

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

13/01/2011 00:00:00 - 14/01/2011 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 13/01/2011 00:00:00 - 14/01/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 13/01/2011 00:00:00 - 14/01/2011 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)	477	-
L1 DPS Files (RM: OBS-CAL NWP based)	480	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	9162	9174	20110113105407.902	20110113105412.011
PX1 (130)	9453	9551	20110113105525.957	20110113105551.683
PX1 (130)	9551	9734	20110113105551.683	20110113105641.847
PX1 (130)	9838	9946	20110113105708.870	20110113105738.277
PX1 (130)	9976	10017	20110113105746.277	20110113105756.652
PX1 (130)	10038	10610	20110113105802.706	20110113110035.136
PX1 (130)	10611	10616	20110113110035.350	20110113110036.432
PX1 (130)	10634	10639	20110113110041.839	20110113110042.921
PX1 (130)	10682	11351	20110113110053.729	20110113110351.670
PX1 (130)	11357	11359	20110113110354.483	20110113110354.916
PX1 (130)	11381	11383	20110113110359.670	20110113110401.616
PX1 (130)	11393	11700	20110113110403.780	20110113110525.291
PX2 (135)	9162	9174	20110113105407.902	20110113105412.011
PX2 (135)	9447	9449	20110113105524.660	20110113105525.089
PX2 (135)	9450	9452	20110113105525.308	20110113105525.738
PX2 (135)	9455	9561	20110113105526.386	20110113105555.359
PX2 (135)	9561	9733	20110113105555.359	20110113105641.628
PX2 (135)	9837	9946	20110113105708.656	20110113105738.277

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	9976	10017	20110113105746.277	20110113105756.652
PX2 (135)	10039	10610	20110113105802.925	20110113110035.136
PX2 (135)	10611	10616	20110113110035.350	20110113110036.432
PX2 (135)	10634	10639	20110113110041.839	20110113110042.921
PX2 (135)	10682	11351	20110113110053.729	20110113110351.670
PX2 (135)	11356	11359	20110113110354.264	20110113110354.916
PX2 (135)	11381	11383	20110113110359.670	20110113110401.616
PX2 (135)	11393	11700	20110113110403.780	20110113110525.291
PX3 (140)	9162	9174	20110113105407.902	20110113105412.011
PX3 (140)	9448	9450	20110113105524.875	20110113105525.308
PX3 (140)	9453	9457	20110113105525.957	20110113105526.820
PX3 (140)	9457	9733	20110113105526.820	20110113105641.628
PX3 (140)	9837	9946	20110113105708.656	20110113105738.277
PX3 (140)	9975	10017	20110113105746.062	20110113105756.652
PX3 (140)	10038	10610	20110113105802.706	20110113110035.136
PX3 (140)	10611	10615	20110113110035.350	20110113110036.218
PX3 (140)	10634	10639	20110113110041.839	20110113110042.921
PX3 (140)	10682	11351	20110113110053.729	20110113110351.670
PX3 (140)	11356	11359	20110113110354.264	20110113110354.916
PX3 (140)	11381	11383	20110113110359.670	20110113110401.616
PX3 (140)	11393	11700	20110113110403.780	20110113110525.291
PX4 (145)	9162	9174	20110113105407.902	20110113105412.011
PX4 (145)	9449	9451	20110113105525.089	20110113105525.523
PX4 (145)	9454	9456	20110113105526.171	20110113105526.605
PX4 (145)	9456	9733	20110113105526.605	20110113105641.628
PX4 (145)	9837	9946	20110113105708.656	20110113105738.277
PX4 (145)	9975	9992	20110113105746.062	20110113105749.734
PX4 (145)	9992	10016	20110113105749.734	20110113105756.437
PX4 (145)	10038	10609	20110113105802.706	20110113110034.921
PX4 (145)	10611	10615	20110113110035.350	20110113110036.218
PX4 (145)	10634	10639	20110113110041.839	20110113110042.921
PX4 (145)	10681	11351	20110113110053.514	20110113110351.670
PX4 (145)	11356	11358	20110113110354.264	20110113110354.698
PX4 (145)	11381	11383	20110113110359.670	20110113110401.616
PX4 (145)	11393	11700	20110113110403.780	20110113110525.291
IMG (150)	12526	12541	20110113105407.902	20110113105411.797
IMG (150)	12857	12859	20110113105525.957	20110113105526.386
IMG (150)	12859	12864	20110113105526.386	20110113105527.468
IMG (150)	12864	12946	20110113105527.468	20110113105547.144
IMG (150)	12946	12960	20110113105547.144	20110113105550.171
IMG (150)	12960	12967	20110113105550.171	20110113105551.683
IMG (150)	12967	12981	20110113105551.683	20110113105555.359
IMG (150)	12982	13177	20110113105555.578	20110113105641.628
IMG (150)	13293	13418	20110113105708.656	20110113105738.277
IMG (150)	13451	13496	20110113105746.062	20110113105756.437
IMG (150)	13522	14169	20110113105802.706	20110113110034.921
IMG (150)	14171	14175	20110113110035.350	20110113110036.218
IMG (150)	14197	14203	20110113110041.624	20110113110042.921
IMG (150)	14249	15006	20110113110053.514	20110113110351.455
IMG (150)	15016	15018	20110113110354.264	20110113110354.698
IMG (150)	15040	15043	20110113110359.455	20110113110400.319
IMG (150)	15056	15404	20110113110403.565	20110113110525.291
VER (160)	12466	12472	20110113105359.906	20110113105415.902

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	12516	12567	20110113105519.902	20110113105647.898
VER (160)	12581	12602	20110113105703.898	20110113105743.898
VER (160)	12606	12612	20110113105743.898	20110113105759.898
VER (160)	12616	12712	20110113105759.898	20110113110039.893
VER (160)	12721	12833	20110113110047.893	20110113110351.889
VER (160)	12836	12838	20110113110351.889	20110113110359.670
VER (160)	12841	12892	20110113110359.670	20110113110527.885
AUX (180)	9032	9034	20110113105400.336	20110113105416.336
AUX (180)	9042	9053	20110113105520.336	20110113105648.331
AUX (180)	9055	9060	20110113105704.331	20110113105744.331
AUX (180)	9060	9062	20110113105744.331	20110113105800.331
AUX (180)	9062	9082	20110113105800.331	20110113110040.327
AUX (180)	9083	9106	20110113110048.323	20110113110352.319
AUX (180)	9107	9118	20110113110400.319	20110113110528.319

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
13/01/2011 00:00:03	-	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)	99.13 %	-
GQisFlagQual set (PX2)	98.97 %	-
GQisFlagQual set (PX3)	99.09 %	-
GQisFlagQual set (PX4)	99.17 %	-
GQisFlagQual set (all)	99.09 %	-

