

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

19/10/2012 00:00:00 - 20/10/2012 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 19/10/2012 00:00:00 - 20/10/2012 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 19/10/2012 00:00:00 - 20/10/2012 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	479	-
L1 ENG distinct GEPSGranule	480	-
L1 DPX PDUs (RM: IASI-HIRS)	479	-
L1 DPS Files (RM: OBS-CAL NWP based)	479	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	15710	15715	20121019125959.451	20121019130000.533
PX1 (130)	15771	15803	20121019130015.670	20121019130024.100
PX1 (130)	15841	15848	20121019130033.830	20121019130035.346
PX1 (130)	15848	15852	20121019130035.346	20121019130037.725
PX1 (130)	15857	15888	20121019130038.803	20121019130047.018
PX1 (130)	15888	15943	20121019130047.018	20121019130101.939
PX1 (130)	15956	15961	20121019130104.748	20121019130105.830
PX2 (135)	15710	15715	20121019125959.451	20121019130000.533
PX2 (135)	15771	15803	20121019130015.670	20121019130024.100
PX2 (135)	15841	15848	20121019130033.830	20121019130035.346
PX2 (135)	15848	15852	20121019130035.346	20121019130037.725
PX2 (135)	15857	15888	20121019130038.803	20121019130047.018
PX2 (135)	15888	15943	20121019130047.018	20121019130101.939
PX2 (135)	15956	15961	20121019130104.748	20121019130105.830
PX3 (140)	15710	15715	20121019125959.451	20121019130000.533
PX3 (140)	15770	15802	20121019130015.451	20121019130023.885
PX3 (140)	15840	15848	20121019130033.615	20121019130035.346
PX3 (140)	15848	15852	20121019130035.346	20121019130037.725

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	15857	15888	20121019130038.803	20121019130047.018
PX3 (140)	15888	15943	20121019130047.018	20121019130101.939
PX3 (140)	15956	15961	20121019130104.748	20121019130105.830
PX4 (145)	15710	15715	20121019125959.451	20121019130000.533
PX4 (145)	15770	15802	20121019130015.451	20121019130023.885
PX4 (145)	15840	15848	20121019130033.615	20121019130035.346
PX4 (145)	15848	15852	20121019130035.346	20121019130037.725
PX4 (145)	15857	15943	20121019130038.803	20121019130101.939
PX4 (145)	15948	15950	20121019130103.018	20121019130103.451
PX4 (145)	15956	15960	20121019130104.748	20121019130105.611
IMG (150)	11241	11247	20121019125959.236	20121019130000.533
IMG (150)	11310	11346	20121019130015.451	20121019130023.885
IMG (150)	11388	11404	20121019130033.615	20121019130037.725
IMG (150)	11408	11414	20121019130038.588	20121019130039.885
IMG (150)	11414	11507	20121019130039.885	20121019130101.939
IMG (150)	11512	11514	20121019130103.018	20121019130103.451
IMG (150)	11520	11524	20121019130104.748	20121019130105.611
VER (160)	10812	10818	20121019130011.994	20121019130027.994
VER (160)	10823	10828	20121019130106.045	20121019130106.045
VER (160)	10828	10833	20121019130106.045	20121019130106.045
VER (160)	10833	10838	20121019130106.045	20121019130106.045
VER (160)	10838	10824	20121019130106.045	20121019130106.045
VER (160)	10824	10829	20121019130106.045	20121019130106.045
VER (160)	10829	10834	20121019130106.045	20121019130106.045
VER (160)	10834	10839	20121019130106.045	20121019130106.045
VER (160)	10839	10825	20121019130106.045	20121019130106.045
VER (160)	10825	10830	20121019130106.045	20121019130106.045
VER (160)	10830	10835	20121019130106.045	20121019130106.045
VER (160)	10835	10840	20121019130106.045	20121019130106.045
VER (160)	10840	10826	20121019130106.045	20121019130106.045
VER (160)	10826	10831	20121019130106.045	20121019130106.045
VER (160)	10831	10836	20121019130106.045	20121019130106.045
VER (160)	10836	10841	20121019130106.045	20121019130106.045
VER (160)	10841	10827	20121019130106.045	20121019130106.045
VER (160)	10827	10832	20121019130106.045	20121019130106.045
VER (160)	10832	10837	20121019130106.045	20121019130106.045
VER (160)	10837	10842	20121019130106.045	20121019130106.045
AUX (180)	15268	15270	20121019130012.424	20121019130028.424

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
19/10/2012 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	479	-
L1 ENG distinct GEPSGranule	480	-
GQisFlagQual set (PX1)	99.40 %	-
GQisFlagQual set (PX2)	99.26 %	-
GQisFlagQual set (PX3)	99.31 %	-
GQisFlagQual set (PX4)	99.47 %	-
GQisFlagQual set (all)	99.36 %	-

