

# IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

26/03/2014 00:00:00 - 27/03/2014 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 26/03/2014 00:00:00 - 27/03/2014 00:00:00 .

The monitoring data are extracted on PDU basis.

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

## 2 Data quantity 26/03/2014 00:00:00 - 27/03/2014 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	461	-
<b>L0 IASI PDUs</b>	<b>460</b>	<b>e</b>
L1 ENG PDUs	470	-
L1 ENG distinct GEPSGranule	471	-
L1 DPX PDUs (RM: IASI-HIRS)	462	-
L1 DPS Files (RM: OBS-CAL NWP based)	469	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	8059	8064	20140326025630.654	20140326025633.252
PX1 (130)	8069	8079	20140326025634.330	20140326025636.494
PX1 (130)	7555	9580	20140326112359.457	20140326113300.198
PX1 (130)	12771	8538	20140326125959.439	20140326135401.188
PX2 (135)	8058	8064	20140326025630.439	20140326025633.252
PX2 (135)	8069	8079	20140326025634.330	20140326025636.494
PX2 (135)	7555	9580	20140326112359.457	20140326113300.198
PX2 (135)	12771	8538	20140326125959.439	20140326135401.188
PX3 (140)	8058	8064	20140326025630.439	20140326025633.252
PX3 (140)	8069	8079	20140326025634.330	20140326025636.494
PX3 (140)	7555	9580	20140326112359.457	20140326113300.198
PX3 (140)	12771	8538	20140326125959.439	20140326135401.188
PX4 (145)	8058	8064	20140326025630.439	20140326025633.252
PX4 (145)	8069	8079	20140326025634.330	20140326025636.494
PX4 (145)	7555	9580	20140326112359.457	20140326113300.198
PX4 (145)	12771	8538	20140326125959.439	20140326135401.188
IMG (150)	6546	6552	20140326025630.439	20140326025631.951
IMG (150)	6560	6571	20140326025634.115	20140326025636.494

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	4884	7180	20140326112359.891	20140326113300.198
IMG (150)	12980	10367	20140326125959.873	20140326135400.110
VER (160)	10401	10403	20140326025623.521	20140326025630.654
VER (160)	13052	13388	20140326112359.457	20140326113303.444
VER (160)	268	2294	20140326125959.439	20140326135407.457
AUX (180)	15716	15784	20140326112359.891	20140326113303.874
AUX (180)	52	458	20140326125959.873	20140326135407.891

Table 2: L0 data gaps

### 3 Instrument modes

Time	Transition from	Transition to
26/03/2014 00:00:13	-	Normal operation

Table 3: Instrument modes

### 4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	460	e
L1 ENG PDUs	470	-
L1 ENG distinct GEPSGranule	471	-
GQisFlagQual set (PX1)	99.39 %	-
GQisFlagQual set (PX2)	99.51 %	-
GQisFlagQual set (PX3)	99.60 %	-
GQisFlagQual set (PX4)	99.55 %	-
GQisFlagQual set (all)	99.51 %	-

