IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

03/07/2012 00:00:00 - 04/07/2012 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 03/07/2012 00:00:00 - 04/07/2012 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 03/07/2012 00:00:00 - 04/07/2012 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)	11748	11751	20120703025953.711	20120703025954.363
PX1 (130)	11751	11791	20120703025954.363	20120703030006.039
PX1 (130)	11791	11853	20120703030006.039	20120703030022.469
PX1 (130)	11853	11864	20120703030022.469	20120703030024.848
PX1 (130)	11868	11874	20120703030025.711	20120703030027.008
PX1 (130)	16197	16200	20120703031939.665	20120703031941.825
PX1 (130)	16204	16211	20120703031942.689	20120703031944.204
PX1 (130)	16224	16237	20120703031947.013	20120703031951.337
PX1 (130)	16237	16253	20120703031951.337	20120703031954.798
PX1 (130)	16256	16284	20120703031955.446	20120703032003.013
PX1 (130)	16286	16288	20120703032003.446	20120703032005.392
PX1 (130)	16296	16298	20120703032007.122	20120703032007.552
PX2 (135)	11747	11787	20120703025953.496	20120703030003.656
PX2 (135)	11787	11853	20120703030003.656	20120703030022.469
PX2 (135)	11853	11864	20120703030022.469	20120703030024.848
PX2 (135)	11868	11874	20120703030025.711	20120703030027.008
PX2 (135)	16197	16200	20120703031939.665	20120703031941.825
PX2 (135)	16204	16211	20120703031942.689	20120703031944.204

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	16224	16236	20120703031947.013	20120703031951.122
PX2 (135)	16237	16253	20120703031951.337	20120703031954.798
PX2 (135)	16255	16283	20120703031955.231	20120703032002.798
PX2 (135)	16285	16288	20120703032003.228	20120703032005.392
PX2 (135)	16296	16298	20120703032007.122	20120703032007.552
PX3 (140)	11747	11776	20120703025953.496	20120703030001.281
PX3 (140)	11776	11787	20120703030001.281	20120703030003.656
PX3 (140)	11787	11853	20120703030003.656	20120703030022.469
PX3 (140)	11853	11863	20120703030022.469	20120703030024.633
PX3 (140)	11868	11874	20120703030025.711	20120703030027.008
PX3 (140)	16197	16200	20120703031939.665	20120703031941.825
PX3 (140)	16204	16211	20120703031942.689	20120703031944.204
PX3 (140)	16224	16236	20120703031947.013	20120703031951.122
PX3 (140)	16236	16253	20120703031951.122	20120703031954.798
PX3 (140)	16255	16272	20120703031955.231	20120703032000.419
PX3 (140)	16272	16283	20120703032000.419	20120703032002.798
PX3 (140)	16285	16288	20120703032003.228	20120703032005.392
PX3 (140)	16296	16298	20120703032007.122	20120703032007.552
PX4 (145)	11747	11776	20120703025953.496	20120703030001.281
PX4 (145)	11776	11787	20120703030001.281	20120703030003.656
PX4 (145)	11787	11852	20120703030003.656	20120703030022.254
PX4 (145)	11853	11863	20120703030022.469	20120703030024.633
PX4 (145)	11868	11874	20120703030025.711	20120703030027.008
PX4 (145)	16197	16200	20120703031939.665	20120703031941.825
PX4 (145)	16204	16211	20120703031942.689	20120703031944.204
PX4 (145)	16224	16236	20120703031947.013	20120703031951.122
PX4 (145)	16236	16252	20120703031951.122	20120703031954.579
PX4 (145)	16255	16272	20120703031955.231	20120703032000.419
PX4 (145)	16272	16283	20120703032000.419	20120703032002.798
PX4 (145)	16285	16288	20120703032003.228	20120703032005.392
PX4 (145)	16296	16298	20120703032007.122	20120703032007.552
IMG (150)	4579	4601	20120703025953.496	20120703025958.903
IMG (150)	4601	4624	20120703025958.903	20120703030004.090
IMG (150)	4624	4700	20120703030004.090	20120703030022.254
IMG (150)	4700	4711	20120703030022.254	20120703030024.633
IMG (150)	4716	4722	20120703030025.711	20120703030027.008
IMG (150)	4725	4730	20120703030027.660	20120703030029.387
IMG (150)	9621	9628	20120703031939.665	20120703031941.825
IMG (150)	9631	9639	20120703031942.474	20120703031944.204
IMG (150)	9651	9668	20120703031946.798	20120703031951.122
IMG (150)	9668	9684	20120703031951.122	20120703031954.579
IMG (150)	9687	9690	20120703031955.231	20120703031956.095
IMG (150)	9692	9719	20120703031956.743	20120703032002.798
IMG (150)	9721	9724	20120703032003.228	20120703032004.095
IMG (150)	9735	9738	20120703032006.907	20120703032007.552
VER (160)	15709	15718	20120703025947.660	20120703030003.656
VER (160)	15719	15735	20120703030003.656	20120703030035.656
VER (160)	67	76	20120703031939.665	20120703031955.446
VER (160)	80	85	20120703031955.446	20120703032003.446
AUX (180)	6399	6401	20120703025948.090	20120703030004.090
AUX (180)	6401	6405	20120703030004.090	20120703030036.090
AUX (180)	6547	6550	20120703031932.095	20120703031956.095

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
03/07/2012 00:00:03	-	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)	99.29 %	-
GQisFlagQual set (PX2)	99.13 %	-
GQisFlagQual set (PX3)	99.23 %	-
GQisFlagQual set (PX4)	99.36 %	-
GQisFlagQual set (all)	99.25 %	-

