IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

03/11/2011 00:00:00 - 04/11/2011 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 03/11/2011 00:00:00 - 04/11/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 03/11/2011 00:00:00 - 04/11/2011 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)	6706	6714	20111103032846.099	20111103032847.829
PX1 (130)	6725	6729	20111103032851.720	20111103032852.583
PX1 (130)	6730	6740	20111103032852.802	20111103032854.962
PX1 (130)	6740	6746	20111103032854.962	20111103032857.775
PX1 (130)	3310	3372	20111103190018.933	20111103190035.363
PX1 (130)	3374	3397	20111103190035.797	20111103190042.281
PX1 (130)	3398	3408	20111103190042.500	20111103190044.660
PX1 (130)	3408	3417	20111103190044.660	20111103190046.605
PX1 (130)	3420	3424	20111103190047.254	20111103190049.633
PX1 (130)	3424	3434	20111103190049.633	20111103190051.797
PX1 (130)	3442	3444	20111103190053.527	20111103190053.957
PX1 (130)	3477	3480	20111103190102.605	20111103190103.254
PX1 (130)	3484	3522	20111103190105.633	20111103190115.363
PX2 (135)	6706	6714	20111103032846.099	20111103032847.829
PX2 (135)	6725	6729	20111103032851.720	20111103032852.583
PX2 (135)	6730	6739	20111103032852.802	20111103032854.747
PX2 (135)	6740	6746	20111103032854.962	20111103032857.775
PX2 (135)	3310	3372	20111103190018.933	20111103190035.363

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	3374	3397	20111103190035.797	20111103190042.281
PX2 (135)	3397	3417	20111103190042.281	20111103190046.605
PX2 (135)	3420	3424	20111103190047.254	20111103190049.633
PX2 (135)	3424	3433	20111103190049.633	20111103190051.578
PX2 (135)	3442	3444	20111103190053.527	20111103190053.957
PX2 (135)	3477	3480	20111103190102.605	20111103190103.254
PX2 (135)	3484	3521	20111103190105.633	20111103190115.148
PX3 (140)	6706	6714	20111103032846.099	20111103032847.829
PX3 (140)	6725	6729	20111103032851.720	20111103032852.583
PX3 (140)	6730	6739	20111103032852.802	20111103032854.747
PX3 (140)	6740	6746	20111103032854.962	20111103032857.775
PX3 (140)	3310	3346	20111103190018.933	20111103190028.230
PX3 (140)	3346	3372	20111103190028.230	20111103190035.363
PX3 (140)	3374	3397	20111103190035.797	20111103190042.281
PX3 (140)	3397	3416	20111103190042.281	20111103190046.390
PX3 (140)	3420	3433	20111103190047.254	20111103190051.578
PX3 (140)	3442	3444	20111103190053.527	20111103190053.957
PX3 (140)	3477	3480	20111103190102.605	20111103190103.254
PX3 (140)	3484	3521	20111103190105.633	20111103190115.148
PX4 (145)	6706	6714	20111103032846.099	20111103032847.829
PX4 (145)	6725	6728	20111103032851.720	20111103032852.368
PX4 (145)	6730	6739	20111103032852.802	20111103032854.747
PX4 (145)	6740	6746	20111103032854.962	20111103032857.775
PX4 (145)	3310	3346	20111103190018.933	20111103190028.230
PX4 (145)	3346	3372	20111103190028.230	20111103190035.363
PX4 (145)	3374	3397	20111103190035.797	20111103190042.281
PX4 (145)	3397	3416	20111103190042.281	20111103190046.390
PX4 (145)	3420	3433	20111103190047.254	20111103190051.578
PX4 (145)	3441	3444	20111103190053.308	20111103190053.957
PX4 (145)	3477	3480	20111103190102.605	20111103190103.254
PX4 (145)	3484	3521	20111103190105.633	20111103190115.148
IMG (150)	9781	9790	20111103032845.884	20111103032847.829
IMG (150)	9804	9808	20111103032851.505	20111103032852.368
IMG (150)	9809	9819	20111103032852.583	20111103032854.747
IMG (150)	9820	9826	20111103032854.962	20111103032856.478
IMG (150)	1565	1636	20111103190018.715	20111103190035.363
IMG (150)	1637	1665	20111103190035.578	20111103190042.281
IMG (150)	1665	1684	20111103190042.281	20111103190046.390
IMG (150)	1687	1692	20111103190047.039	20111103190048.336
IMG (150)	1695	1705	20111103190049.203	20111103190051.578
IMG (150)	1713	1716	20111103190053.308	20111103190053.957
IMG (150)	1752	1756	20111103190102.390	20111103190103.254
IMG (150)	1759	1805	20111103190103.902	20111103190115.148
VER (160)	12041	12045	20111103032848.044	20111103032854.962
VER (160)	14203	14223	20111103190015.906	20111103190047.254
VER (160)	14230	14239	20111103190103.902	20111103190119.902
AUX (180)	15947	15951	20111103190016.336	20111103190048.336
AUX (180)	15952	15955	20111103190056.336	20111103190120.336

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
03/11/2011 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)	99.31 %	-
GQisFlagQual set (PX2)	99.19 %	-
GQisFlagQual set (PX3)	99.27 %	-
GQisFlagQual set (PX4)	99.39 %	-
GQisFlagQual set (all)	99.29 %	-

