IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

19/06/2014 00:00:00 - 20/06/2014 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 19/06/2014 00:00:00 - 20/06/2014 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 19/06/2014 00:00:00 - 20/06/2014 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)	10071	10077	20140619185936.218	20140619185937.514
PX1 (130)	10077	10079	20140619185937.514	20140619185937.948
PX1 (130)	10103	10105	20140619185944.647	20140619185945.081
PX1 (130)	10110	10112	20140619185946.163	20140619185948.108
PX1 (130)	10147	10149	20140619185957.190	20140619185957.620
PX1 (130)	10164	10166	20140619190000.866	20140619190001.299
PX1 (130)	10170	10172	20140619190002.163	20140619190004.108
PX1 (130)	10175	10177	20140619190004.757	20140619190005.190
PX2 (135)	10071	10077	20140619185936.218	20140619185937.514
PX2 (135)	10077	10079	20140619185937.514	20140619185937.948
PX2 (135)	10103	10105	20140619185944.647	20140619185945.081
PX2 (135)	10110	10112	20140619185946.163	20140619185948.108
PX2 (135)	10158	10160	20140619185959.569	20140619190000.003
PX2 (135)	10170	10172	20140619190002.163	20140619190004.108
PX2 (135)	10175	10177	20140619190004.757	20140619190005.190
PX2 (135)	10183	10185	20140619190006.487	20140619190006.921
PX3 (140)	10059	10061	20140619185933.624	20140619185934.057
PX3 (140)	10071	10074	20140619185936.218	20140619185936.866

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	10078	10081	20140619185937.729	20140619185939.893
PX3 (140)	10115	10117	20140619185948.757	20140619185949.190
PX3 (140)	10158	10160	20140619185959.569	20140619190000.003
PX3 (140)	10170	10172	20140619190002.163	20140619190004.108
PX3 (140)	10175	10177	20140619190004.757	20140619190005.190
PX3 (140)	10183	10185	20140619190006.487	20140619190006.921
PX4 (145)	10059	10061	20140619185933.624	20140619185934.057
PX4 (145)	10071	10074	20140619185936.218	20140619185936.866
PX4 (145)	10077	10081	20140619185937.514	20140619185939.893
PX4 (145)	10115	10117	20140619185948.757	20140619185949.190
PX4 (145)	10137	10139	20140619185953.514	20140619185953.948
PX4 (145)	10158	10160	20140619185959.569	20140619190000.003
PX4 (145)	10170	10172	20140619190002.163	20140619190004.108
PX4 (145)	10176	10178	20140619190004.971	20140619190005.405
PX4 (145)	10183	10185	20140619190006.487	20140619190006.921
IMG (150)	6520	6522	20140619185933.624	20140619185934.057
IMG (150)	6532	6543	20140619185936.218	20140619185938.811
IMG (150)	6567	6569	20140619185944.432	20140619185944.866
IMG (150)	6575	6578	20140619185946.163	20140619185947.245
IMG (150)	6578	6580	20140619185947.245	20140619185947.893
IMG (150)	6584	6586	20140619185948.757	20140619185949.190
IMG (150)	6606	6608	20140619185953.514	20140619185953.948
IMG (150)	6608	6610	20140619185953.948	20140619185954.596
IMG (150)	6619	6621	20140619185956.975	20140619185957.405
IMG (150)	6636	6638	20140619190000.647	20140619190001.081
IMG (150)	6647	6649	20140619190003.460	20140619190004.108
IMG (150)	6651	6653	20140619190004.542	20140619190004.971
IMG (150)	6653	6655	20140619190004.971	20140619190005.405
IMG (150)	6659	6661	20140619190006.268	20140619190006.702
VER (160)	7882	7888	20140619185930.163	20140619185946.163
VER (160)	7888	7894	20140619185946.163	20140619185954.163
VER (160)	7897	7900	20140619185954.163	20140619190002.163
AUX (180)	11402	11405	20140619185930.596	20140619185954.596

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
19/06/2014 00:00:09	-	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)	99.45 %	-
GQisFlagQual set (PX2)	99.42 %	-
GQisFlagQual set (PX3)	99.47 %	-
GQisFlagQual set (PX4)	99.51 %	-
GQisFlagQual set (all)	99.46 %	-

