IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

27/08/2015 00:00:00 - 28/08/2015 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 27/08/2015 00:00:00 - 28/08/2015 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 27/08/2015 00:00:00 - 28/08/2015 00:00:00

Product Type	**Number**	**Action**
L0 HKTM PDUs	479	-
L0 IASI PDUs	479	-
L1 ENG PDUs	478	-
L1 ENG distinct GEPSGranule	479	-
L1 DPX PDUs (RM: IASI-HIRS)	477	-
L1 DPS Files (RM: OBS-CAL NWP based)	478	-

Table 1: Data quantity

APID	**Seq from**	**Seq to**	**Time from**	**Time to**
PX1 (130)	13620	13623	20150827105155.340	20150827105157.504
PX1 (130)	13667	13720	20150827105208.531	20150827105223.015
PX1 (130)	13748	15513	20150827105230.586	20150827110021.526
PX1 (130)	15534	15539	20150827110026.065	20150827110027.147
PX2 (135)	13620	13623	20150827105155.340	20150827105157.504
PX2 (135)	13667	13720	20150827105208.531	20150827105223.015
PX2 (135)	13747	15513	20150827105230.367	20150827110021.526
PX2 (135)	15533	15539	20150827110025.850	20150827110027.147
PX3 (140)	13620	13623	20150827105155.340	20150827105157.504
PX3 (140)	13666	13720	20150827105208.312	20150827105223.015
PX3 (140)	13746	15513	20150827105230.152	20150827110021.526
PX3 (140)	15533	15539	20150827110025.850	20150827110027.147
PX4 (145)	13620	13623	20150827105155.340	20150827105157.504
PX4 (145)	13666	13720	20150827105208.312	20150827105223.015
PX4 (145)	13746	15513	20150827105230.152	20150827110021.526
PX4 (145)	15533	15538	20150827110025.850	20150827110026.932
IMG (150)	9571	9575	20150827105155.125	20150827105156.207
IMG (150)	9626	9688	20150827105208.312	20150827105223.015

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	9718	11717	20150827105230.152	20150827110020.229
IMG (150)	11741	11746	20150827110025.850	20150827110026.932
VER (160)	3135	3138	20150827105147.773	20150827105155.340
VER (160)	3145	3156	20150827105203.773	20150827105227.773
VER (160)	3160	3454	20150827105227.773	20150827105230.586
AUX (180)	7181	7184	20150827105204.207	20150827105228.207
AUX (180)	7184	7243	20150827105228.207	20150827110020.229

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
27/08/2015 00:00:11	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	479	-
L1 ENG PDUs	478	-
L1 ENG distinct GEPSGranule	479	-
GQisFlagQual set (PX1)	99.48 %	-
GQisFlagQual set (PX2)	99.45 %	-
GQisFlagQual set (PX3)	99.44 %	-
GQisFlagQual set (PX4)	99.48 %	-
GQisFlagQual set (all)	99.46 %	-