Table 4: Quality flags

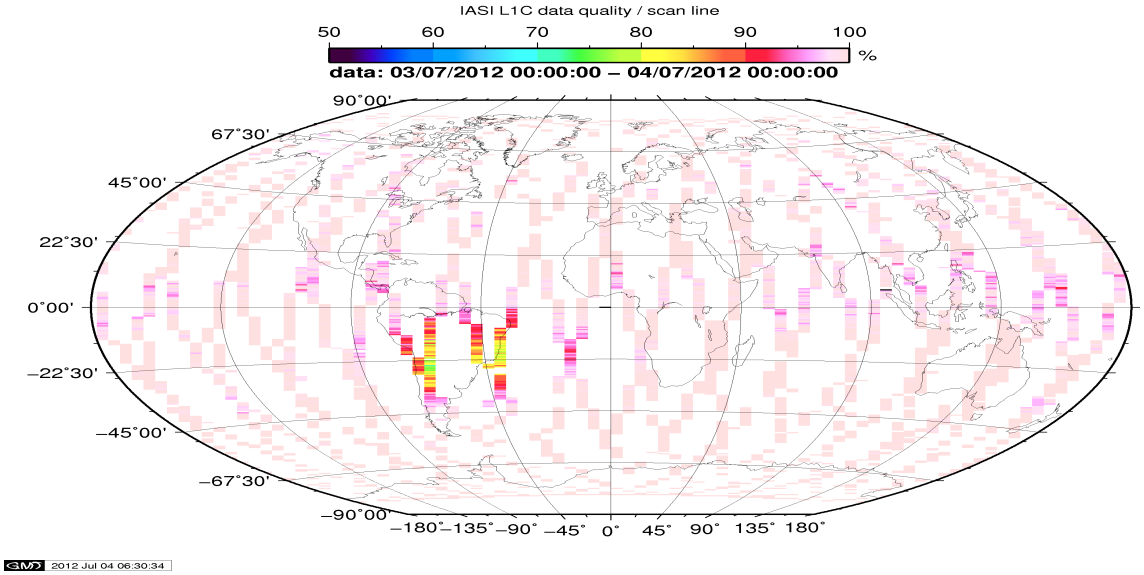

Figure 1: L1C data quality

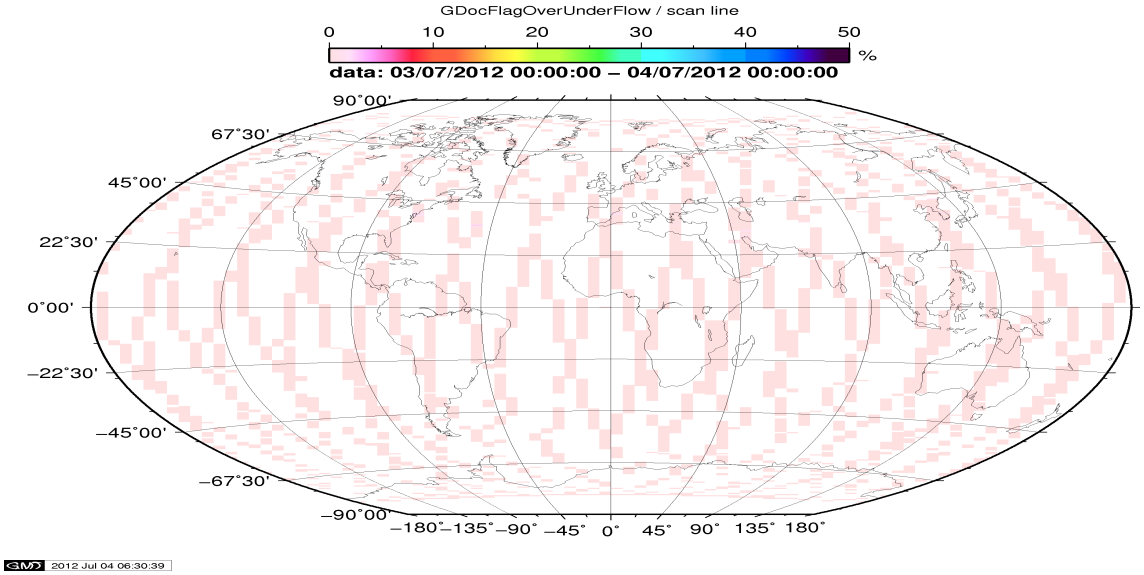

Figure 2: Flag of Over and Under Flows

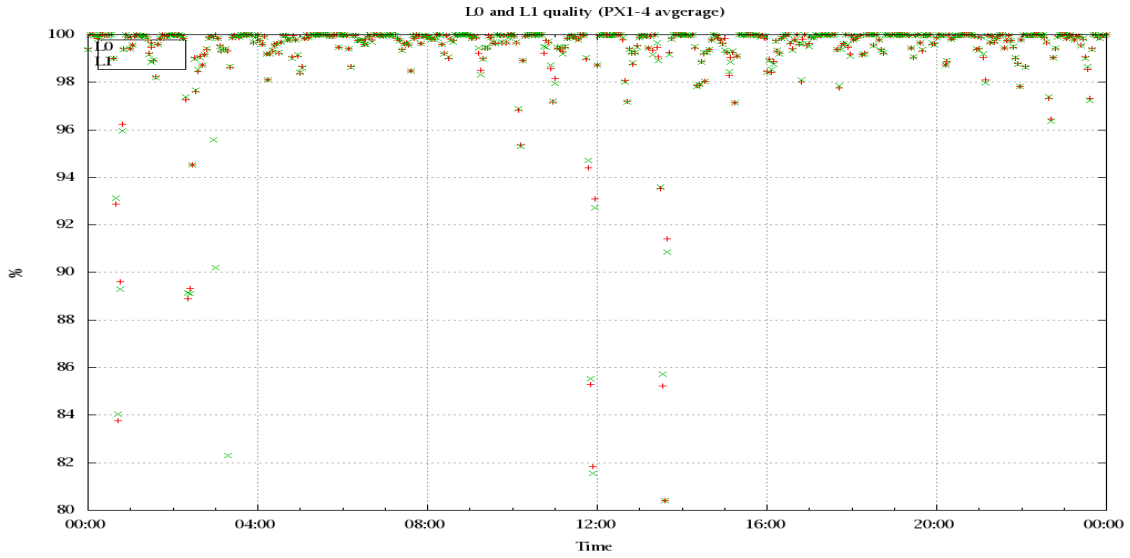

Figure 3: Level 0 and 1C overall quality

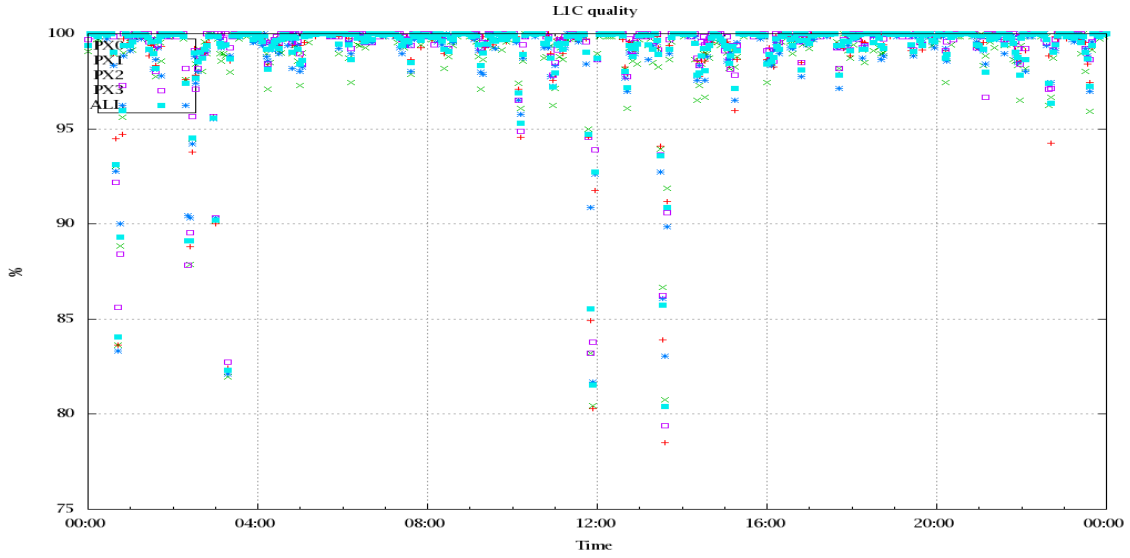

Figure 4: Level 1C quality

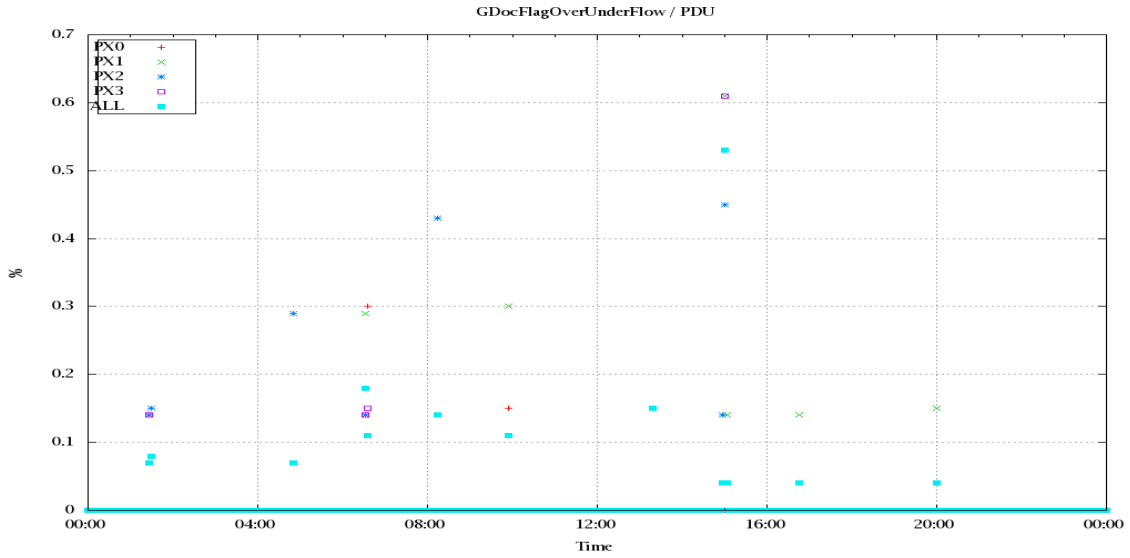

Figure 5: OverUnderFlowFlag timeseries

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.

