

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

19/03/2011 00:00:00 - 20/03/2011 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 19/03/2011 00:00:00 - 20/03/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 19/03/2011 00:00:00 - 20/03/2011 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)	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)	12422	12424	20110319085417.167	20110319085417.600
PX1 (130)	13632	13634	20110319085940.834	20110319085941.267
PX1 (130)	13982	13984	20110319090113.158	20110319090113.588
PX1 (130)	14289	14291	20110319090234.669	20110319090235.099
PX1 (130)	15516	15518	20110319090802.008	20110319090802.442
PX2 (135)	14295	14297	20110319090237.478	20110319090237.912
PX2 (135)	15513	15515	20110319090801.360	20110319090801.794
PX3 (140)	9520	9522	20110319084122.883	20110319084124.829
PX3 (140)	13031	13033	20110319085659.112	20110319085701.057
PX3 (140)	15799	15801	20110319090918.368	20110319090918.801
PX4 (145)	8922	8924	20110319083844.833	20110319083845.263
PX4 (145)	13031	13033	20110319085659.112	20110319085701.057
PX4 (145)	13049	13051	20110319085704.514	20110319085704.947
PX4 (145)	13640	13642	20110319085942.564	20110319085942.998
PX4 (145)	15168	15170	20110319090630.122	20110319090630.552
PX4 (145)	15511	15513	20110319090800.926	20110319090801.360
PX4 (145)	15773	15775	20110319090911.235	20110319090911.668
IMG (150)	3029	3032	20110319085939.752	20110319085940.834

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	3772	3774	20110319090234.451	20110319090234.884
VER (160)	-	-	-	-
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
19/03/2011 00:00:06	-	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)	99.21 %	-
GQisFlagQual set (PX2)	99.03 %	-
GQisFlagQual set (PX3)	99.13 %	-
GQisFlagQual set (PX4)	99.27 %	-
GQisFlagQual set (all)	99.16 %	-

