IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

30/11/2011 00:00:00 - 01/12/2011 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 30/11/2011 00:00:00 - 01/12/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 30/11/2011 00:00:00 - 01/12/2011 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)	15951	15984	20111130130225.947	20111130130236.111
PX1 (130)	15999	16004	20111130130239.353	20111130130240.435
PX1 (130)	16013	16110	20111130130242.377	20111130130309.404
PX1 (130)	16110	16121	20111130130309.404	20111130130311.783
PX1 (130)	16121	16132	20111130130311.783	20111130130314.162
PX1 (130)	16132	16136	20111130130314.162	20111130130316.541
PX1 (130)	16136	16173	20111130130316.541	20111130130326.052
PX2 (135)	15951	15984	20111130130225.947	20111130130236.111
PX2 (135)	15999	16003	20111130130239.353	20111130130240.217
PX2 (135)	16013	16121	20111130130242.377	20111130130311.783
PX2 (135)	16121	16135	20111130130311.783	20111130130316.326
PX2 (135)	16136	16173	20111130130316.541	20111130130326.052
PX3 (140)	15952	15984	20111130130226.166	20111130130236.111
PX3 (140)	15999	16003	20111130130239.353	20111130130240.217
PX3 (140)	16013	16135	20111130130242.377	20111130130316.326
PX3 (140)	16135	16173	20111130130316.326	20111130130326.052
PX4 (145)	15951	15984	20111130130225.947	20111130130236.111
PX4 (145)	15998	16003	20111130130239.135	20111130130240.217

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	16013	16131	20111130130242.377	20111130130313.947
PX4 (145)	16131	16135	20111130130313.947	20111130130316.326
PX4 (145)	16135	16173	20111130130316.326	20111130130326.052
IMG (150)	4962	5000	20111130130225.732	20111130130234.810
IMG (150)	5018	5023	20111130130239.135	20111130130240.217
IMG (150)	5032	5041	20111130130242.162	20111130130244.760
IMG (150)	5041	5156	20111130130244.760	20111130130311.568
IMG (150)	5156	5167	20111130130311.568	20111130130313.947
IMG (150)	5167	5175	20111130130313.947	20111130130316.326
IMG (150)	5175	5217	20111130130316.326	20111130130326.052
VER (160)	10842	10851	20111130130218.381	20111130130226.166
VER (160)	10852	10883	20111130130226.166	20111130130330.377
AUX (180)	5444	5446	20111130130218.814	20111130130234.810
AUX (180)	5446	5453	20111130130234.810	20111130130330.810

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
30/11/2011 00:00:01	-	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)	99.27 %	-
GQisFlagQual set (PX2)	99.18 %	-
GQisFlagQual set (PX3)	99.26 %	-
GQisFlagQual set (PX4)	99.37 %	-
GQisFlagQual set (all)	99.27 %	-