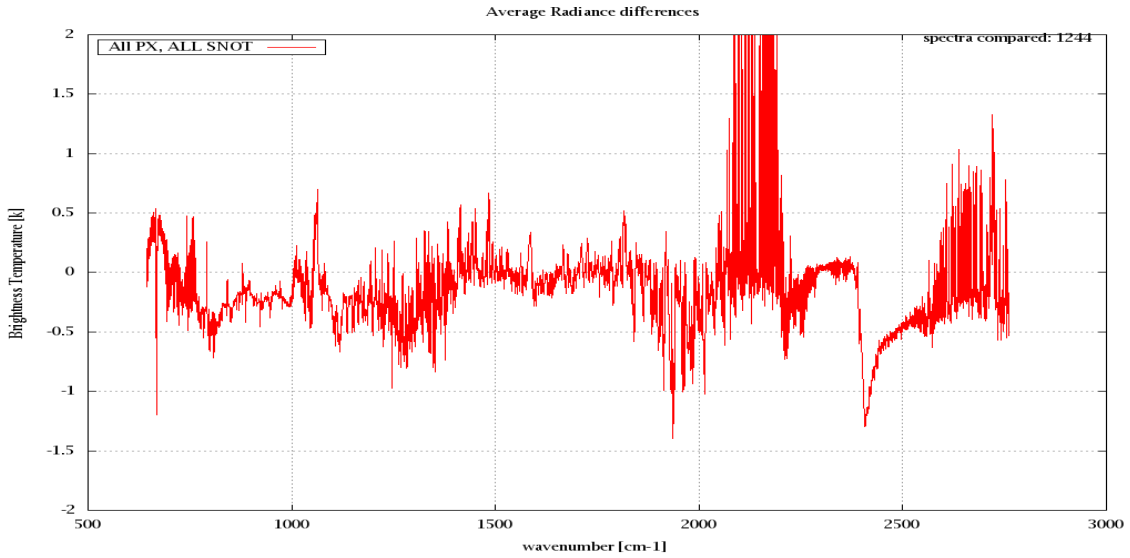

Figure 6: Average Radiance differences: OBS-CAL

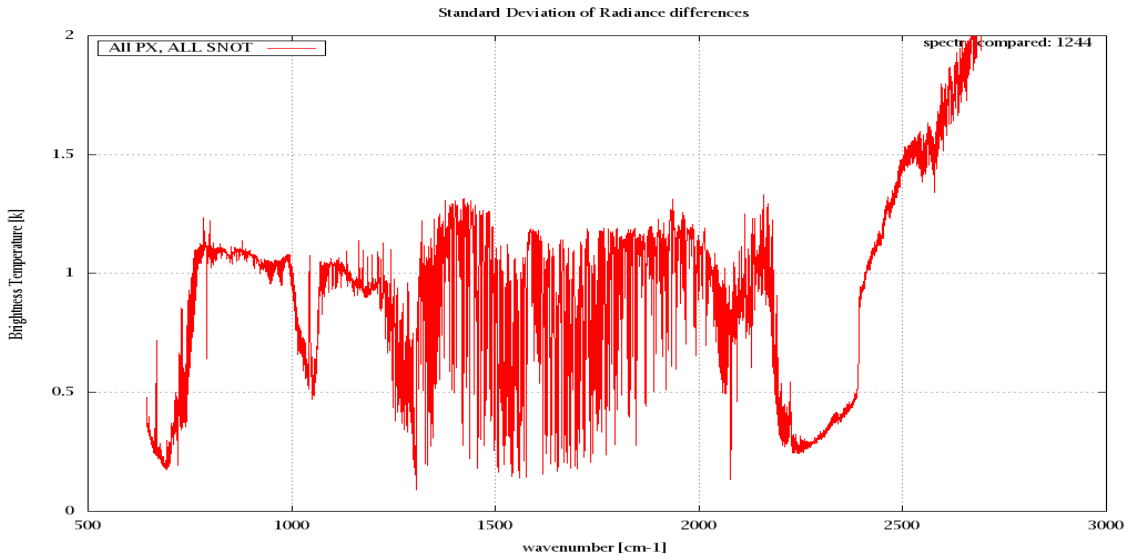

Figure 7: Standard Deviation of Radiance differences

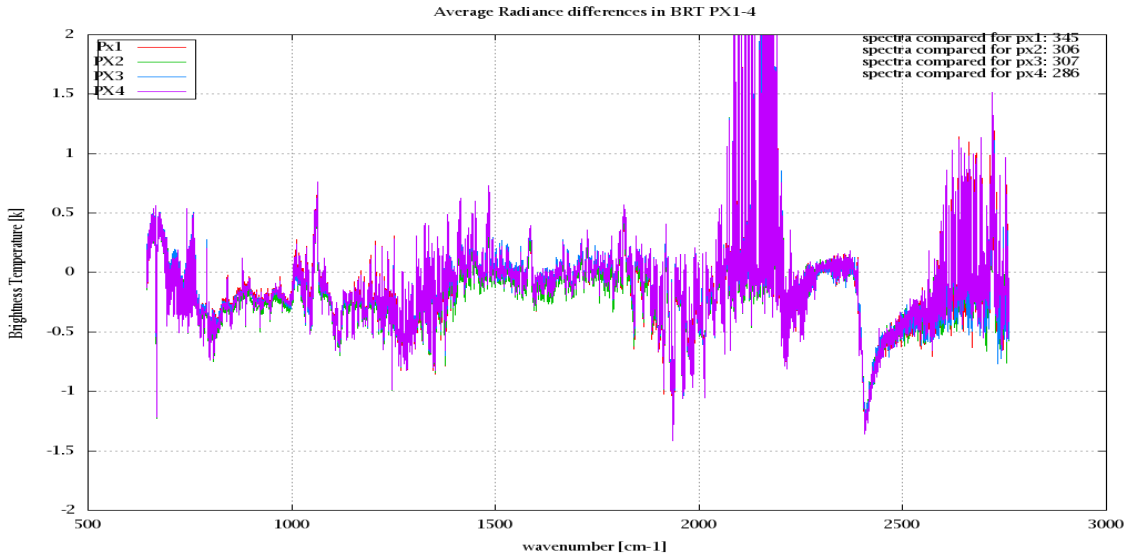

Figure 8: Average Radiance differences: OBS-CAL

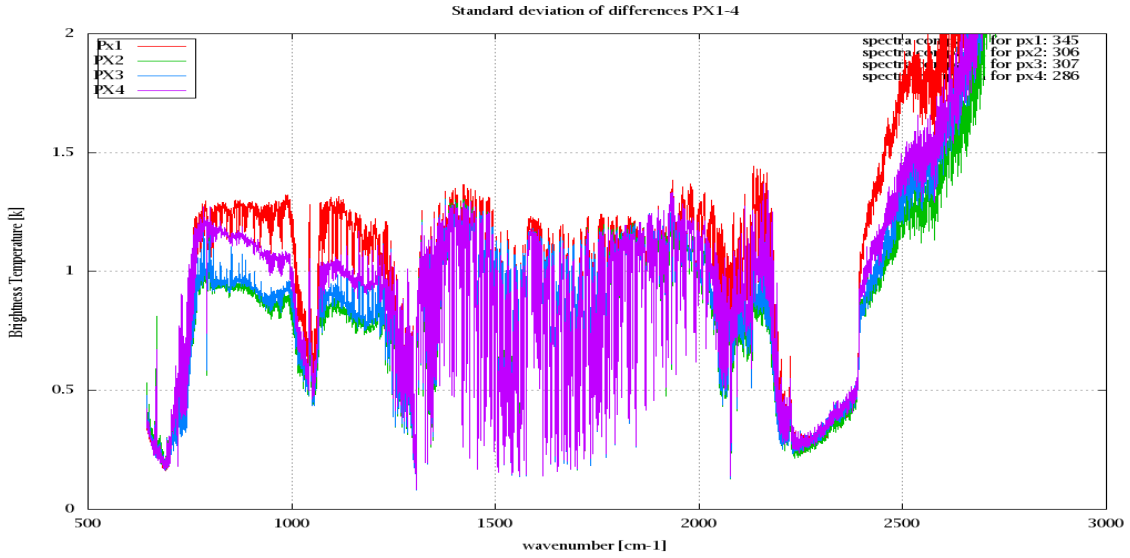

Figure 9: Standard Deviation of Radiance differences

