IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

15/06/2012 00:00:00 - 16/06/2012 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 15/06/2012 00:00:00 - 16/06/2012 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 15/06/2012 00:00:00 - 16/06/2012 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)	14809	14811	20120615091432.152	20120615091432.582
PX1 (130)	14812	14878	20120615091434.312	20120615091451.609
PX1 (130)	14879	14885	20120615091451.828	20120615091453.125
PX2 (135)	14777	14779	20120615091423.718	20120615091424.152
PX2 (135)	14806	14808	20120615091431.504	20120615091431.937
PX2 (135)	14809	14811	20120615091432.152	20120615091432.582
PX2 (135)	14811	14881	20120615091432.582	20120615091452.261
PX2 (135)	14881	14884	20120615091452.261	20120615091452.906
PX2 (135)	14899	14901	20120615091456.152	20120615091456.585
PX3 (140)	14792	14794	20120615091428.476	20120615091428.910
PX3 (140)	14809	14812	20120615091432.152	20120615091434.312
PX3 (140)	14812	14880	20120615091434.312	20120615091452.043
PX3 (140)	14880	14882	20120615091452.043	20120615091452.476
PX3 (140)	14888	14890	20120615091453.773	20120615091454.203
PX4 (145)	14811	14880	20120615091432.582	20120615091452.043
PX4 (145)	14881	14884	20120615091452.261	20120615091452.906
PX4 (145)	14893	14895	20120615091454.855	20120615091455.289
IMG (150)	11325	11327	20120615091432.152	20120615091432.582

Continued on next page

Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	11327	11403	20120615091432.582	20120615091450.960
IMG (150)	11403	11407	20120615091450.960	20120615091451.828
IMG (150)	11407	11410	20120615091451.828	20120615091452.476
IMG (150)	11410	11413	20120615091452.476	20120615091453.125
IMG (150)	11414	11416	20120615091453.339	20120615091453.773
IMG (150)	11421	11423	20120615091454.855	20120615091455.289
VER (160)	8026	8028	20120615091424.586	20120615091432.582
VER (160)	8028	8042	20120615091432.582	20120615091456.585
AUX (180)	11416	11420	20120615091425.015	20120615091457.015

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
15/06/2012 00:00:08	-	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)	99.32 %	-
GQisFlagQual set (PX2)	99.18 %	-
GQisFlagQual set (PX3)	99.24 %	-
GQisFlagQual set (PX4)	99.36 %	-
GQisFlagQual set (all)	99.28 %	-