Table 4: Quality flags

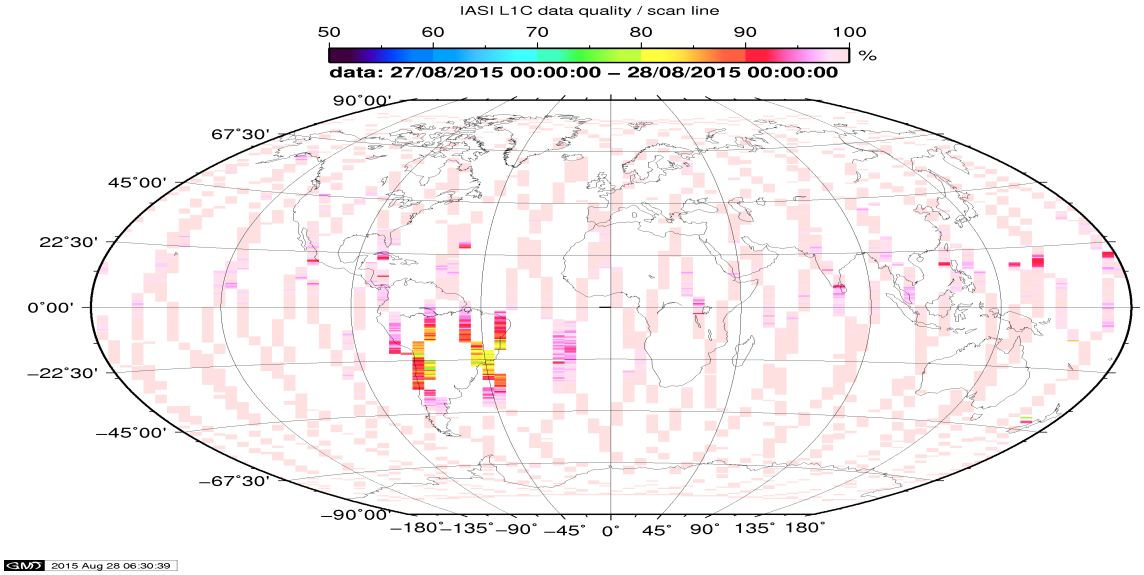

Figure 1: L1C data quality

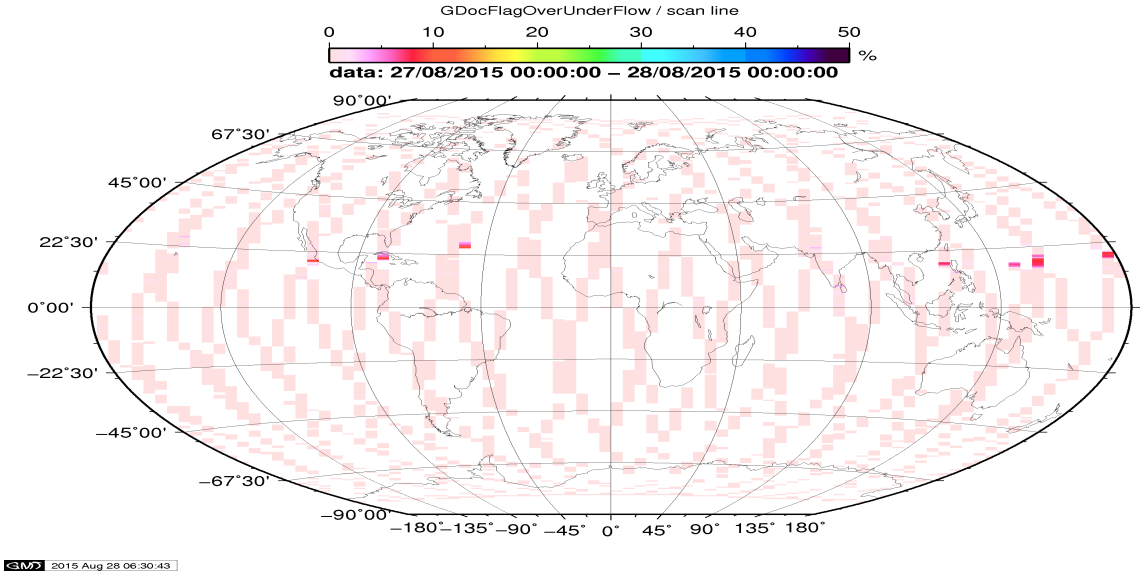

Figure 2: Flag of Over and Under Flows

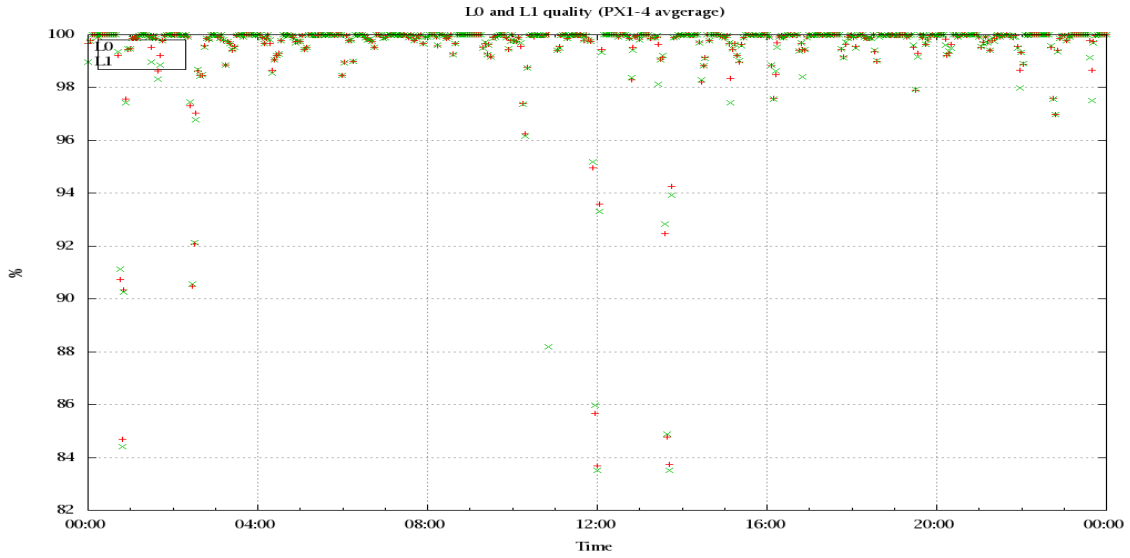

Figure 3: Level 0 and 1C overall quality

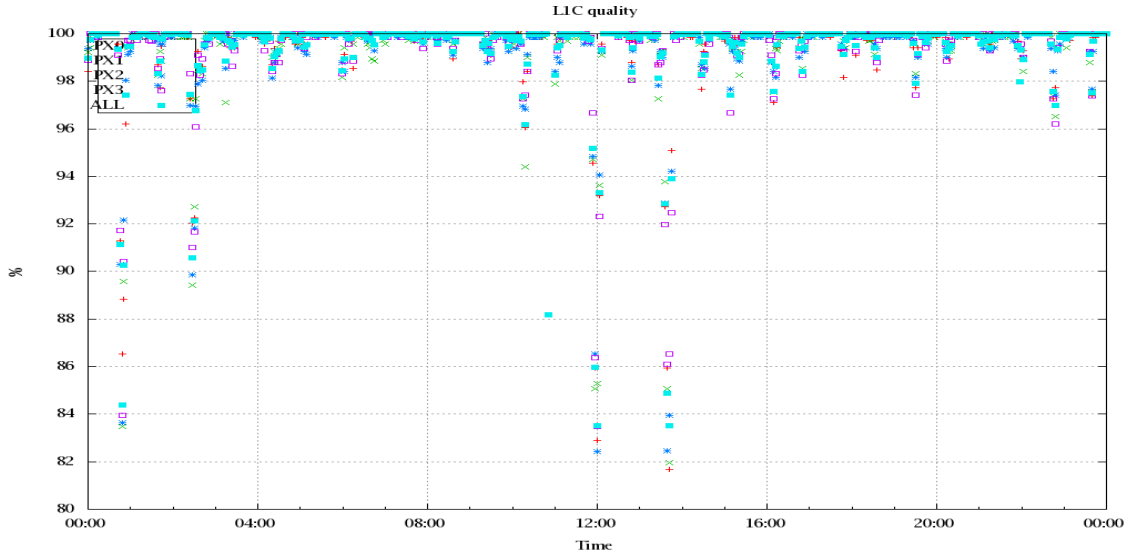

Figure 4: Level 1C quality

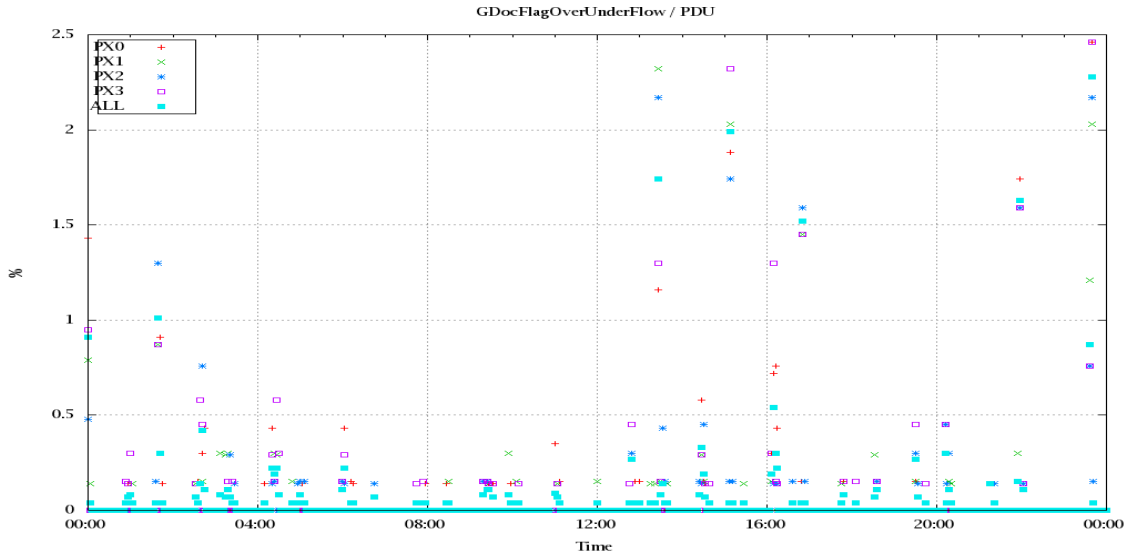

Figure 5: OverUnderFlowFlag timeseries

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.

