

# IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

21/02/2018 00:00:00 - 22/02/2018 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 minute data packet) for 21/02/2018 00:00:00 - 22/02/2018 00:00:00 .

The monitoring data are extracted on PDU basis.

Data extraction, calibration, processing and statistics are performed at EUMETSAT.

## 2 Data quantity 21/02/2018 00:00:00 - 22/02/2018 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	476	-
L1 ENG distinct GEPSGranule	466	-
L1 DPX PDUs (RM: IASI-HIRS)	476	-
L1 DPS Files (RM: OBS-CAL NWP based)	476	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	7446	7629	20180221074039.194	20180221074127.842
PX1 (130)	5559	5747	20180221111042.406	20180221111132.136
PX1 (130)	4877	5084	20180221122030.505	20180221122125.857
PX1 (130)	4573	4765	20180221144447.380	20180221144537.973
PX2 (135)	7446	7629	20180221074039.194	20180221074127.842
PX2 (135)	5559	5747	20180221111042.406	20180221111132.136
PX2 (135)	4877	5084	20180221122030.505	20180221122125.857
PX2 (135)	4573	4765	20180221144447.380	20180221144537.973
PX3 (140)	7446	7629	20180221074039.194	20180221074127.842
PX3 (140)	5559	5747	20180221111042.406	20180221111132.136
PX3 (140)	4877	5084	20180221122030.505	20180221122125.857
PX3 (140)	4573	4765	20180221144447.380	20180221144537.973
PX4 (145)	7446	7629	20180221074039.194	20180221074127.842
PX4 (145)	5559	5747	20180221111042.406	20180221111132.136
PX4 (145)	4877	5084	20180221122030.505	20180221122125.857
PX4 (145)	4573	4765	20180221144447.380	20180221144537.973
IMG (150)	5437	5645	20180221074038.979	20180221074127.842
IMG (150)	9850	10062	20180221111042.191	20180221111131.918

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	11264	11496	20180221122030.290	20180221122124.560
IMG (150)	15288	15505	20180221144447.161	20180221144537.973
VER (160)	5759	5790	20180221074036.166	20180221074132.166
VER (160)	13634	13665	20180221111036.136	20180221111132.136
VER (160)	16254	16289	20180221122028.126	20180221122030.505
VER (160)	5280	5311	20180221144444.137	20180221144540.133
AUX (180)	7689	7696	20180221074036.600	20180221074132.596
AUX (180)	9264	9271	20180221111036.570	20180221111132.570
AUX (180)	9788	9795	20180221122028.560	20180221122124.560
AUX (180)	10870	10877	20180221144444.567	20180221144540.567

Table 2: L0 data gaps

### 3 Instrument modes

Time	Transition from	Transition to
21/02/2018 00:00:01	-	Normal operation

Table 3: Instrument modes

### 4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	481	-
L1 ENG PDUs	476	-
L1 ENG distinct GEPSGranule	466	-
GQisFlagQual set (PX1)	99.59 %	-
GQisFlagQual set (PX2)	99.65 %	-
GQisFlagQual set (PX3)	99.67 %	-
GQisFlagQual set (PX4)	99.59 %	-
GQisFlagQual set (all)	99.62 %	-

