IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

06/02/2014 00:00:00 - 07/02/2014 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 06/02/2014 00:00:00 - 07/02/2014 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 06/02/2014 00:00:00 - 07/02/2014 00:00:00

Product Type	**Number**	**Action**
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	481	-
L1 ENG distinct GEPSGranule	480	-
L1 DPX PDUs (RM: IASI-HIRS)	481	-
L1 DPS Files (RM: OBS-CAL NWP based)	481	-

Table 1: Data quantity

APID	**Seq from**	**Seq to**	**Time from**	**Time to**
PX1 (130)	10435	10440	20140206014001.253	20140206014002.335
PX1 (130)	11897	11908	20140206025920.363	20140206025922.742
PX1 (130)	9353	9355	20140206183438.318	20140206183440.264
PX1 (130)	5494	5499	20140206230845.662	20140206230848.271
PX2 (135)	10434	10439	20140206014001.039	20140206014002.121
PX2 (135)	11897	11908	20140206025920.363	20140206025922.742
PX2 (135)	9353	9355	20140206183438.318	20140206183440.264
PX2 (135)	5494	5499	20140206230845.662	20140206230848.271
PX3 (140)	10434	10439	20140206014001.039	20140206014002.121
PX3 (140)	11897	11908	20140206025920.363	20140206025922.742
PX3 (140)	9353	9355	20140206183438.318	20140206183440.264
PX3 (140)	5494	5499	20140206230845.662	20140206230848.271
PX4 (145)	10434	10439	20140206014001.039	20140206014002.121
PX4 (145)	11897	11907	20140206025920.363	20140206025922.527
PX4 (145)	9353	9355	20140206183438.318	20140206183440.264
PX4 (145)	5494	5499	20140206230845.662	20140206230848.271
IMG (150)	10331	10336	20140206014001.039	20140206014002.121
IMG (150)	14174	14184	20140206025920.363	20140206025922.527

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	6917	6920	20140206183438.103	20140206183438.967
IMG (150)	11282	11288	20140206230845.447	20140206230846.966
VER (160)	13344	13346	20140206183430.533	20140206183438.318
VER (160)	7240	7242	20140206230838.505	20140206230845.662
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
06/02/2014 00:00:04	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	481	-
L1 ENG PDUs	481	-
L1 ENG distinct GEPSGranule	480	-
GQisFlagQual set (PX1)	99.37 %	-
GQisFlagQual set (PX2)	99.52 %	-
GQisFlagQual set (PX3)	99.63 %	-
GQisFlagQual set (PX4)	99.57 %	-
GQisFlagQual set (all)	99.52 %	-