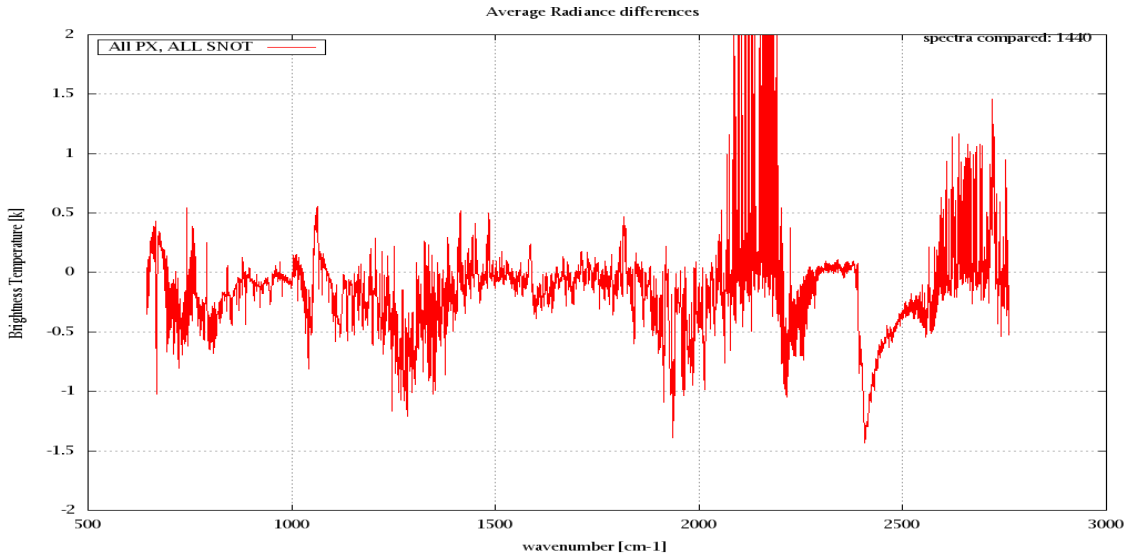

Figure 6: Average Radiance differences: OBS-CAL

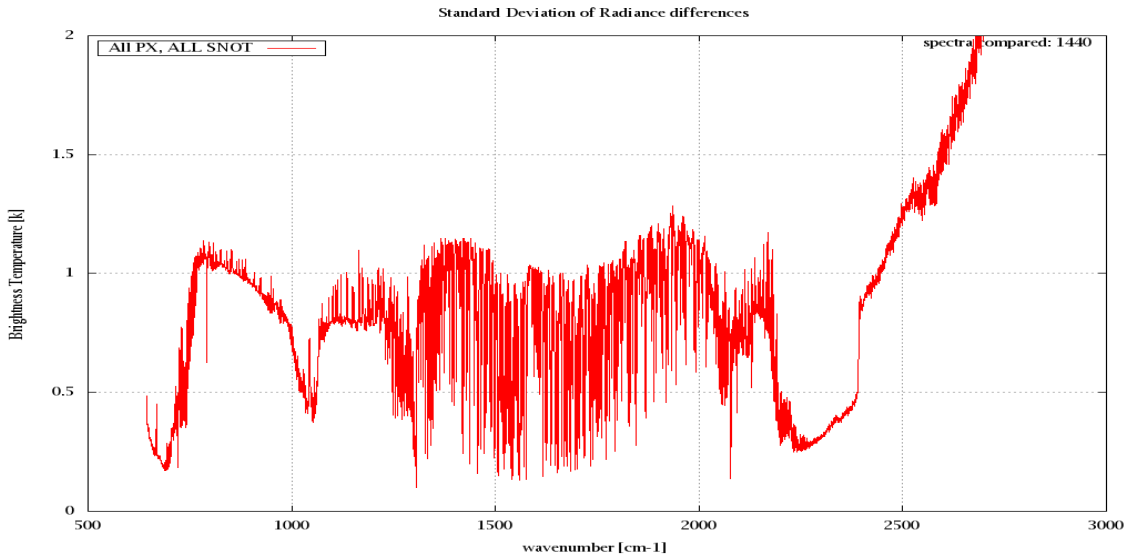

Figure 7: Standard Deviation of Radiance differences

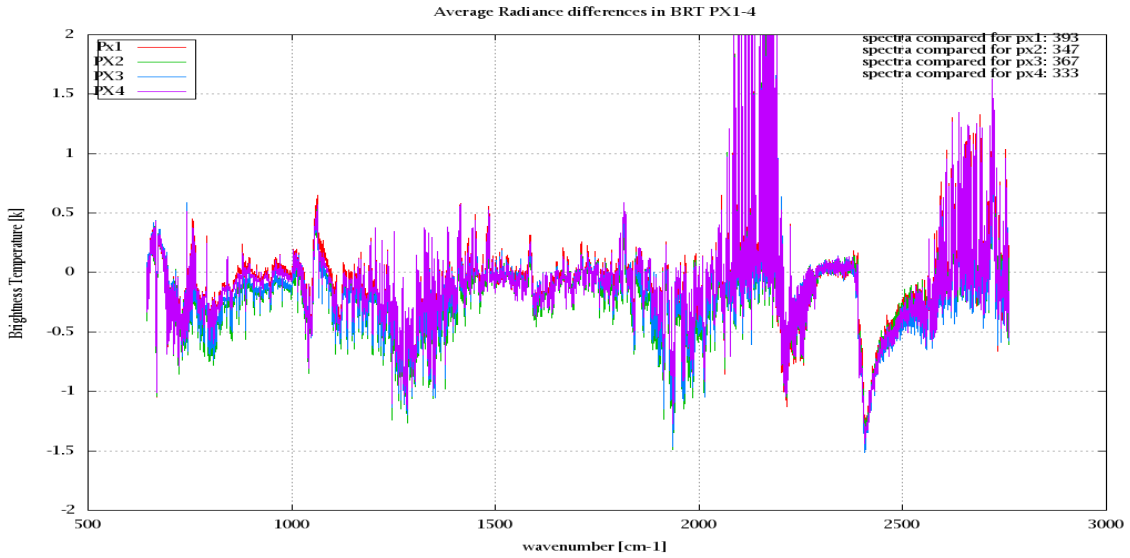

Figure 8: Average Radiance differences: OBS-CAL

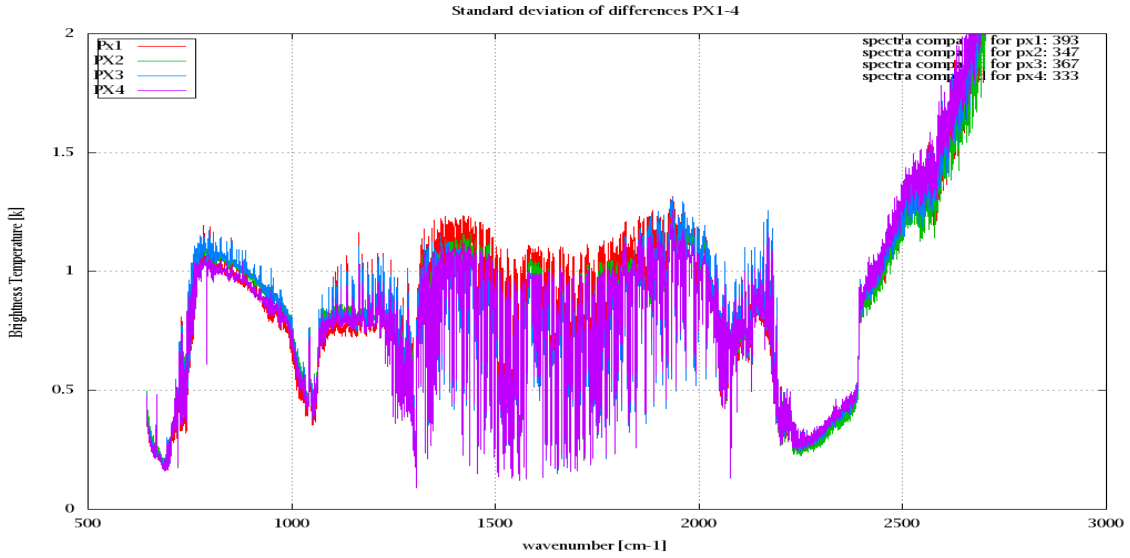

Figure 9: Standard Deviation of Radiance differences

