IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

25/02/2013 00:00:00 - 26/02/2013 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 25/02/2013 00:00:00 - 26/02/2013 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 25/02/2013 00:00:00 - 26/02/2013 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)	9086	9094	20130225015831.859	20130225015835.105
PX1 (130)	6060	6069	20130225025755.077	20130225025757.027
PX1 (130)	6617	6620	20130225030022.749	20130225030023.397
PX1 (130)	7358	7360	20130225030340.799	20130225030341.233
PX1 (130)	7917	7920	20130225030608.939	20130225030611.100
PX1 (130)	8099	8102	20130225030657.369	20130225030659.533
PX1 (130)	10136	10139	20130225031600.707	20130225031601.356
PX2 (135)	9086	9094	20130225015831.859	20130225015835.105
PX2 (135)	6060	6069	20130225025755.077	20130225025757.027
PX2 (135)	6617	6620	20130225030022.749	20130225030023.397
PX2 (135)	7917	7920	20130225030608.939	20130225030611.100
PX2 (135)	8099	8102	20130225030657.369	20130225030659.533
PX2 (135)	10135	10139	20130225031600.489	20130225031601.356
PX3 (140)	9085	9094	20130225015831.644	20130225015835.105
PX3 (140)	6060	6069	20130225025755.077	20130225025757.027
PX3 (140)	6617	6620	20130225030022.749	20130225030023.397
PX3 (140)	7357	7359	20130225030340.580	20130225030341.014
PX3 (140)	7916	7920	20130225030608.725	20130225030611.100

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	8099	8102	20130225030657.369	20130225030659.533
PX3 (140)	10135	10139	20130225031600.489	20130225031601.356
PX4 (145)	9085	9094	20130225015831.644	20130225015835.105
PX4 (145)	5221	5223	20130225025411.300	20130225025411.734
PX4 (145)	6060	6069	20130225025755.077	20130225025757.027
PX4 (145)	6617	6620	20130225030022.749	20130225030023.397
PX4 (145)	7357	7359	20130225030340.580	20130225030341.014
PX4 (145)	7916	7920	20130225030608.725	20130225030611.100
PX4 (145)	8099	8101	20130225030657.369	20130225030659.318
PX4 (145)	10135	10139	20130225031600.489	20130225031601.356
IMG (150)	14689	14698	20130225015831.644	20130225015833.805
IMG (150)	13447	13457	20130225025754.648	20130225025757.027
IMG (150)	14077	14080	20130225030022.749	20130225030023.397
IMG (150)	14917	14919	20130225030340.580	20130225030341.014
IMG (150)	15548	15554	20130225030608.725	20130225030610.455
IMG (150)	15755	15761	20130225030657.369	20130225030659.318
IMG (150)	1679	1683	20130225031600.489	20130225031601.356
VER (160)	15344	15346	20130225015825.375	20130225015831.859
VER (160)	1495	1501	20130225030601.373	20130225030617.373
VER (160)	1526	1531	20130225030657.369	20130225030705.373
AUX (180)	10099	10101	20130225030601.807	20130225030617.807
AUX (180)	10105	10107	20130225030649.803	20130225030705.803

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
25/02/2013 00:00:00	-	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)	99.39 %	-
GQisFlagQual set (PX2)	99.27 %	-
GQisFlagQual set (PX3)	99.35 %	-
GQisFlagQual set (PX4)	99.46 %	-
GQisFlagQual set (all)	99.37 %	-

