IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

02/10/2011 00:00:00 - 03/10/2011 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 02/10/2011 00:00:00 - 03/10/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 02/10/2011 00:00:00 - 03/10/2011 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)	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)	3281	3296	20111002024827.252	20111002024830.495
PX1 (130)	12058	12071	20111002032726.899	20111002032731.223
PX1 (130)	2926	2939	20111002111635.831	20111002111638.644
PX1 (130)	14060	14063	20111002165720.110	20111002165720.759
PX1 (130)	14063	14067	20111002165720.759	20111002165723.138
PX1 (130)	4781	4789	20111002184143.869	20111002184147.111
PX2 (135)	3280	3296	20111002024825.522	20111002024830.495
PX2 (135)	12057	12071	20111002032726.684	20111002032731.223
PX2 (135)	2926	2939	20111002111635.831	20111002111638.644
PX2 (135)	14060	14063	20111002165720.110	20111002165720.759
PX2 (135)	14063	14067	20111002165720.759	20111002165723.138
PX2 (135)	4781	4789	20111002184143.869	20111002184147.111
PX3 (140)	3280	3285	20111002024825.522	20111002024828.116
PX3 (140)	3285	3296	20111002024828.116	20111002024830.495
PX3 (140)	12057	12071	20111002032726.684	20111002032731.223
PX3 (140)	2926	2939	20111002111635.831	20111002111638.644
PX3 (140)	14060	14067	20111002165720.110	20111002165723.138
PX3 (140)	4781	4789	20111002184143.869	20111002184147.111

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	3280	3285	20111002024825.522	20111002024828.116
PX4 (145)	3285	3296	20111002024828.116	20111002024830.495
PX4 (145)	12057	12071	20111002032726.684	20111002032731.223
PX4 (145)	2926	2939	20111002111635.831	20111002111638.644
PX4 (145)	14060	14067	20111002165720.110	20111002165723.138
PX4 (145)	4780	4789	20111002184143.650	20111002184147.111
IMG (150)	8352	8368	20111002024826.819	20111002024830.495
IMG (150)	1913	1927	20111002032726.684	20111002032729.926
IMG (150)	6857	6870	20111002111635.616	20111002111638.429
IMG (150)	11827	11839	20111002165719.895	20111002165723.138
IMG (150)	5680	5689	20111002184143.650	20111002184145.814
VER (160)	16037	16041	20111002032721.493	20111002032726.899
VER (160)	13639	13645	20111002165713.407	20111002165729.407
VER (160)	1170	1172	20111002184137.384	20111002184143.869
AUX (180)	15825	15827	20111002165713.841	20111002165729.841

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
02/10/2011 00:00:13	-	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)	99.33 %	-
GQisFlagQual set (PX2)	99.18 %	-
GQisFlagQual set (PX3)	99.26 %	-
GQisFlagQual set (PX4)	99.36 %	-
GQisFlagQual set (all)	99.28 %	-