Table 4: Quality flags

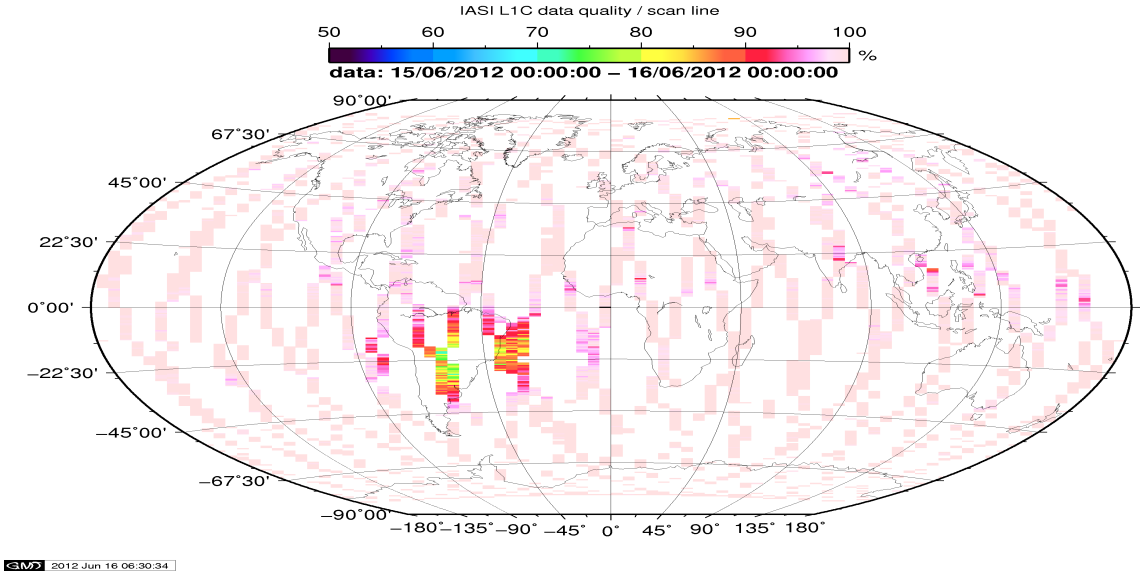

Figure 1: L1C data quality

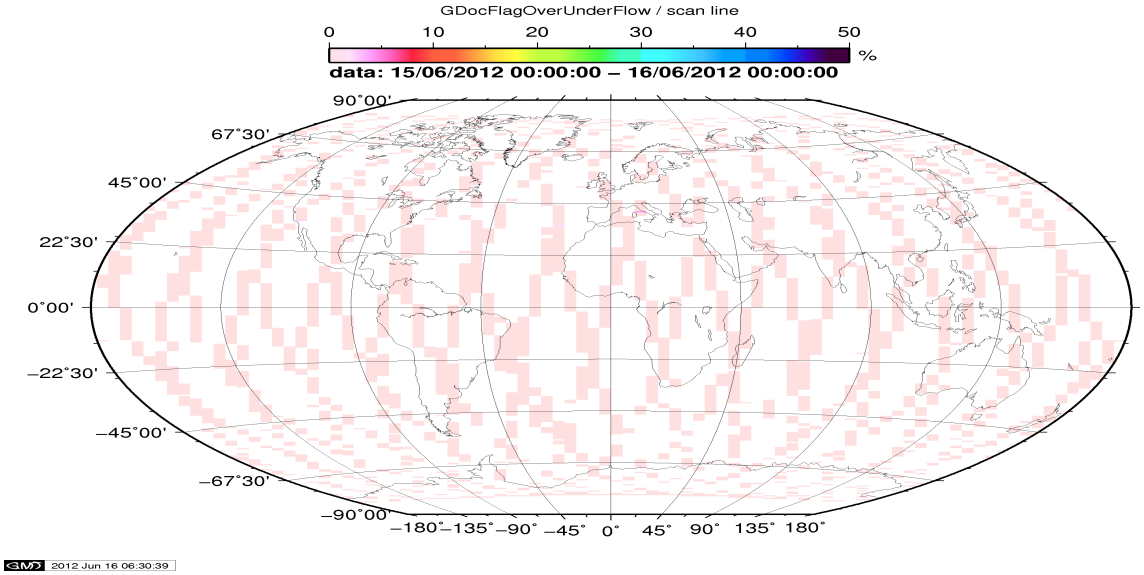

Figure 2: Flag of Over and Under Flows

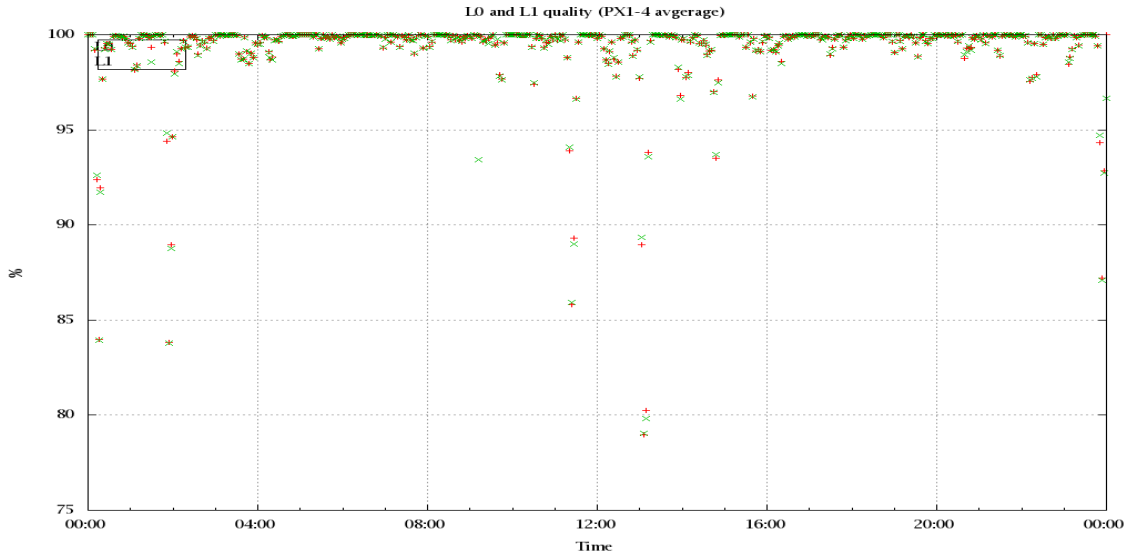

Figure 3: Level 0 and 1C overall quality

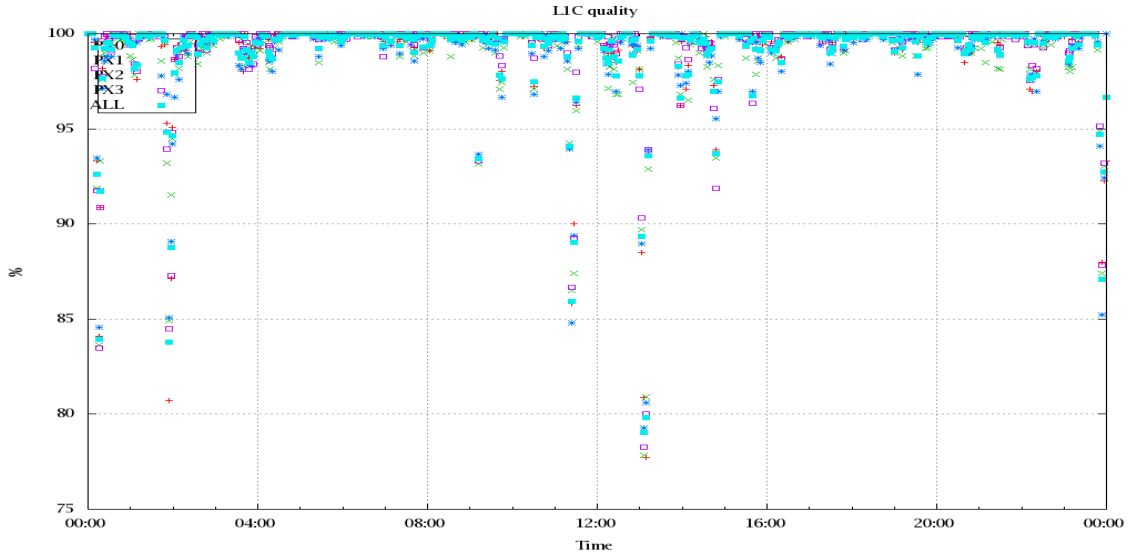

Figure 4: Level 1C quality

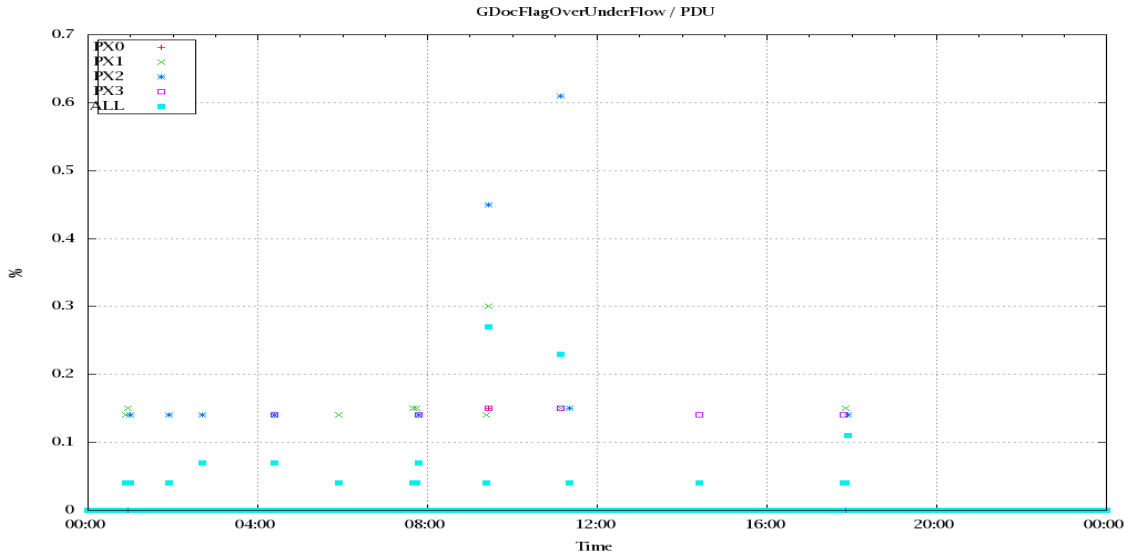

Figure 5: OverUnderFlowFlag timeseries

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.

