

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

28/06/2011 00:00:00 - 29/06/2011 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 28/06/2011 00:00:00 - 29/06/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 28/06/2011 00:00:00 - 29/06/2011 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	480	-
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)	2338	2489	20110628114725.758	20110628114807.488
PX1 (130)	6861	6867	20110628132021.103	20110628132023.916
PX1 (130)	6874	6876	20110628132025.427	20110628132025.861
PX1 (130)	13634	14306	20110628233259.894	20110628233600.034
PX2 (135)	2338	2489	20110628114725.758	20110628114807.488
PX2 (135)	6861	6867	20110628132021.103	20110628132023.916
PX2 (135)	6870	6872	20110628132024.564	20110628132024.994
PX2 (135)	6890	6893	20110628132028.888	20110628132029.537
PX2 (135)	13634	14306	20110628233259.894	20110628233600.034
PX3 (140)	2338	2489	20110628114725.758	20110628114807.488
PX3 (140)	6861	6867	20110628132021.103	20110628132023.916
PX3 (140)	6869	6871	20110628132024.345	20110628132024.779
PX3 (140)	6885	6888	20110628132027.806	20110628132028.455
PX3 (140)	13634	14306	20110628233259.894	20110628233600.034
PX4 (145)	2338	2489	20110628114725.758	20110628114807.488
PX4 (145)	6860	6866	20110628132020.888	20110628132023.701
PX4 (145)	13634	14306	20110628233259.894	20110628233600.034
IMG (150)	15354	15529	20110628114725.758	20110628114807.488

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	6280	6291	20110628132020.888	20110628132023.916
IMG (150)	6313	6315	20110628132028.670	20110628132029.103
IMG (150)	15050	15814	20110628233259.894	20110628233600.034
VER (160)	12177	12208	20110628114717.758	20110628114813.758
VER (160)	5869	5985	20110628233253.625	20110628233605.656
AUX (180)	15541	15548	20110628114718.191	20110628114814.187
AUX (180)	4449	4473	20110628233254.058	20110628233606.089

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
28/06/2011 00:00:01	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	480	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	481	-
GQisFlagQual set (PX1)	99.18 %	-
GQisFlagQual set (PX2)	98.98 %	-
GQisFlagQual set (PX3)	99.09 %	-
GQisFlagQual set (PX4)	99.21 %	-
GQisFlagQual set (all)	99.11 %	-