Table 4: Quality flags

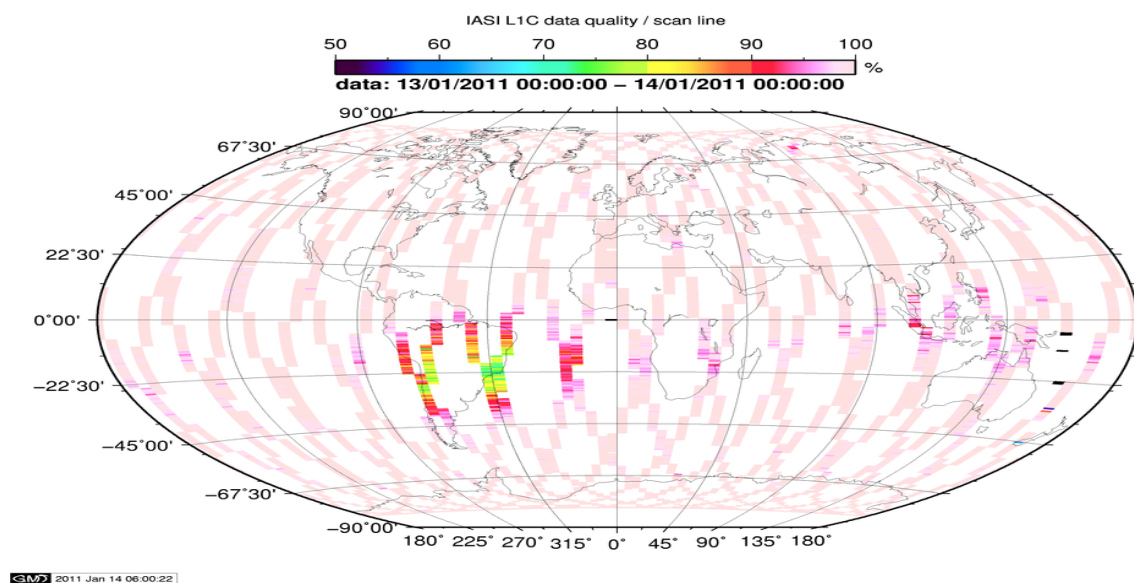


Figure 1: L1C data quality

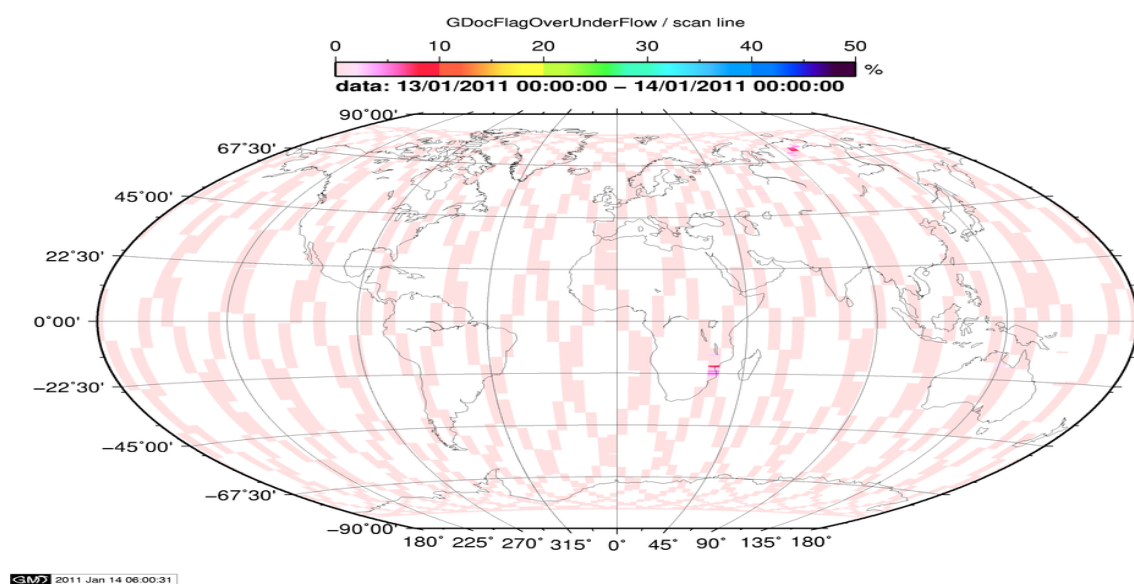


Figure 2: Flag of Over and Under Flows

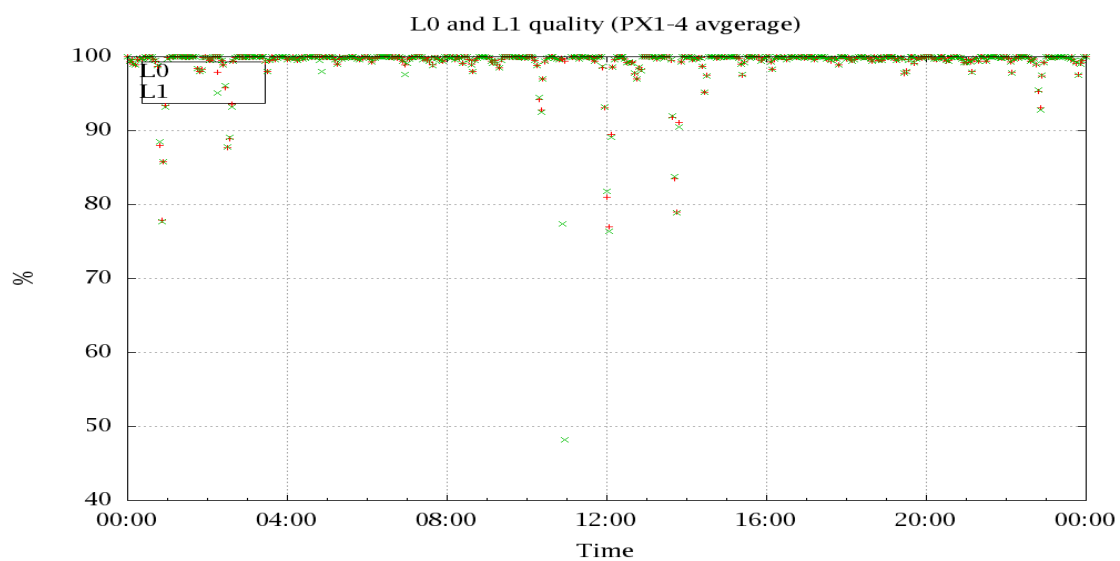


Figure 3: Level 0 and 1C overall quality

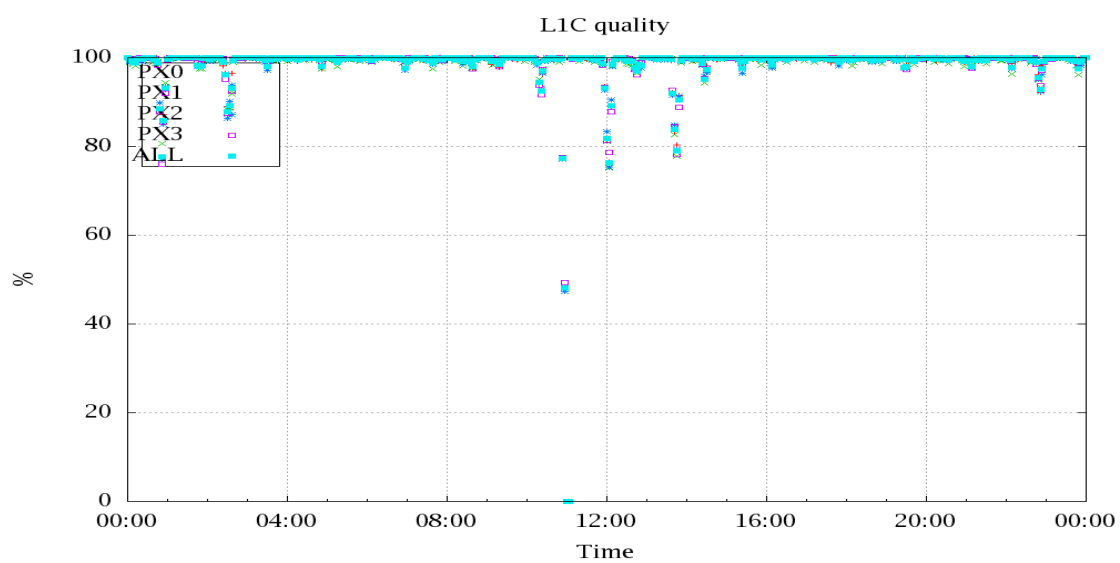


Figure 4: Level 1C quality

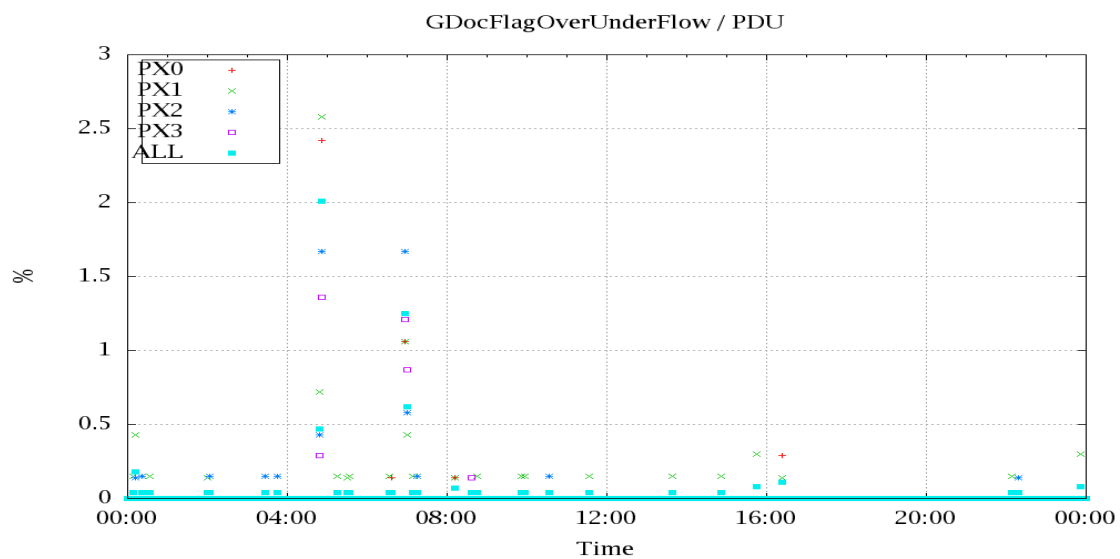


Figure 5: OverUnderFlowFlag timeseries

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.

