IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

05/10/2012 00:00:00 - 06/10/2012 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 05/10/2012 00:00:00 - 06/10/2012 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 05/10/2012 00:00:00 - 06/10/2012 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)	480	-
L1 DPS Files (RM: OBS-CAL NWP based)	480	-

Table 1: Data quantity

APID	**Seq from**	**Seq to**	**Time from**	**Time to**
PX1 (130)	6590	7006	20121005164131.920	20121005164323.052
PX1 (130)	7010	7012	20121005164323.915	20121005164324.349
PX1 (130)	7014	7145	20121005164324.779	20121005164400.669
PX1 (130)	2530	0	20121005234022.881	20121005234320.607
PX2 (135)	6590	7007	20121005164131.920	20121005164323.267
PX2 (135)	7010	7012	20121005164323.915	20121005164324.349
PX2 (135)	7012	7014	20121005164324.349	20121005164324.779
PX2 (135)	7014	7145	20121005164324.779	20121005164400.669
PX2 (135)	7195	7197	20121005164412.997	20121005164413.427
PX2 (135)	2554	0	20121005234029.584	20121005234320.607
PX3 (140)	6590	7005	20121005164131.920	20121005164322.833
PX3 (140)	7005	7007	20121005164322.833	20121005164323.267
PX3 (140)	7014	7145	20121005164324.779	20121005164400.669
PX3 (140)	2554	0	20121005234029.584	20121005234320.607
PX4 (145)	6589	7006	20121005164131.705	20121005164323.052
PX4 (145)	7007	7009	20121005164323.267	20121005164323.701
PX4 (145)	7009	7011	20121005164323.701	20121005164324.134
PX4 (145)	7013	7145	20121005164324.564	20121005164400.669

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	2554	0	20121005234029.584	20121005234320.607
IMG (150)	1481	1955	20121005164131.705	20121005164323.267
IMG (150)	1955	1957	20121005164323.267	20121005164323.701
IMG (150)	1962	2109	20121005164324.779	20121005164359.372
IMG (150)	10014	0	20121005234029.584	20121005234320.607
VER (160)	5934	6027	20121005164126.947	20121005164324.779
AUX (180)	11010	11029	20121005164127.380	20121005164359.372
AUX (180)	14152	0	20121005234023.314	20121005234327.306

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
05/10/2012 00:00:14	-	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)	99.39 %	-
GQisFlagQual set (PX2)	99.25 %	-
GQisFlagQual set (PX3)	99.34 %	-
GQisFlagQual set (PX4)	99.42 %	-
GQisFlagQual set (all)	99.35 %	-

