

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

27/01/2011 00:00:00 - 28/01/2011 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 27/01/2011 00:00:00 - 28/01/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 27/01/2011 00:00:00 - 28/01/2011 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	480	-
L0 IASI PDUs	474	-
L1 ENG PDUs	479	-
L1 ENG distinct GEPSGranule	480	-
L1 DPX PDUs (RM: IASI-HIRS)	459	e
L1 DPS Files (RM: OBS-CAL NWP based)	470	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	882	2233	20110127091459.890	20110127092100.096
PX1 (130)	4253	5605	20110127092959.794	20110127093600.215
PX1 (130)	10332	11683	20110127095659.892	20110127100300.098
PX1 (130)	13032	13705	20110127100859.875	20110127101200.191
PX2 (135)	882	2233	20110127091459.890	20110127092100.096
PX2 (135)	4253	5605	20110127092959.794	20110127093600.215
PX2 (135)	10332	11683	20110127095659.892	20110127100300.098
PX2 (135)	13032	13705	20110127100859.875	20110127101200.191
PX3 (140)	882	2233	20110127091459.890	20110127092100.096
PX3 (140)	4253	5605	20110127092959.794	20110127093600.215
PX3 (140)	10332	11683	20110127095659.892	20110127100300.098
PX3 (140)	13032	13705	20110127100859.875	20110127101200.191
PX4 (145)	882	2233	20110127091459.890	20110127092100.096
PX4 (145)	4253	5605	20110127092959.794	20110127093600.215
PX4 (145)	10332	11683	20110127095659.892	20110127100300.098
PX4 (145)	13032	13705	20110127100859.875	20110127101200.191
IMG (150)	16250	1397	20110127091459.890	20110127092100.096
IMG (150)	3689	5221	20110127092959.794	20110127093600.215

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	10576	12107	20110127095659.892	20110127100300.098
IMG (150)	13636	14401	20110127100859.875	20110127101200.191
VER (160)	11087	11313	20110127091453.187	20110127092101.174
VER (160)	11652	11878	20110127092957.200	20110127093605.188
VER (160)	12662	12888	20110127095653.193	20110127100301.180
VER (160)	13112	13228	20110127100853.172	20110127101205.167
AUX (180)	12033	12079	20110127091453.620	20110127092101.608
AUX (180)	12146	12192	20110127092957.630	20110127093605.622
AUX (180)	12348	12394	20110127095653.623	20110127100301.614
AUX (180)	12438	12462	20110127100853.605	20110127101205.597

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
27/01/2011 00:07:28	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	474	-
L1 ENG PDUs	479	-
L1 ENG distinct GEPSGranule	480	-
GQisFlagQual set (PX1)	99.24 %	-
GQisFlagQual set (PX2)	99.07 %	-
GQisFlagQual set (PX3)	99.21 %	-
GQisFlagQual set (PX4)	99.30 %	-
GQisFlagQual set (all)	99.21 %	-

