

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

08/10/2011 00:00:00 - 09/10/2011 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 08/10/2011 00:00:00 - 09/10/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 08/10/2011 00:00:00 - 09/10/2011 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)	915	934	20111008041602.834	20111008041606.943
PX1 (130)	934	941	20111008041606.943	20111008041609.971
PX1 (130)	8500	8652	20111008044944.259	20111008045026.204
PX1 (130)	8654	8663	20111008045026.634	20111008045028.583
PX1 (130)	10123	10129	20111008060947.263	20111008060948.560
PX1 (130)	3700	3727	20111008125807.755	20111008125815.106
PX1 (130)	3728	3733	20111008125815.321	20111008125817.919
PX1 (130)	3737	3741	20111008125818.782	20111008125819.645
PX1 (130)	3742	3767	20111008125819.864	20111008125826.782
PX1 (130)	3767	3777	20111008125826.782	20111008125828.946
PX1 (130)	3789	3837	20111008125831.540	20111008125844.942
PX1 (130)	3840	3848	20111008125845.591	20111008125847.321
PX1 (130)	3862	3867	20111008125851.864	20111008125852.942
PX1 (130)	1885	2026	20111008174119.909	20111008174157.960
PX1 (130)	7047	7073	20111008191706.708	20111008191713.841
PX1 (130)	13125	13133	20111008194406.591	20111008194409.833
PX2 (135)	915	941	20111008041602.834	20111008041609.971
PX2 (135)	8500	8652	20111008044944.259	20111008045026.204

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	8654	8663	20111008045026.634	20111008045028.583
PX2 (135)	10123	10129	20111008060947.263	20111008060948.560
PX2 (135)	3700	3726	20111008125807.755	20111008125814.891
PX2 (135)	3727	3733	20111008125815.106	20111008125817.919
PX2 (135)	3737	3741	20111008125818.782	20111008125819.645
PX2 (135)	3741	3767	20111008125819.645	20111008125826.782
PX2 (135)	3767	3777	20111008125826.782	20111008125828.946
PX2 (135)	3789	3837	20111008125831.540	20111008125844.942
PX2 (135)	3839	3848	20111008125845.376	20111008125847.321
PX2 (135)	3862	3867	20111008125851.864	20111008125852.942
PX2 (135)	1885	2025	20111008174119.909	20111008174157.745
PX2 (135)	7047	7073	20111008191706.708	20111008191713.841
PX2 (135)	13125	13133	20111008194406.591	20111008194409.833
PX3 (140)	915	941	20111008041602.834	20111008041609.971
PX3 (140)	8500	8652	20111008044944.259	20111008045026.204
PX3 (140)	8654	8663	20111008045026.634	20111008045028.583
PX3 (140)	10123	10129	20111008060947.263	20111008060948.560
PX3 (140)	3700	3726	20111008125807.755	20111008125814.891
PX3 (140)	3727	3733	20111008125815.106	20111008125817.919
PX3 (140)	3737	3741	20111008125818.782	20111008125819.645
PX3 (140)	3741	3766	20111008125819.645	20111008125826.567
PX3 (140)	3767	3777	20111008125826.782	20111008125828.946
PX3 (140)	3789	3837	20111008125831.540	20111008125844.942
PX3 (140)	3839	3847	20111008125845.376	20111008125847.106
PX3 (140)	3862	3867	20111008125851.864	20111008125852.942
PX3 (140)	1885	2025	20111008174119.909	20111008174157.745
PX3 (140)	7047	7073	20111008191706.708	20111008191713.841
PX3 (140)	13124	13133	20111008194406.376	20111008194409.833
PX4 (145)	915	941	20111008041602.834	20111008041609.971
PX4 (145)	8500	8651	20111008044944.259	20111008045025.989
PX4 (145)	8653	8663	20111008045026.419	20111008045028.583
PX4 (145)	10123	10129	20111008060947.263	20111008060948.560
PX4 (145)	3700	3726	20111008125807.755	20111008125814.891
PX4 (145)	3727	3733	20111008125815.106	20111008125817.919
PX4 (145)	3737	3741	20111008125818.782	20111008125819.645
PX4 (145)	3741	3762	20111008125819.645	20111008125824.188
PX4 (145)	3762	3766	20111008125824.188	20111008125826.567
PX4 (145)	3767	3777	20111008125826.782	20111008125828.946
PX4 (145)	3789	3836	20111008125831.540	20111008125844.727
PX4 (145)	3839	3847	20111008125845.376	20111008125847.106
PX4 (145)	3862	3867	20111008125851.864	20111008125852.942
PX4 (145)	1885	2025	20111008174119.909	20111008174157.745
PX4 (145)	7047	7073	20111008191706.708	20111008191713.841
PX4 (145)	13124	13133	20111008194406.376	20111008194409.833
IMG (150)	5670	5697	20111008041602.619	20111008041608.674
IMG (150)	14264	14439	20111008044944.259	20111008045025.989
IMG (150)	14441	14450	20111008045026.419	20111008045028.364
IMG (150)	1906	1913	20111008060947.048	20111008060948.560
IMG (150)	7731	7762	20111008125807.540	20111008125814.891
IMG (150)	7763	7769	20111008125815.106	20111008125816.618
IMG (150)	7777	7781	20111008125818.782	20111008125819.645
IMG (150)	7781	7810	20111008125819.645	20111008125826.567
IMG (150)	7810	7821	20111008125826.567	20111008125828.946
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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	7832	7837	20111008125831.321	20111008125832.618
IMG (150)	7839	7888	20111008125833.270	20111008125844.727
IMG (150)	7891	7899	20111008125845.376	20111008125847.106
IMG (150)	7917	7923	20111008125851.645	20111008125852.942
IMG (150)	14412	14573	20111008174119.694	20111008174157.745
IMG (150)	6066	6093	20111008191706.493	20111008191712.544
IMG (150)	12952	12961	20111008194406.376	20111008194408.536
VER (160)	14182	14186	20111008041600.240	20111008041606.943
VER (160)	15444	15473	20111008044944.259	20111008045032.255
VER (160)	989	998	20111008125800.188	20111008125815.321
VER (160)	999	1009	20111008125815.321	20111008125831.540
VER (160)	1009	1015	20111008125831.540	20111008125848.184
VER (160)	11609	11635	20111008174112.124	20111008174200.124
VER (160)	15204	15206	20111008191704.114	20111008191706.708
VER (160)	16214	16218	20111008194400.106	20111008194406.591
AUX (180)	9632	9639	20111008044936.692	20111008045032.688
AUX (180)	13295	13297	20111008125800.618	20111008125816.618
AUX (180)	13297	13299	20111008125816.618	20111008125832.618
AUX (180)	13299	13301	20111008125832.618	20111008125848.618
AUX (180)	15419	15425	20111008174112.558	20111008174200.554

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
08/10/2011 00:00:11	-	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)	99.01 %	-
GQisFlagQual set (PX3)	99.15 %	-
GQisFlagQual set (PX4)	99.25 %	-
GQisFlagQual set (all)	99.15 %	-