Table 4: Quality flags

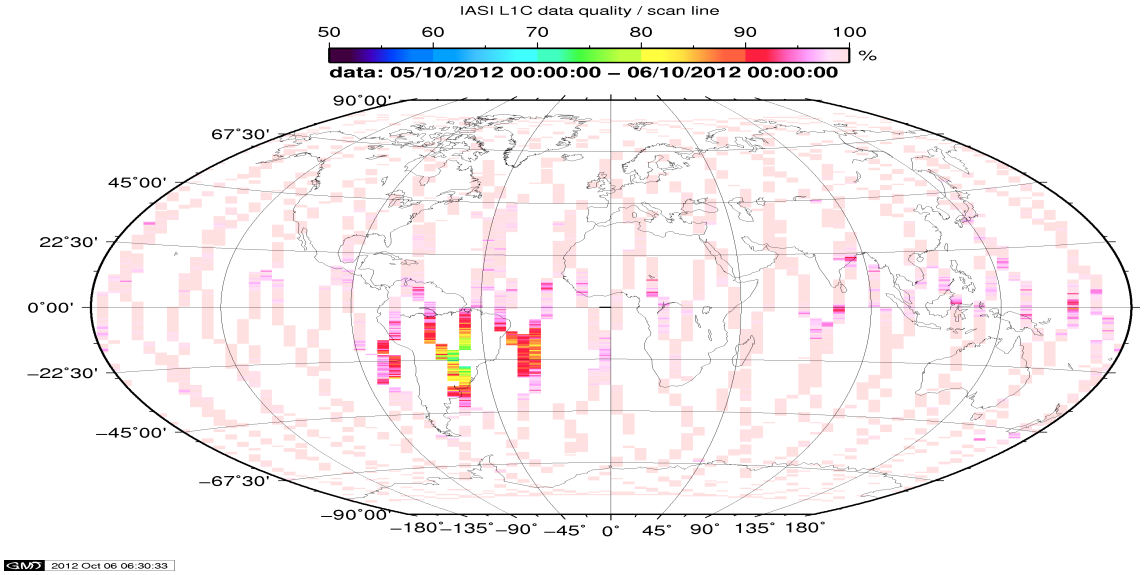

Figure 1: L1C data quality

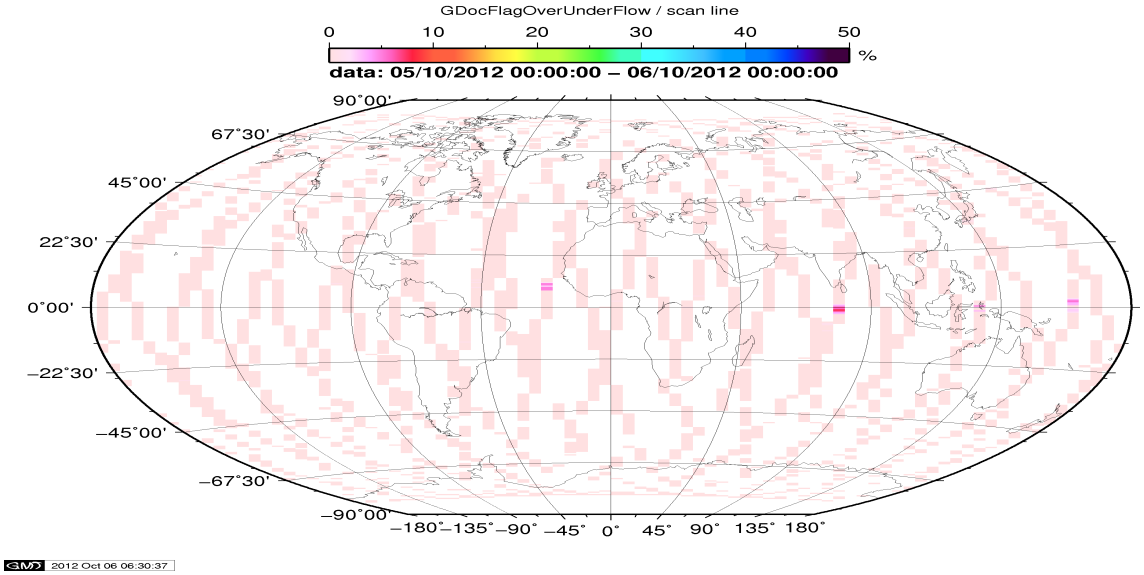

Figure 2: Flag of Over and Under Flows

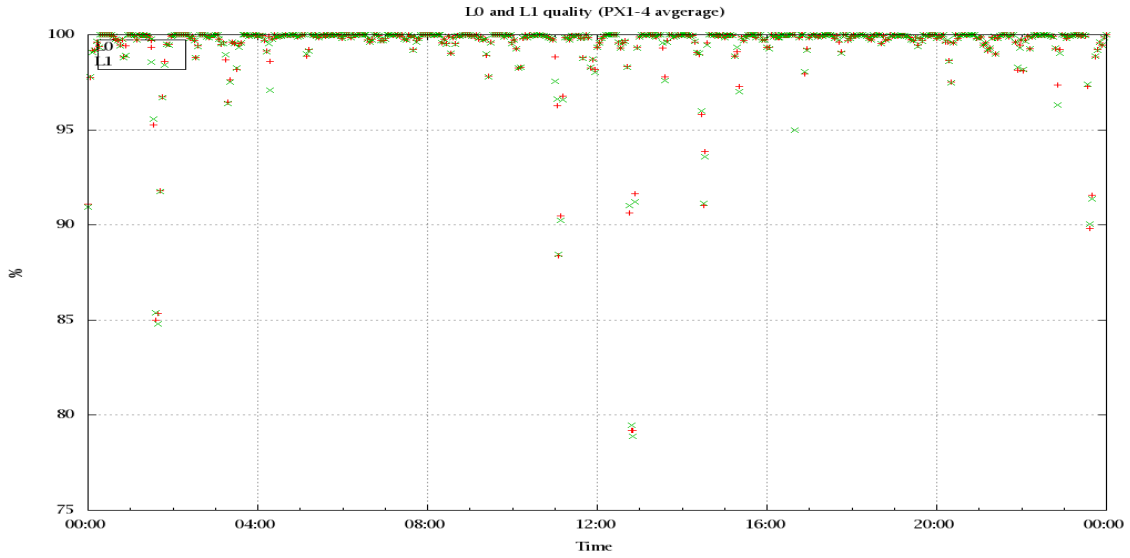

Figure 3: Level 0 and 1C overall quality

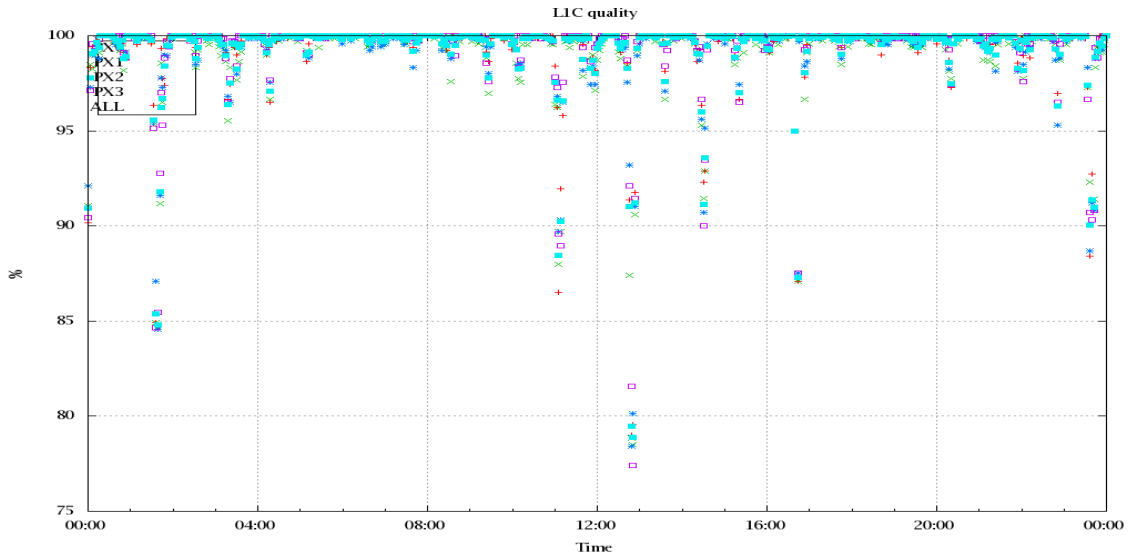

Figure 4: Level 1C quality

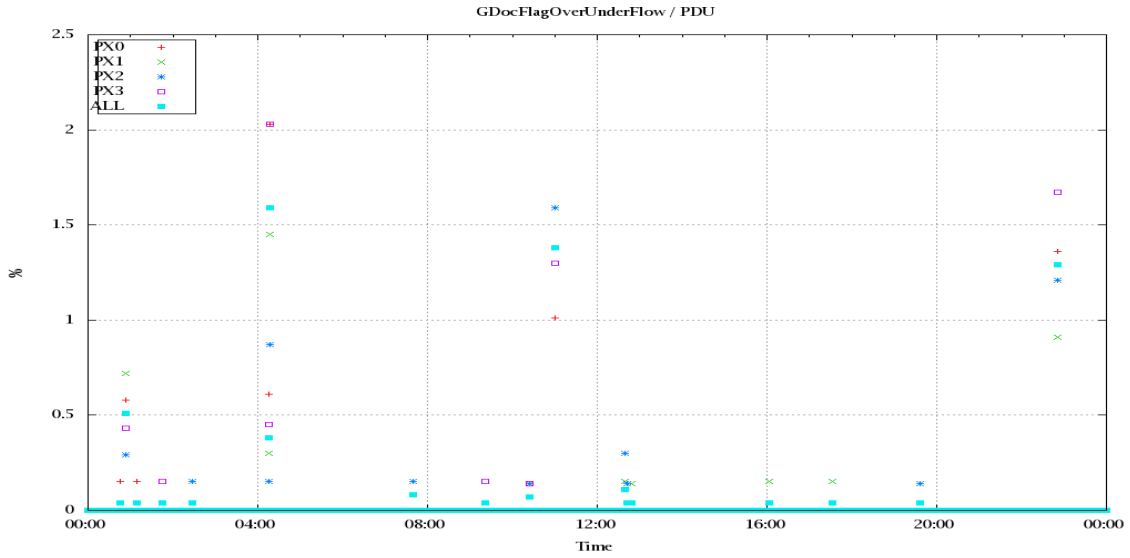

Figure 5: OverUnderFlowFlag timeseries

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.

