

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

10/05/2013 00:00:00 - 11/05/2013 00:00:00

1 Introduction

This report provides summary monitoring plots and figures from IASI instrument on the MetOp-B satellite retrieved from the IASI L0 and L1 ENG product (3 minute data packet) for 10/05/2013 00:00:00 - 11/05/2013 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 10/05/2013 00:00:00 - 11/05/2013 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)	8058	8060	20130510032339.527	20130510032341.472
PX1 (130)	8062	8065	20130510032341.906	20130510032342.554
PX1 (130)	8071	8076	20130510032343.851	20130510032344.933
PX1 (130)	8080	8087	20130510032345.796	20130510032347.312
PX1 (130)	8087	8095	20130510032347.312	20130510032350.554
PX1 (130)	8095	8101	20130510032350.554	20130510032351.851
PX1 (130)	8103	8112	20130510032352.285	20130510032354.230
PX1 (130)	8113	8127	20130510032354.445	20130510032358.988
PX1 (130)	8132	8137	20130510032400.070	20130510032401.148
PX1 (130)	8139	8148	20130510032401.582	20130510032403.527
PX1 (130)	8150	8152	20130510032405.472	20130510032405.906
PX2 (135)	8058	8060	20130510032339.527	20130510032341.472
PX2 (135)	8062	8065	20130510032341.906	20130510032342.554
PX2 (135)	8071	8076	20130510032343.851	20130510032344.933
PX2 (135)	8080	8087	20130510032345.796	20130510032347.312
PX2 (135)	8087	8095	20130510032347.312	20130510032350.554
PX2 (135)	8095	8101	20130510032350.554	20130510032351.851
PX2 (135)	8102	8112	20130510032352.070	20130510032354.230

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	8112	8127	20130510032354.230	20130510032358.988
PX2 (135)	8132	8137	20130510032400.070	20130510032401.148
PX2 (135)	8138	8148	20130510032401.367	20130510032403.527
PX2 (135)	8150	8152	20130510032405.472	20130510032405.906
PX3 (140)	8058	8060	20130510032339.527	20130510032341.472
PX3 (140)	8062	8065	20130510032341.906	20130510032342.554
PX3 (140)	8071	8076	20130510032343.851	20130510032344.933
PX3 (140)	8080	8087	20130510032345.796	20130510032347.312
PX3 (140)	8087	8095	20130510032347.312	20130510032350.554
PX3 (140)	8095	8101	20130510032350.554	20130510032351.851
PX3 (140)	8102	8112	20130510032352.070	20130510032354.230
PX3 (140)	8112	8126	20130510032354.230	20130510032358.769
PX3 (140)	8132	8137	20130510032400.070	20130510032401.148
PX3 (140)	8138	8148	20130510032401.367	20130510032403.527
PX3 (140)	8150	8152	20130510032405.472	20130510032405.906
PX4 (145)	8058	8060	20130510032339.527	20130510032341.472
PX4 (145)	8061	8065	20130510032341.691	20130510032342.554
PX4 (145)	8070	8076	20130510032343.636	20130510032344.933
PX4 (145)	8079	8086	20130510032345.582	20130510032347.097
PX4 (145)	8086	8095	20130510032347.097	20130510032350.554
PX4 (145)	8095	8101	20130510032350.554	20130510032351.851
PX4 (145)	8102	8112	20130510032352.070	20130510032354.230
PX4 (145)	8112	8126	20130510032354.230	20130510032358.769
PX4 (145)	8131	8137	20130510032359.851	20130510032401.148
PX4 (145)	8138	8148	20130510032401.367	20130510032403.527
PX4 (145)	8150	8152	20130510032405.472	20130510032405.906
IMG (150)	12005	12008	20130510032339.312	20130510032340.175
IMG (150)	12013	12017	20130510032341.691	20130510032342.554
IMG (150)	12022	12027	20130510032343.636	20130510032344.718
IMG (150)	12031	12038	20130510032345.582	20130510032347.097
IMG (150)	12038	12057	20130510032347.097	20130510032351.851
IMG (150)	12058	12068	20130510032352.070	20130510032354.230
IMG (150)	12068	12076	20130510032354.230	20130510032356.175
IMG (150)	12078	12086	20130510032356.824	20130510032358.769
IMG (150)	12091	12097	20130510032359.851	20130510032401.148
IMG (150)	12098	12108	20130510032401.367	20130510032403.527
IMG (150)	12113	12115	20130510032405.042	20130510032405.691
VER (160)	13130	13132	20130510032331.746	20130510032339.527
VER (160)	13135	13143	20130510032339.527	20130510032354.445
AUX (180)	9179	9181	20130510032340.175	20130510032356.175

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
10/05/2013 00:06:49	-	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)	99.23 %	-
GQisFlagQual set (PX2)	99.46 %	-
GQisFlagQual set (PX3)	99.50 %	-
GQisFlagQual set (PX4)	99.45 %	-
GQisFlagQual set (all)	99.41 %	-

