IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

18/10/2014 00:00:00 - 19/10/2014 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 18/10/2014 00:00:00 - 19/10/2014 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 18/10/2014 00:00:00 - 19/10/2014 00:00:00

Product Type	**Number**	**Action**
L0 HKTM PDUs	473	-
L0 IASI PDUs	473	-
L1 ENG PDUs	472	-
L1 ENG distinct GEPSGranule	473	-
L1 DPX PDUs (RM: IASI-HIRS)	471	-
L1 DPS Files (RM: OBS-CAL NWP based)	472	-

Table 1: Data quantity

APID	**Seq from**	**Seq to**	**Time from**	**Time to**
PX1 (130)	9401	9464	20141018183059.288	20141018183115.937
PX1 (130)	9549	15638	20141018183138.855	20141018185842.632
PX2 (135)	8606	8608	20141018024049.941	20141018024050.375
PX2 (135)	9400	9403	20141018183059.070	20141018183059.722
PX2 (135)	9403	9465	20141018183059.722	20141018183116.152
PX2 (135)	9547	9549	20141018183138.421	20141018183138.855
PX2 (135)	9550	15638	20141018183139.070	20141018185842.632
PX3 (140)	9400	9466	20141018183059.070	20141018183116.366
PX3 (140)	9549	15638	20141018183138.855	20141018185842.632
PX4 (145)	9396	9398	20141018183058.206	20141018183058.640
PX4 (145)	9399	9401	20141018183058.855	20141018183059.288
PX4 (145)	9401	9463	20141018183059.288	20141018183115.722
PX4 (145)	9463	9465	20141018183115.722	20141018183116.152
PX4 (145)	9549	15638	20141018183138.855	20141018185842.632
IMG (150)	3700	3772	20141018183059.070	20141018183115.937
IMG (150)	3869	10769	20141018183138.855	20141018185842.413
VER (160)	13358	13369	20141018183055.613	20141018183119.613
VER (160)	13383	14399	20141018183135.612	20141018185847.605

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
AUX (180)	2670	2673	20141018183056.046	20141018183120.046
AUX (180)	2675	2879	20141018183136.046	20141018185848.038

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
18/10/2014 00:00:15	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	473	-
L1 ENG PDUs	472	-
L1 ENG distinct GEPSGranule	473	-
GQisFlagQual set (PX1)	99.42 %	-
GQisFlagQual set (PX2)	99.39 %	-
GQisFlagQual set (PX3)	99.42 %	-
GQisFlagQual set (PX4)	99.45 %	-
GQisFlagQual set (all)	99.42 %	-