Table 4: Quality flags

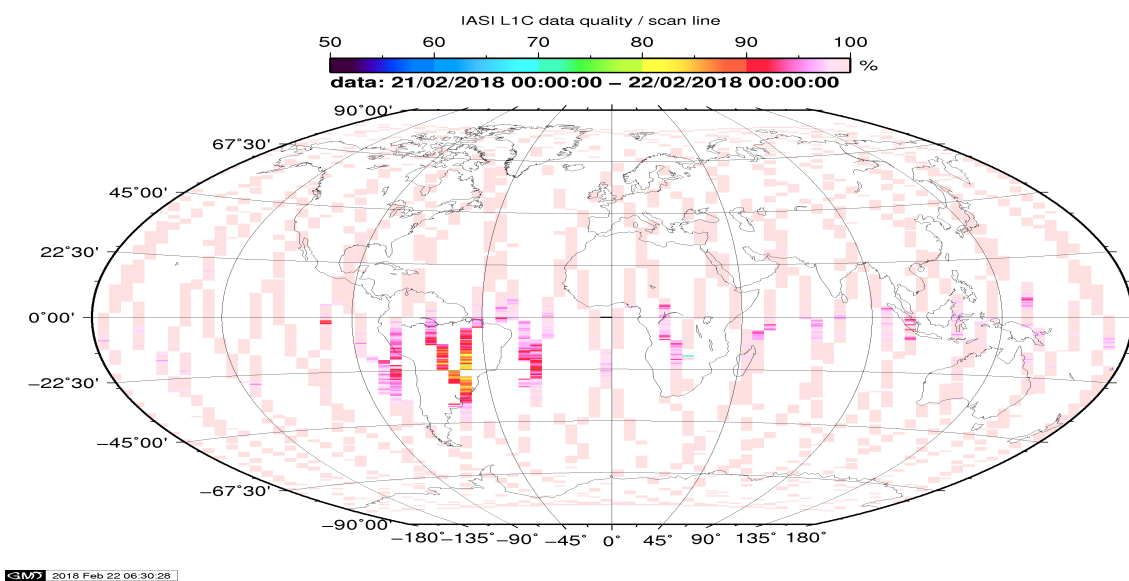


Figure 1: L1C data quality

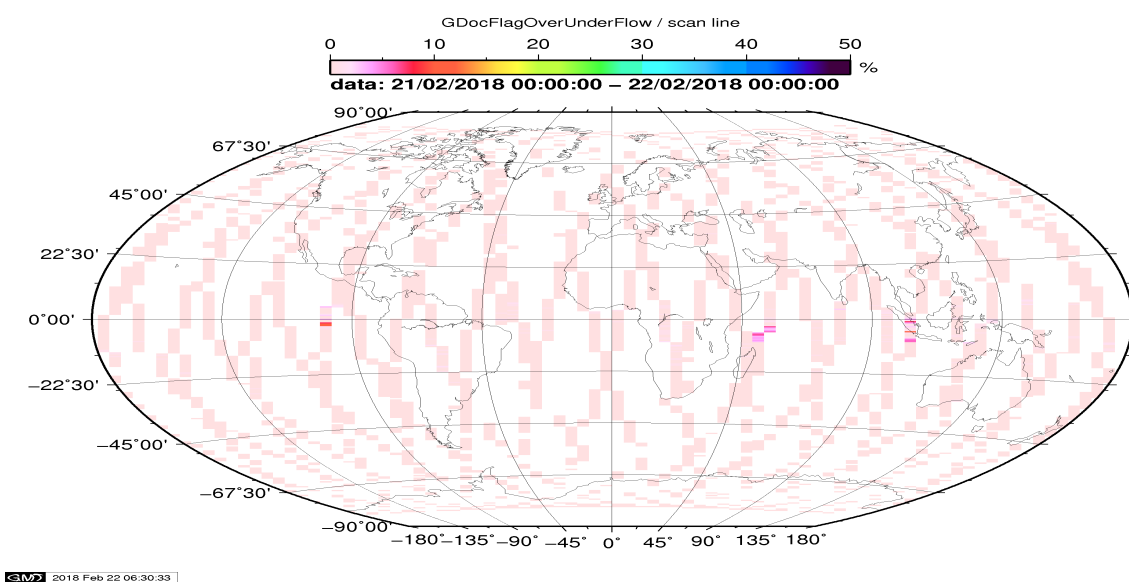


Figure 2: Flag of Over and Under Flows

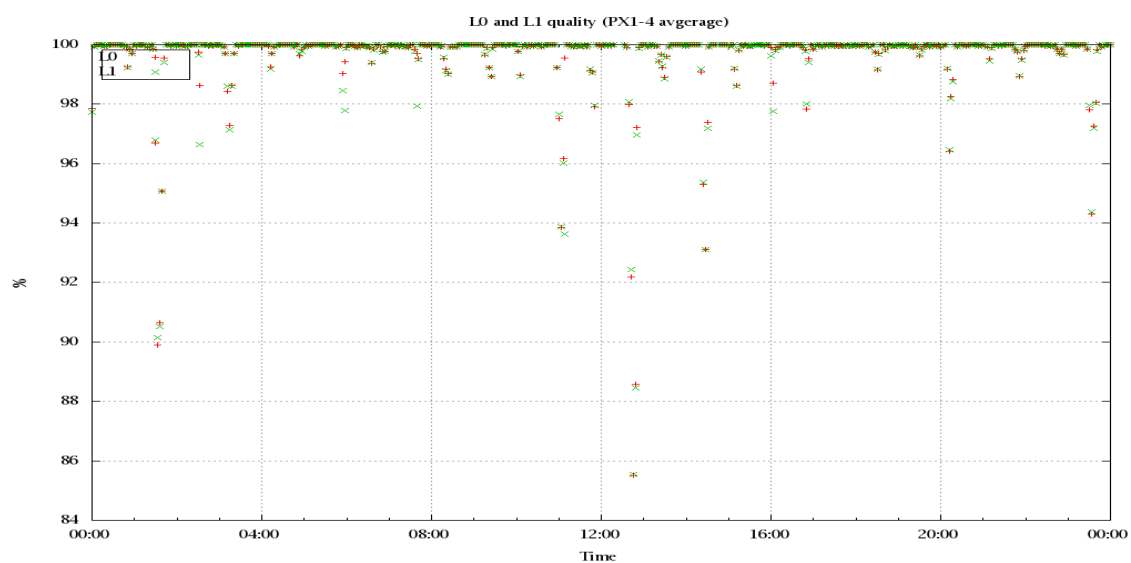


Figure 3: Level 0 and 1C overall quality

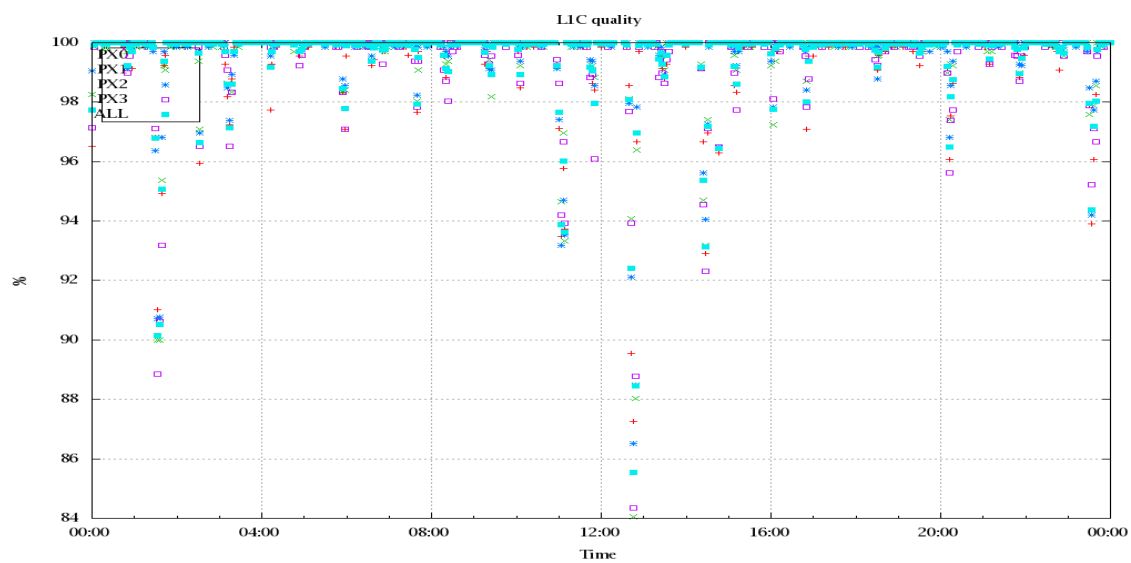


Figure 4: Level 1C quality

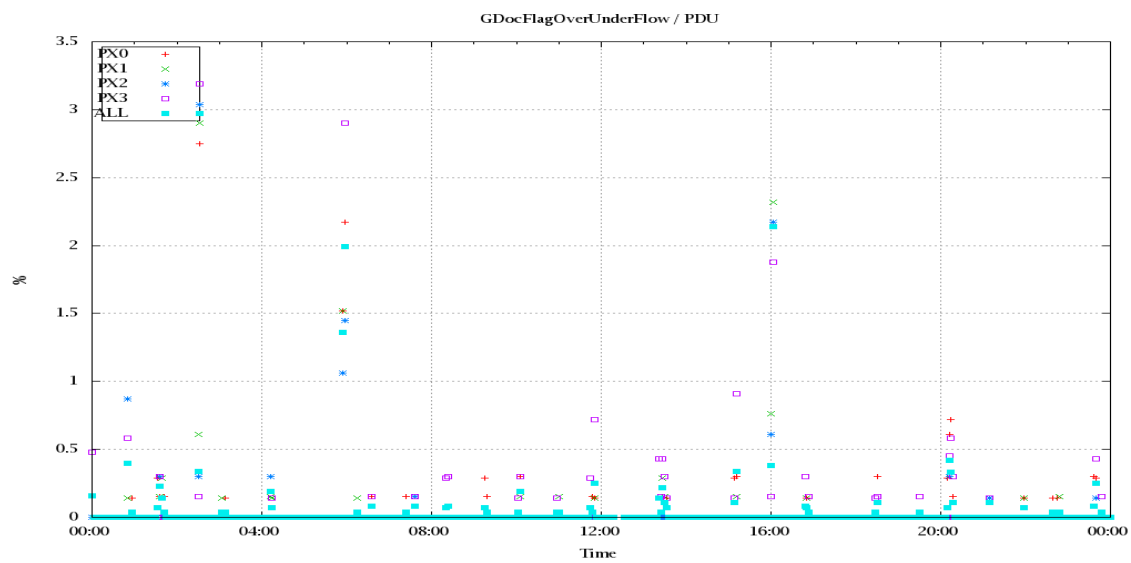


Figure 5: OverUnderFlowFlag timeseries

## 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,WV, and Ozon. 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 10 to 16 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 pixel and scan position 10 to 20) and the average bias OBS-CAL (over all pixel and scan position 10 to 20) of the last 30 days.