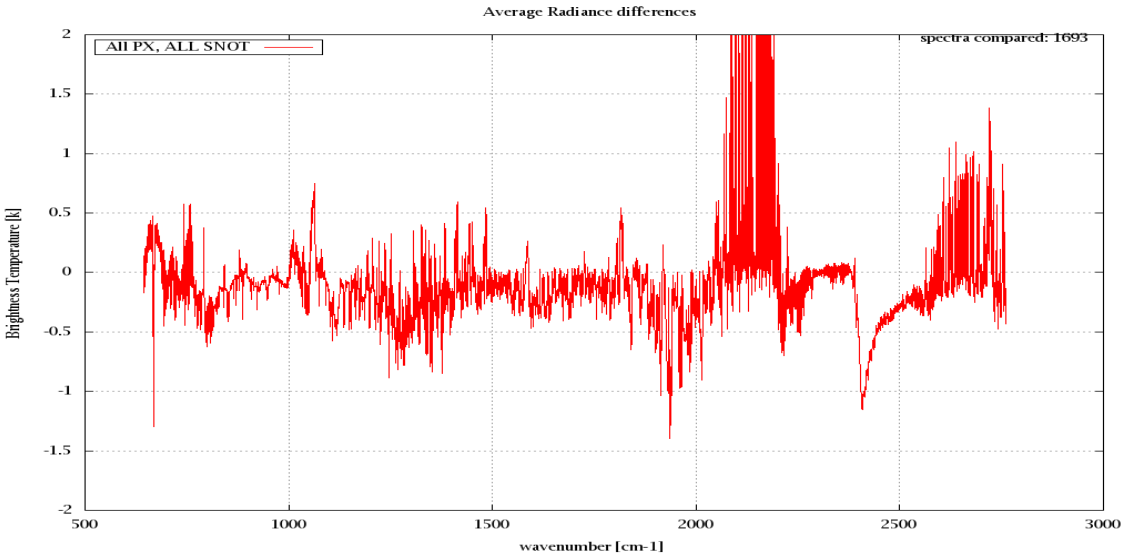

Figure 6: Average Radiance differences: OBS-CAL

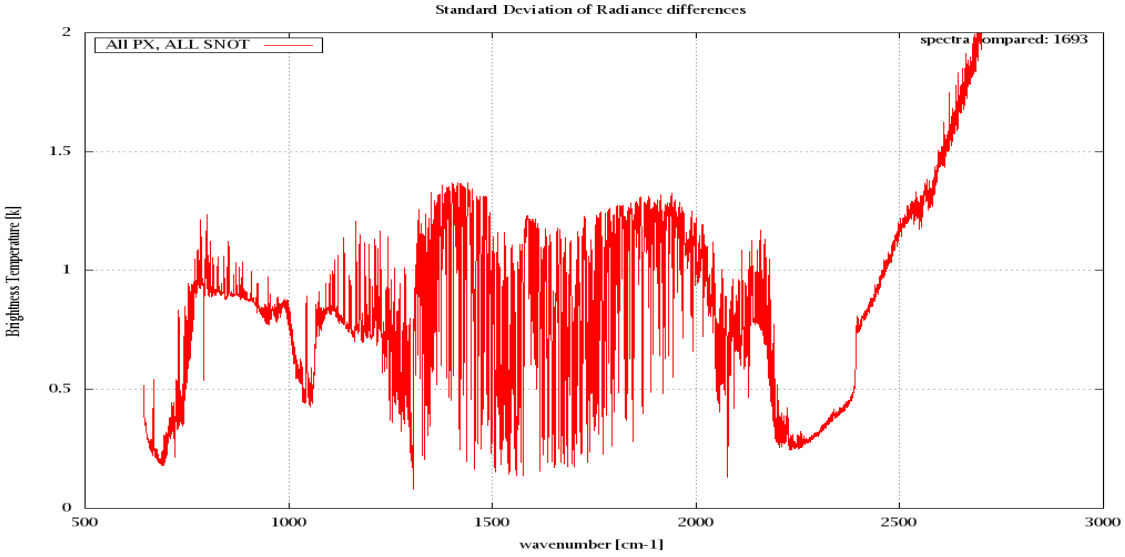

Figure 7: Standard Deviation of Radiance differences

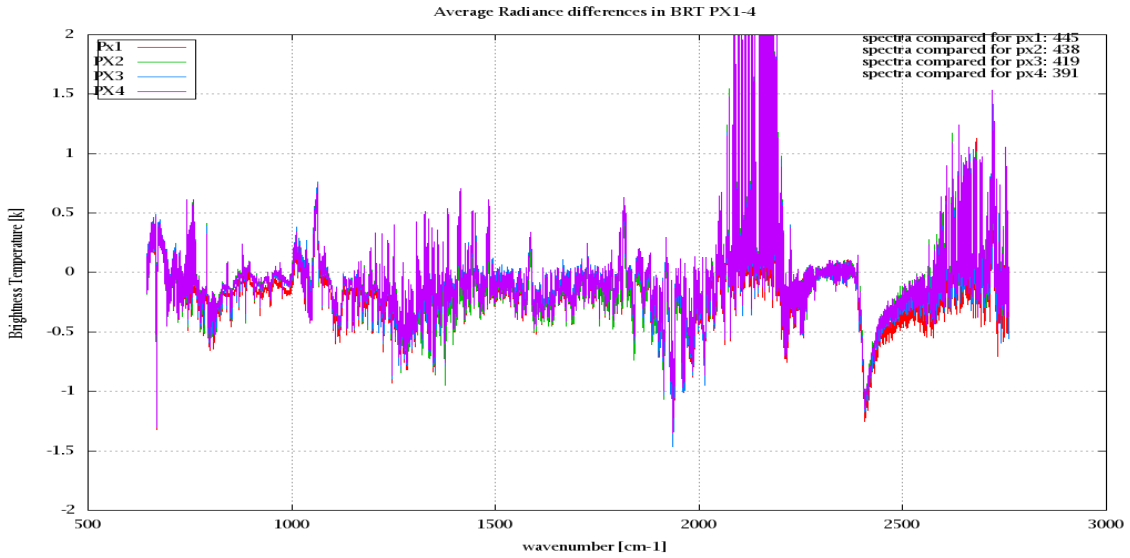

Figure 8: Average Radiance differences: OBS-CAL

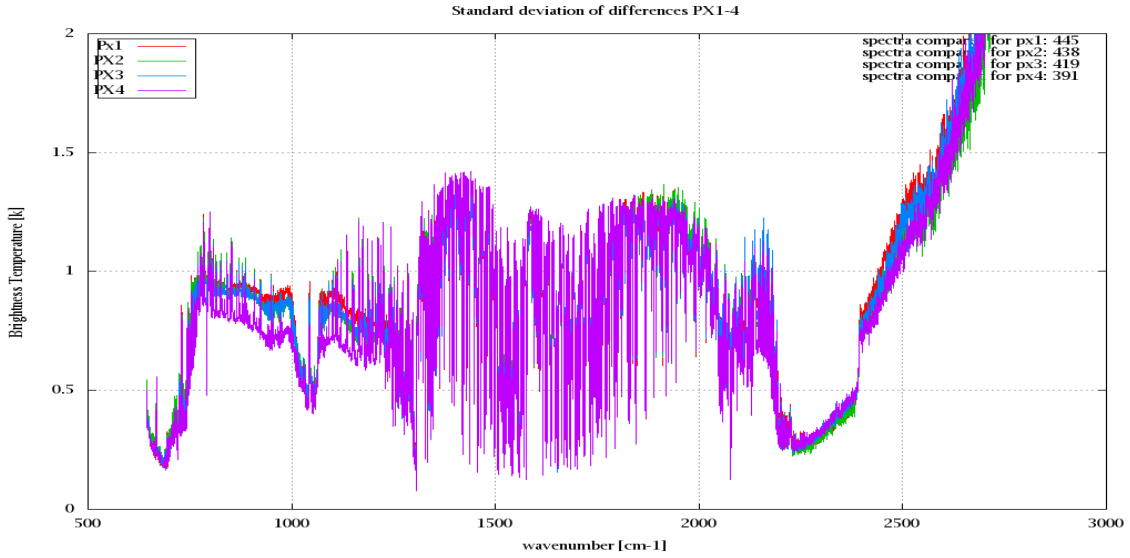

Figure 9: Standard Deviation of Radiance differences

