IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

01/12/2012 00:00:00 - 02/12/2012 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 01/12/2012 00:00:00 - 02/12/2012 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 01/12/2012 00:00:00 - 02/12/2012 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)	11354	11363	20121201131857.870	20121201131901.331
PX1 (130)	11375	11384	20121201131903.924	20121201131905.870
PX1 (130)	11389	11564	20121201131906.952	20121201131953.866
PX1 (130)	11564	11566	20121201131953.866	20121201131954.299
PX1 (130)	11568	11570	20121201131954.733	20121201131956.678
PX1 (130)	11573	11578	20121201131957.326	20121201131958.409
PX1 (130)	11595	11599	20121201132002.084	20121201132002.948
PX1 (130)	11763	11780	20121201132047.487	20121201132052.678
PX1 (130)	11788	11799	20121201132054.404	20121201132056.787
PX2 (135)	11354	11363	20121201131857.870	20121201131901.331
PX2 (135)	11375	11384	20121201131903.924	20121201131905.870
PX2 (135)	11389	11563	20121201131906.952	20121201131953.651
PX2 (135)	11564	11566	20121201131953.866	20121201131954.299
PX2 (135)	11568	11570	20121201131954.733	20121201131956.678
PX2 (135)	11573	11578	20121201131957.326	20121201131958.409
PX2 (135)	11595	11599	20121201132002.084	20121201132002.948
PX2 (135)	11617	11619	20121201132008.354	20121201132008.787
PX2 (135)	11763	11780	20121201132047.487	20121201132052.678

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	11788	11799	20121201132054.404	20121201132056.787
PX3 (140)	11354	11362	20121201131857.870	20121201131901.112
PX3 (140)	11374	11384	20121201131903.706	20121201131905.870
PX3 (140)	11389	11563	20121201131906.952	20121201131953.651
PX3 (140)	11564	11566	20121201131953.866	20121201131954.299
PX3 (140)	11568	11570	20121201131954.733	20121201131956.678
PX3 (140)	11573	11578	20121201131957.326	20121201131958.409
PX3 (140)	11595	11599	20121201132002.084	20121201132002.948
PX3 (140)	11763	11780	20121201132047.487	20121201132052.678
PX3 (140)	11788	11798	20121201132054.404	20121201132056.569
PX4 (145)	11354	11362	20121201131857.870	20121201131901.112
PX4 (145)	11374	11384	20121201131903.706	20121201131905.870
PX4 (145)	11389	11563	20121201131906.952	20121201131953.651
PX4 (145)	11563	11566	20121201131953.651	20121201131954.299
PX4 (145)	11568	11570	20121201131954.733	20121201131956.678
PX4 (145)	11573	11578	20121201131957.326	20121201131958.409
PX4 (145)	11595	11599	20121201132002.084	20121201132002.948
PX4 (145)	11762	11780	20121201132047.272	20121201132052.678
PX4 (145)	11788	11798	20121201132054.404	20121201132056.569
IMG (150)	13362	13374	20121201131857.870	20121201131901.112
IMG (150)	13386	13396	20121201131903.706	20121201131905.870
IMG (150)	13401	13599	20121201131906.952	20121201131953.651
IMG (150)	13599	13602	20121201131953.651	20121201131954.299
IMG (150)	13603	13606	20121201131954.518	20121201131955.381
IMG (150)	13612	13617	20121201131957.112	20121201131958.190
IMG (150)	13635	13639	20121201132002.084	20121201132002.948
IMG (150)	13826	13844	20121201132047.272	20121201132051.381
IMG (150)	13855	13866	20121201132054.190	20121201132056.569
VER (160)	6617	6623	20121201131850.952	20121201131906.952
VER (160)	6624	6656	20121201131906.952	20121201131954.733
VER (160)	6687	6691	20121201132042.947	20121201132047.487
AUX (180)	4597	4605	20121201131851.385	20121201131955.381

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
01/12/2012 00:00:02	-	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)	99.20 %	-
GQisFlagQual set (PX3)	99.27 %	-
GQisFlagQual set (PX4)	99.37 %	-
GQisFlagQual set (all)	99.29 %	-