Table 4: Quality flags

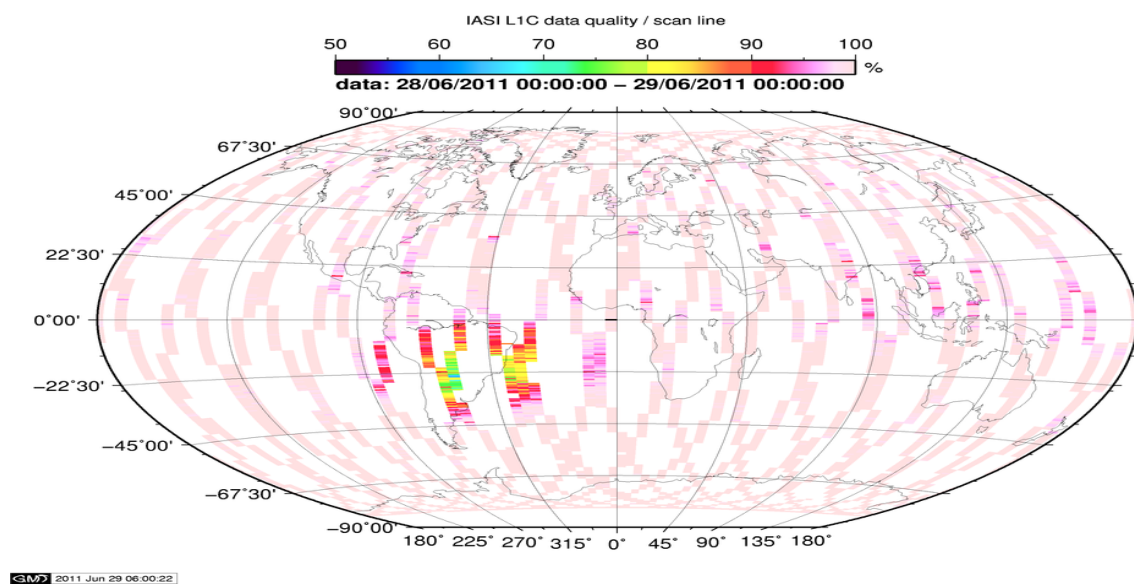


Figure 1: L1C data quality

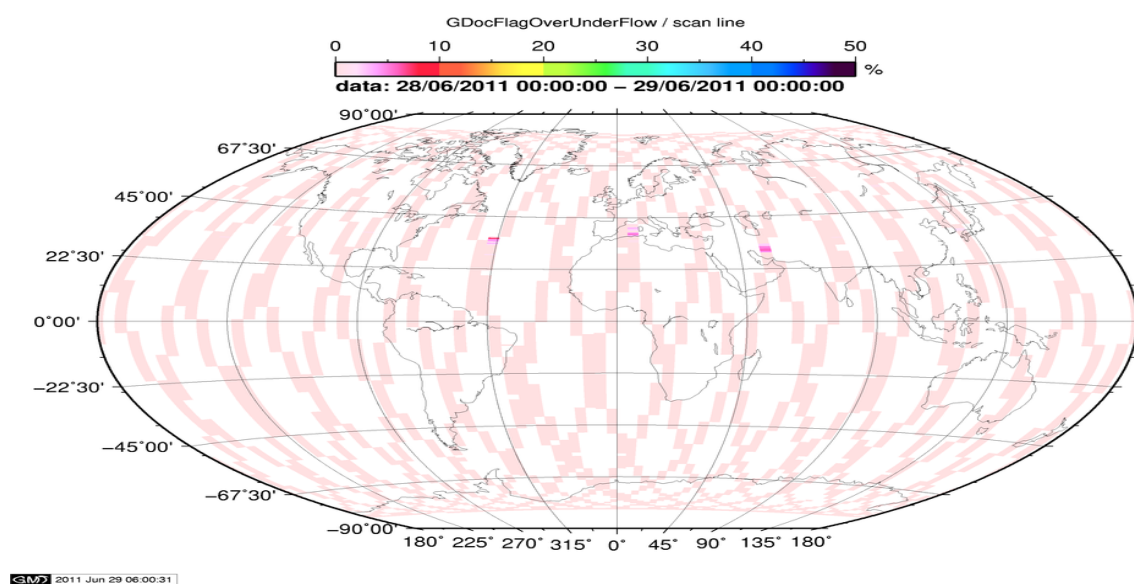


Figure 2: Flag of Over and Under Flows

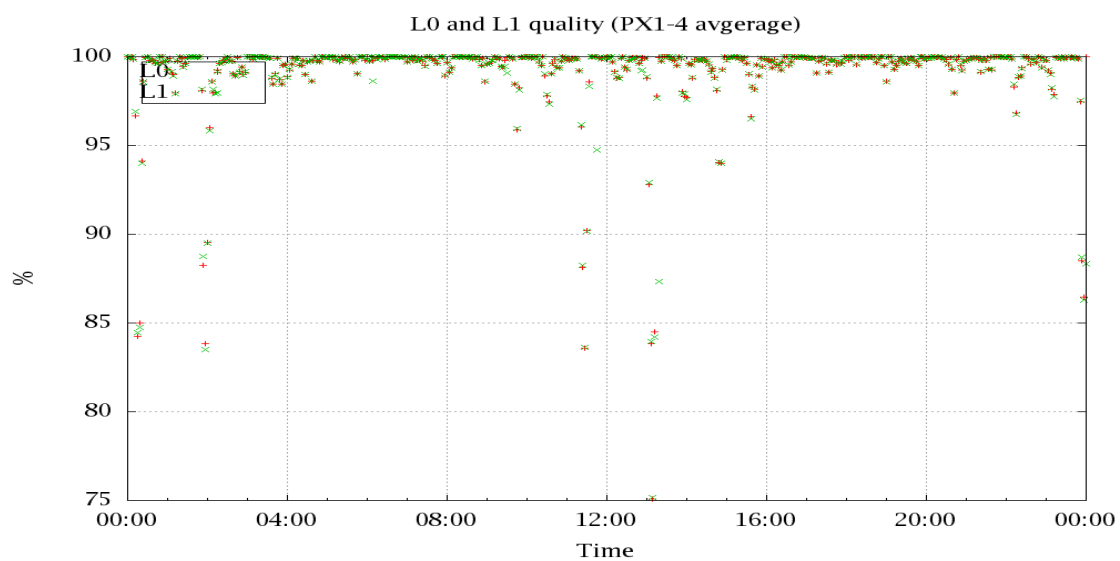


Figure 3: Level 0 and 1C overall quality

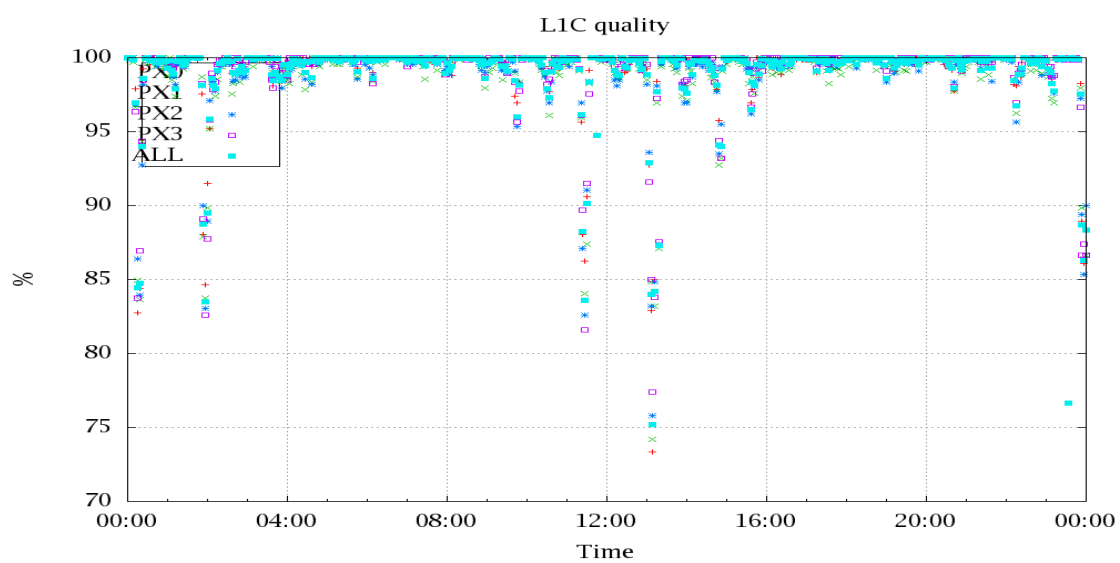


Figure 4: Level 1C quality

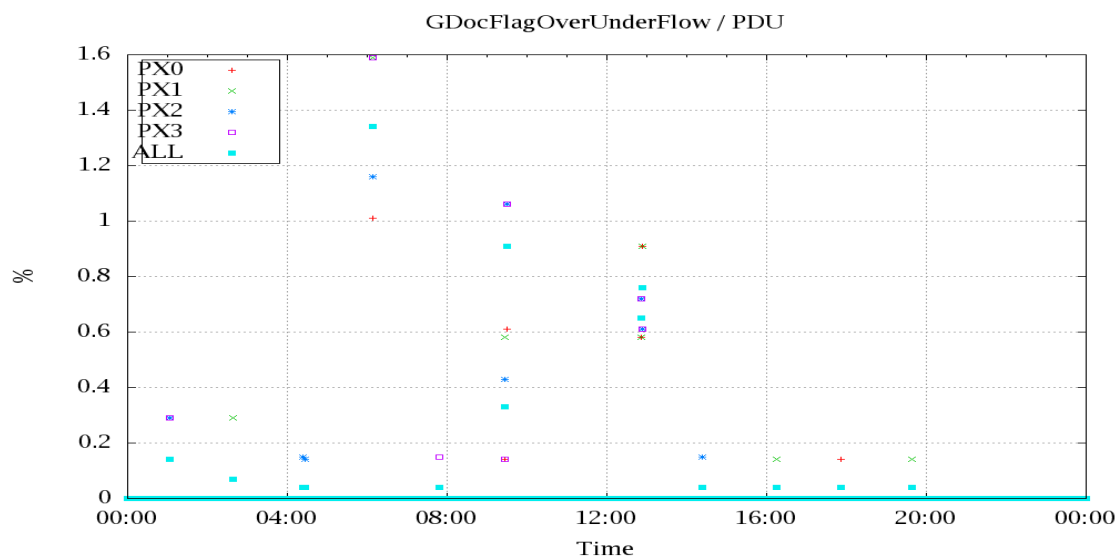


Figure 5: OverUnderFlowFlag timeseries

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.