Table 4: Quality flags

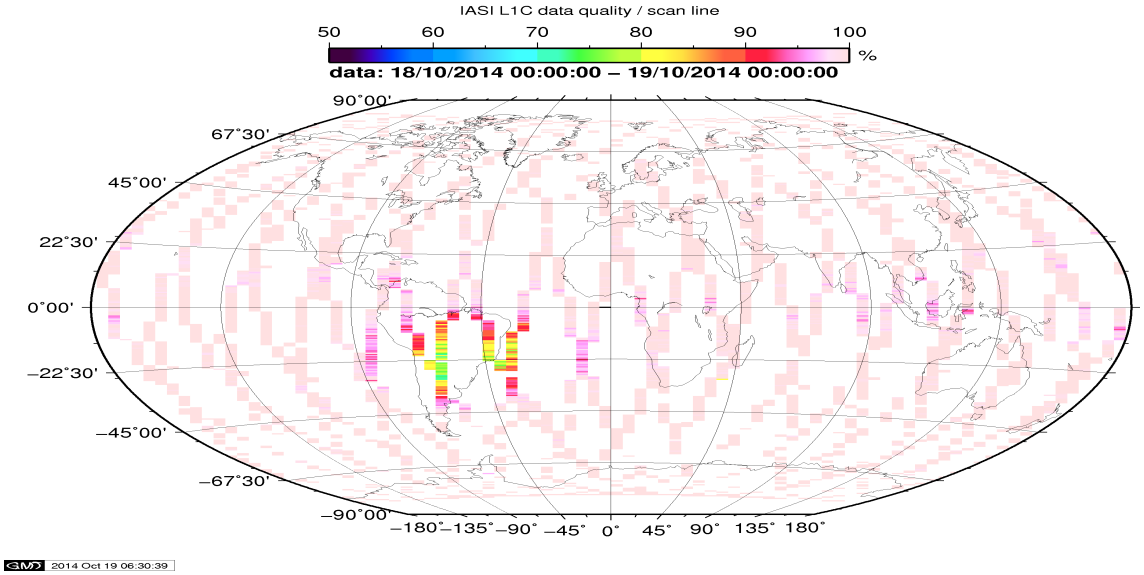

Figure 1: L1C data quality

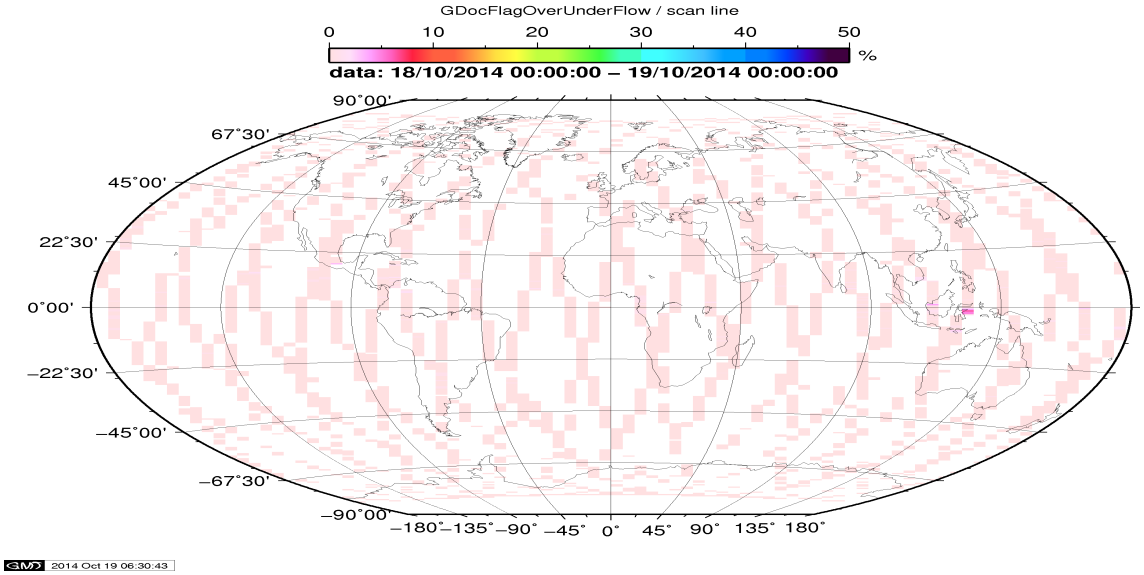

Figure 2: Flag of Over and Under Flows

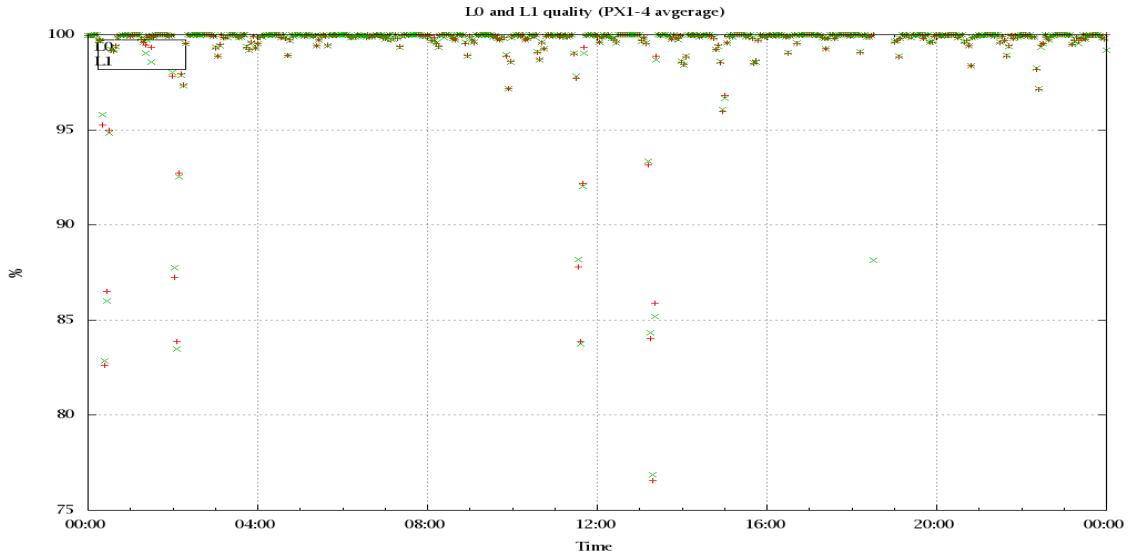

Figure 3: Level 0 and 1C overall quality

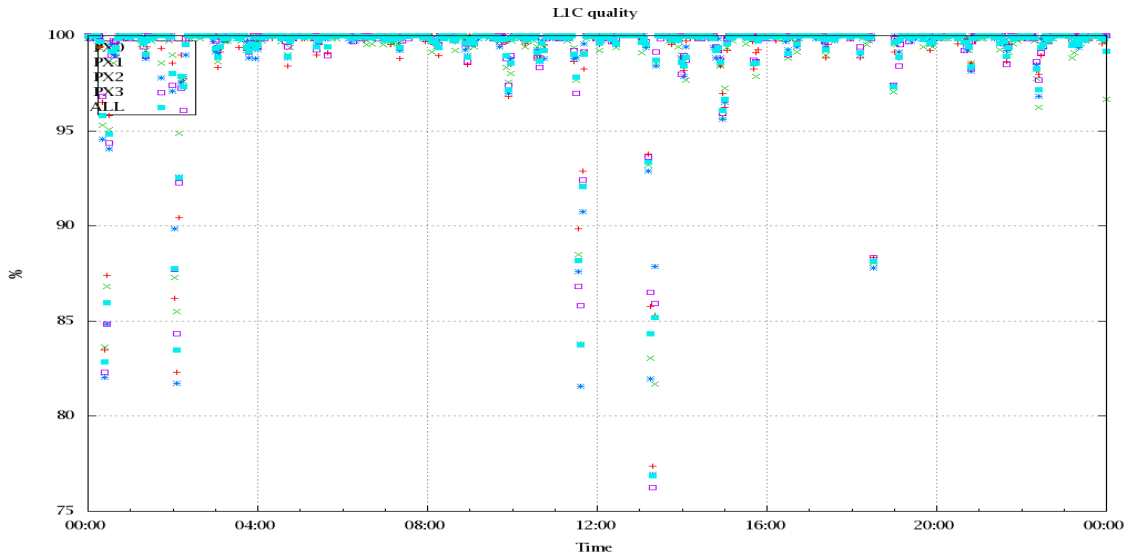

Figure 4: Level 1C quality

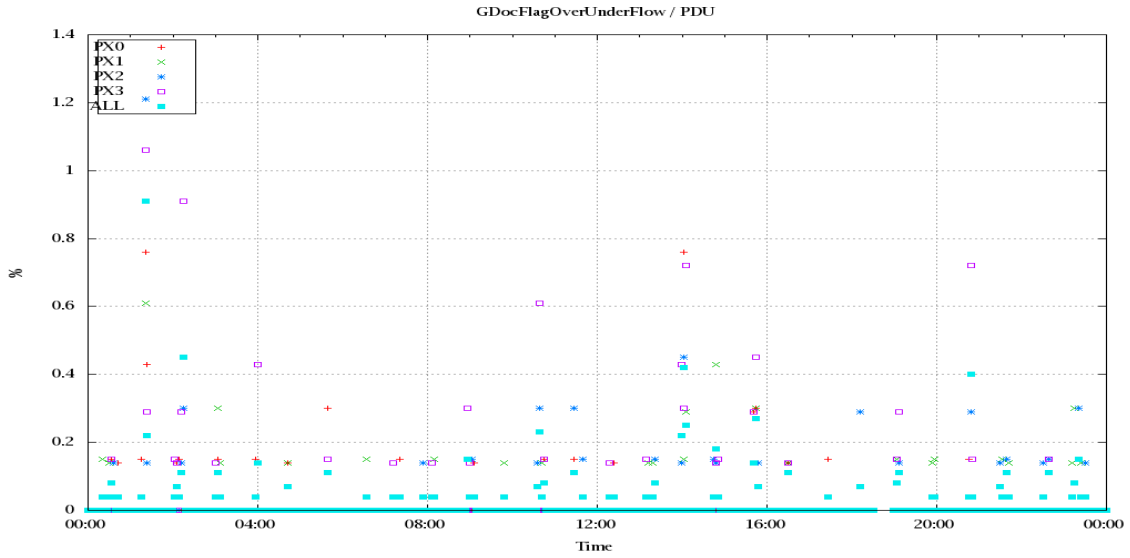

Figure 5: OverUnderFlowFlag timeseries

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.

