

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

29/05/2010 00:00:00 - 30/05/2010 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 29/05/2010 00:00:00 - 30/05/2010 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 29/05/2010 00:00:00 - 30/05/2010 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)	4803	4805	20100529105557.378	20100529105557.812
PX1 (130)	4805	4807	20100529105557.812	20100529105558.242
PX1 (130)	4810	4812	20100529105558.894	20100529105600.835
PX1 (130)	4812	4814	20100529105600.835	20100529105601.269
PX1 (130)	4815	4817	20100529105601.488	20100529105601.917
PX1 (130)	4819	4821	20100529105602.351	20100529105602.785
PX1 (130)	4823	4825	20100529105603.218	20100529105603.648
PX1 (130)	4825	4828	20100529105603.648	20100529105604.296
PX1 (130)	4829	4833	20100529105604.515	20100529105605.378
PX1 (130)	4847	4849	20100529105609.917	20100529105610.351
PX1 (130)	4849	4851	20100529105610.351	20100529105610.785
PX1 (130)	4858	4860	20100529105612.296	20100529105612.730
PX2 (135)	4803	4805	20100529105557.378	20100529105557.812
PX2 (135)	4810	4812	20100529105558.894	20100529105600.835
PX2 (135)	4812	4814	20100529105600.835	20100529105601.269
PX2 (135)	4815	4817	20100529105601.488	20100529105601.917
PX2 (135)	4818	4821	20100529105602.136	20100529105602.785
PX2 (135)	4821	4823	20100529105602.785	20100529105603.218

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	4823	4825	20100529105603.218	20100529105603.648
PX2 (135)	4825	4828	20100529105603.648	20100529105604.296
PX2 (135)	4828	4834	20100529105604.296	20100529105605.593
PX2 (135)	4849	4851	20100529105610.351	20100529105610.785
PX2 (135)	4858	4860	20100529105612.296	20100529105612.730
PX3 (140)	4803	4805	20100529105557.378	20100529105557.812
PX3 (140)	4810	4814	20100529105558.894	20100529105601.269
PX3 (140)	4818	4821	20100529105602.136	20100529105602.785
PX3 (140)	4821	4823	20100529105602.785	20100529105603.218
PX3 (140)	4823	4825	20100529105603.218	20100529105603.648
PX3 (140)	4825	4830	20100529105603.648	20100529105604.730
PX3 (140)	4830	4834	20100529105604.730	20100529105605.593
PX3 (140)	4846	4848	20100529105609.703	20100529105610.136
PX3 (140)	4849	4851	20100529105610.351	20100529105610.785
PX3 (140)	4858	4860	20100529105612.296	20100529105612.730
PX4 (145)	4803	4805	20100529105557.378	20100529105557.812
PX4 (145)	4810	4814	20100529105558.894	20100529105601.269
PX4 (145)	4814	4816	20100529105601.269	20100529105601.703
PX4 (145)	4818	4821	20100529105602.136	20100529105602.785
PX4 (145)	4825	4828	20100529105603.648	20100529105604.296
PX4 (145)	4828	4830	20100529105604.296	20100529105604.730
PX4 (145)	4831	4834	20100529105604.945	20100529105605.593
PX4 (145)	4846	4848	20100529105609.703	20100529105610.136
PX4 (145)	4849	4851	20100529105610.351	20100529105610.785
PX4 (145)	4858	4860	20100529105612.296	20100529105612.730
IMG (150)	13536	13538	20100529105557.164	20100529105557.593
IMG (150)	13538	13540	20100529105557.593	20100529105558.027
IMG (150)	13544	13546	20100529105558.894	20100529105559.539
IMG (150)	13549	13551	20100529105600.406	20100529105601.054
IMG (150)	13551	13554	20100529105601.054	20100529105601.703
IMG (150)	13562	13565	20100529105603.433	20100529105604.082
IMG (150)	13565	13568	20100529105604.082	20100529105604.730
IMG (150)	13568	13572	20100529105604.730	20100529105605.593
IMG (150)	13588	13590	20100529105609.703	20100529105610.136
IMG (150)	13591	13593	20100529105610.351	20100529105610.785
IMG (150)	13599	13602	20100529105612.082	20100529105612.730
VER (160)	11001	11003	20100529105558.894	20100529105558.894
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
29/05/2010 00:00:02	-	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)	99.36 %	-
GQisFlagQual set (PX2)	99.24 %	-
GQisFlagQual set (PX3)	99.29 %	-
GQisFlagQual set (PX4)	99.40 %	-
GQisFlagQual set (all)	99.32 %	-