Table 4: Quality flags

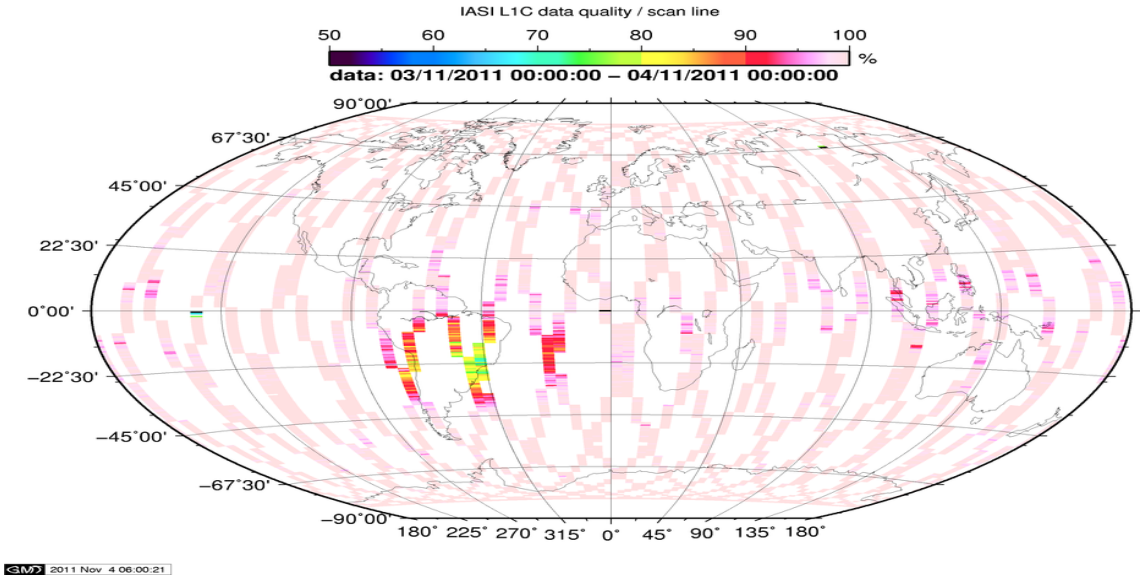

Figure 1: L1C data quality

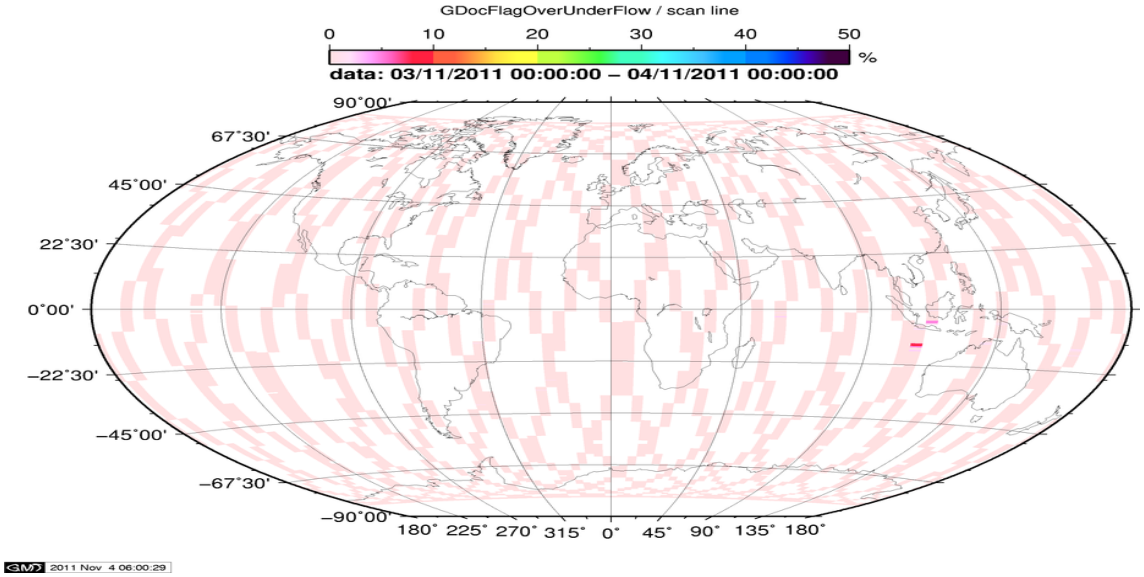

Figure 2: Flag of Over and Under Flows

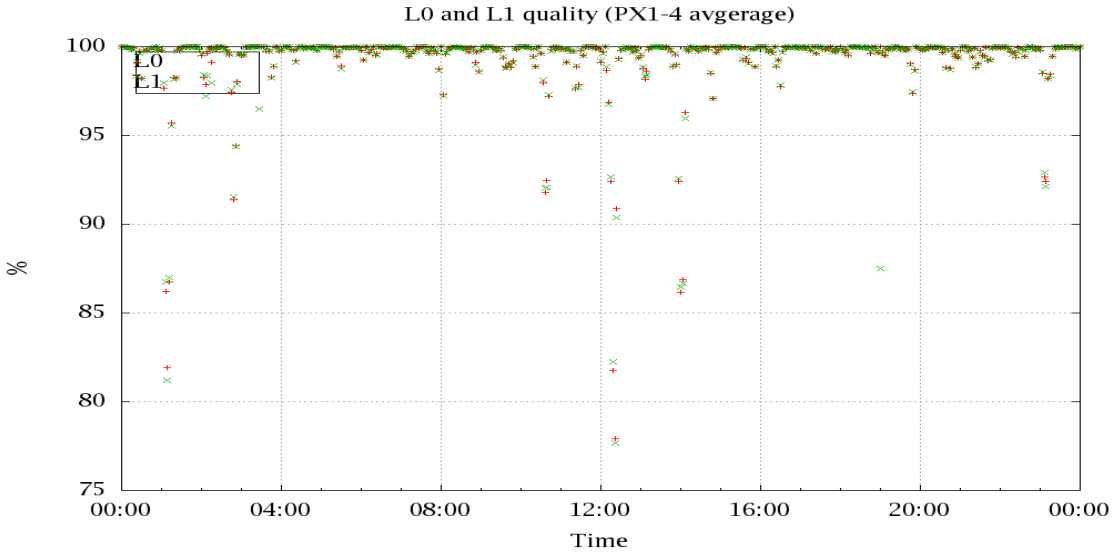

Figure 3: Level 0 and 1C overall quality

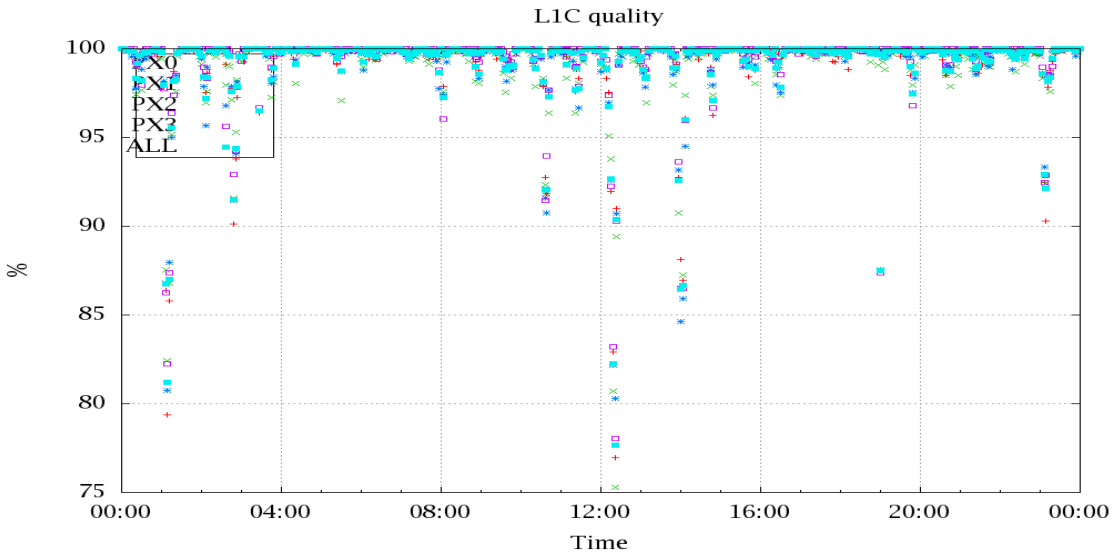

Figure 4: Level 1C quality

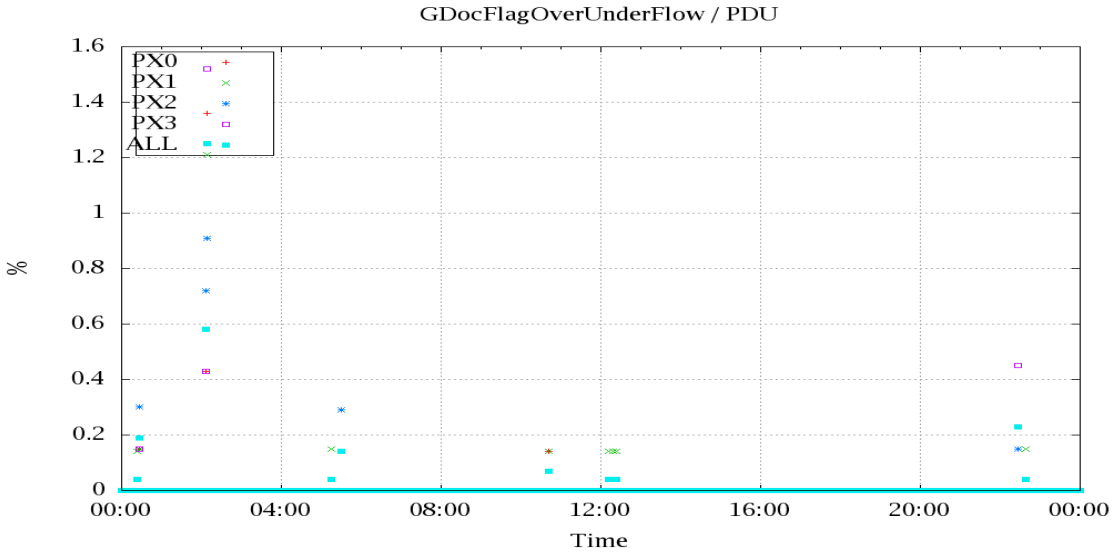

Figure 5: OverUnderFlowFlag timeseries

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 indentification 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.