Table 4: Quality flags

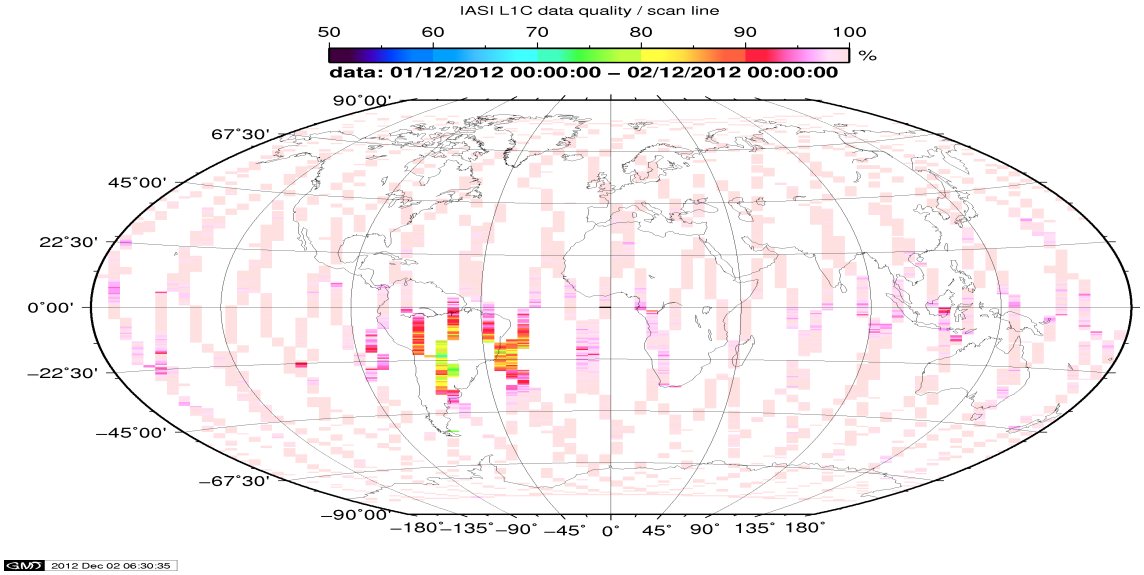

Figure 1: L1C data quality

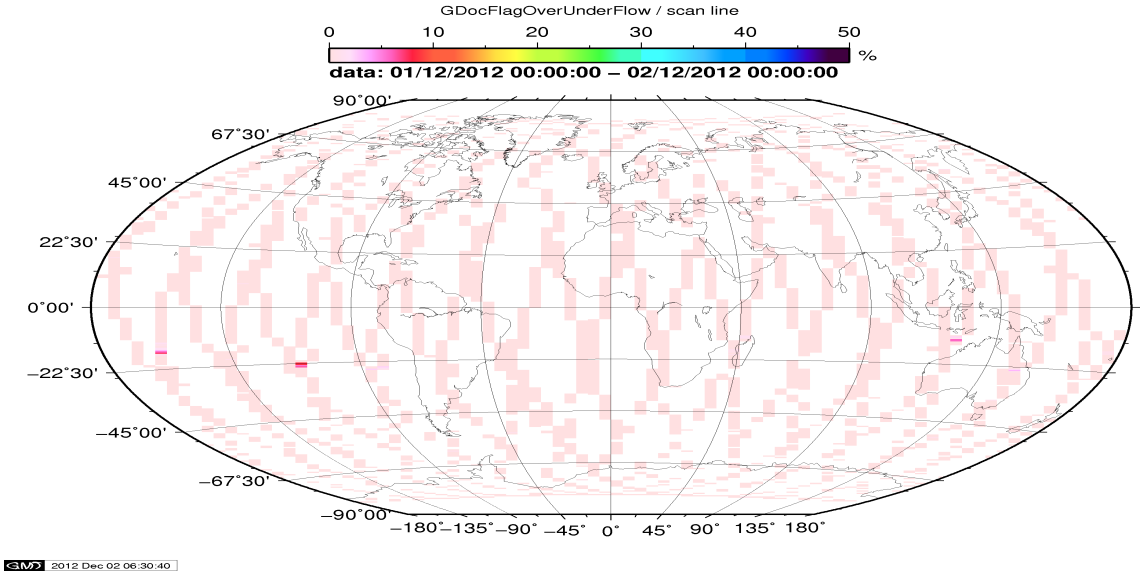

Figure 2: Flag of Over and Under Flows

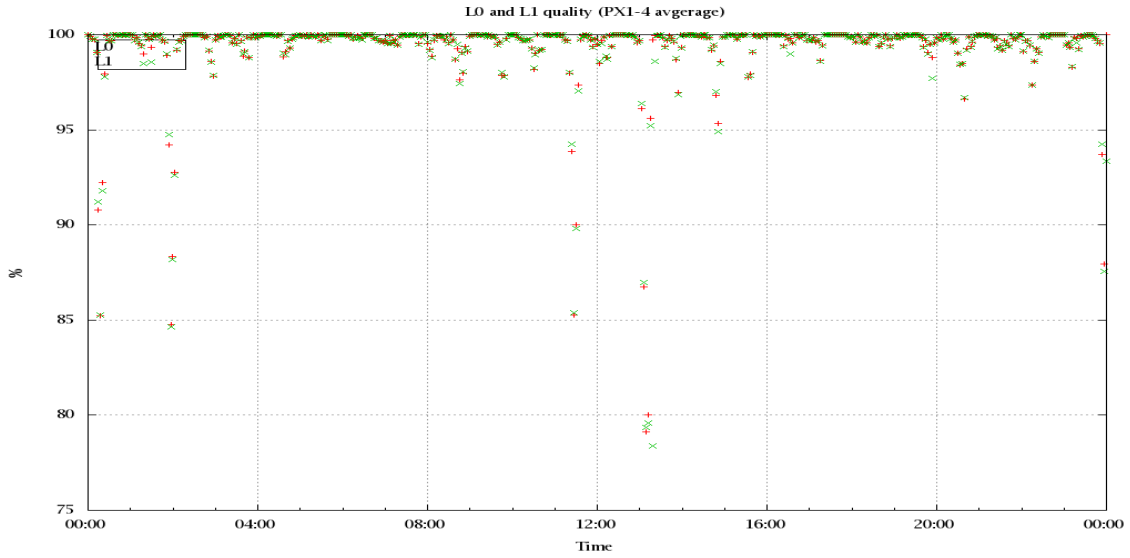

Figure 3: Level 0 and 1C overall quality

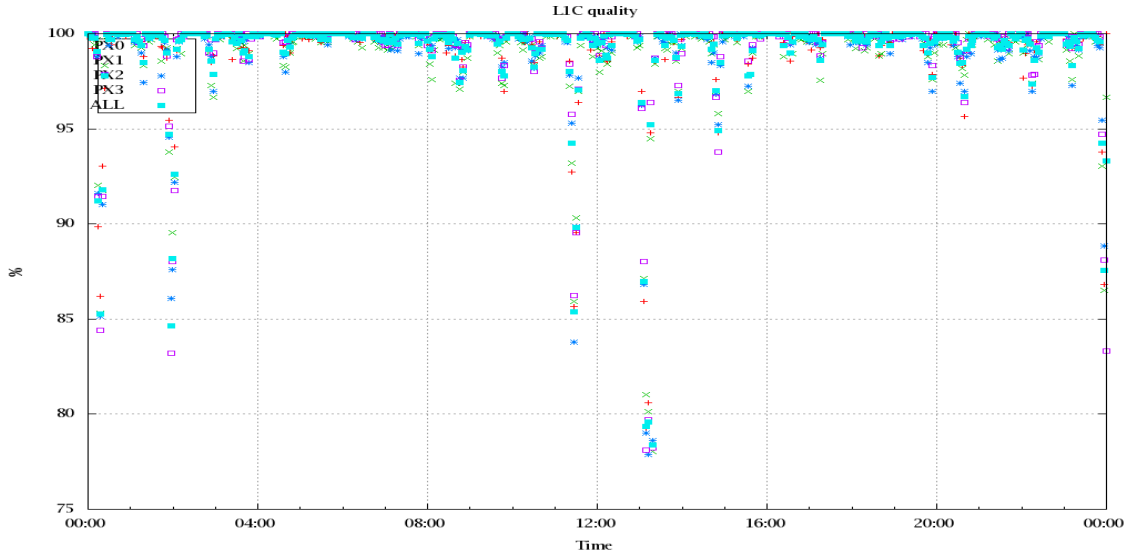

Figure 4: Level 1C quality

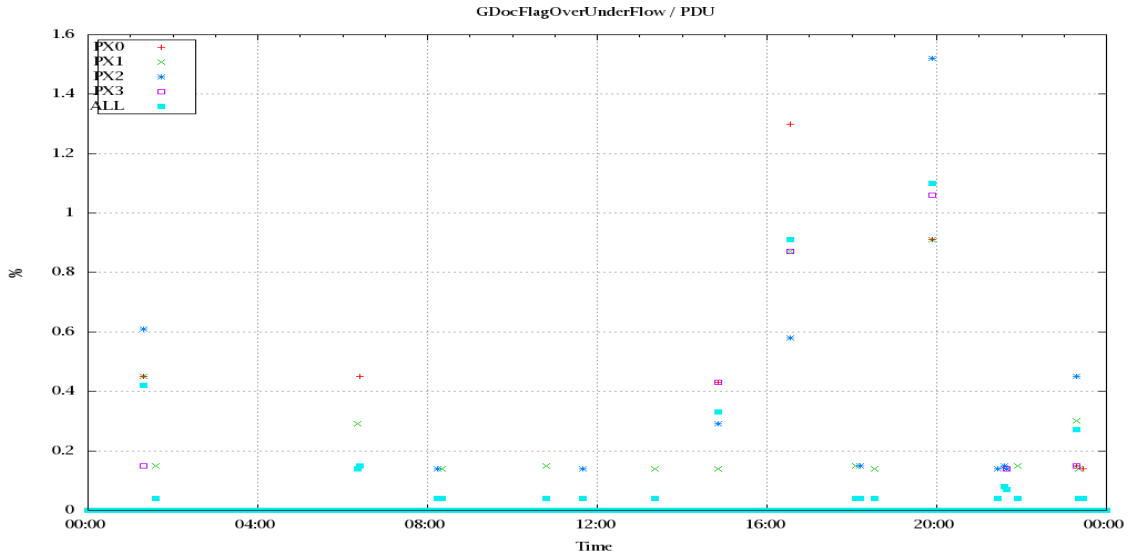

Figure 5: OverUnderFlowFlag timeseries

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.