Table 4: Quality flags

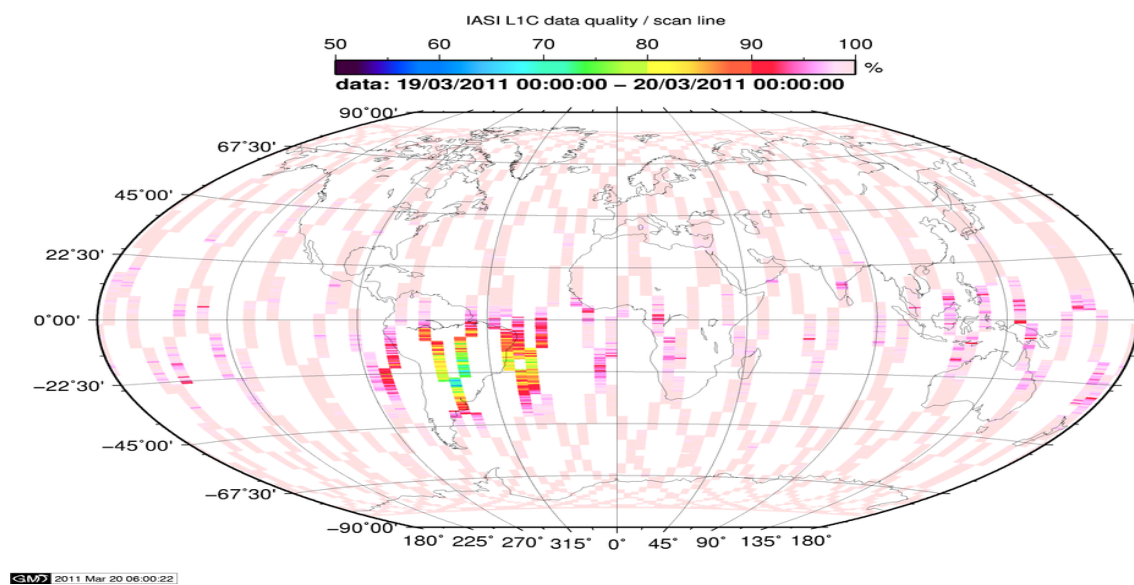


Figure 1: L1C data quality

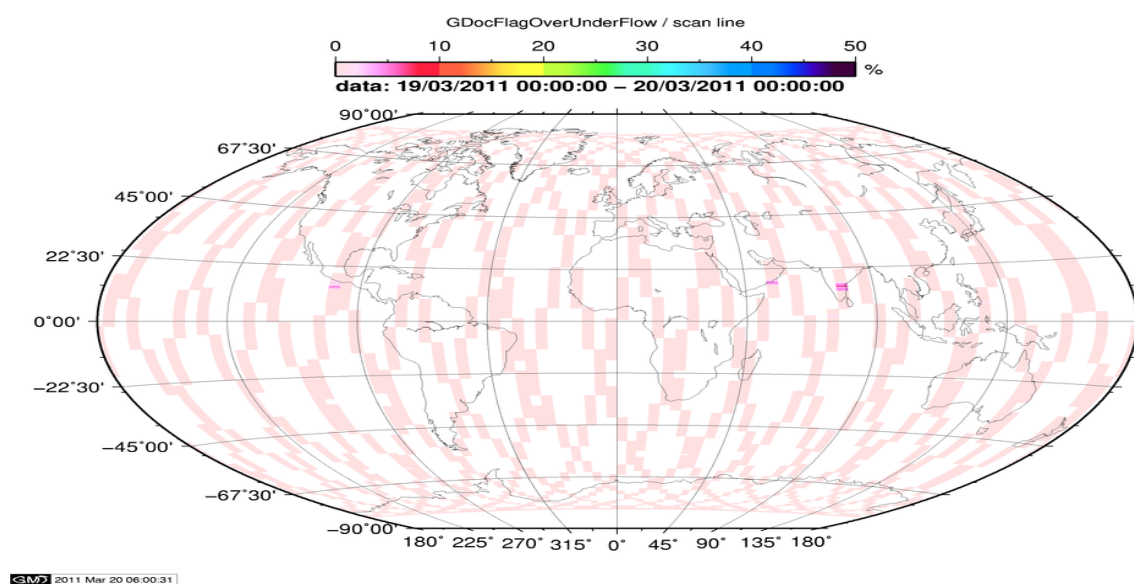


Figure 2: Flag of Over and Under Flows

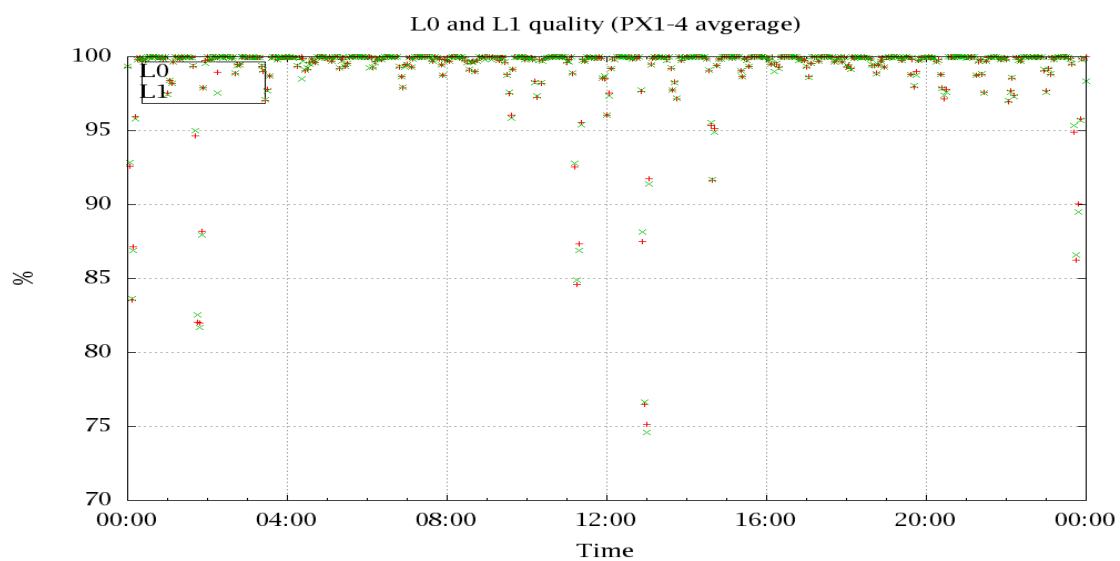


Figure 3: Level 0 and 1C overall quality

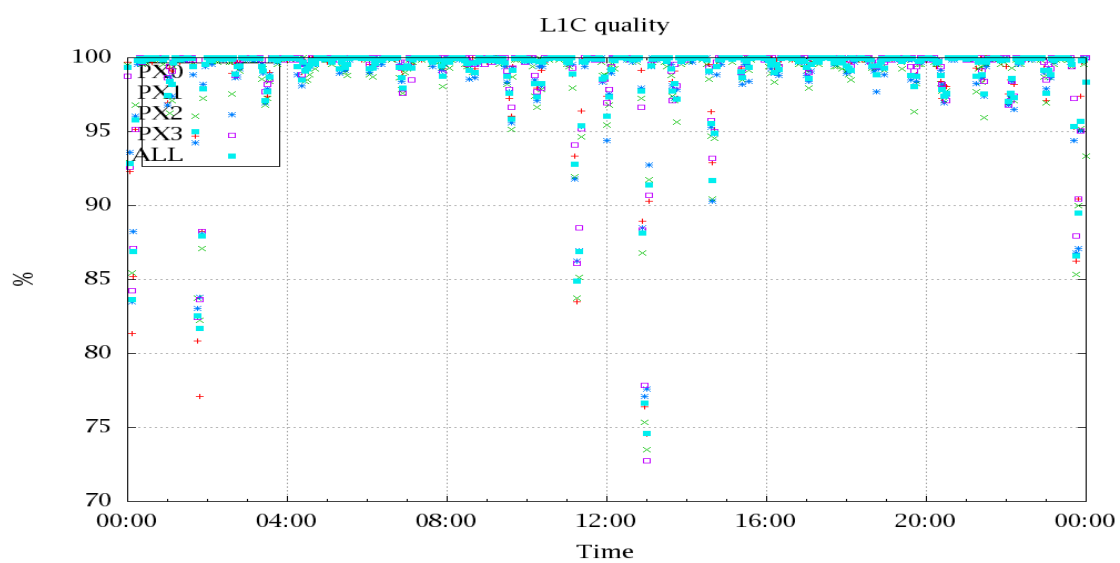


Figure 4: Level 1C quality

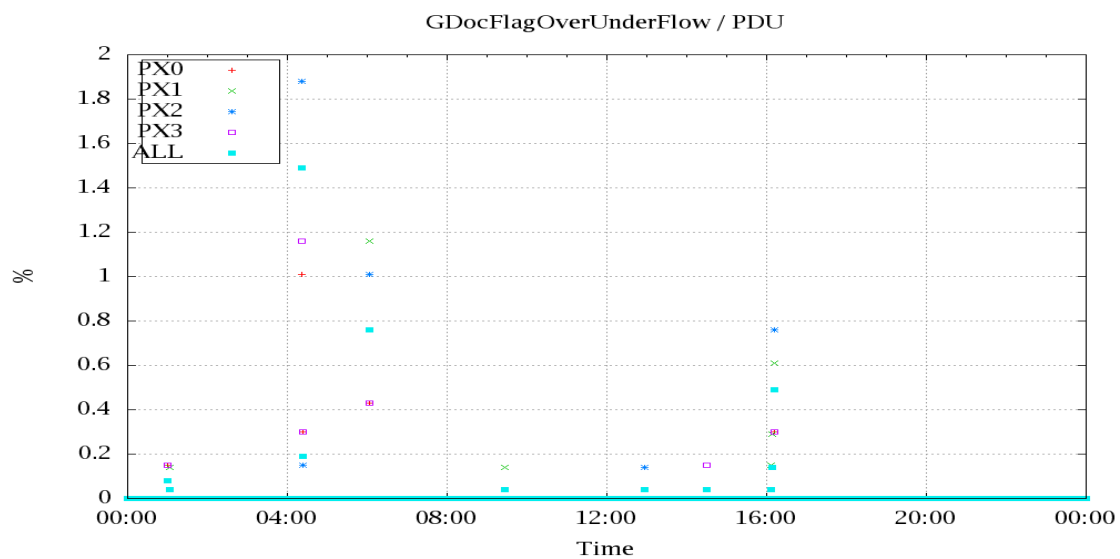


Figure 5: OverUnderFlowFlag timeseries

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.