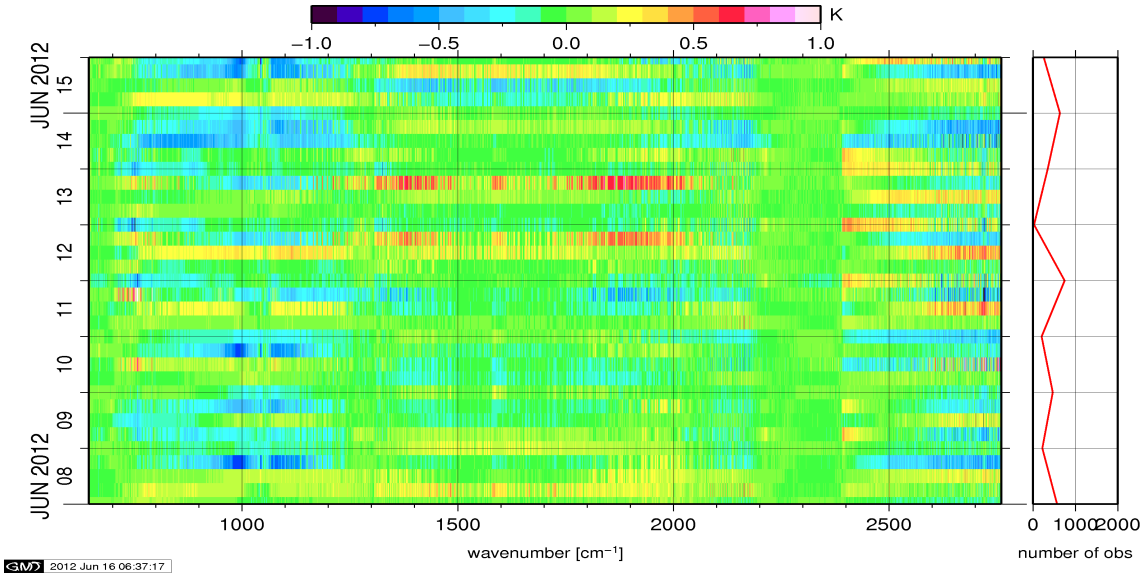

Figure 10: Radiance Anomaly in BRT: All Channels

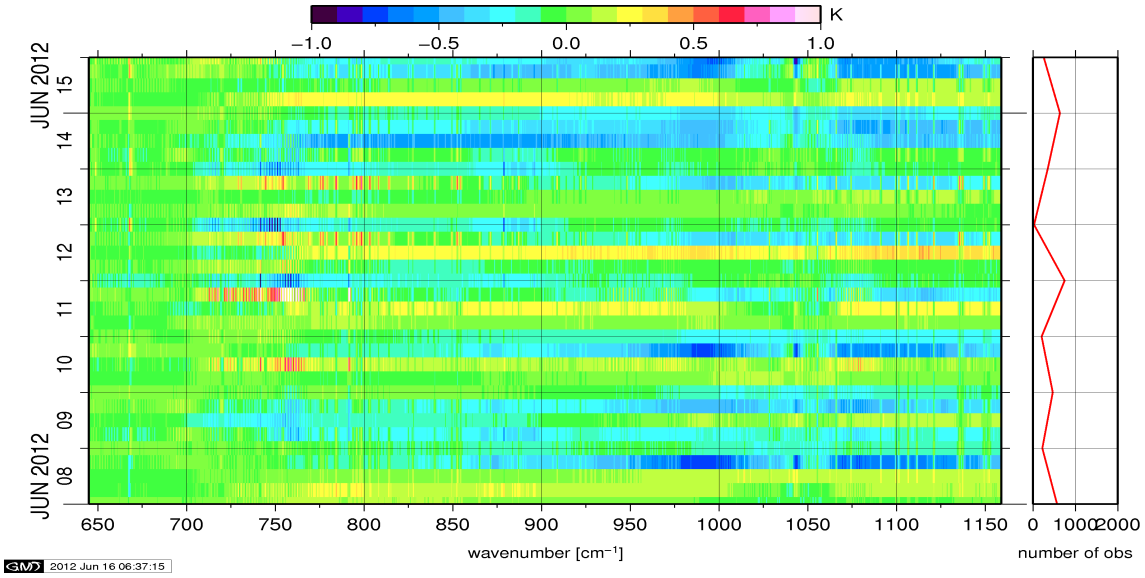

Figure 11: Radiance Anomaly in BRT: IASI Band 1

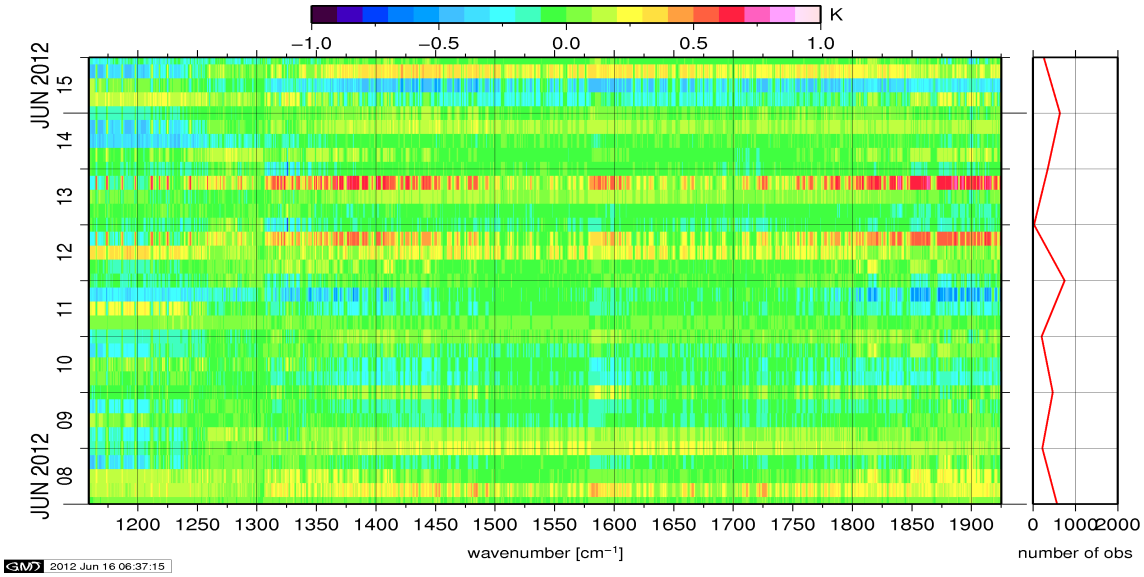

Figure 12: Radiance Anomaly in BRT: IASI Band 2

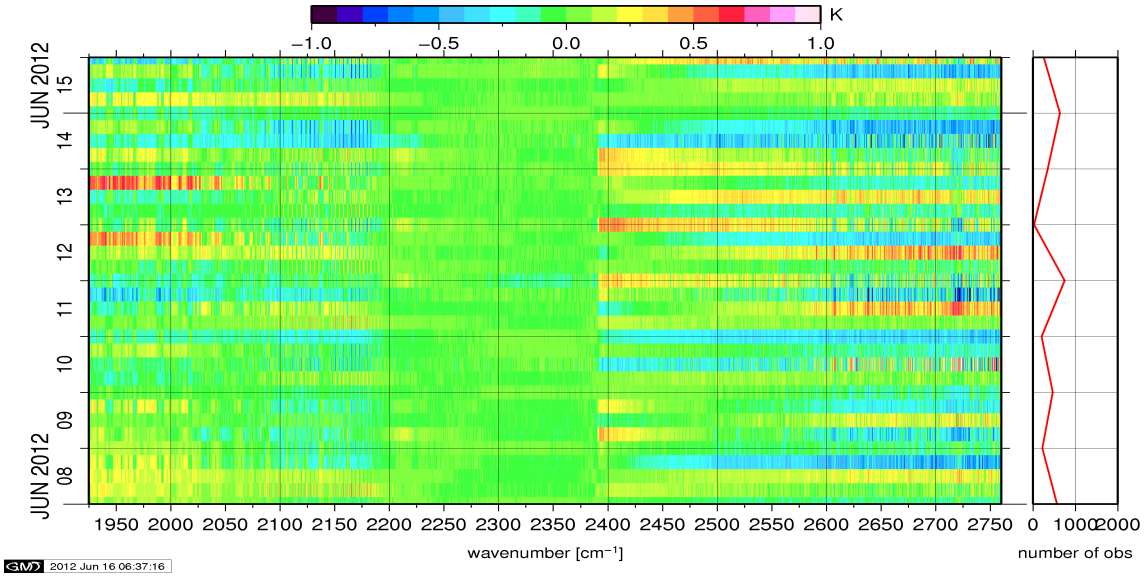