Table 4: Quality flags

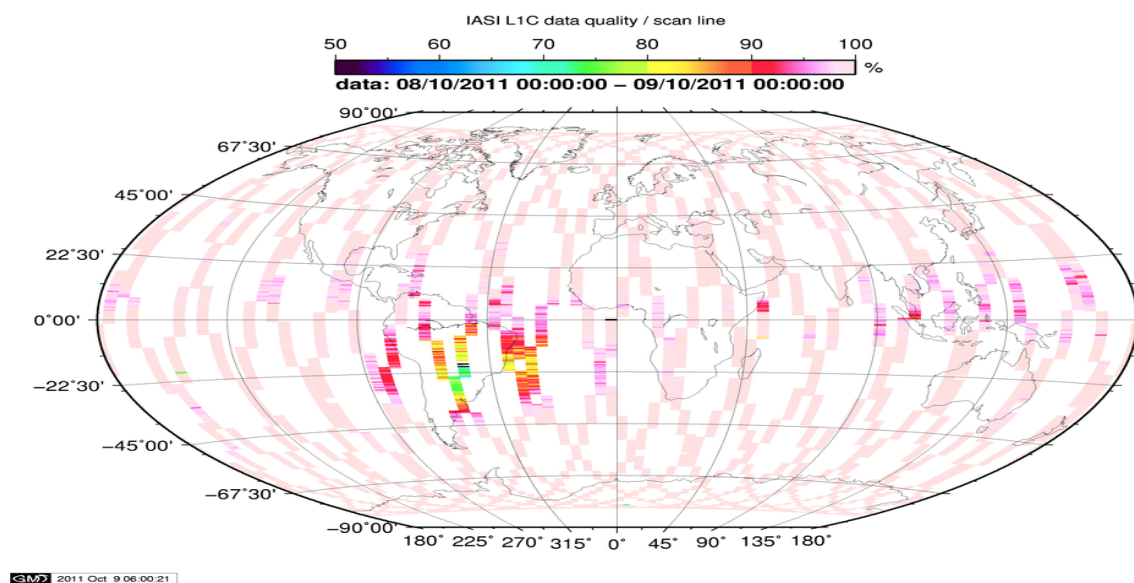


Figure 1: L1C data quality

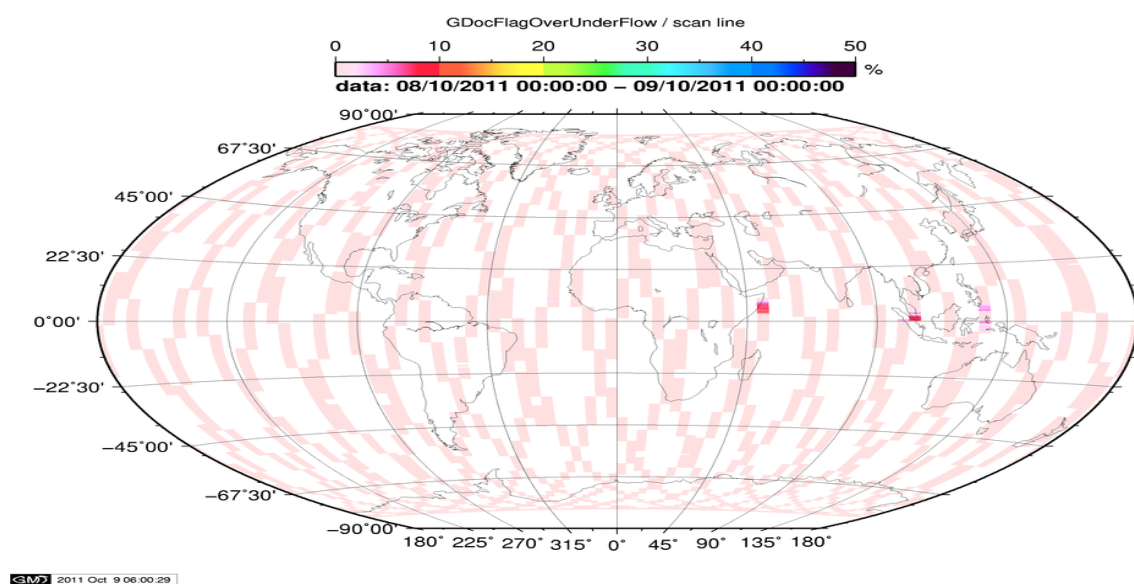


Figure 2: Flag of Over and Under Flows

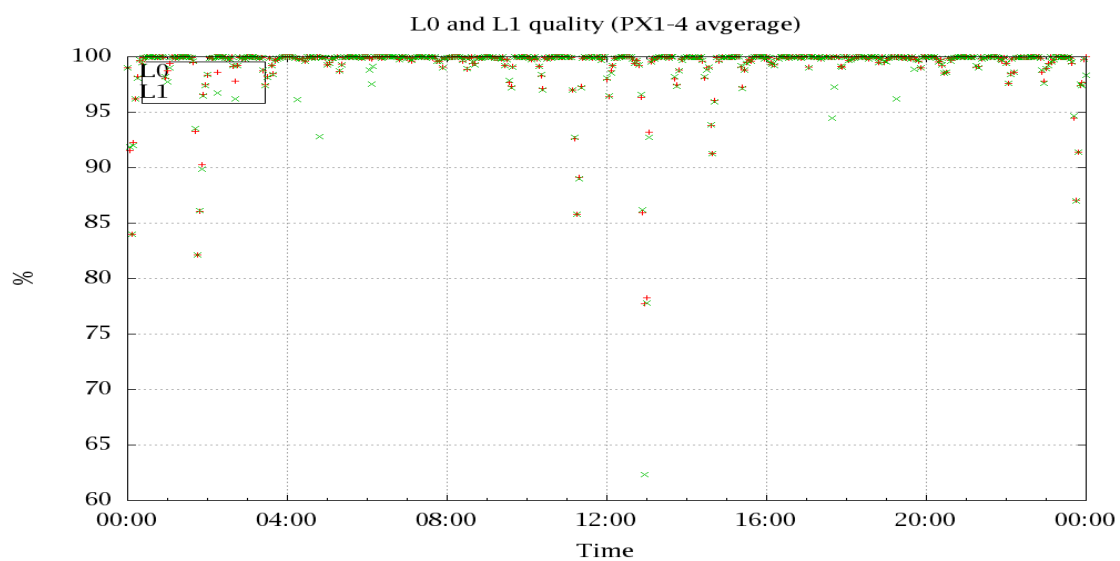


Figure 3: Level 0 and 1C overall quality

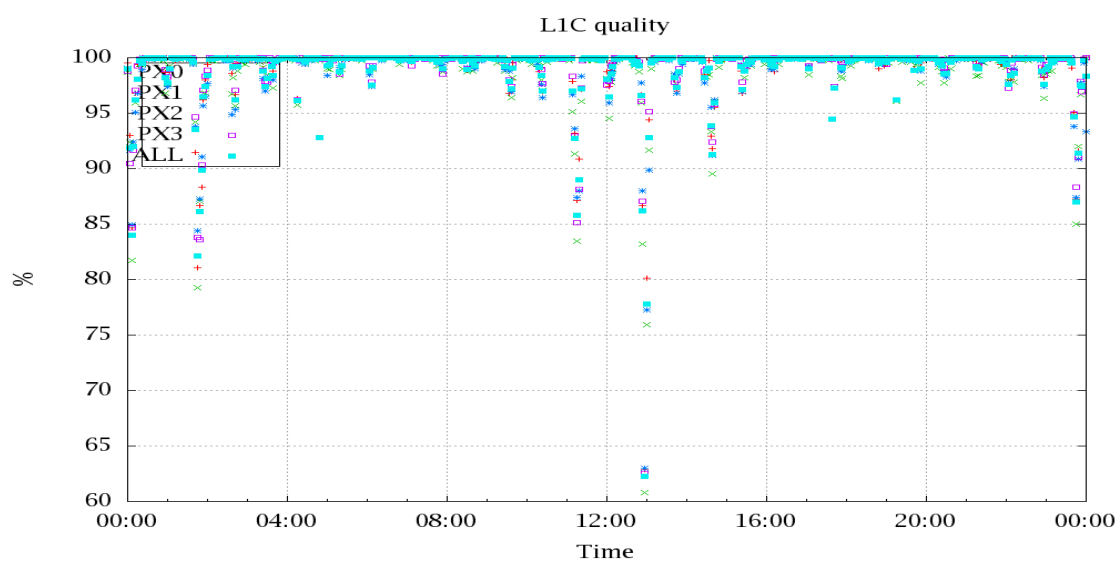


Figure 4: Level 1C quality

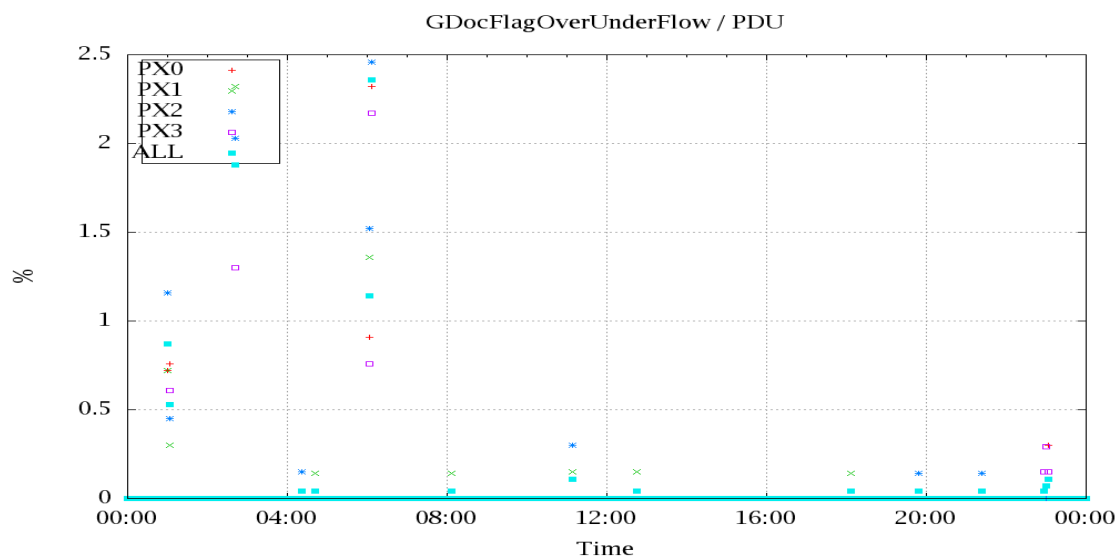


Figure 5: OverUnderFlowFlag timeseries

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.