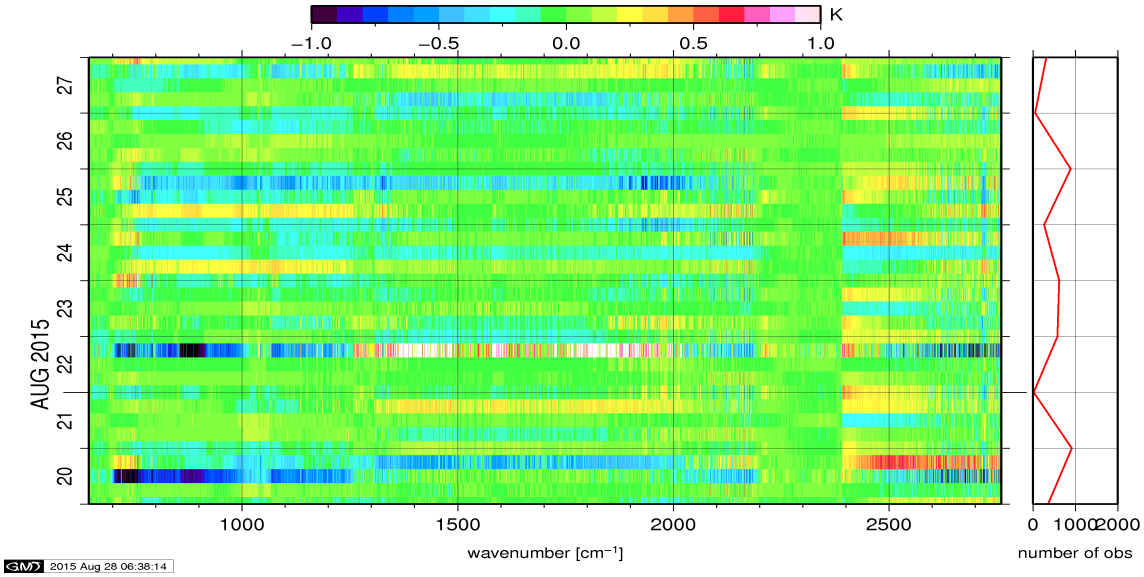

Figure 10: Radiance Anomaly in BRT: All Channels

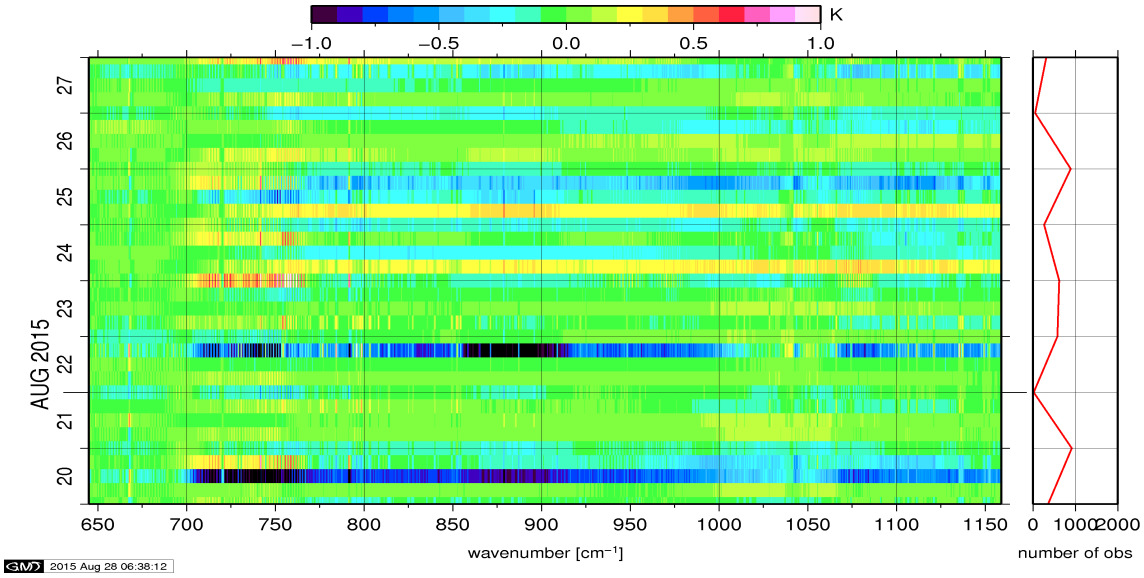

Figure 11: Radiance Anomaly in BRT: IASI Band 1

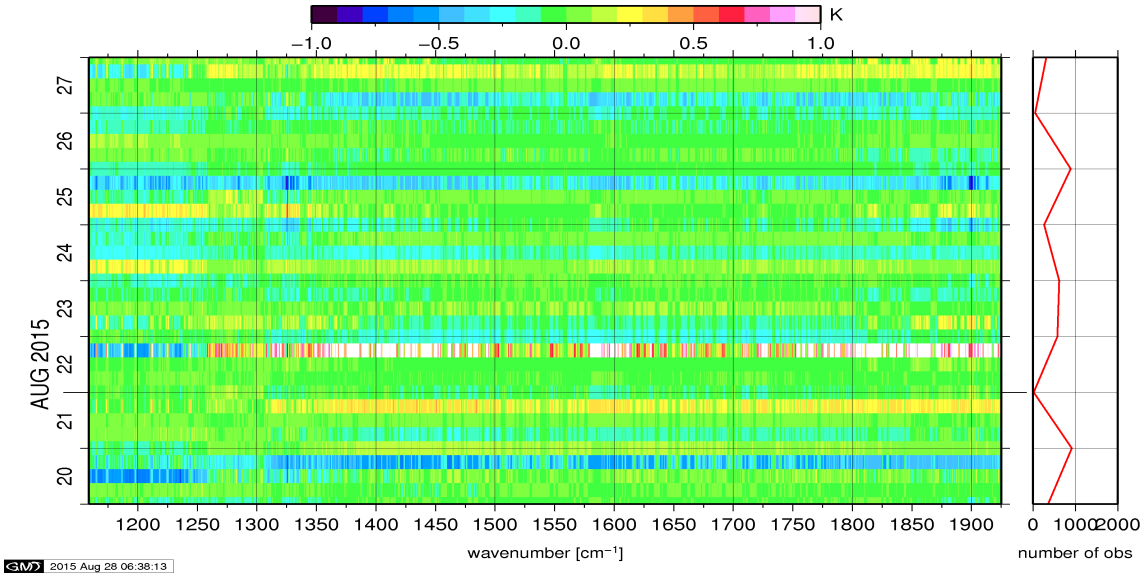

Figure 12: Radiance Anomaly in BRT: IASI Band 2

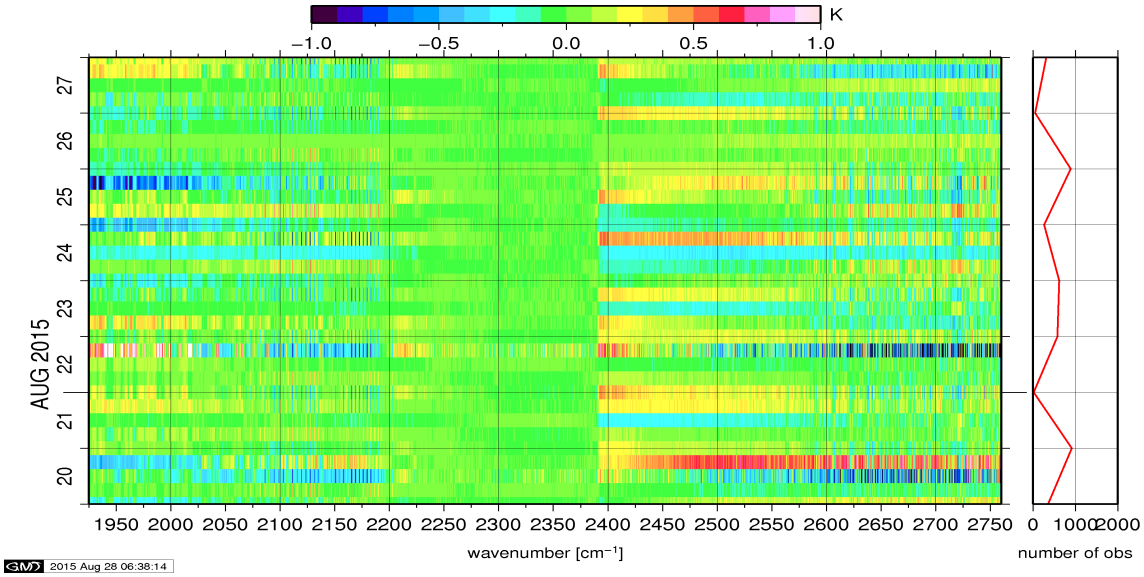