Table 4: Quality flags

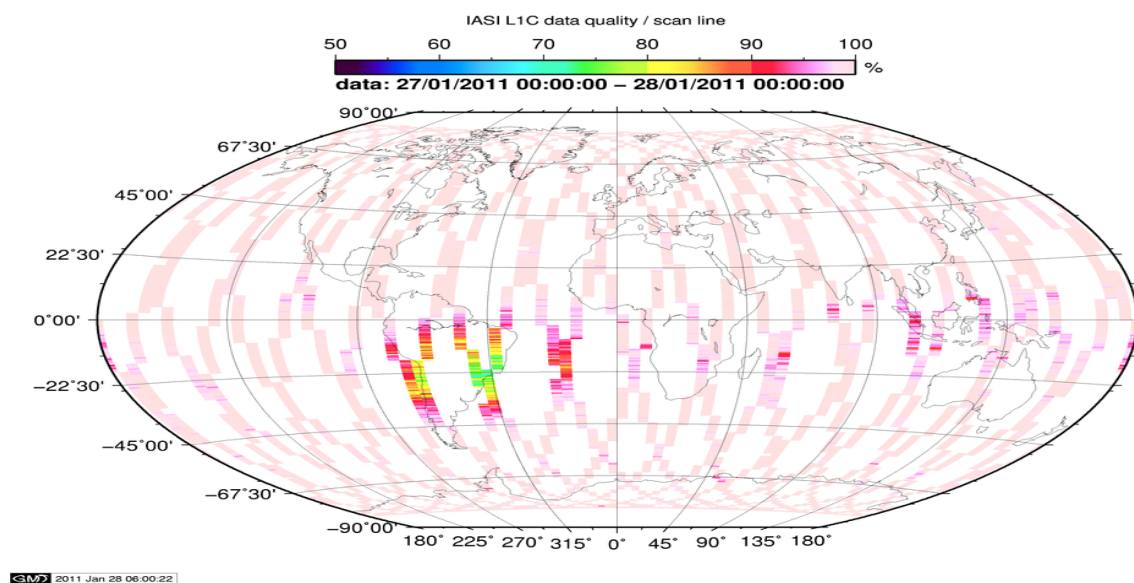


Figure 1: L1C data quality

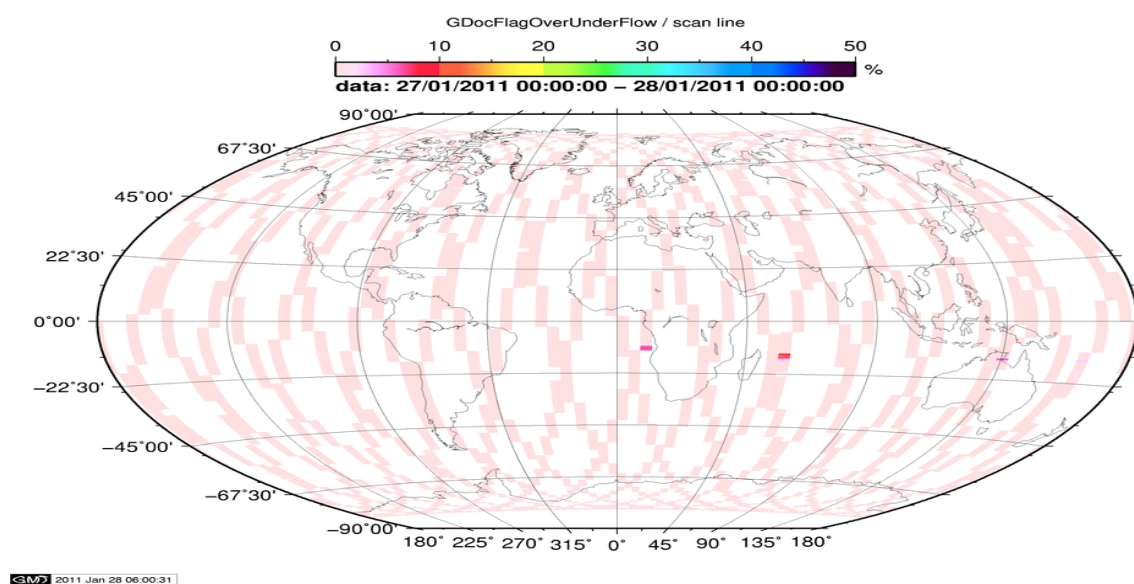


Figure 2: Flag of Over and Under Flows

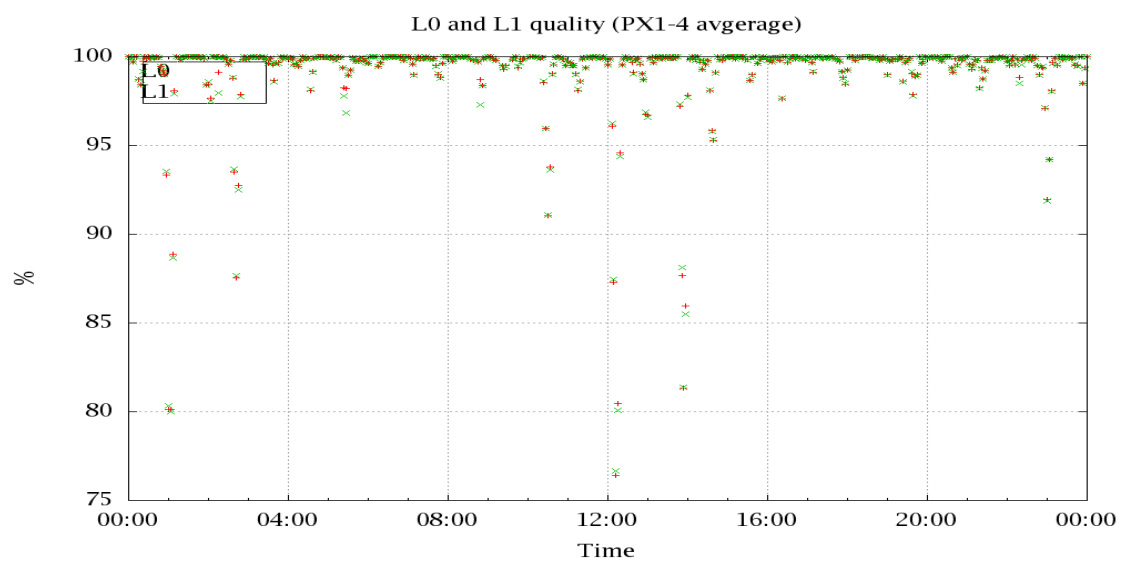


Figure 3: Level 0 and 1C overall quality

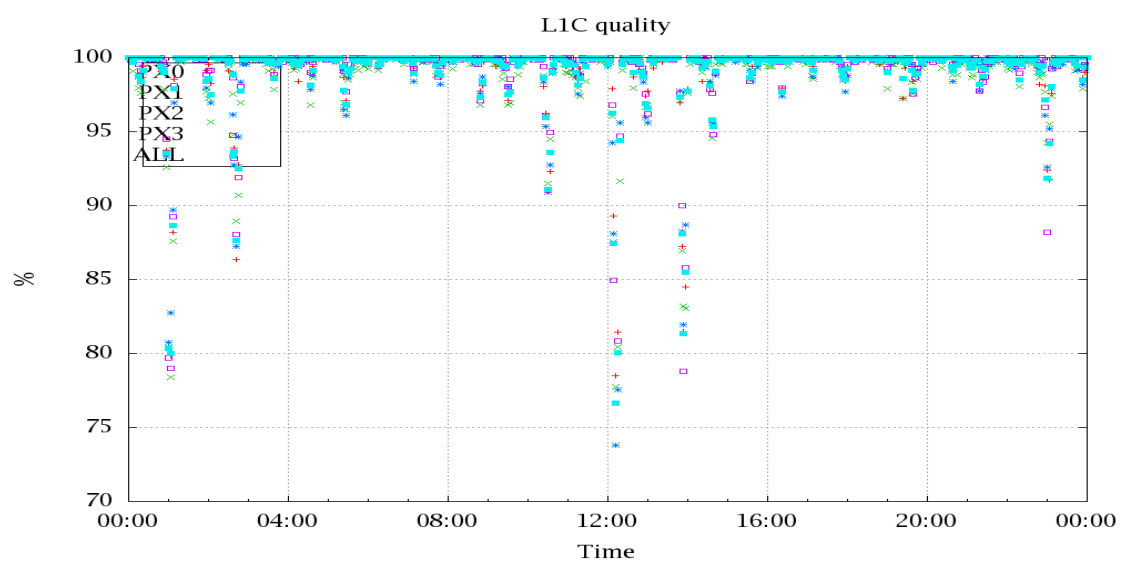


Figure 4: Level 1C quality

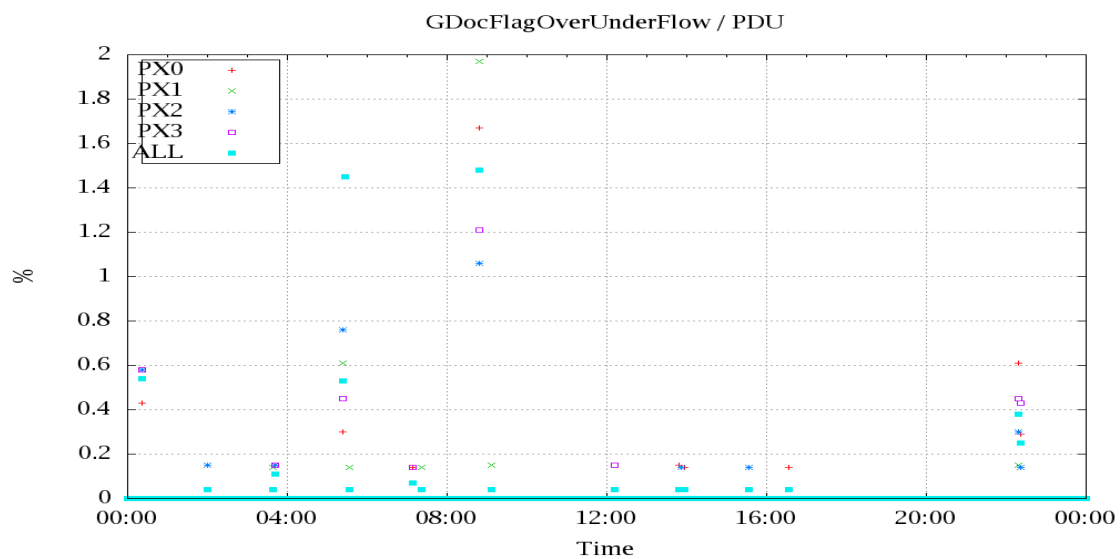


Figure 5: OverUnderFlowFlag timeseries

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.