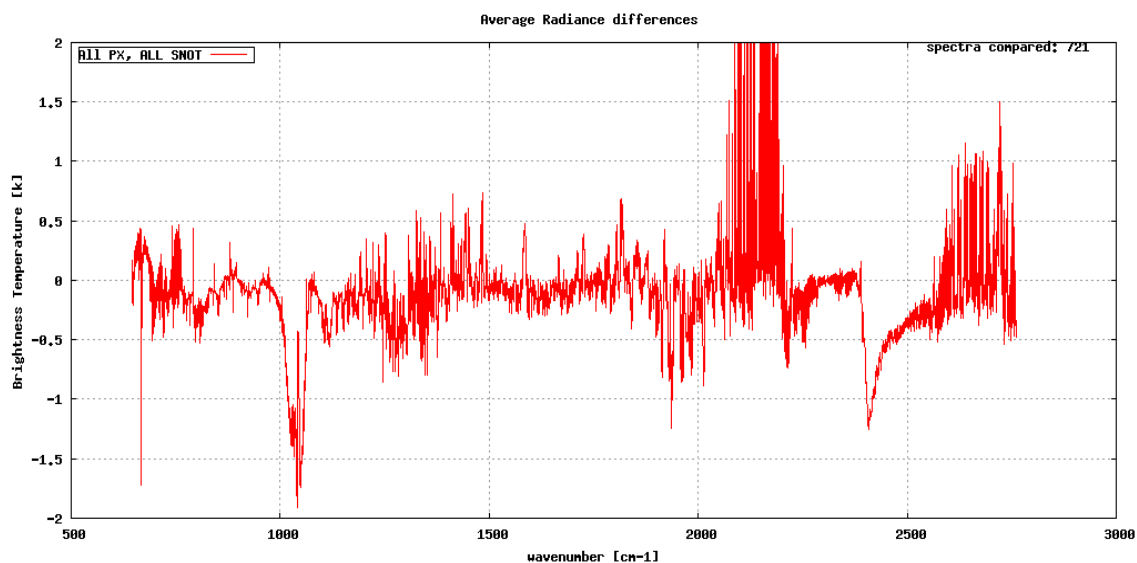


Figure 6: Average Radiance differences: OBS-CAL

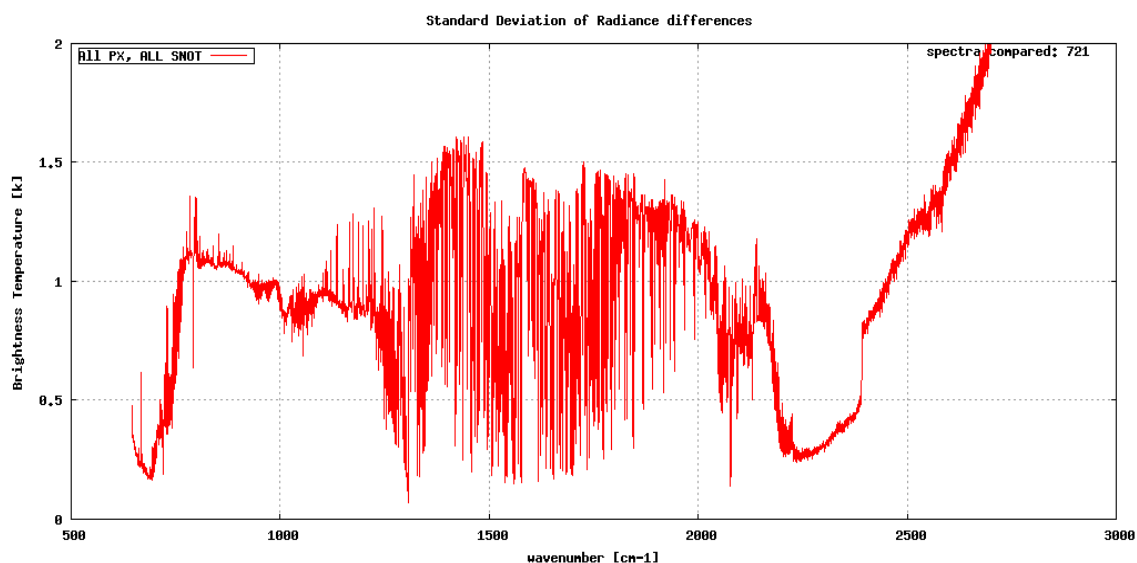


Figure 7: Standard Deviation of Radiance differences

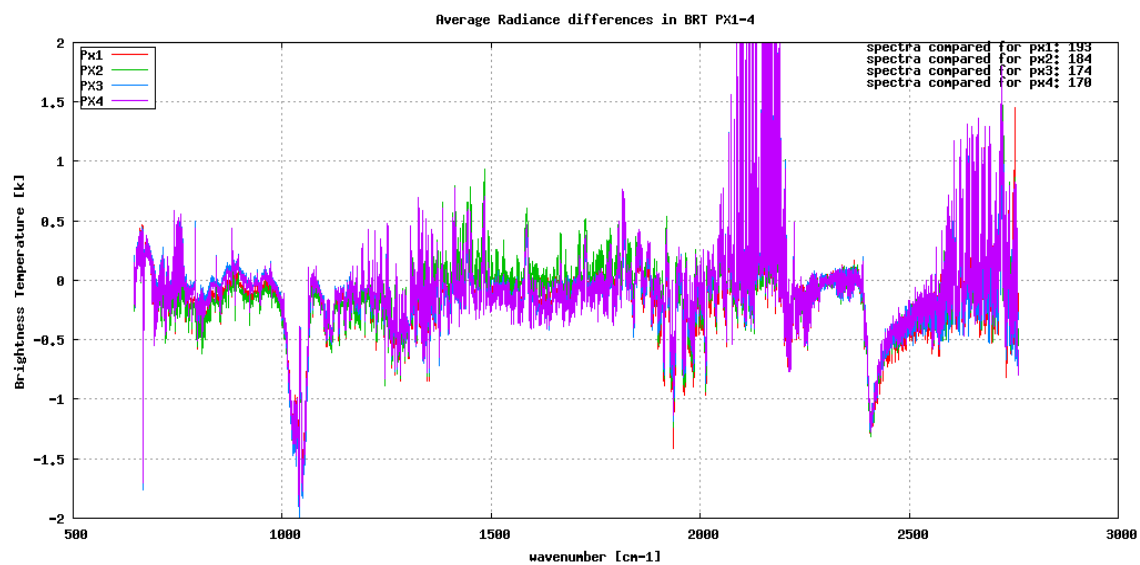


Figure 8: Average Radiance differences: OBS-CAL

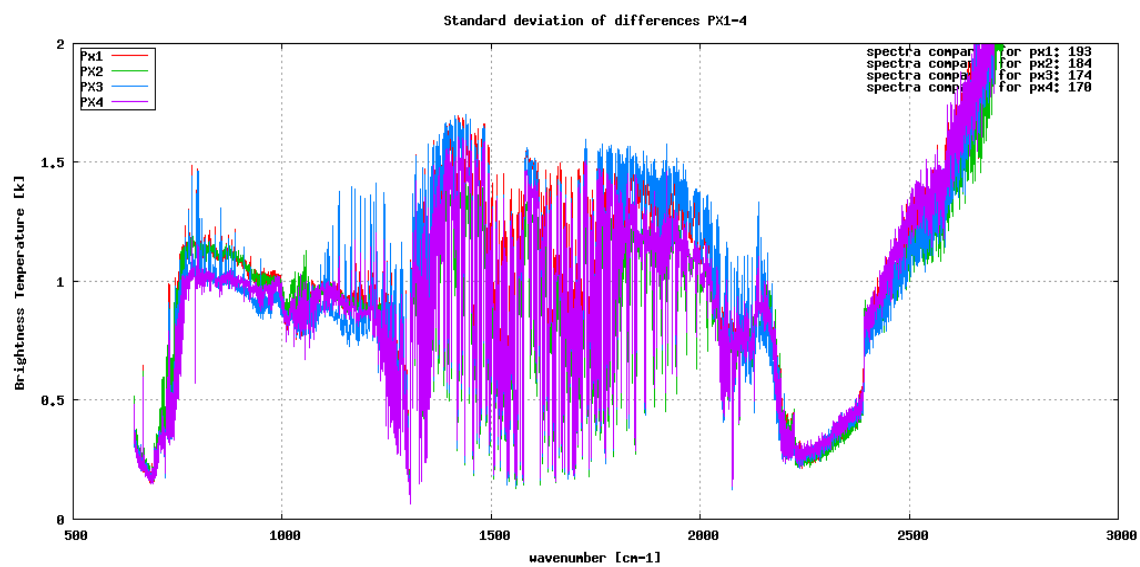


Figure 9: Standard Deviation of Radiance differences

