

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

24/02/2011 00:00:00 - 25/02/2011 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 24/02/2011 00:00:00 - 25/02/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 24/02/2011 00:00:00 - 25/02/2011 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	479	-
L0 IASI PDUs	479	-
L1 ENG PDUs	478	-
L1 ENG distinct GEPSGranule	479	-
L1 DPX PDUs (RM: IASI-HIRS)	476	-
L1 DPS Files (RM: OBS-CAL NWP based)	478	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	8777	9975	20110224075826.096	20110224080345.654
PX1 (130)	9975	9981	20110224080345.654	20110224080346.951
PX1 (130)	9981	10024	20110224080346.951	20110224080357.760
PX1 (130)	10024	10031	20110224080357.760	20110224080359.275
PX1 (130)	10031	10059	20110224080359.275	20110224080406.842
PX1 (130)	7826	9068	20110224101949.756	20110224102521.857
PX2 (135)	8776	9993	20110224075825.878	20110224080349.545
PX2 (135)	9993	10012	20110224080349.545	20110224080355.166
PX2 (135)	10012	10025	20110224080355.166	20110224080357.978
PX2 (135)	10025	10058	20110224080357.978	20110224080406.627
PX2 (135)	10093	10095	20110224080415.709	20110224080417.654
PX2 (135)	7826	9068	20110224101949.756	20110224102521.857
PX3 (140)	8776	10010	20110224075825.878	20110224080354.732
PX3 (140)	10010	10057	20110224080354.732	20110224080406.408
PX3 (140)	10069	10071	20110224080410.517	20110224080410.951
PX3 (140)	7826	9068	20110224101949.756	20110224102521.857
PX4 (145)	8776	10058	20110224075825.878	20110224080406.627
PX4 (145)	10071	10073	20110224080410.951	20110224080411.385

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	7826	9068	20110224101949.756	20110224102521.857
IMG (150)	2296	3746	20110224075825.878	20110224080406.627
IMG (150)	3750	3752	20110224080407.490	20110224080408.138
IMG (150)	3752	3756	20110224080408.138	20110224080409.435
IMG (150)	3756	3758	20110224080409.435	20110224080409.869
IMG (150)	3760	3762	20110224080410.302	20110224080410.732
IMG (150)	5585	6995	20110224101949.542	20110224102521.639
VER (160)	4189	4403	20110224075823.717	20110224080407.705
VER (160)	9489	9700	20110224101943.706	20110224102527.693
AUX (180)	10667	10710	20110224075824.151	20110224080408.138
AUX (180)	11727	11770	20110224101944.135	20110224102528.127

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
24/02/2011 00:00:11	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	479	-
L1 ENG PDUs	478	-
L1 ENG distinct GEPSSGranule	479	-
GQisFlagQual set (PX1)	99.23 %	-
GQisFlagQual set (PX2)	99.06 %	-
GQisFlagQual set (PX3)	99.18 %	-
GQisFlagQual set (PX4)	99.30 %	-
GQisFlagQual set (all)	99.19 %	-