Table 4: Quality flags

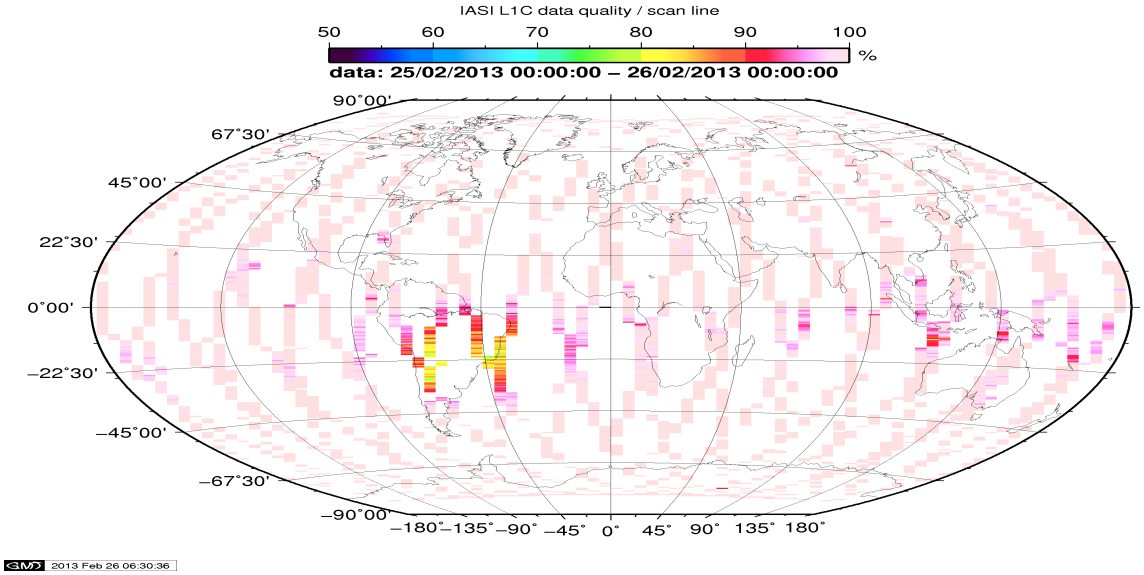

Figure 1: L1C data quality

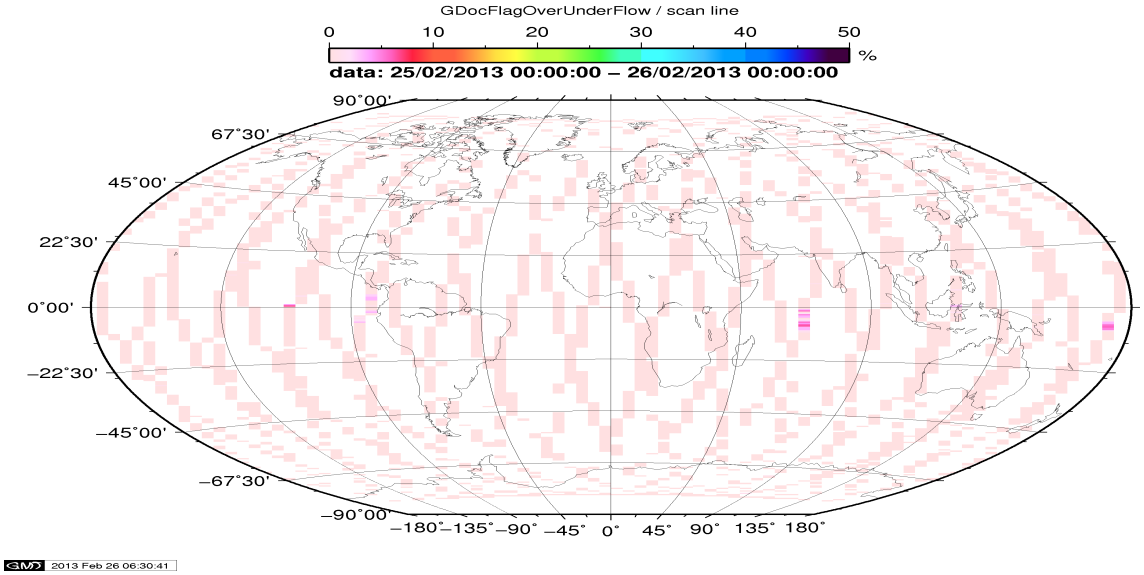

Figure 2: Flag of Over and Under Flows

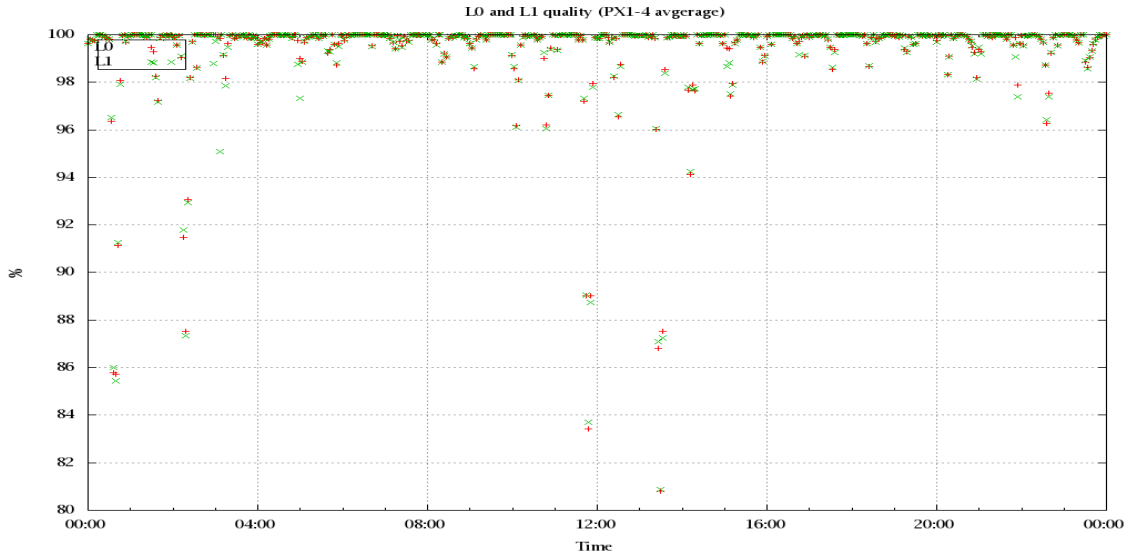

Figure 3: Level 0 and 1C overall quality

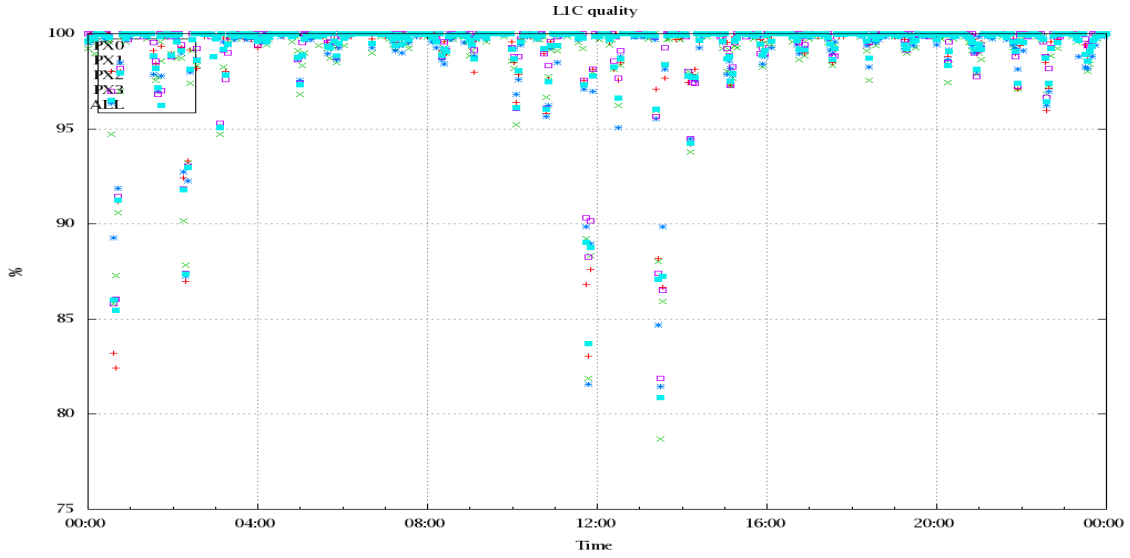

Figure 4: Level 1C quality

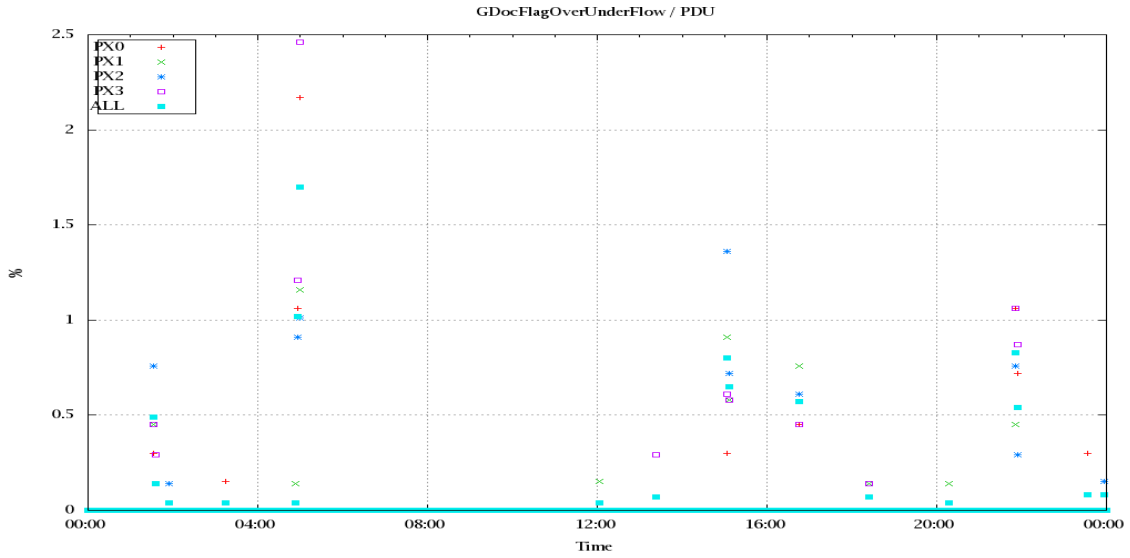

Figure 5: OverUnderFlowFlag timeseries

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.

