IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

21/07/2012 00:00:00 - 22/07/2012 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 21/07/2012 00:00:00 - 22/07/2012 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 21/07/2012 00:00:00 - 22/07/2012 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)	11285	11291	20120721032849.403	20120721032850.700
PX2 (135)	11285	11290	20120721032849.403	20120721032850.486
PX3 (140)	11285	11290	20120721032849.403	20120721032850.486
PX4 (145)	11285	11290	20120721032849.403	20120721032850.486
IMG (150)	12396	12402	20120721032848.970	20120721032850.486
VER (160)	1417	4345	20120721085439.615	20120721101355.052
VER (160)	4345	4350	20120721101355.052	20120721101355.052
VER (160)	4350	4355	20120721101355.052	20120721101355.052
VER (160)	4355	4360	20120721101355.052	20120721101355.052
VER (160)	4360	4365	20120721101355.052	20120721101355.052
VER (160)	4365	4370	20120721101355.052	20120721101355.052
VER (160)	4370	4375	20120721101355.052	20120721101355.052
VER (160)	4375	4380	20120721101355.052	20120721101355.052
VER (160)	4380	4385	20120721101355.052	20120721101355.052
VER (160)	4385	4346	20120721101355.052	20120721101355.052
VER (160)	4346	4351	20120721101355.052	20120721101355.052
VER (160)	4351	4356	20120721101355.052	20120721101355.052
VER (160)	4356	4361	20120721101355.052	20120721101355.052

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	4361	4366	20120721101355.052	20120721101355.052
VER (160)	4366	4371	20120721101355.052	20120721101355.052
VER (160)	4371	4376	20120721101355.052	20120721101355.052
VER (160)	4376	4381	20120721101355.052	20120721101355.052
VER (160)	4381	4386	20120721101355.052	20120721101355.052
VER (160)	4386	4347	20120721101355.052	20120721101355.052
VER (160)	4347	4352	20120721101355.052	20120721101355.052
VER (160)	4352	4357	20120721101355.052	20120721101355.052
VER (160)	4357	4362	20120721101355.052	20120721101355.052
VER (160)	4362	4367	20120721101355.052	20120721101355.052
VER (160)	4367	4372	20120721101355.052	20120721101355.052
VER (160)	4372	4377	20120721101355.052	20120721101355.052
VER (160)	4377	4382	20120721101355.052	20120721101355.052
VER (160)	4382	4387	20120721101355.052	20120721101355.052
VER (160)	4387	4348	20120721101355.052	20120721101355.052
VER (160)	4348	4353	20120721101355.052	20120721101355.052
VER (160)	4353	4358	20120721101355.052	20120721101355.052
VER (160)	4358	4363	20120721101355.052	20120721101355.052
VER (160)	4363	4368	20120721101355.052	20120721101355.052
VER (160)	4368	4373	20120721101355.052	20120721101355.052
VER (160)	4373	4378	20120721101355.052	20120721101355.052
VER (160)	4378	4383	20120721101355.052	20120721101355.052
VER (160)	4383	4388	20120721101355.052	20120721101355.052
VER (160)	4388	4349	20120721101355.052	20120721101355.052
VER (160)	4349	4354	20120721101355.052	20120721101355.052
VER (160)	4354	4359	20120721101355.052	20120721101355.052
VER (160)	4359	4364	20120721101355.052	20120721101355.052
VER (160)	4364	4369	20120721101355.052	20120721101355.052
VER (160)	4369	4374	20120721101355.052	20120721101355.052
VER (160)	4374	4379	20120721101355.052	20120721101355.052
VER (160)	4379	4384	20120721101355.052	20120721101355.052
VER (160)	4384	4389	20120721101355.052	20120721101355.052
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
21/07/2012 00:00:15	-	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)	99.37 %	-
GQisFlagQual set (PX2)	99.17 %	-
GQisFlagQual set (PX3)	99.29 %	-
GQisFlagQual set (PX4)	99.41 %	-
GQisFlagQual set (all)	99.31 %	-