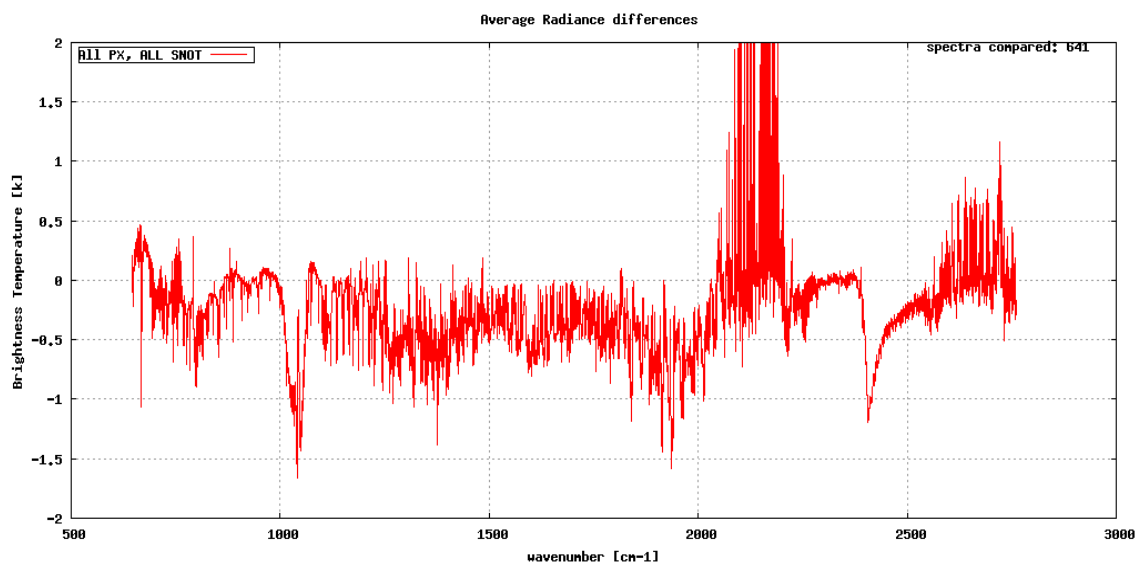


Figure 6: Average Radiance differences: OBS-CAL

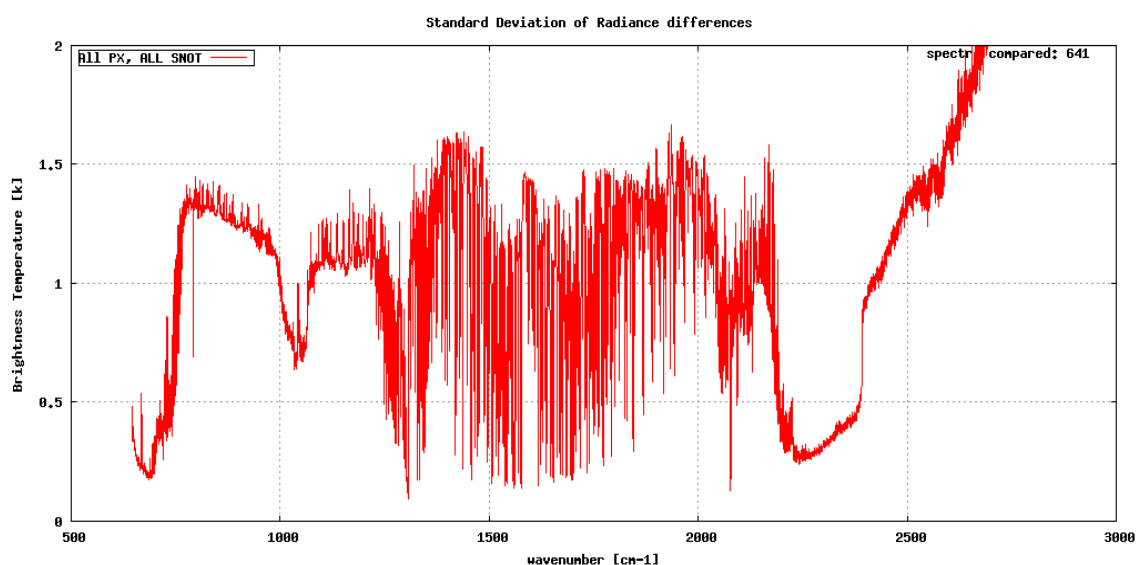


Figure 7: Standard Deviation of Radiance differences

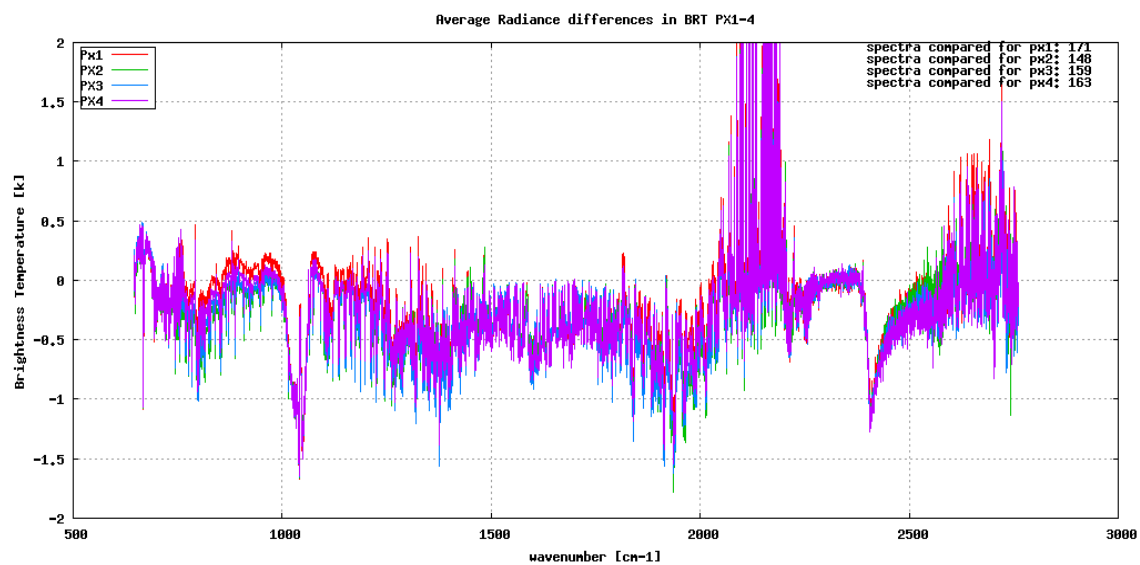


Figure 8: Average Radiance differences: OBS-CAL

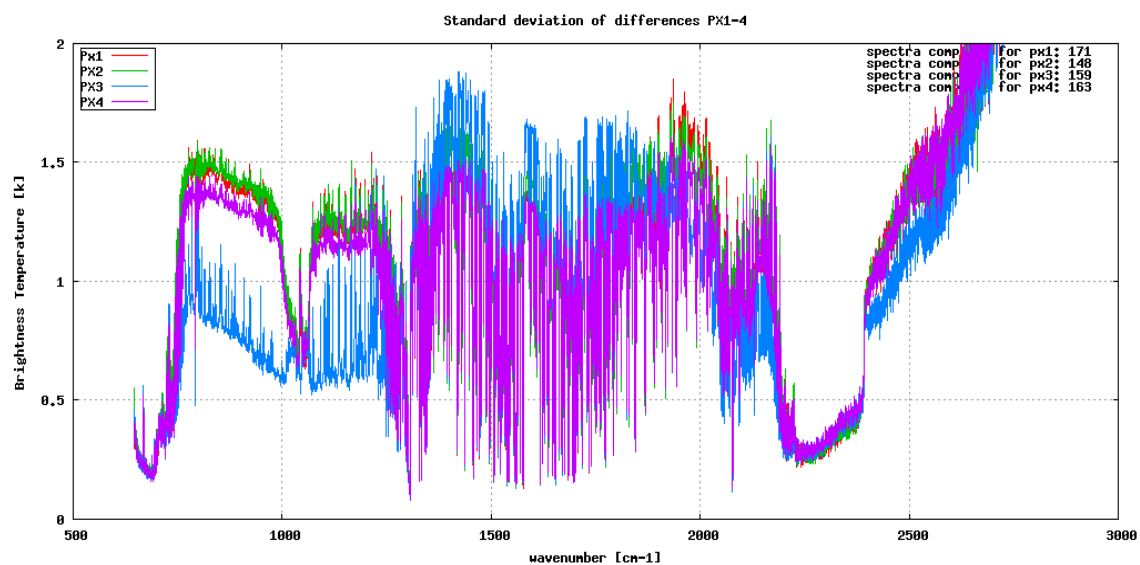


Figure 9: Standard Deviation of Radiance differences