Table 4: Quality flags

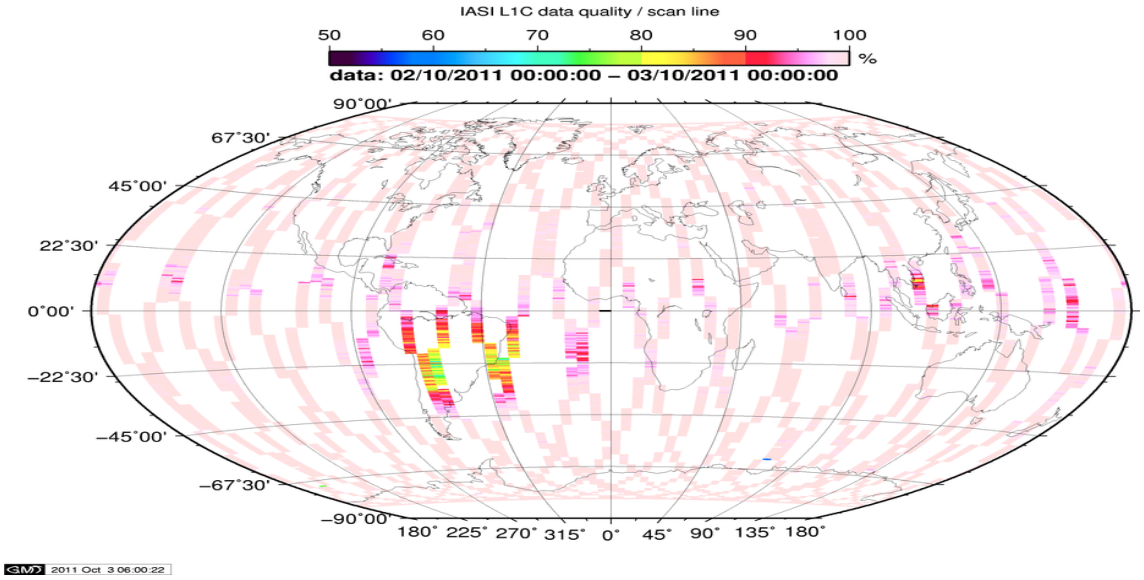

Figure 1: L1C data quality

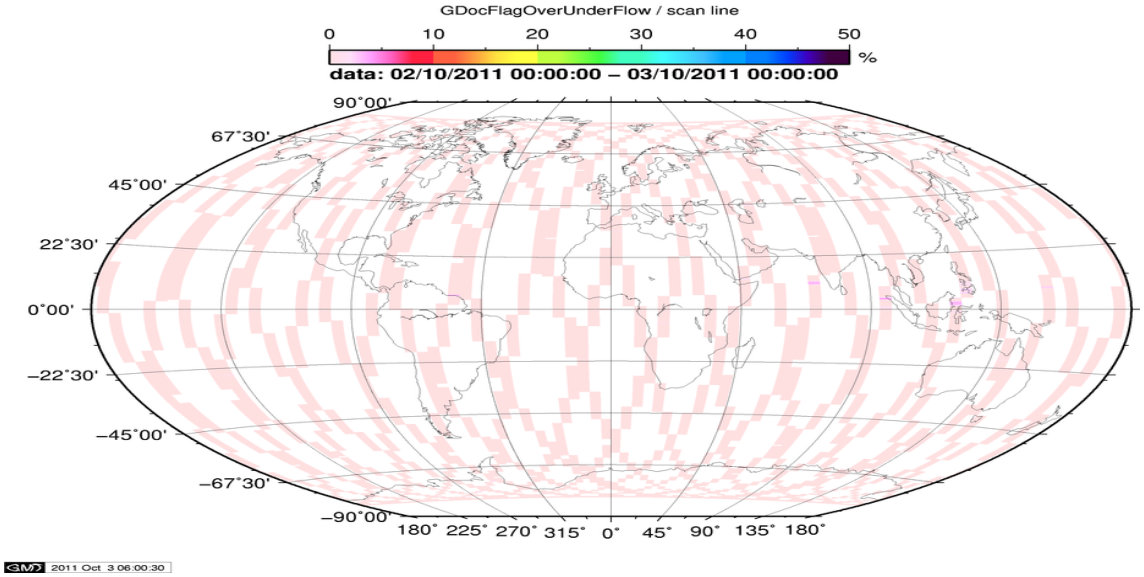

Figure 2: Flag of Over and Under Flows

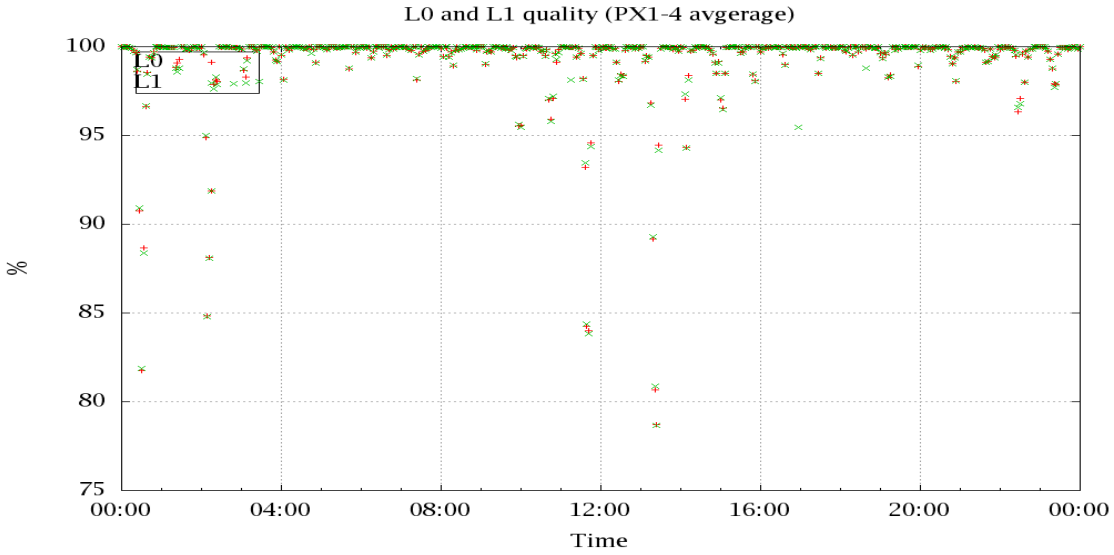

Figure 3: Level 0 and 1C overall quality

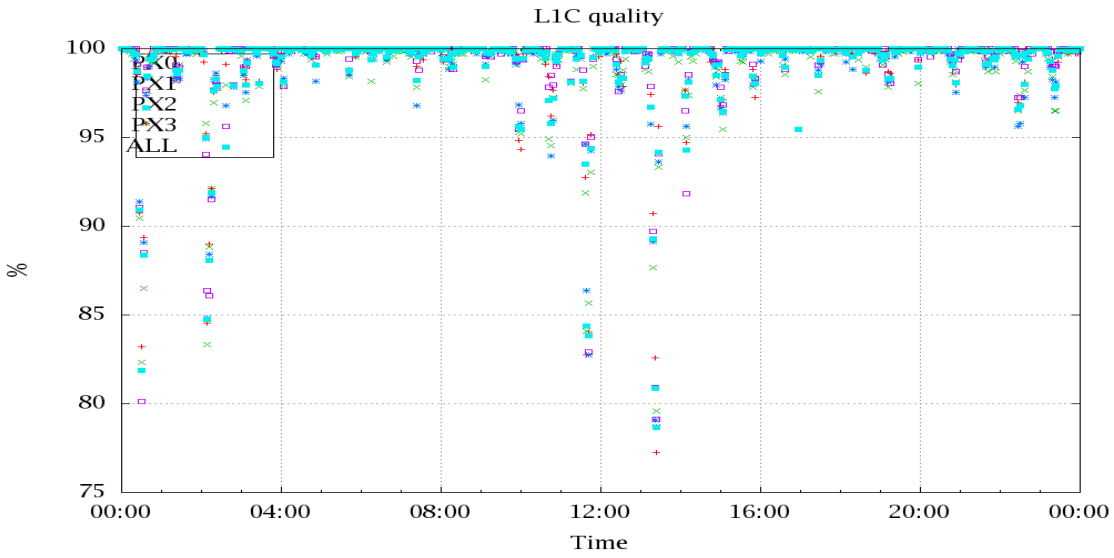

Figure 4: Level 1C quality

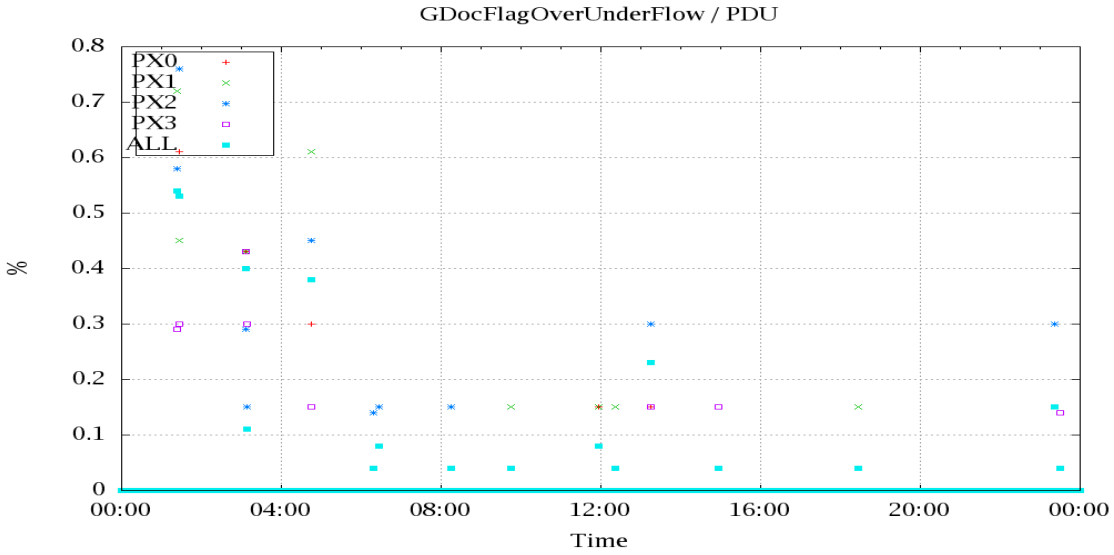

Figure 5: OverUnderFlowFlag timeseries

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.