Table 4: Quality flags

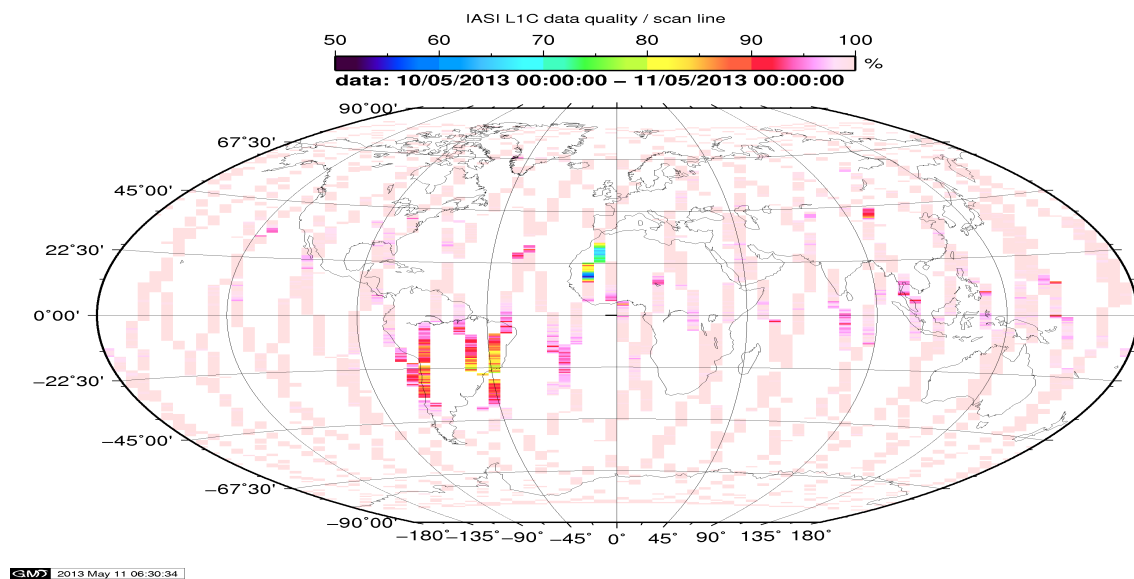


Figure 1: L1C data quality

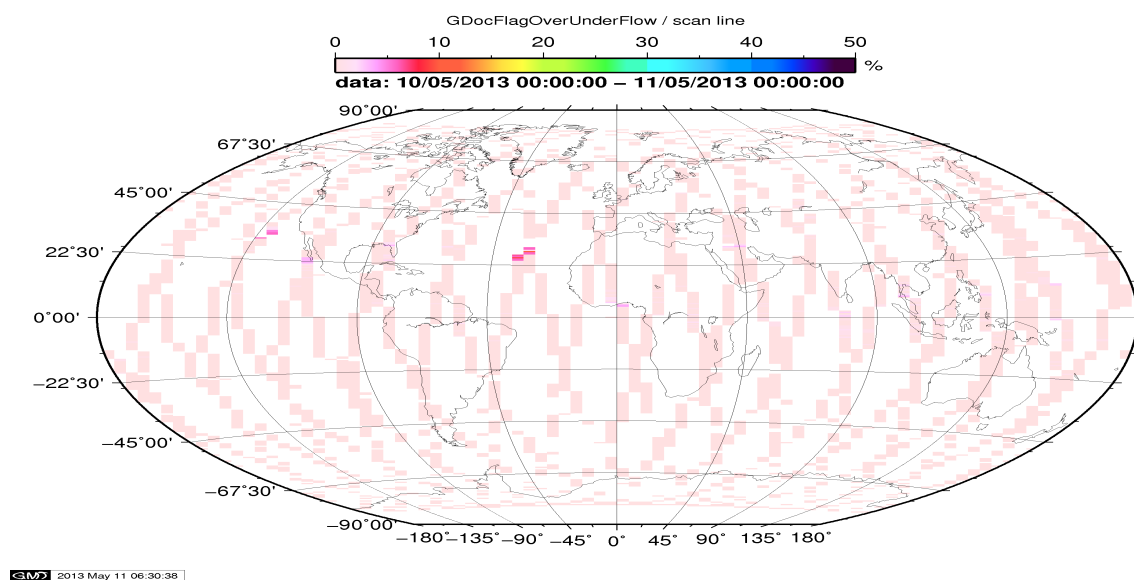


Figure 2: Flag of Over and Under Flows

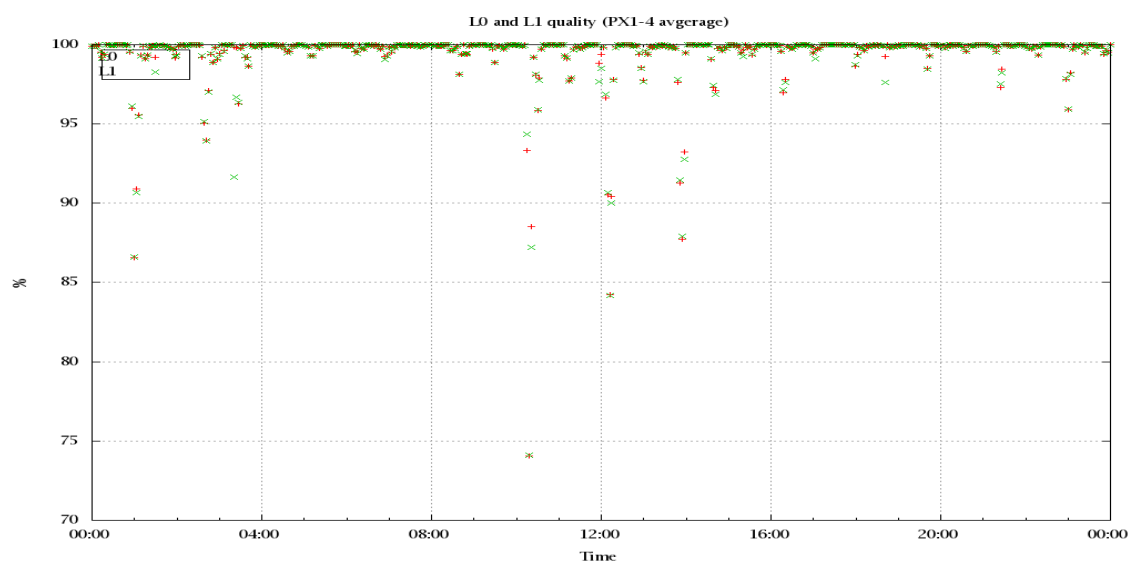


Figure 3: Level 0 and 1C overall quality

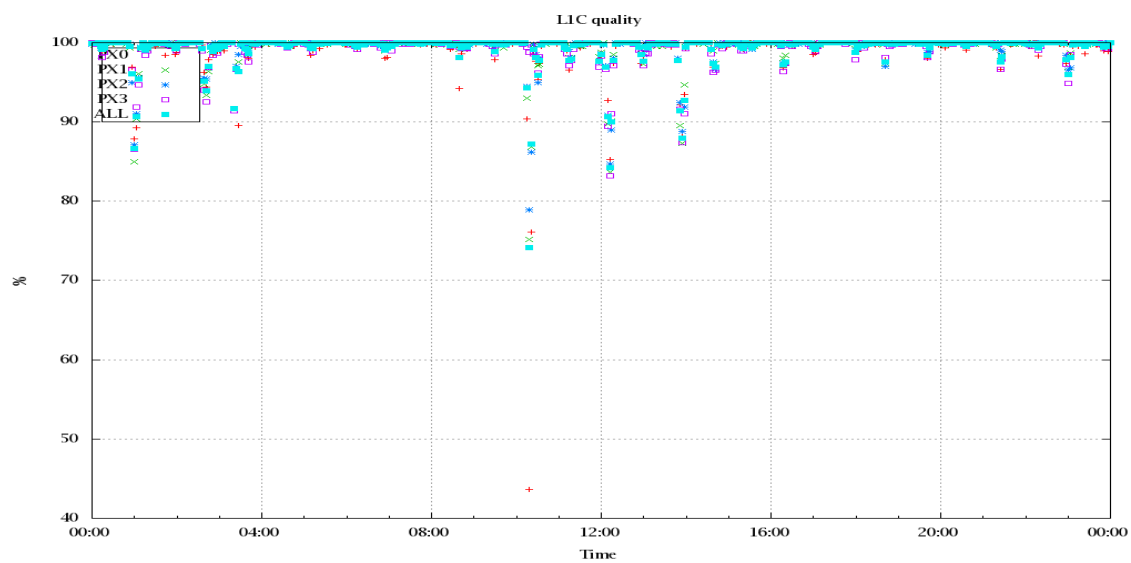


Figure 4: Level 1C quality

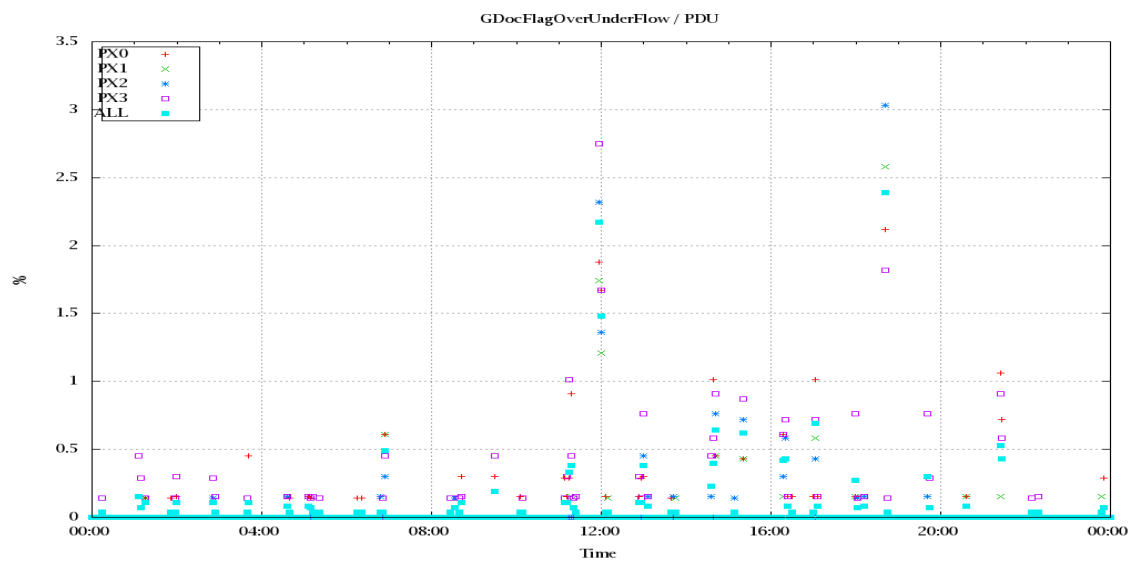


Figure 5: OverUnderFlowFlag timeseries

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.