Table 4: Quality flags

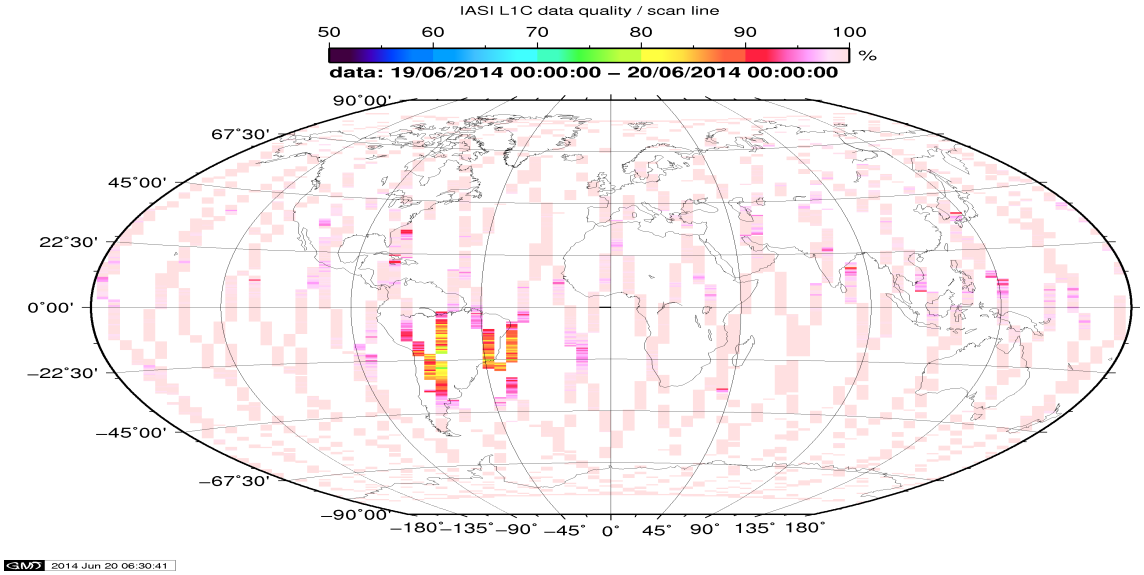

Figure 1: L1C data quality

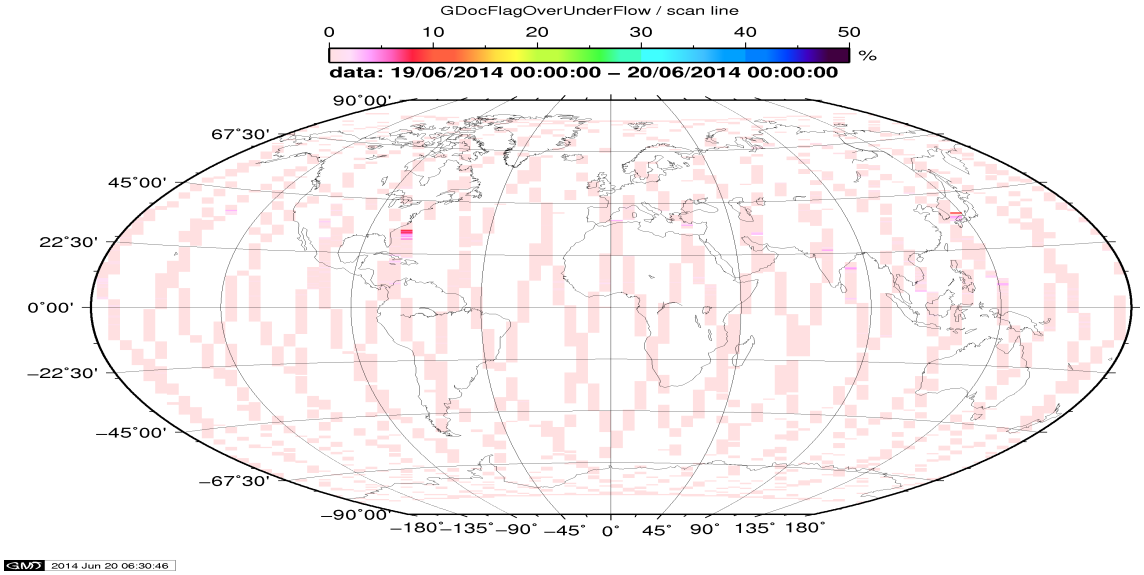

Figure 2: Flag of Over and Under Flows

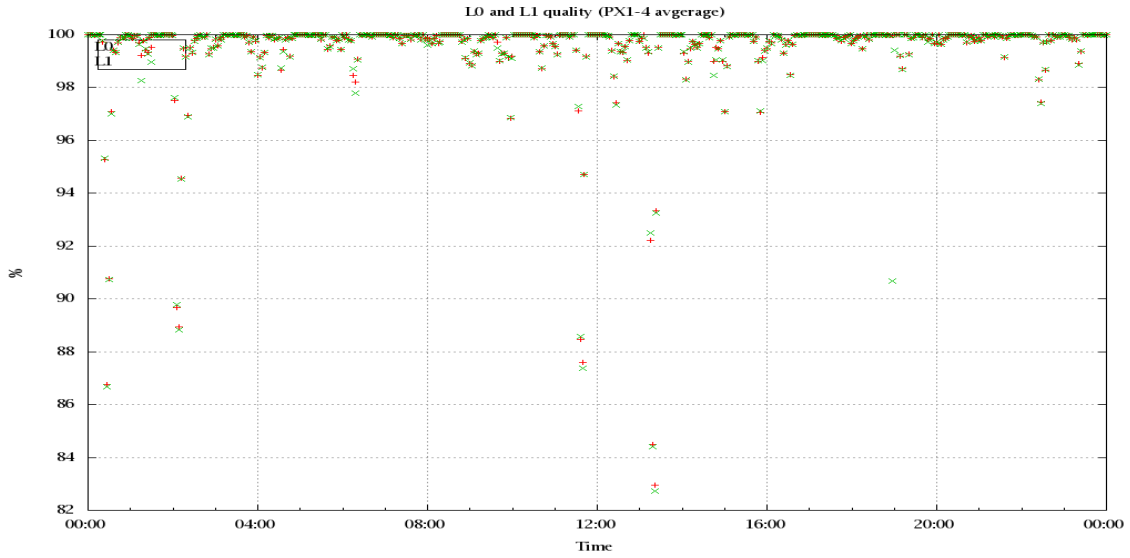

Figure 3: Level 0 and 1C overall quality

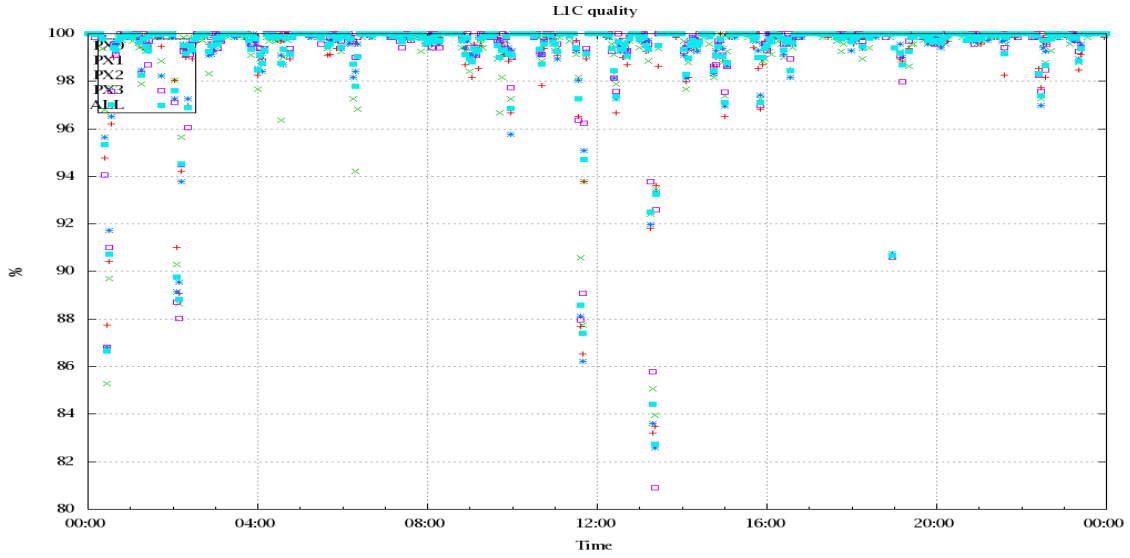

Figure 4: Level 1C quality

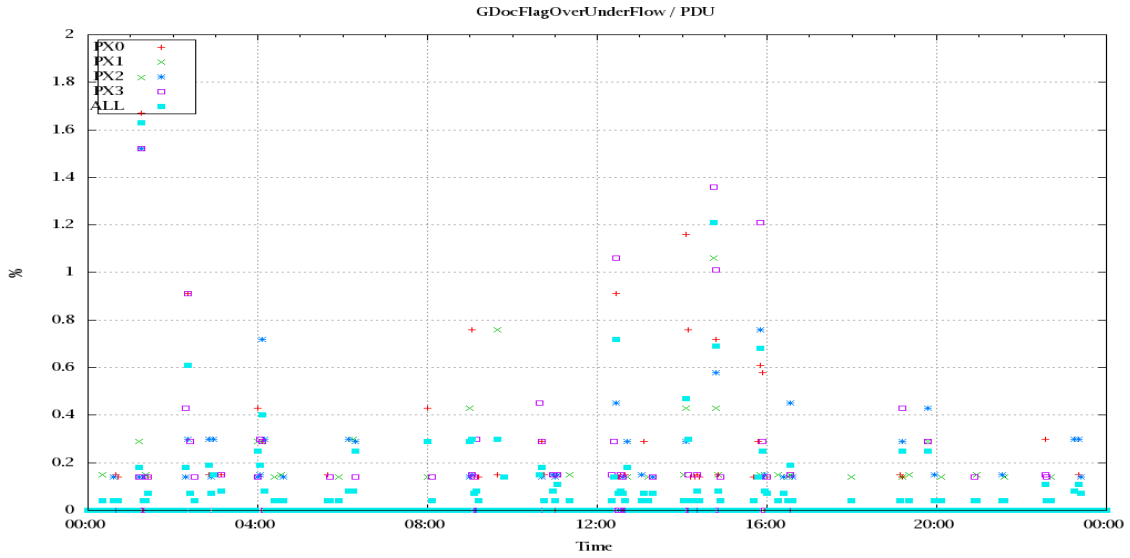

Figure 5: OverUnderFlowFlag timeseries

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.