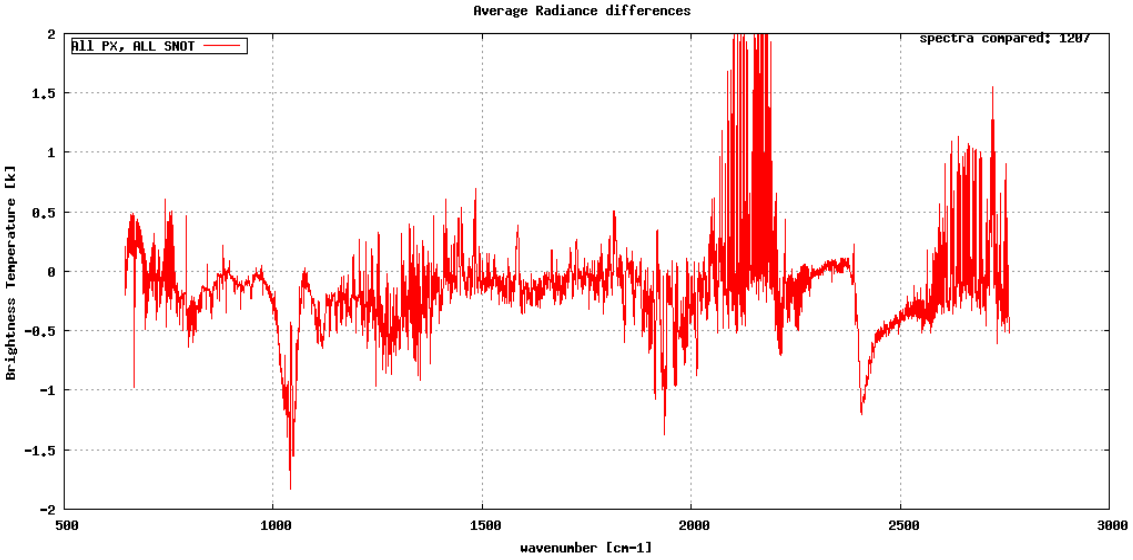

Figure 6: Average Radiance differences: OBS-CAL

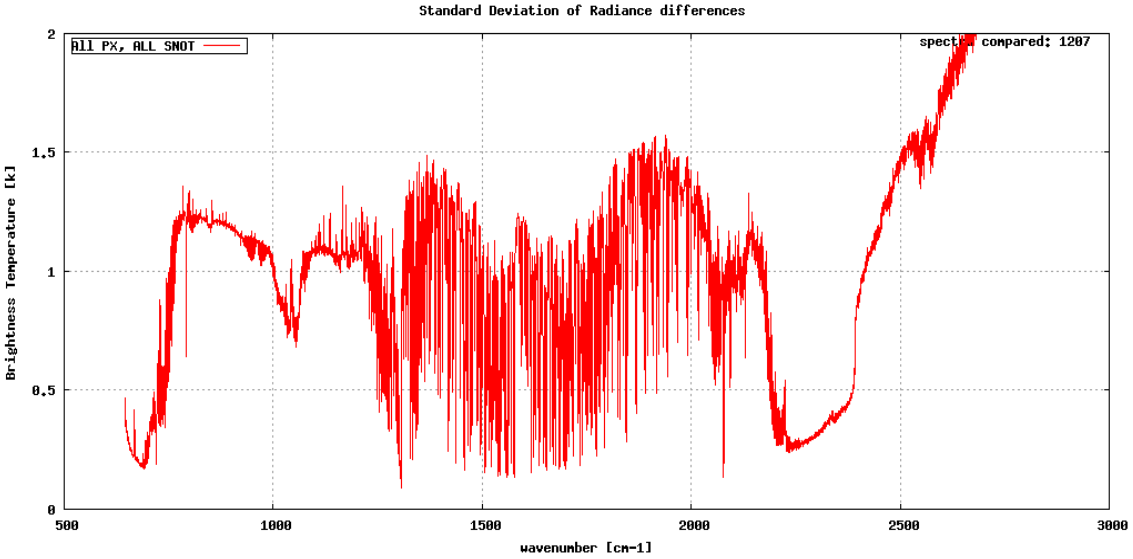

Figure 7: Standard Deviation of Radiance differences

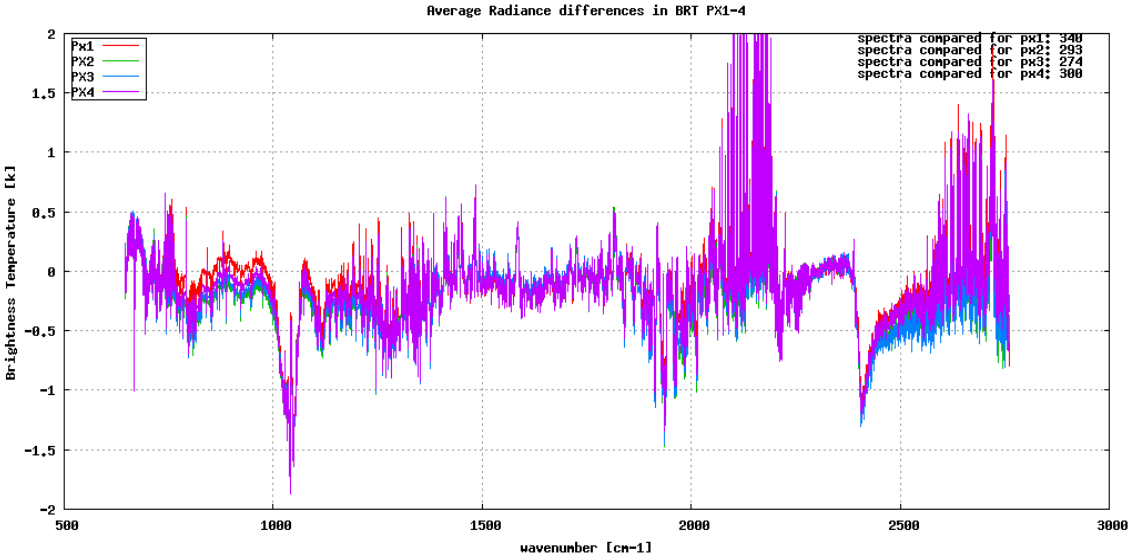

Figure 8: Average Radiance differences: OBS-CAL

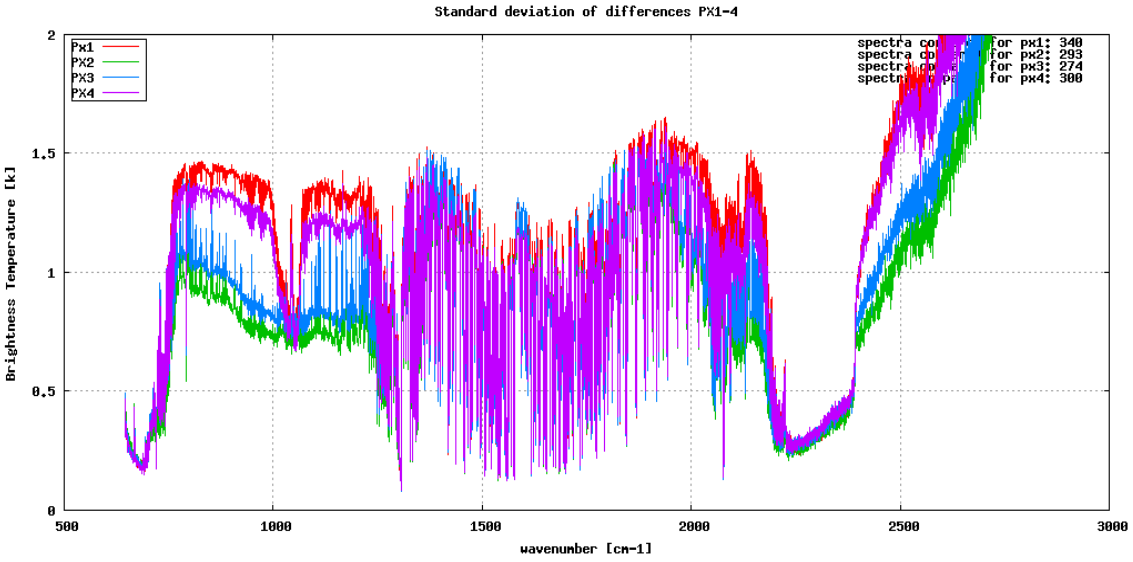

Figure 9: Standard Deviation of Radiance differences