Table 4: Quality flags

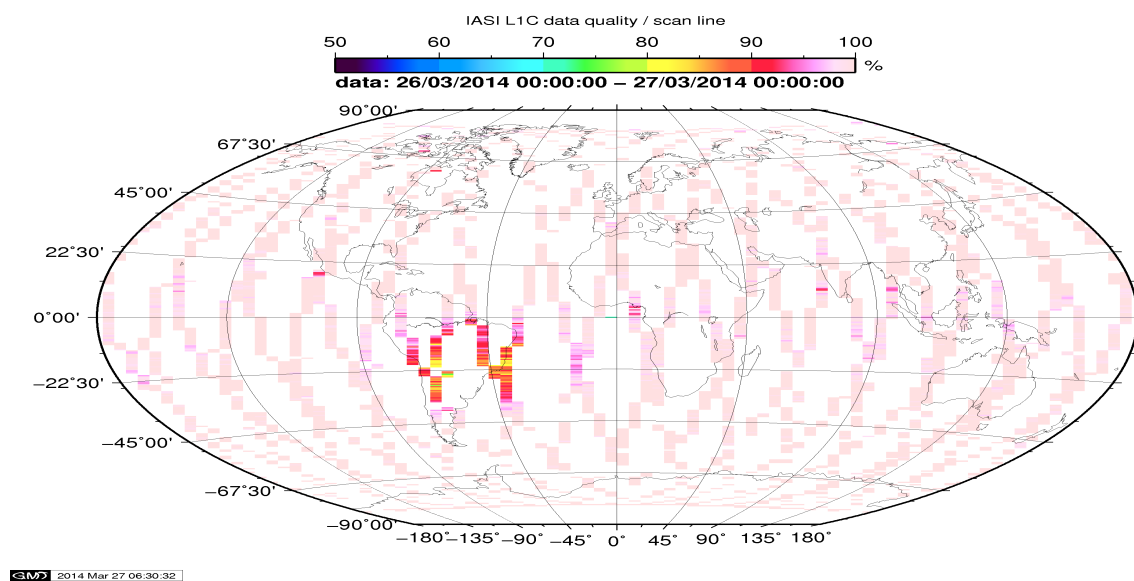


Figure 1: L1C data quality

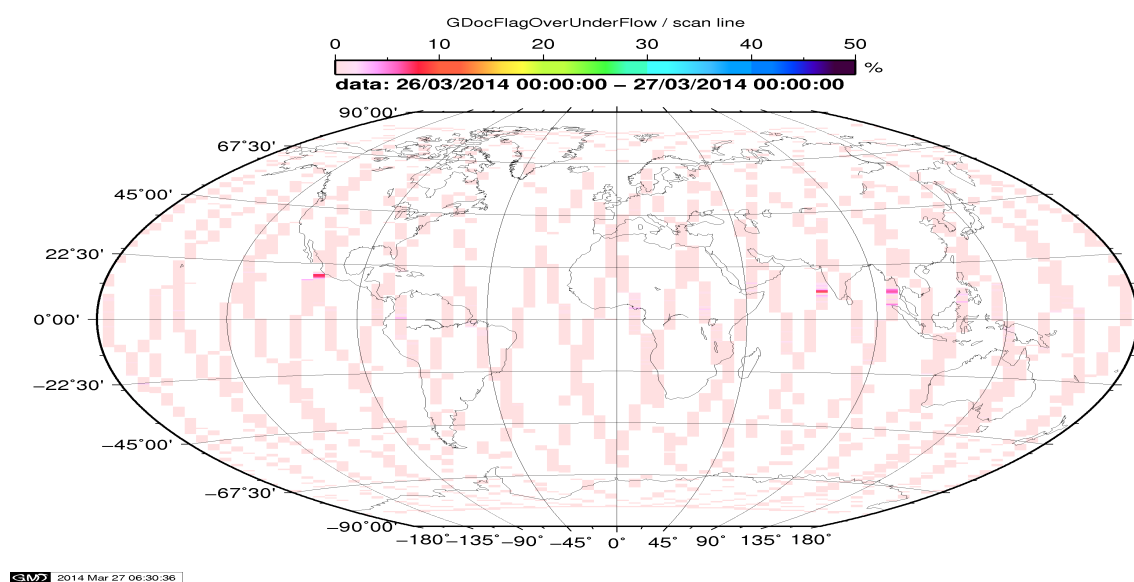


Figure 2: Flag of Over and Under Flows

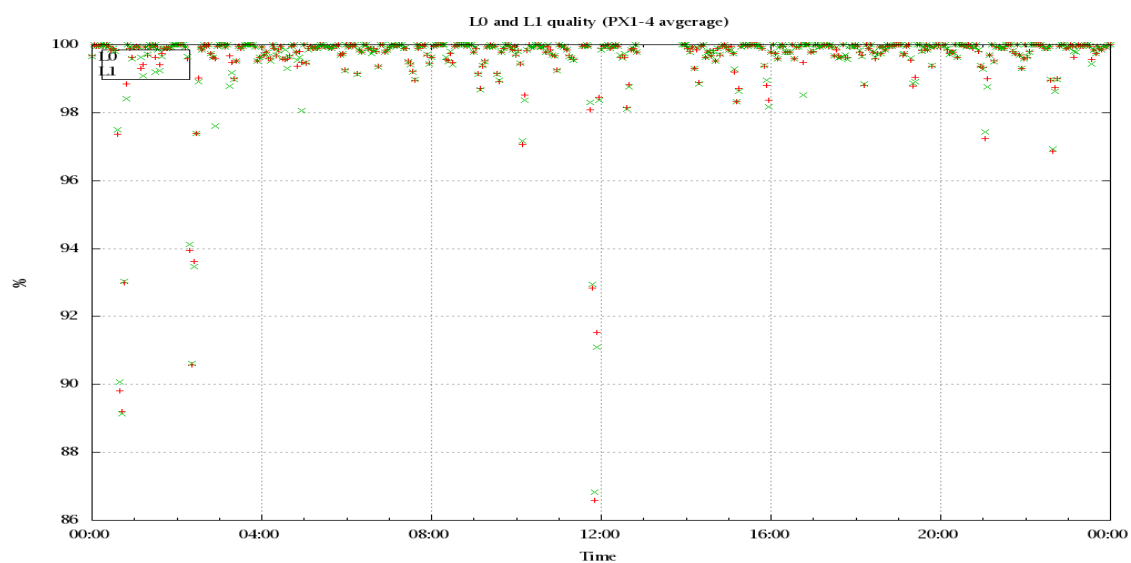


Figure 3: Level 0 and 1C overall quality