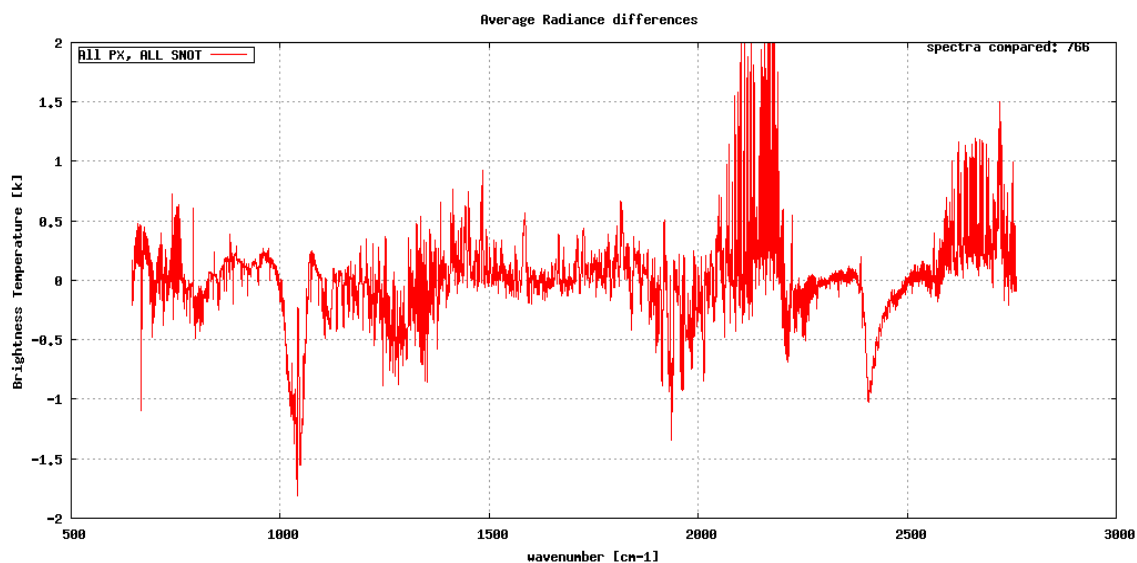


Figure 6: Average Radiance differences: OBS-CAL

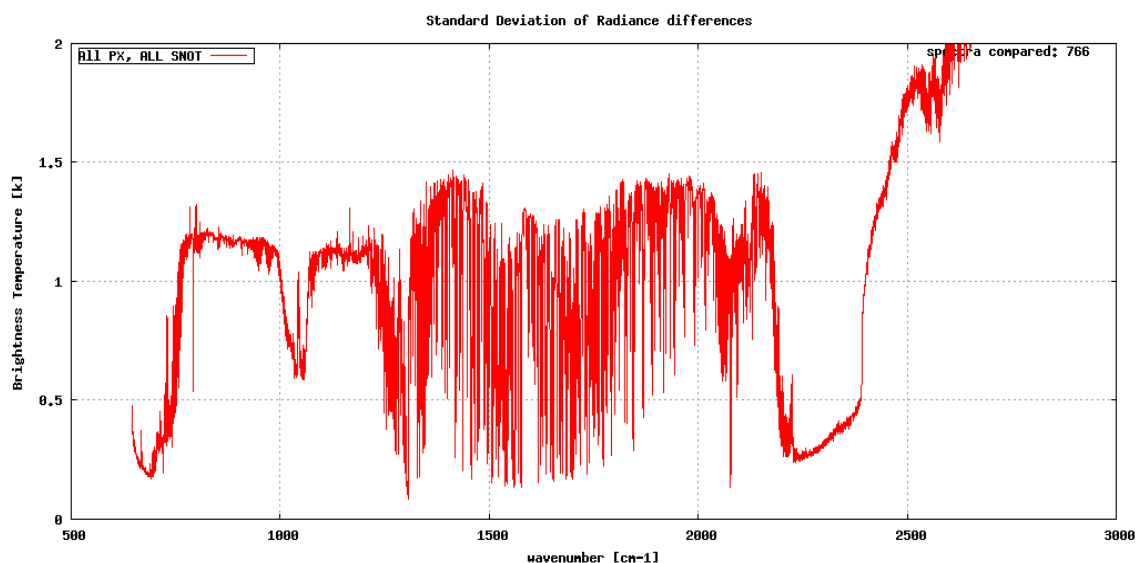


Figure 7: Standard Deviation of Radiance differences

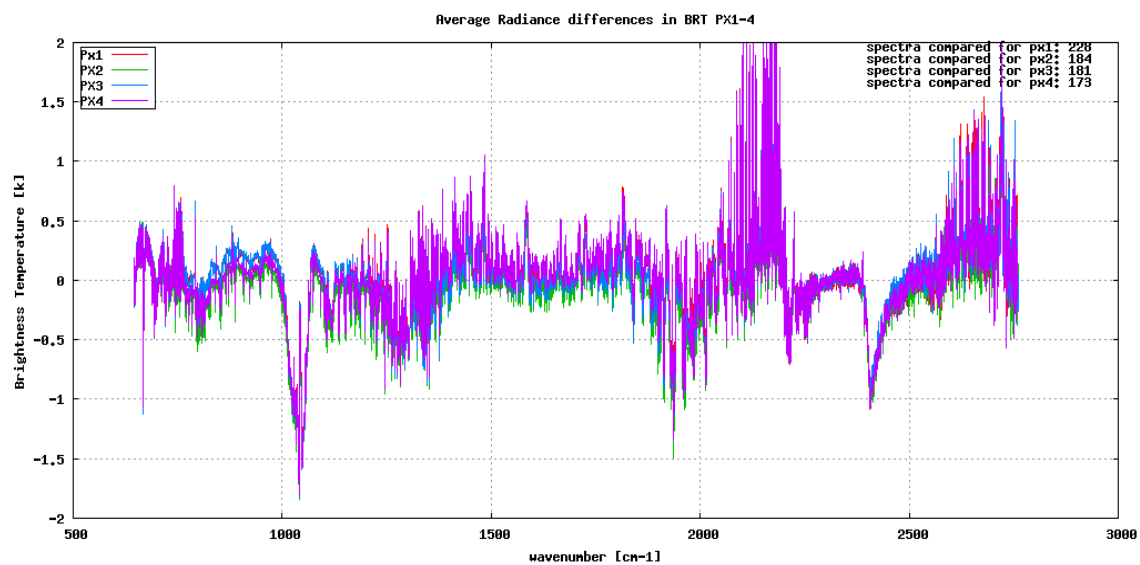


Figure 8: Average Radiance differences: OBS-CAL

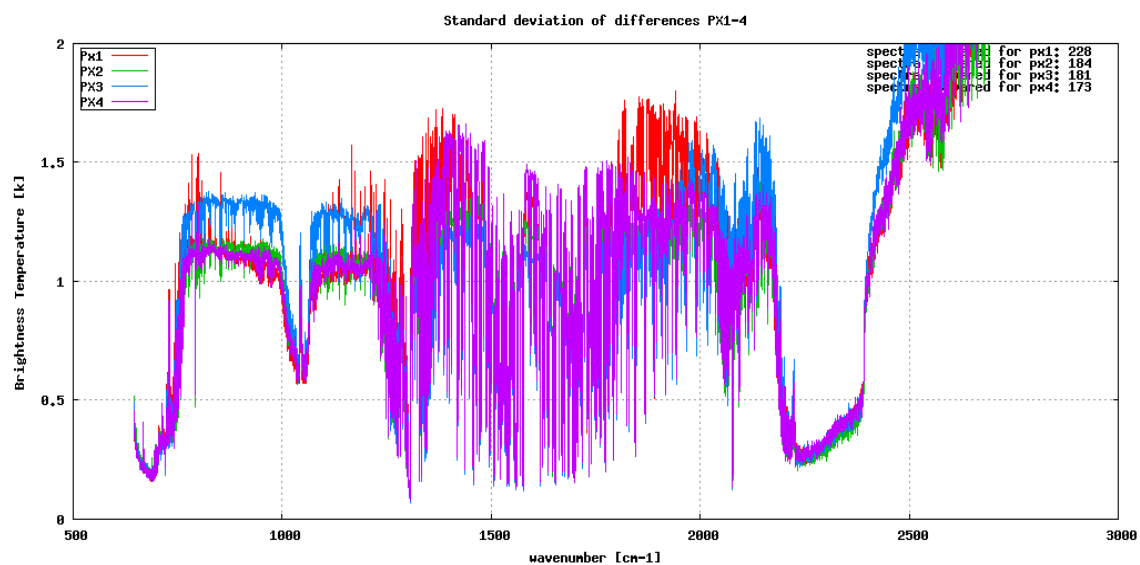


Figure 9: Standard Deviation of Radiance differences