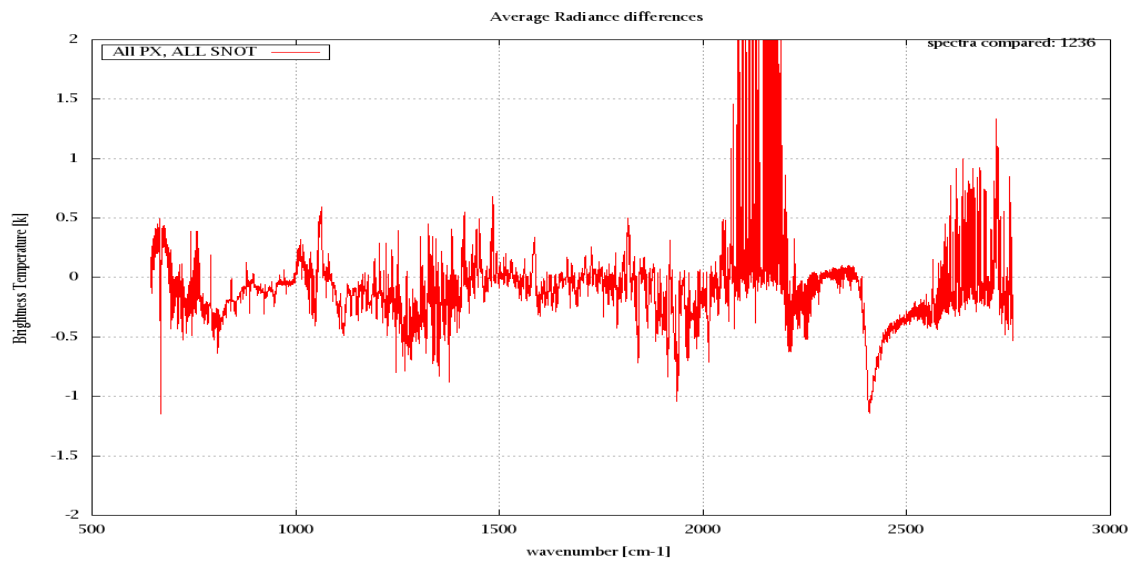


Figure 6: Average Radiance differences: OBS-CAL

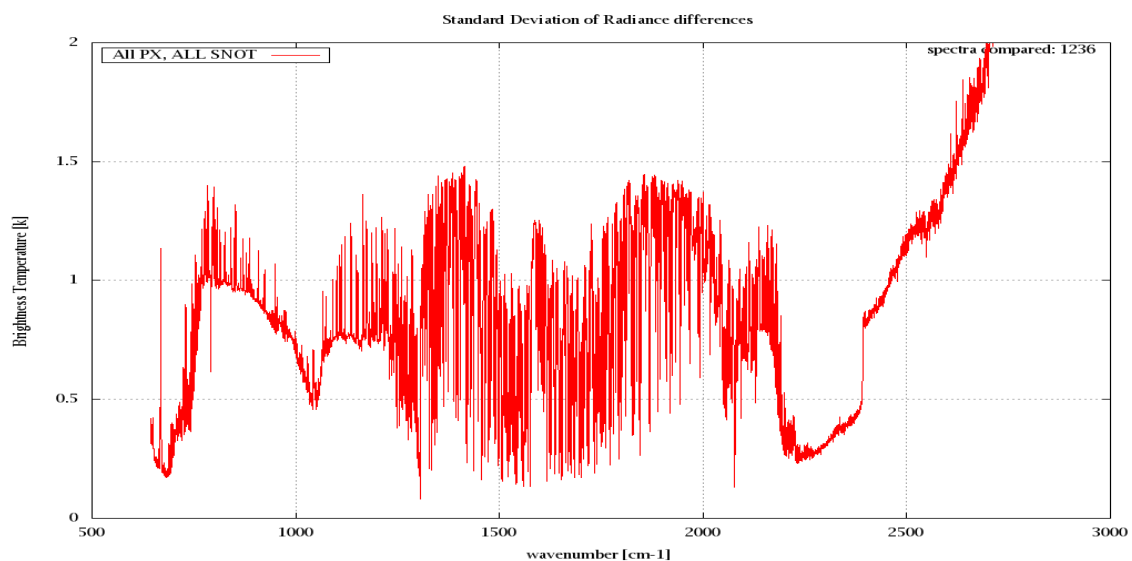


Figure 7: Standard Deviation of Radiance differences

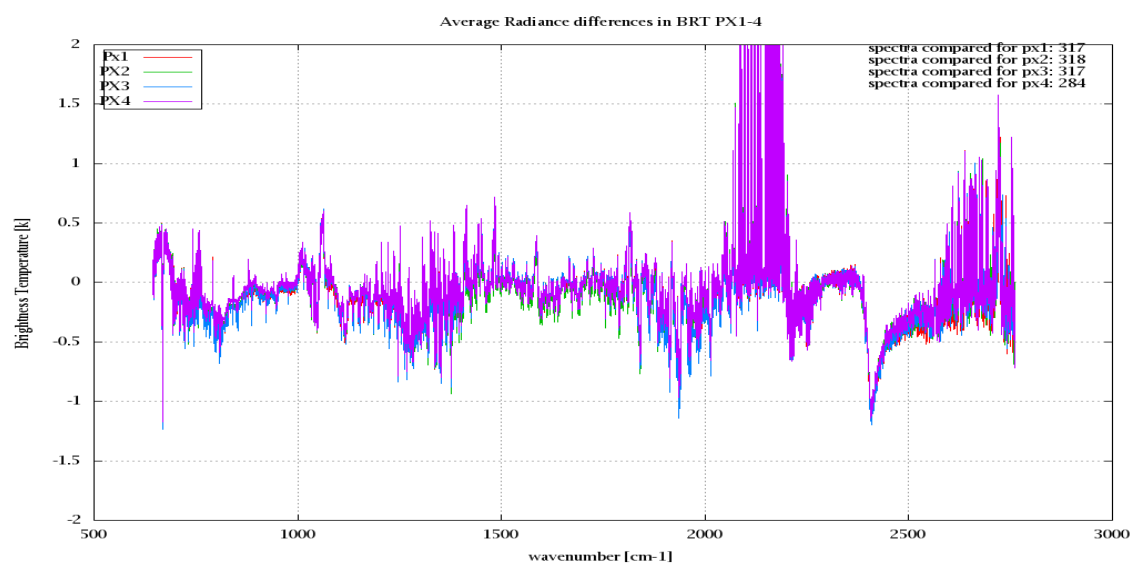


Figure 8: Average Radiance differences: OBS-CAL

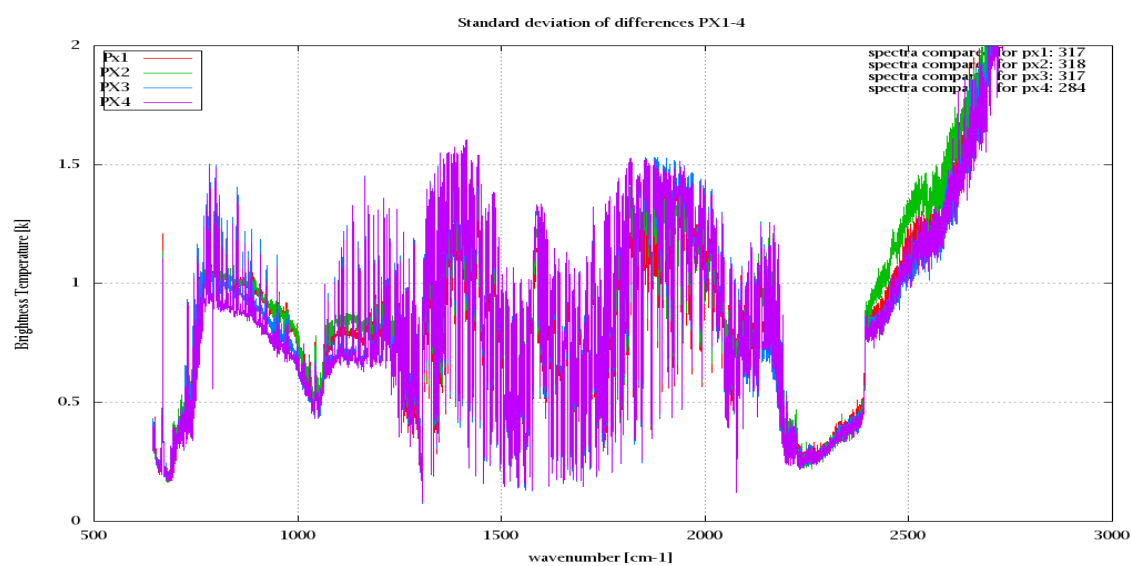


Figure 9: Standard Deviation of Radiance differences