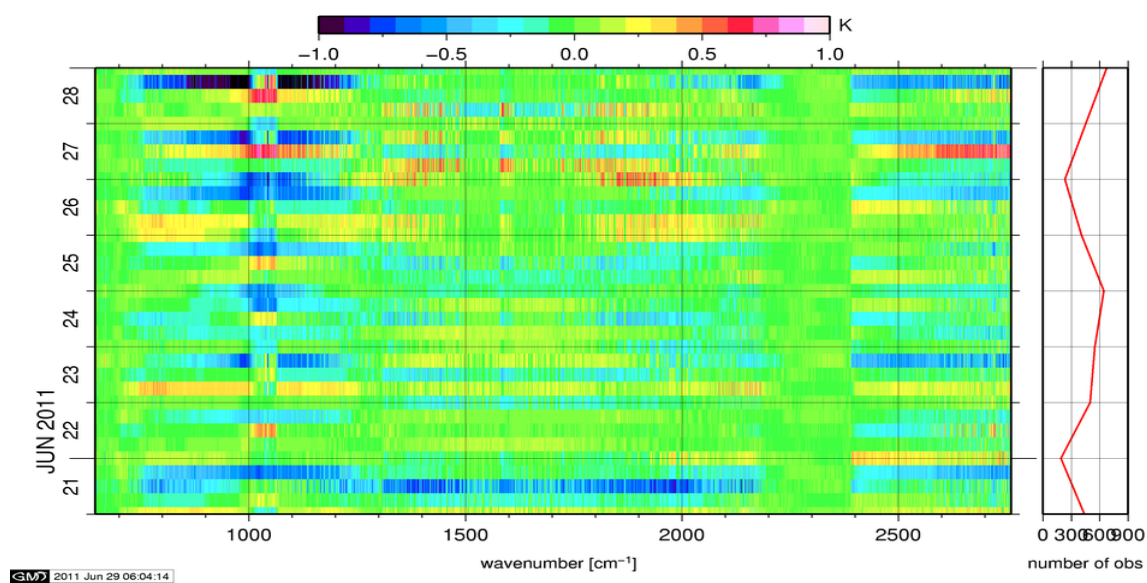


Figure 10: Radiance Anomaly in BRT: All Channels

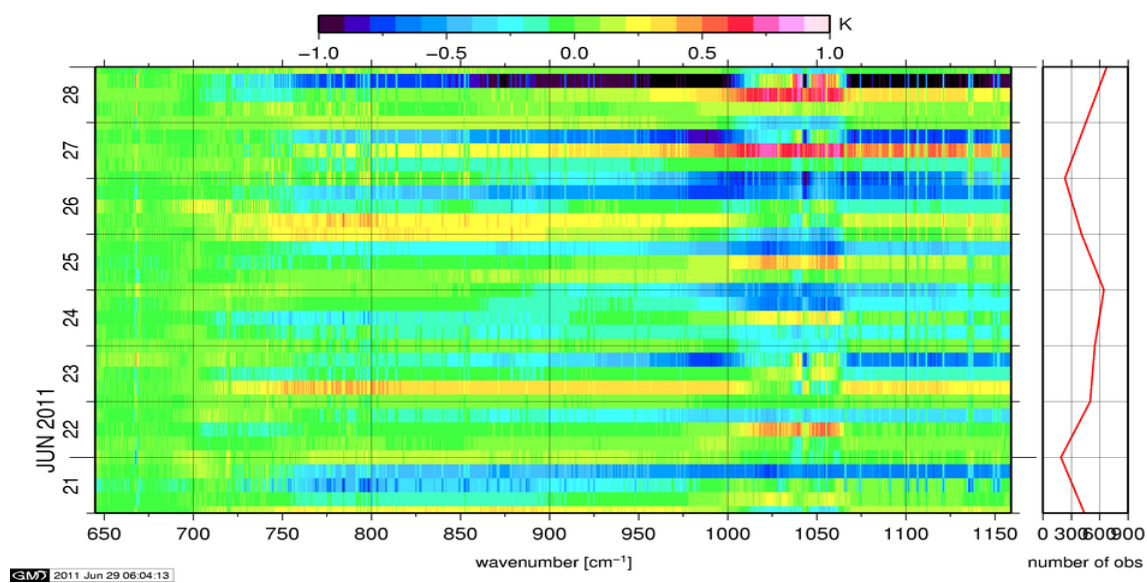


Figure 11: Radiance Anomaly in BRT: IASI Band 1

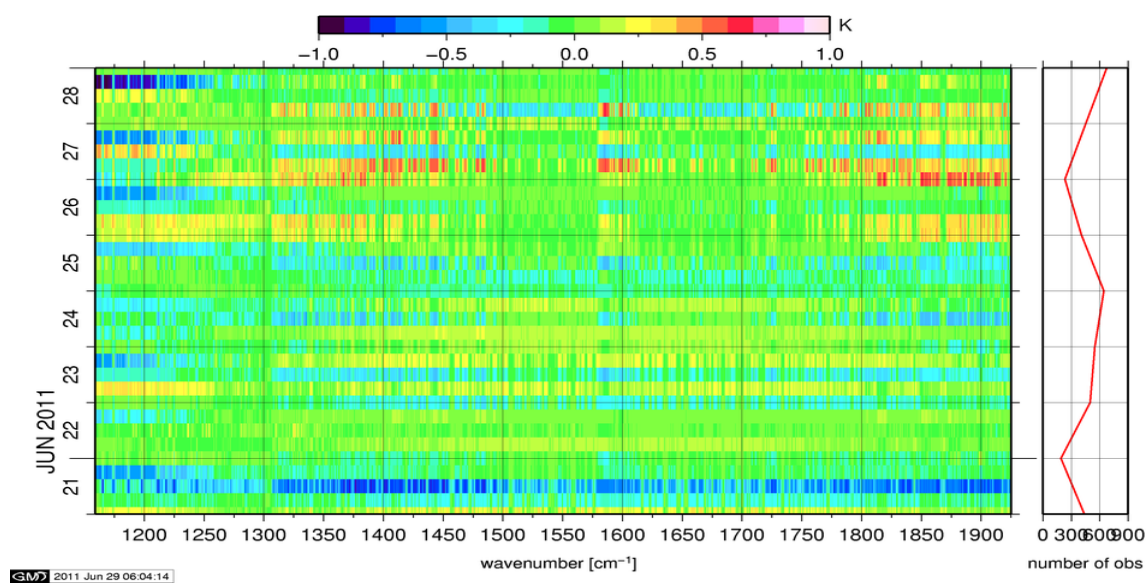


Figure 12: Radiance Anomaly in BRT: IASI Band 2

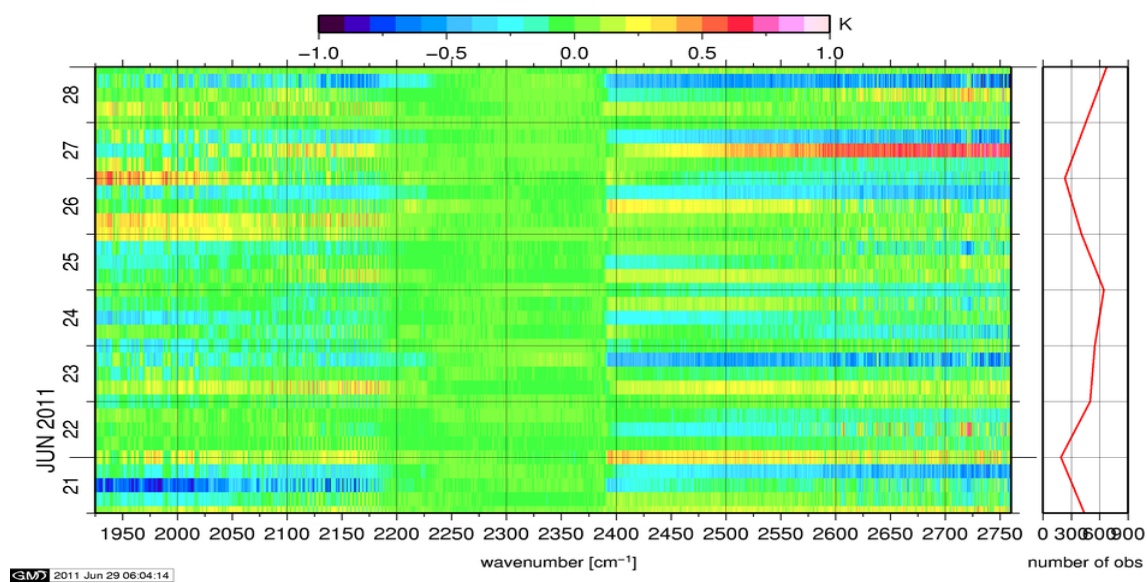