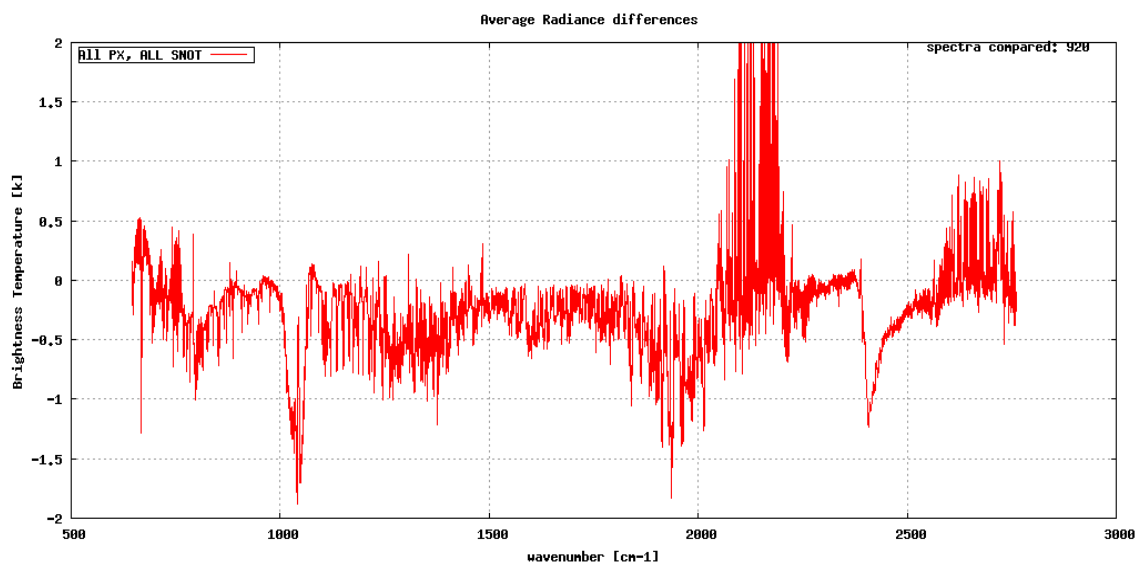


Figure 6: Average Radiance differences: OBS-CAL

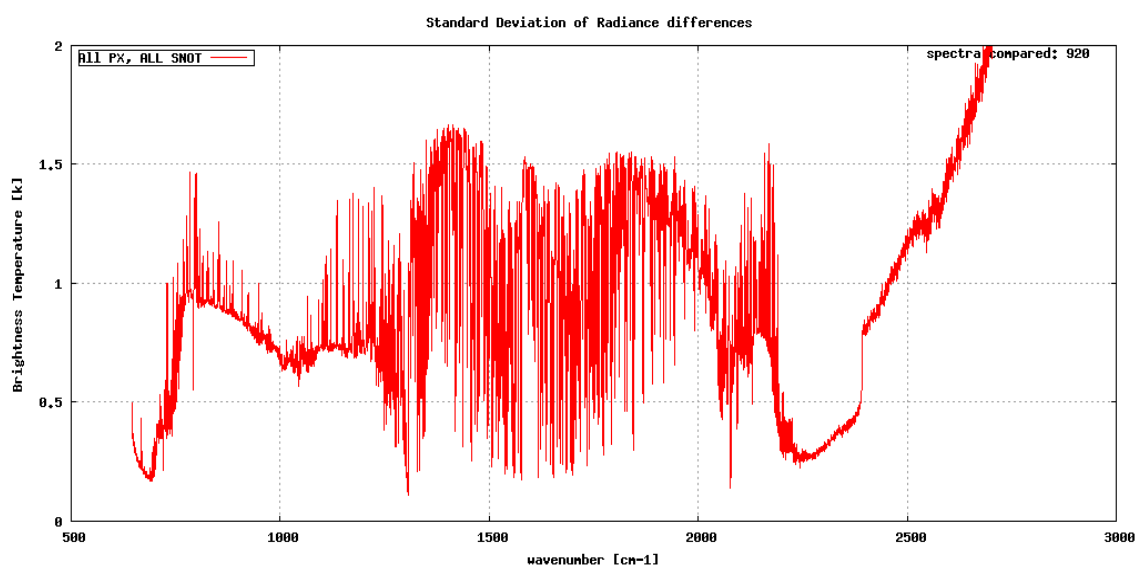


Figure 7: Standard Deviation of Radiance differences

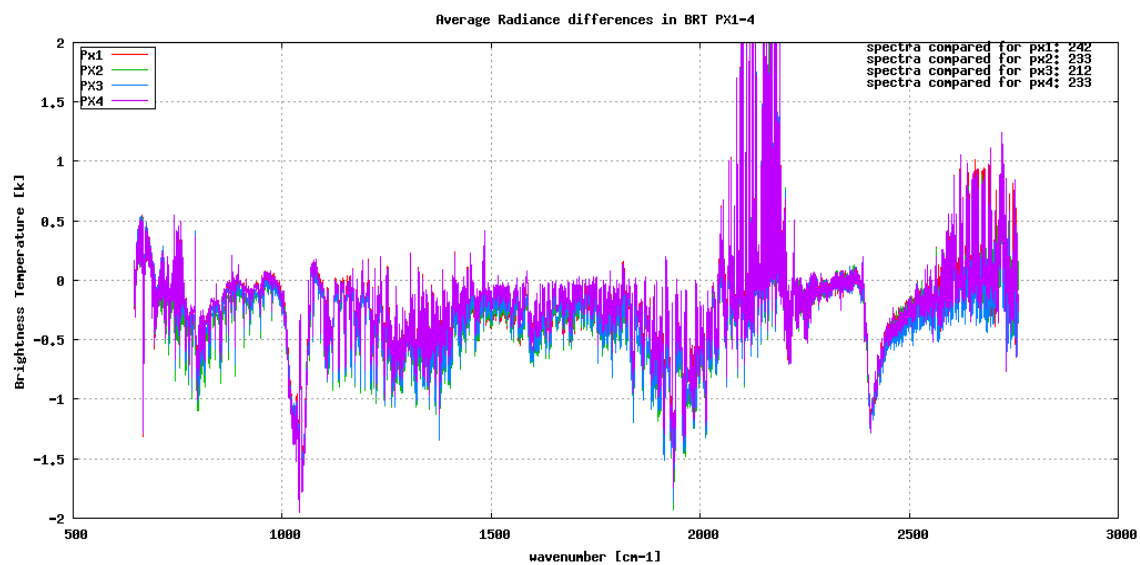


Figure 8: Average Radiance differences: OBS-CAL

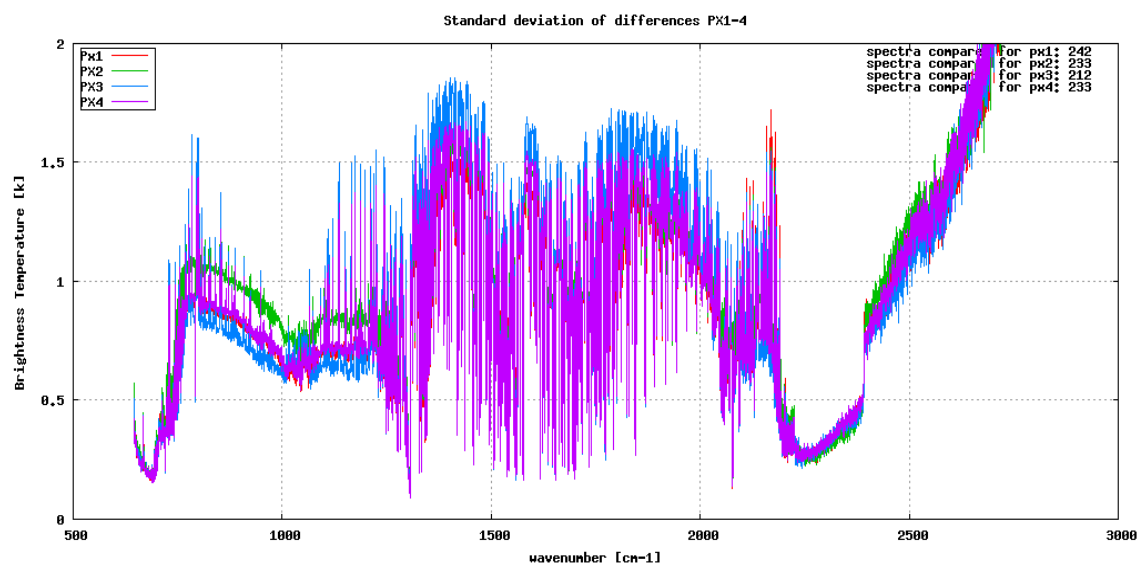


Figure 9: Standard Deviation of Radiance differences