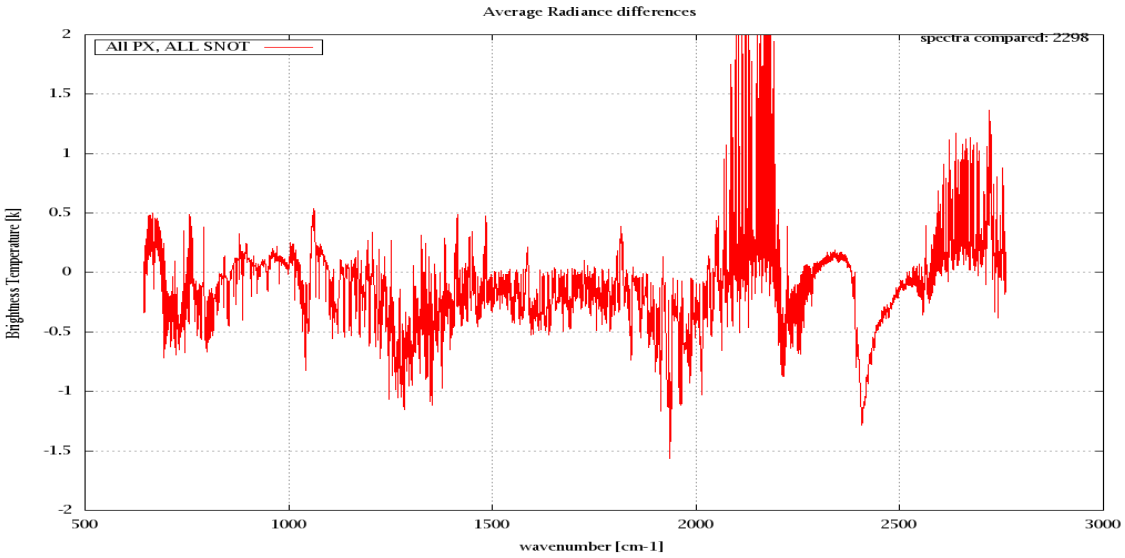

Figure 6: Average Radiance differences: OBS-CAL

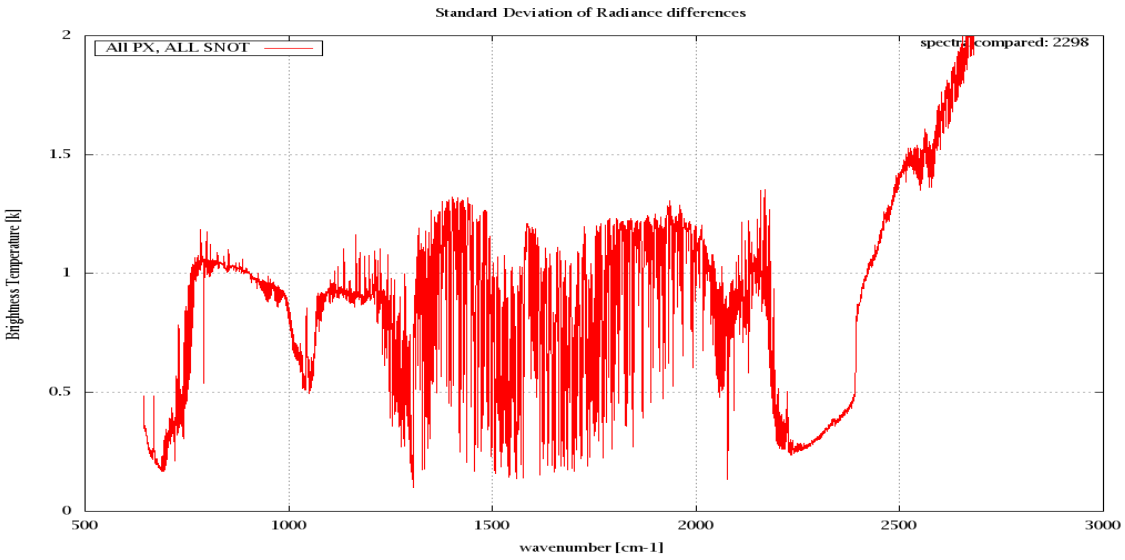

Figure 7: Standard Deviation of Radiance differences

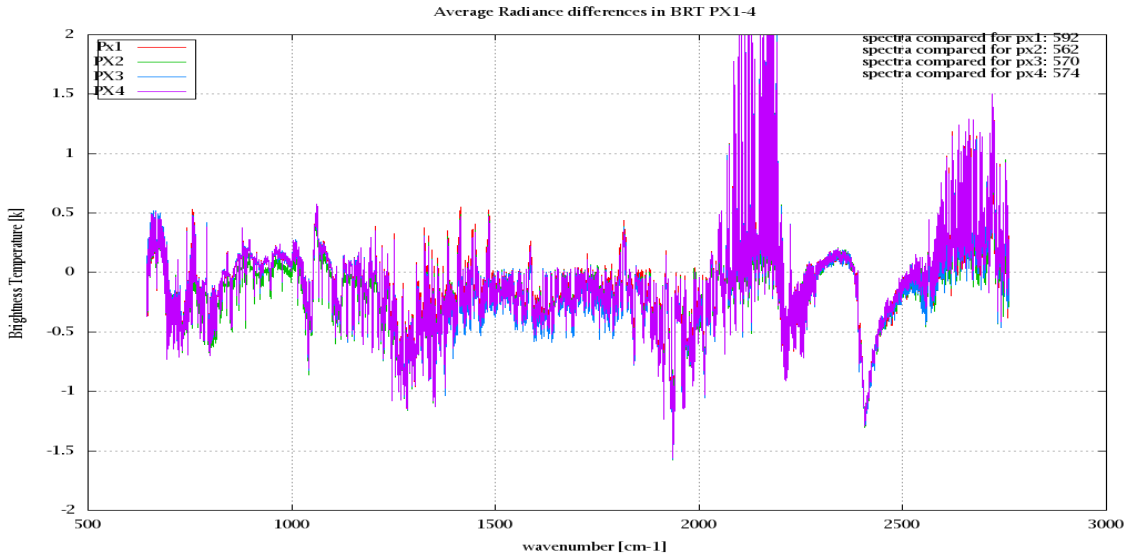

Figure 8: Average Radiance differences: OBS-CAL

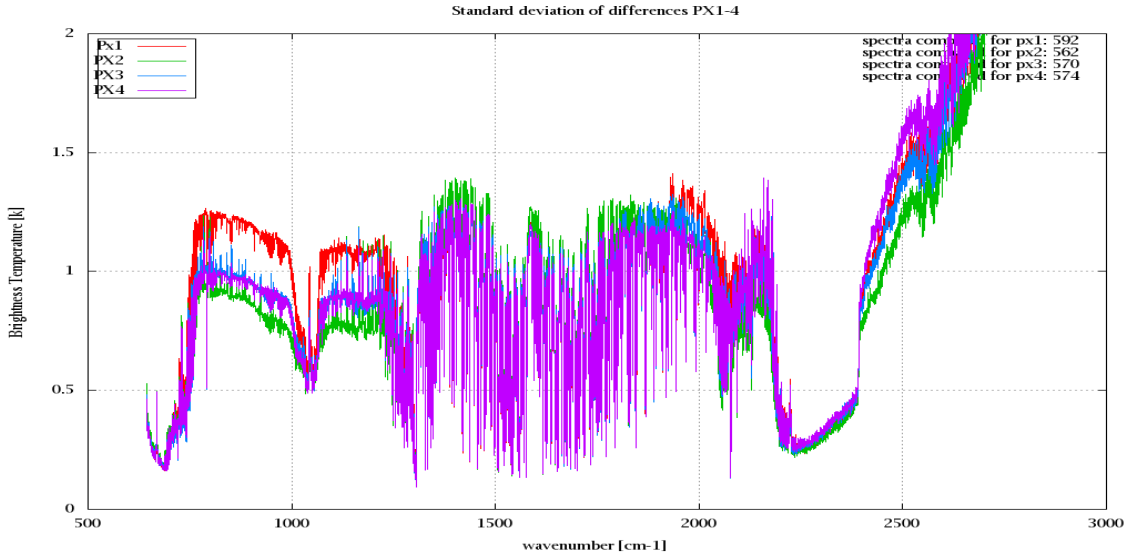

Figure 9: Standard Deviation of Radiance differences