Table 4: Quality flags

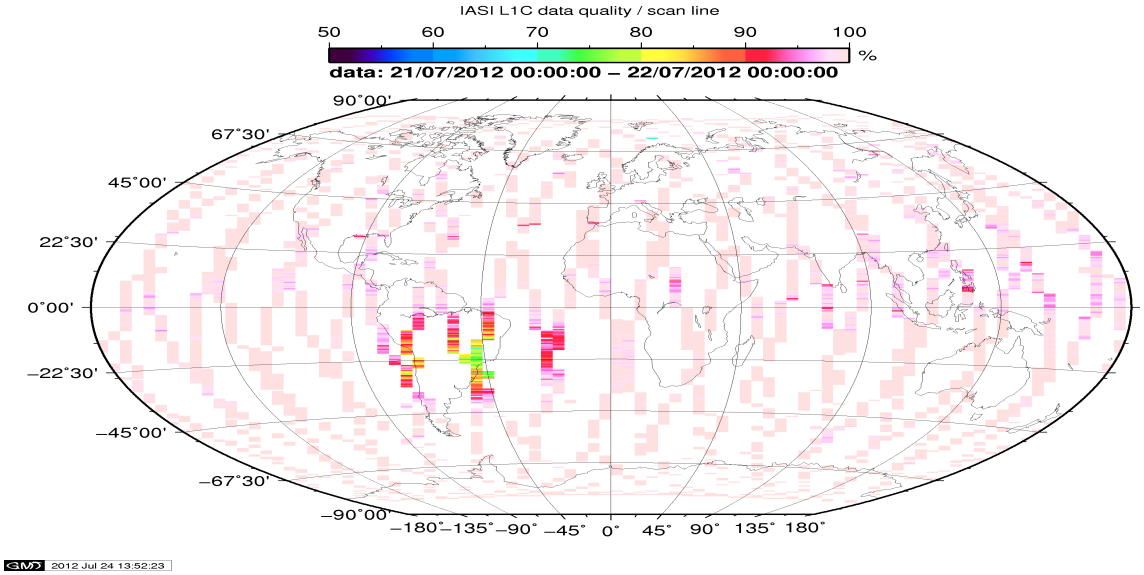

Figure 1: L1C data quality

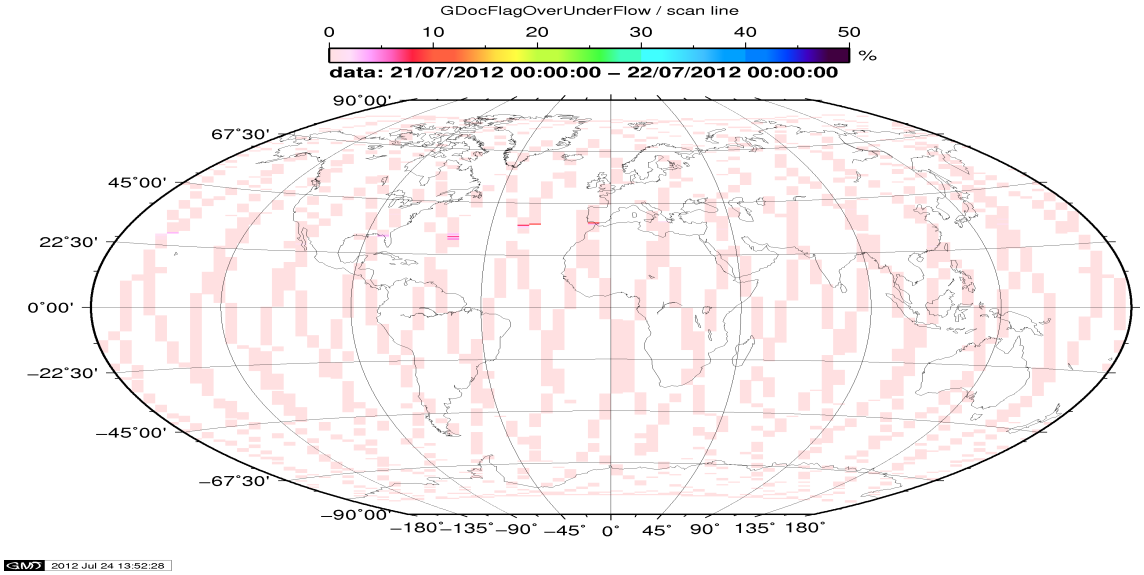

Figure 2: Flag of Over and Under Flows

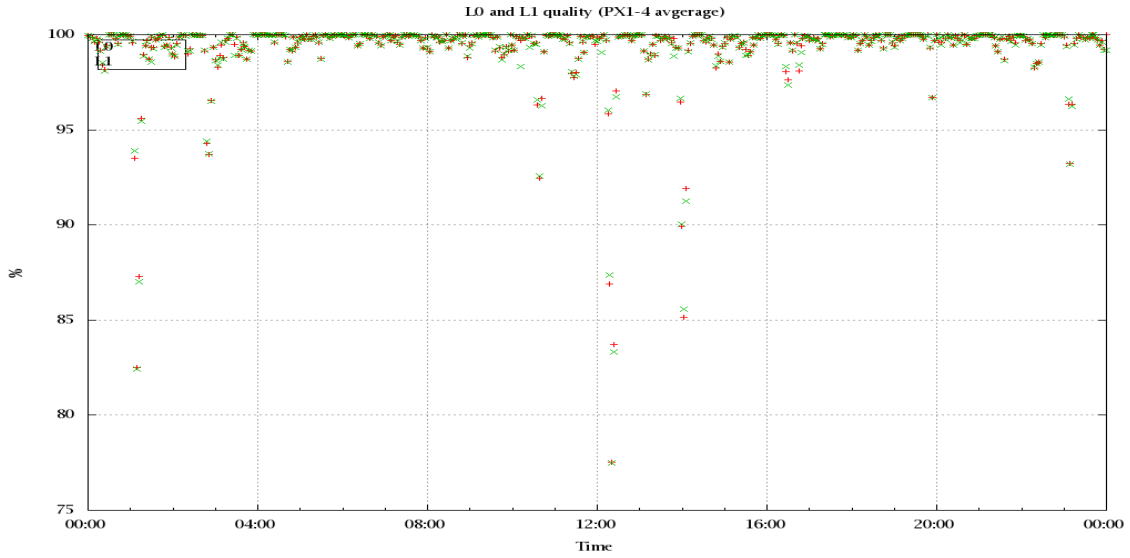

Figure 3: Level 0 and 1C overall quality

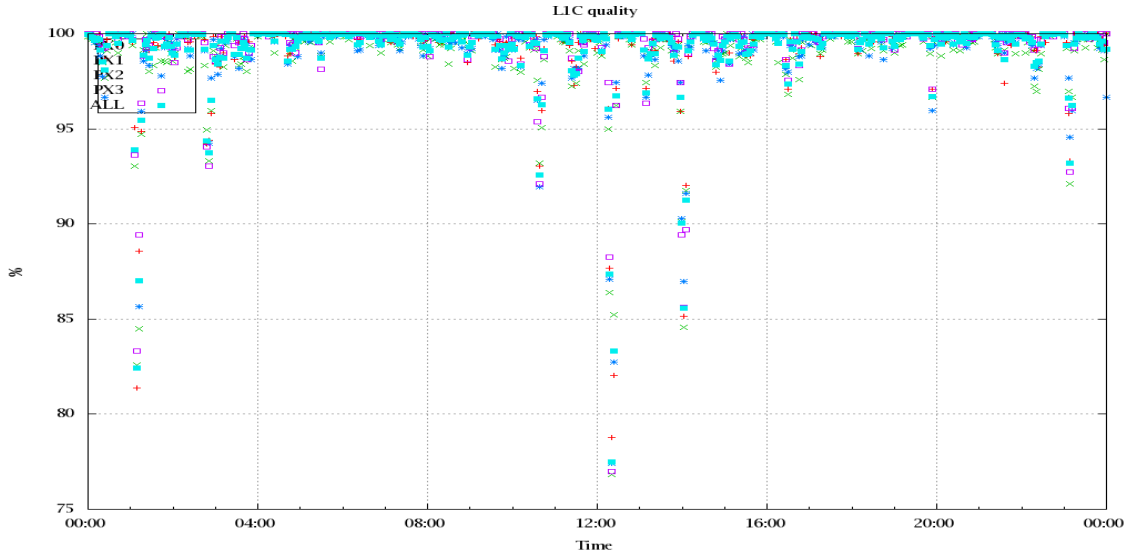

Figure 4: Level 1C quality

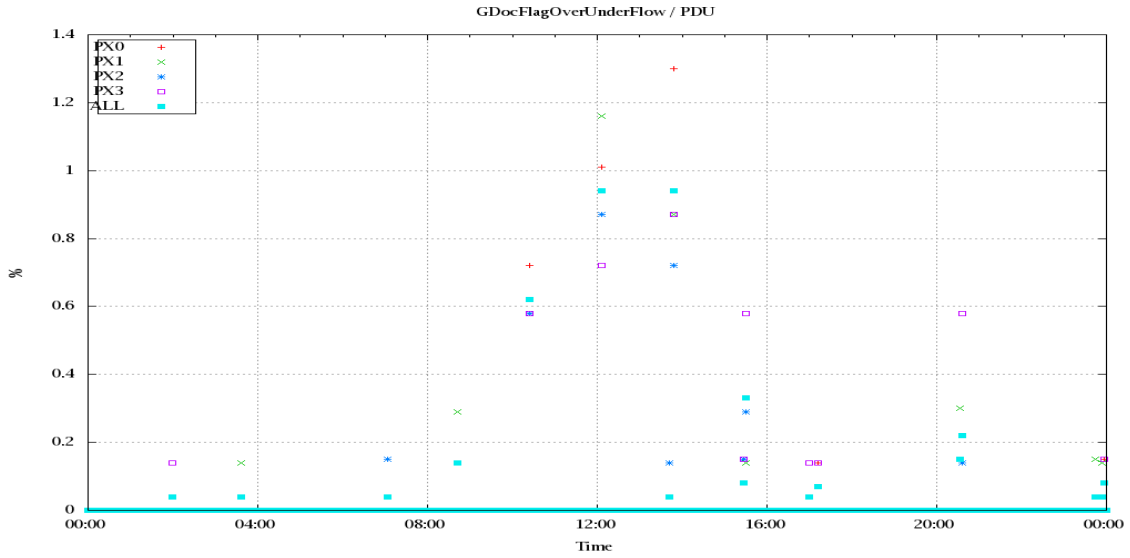

Figure 5: OverUnderFlowFlag timeseries

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.