Table 4: Quality flags

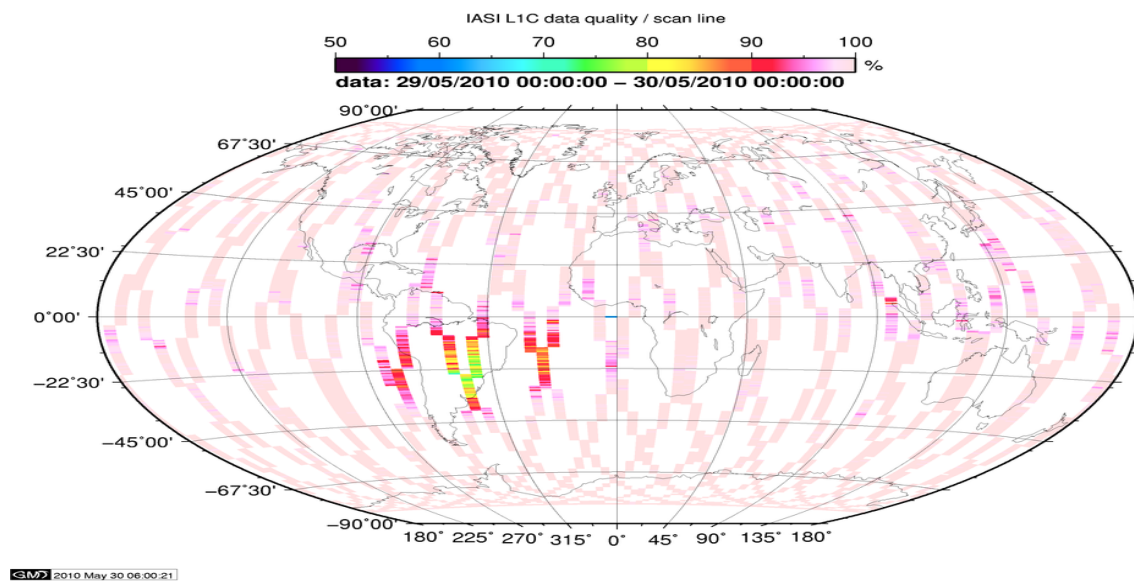


Figure 1: L1C data quality

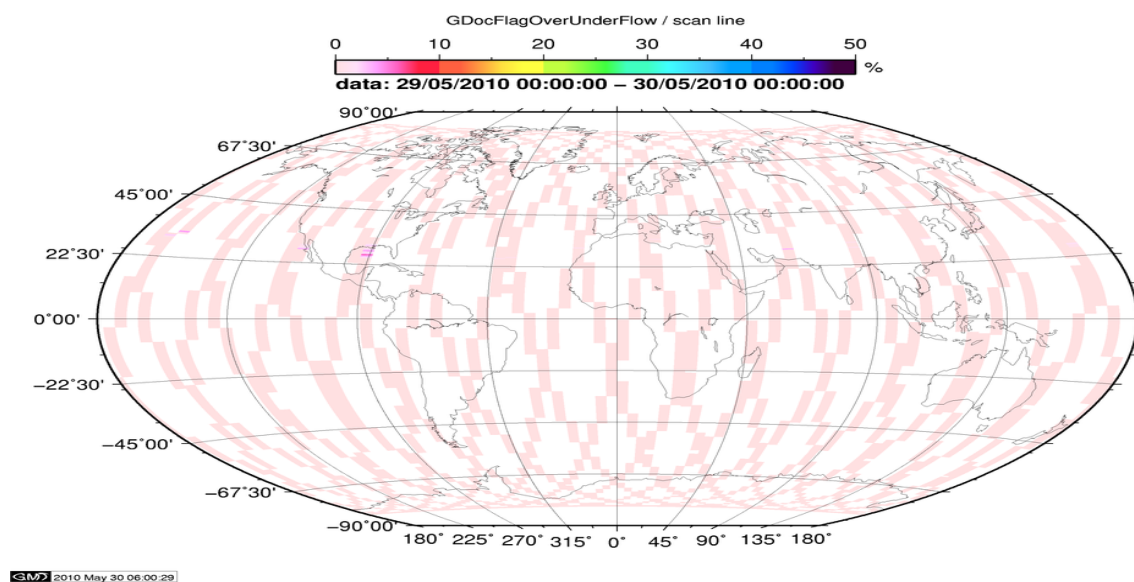


Figure 2: Flag of Over and Under Flows

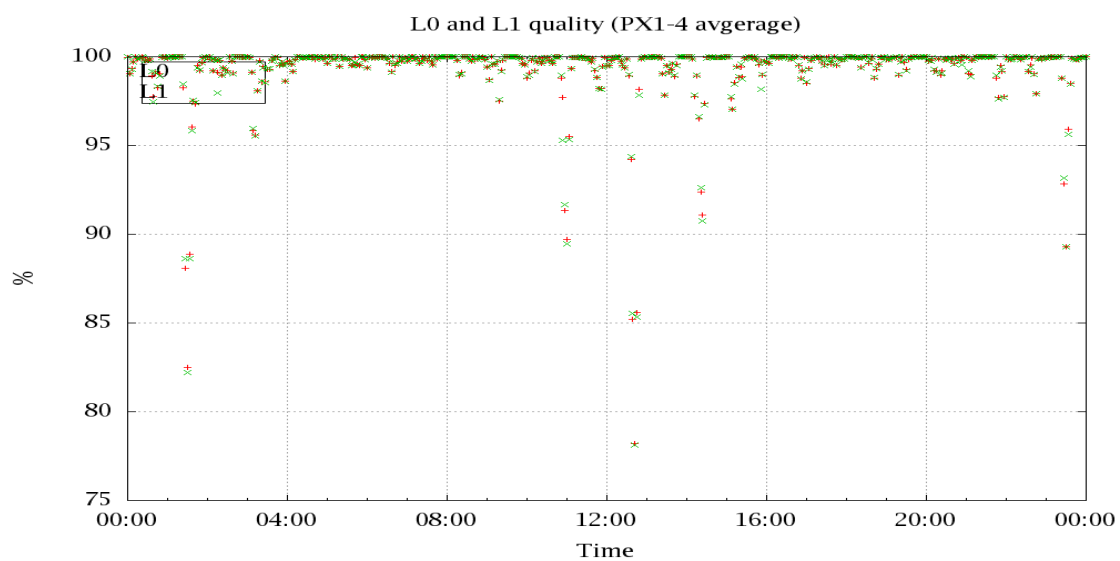


Figure 3: Level 0 and 1C overall quality

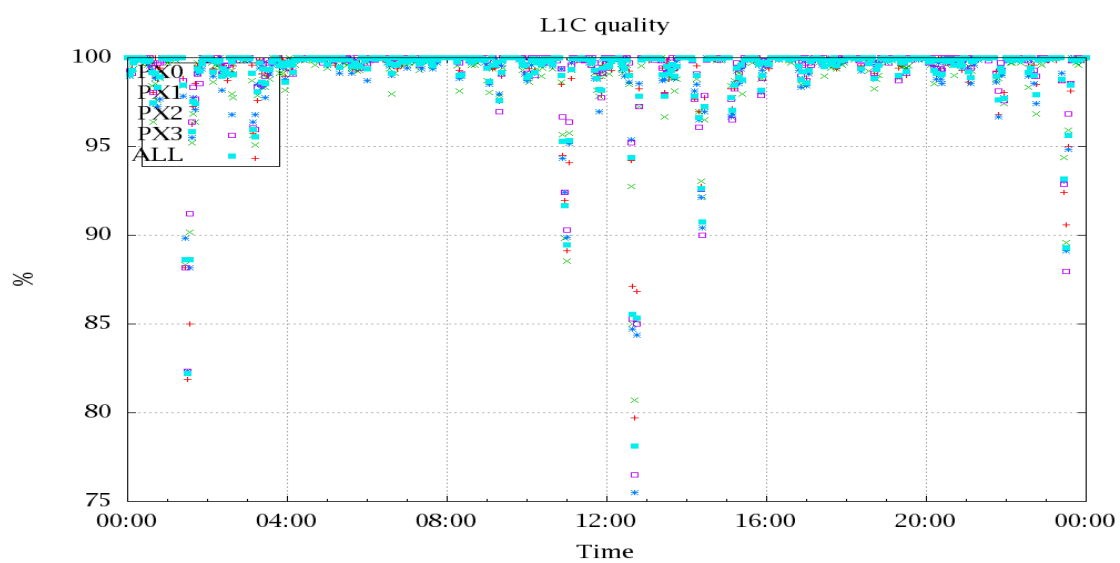


Figure 4: Level 1C quality

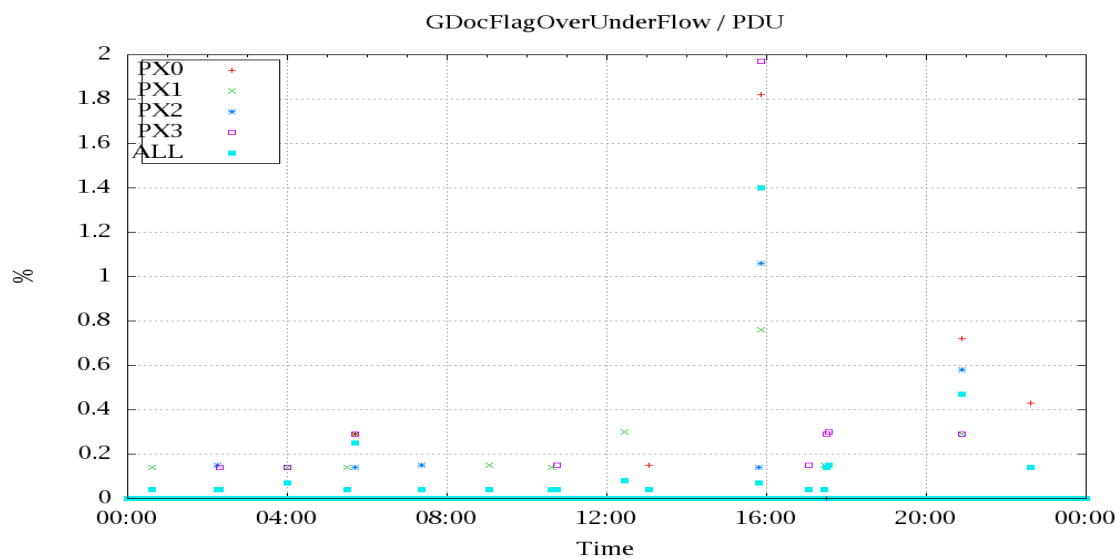


Figure 5: OverUnderFlowFlag timeseries

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 identification 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.