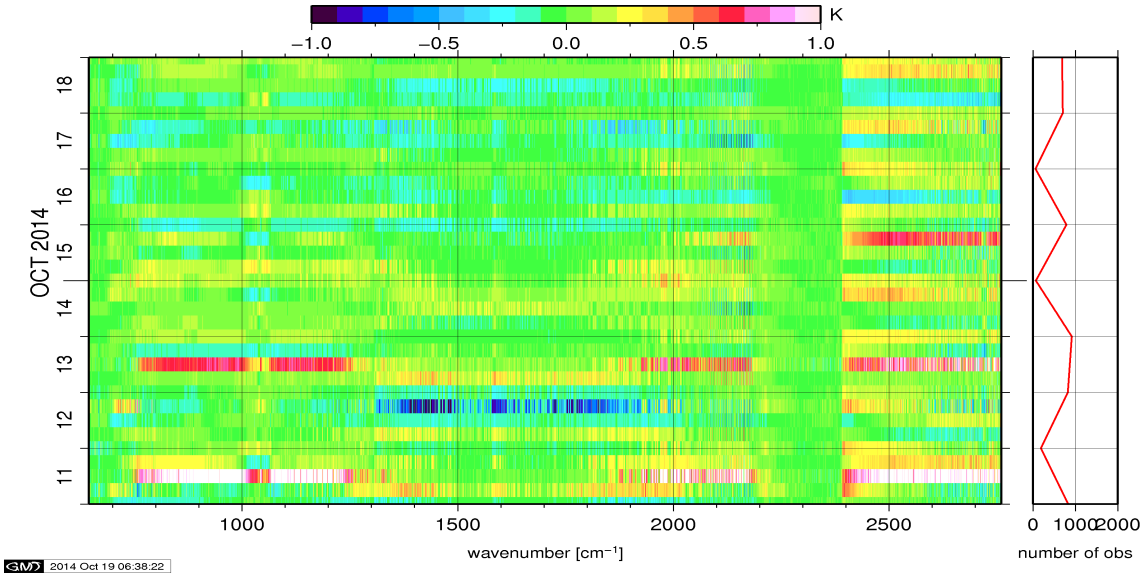

Figure 10: Radiance Anomaly in BRT: All Channels

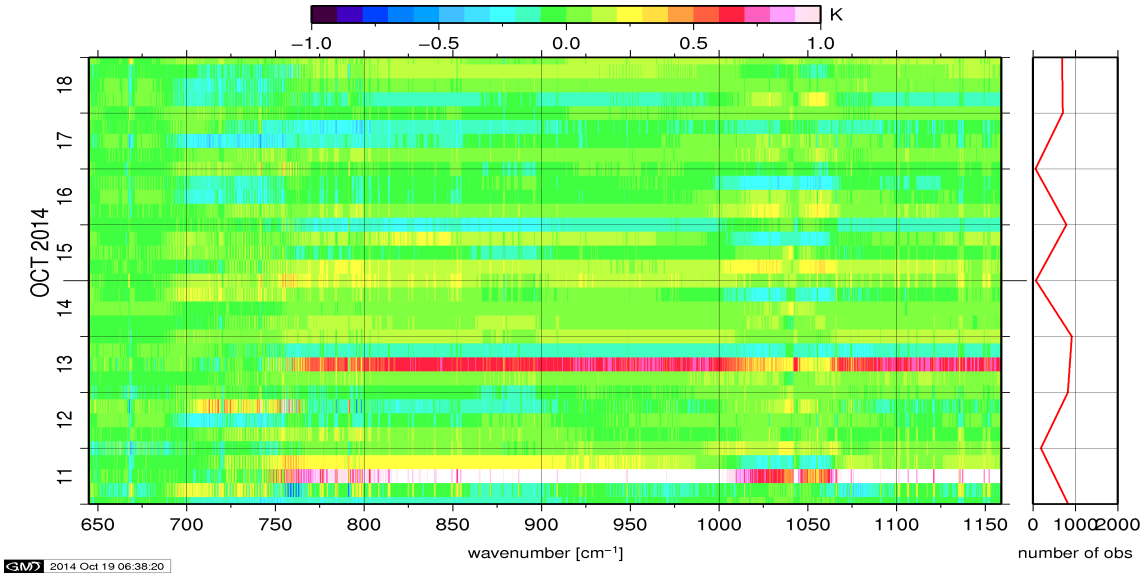

Figure 11: Radiance Anomaly in BRT: IASI Band 1

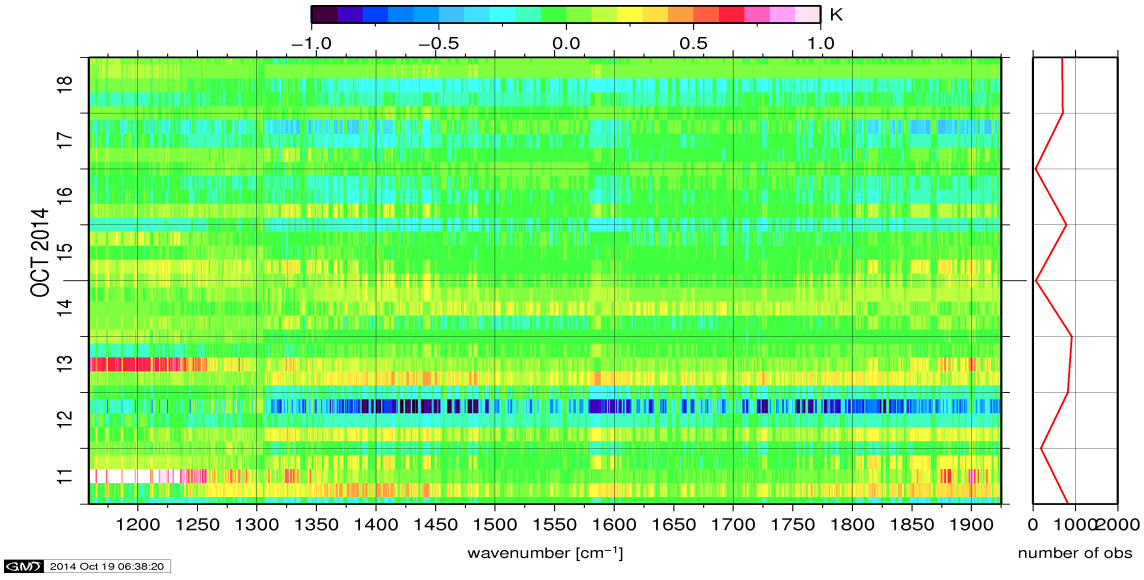

Figure 12: Radiance Anomaly in BRT: IASI Band 2

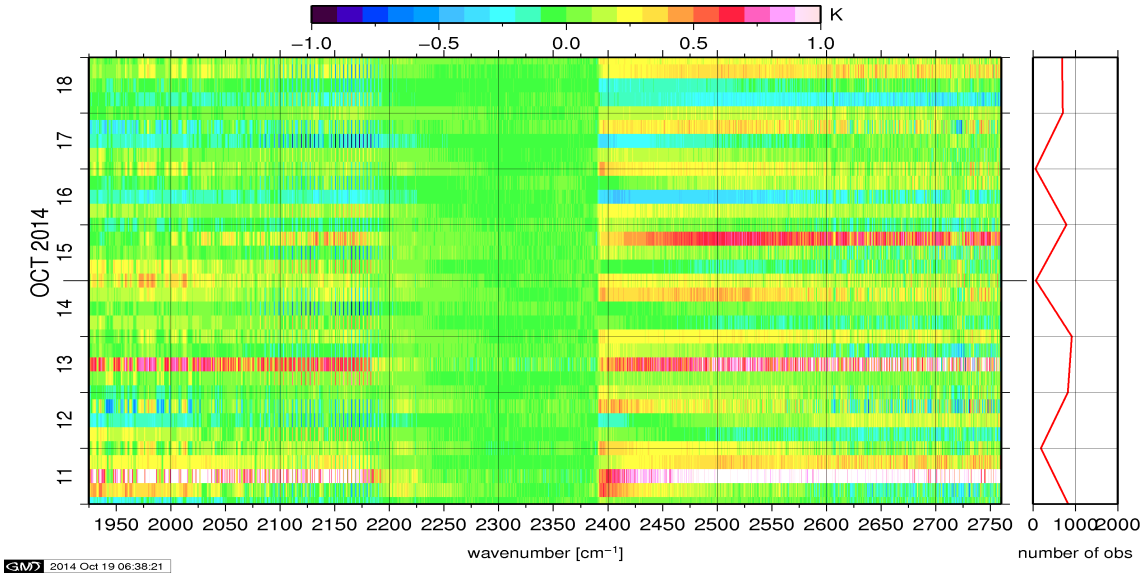

