IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

19/06/2011 00:00:00 - 20/06/2011 00:00:00

1 Introduction

This report provides summary monitoring plots and figures from IASI instrument on the MetOp-A satellite retrieved from the IASI L0 and L1 ENG product (3 minute data packet) for 19/06/2011 00:00:00 - 20/06/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 19/06/2011 00:00:00 - 20/06/2011 00:00:00

Product Type	**Number**	**Action**
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	481	-
L1 DPX PDUs (RM: IASI-HIRS)	479	-
L1 DPS Files (RM: OBS-CAL NWP based)	480	-

Table 1: Data quantity

APID	**Seq from**	**Seq to**	**Time from**	**Time to**
PX1 (130)	527	569	20110619141634.915	20110619141645.508
PX1 (130)	571	573	20110619141645.942	20110619141646.372
PX1 (130)	6638	6689	20110619155633.814	20110619155646.357
PX1 (130)	6691	6694	20110619155646.790	20110619155647.439
PX2 (135)	527	569	20110619141634.915	20110619141645.508
PX2 (135)	570	573	20110619141645.727	20110619141646.372
PX2 (135)	6638	6688	20110619155633.814	20110619155646.142
PX2 (135)	6691	6694	20110619155646.790	20110619155647.439
PX3 (140)	528	569	20110619141635.129	20110619141645.508
PX3 (140)	570	573	20110619141645.727	20110619141646.372
PX3 (140)	6638	6688	20110619155633.814	20110619155646.142
PX3 (140)	6690	6694	20110619155646.571	20110619155647.439
PX4 (145)	528	569	20110619141635.129	20110619141645.508
PX4 (145)	570	573	20110619141645.727	20110619141646.372
PX4 (145)	6637	6688	20110619155633.603	20110619155646.142
PX4 (145)	6690	6694	20110619155646.571	20110619155647.439
IMG (150)	7731	7776	20110619141634.915	20110619141645.293
IMG (150)	7778	7780	20110619141645.727	20110619141646.157

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	458	512	20110619155633.814	20110619155646.142
IMG (150)	514	517	20110619155646.571	20110619155647.220
VER (160)	832	838	20110619141631.672	20110619141647.672
VER (160)	4582	4588	20110619155631.654	20110619155647.653
AUX (180)	9992	9994	20110619141632.102	20110619141648.102
AUX (180)	10742	10744	20110619155632.087	20110619155648.087

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
19/06/2011 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	481	-
GQisFlagQual set (PX1)	99.25 %	-
GQisFlagQual set (PX2)	99.07 %	-
GQisFlagQual set (PX3)	99.16 %	-
GQisFlagQual set (PX4)	99.27 %	-
GQisFlagQual set (all)	99.19 %	-