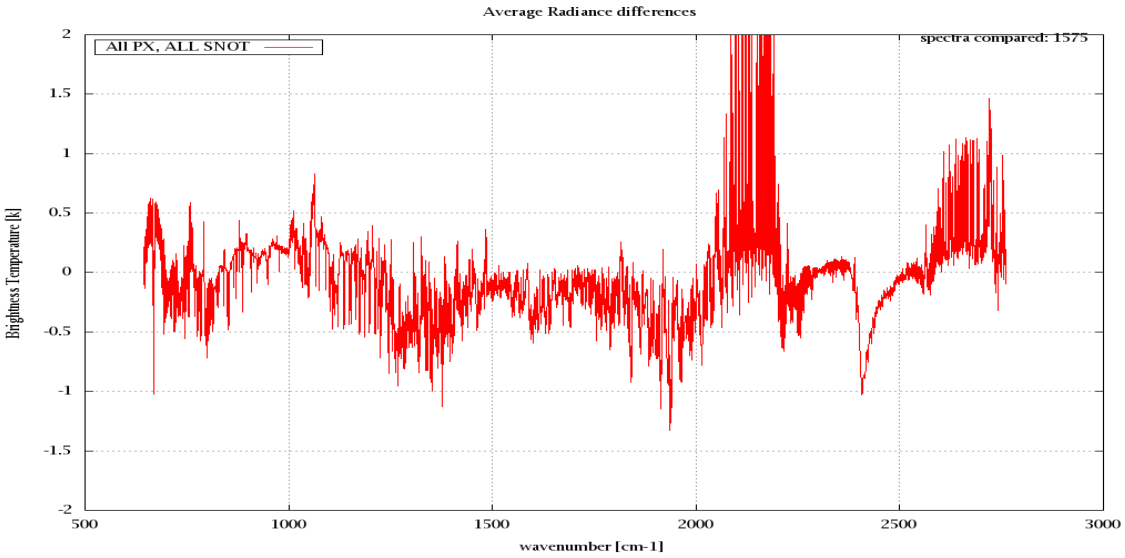

Figure 6: Average Radiance differences: OBS-CAL

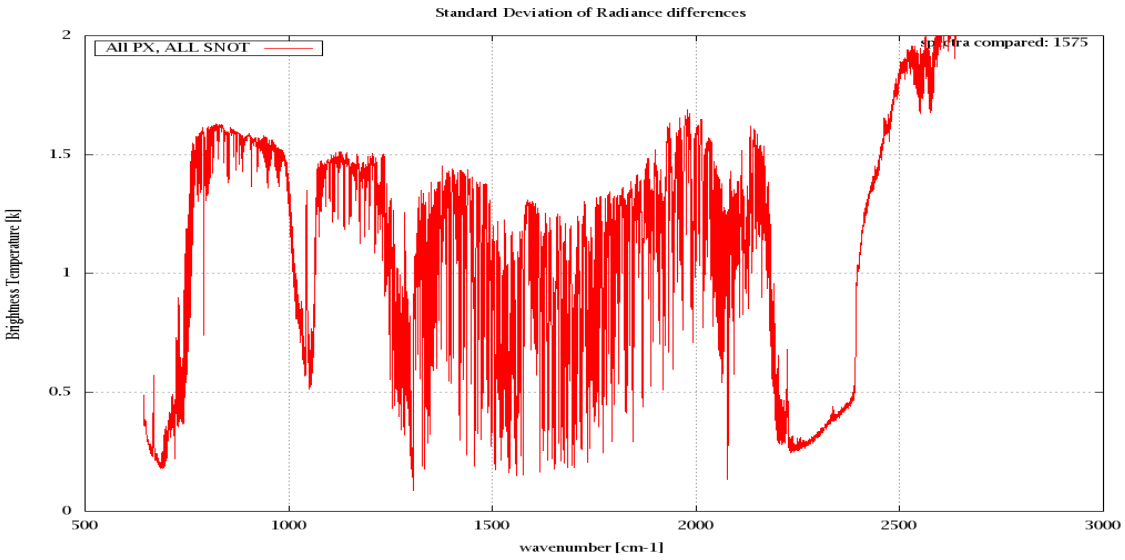

Figure 7: Standard Deviation of Radiance differences

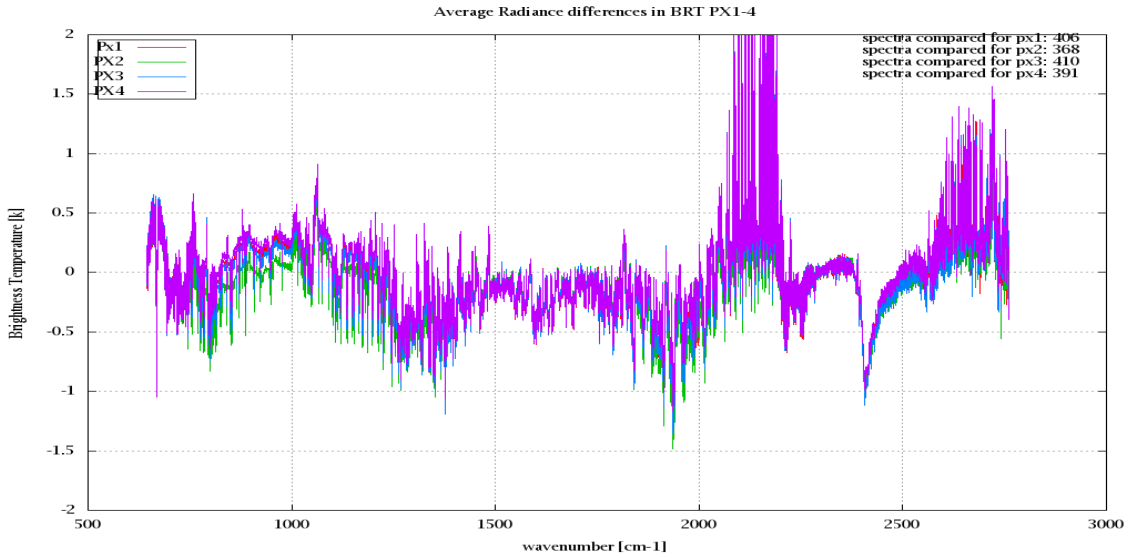

Figure 8: Average Radiance differences: OBS-CAL

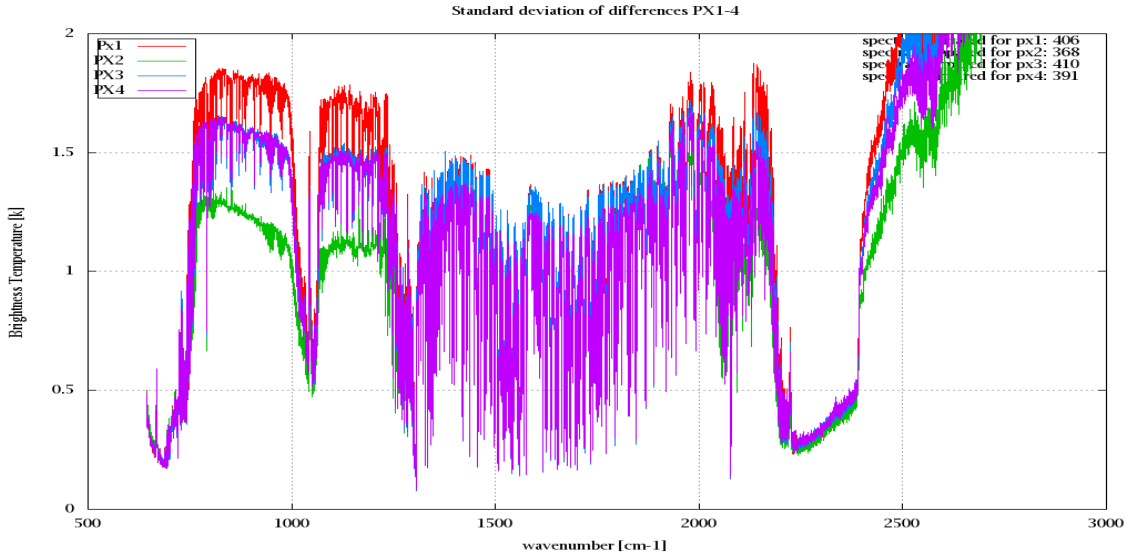

Figure 9: Standard Deviation of Radiance differences