Figure 13: Radiance Anomaly in BRT: IASI Band 3

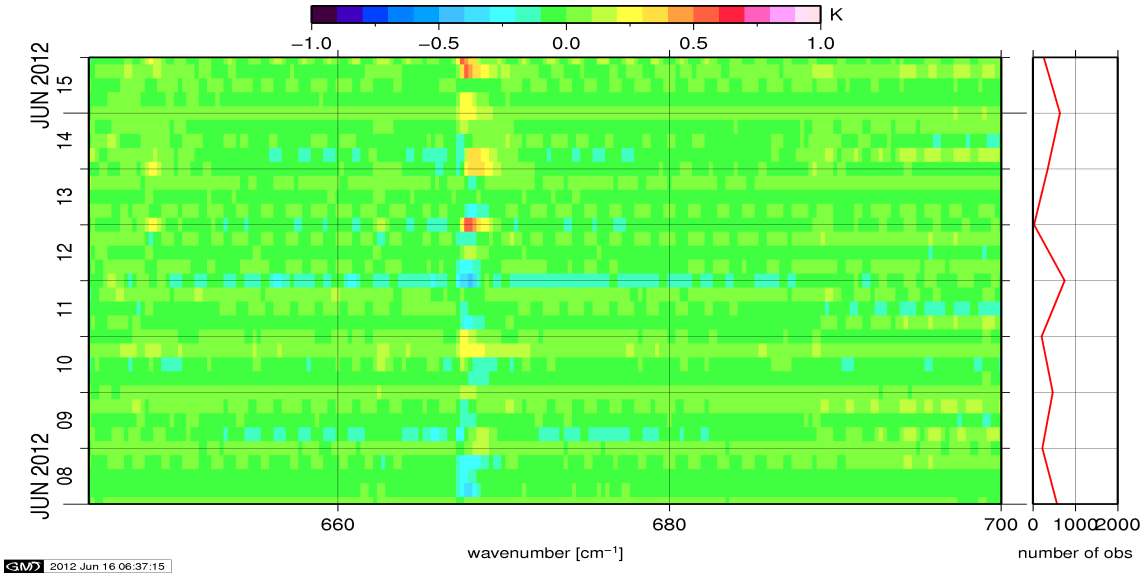

Figure 14: Radiance Anomaly in BRT: CO2 14

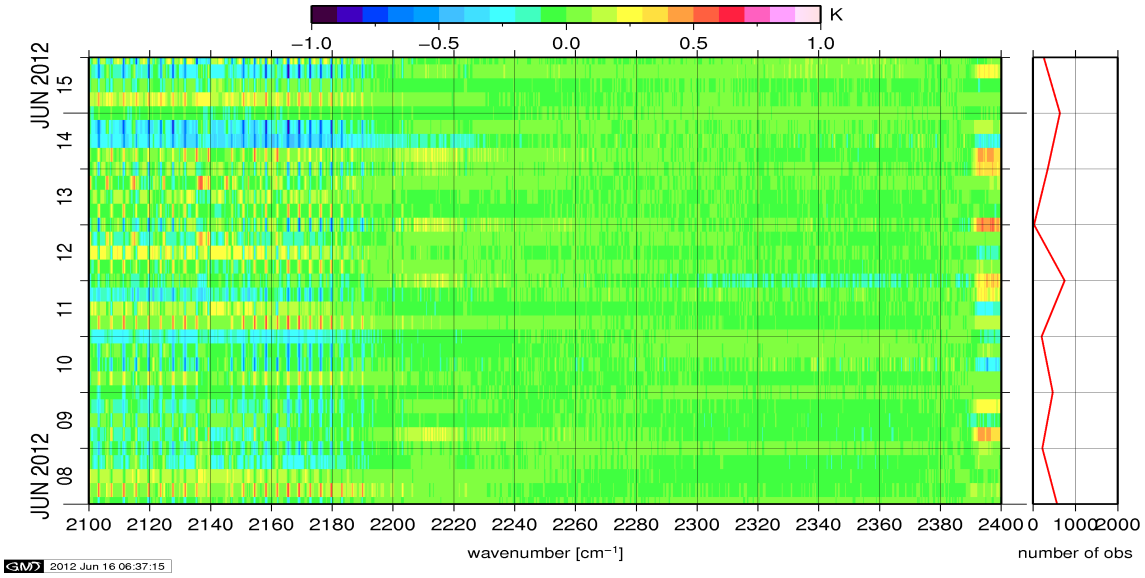

Figure 15: Radiance Anomaly in BRT: CO2 4.3

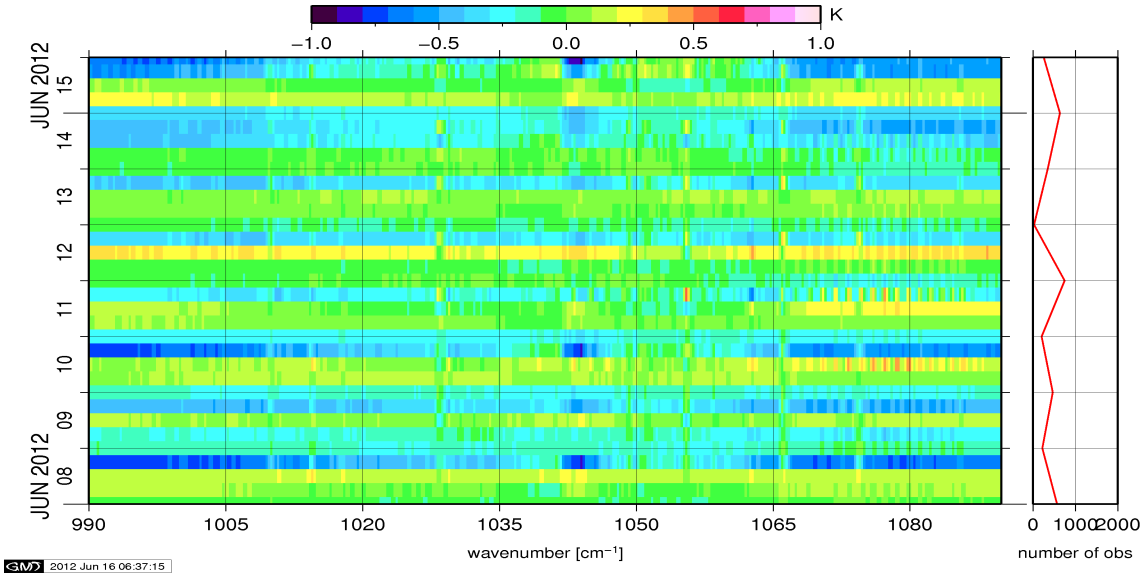

Figure 16: Radiance Anomaly in BRT: O3

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.