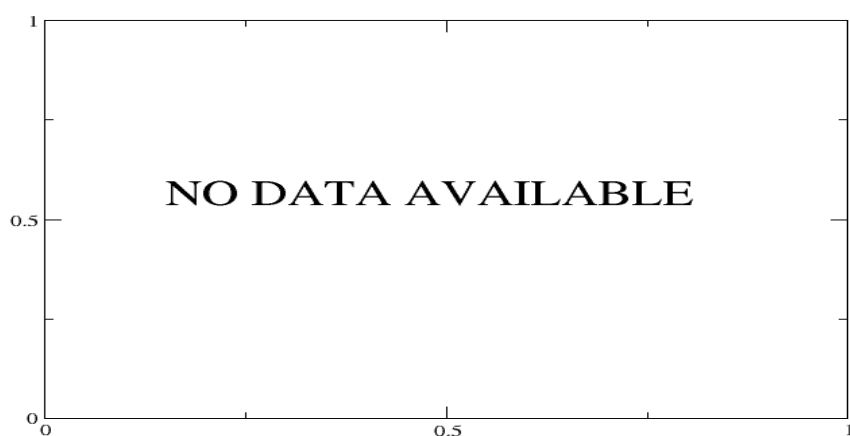


Figure 6: Average Radiance differences: OBS-CAL

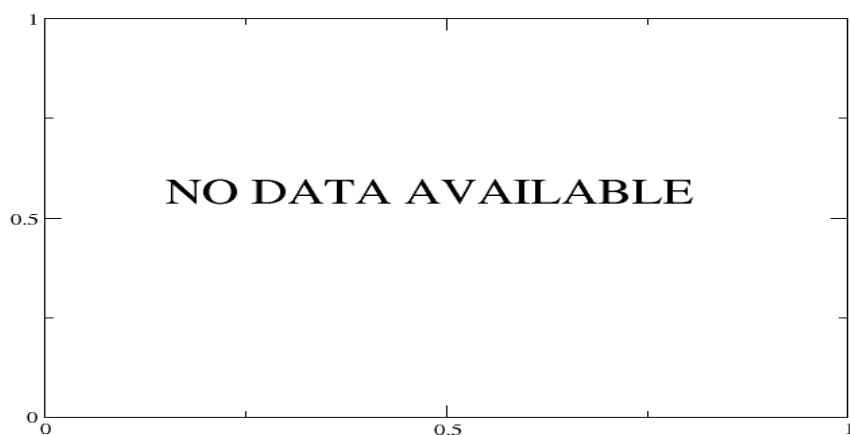


Figure 7: Standard Deviation of Radiance differences



Figure 8: Average Radiance differences: OBS-CAL



Figure 9: Standard Deviation of Radiance differences

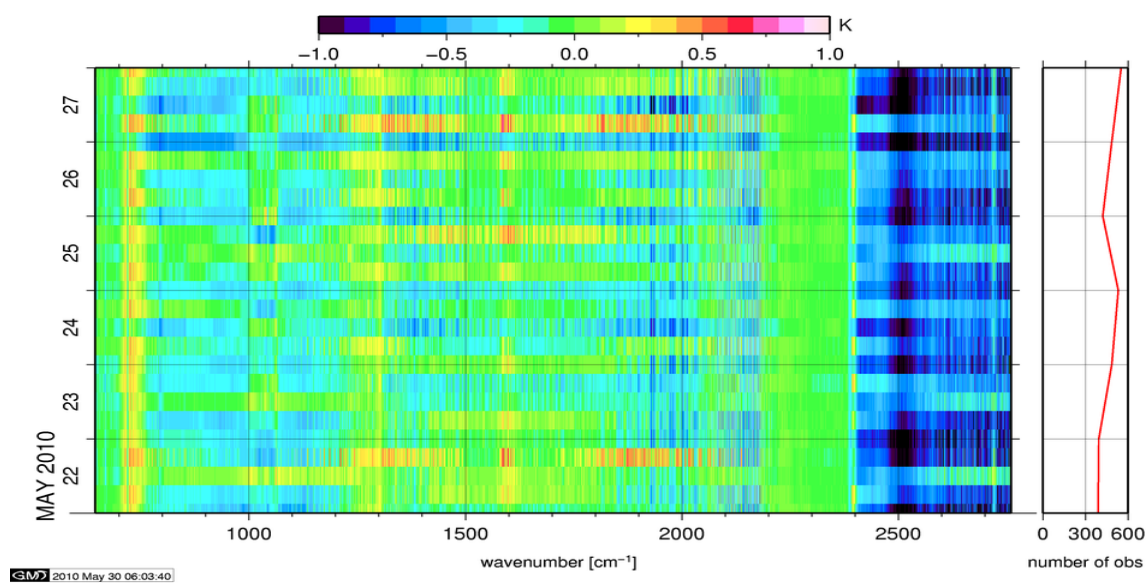