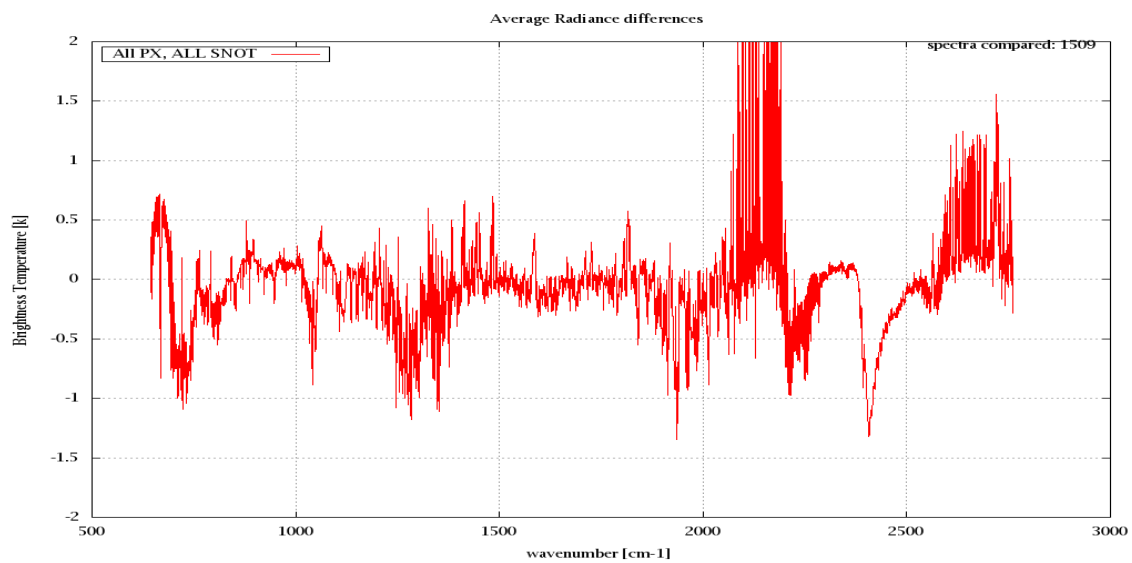


Figure 6: Average Radiance differences: OBS-CAL

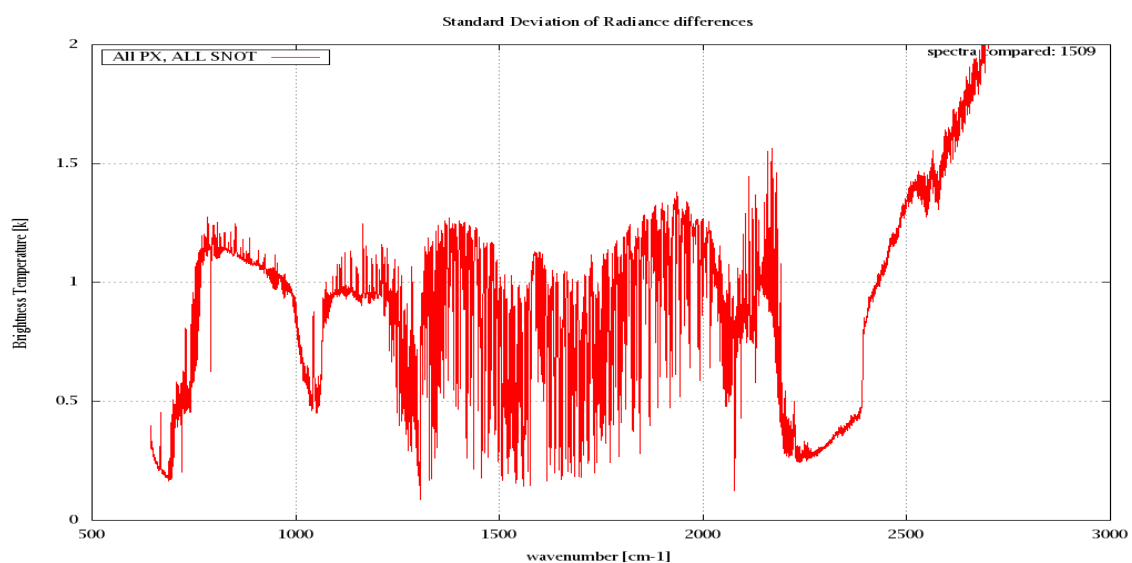


Figure 7: Standard Deviation of Radiance differences

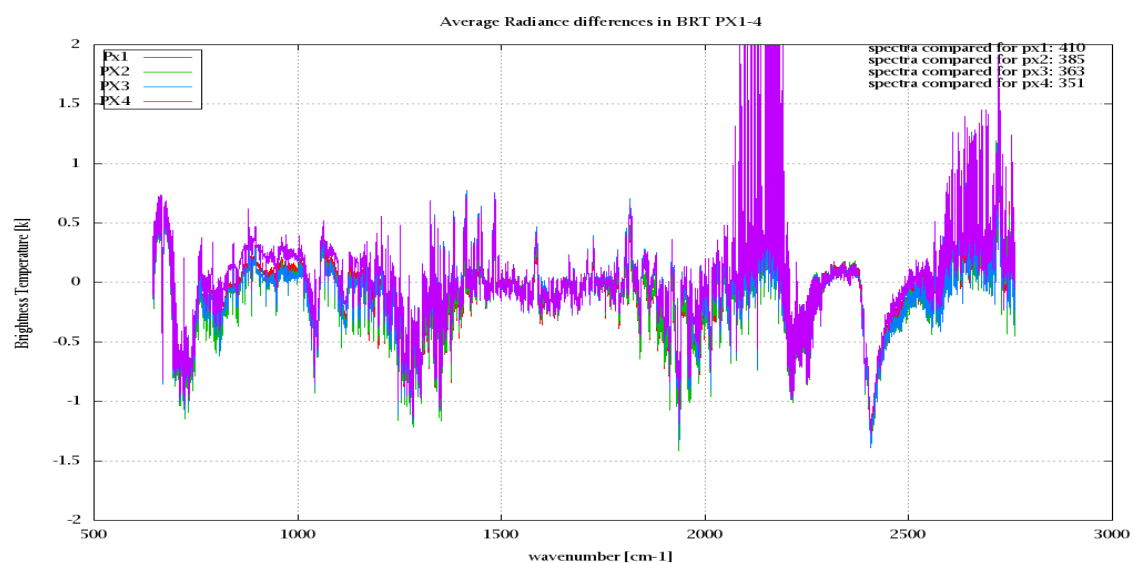


Figure 8: Average Radiance differences: OBS-CAL

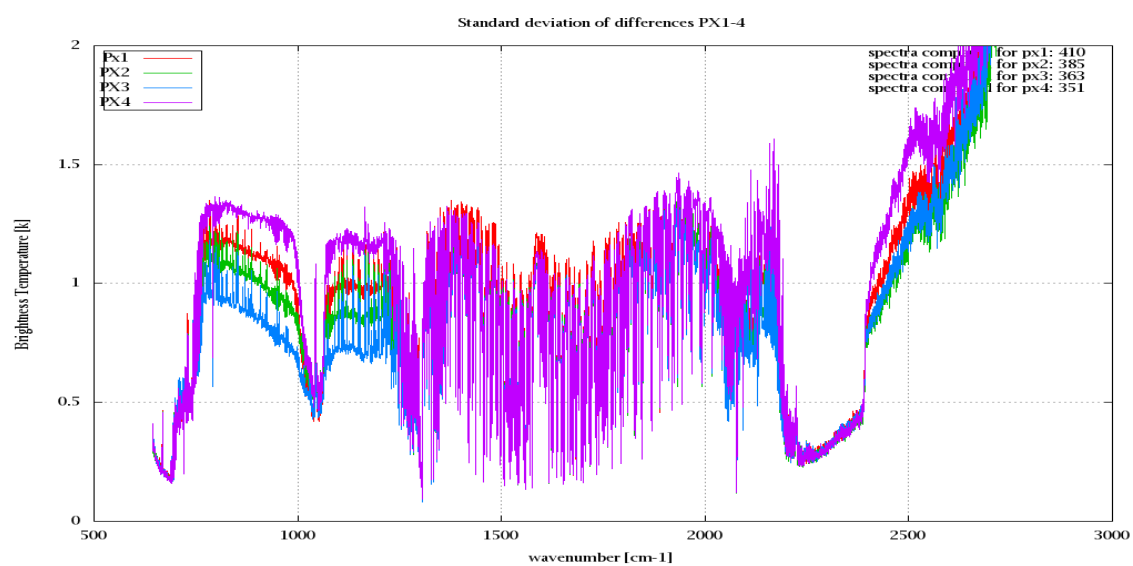


Figure 9: Standard Deviation of Radiance differences



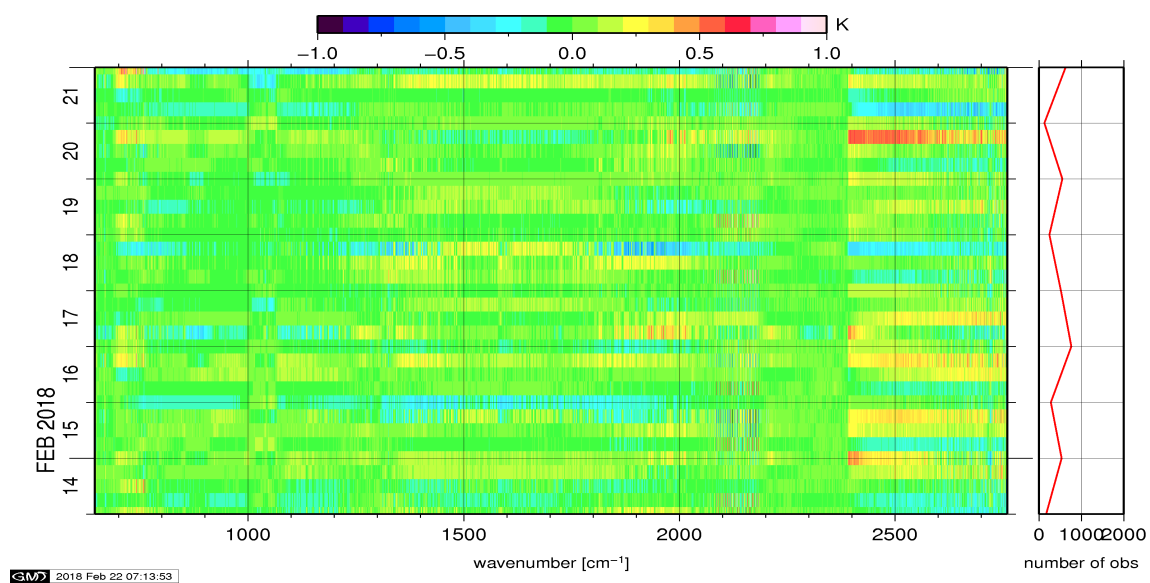