Table 4: Quality flags

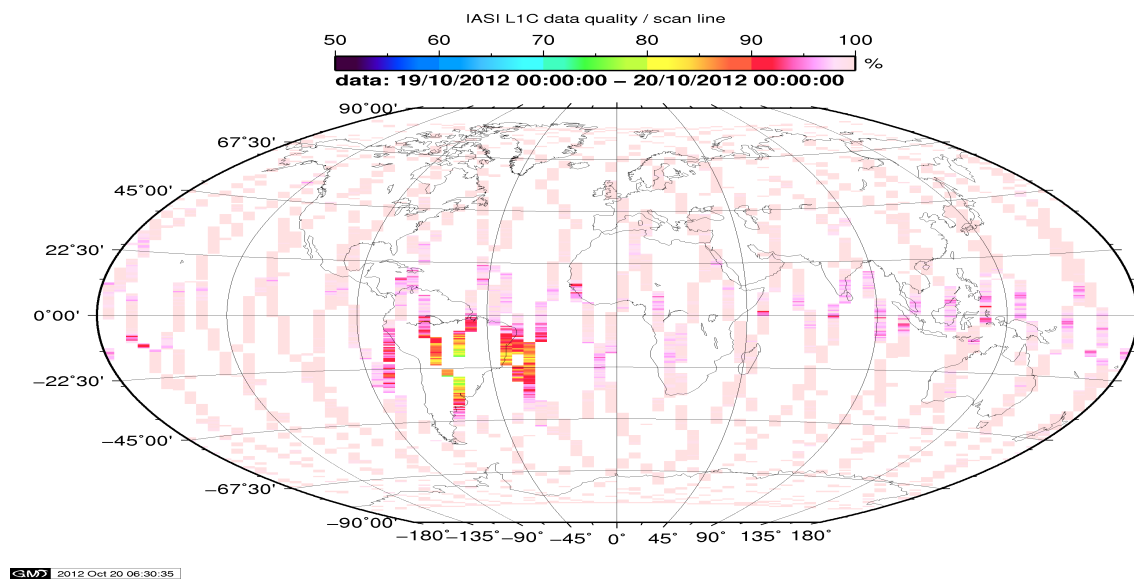


Figure 1: L1C data quality

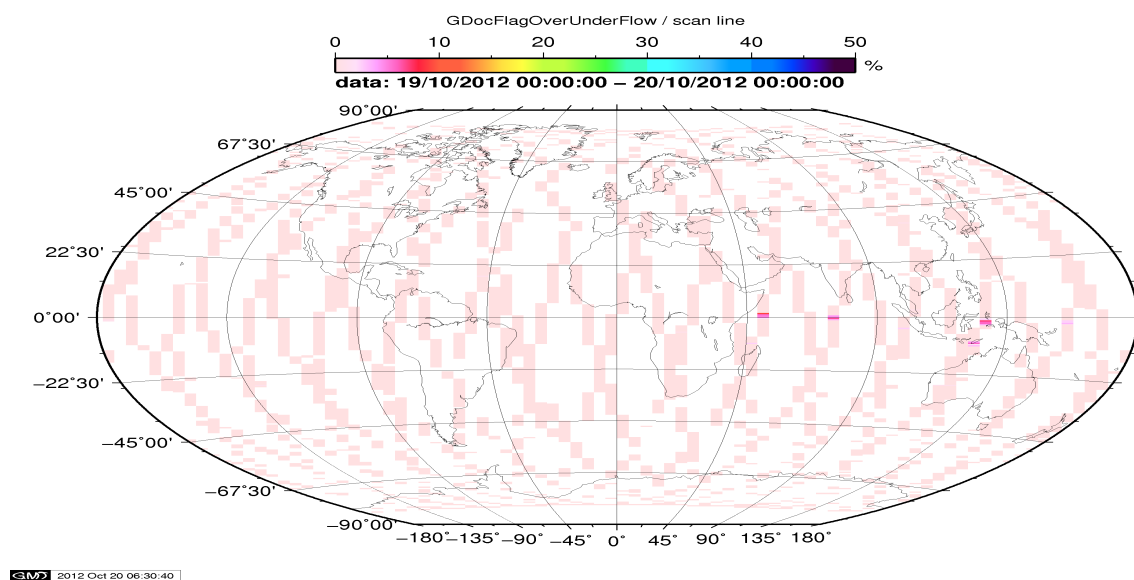


Figure 2: Flag of Over and Under Flows

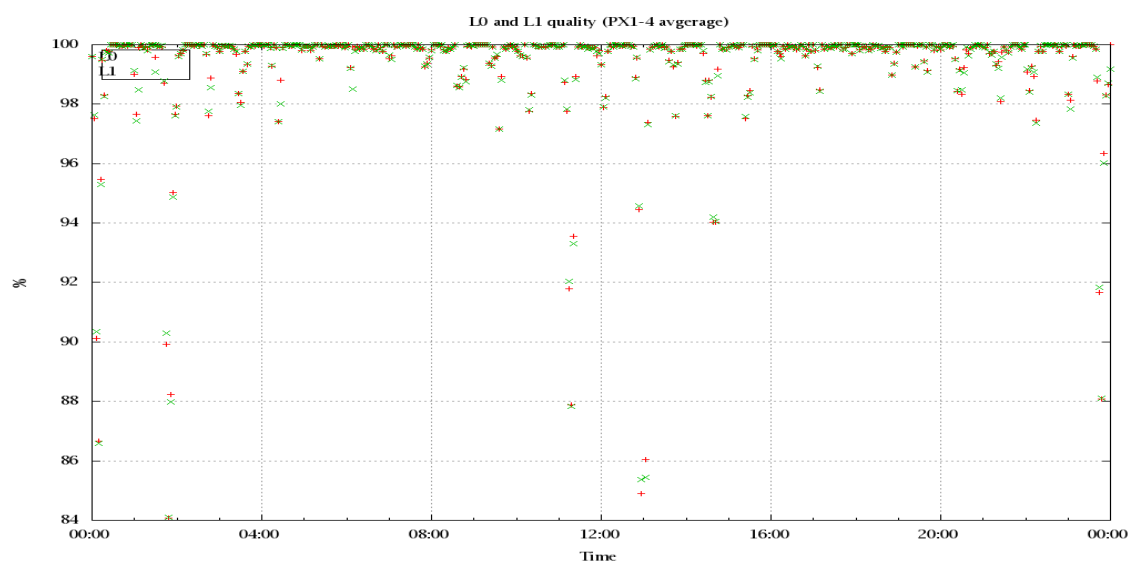


Figure 3: Level 0 and 1C overall quality

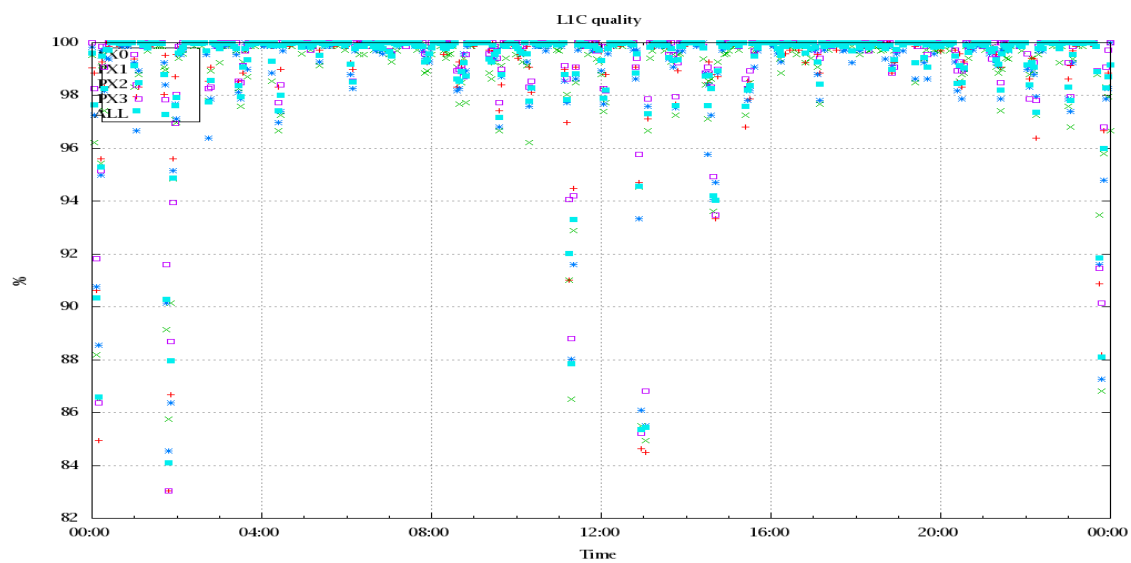


Figure 4: Level 1C quality

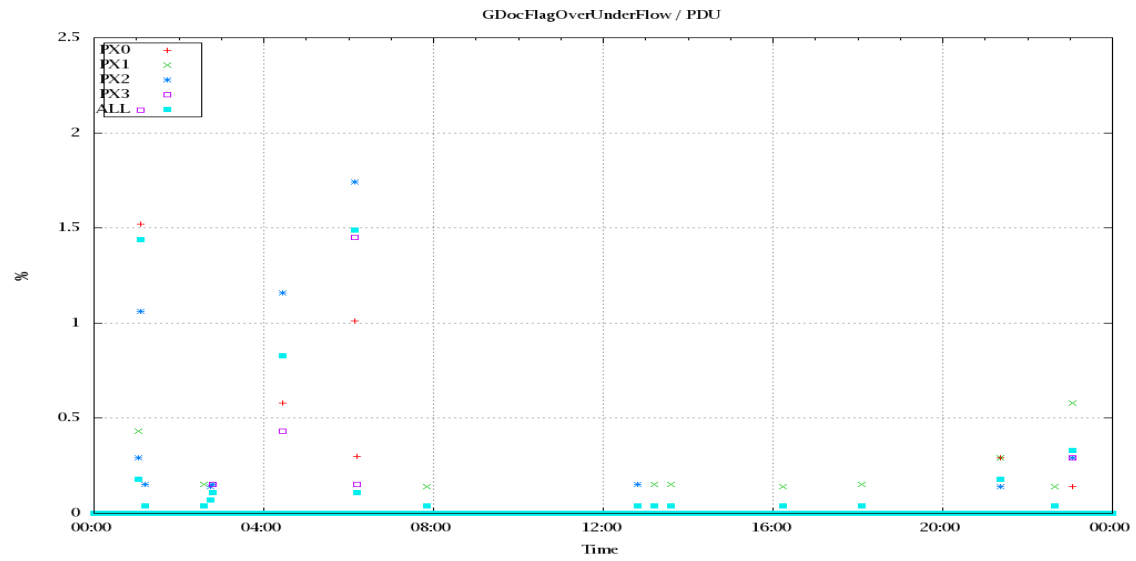


Figure 5: OverUnderFlowFlag timeseries

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.