Figure 13: Radiance Anomaly in BRT: IASI Band 3

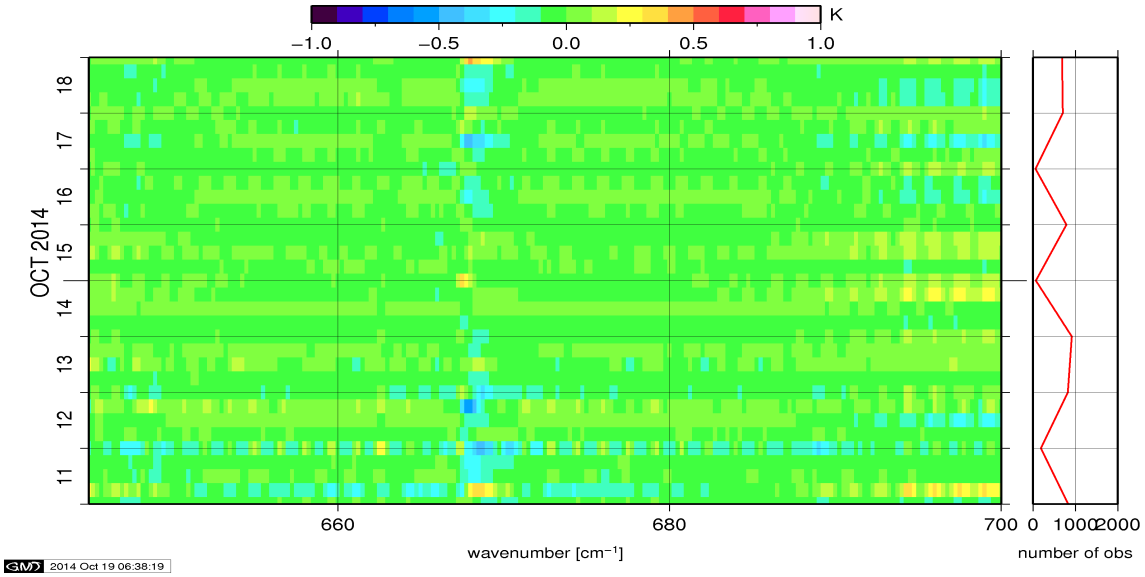

Figure 14: Radiance Anomaly in BRT: CO2 14

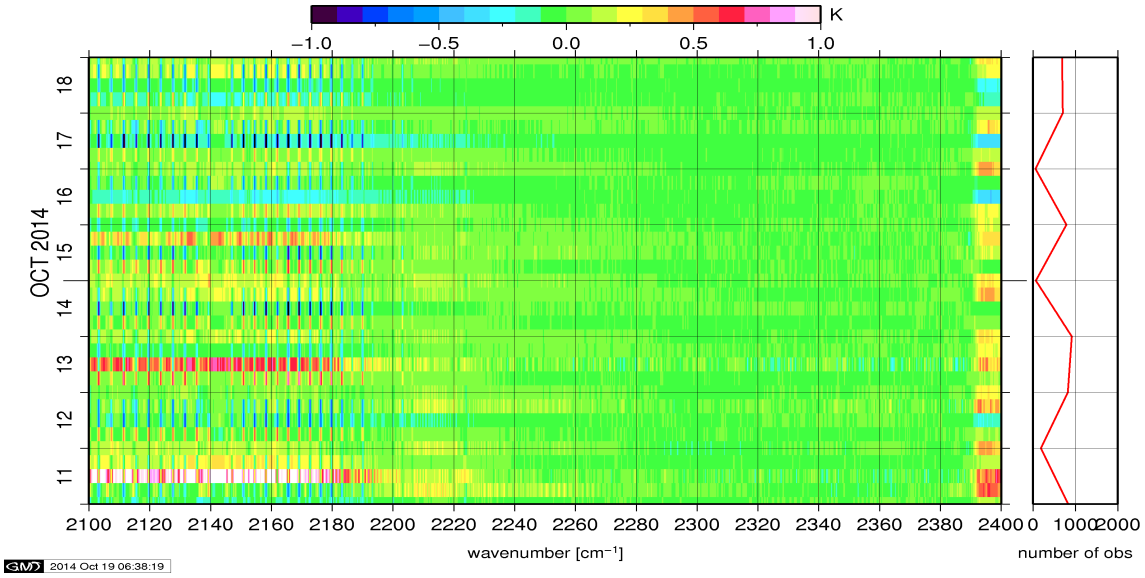

Figure 15: Radiance Anomaly in BRT: CO2 4.3

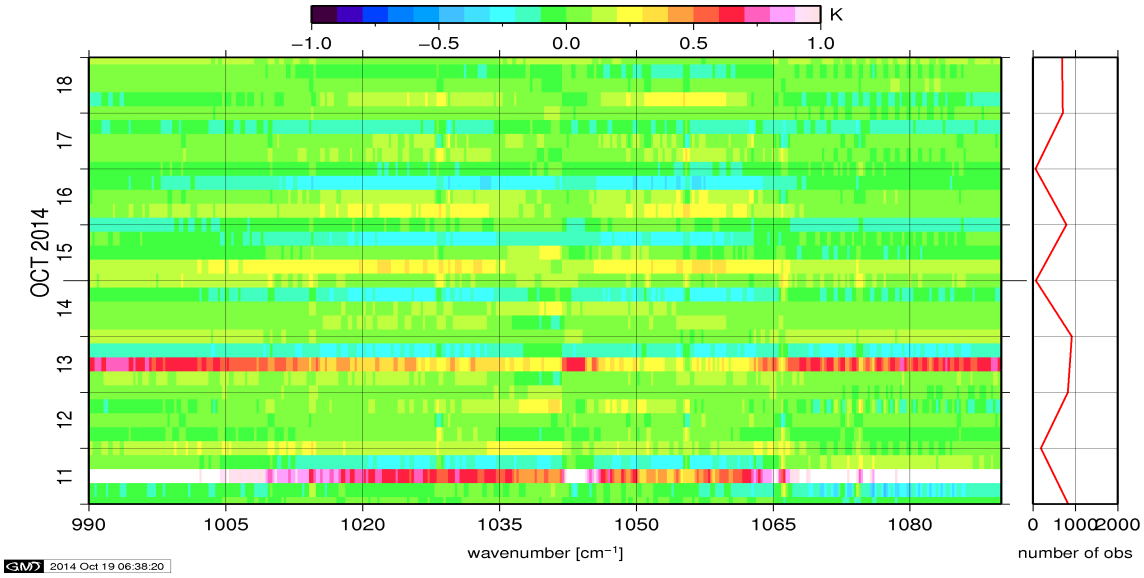

Figure 16: Radiance Anomaly in BRT: O3

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.