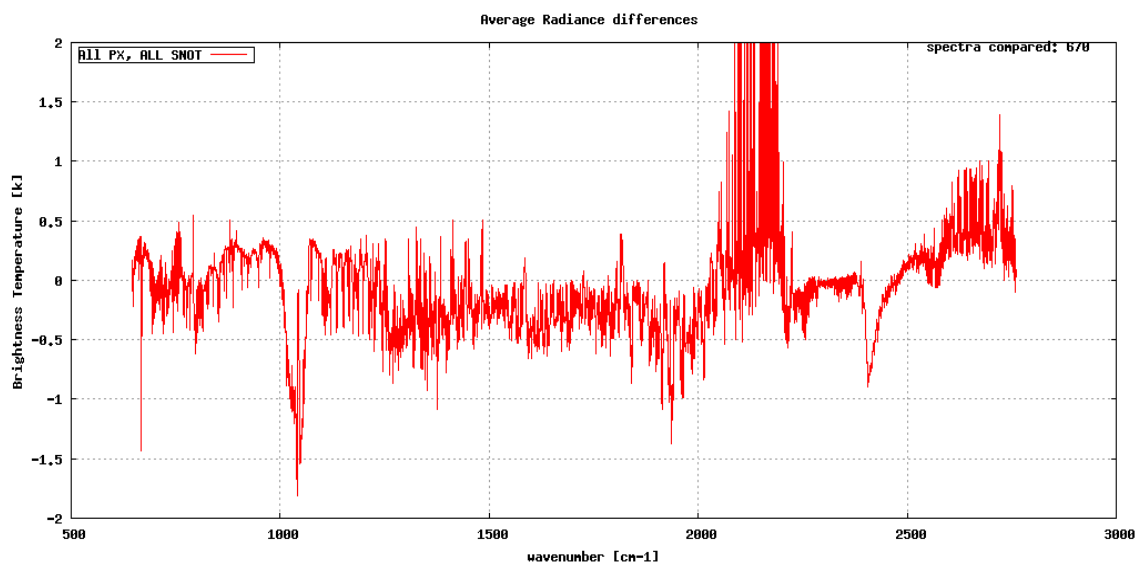


Figure 6: Average Radiance differences: OBS-CAL

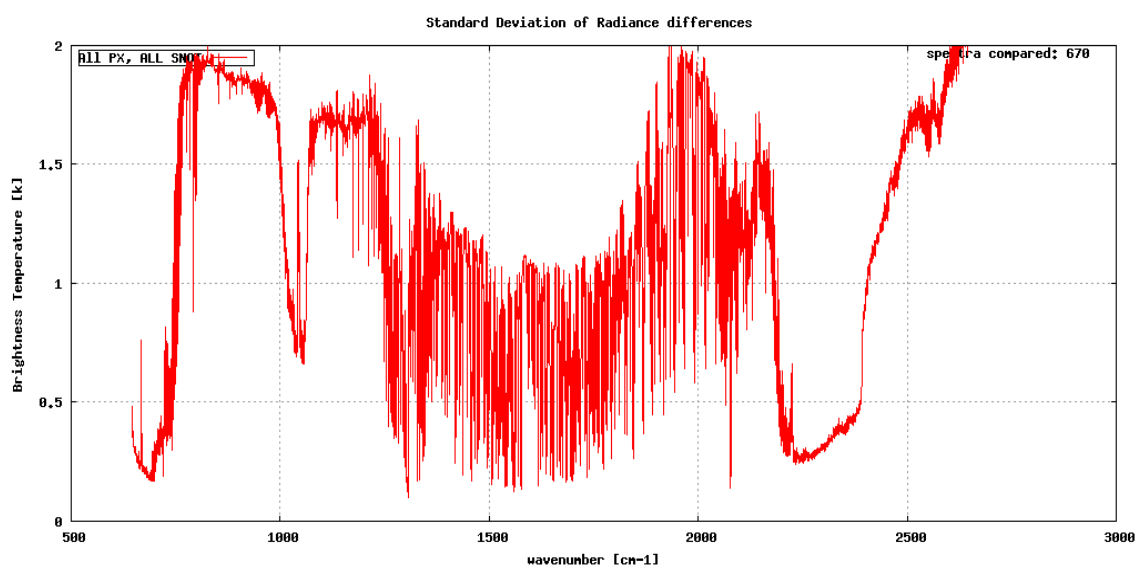


Figure 7: Standard Deviation of Radiance differences

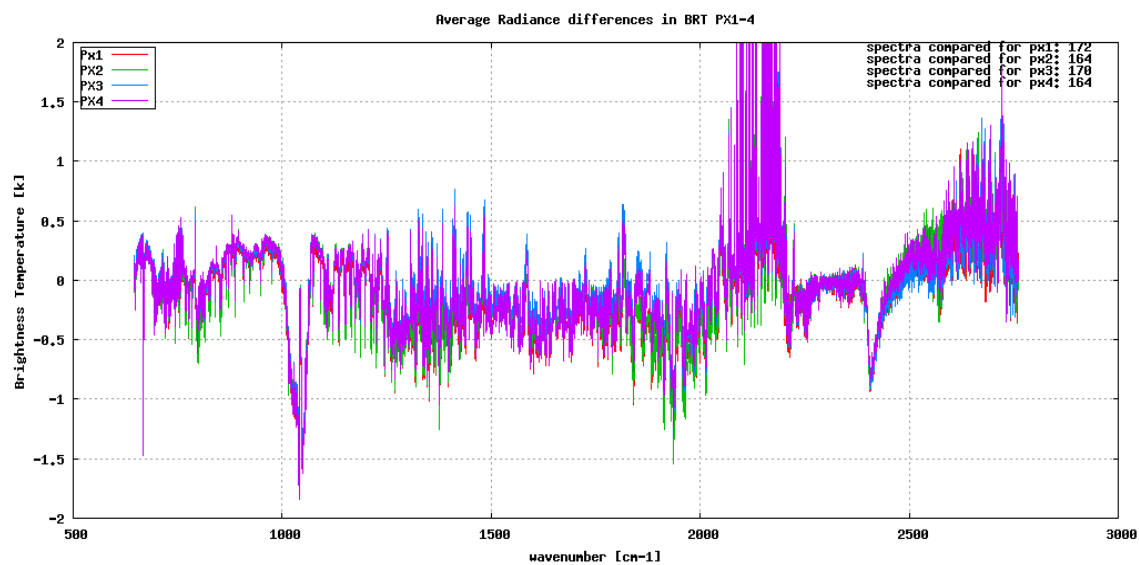


Figure 8: Average Radiance differences: OBS-CAL

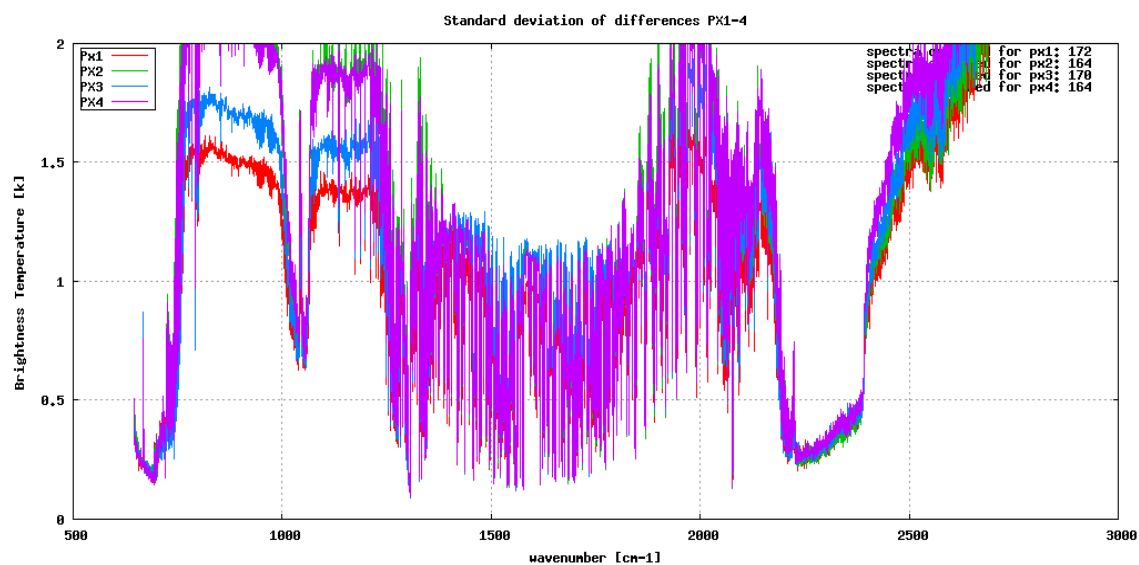


Figure 9: Standard Deviation of Radiance differences