Figure 13: Radiance Anomaly in BRT: IASI Band 3

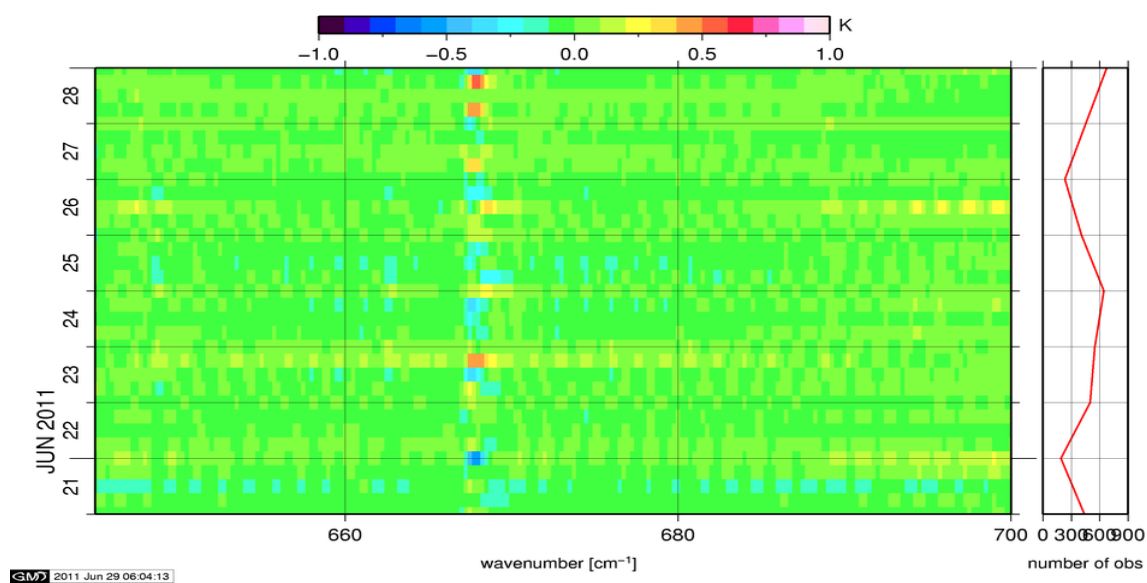


Figure 14: Radiance Anomaly in BRT: CO2 14

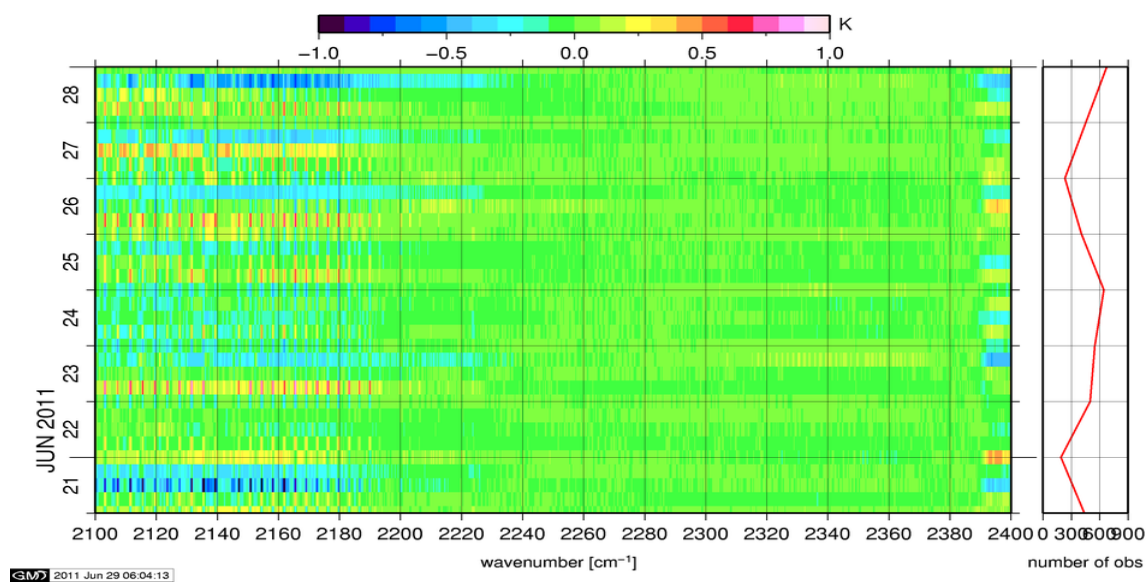


Figure 15: Radiance Anomaly in BRT: CO2 4.3

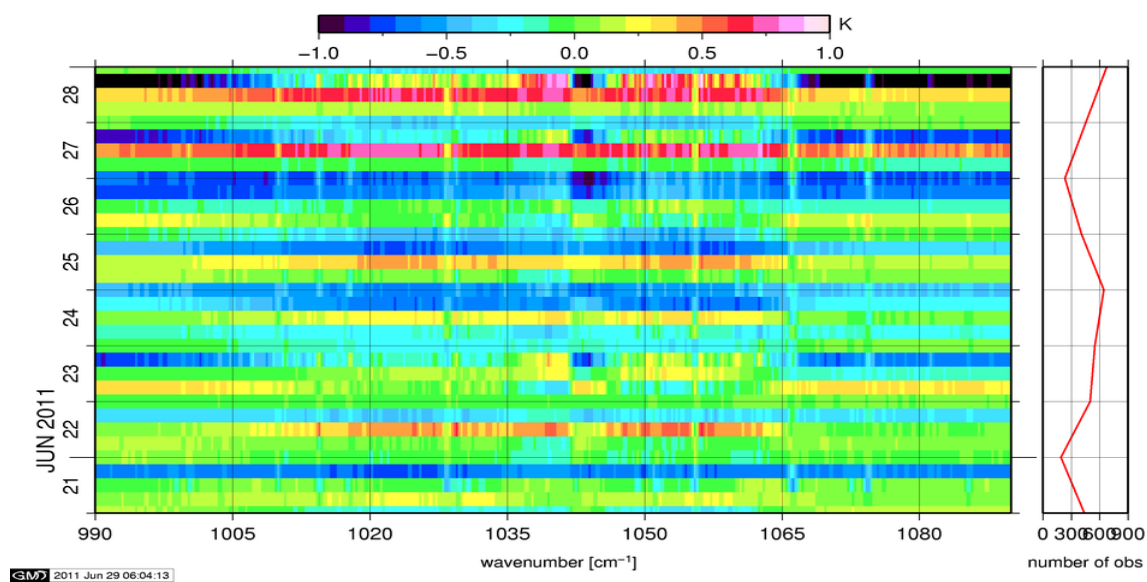


Figure 16: Radiance Anomaly in BRT: O3

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.