Figure 13: Radiance Anomaly in BRT: IASI Band 3

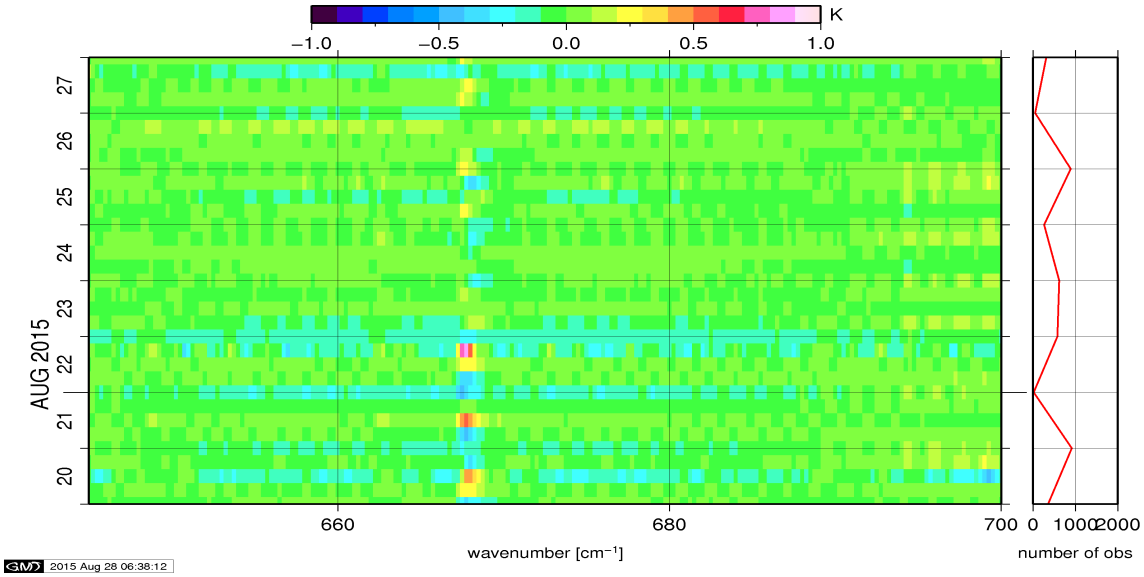

Figure 14: Radiance Anomaly in BRT: CO2 14

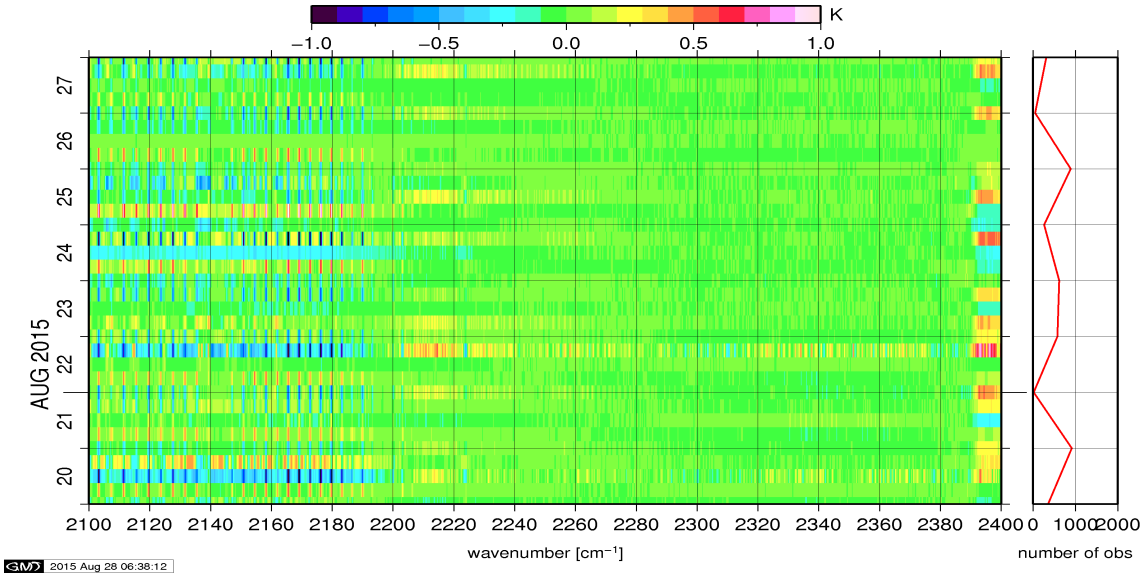

Figure 15: Radiance Anomaly in BRT: CO2 4.3

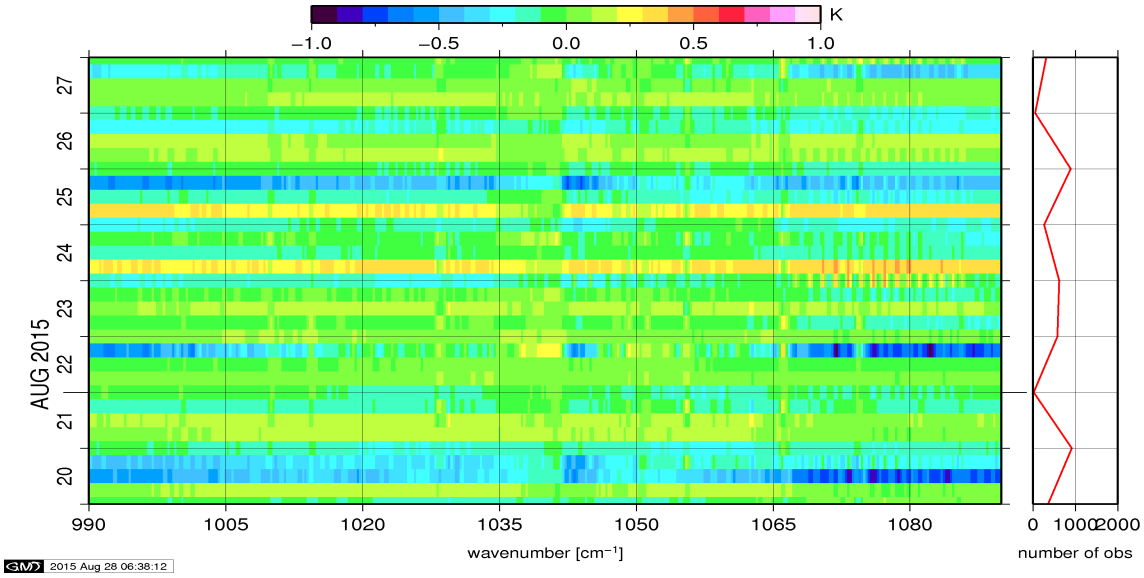

Figure 16: Radiance Anomaly in BRT: O3

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.