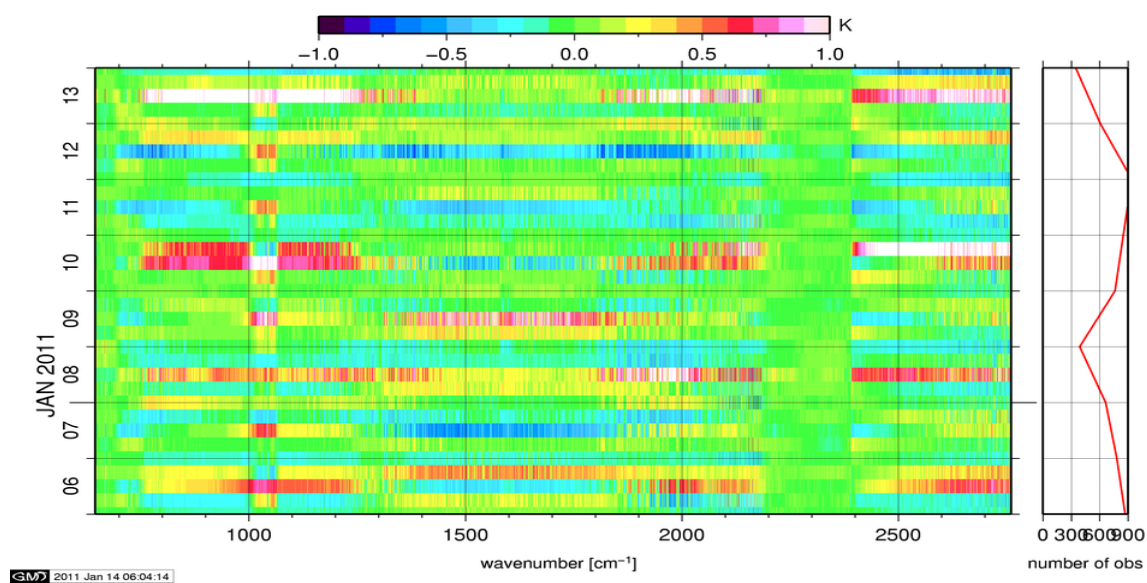


Figure 10: Radiance Anomaly in BRT: All Channels

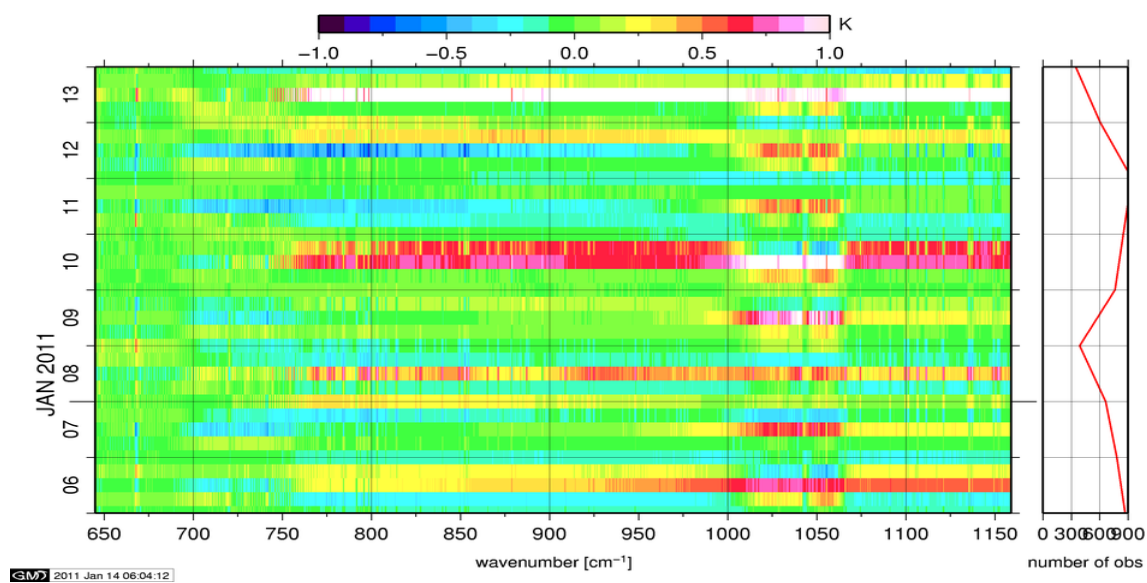


Figure 11: Radiance Anomaly in BRT: IASI Band 1

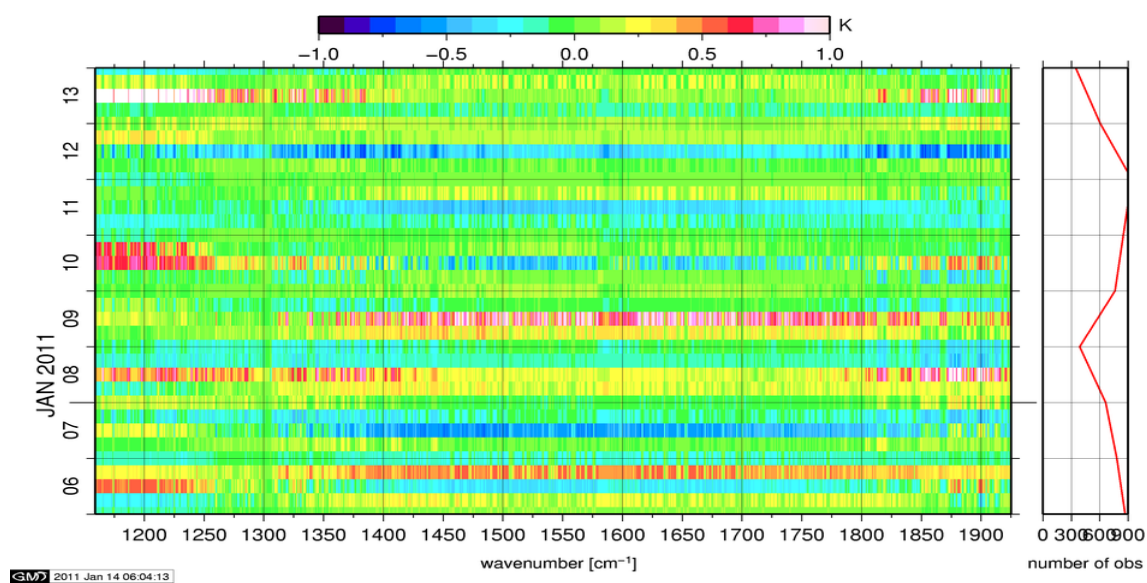


Figure 12: Radiance Anomaly in BRT: IASI Band 2

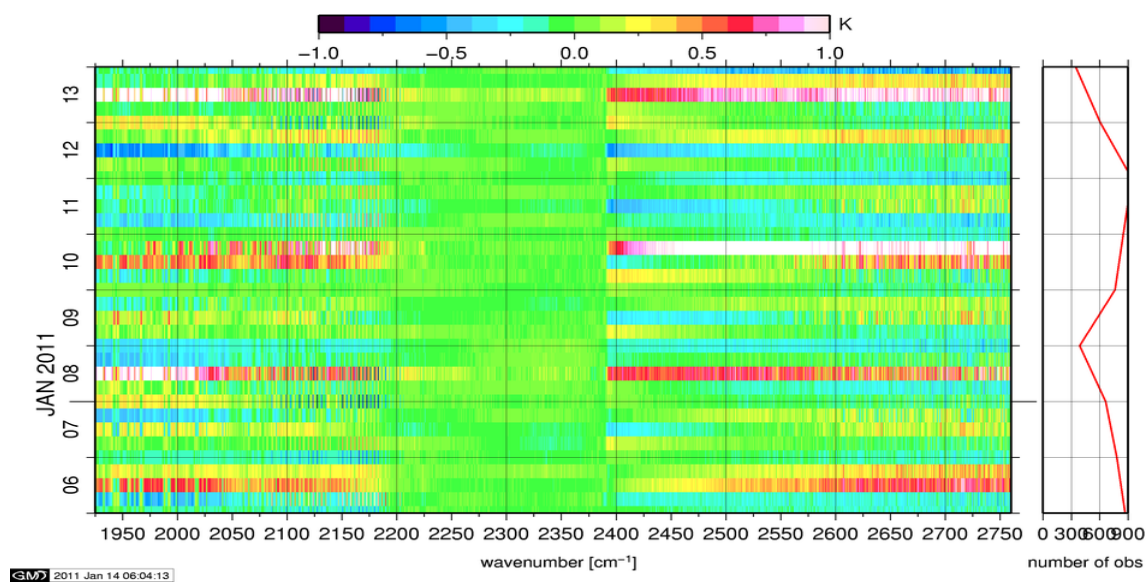