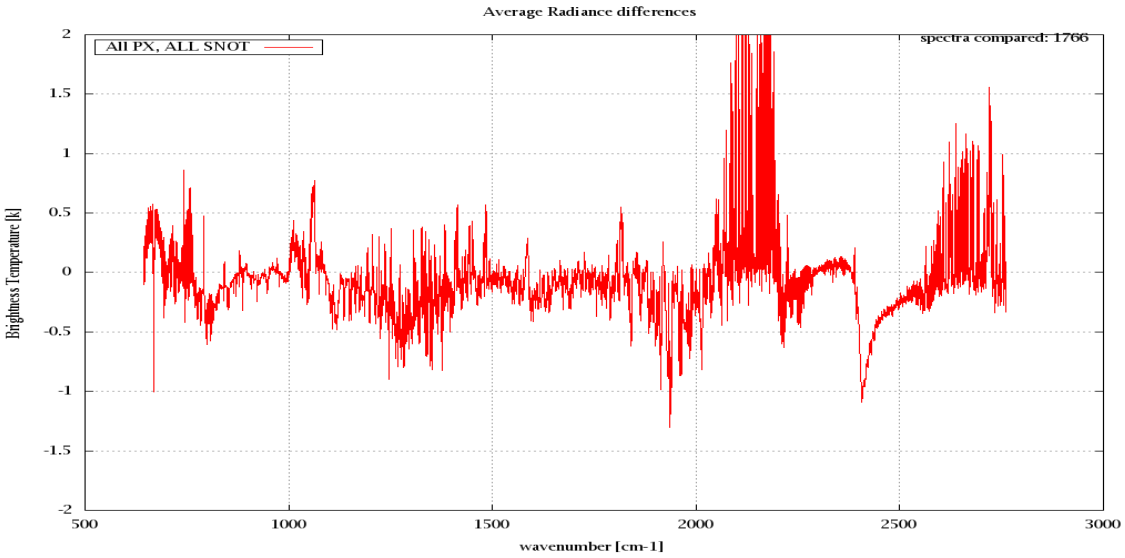

Figure 6: Average Radiance differences: OBS-CAL

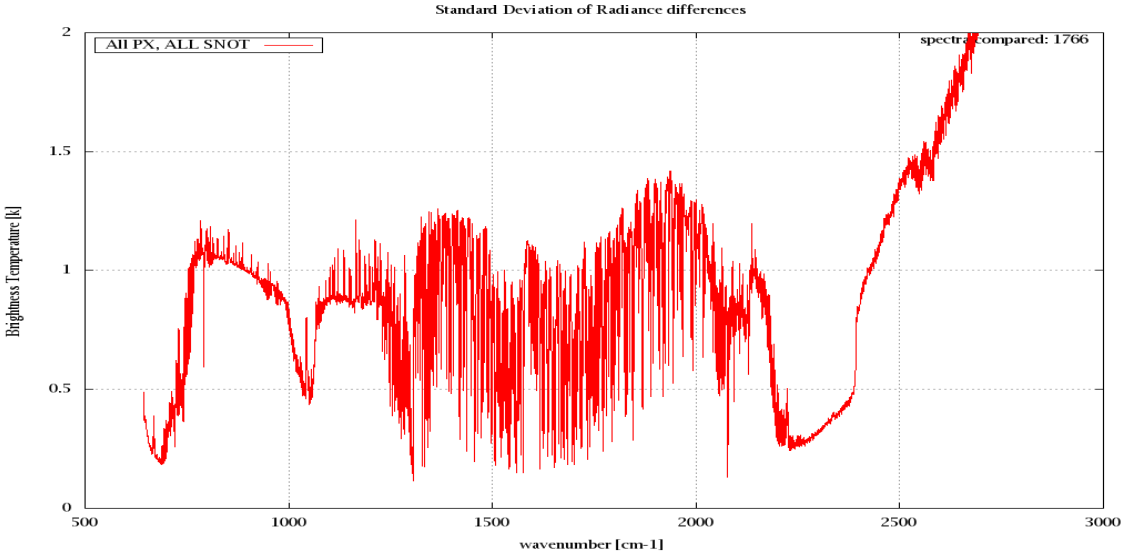

Figure 7: Standard Deviation of Radiance differences

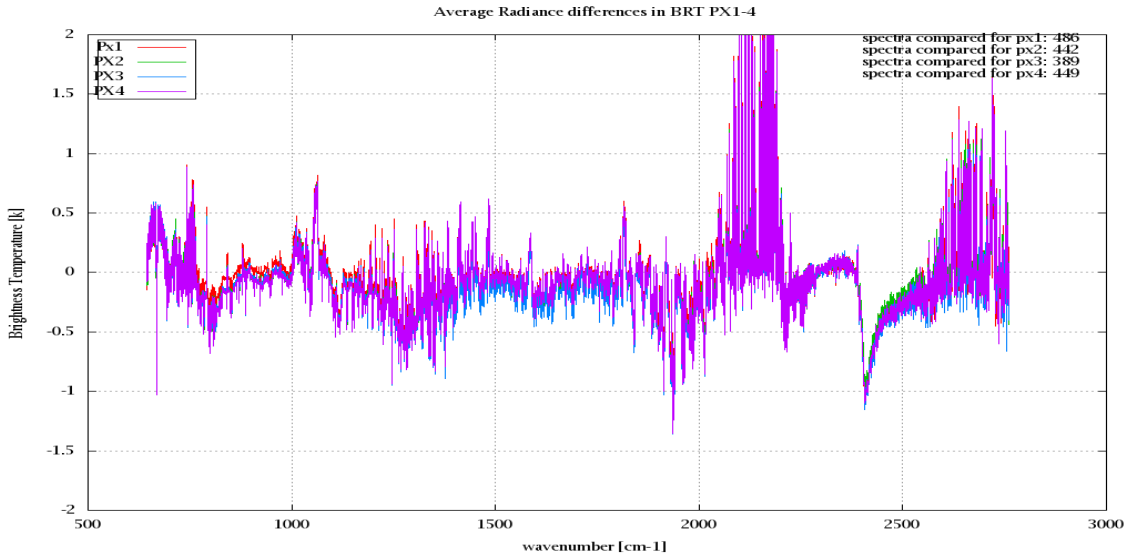

Figure 8: Average Radiance differences: OBS-CAL

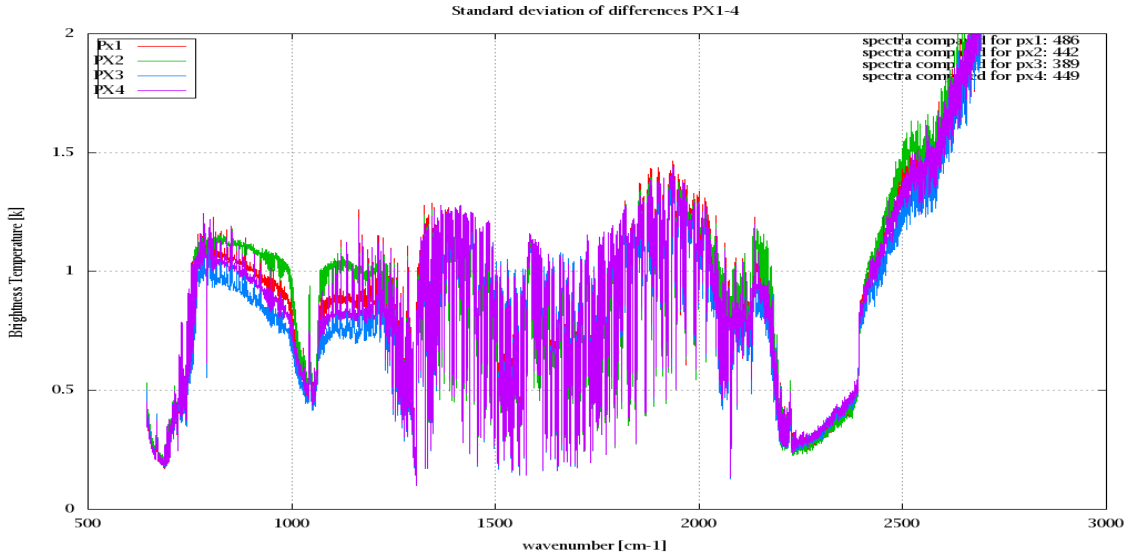

Figure 9: Standard Deviation of Radiance differences