Table 4: Quality flags

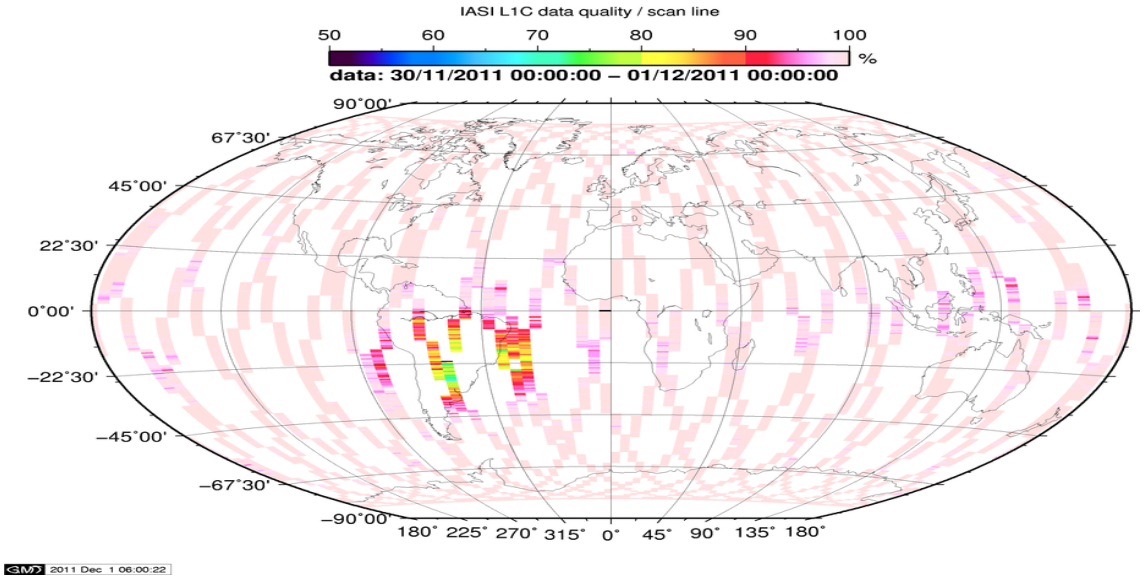

Figure 1: L1C data quality

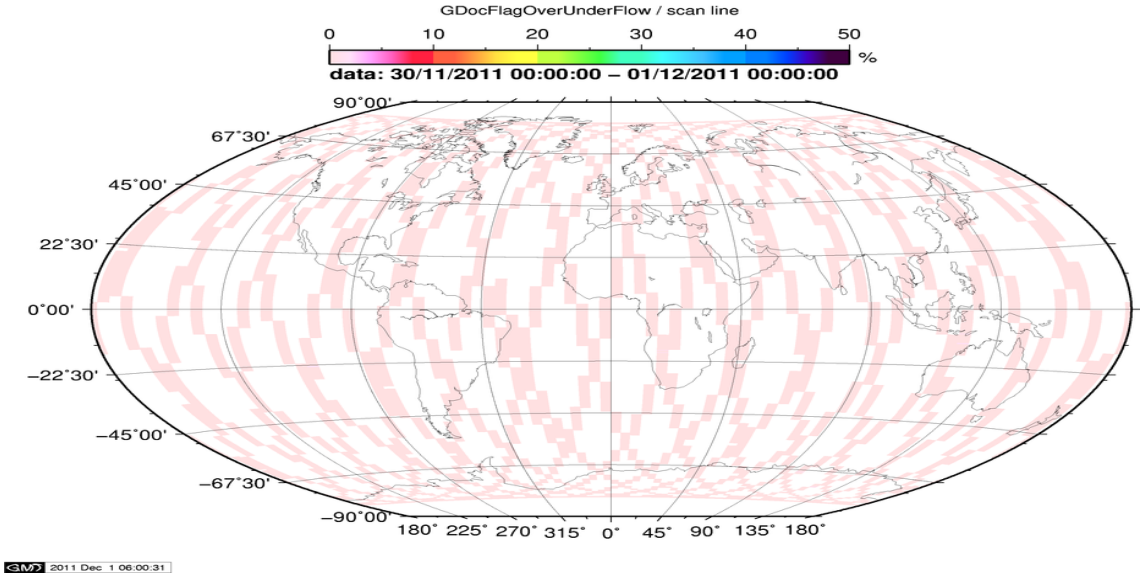

Figure 2: Flag of Over and Under Flows

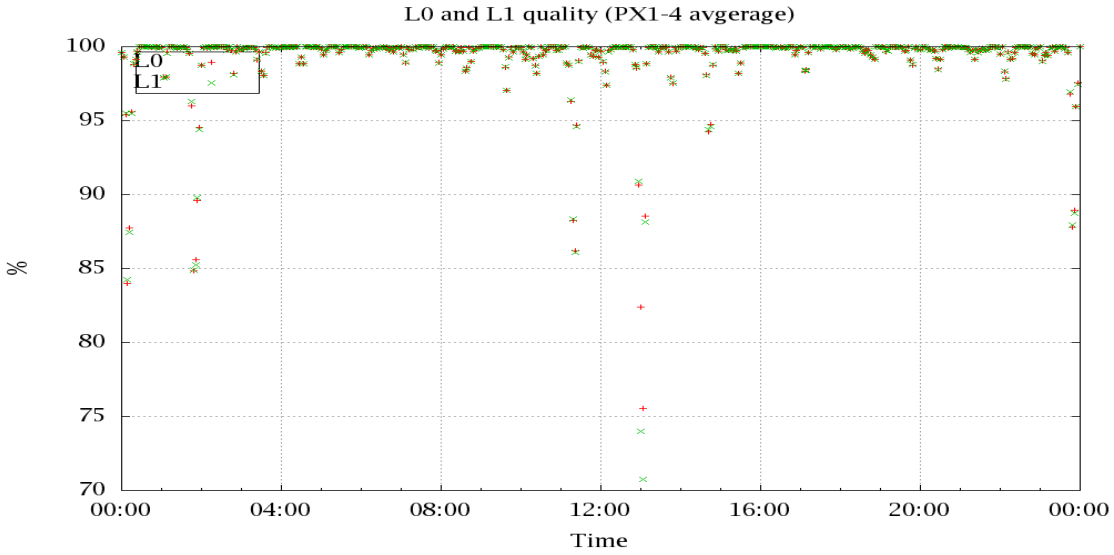