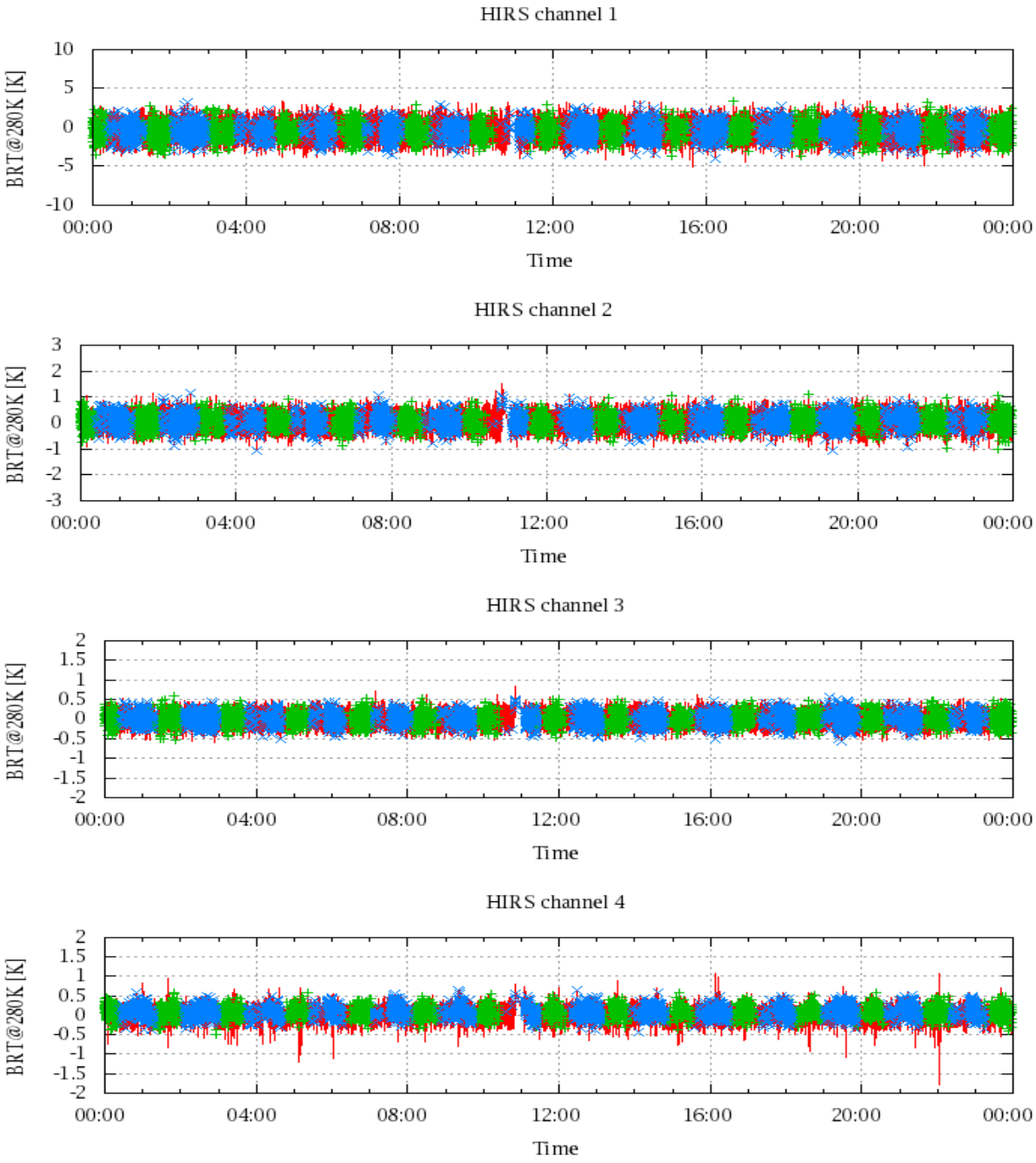

Figure 17: Radiance Differences in BRT

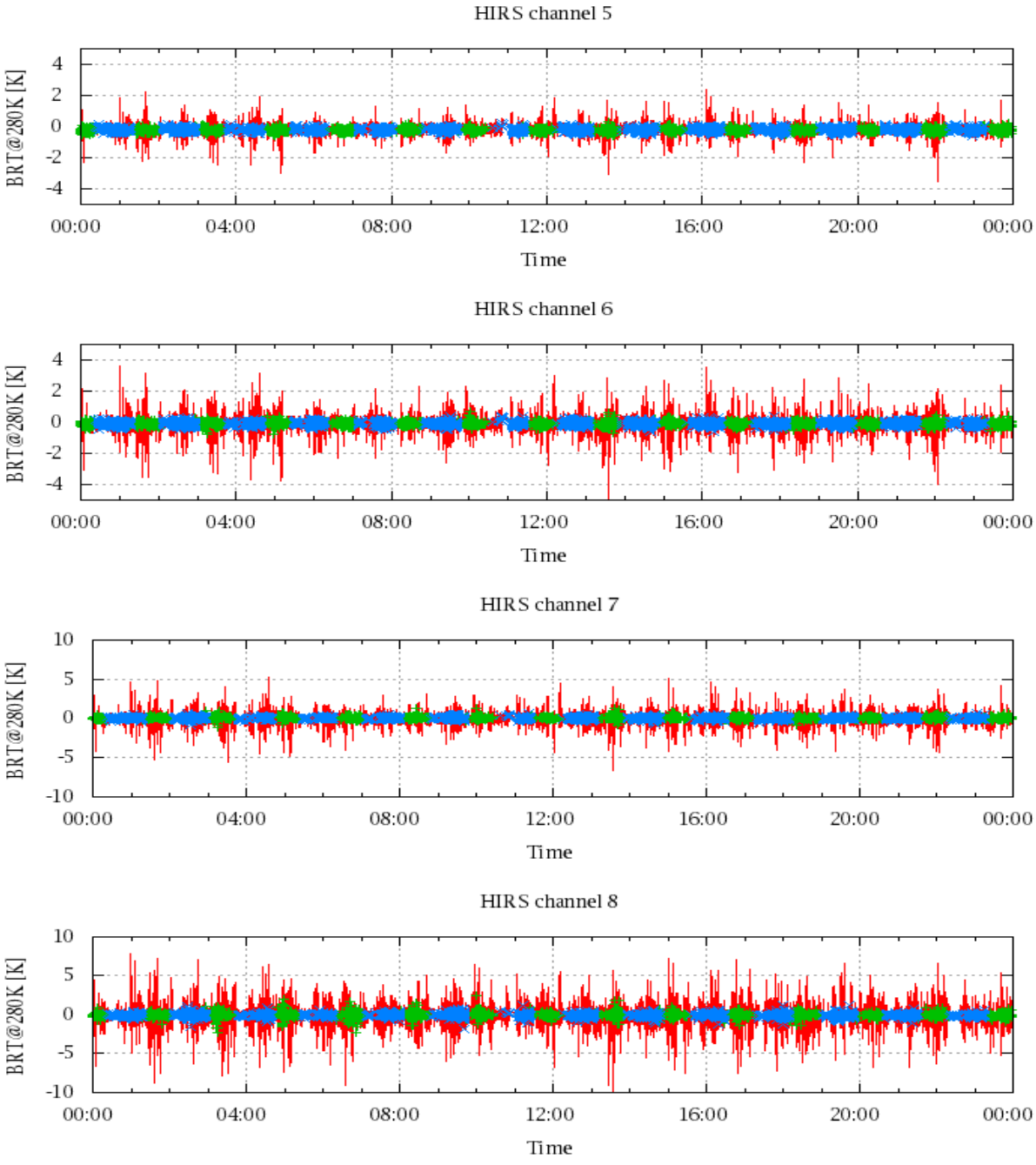