Figure 10: Radiance Anomaly in BRT: All Channels

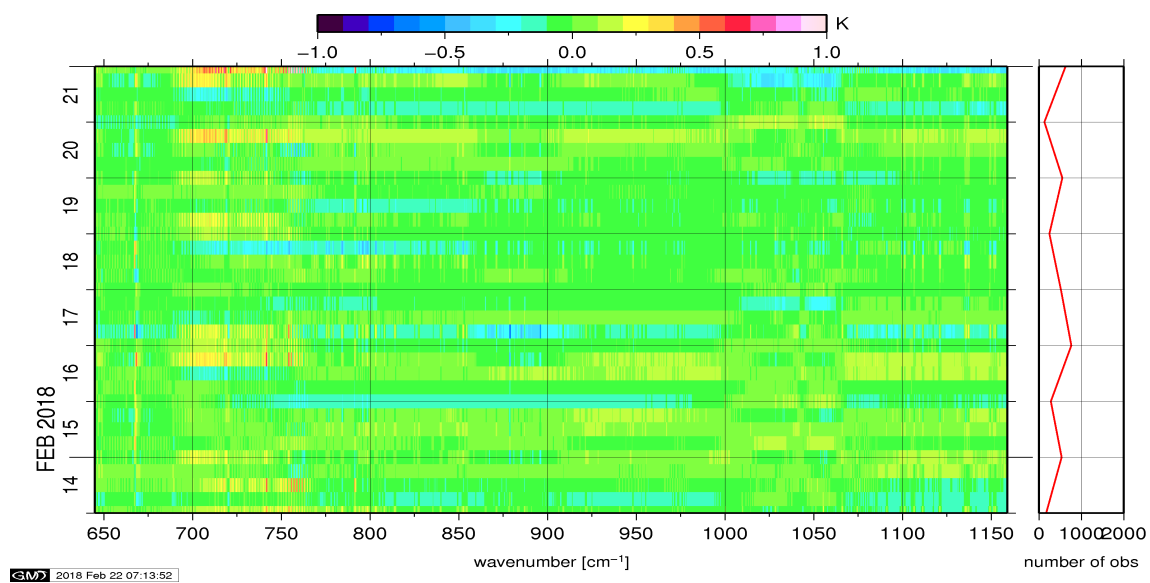


Figure 11: Radiance Anomaly in BRT: IASI Band 1

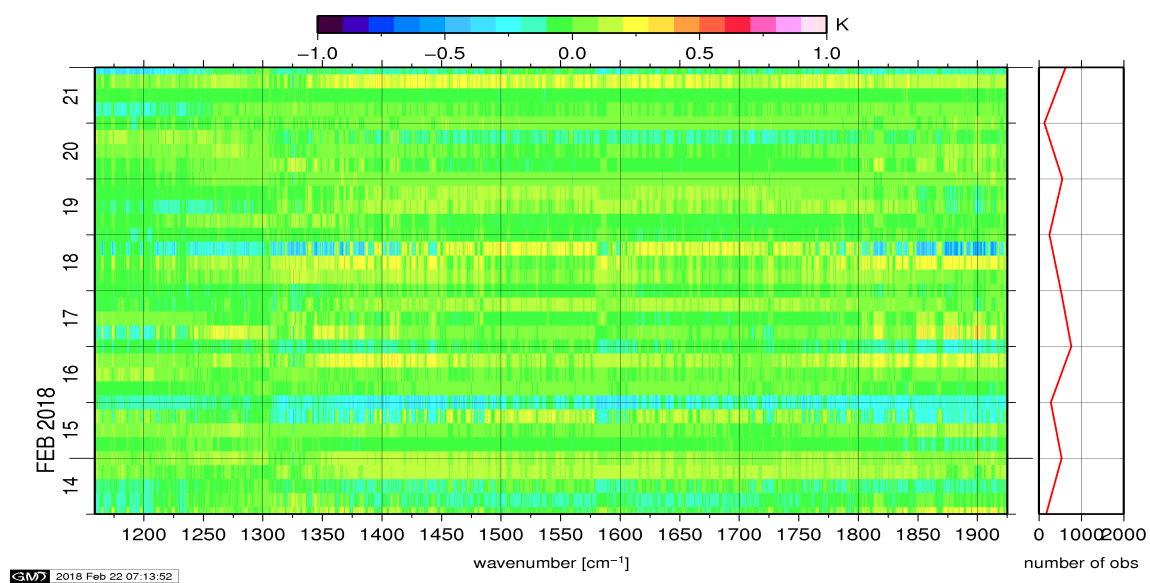


Figure 12: Radiance Anomaly in BRT: IASI Band 2

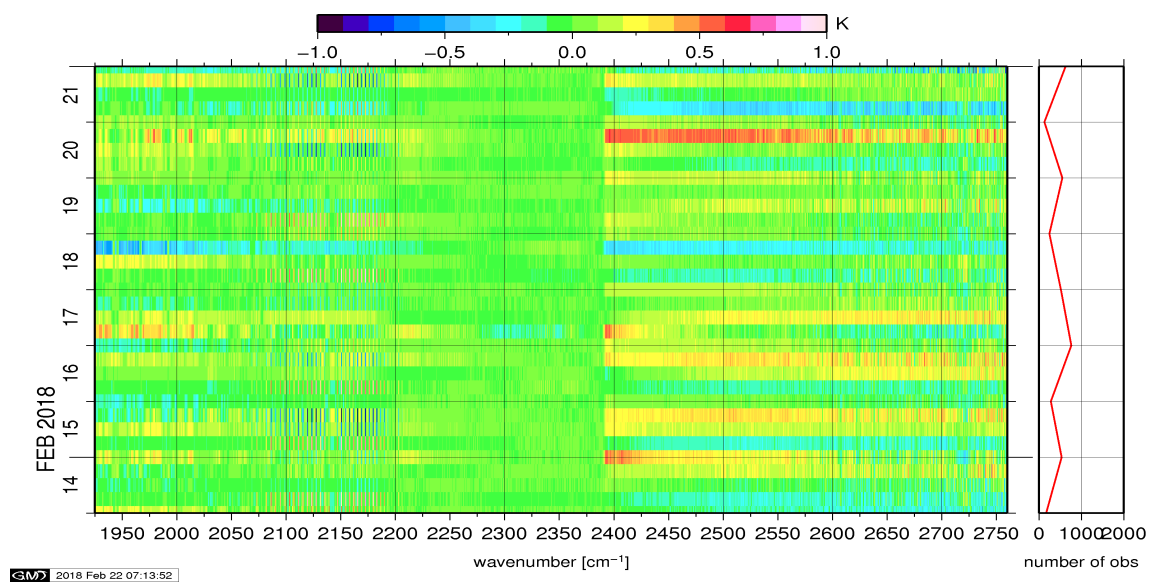


Figure 13: Radiance Anomaly in BRT: IASI Band 3

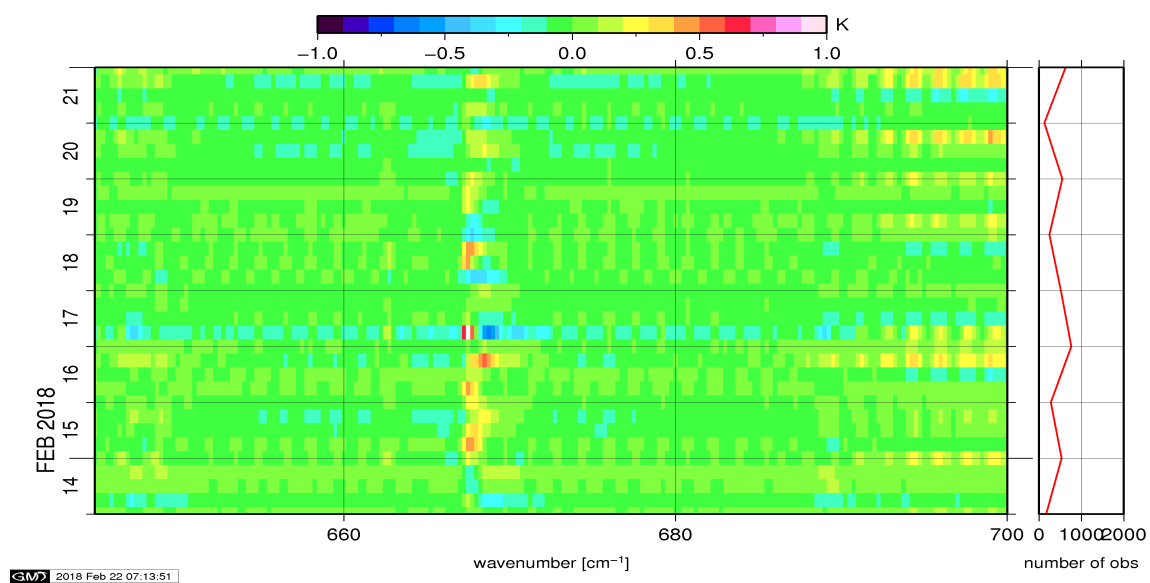


Figure 14: Radiance Anomaly in BRT: CO2 14