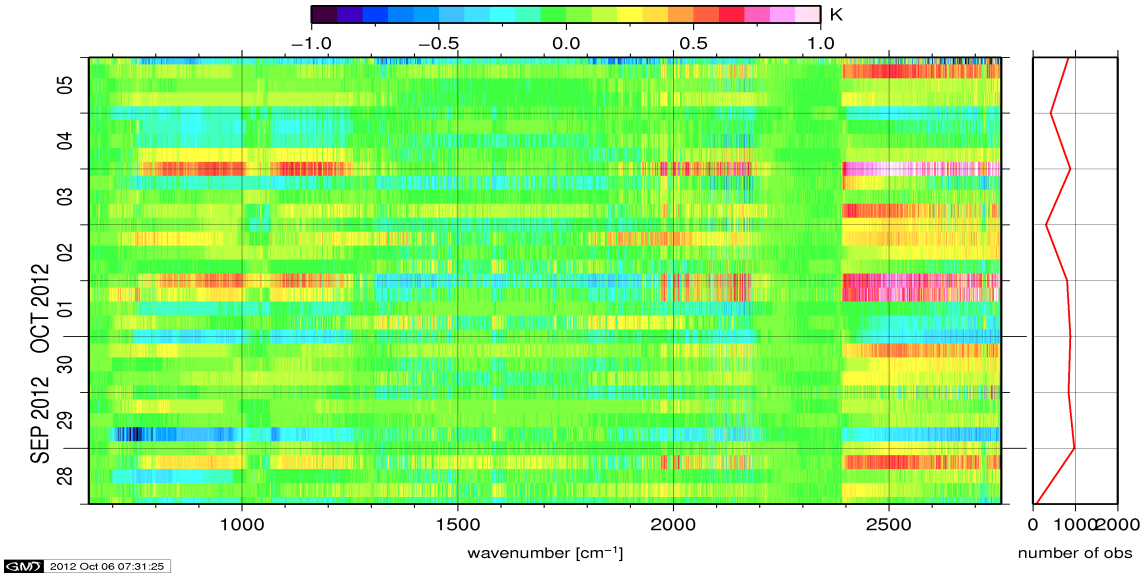

Figure 10: Radiance Anomaly in BRT: All Channels

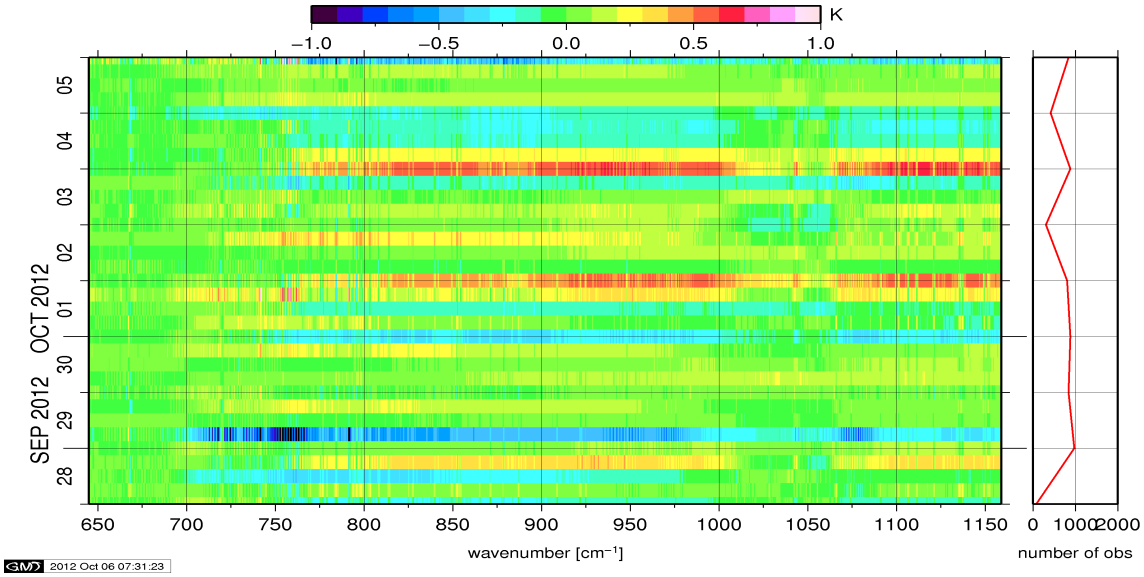

Figure 11: Radiance Anomaly in BRT: IASI Band 1

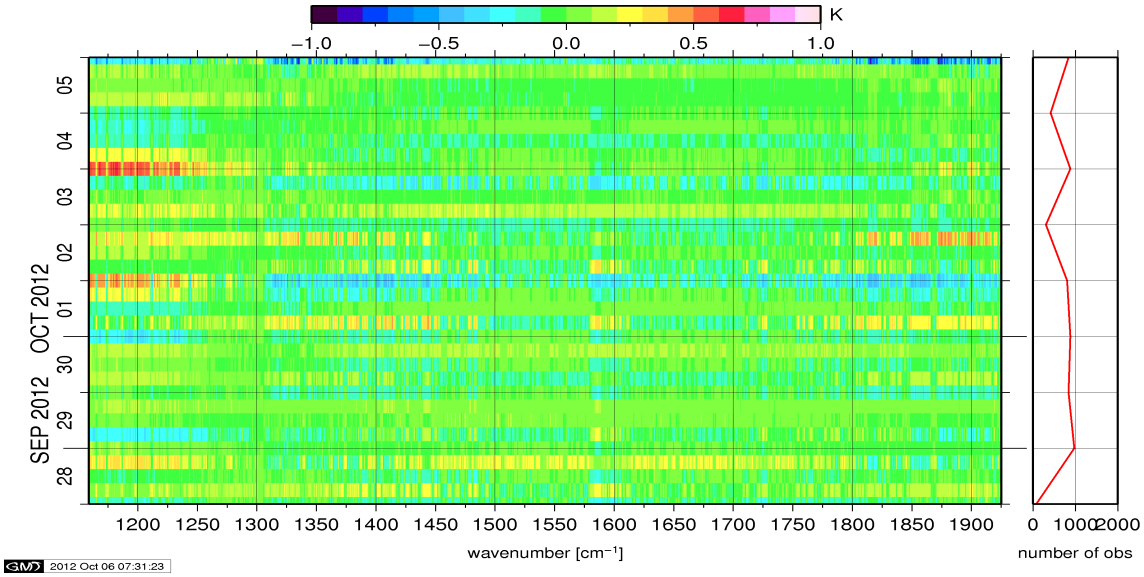

Figure 12: Radiance Anomaly in BRT: IASI Band 2

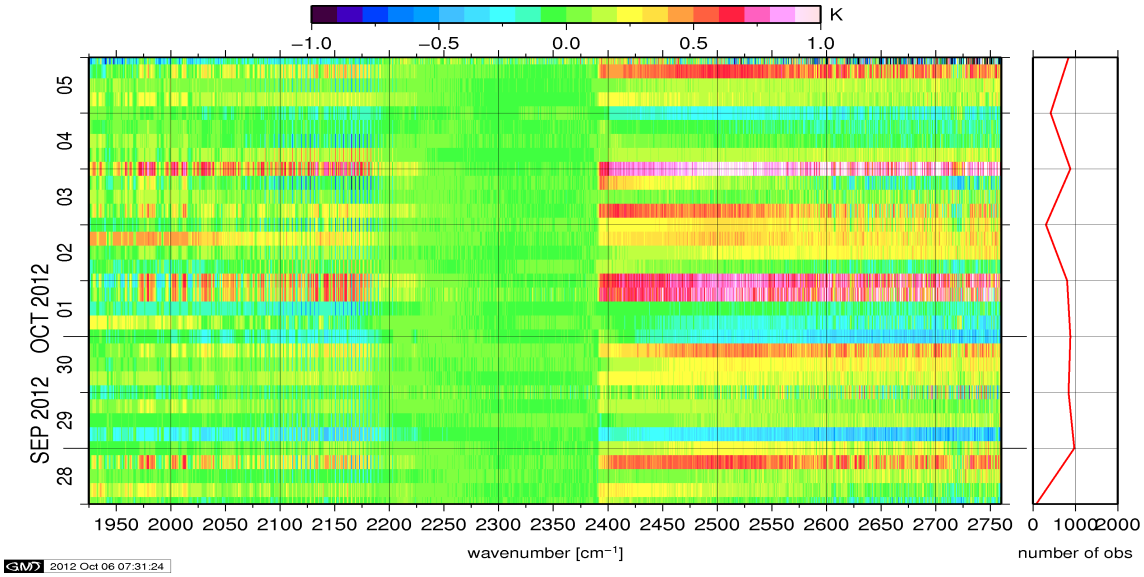