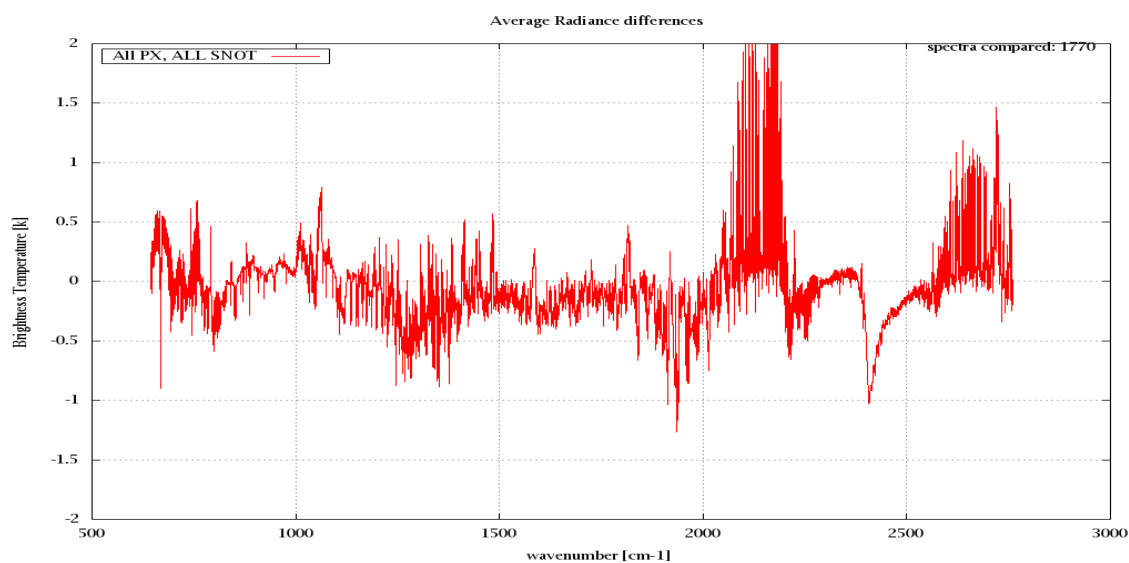


Figure 6: Average Radiance differences: OBS-CAL

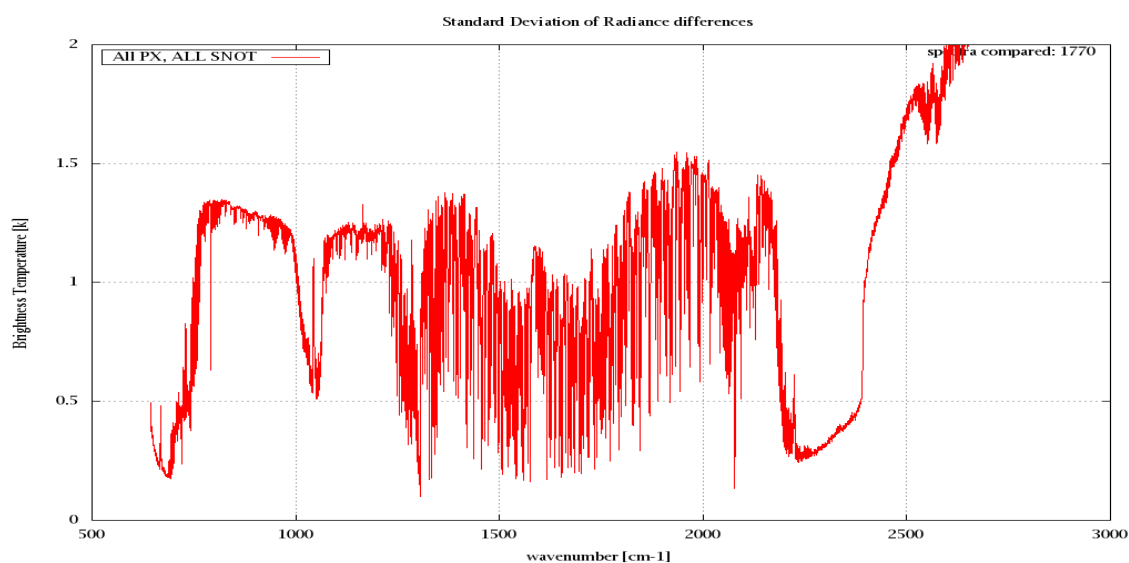


Figure 7: Standard Deviation of Radiance differences

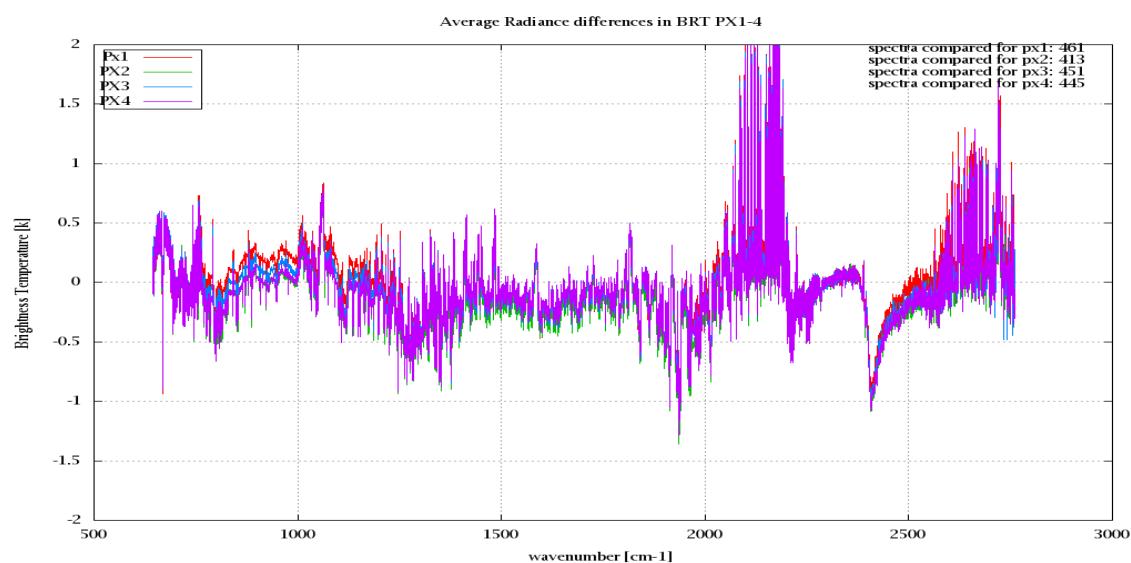


Figure 8: Average Radiance differences: OBS-CAL

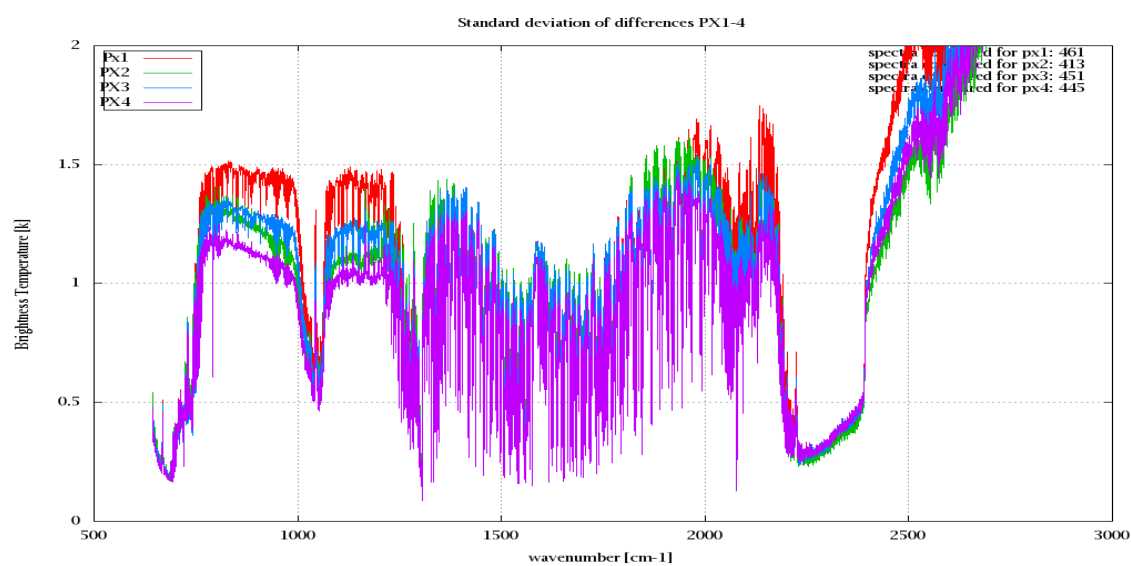


Figure 9: Standard Deviation of Radiance differences