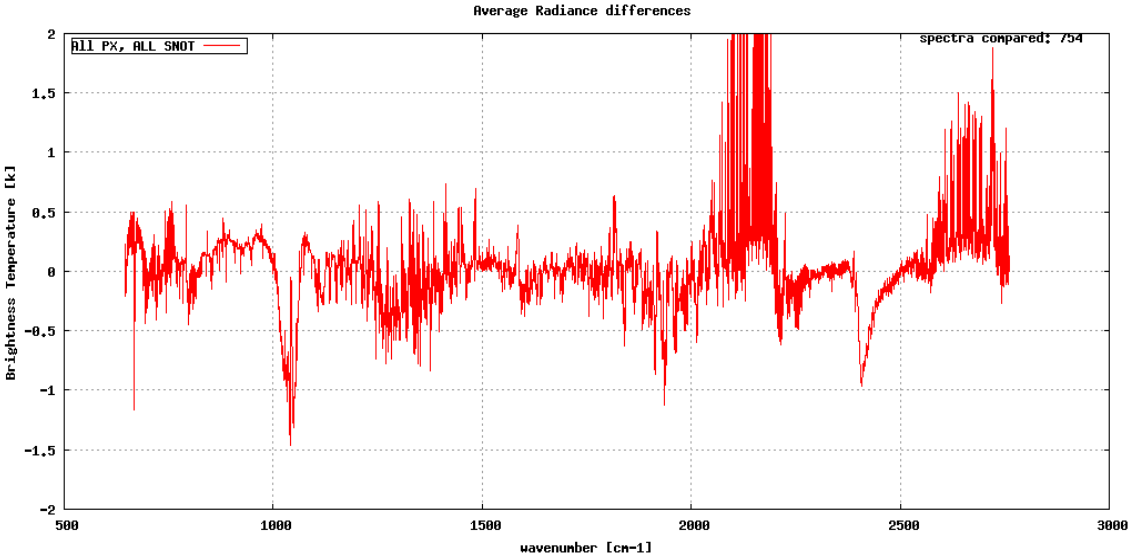

Figure 6: Average Radiance differences: OBS-CAL

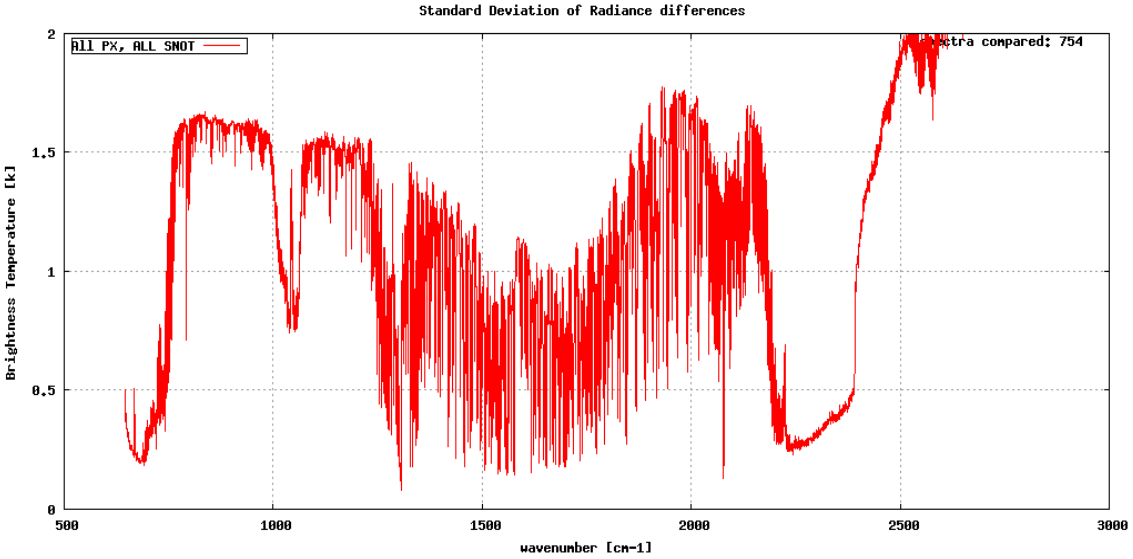

Figure 7: Standard Deviation of Radiance differences

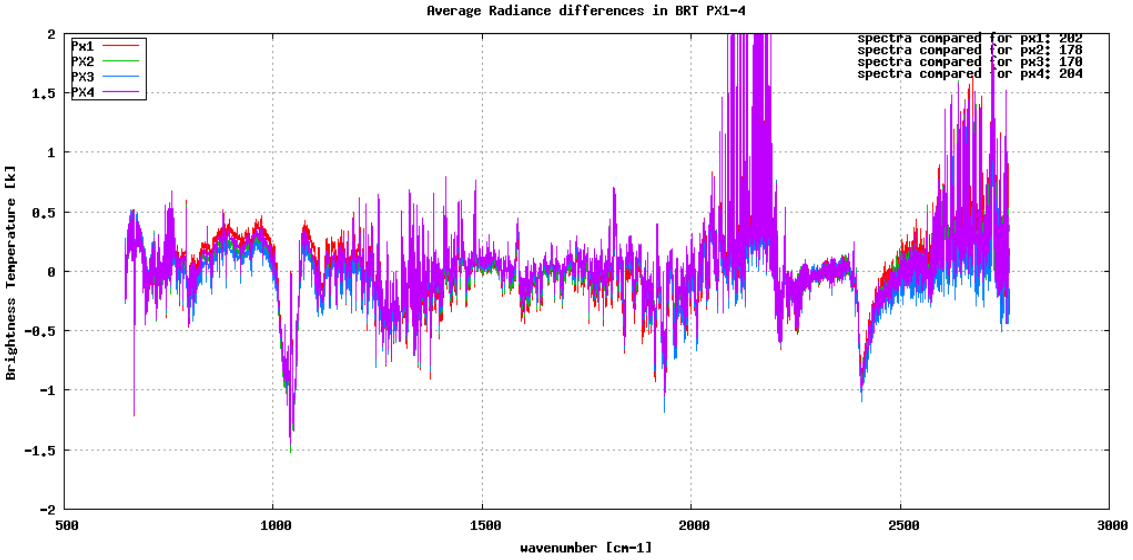

Figure 8: Average Radiance differences: OBS-CAL

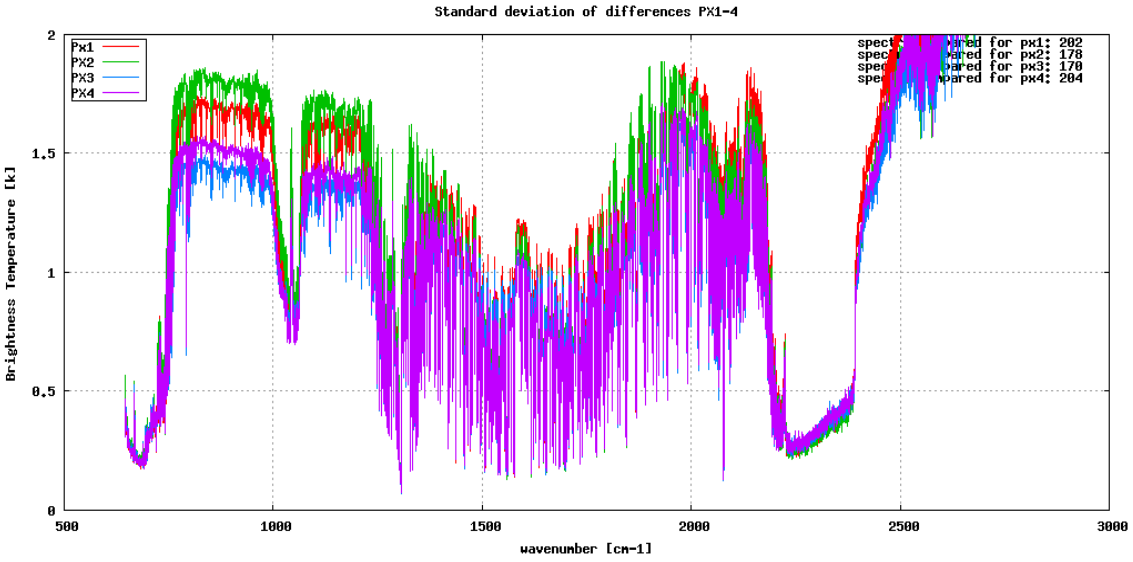

Figure 9: Standard Deviation of Radiance differences