Table 4: Quality flags

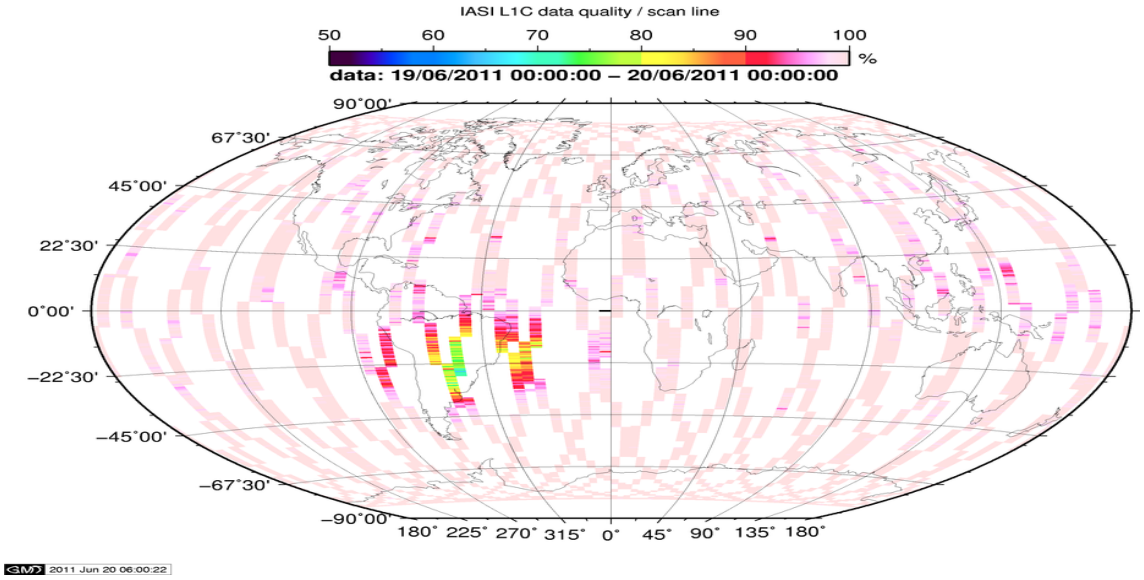

Figure 1: L1C data quality

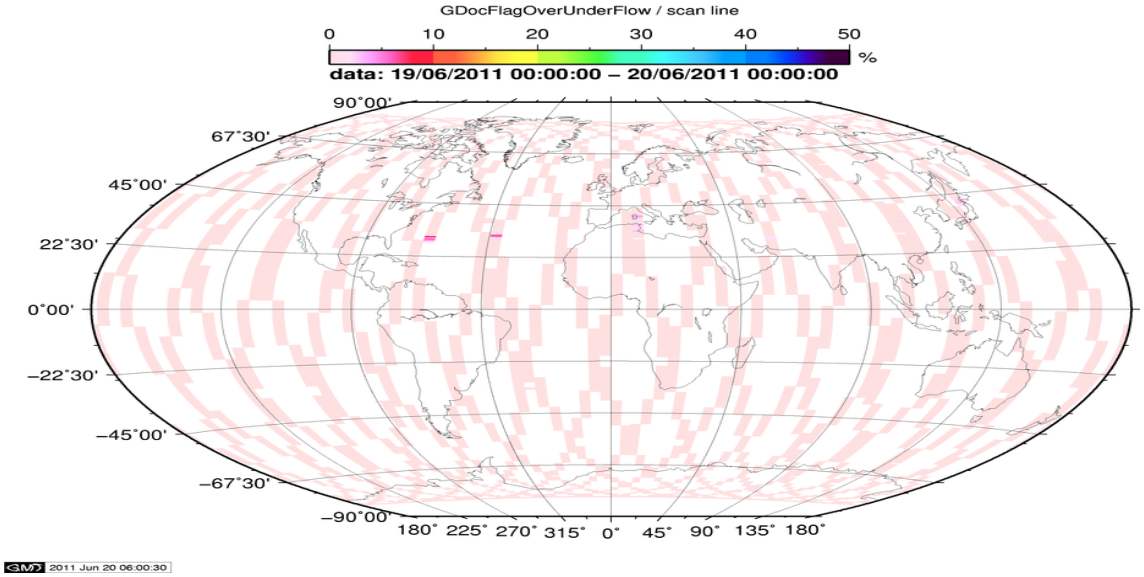

Figure 2: Flag of Over and Under Flows

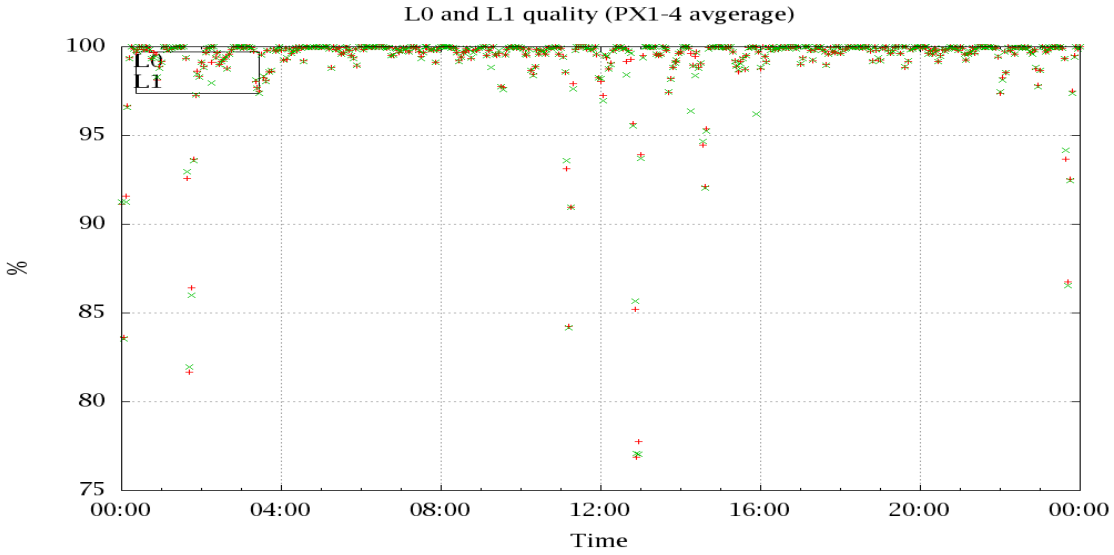

Figure 3: Level 0 and 1C overall quality

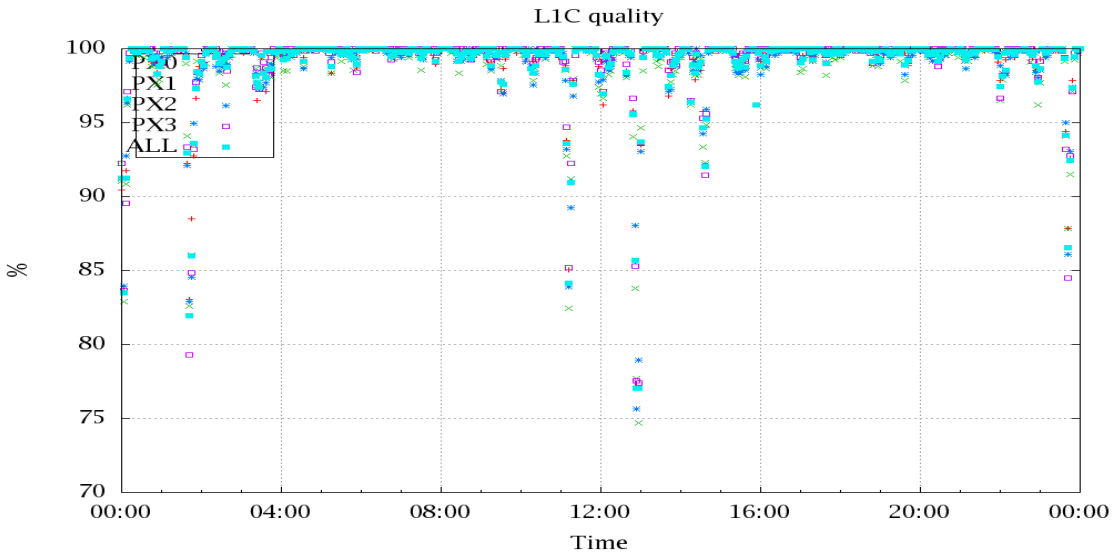

Figure 4: Level 1C quality

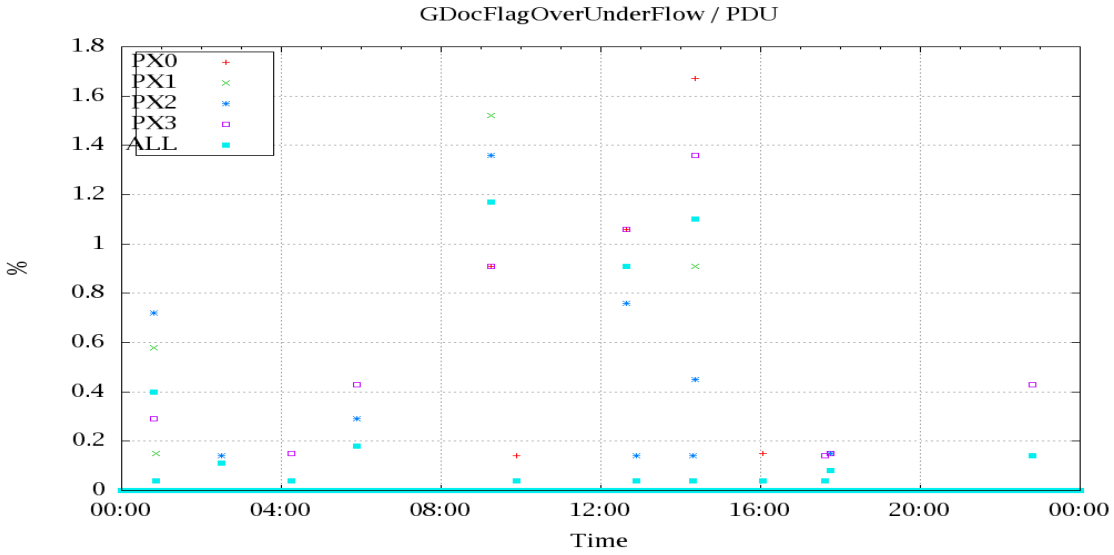

Figure 5: OverUnderFlowFlag timeseries

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.