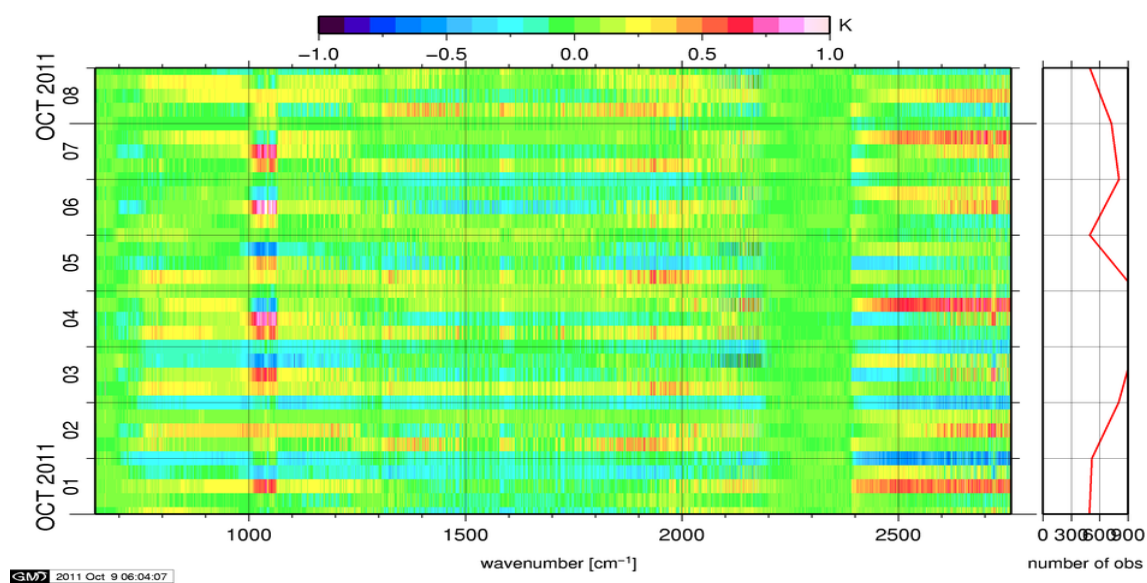


Figure 10: Radiance Anomaly in BRT: All Channels

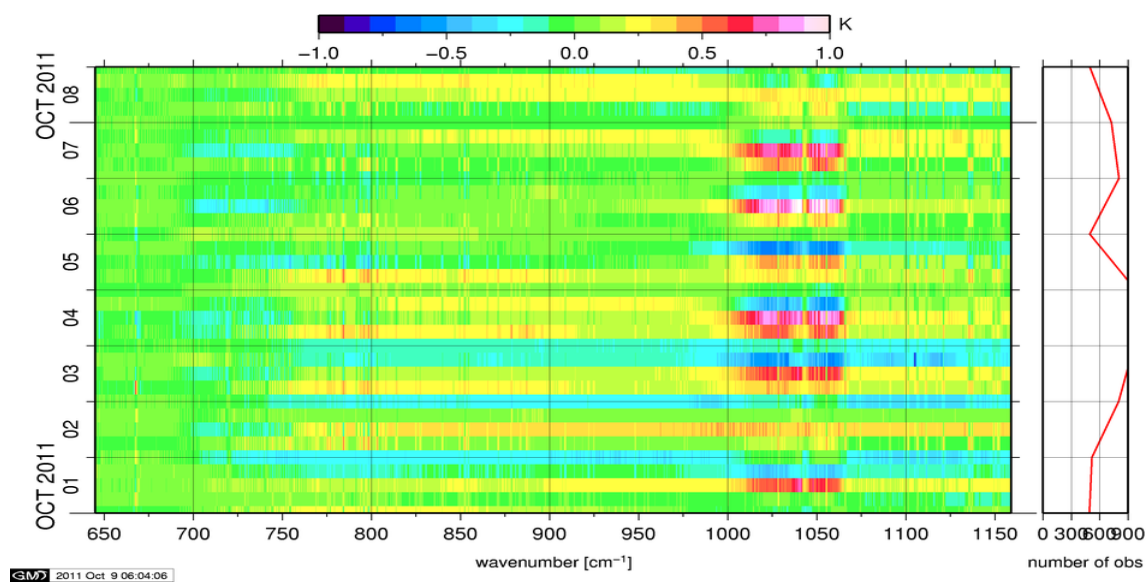


Figure 11: Radiance Anomaly in BRT: IASI Band 1

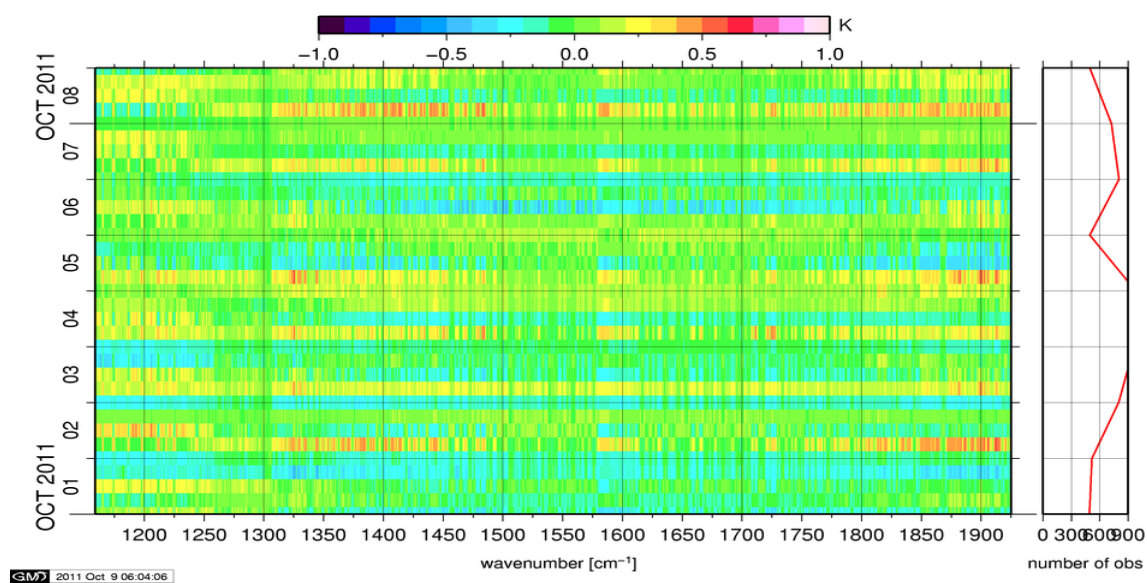


Figure 12: Radiance Anomaly in BRT: IASI Band 2

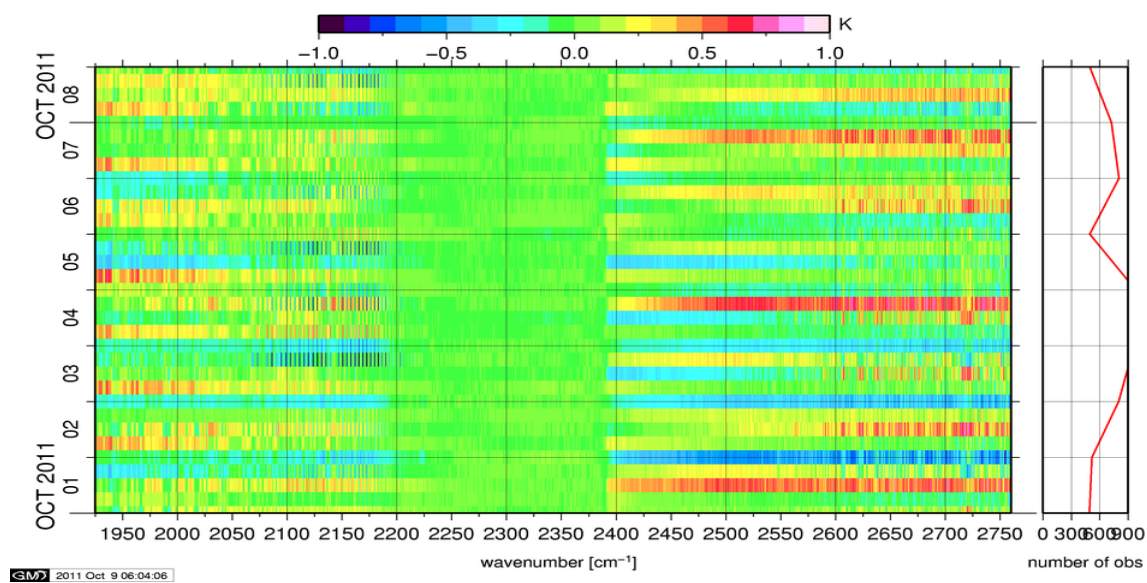


