

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

06/01/2011 00:00:00 - 07/01/2011 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 06/01/2011 00:00:00 - 07/01/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 06/01/2011 00:00:00 - 07/01/2011 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)	479	-
L1 DPS Files (RM: OBS-CAL NWP based)	480	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	14394	14409	20110106163950.162	20110106163954.920
PX1 (130)	14888	15215	20110106164201.185	20110106164328.533
PX1 (130)	15215	15218	20110106164328.533	20110106164329.181
PX1 (130)	15251	15256	20110106164339.345	20110106164340.423
PX1 (130)	15268	15539	20110106164343.021	20110106164455.236
PX2 (135)	14394	14409	20110106163950.162	20110106163954.920
PX2 (135)	14888	15218	20110106164201.185	20110106164329.181
PX2 (135)	15250	15256	20110106164339.126	20110106164340.423
PX2 (135)	15268	15538	20110106164343.021	20110106164455.017
PX3 (140)	14394	14409	20110106163950.162	20110106163954.920
PX3 (140)	14888	15215	20110106164201.185	20110106164328.533
PX3 (140)	15215	15217	20110106164328.533	20110106164328.966
PX3 (140)	15250	15256	20110106164339.126	20110106164340.423
PX3 (140)	15268	15538	20110106164343.021	20110106164455.017
PX4 (145)	14394	14409	20110106163950.162	20110106163954.920
PX4 (145)	14888	15217	20110106164201.185	20110106164328.966
PX4 (145)	15250	15256	20110106164339.126	20110106164340.423
PX4 (145)	15268	15538	20110106164343.021	20110106164455.017

Continued on next page

Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	4258	4273	20110106163950.162	20110106163953.623
IMG (150)	4816	5189	20110106164201.185	20110106164328.966
IMG (150)	5230	5236	20110106164339.126	20110106164340.423
IMG (150)	5247	5554	20110106164342.806	20110106164455.017
VER (160)	7879	7883	20110106163945.189	20110106163950.162
VER (160)	7960	8015	20110106164201.185	20110106164329.181
VER (160)	8024	8070	20110106164337.181	20110106164457.181
AUX (180)	1577	1589	20110106164153.619	20110106164329.615
AUX (180)	1590	1600	20110106164337.615	20110106164457.614

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
06/01/2011 00:00:04	-	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)	99.22 %	-
GQisFlagQual set (PX2)	99.08 %	-
GQisFlagQual set (PX3)	99.19 %	-
GQisFlagQual set (PX4)	99.29 %	-
GQisFlagQual set (all)	99.19 %	-