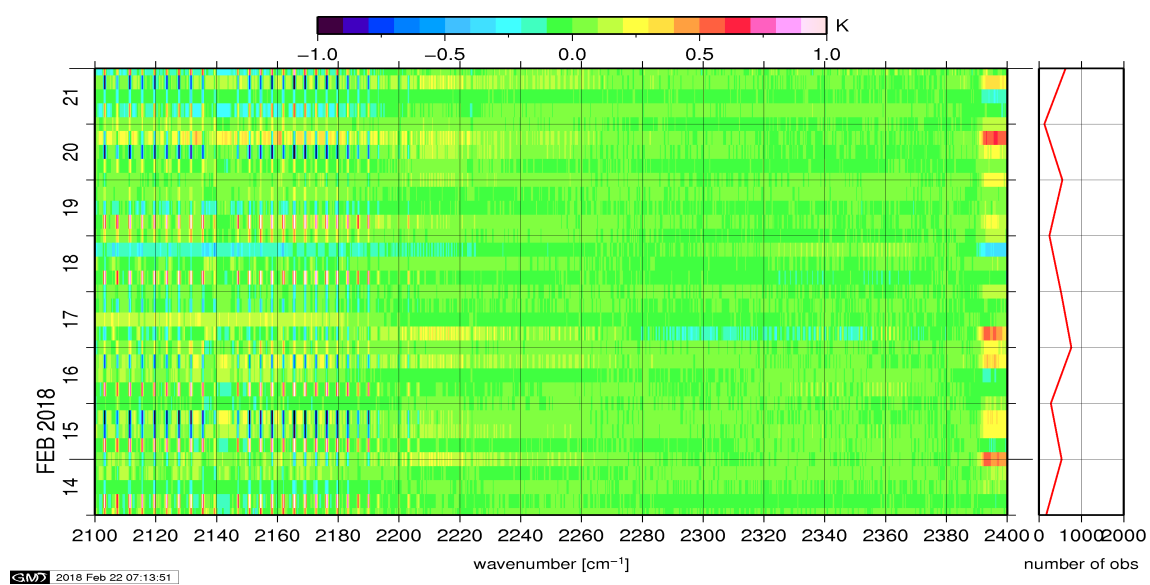


Figure 15: Radiance Anomaly in BRT: CO2 4.3

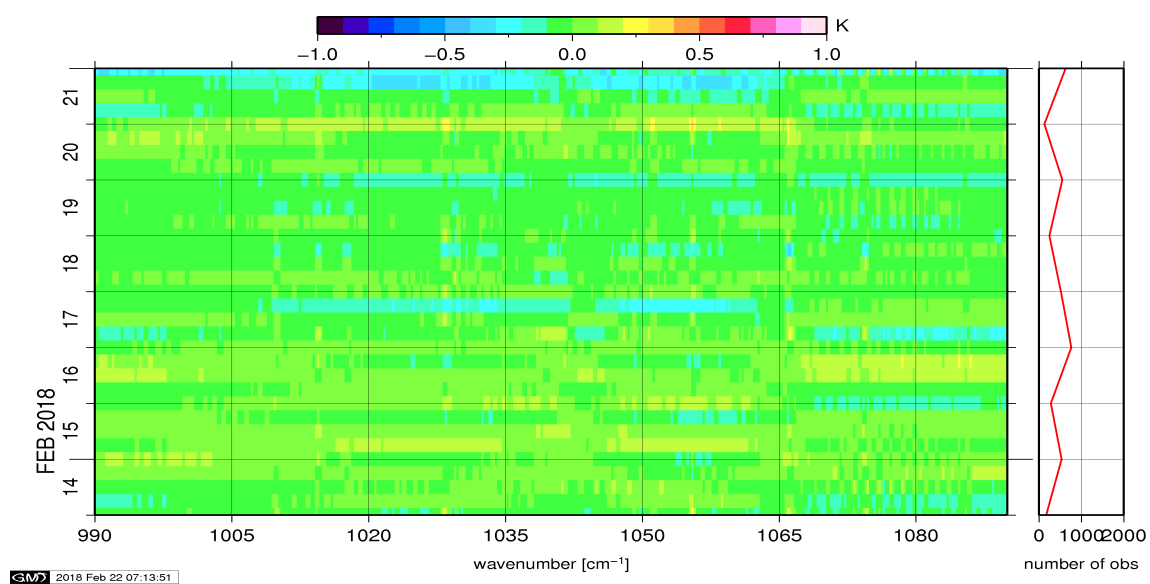


Figure 16: Radiance Anomaly in BRT: O3

## 6 IASI-HIRS radiance comparison Channel 1-19

The radiance comparison of IASI and HIRS/4 on-board MetOp is performed on all pixel 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 temperature. 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.