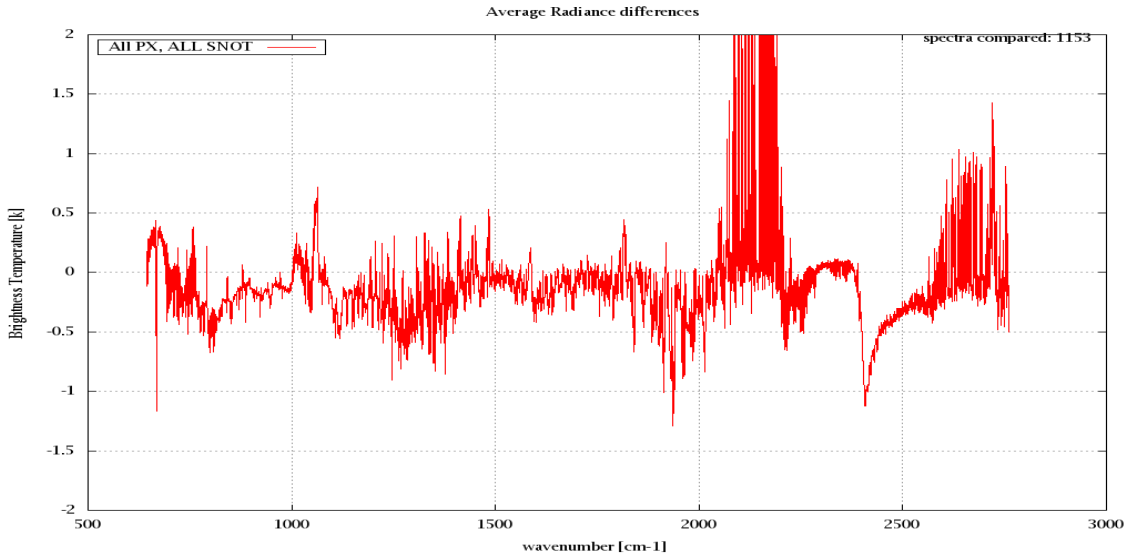

Figure 6: Average Radiance differences: OBS-CAL

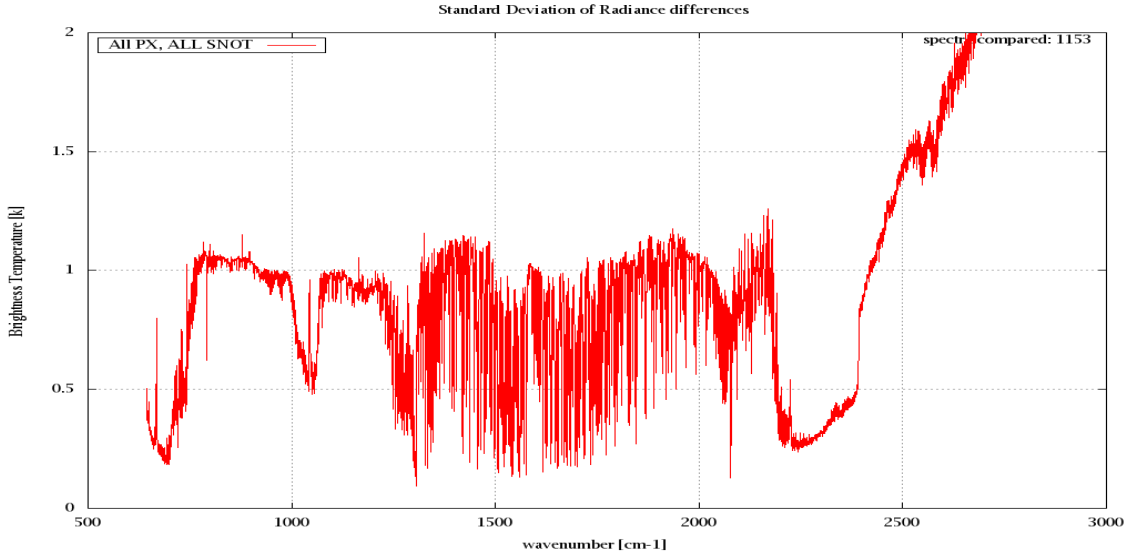

Figure 7: Standard Deviation of Radiance differences

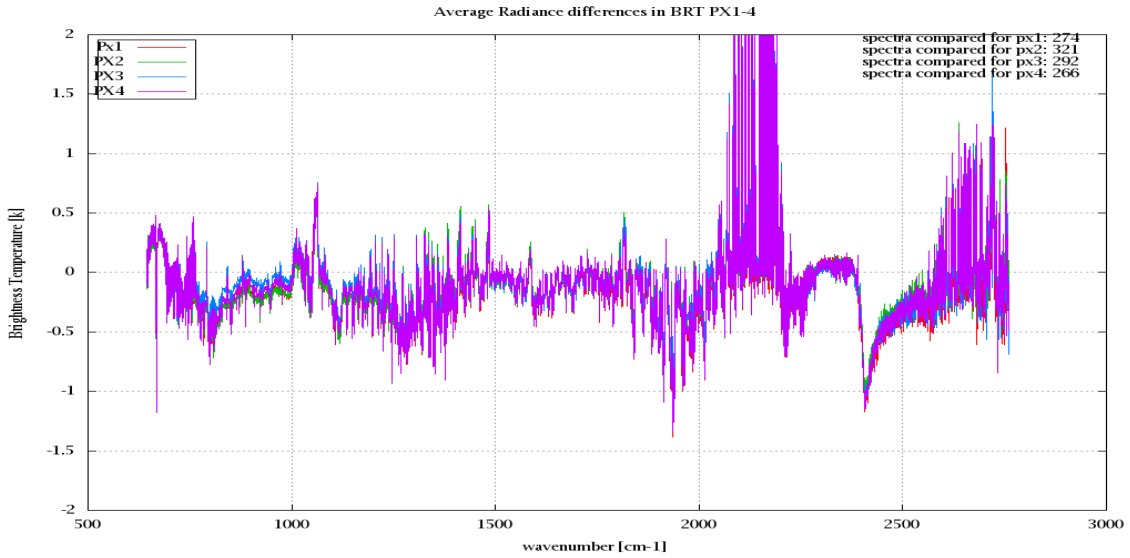

Figure 8: Average Radiance differences: OBS-CAL

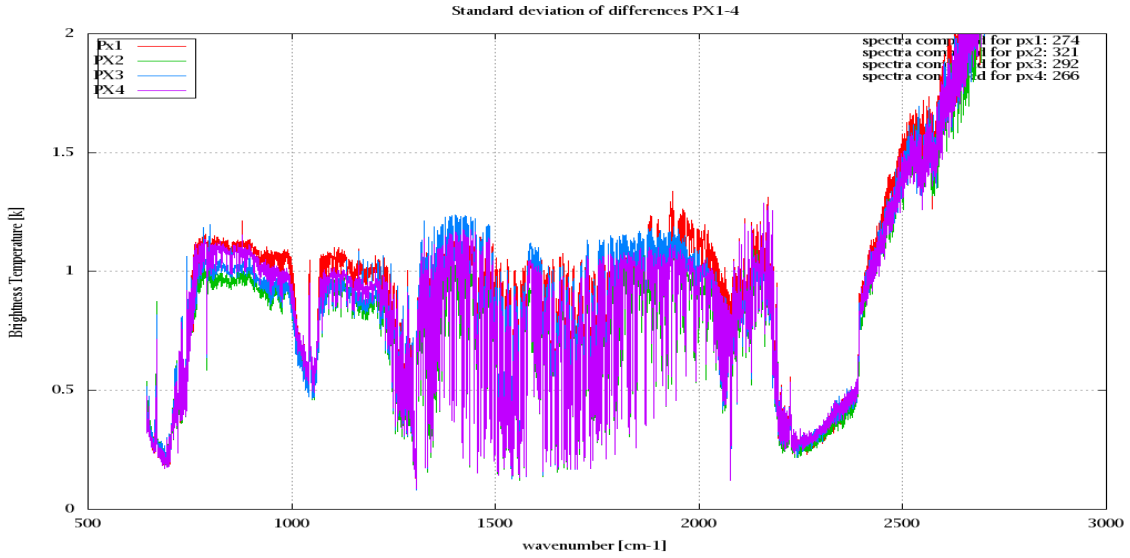

Figure 9: Standard Deviation of Radiance differences