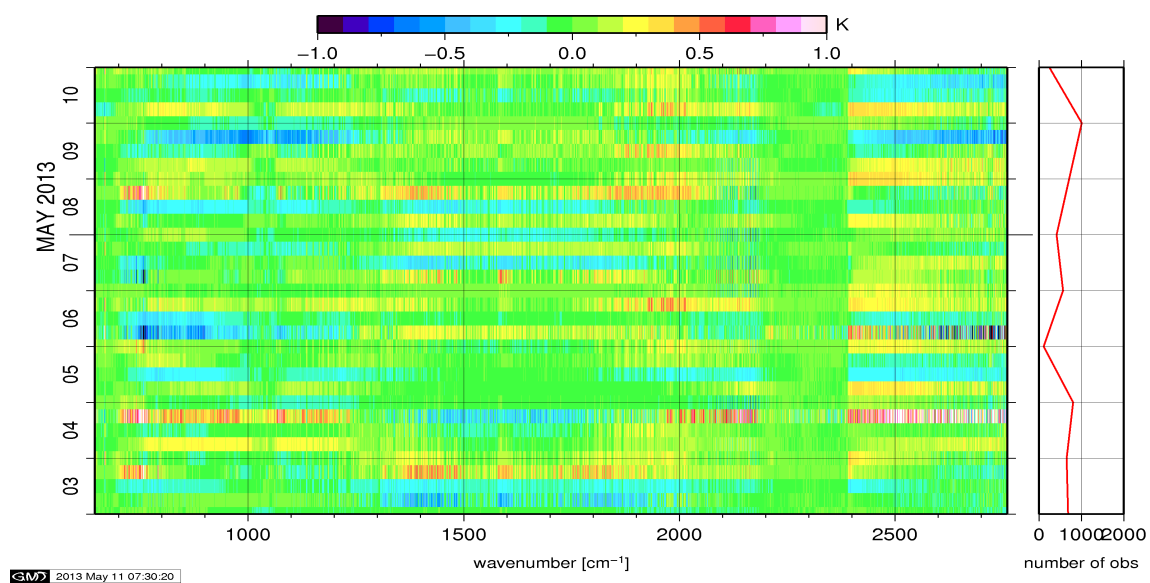


Figure 10: Radiance Anomaly in BRT: All Channels

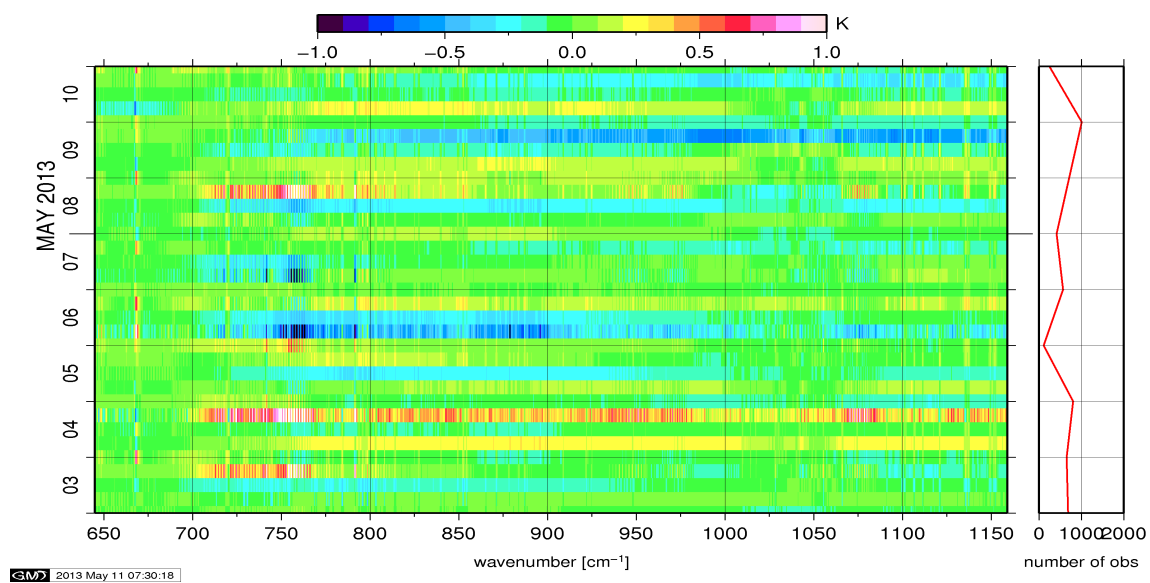


Figure 11: Radiance Anomaly in BRT: IASI Band 1

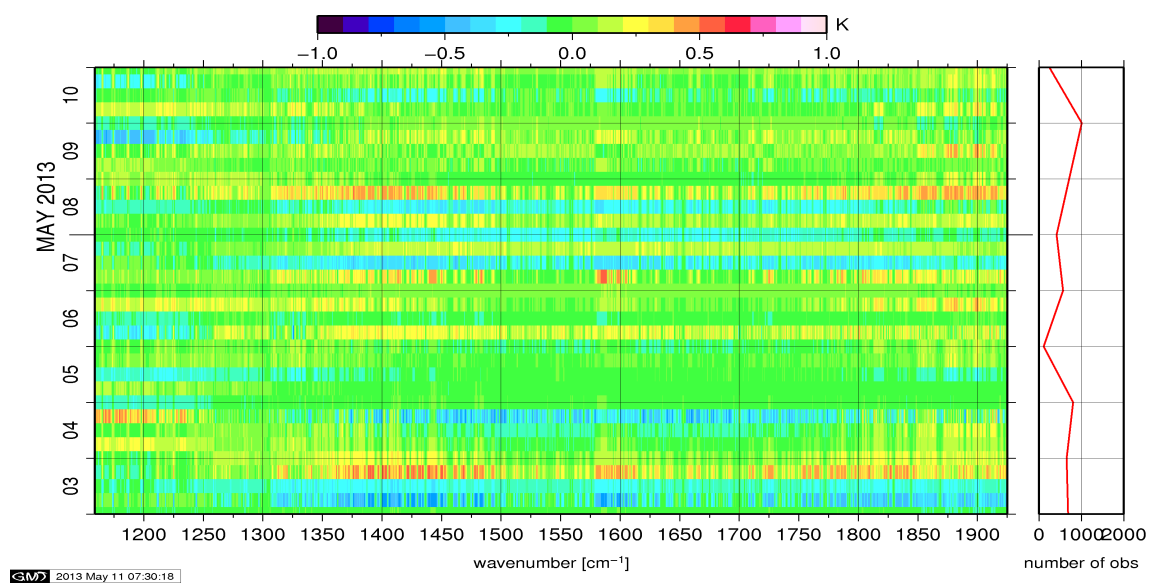


Figure 12: Radiance Anomaly in BRT: IASI Band 2

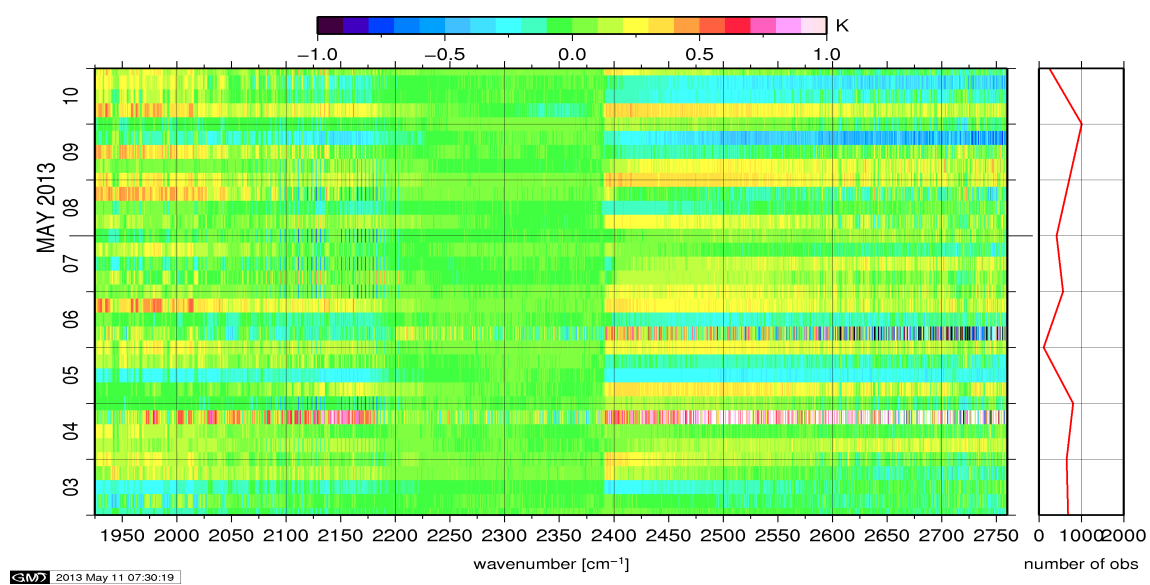


