

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

25/02/2011 00:00:00 - 26/02/2011 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 25/02/2011 00:00:00 - 26/02/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 25/02/2011 00:00:00 - 26/02/2011 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	462	-
L0 IASI PDUs	462	-
L1 ENG PDUs	458	e
L1 ENG distinct GEPSGranule	459	a
L1 DPX PDUs (RM: IASI-HIRS)	458	e
L1 DPS Files (RM: OBS-CAL NWP based)	459	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	1892	15150	20110225085659.839	20110225095555.382
PX1 (130)	15150	15152	20110225095555.382	20110225095555.816
PX1 (130)	15152	15155	20110225095555.816	20110225095556.464
PX1 (130)	15155	15159	20110225095556.464	20110225095557.331
PX1 (130)	15159	15161	20110225095557.331	20110225095557.761
PX1 (130)	15163	15165	20110225095558.195	20110225095558.628
PX1 (130)	15165	15168	20110225095558.628	20110225095559.277
PX1 (130)	15168	15174	20110225095559.277	20110225095602.085
PX1 (130)	15175	15177	20110225095602.300	20110225095602.734
PX1 (130)	15189	15191	20110225095605.327	20110225095605.761
PX1 (130)	15195	15197	20110225095606.624	20110225095607.058
PX2 (135)	1892	15150	20110225085659.839	20110225095555.382
PX2 (135)	15150	15152	20110225095555.382	20110225095555.816
PX2 (135)	15152	15155	20110225095555.816	20110225095556.464
PX2 (135)	15155	15158	20110225095556.464	20110225095557.113
PX2 (135)	15158	15161	20110225095557.113	20110225095557.761
PX2 (135)	15161	15166	20110225095557.761	20110225095558.843
PX2 (135)	15166	15173	20110225095558.843	20110225095601.870

Continued on next page

Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	15173	15178	20110225095601.870	20110225095602.952
PX2 (135)	15195	15197	20110225095606.624	20110225095607.058
PX3 (140)	1892	15158	20110225085659.839	20110225095557.113
PX3 (140)	15158	15161	20110225095557.113	20110225095557.761
PX3 (140)	15161	15169	20110225095557.761	20110225095559.491
PX3 (140)	15169	15171	20110225095559.491	20110225095601.437
PX3 (140)	15171	15177	20110225095601.437	20110225095602.734
PX3 (140)	15195	15197	20110225095606.624	20110225095607.058
PX4 (145)	1892	15147	20110225085659.839	20110225095554.734
PX4 (145)	15147	15151	20110225095554.734	20110225095555.601
PX4 (145)	15151	15154	20110225095555.601	20110225095556.249
PX4 (145)	15154	15158	20110225095556.249	20110225095557.113
PX4 (145)	15158	15160	20110225095557.113	20110225095557.546
PX4 (145)	15161	15167	20110225095557.761	20110225095559.058
PX4 (145)	15167	15171	20110225095559.058	20110225095601.437
PX4 (145)	15171	15176	20110225095601.437	20110225095602.519
PX4 (145)	15188	15190	20110225095605.113	20110225095605.546
IMG (150)	7600	6250	20110225085659.839	20110225095557.113
IMG (150)	6250	6253	20110225095557.113	20110225095557.761
IMG (150)	6253	6259	20110225095557.761	20110225095559.058
IMG (150)	6259	6273	20110225095559.058	20110225095602.734
IMG (150)	6284	6286	20110225095605.113	20110225095605.546
VER (160)	11232	13447	20110225085655.515	20110225095559.491
AUX (180)	5522	5966	20110225085655.949	20110225095607.925

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
25/02/2011 00:07:39	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	462	-
L1 ENG PDUs	458	e
L1 ENG distinct GEPSGranule	459	a
GQisFlagQual set (PX1)	99.25 %	-
GQisFlagQual set (PX2)	99.08 %	-
GQisFlagQual set (PX3)	99.17 %	-
GQisFlagQual set (PX4)	99.30 %	-
GQisFlagQual set (all)	99.20 %	-