Figure 10: Radiance Anomaly in BRT: All Channels

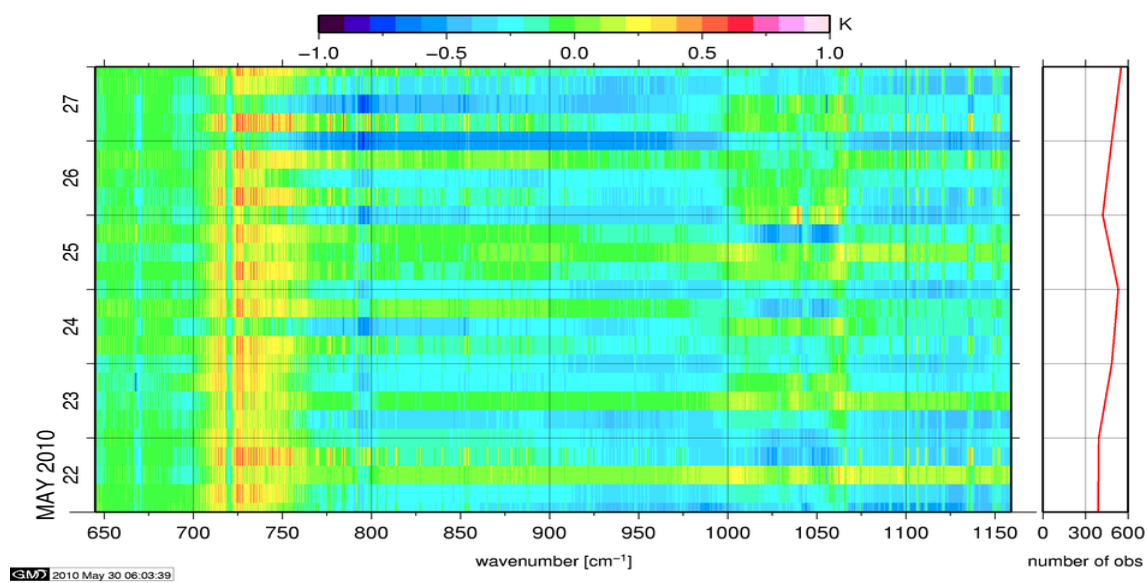


Figure 11: Radiance Anomaly in BRT: IASI Band 1

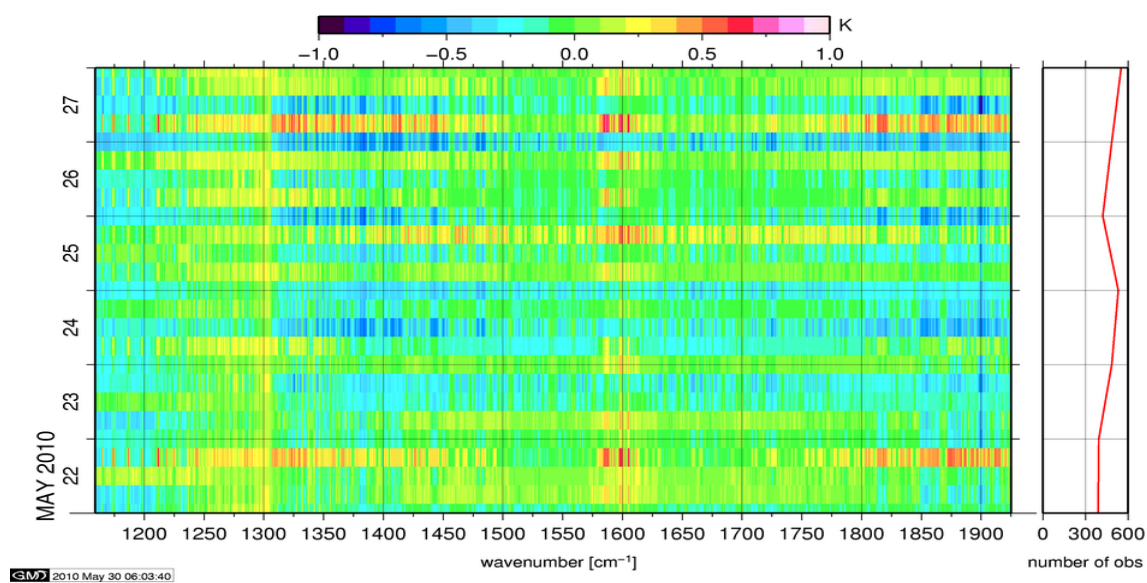


Figure 12: Radiance Anomaly in BRT: IASI Band 2

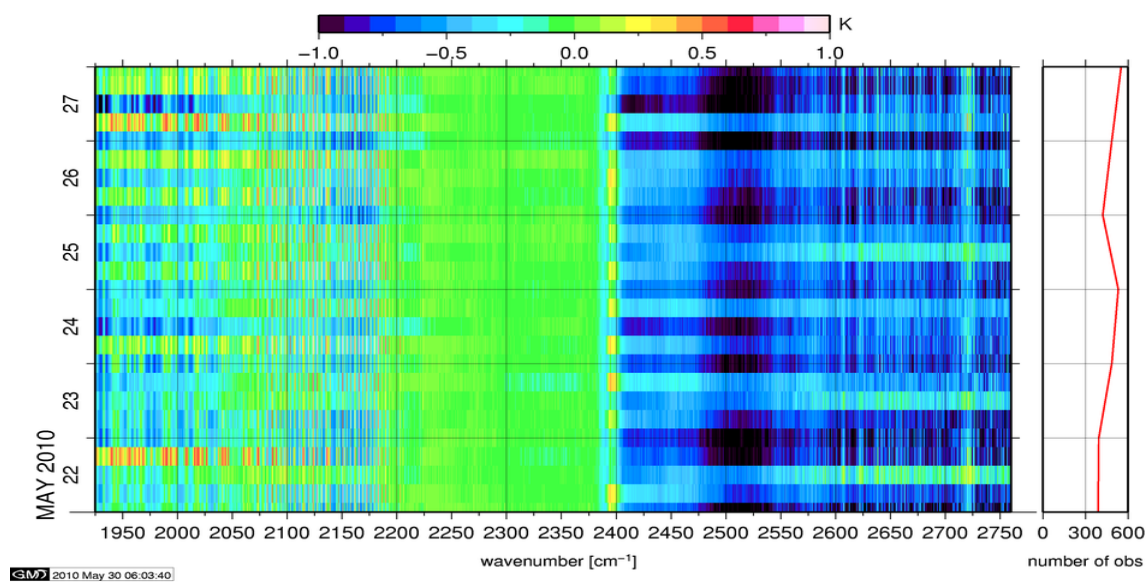


Figure 13: Radiance Anomaly in BRT: IASI Band 3

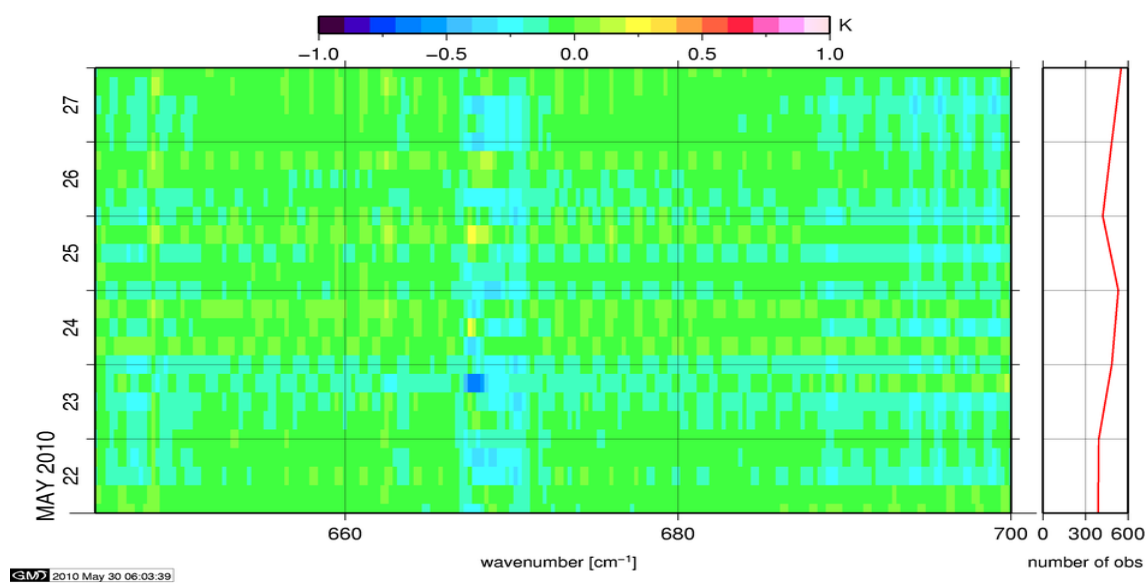