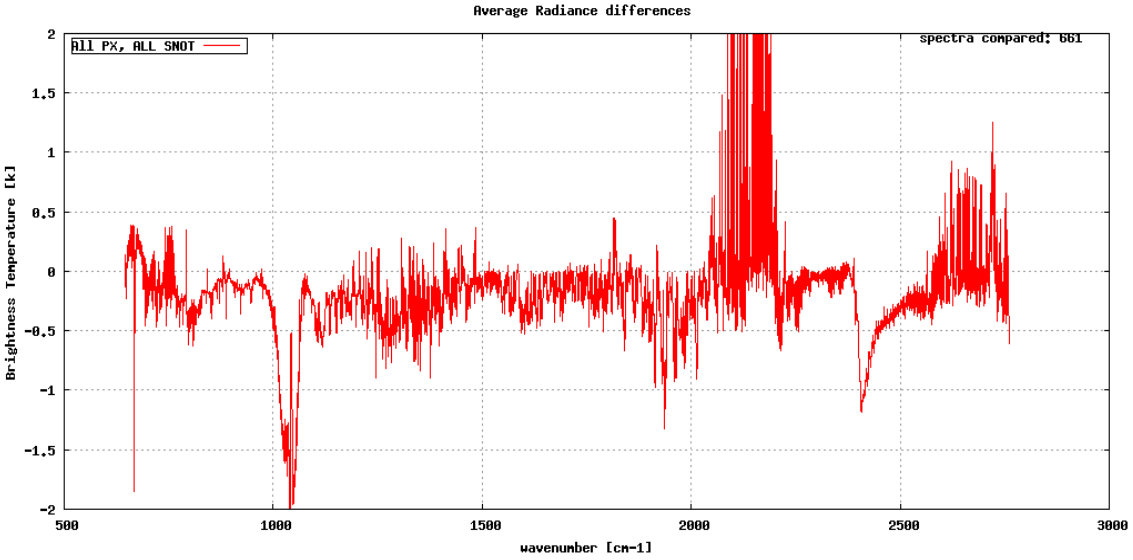

Figure 6: Average Radiance differences: OBS-CAL

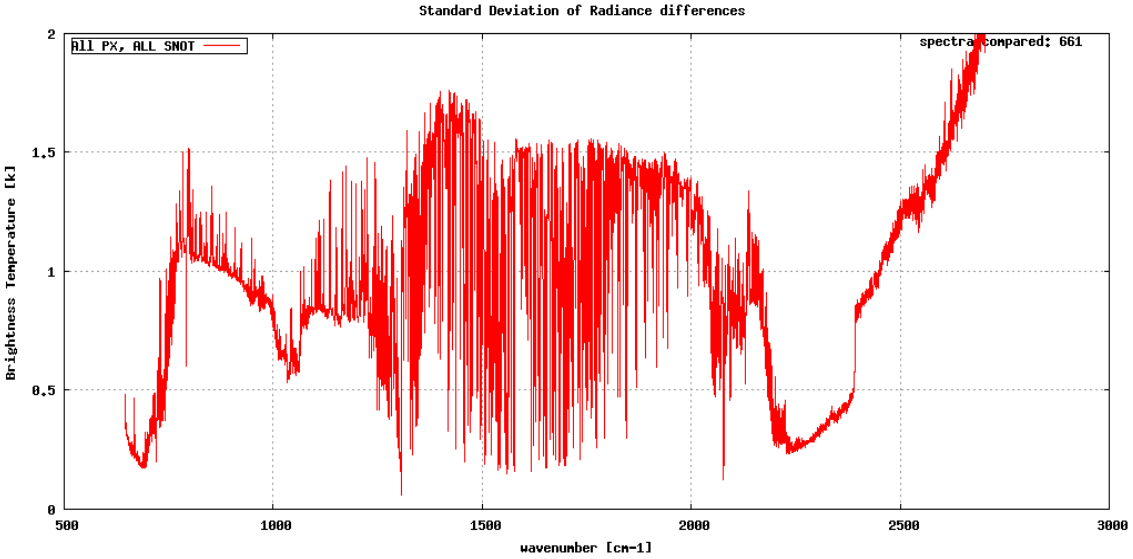

Figure 7: Standard Deviation of Radiance differences

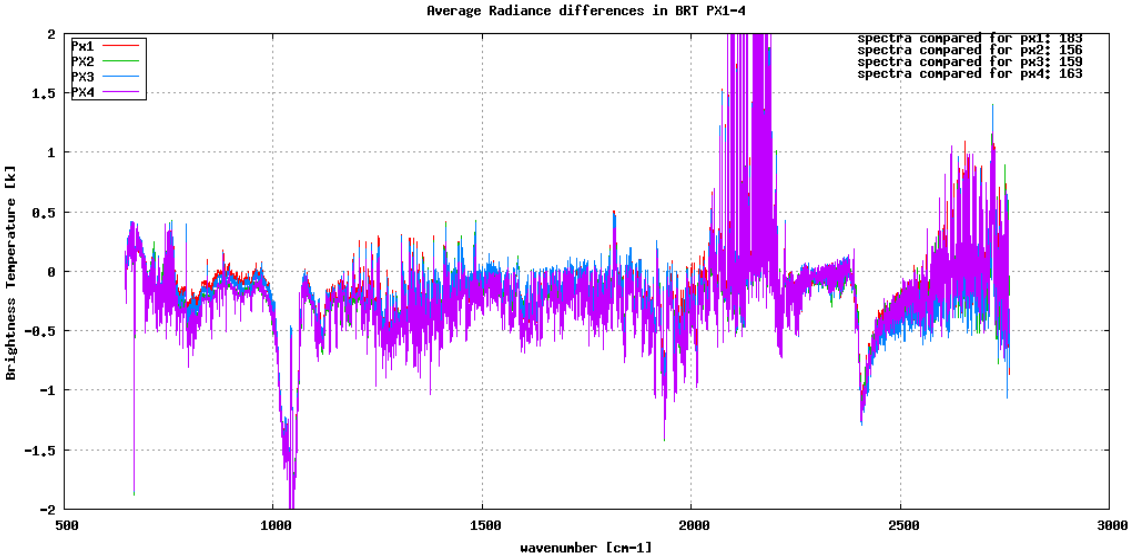

Figure 8: Average Radiance differences: OBS-CAL

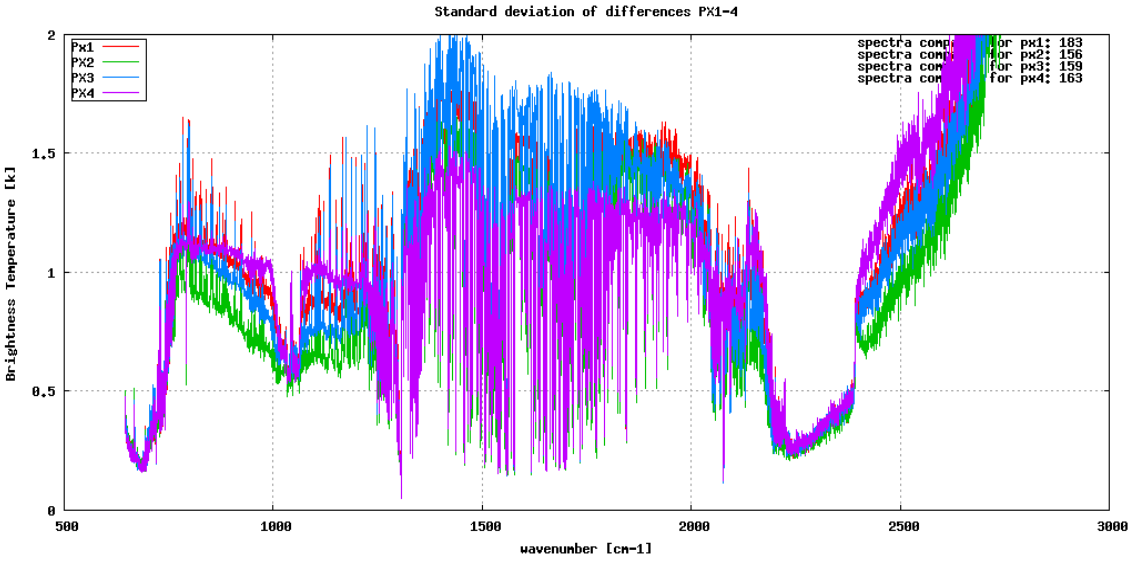

Figure 9: Standard Deviation of Radiance differences