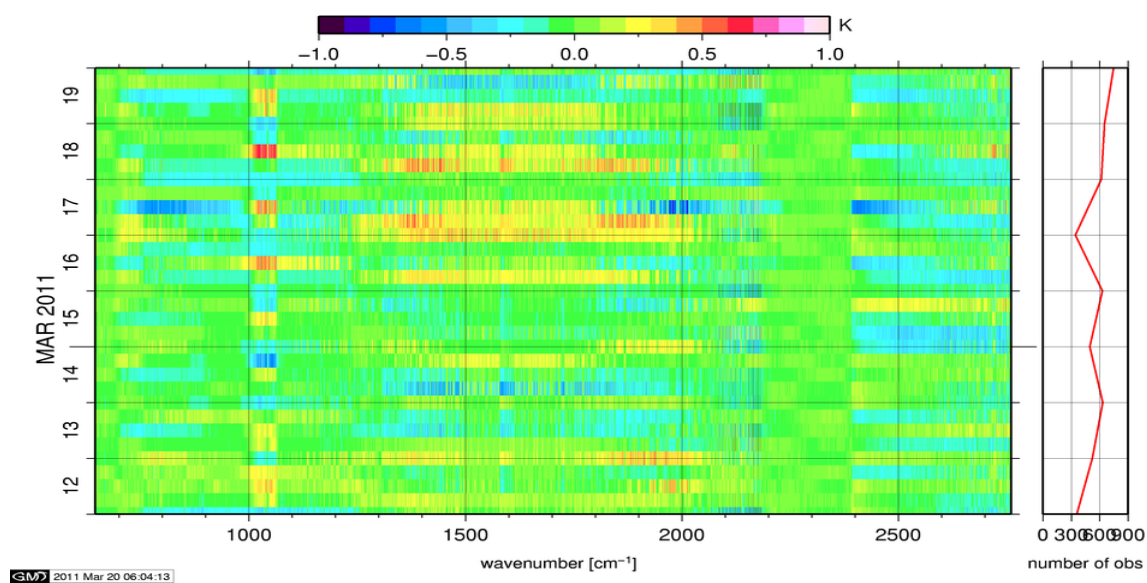


Figure 10: Radiance Anomaly in BRT: All Channels

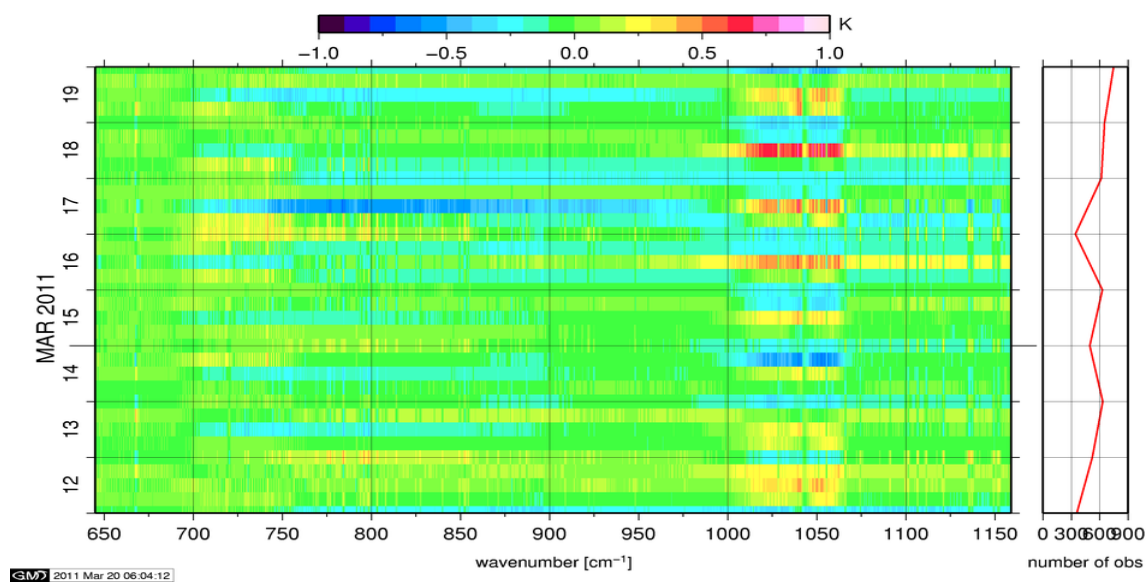


Figure 11: Radiance Anomaly in BRT: IASI Band 1

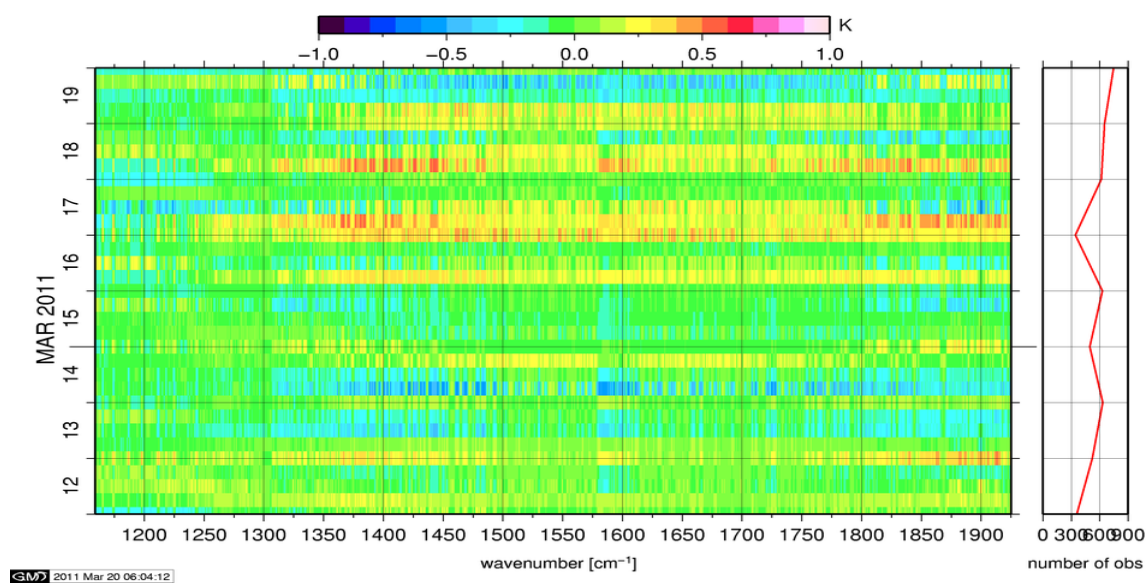


Figure 12: Radiance Anomaly in BRT: IASI Band 2

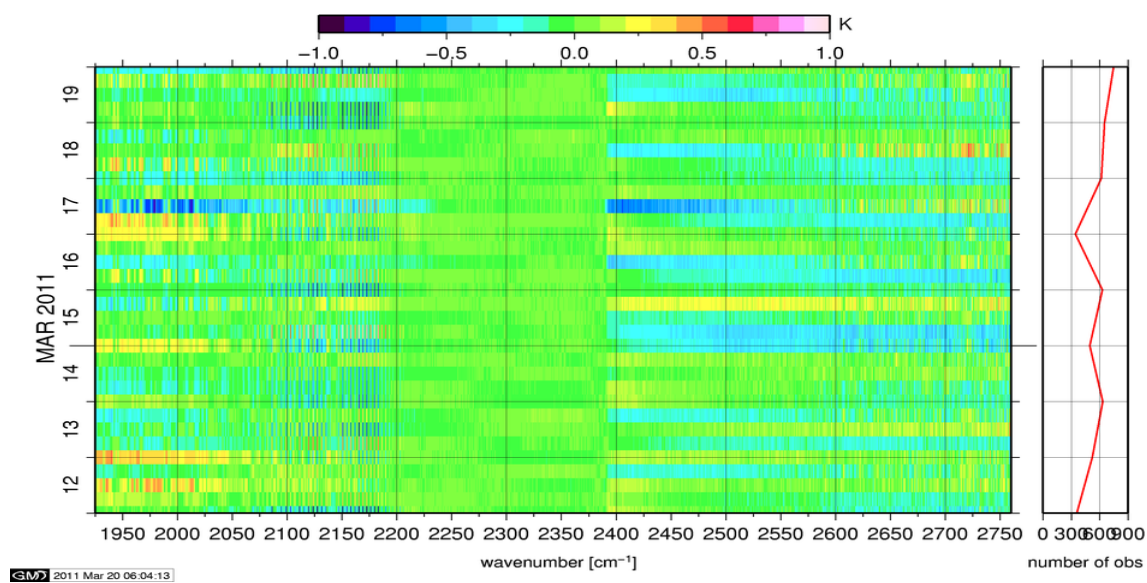


