

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

01/11/2011 00:00:00 - 02/11/2011 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 01/11/2011 00:00:00 - 02/11/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 01/11/2011 00:00:00 - 02/11/2011 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)	11935	11974	20111101130150.666	20111101130202.123
PX1 (130)	11992	12001	20111101130206.013	20111101130207.963
PX1 (130)	12007	12015	20111101130210.771	20111101130212.502
PX1 (130)	12024	12026	20111101130214.447	20111101130214.881
PX1 (130)	12028	12094	20111101130215.314	20111101130234.123
PX1 (130)	12094	12102	20111101130234.123	20111101130235.849
PX1 (130)	12137	12163	20111101130244.931	20111101130252.068
PX2 (135)	11934	11974	20111101130150.447	20111101130202.123
PX2 (135)	11992	12000	20111101130206.013	20111101130207.744
PX2 (135)	12007	12015	20111101130210.771	20111101130212.502
PX2 (135)	12024	12026	20111101130214.447	20111101130214.881
PX2 (135)	12028	12087	20111101130215.314	20111101130231.095
PX2 (135)	12087	12094	20111101130231.095	20111101130234.123
PX2 (135)	12094	12102	20111101130234.123	20111101130235.849
PX2 (135)	12111	12113	20111101130237.799	20111101130238.232
PX2 (135)	12137	12163	20111101130244.931	20111101130252.068
PX3 (140)	11934	11964	20111101130150.447	20111101130158.447
PX3 (140)	11964	11974	20111101130158.447	20111101130202.123

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	11992	12000	20111101130206.013	20111101130207.744
PX3 (140)	12007	12015	20111101130210.771	20111101130212.502
PX3 (140)	12024	12026	20111101130214.447	20111101130214.881
PX3 (140)	12027	12087	20111101130215.095	20111101130231.095
PX3 (140)	12087	12094	20111101130231.095	20111101130234.123
PX3 (140)	12094	12102	20111101130234.123	20111101130235.849
PX3 (140)	12111	12113	20111101130237.799	20111101130238.232
PX3 (140)	12137	12163	20111101130244.931	20111101130252.068
PX4 (145)	11934	11974	20111101130150.447	20111101130202.123
PX4 (145)	11992	12000	20111101130206.013	20111101130207.744
PX4 (145)	12007	12015	20111101130210.771	20111101130212.502
PX4 (145)	12023	12025	20111101130214.232	20111101130214.662
PX4 (145)	12027	12065	20111101130215.095	20111101130226.338
PX4 (145)	12065	12087	20111101130226.338	20111101130231.095
PX4 (145)	12087	12094	20111101130231.095	20111101130234.123
PX4 (145)	12094	12102	20111101130234.123	20111101130235.849
PX4 (145)	12137	12163	20111101130244.931	20111101130252.068
IMG (150)	11338	11382	20111101130150.447	20111101130200.826
IMG (150)	11403	11412	20111101130205.799	20111101130207.744
IMG (150)	11422	11430	20111101130210.556	20111101130212.287
IMG (150)	11439	11441	20111101130214.232	20111101130214.662
IMG (150)	11443	11518	20111101130215.095	20111101130232.826
IMG (150)	11522	11529	20111101130234.123	20111101130235.634
IMG (150)	11568	11599	20111101130244.716	20111101130252.068
VER (160)	7446	7453	20111101130144.392	20111101130158.447
VER (160)	7461	7463	20111101130208.392	20111101130215.314
VER (160)	7463	7475	20111101130215.314	20111101130231.095
VER (160)	7481	7487	20111101130240.392	20111101130256.392
AUX (180)	8042	8044	20111101130144.826	20111101130200.826
AUX (180)	8045	8048	20111101130208.826	20111101130232.826
AUX (180)	8049	8051	20111101130240.826	20111101130256.826

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
01/11/2011 00:00:07	-	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)	99.26 %	-
GQisFlagQual set (PX2)	99.11 %	-
GQisFlagQual set (PX3)	99.19 %	-
GQisFlagQual set (PX4)	99.30 %	-
GQisFlagQual set (all)	99.21 %	-