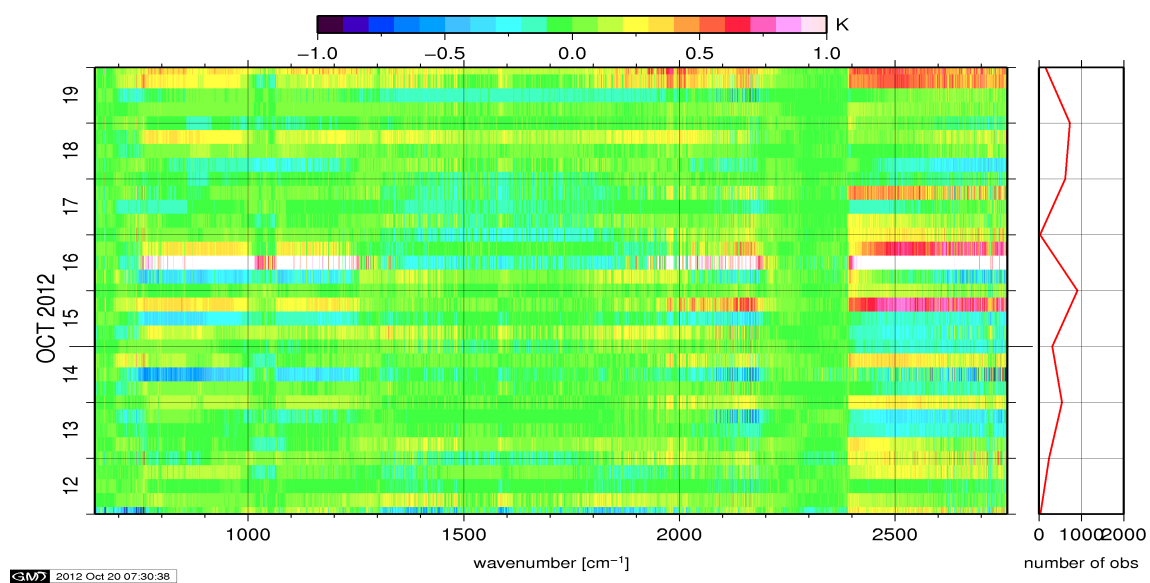


Figure 10: Radiance Anomaly in BRT: All Channels

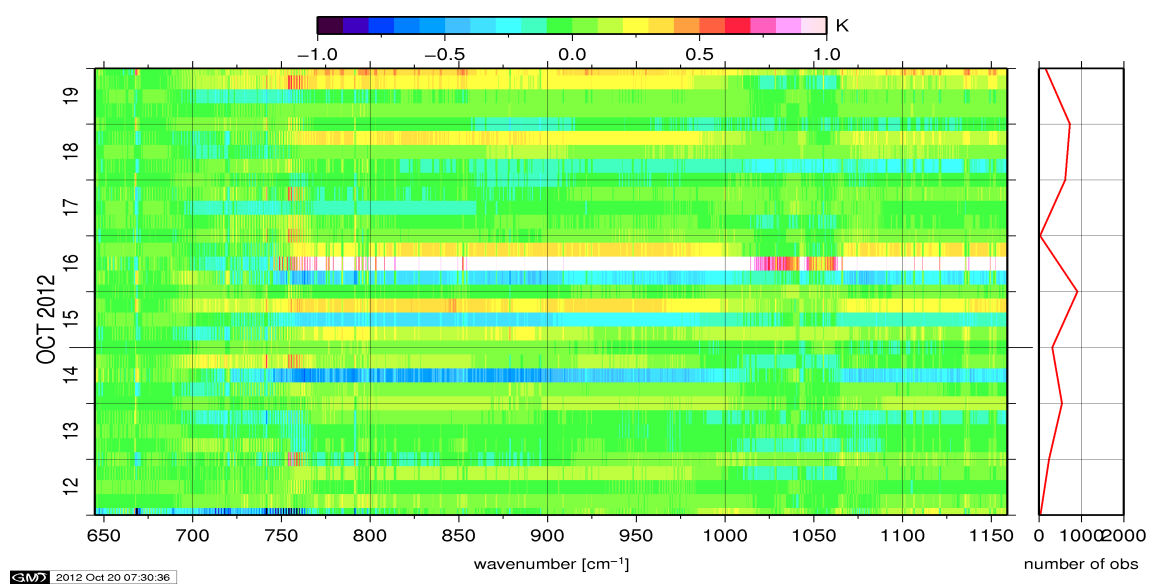


Figure 11: Radiance Anomaly in BRT: IASI Band 1

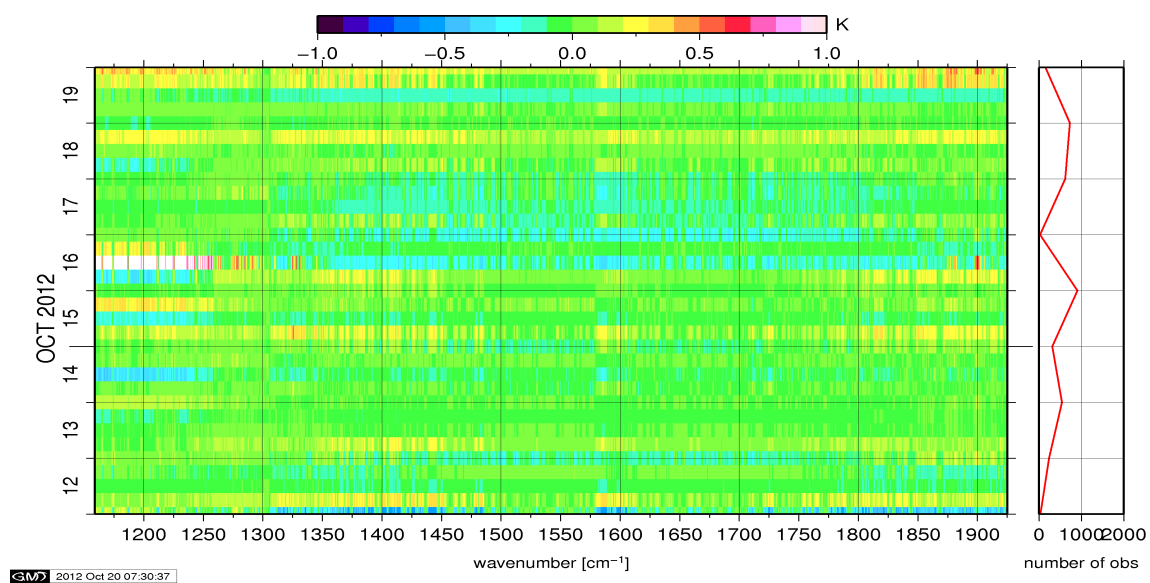


Figure 12: Radiance Anomaly in BRT: IASI Band 2

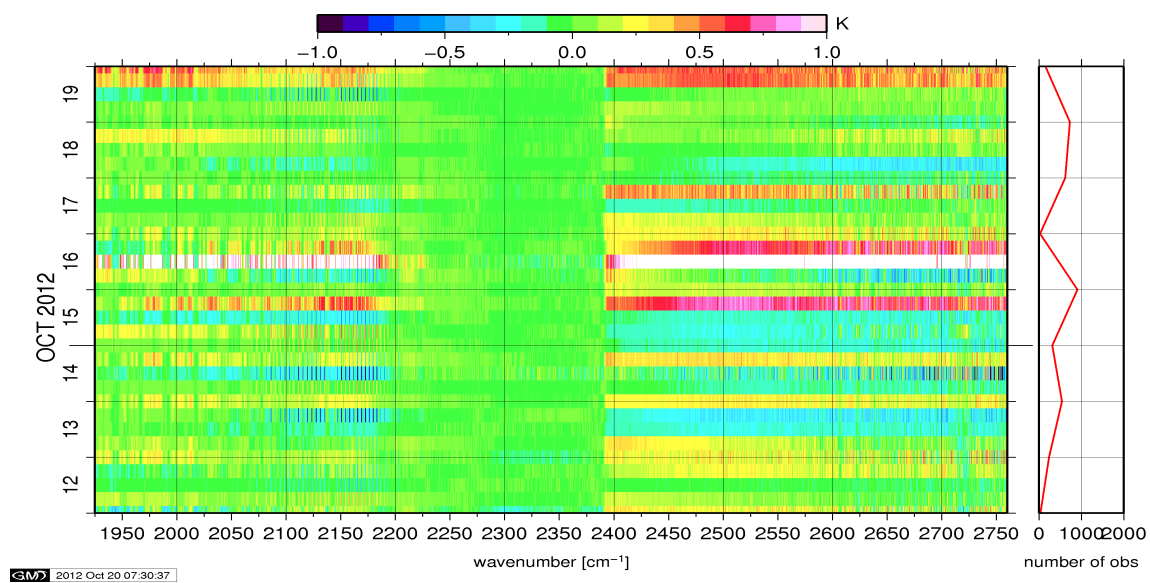