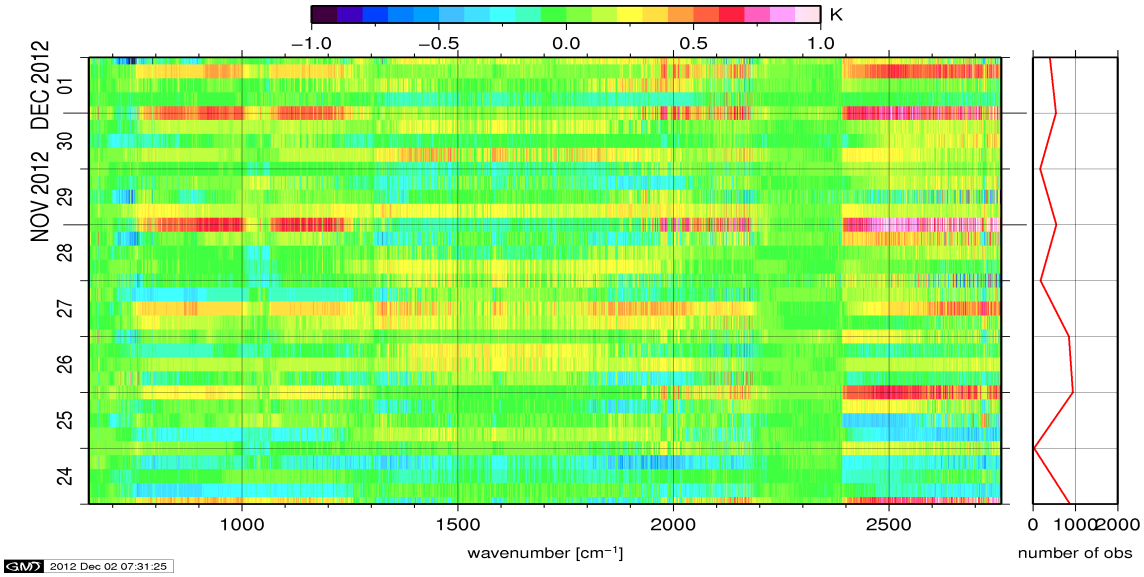

Figure 10: Radiance Anomaly in BRT: All Channels

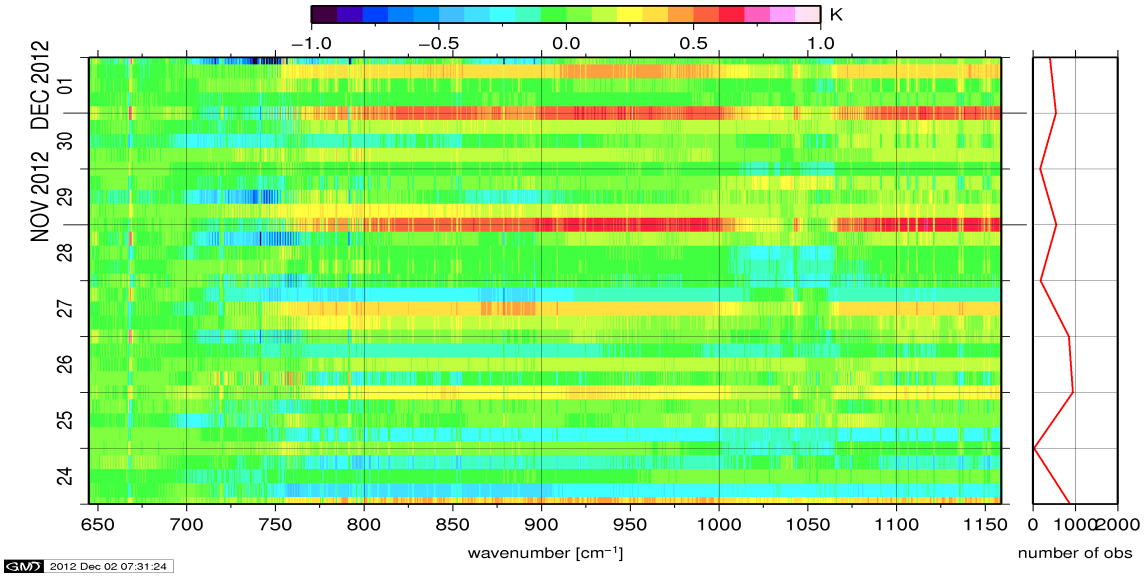

Figure 11: Radiance Anomaly in BRT: IASI Band 1

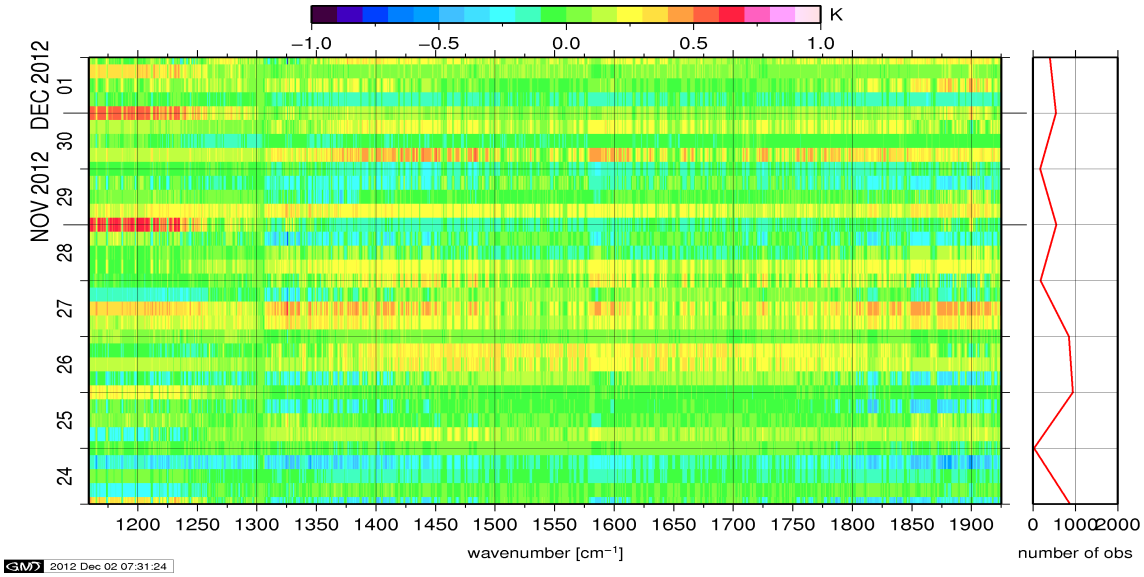

Figure 12: Radiance Anomaly in BRT: IASI Band 2

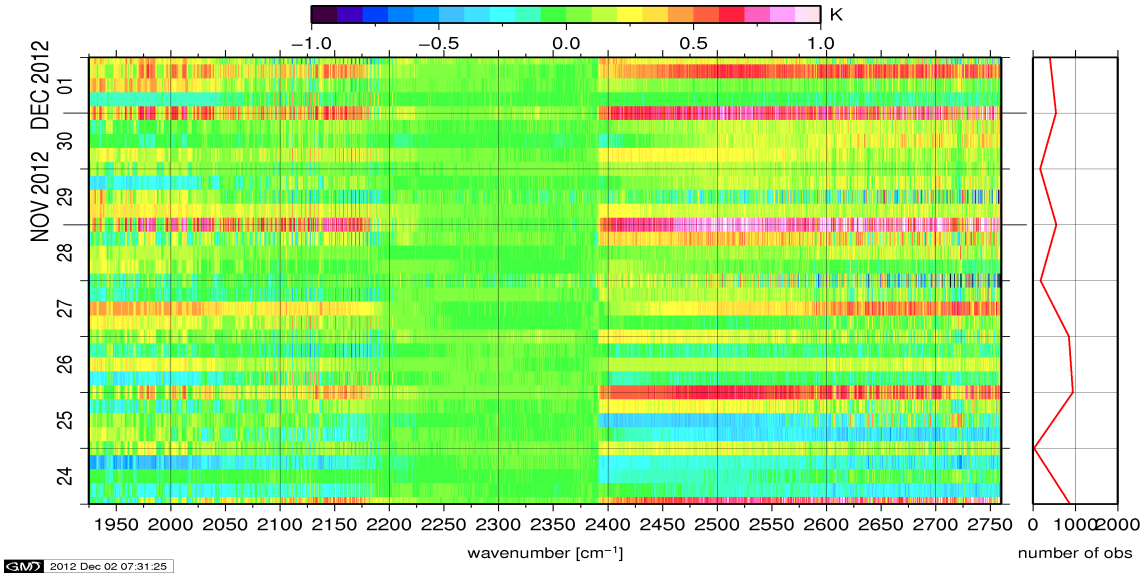