Table 4: Quality flags

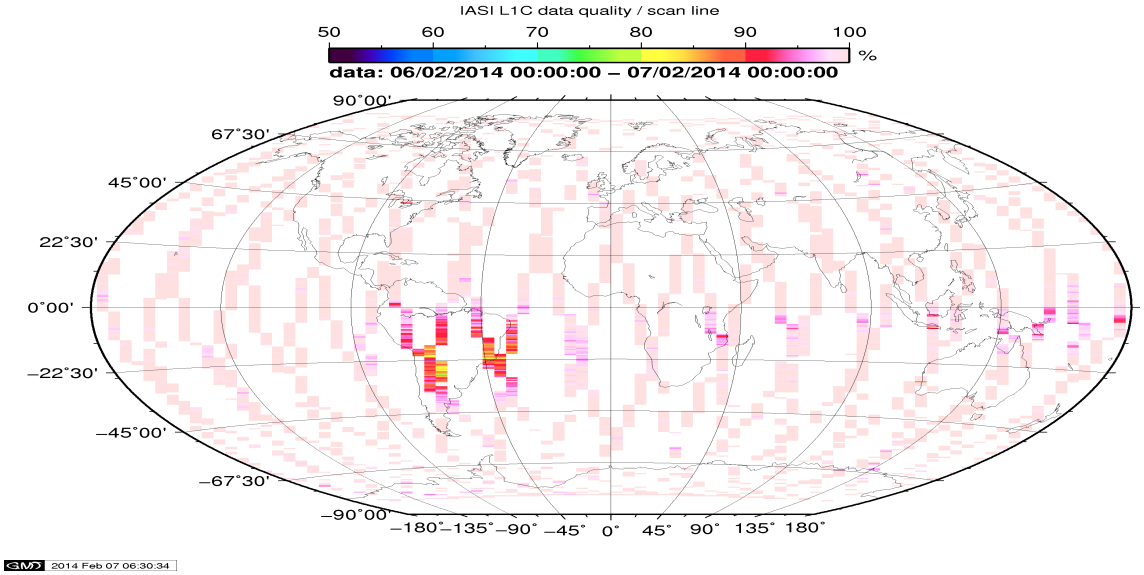

Figure 1: L1C data quality

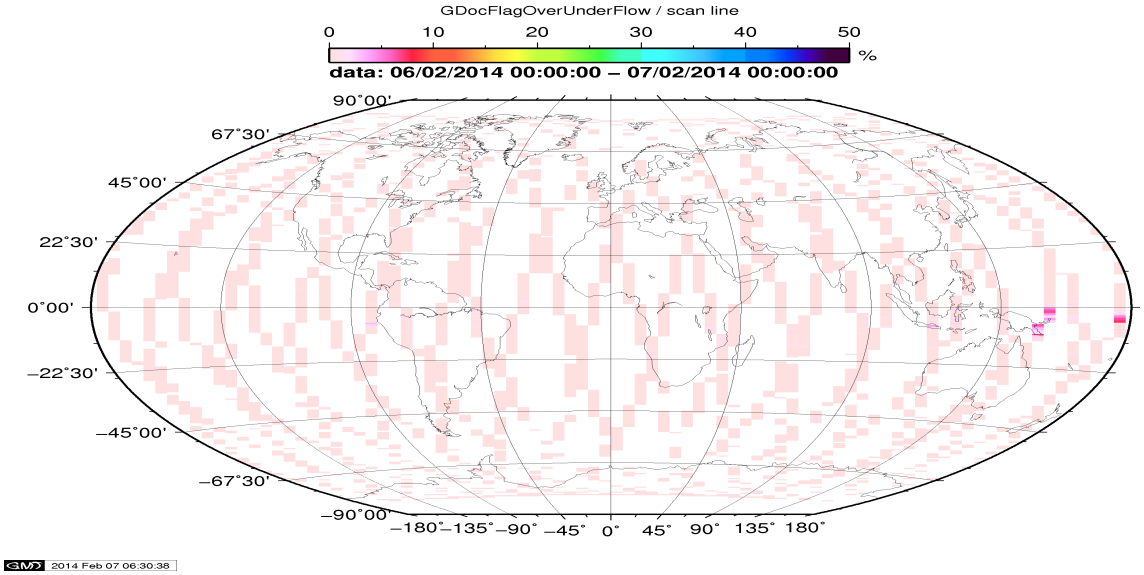

Figure 2: Flag of Over and Under Flows

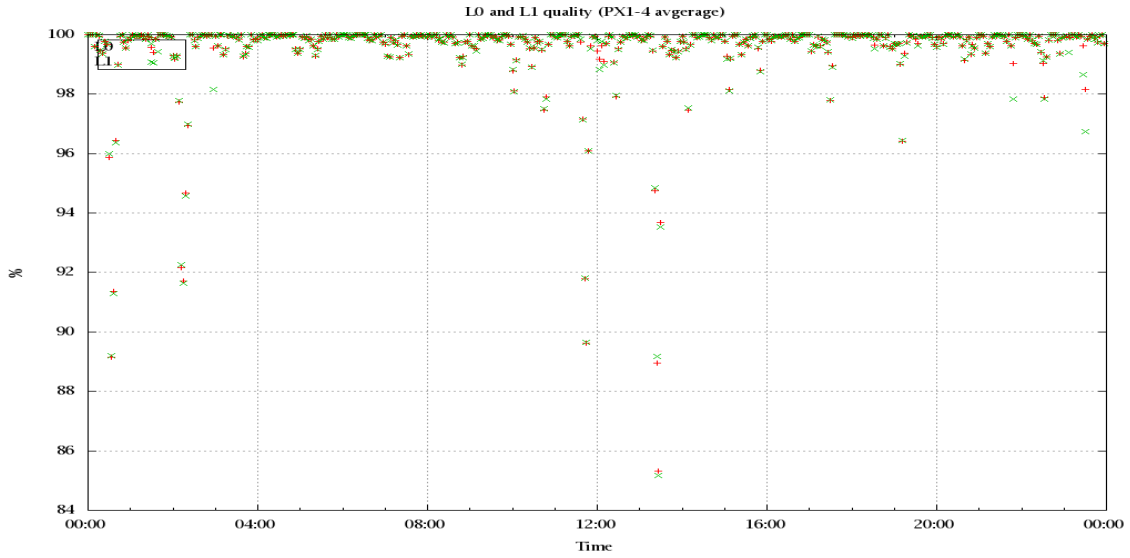

Figure 3: Level 0 and 1C overall quality

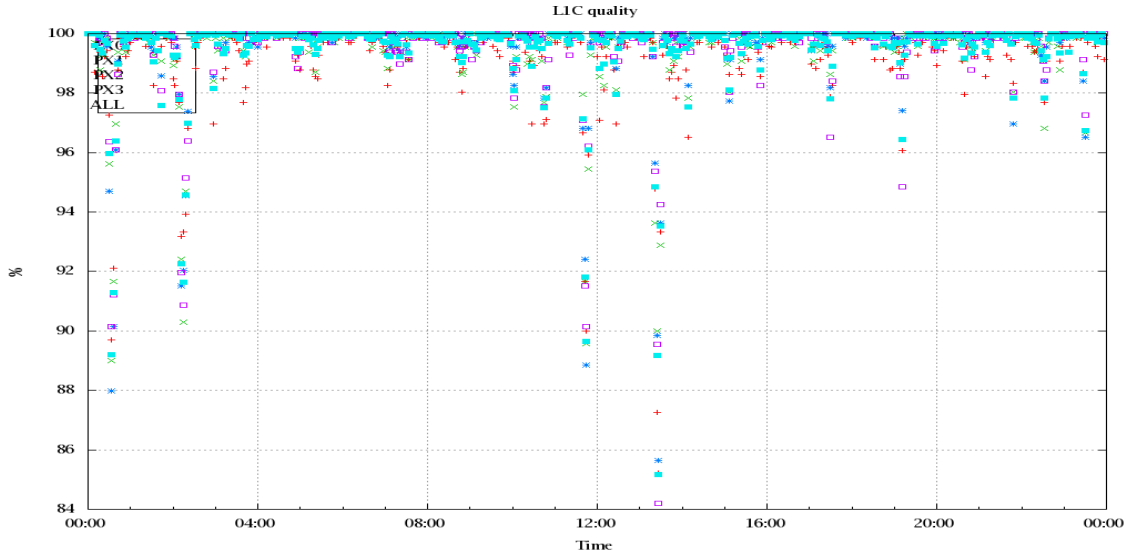

Figure 4: Level 1C quality

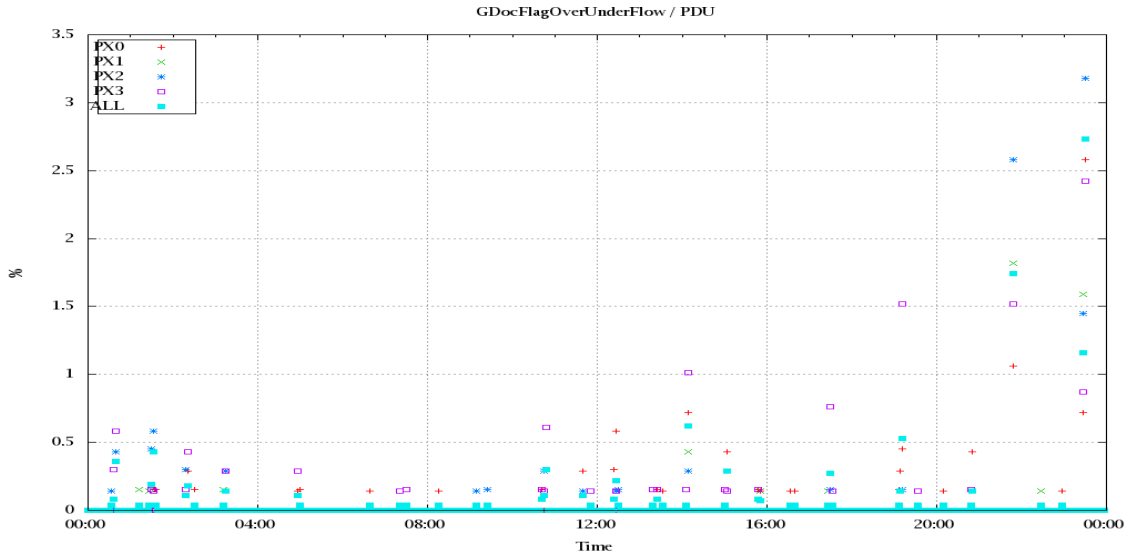

Figure 5: OverUnderFlowFlag timeseries

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 indentification 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.