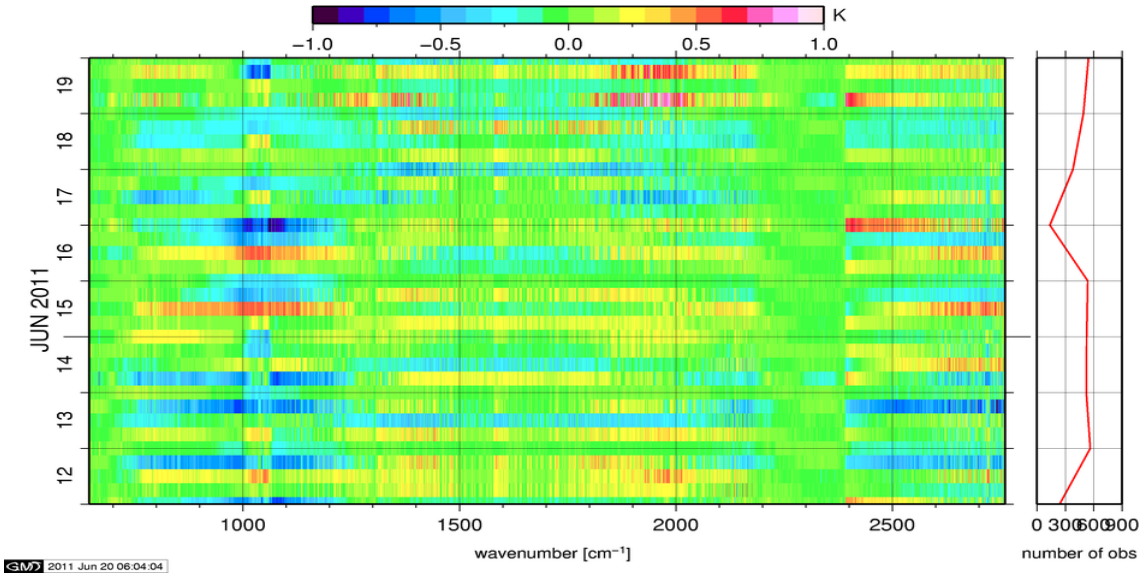

Figure 10: Radiance Anomaly in BRT: All Channels

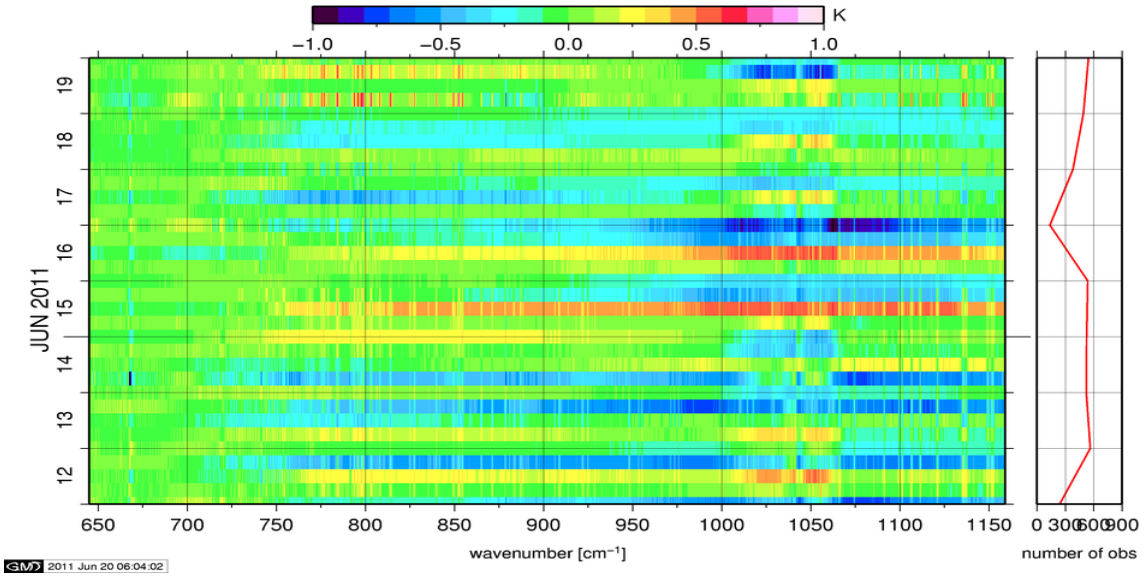

Figure 11: Radiance Anomaly in BRT: IASI Band 1

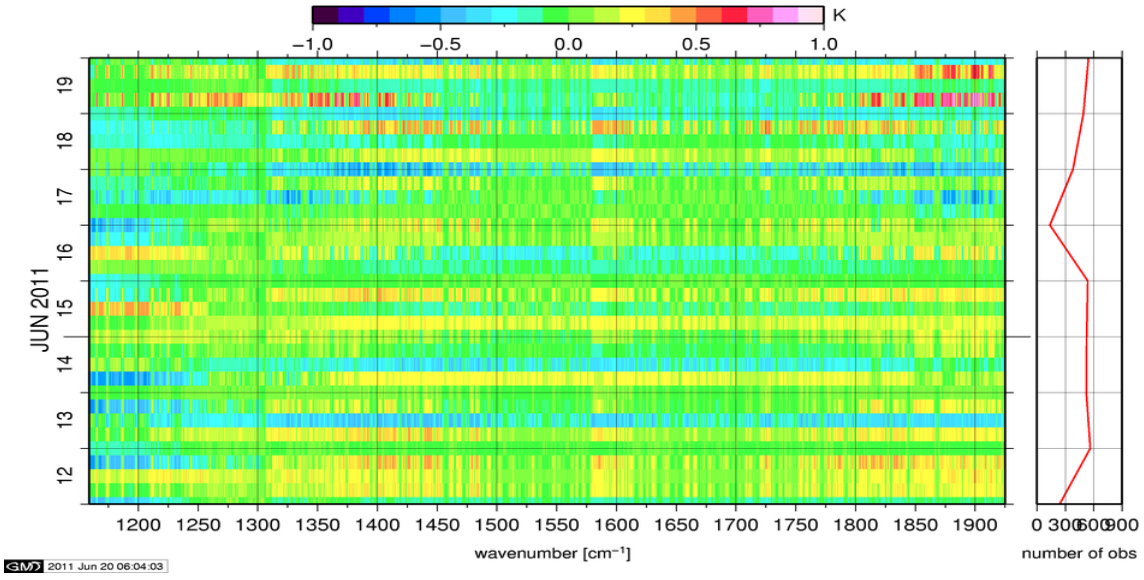

Figure 12: Radiance Anomaly in BRT: IASI Band 2

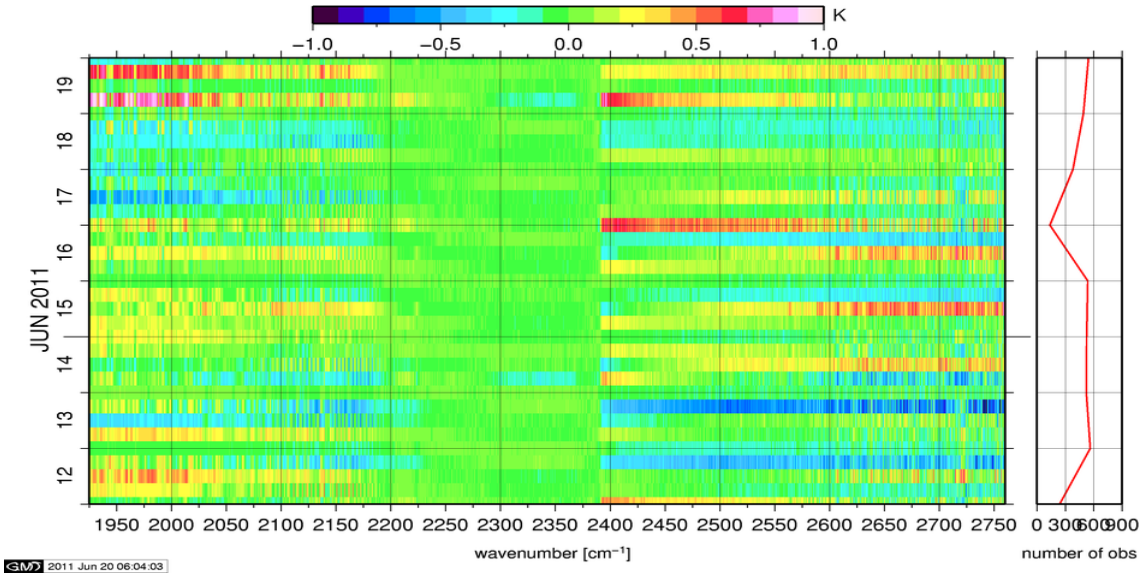

