

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

02/12/2011 00:00:00 - 03/12/2011 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 02/12/2011 00:00:00 - 03/12/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 02/12/2011 00:00:00 - 03/12/2011 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)	7316	7351	20111202190052.088	20111202190101.170
PX1 (130)	7351	7362	20111202190101.170	20111202190103.548
PX1 (130)	7363	7372	20111202190103.763	20111202190105.713
PX1 (130)	7372	7374	20111202190105.713	20111202190107.658
PX1 (130)	7374	7468	20111202190107.658	20111202190132.521
PX1 (130)	7470	7479	20111202190132.955	20111202190134.900
PX1 (130)	7479	7494	20111202190134.900	20111202190139.654
PX1 (130)	7497	7530	20111202190140.306	20111202190148.955
PX2 (135)	7315	7351	20111202190051.873	20111202190101.170
PX2 (135)	7351	7361	20111202190101.170	20111202190103.334
PX2 (135)	7363	7372	20111202190103.763	20111202190105.713
PX2 (135)	7372	7468	20111202190105.713	20111202190132.521
PX2 (135)	7470	7479	20111202190132.955	20111202190134.900
PX2 (135)	7479	7494	20111202190134.900	20111202190139.654
PX2 (135)	7497	7530	20111202190140.306	20111202190148.955
PX3 (140)	7315	7350	20111202190051.873	20111202190100.955
PX3 (140)	7351	7361	20111202190101.170	20111202190103.334
PX3 (140)	7362	7372	20111202190103.548	20111202190105.713

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	7372	7468	20111202190105.713	20111202190132.521
PX3 (140)	7470	7489	20111202190132.955	20111202190137.060
PX3 (140)	7489	7494	20111202190137.060	20111202190139.654
PX3 (140)	7497	7530	20111202190140.306	20111202190148.955
PX4 (145)	7315	7350	20111202190051.873	20111202190100.955
PX4 (145)	7351	7361	20111202190101.170	20111202190103.334
PX4 (145)	7362	7468	20111202190103.548	20111202190132.521
PX4 (145)	7469	7478	20111202190132.736	20111202190134.685
PX4 (145)	7478	7489	20111202190134.685	20111202190137.060
PX4 (145)	7489	7494	20111202190137.060	20111202190139.654
PX4 (145)	7496	7530	20111202190140.087	20111202190148.955
IMG (150)	11563	11602	20111202190051.873	20111202190100.955
IMG (150)	11602	11613	20111202190100.955	20111202190103.334
IMG (150)	11614	11735	20111202190103.548	20111202190132.306
IMG (150)	11737	11746	20111202190132.736	20111202190134.685
IMG (150)	11746	11757	20111202190134.685	20111202190137.060
IMG (150)	11757	11762	20111202190137.060	20111202190138.357
IMG (150)	11768	11806	20111202190140.087	20111202190148.955
VER (160)	1215	1245	20111202190049.927	20111202190137.060
VER (160)	1245	1251	20111202190137.060	20111202190153.923
AUX (180)	13349	13355	20111202190050.361	20111202190138.357
AUX (180)	13355	13357	20111202190138.357	20111202190154.357

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
02/12/2011 00:00:01	-	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)	99.38 %	-
GQisFlagQual set (PX2)	99.28 %	-
GQisFlagQual set (PX3)	99.35 %	-
GQisFlagQual set (PX4)	99.43 %	-
GQisFlagQual set (all)	99.36 %	-