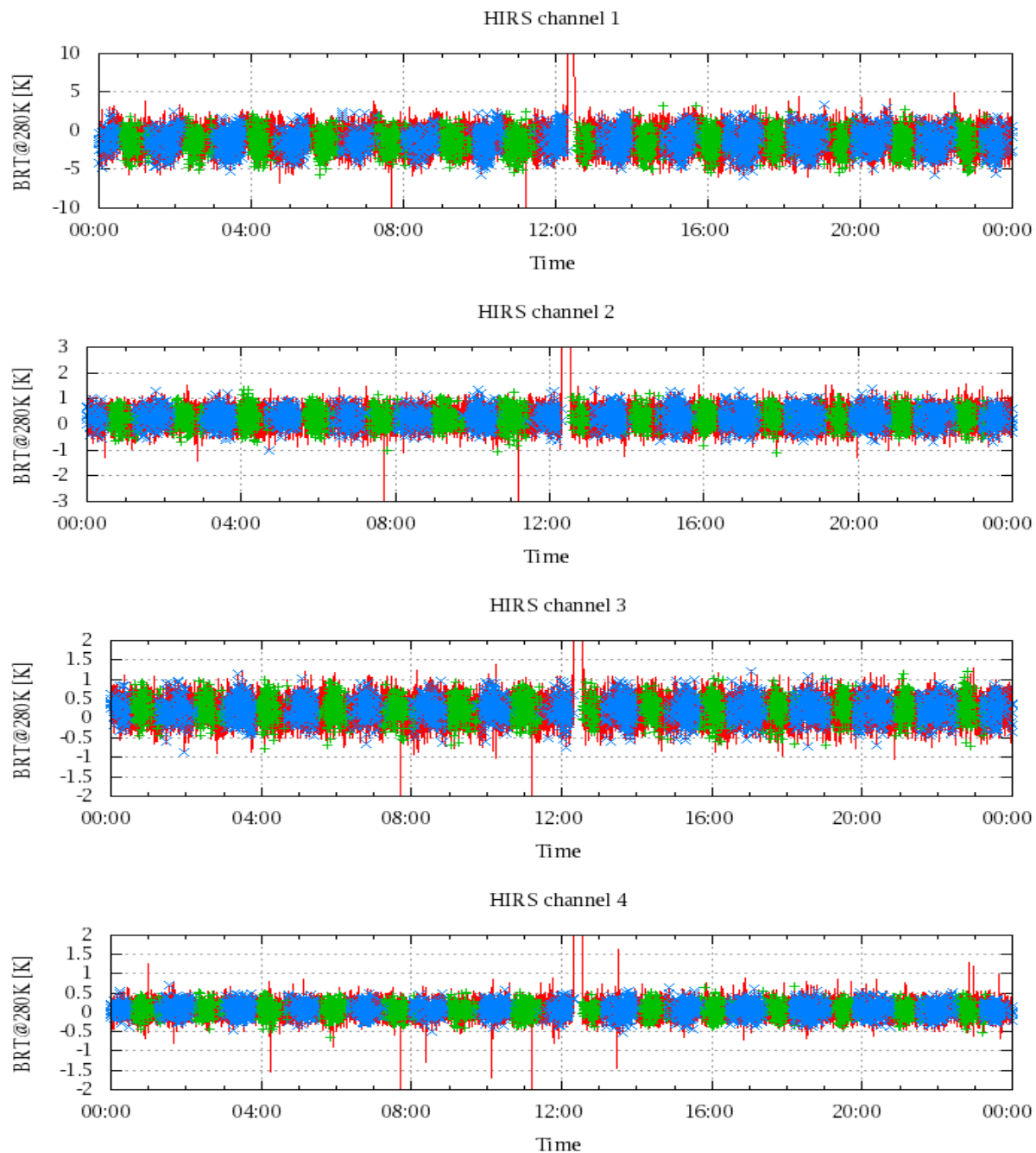


Figure 17: Radiance Differences in BRT

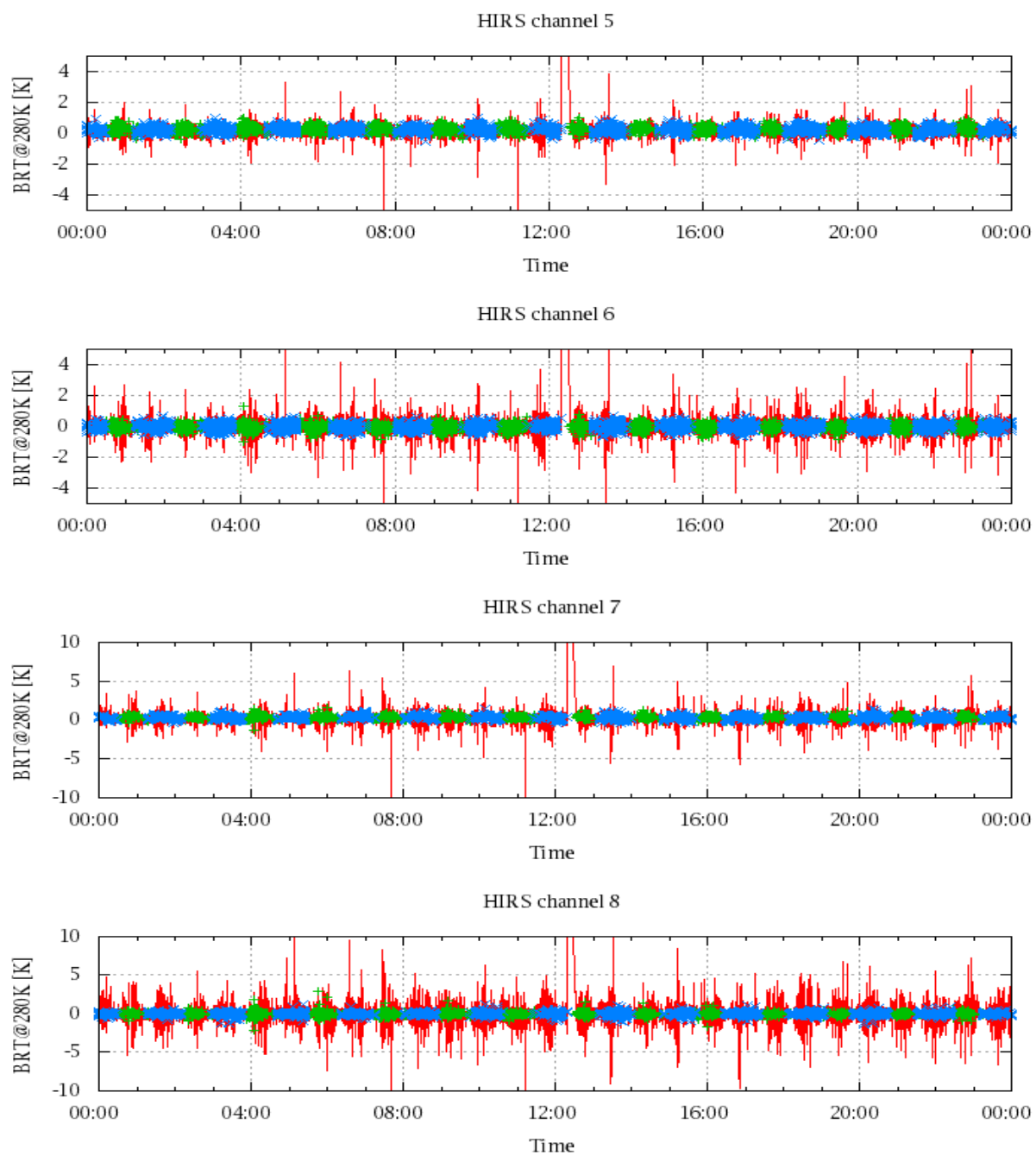