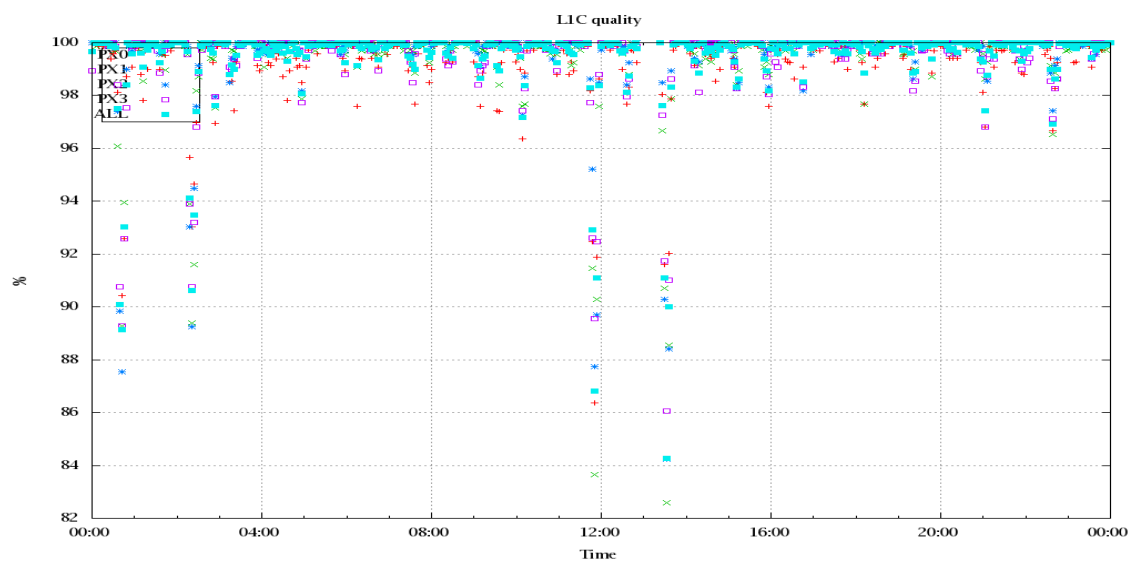


Figure 4: Level 1C quality

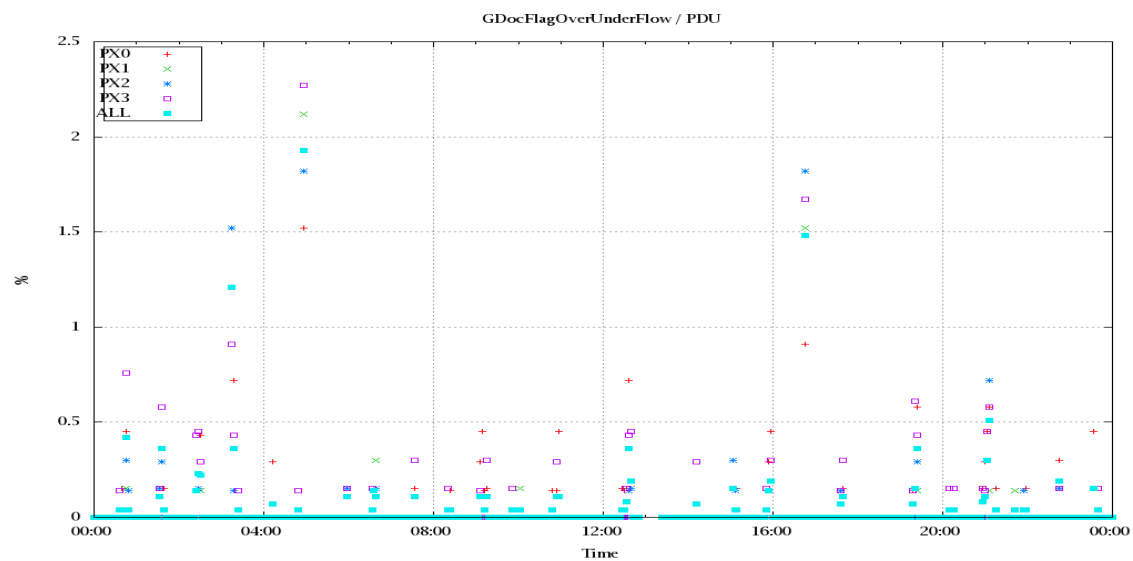


Figure 5: OverUnderFlowFlag timeseries

## 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.

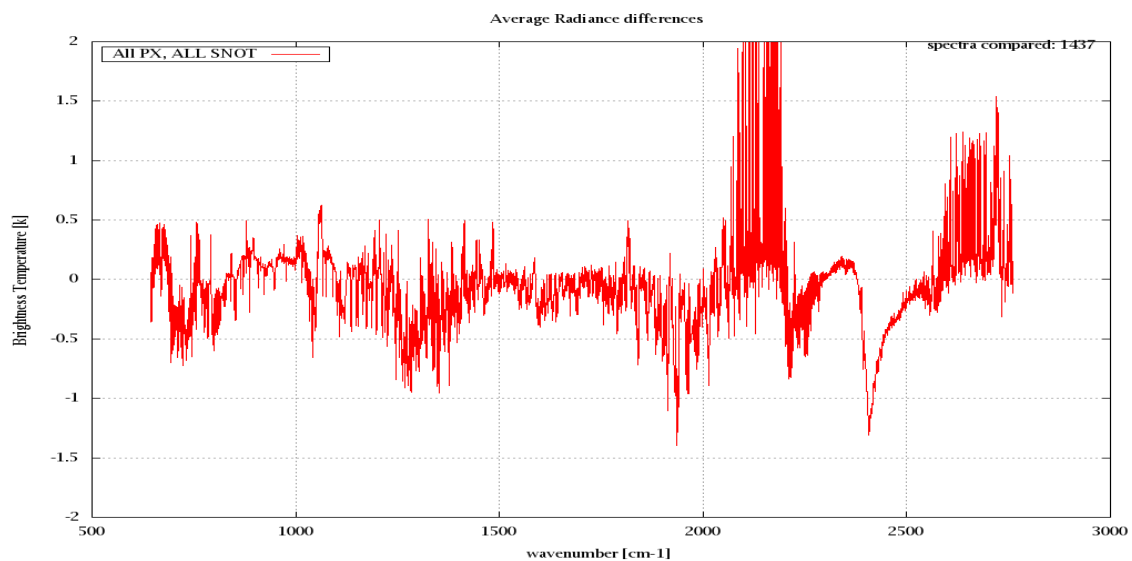


Figure 6: Average Radiance differences: OBS-CAL