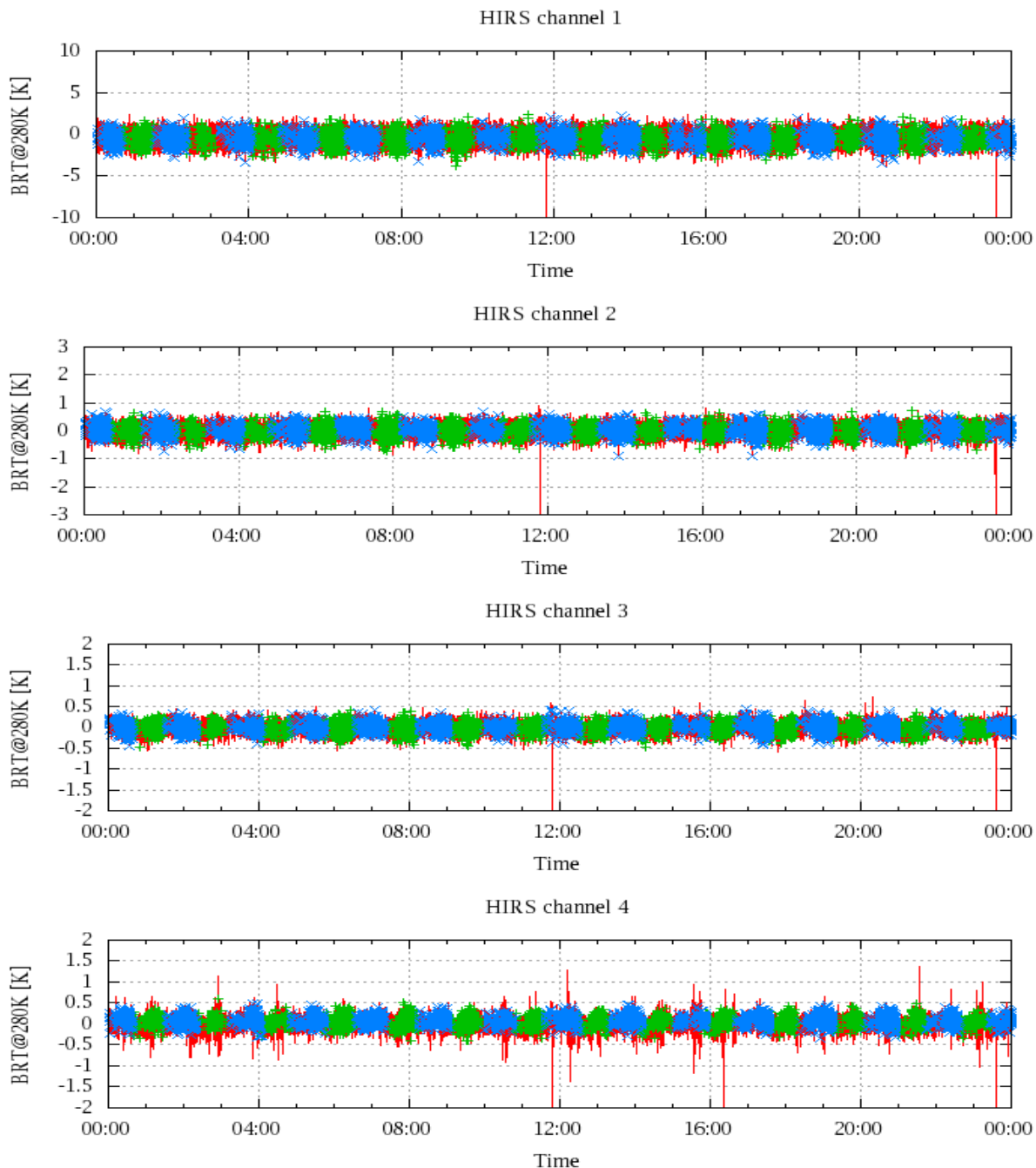


Figure 17: Radiance Differences in BRT

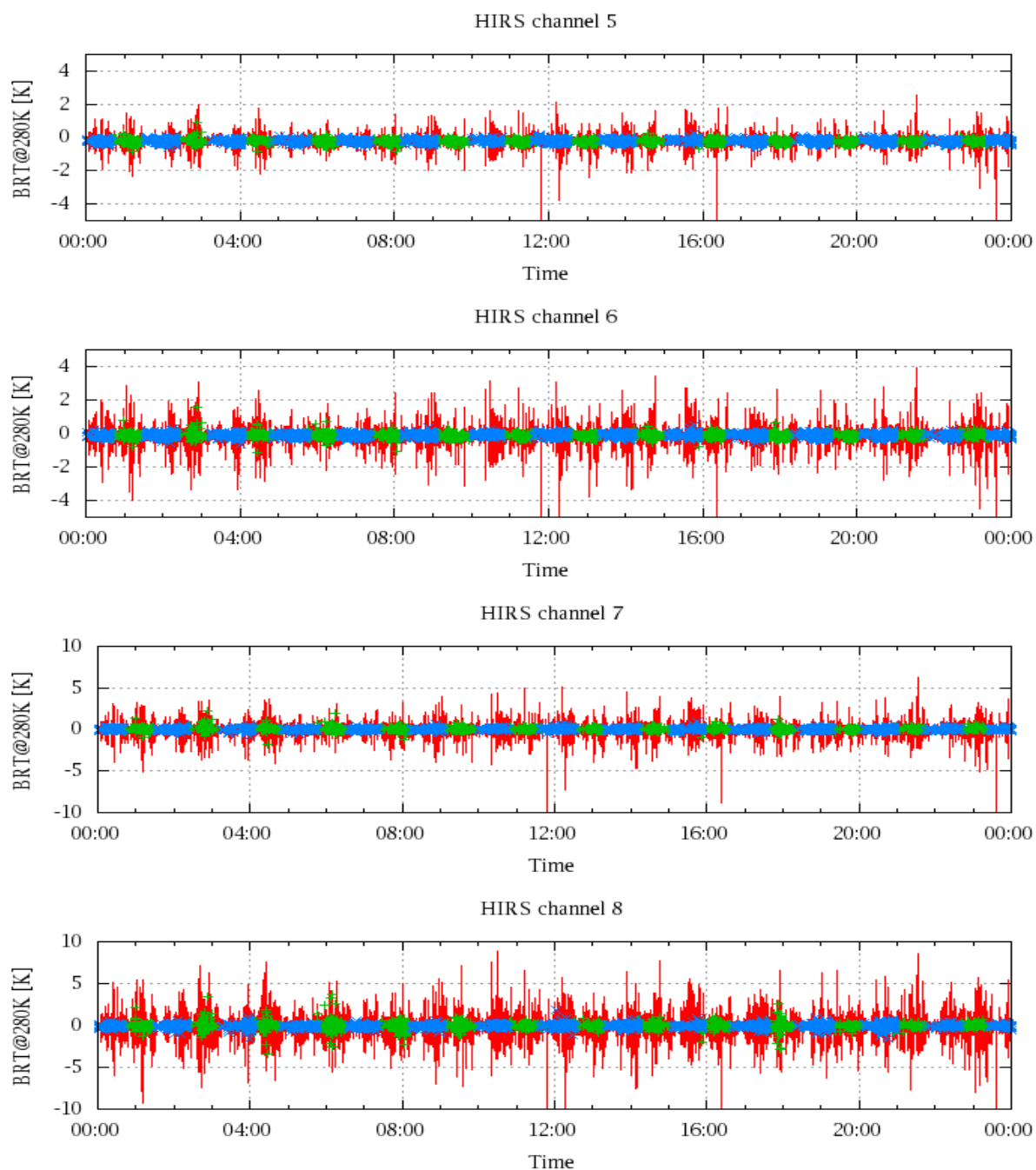