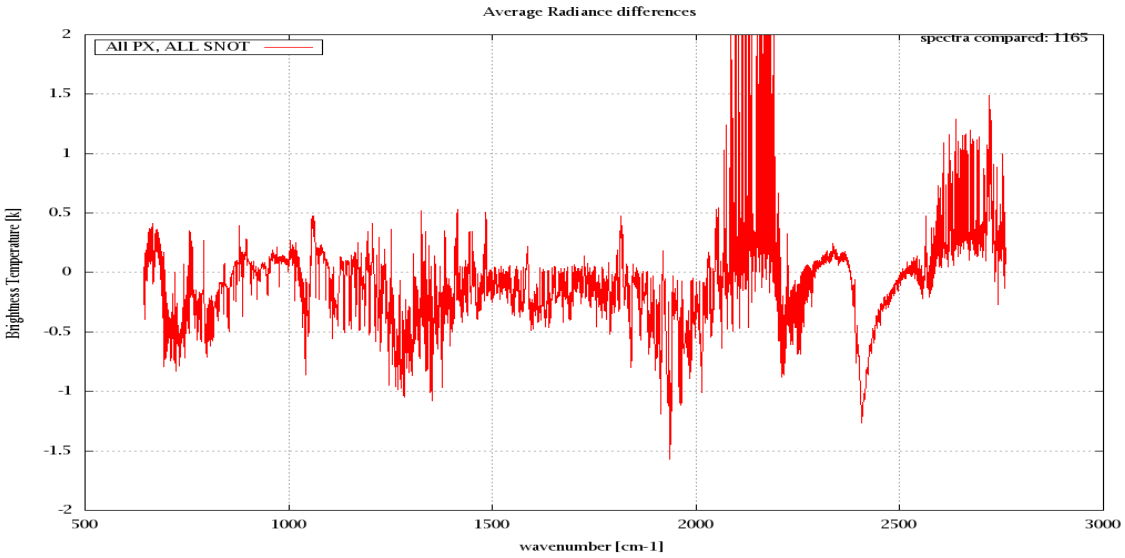

Figure 6: Average Radiance differences: OBS-CAL

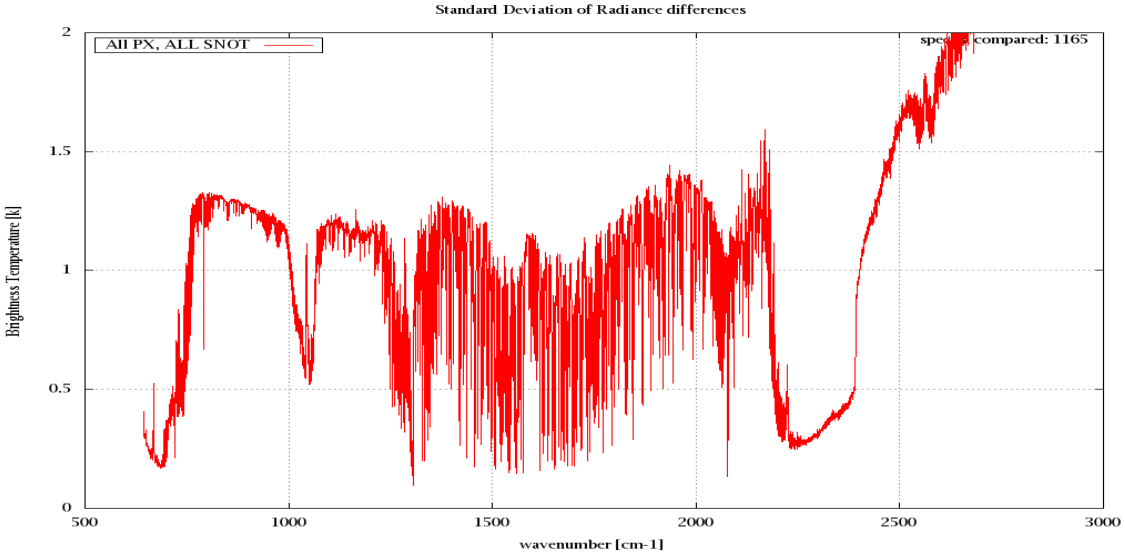

Figure 7: Standard Deviation of Radiance differences

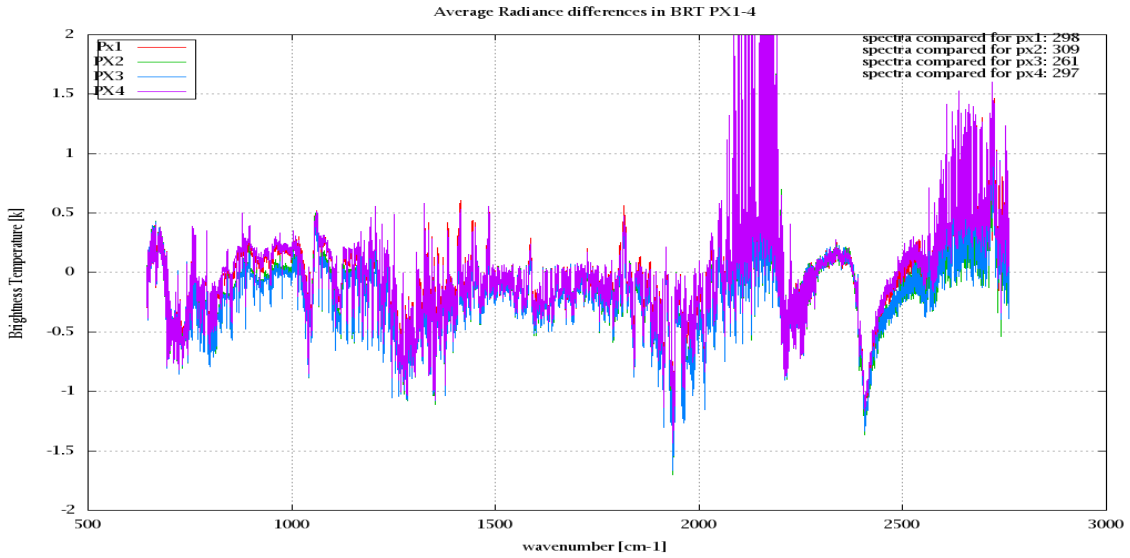

Figure 8: Average Radiance differences: OBS-CAL

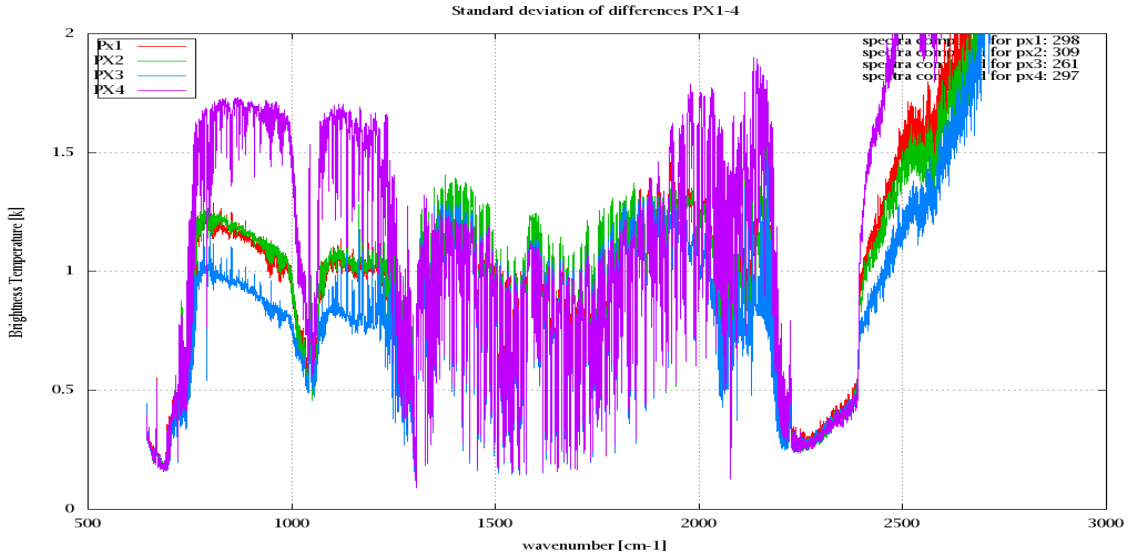

Figure 9: Standard Deviation of Radiance differences