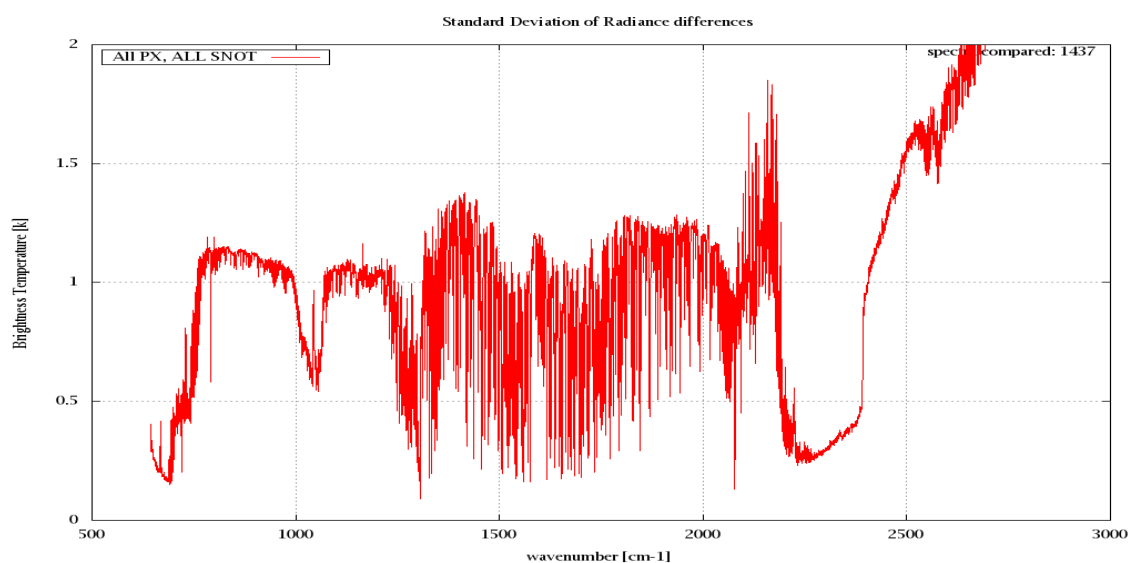


Figure 7: Standard Deviation of Radiance differences

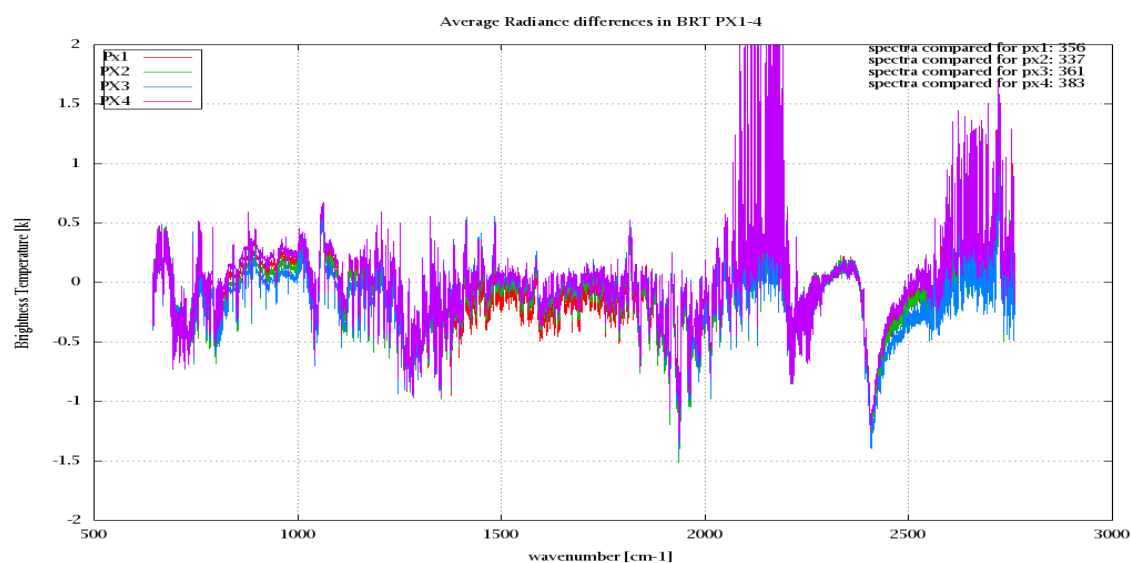


Figure 8: Average Radiance differences: OBS-CAL

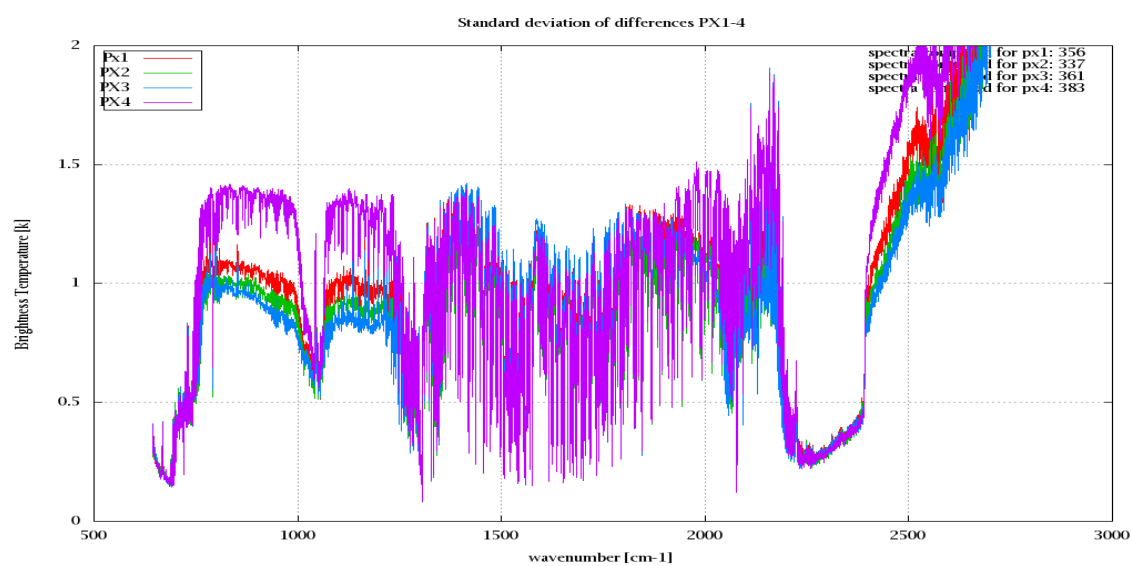


Figure 9: Standard Deviation of Radiance differences