Table 4: Quality flags

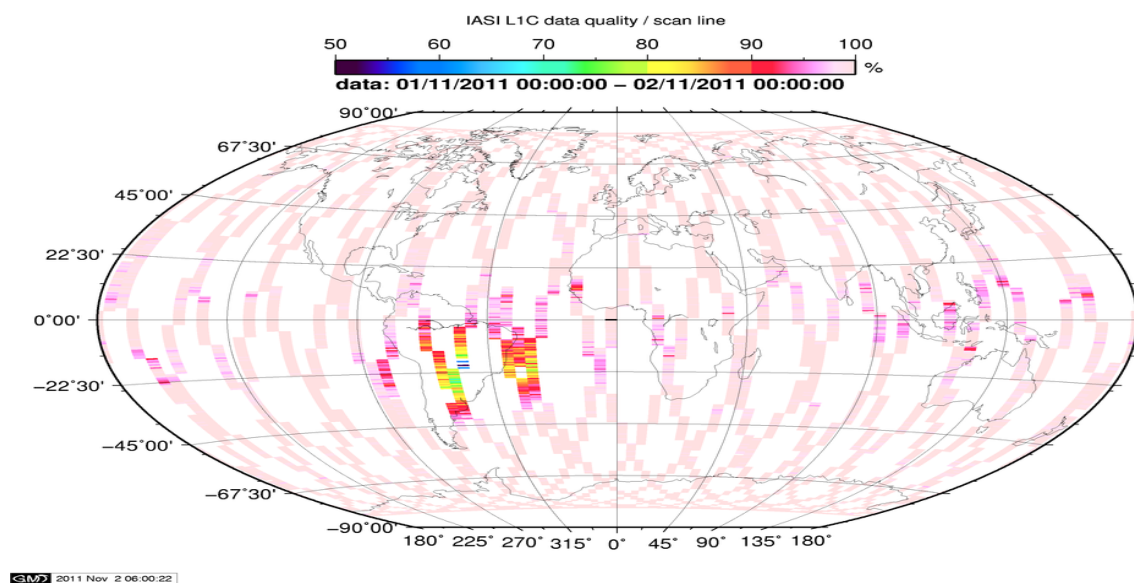


Figure 1: L1C data quality

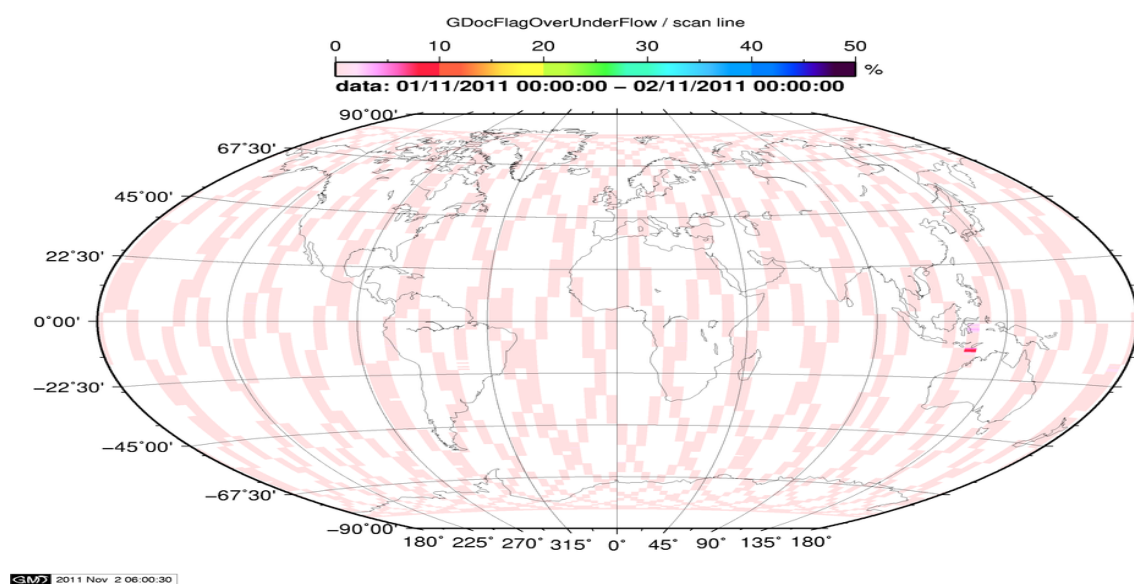


Figure 2: Flag of Over and Under Flows

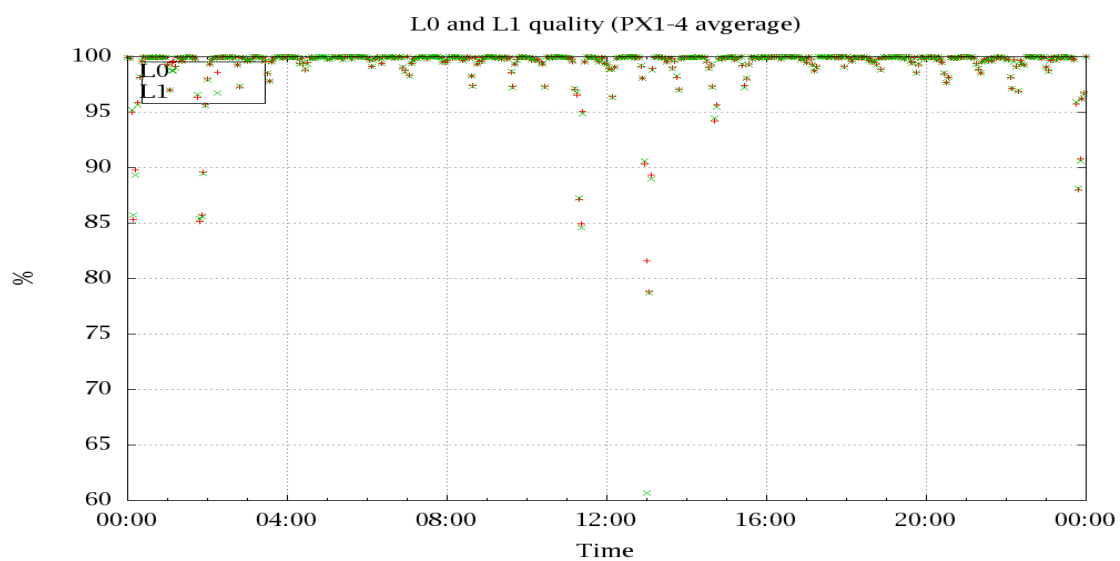


Figure 3: Level 0 and 1C overall quality

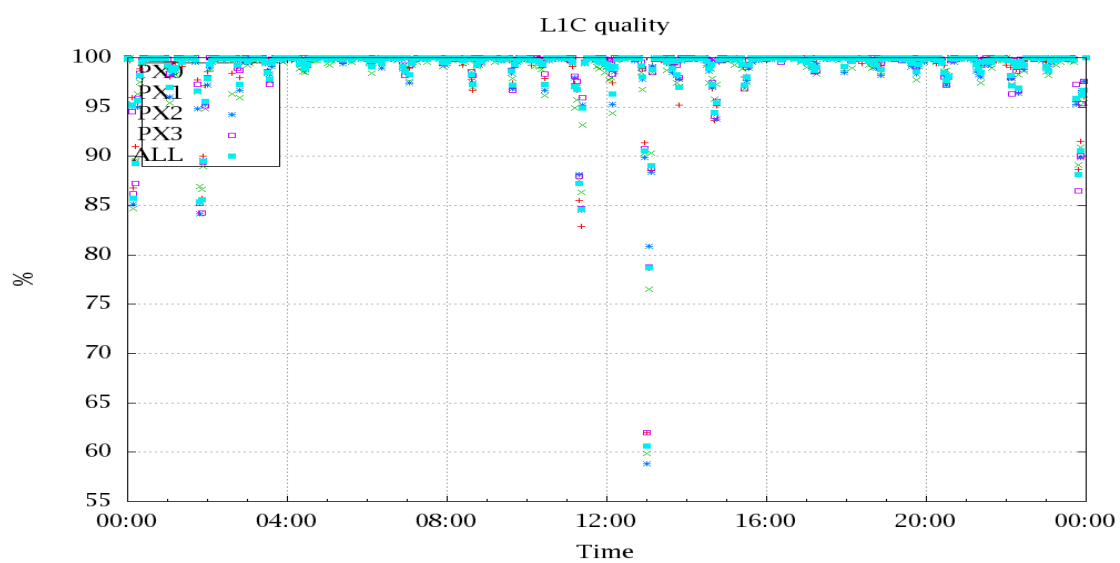


Figure 4: Level 1C quality

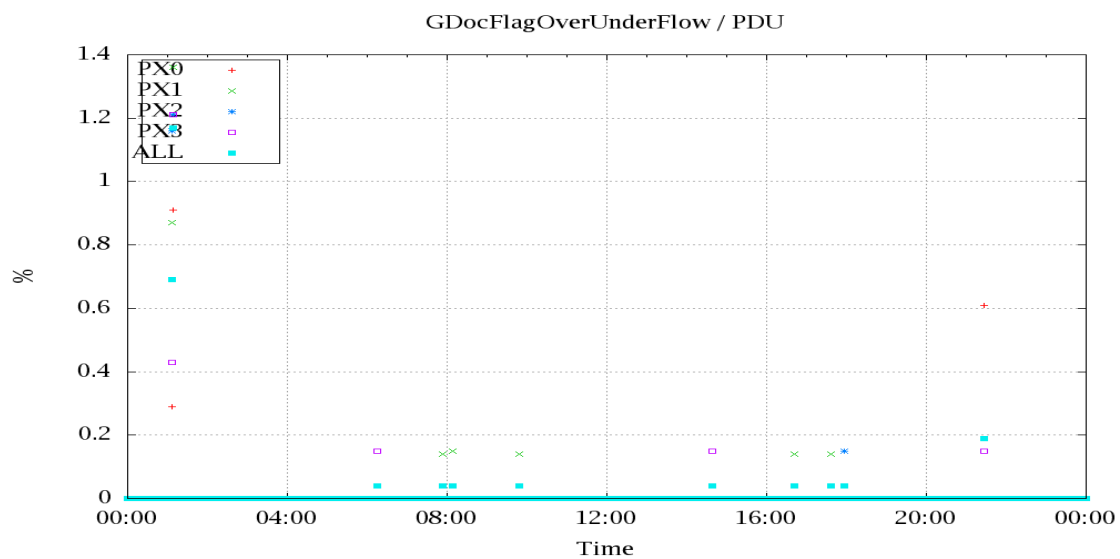


Figure 5: OverUnderFlowFlag timeseries

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.