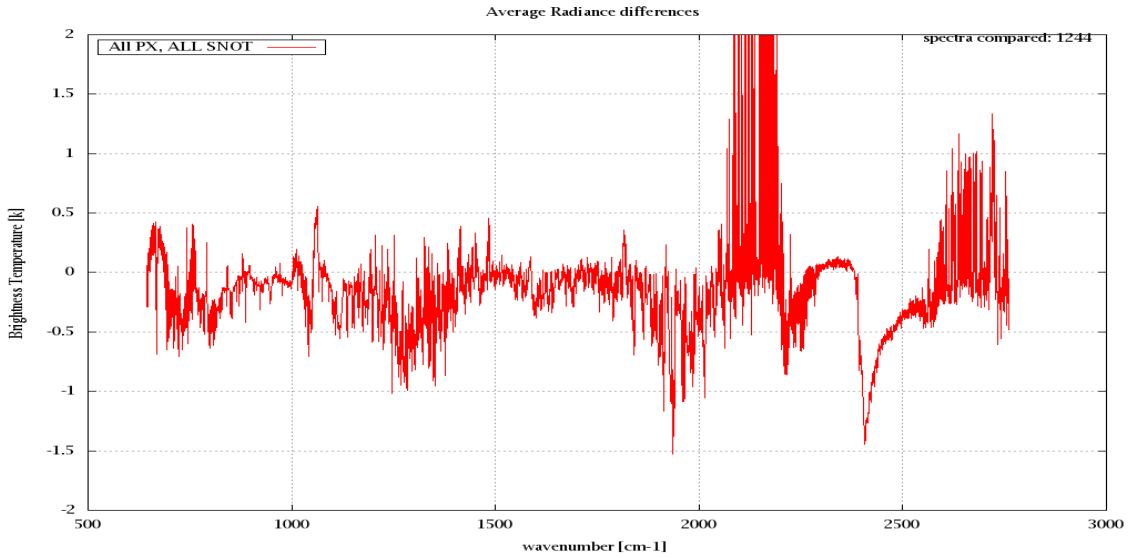

Figure 6: Average Radiance differences: OBS-CAL

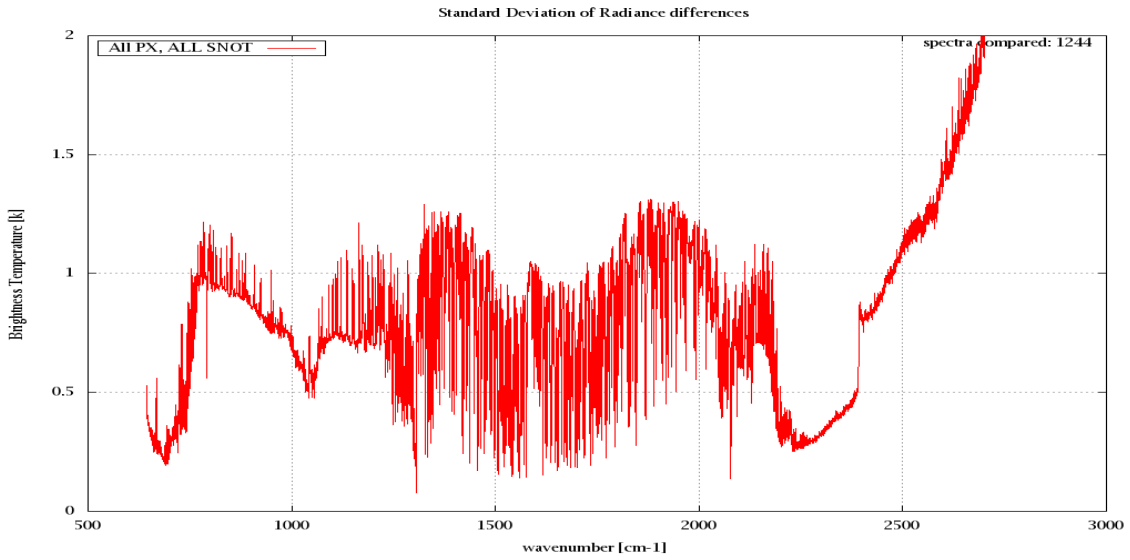

Figure 7: Standard Deviation of Radiance differences

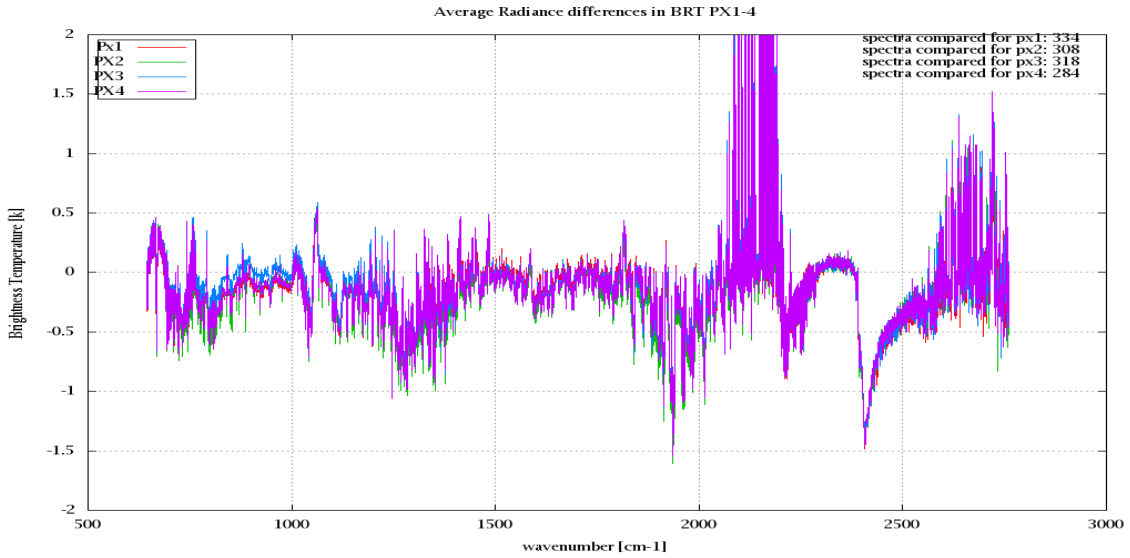

Figure 8: Average Radiance differences: OBS-CAL

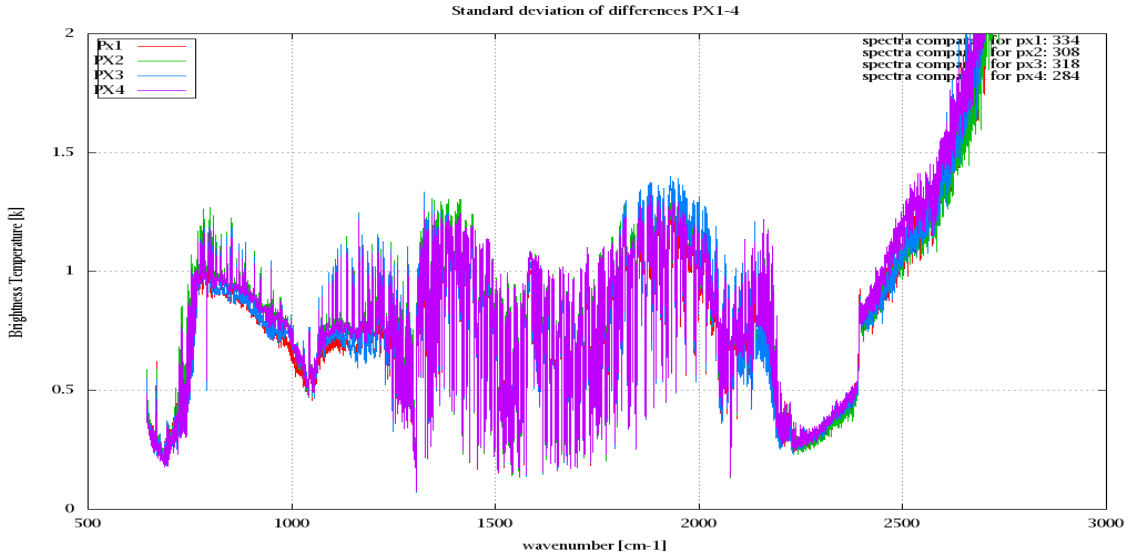

Figure 9: Standard Deviation of Radiance differences