Figure 13: Radiance Anomaly in BRT: IASI Band 3

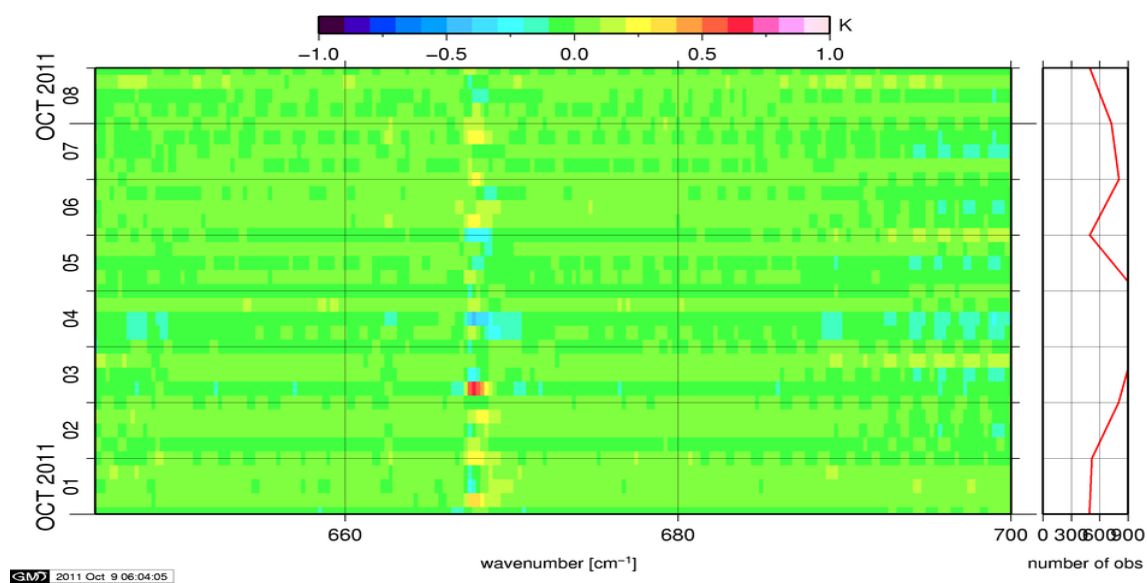


Figure 14: Radiance Anomaly in BRT: CO2 14

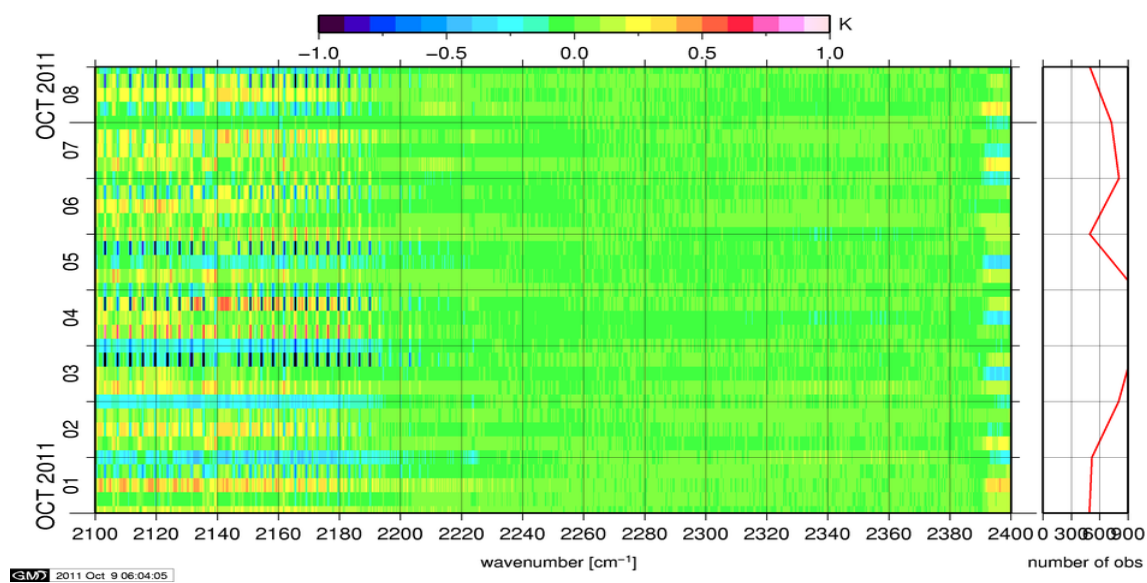


Figure 15: Radiance Anomaly in BRT: CO2 4.3

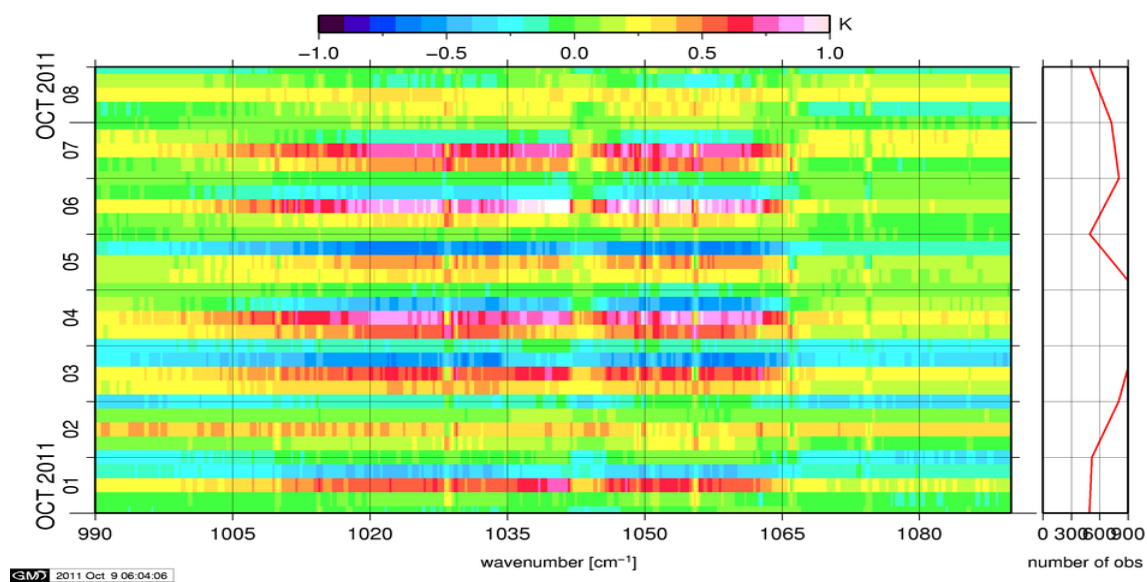


Figure 16: Radiance Anomaly in BRT: O3

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.