Figure 13: Radiance Anomaly in BRT: IASI Band 3

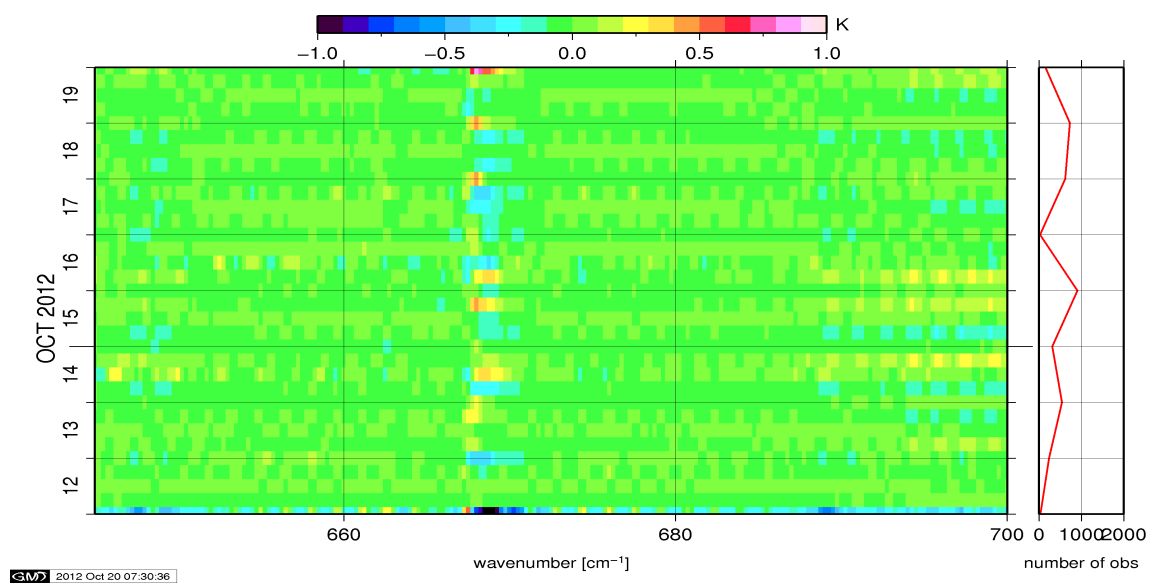


Figure 14: Radiance Anomaly in BRT: CO2 14

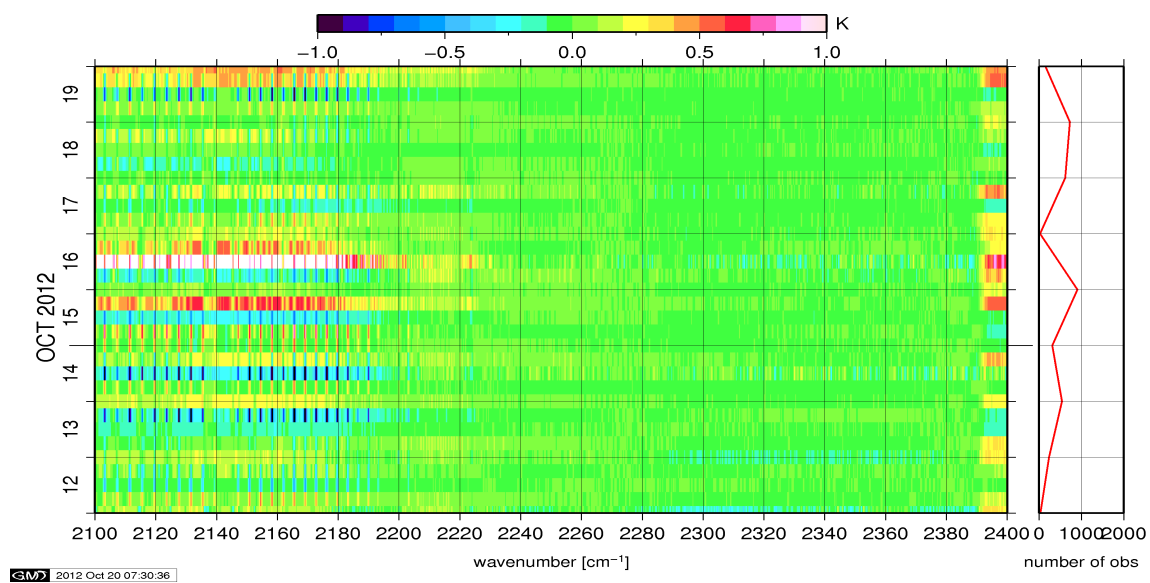


Figure 15: Radiance Anomaly in BRT: CO2 4.3

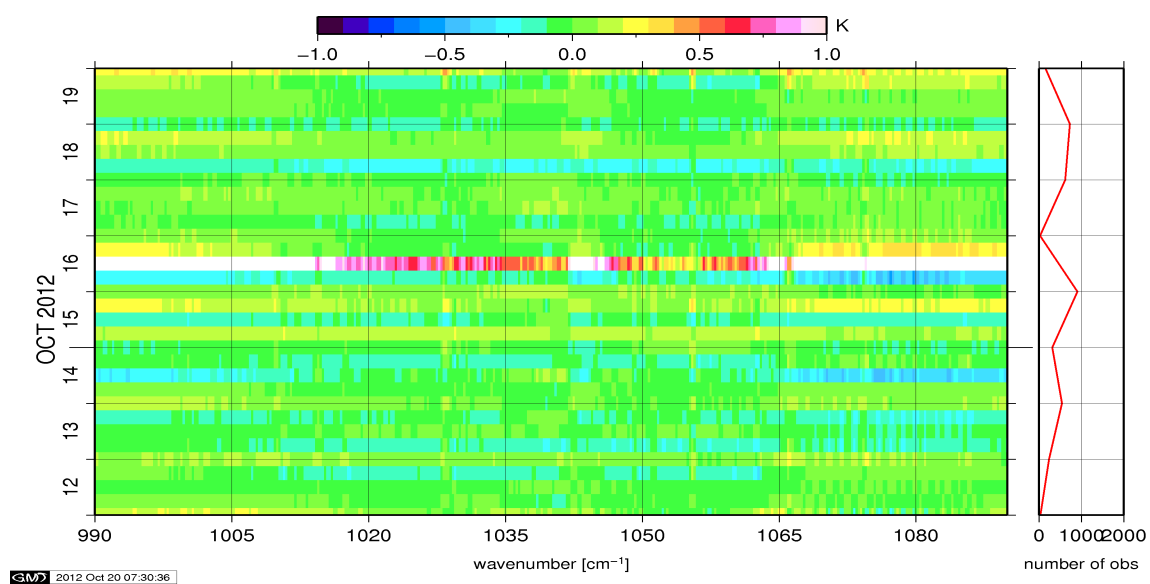


Figure 16: Radiance Anomaly in BRT: O3

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.