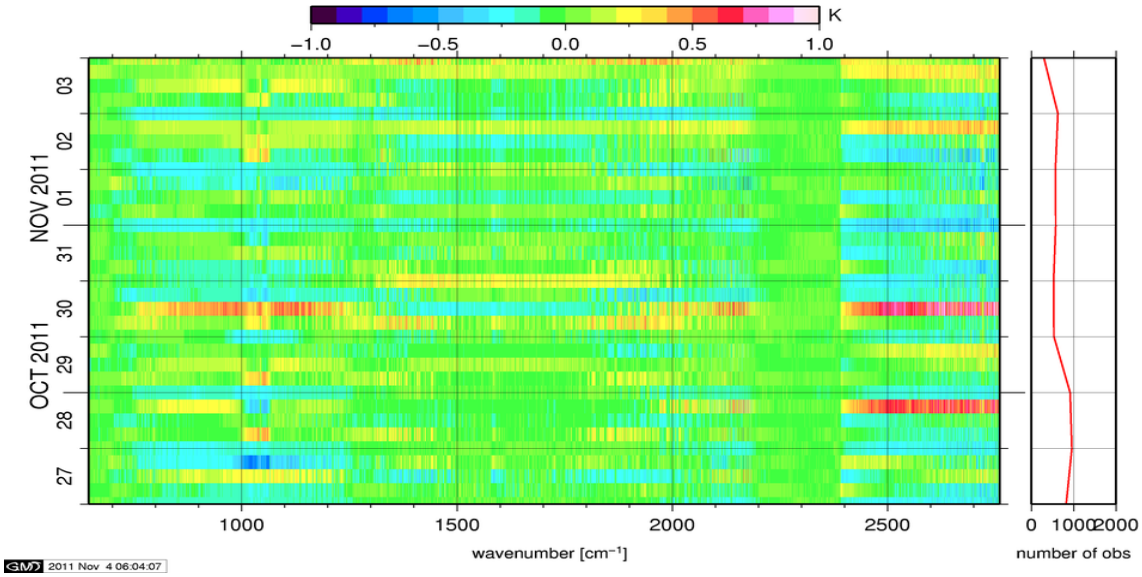

Figure 10: Radiance Anomaly in BRT: All Channels

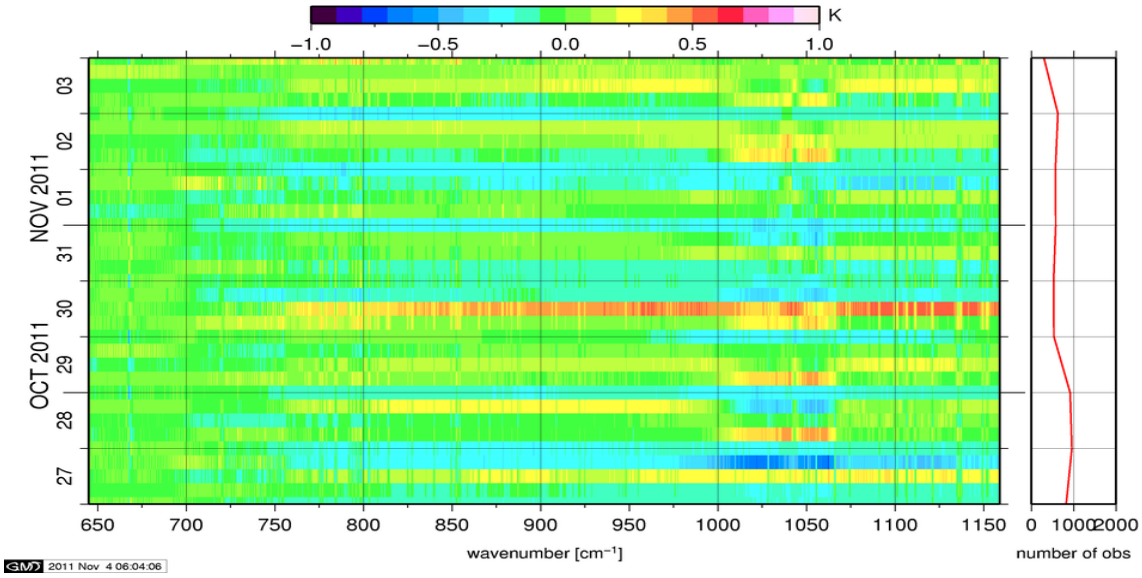

Figure 11: Radiance Anomaly in BRT: IASI Band 1

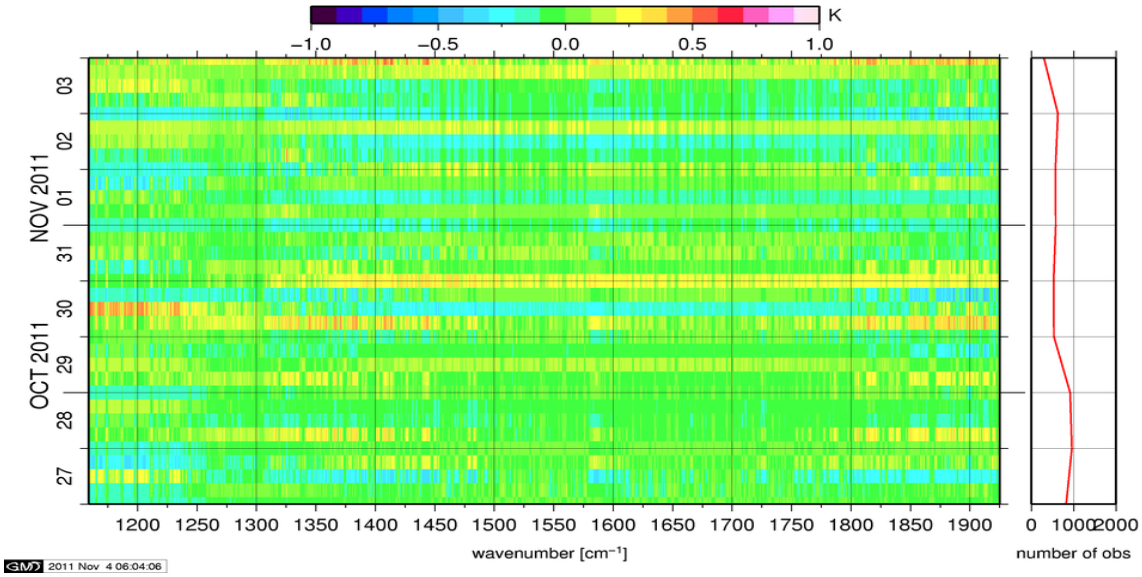

Figure 12: Radiance Anomaly in BRT: IASI Band 2

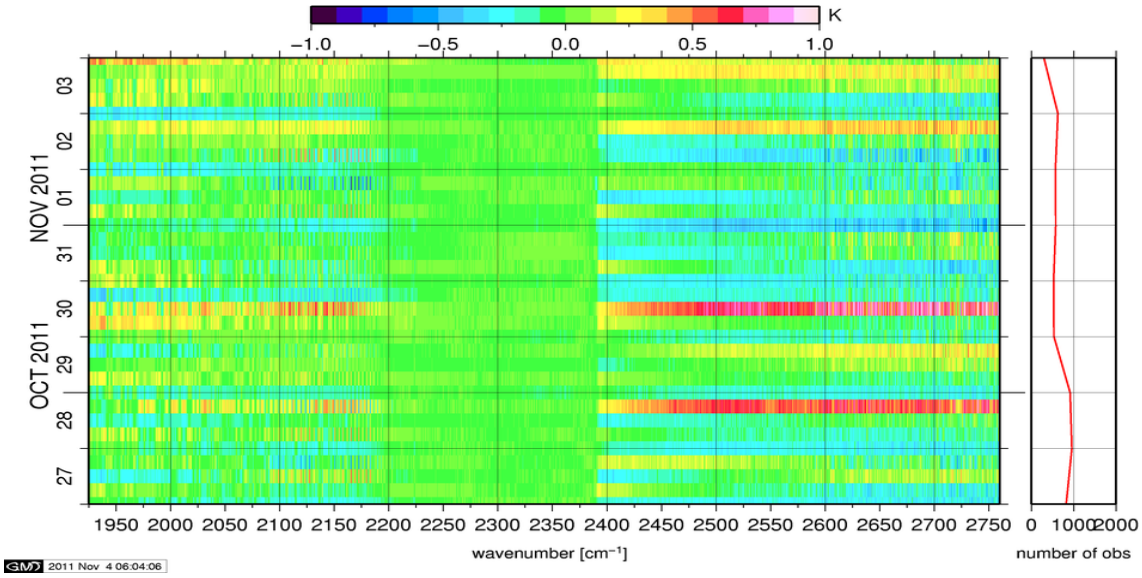

Figure 13: Radiance Anomaly in BRT: IASI Band 3