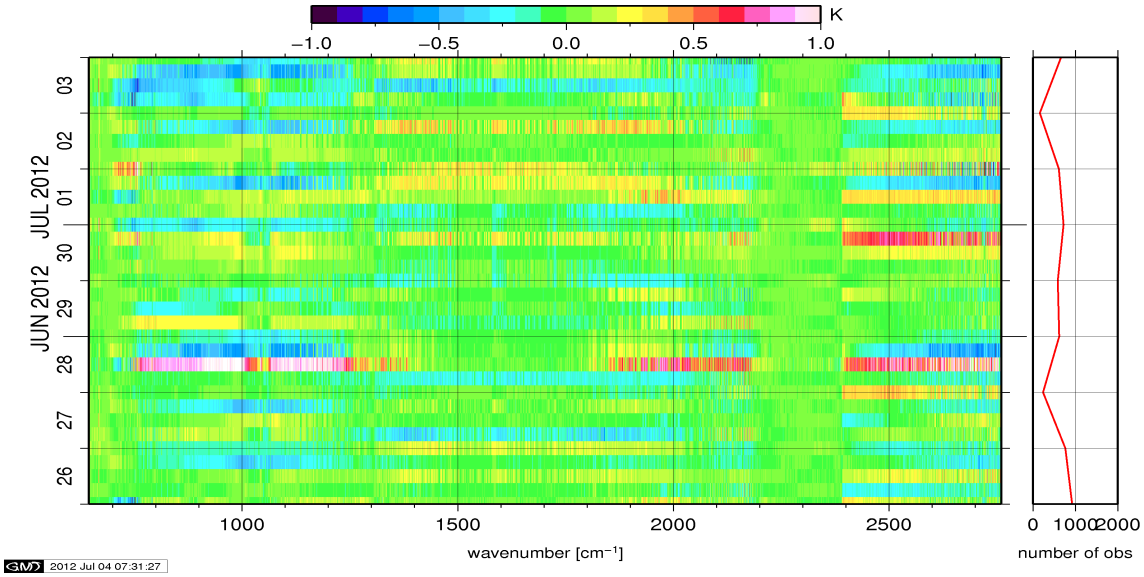

Figure 10: Radiance Anomaly in BRT: All Channels

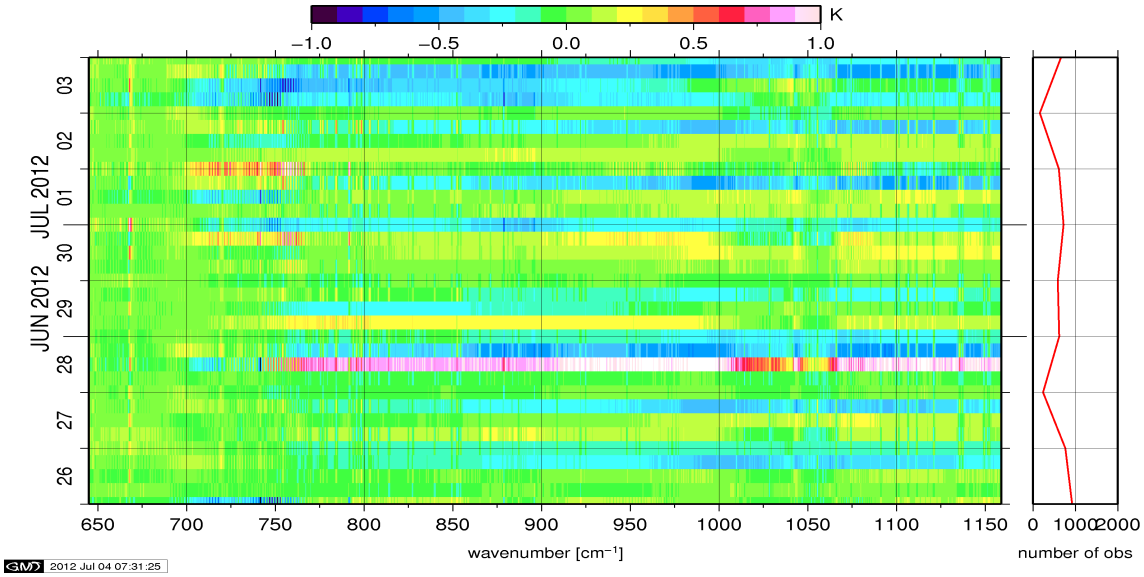

Figure 11: Radiance Anomaly in BRT: IASI Band 1

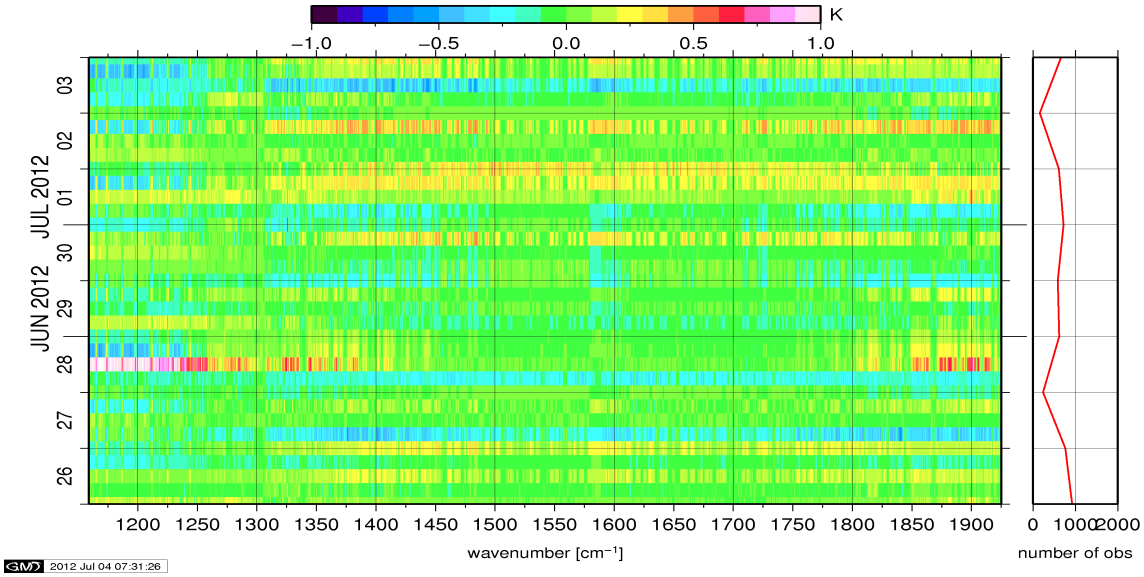

Figure 12: Radiance Anomaly in BRT: IASI Band 2

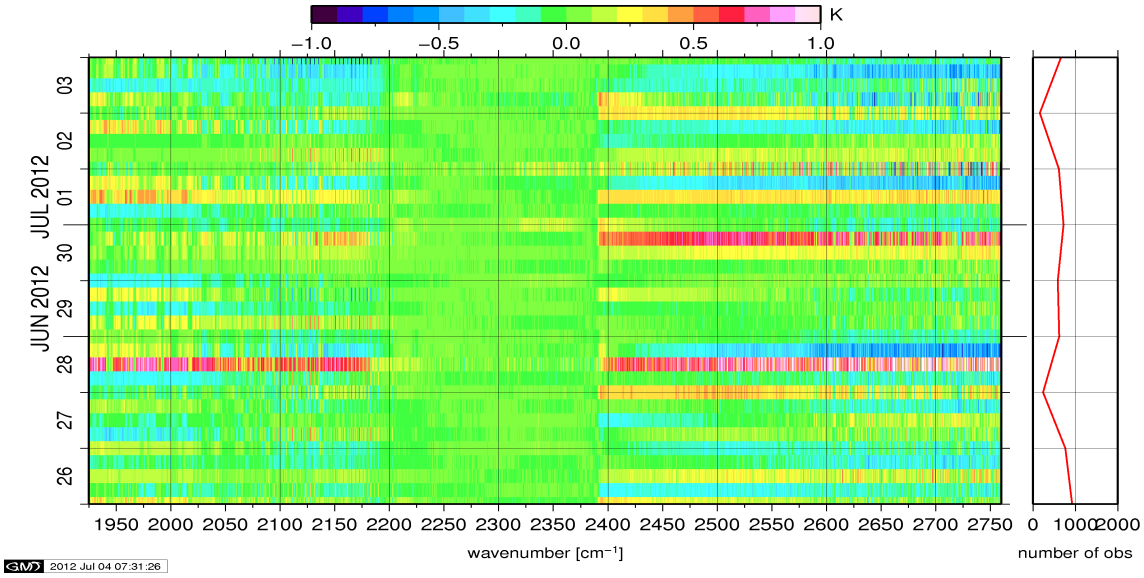