Figure 13: Radiance Anomaly in BRT: IASI Band 3

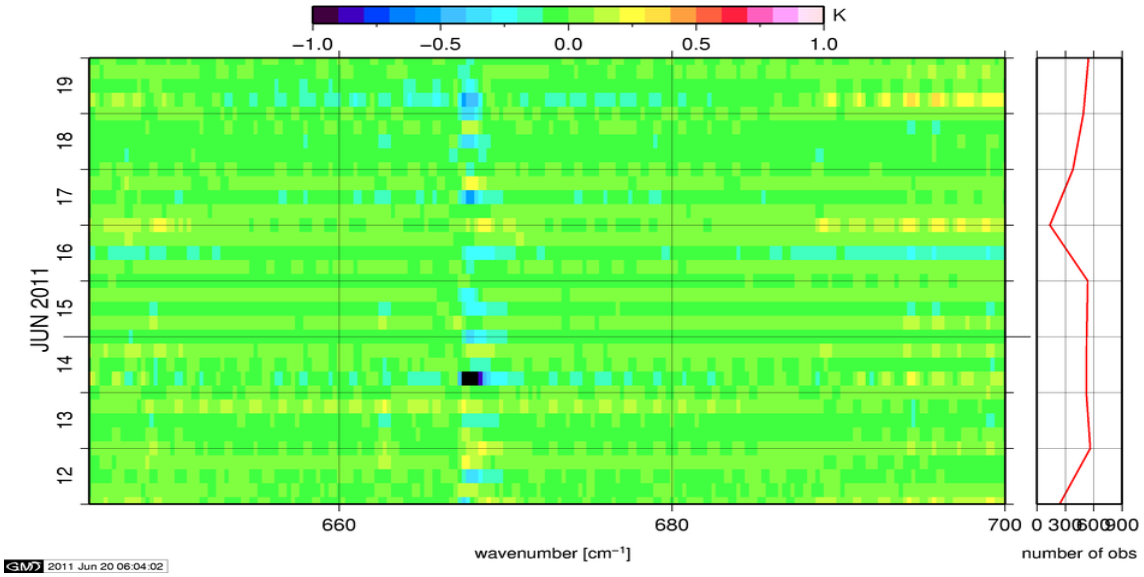

Figure 14: Radiance Anomaly in BRT: CO2 14

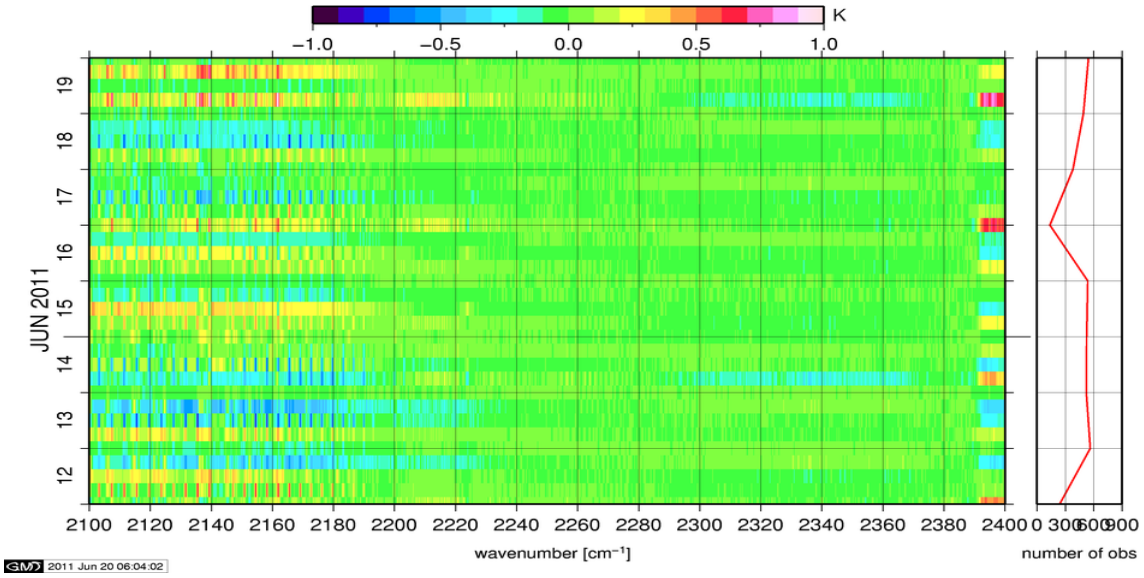

Figure 15: Radiance Anomaly in BRT: CO2 4.3

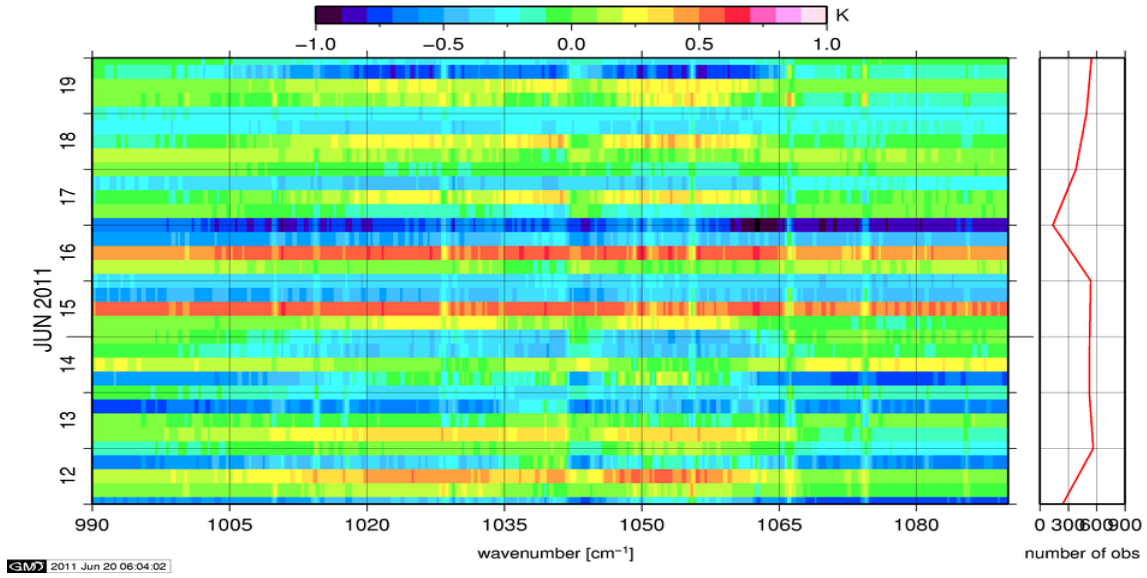

Figure 16: Radiance Anomaly in BRT: O3

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.