Figure 13: Radiance Anomaly in BRT: IASI Band 3

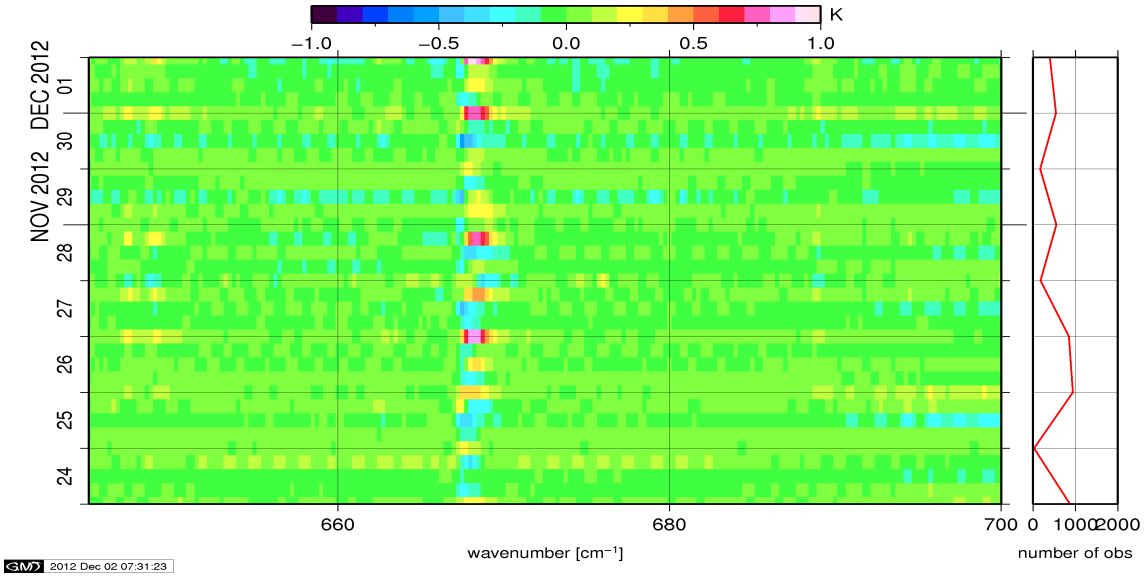

Figure 14: Radiance Anomaly in BRT: CO2 14

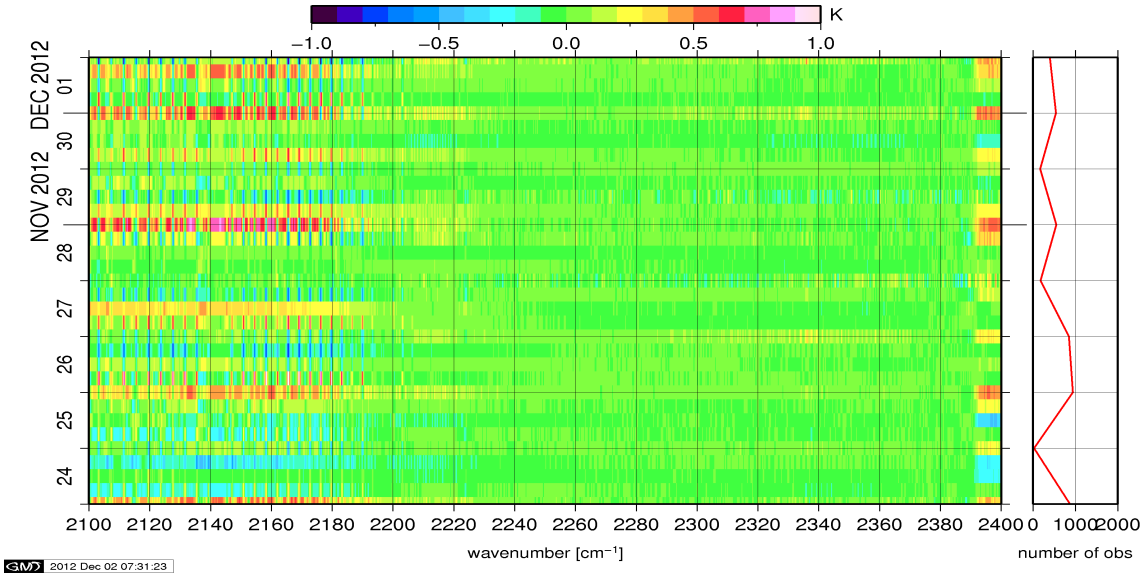

Figure 15: Radiance Anomaly in BRT: CO2 4.3

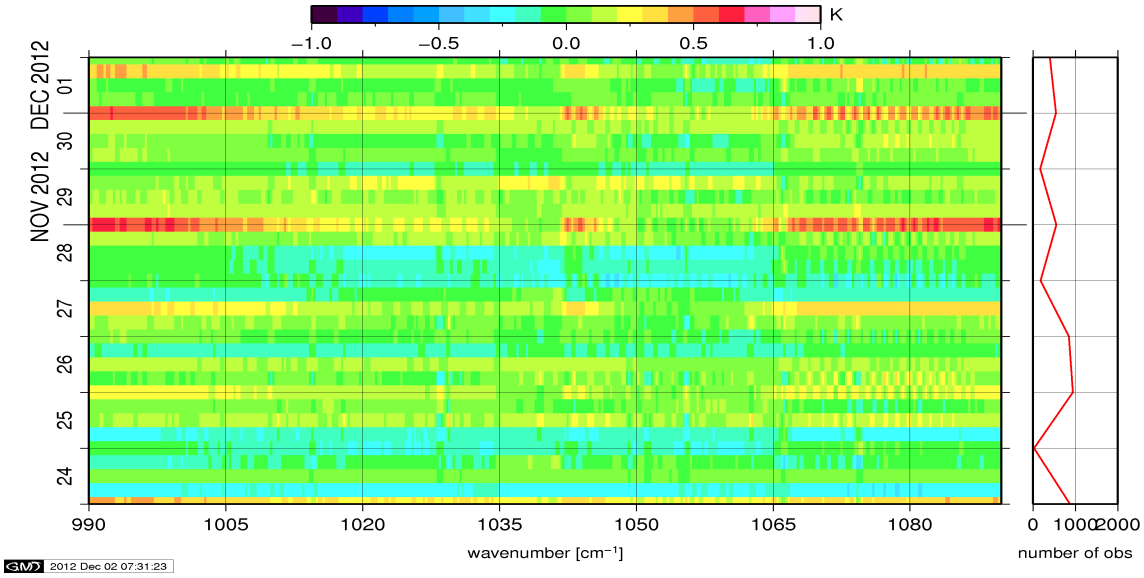

Figure 16: Radiance Anomaly in BRT: O3

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.