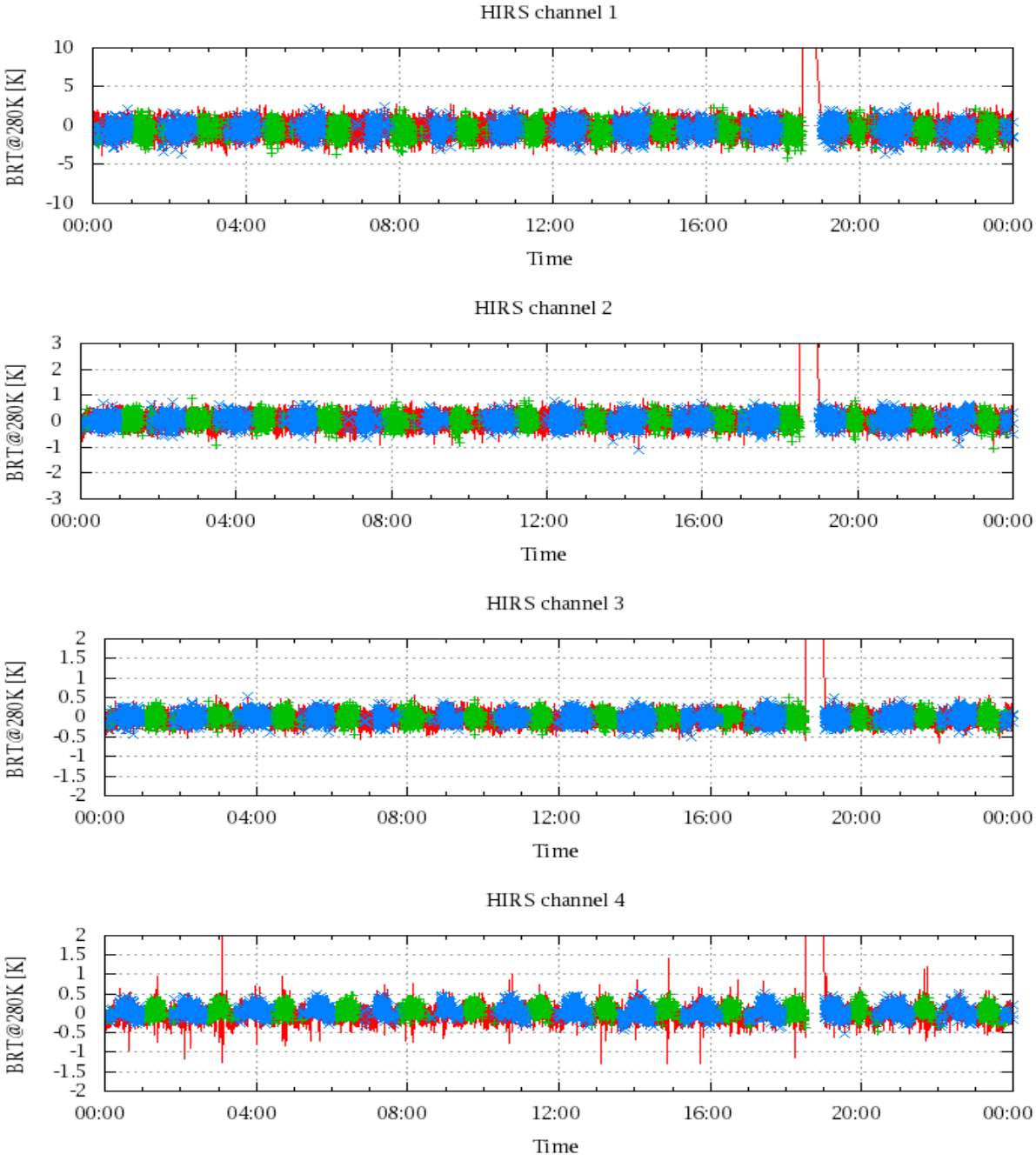

Figure 17: Radiance Differences in BRT

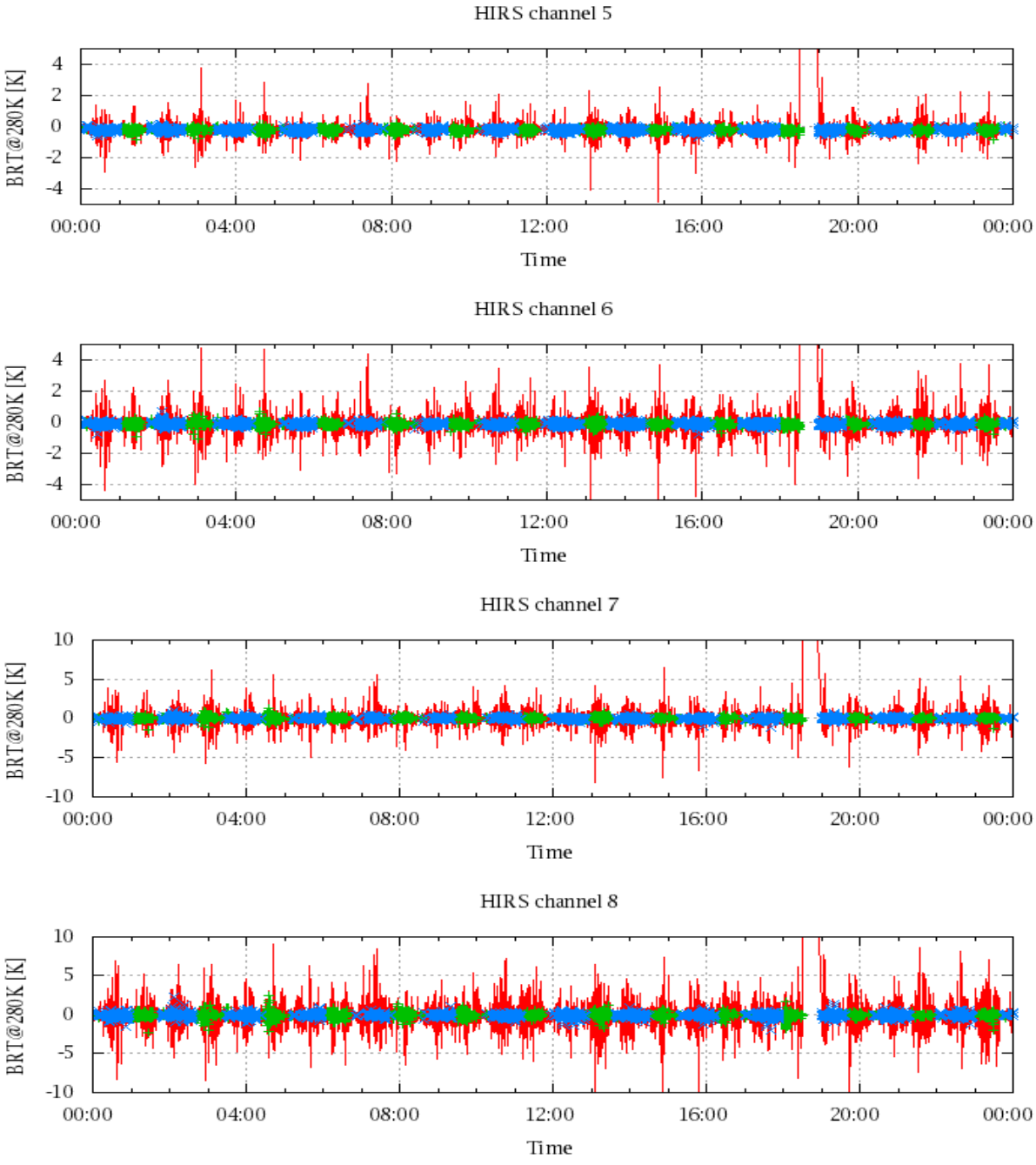