Table 4: Quality flags

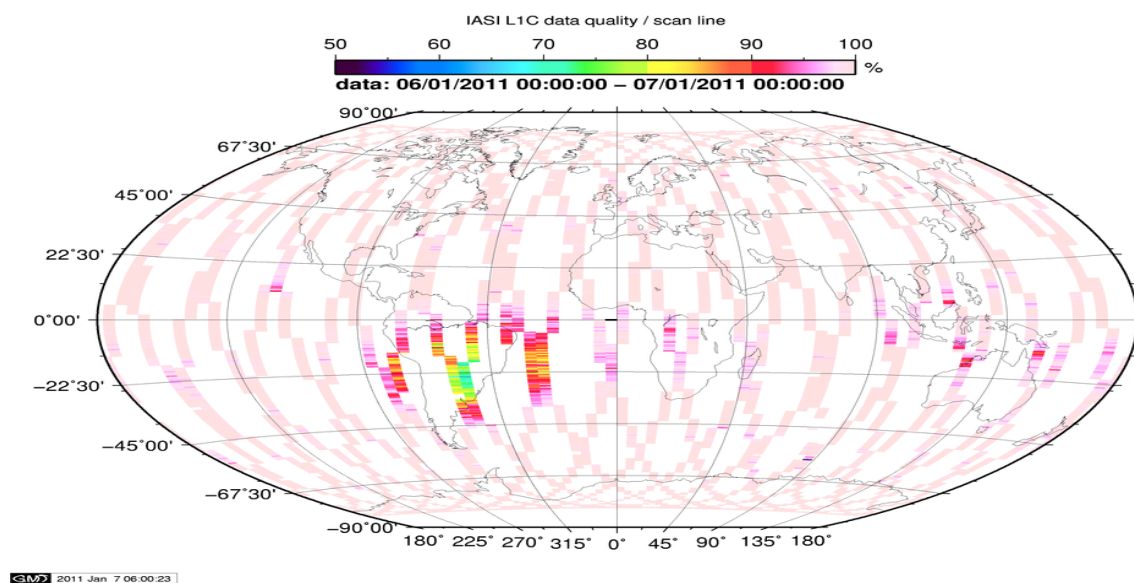


Figure 1: L1C data quality

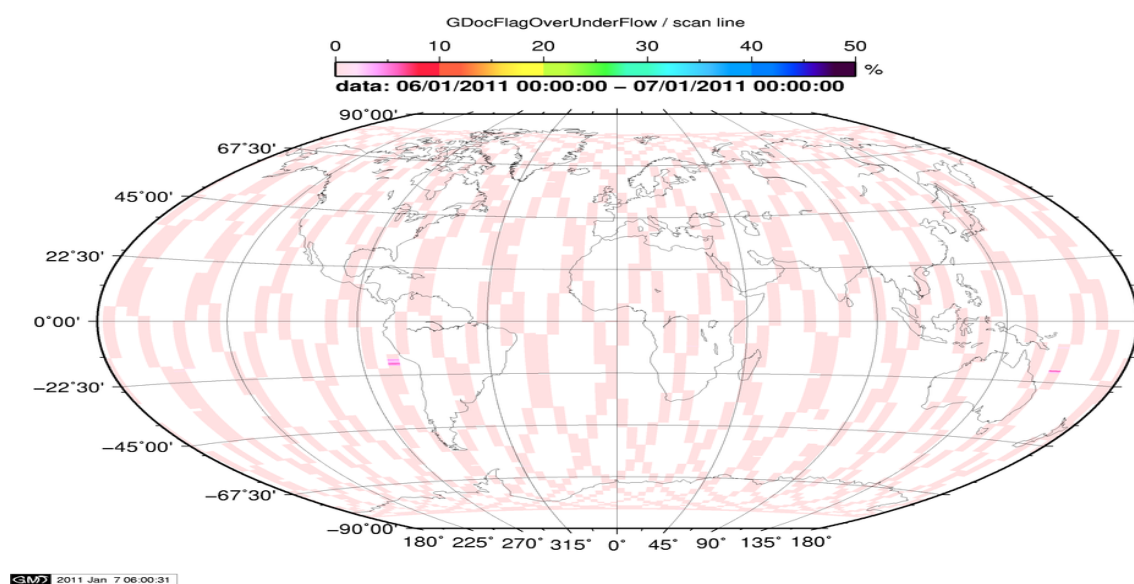


Figure 2: Flag of Over and Under Flows

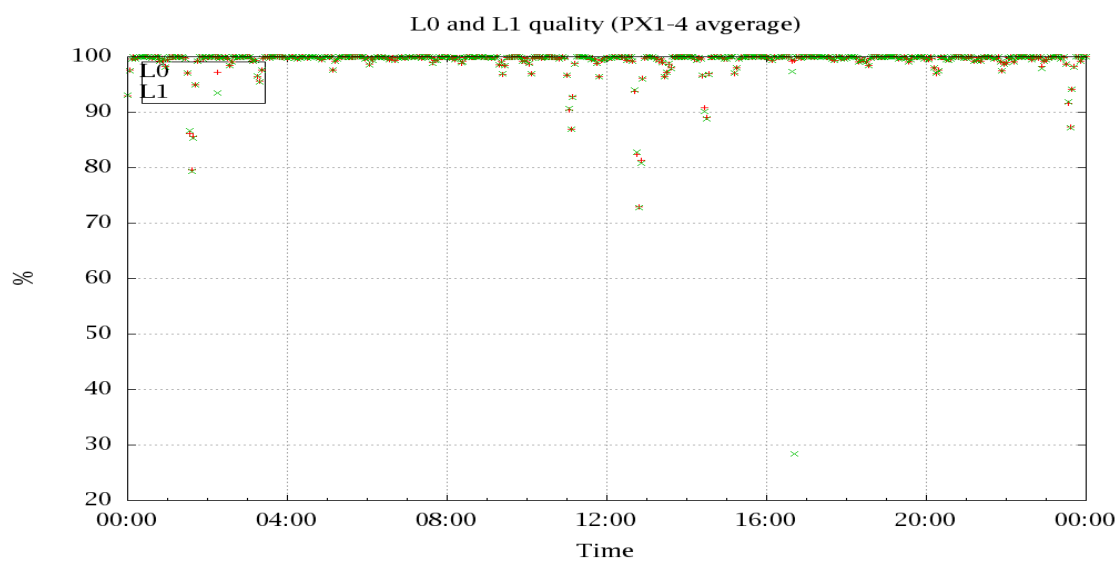


Figure 3: Level 0 and 1C overall quality

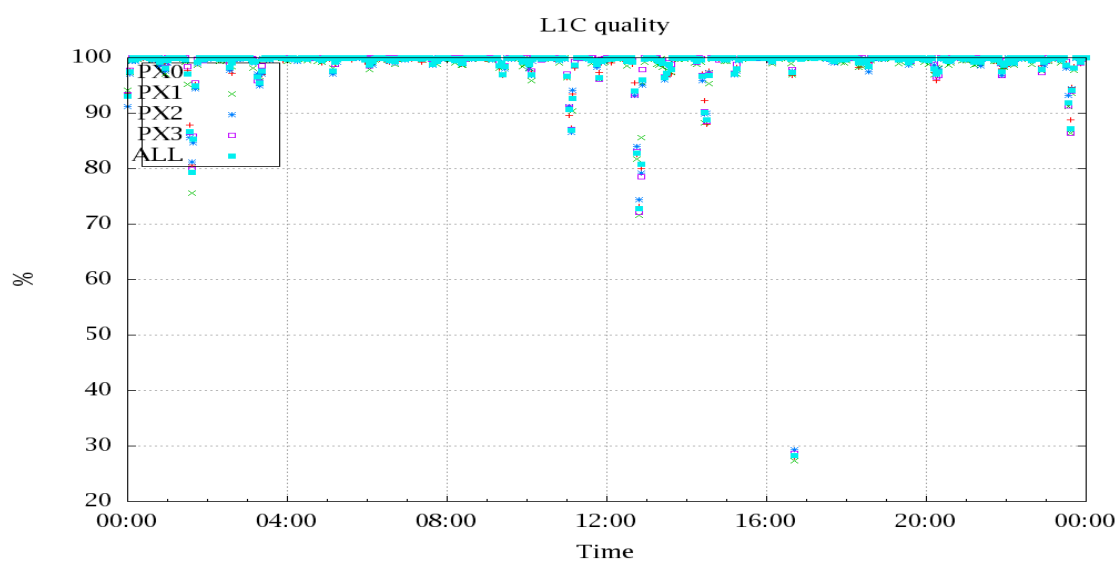


Figure 4: Level 1C quality

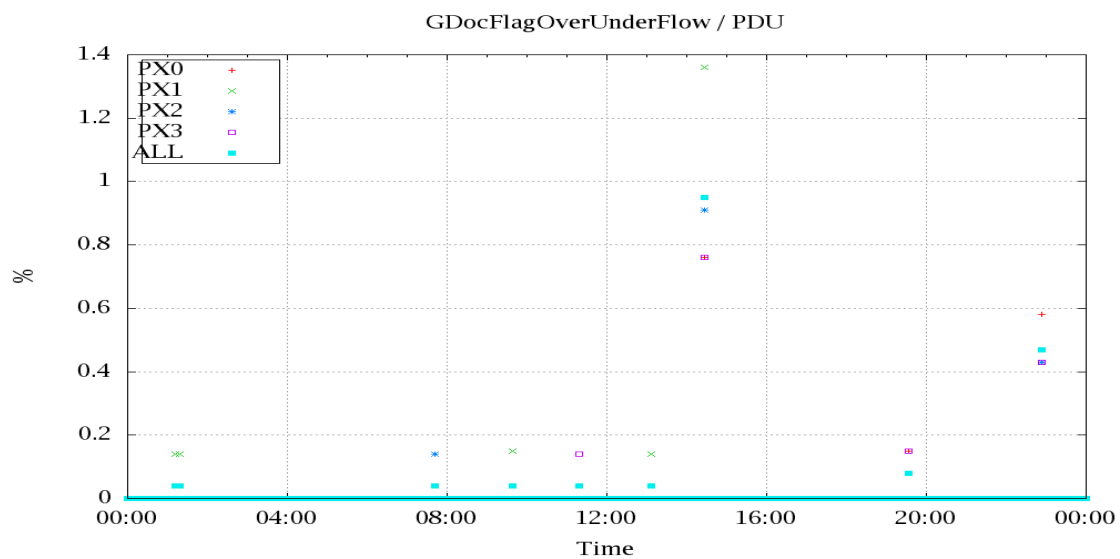


Figure 5: OverUnderFlowFlag timeseries

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.