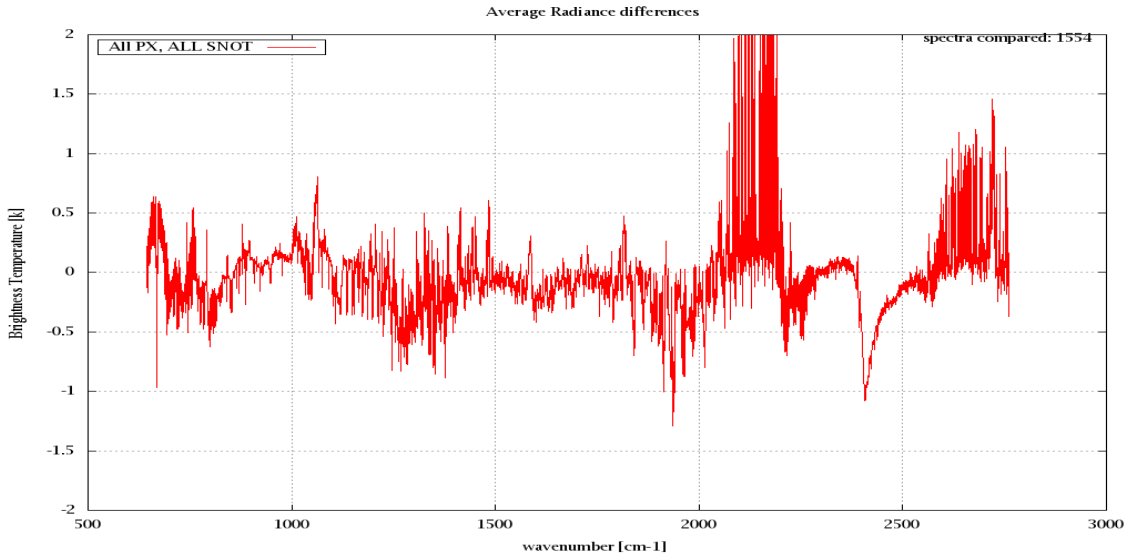

Figure 6: Average Radiance differences: OBS-CAL

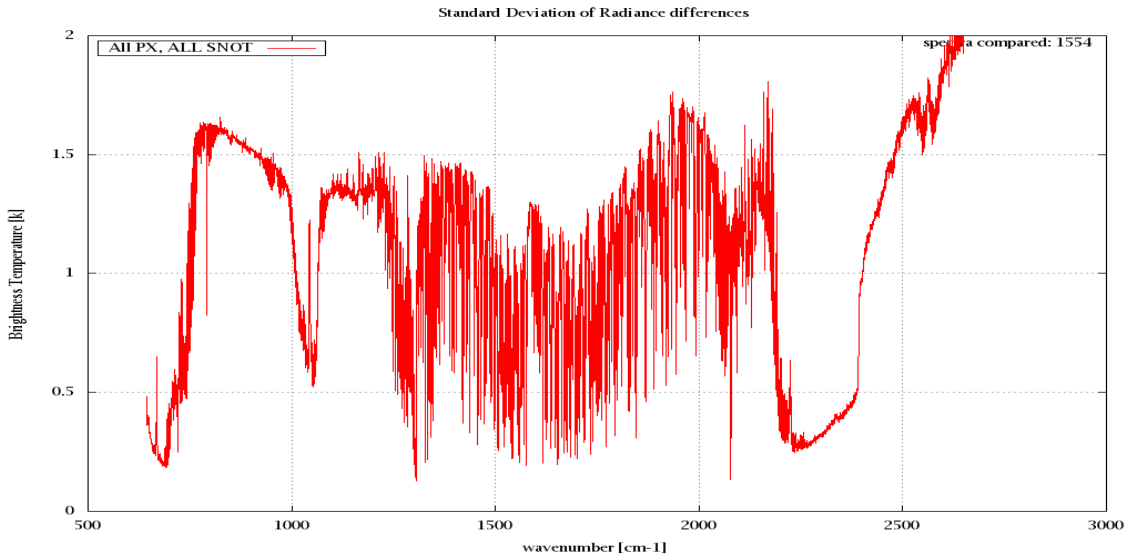

Figure 7: Standard Deviation of Radiance differences

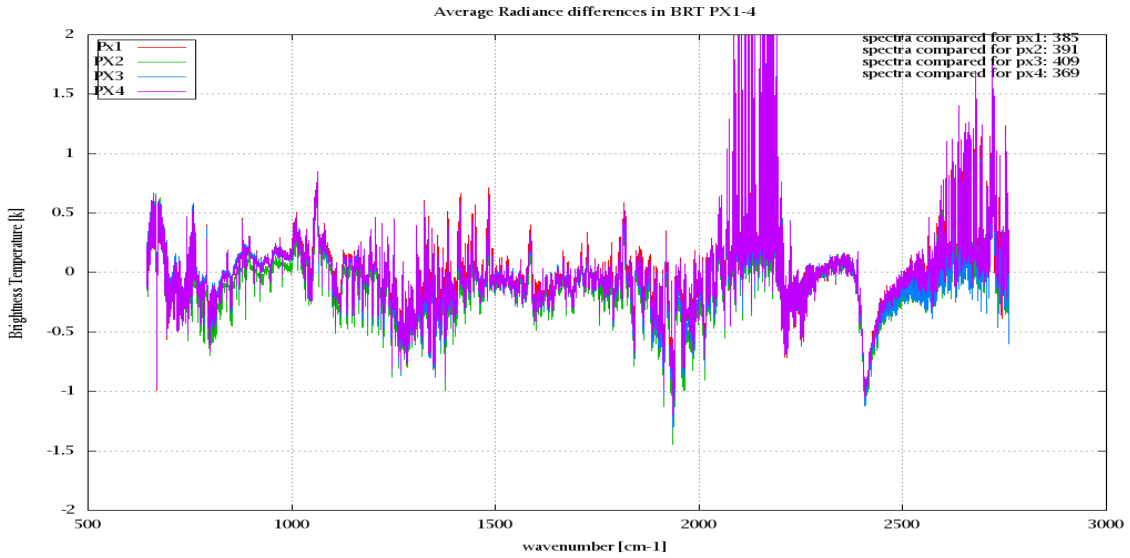

Figure 8: Average Radiance differences: OBS-CAL

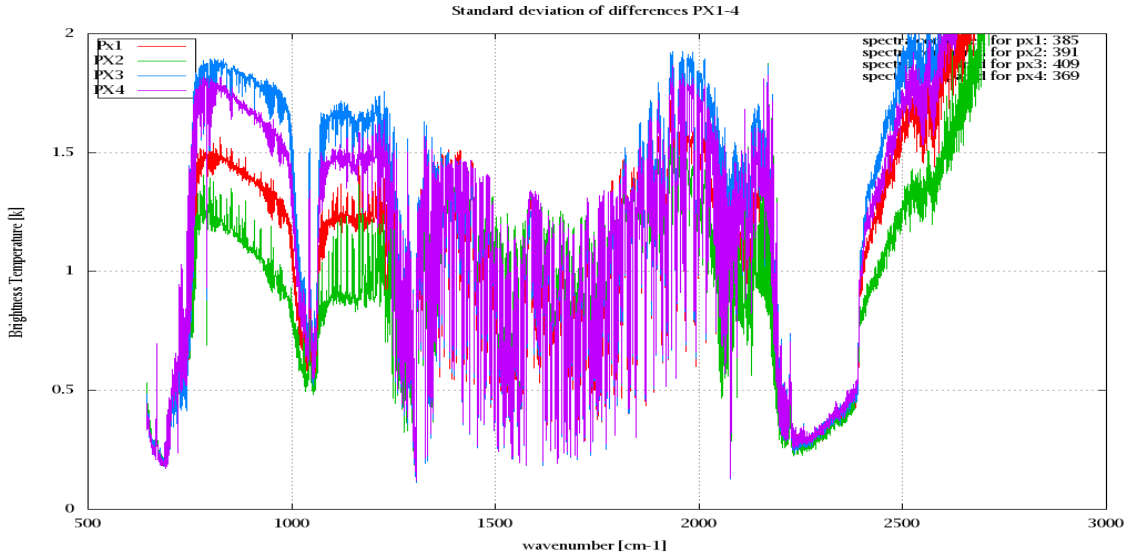

Figure 9: Standard Deviation of Radiance differences