Figure 13: Radiance Anomaly in BRT: IASI Band 3

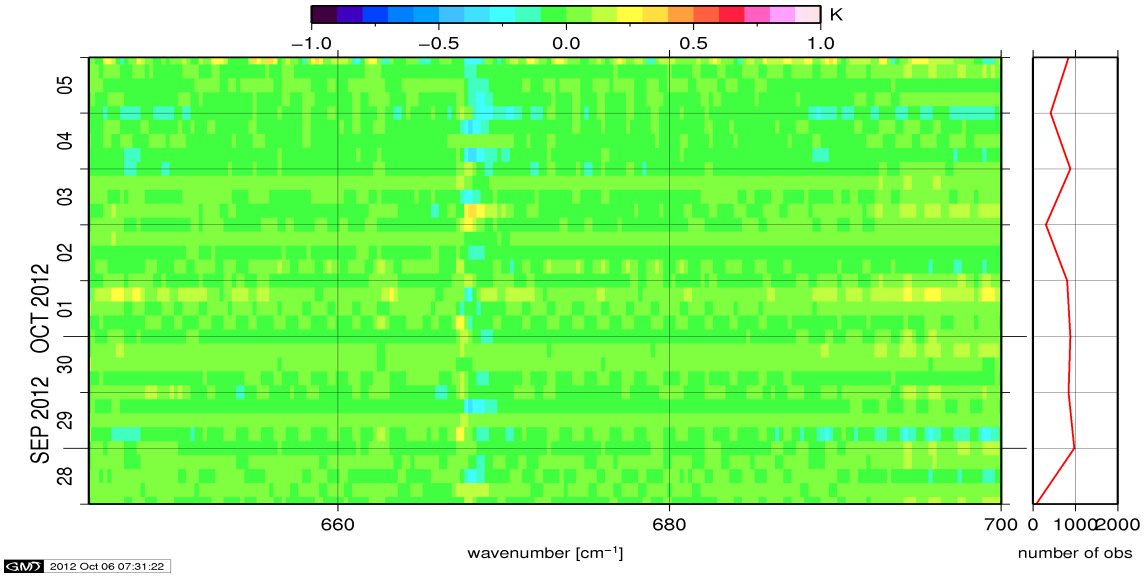

Figure 14: Radiance Anomaly in BRT: CO2 14

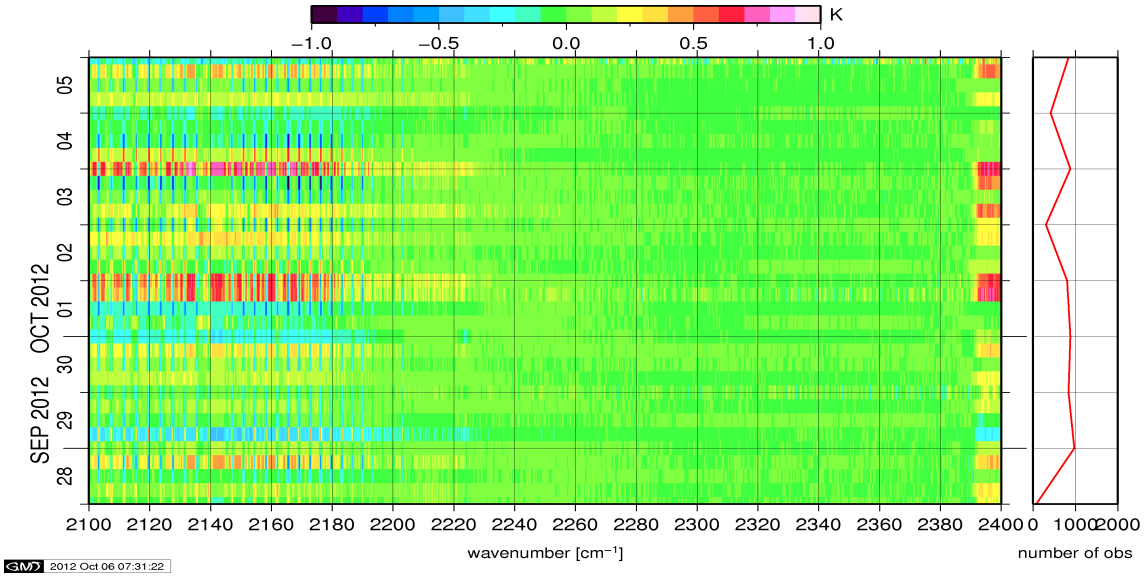

Figure 15: Radiance Anomaly in BRT: CO2 4.3

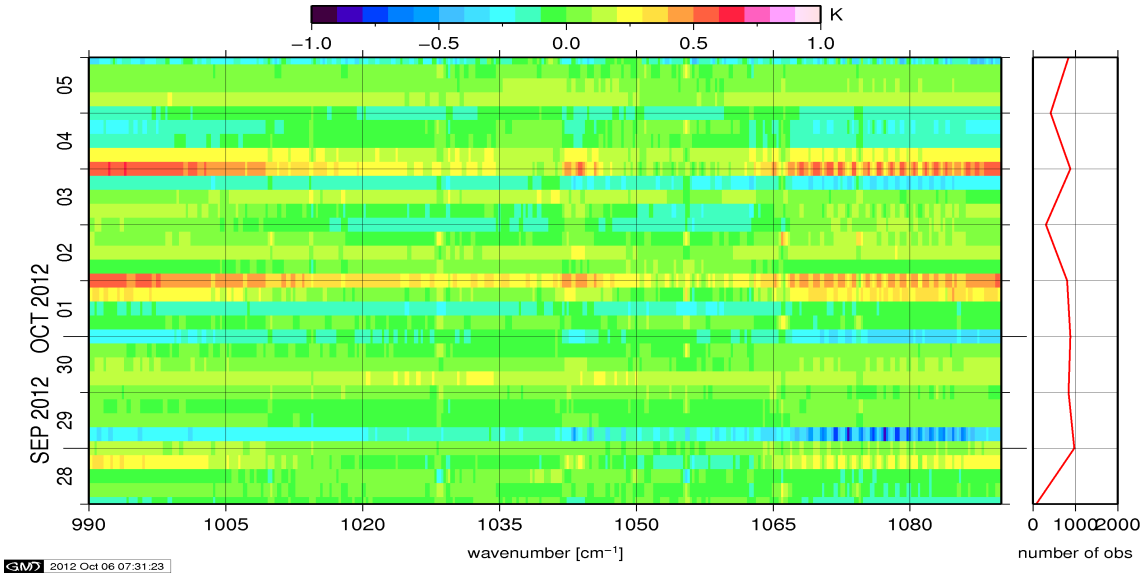

Figure 16: Radiance Anomaly in BRT: O3

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.