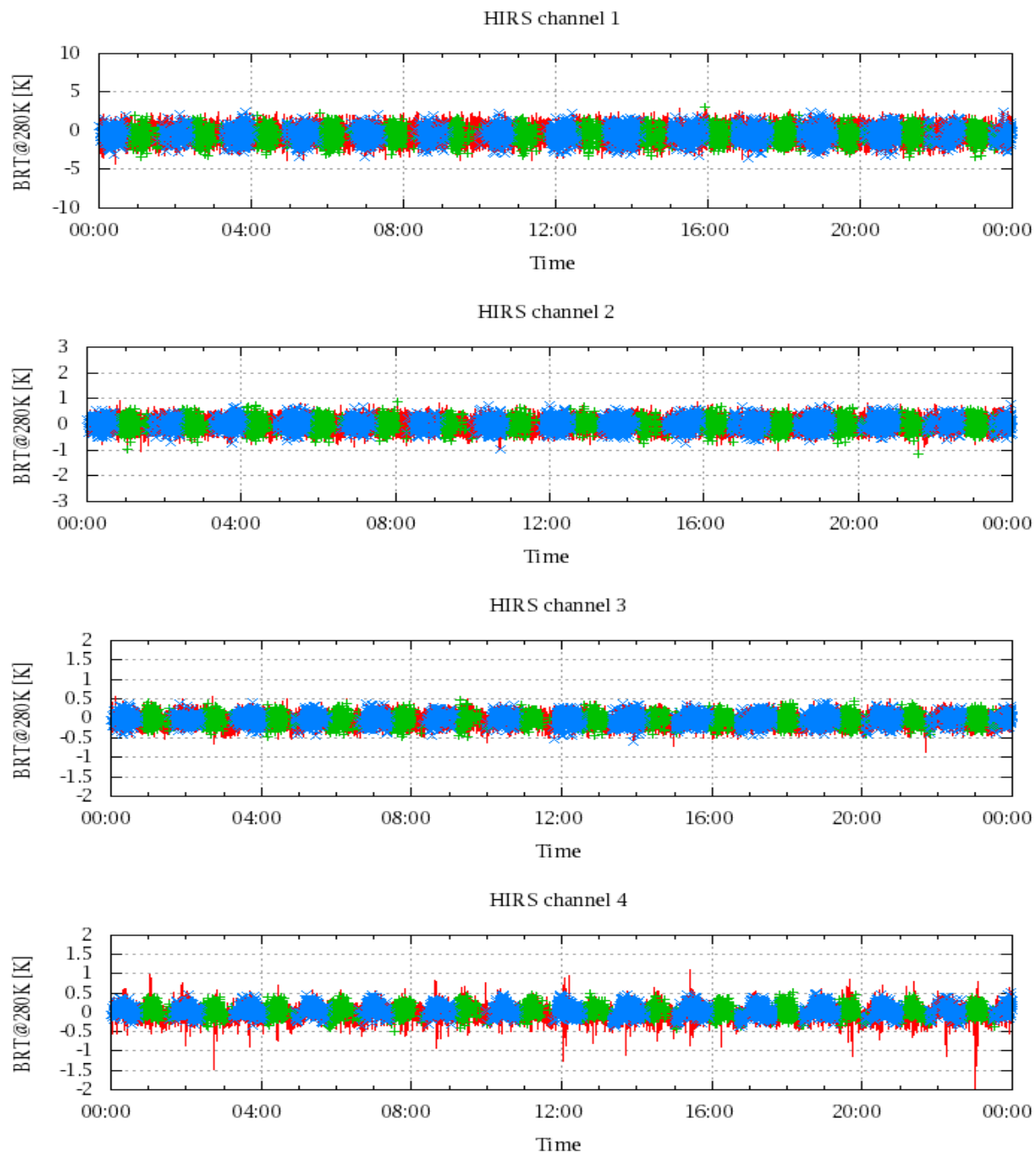


Figure 17: Radiance Differences in BRT

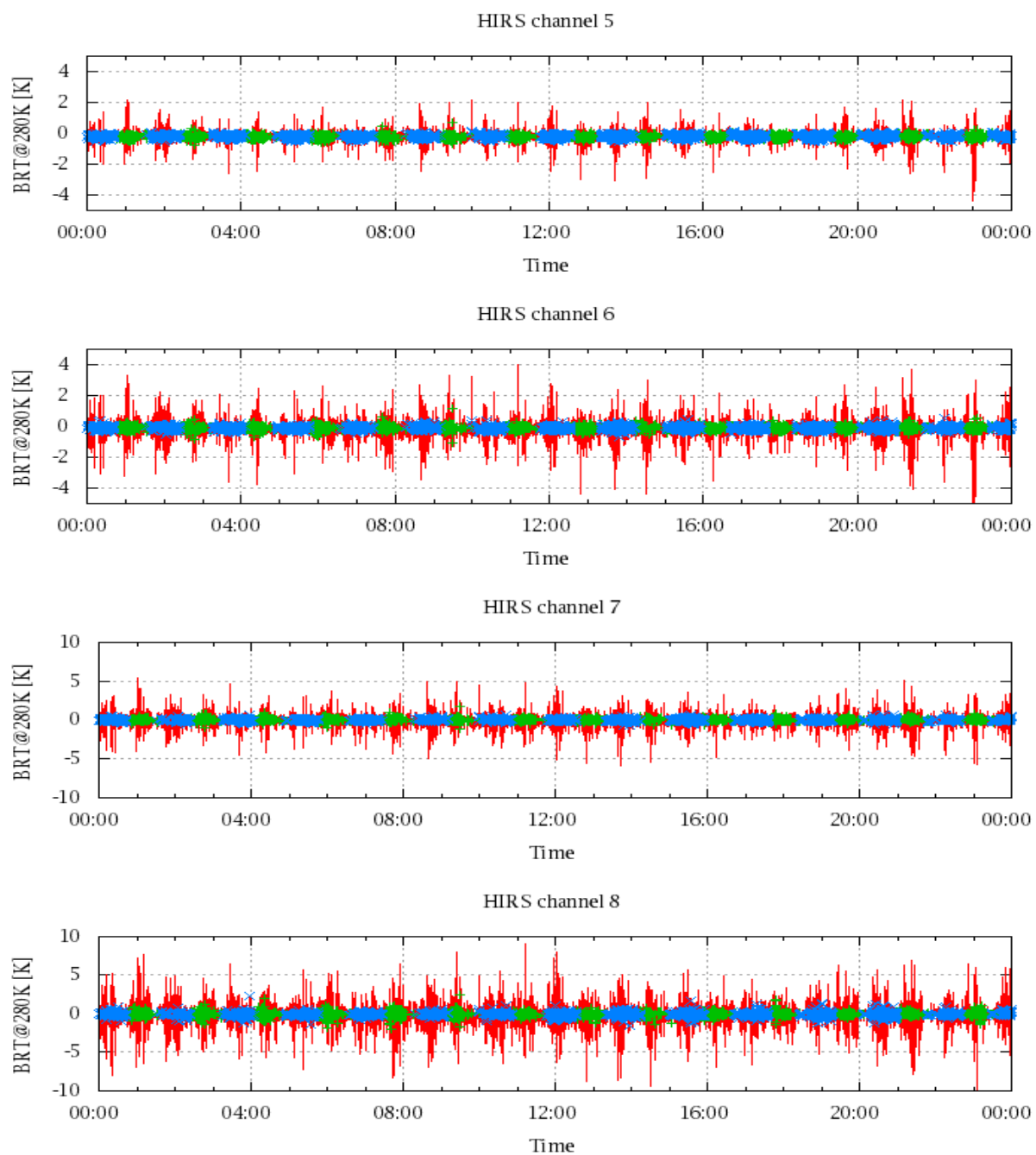