Table 4: Quality flags

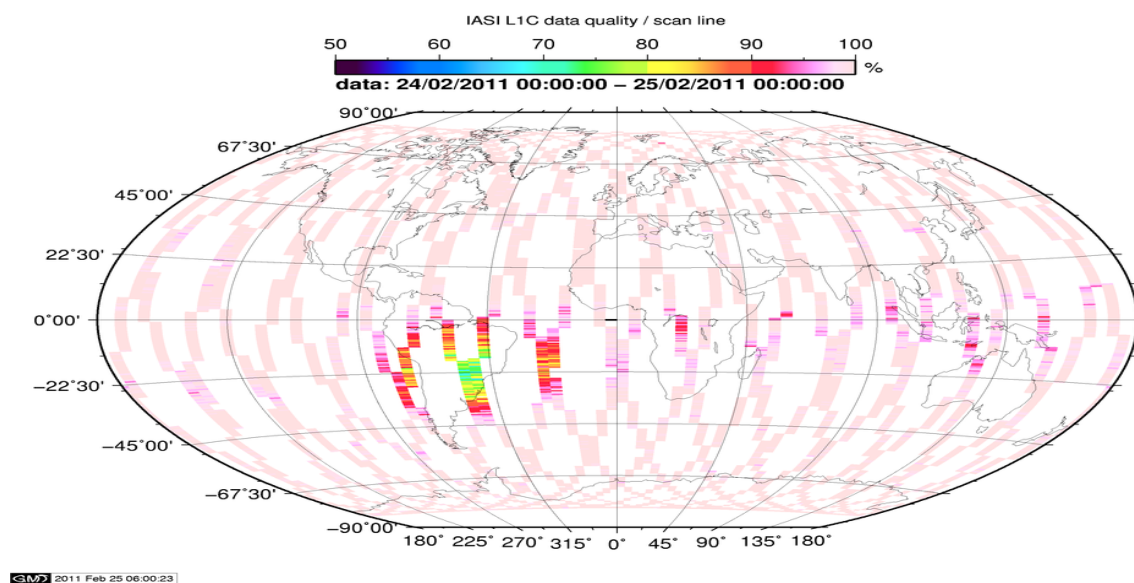


Figure 1: L1C data quality

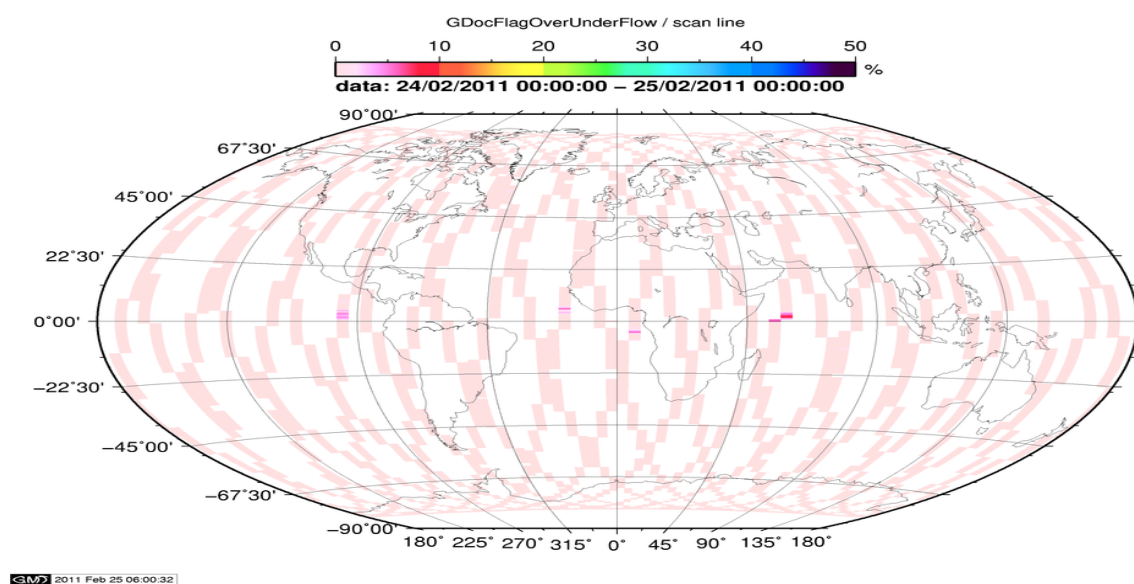


Figure 2: Flag of Over and Under Flows

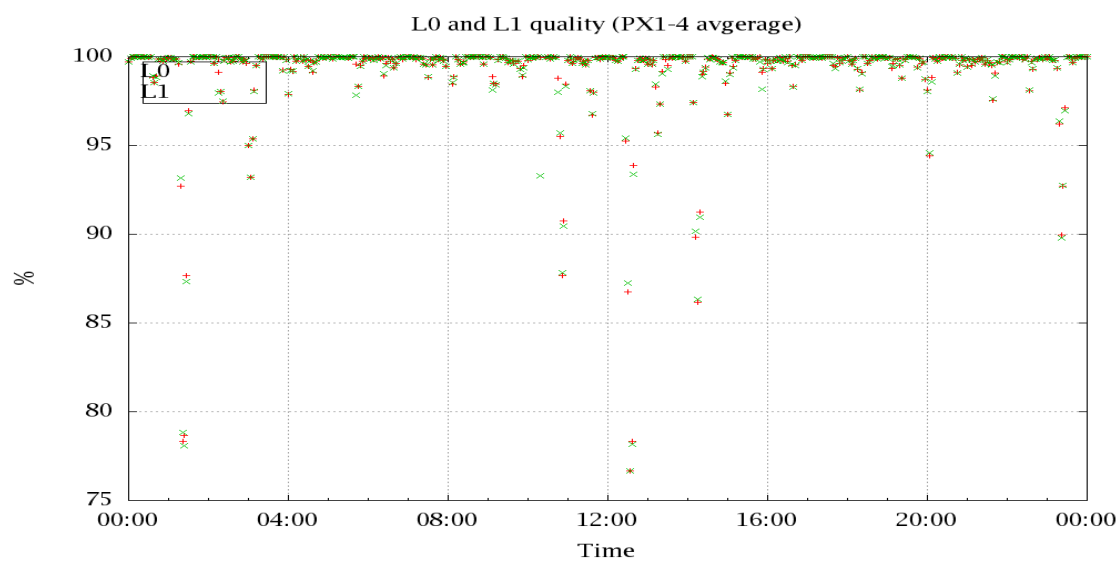


Figure 3: Level 0 and 1C overall quality

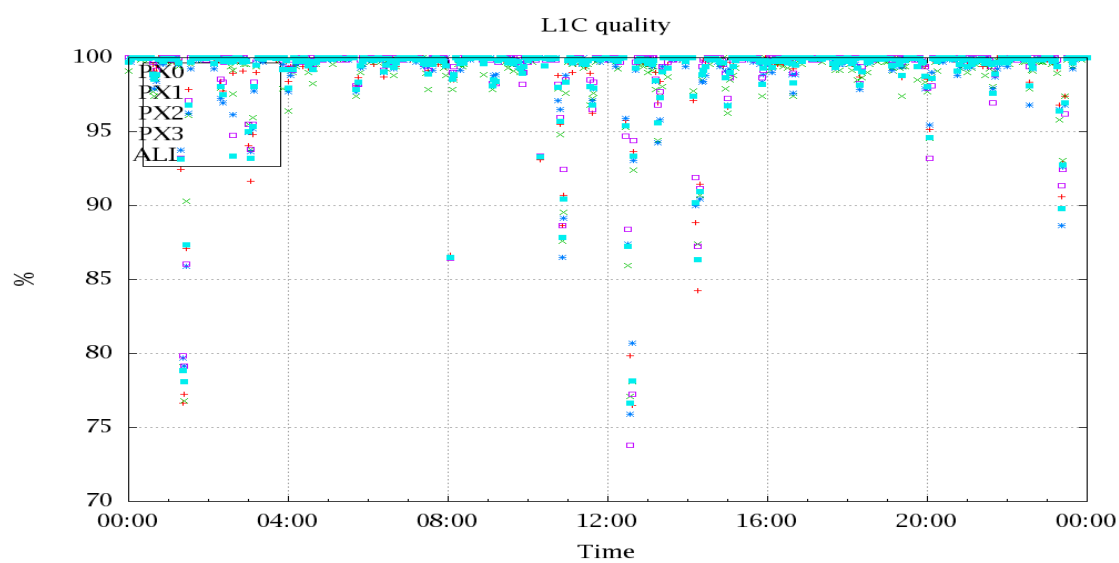


Figure 4: Level 1C quality

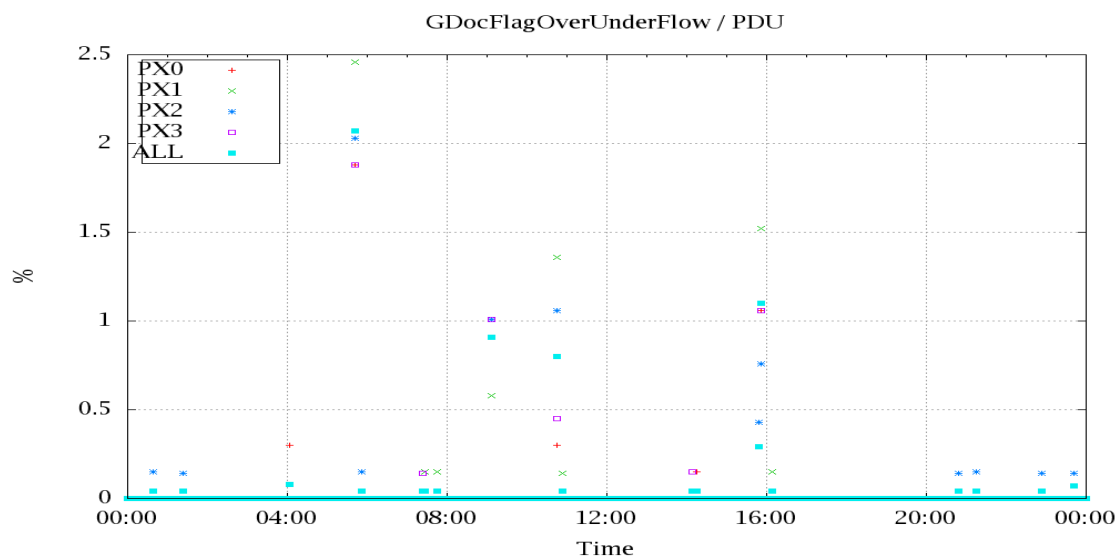


Figure 5: OverUnderFlowFlag timeseries

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.