Figure 14: Radiance Anomaly in BRT: CO2 14

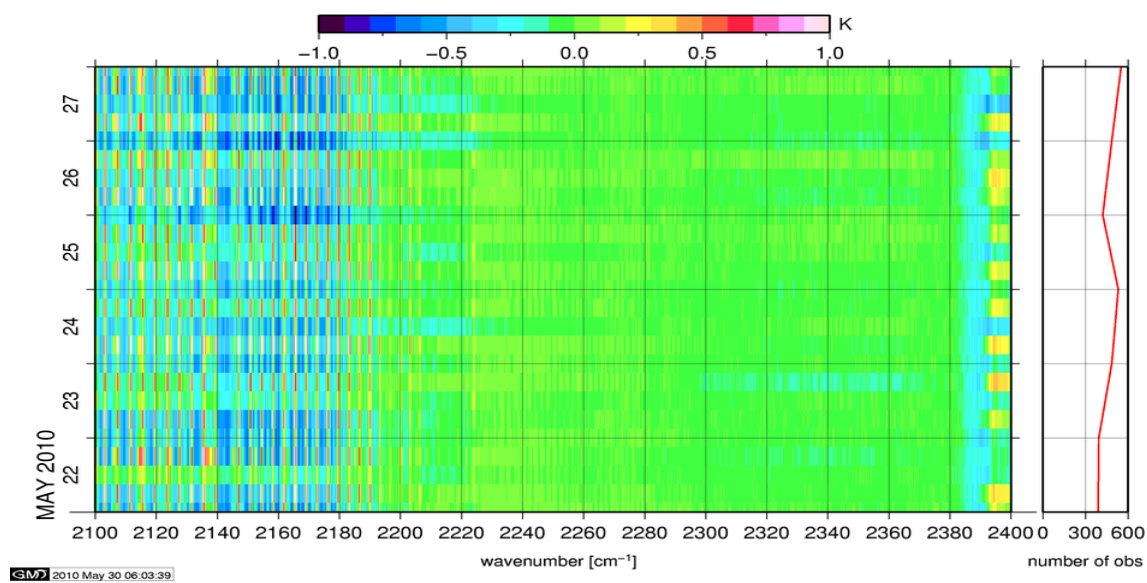


Figure 15: Radiance Anomaly in BRT: CO2 4.3

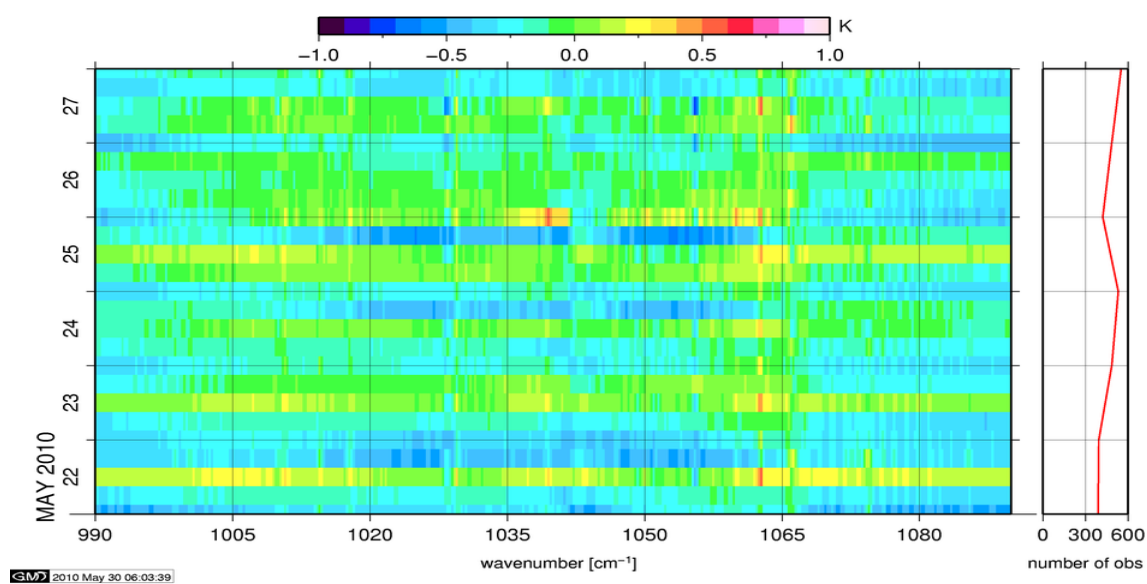


Figure 16: Radiance Anomaly in BRT: O3

6 IASI-HIRS radiance comparison Channel 1-19

The radiance comparison 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.