Table 4: Quality flags

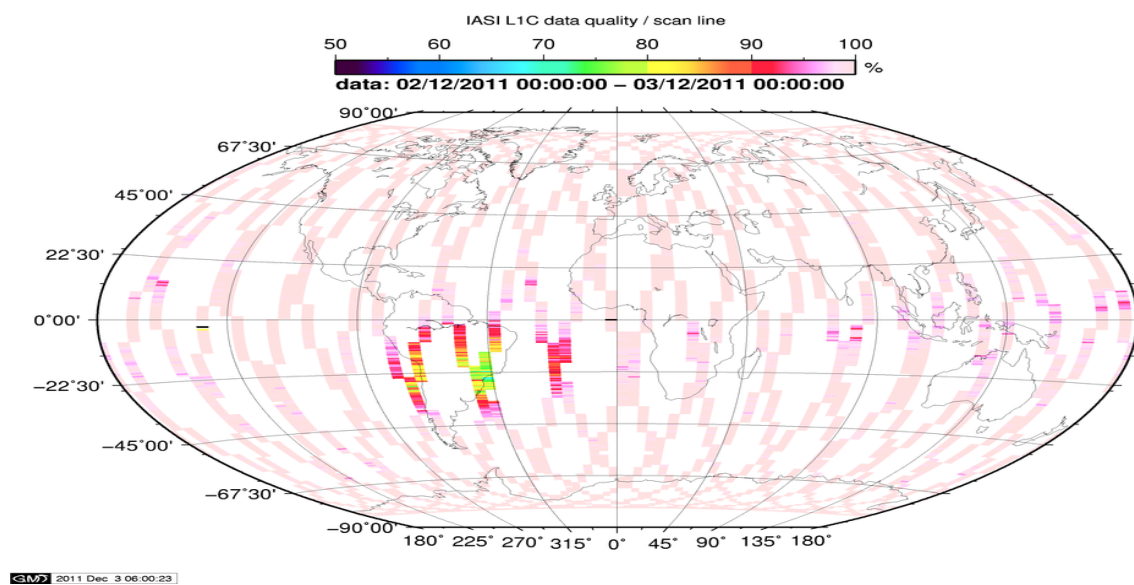


Figure 1: L1C data quality

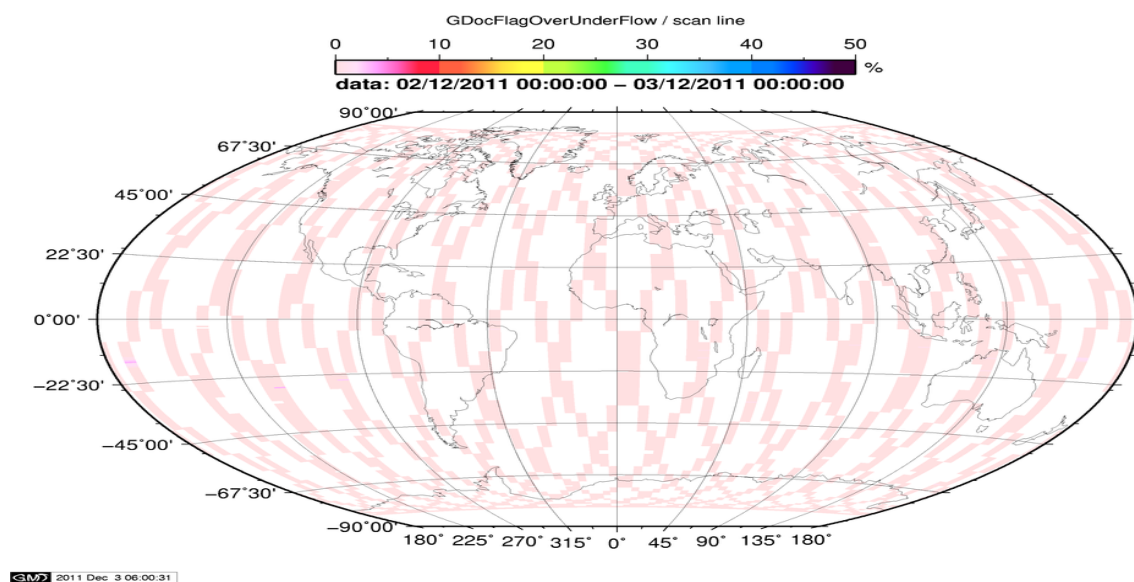


Figure 2: Flag of Over and Under Flows

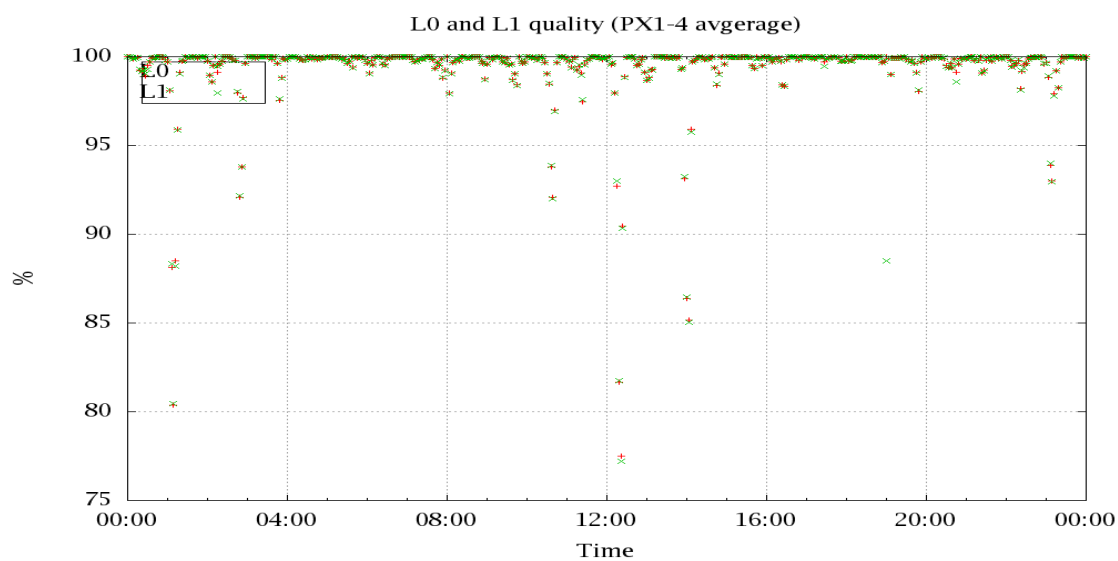


Figure 3: Level 0 and 1C overall quality

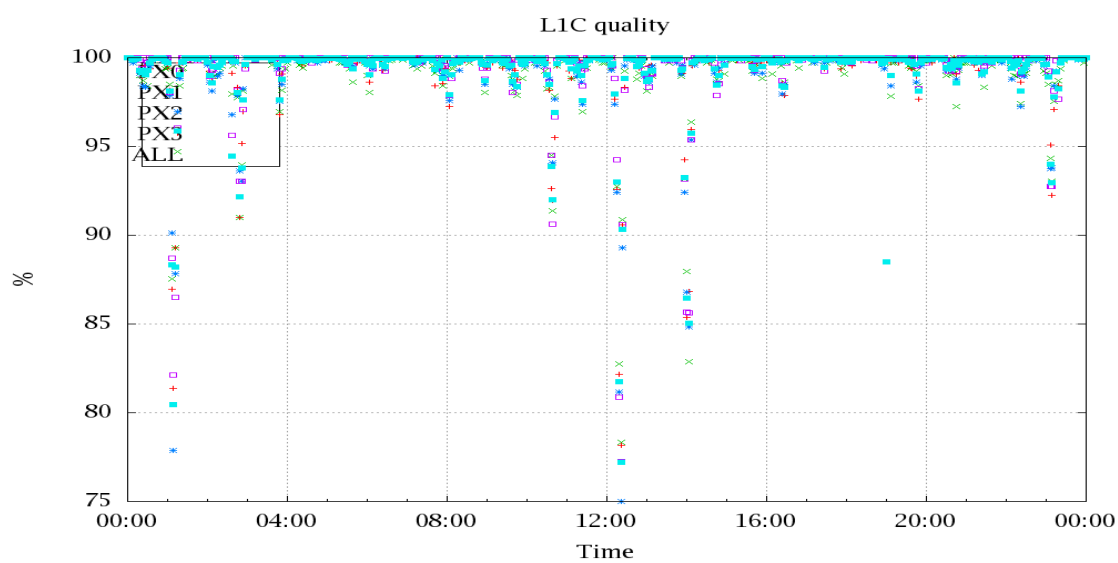


Figure 4: Level 1C quality

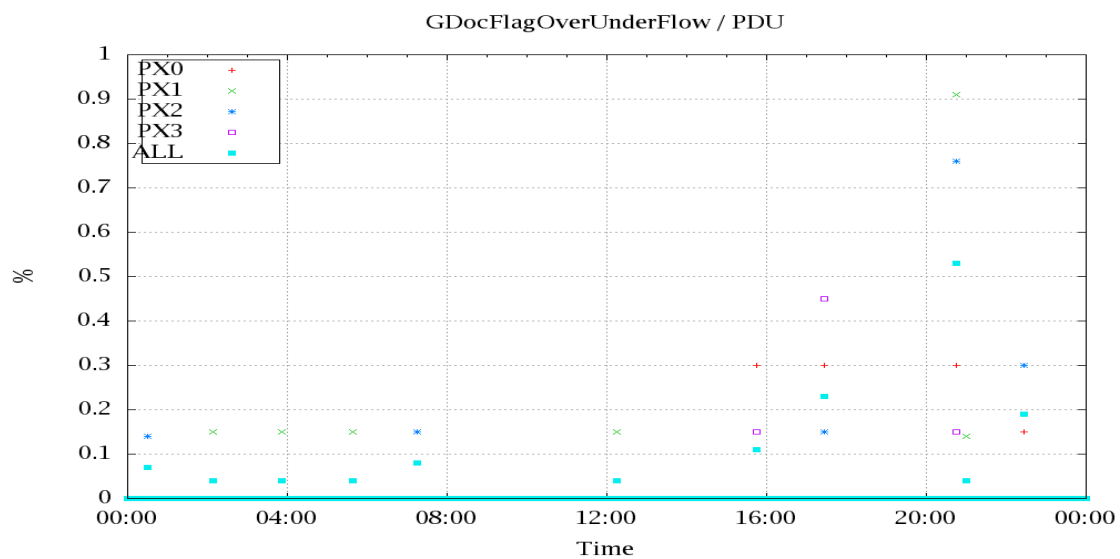


Figure 5: OverUnderFlowFlag timeseries

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.