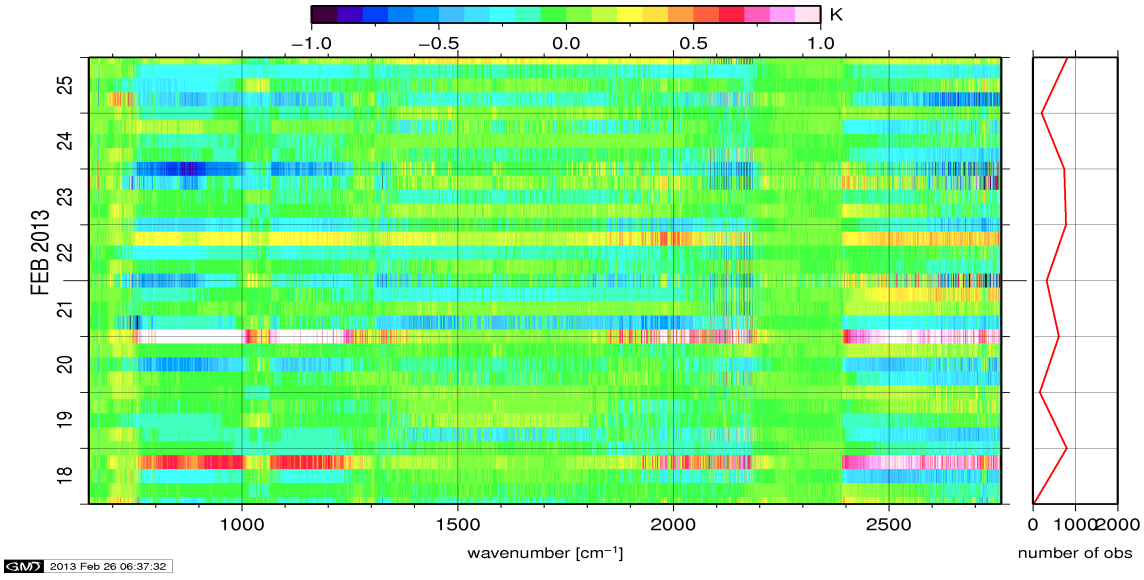

Figure 10: Radiance Anomaly in BRT: All Channels

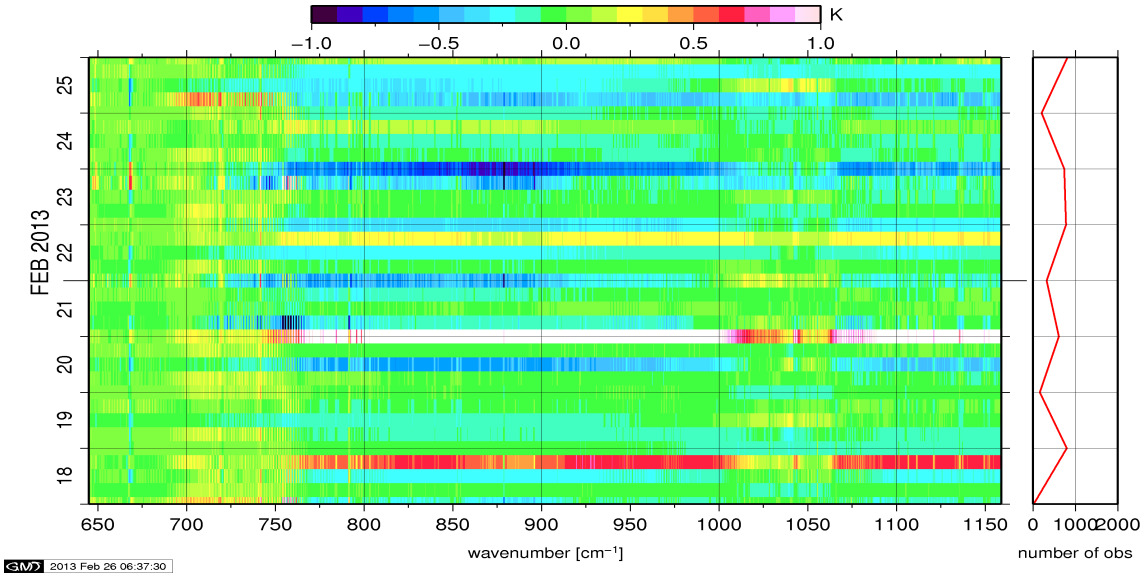

Figure 11: Radiance Anomaly in BRT: IASI Band 1

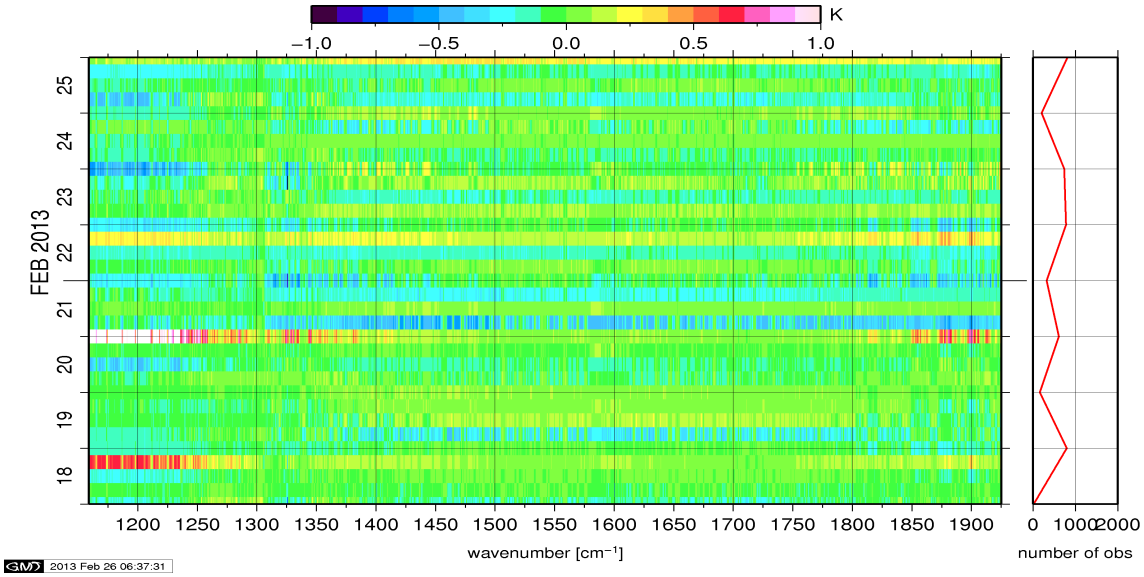

Figure 12: Radiance Anomaly in BRT: IASI Band 2

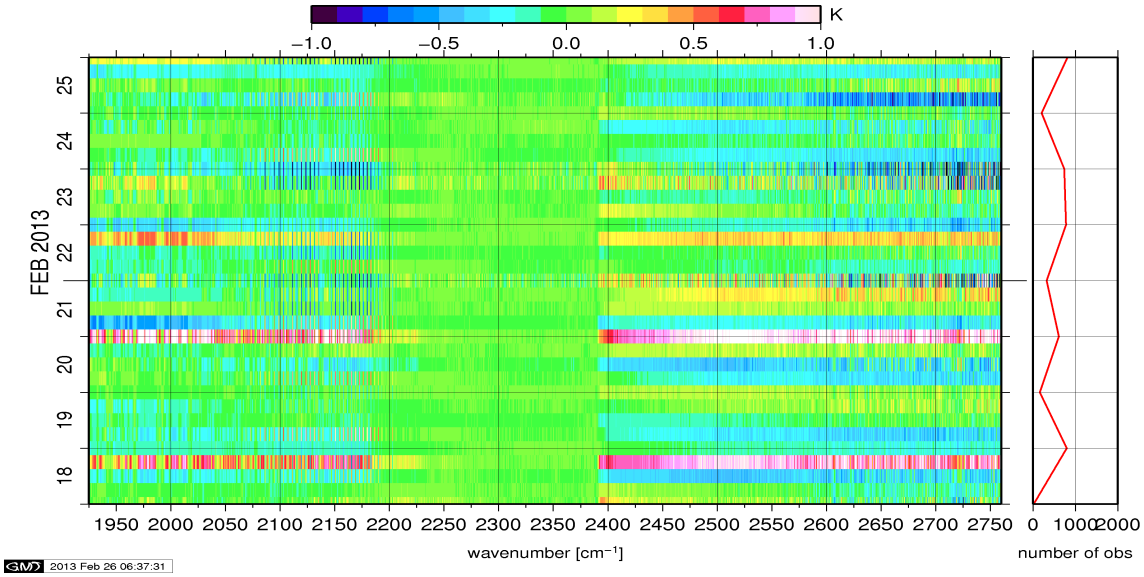