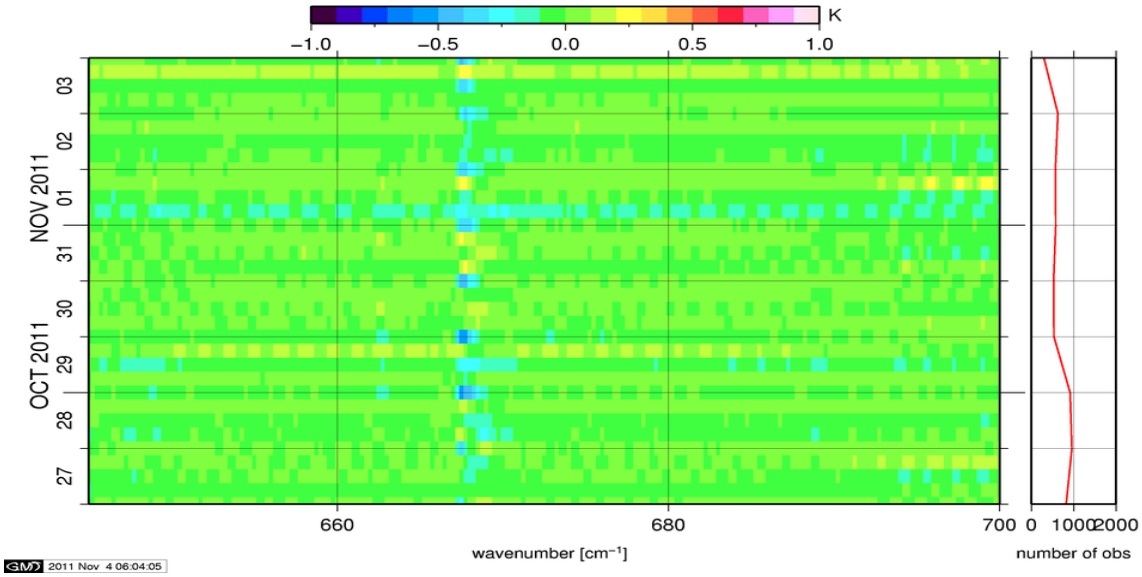

Figure 14: Radiance Anomaly in BRT: CO2 14

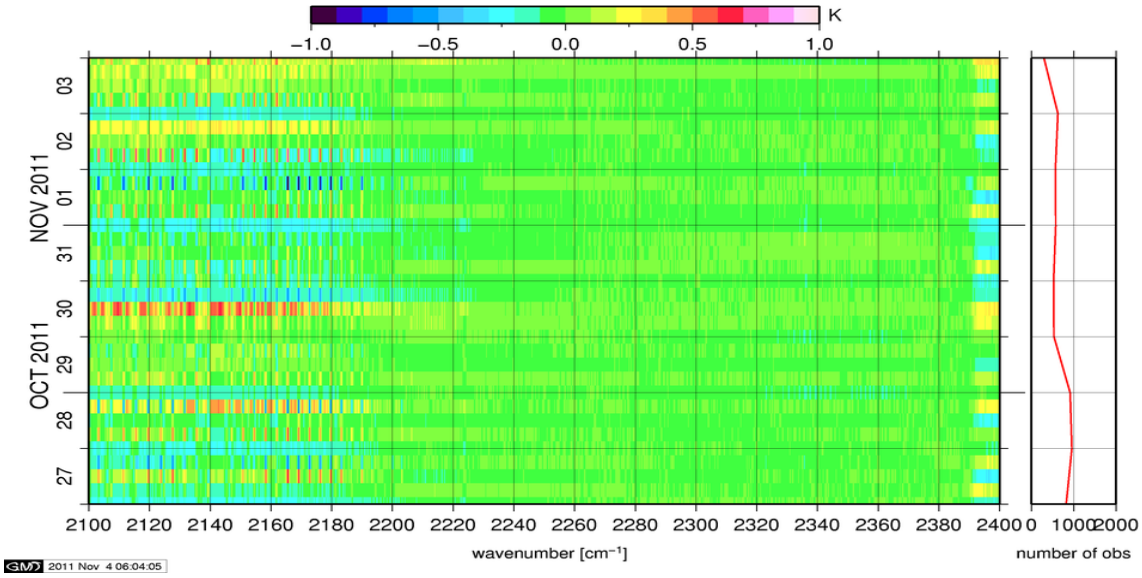

Figure 15: Radiance Anomaly in BRT: CO2 4.3

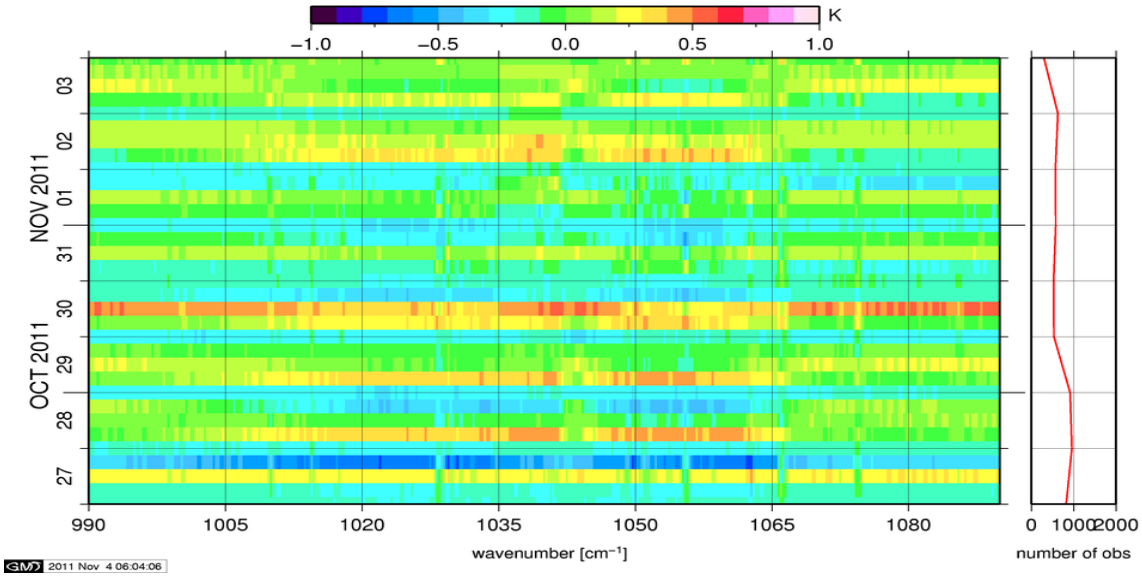

Figure 16: Radiance Anomaly in BRT: O3

6 IASI-HIRS radiance comparision Channel 1-19

The radiance comparision 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.