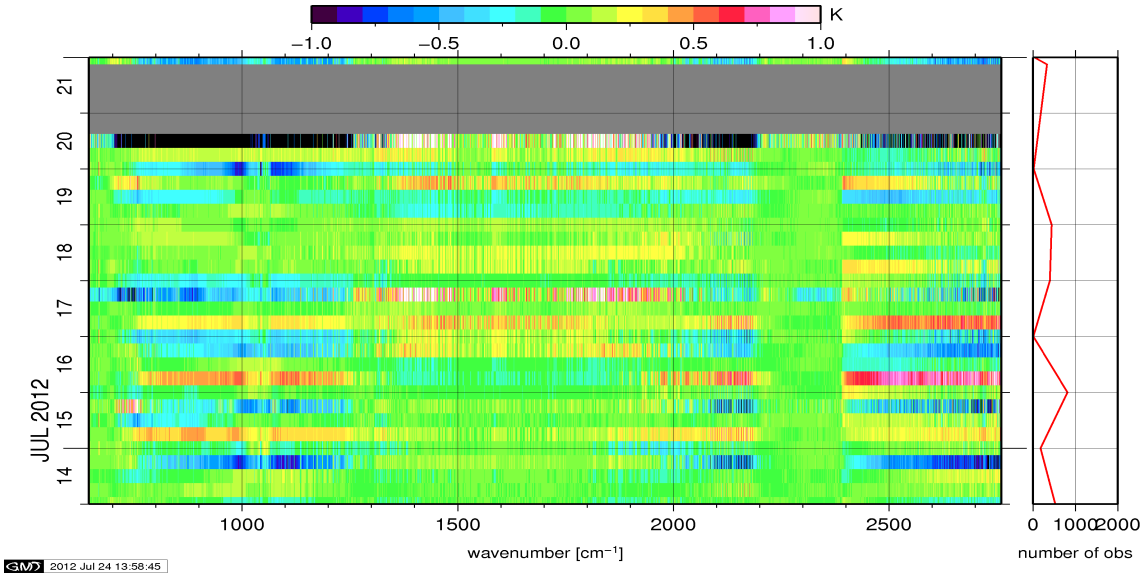

Figure 10: Radiance Anomaly in BRT: All Channels

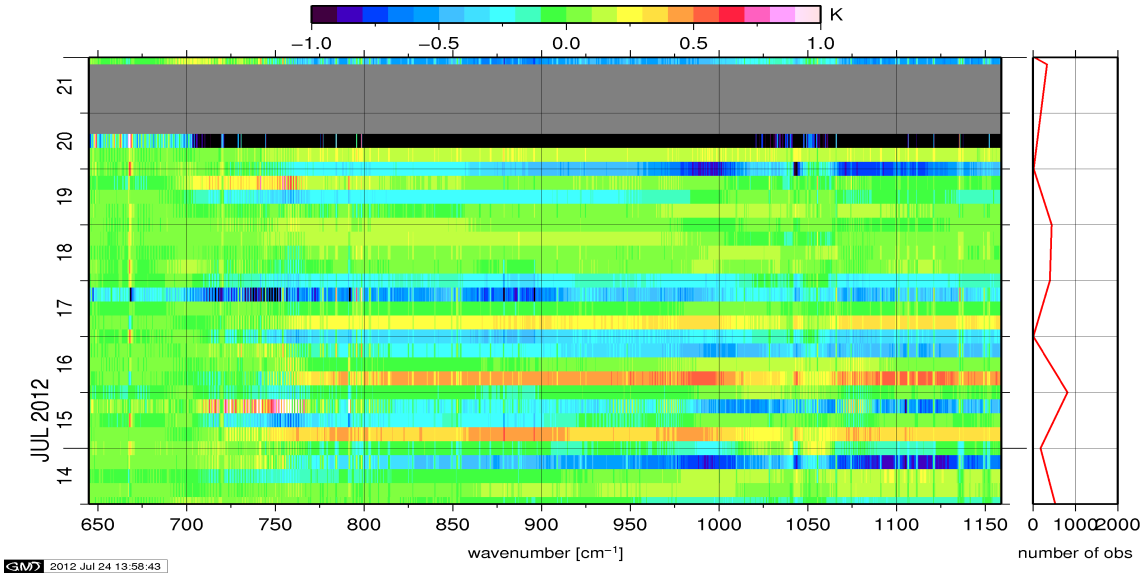

Figure 11: Radiance Anomaly in BRT: IASI Band 1

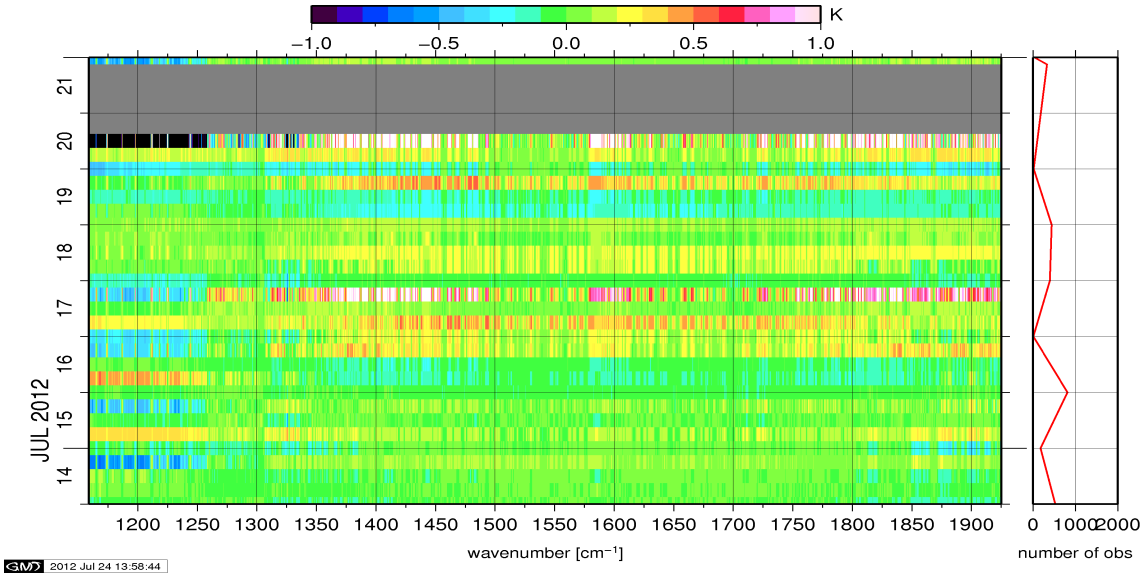

Figure 12: Radiance Anomaly in BRT: IASI Band 2

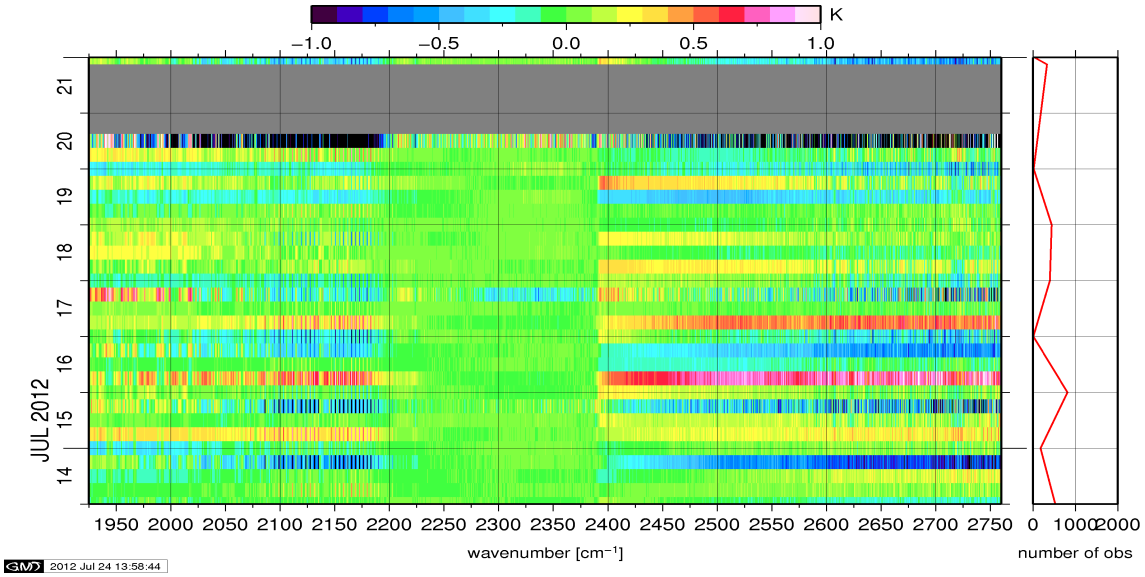