Figure 13: Radiance Anomaly in BRT: IASI Band 3

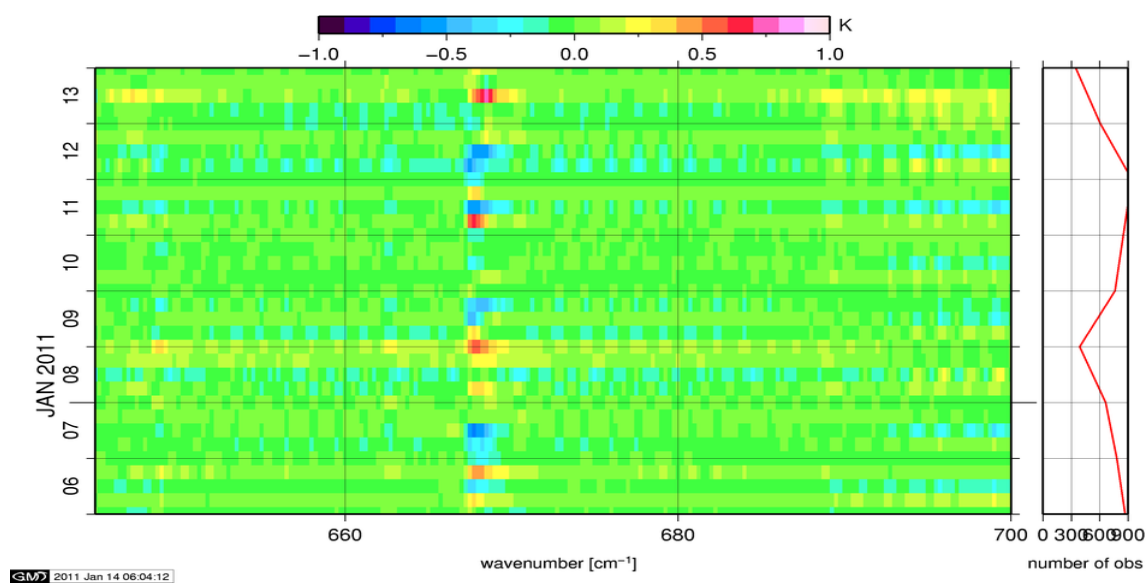


Figure 14: Radiance Anomaly in BRT: CO2 14

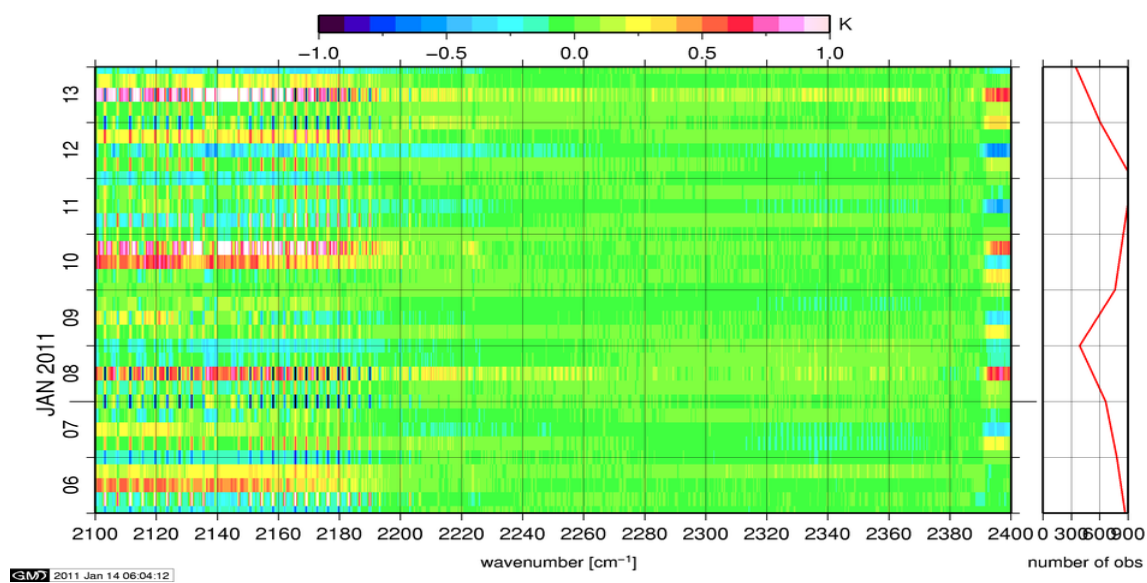


Figure 15: Radiance Anomaly in BRT: CO2 4.3

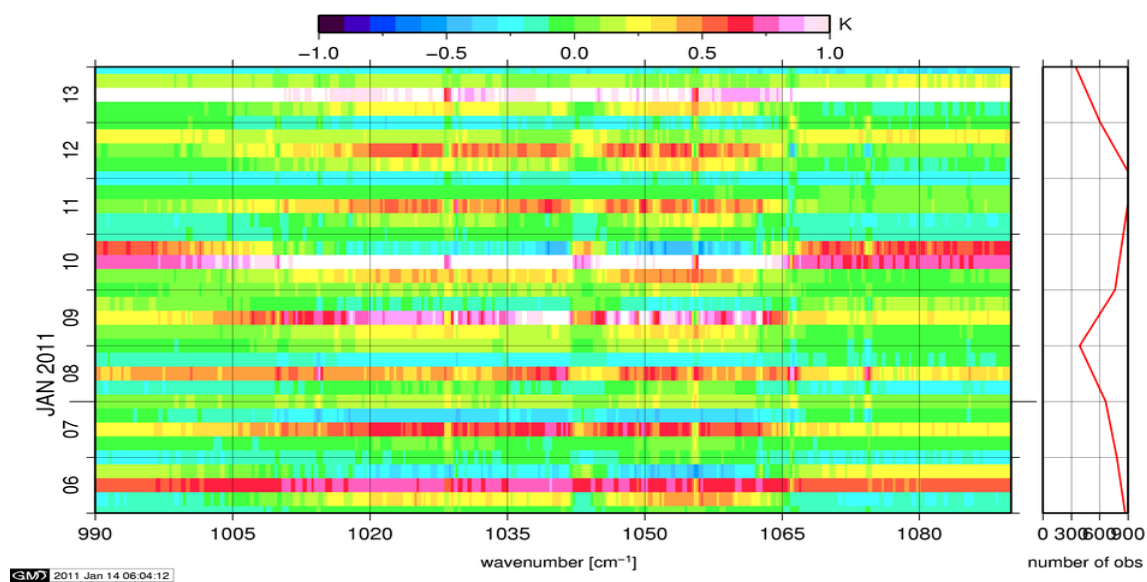


Figure 16: Radiance Anomaly in BRT: O3

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.