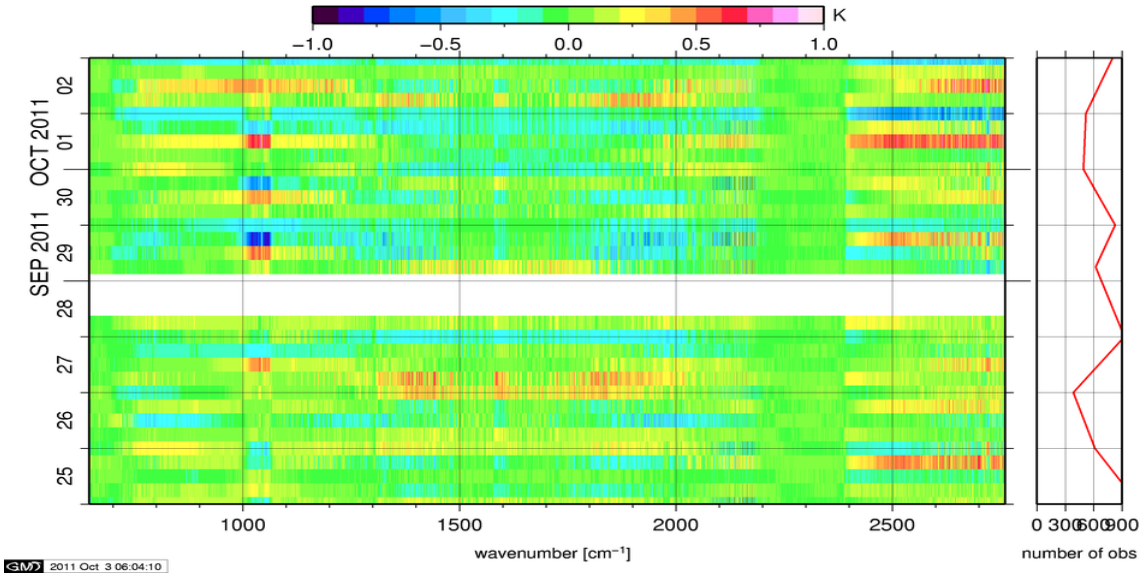

Figure 10: Radiance Anomaly in BRT: All Channels

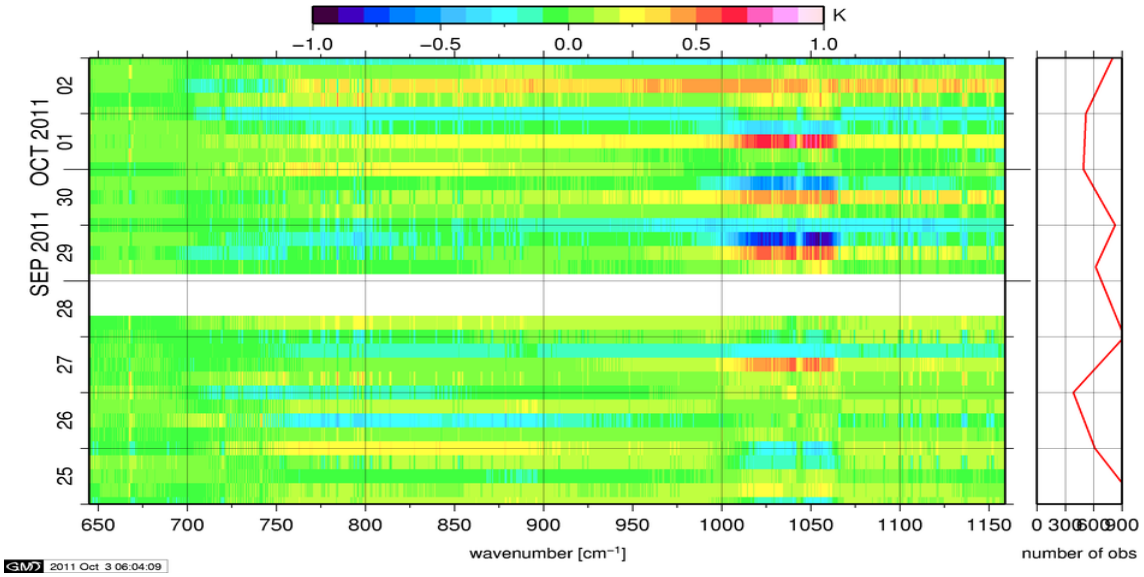

Figure 11: Radiance Anomaly in BRT: IASI Band 1

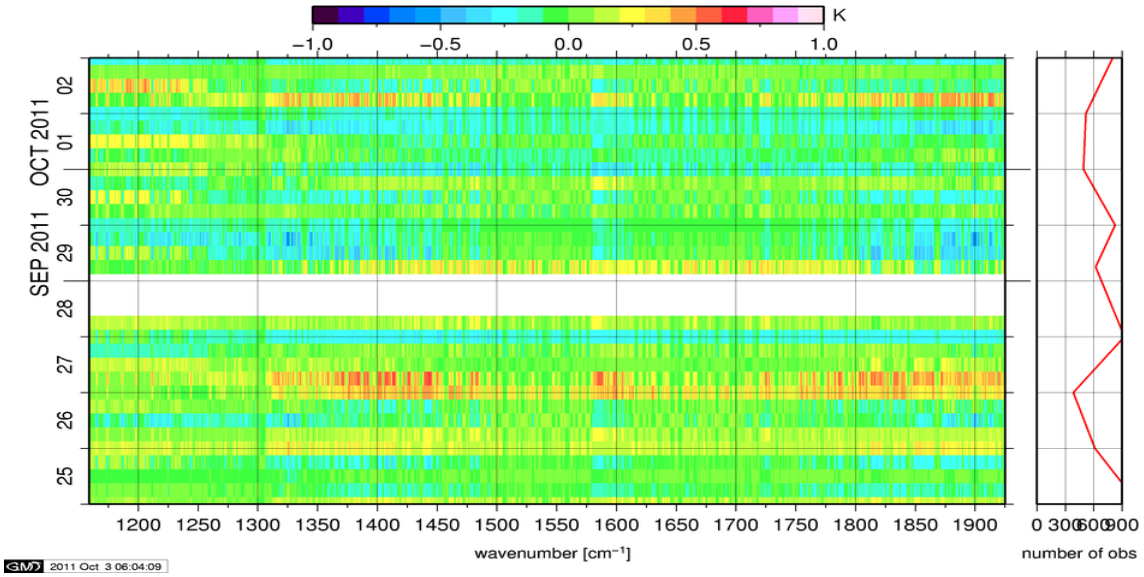

Figure 12: Radiance Anomaly in BRT: IASI Band 2

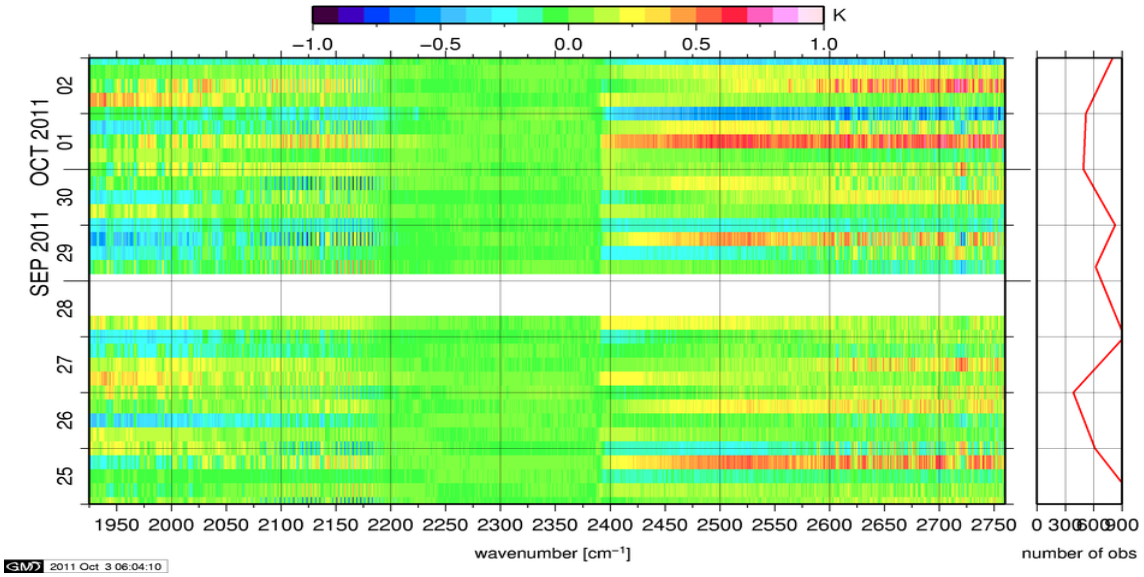