Figure 13: Radiance Anomaly in BRT: IASI Band 3

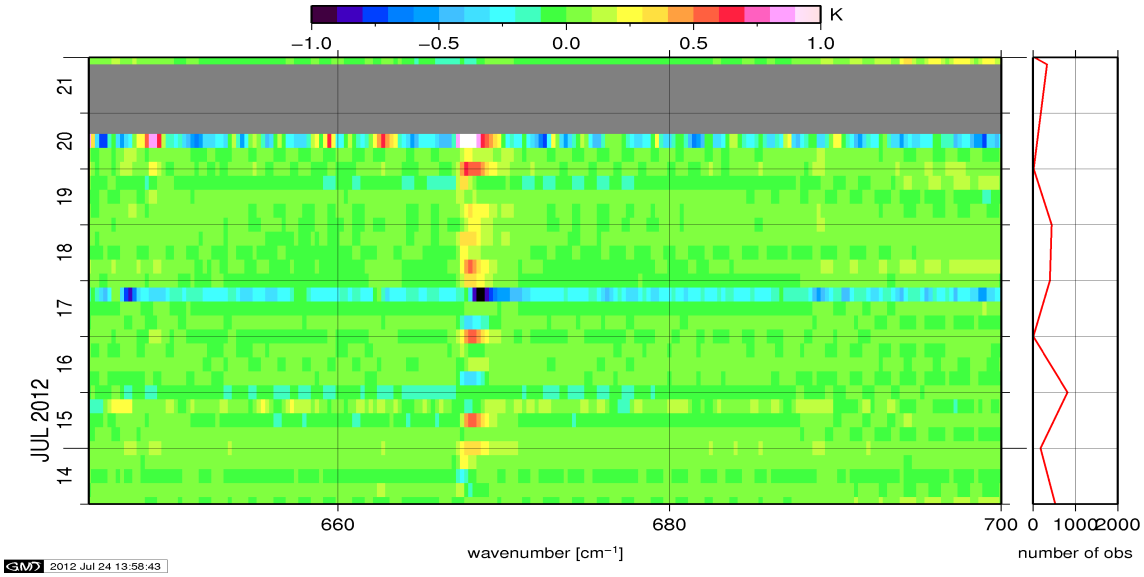

Figure 14: Radiance Anomaly in BRT: CO2 14

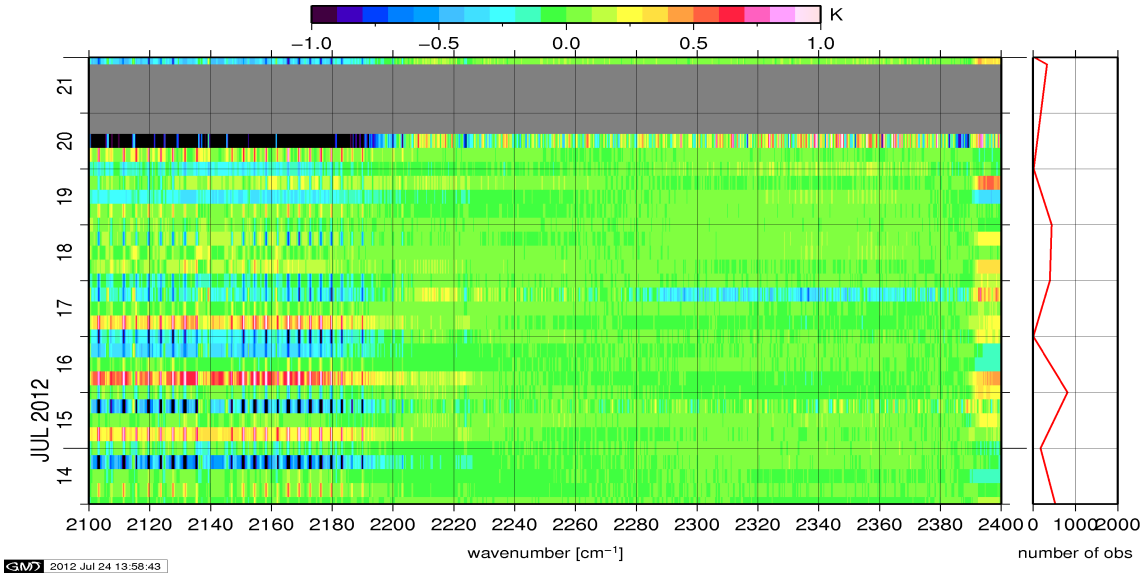

Figure 15: Radiance Anomaly in BRT: CO2 4.3

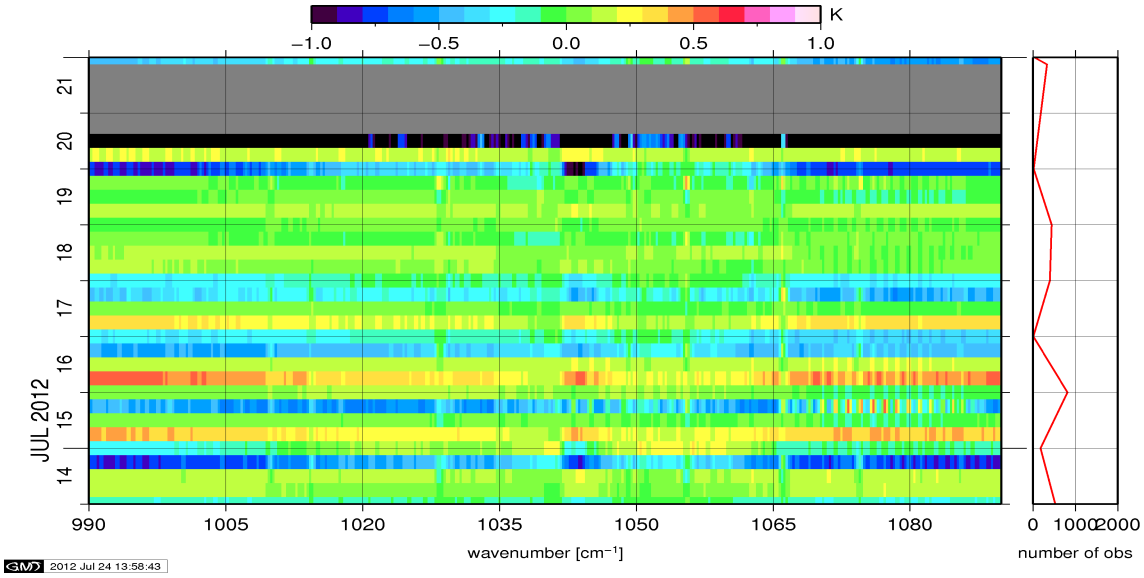

Figure 16: Radiance Anomaly in BRT: O3

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.