Figure 18: Radiance Differences in BRT

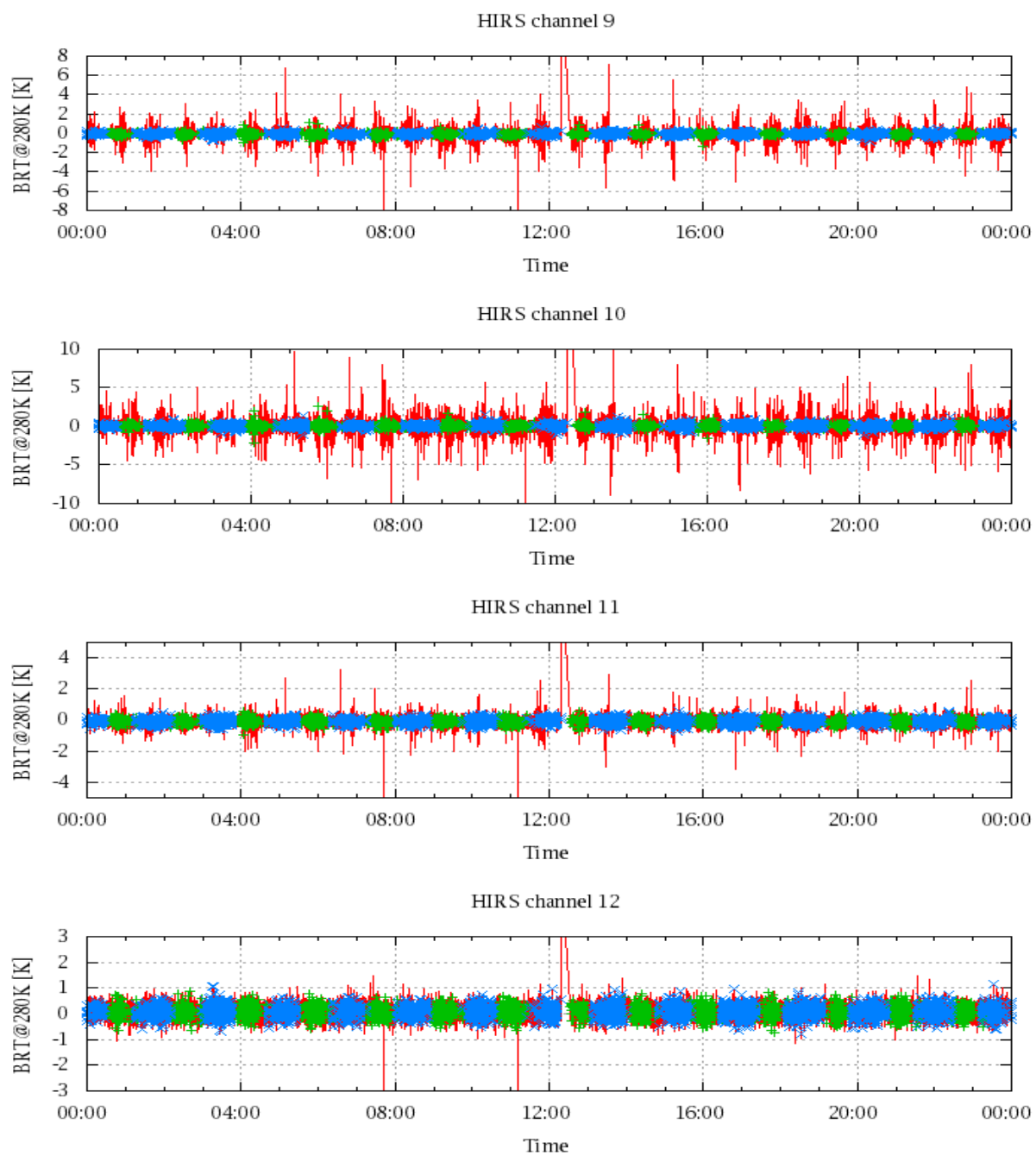


Figure 19: Radiance Differences in BRT

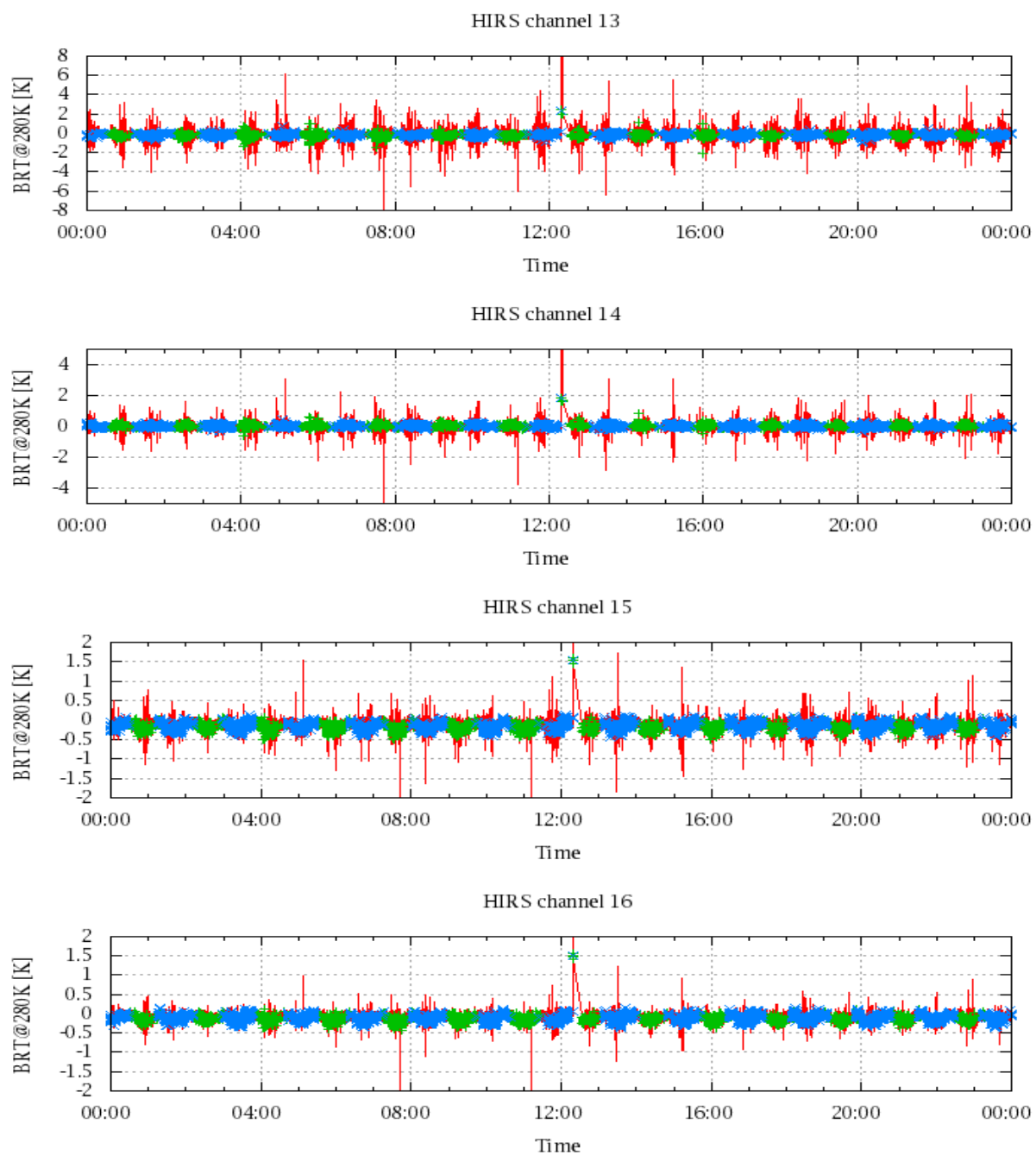