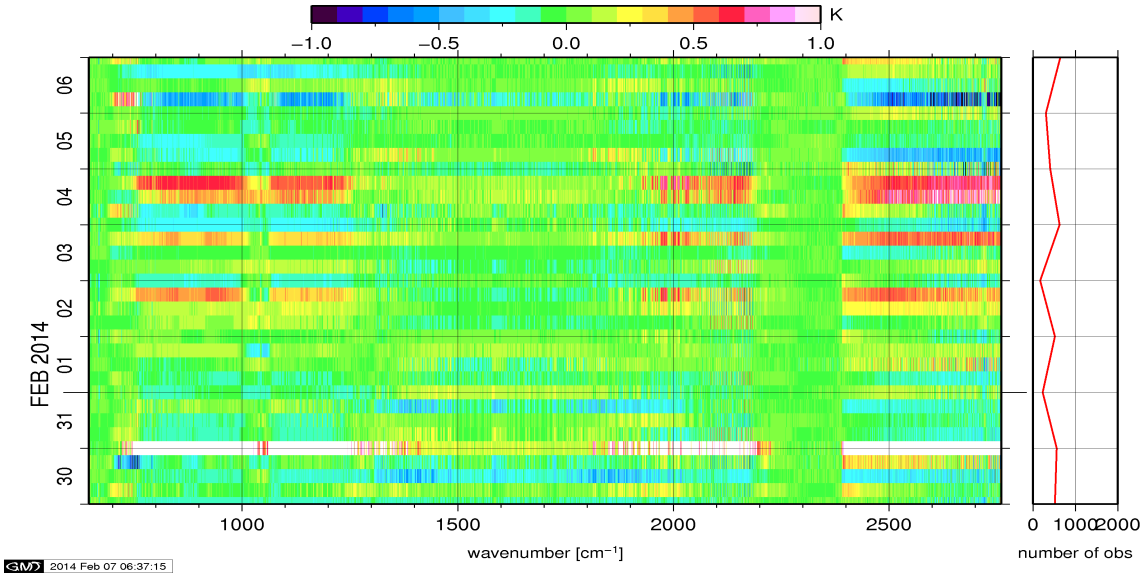

Figure 10: Radiance Anomaly in BRT: All Channels

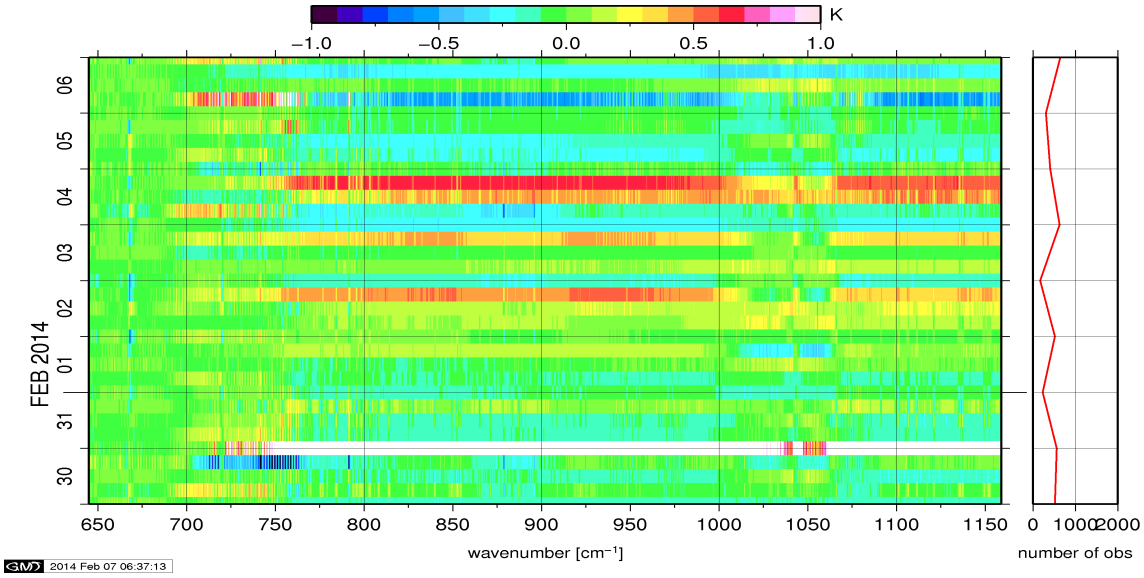

Figure 11: Radiance Anomaly in BRT: IASI Band 1

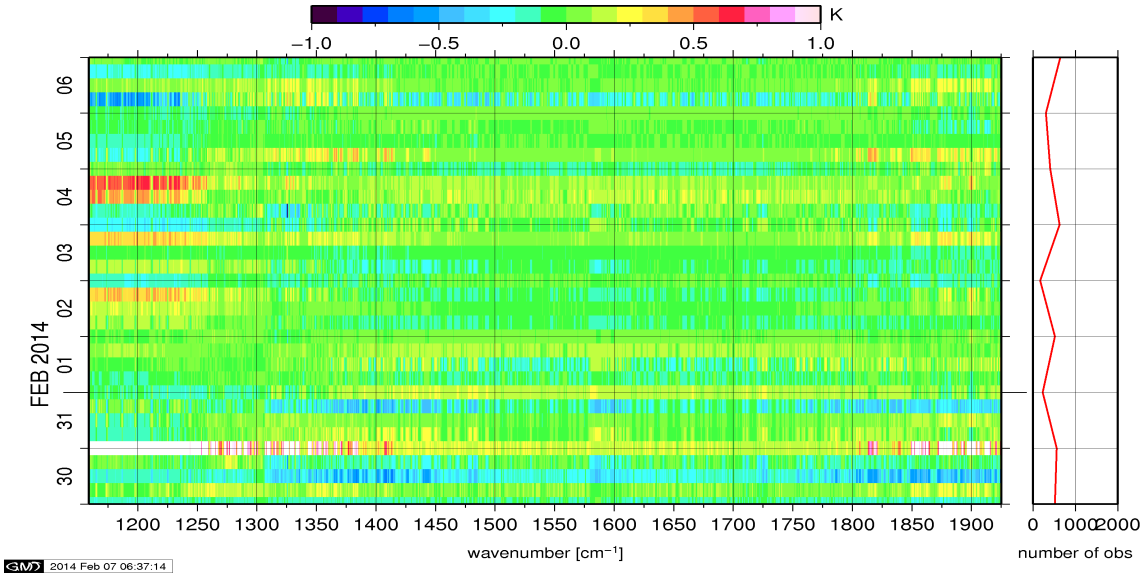

Figure 12: Radiance Anomaly in BRT: IASI Band 2

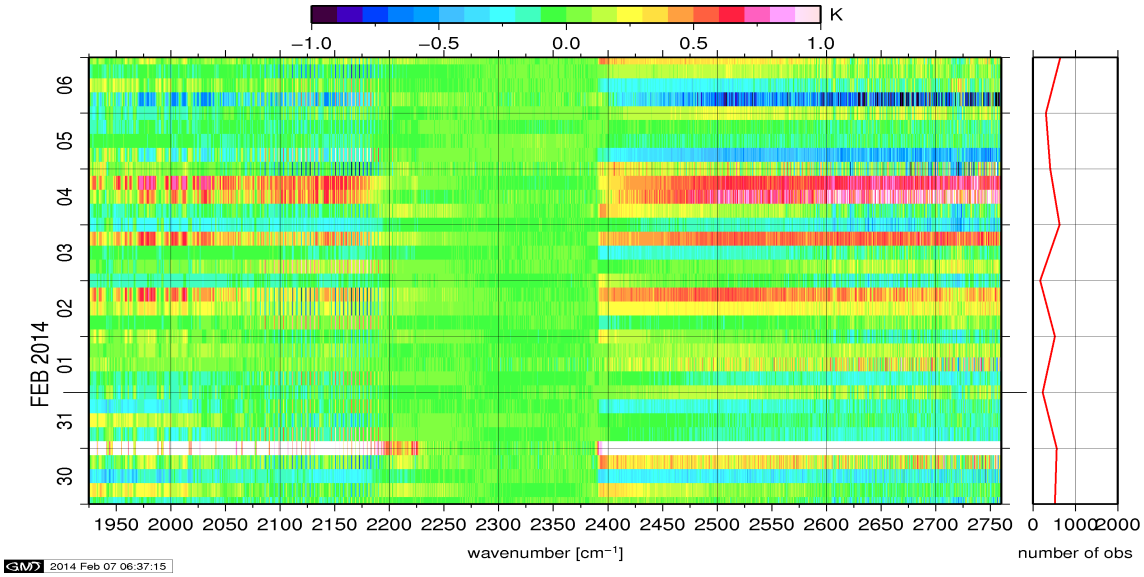

Figure 13: Radiance Anomaly in BRT: IASI Band 3