Figure 13: Radiance Anomaly in BRT: IASI Band 3

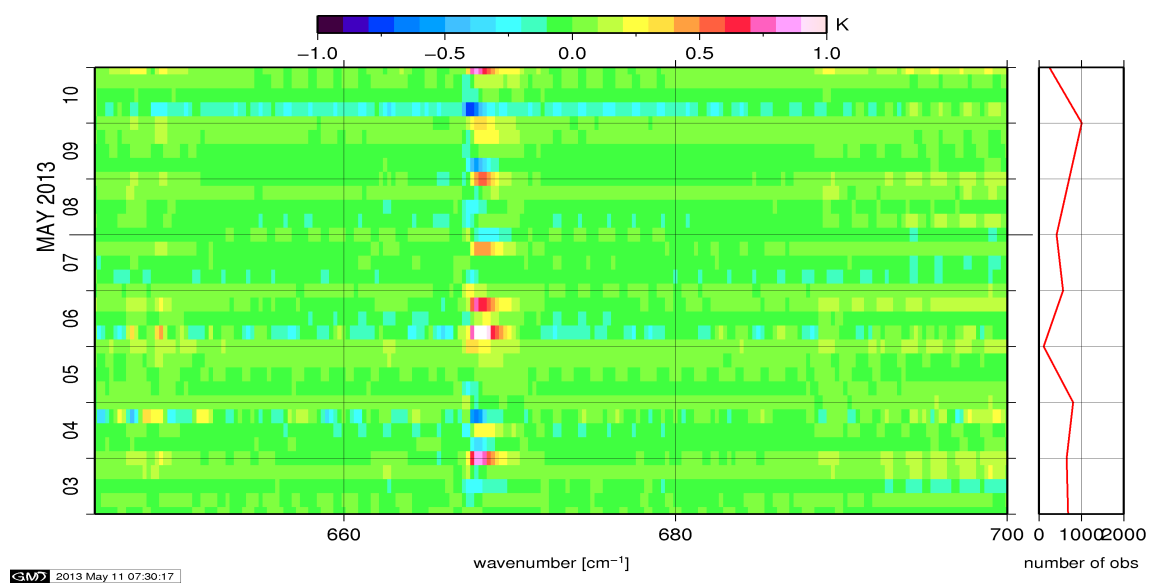


Figure 14: Radiance Anomaly in BRT: CO2 14

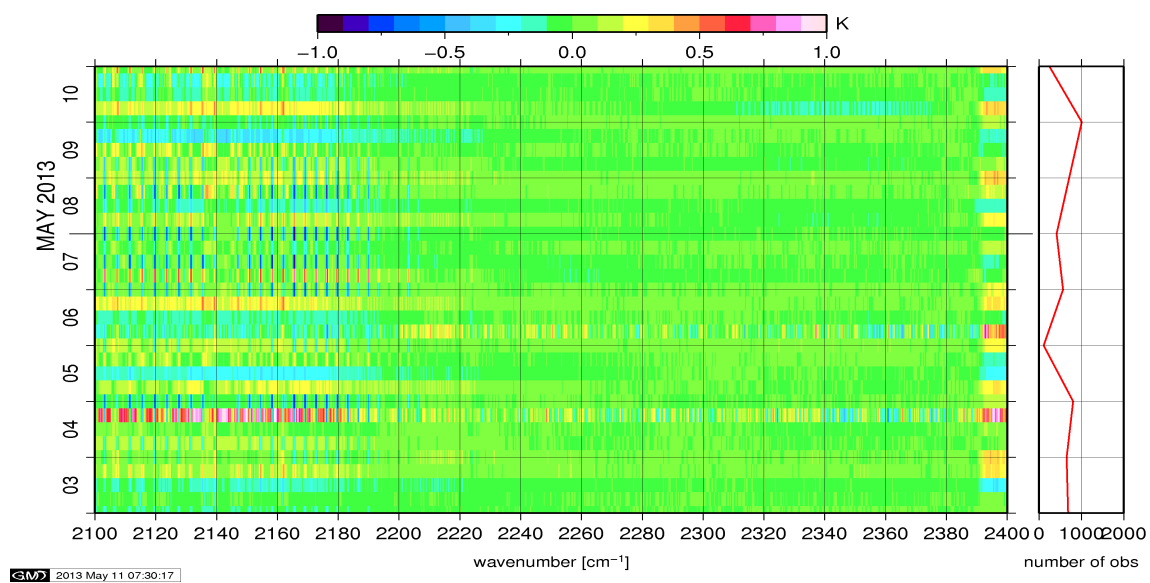


Figure 15: Radiance Anomaly in BRT: CO2 4.3

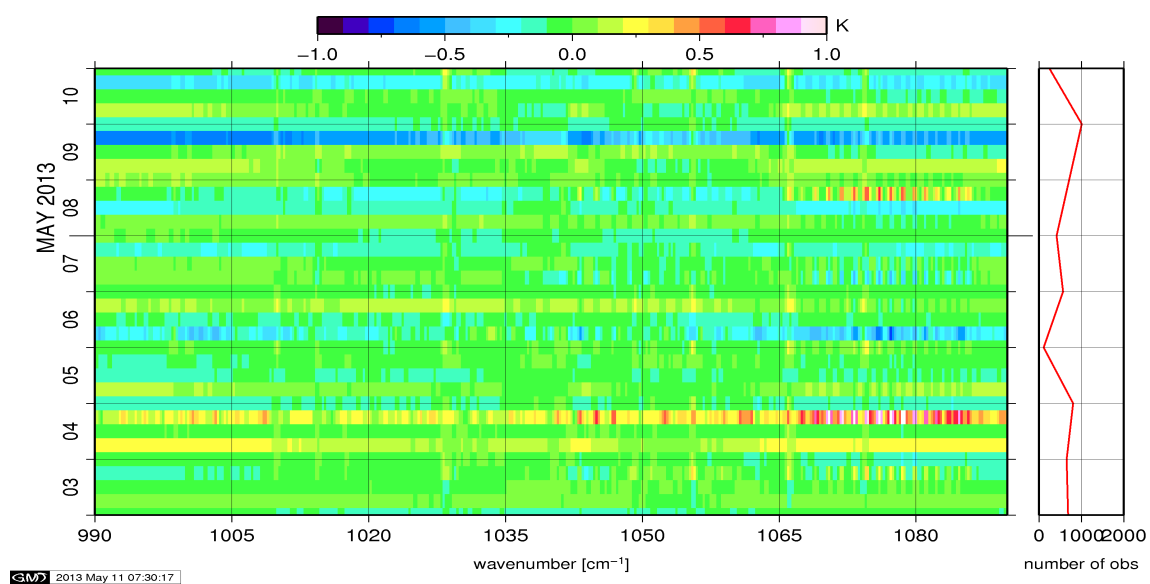


Figure 16: Radiance Anomaly in BRT: O3

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.