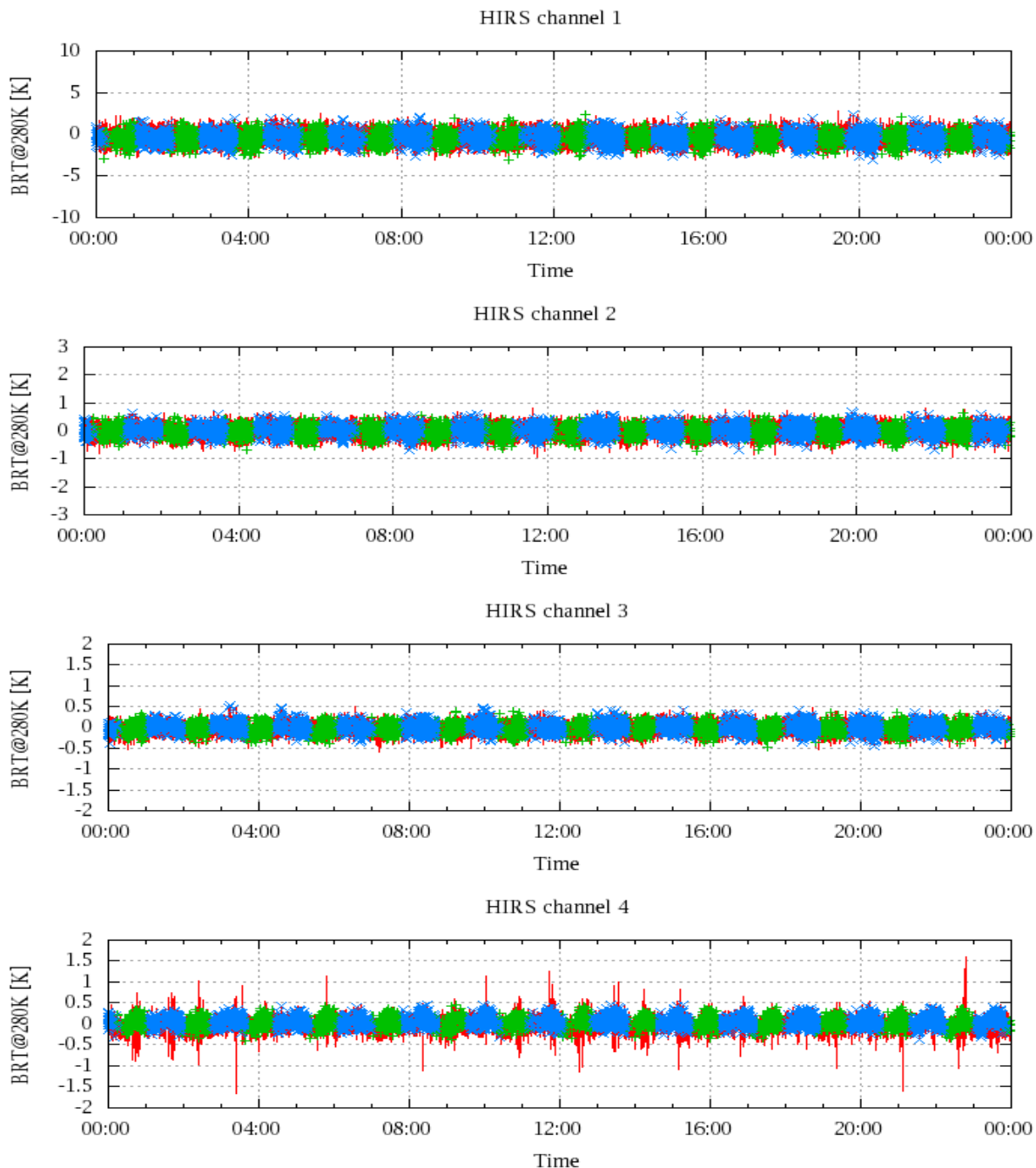


Figure 17: Radiance Differences in BRT

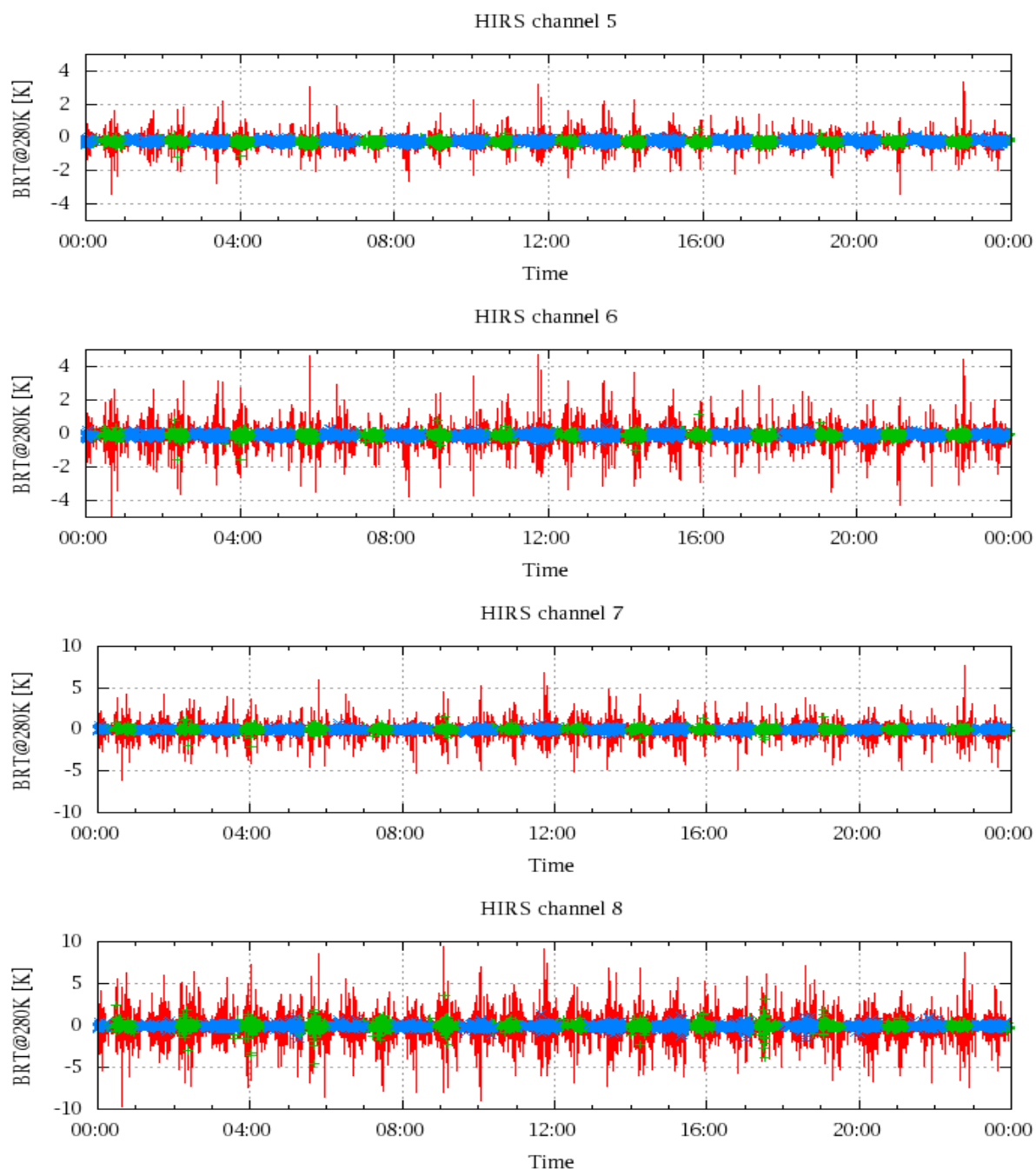