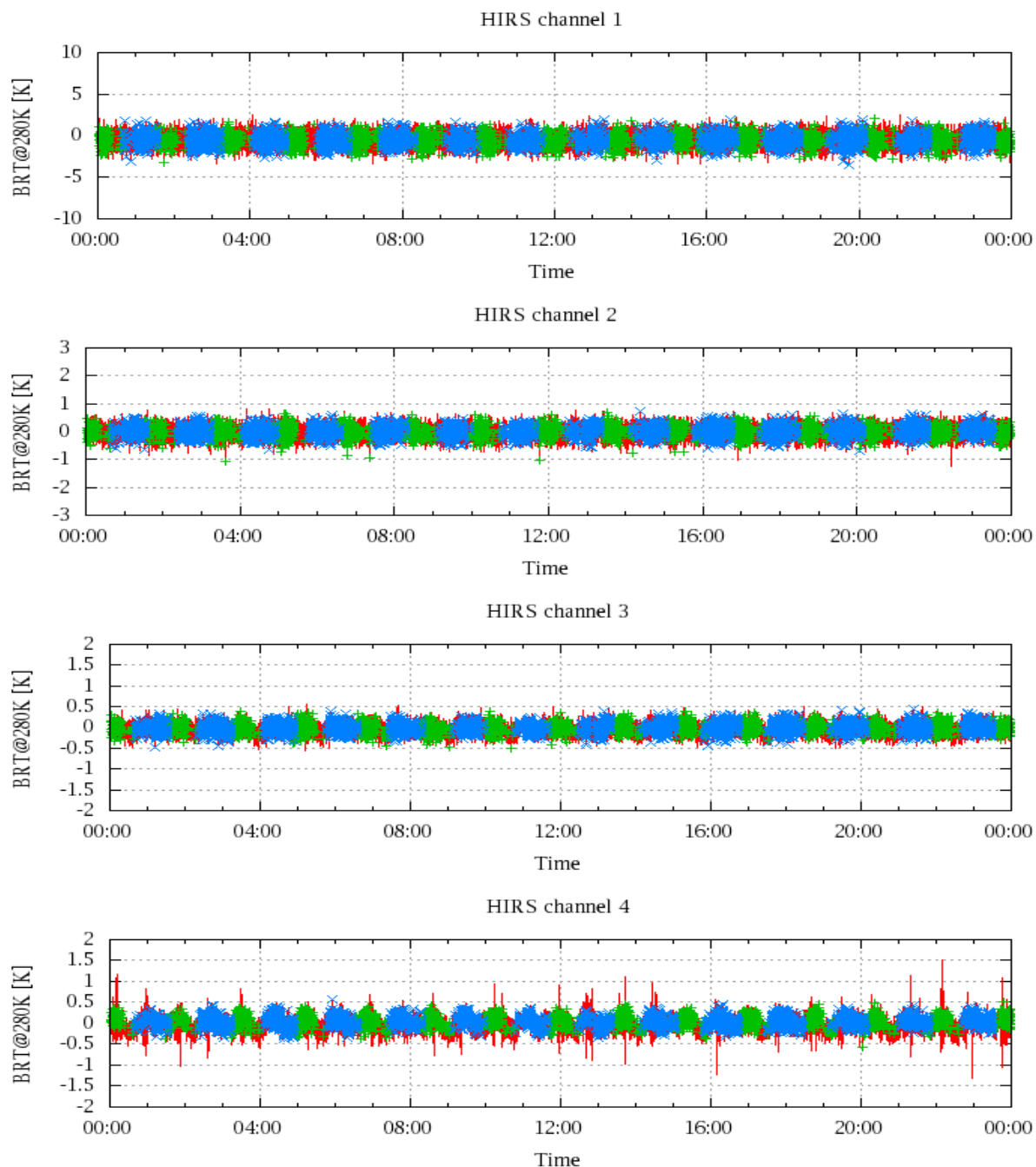


Figure 17: Radiance Differences in BRT

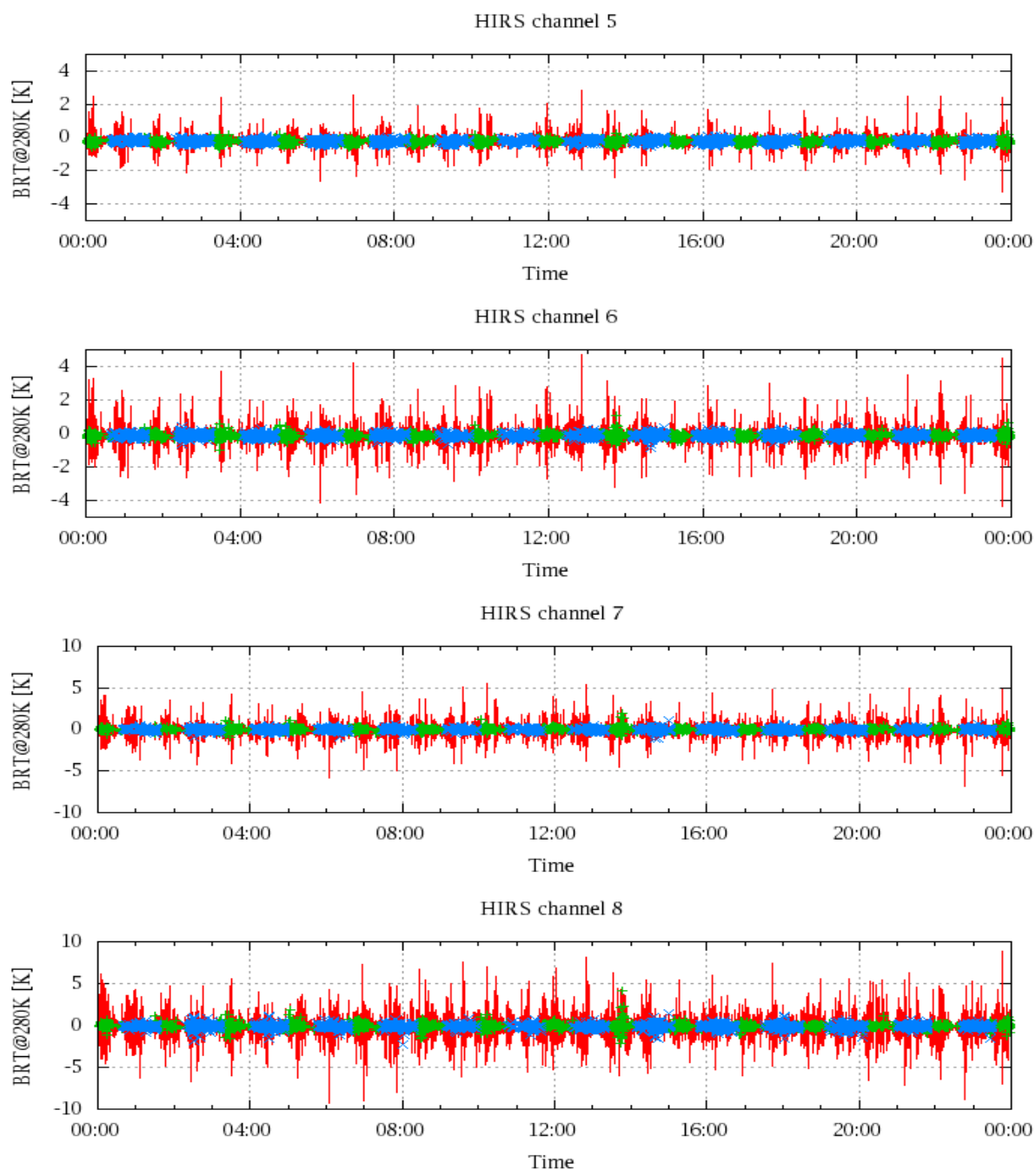