Figure 13: Radiance Anomaly in BRT: IASI Band 3

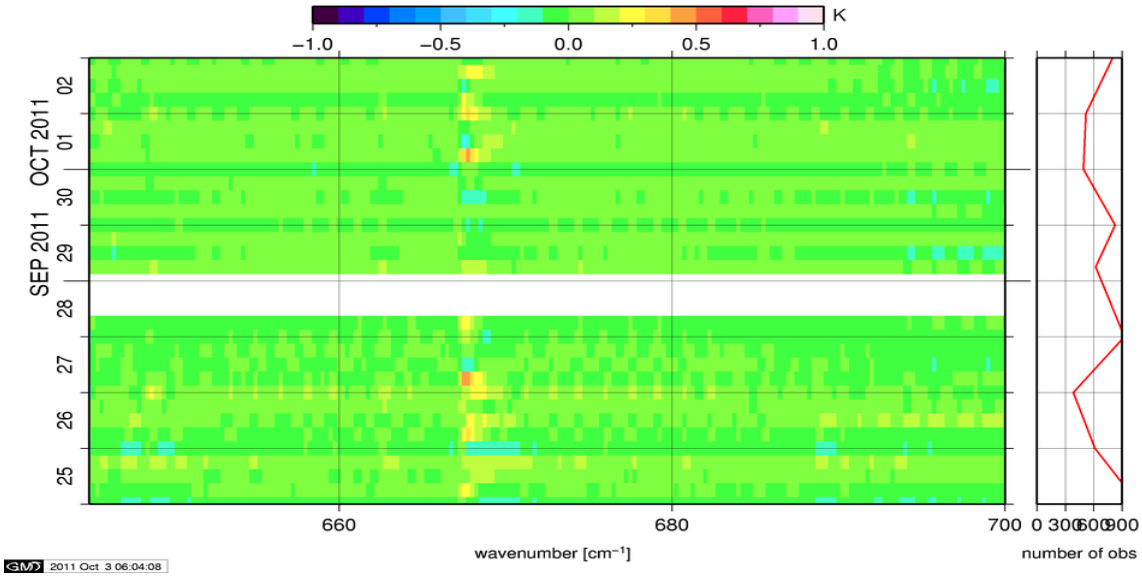

Figure 14: Radiance Anomaly in BRT: CO2 14

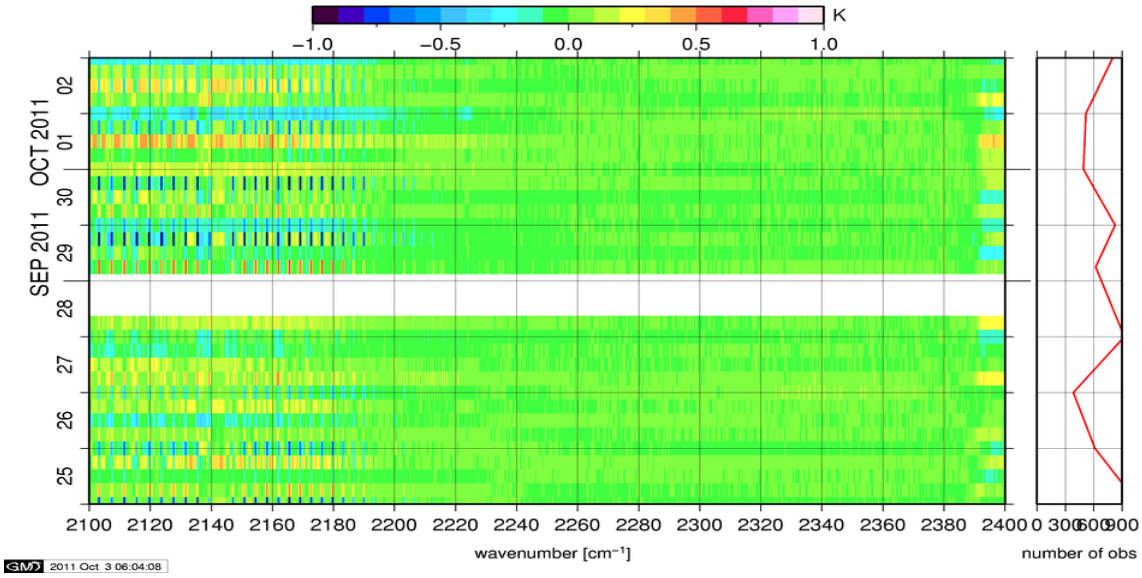

Figure 15: Radiance Anomaly in BRT: CO2 4.3

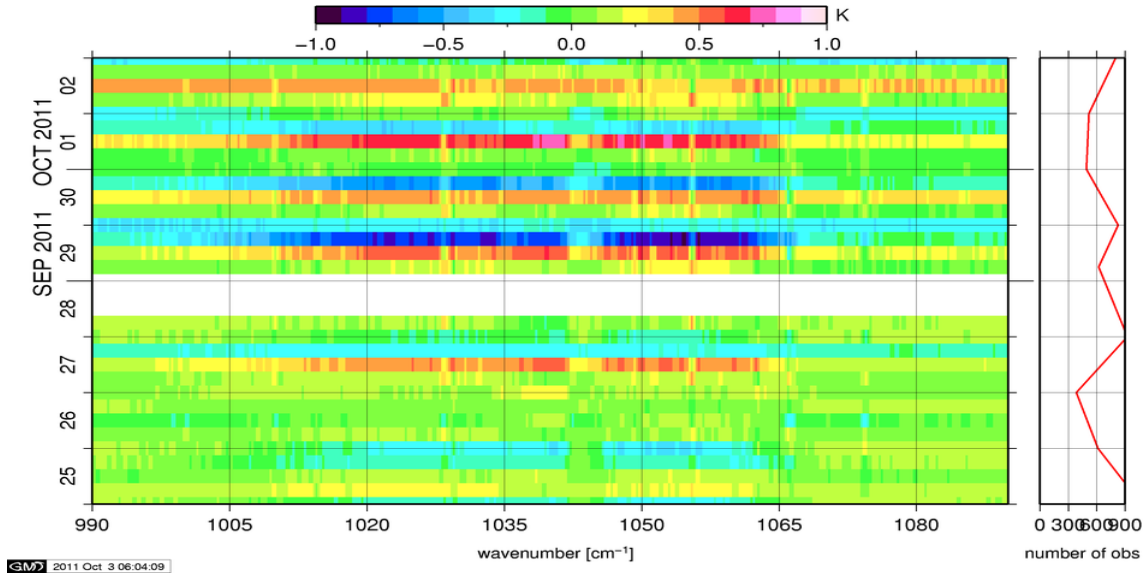

Figure 16: Radiance Anomaly in BRT: O3

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.