Figure 13: Radiance Anomaly in BRT: IASI Band 3

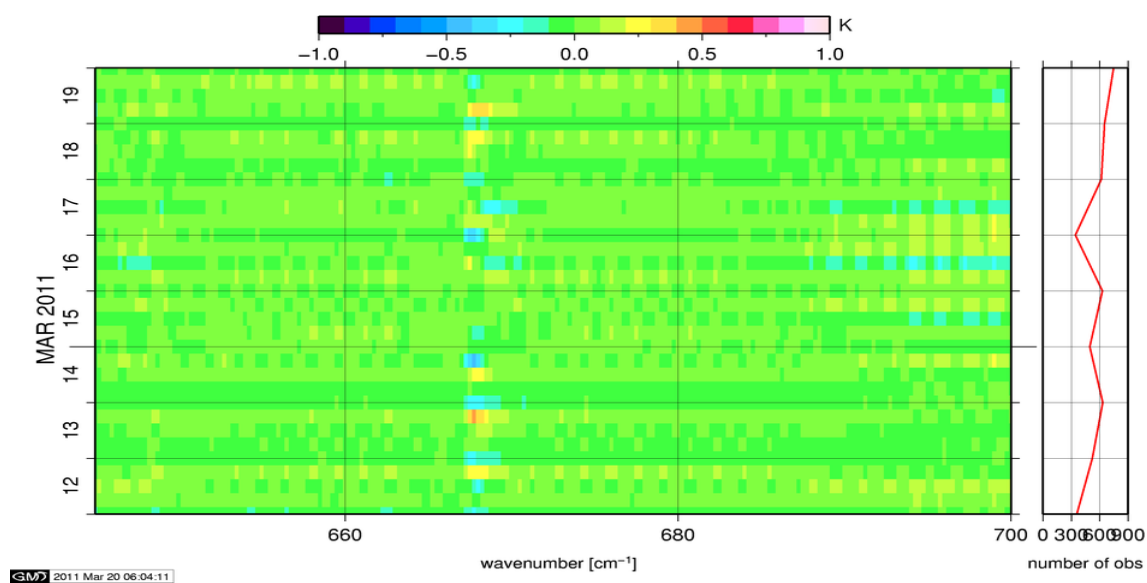


Figure 14: Radiance Anomaly in BRT: CO2 14

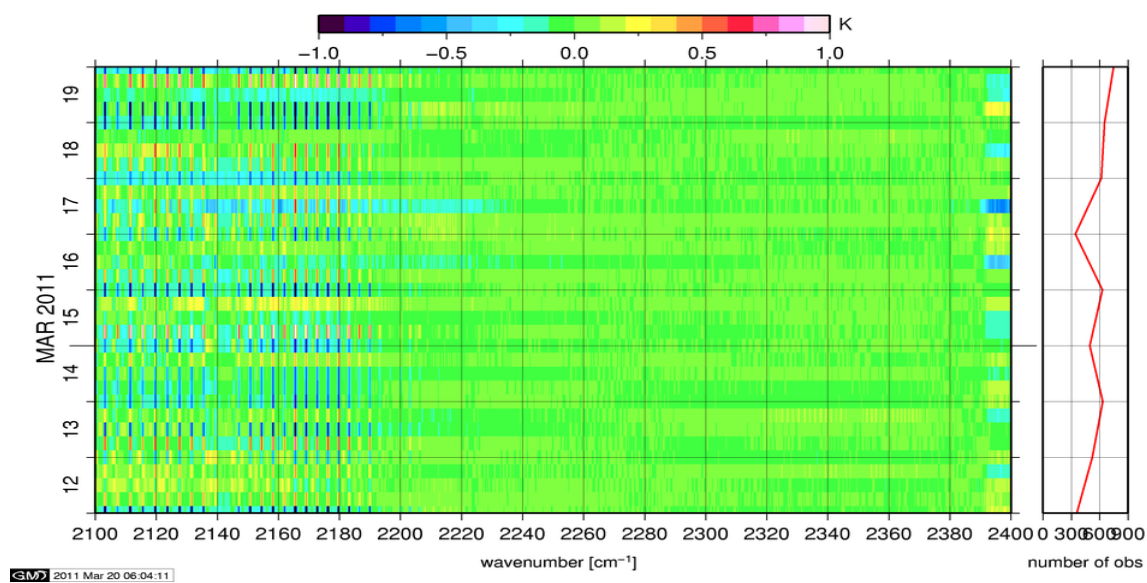


Figure 15: Radiance Anomaly in BRT: CO2 4.3

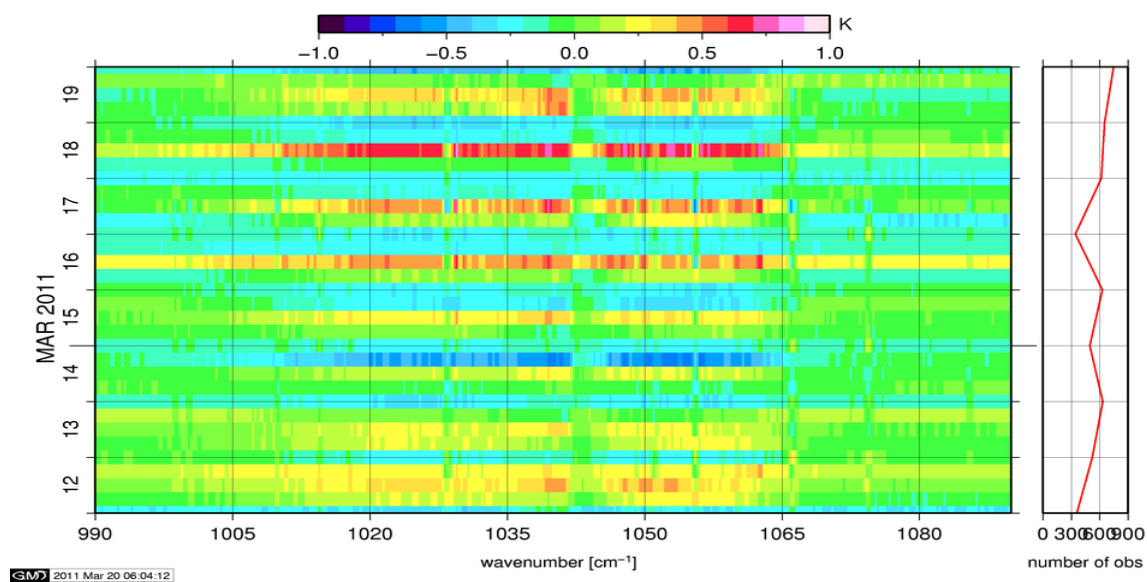


Figure 16: Radiance Anomaly in BRT: O3

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.