Figure 18: Radiance Differences in BRT

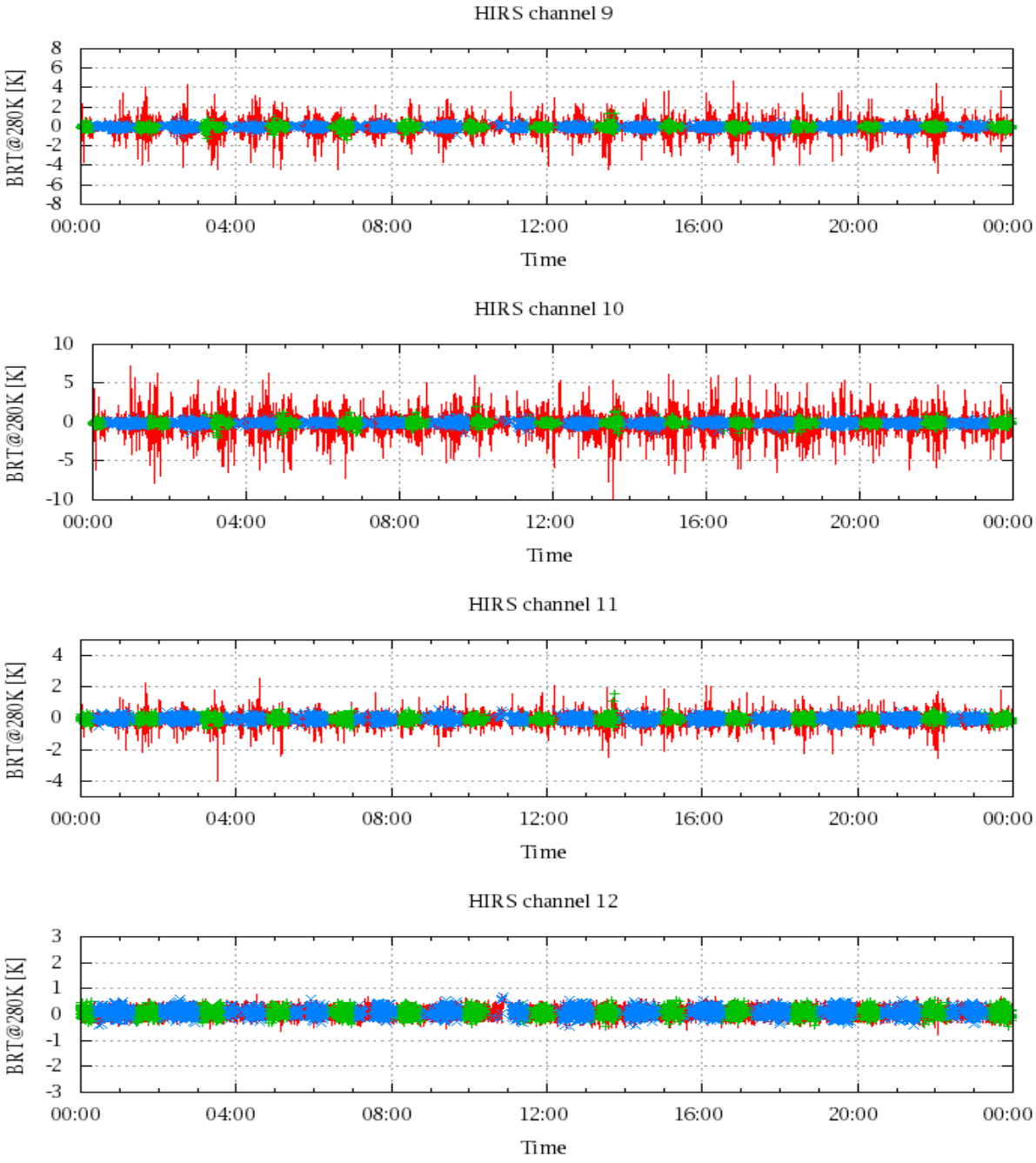

Figure 19: Radiance Differences in BRT

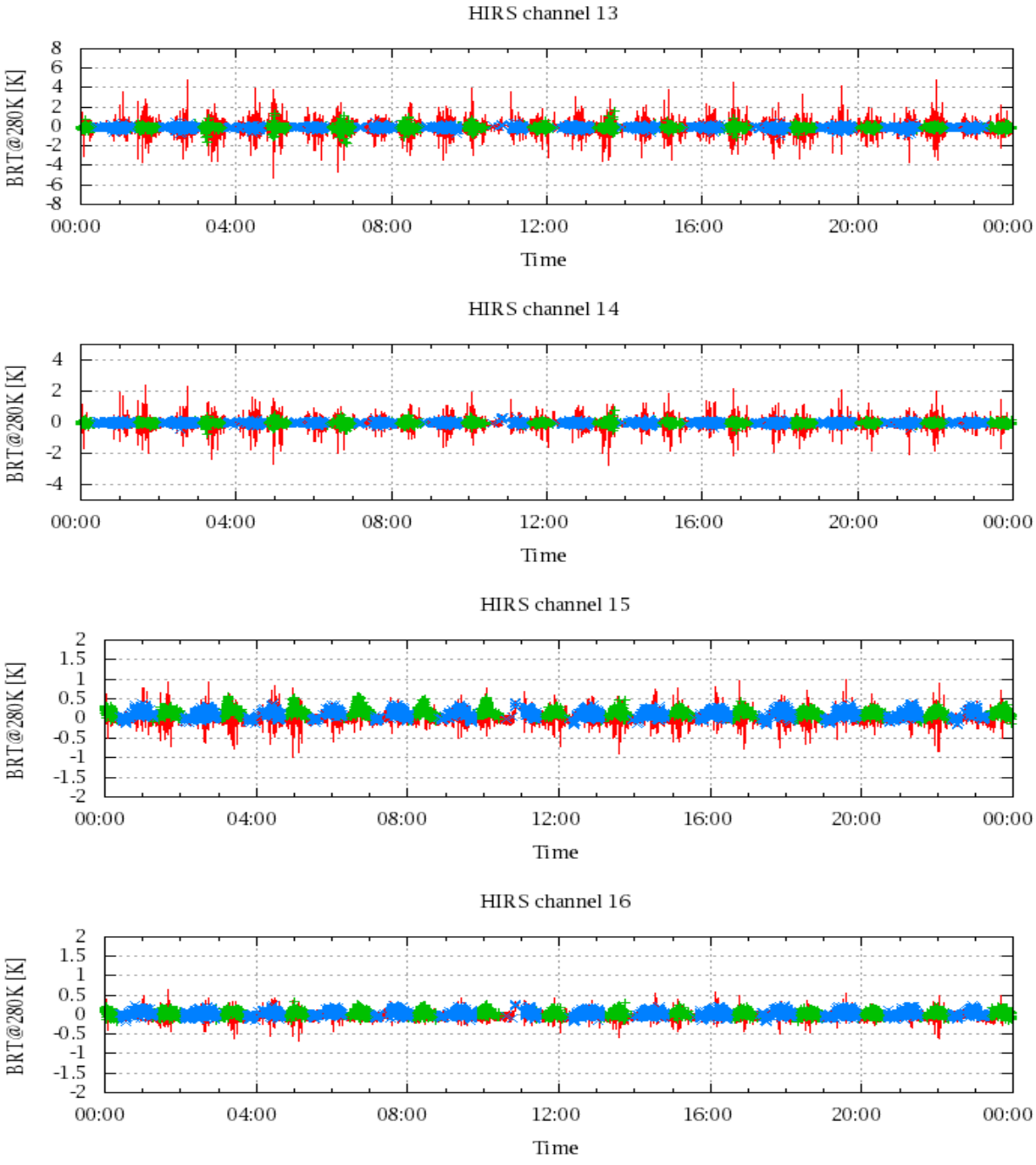