Figure 18: Radiance Differences in BRT

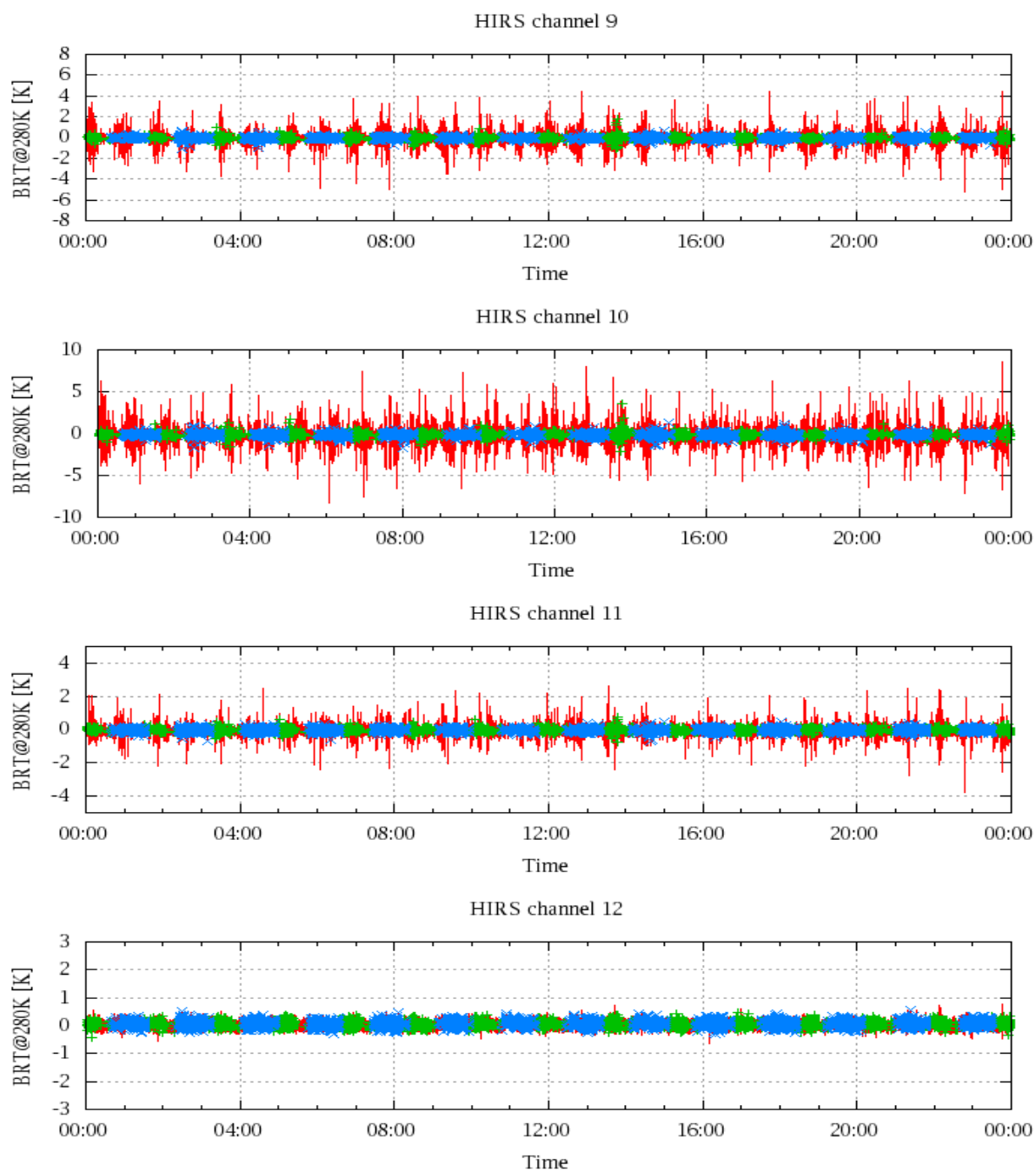


Figure 19: Radiance Differences in BRT

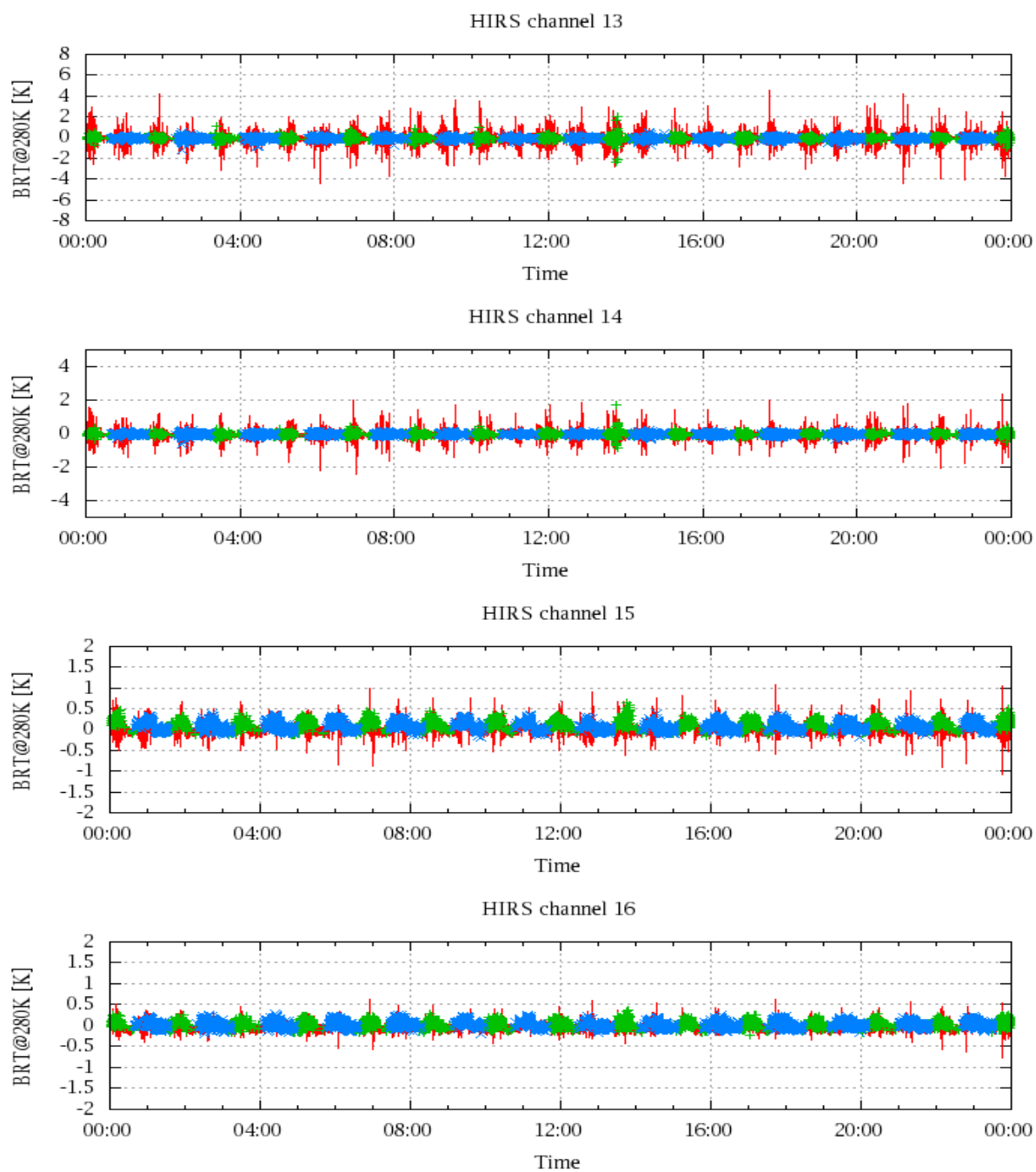