Figure 13: Radiance Anomaly in BRT: IASI Band 3

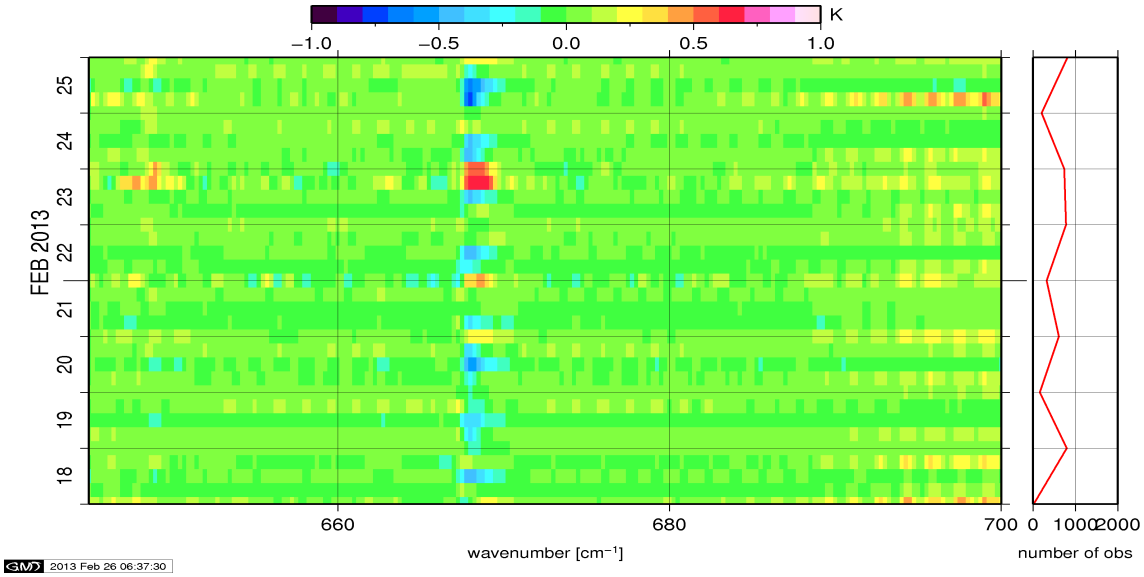

Figure 14: Radiance Anomaly in BRT: CO2 14

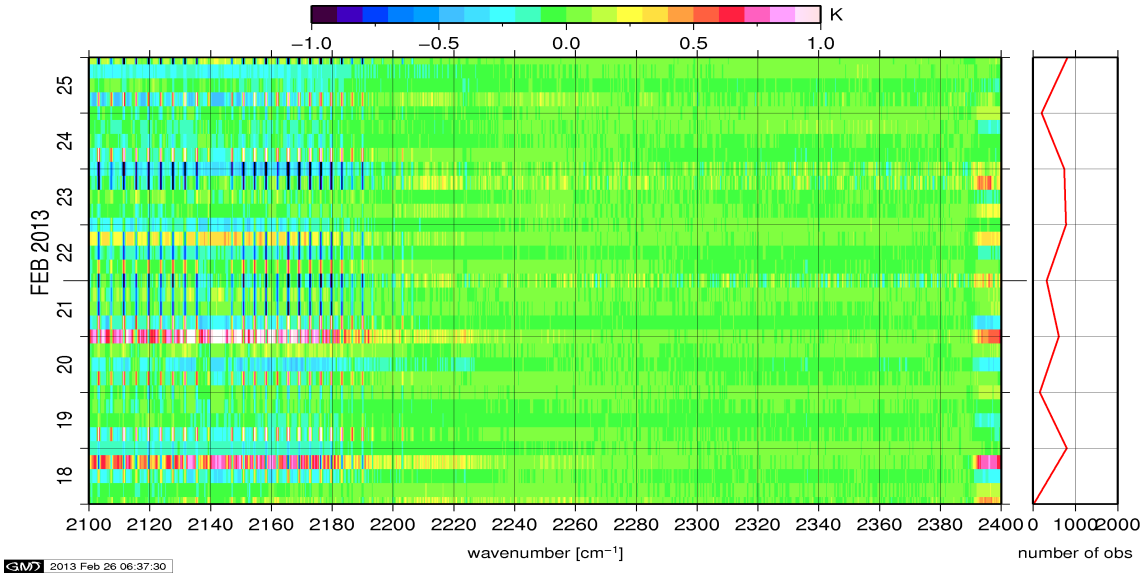

Figure 15: Radiance Anomaly in BRT: CO2 4.3

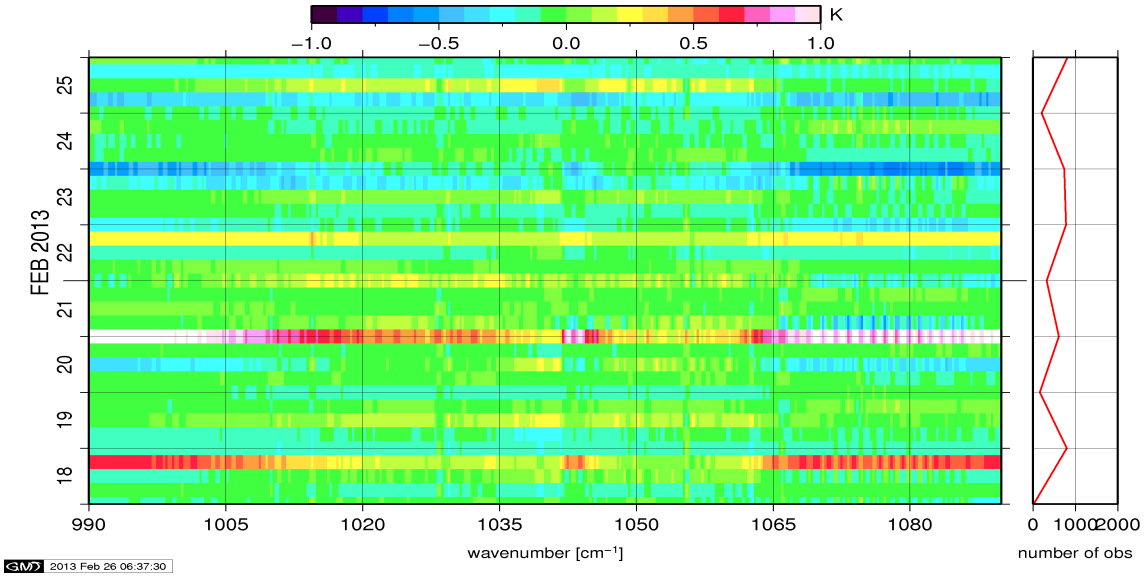

Figure 16: Radiance Anomaly in BRT: O3

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.