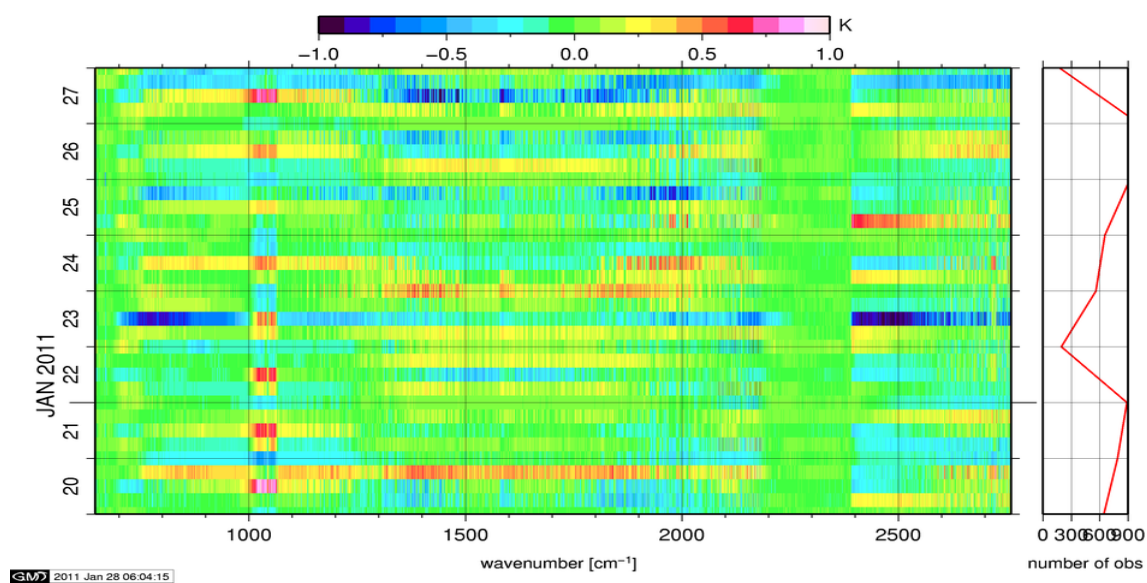


Figure 10: Radiance Anomaly in BRT: All Channels

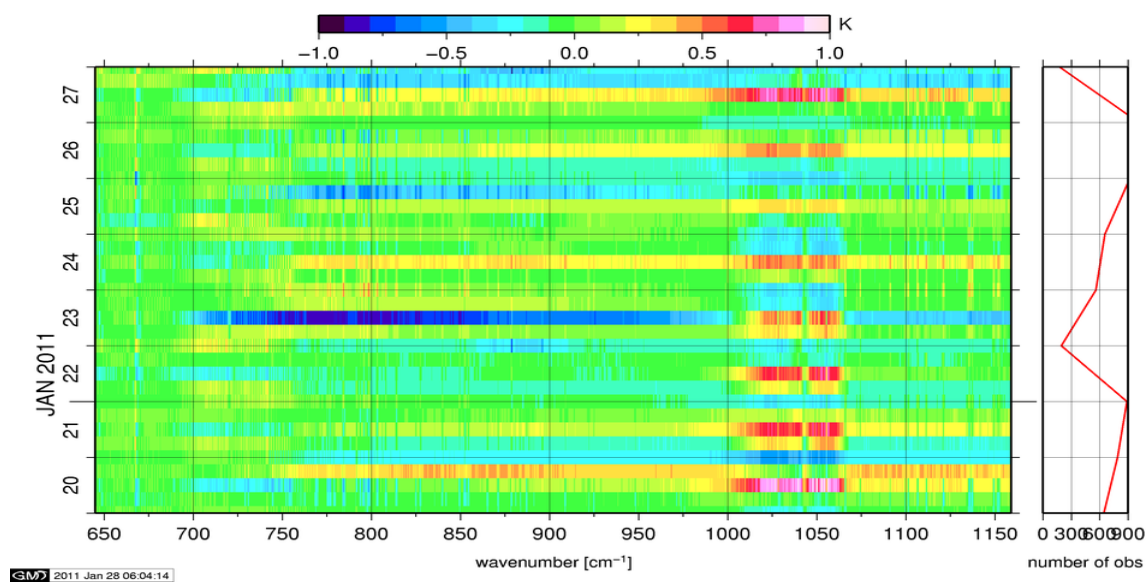


Figure 11: Radiance Anomaly in BRT: IASI Band 1

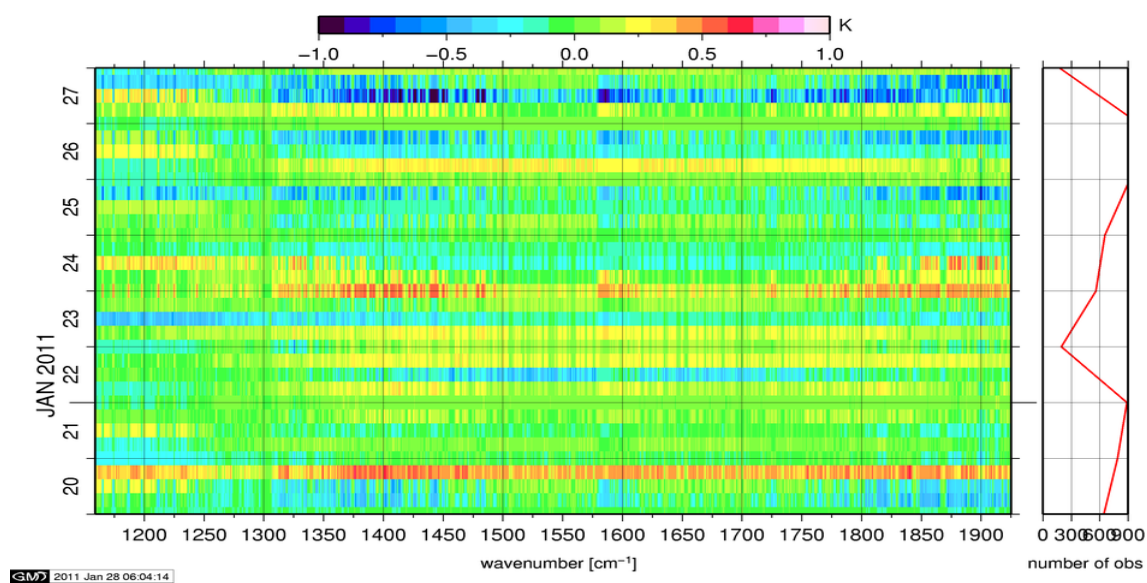


Figure 12: Radiance Anomaly in BRT: IASI Band 2

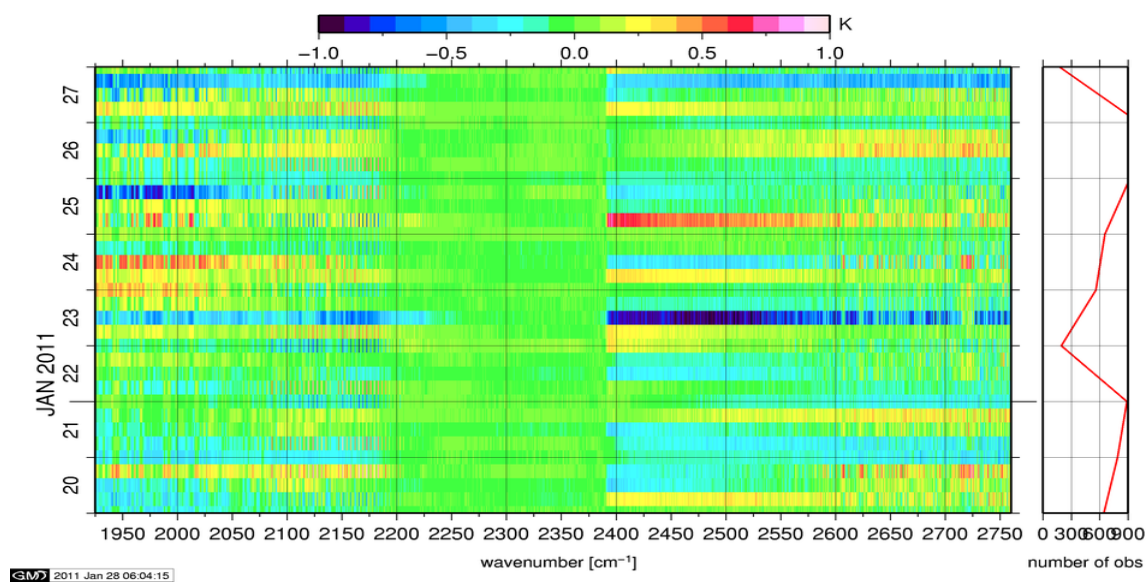


