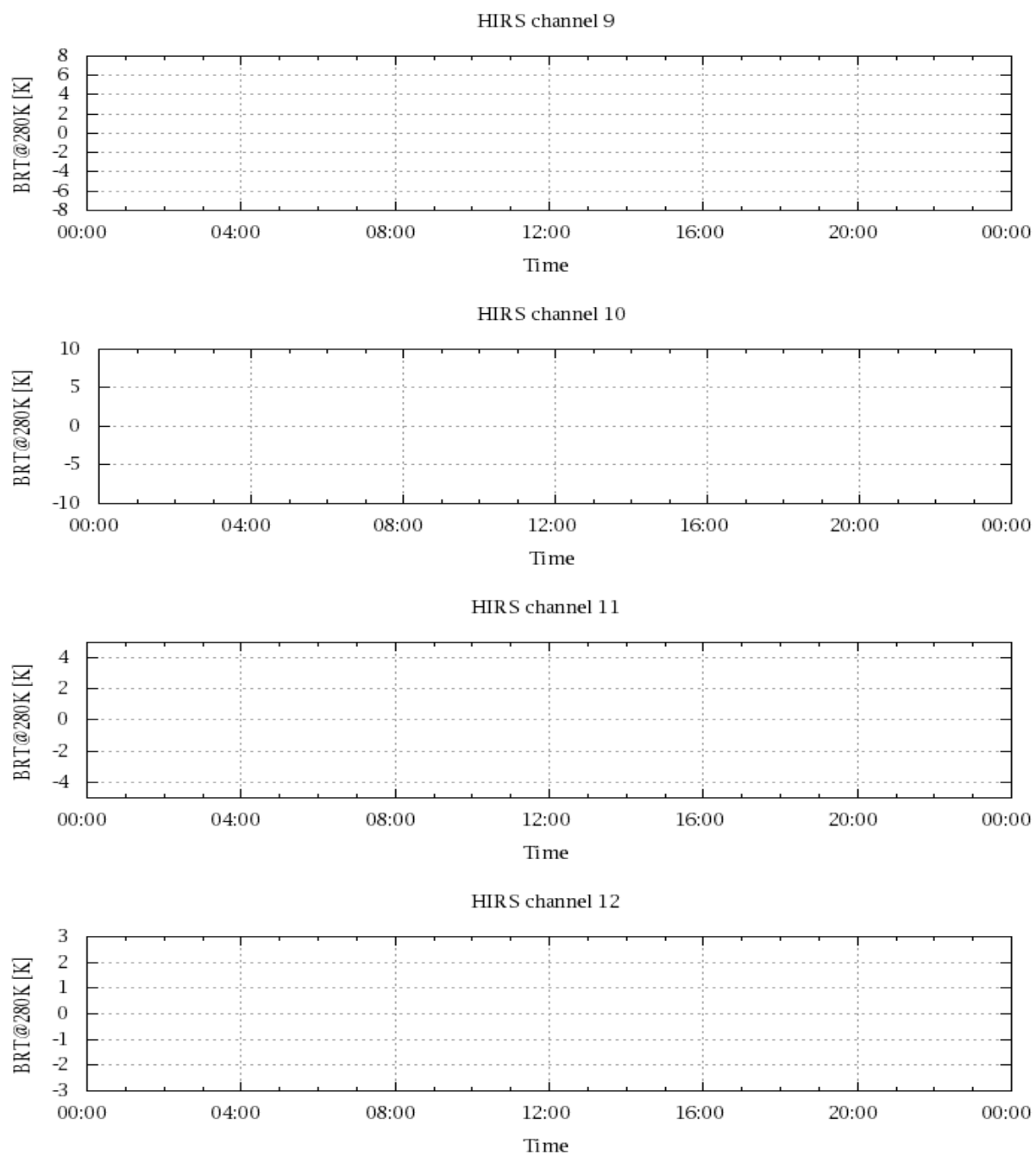


Figure 19: Radiance Differences in BT