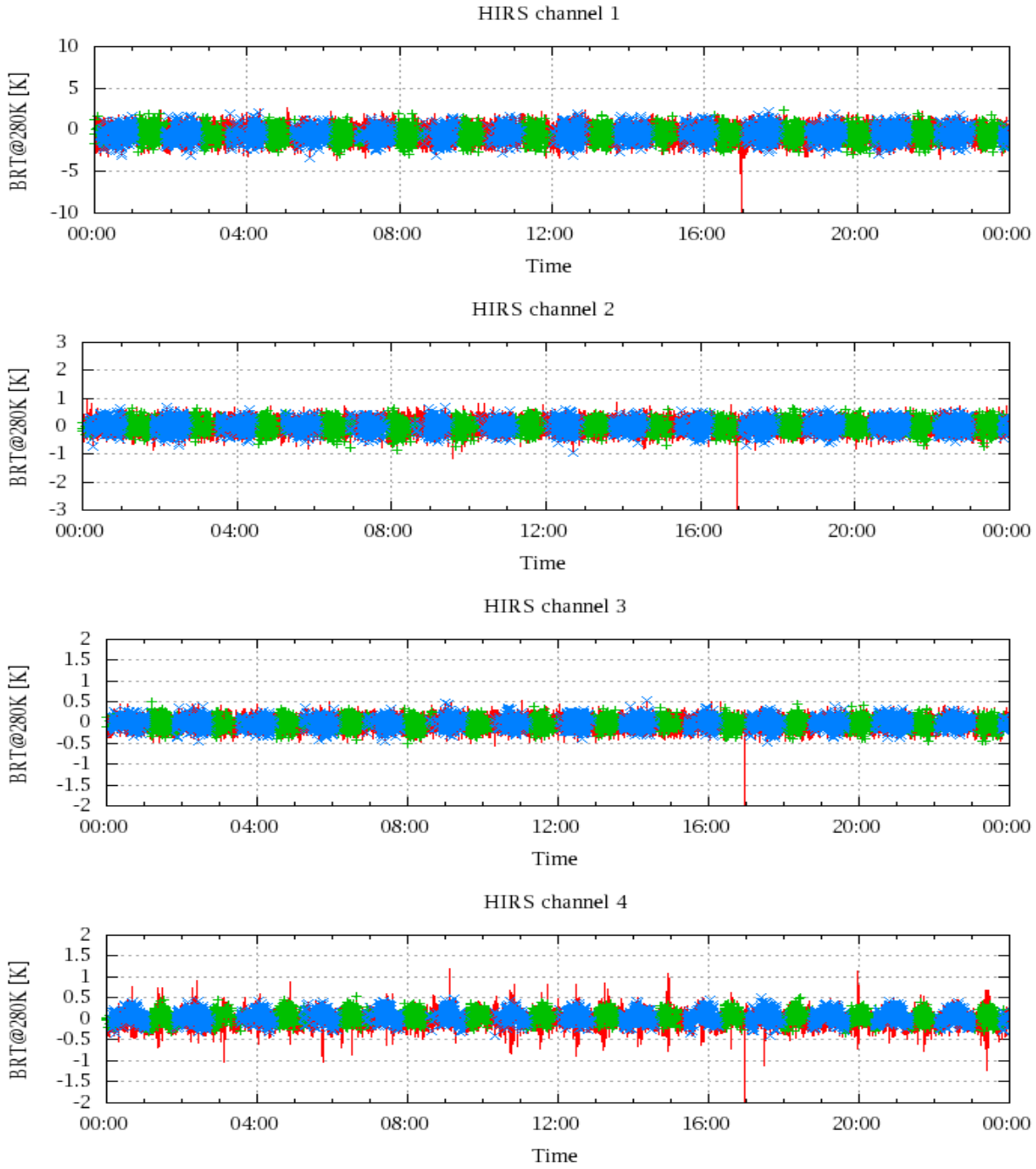

Figure 17: Radiance Differences in BRT

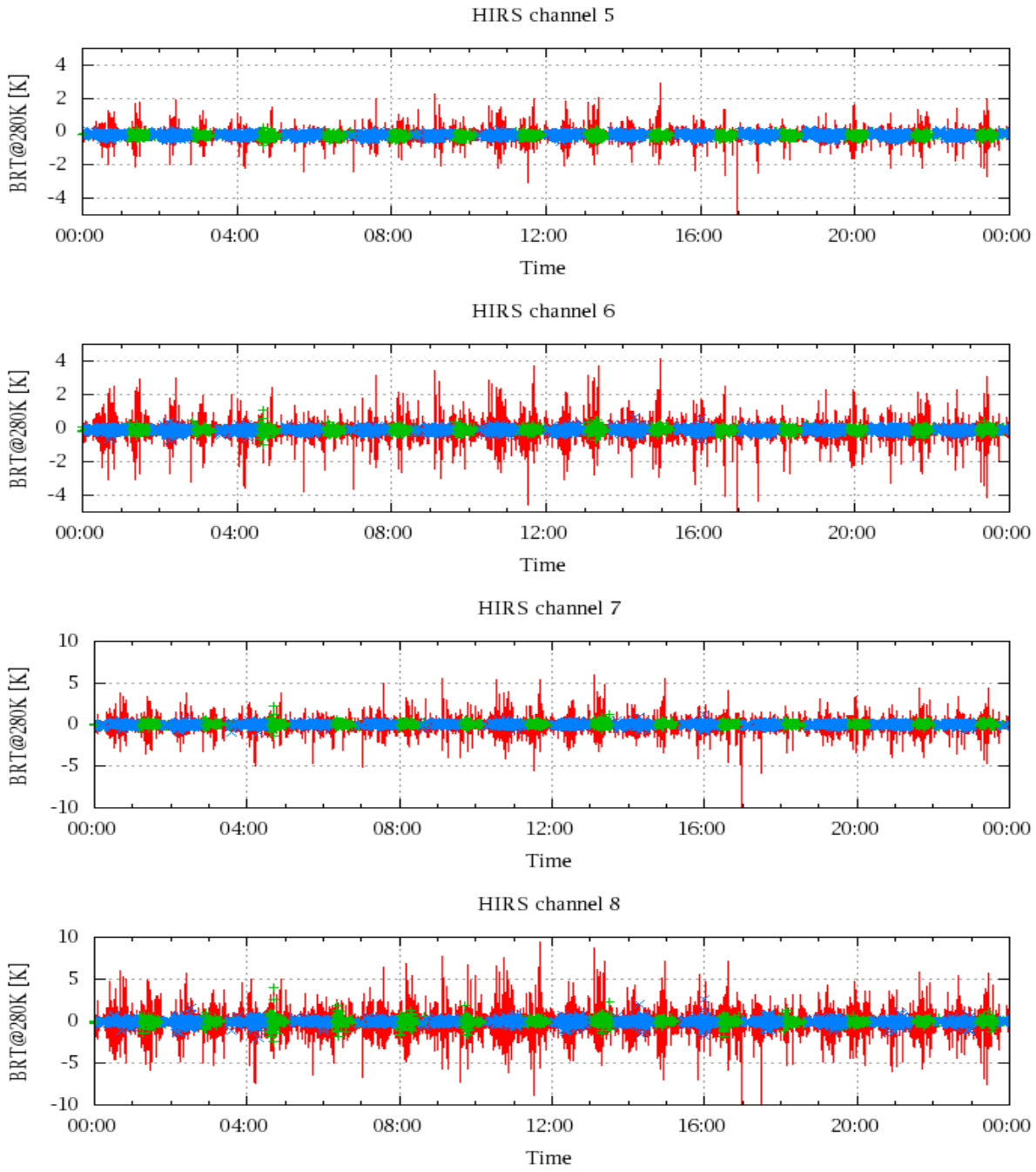