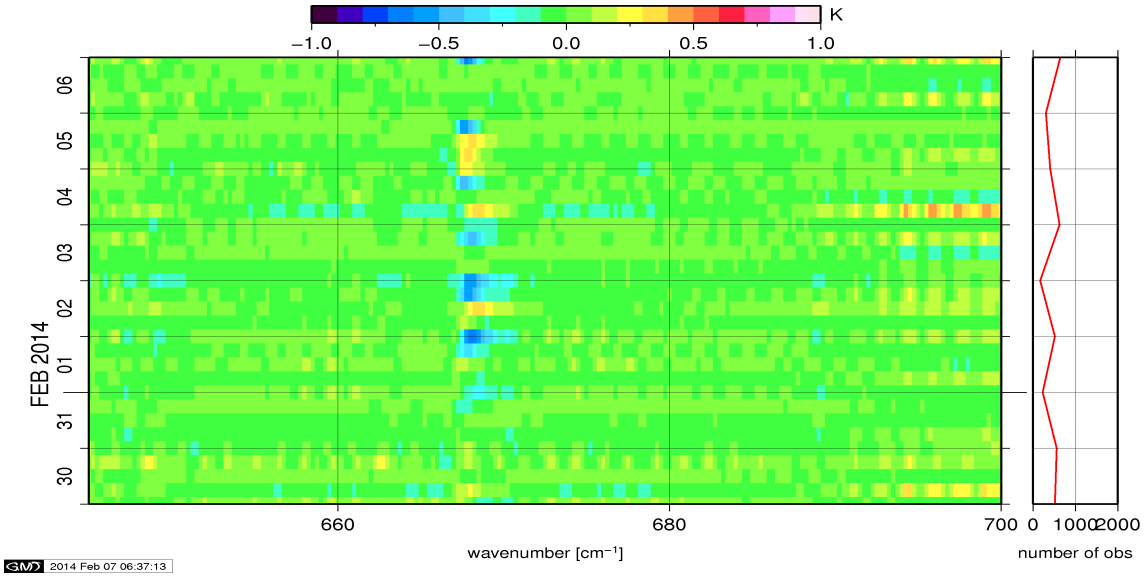

Figure 14: Radiance Anomaly in BRT: CO2 14

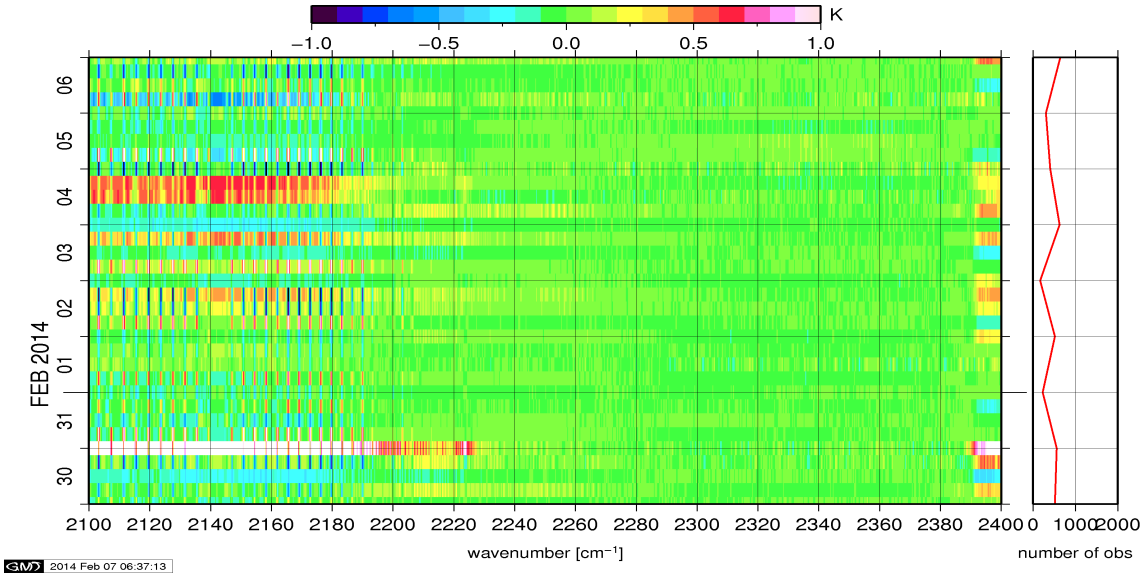

Figure 15: Radiance Anomaly in BRT: CO2 4.3

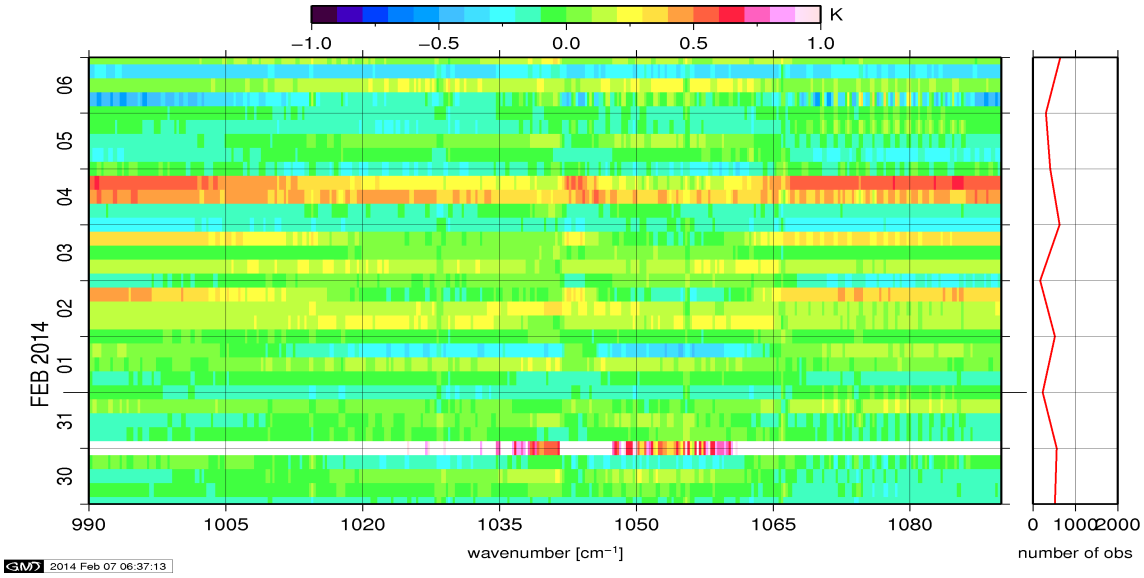

Figure 16: Radiance Anomaly in BRT: O3

6 IASI-HIRS radiance comparision Channel 1-19

The radiance comparision 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.