Figure 3: Level 0 and 1C overall quality

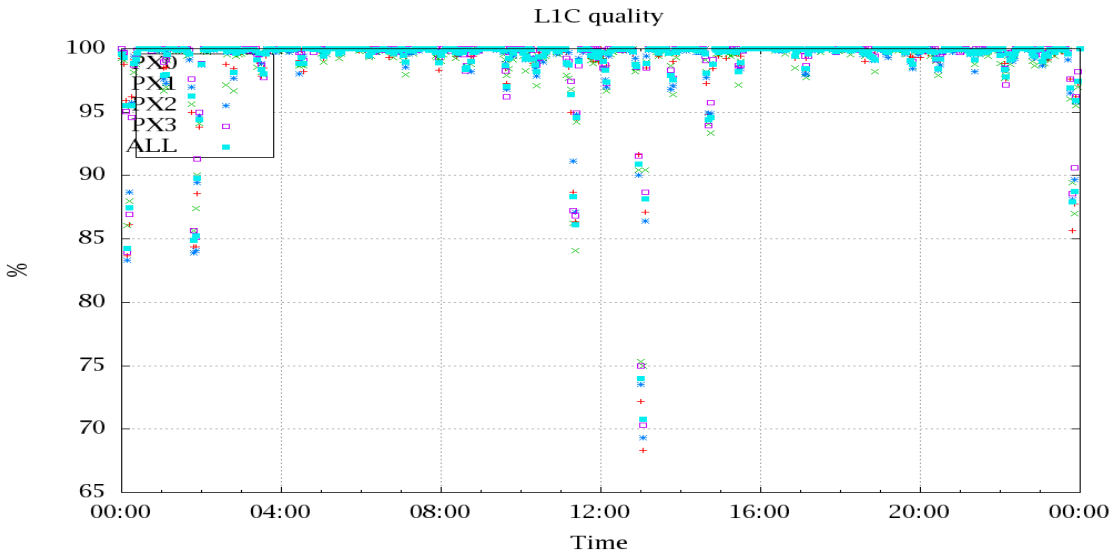

Figure 4: Level 1C quality

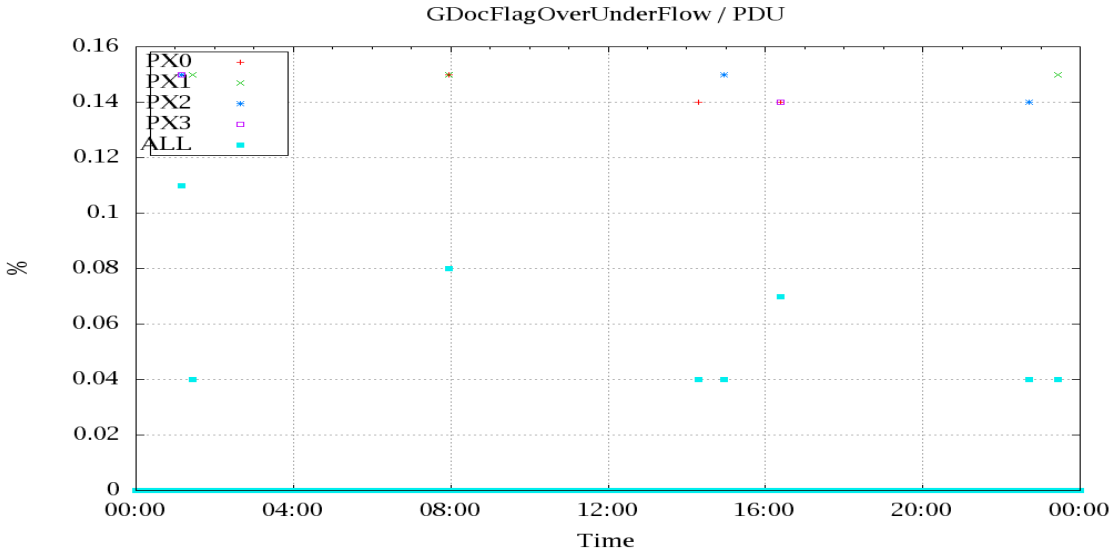

Figure 5: OverUnderFlowFlag timeseries

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.