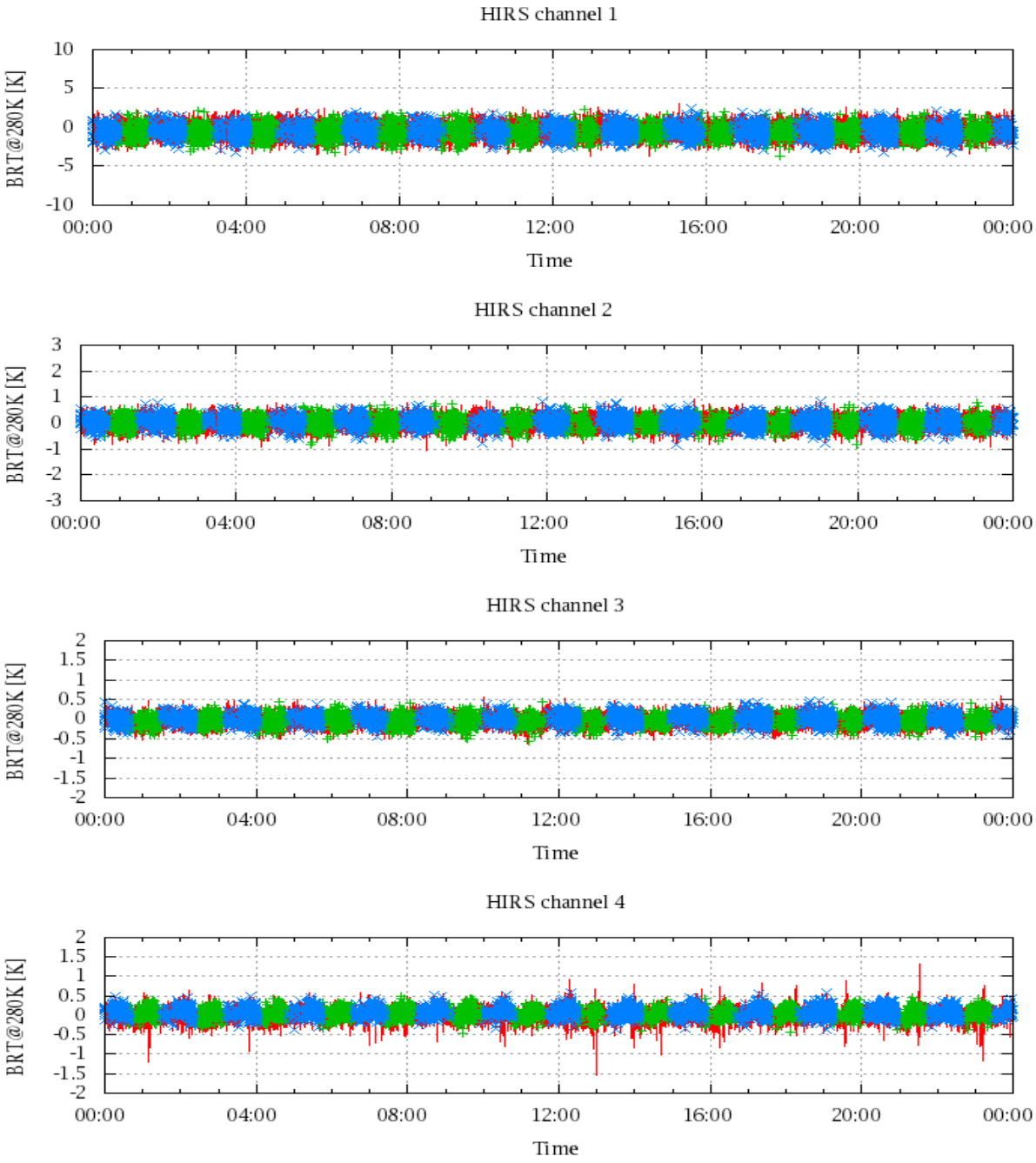

Figure 17: Radiance Differences in BRT

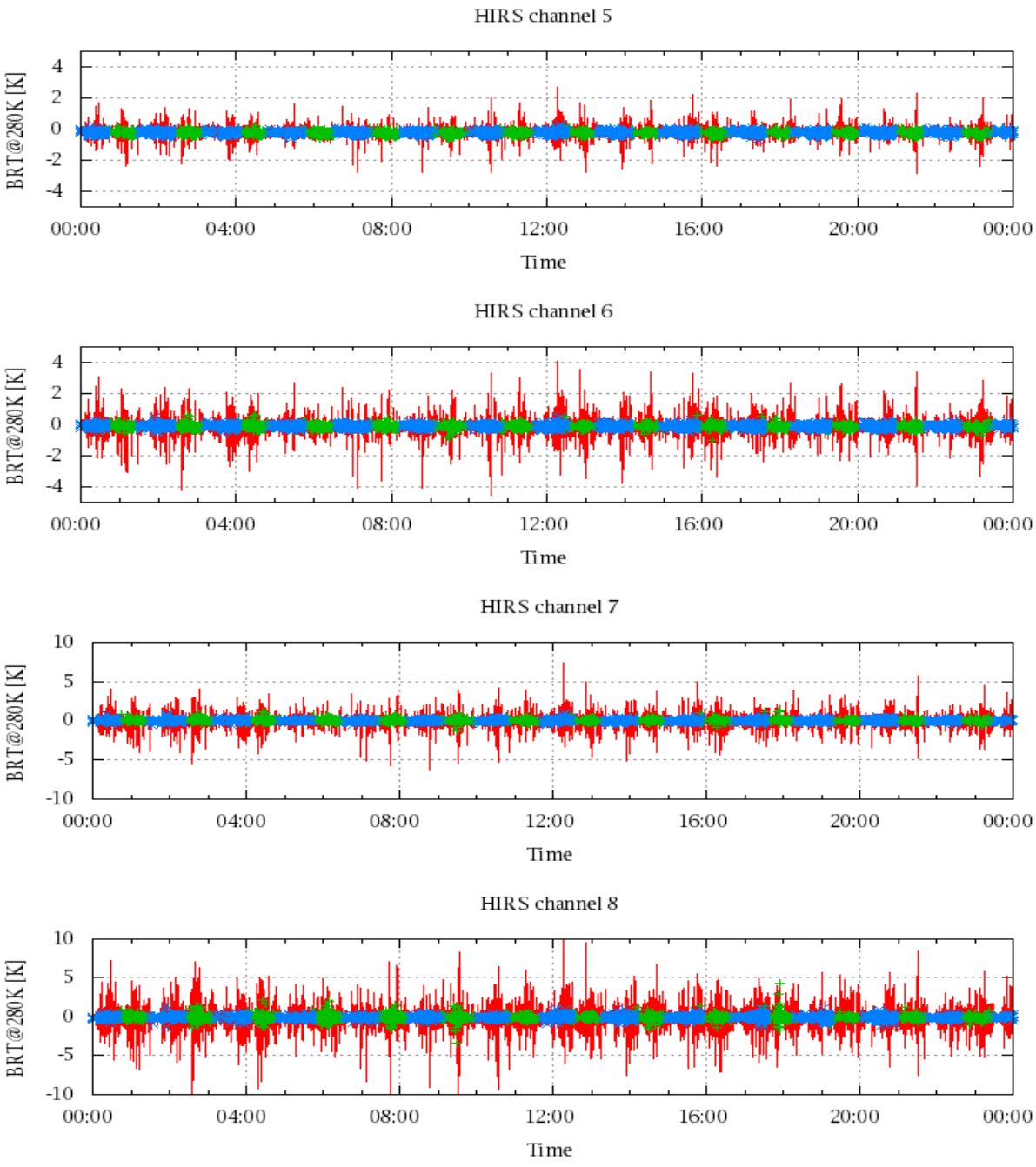