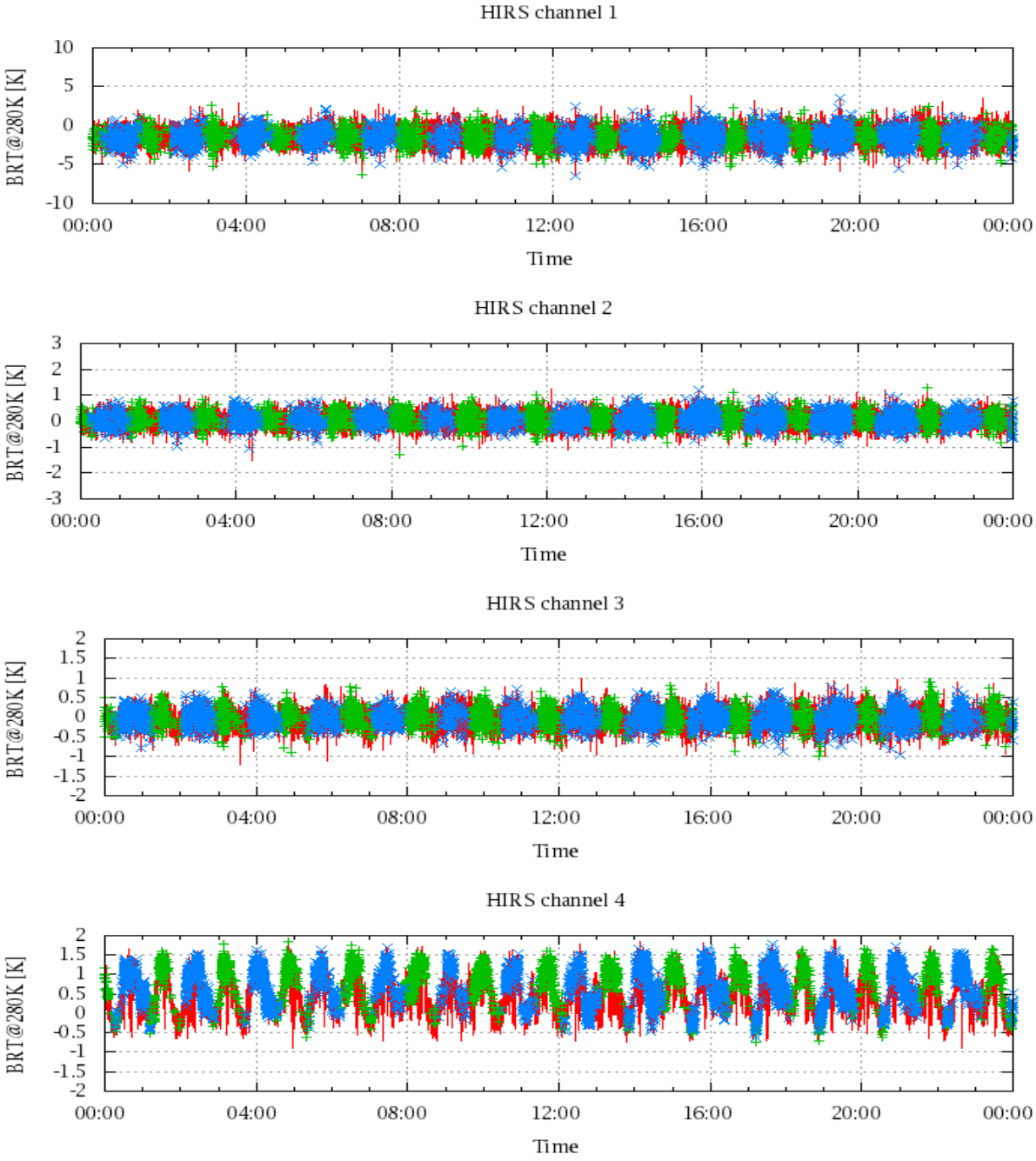

Figure 17: Radiance Differences in BRT

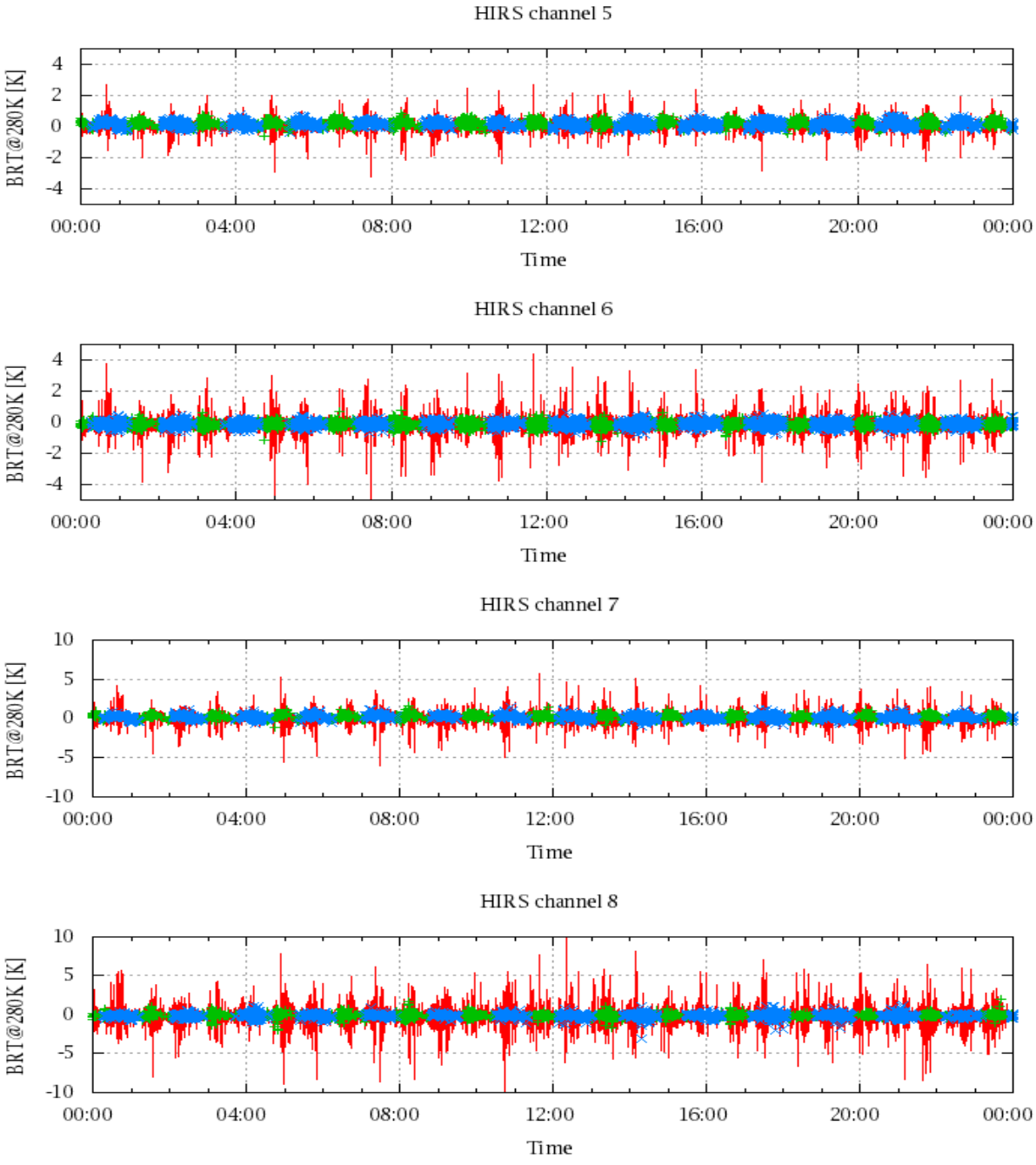