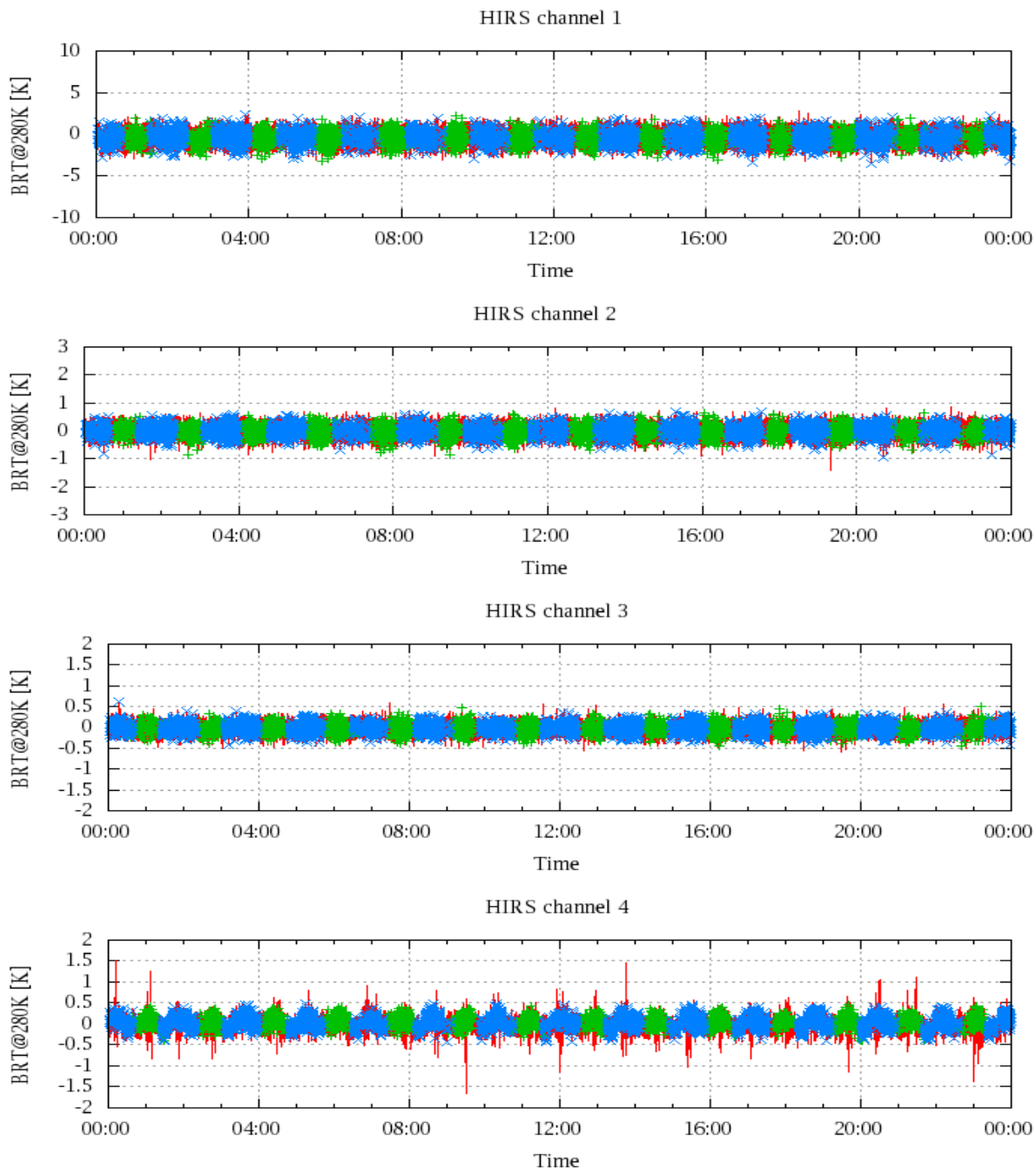


Figure 17: Radiance Differences in BRT

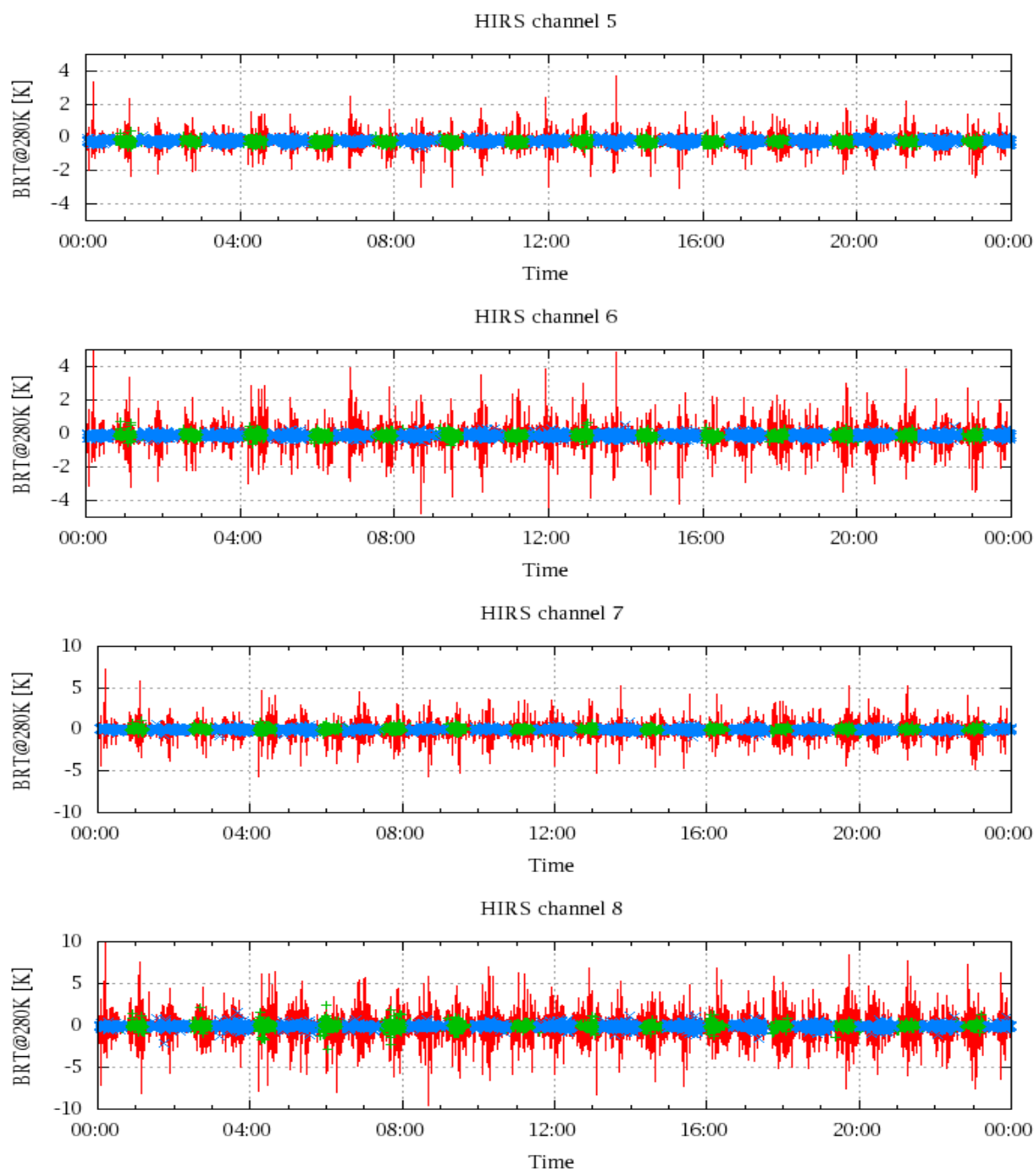