Figure 13: Radiance Anomaly in BRT: IASI Band 3

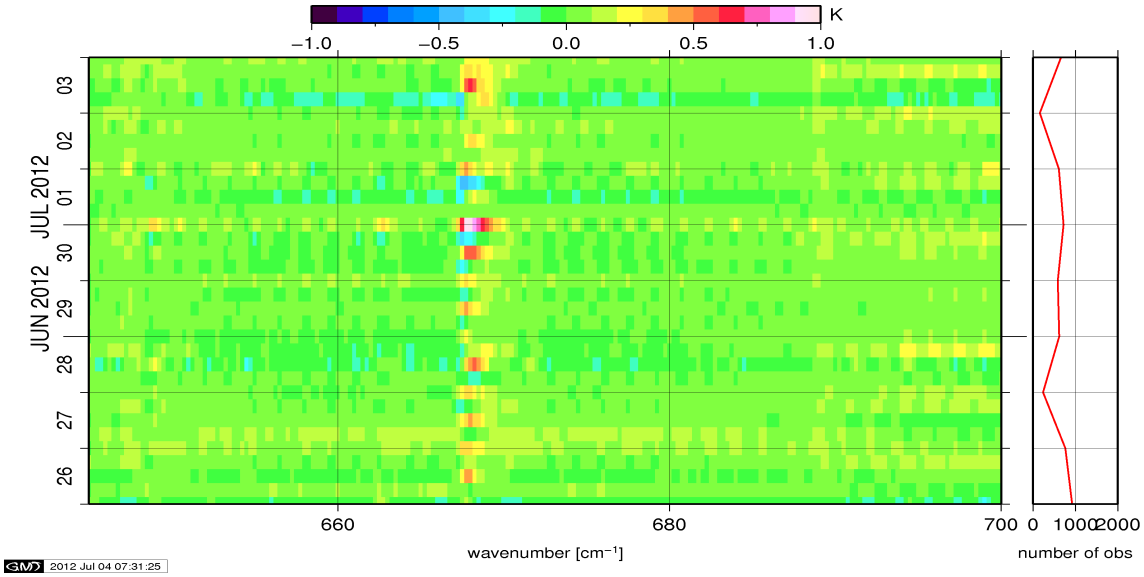

Figure 14: Radiance Anomaly in BRT: CO2 14

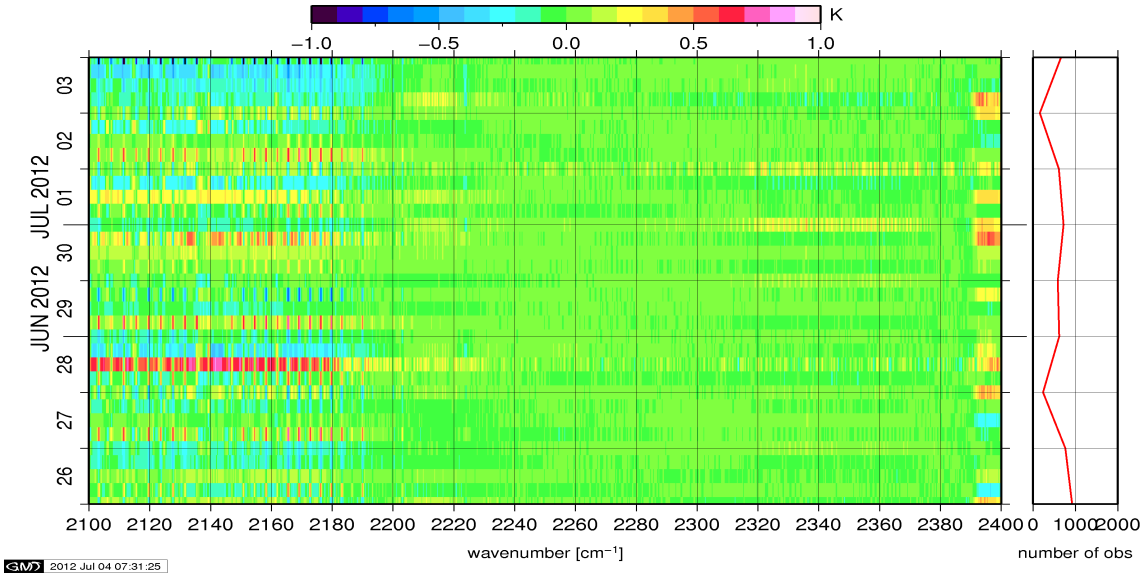

Figure 15: Radiance Anomaly in BRT: CO2 4.3

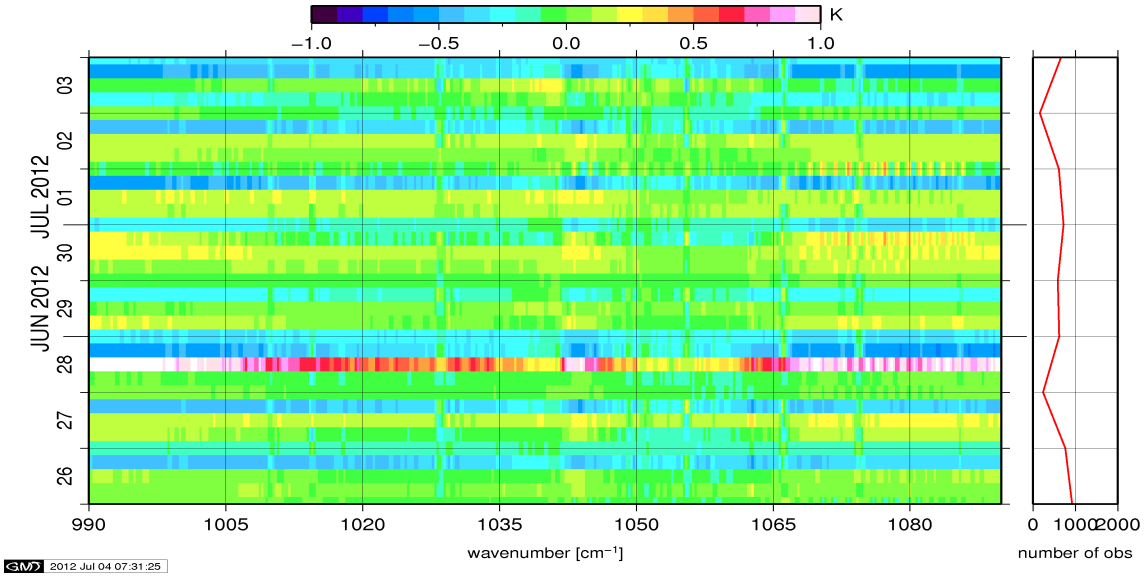

Figure 16: Radiance Anomaly in BRT: O3

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.