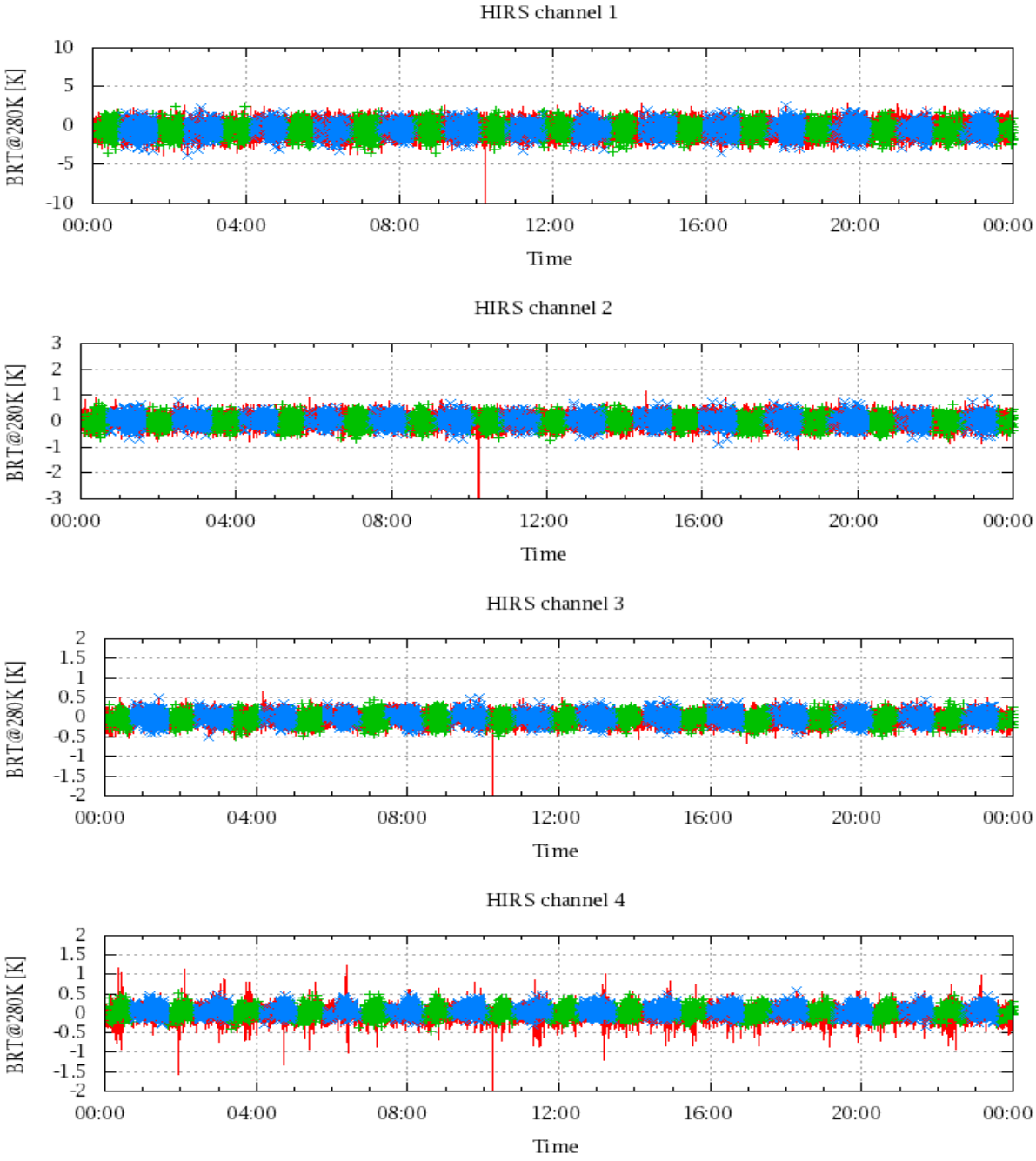

Figure 17: Radiance Differences in BRT

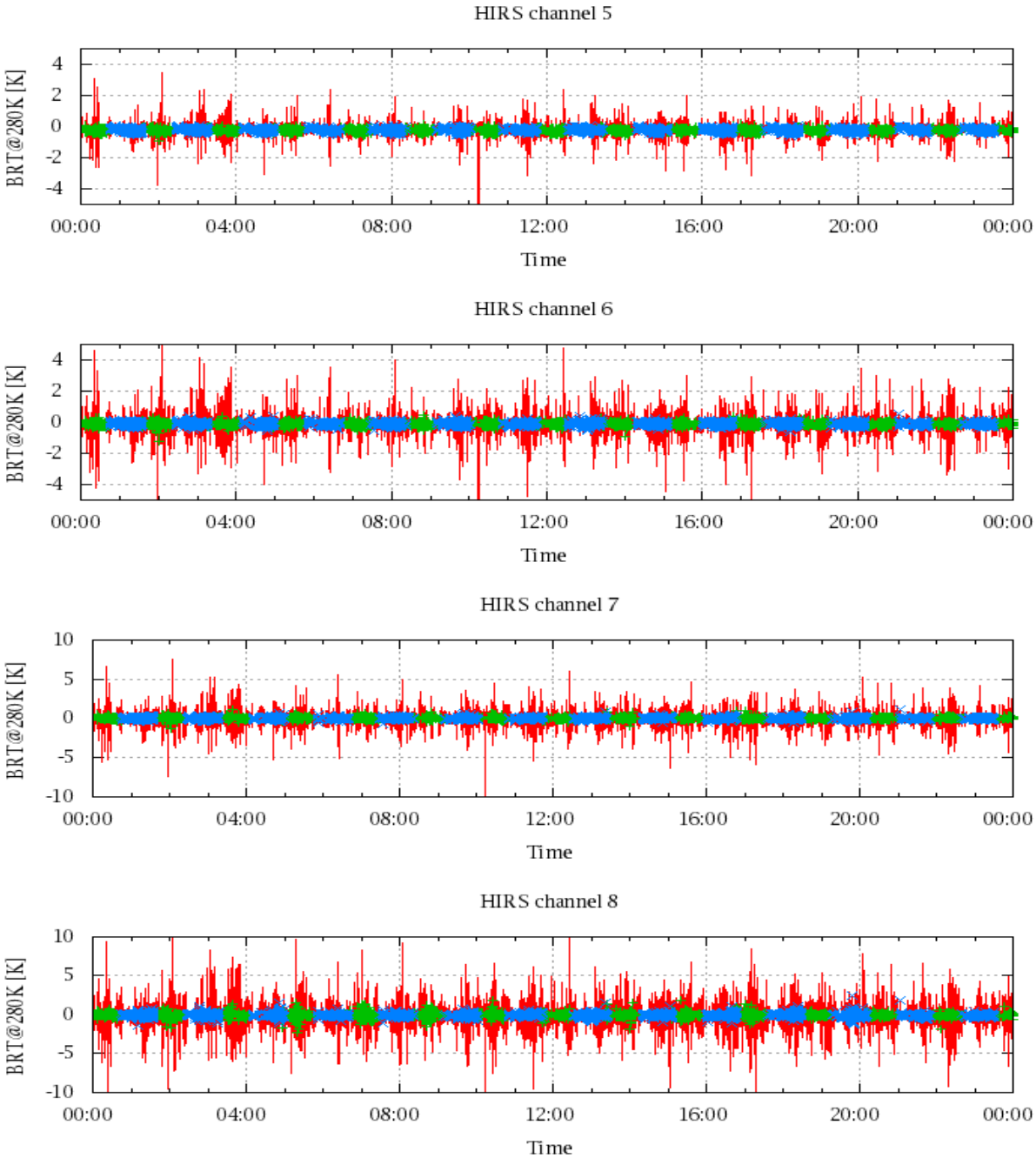