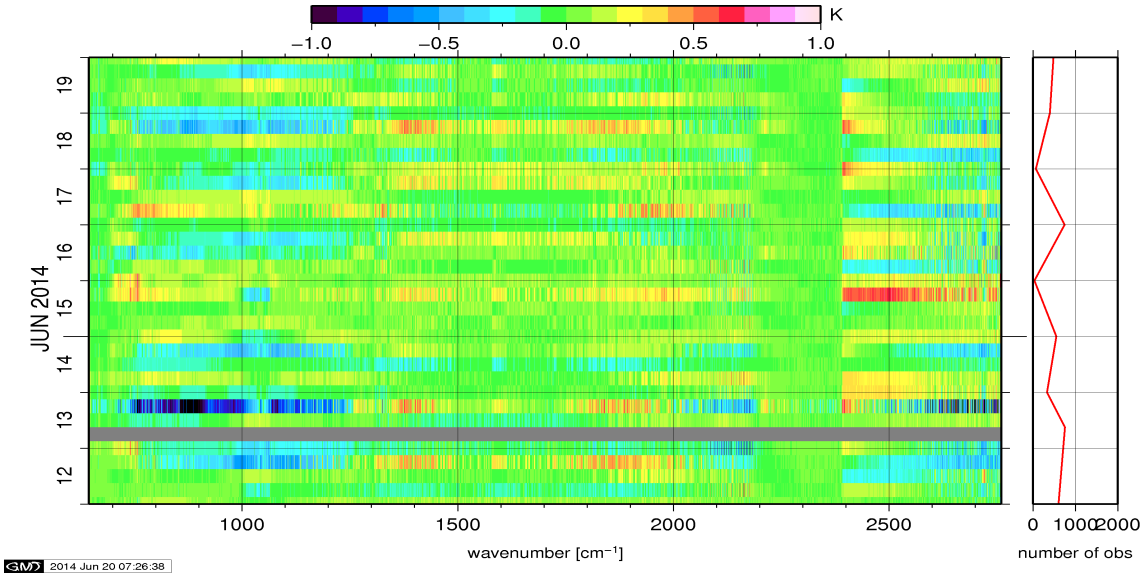

Figure 10: Radiance Anomaly in BRT: All Channels

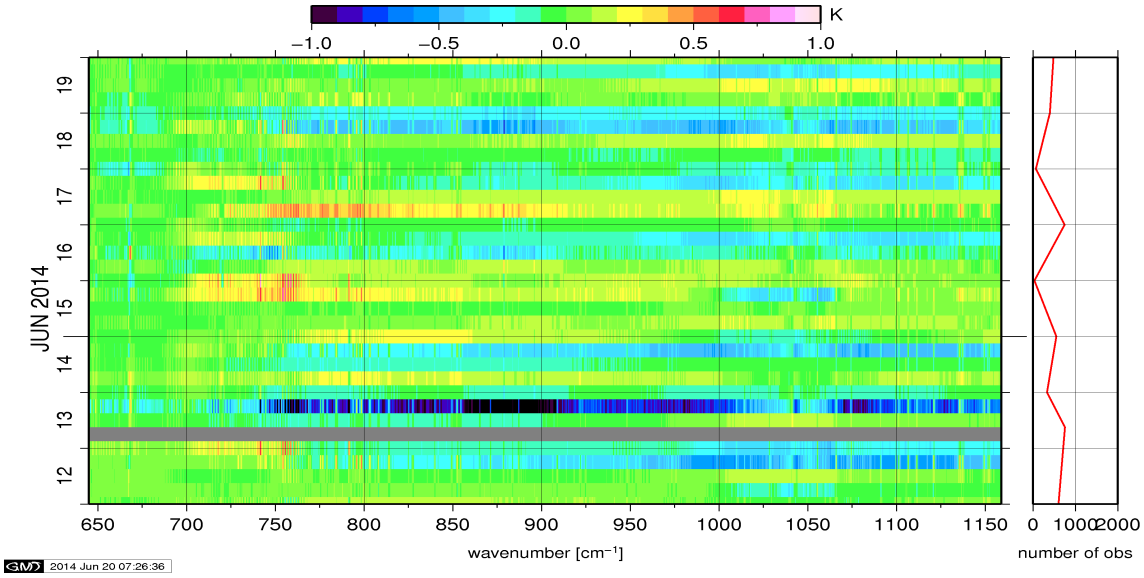

Figure 11: Radiance Anomaly in BRT: IASI Band 1

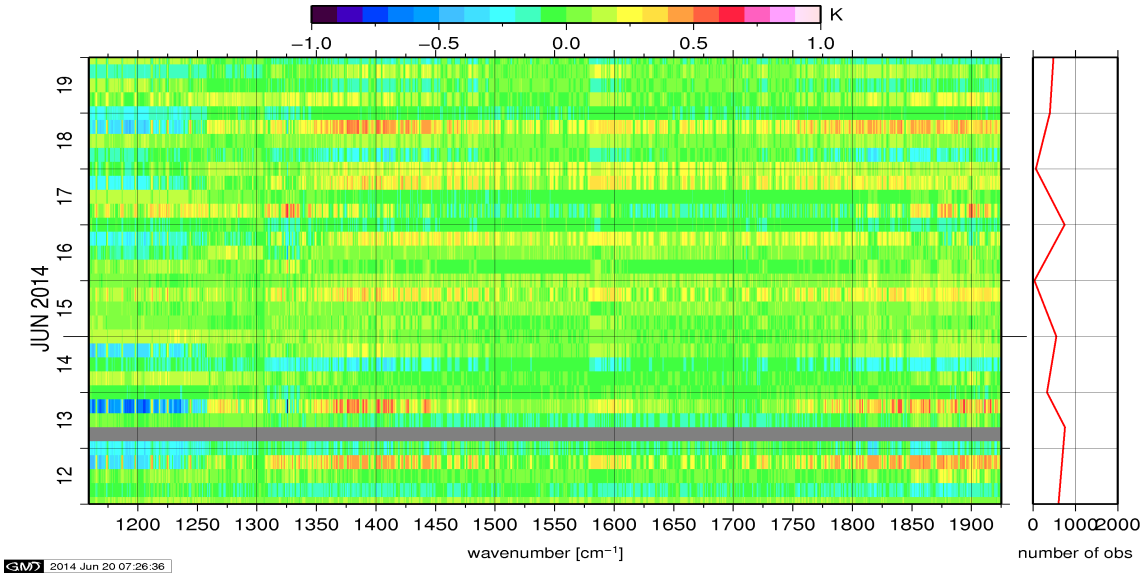

Figure 12: Radiance Anomaly in BRT: IASI Band 2

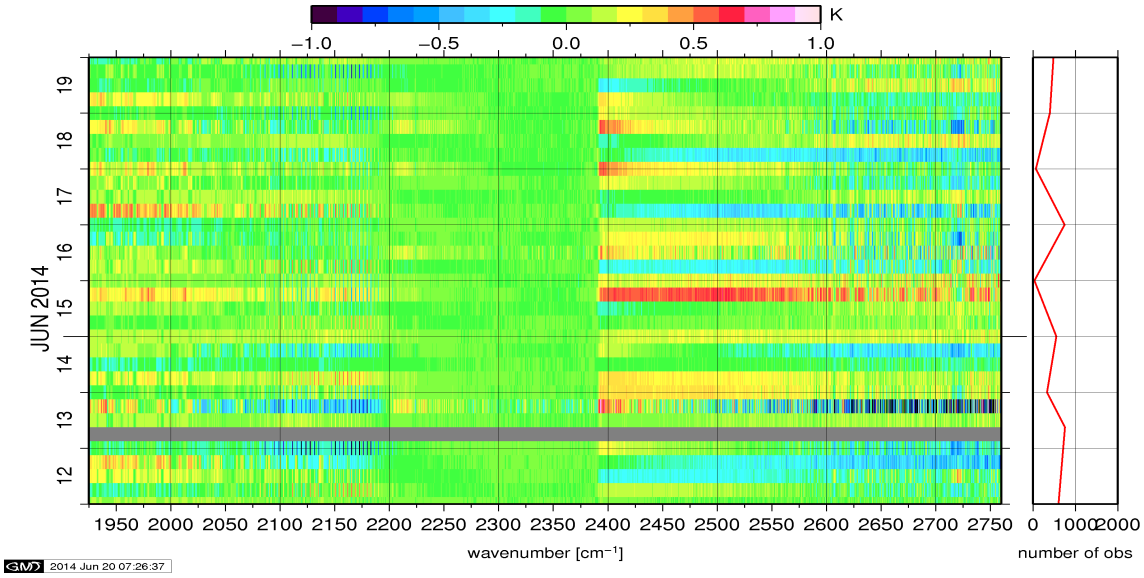