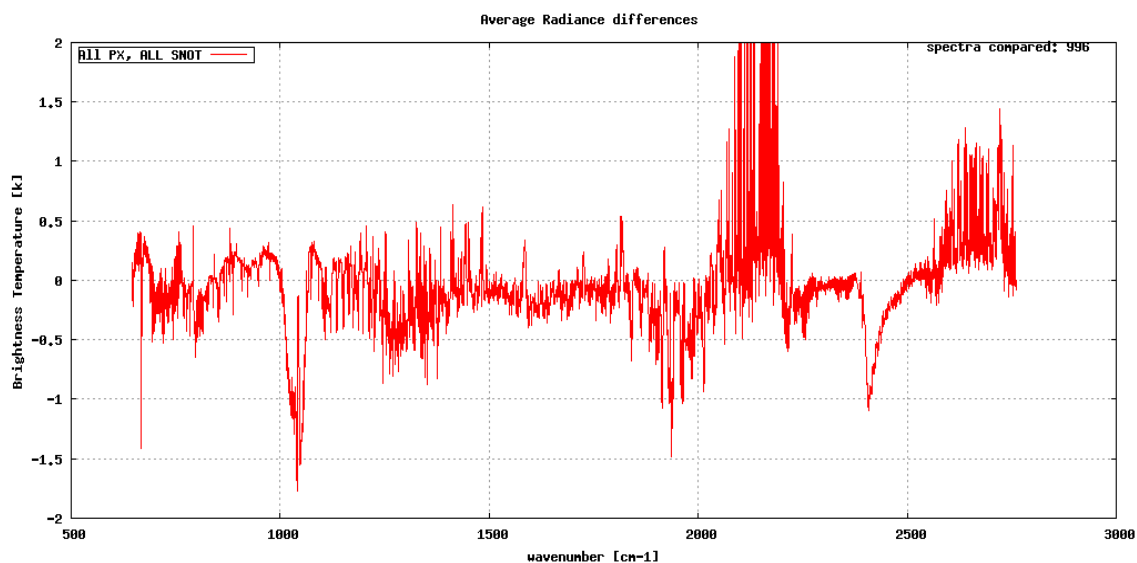


Figure 6: Average Radiance differences: OBS-CAL

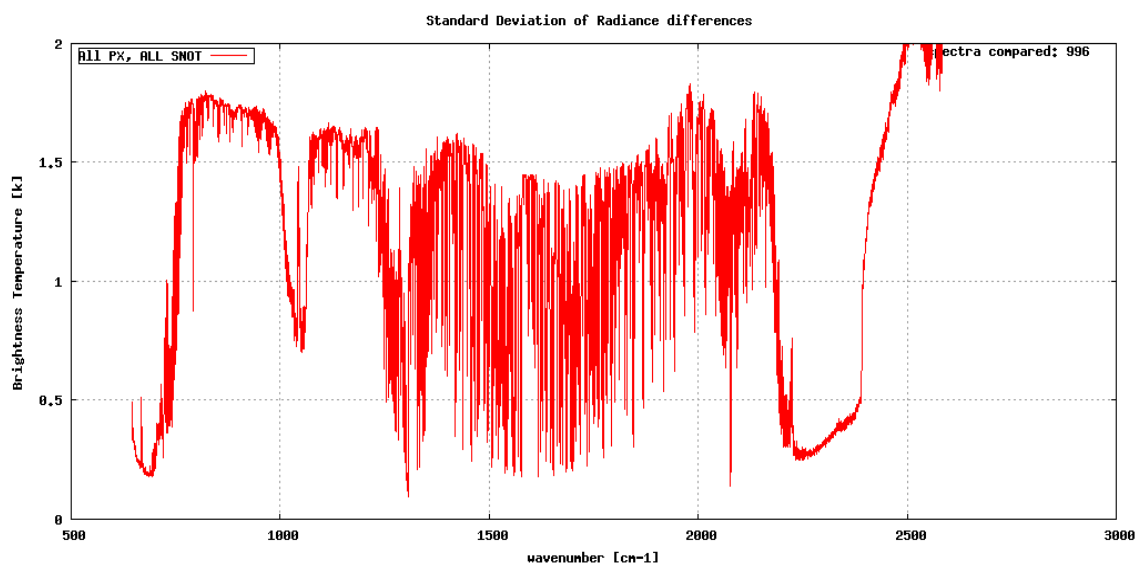


Figure 7: Standard Deviation of Radiance differences

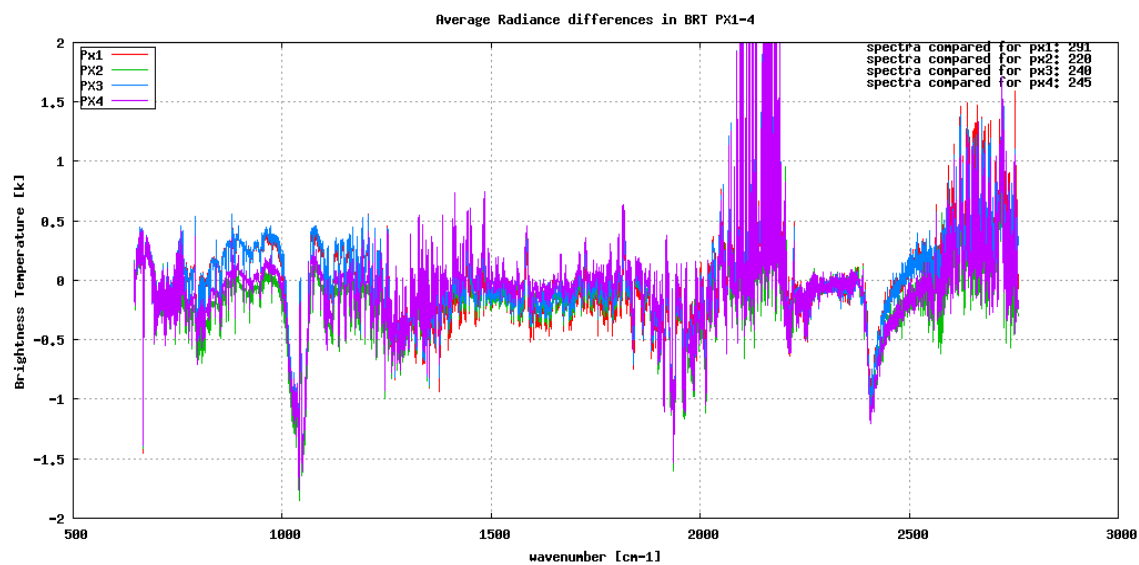


Figure 8: Average Radiance differences: OBS-CAL

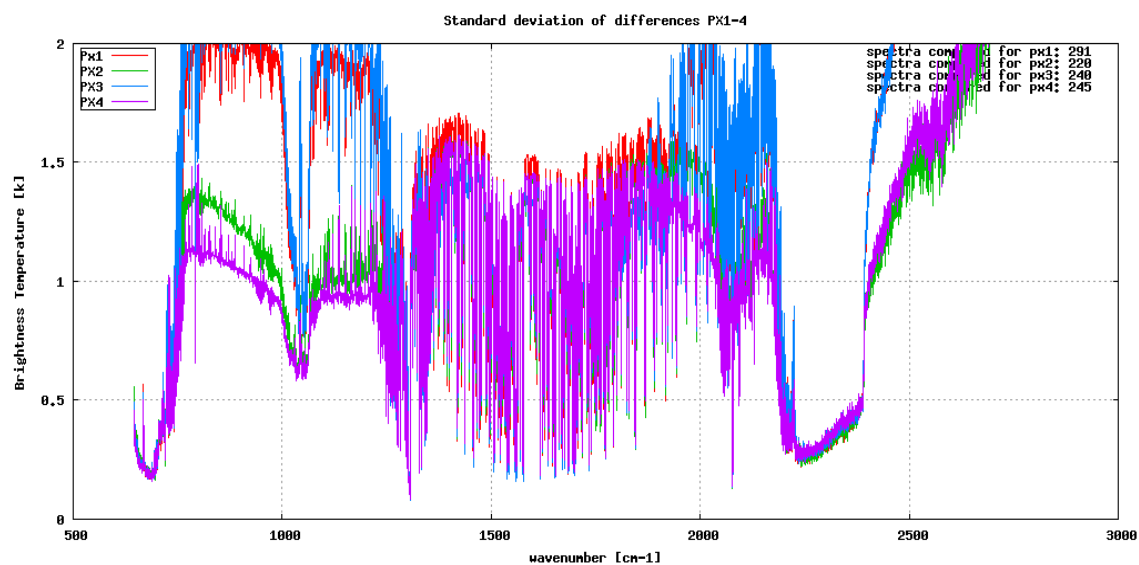


Figure 9: Standard Deviation of Radiance differences