Figure 18: Radiance Differences in BRT

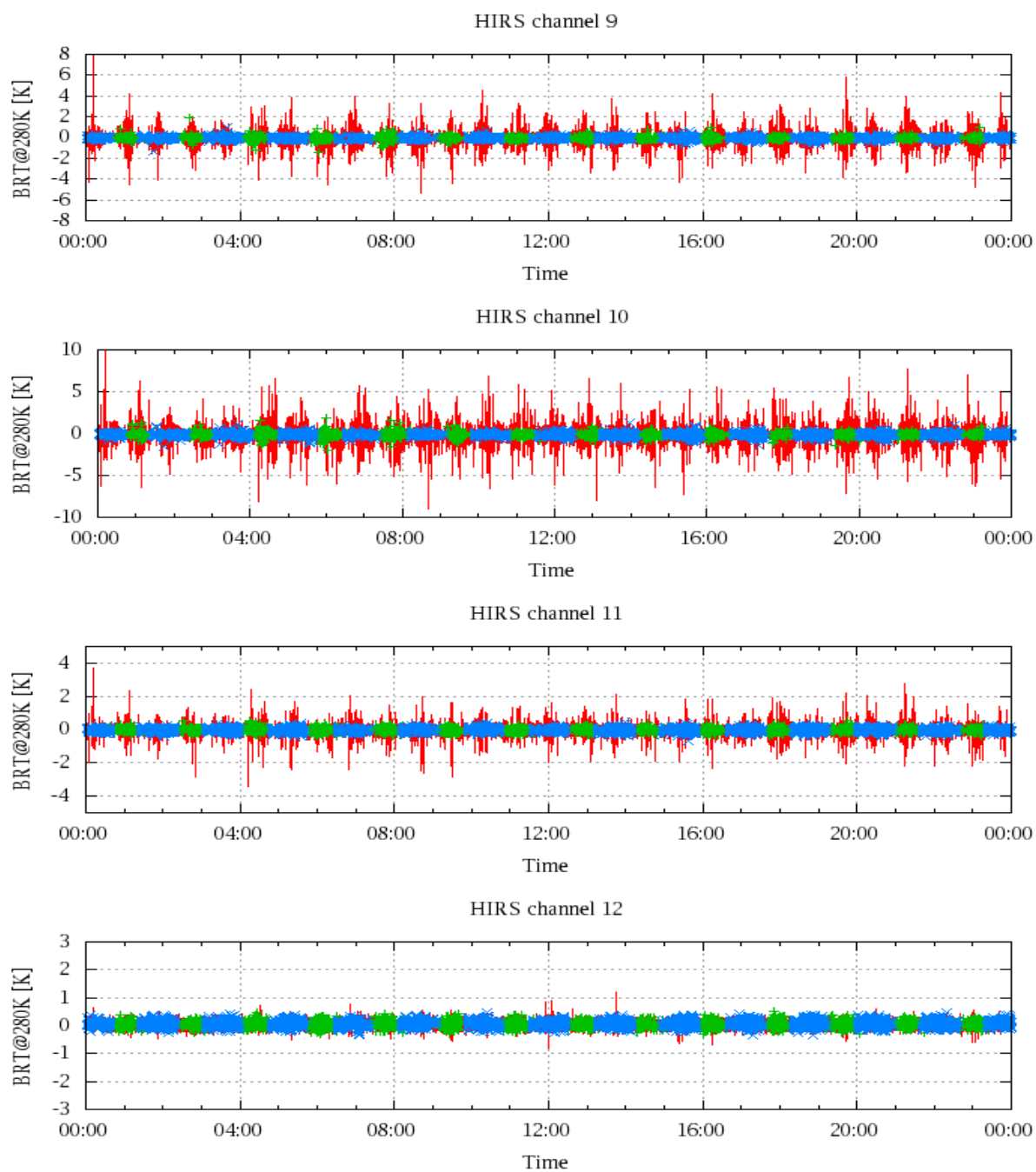


Figure 19: Radiance Differences in BRT

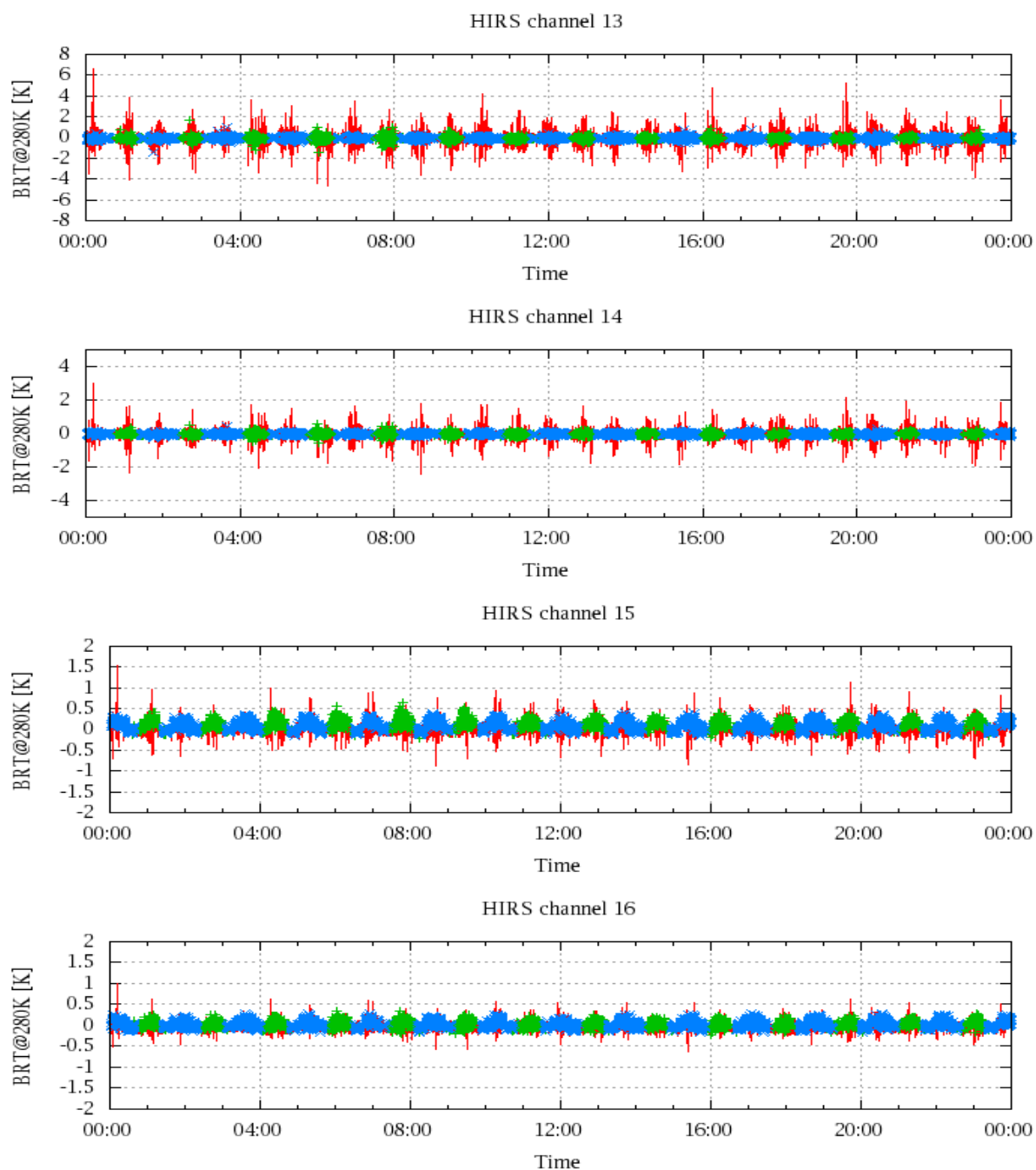