Figure 18: Radiance Differences in BRT

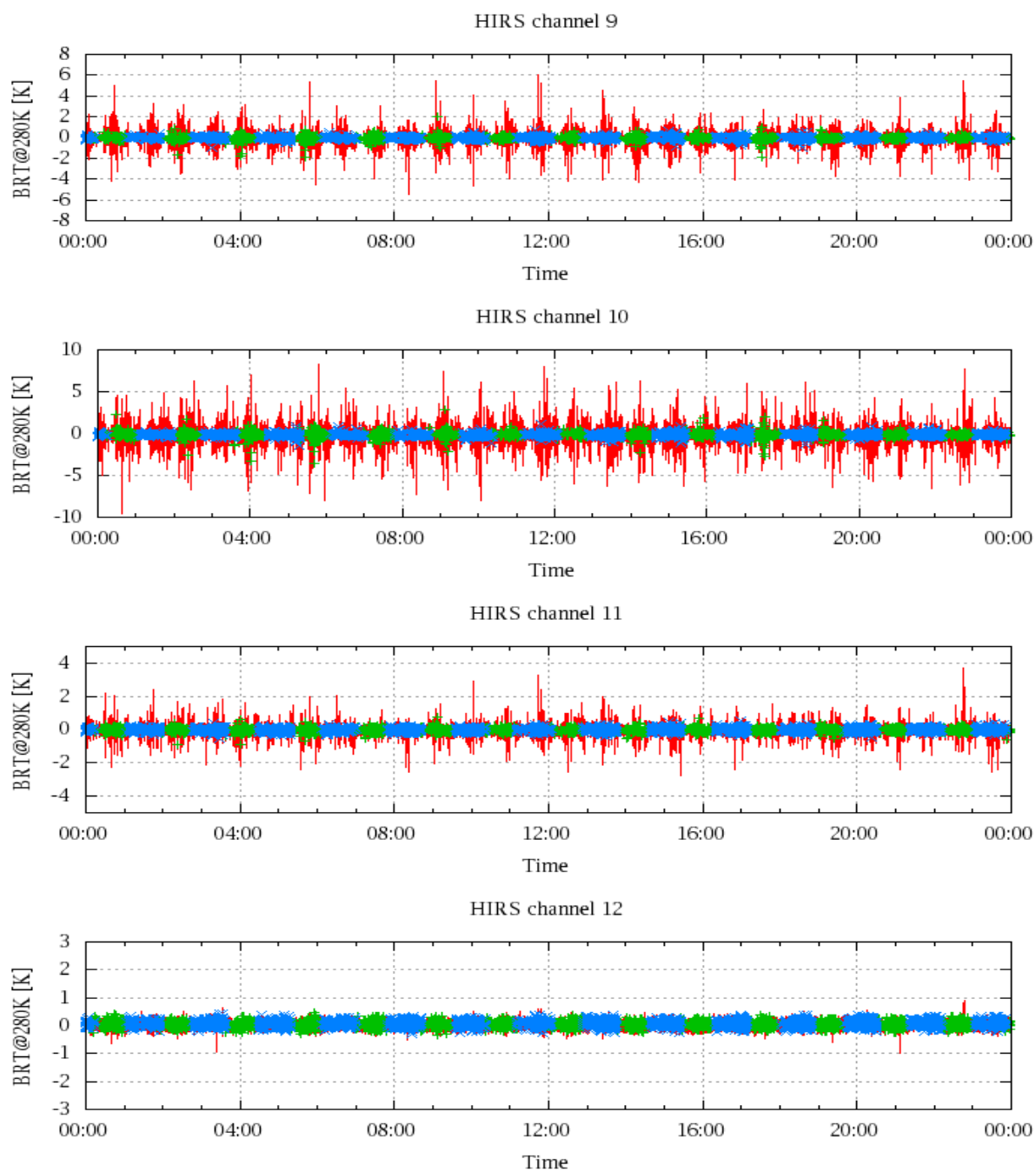


Figure 19: Radiance Differences in BRT

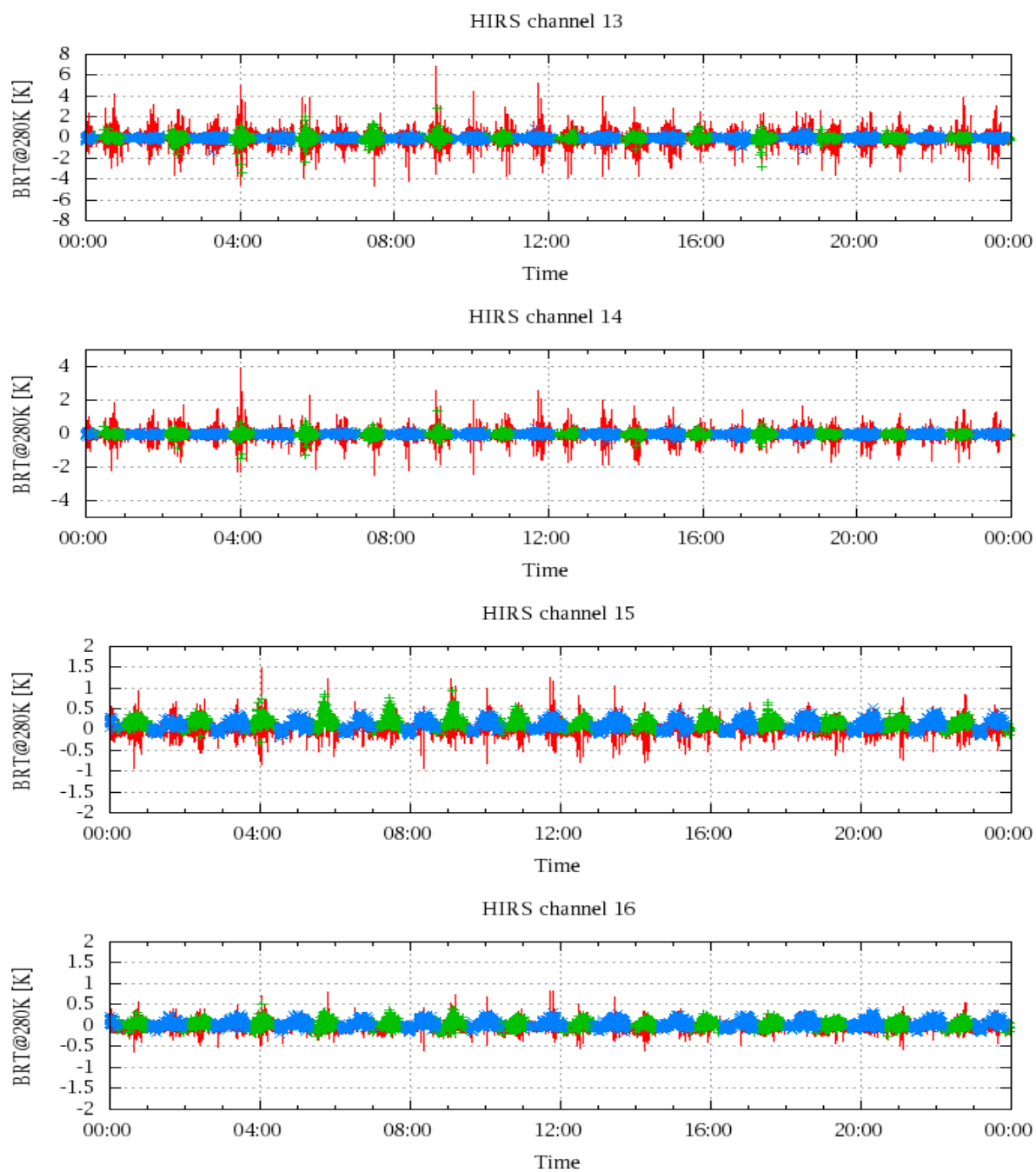