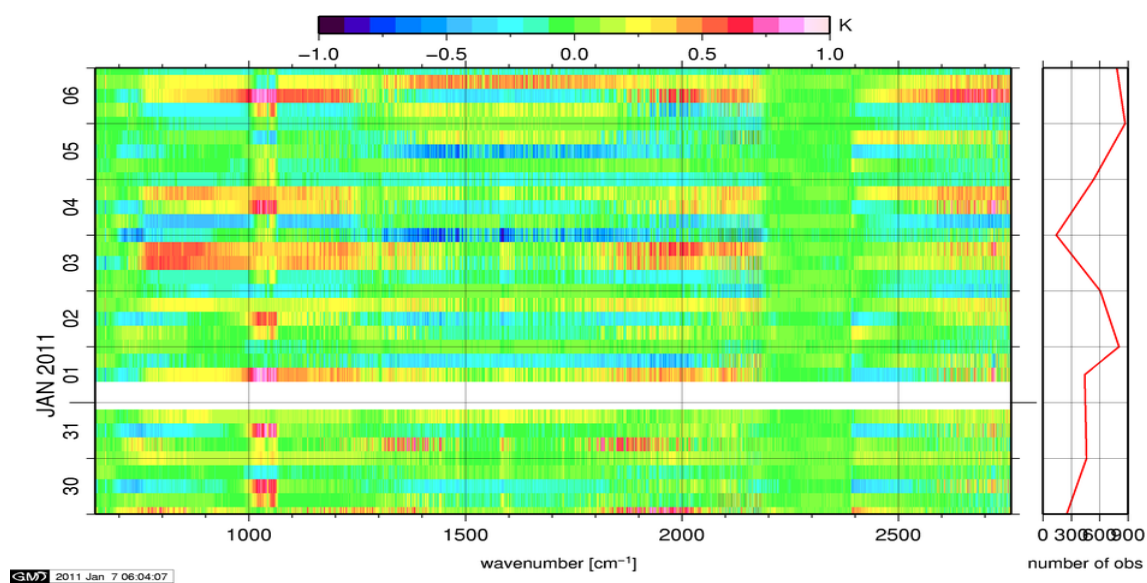


Figure 10: Radiance Anomaly in BRT: All Channels

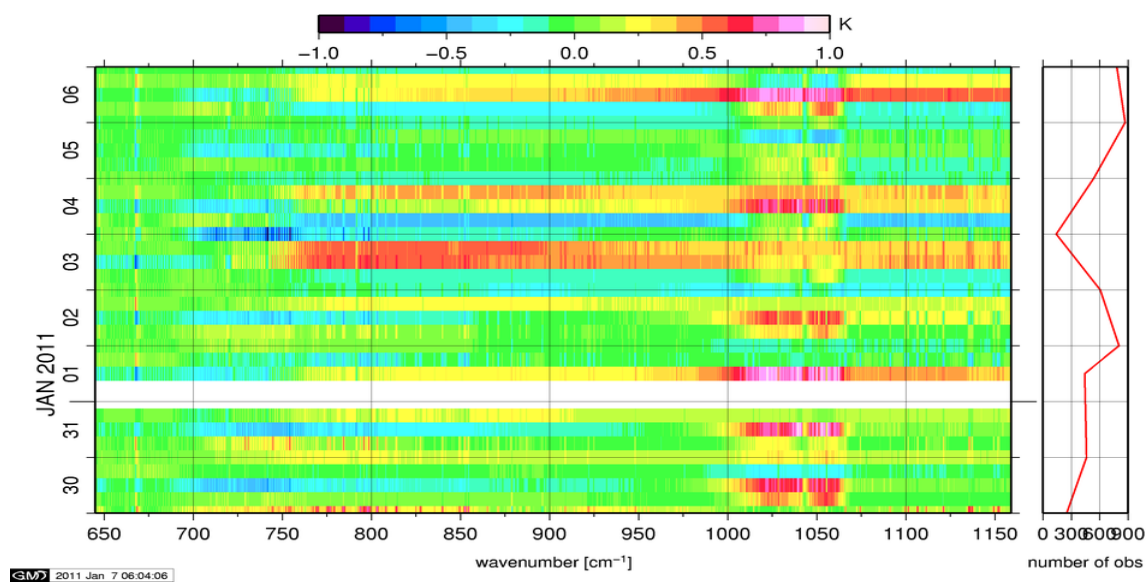


Figure 11: Radiance Anomaly in BRT: IASI Band 1

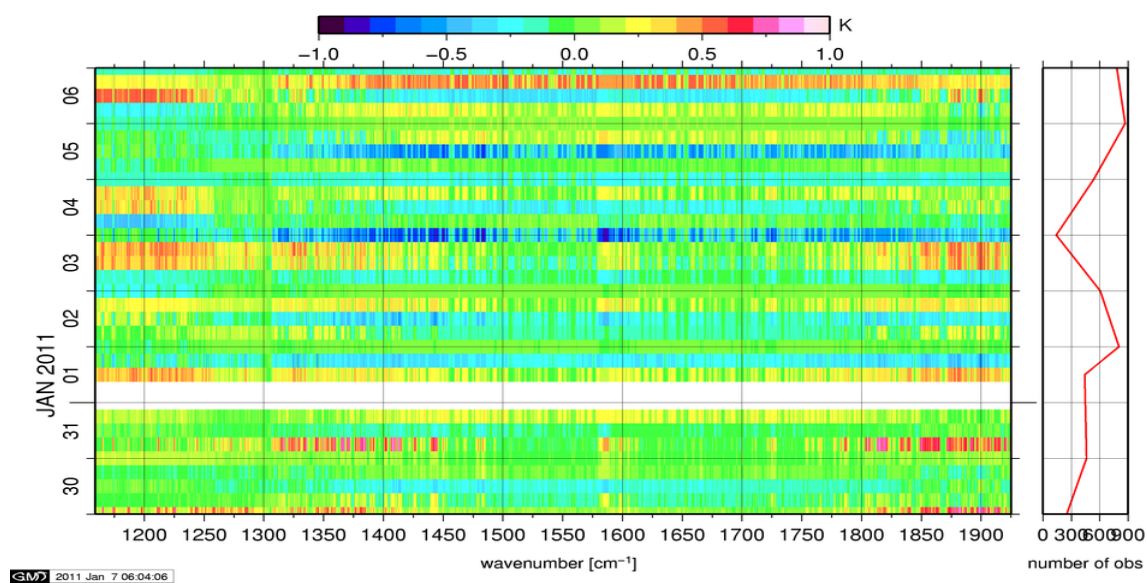


Figure 12: Radiance Anomaly in BRT: IASI Band 2

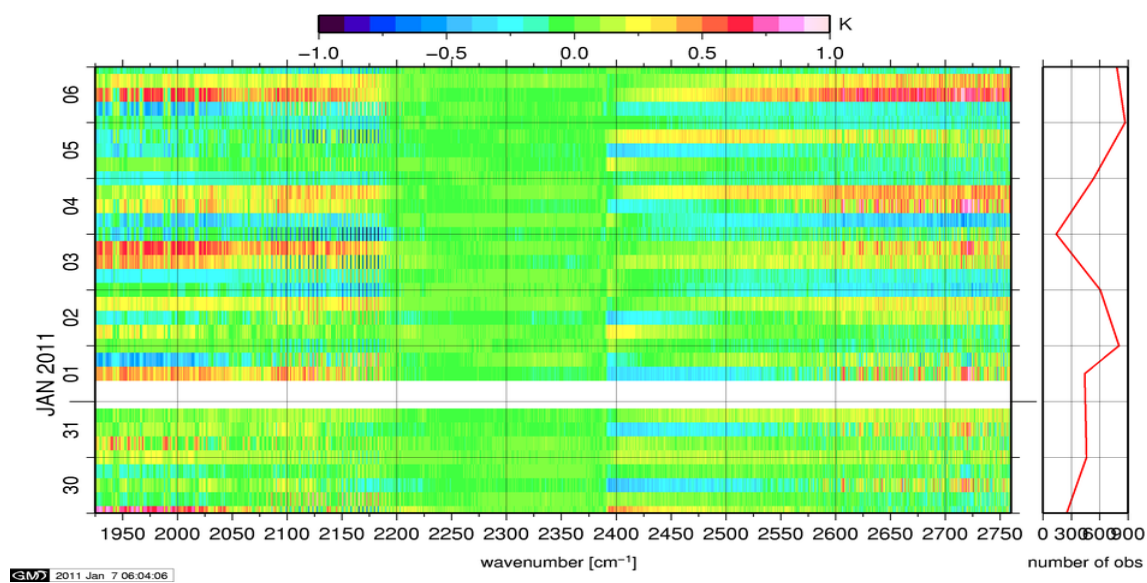