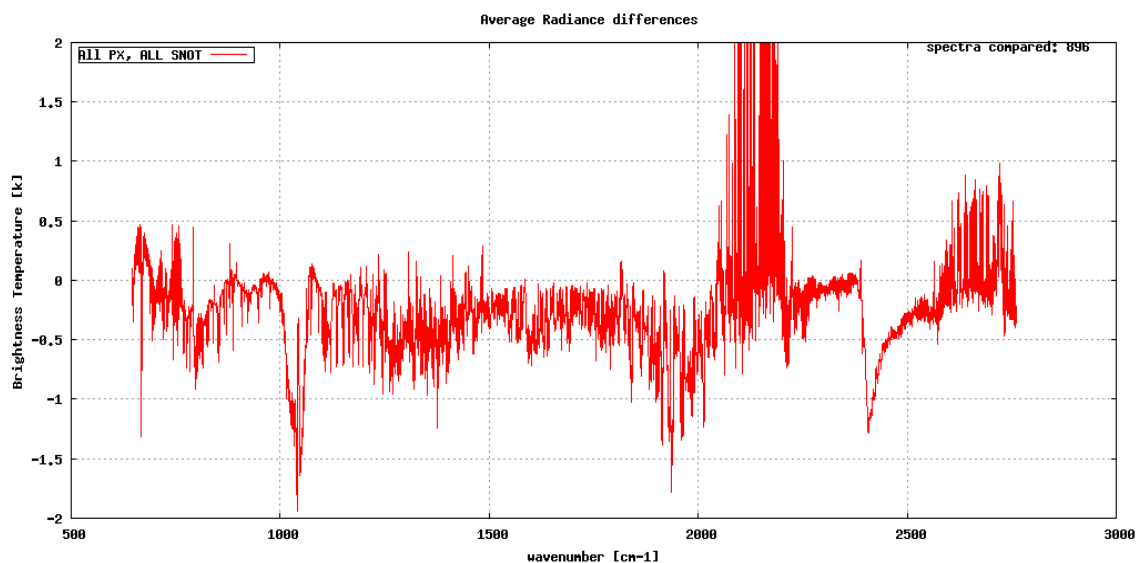


Figure 6: Average Radiance differences: OBS-CAL

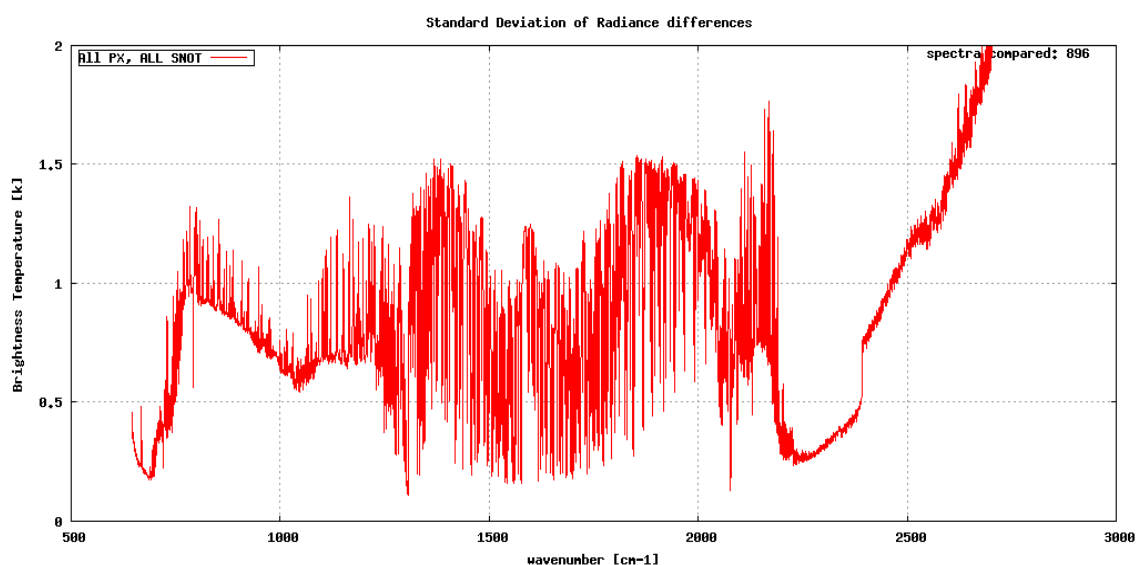


Figure 7: Standard Deviation of Radiance differences

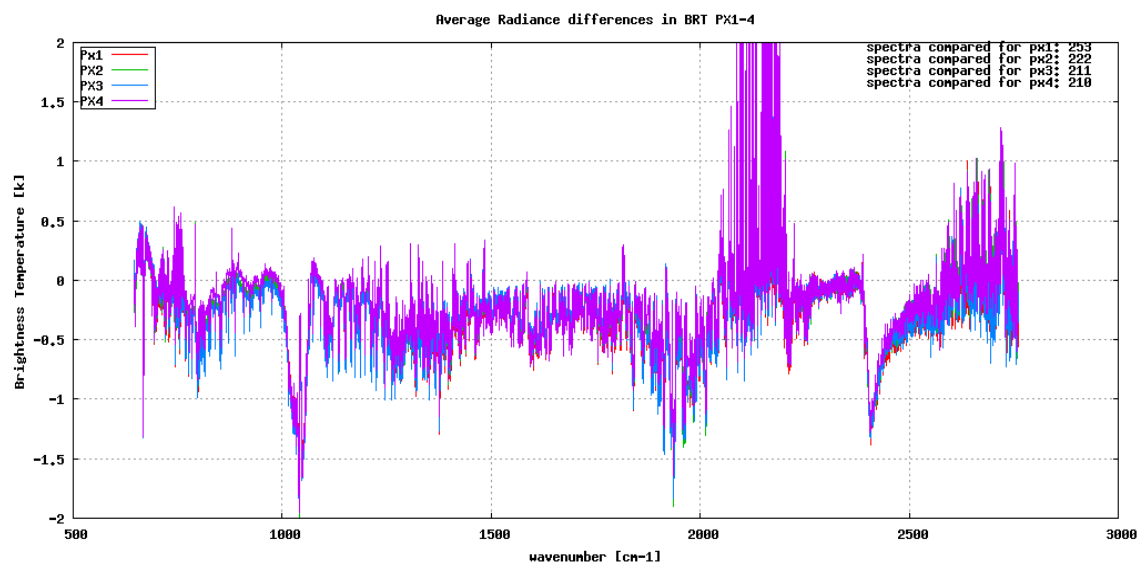


Figure 8: Average Radiance differences: OBS-CAL

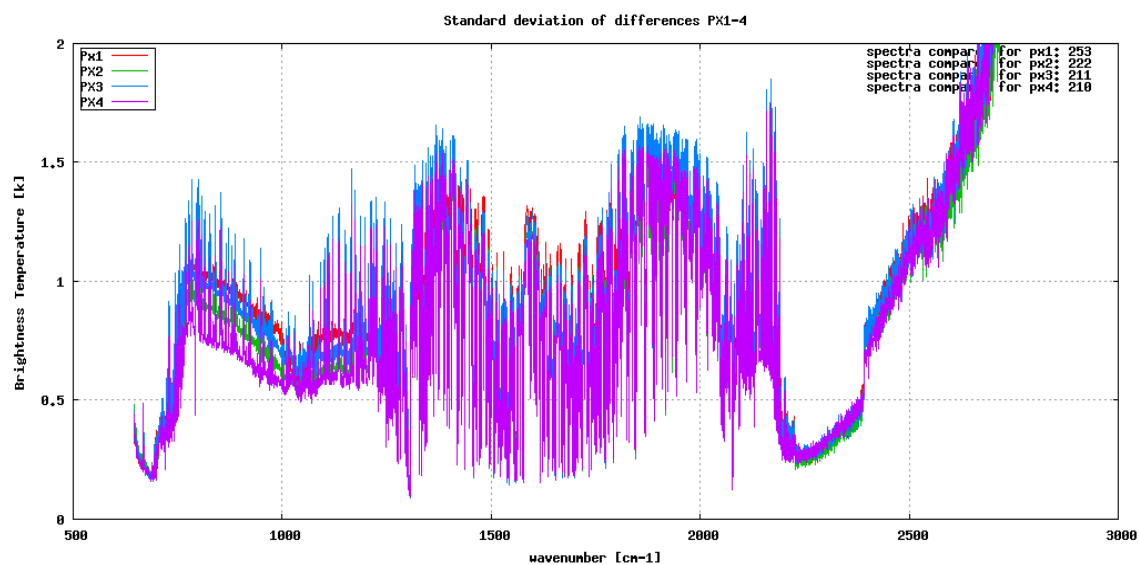


Figure 9: Standard Deviation of Radiance differences