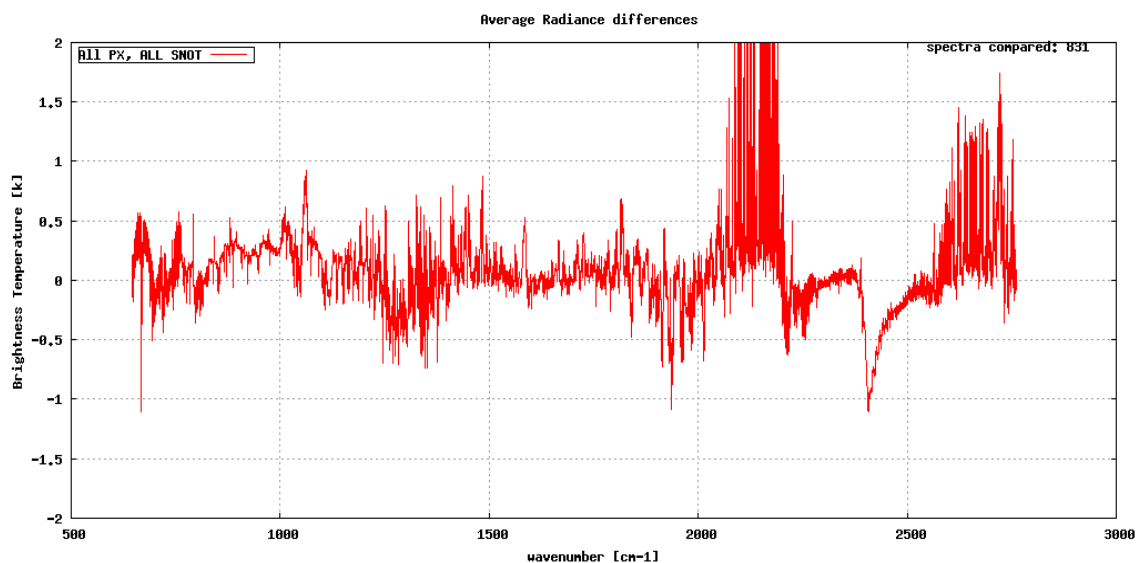


Figure 6: Average Radiance differences: OBS-CAL

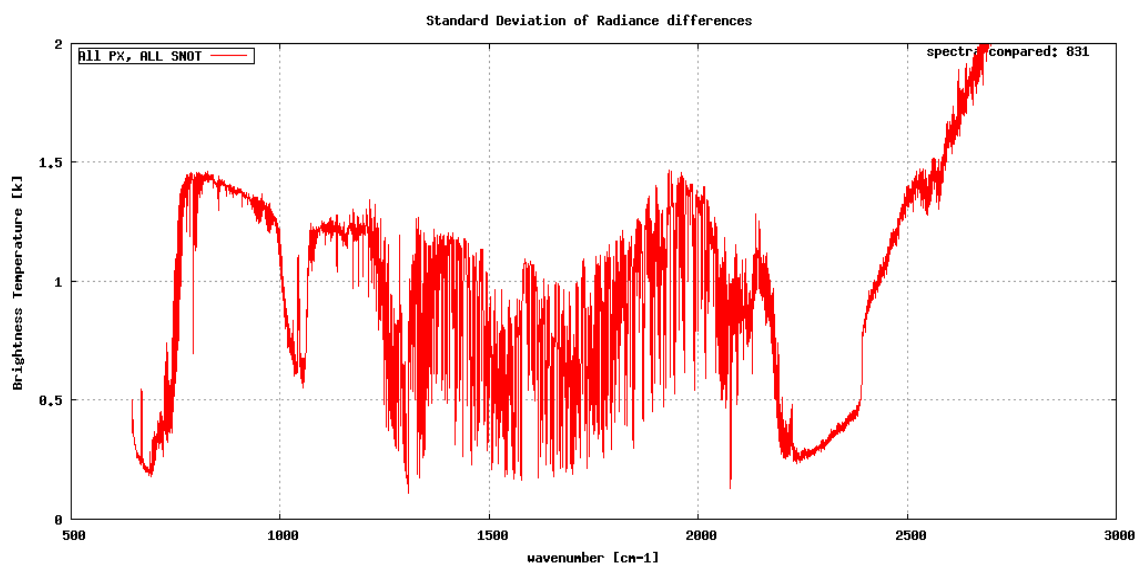


Figure 7: Standard Deviation of Radiance differences

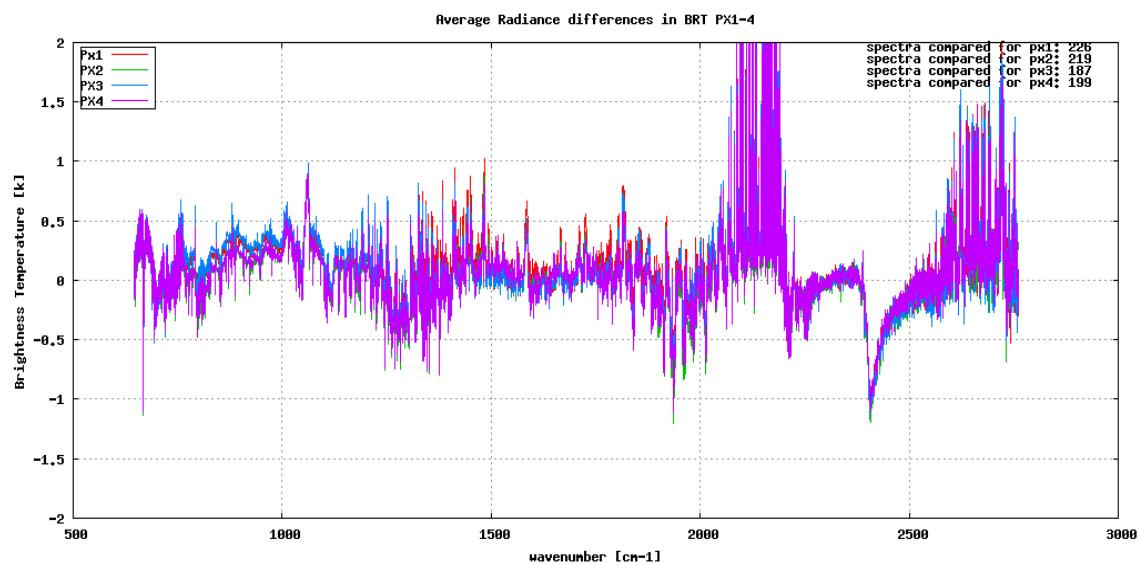


Figure 8: Average Radiance differences: OBS-CAL

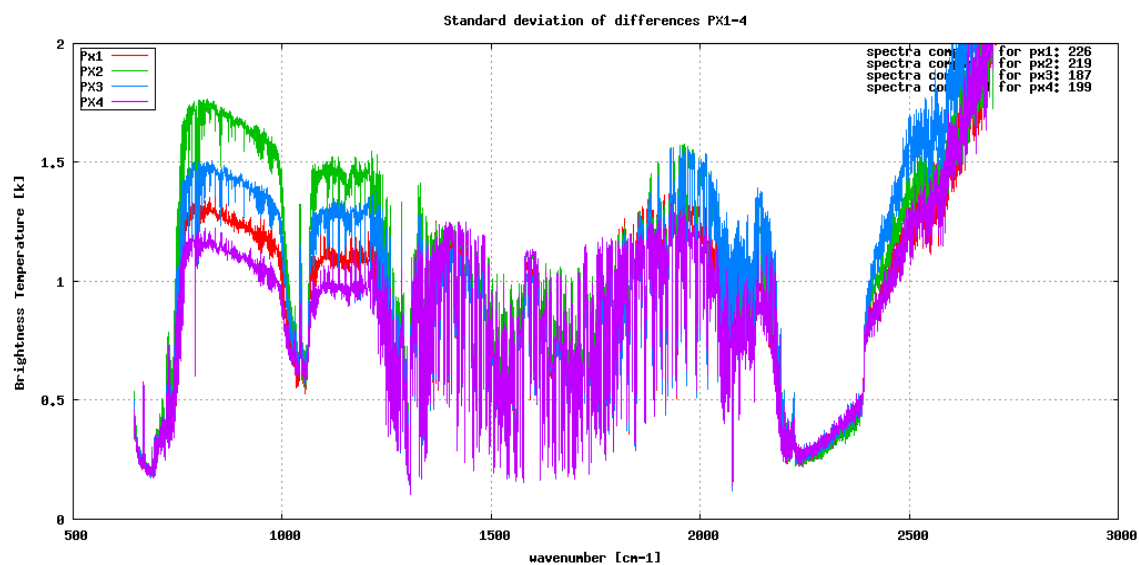


Figure 9: Standard Deviation of Radiance differences