Figure 13: Radiance Anomaly in BRT: IASI Band 3

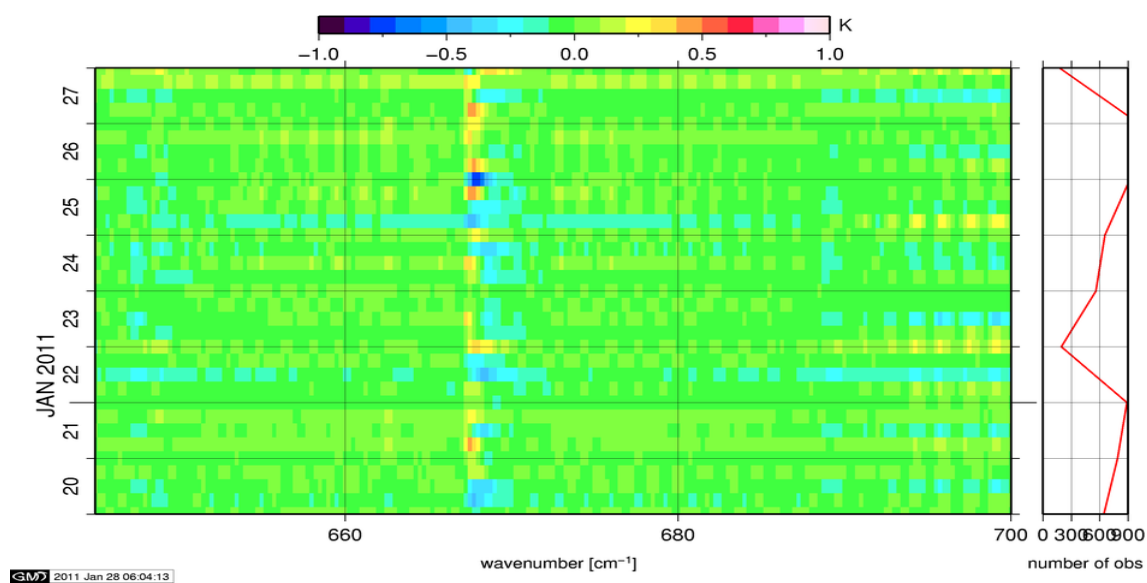


Figure 14: Radiance Anomaly in BRT: CO2 14

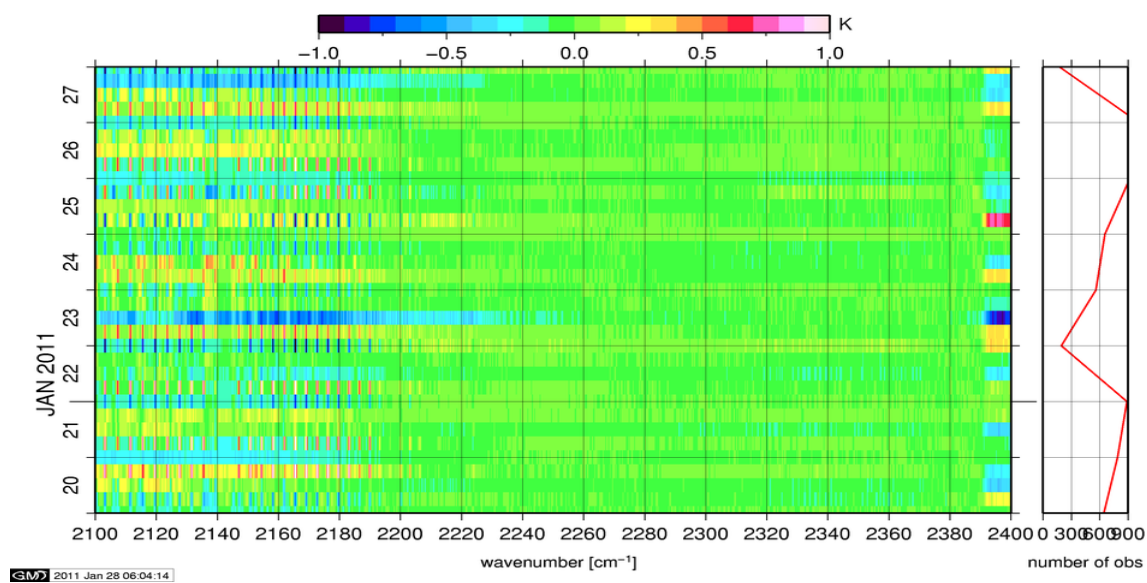


Figure 15: Radiance Anomaly in BRT: CO2 4.3

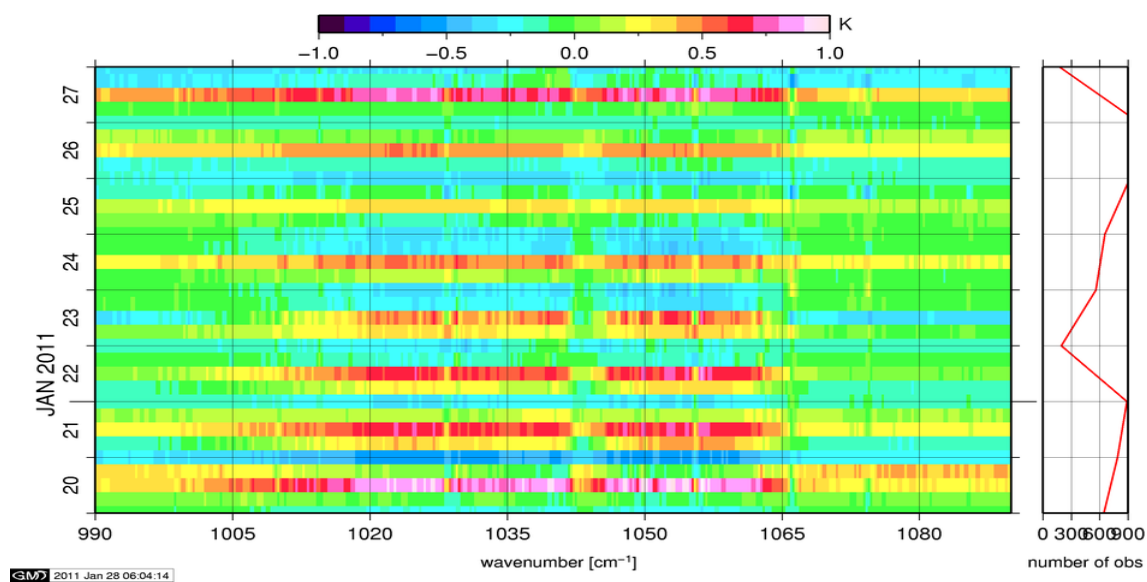


Figure 16: Radiance Anomaly in BRT: O3

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.