Table 4: Quality flags

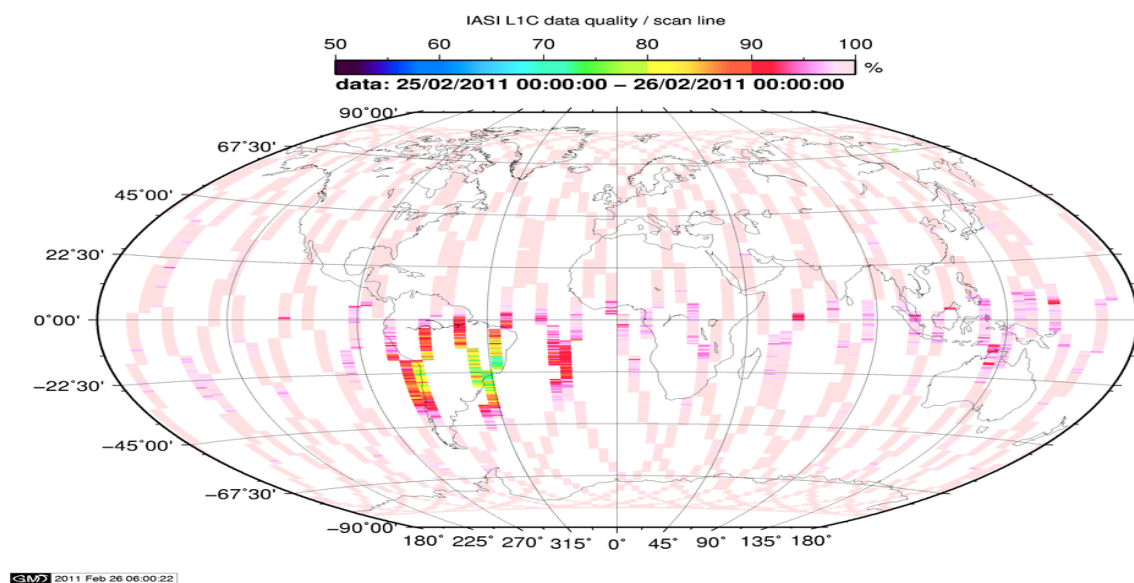


Figure 1: L1C data quality

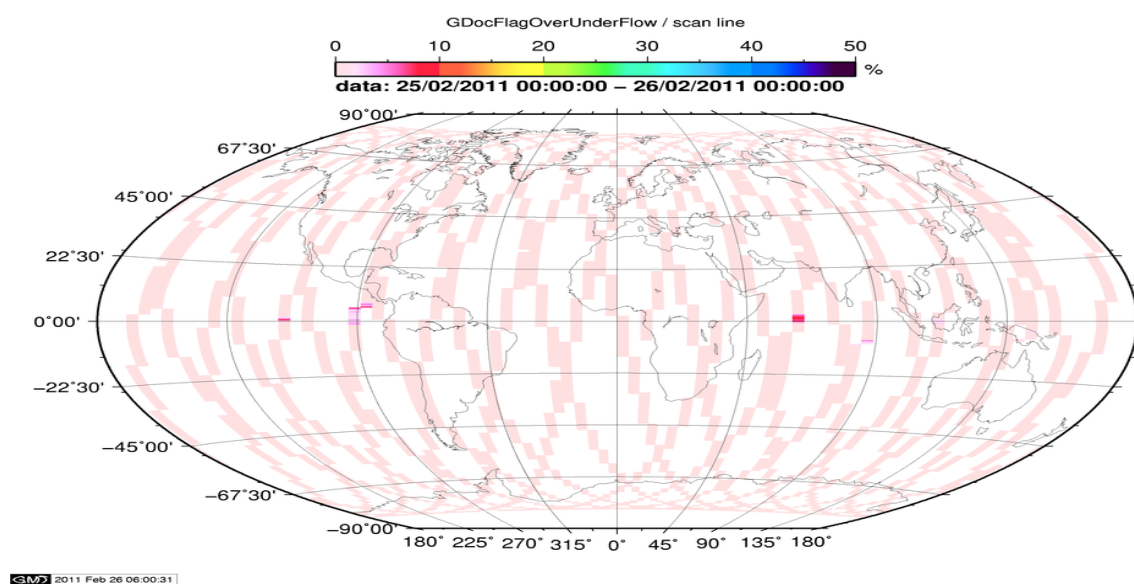


Figure 2: Flag of Over and Under Flows

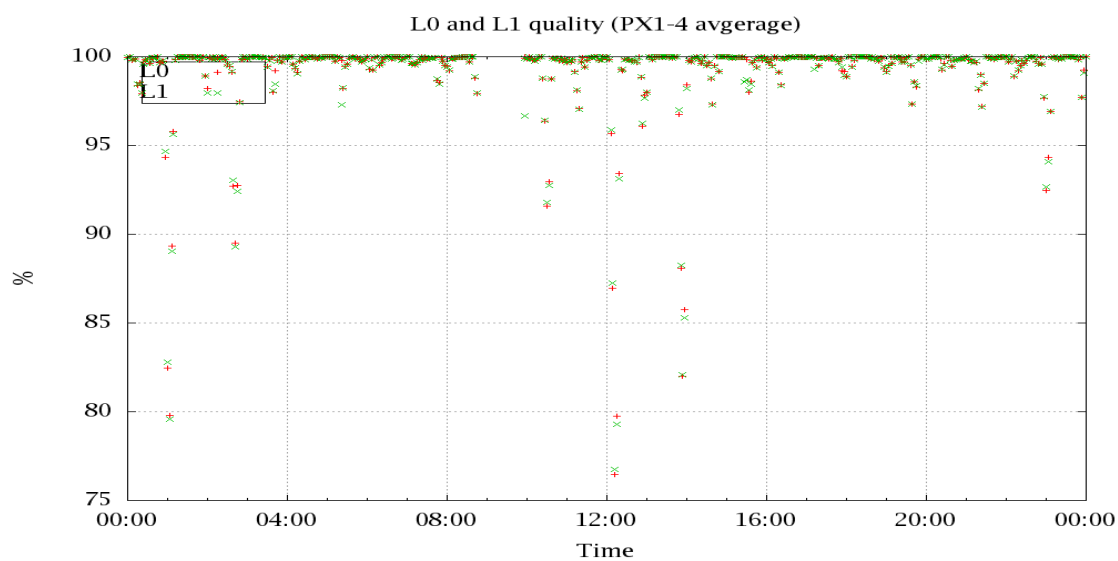


Figure 3: Level 0 and 1C overall quality

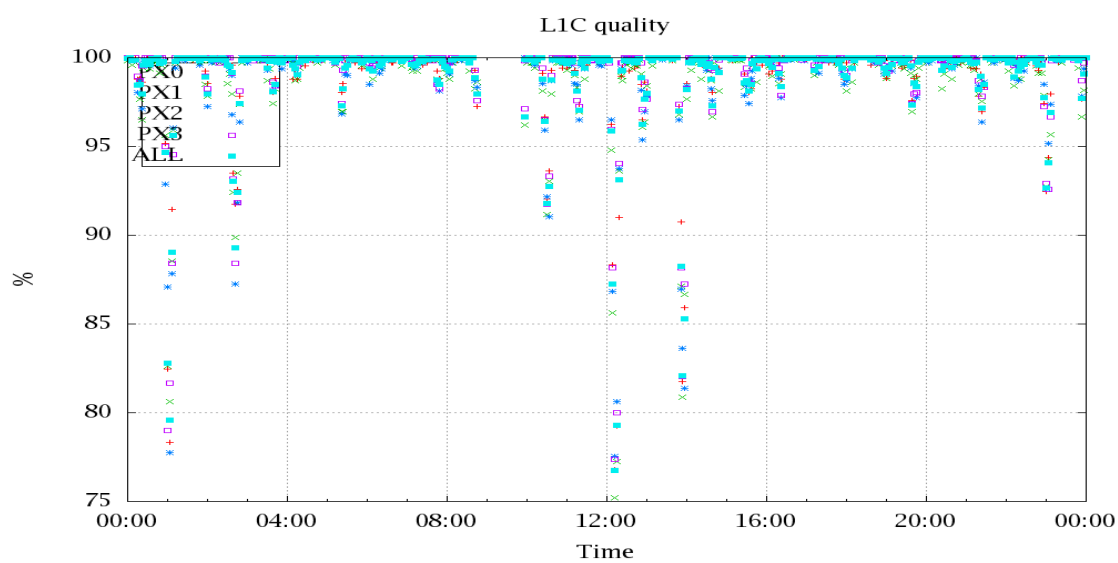


Figure 4: Level 1C quality

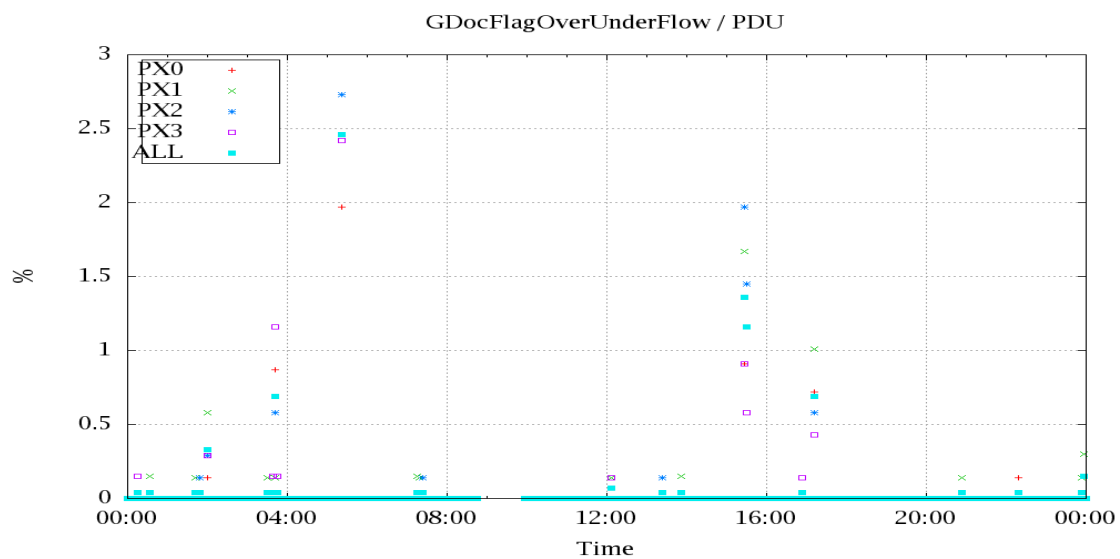


Figure 5: OverUnderFlowFlag timeseries

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.