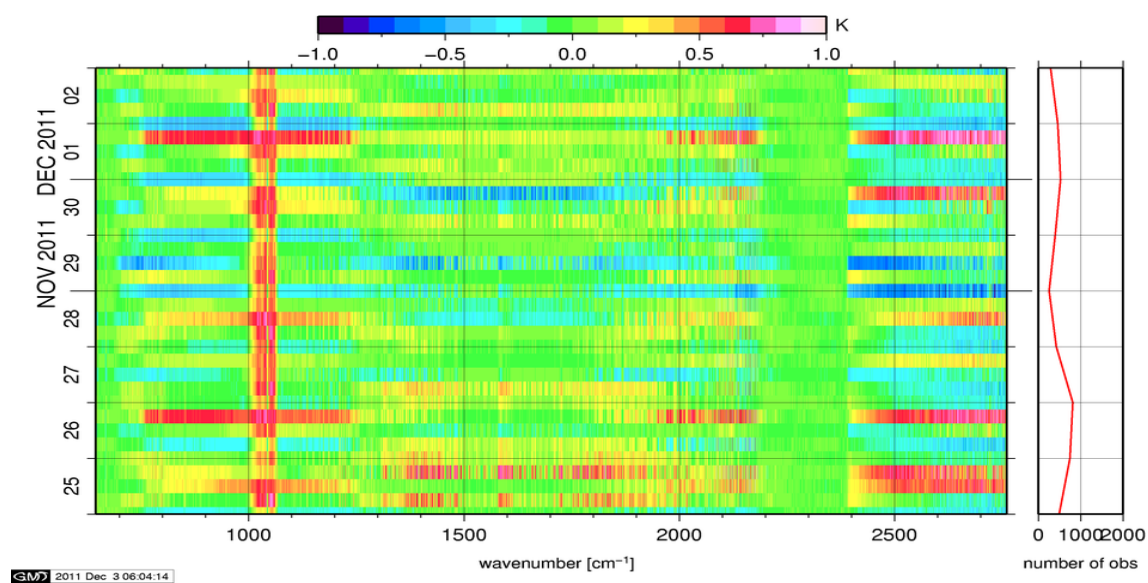


Figure 10: Radiance Anomaly in BRT: All Channels

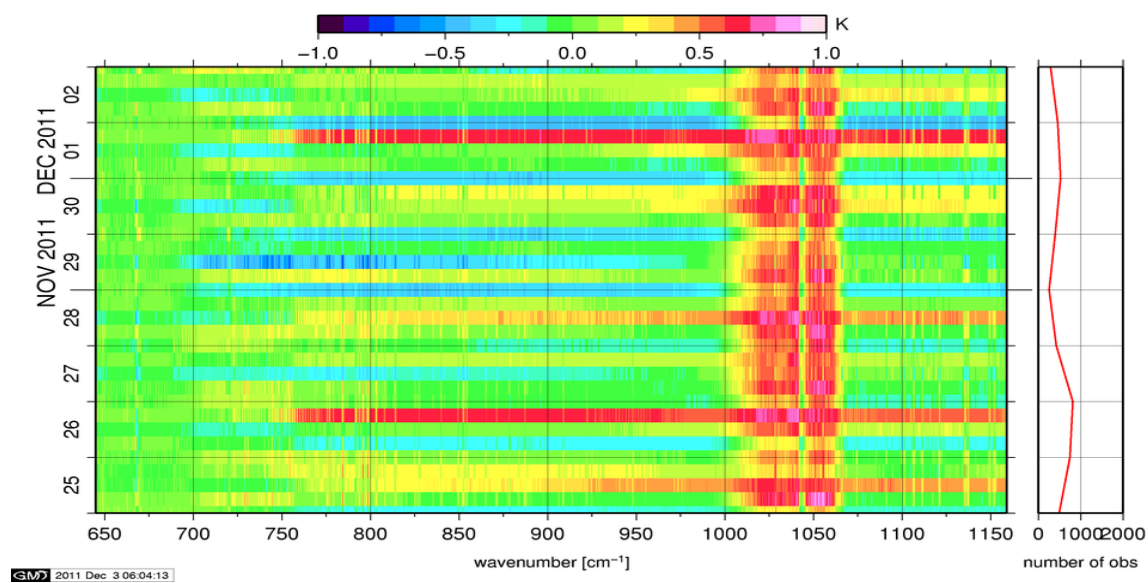


Figure 11: Radiance Anomaly in BRT: IASI Band 1

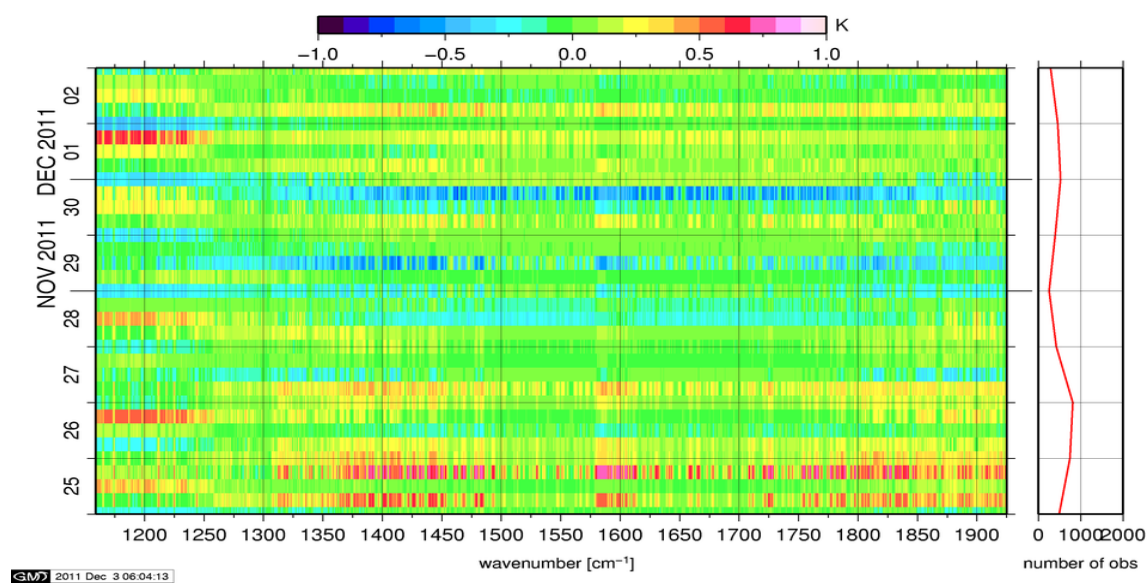


Figure 12: Radiance Anomaly in BRT: IASI Band 2

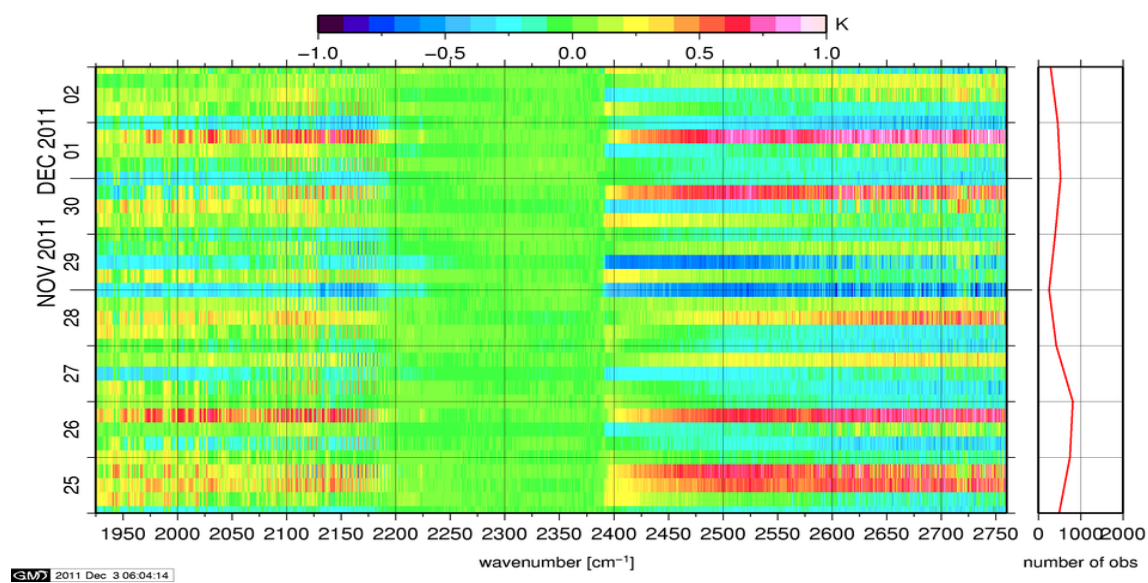