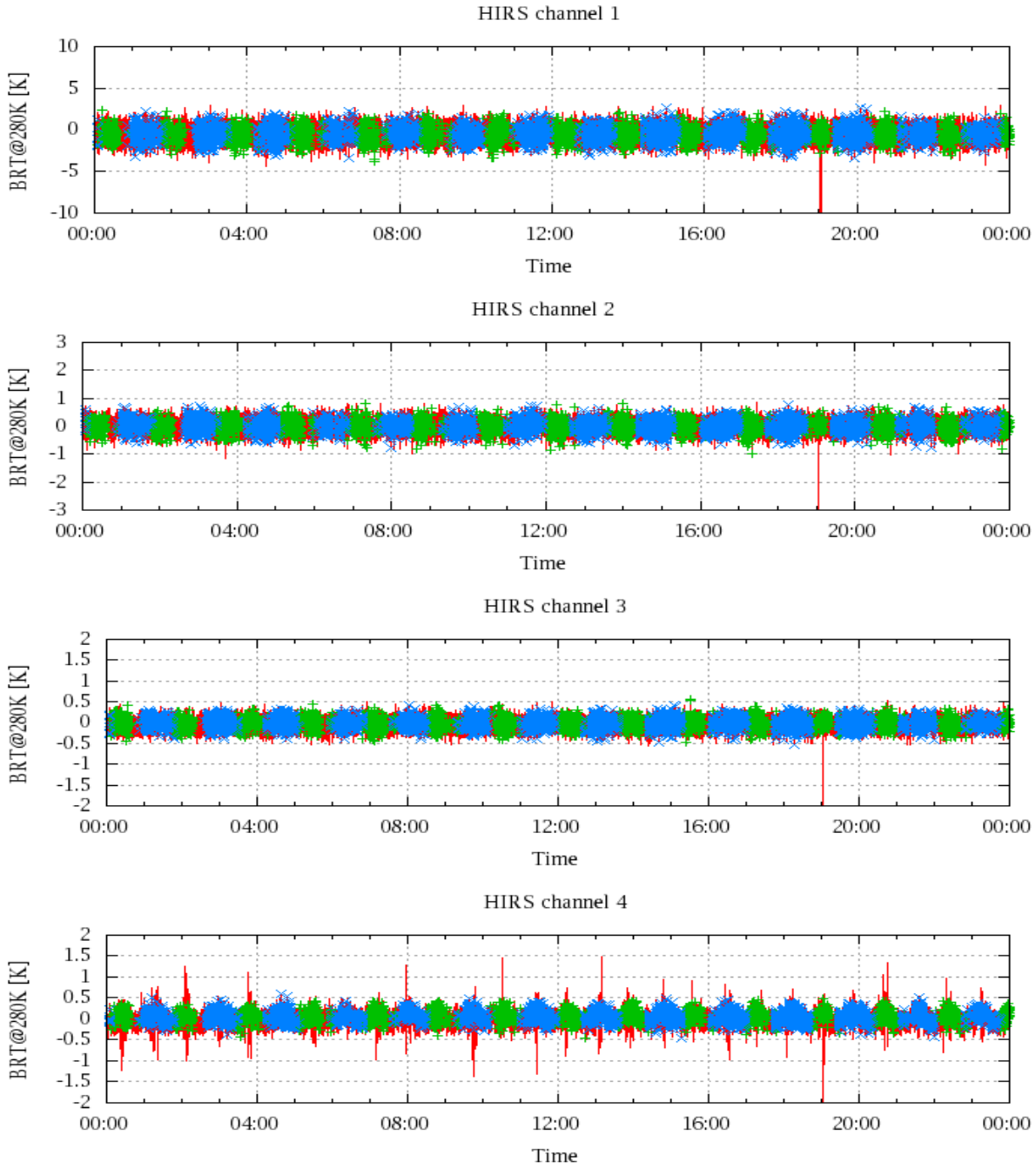

Figure 17: Radiance Differences in BRT

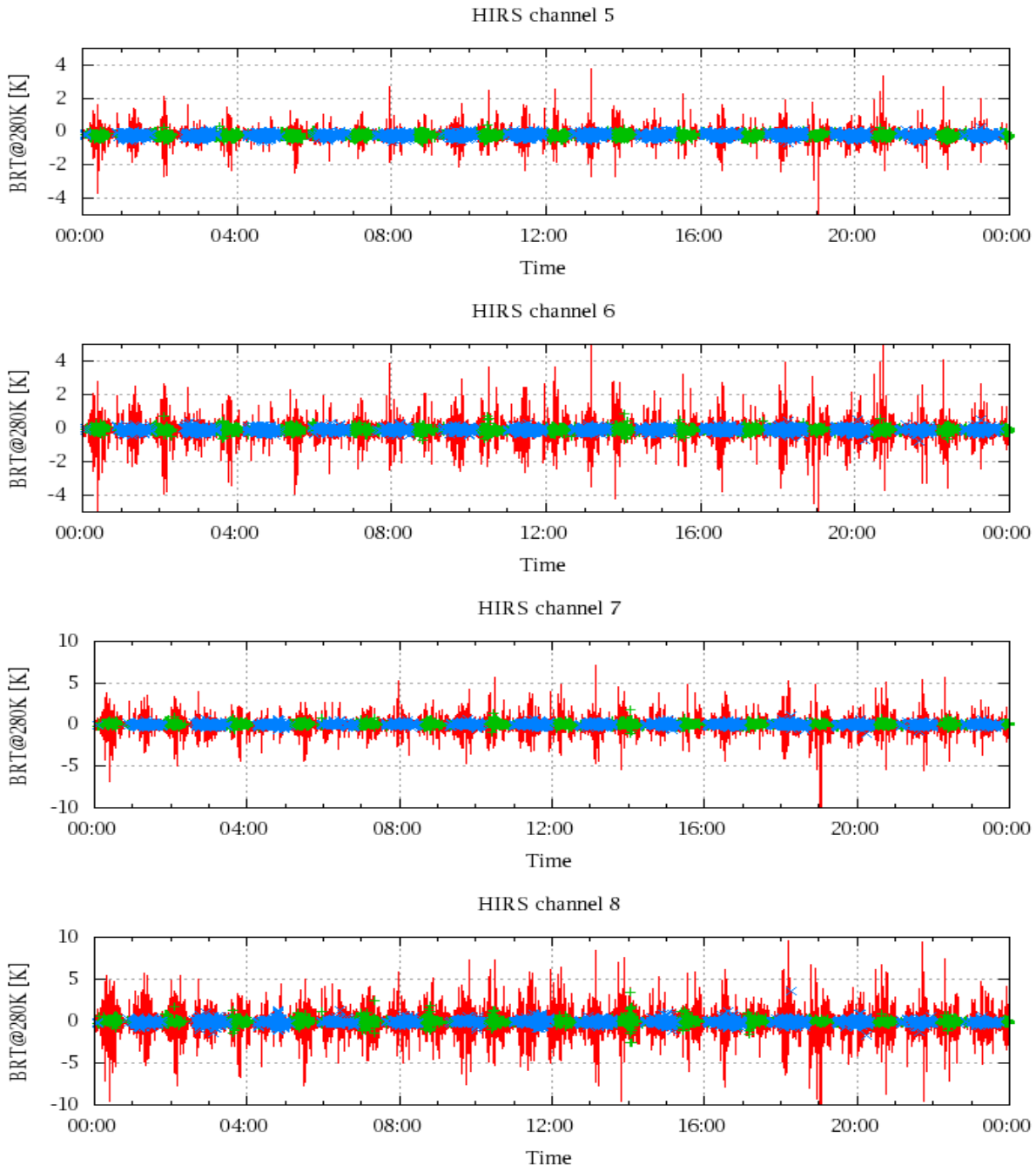