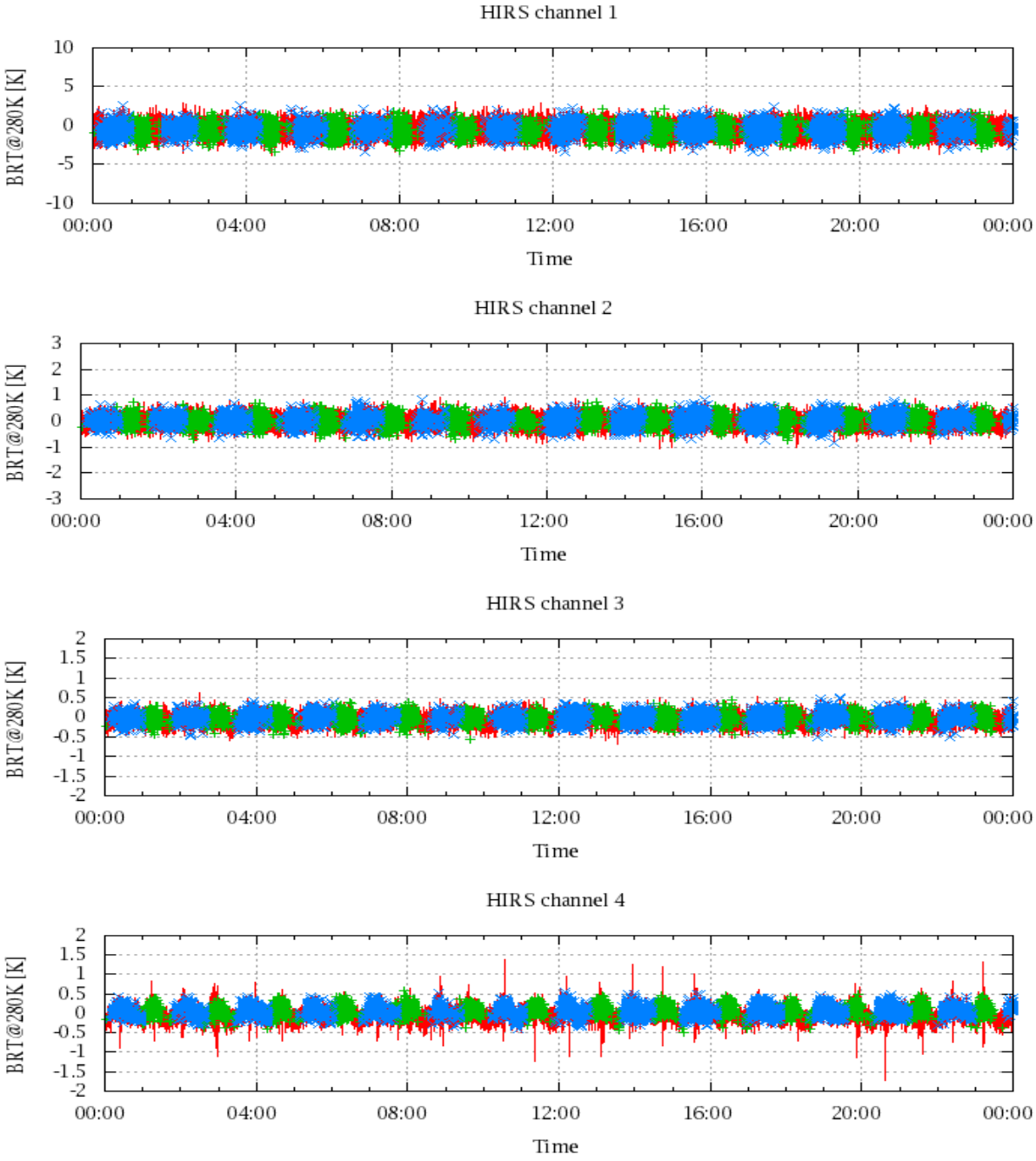

Figure 17: Radiance Differences in BRT

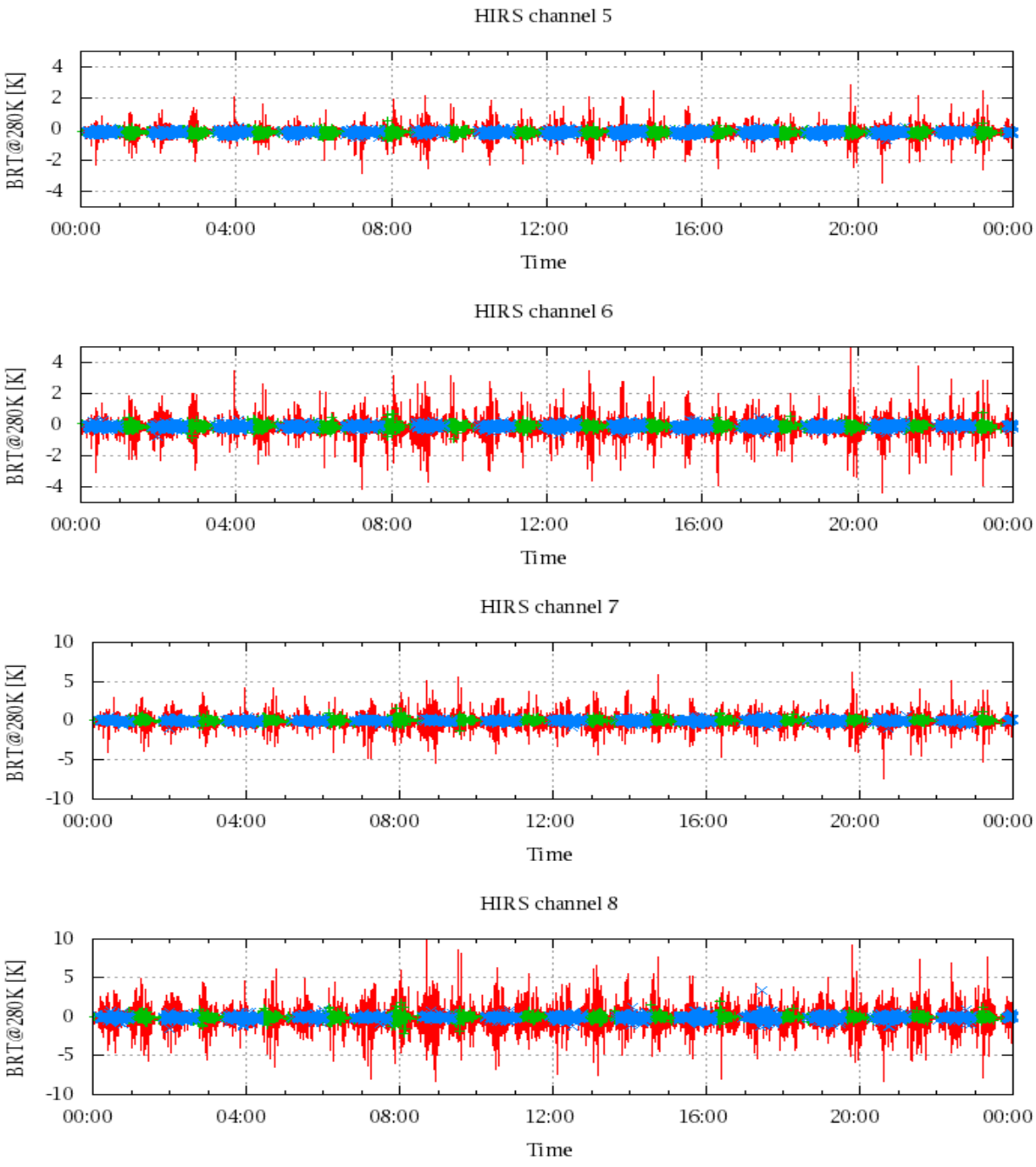