Figure 18: Radiance Differences in BRT

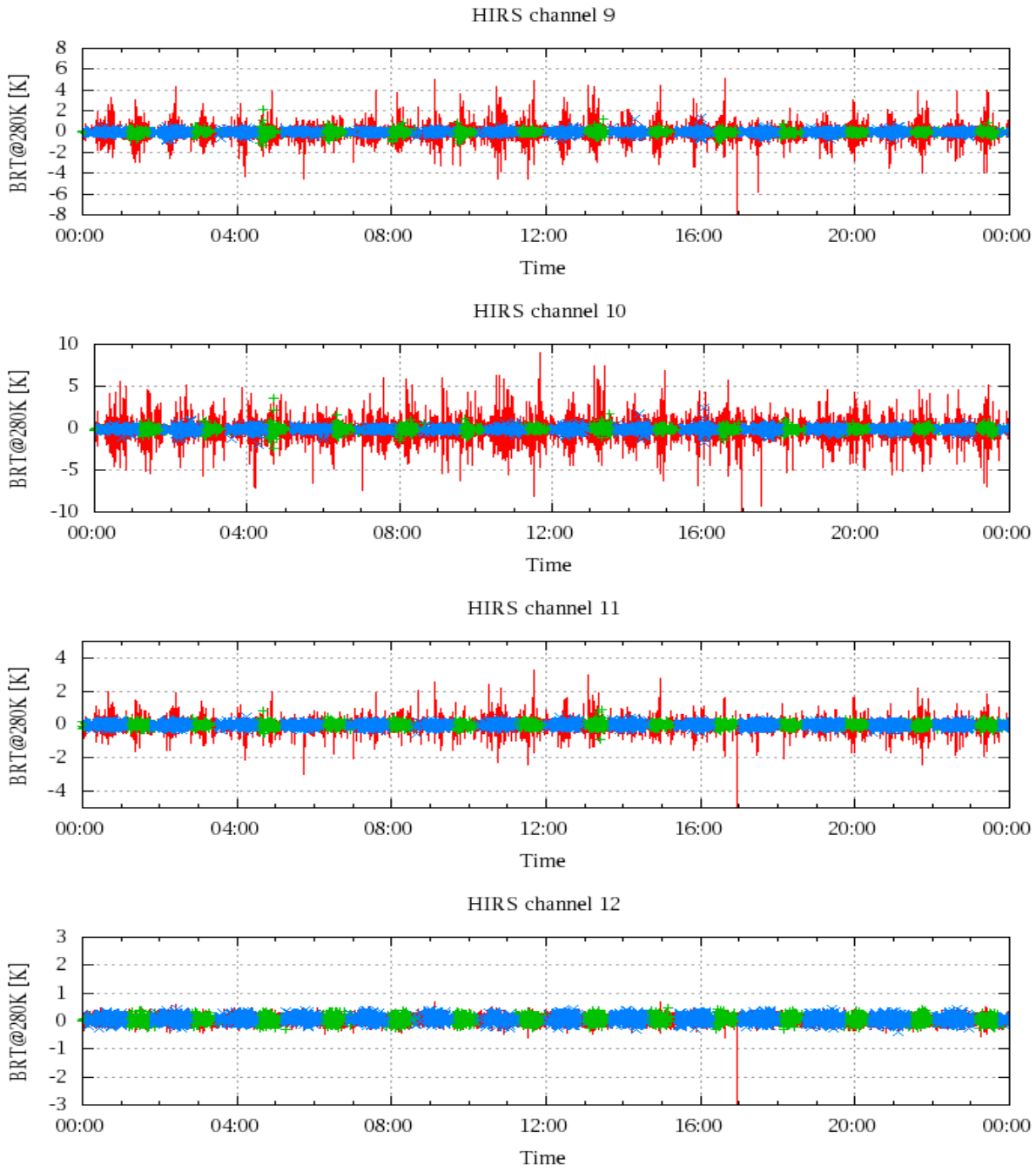

Figure 19: Radiance Differences in BRT

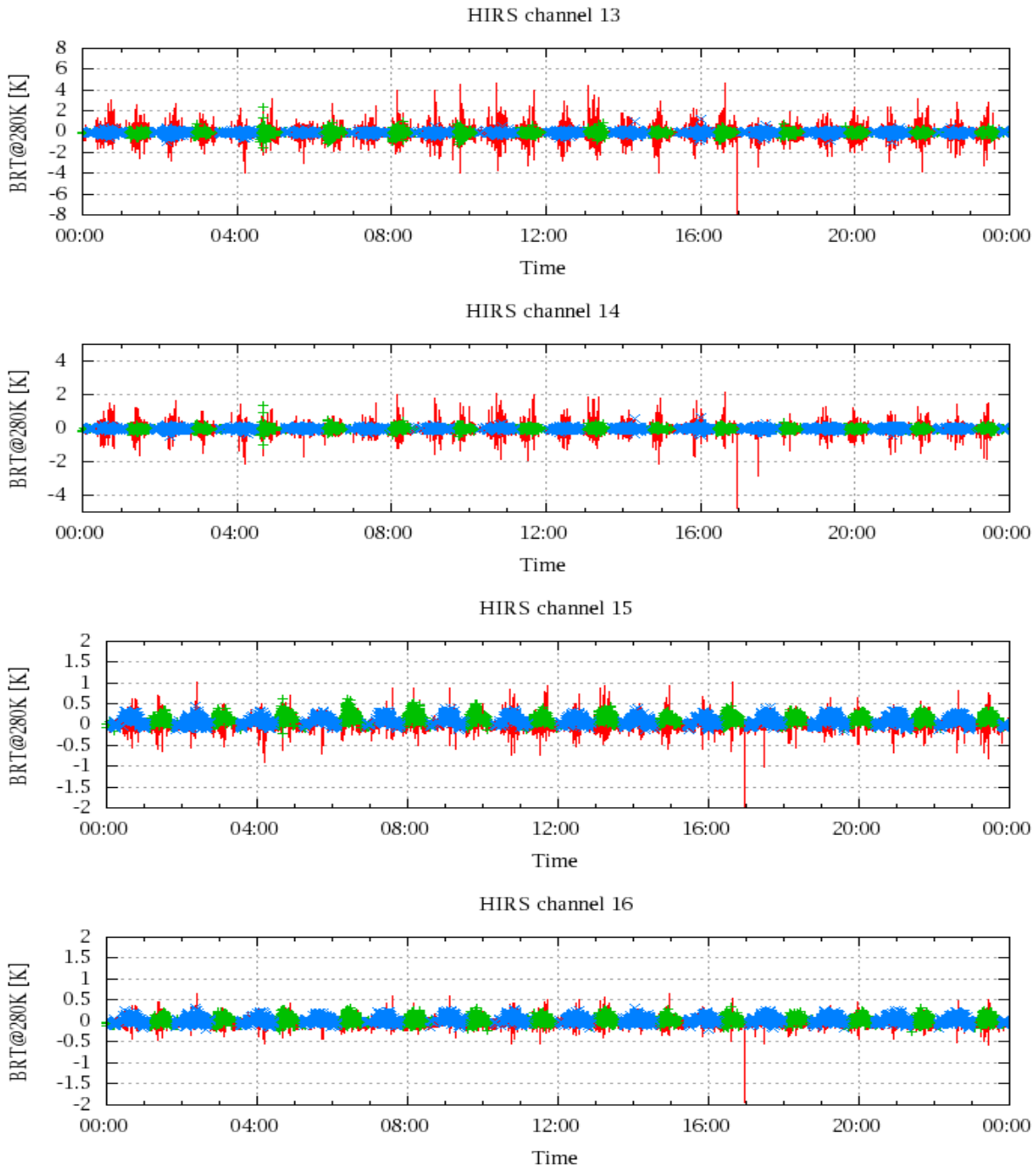