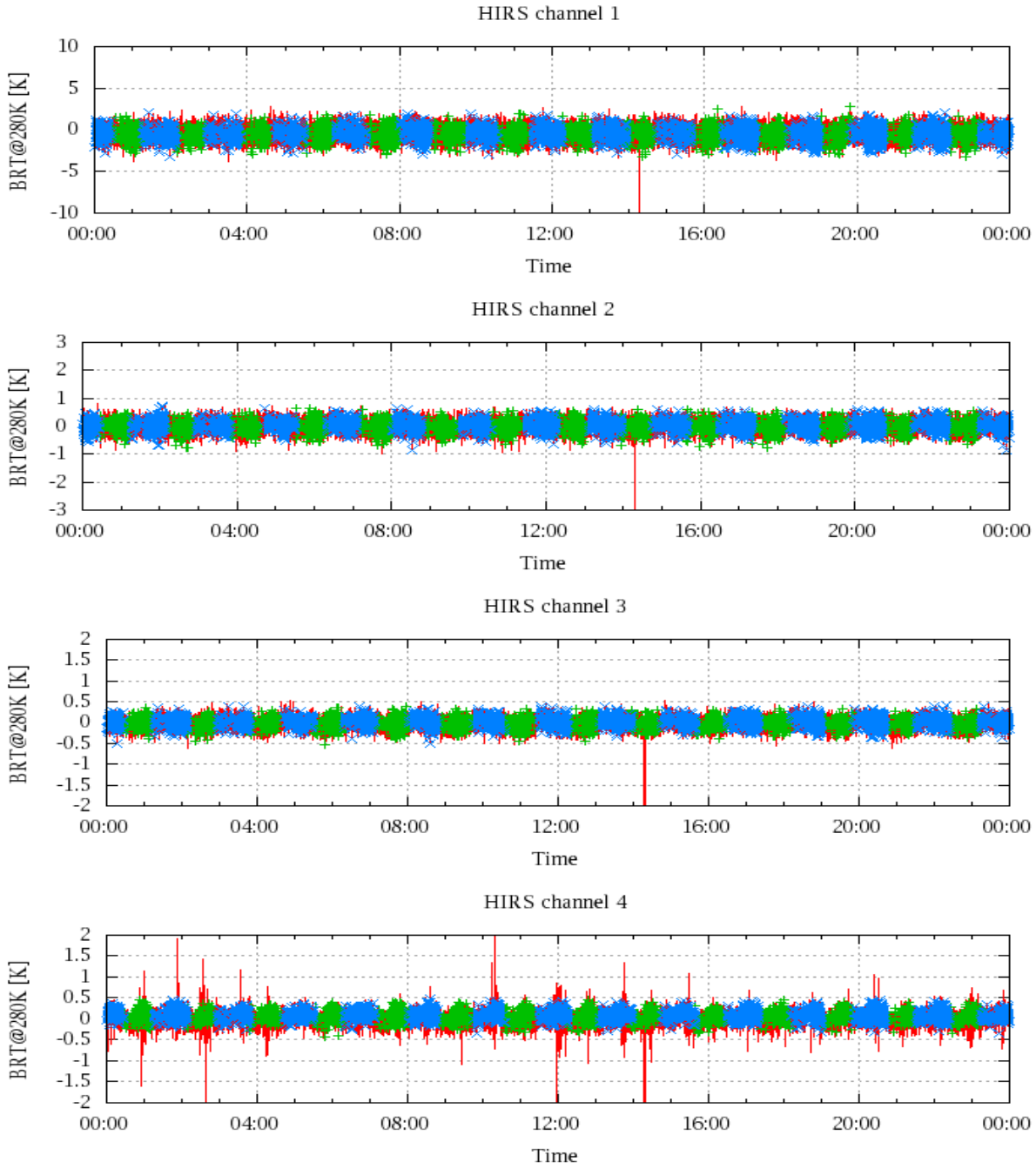

Figure 17: Radiance Differences in BRT

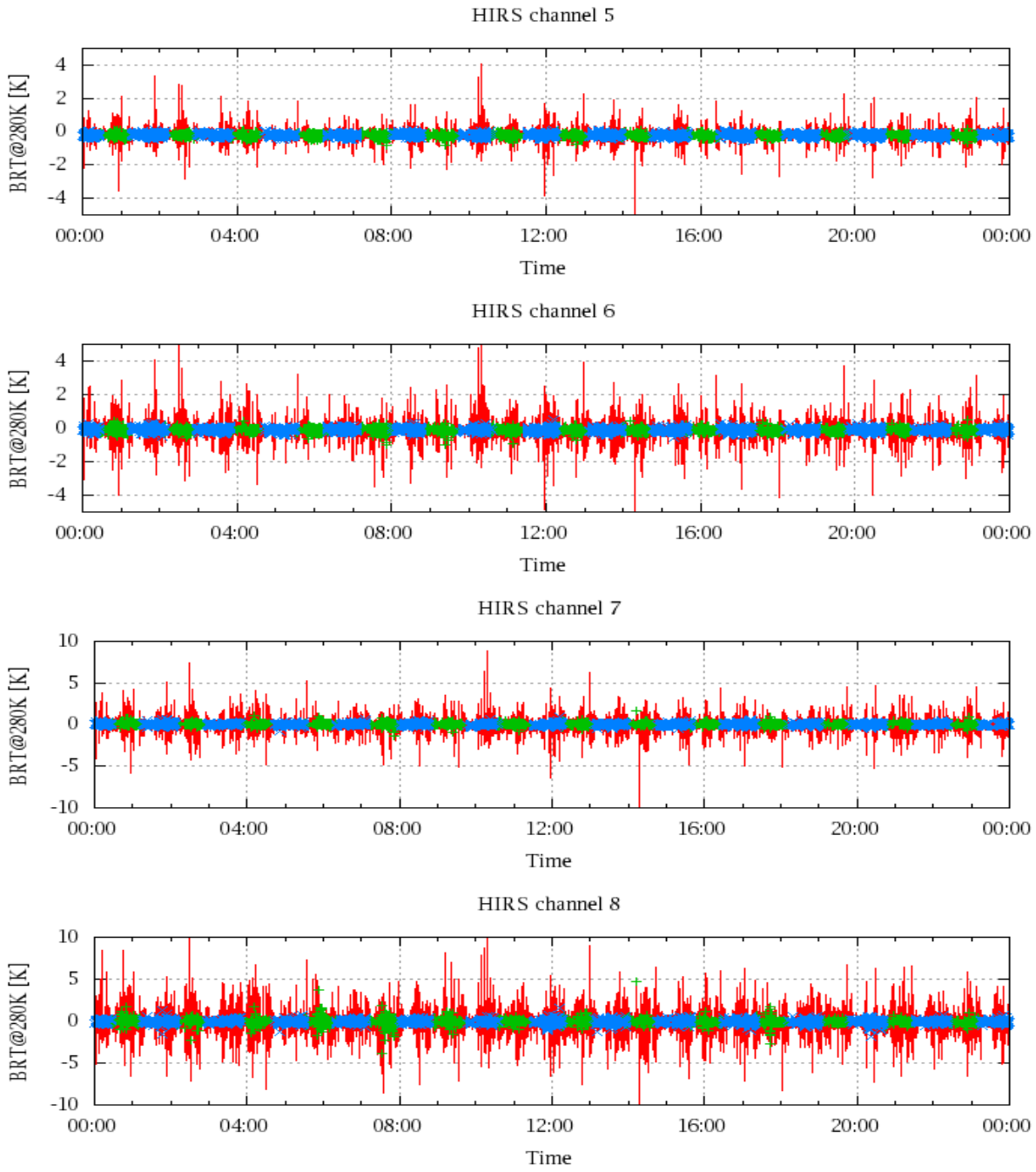