Figure 13: Radiance Anomaly in BRT: IASI Band 3

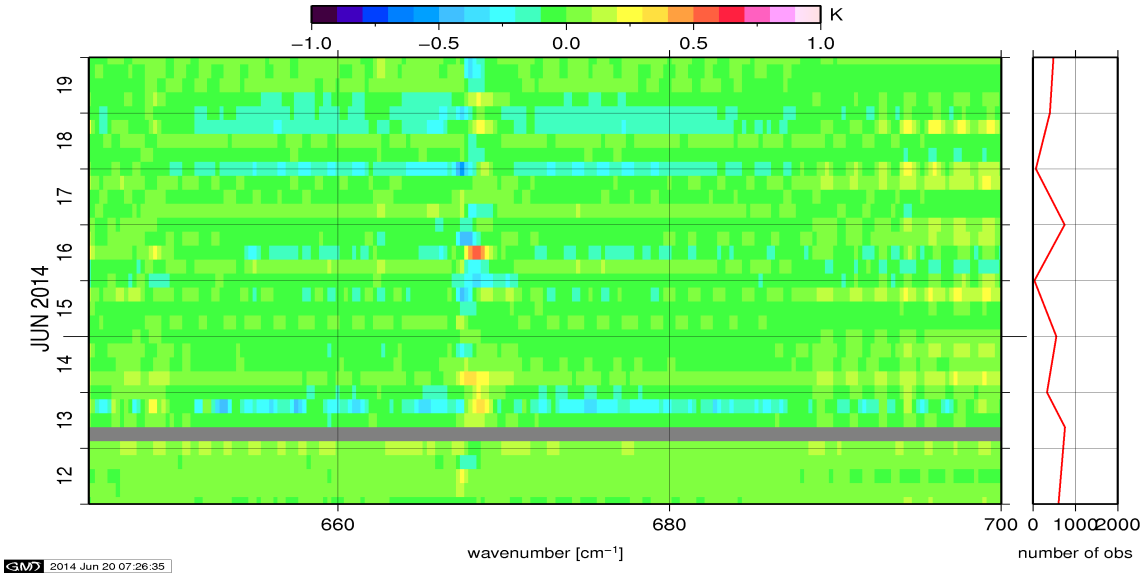

Figure 14: Radiance Anomaly in BRT: CO2 14

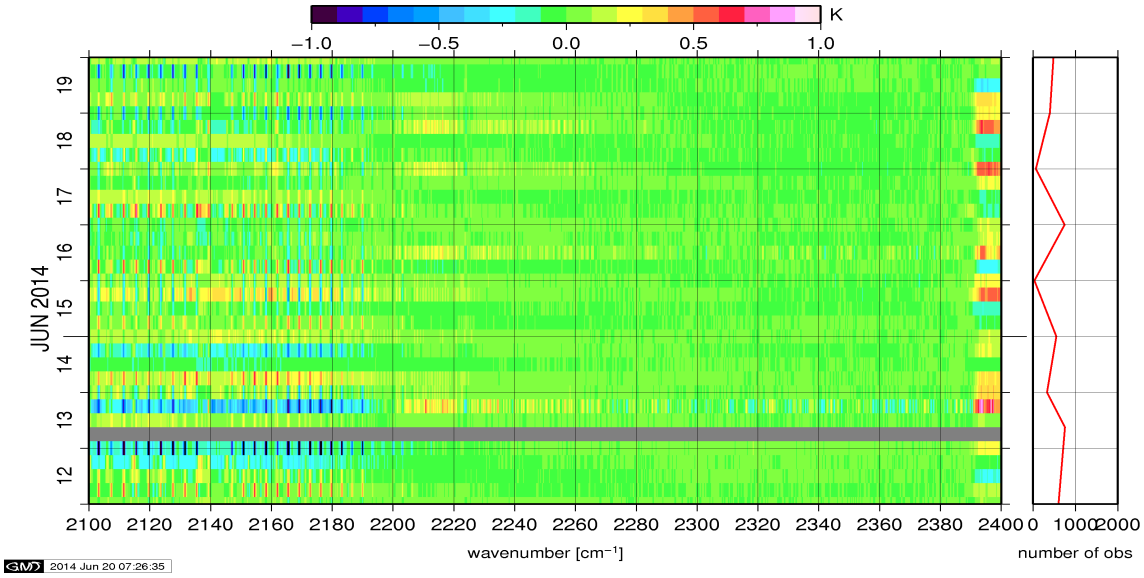

Figure 15: Radiance Anomaly in BRT: CO2 4.3

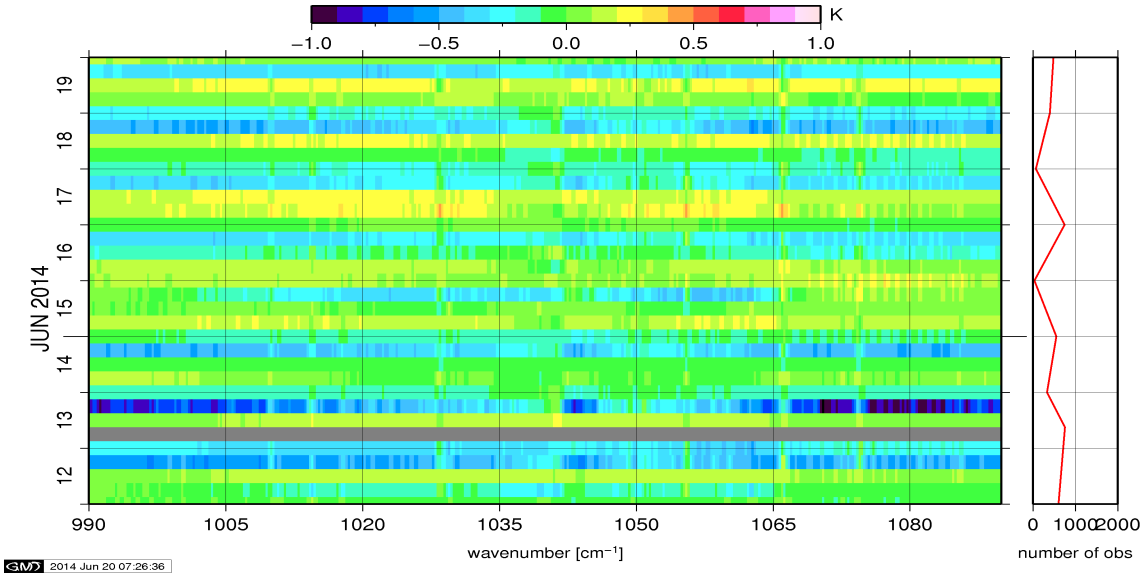

Figure 16: Radiance Anomaly in BRT: O3

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.