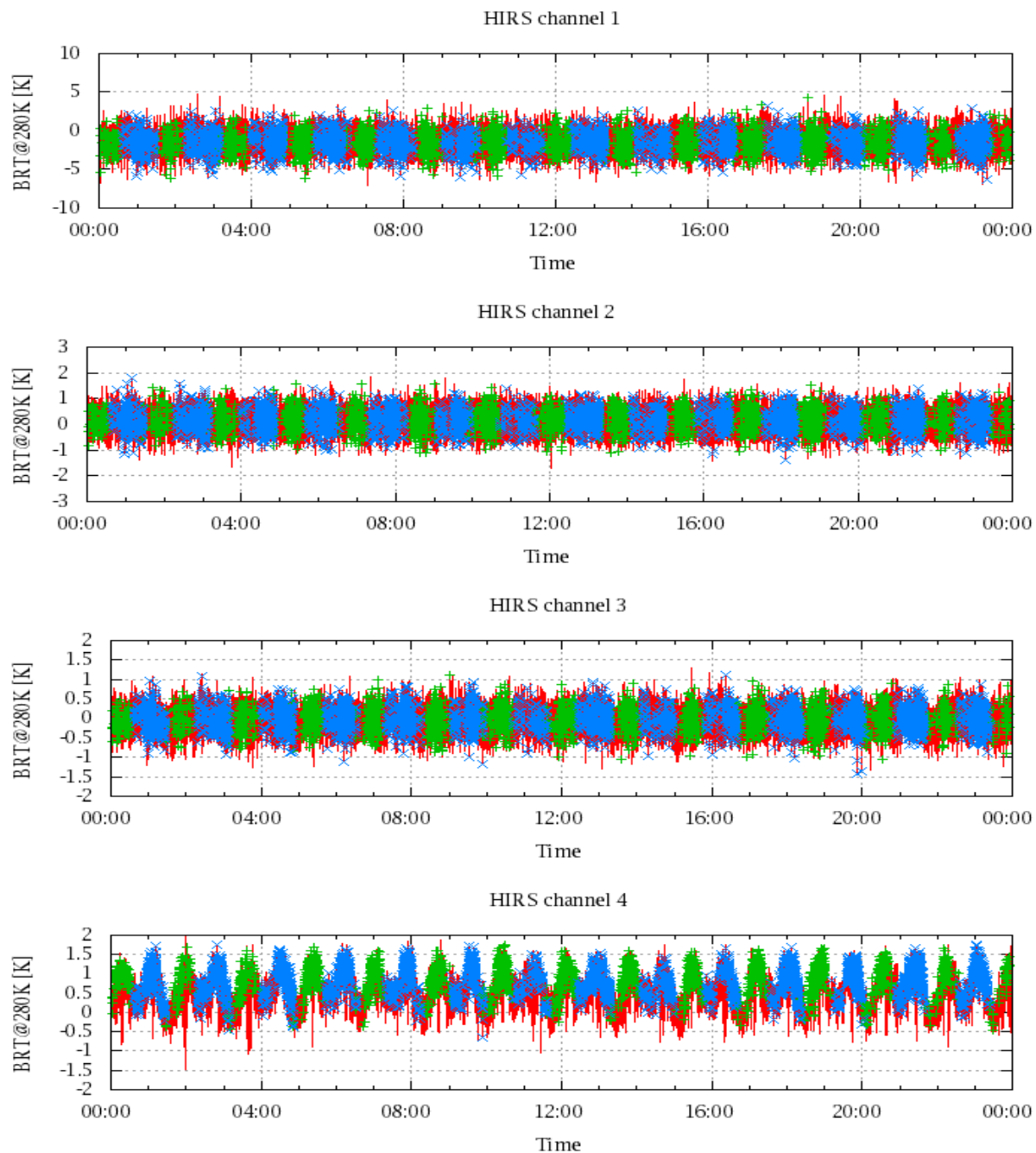


Figure 17: Radiance Differences in BRT

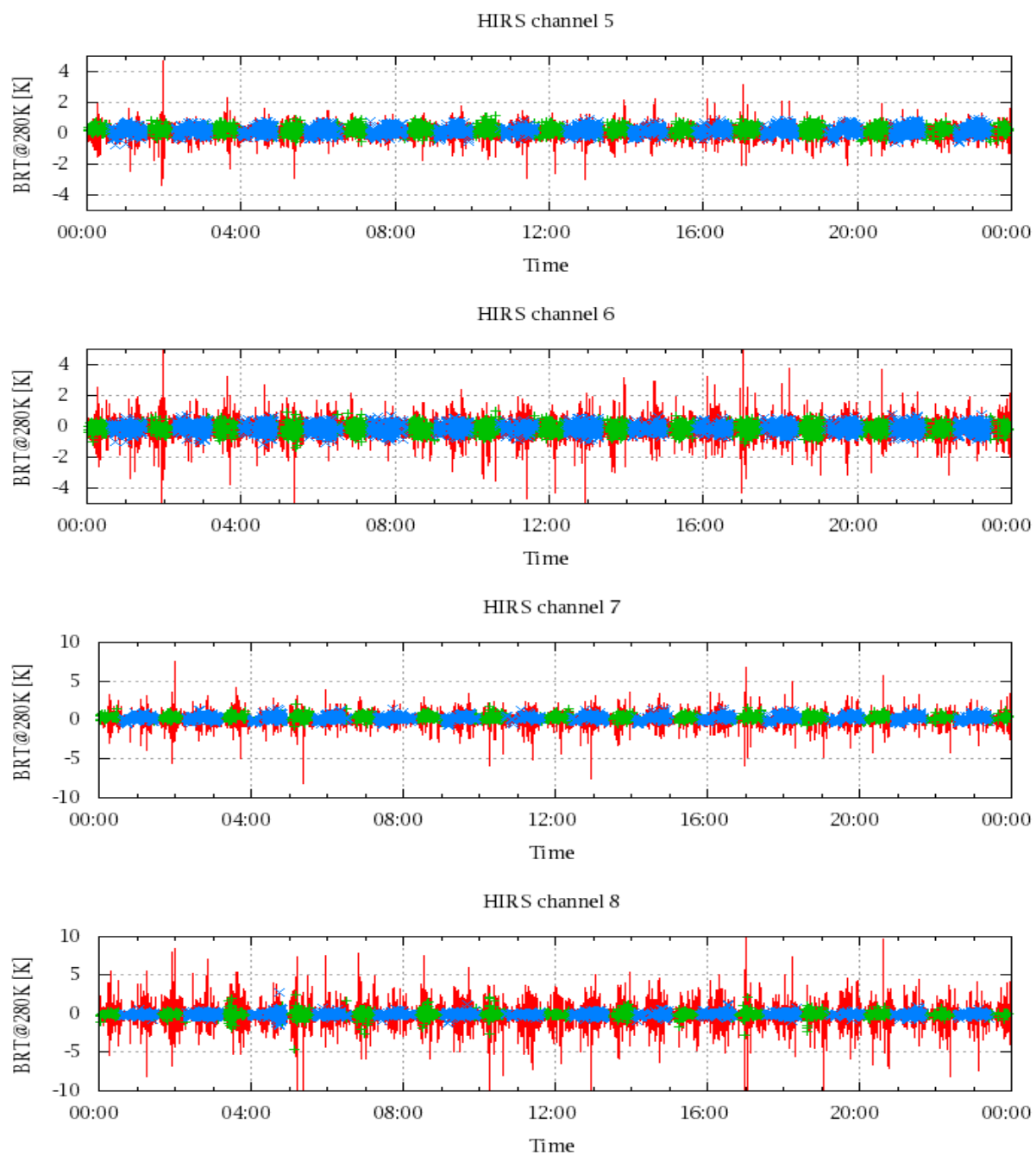