Figure 20: Radiance Differences in BRT

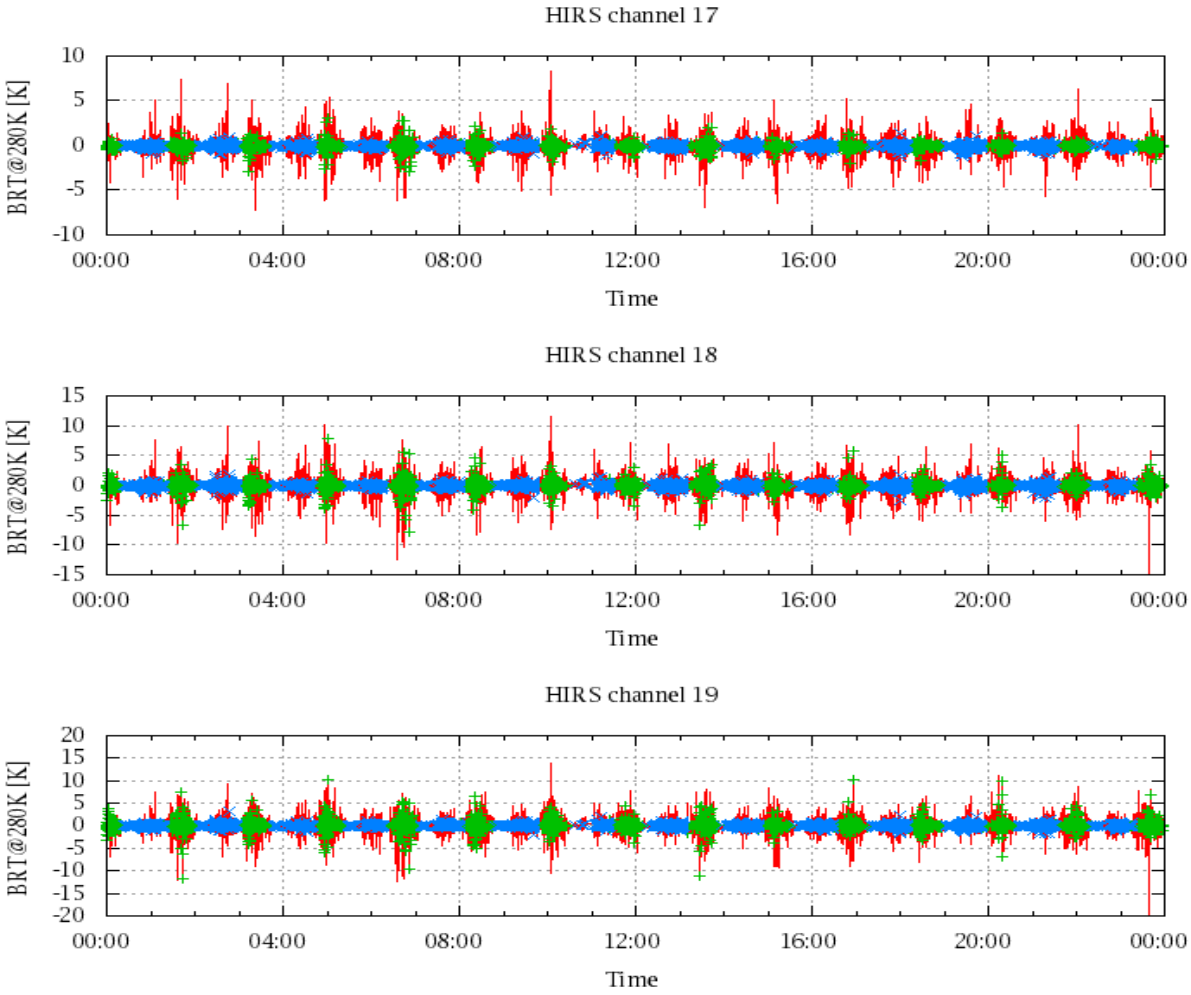

Figure 21: Radinace Differences in BRT