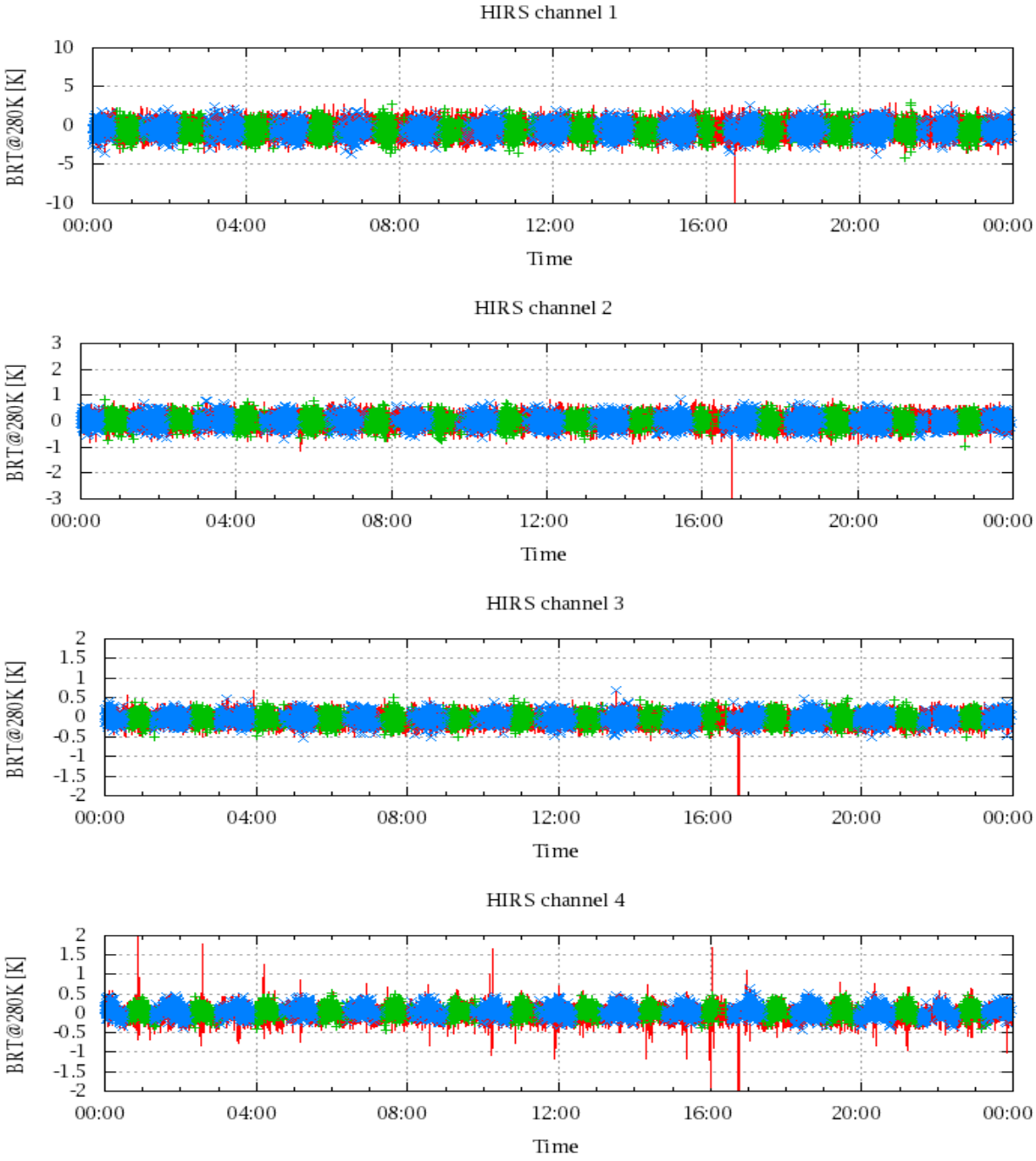

Figure 17: Radiance Differences in BRT

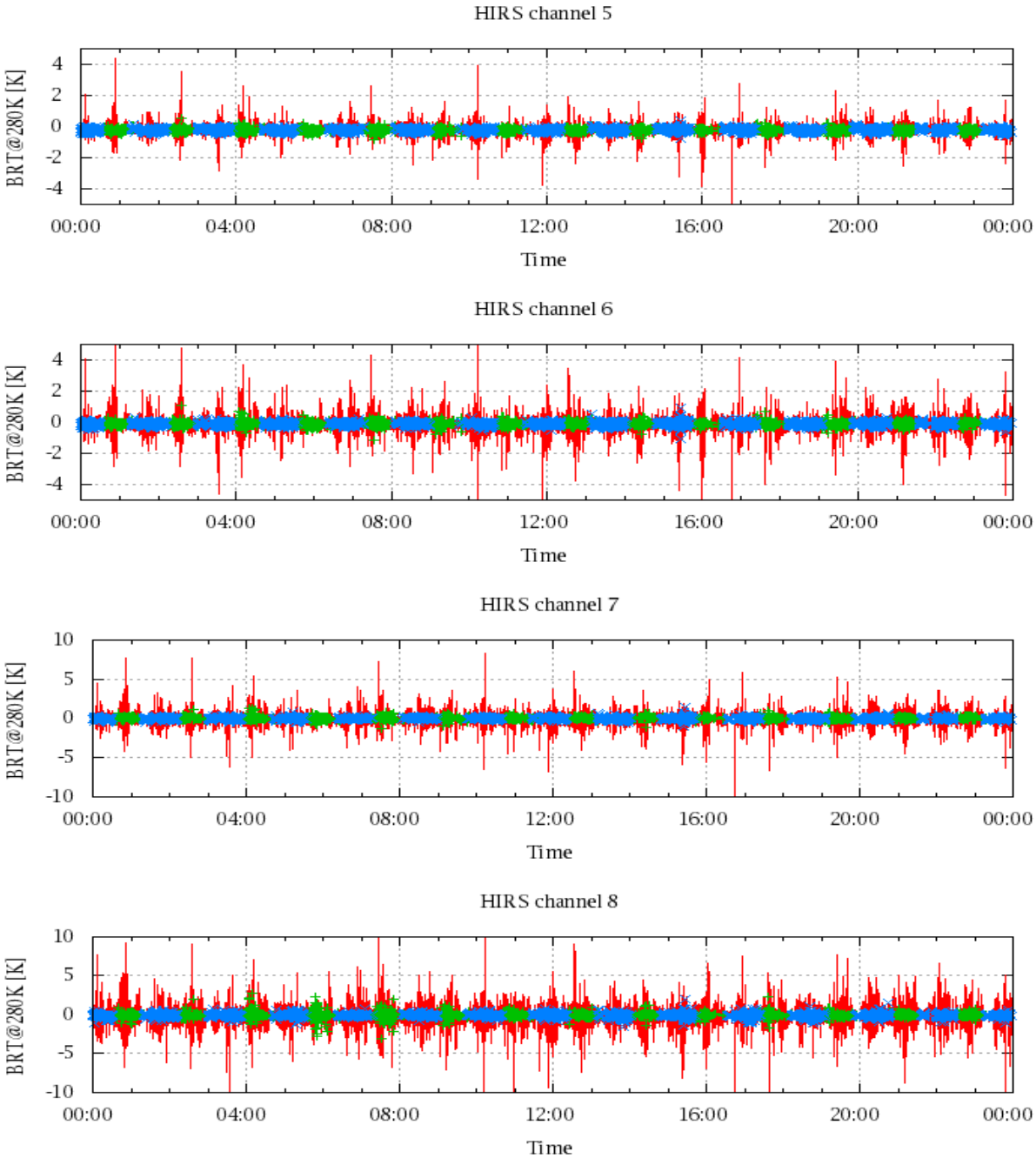