Figure 18: Radiance Differences in BRT

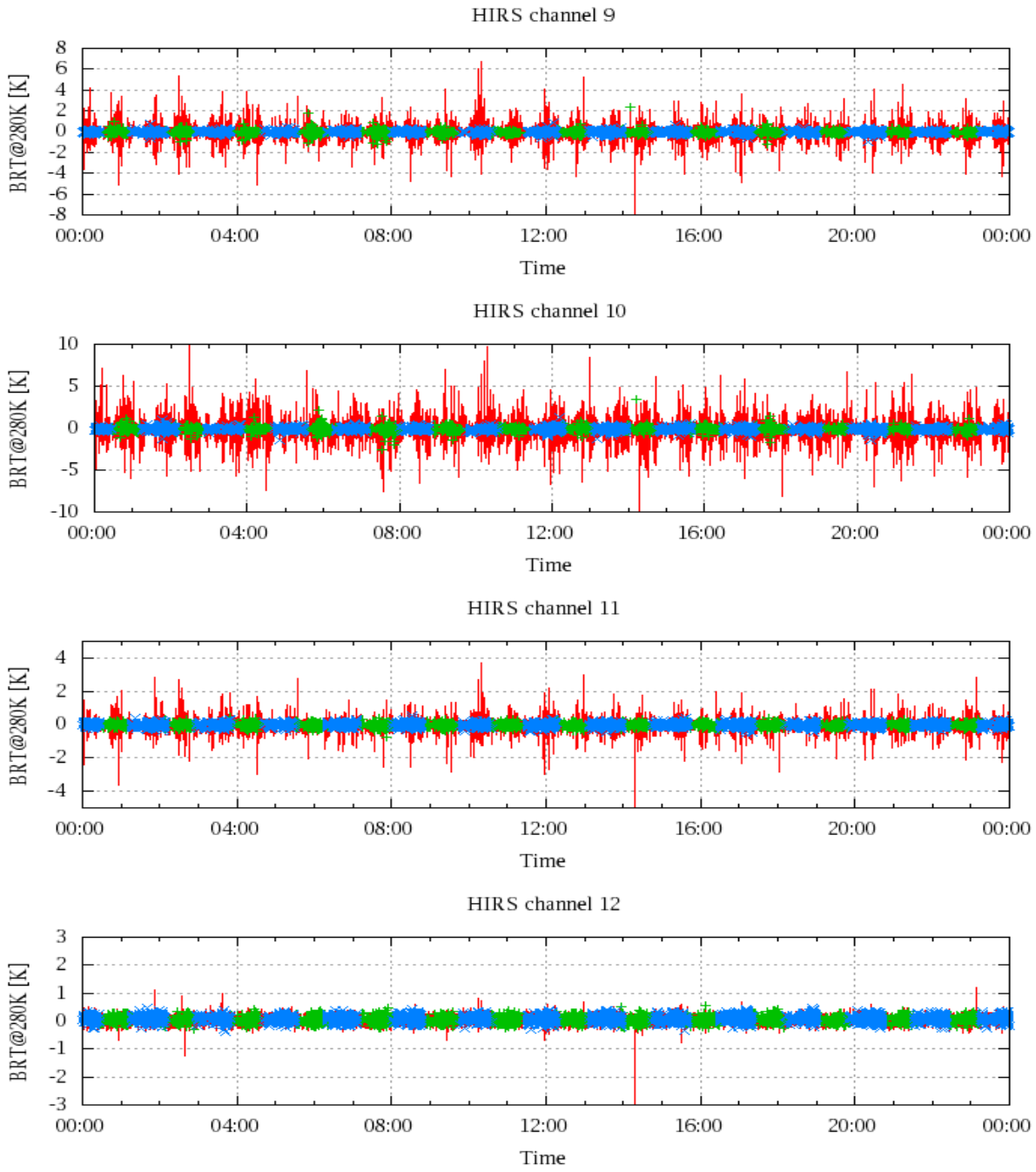

Figure 19: Radiance Differences in BRT

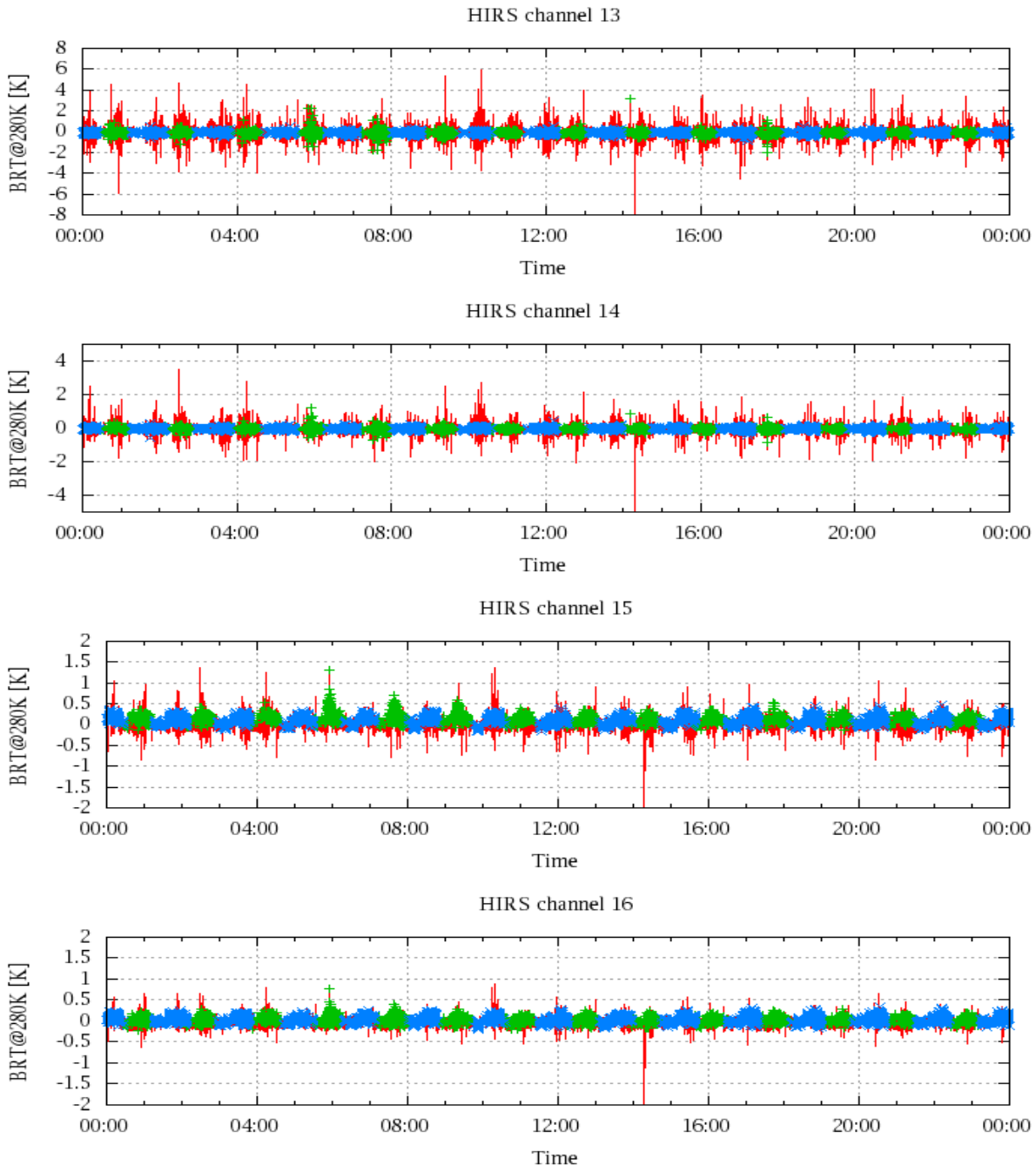