Figure 13: Radiance Anomaly in BRT: IASI Band 3

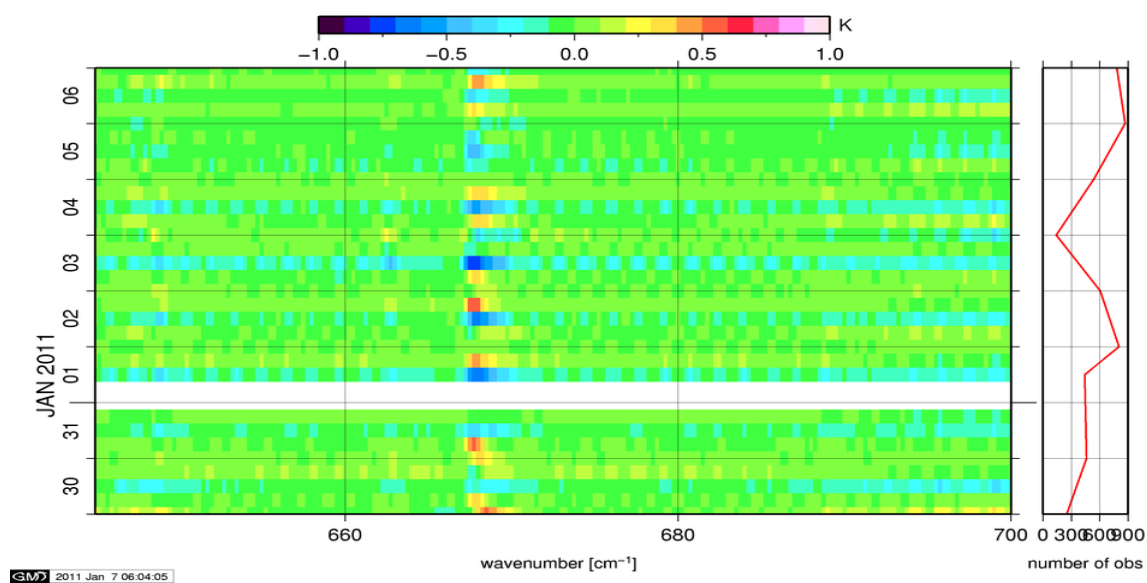


Figure 14: Radiance Anomaly in BRT: CO2 14

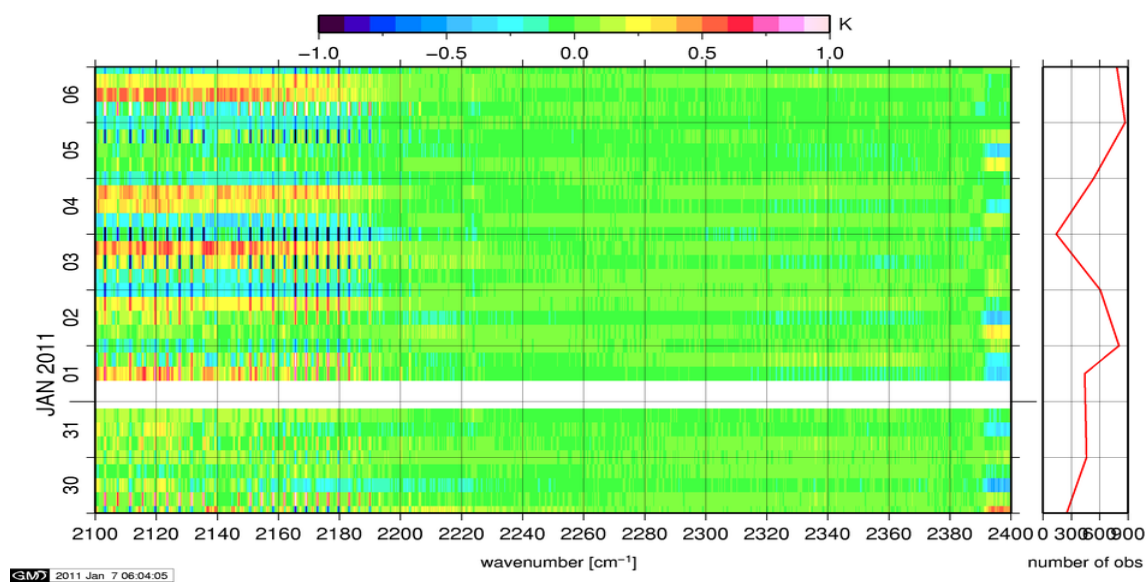


Figure 15: Radiance Anomaly in BRT: CO2 4.3

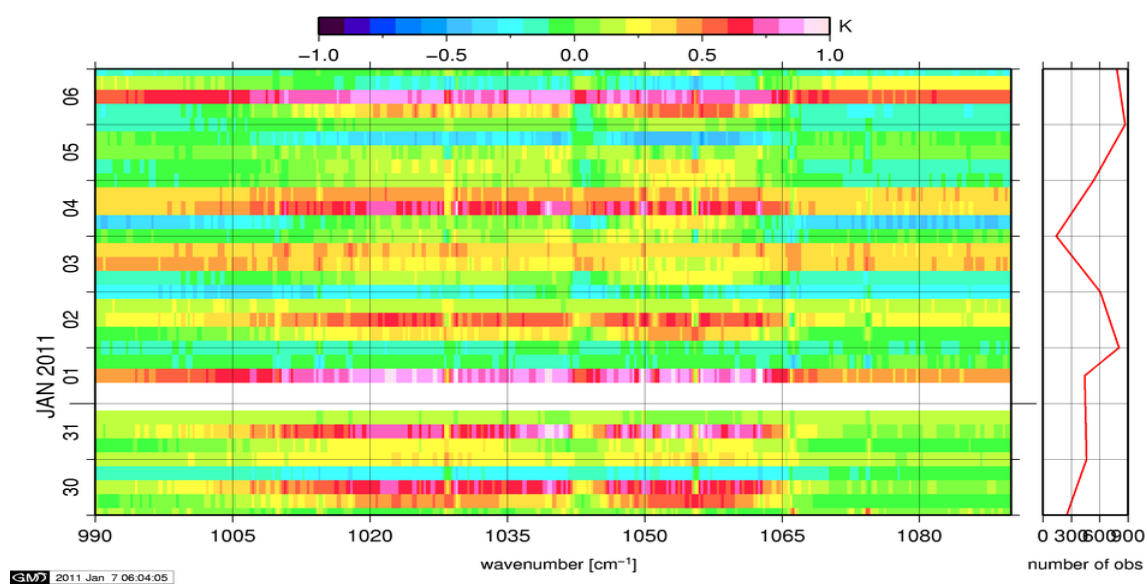


Figure 16: Radiance Anomaly in BRT: O3

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.