Figure 20: Radiance Differences in BRT

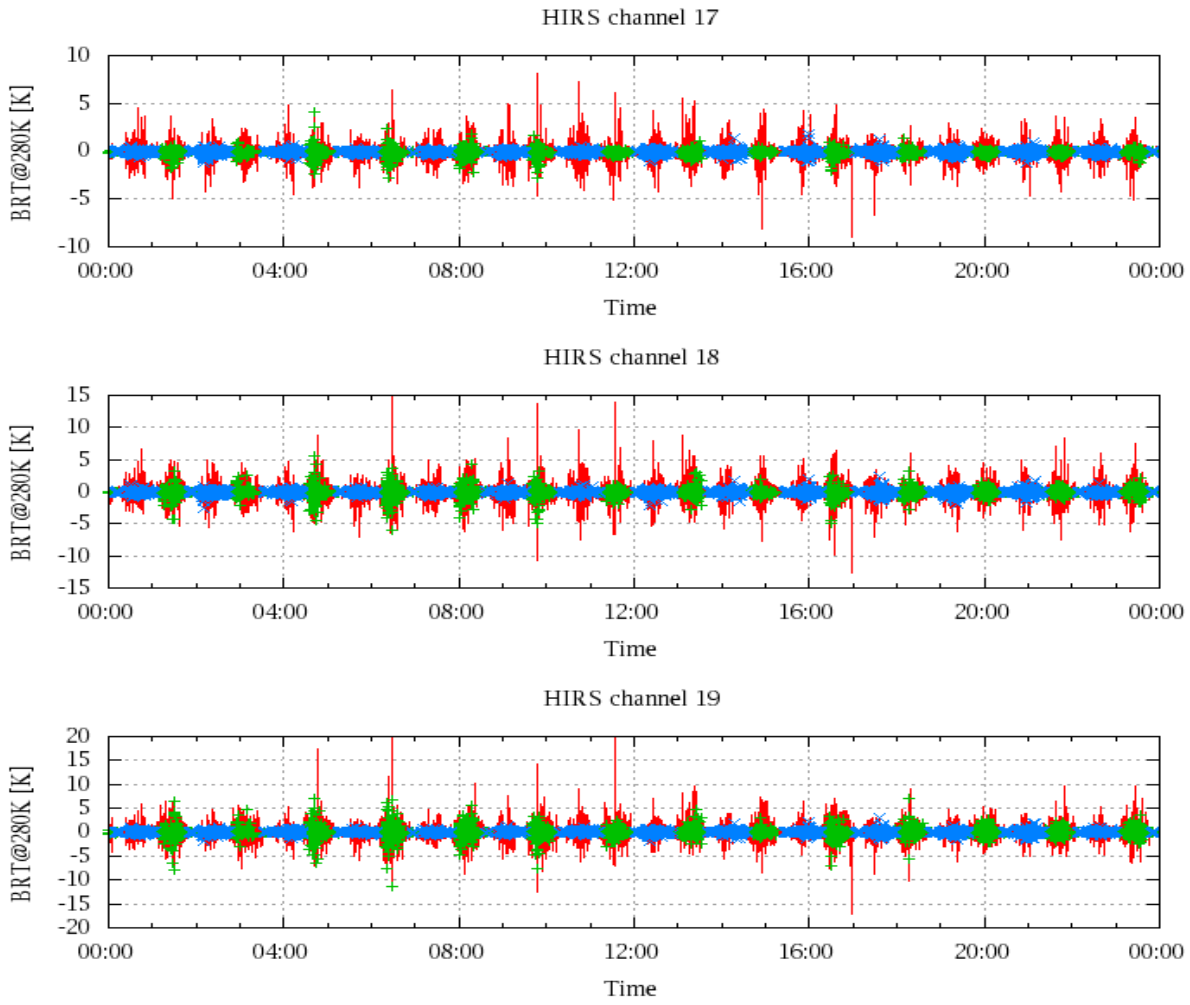

Figure 21: Radinace Differences in BRT