Figure 18: Radiance Differences in BRT

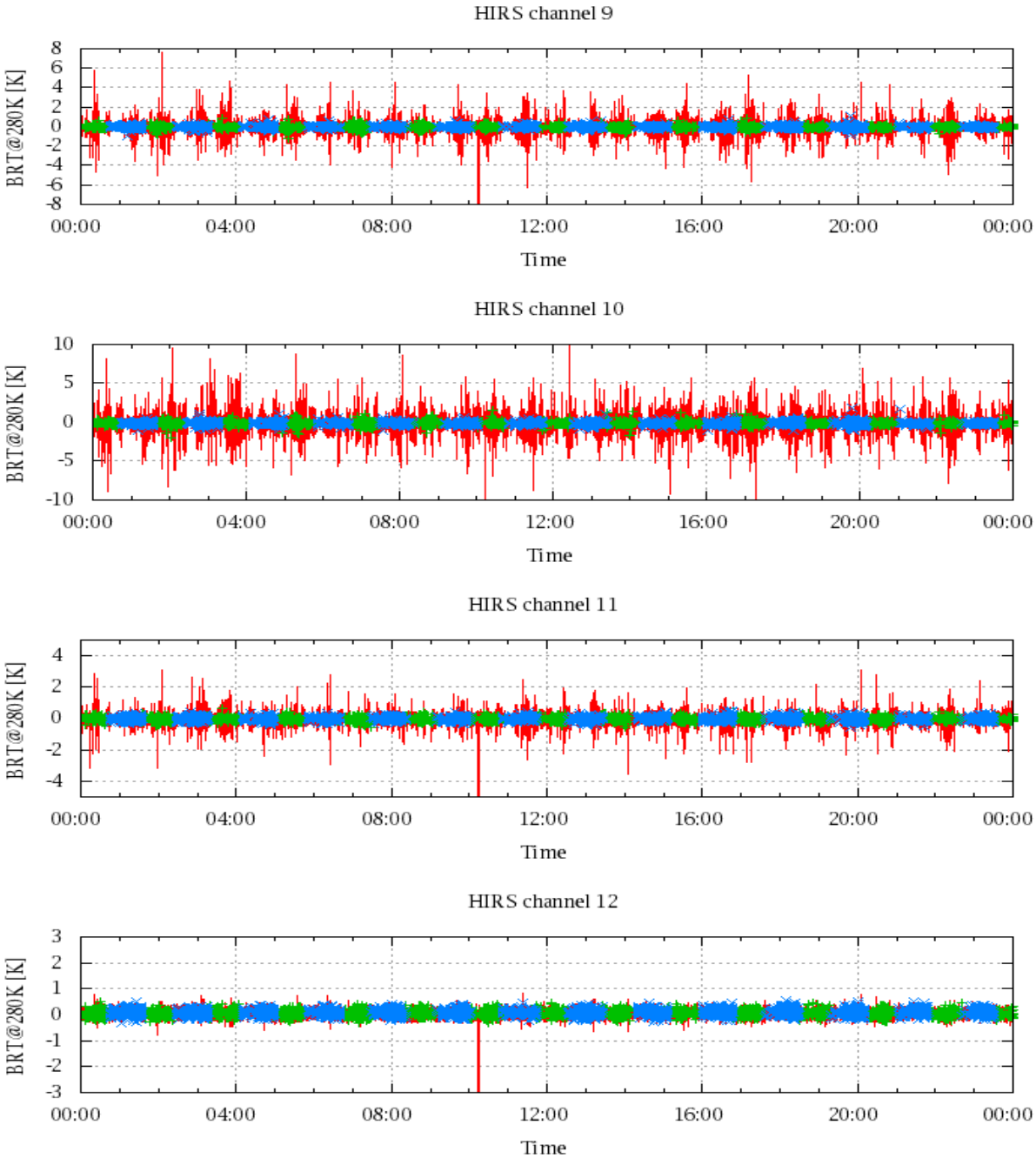

Figure 19: Radiance Differences in BRT

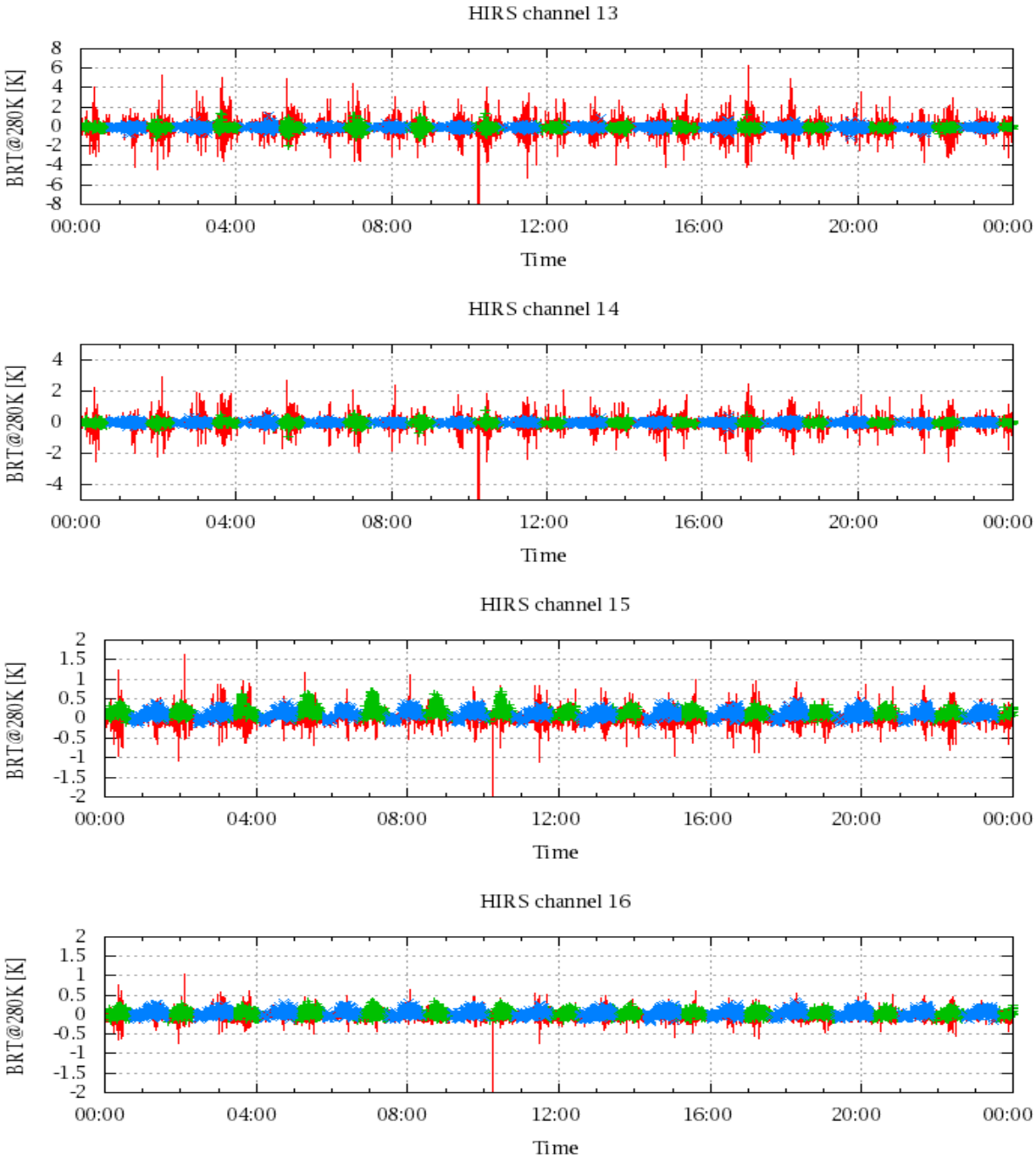