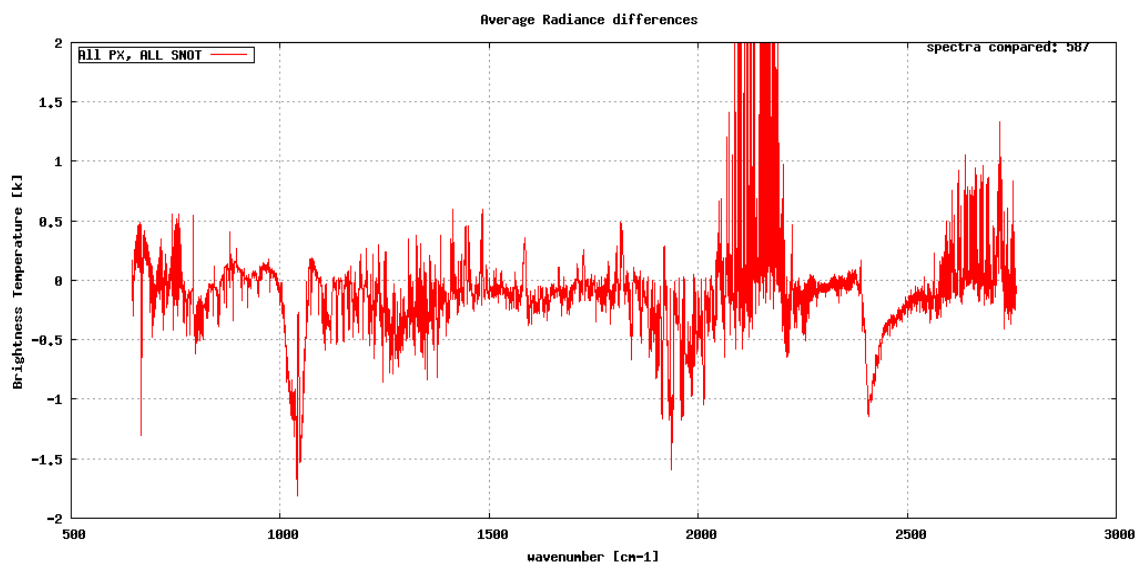


Figure 6: Average Radiance differences: OBS-CAL

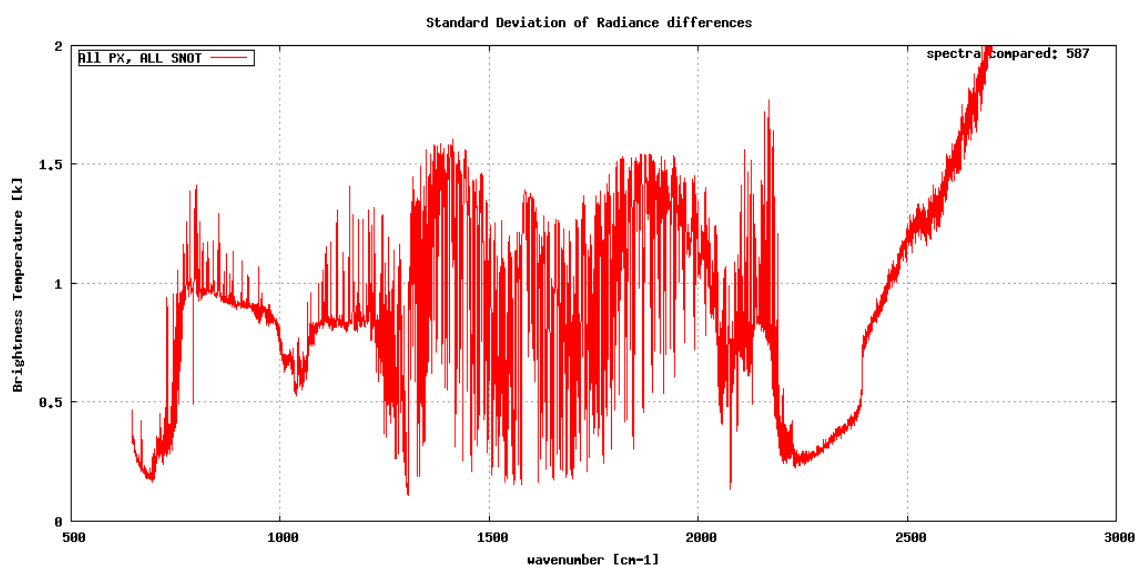


Figure 7: Standard Deviation of Radiance differences

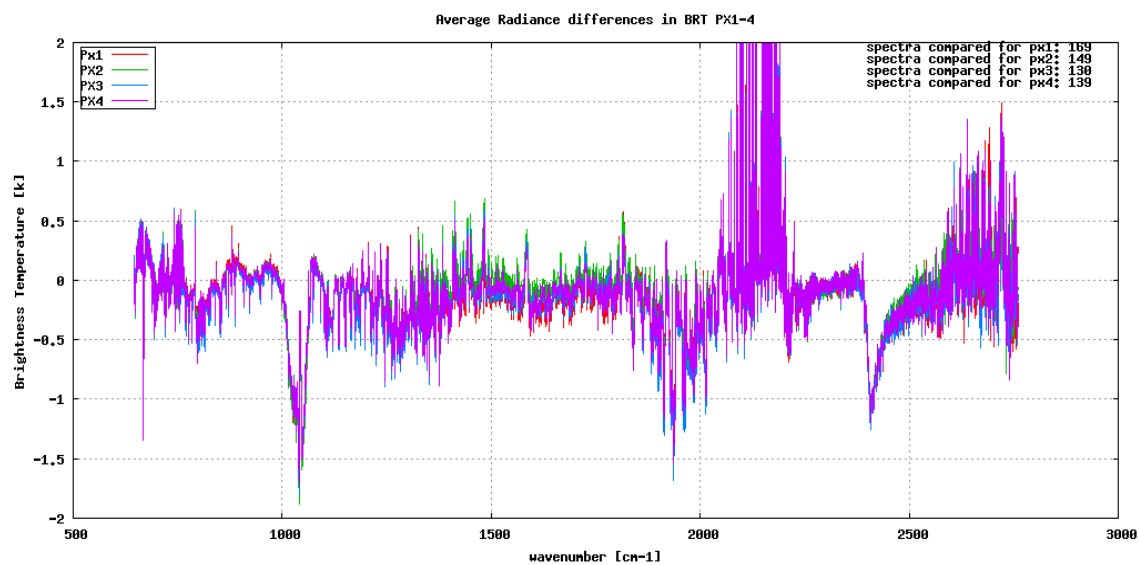


Figure 8: Average Radiance differences: OBS-CAL

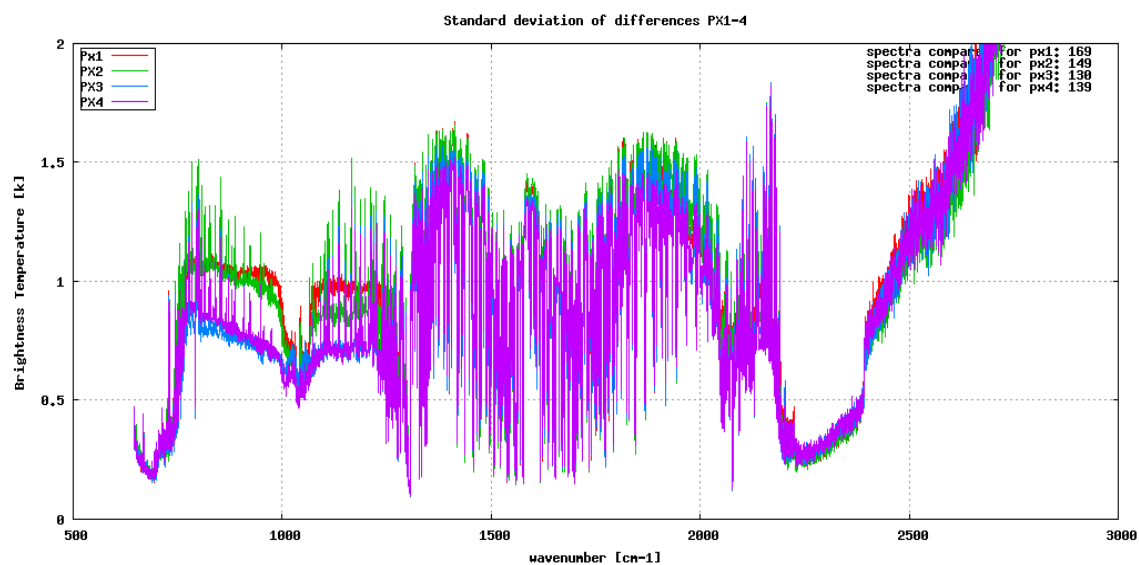


Figure 9: Standard Deviation of Radiance differences