Figure 18: Radiance Differences in BRT

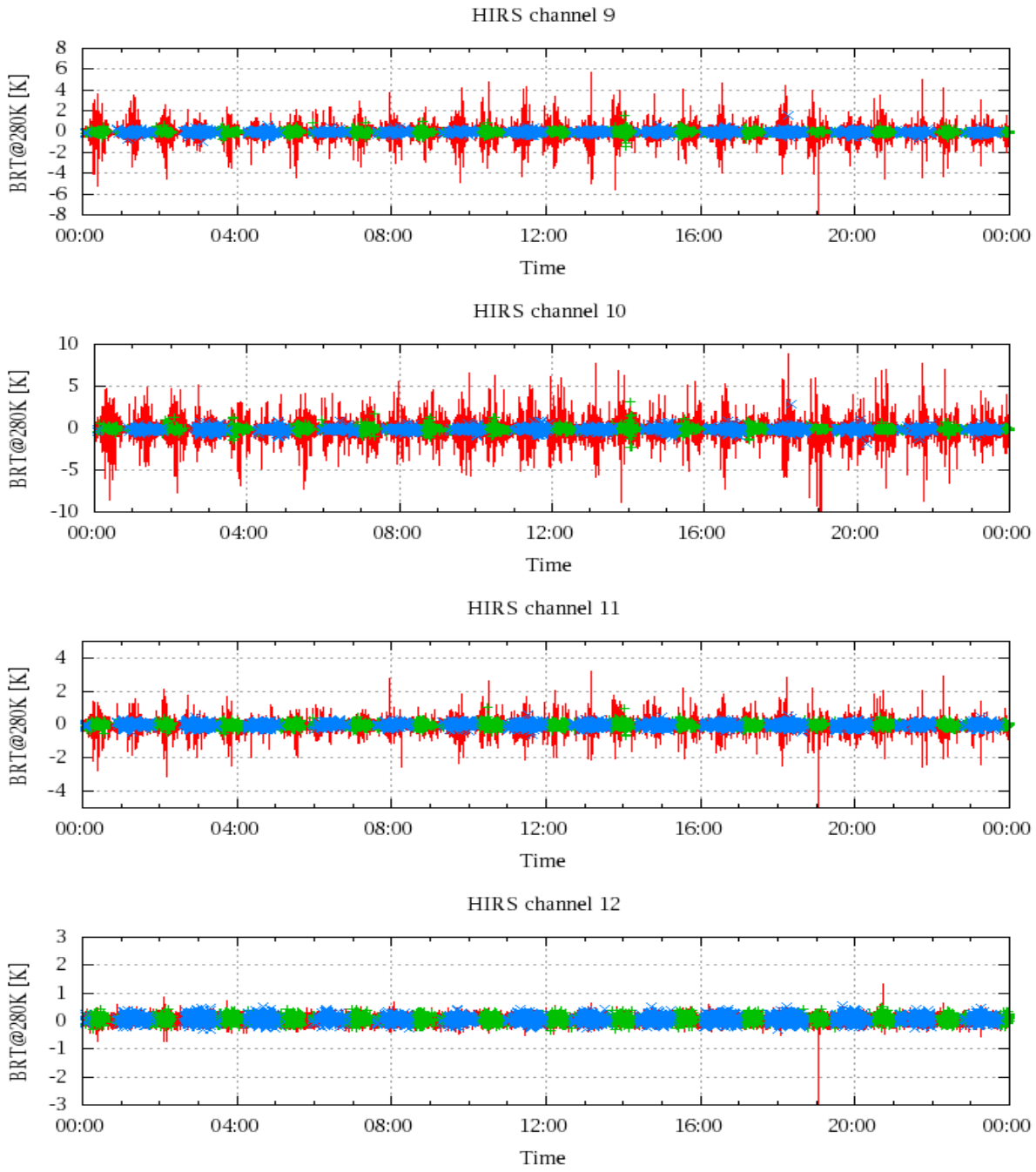

Figure 19: Radiance Differences in BRT

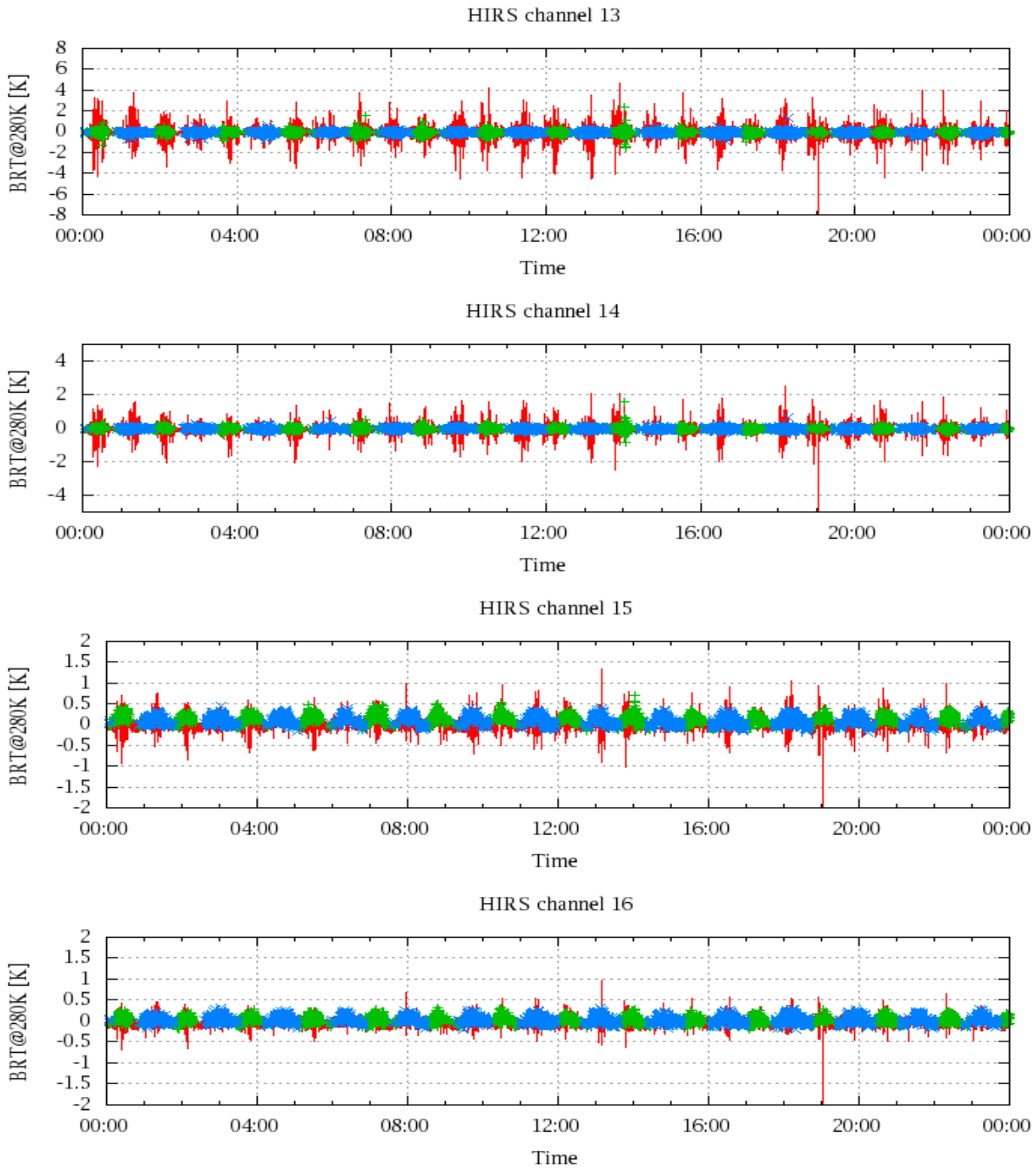