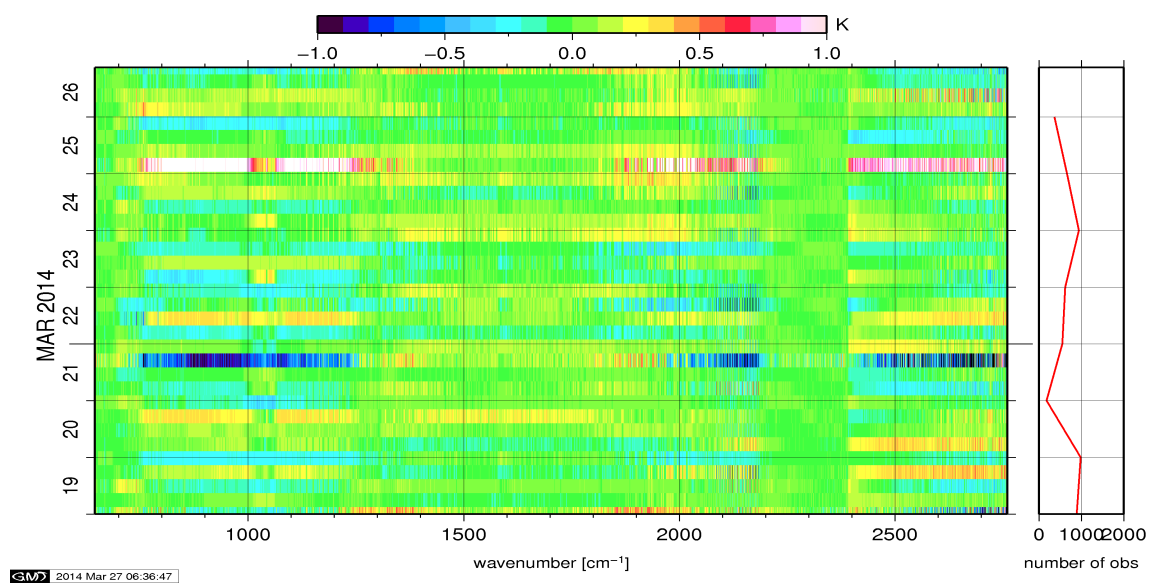


Figure 10: Radiance Anomaly in BRT: All Channels

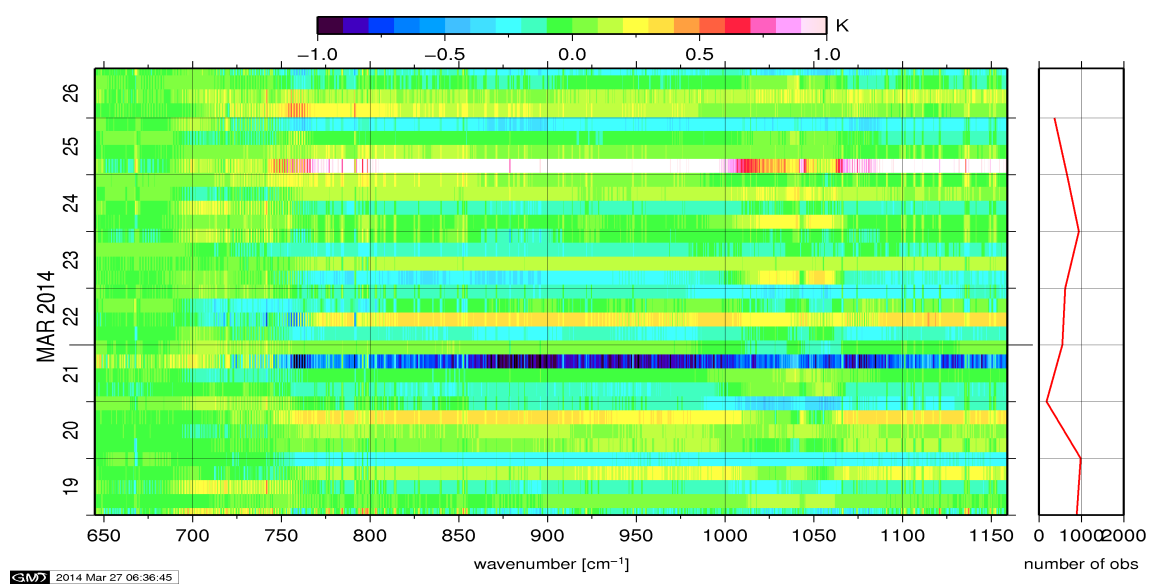


Figure 11: Radiance Anomaly in BRT: IASI Band 1

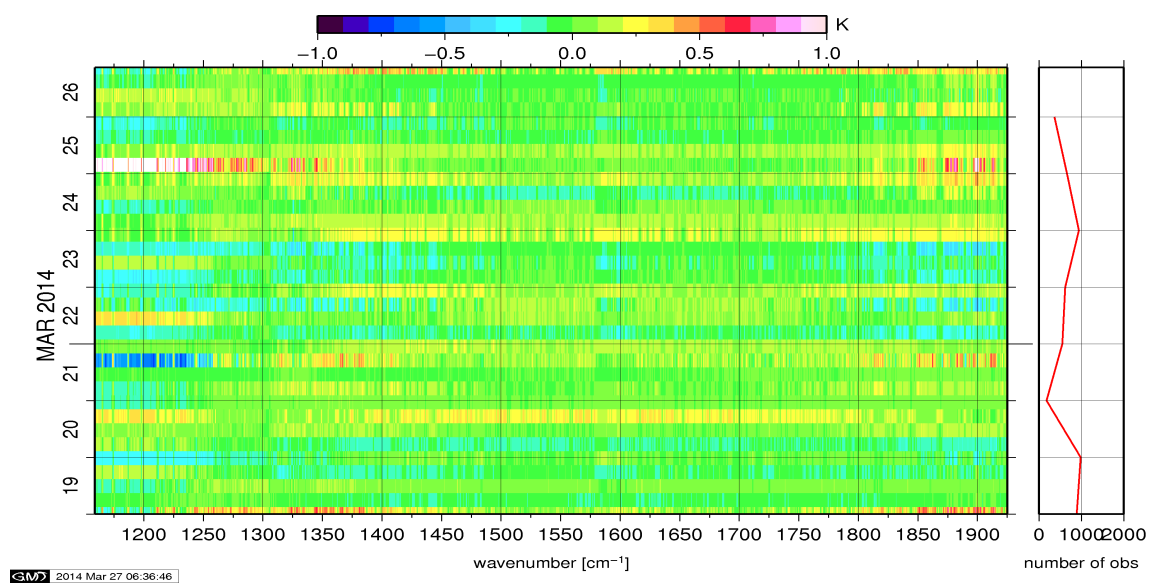


Figure 12: Radiance Anomaly in BRT: IASI Band 2