Figure 18: Radiance Differences in BRT

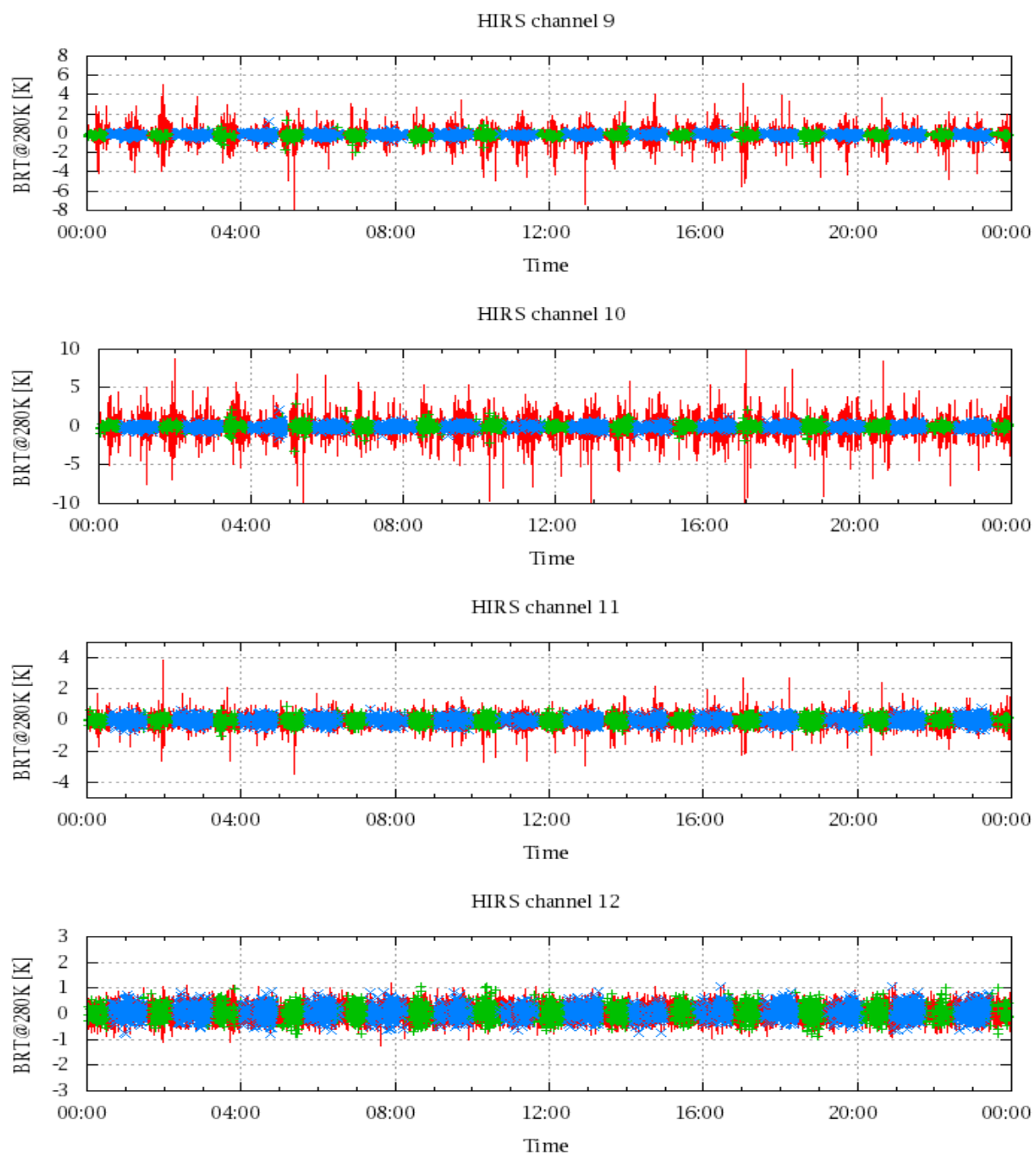


Figure 19: Radiance Differences in BRT

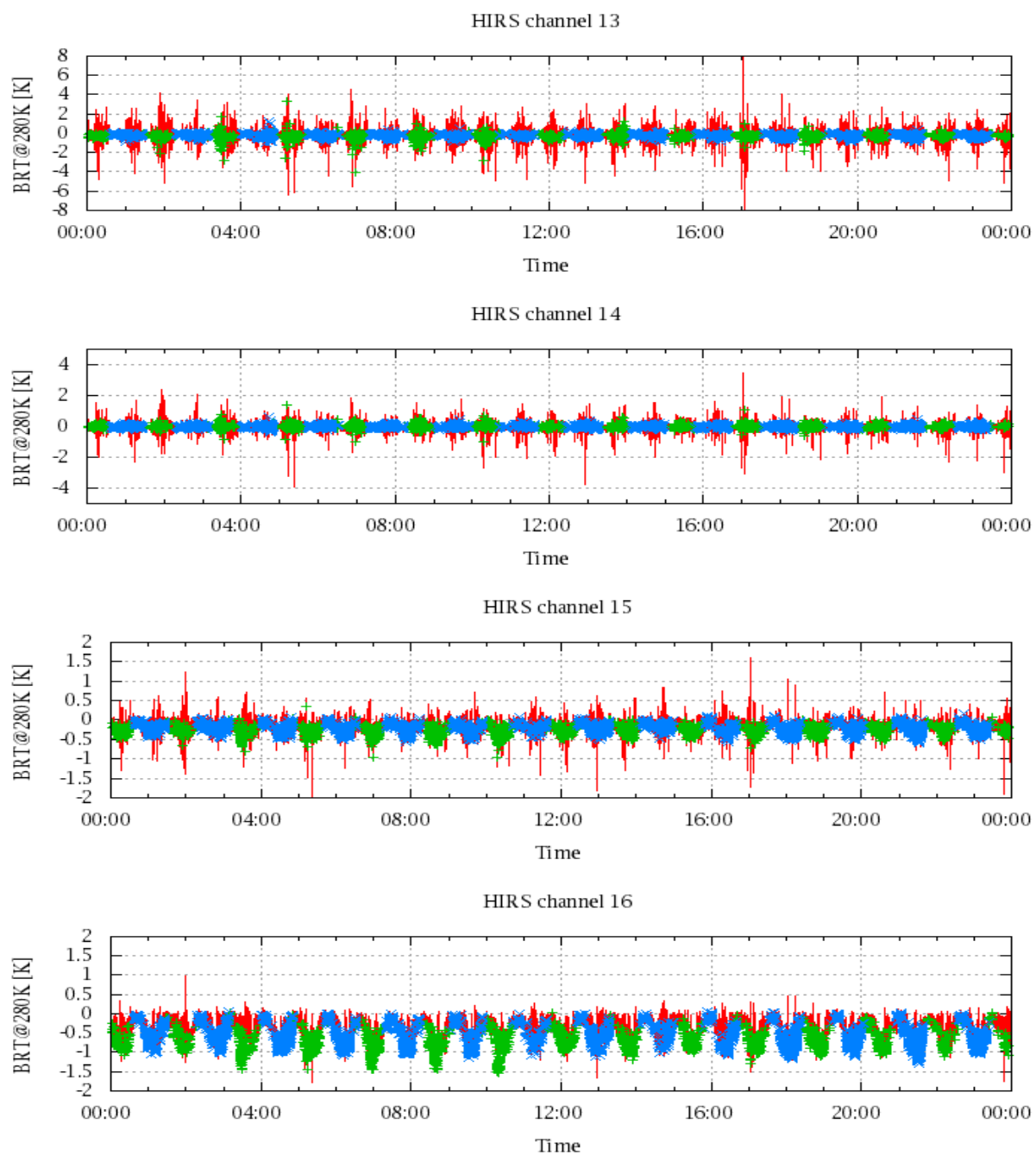