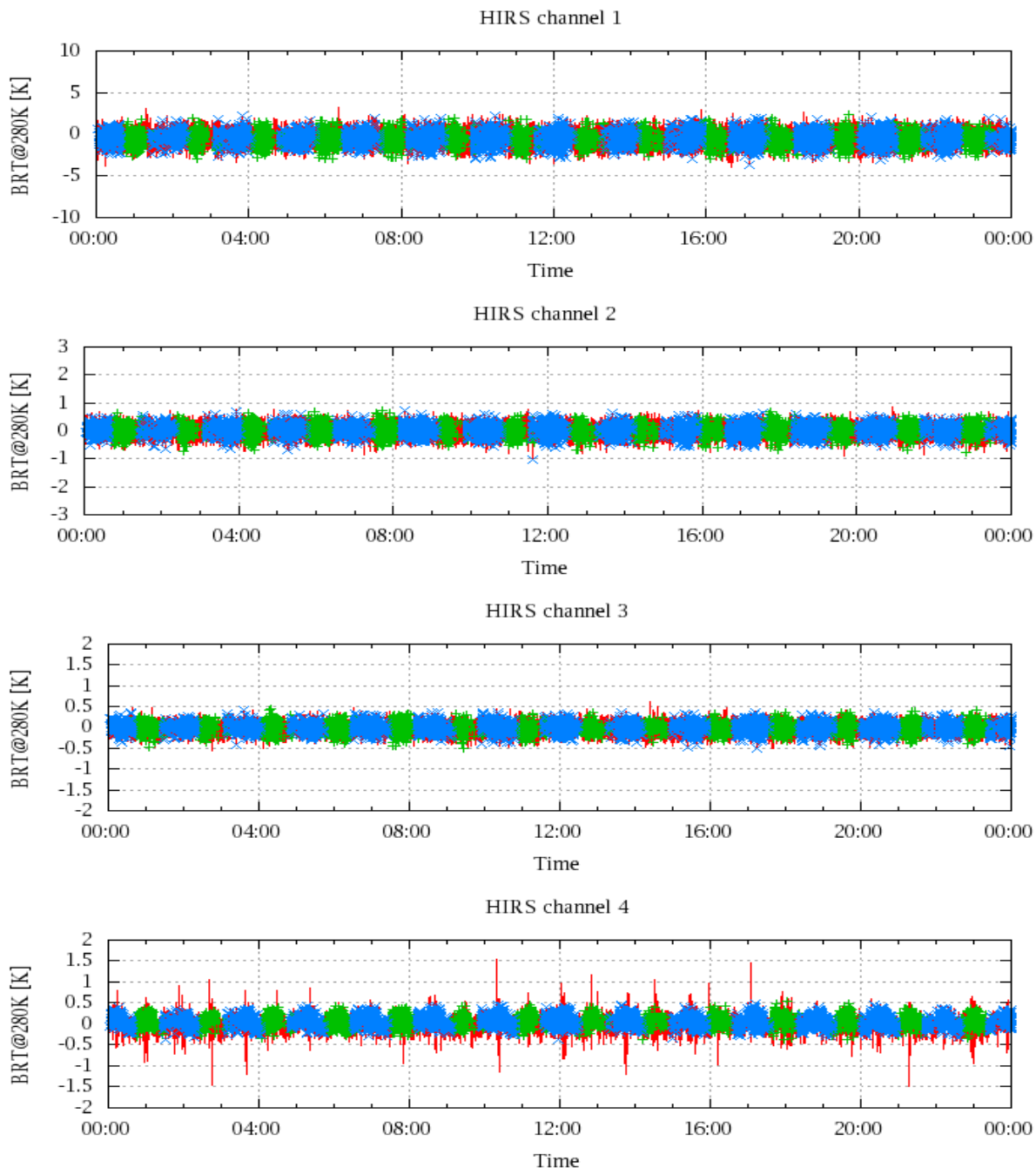


Figure 17: Radiance Differences in BRT

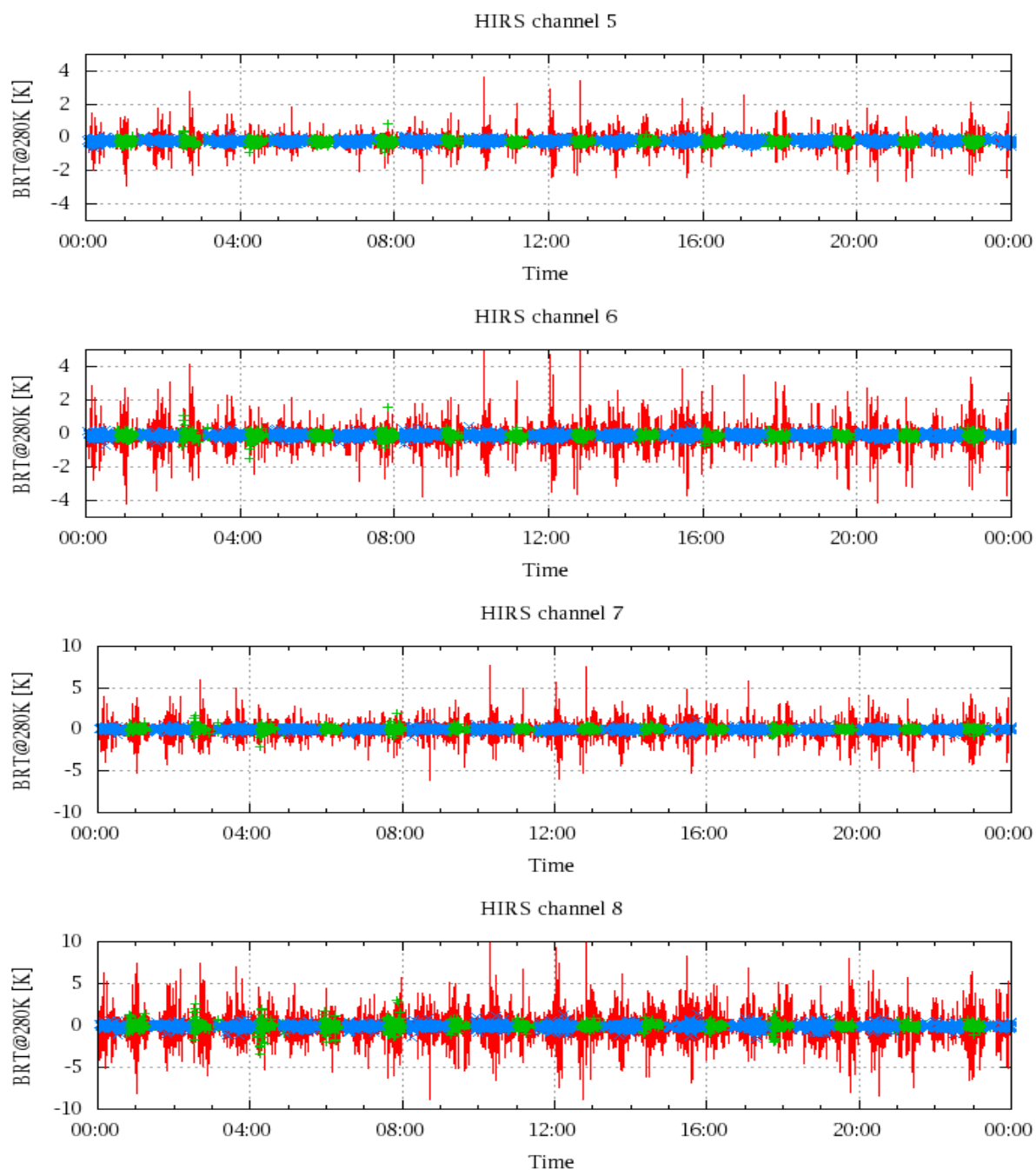