Figure 20: Radiance Differences in BRT

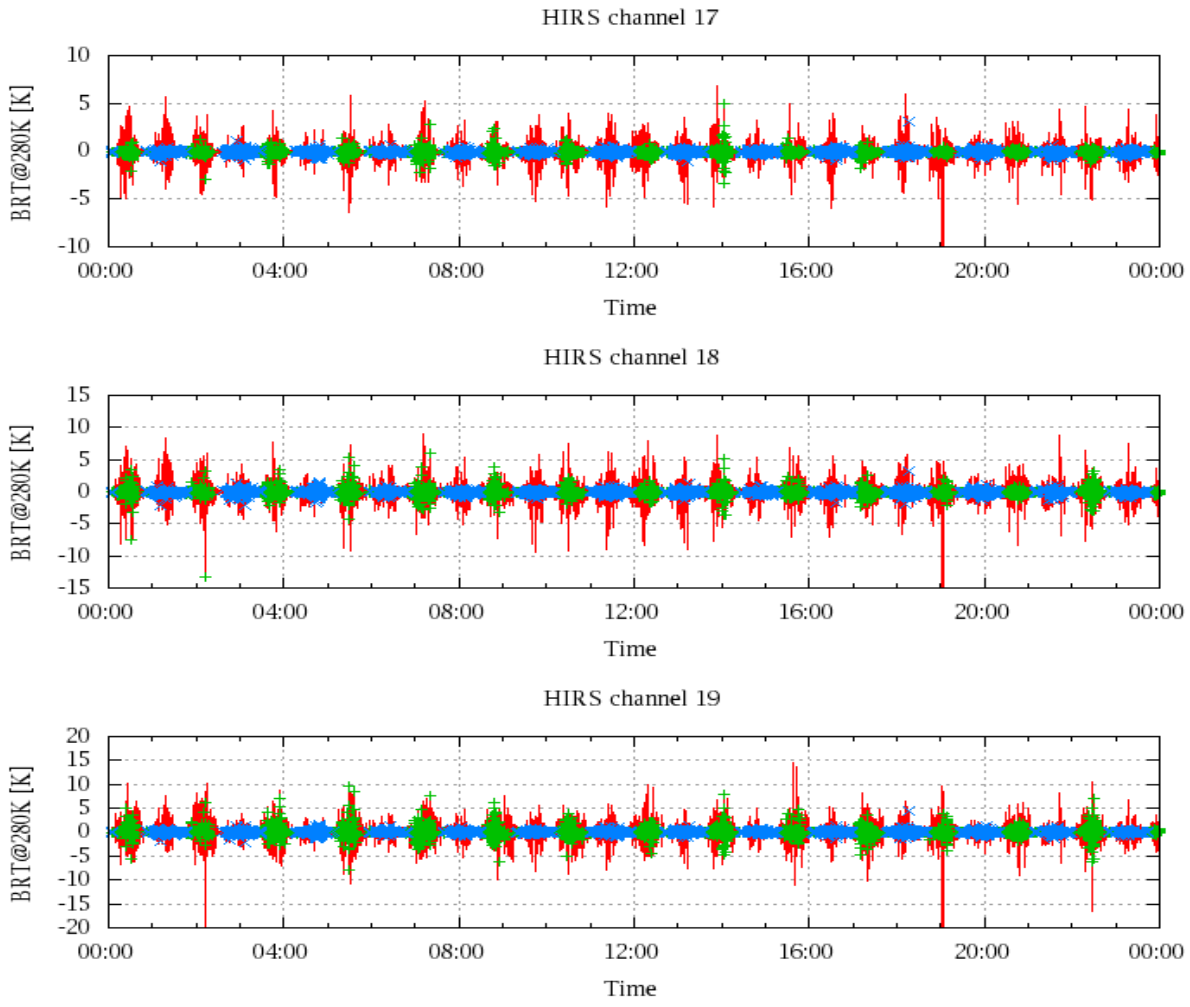

Figure 21: Radinace Differences in BRT