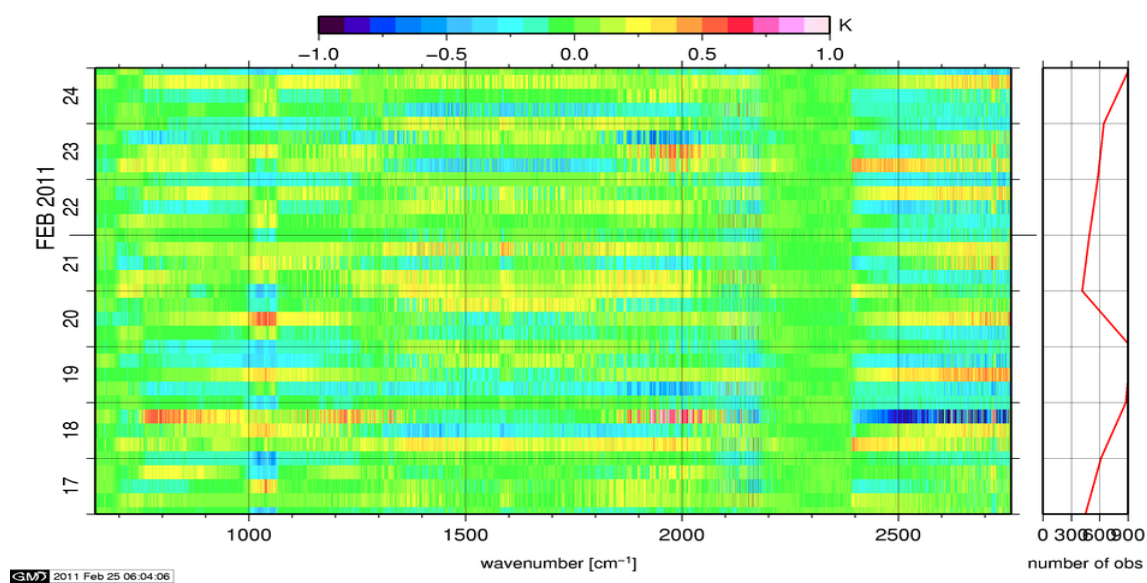


Figure 10: Radiance Anomaly in BRT: All Channels

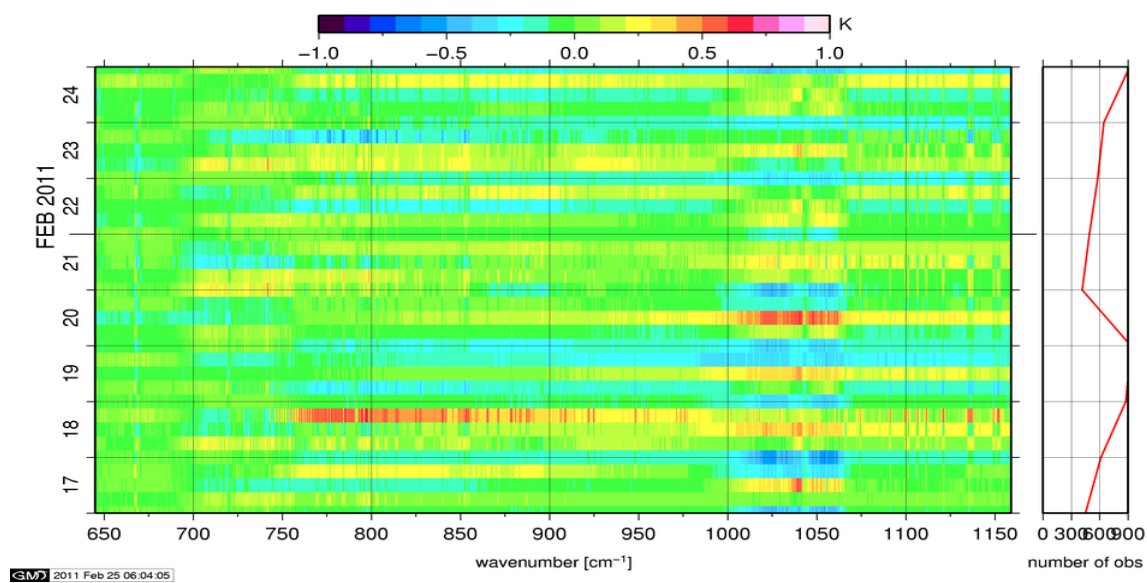


Figure 11: Radiance Anomaly in BRT: IASI Band 1

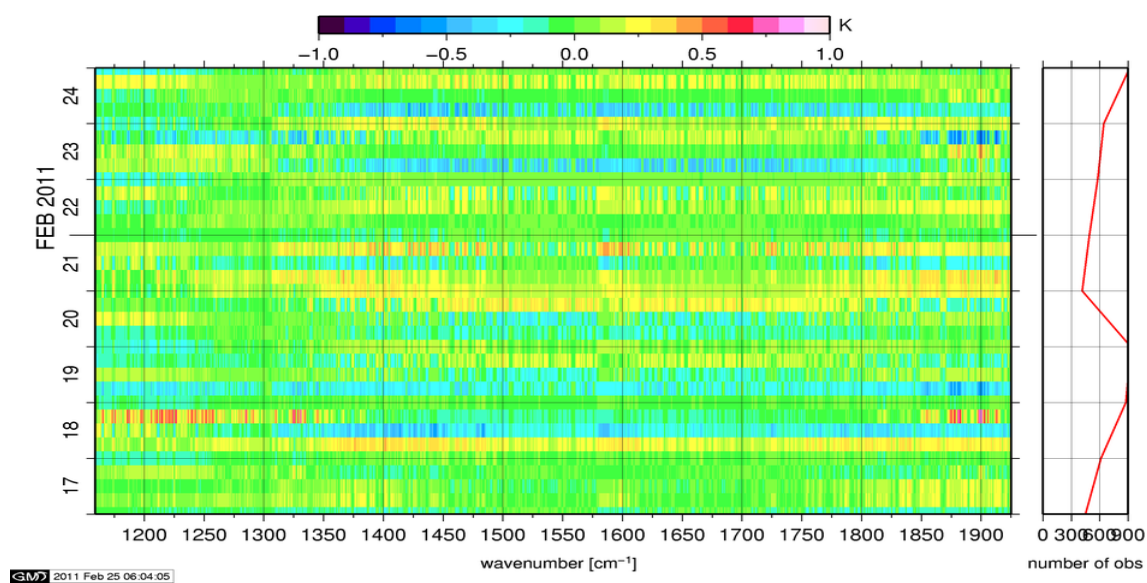


Figure 12: Radiance Anomaly in BRT: IASI Band 2

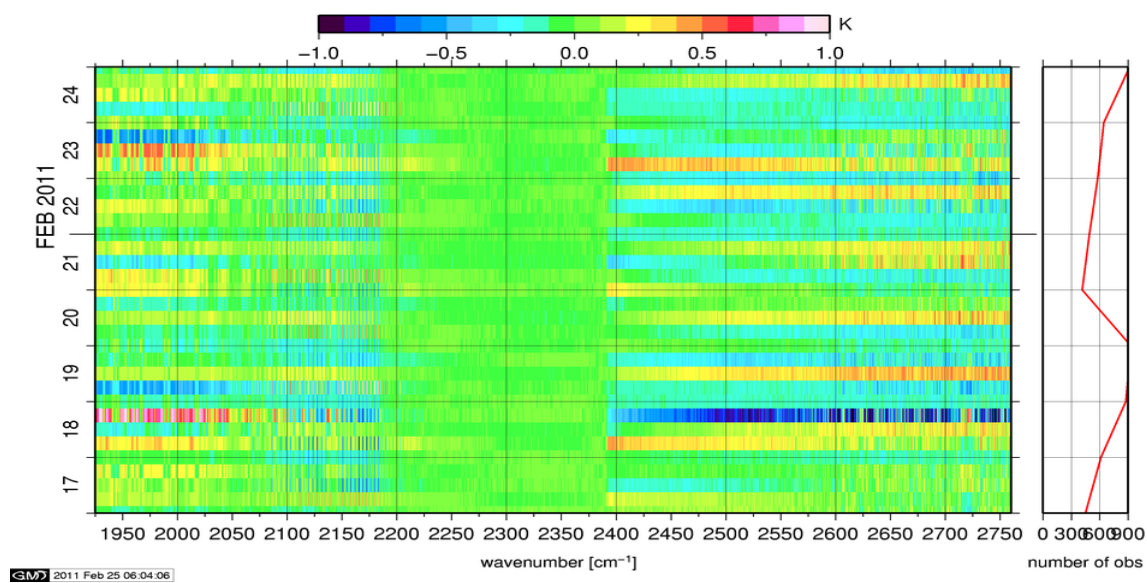