Figure 18: Radiance Differences in BRT

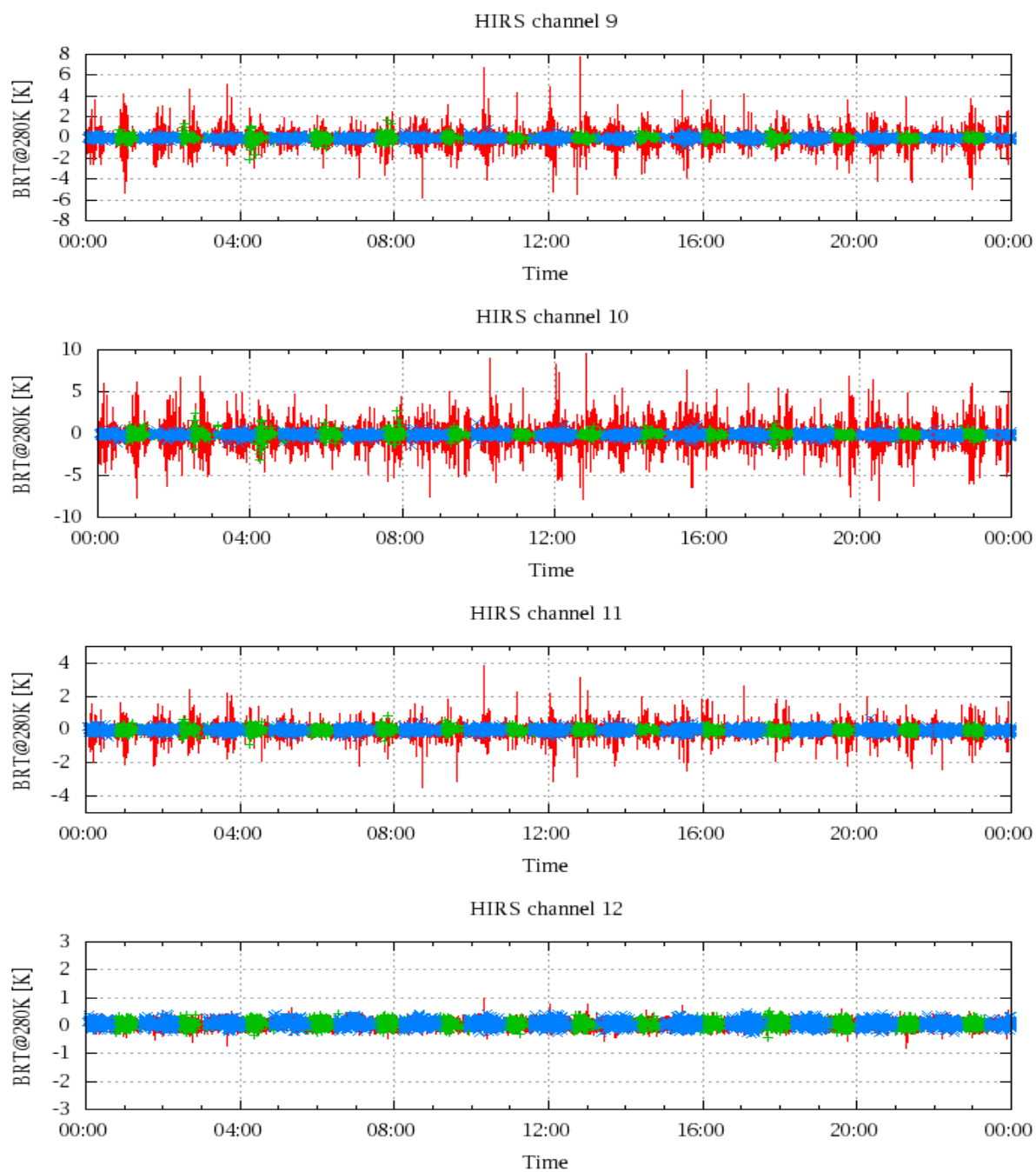


Figure 19: Radiance Differences in BRT

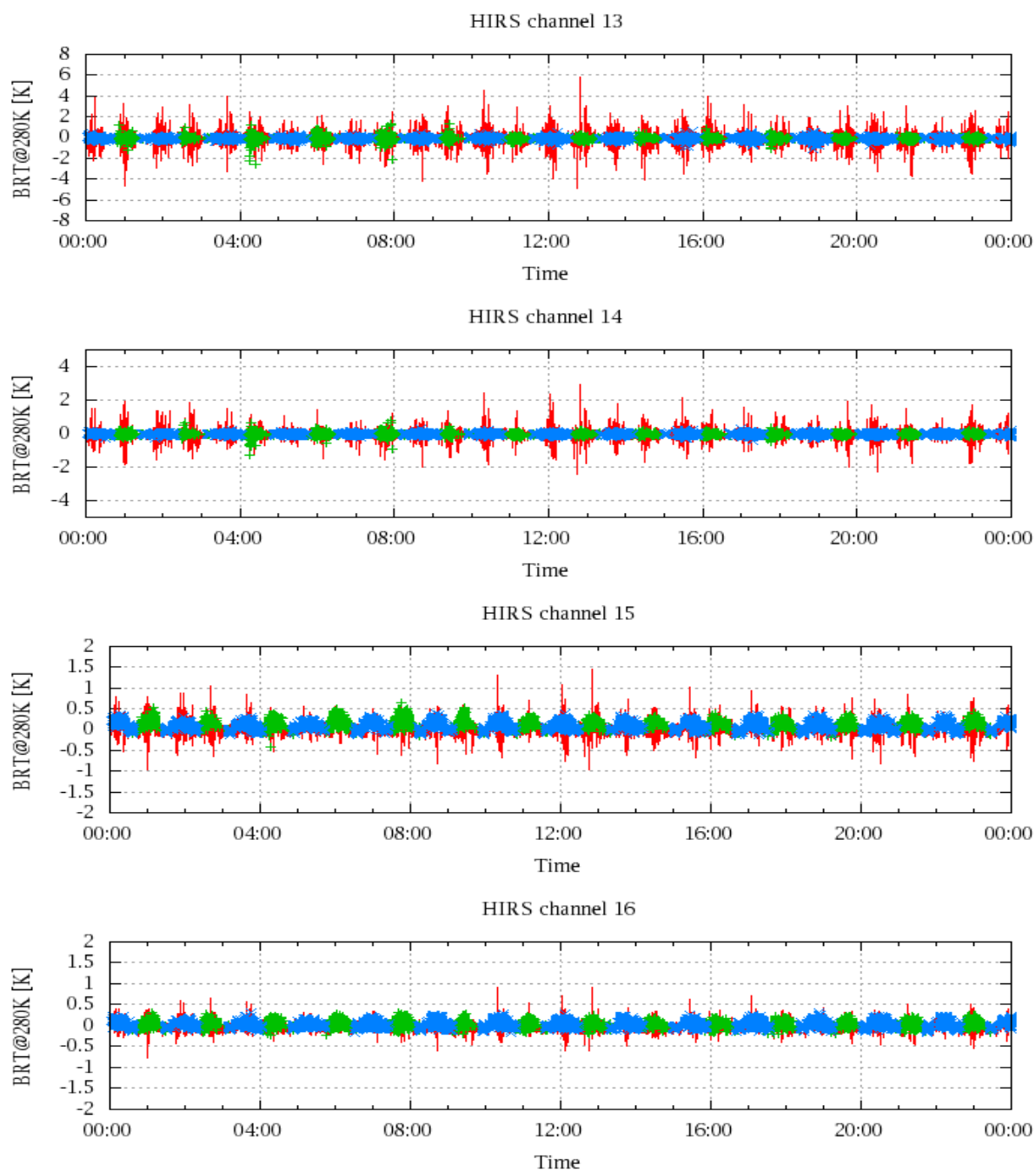