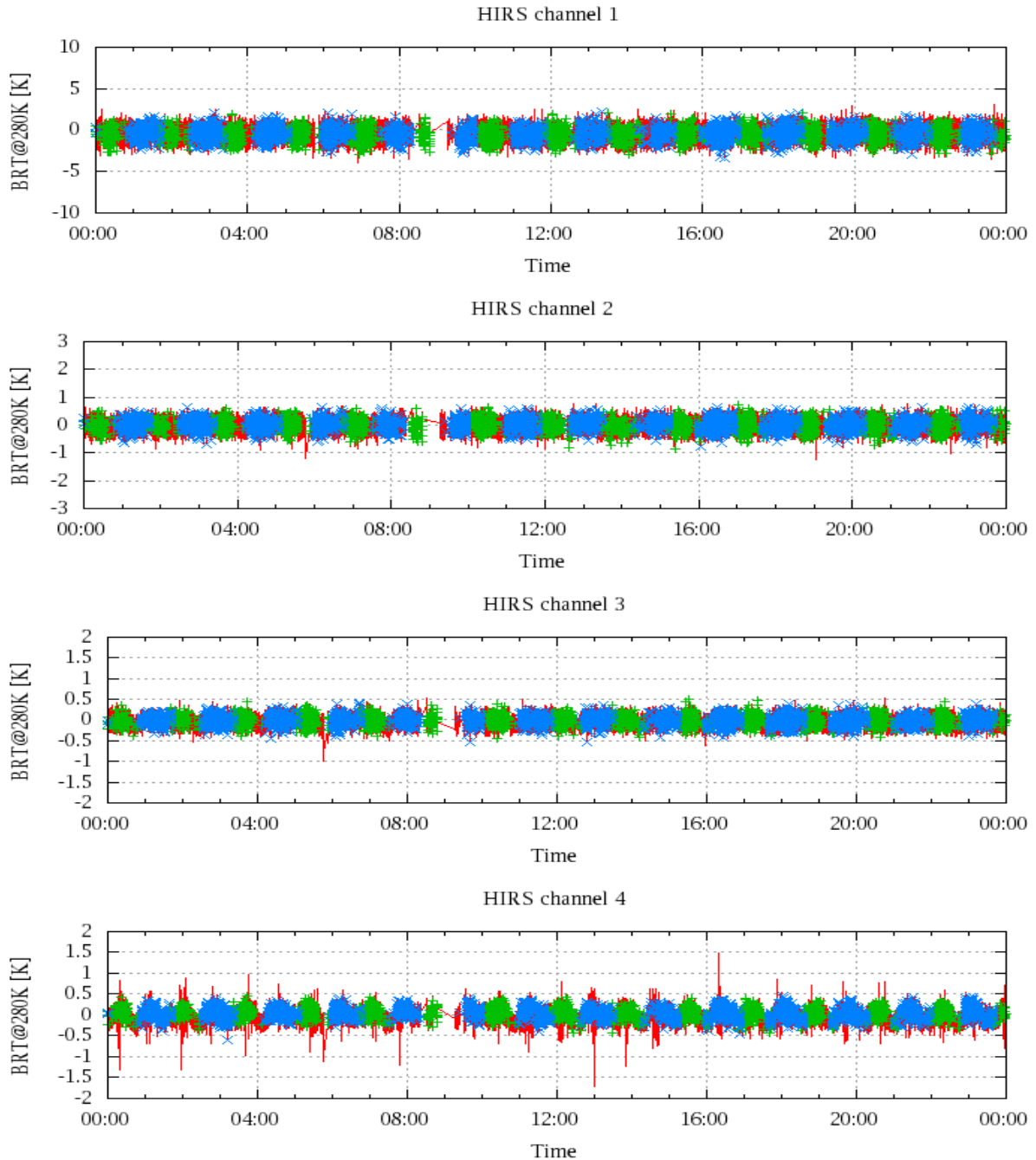


Figure 17: Radiance Differences in BRT

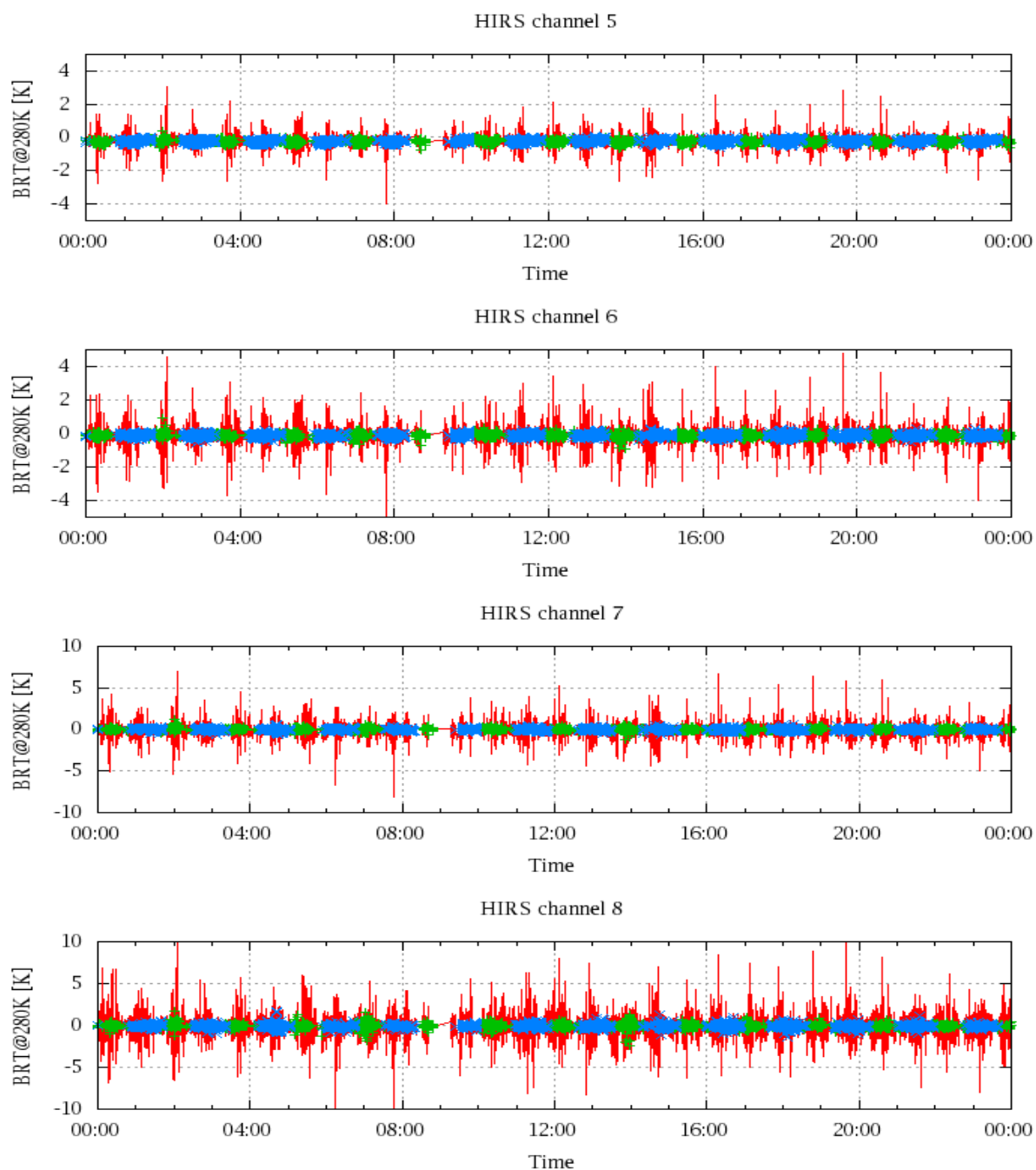