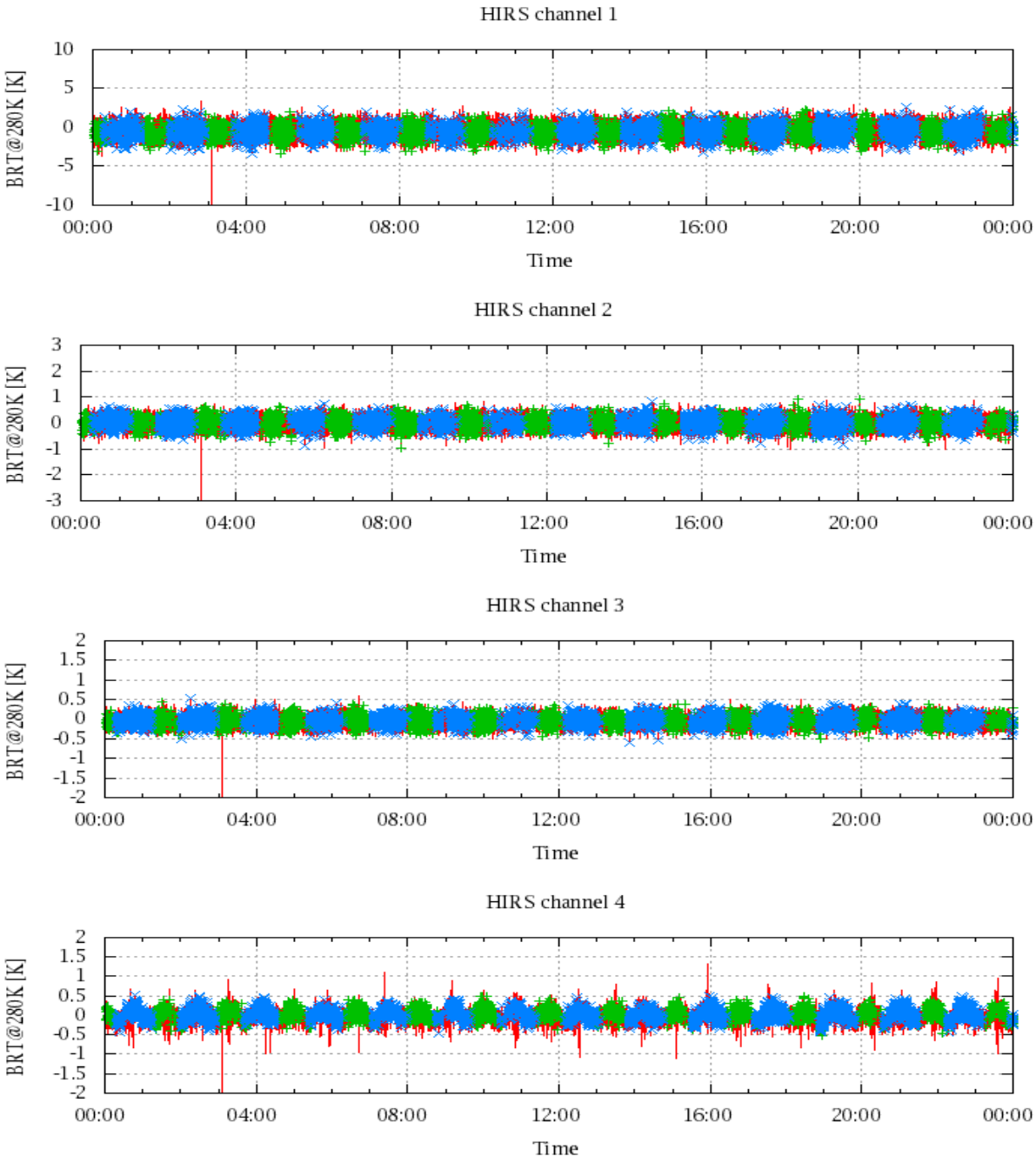

Figure 17: Radiance Differences in BRT

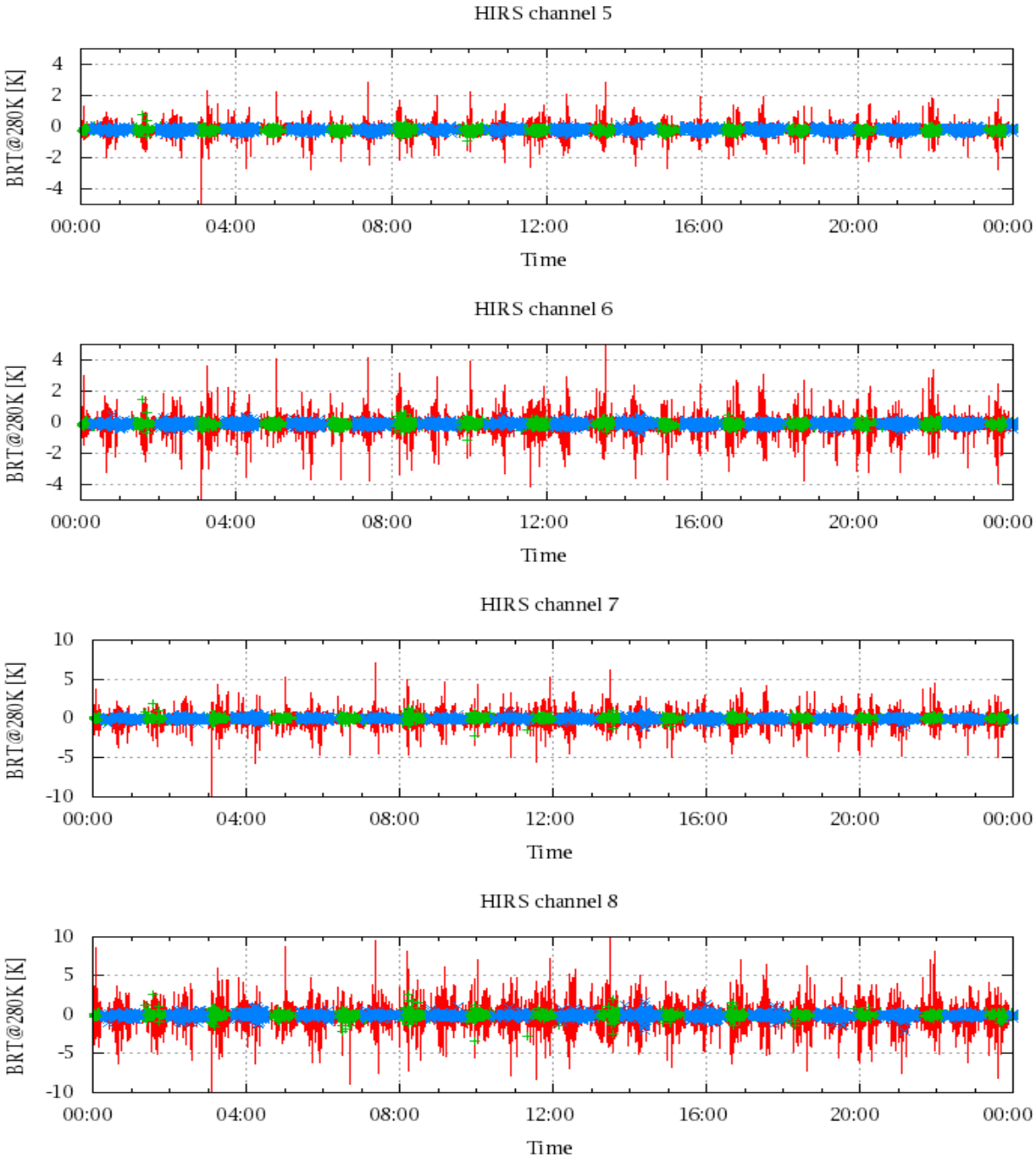