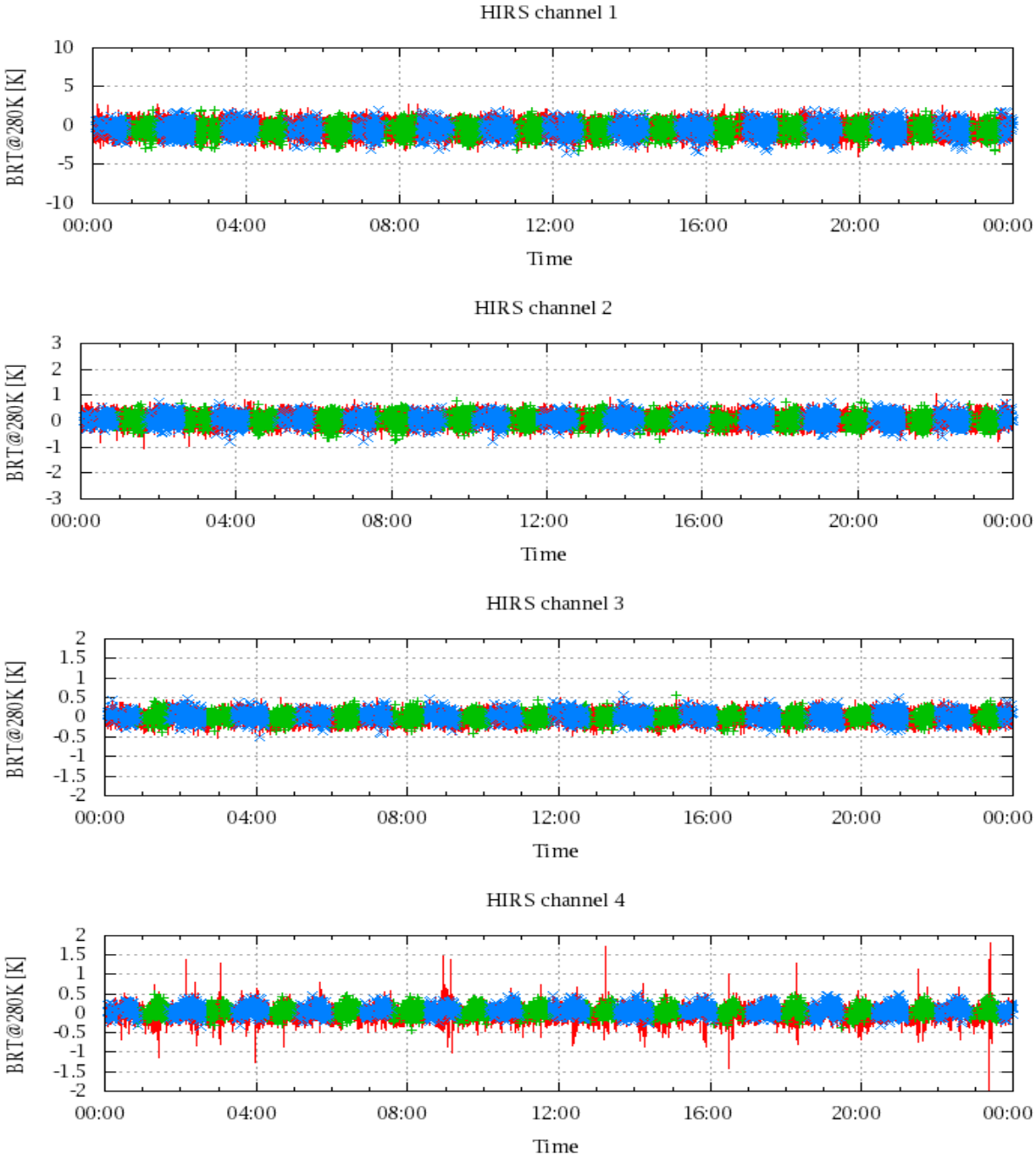

Figure 17: Radiance Differences in BRT

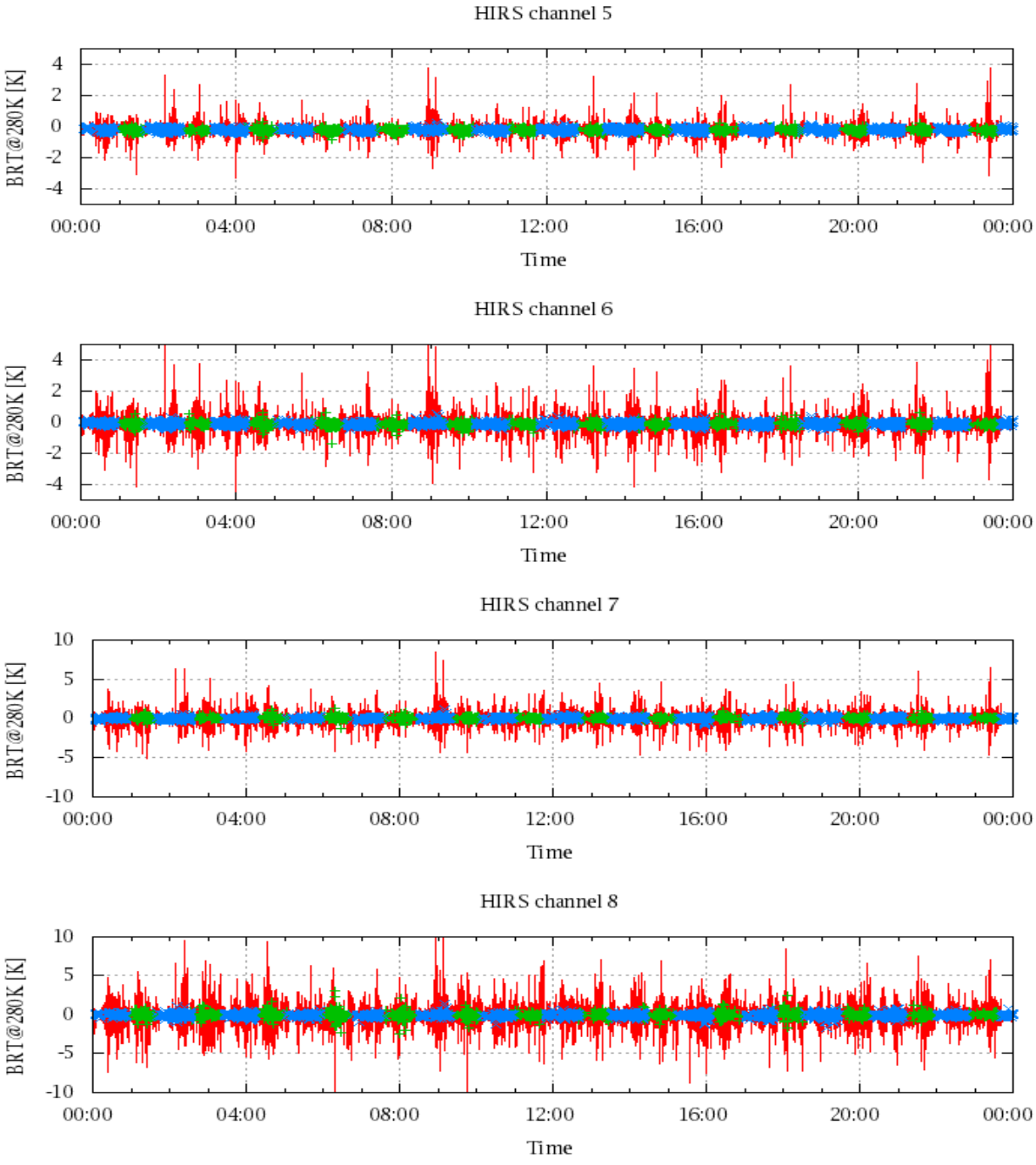