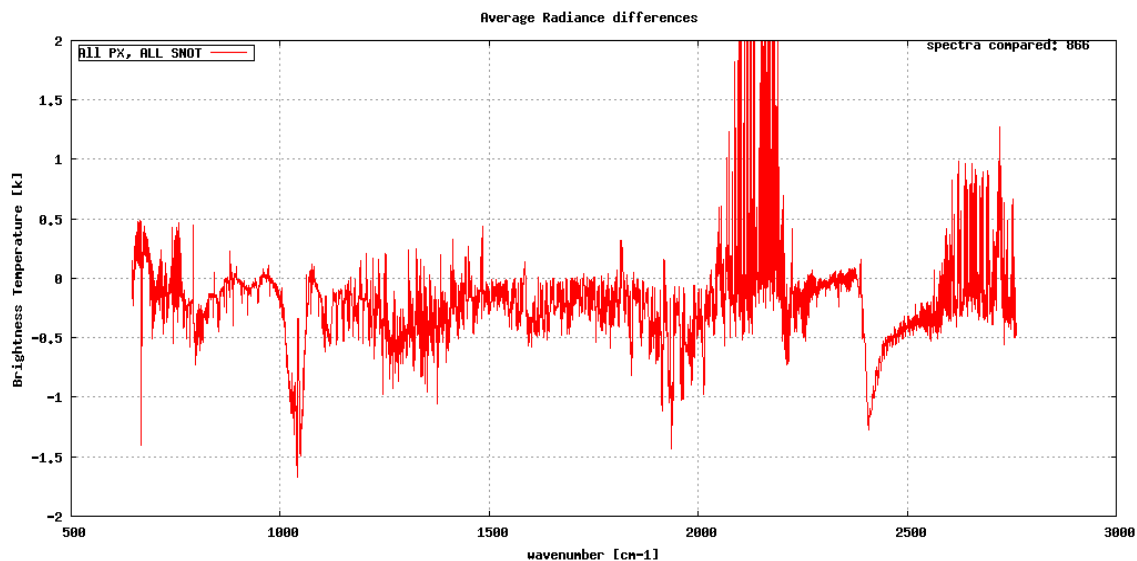


Figure 6: Average Radiance differences: OBS-CAL

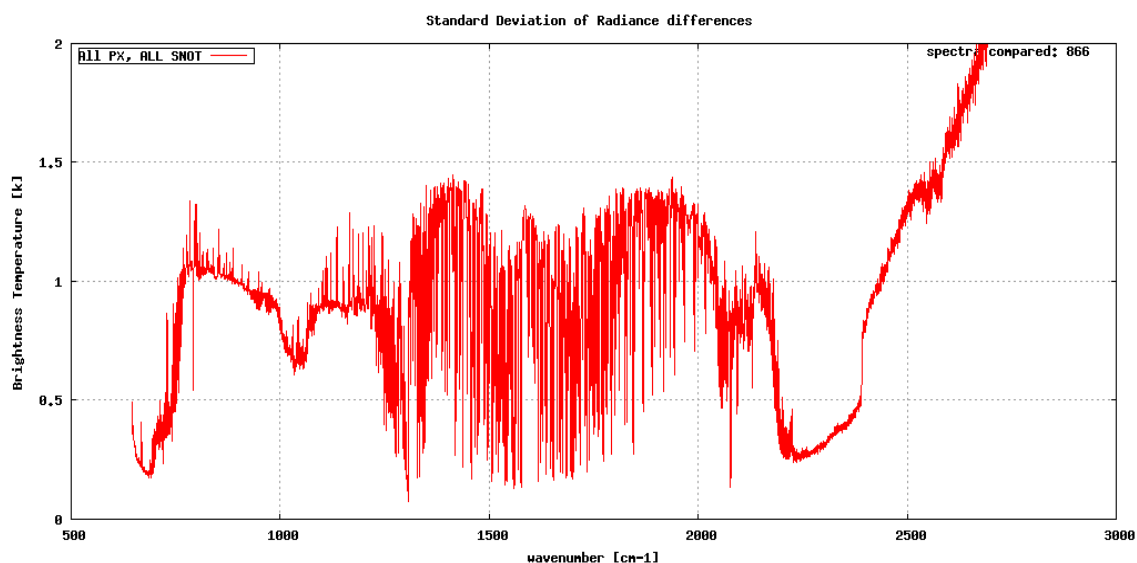


Figure 7: Standard Deviation of Radiance differences

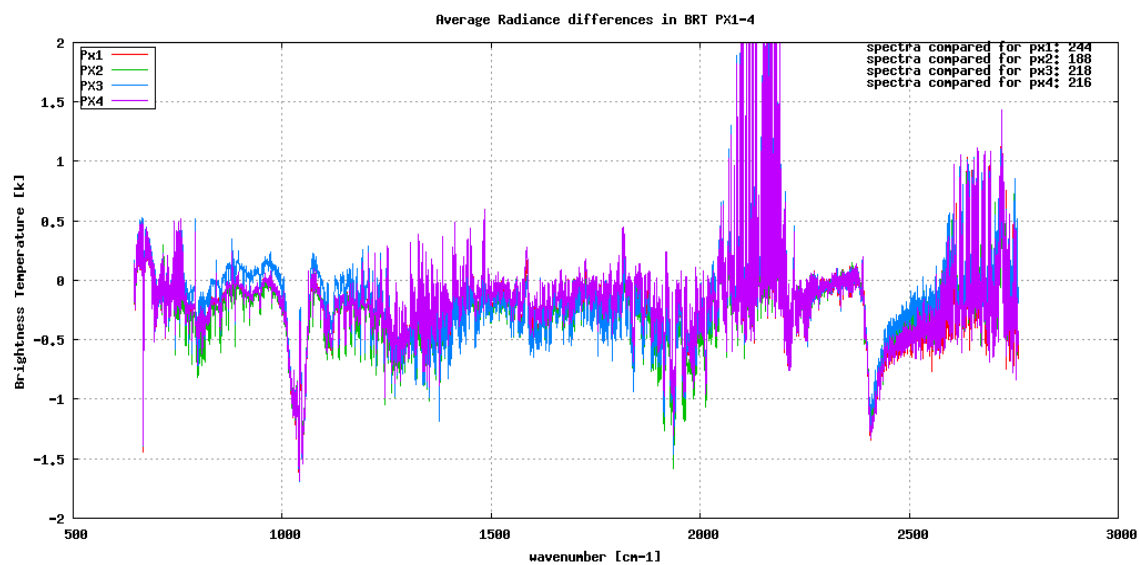


Figure 8: Average Radiance differences: OBS-CAL

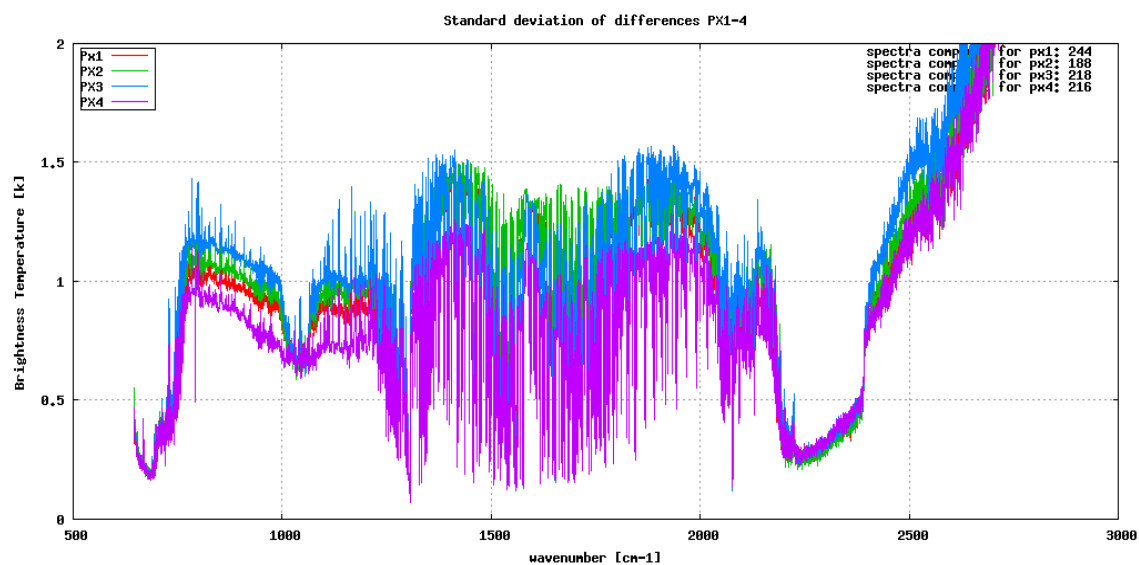


Figure 9: Standard Deviation of Radiance differences