Figure 18: Radiance Differences in BRT

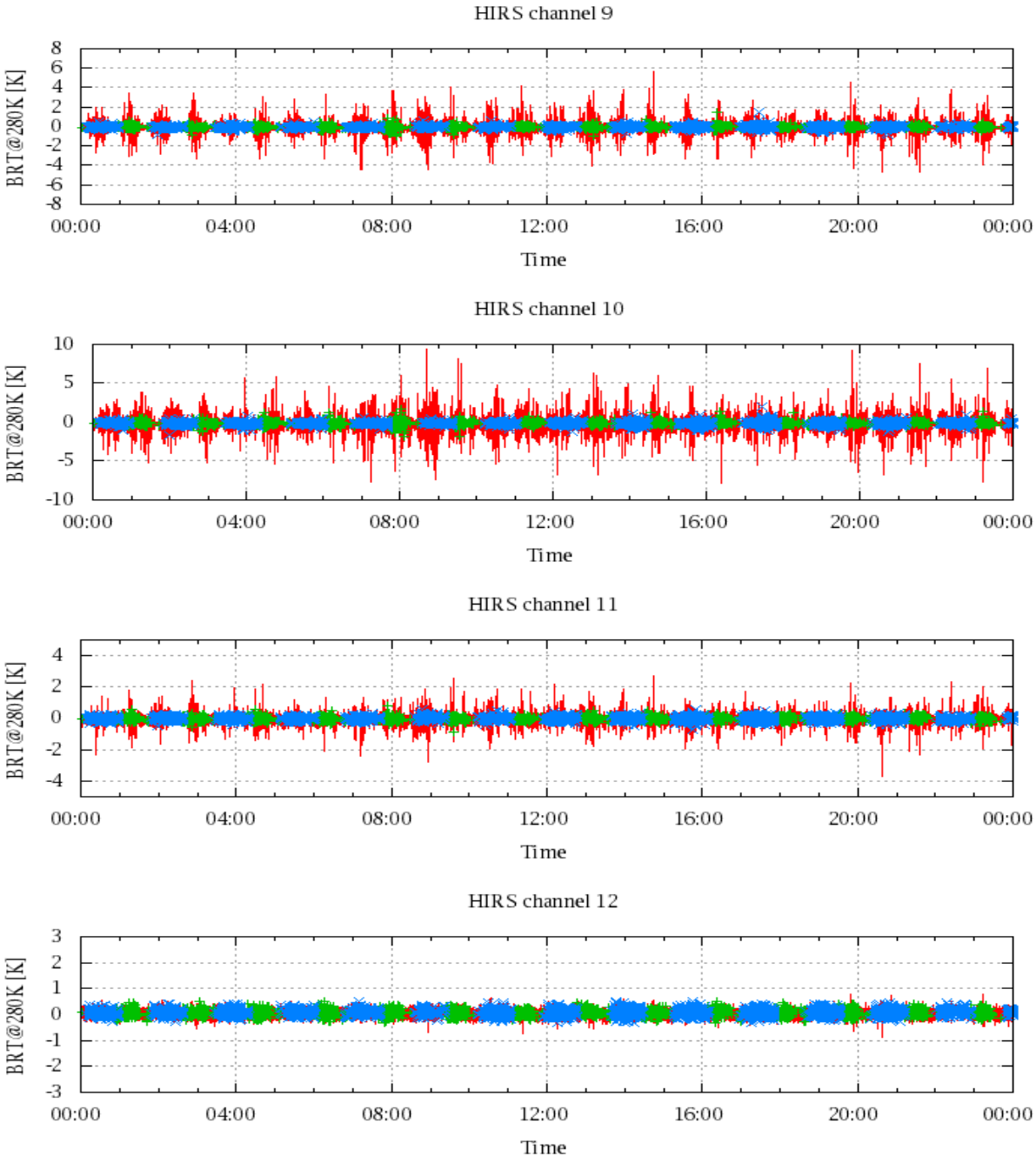

Figure 19: Radiance Differences in BRT

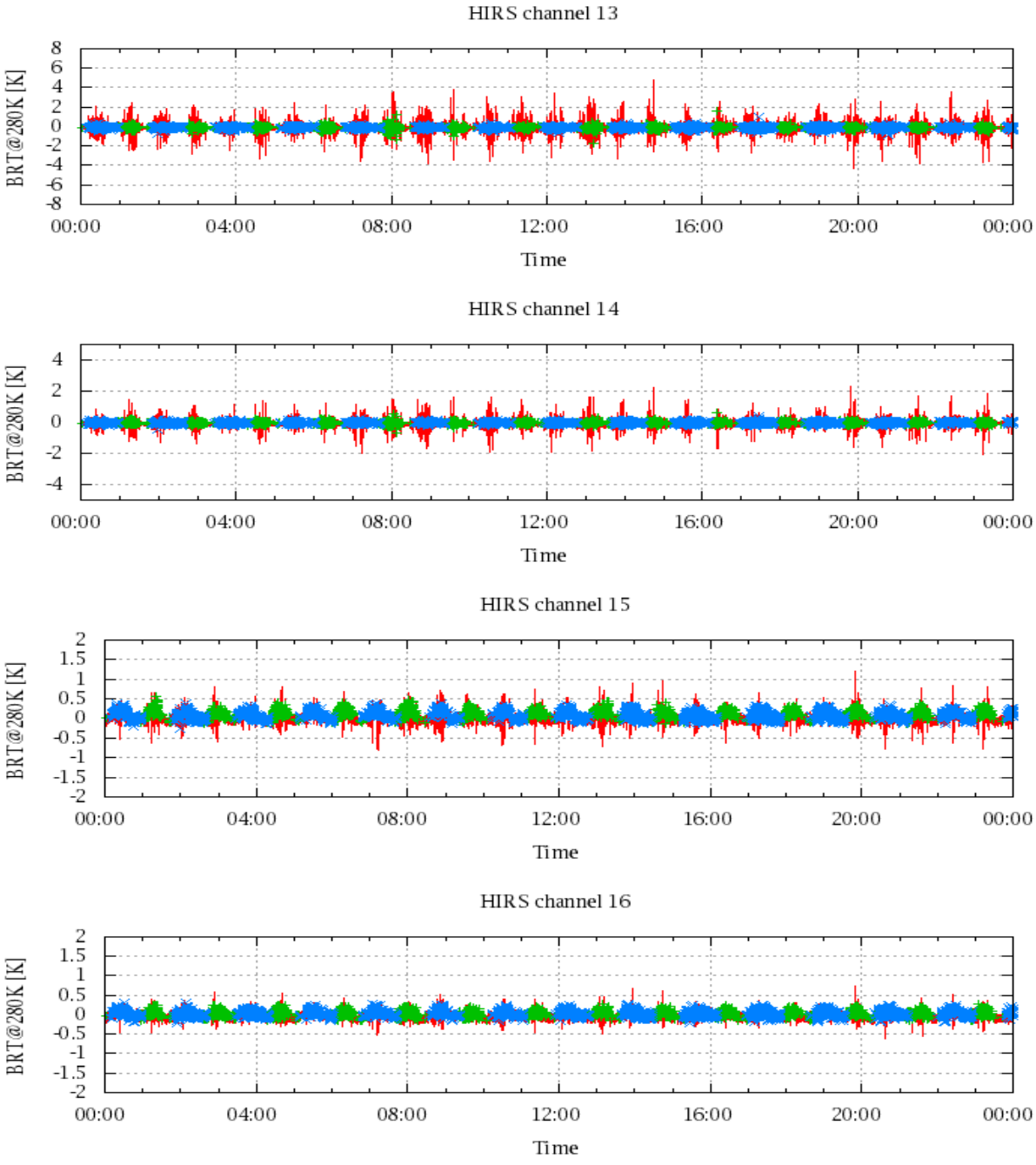