Figure 20: Radiance Differences in BRT

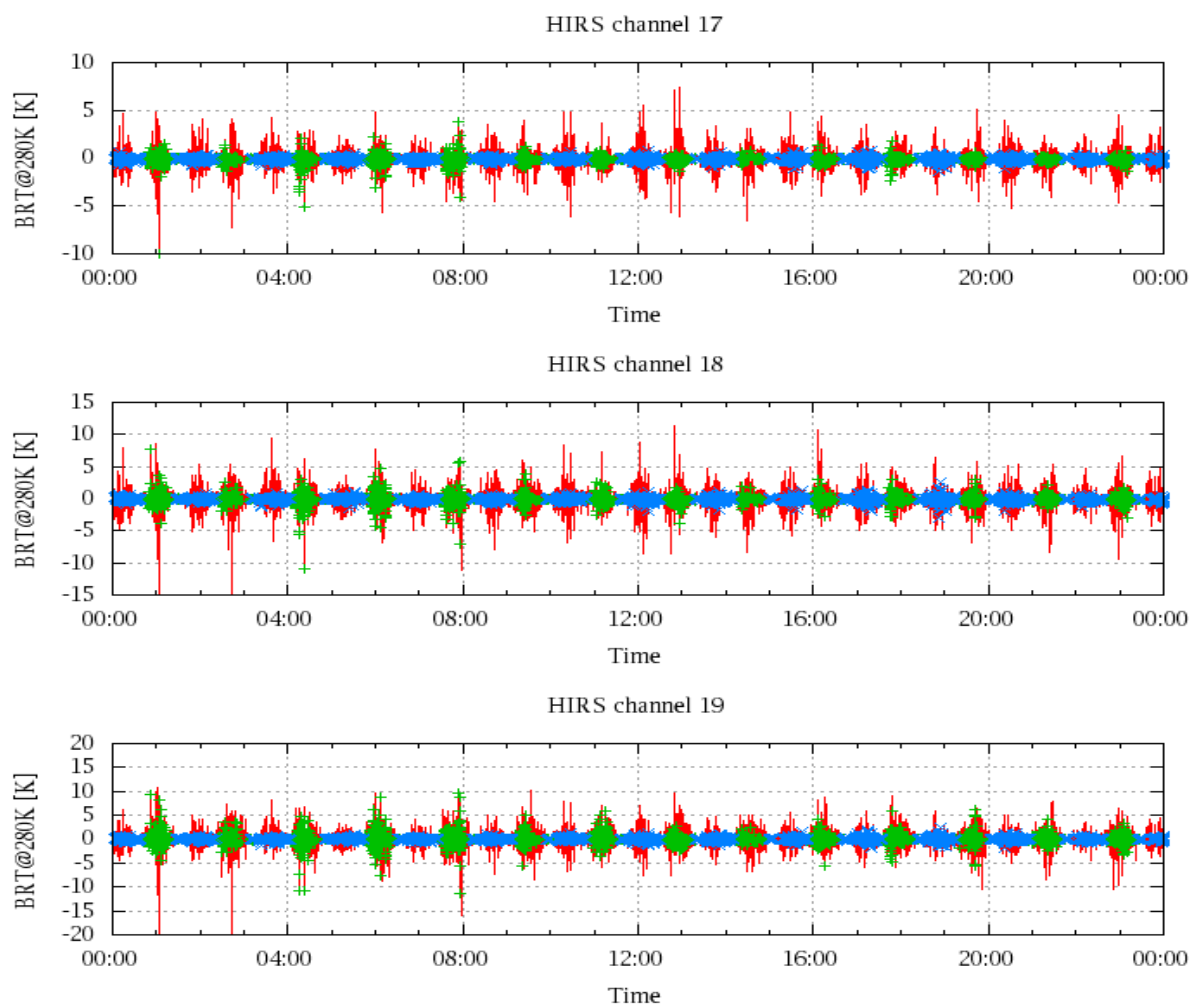


Figure 21: Radinace Differences in BRT