Figure 20: Radiance Differences in BRT

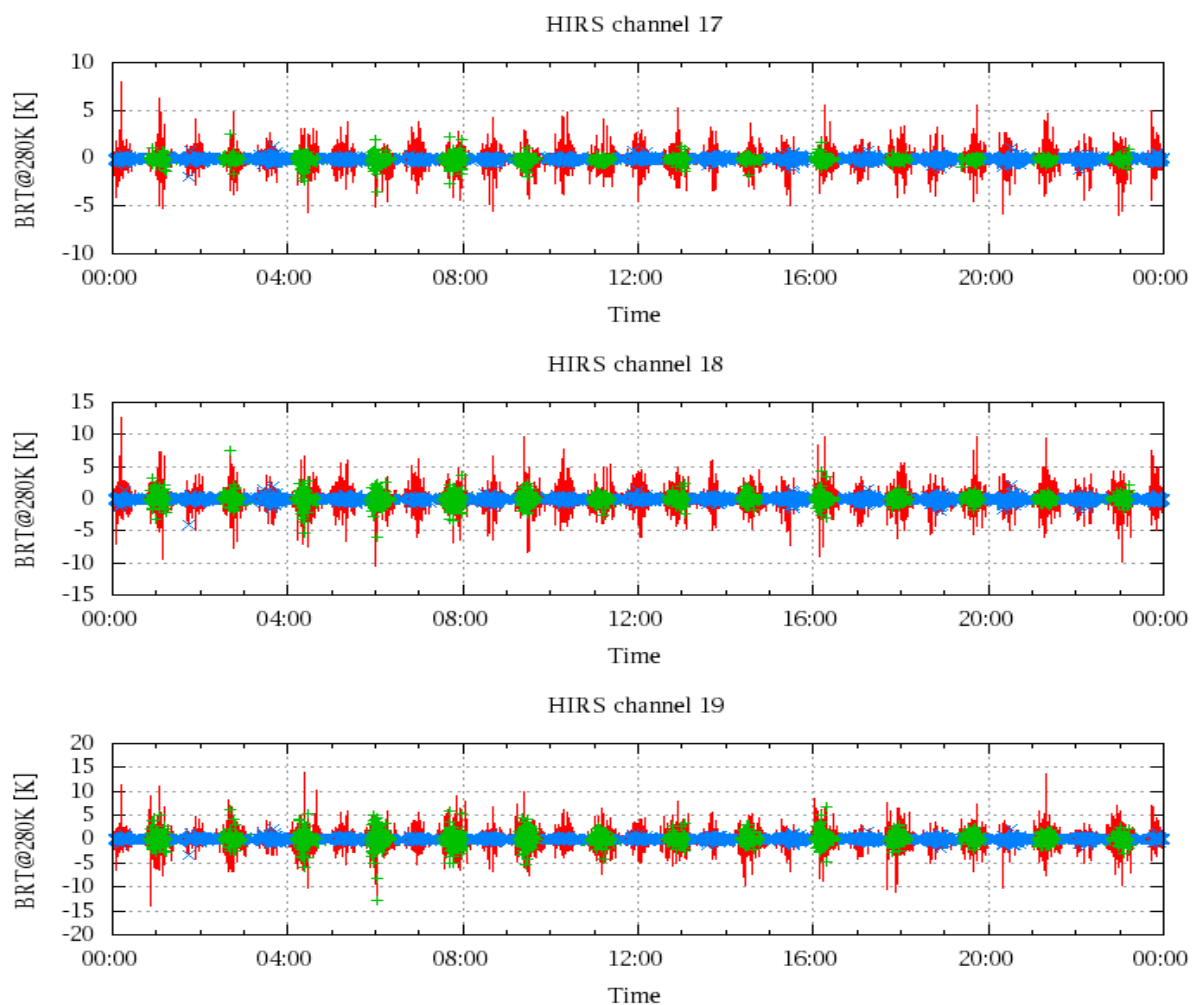


Figure 21: Radinace Differences in BRT