Figure 18: Radiance Differences in BRT

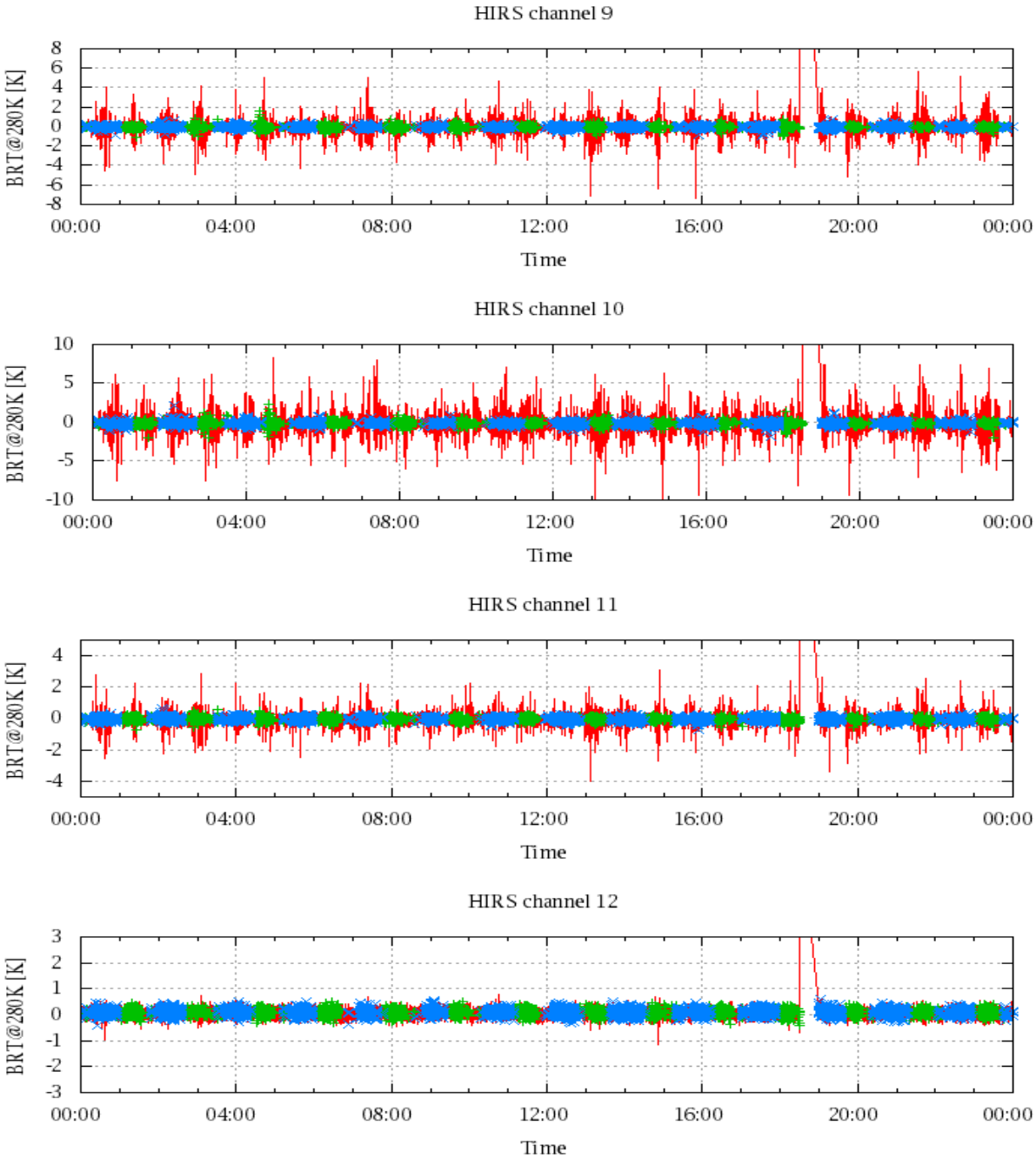

Figure 19: Radiance Differences in BRT

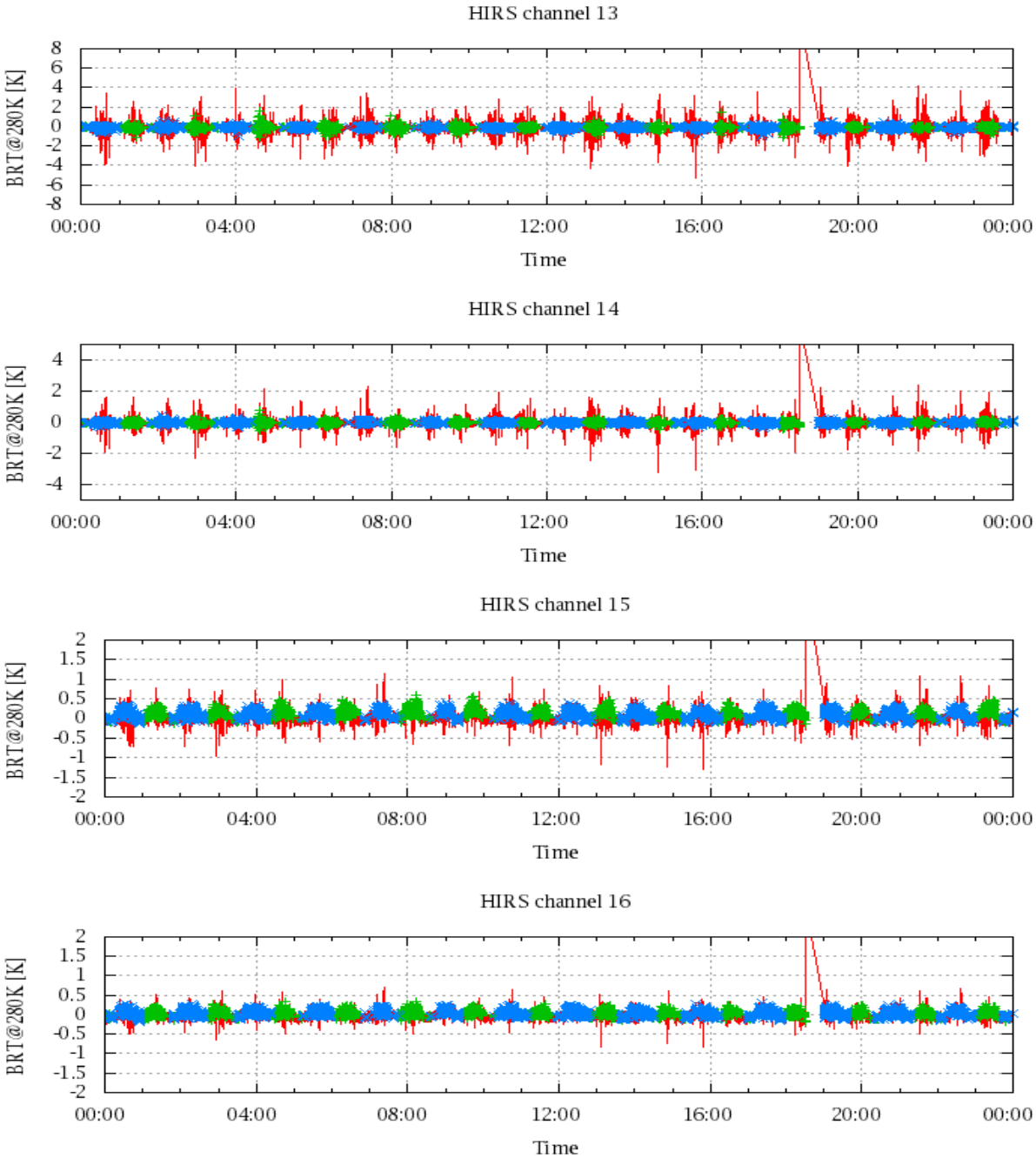