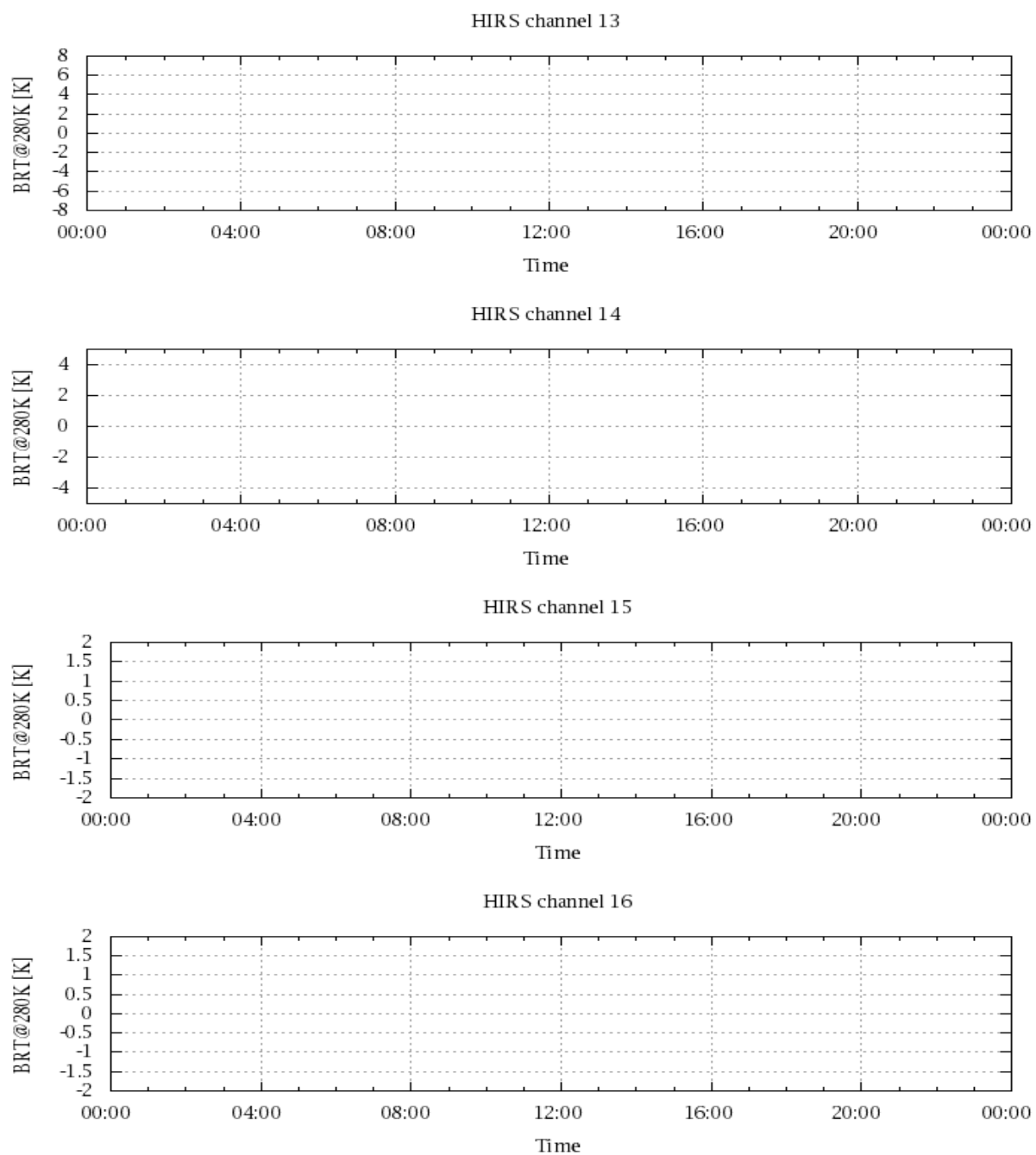


Figure 20: Radiance Differences in BT