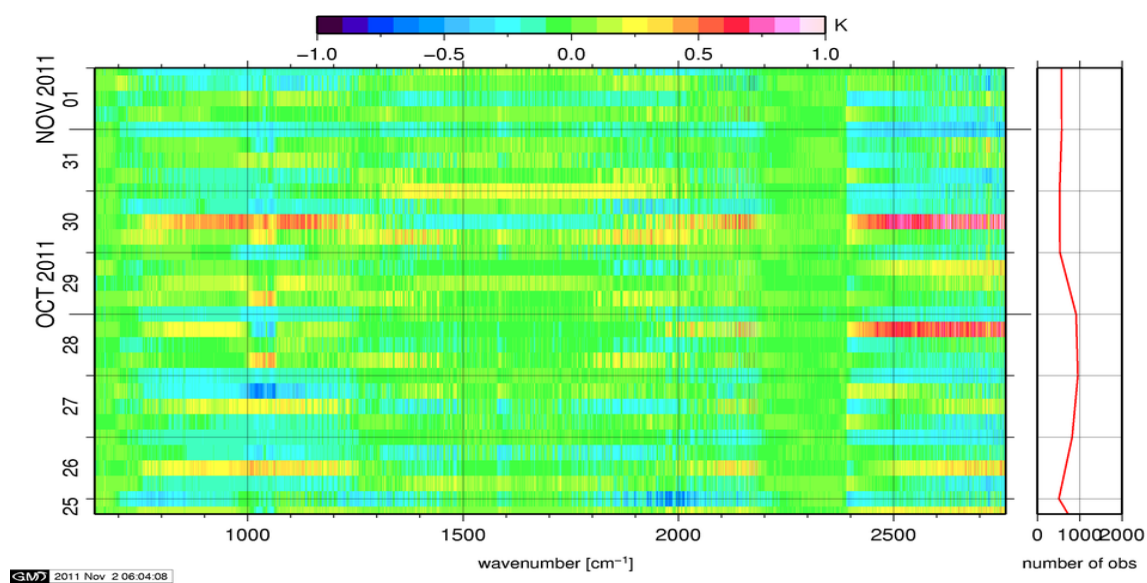


Figure 10: Radiance Anomaly in BRT: All Channels

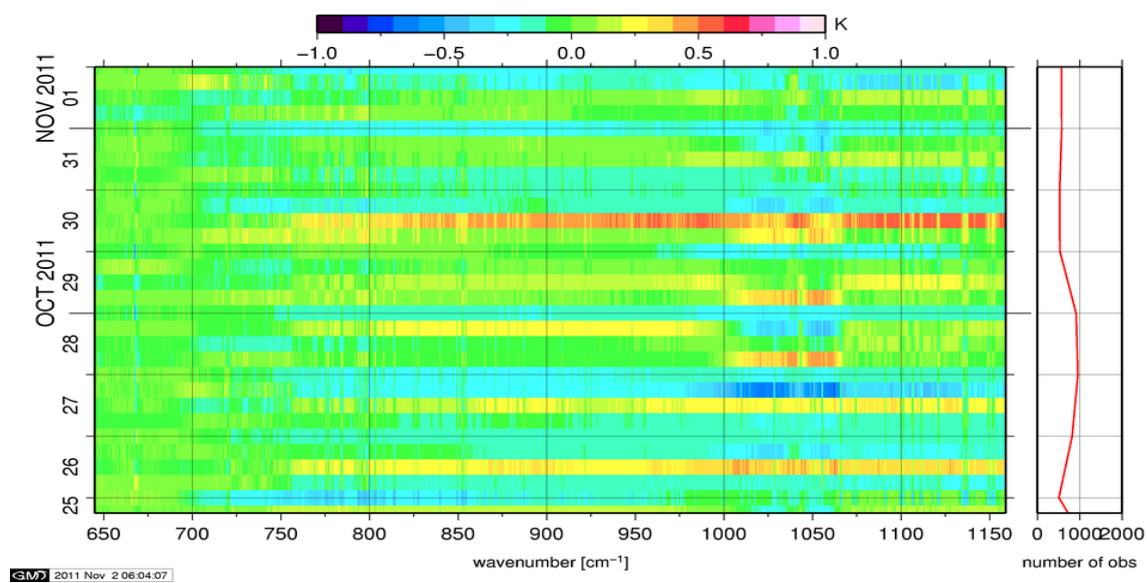


Figure 11: Radiance Anomaly in BRT: IASI Band 1

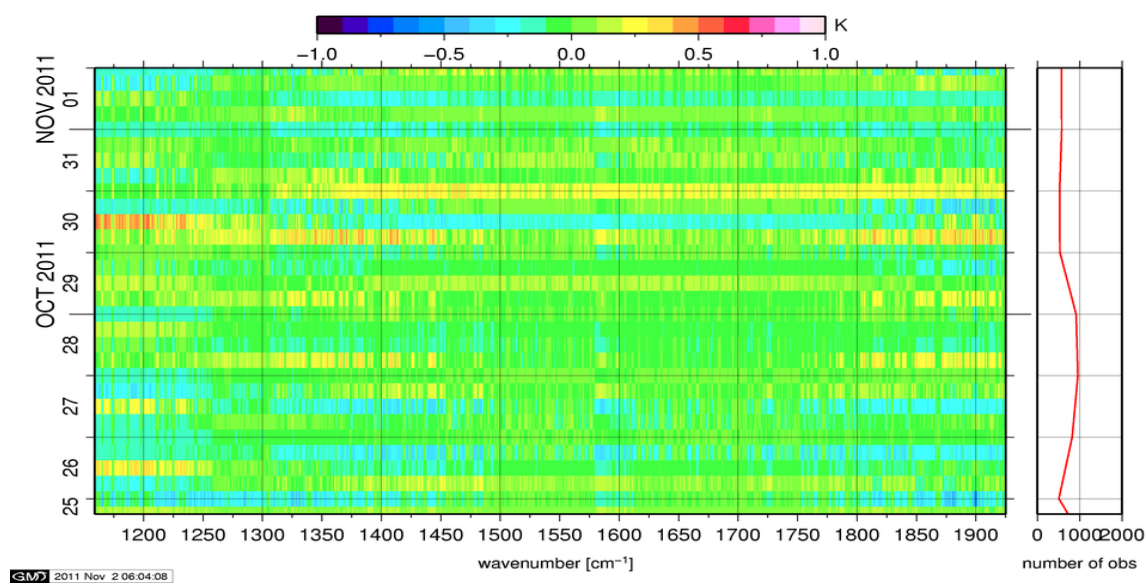


Figure 12: Radiance Anomaly in BRT: IASI Band 2

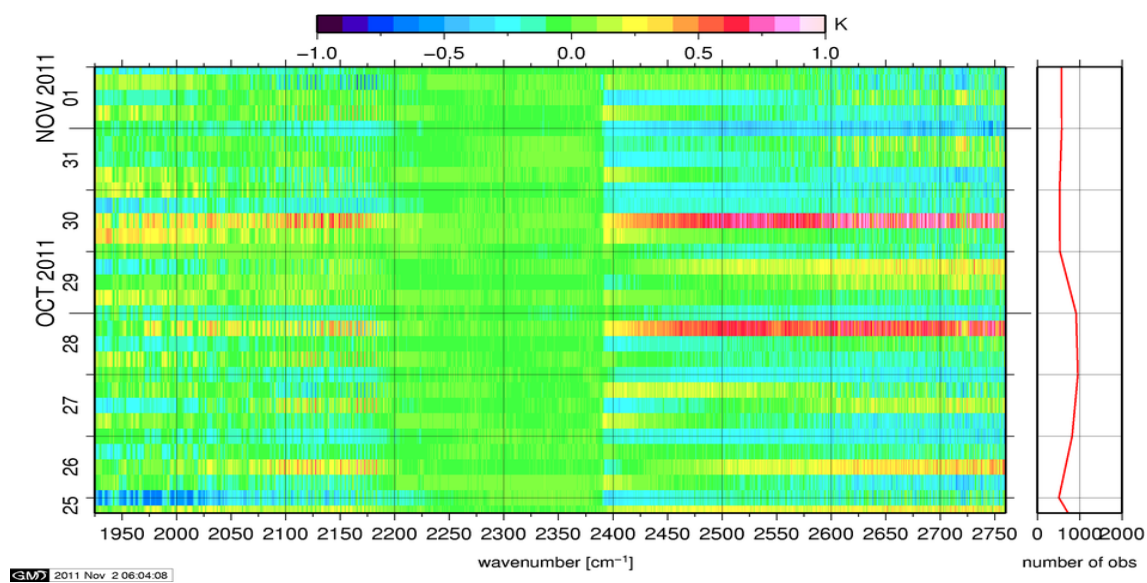