Figure 18: Radiance Differences in BRT

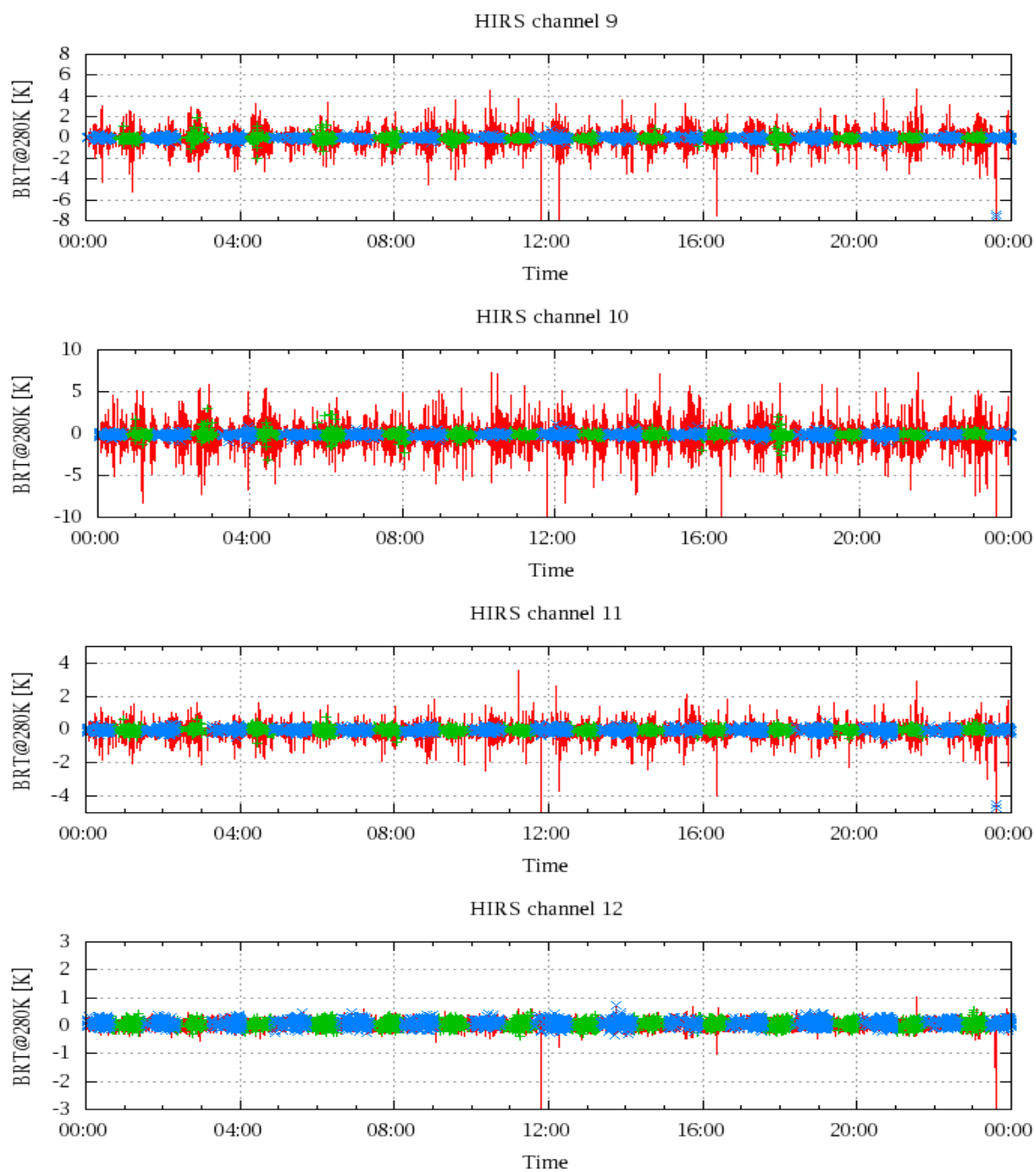


Figure 19: Radiance Differences in BRT

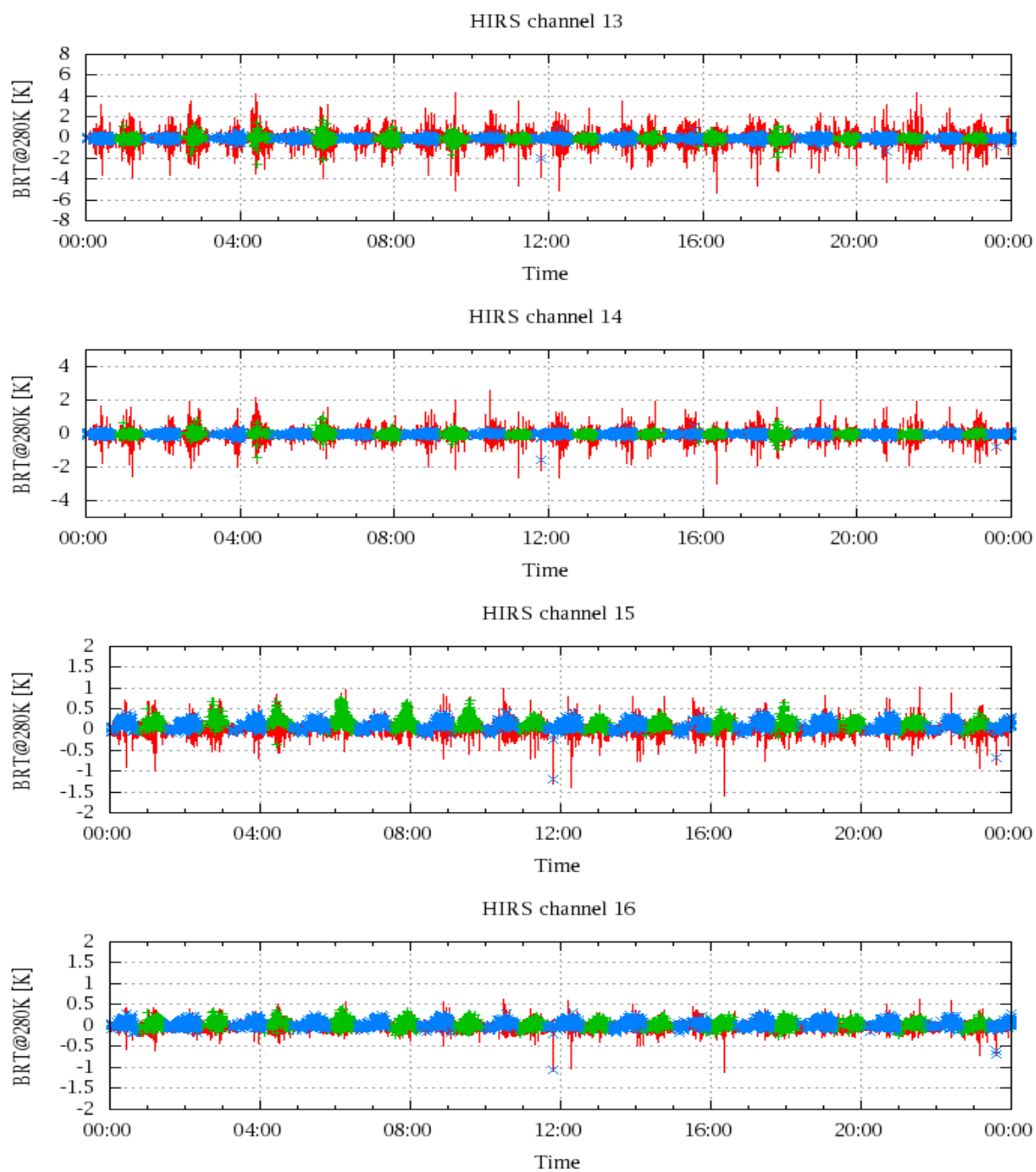