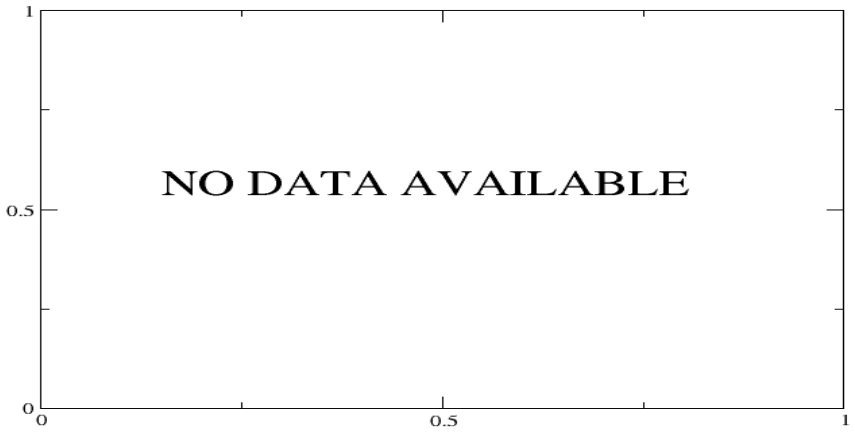

Figure 6: Average Radiance differences: OBS-CAL

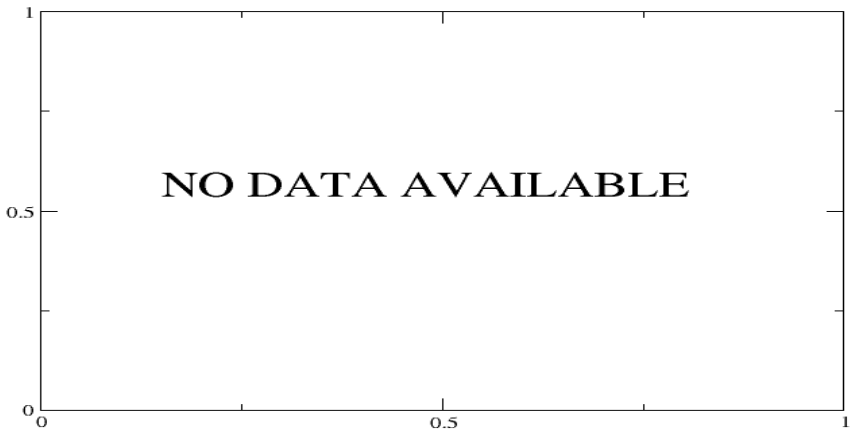

Figure 7: Standard Deviation of Radiance differences

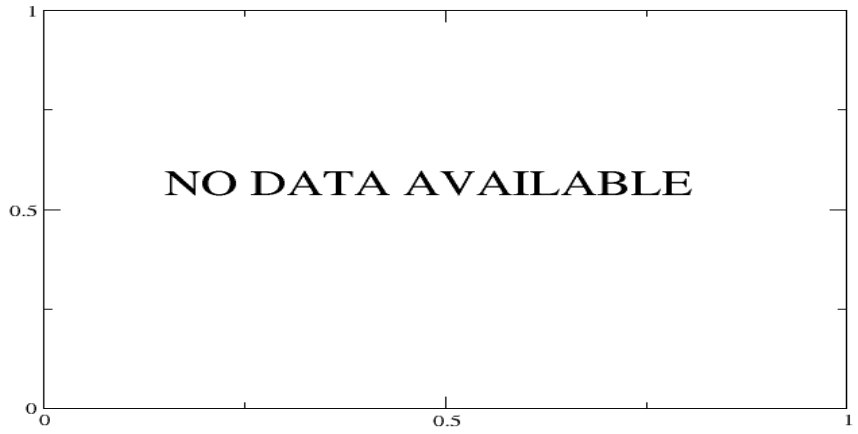