Figure 18: Radiance Differences in BRT

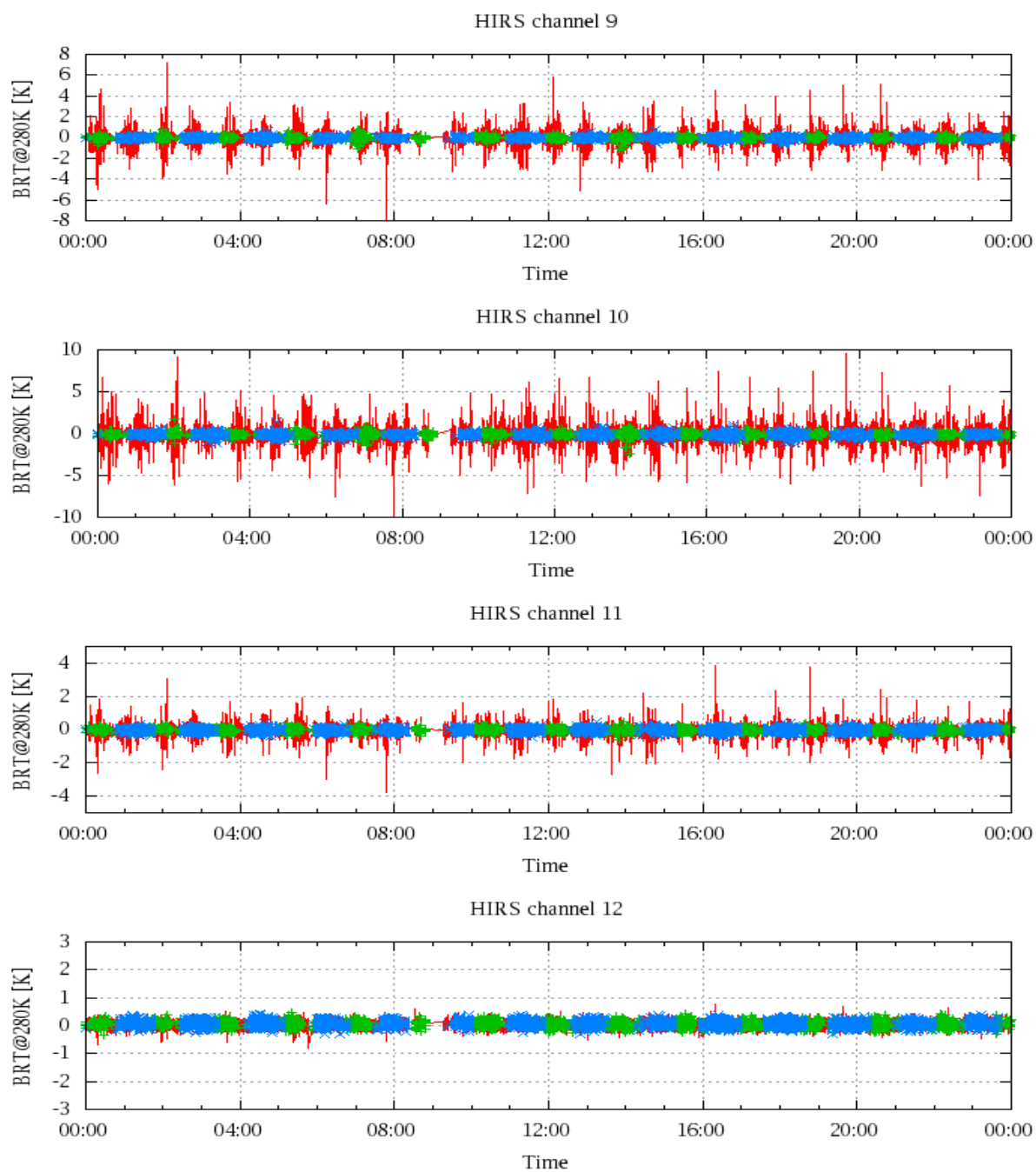


Figure 19: Radiance Differences in BRT

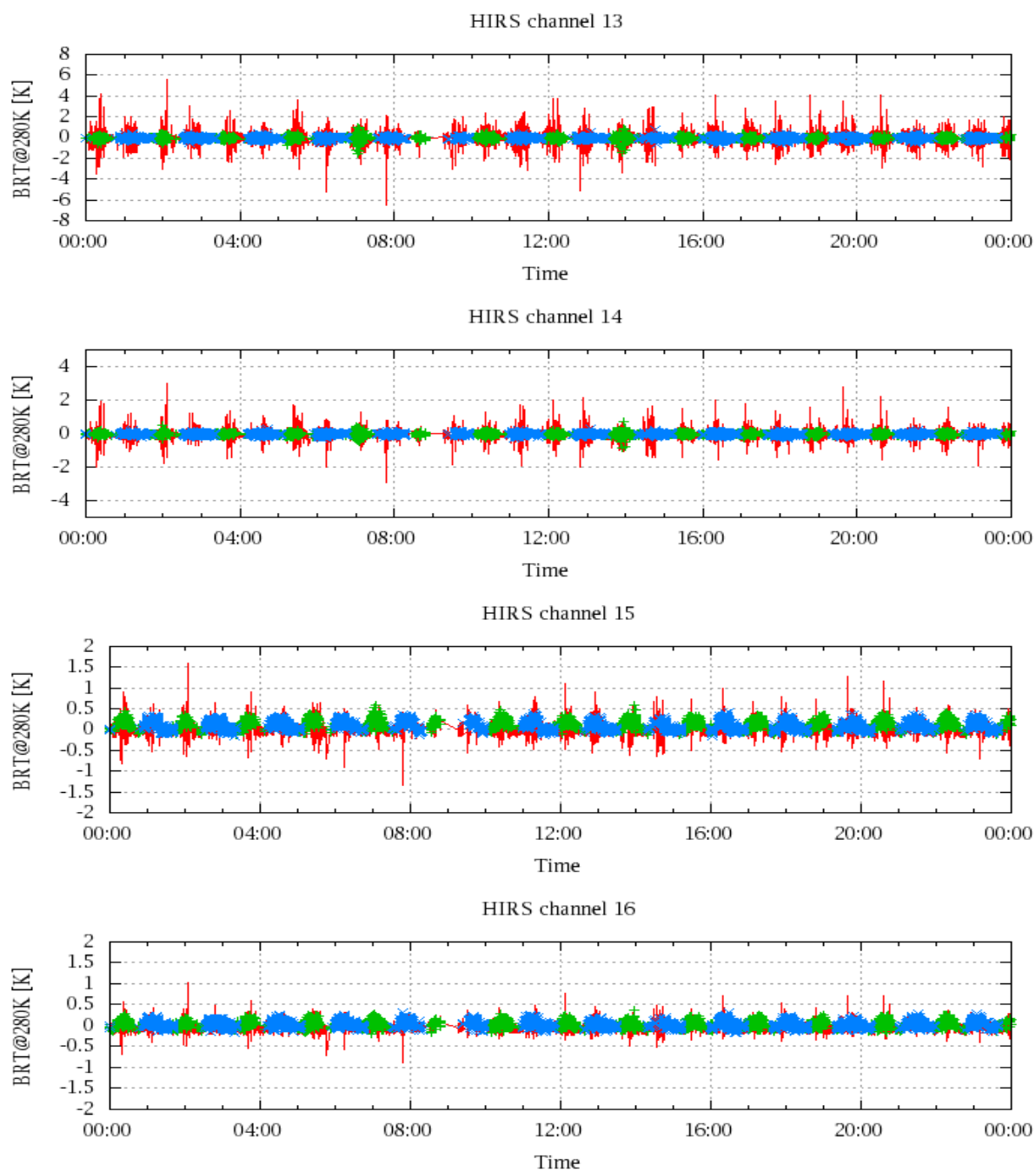