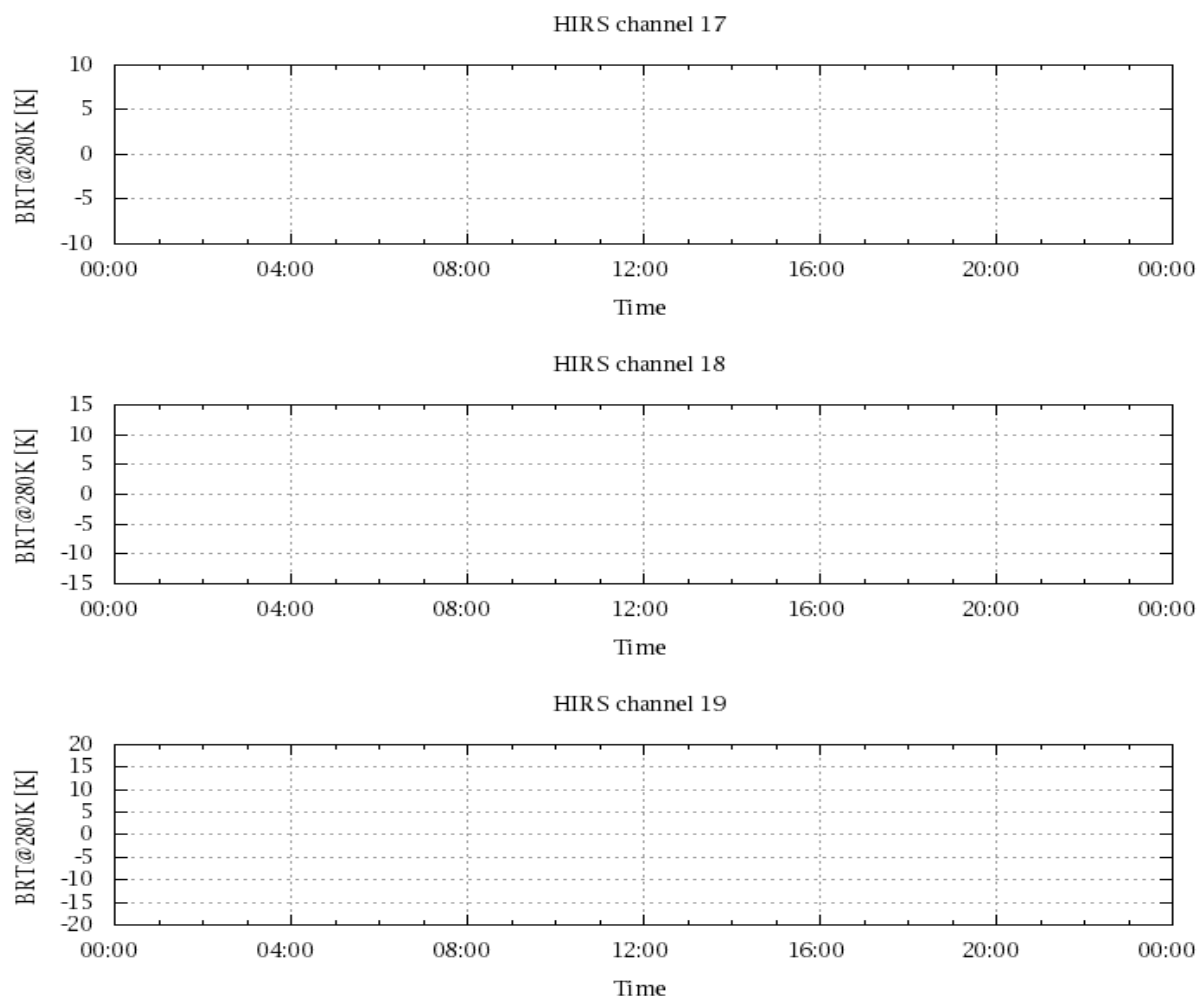


Figure 21: Radinace Differences in BT