Figure 20: Radiance Differences in BRT

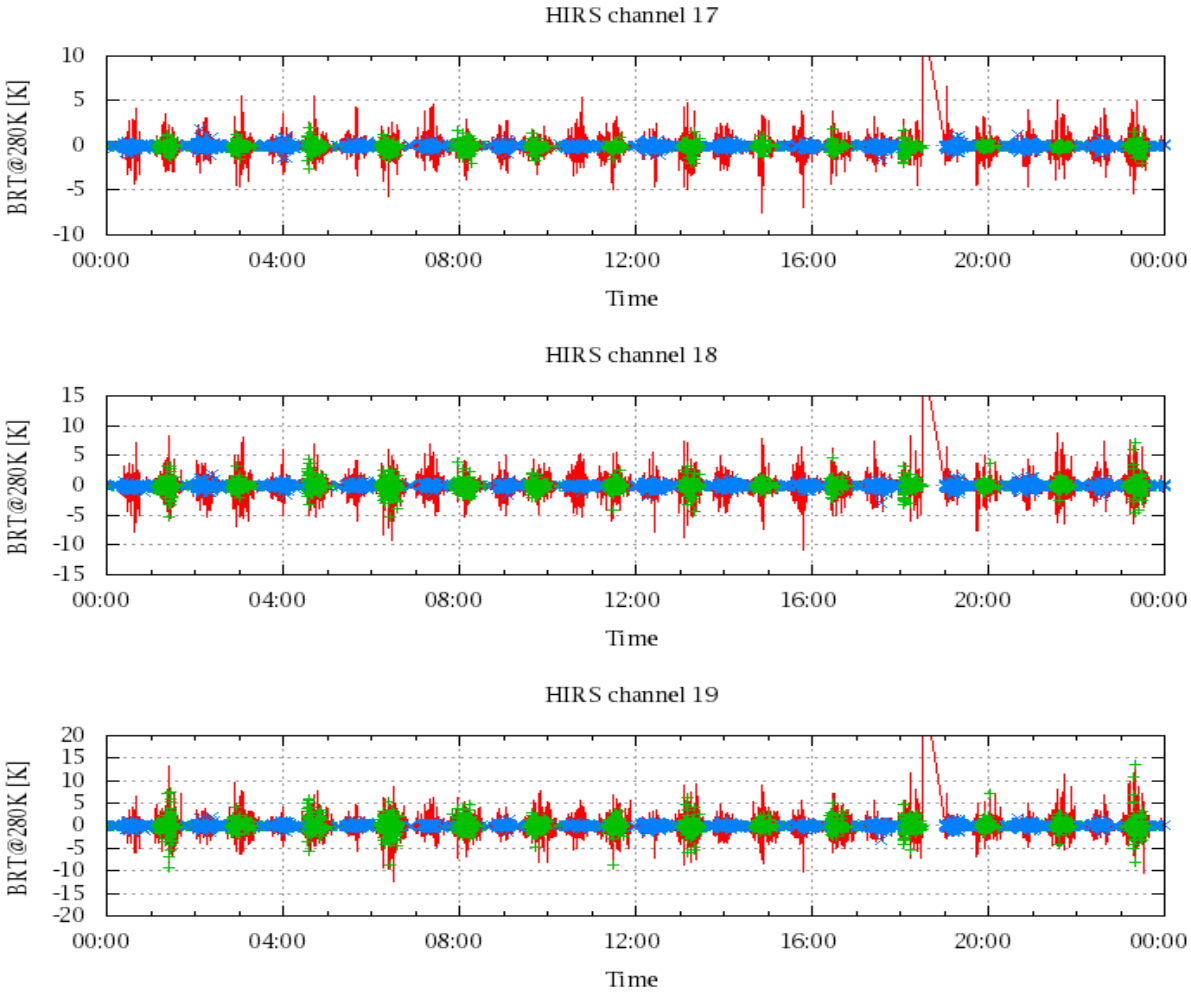

Figure 21: Radinace Differences in BRT