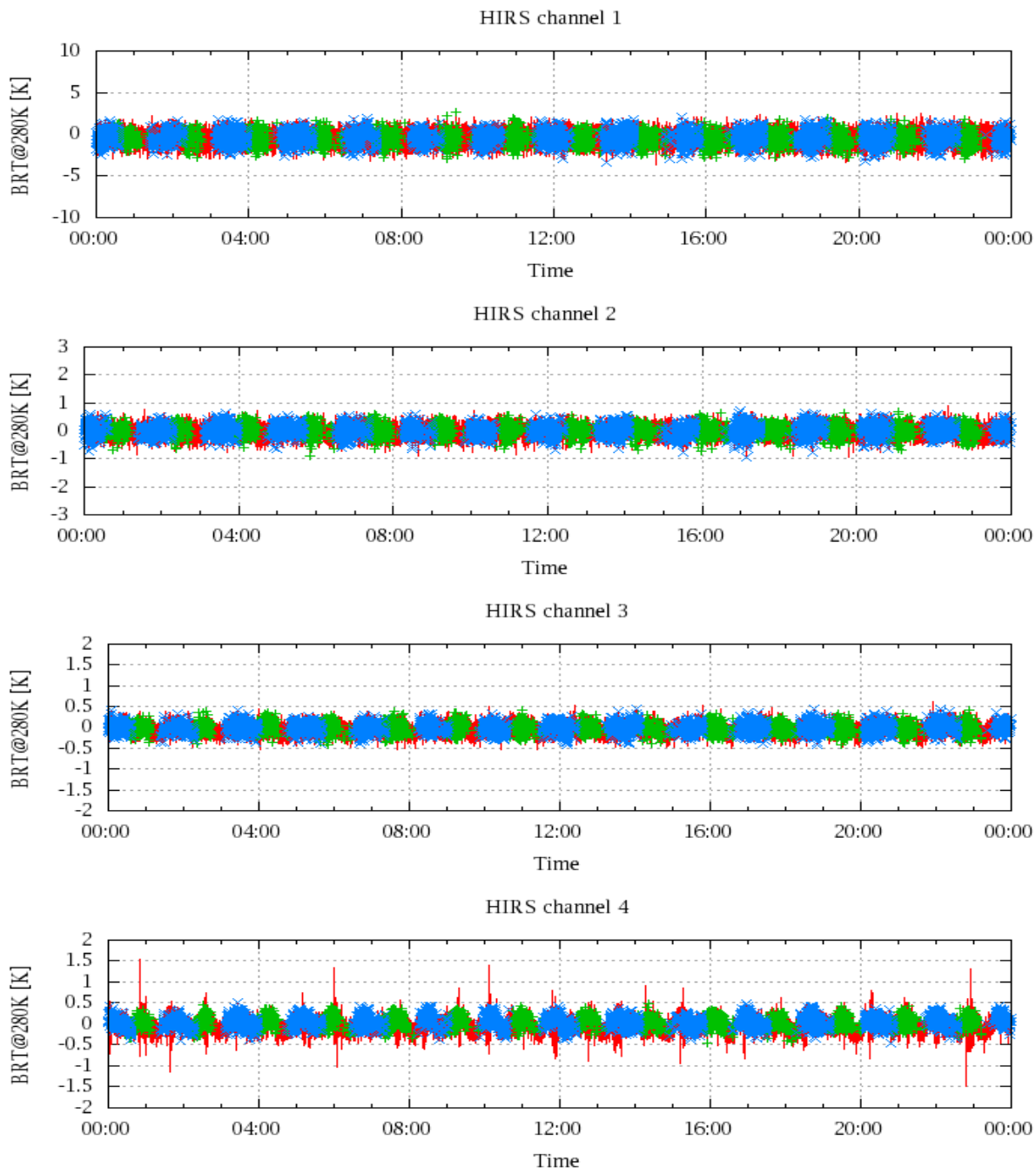


Figure 17: Radiance Differences in BRT

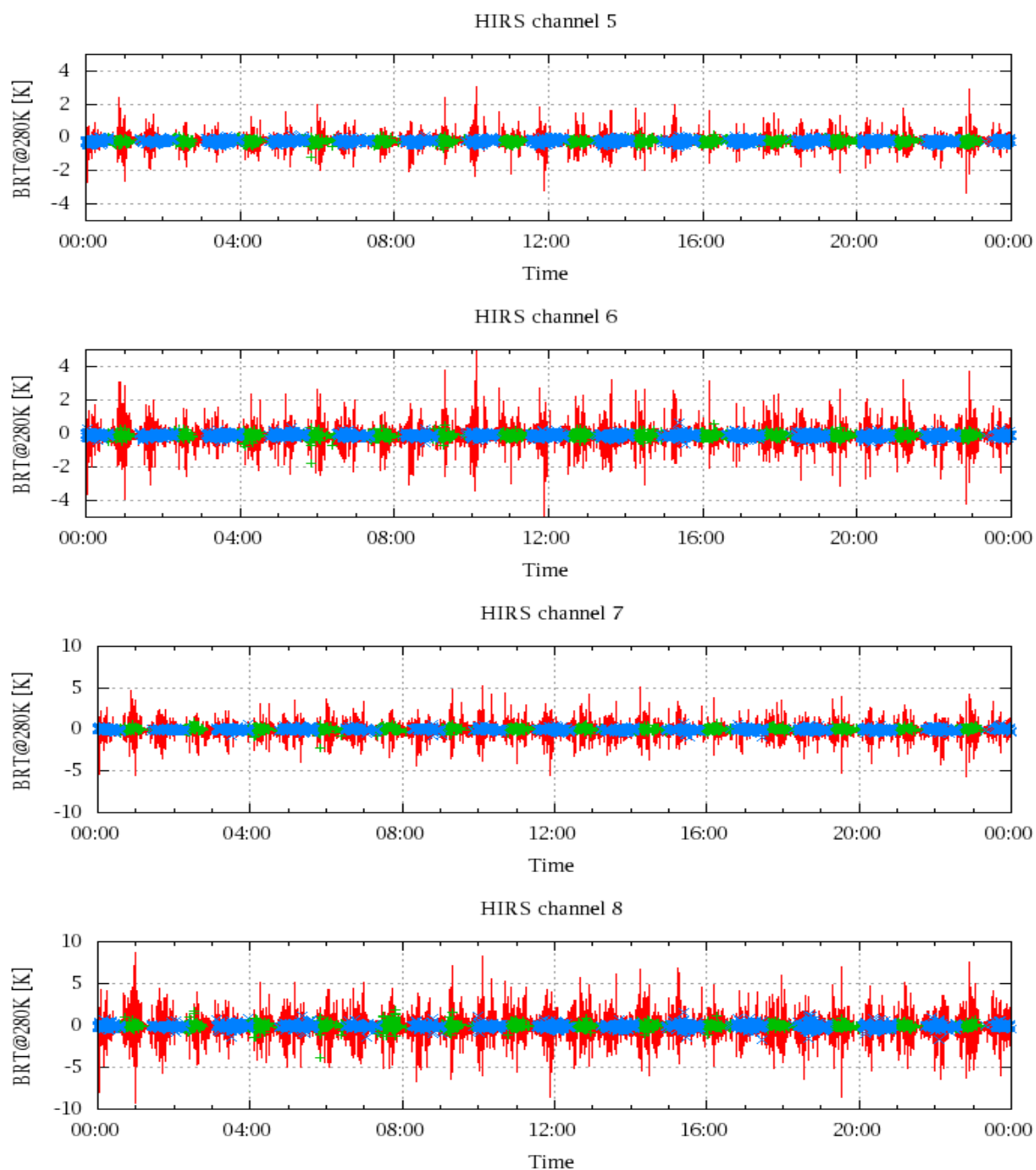