Figure 13: Radiance Anomaly in BRT: IASI Band 3

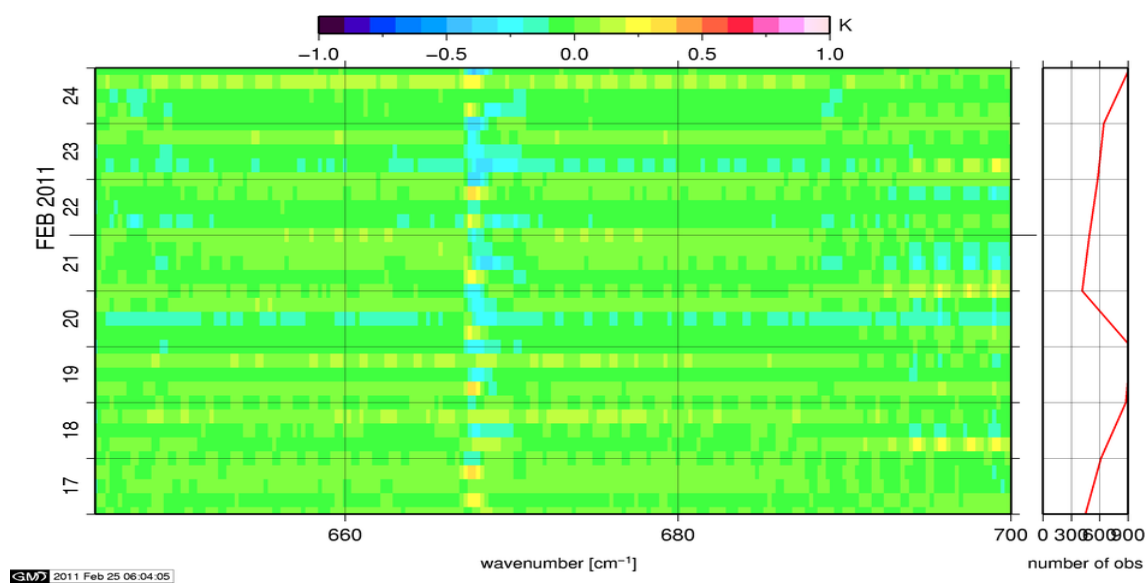


Figure 14: Radiance Anomaly in BRT: CO2 14

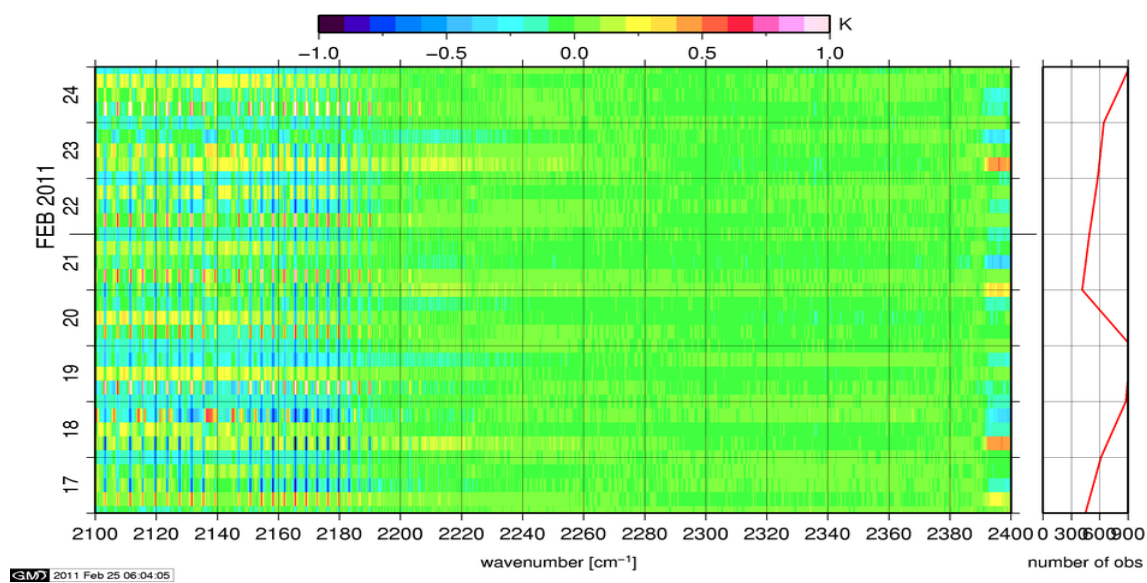


Figure 15: Radiance Anomaly in BRT: CO2 4.3

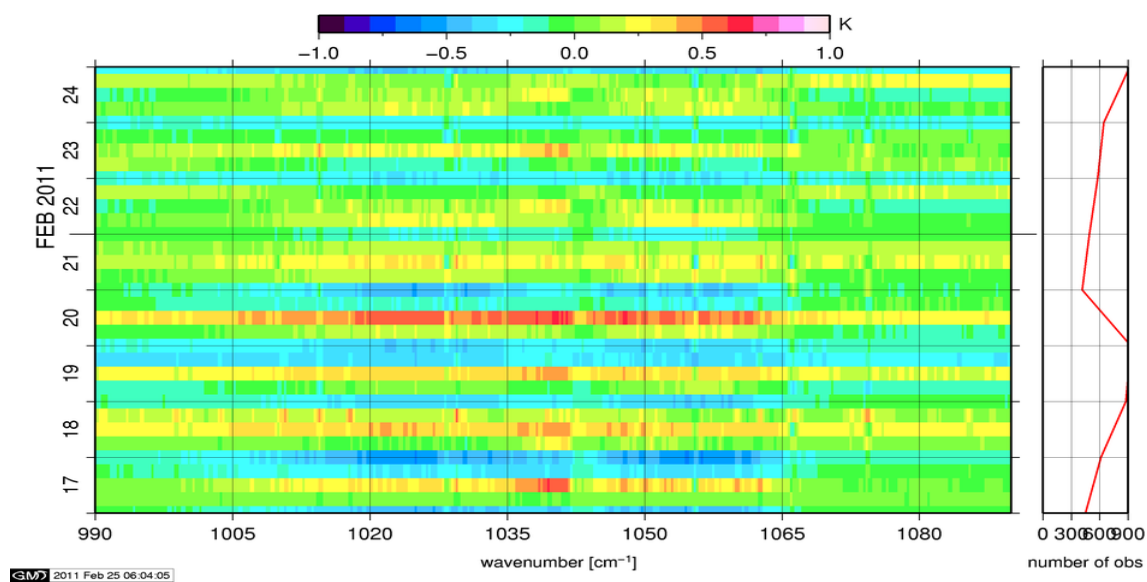


Figure 16: Radiance Anomaly in BRT: O3

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.