Figure 13: Radiance Anomaly in BRT: IASI Band 3

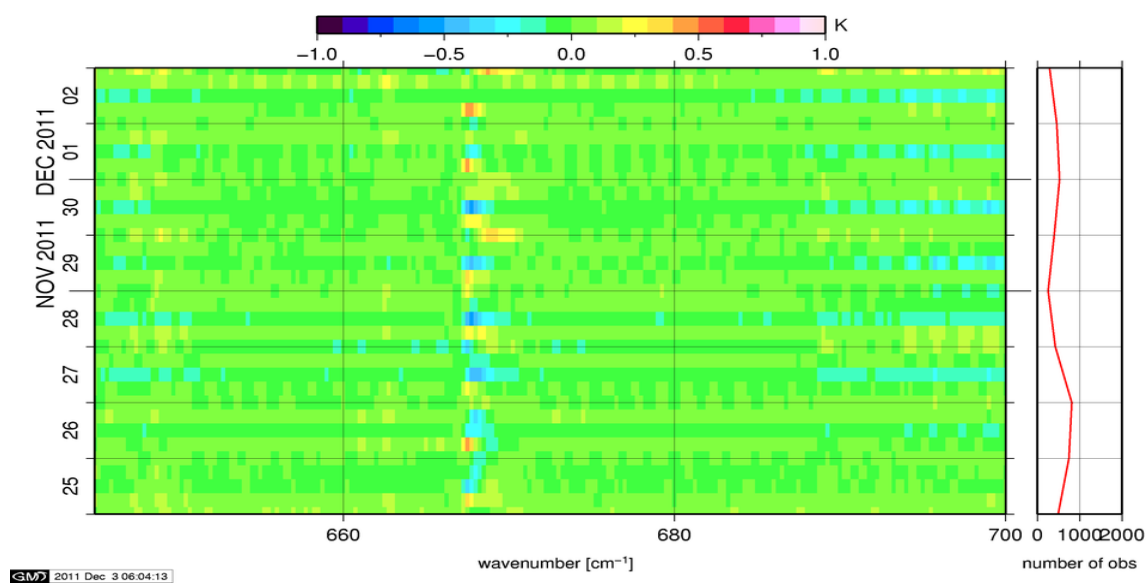


Figure 14: Radiance Anomaly in BRT: CO2 14

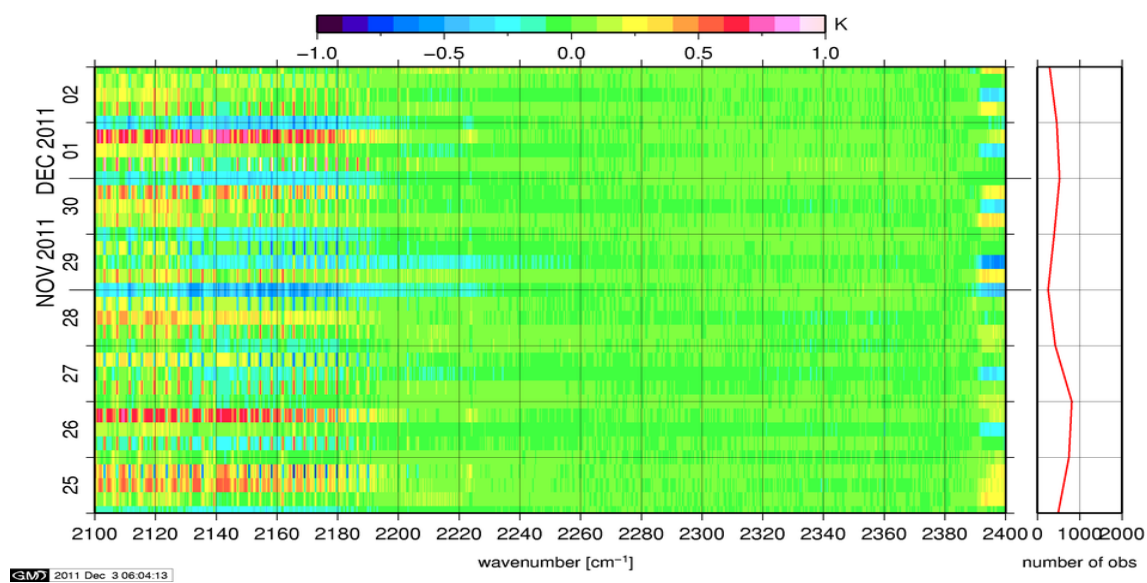


Figure 15: Radiance Anomaly in BRT: CO2 4.3

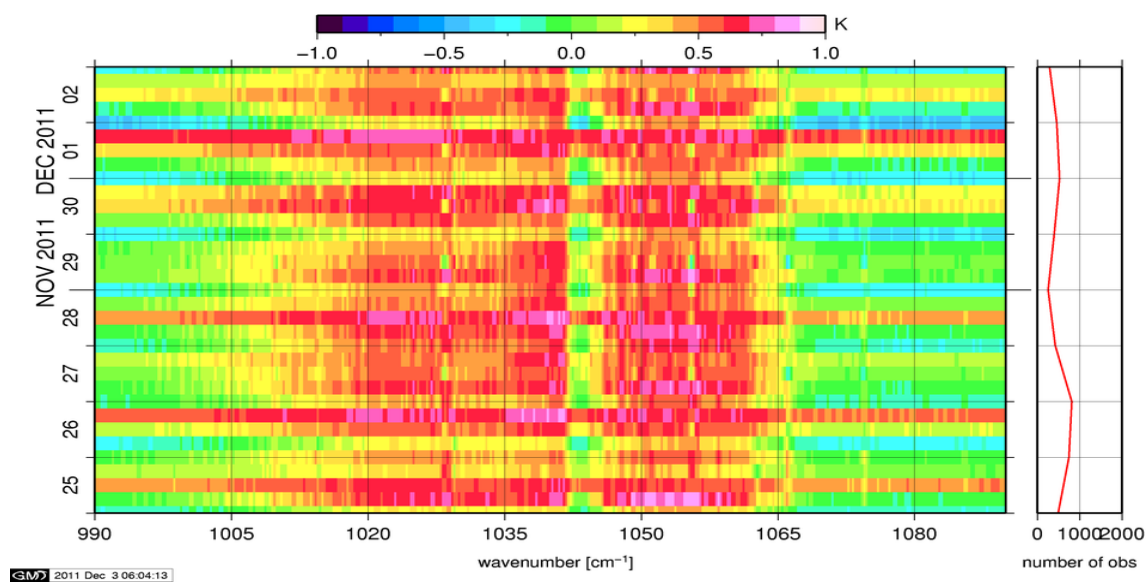


Figure 16: Radiance Anomaly in BRT: O3

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.