Figure 18: Radiance Differences in BRT

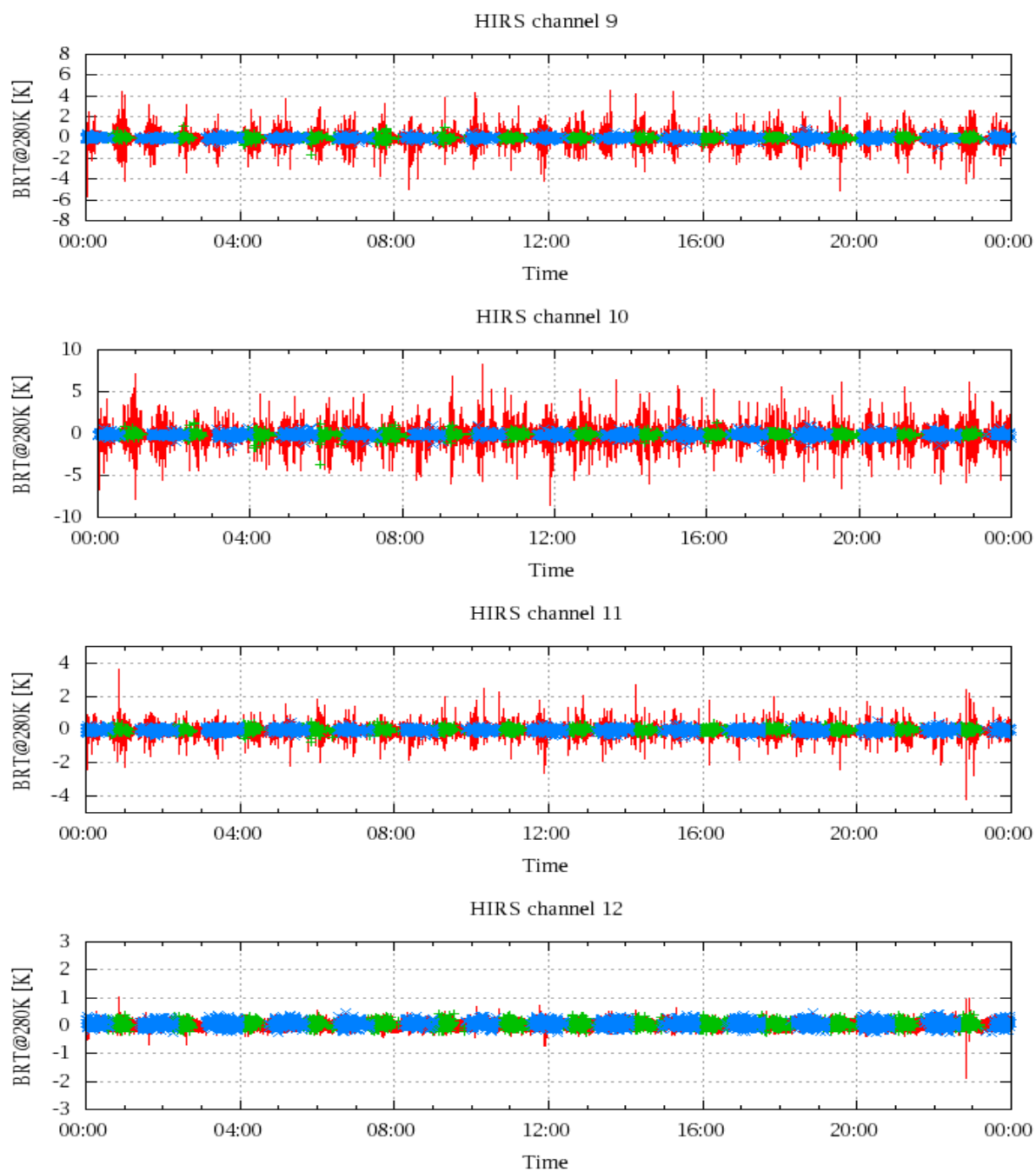


Figure 19: Radiance Differences in BRT

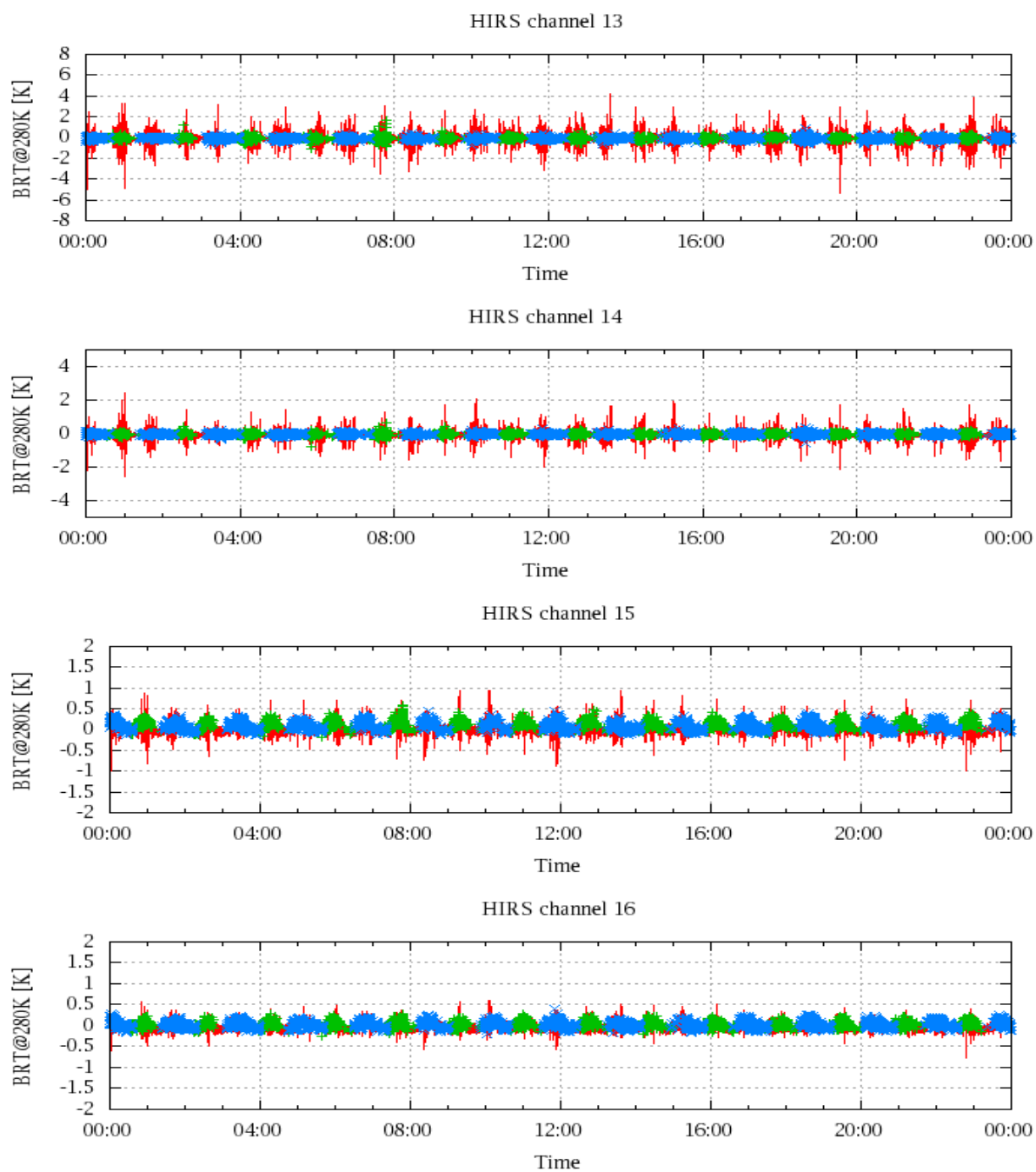