Figure 18: Radiance Differences in BRT

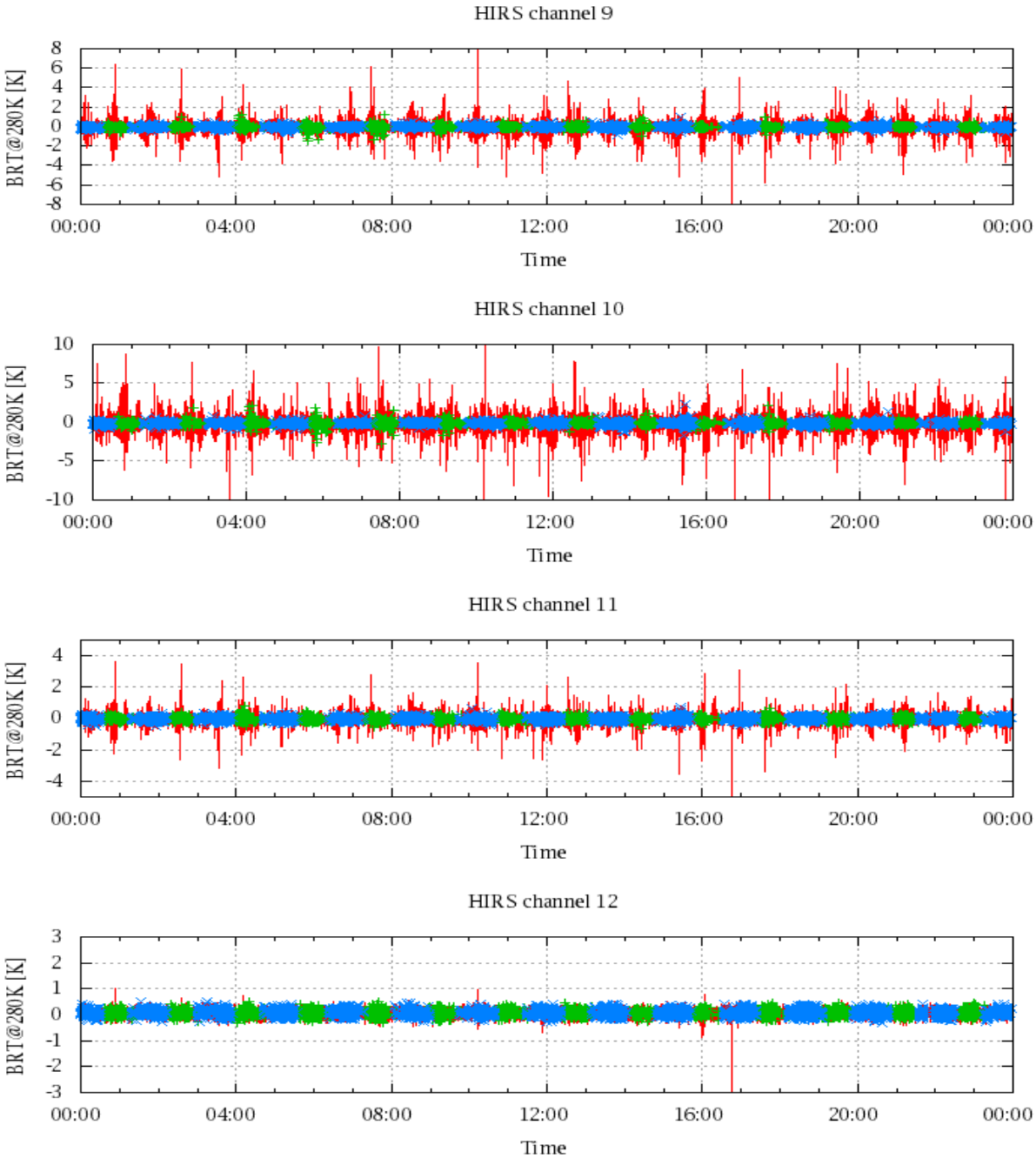

Figure 19: Radiance Differences in BRT

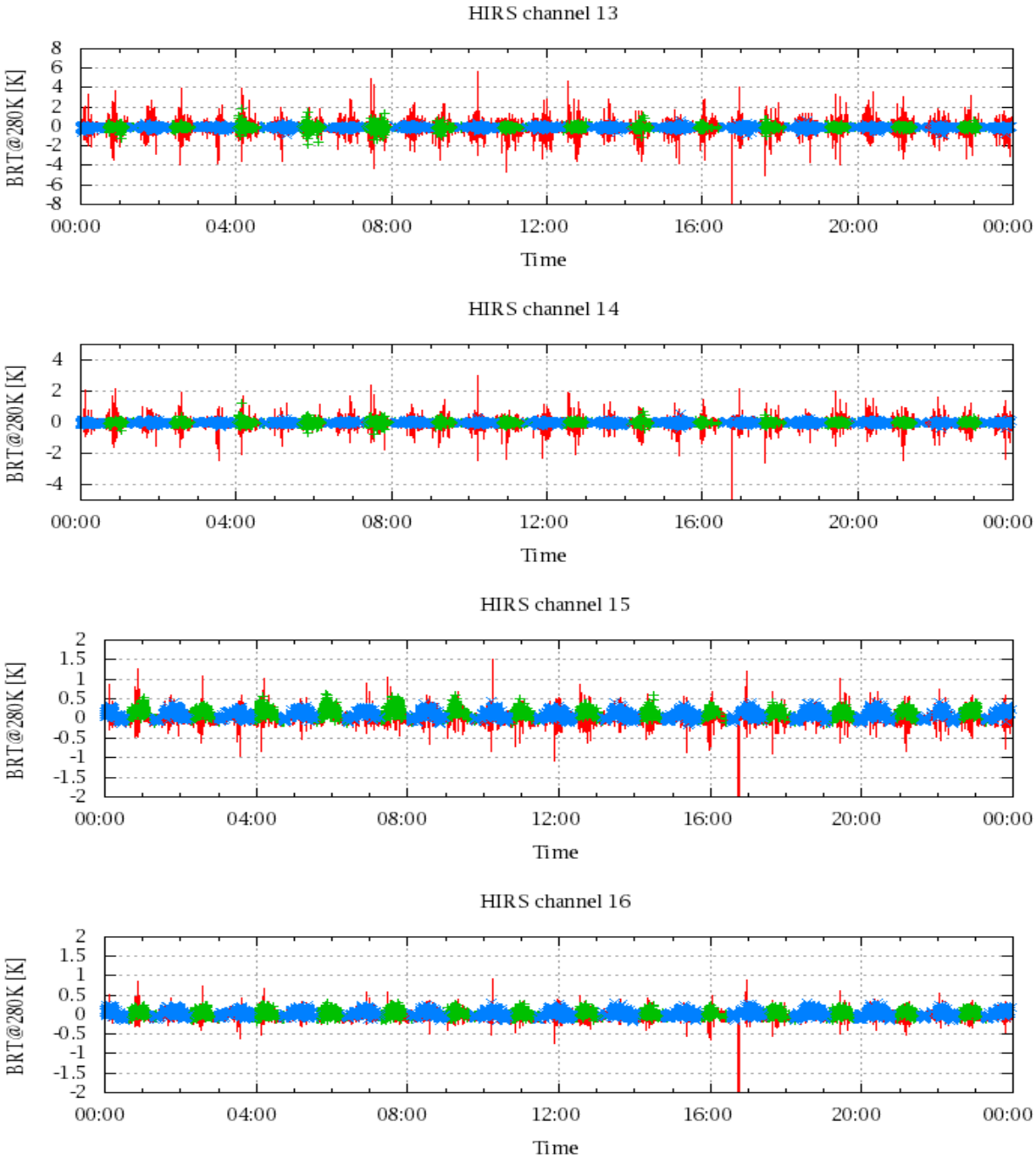