Figure 13: Radiance Anomaly in BRT: IASI Band 3

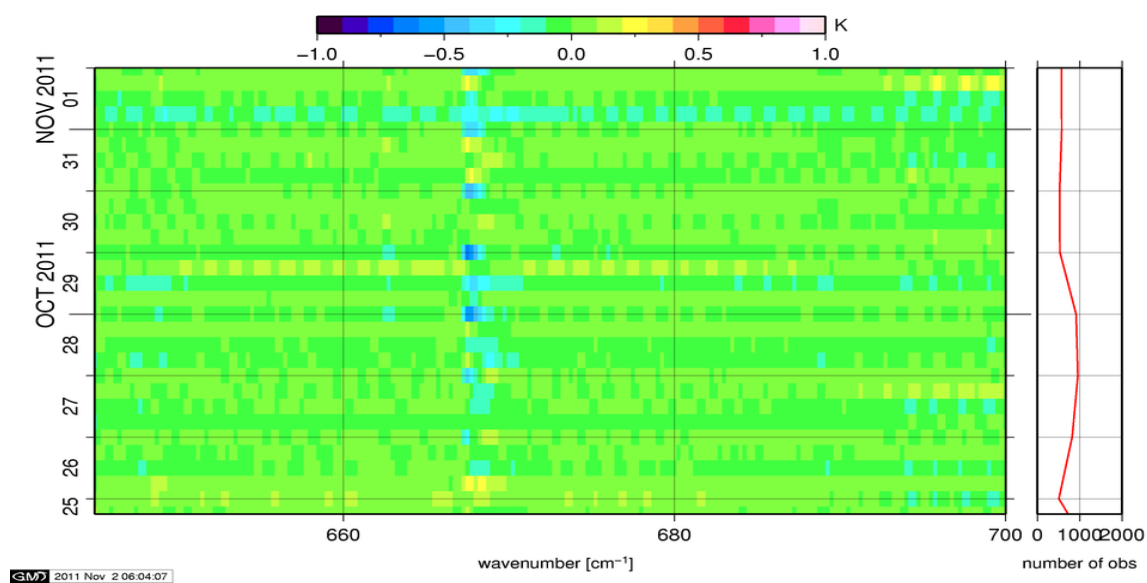


Figure 14: Radiance Anomaly in BRT: CO2 14

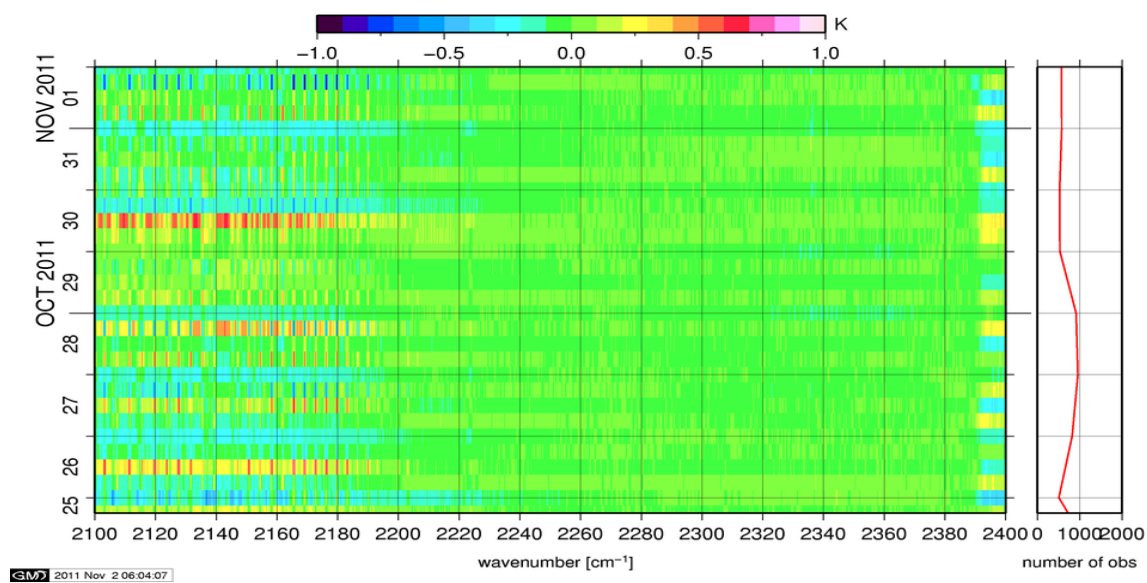


Figure 15: Radiance Anomaly in BRT: CO2 4.3

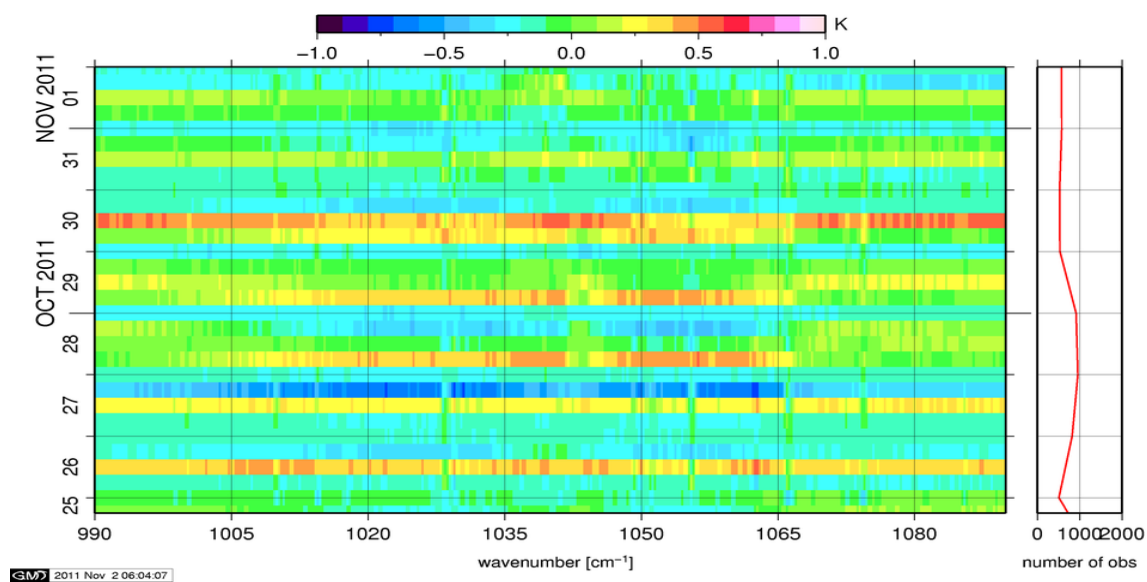


Figure 16: Radiance Anomaly in BRT: O3

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.