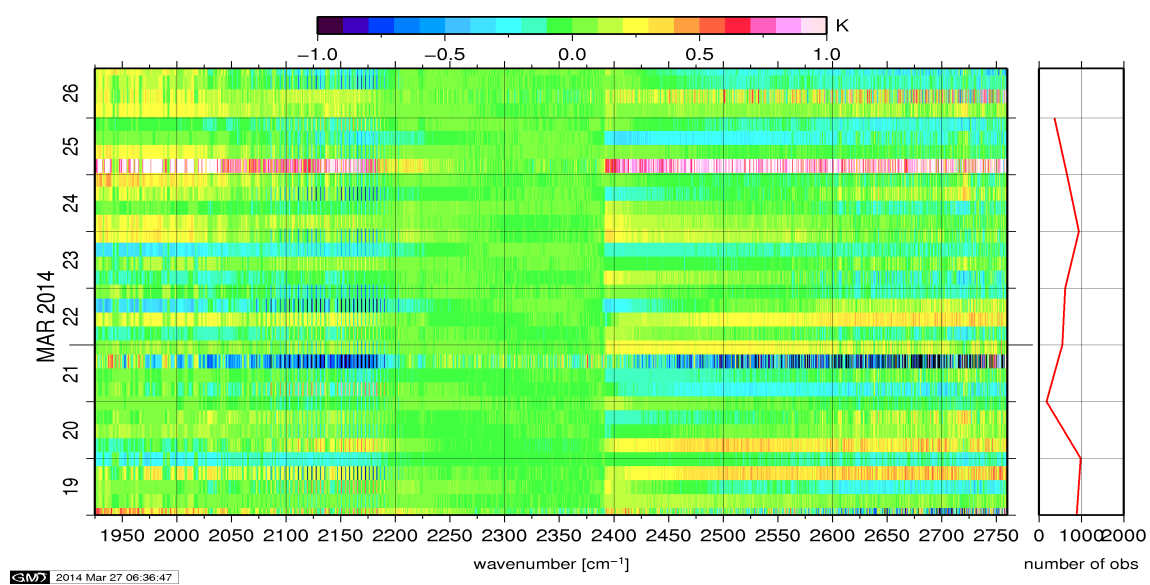


Figure 13: Radiance Anomaly in BRT: IASI Band 3

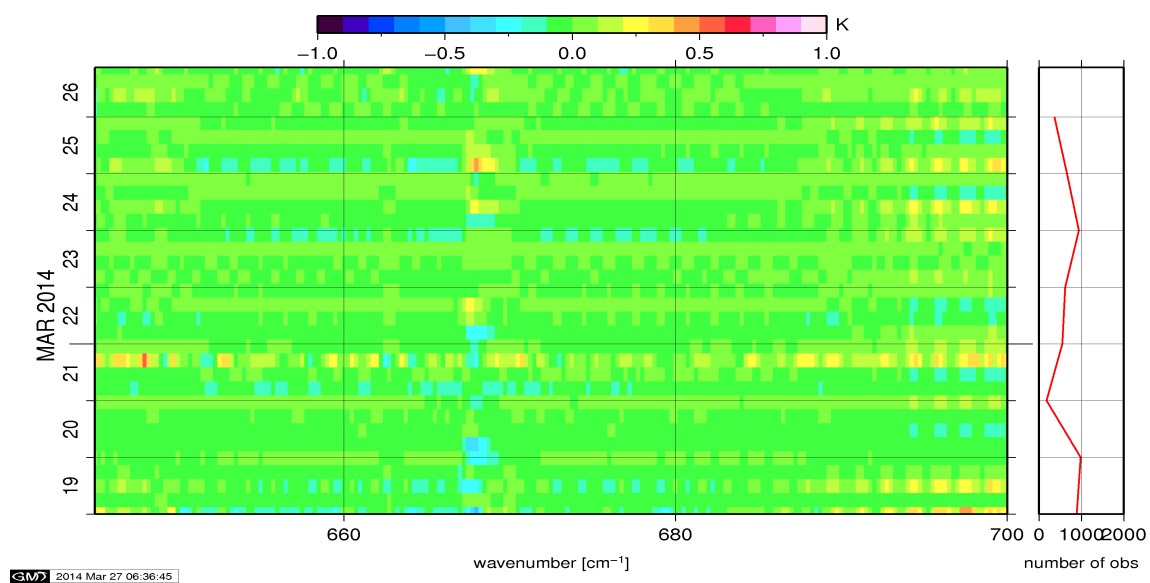


Figure 14: Radiance Anomaly in BRT: CO2 14

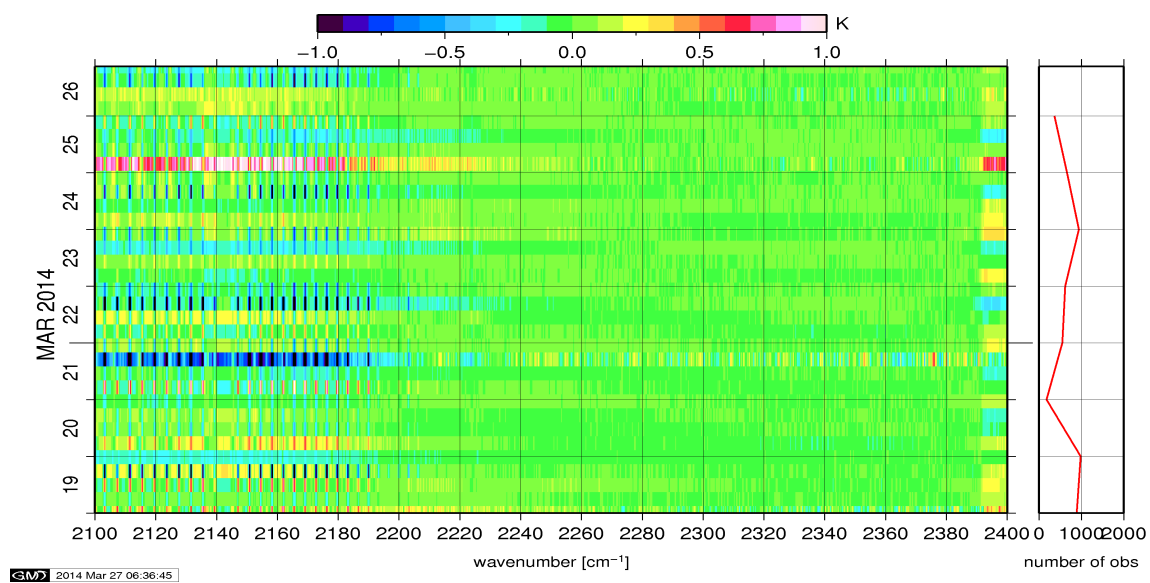


Figure 15: Radiance Anomaly in BRT: CO2 4.3