Figure 20: Radiance Differences in BRT

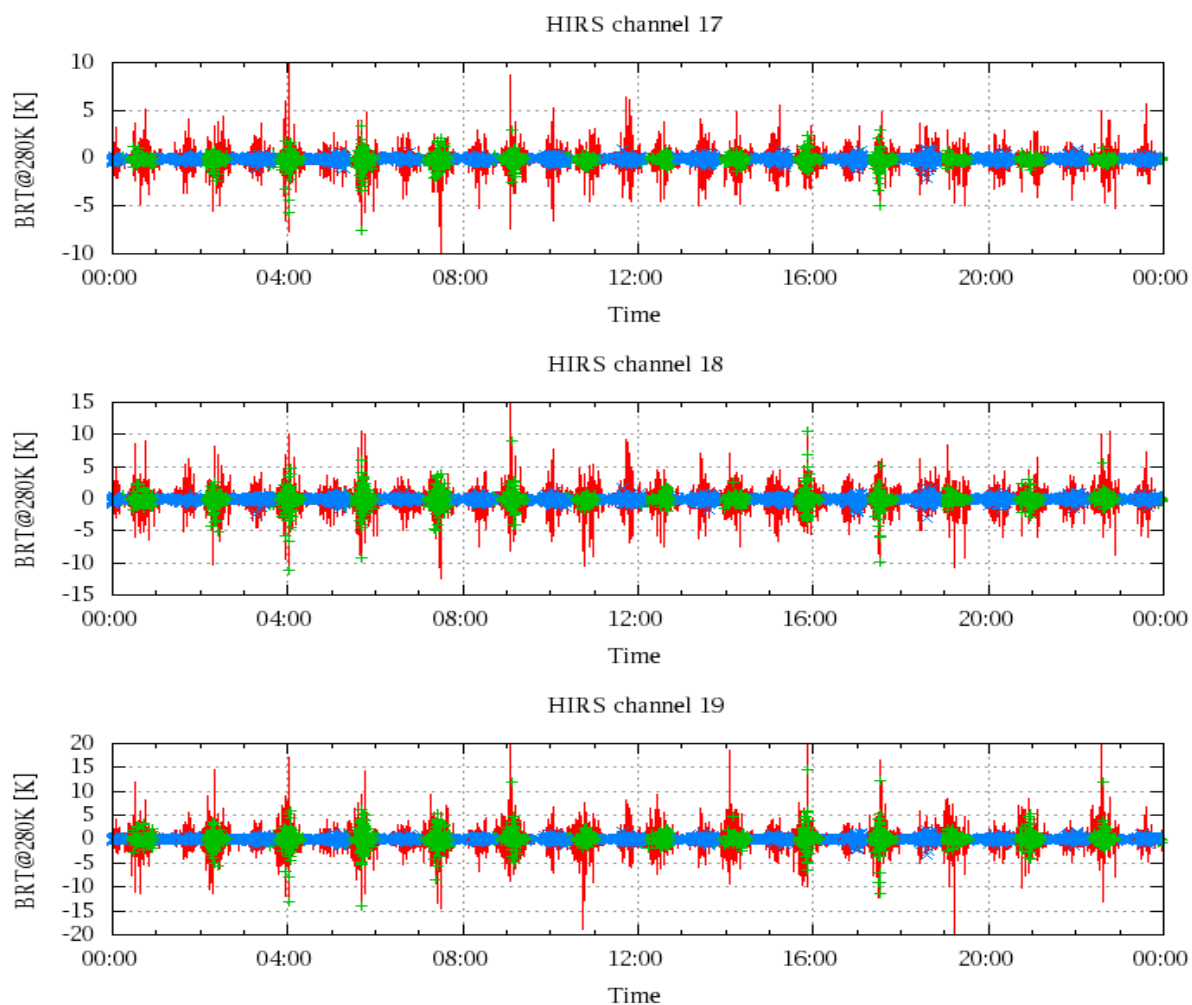


Figure 21: Radinace Differences in BRT