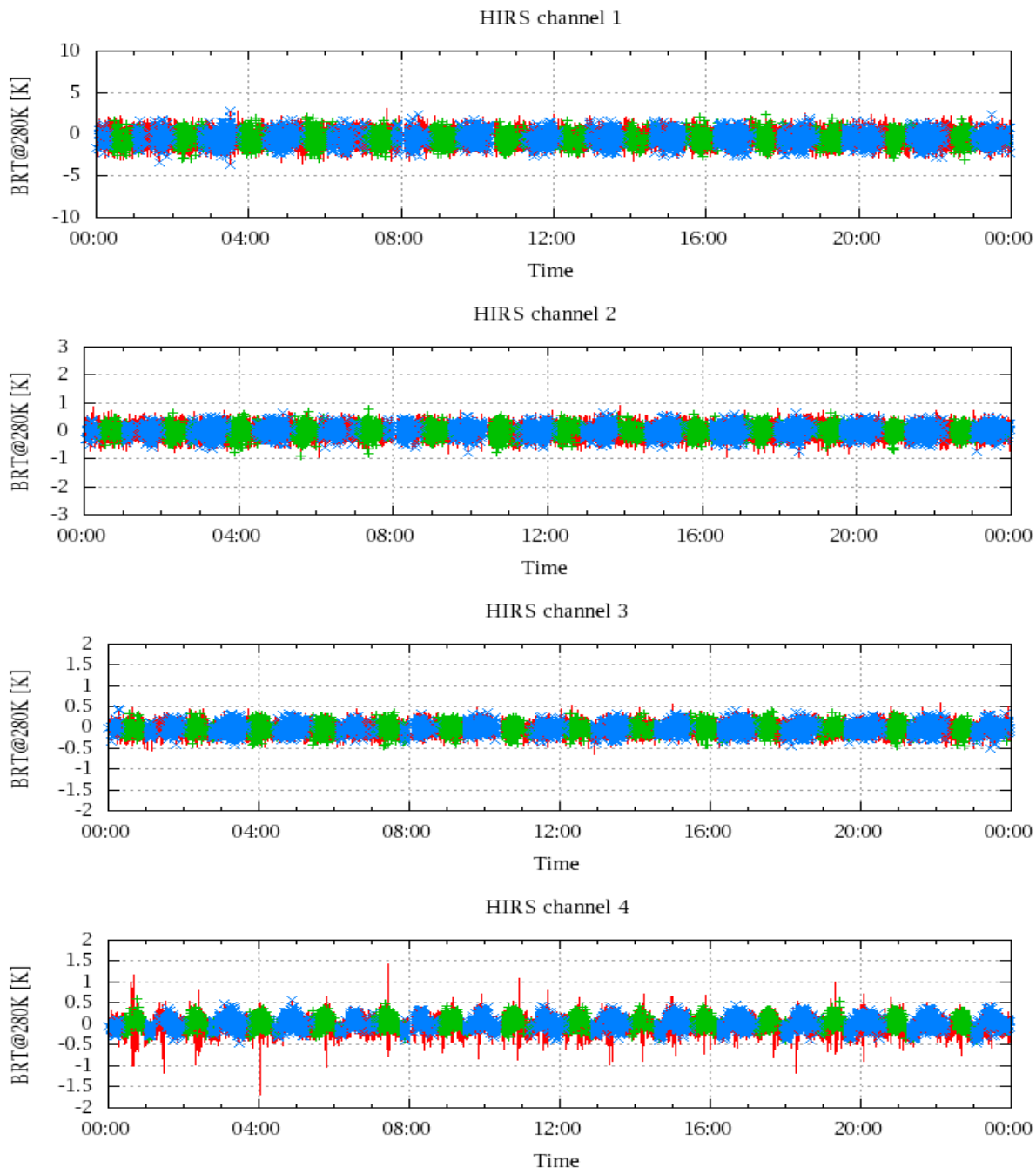


Figure 17: Radiance Differences in BRT

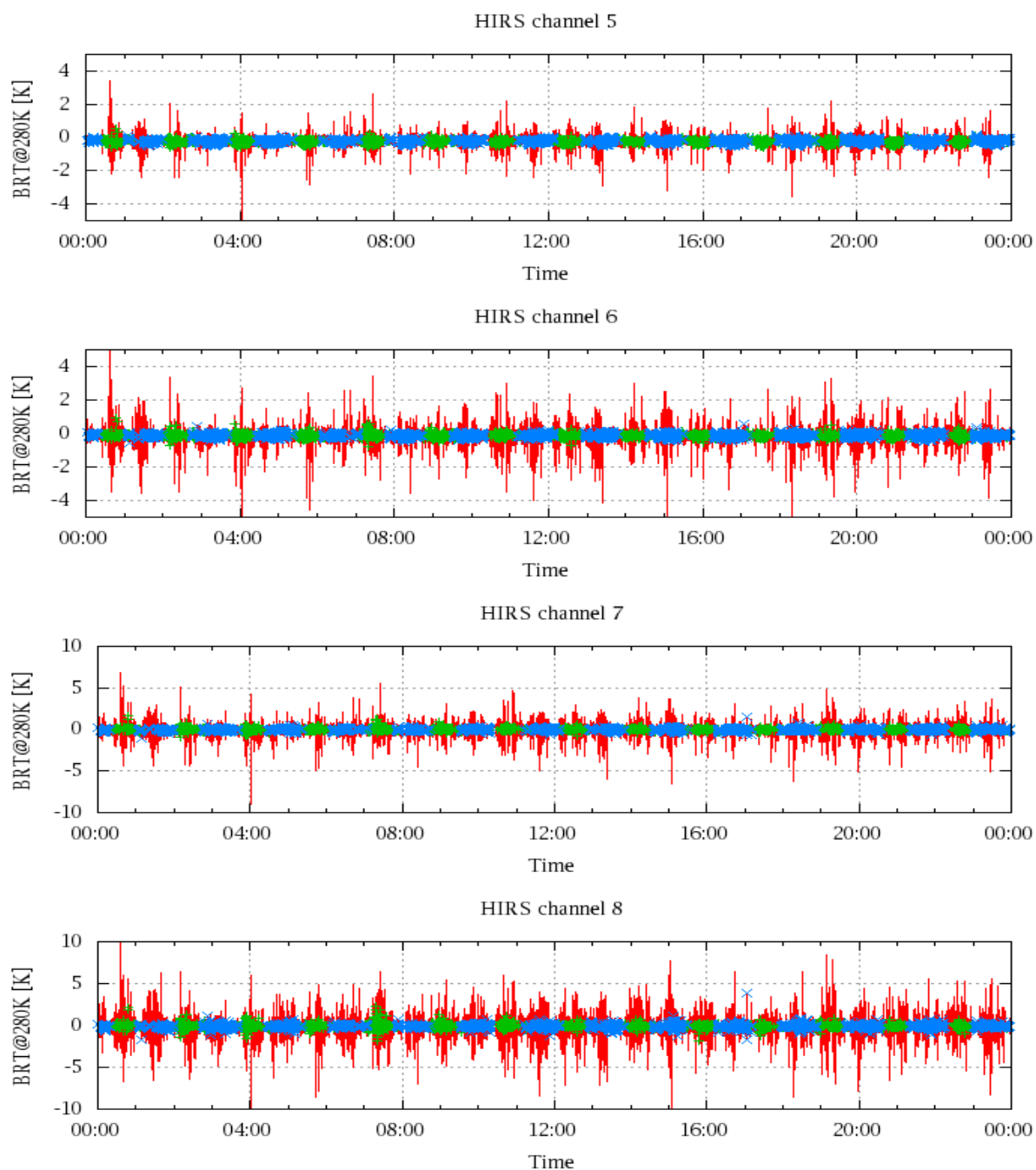