Figure 18: Radiance Differences in BRT

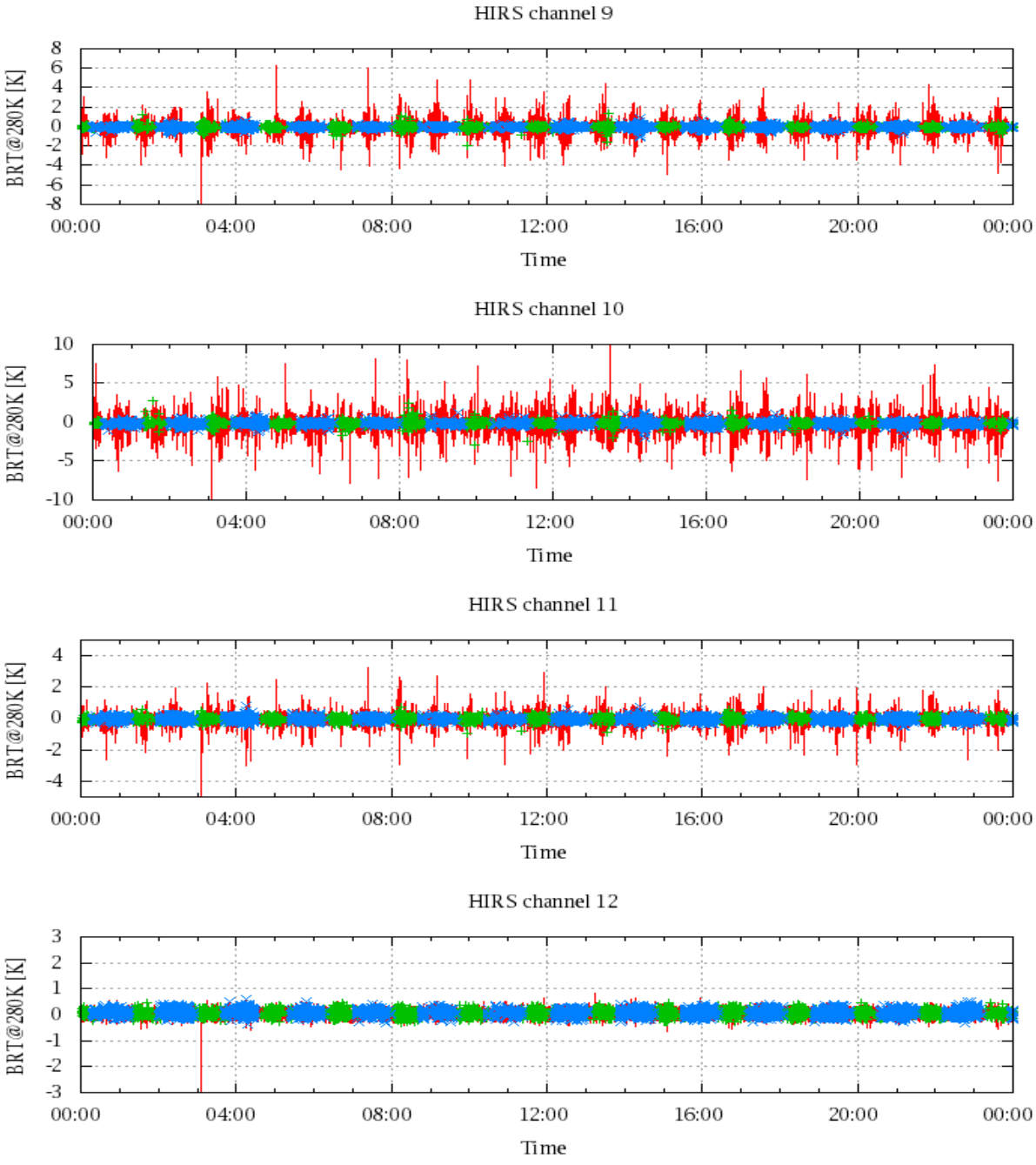

Figure 19: Radiance Differences in BRT

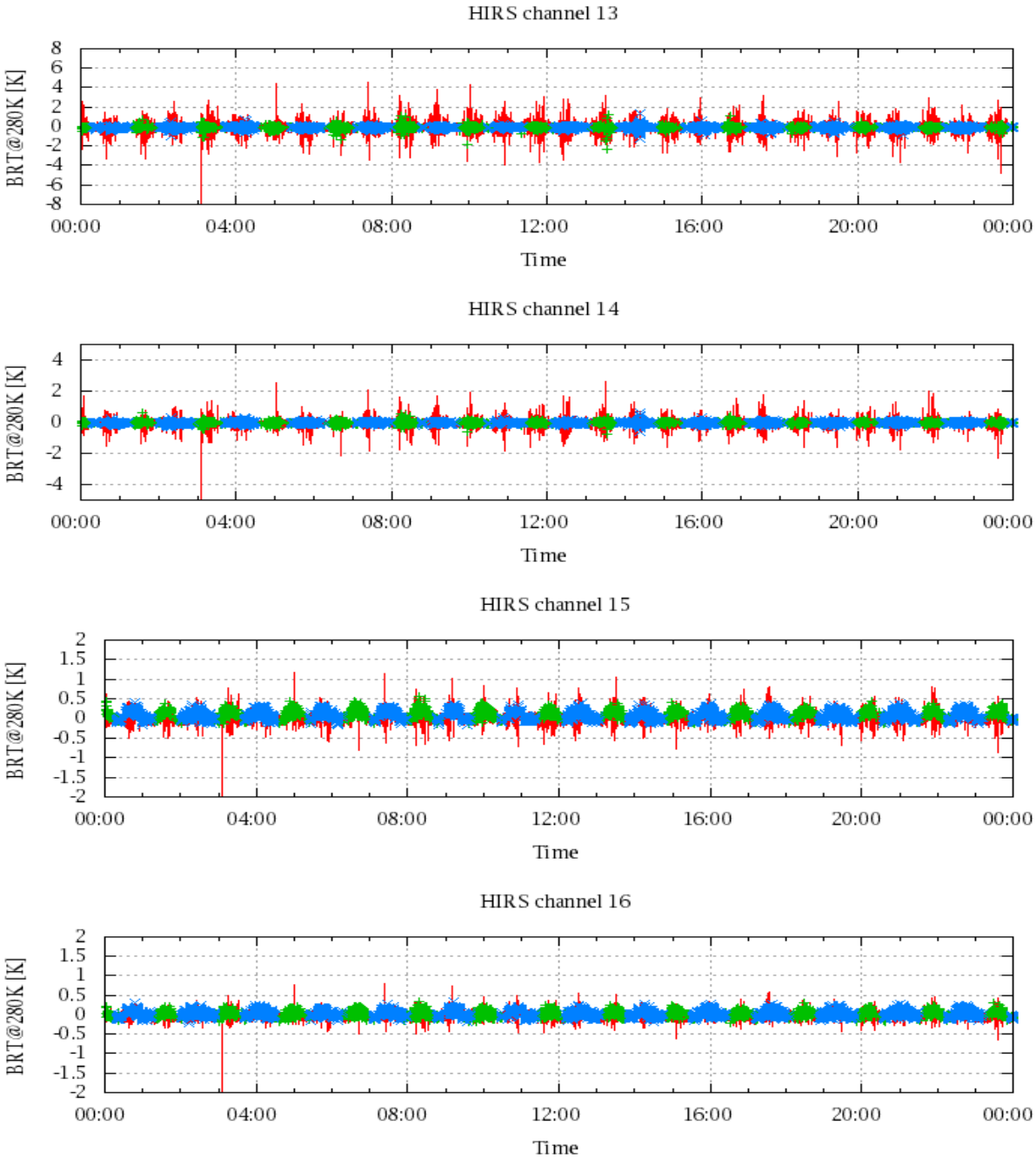