Figure 20: Radiance Differences in BRT

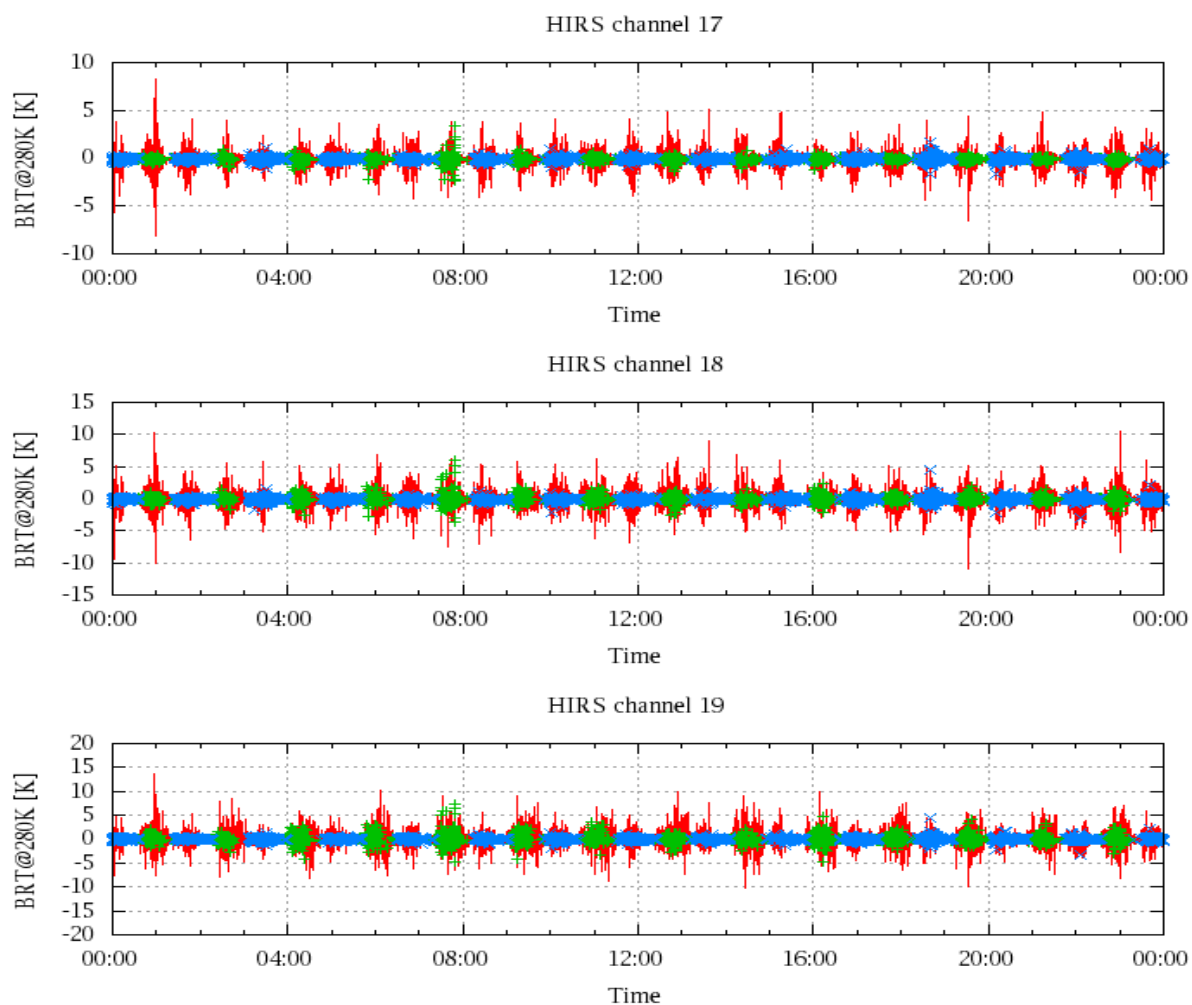


Figure 21: Radinace Differences in BRT