Figure 20: Radiance Differences in BRT

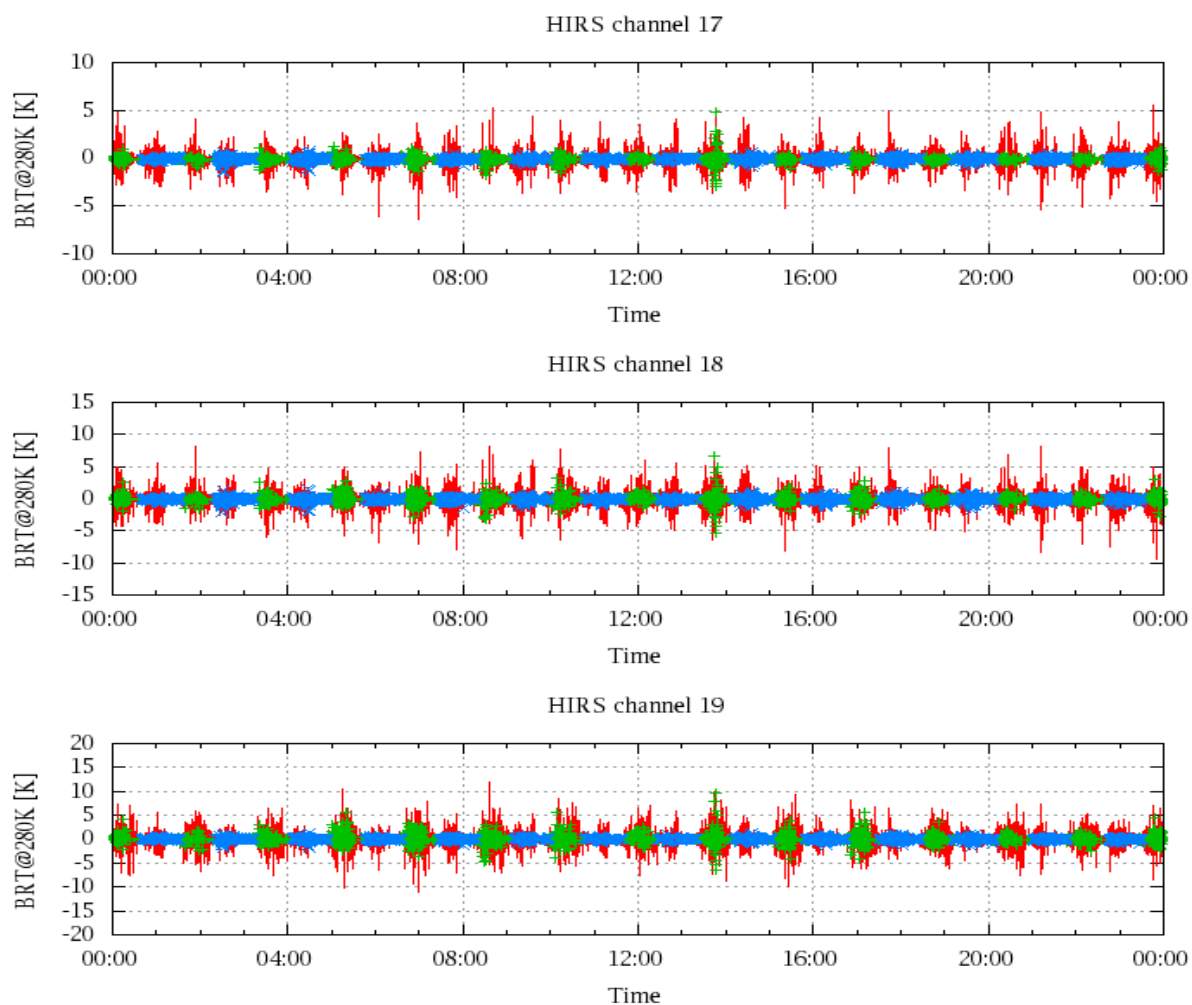


Figure 21: Radinace Differences in BRT