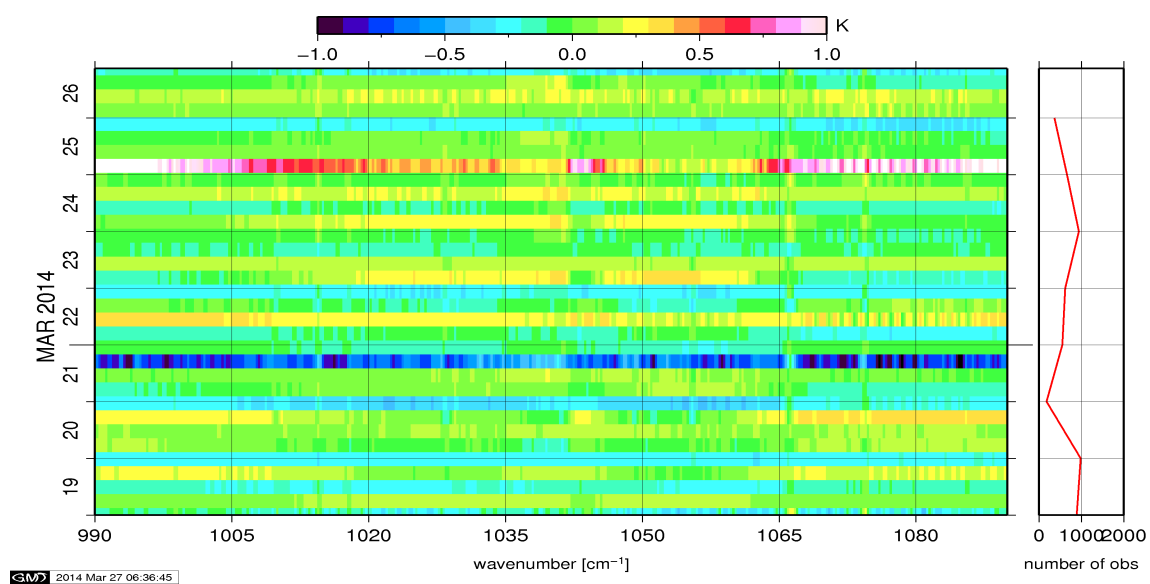


Figure 16: Radiance Anomaly in BRT: O3

## 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.

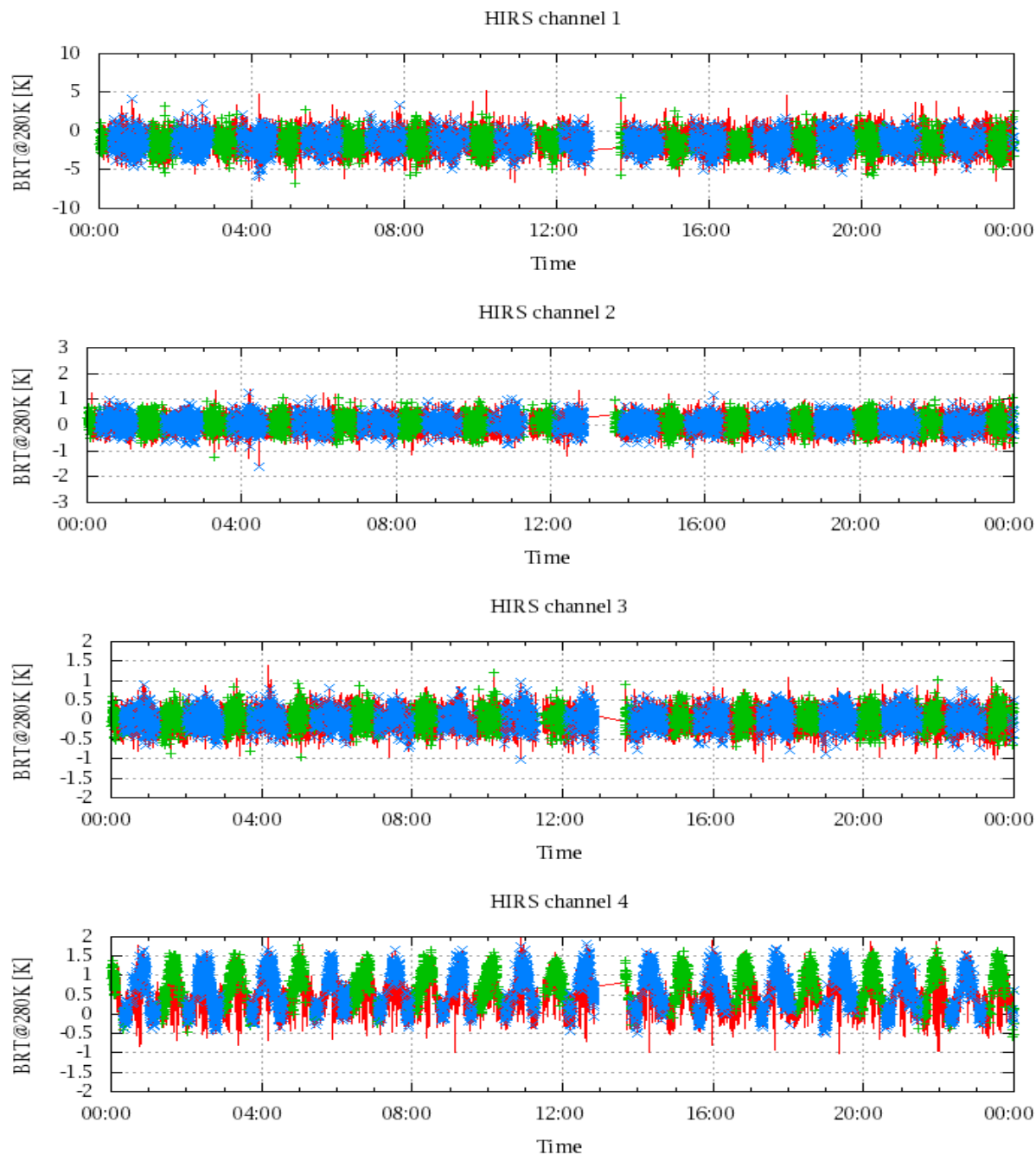


Figure 17: Radiance Differences in BRT

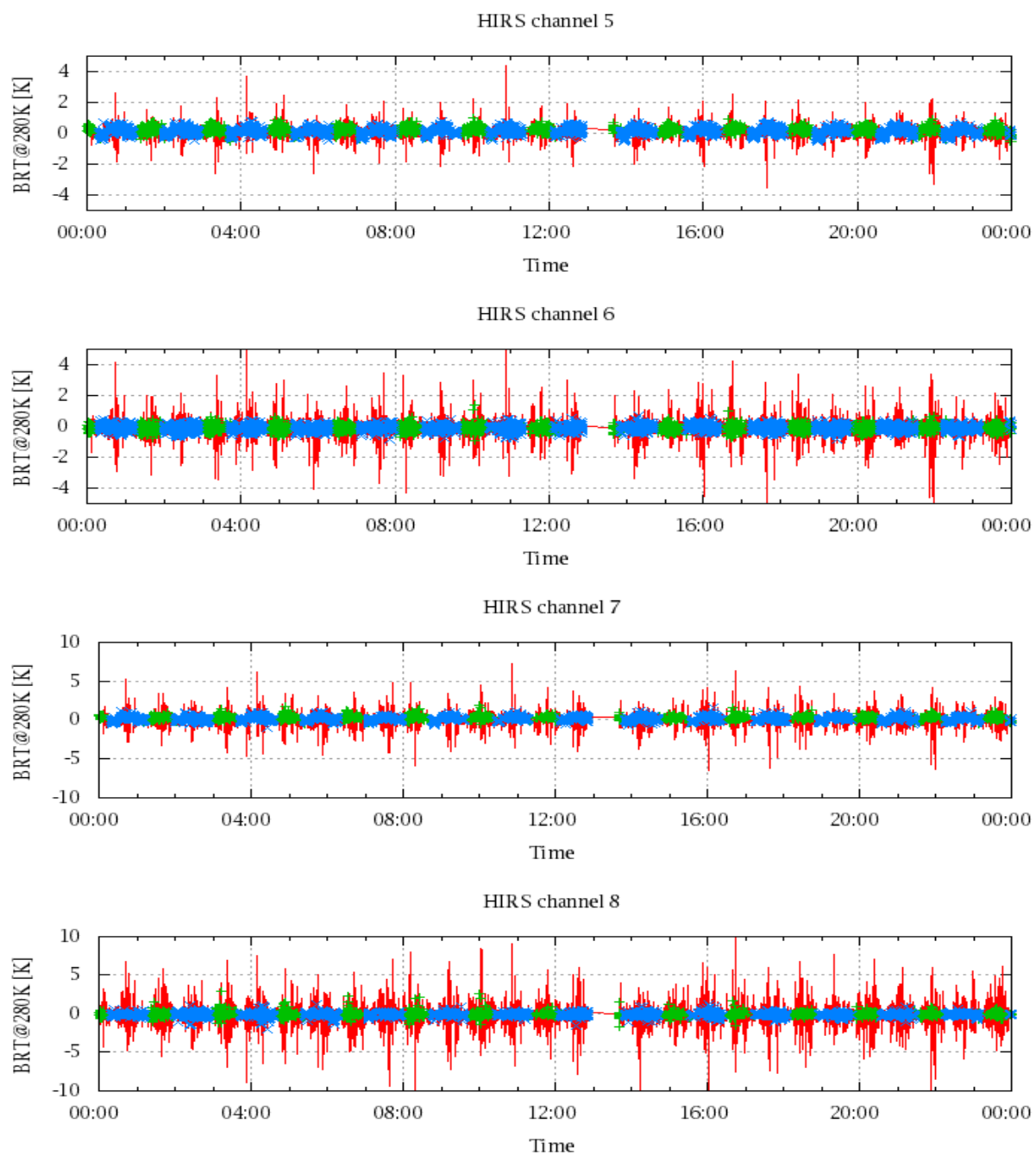