Figure 20: Radiance Differences in BRT

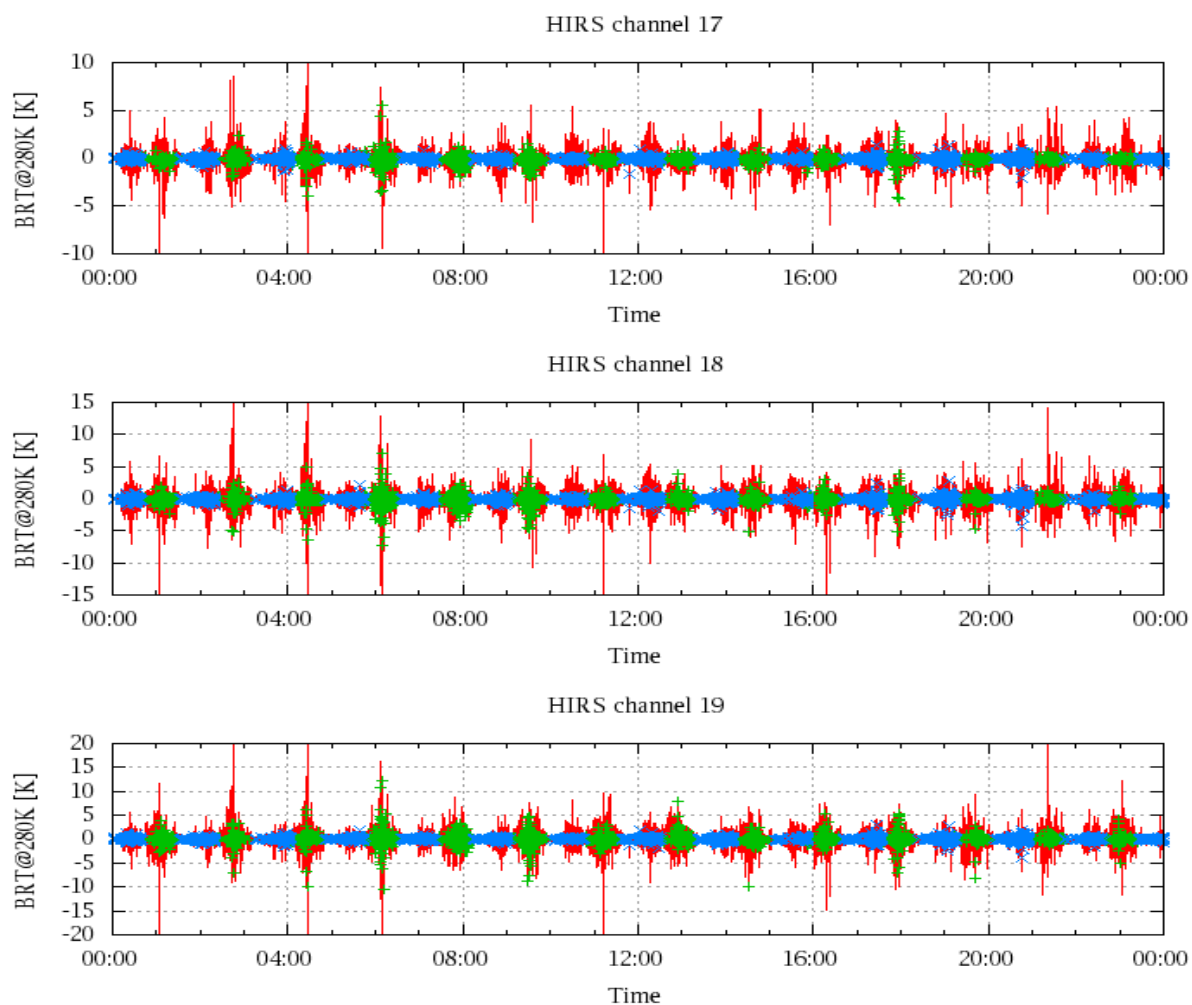


Figure 21: Radinace Differences in BRT