Figure 20: Radiance Differences in BRT



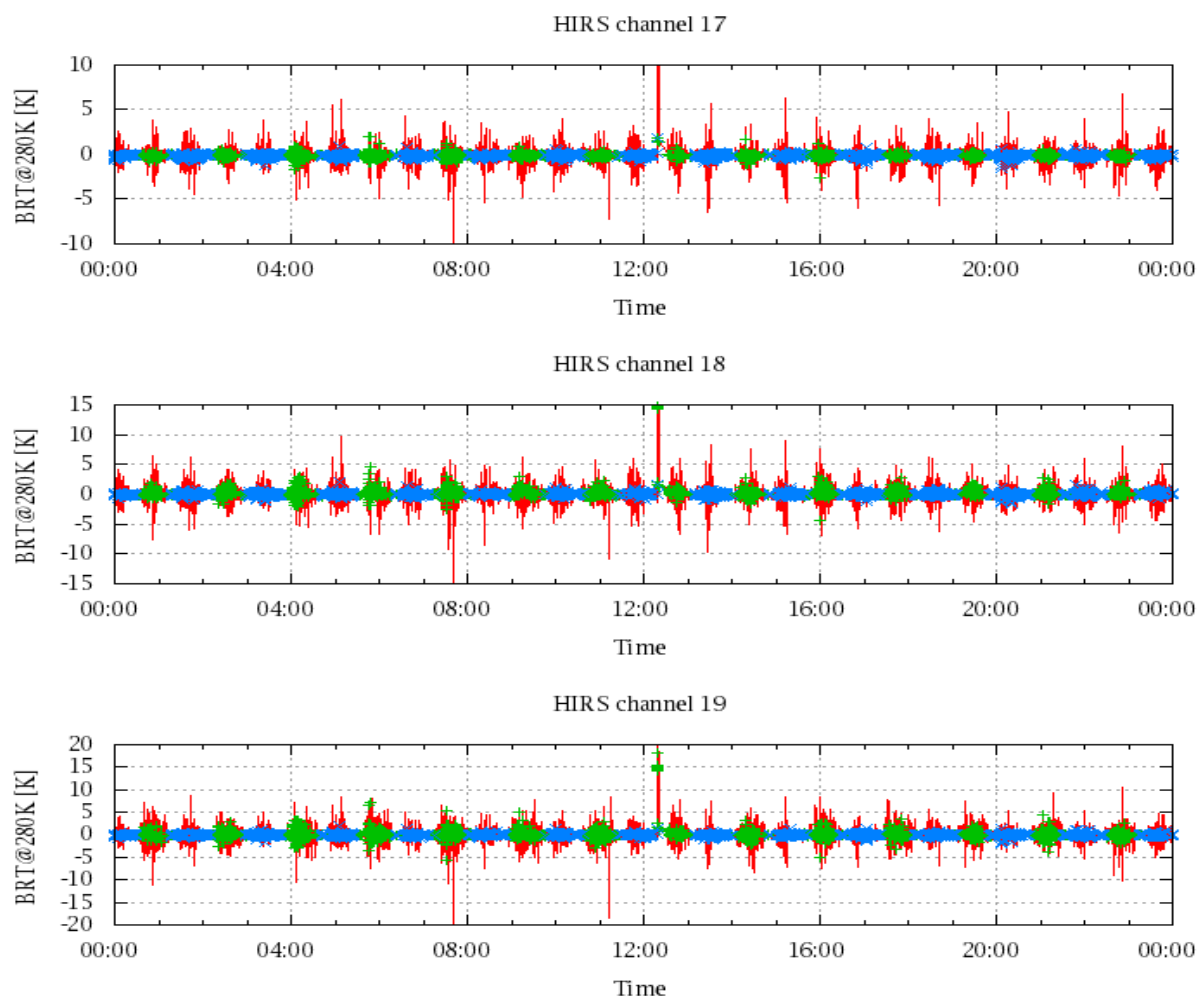


Figure 21: Radinace Differences in BRT