Figure 18: Radiance Differences in BRT

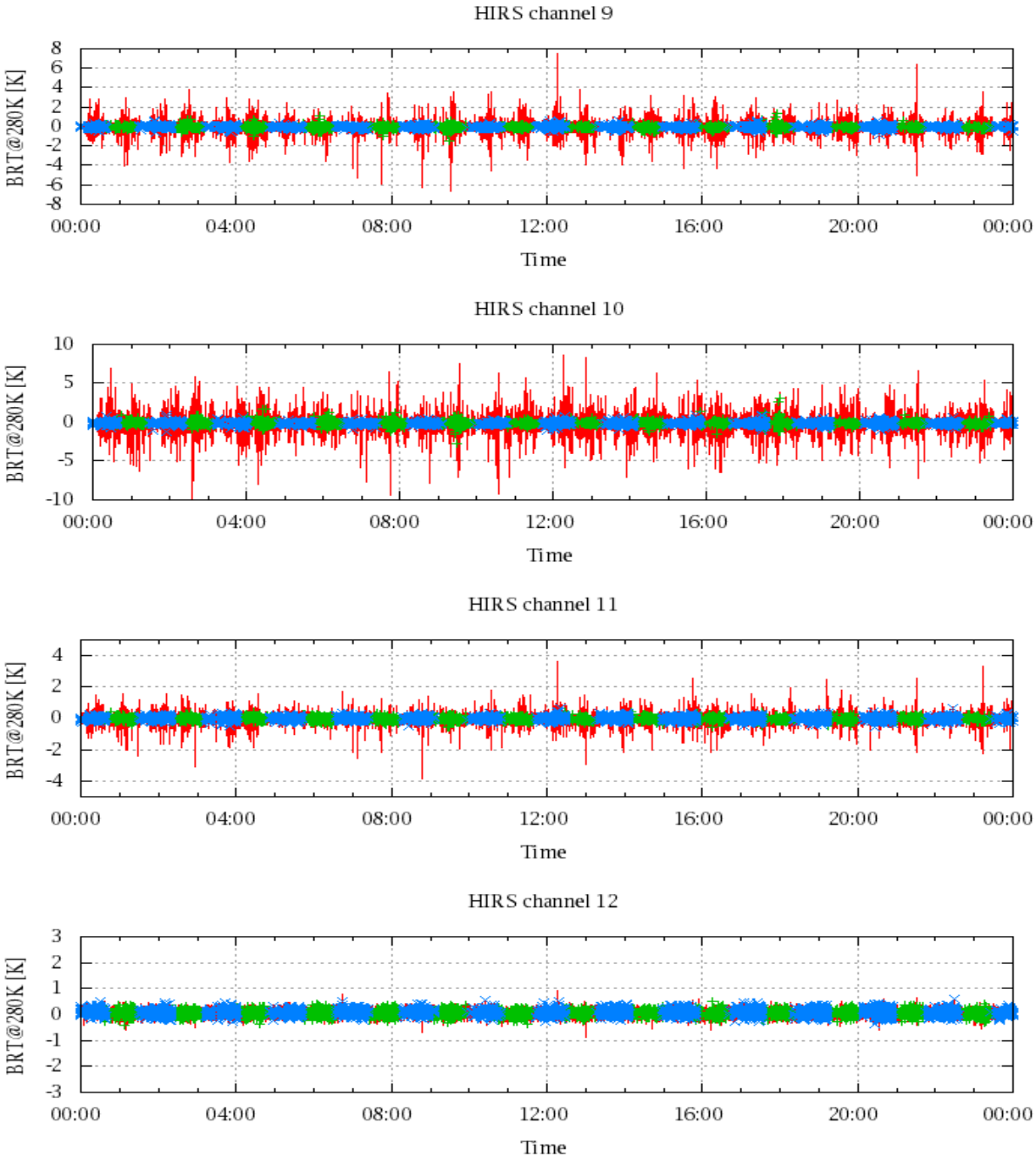

Figure 19: Radiance Differences in BRT

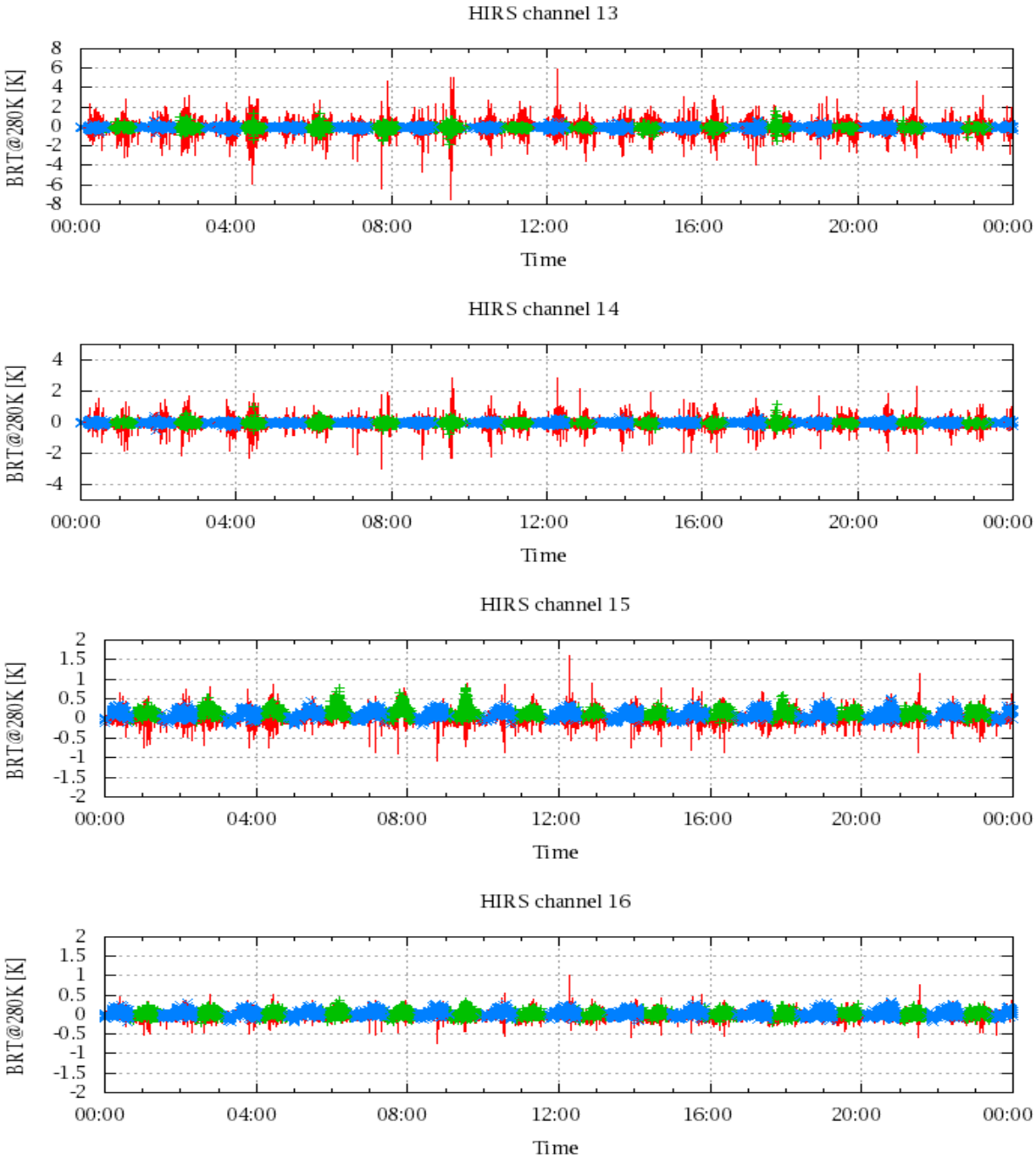