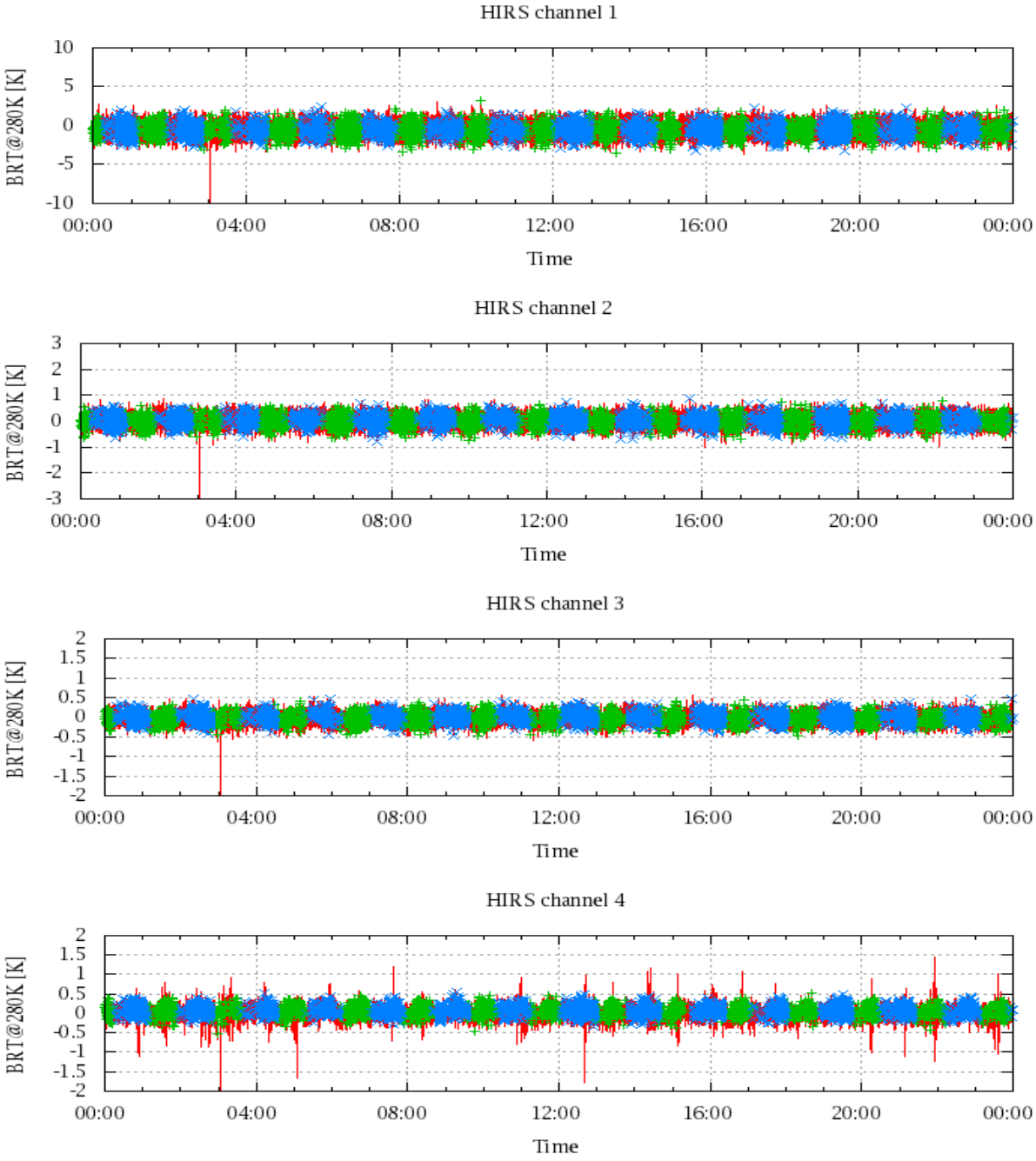

Figure 17: Radiance Differences in BRT

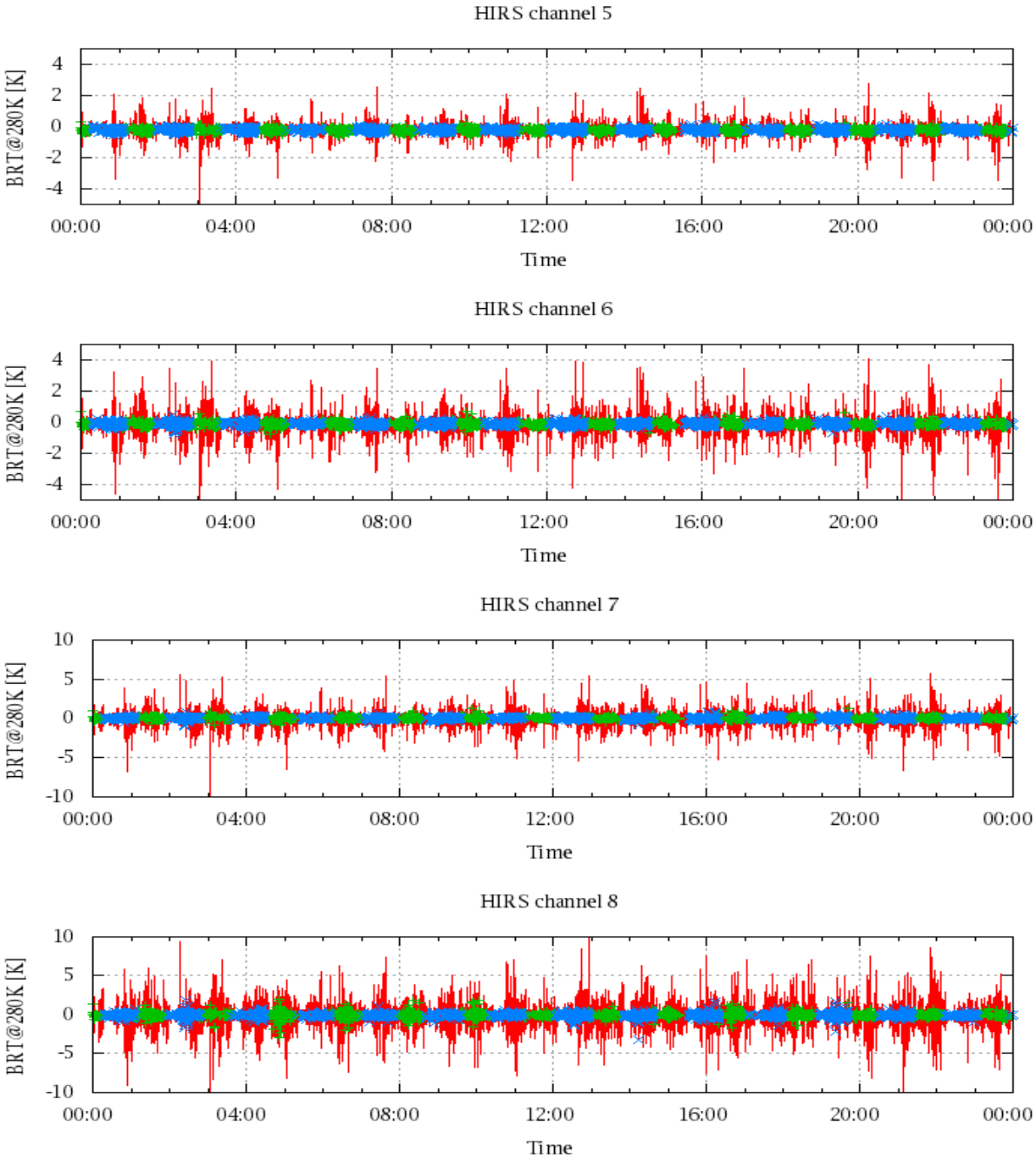