Figure 20: Radiance Differences in BRT

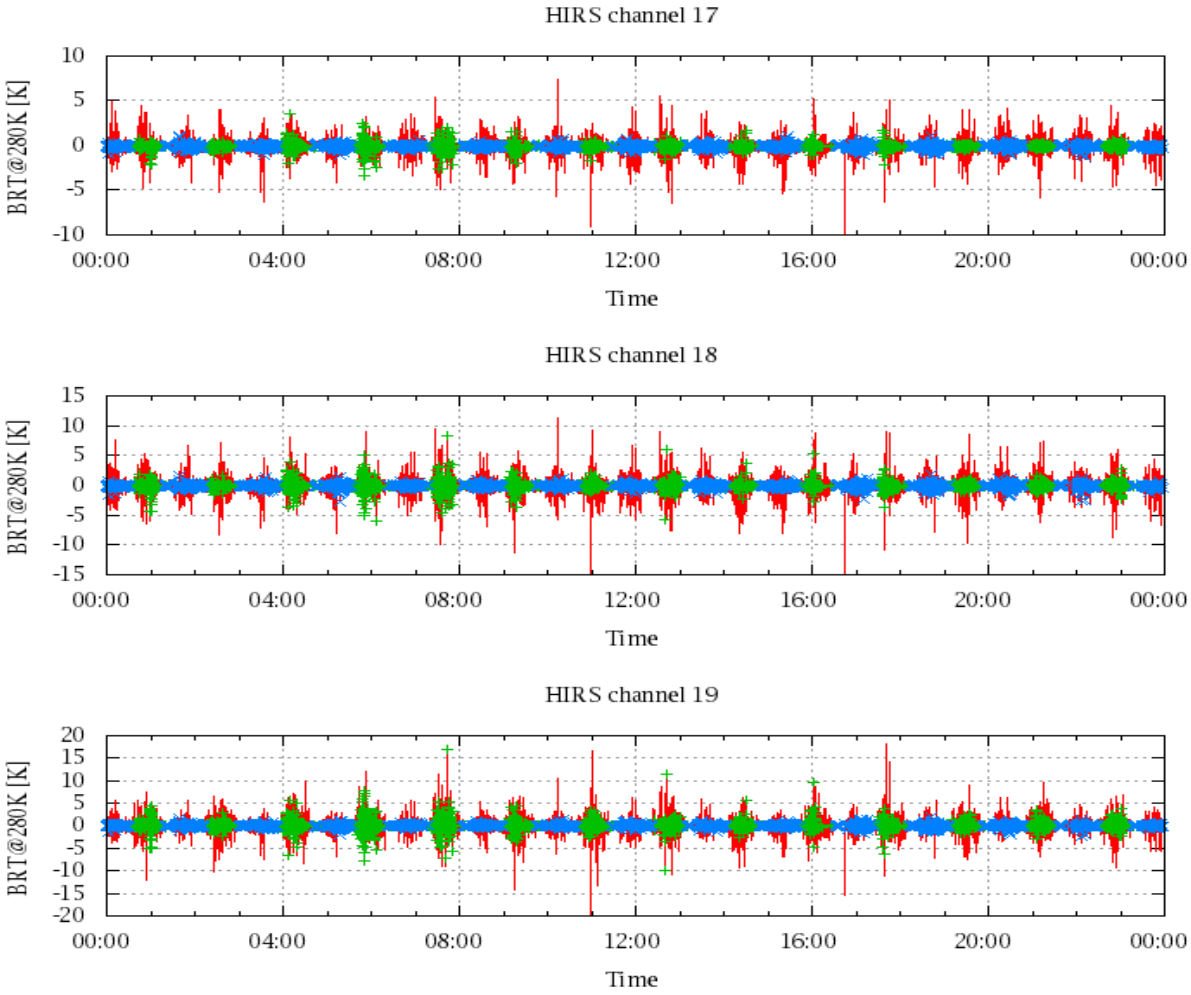

Figure 21: Radinace Differences in BRT