Figure 20: Radiance Differences in BRT

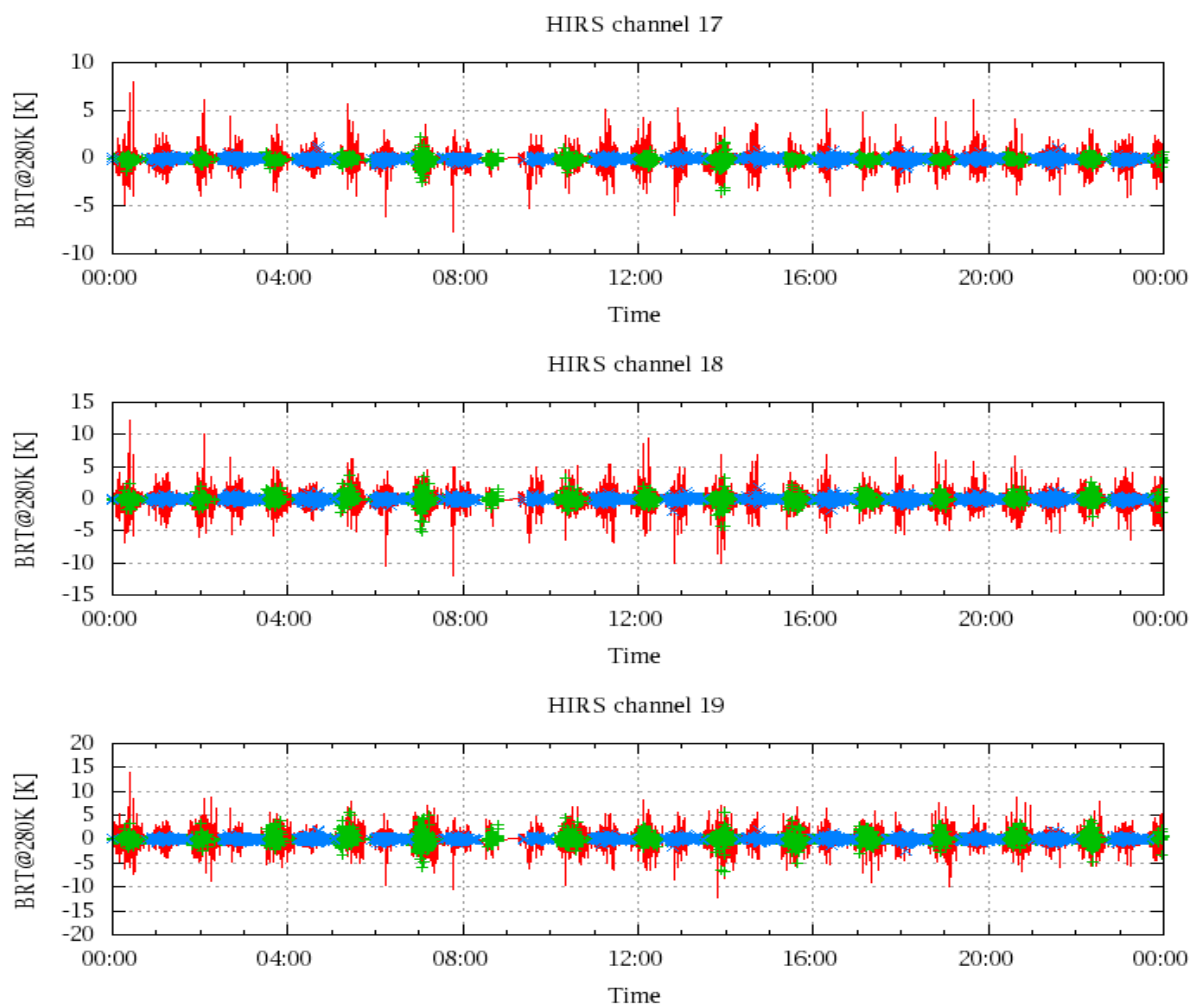


Figure 21: Radinace Differences in BRT