Figure 20: Radiance Differences in BRT

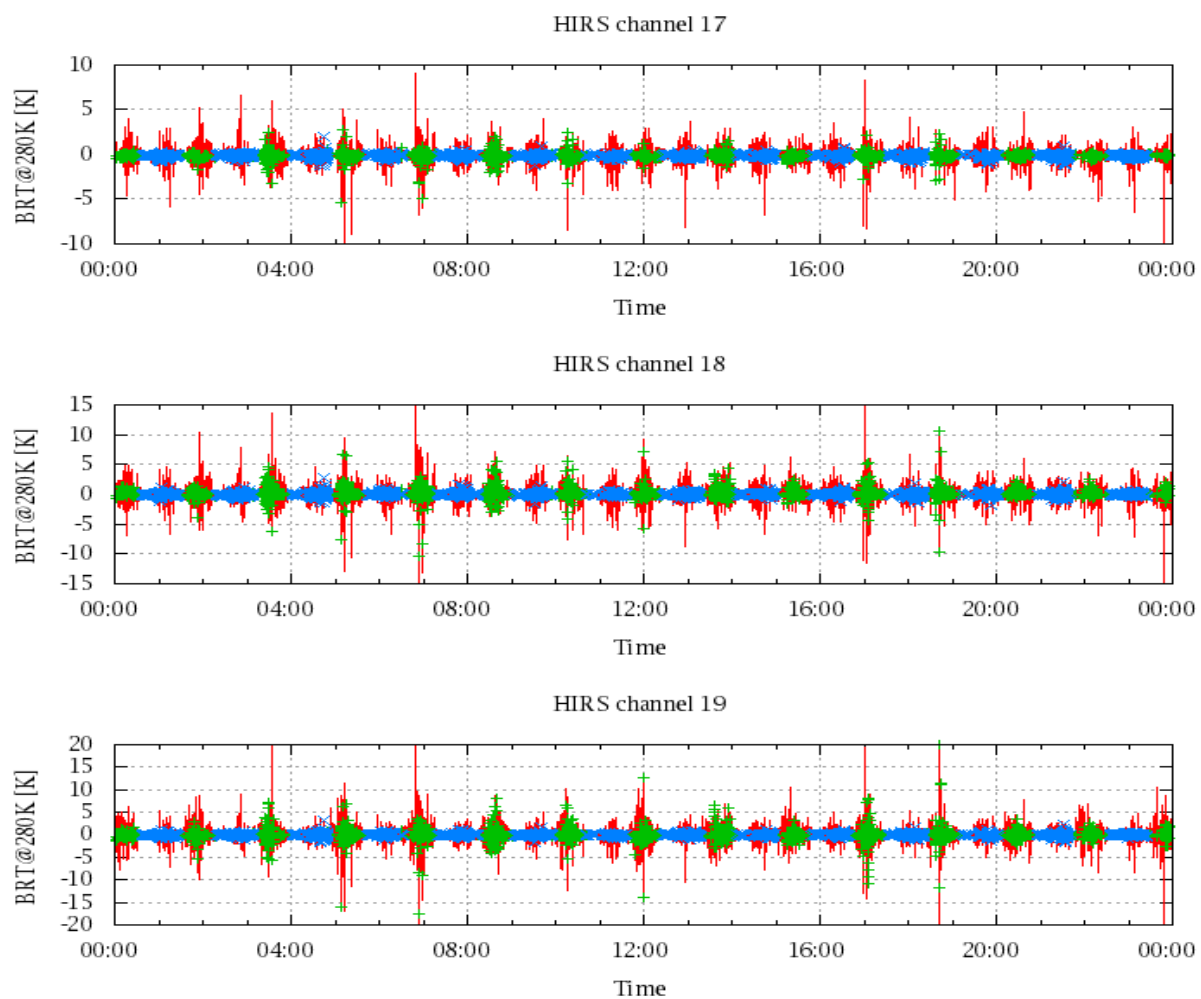


Figure 21: Radinace Differences in BRT