Figure 18: Radiance Differences in BRT

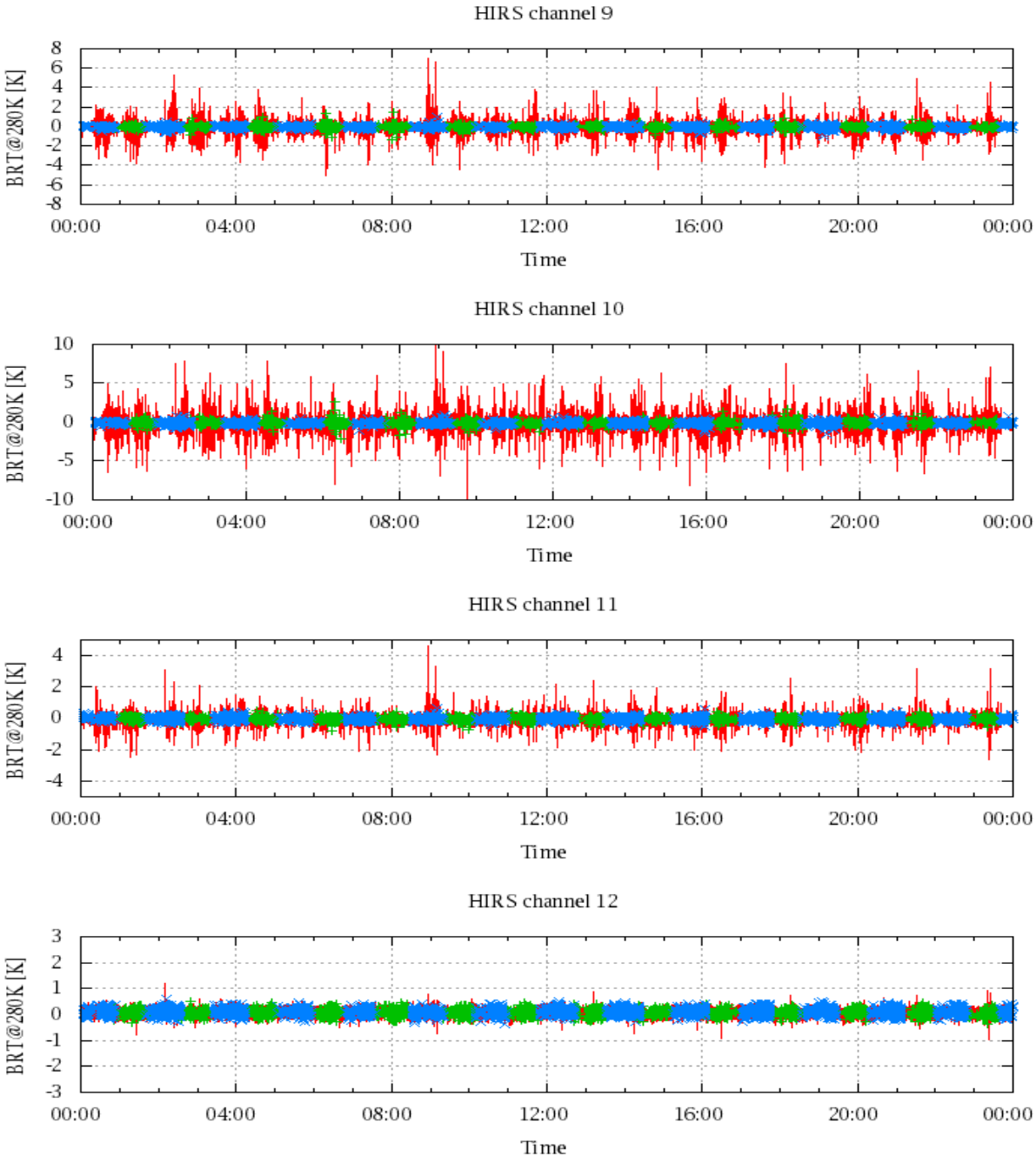

Figure 19: Radiance Differences in BRT

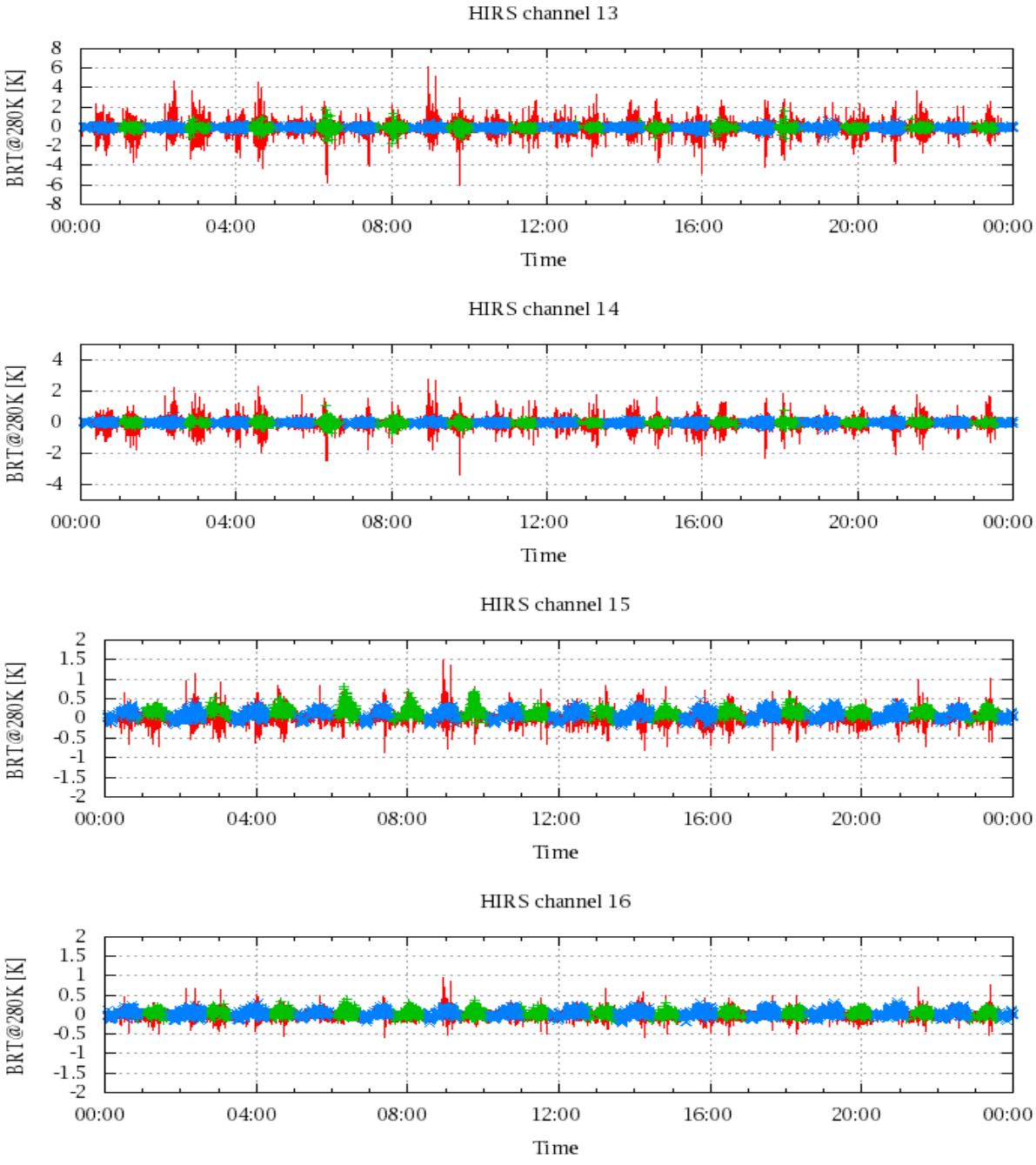