Figure 18: Radiance Differences in BRT

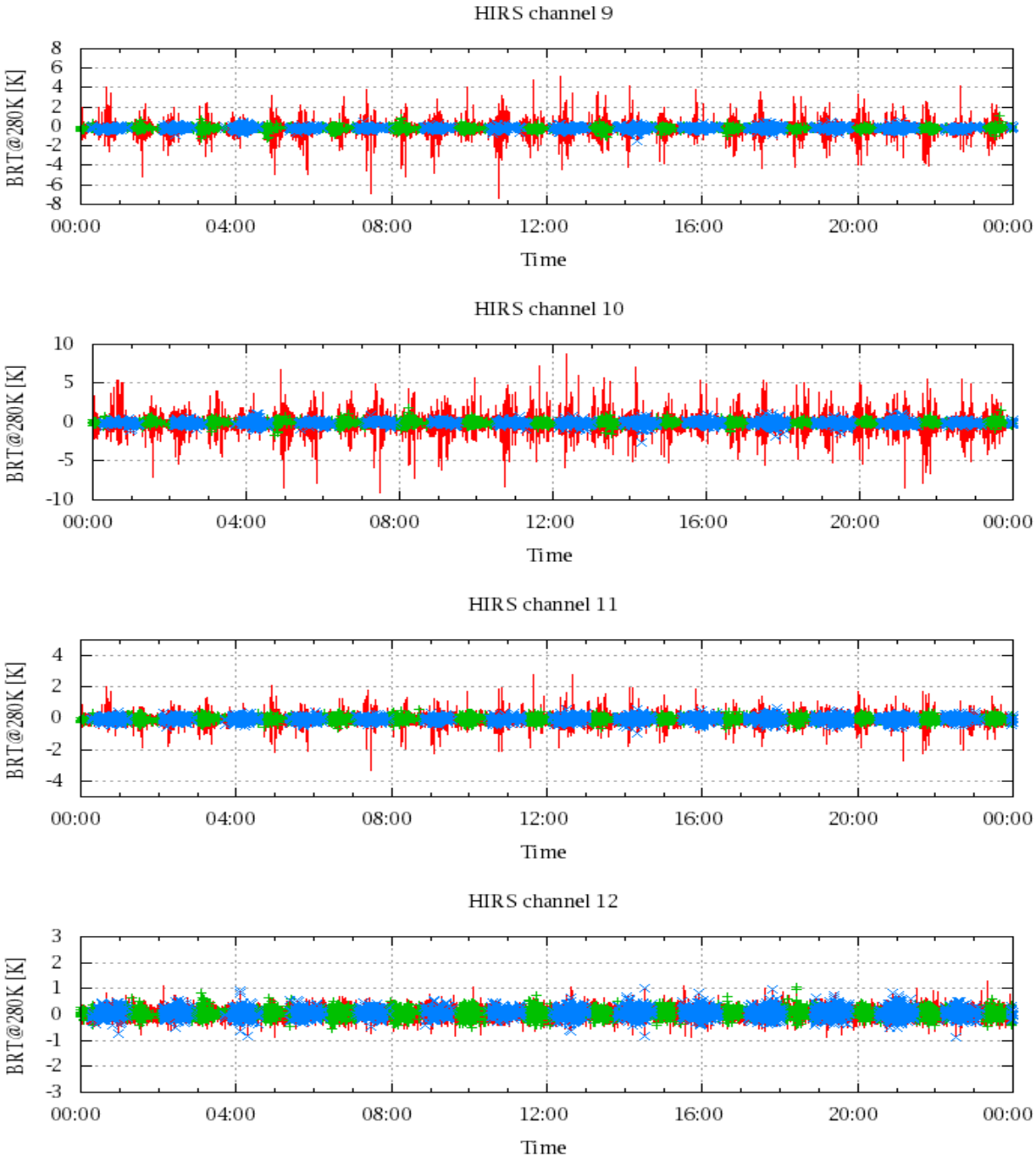

Figure 19: Radiance Differences in BRT

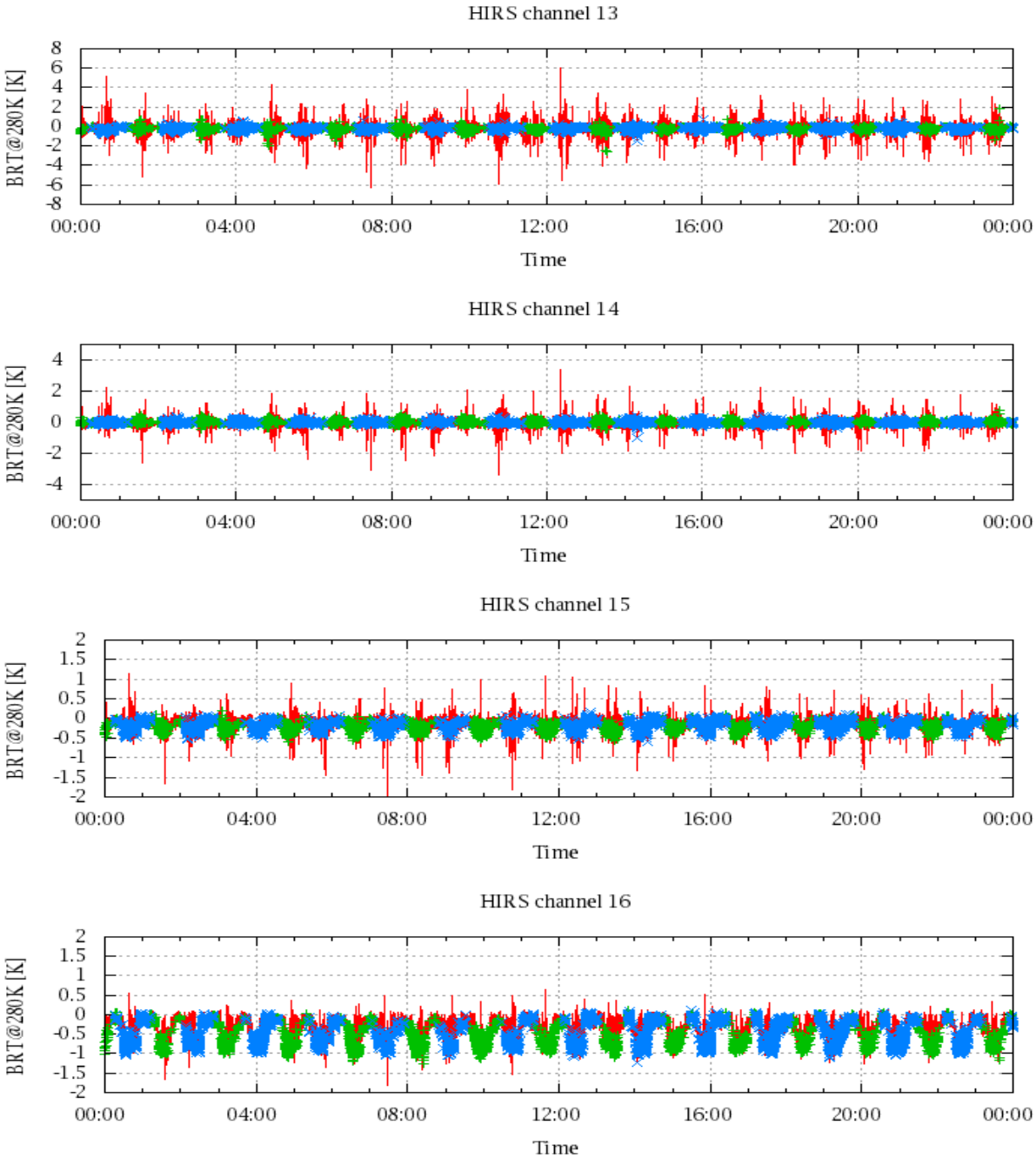