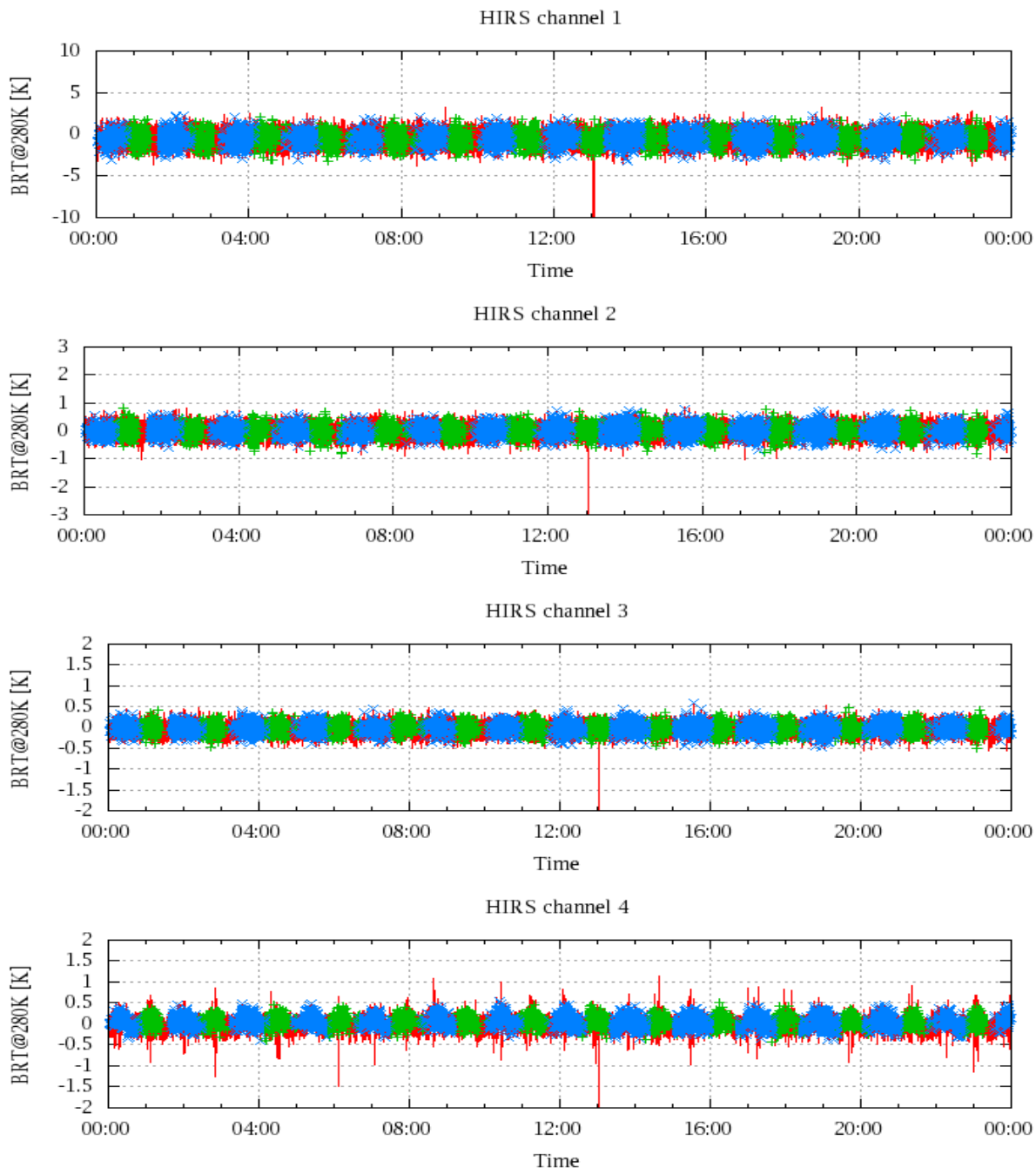


Figure 17: Radiance Differences in BRT

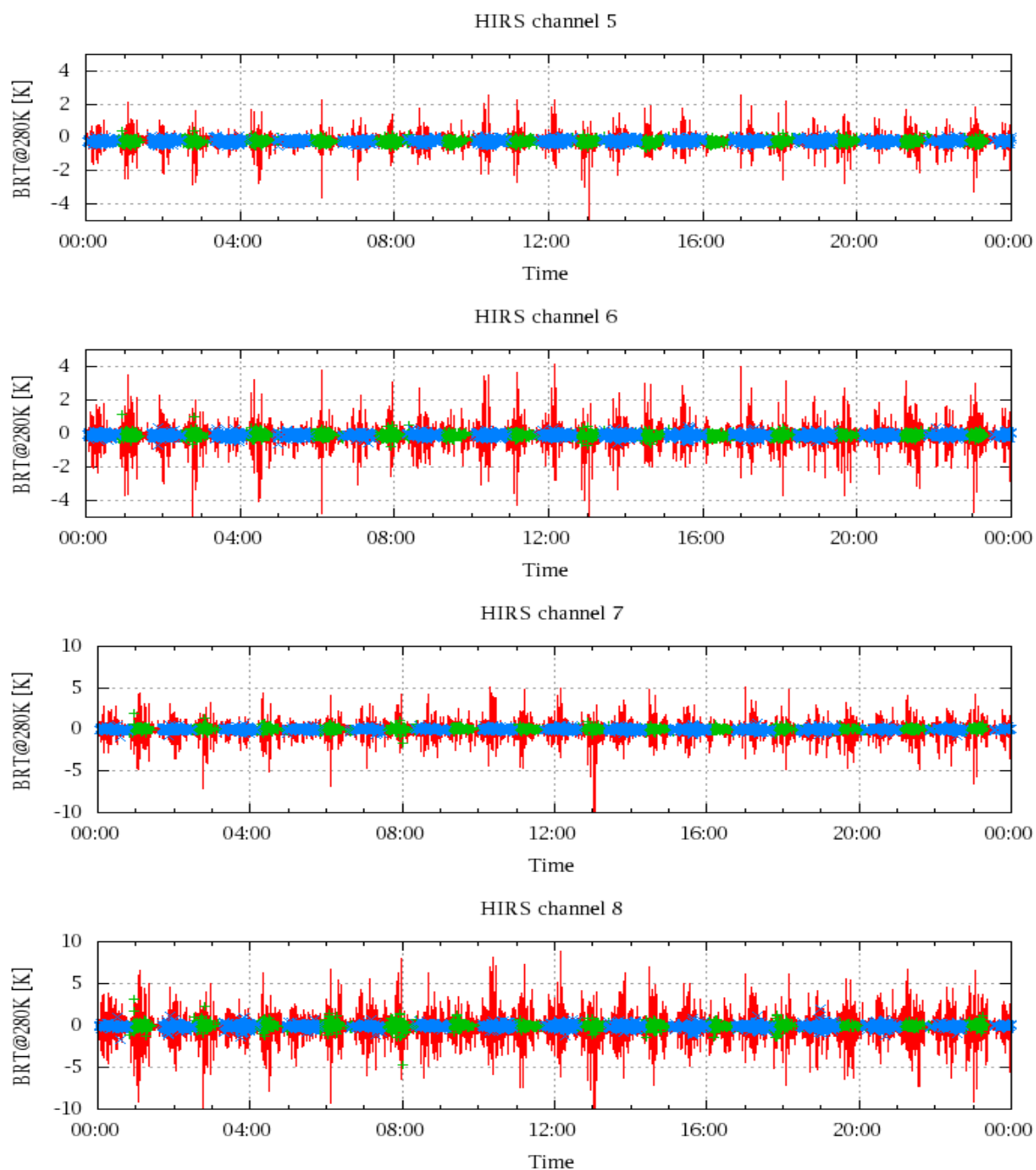