Figure 18: Radiance Differences in BRT

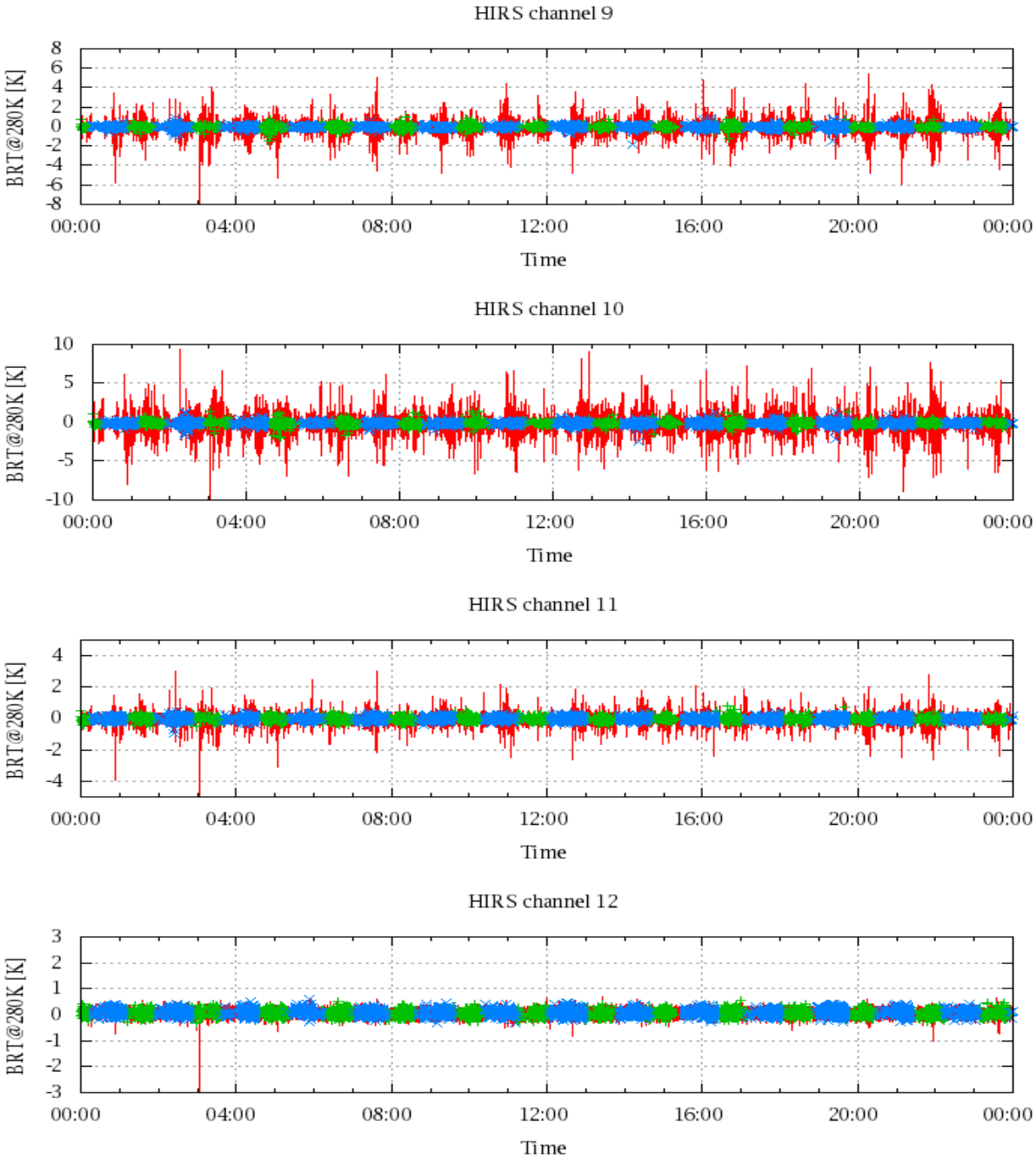

Figure 19: Radiance Differences in BRT

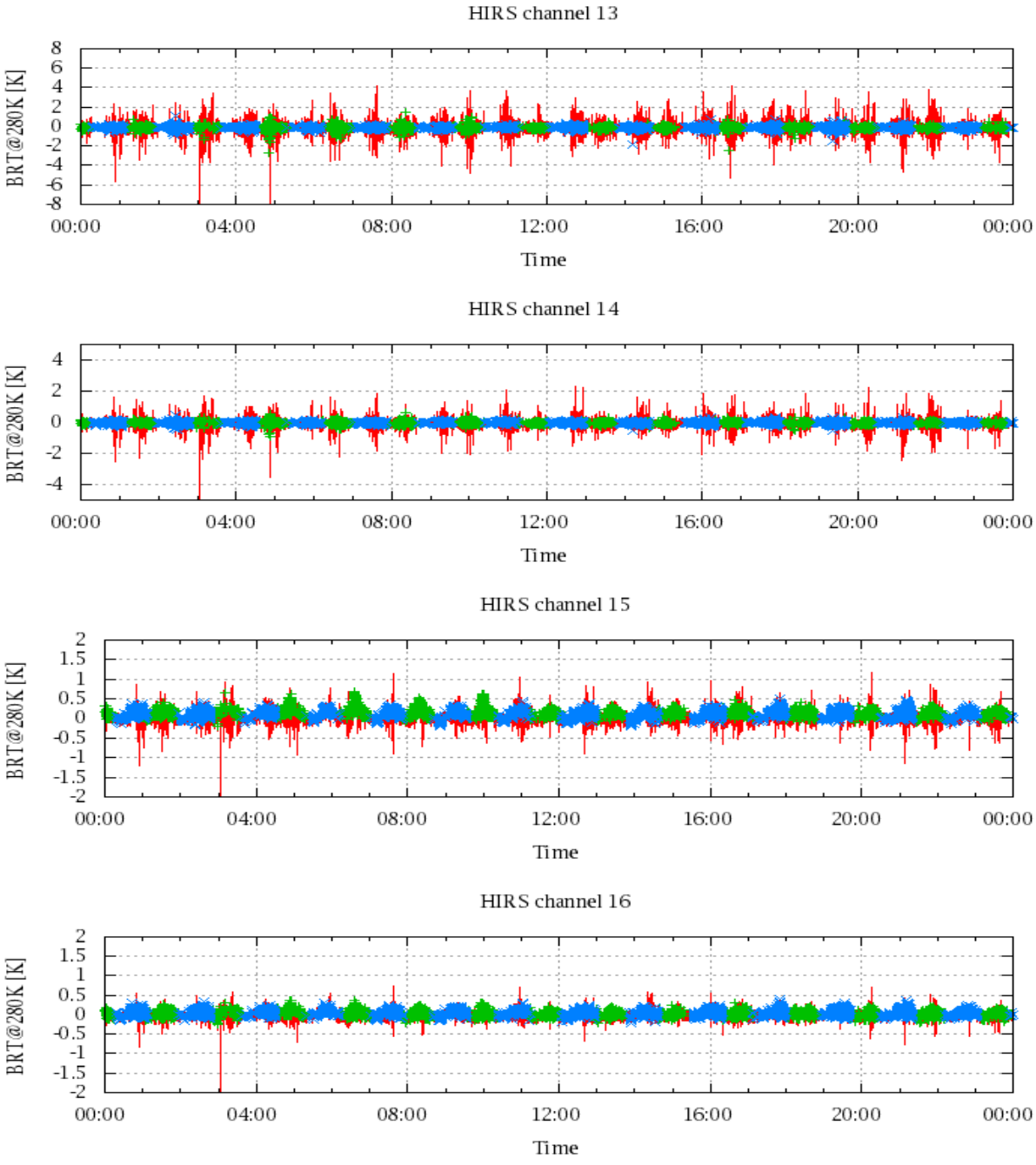