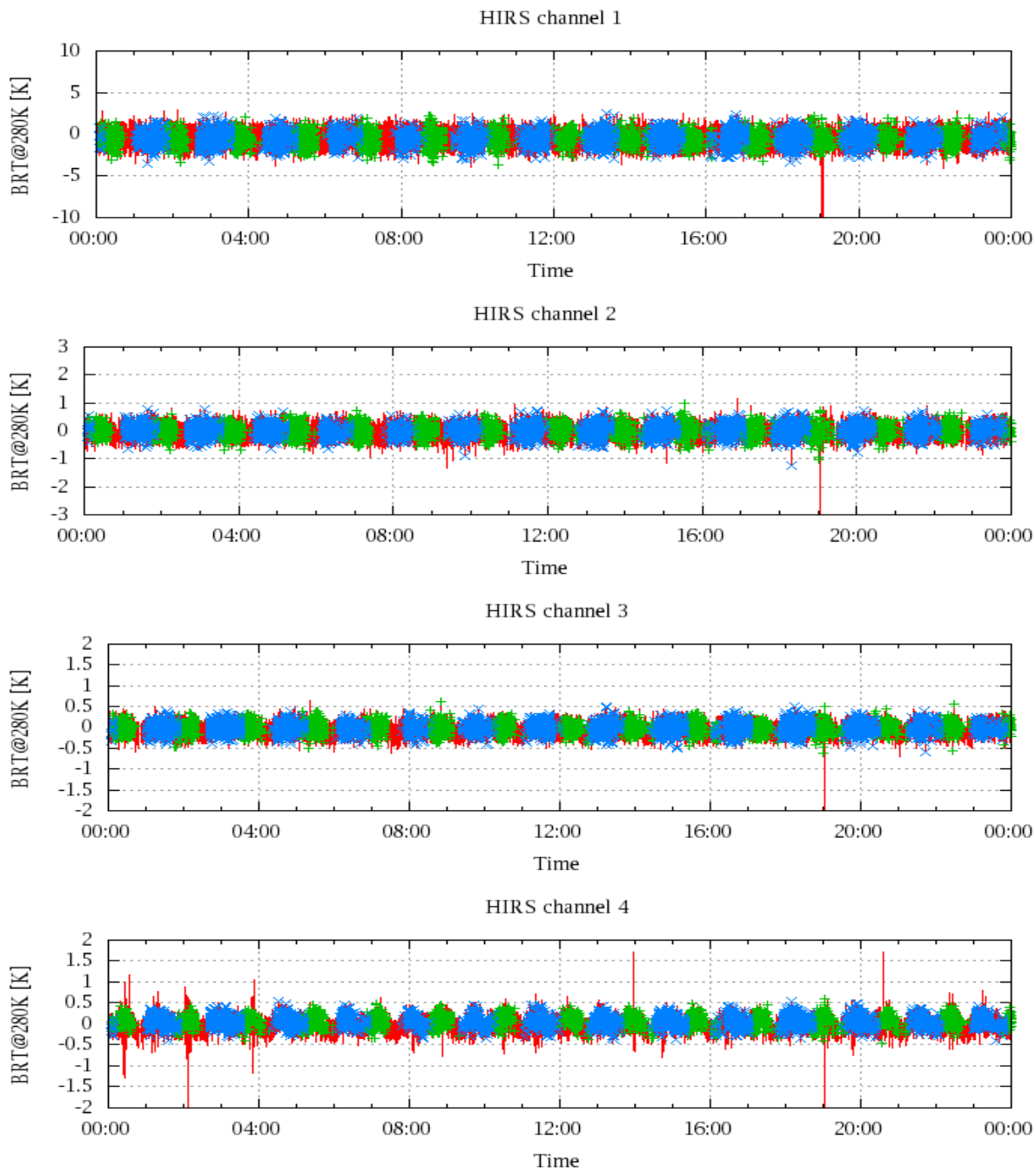


Figure 17: Radiance Differences in BRT

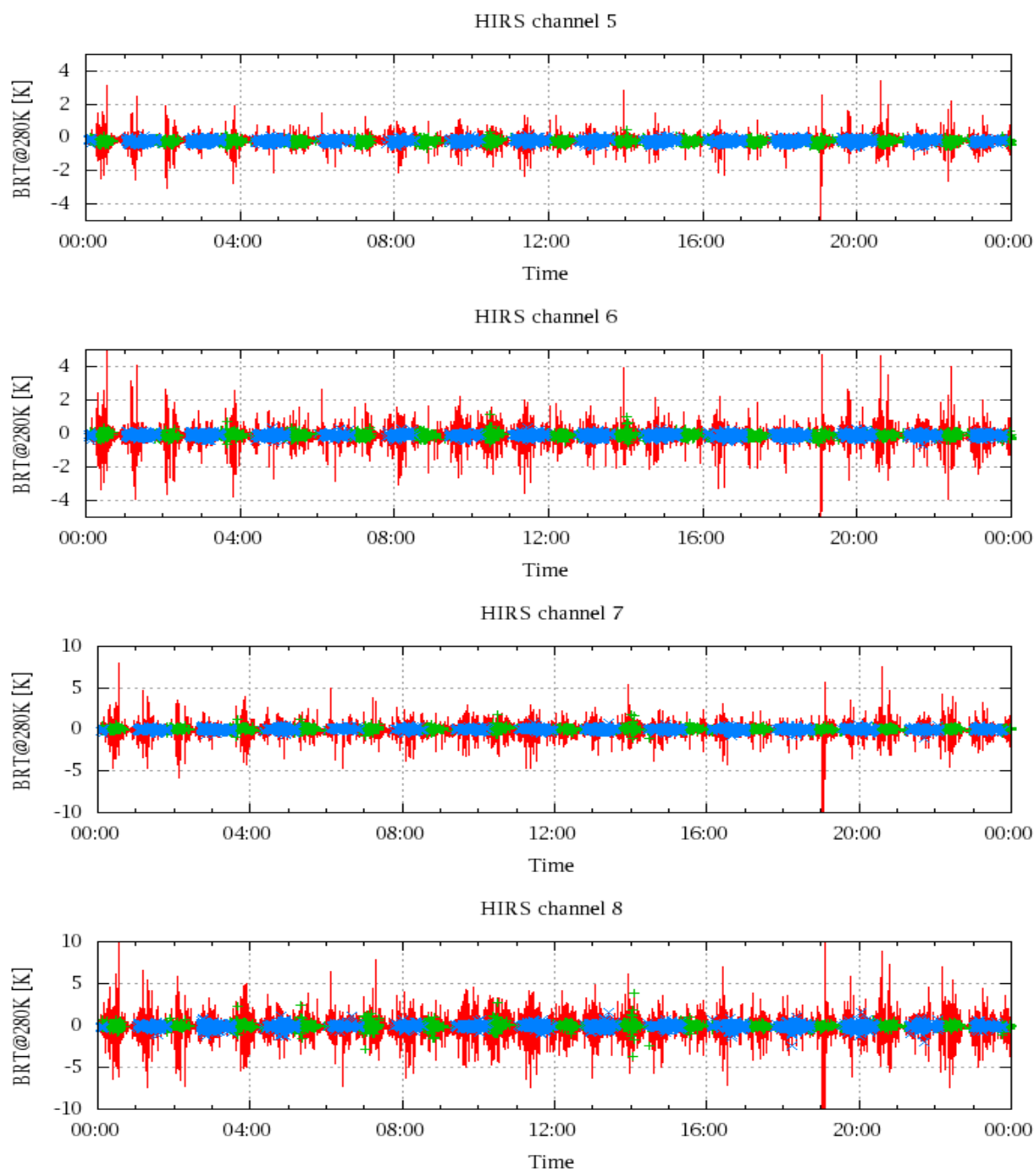