Figure 18: Radiance Differences in BRT

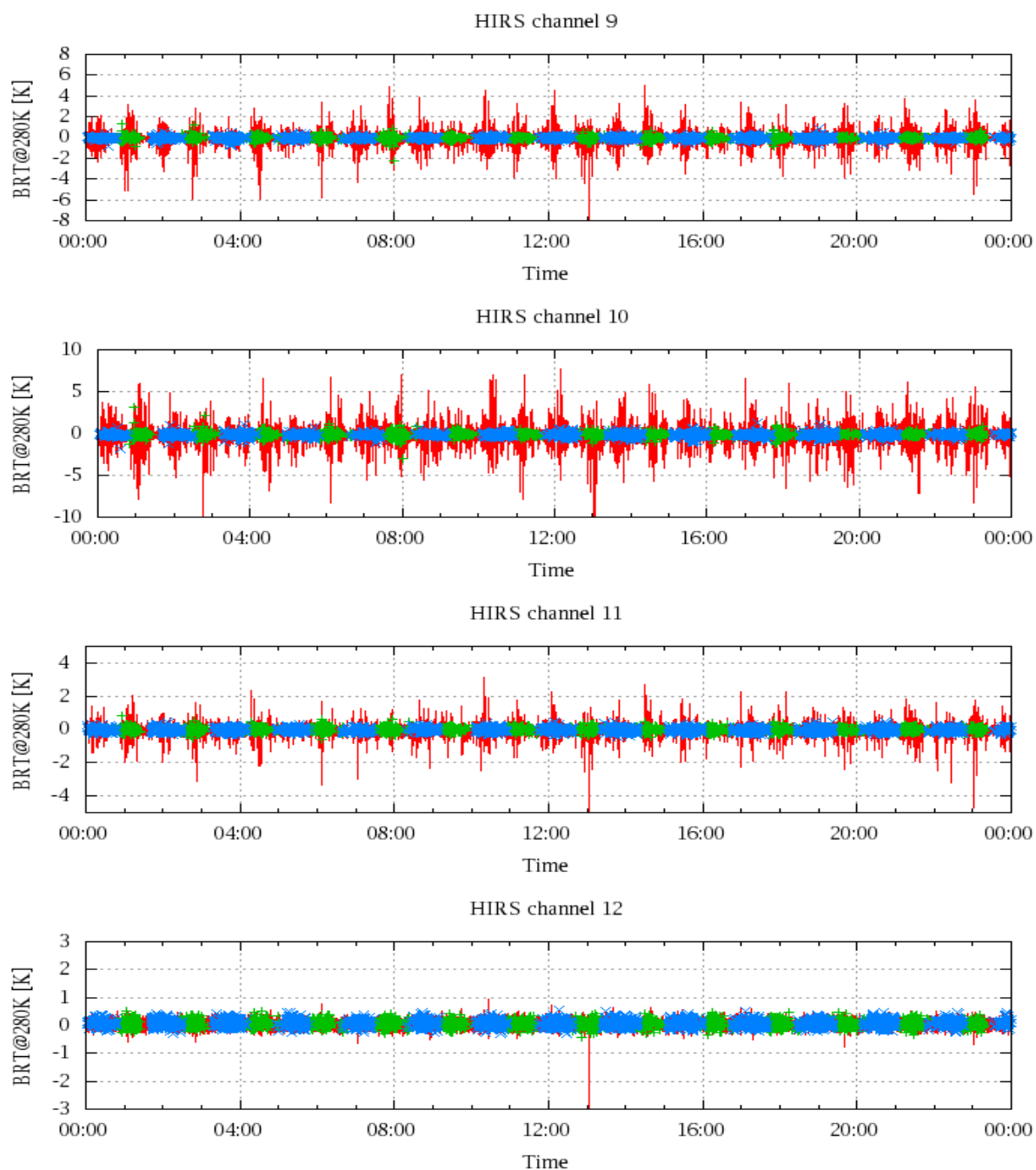


Figure 19: Radiance Differences in BRT

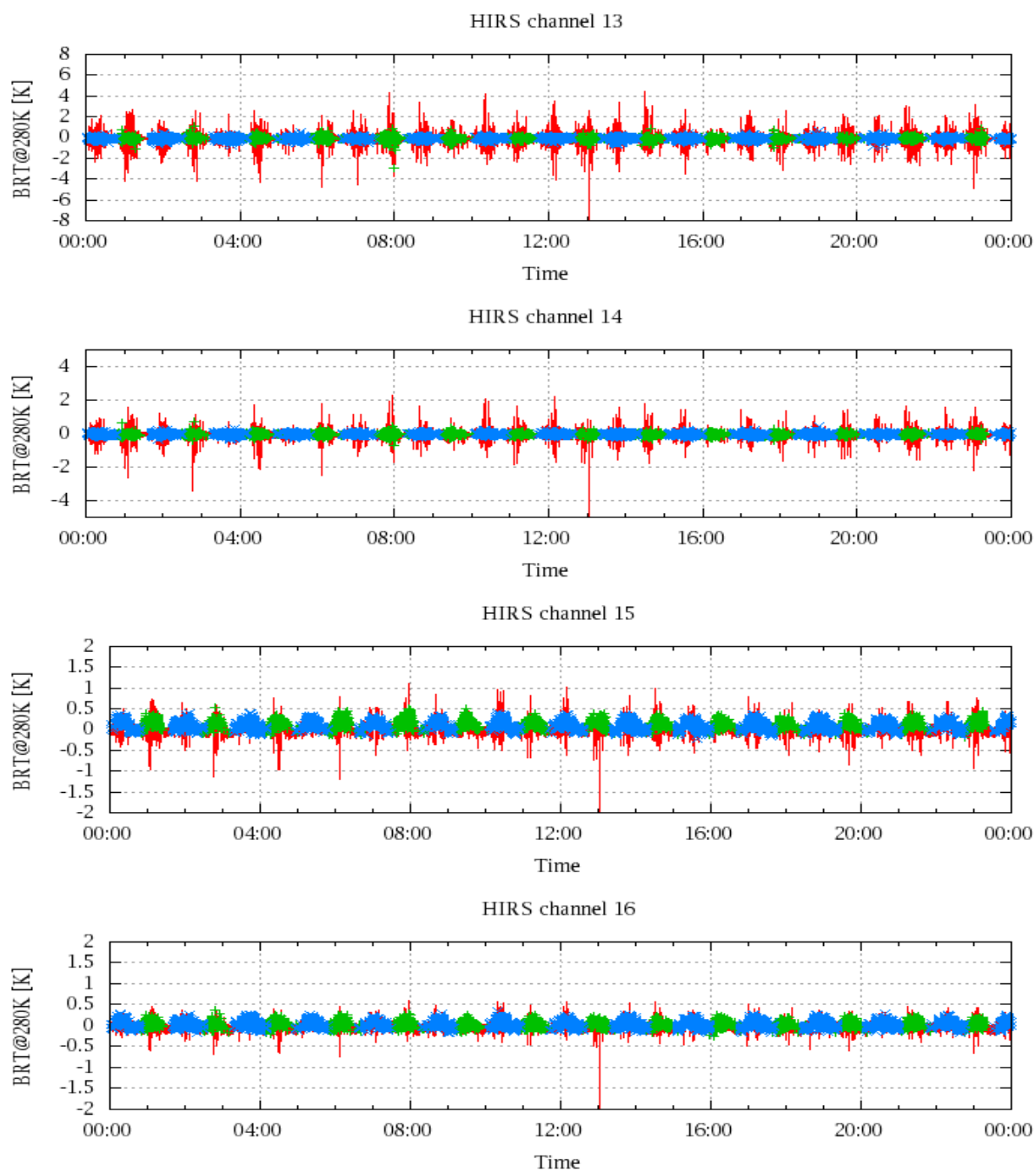