Figure 20: Radiance Differences in BRT

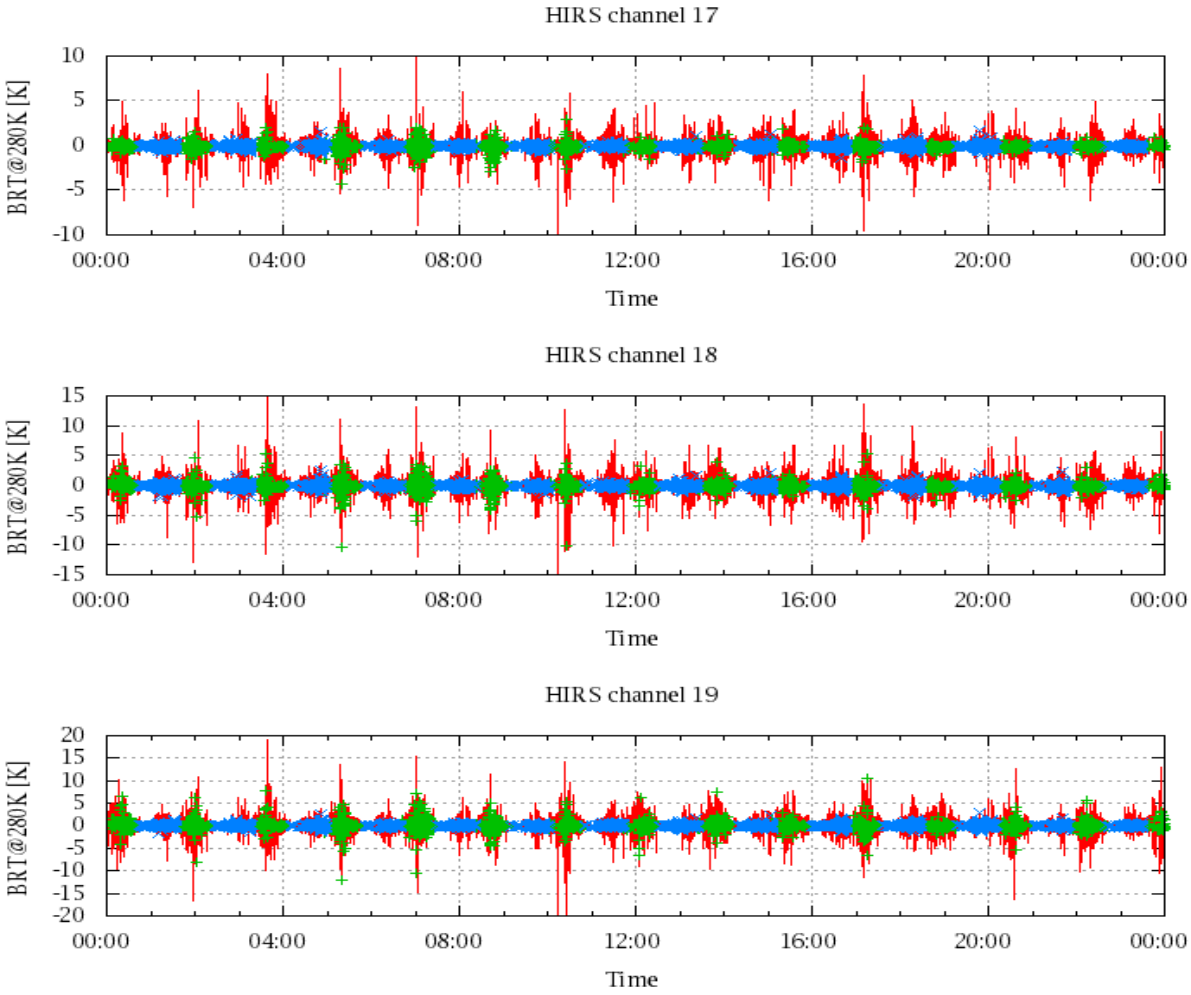

Figure 21: Radinace Differences in BRT