Figure 20: Radiance Differences in BRT

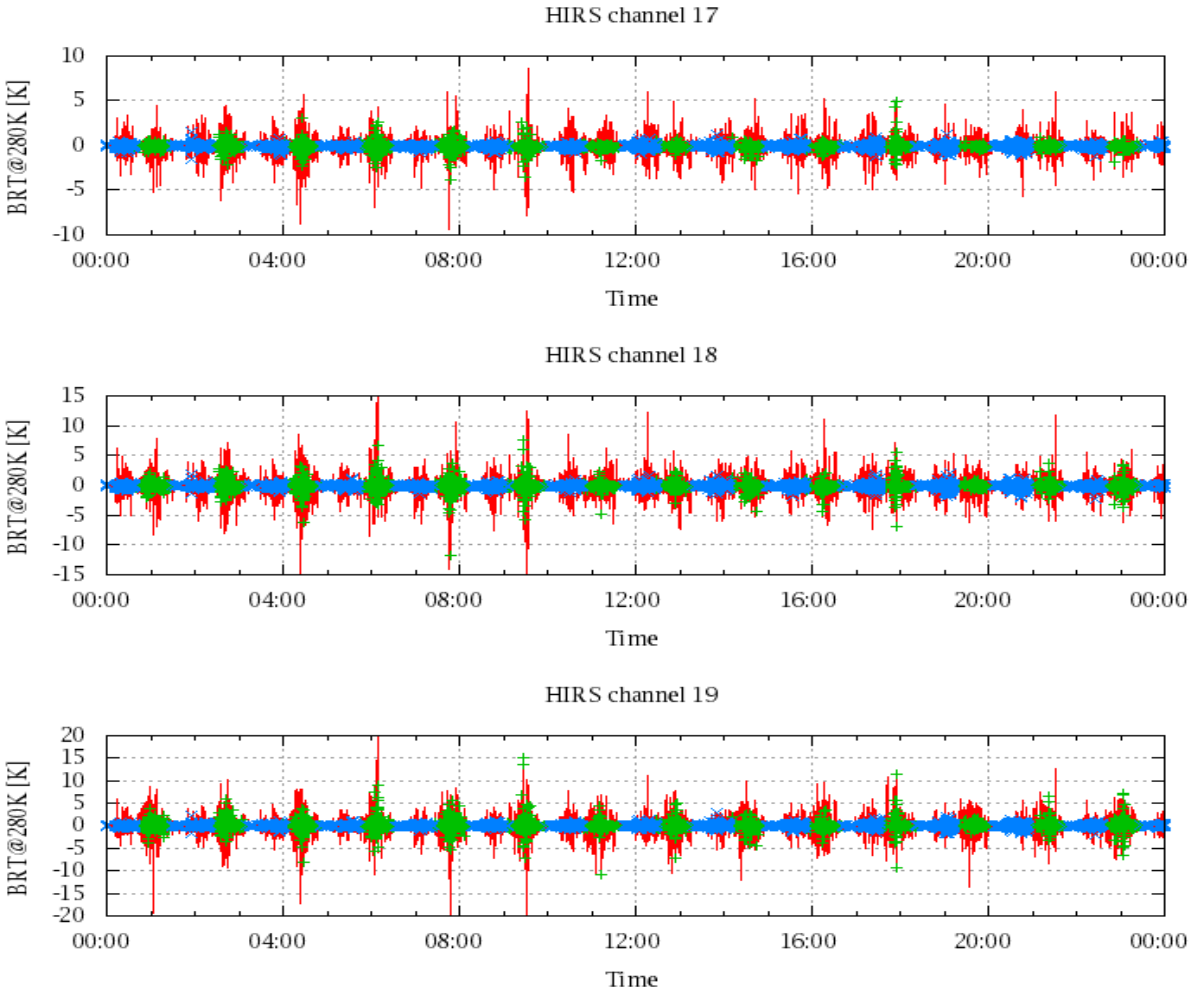

Figure 21: Radinace Differences in BRT