Figure 20: Radiance Differences in BRT

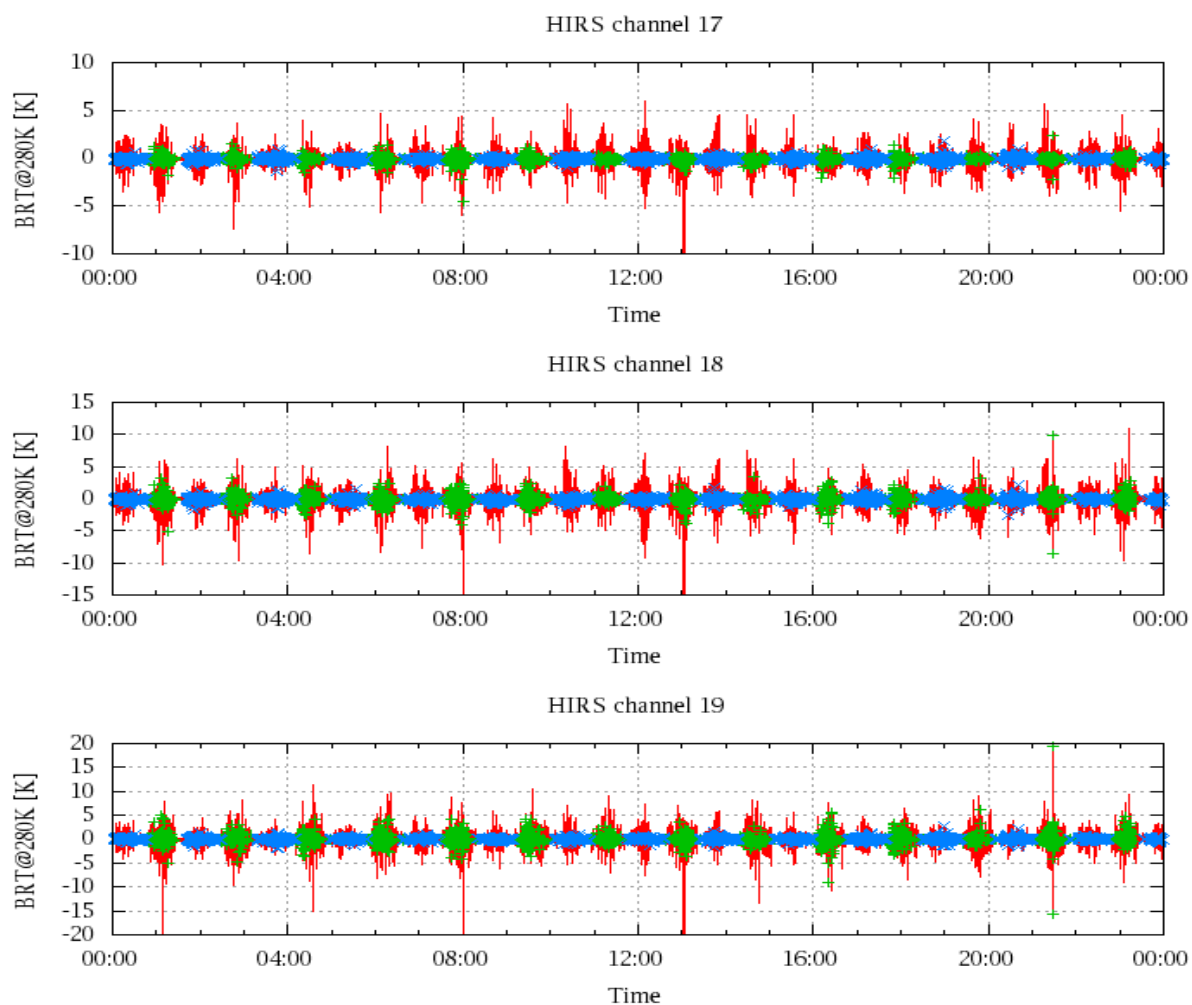


Figure 21: Radinace Differences in BRT