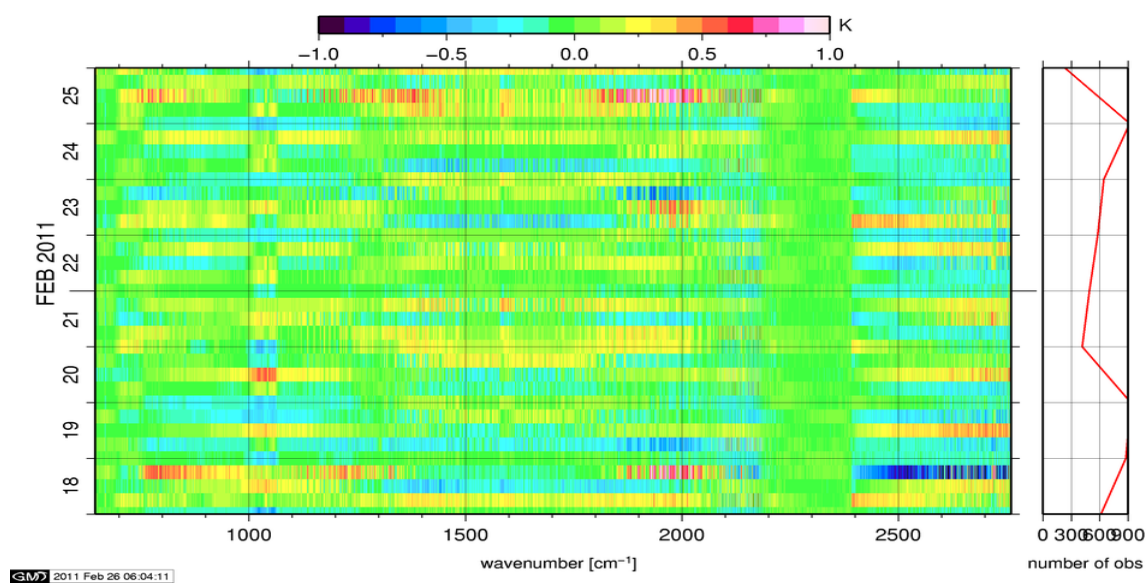


Figure 10: Radiance Anomaly in BRT: All Channels

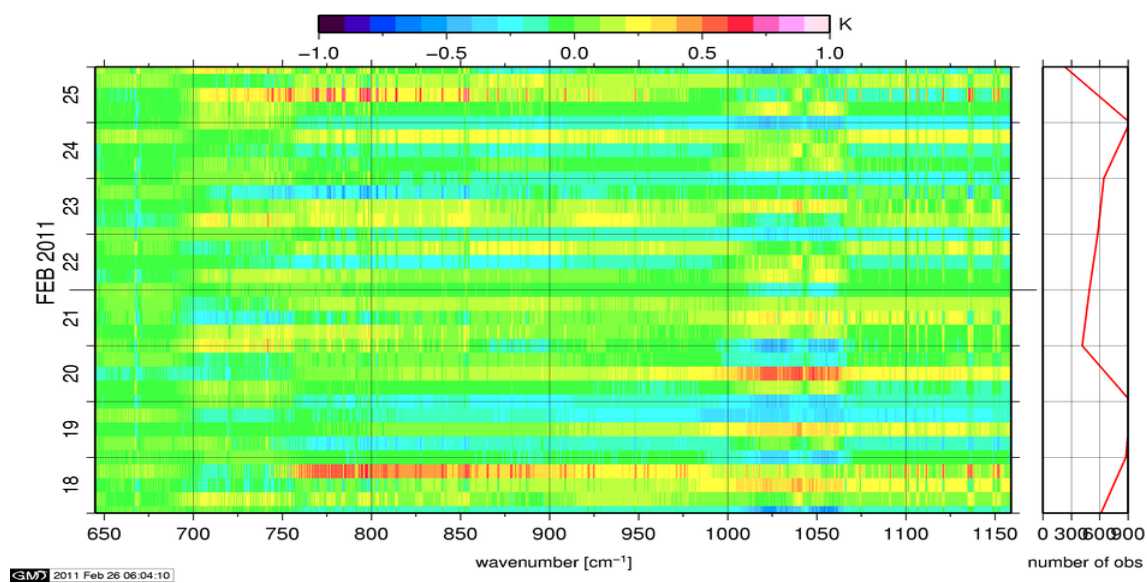


Figure 11: Radiance Anomaly in BRT: IASI Band 1

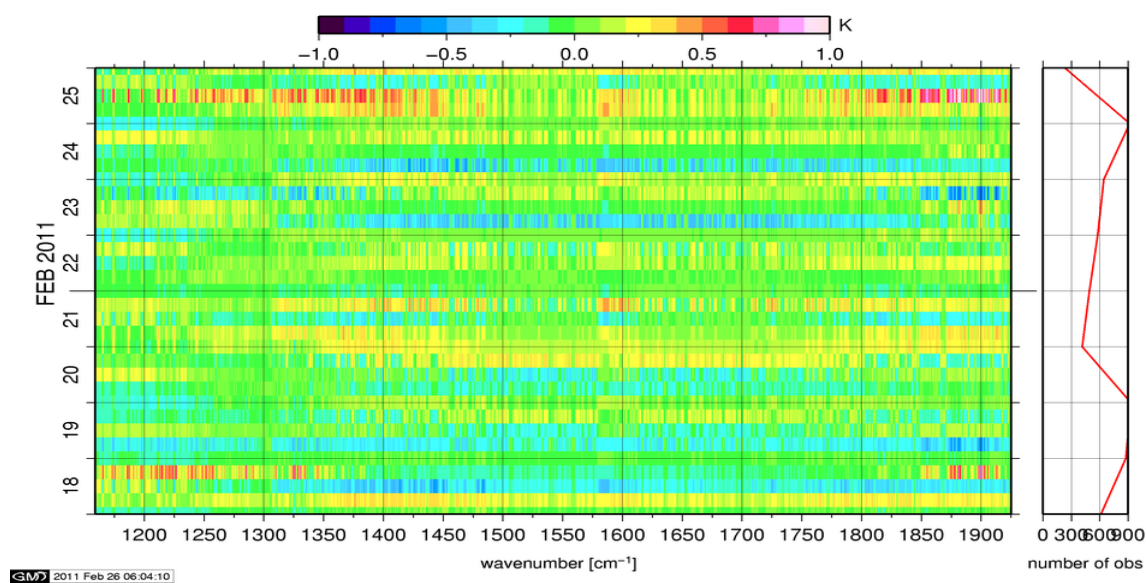


Figure 12: Radiance Anomaly in BRT: IASI Band 2

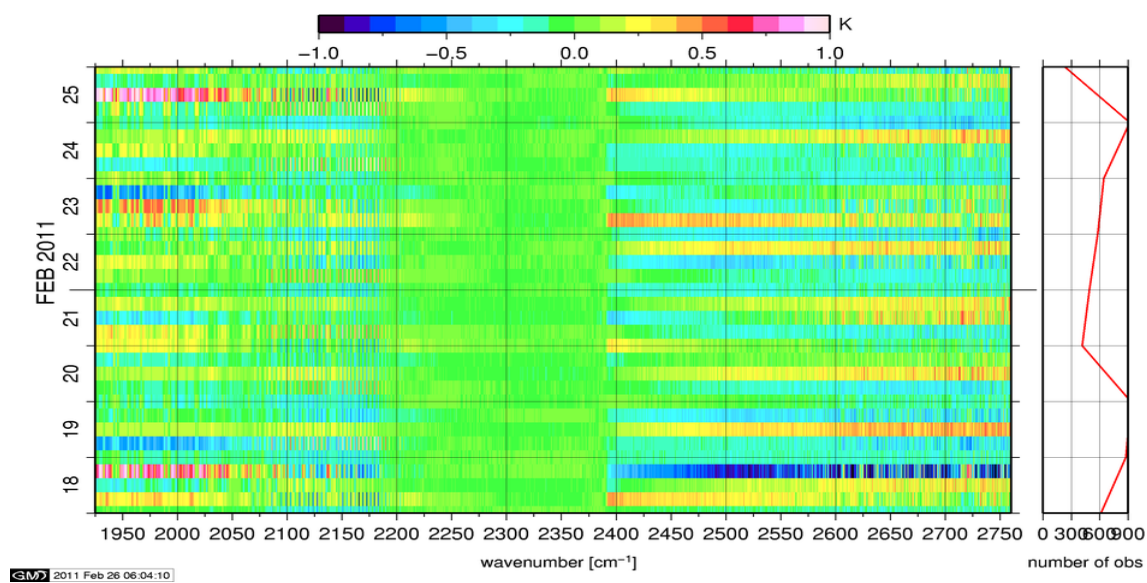