Figure 18: Radiance Differences in BRT

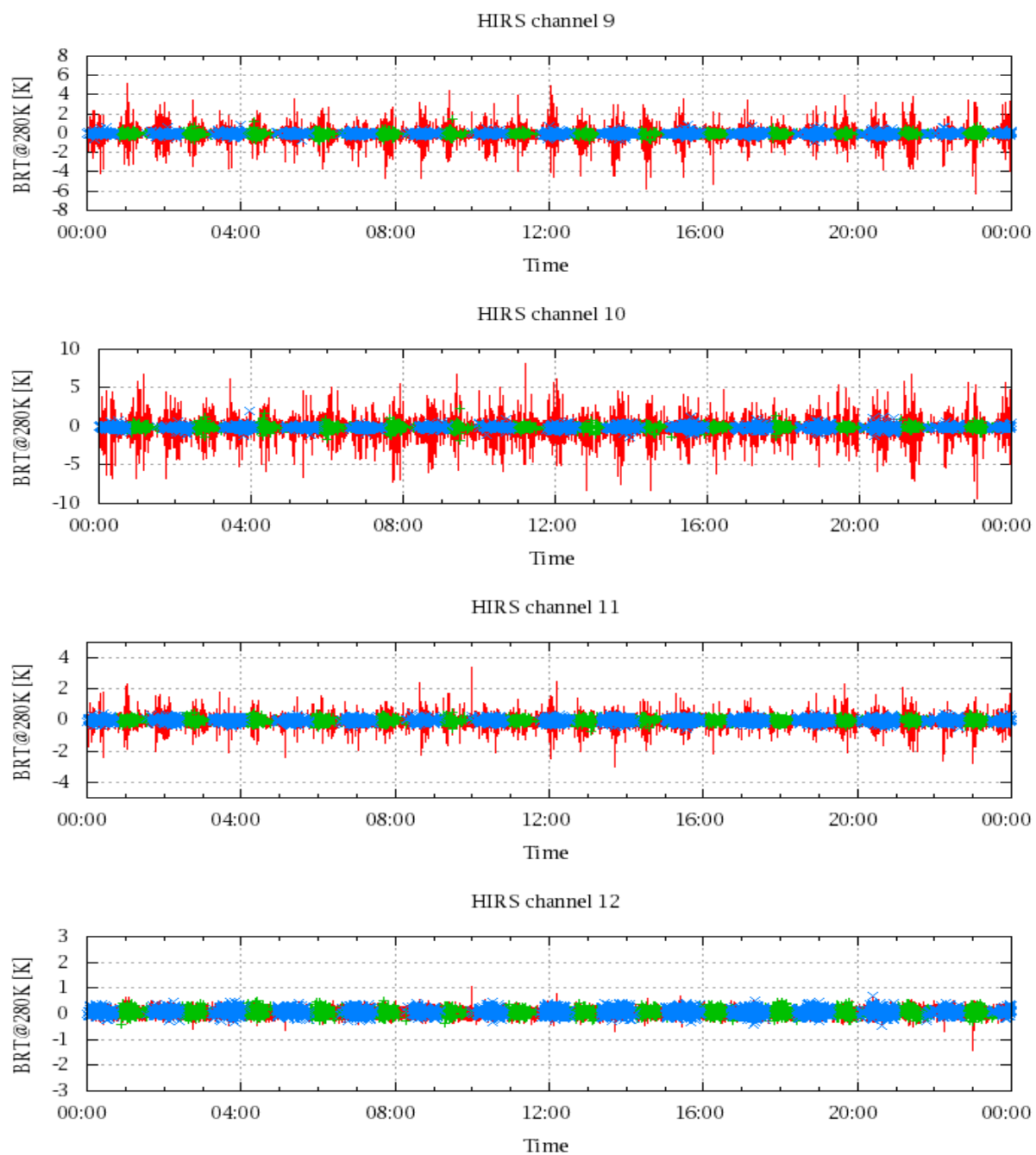


Figure 19: Radiance Differences in BRT

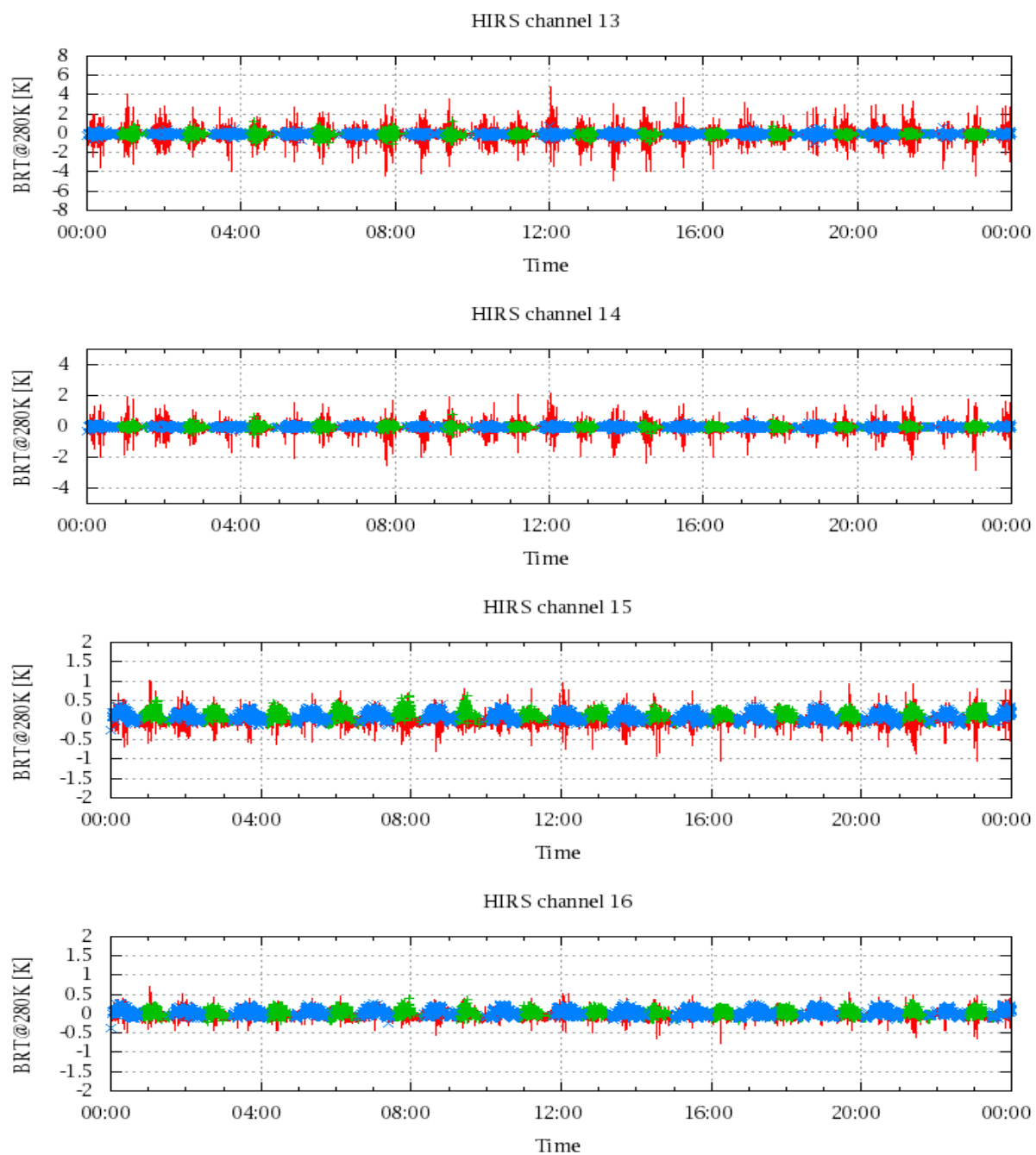