Figure 20: Radiance Differences in BRT

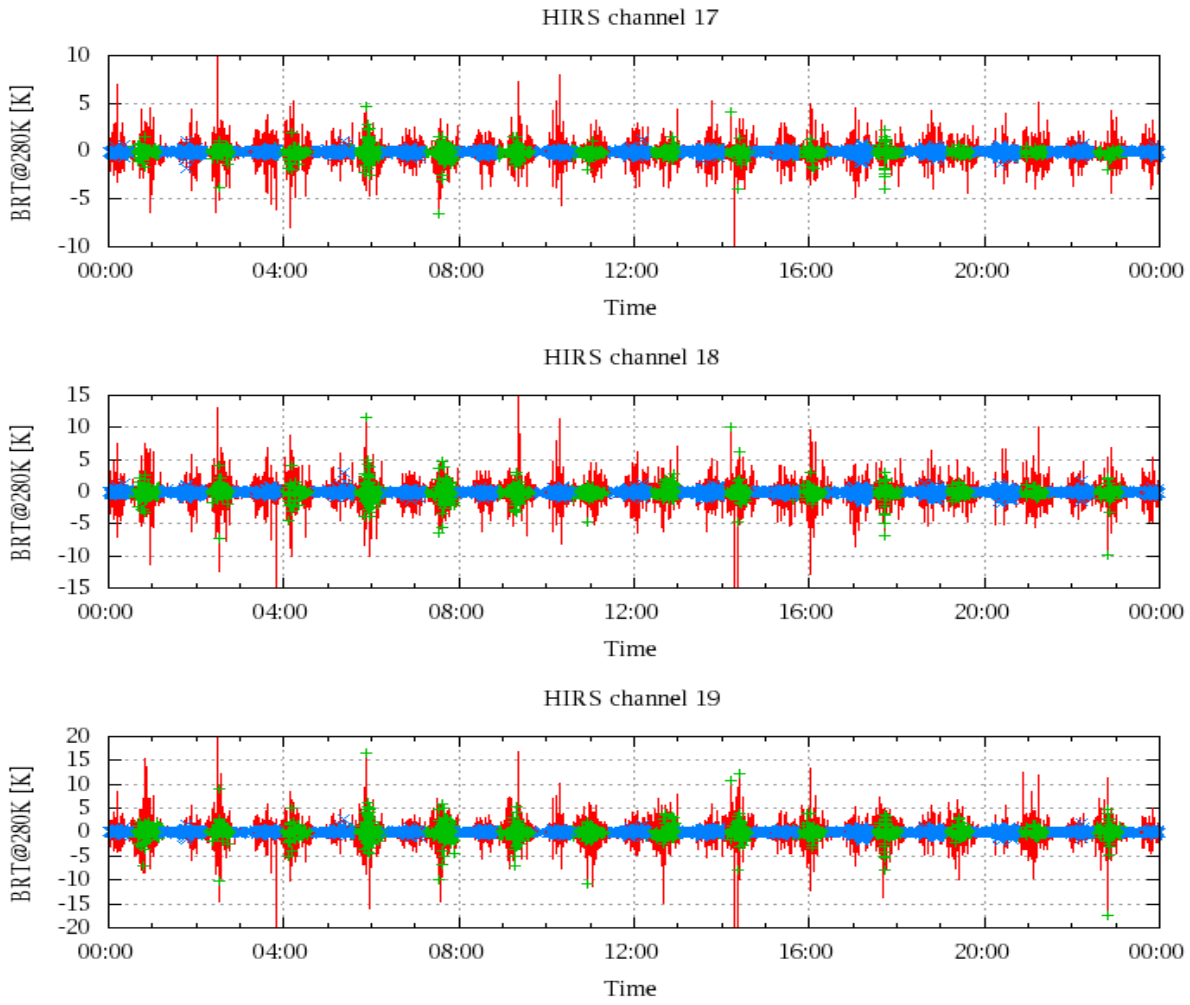

Figure 21: Radinace Differences in BRT