Figure 13: Radiance Anomaly in BRT: IASI Band 3

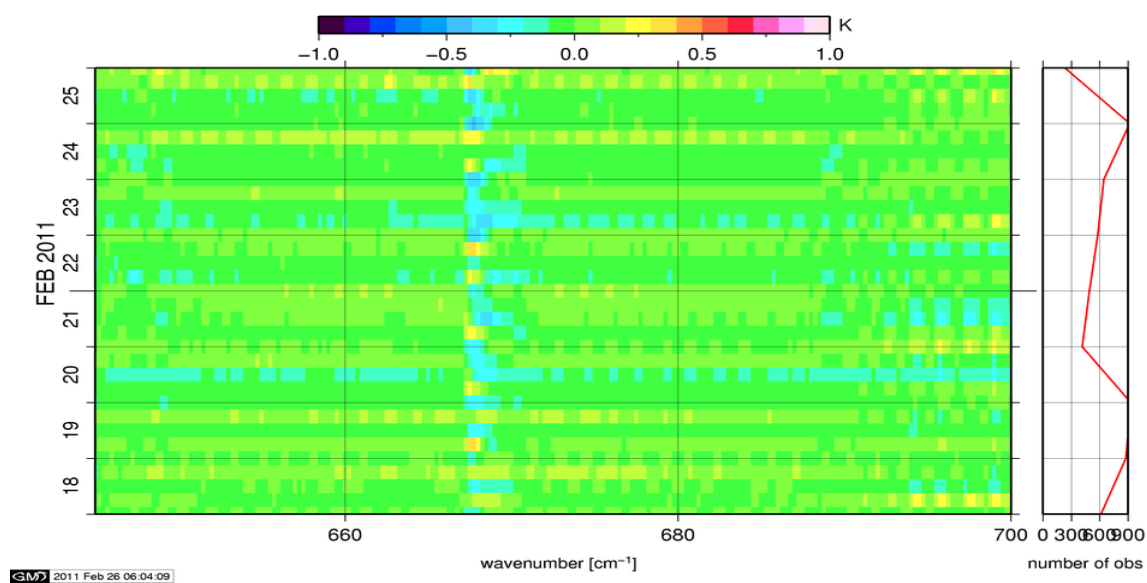


Figure 14: Radiance Anomaly in BRT: CO2 14

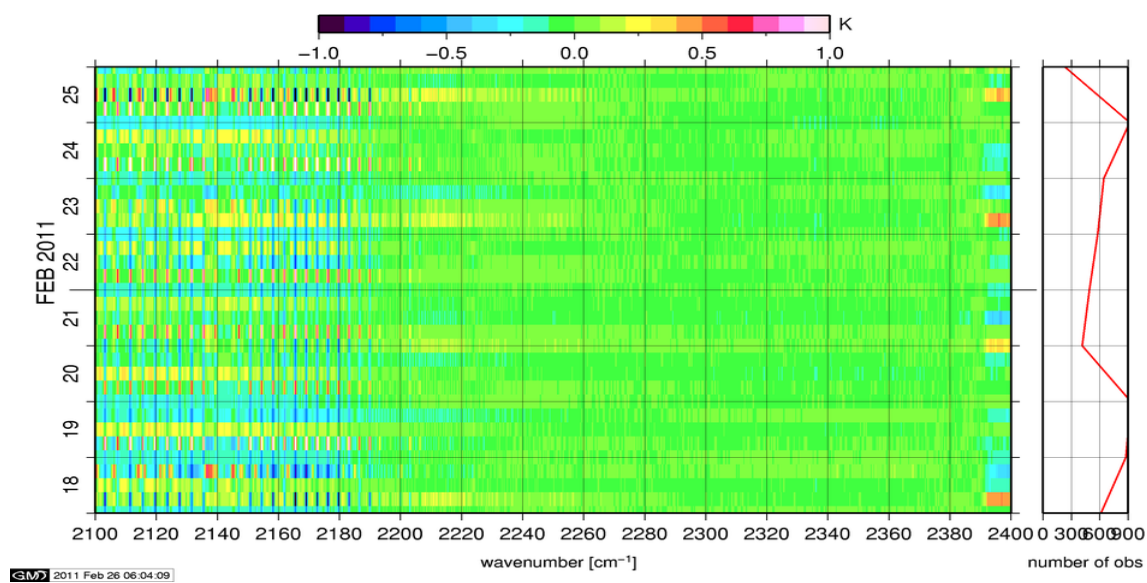


Figure 15: Radiance Anomaly in BRT: CO2 4.3

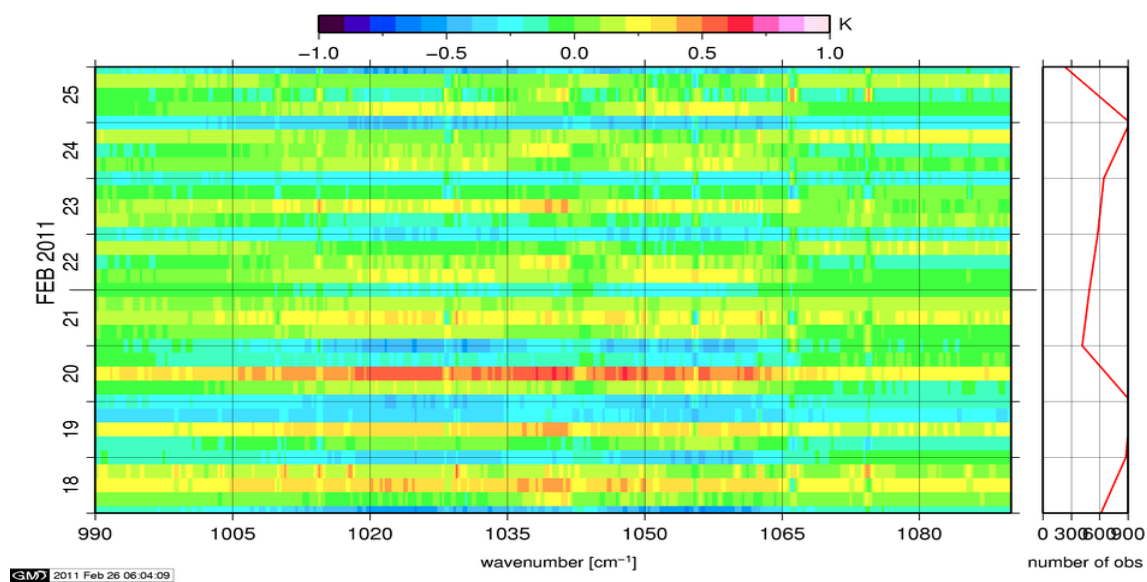


Figure 16: Radiance Anomaly in BRT: O3

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.