Figure 20: Radiance Differences in BRT

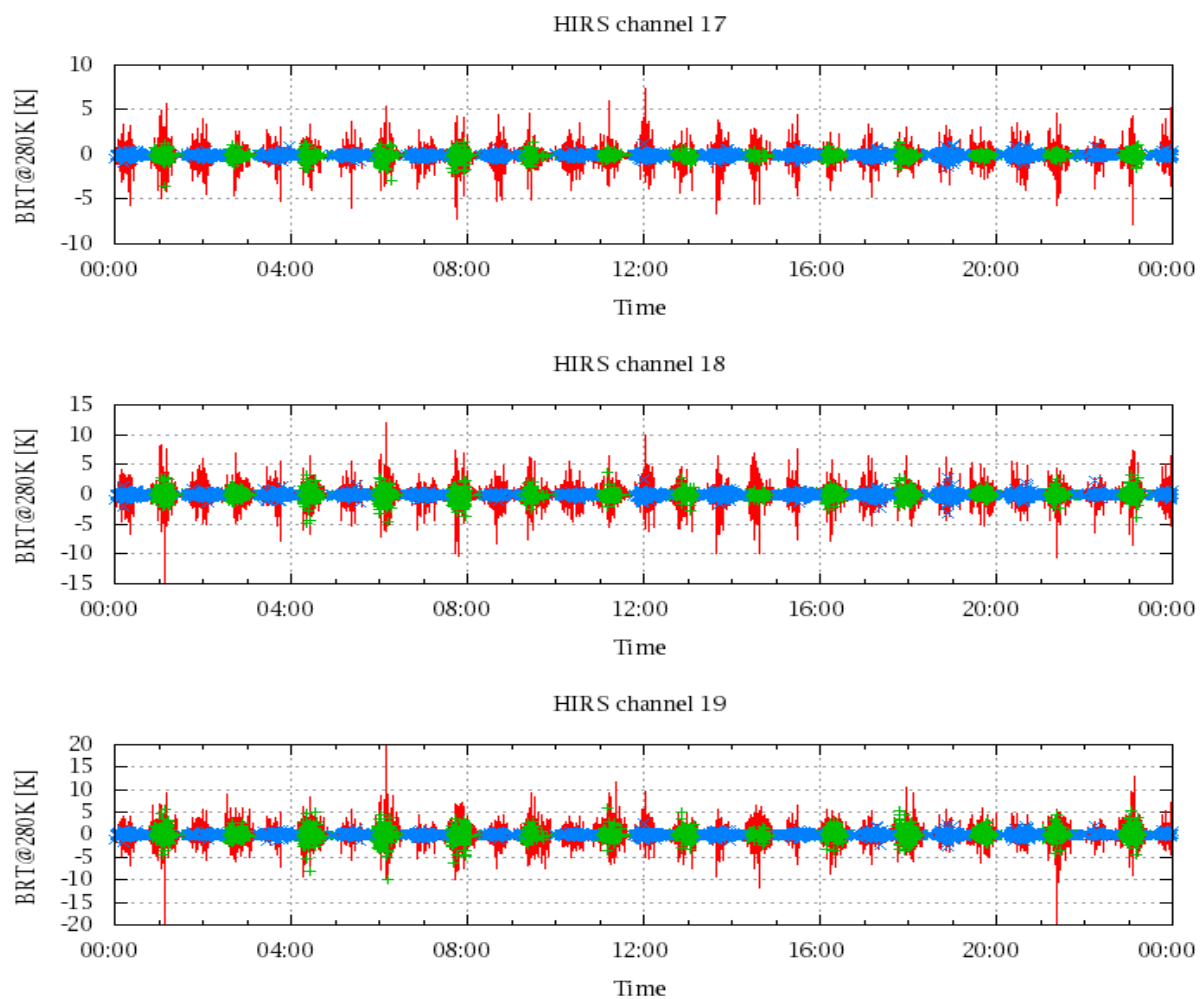


Figure 21: Radinace Differences in BRT