Figure 18: Radiance Differences in BRT

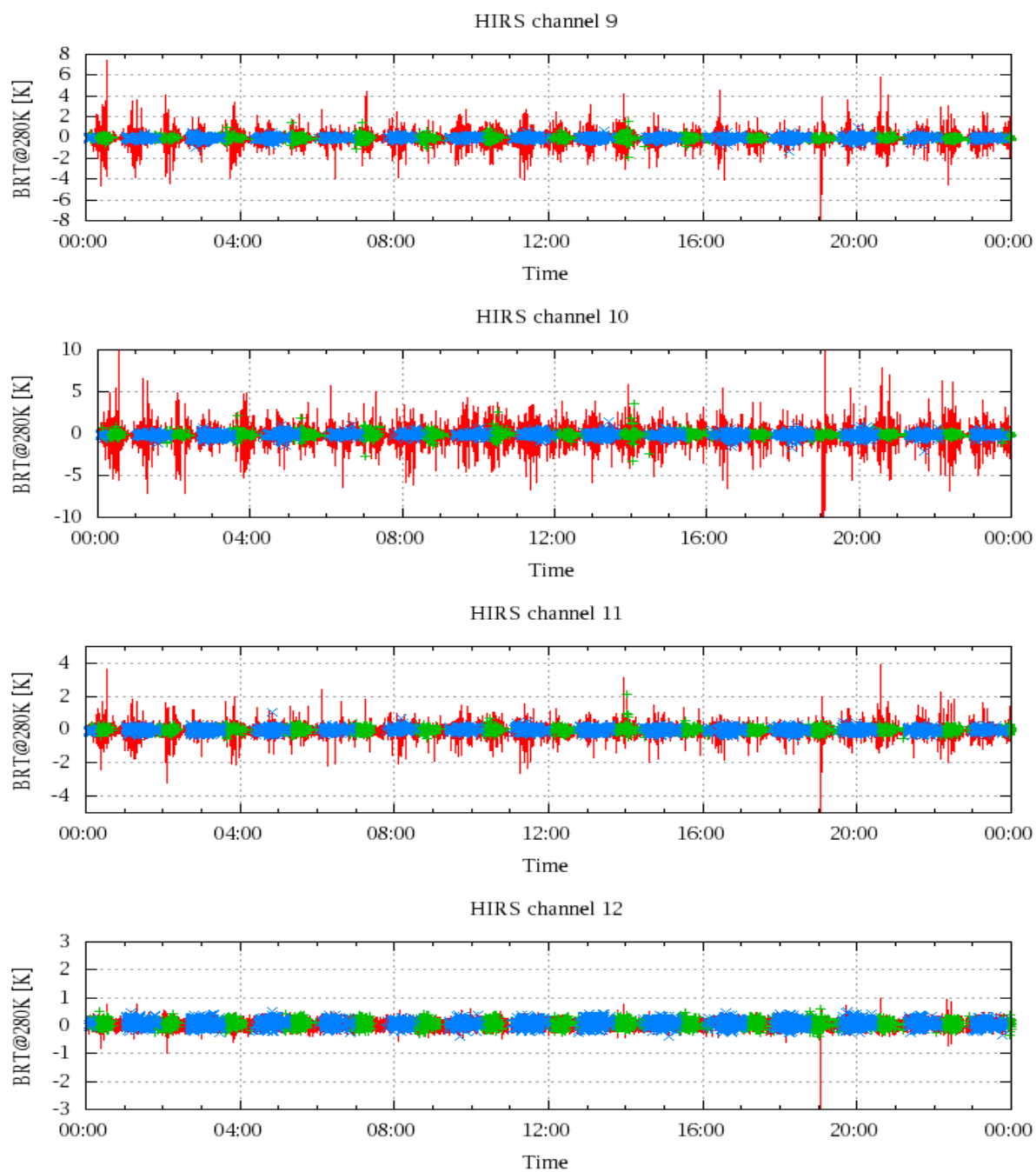


Figure 19: Radiance Differences in BRT

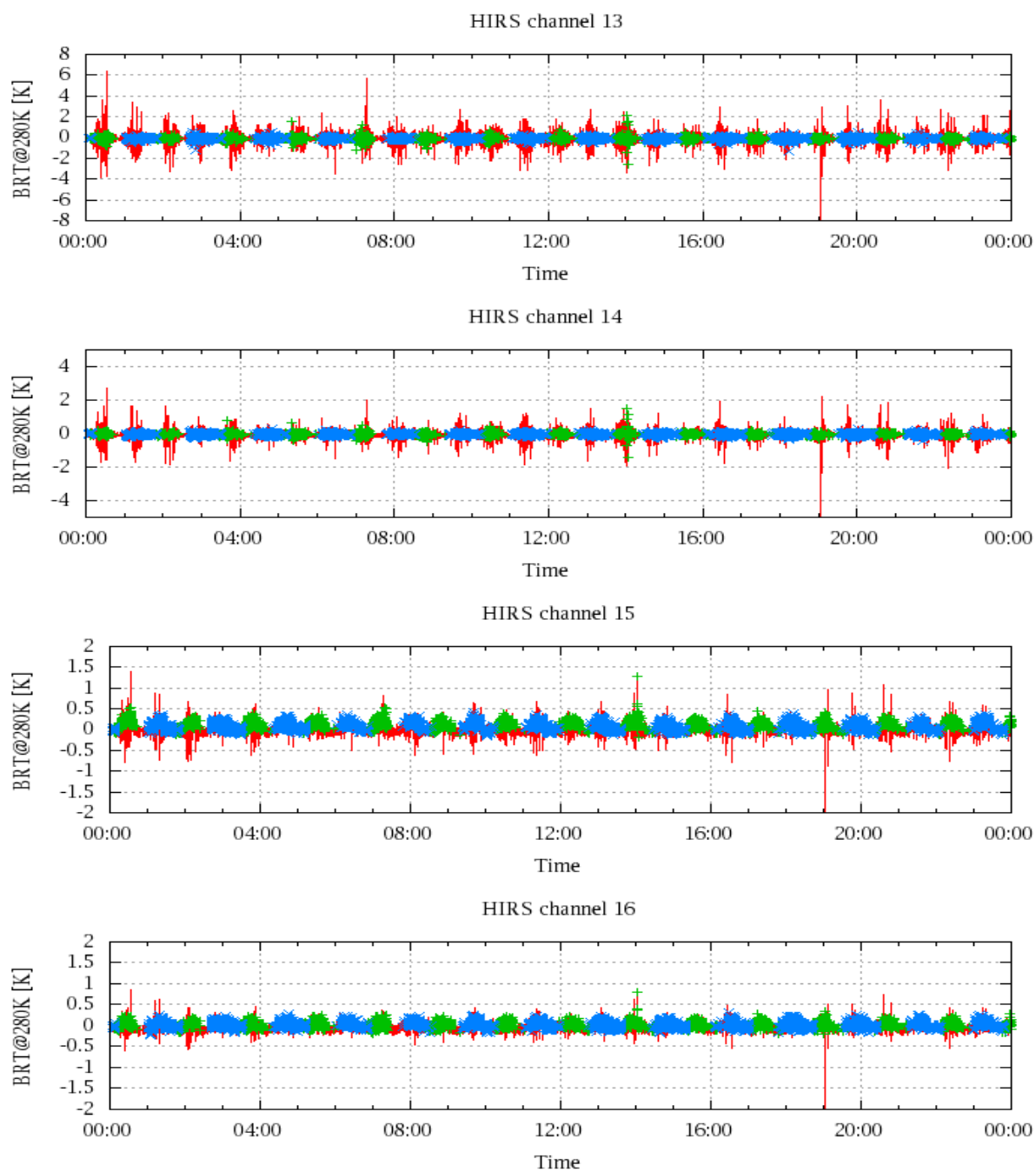