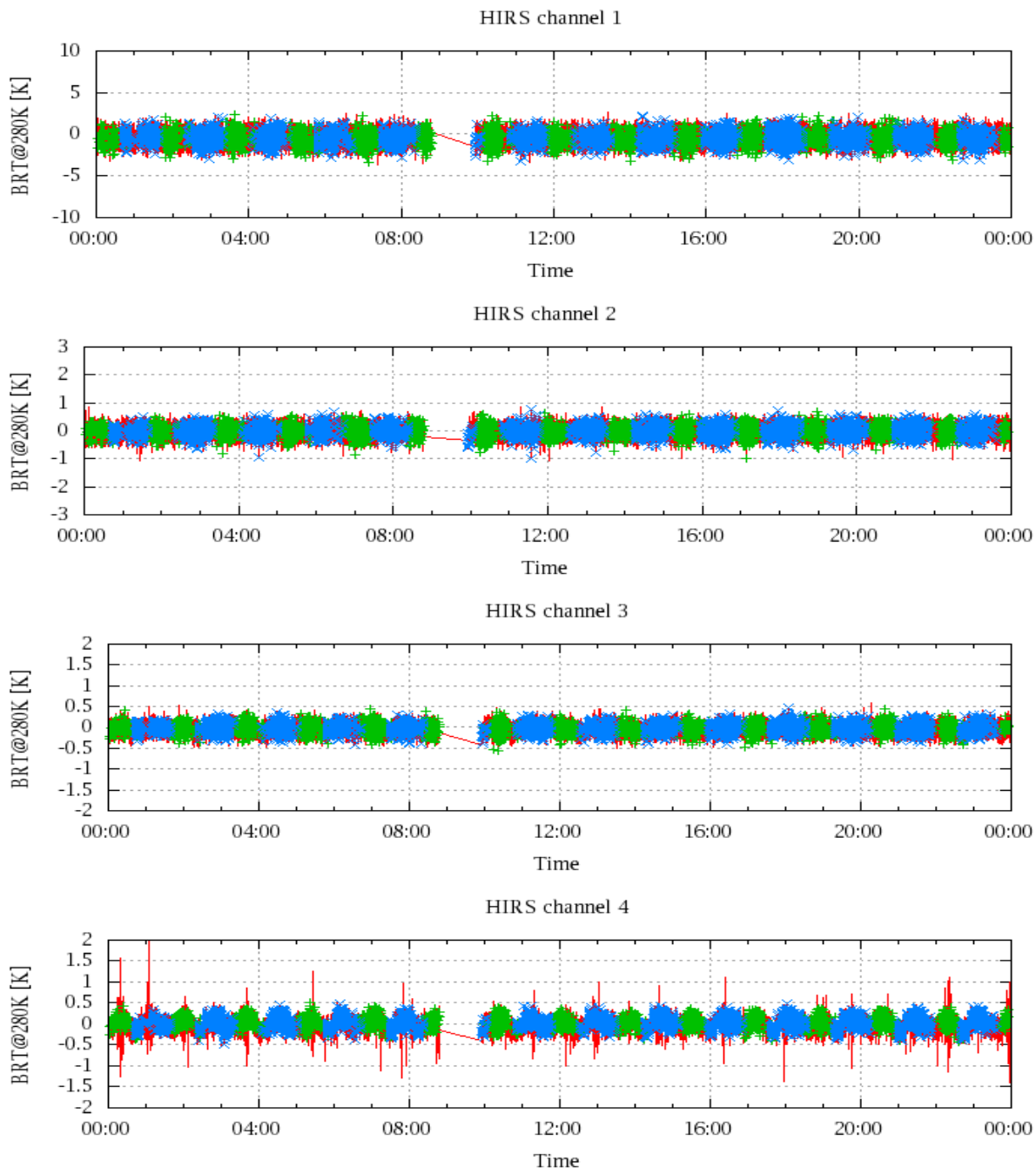


Figure 17: Radiance Differences in BRT

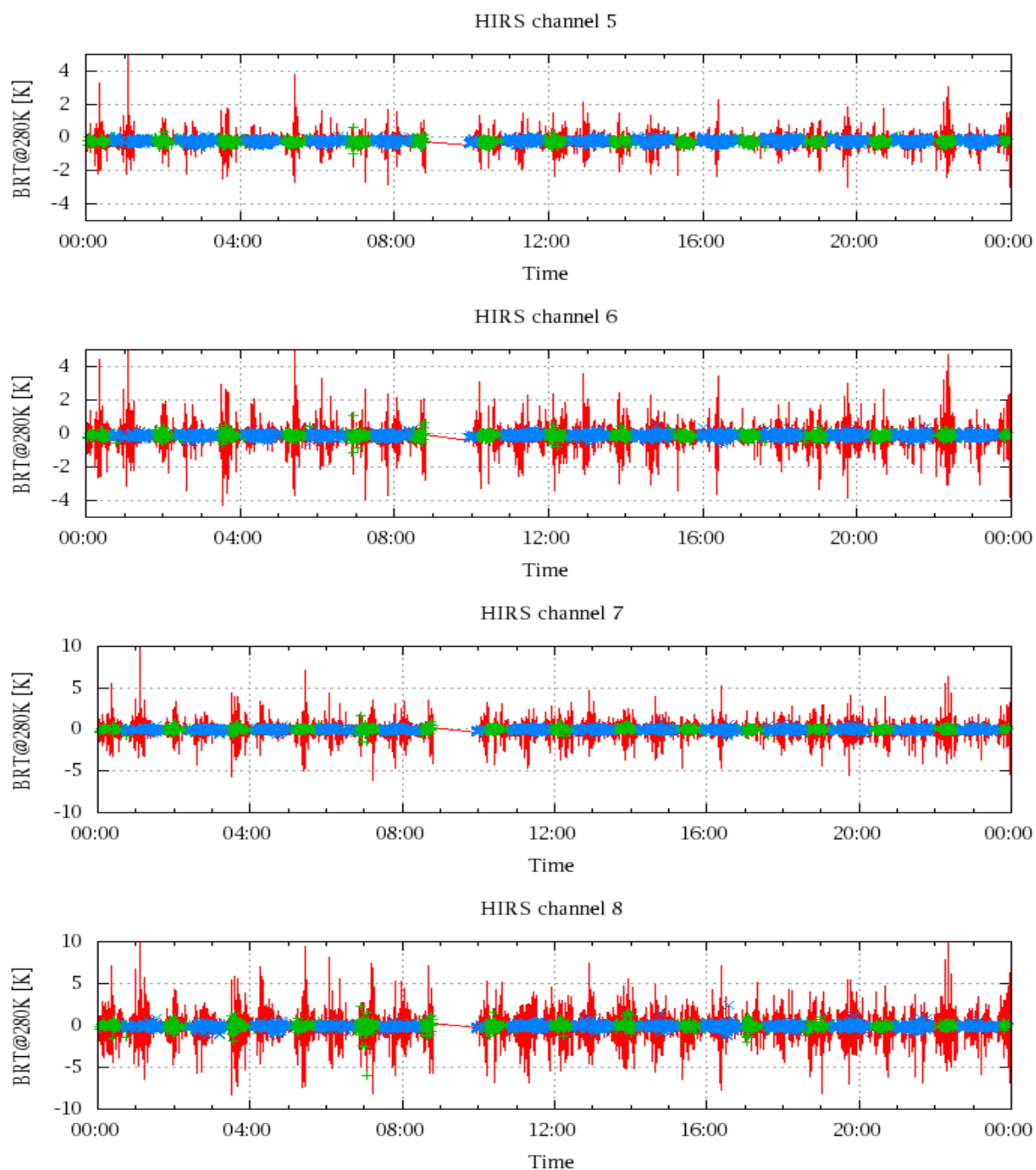