Figure 20: Radiance Differences in BRT

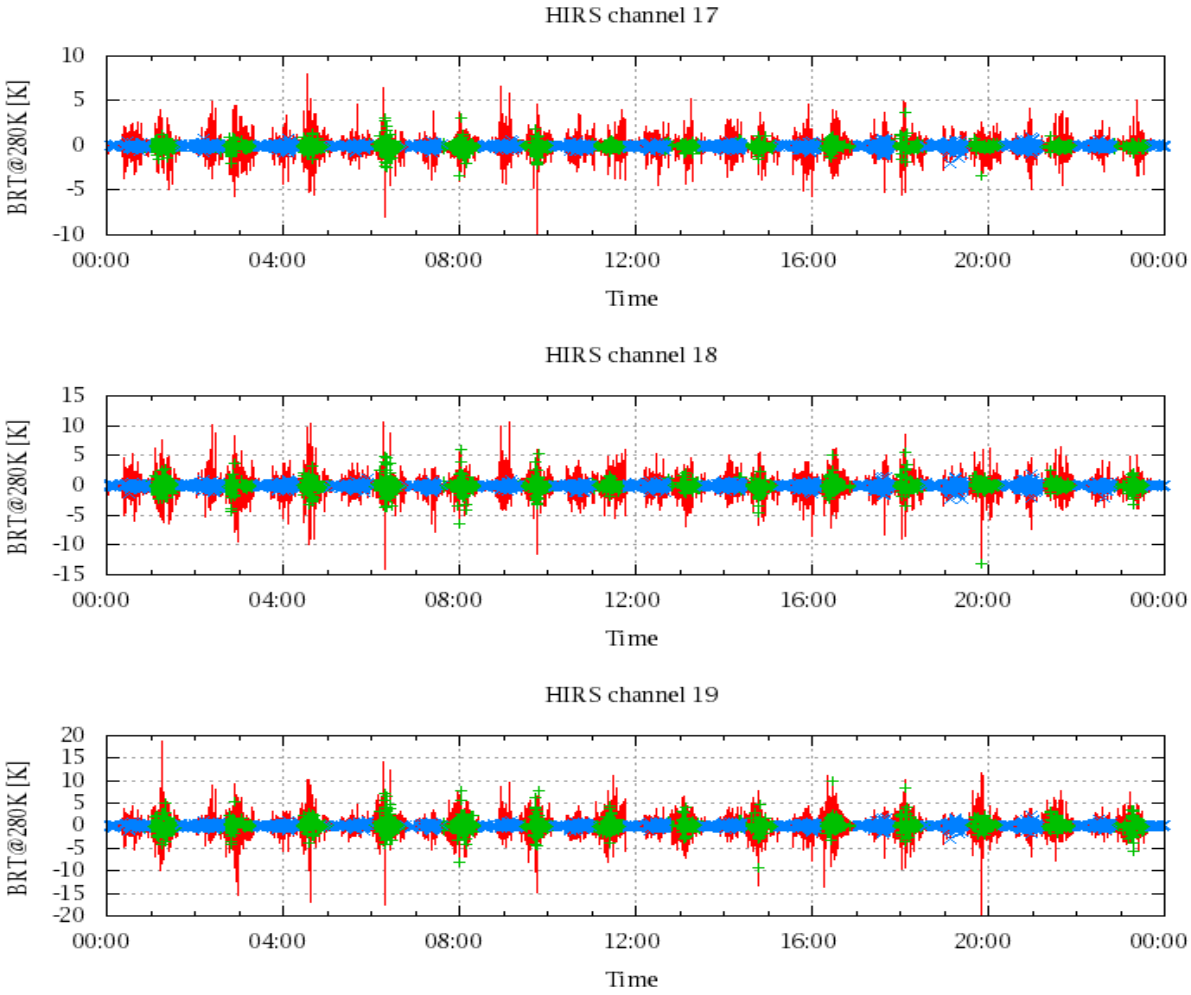

Figure 21: Radinace Differences in BRT