Figure 20: Radiance Differences in BRT

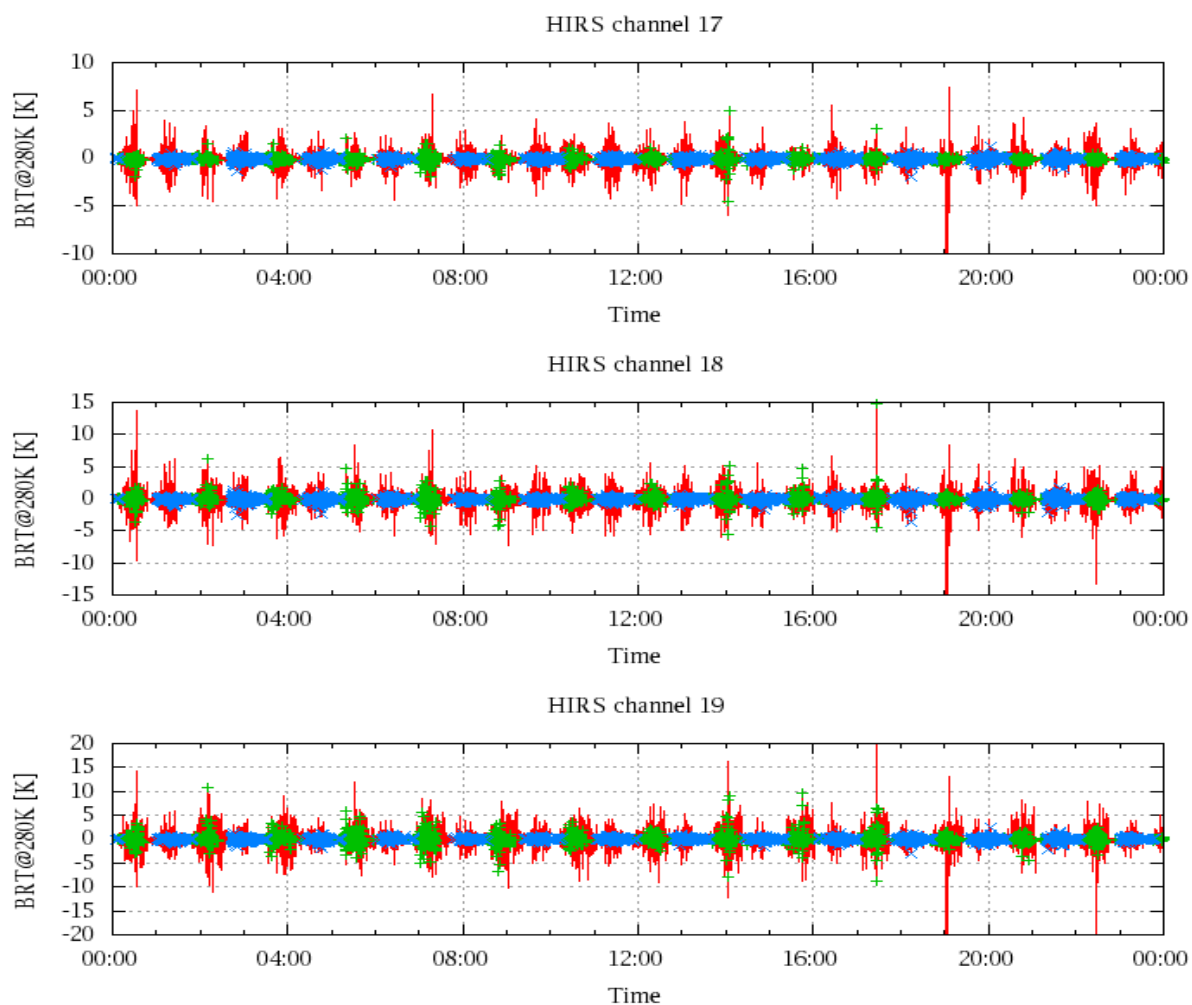


Figure 21: Radinace Differences in BRT