Figure 18: Radiance Differences in BRT

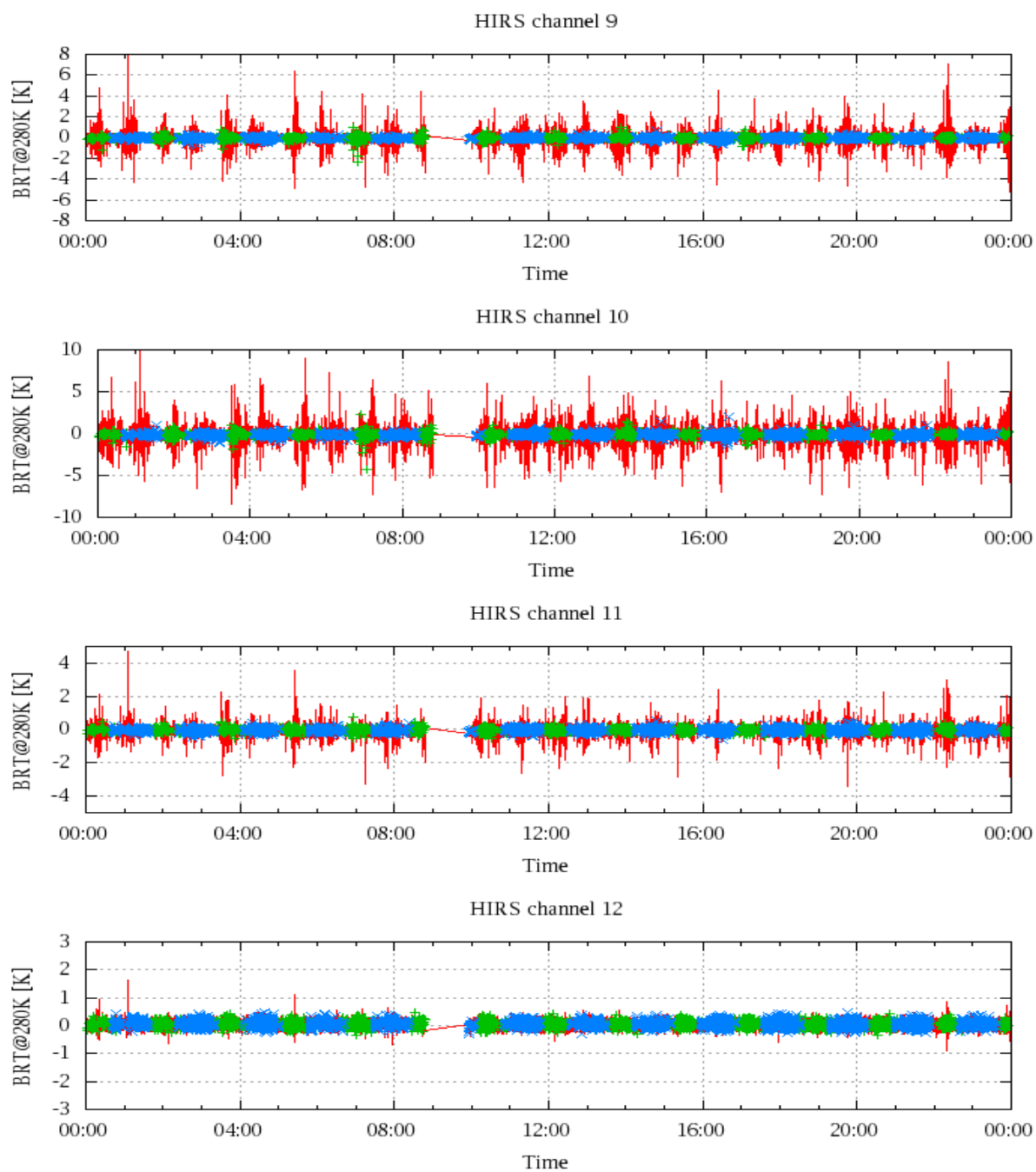


Figure 19: Radiance Differences in BRT

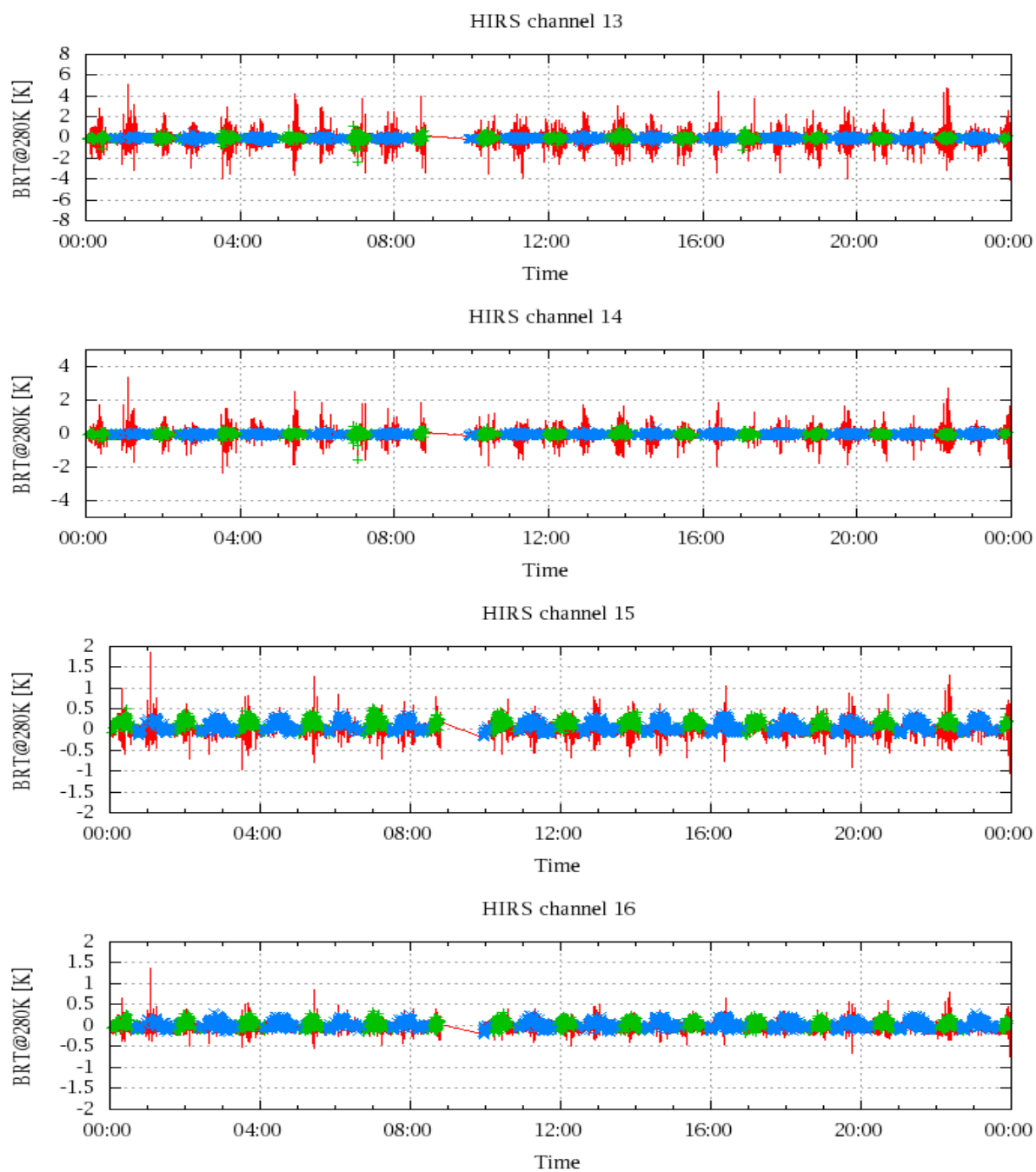