Figure 20: Radiance Differences in BRT

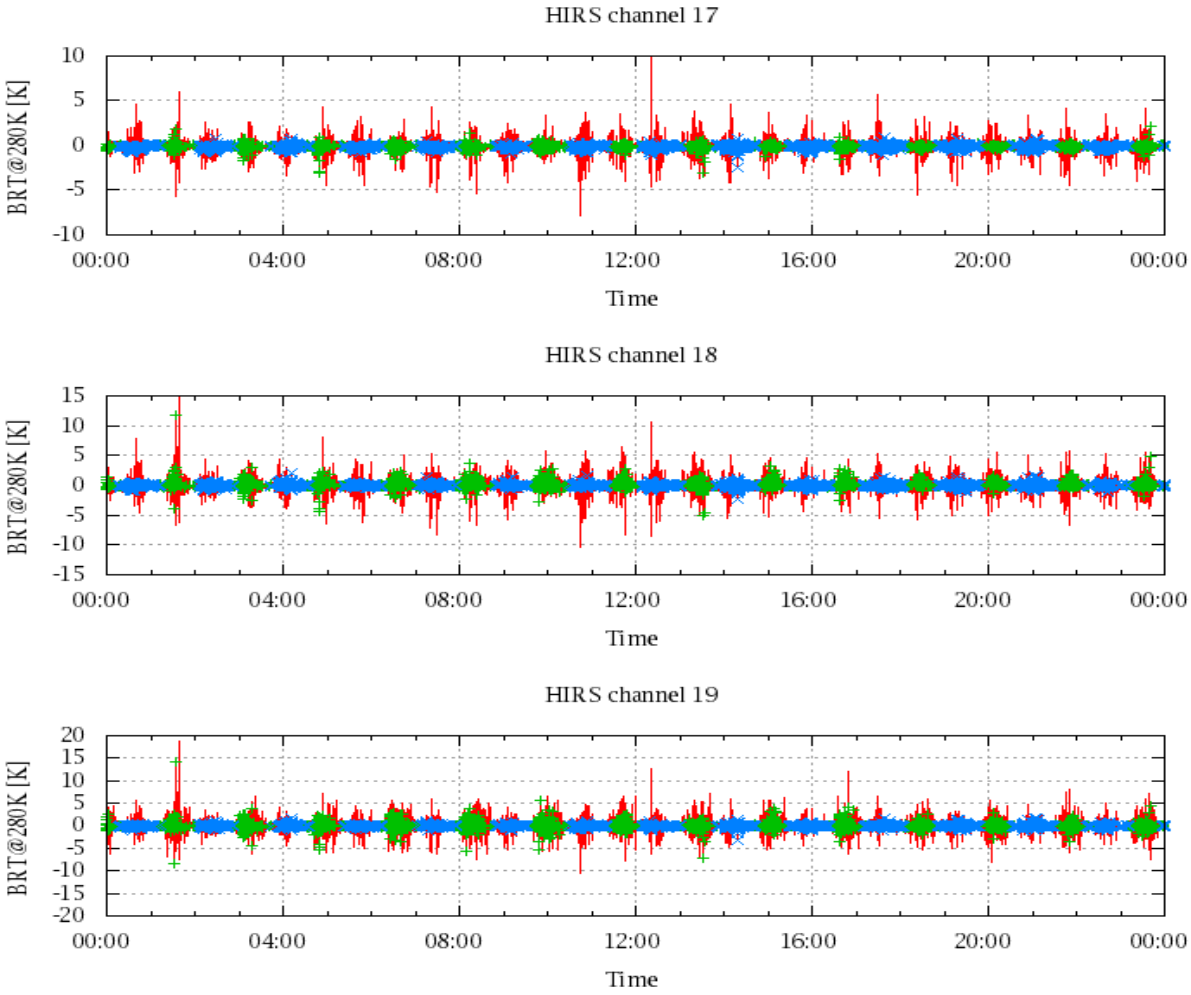

Figure 21: Radinace Differences in BRT