Figure 20: Radiance Differences in BRT

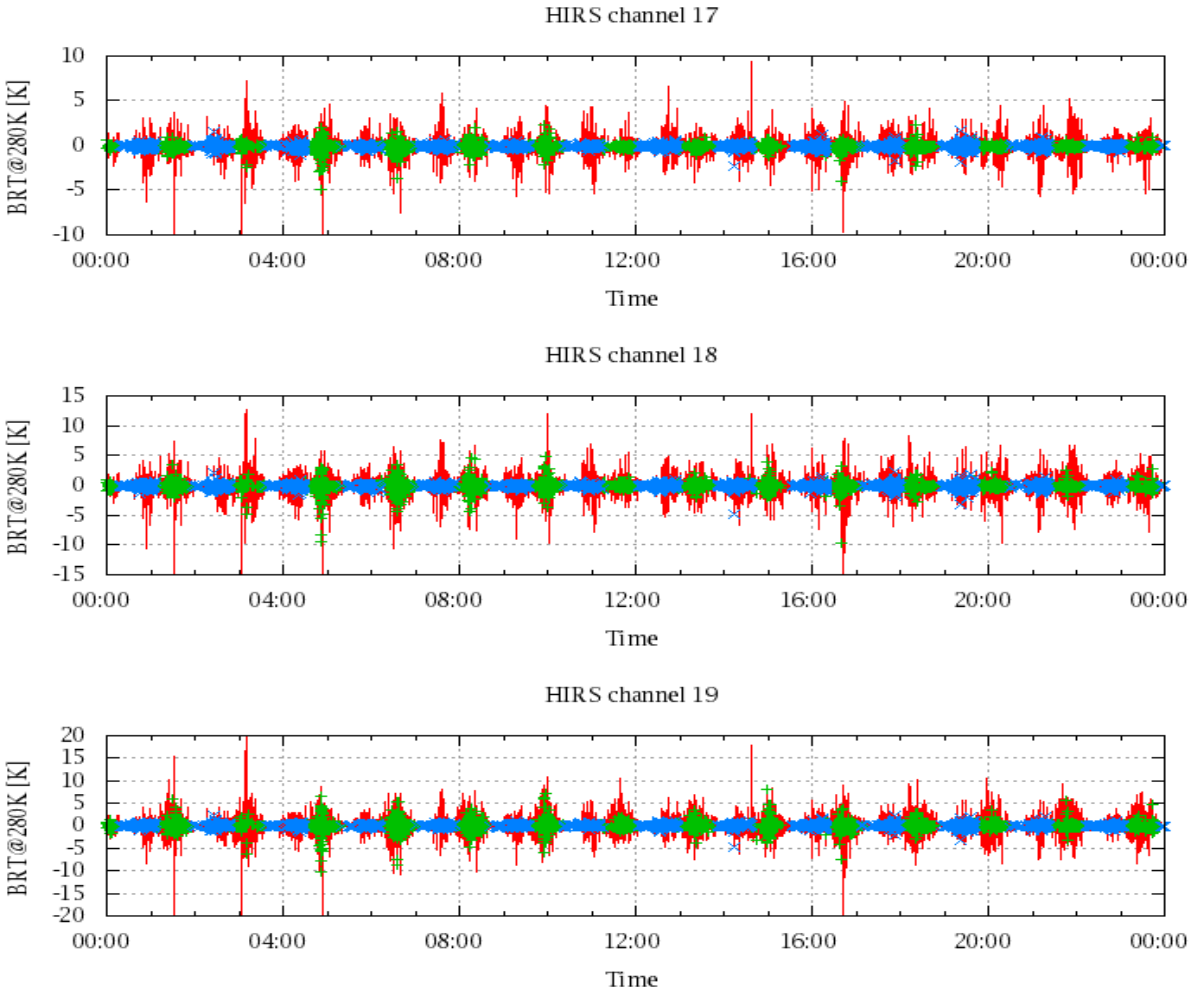

Figure 21: Radinace Differences in BRT