Figure 18: Radiance Differences in BRT

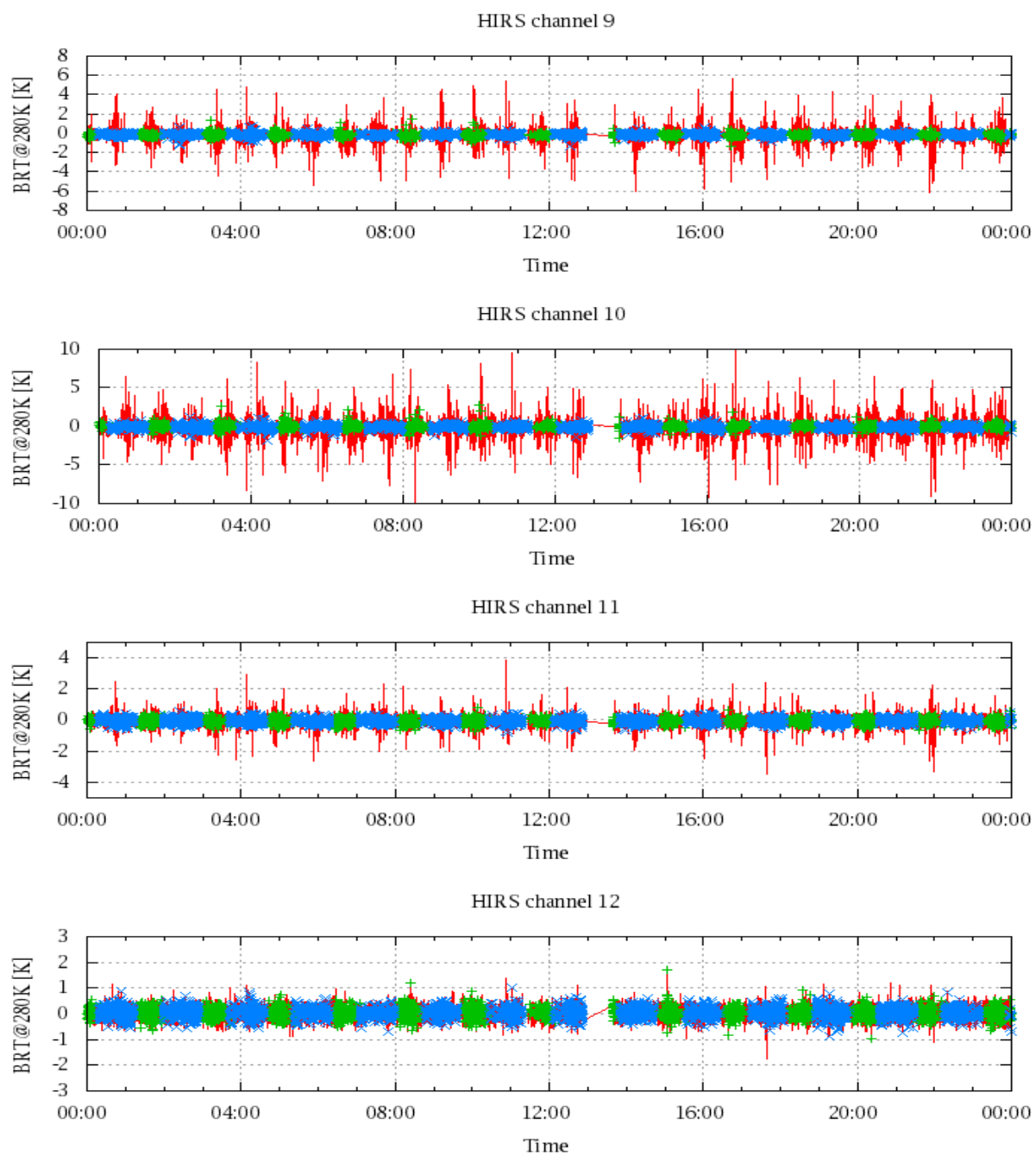


Figure 19: Radiance Differences in BRT

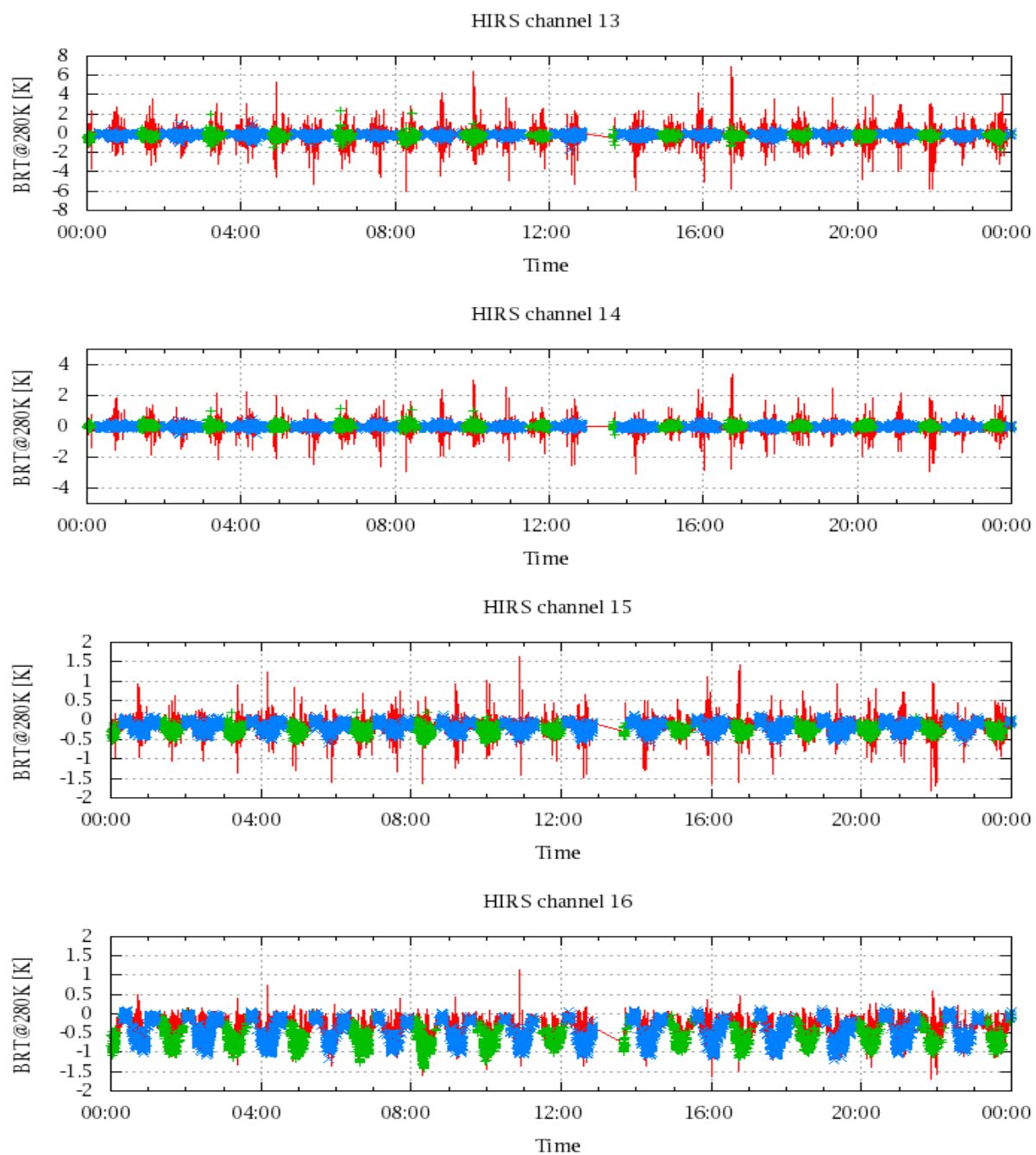


Figure 20: Radiance Differences in BRT



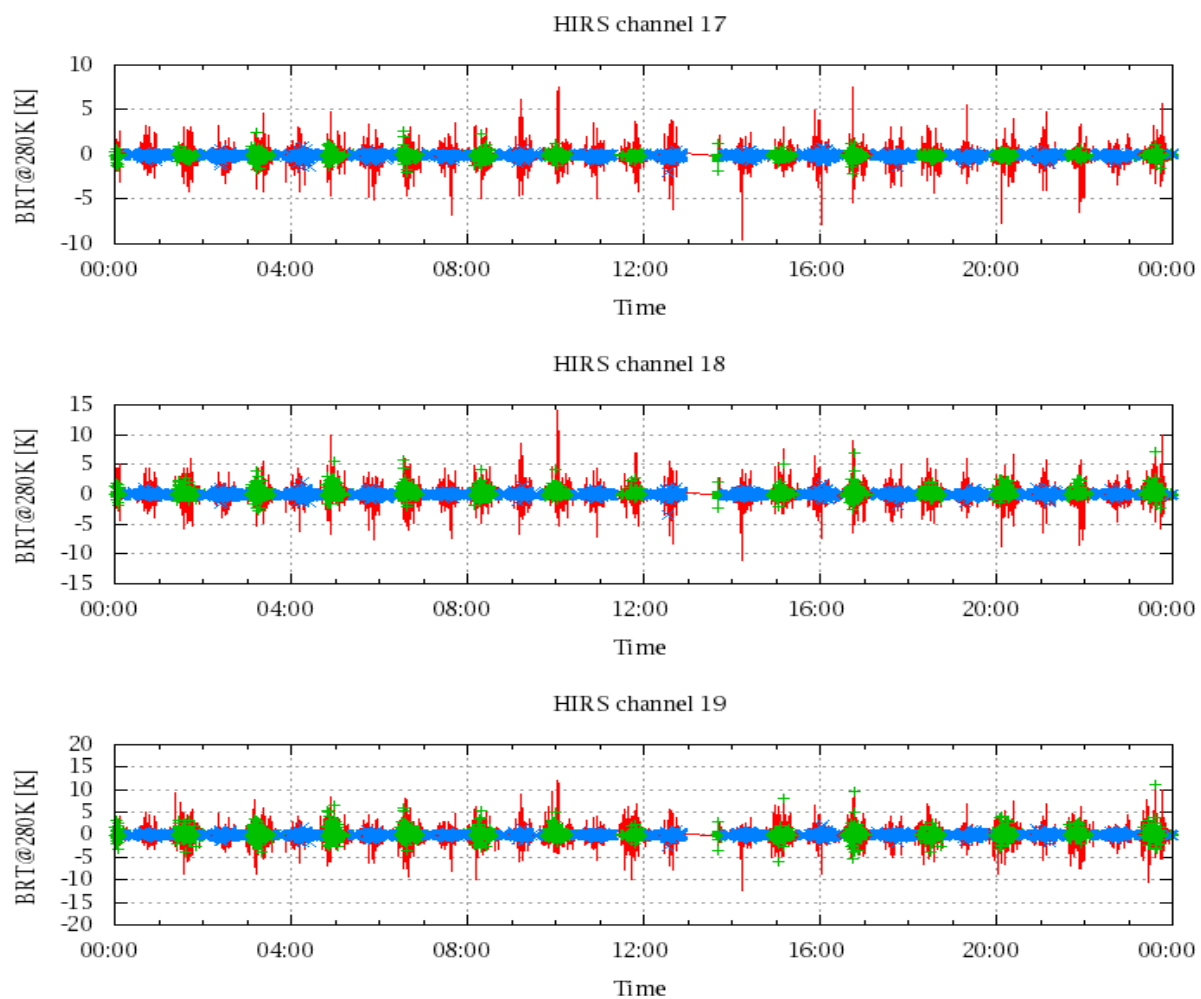


Figure 21: Radinace Differences in BRT