Figure 18: Radiance Differences in BRT

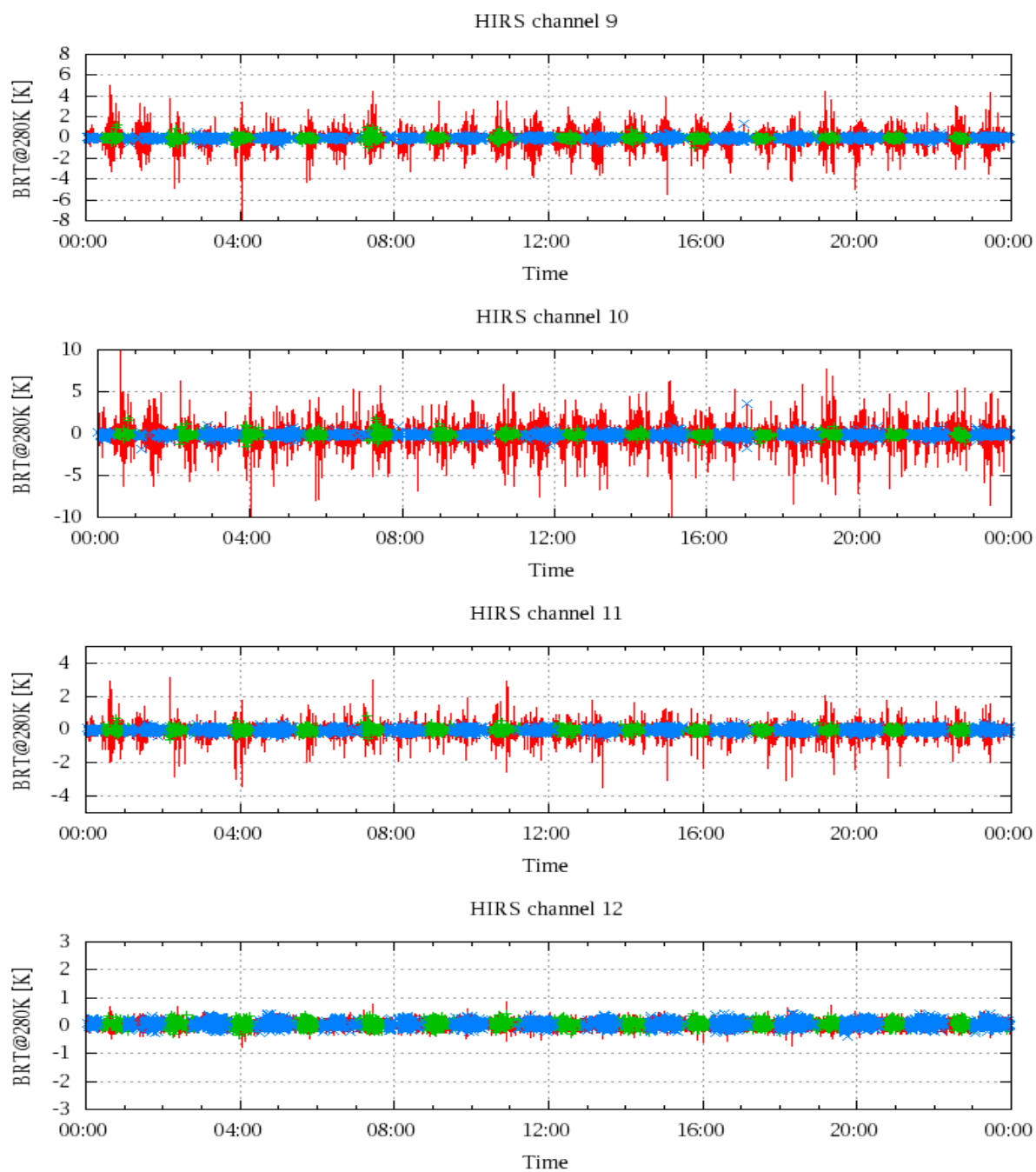


Figure 19: Radiance Differences in BRT

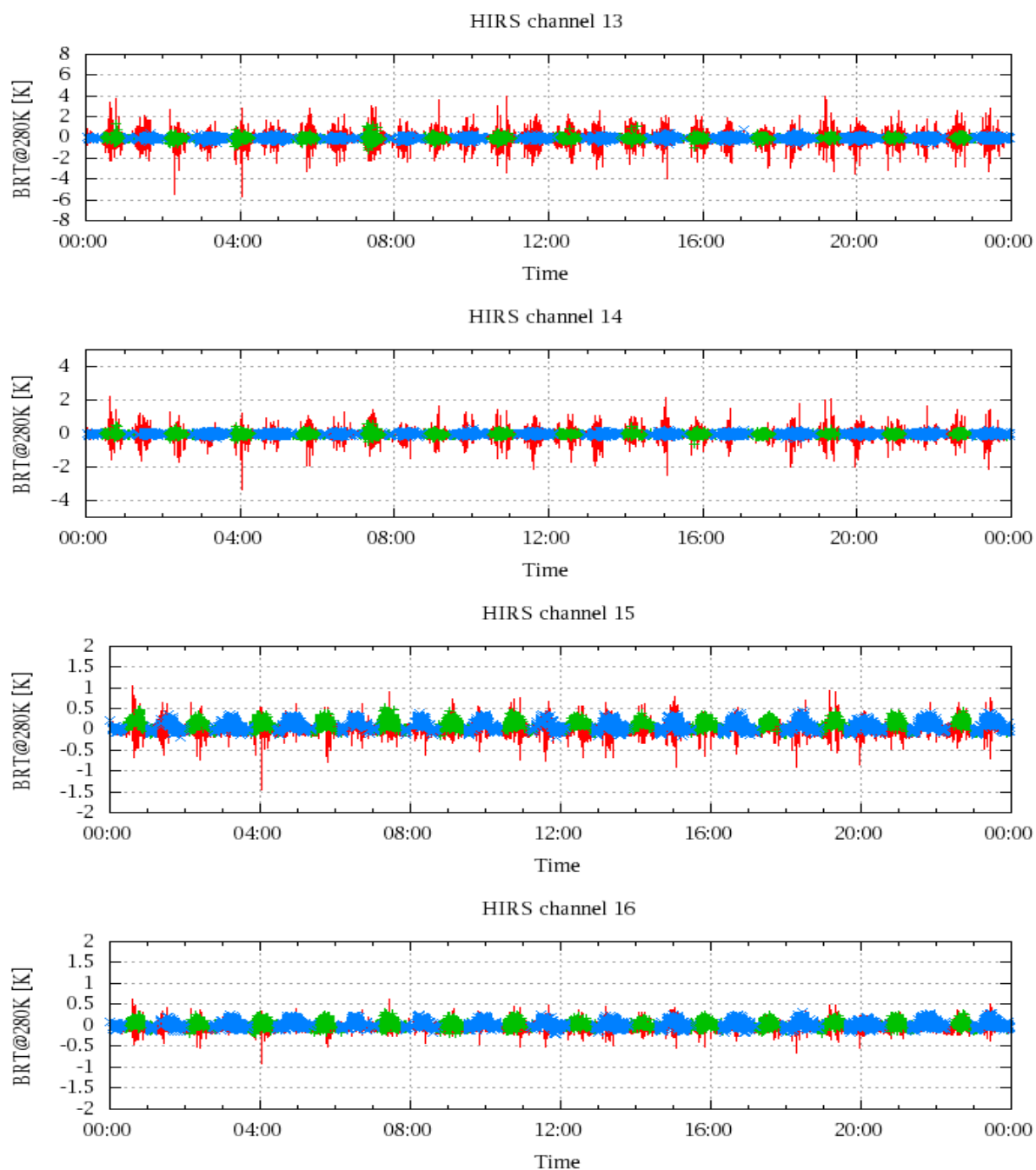