Figure 20: Radiance Differences in BRT

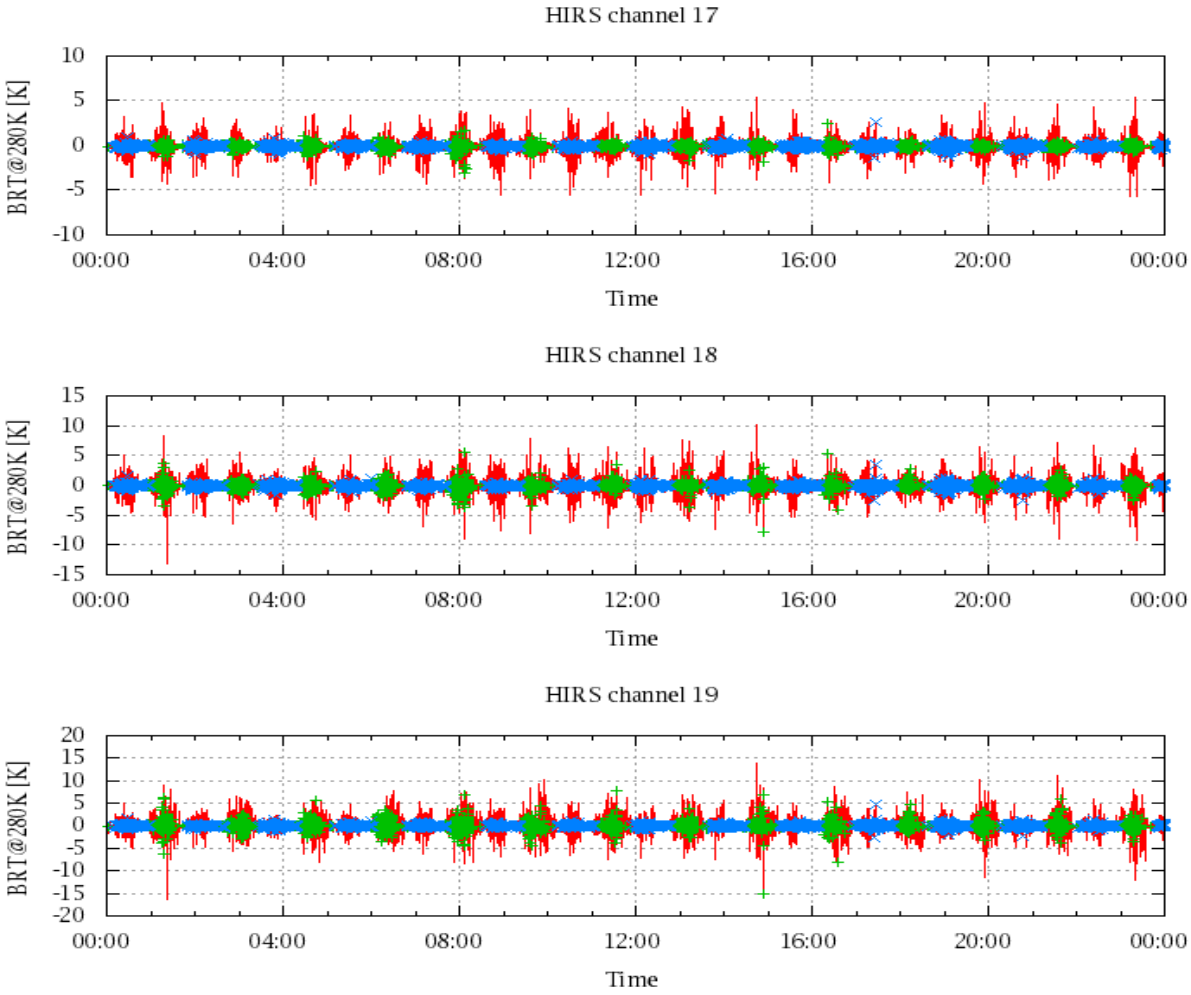

Figure 21: Radinace Differences in BRT