Figure 20: Radiance Differences in BRT

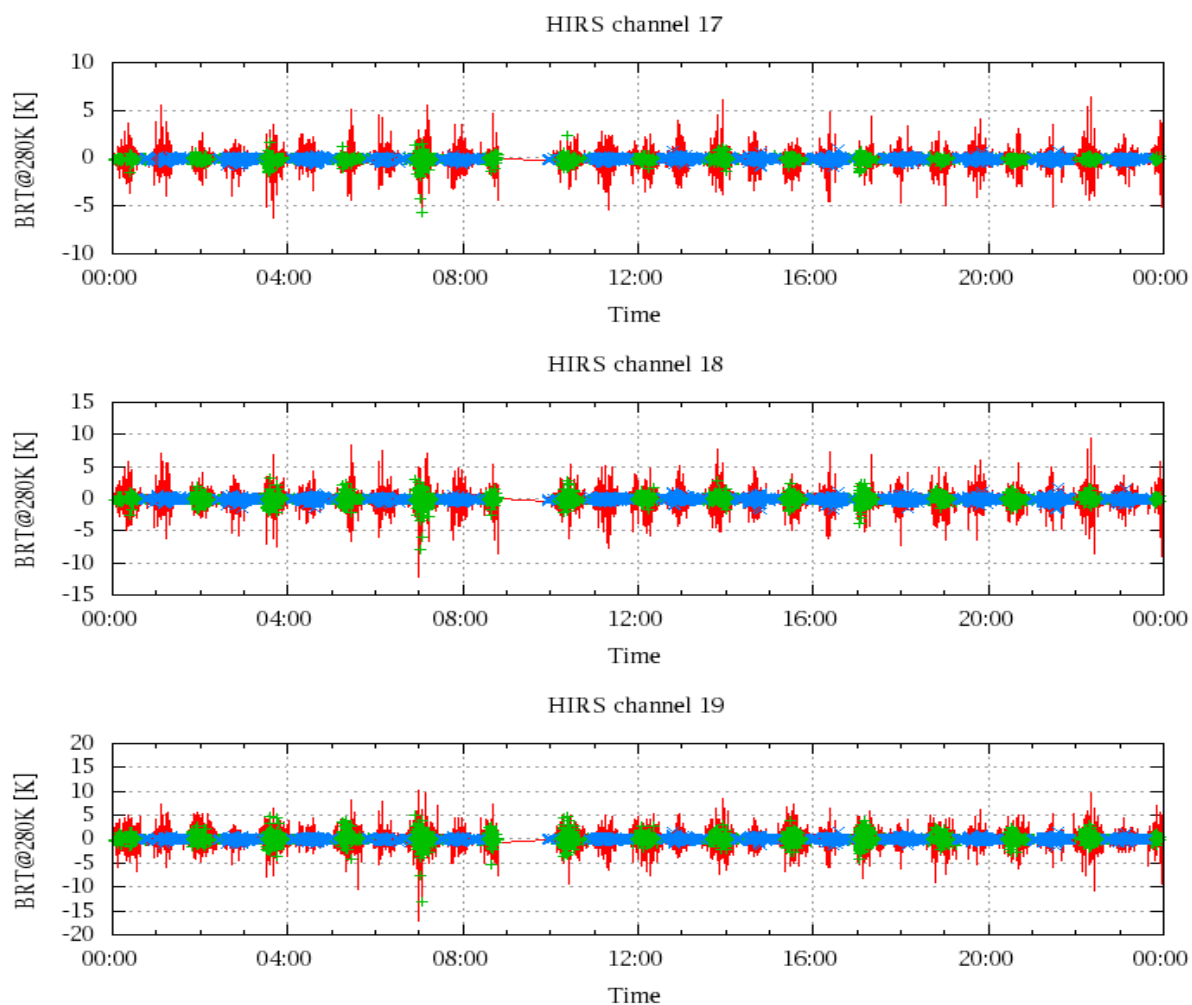


Figure 21: Radinace Differences in BRT