Figure 20: Radiance Differences in BRT

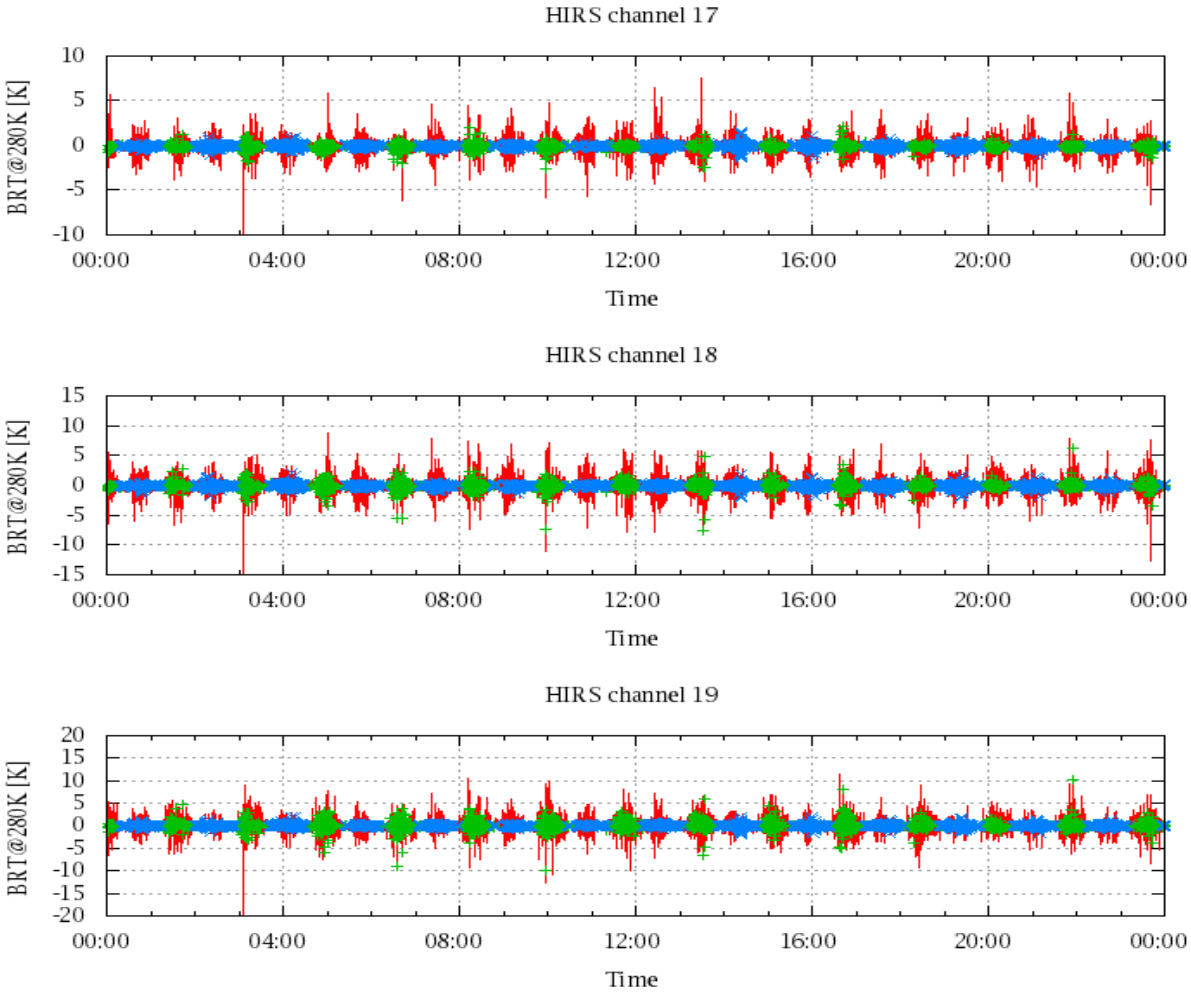

Figure 21: Radinace Differences in BRT