Figure 20: Radiance Differences in BRT

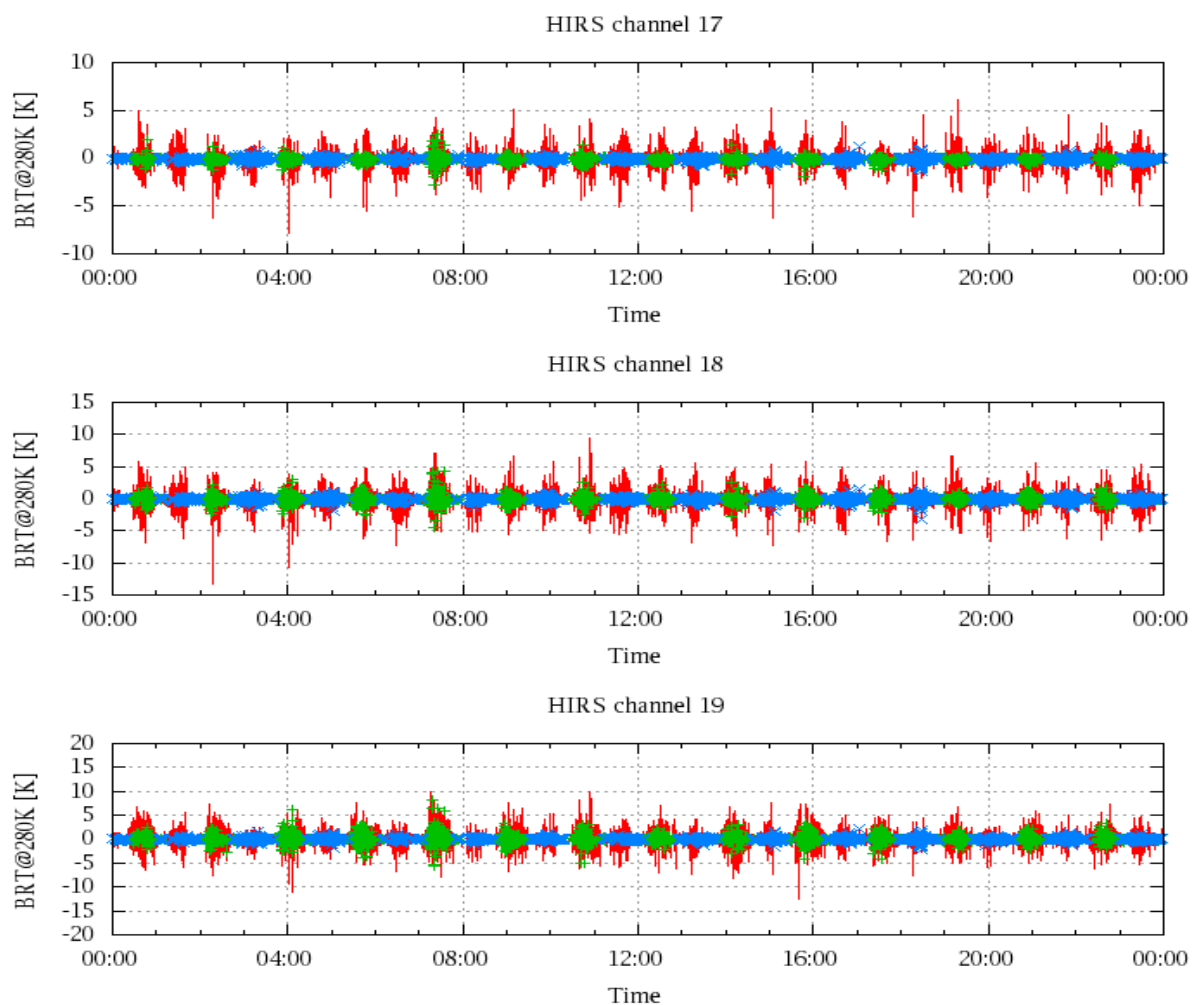


Figure 21: Radinace Differences in BRT