Figure 8: Average Radiance differences: OBS-CAL

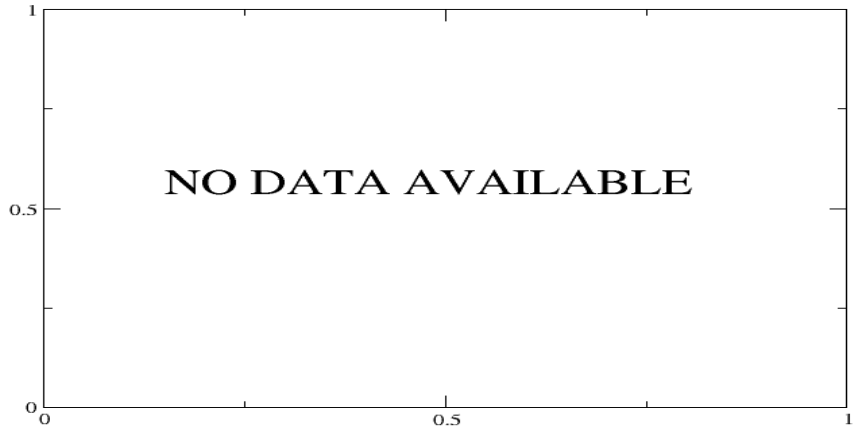

Figure 9: Standard Deviation of Radiance differences

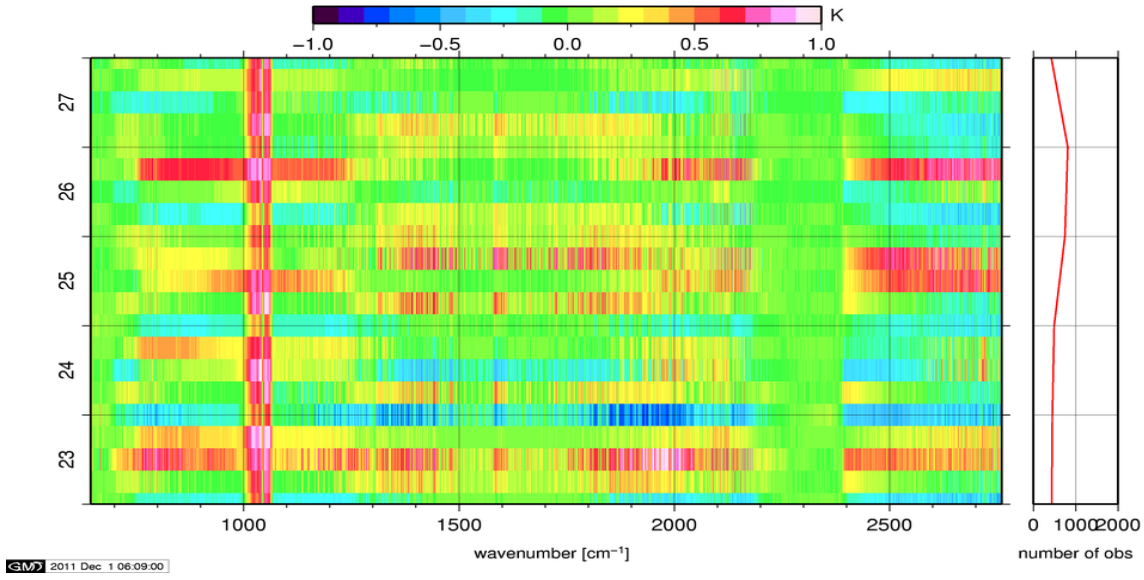

Figure 10: Radiance Anomaly in BRT: All Channels

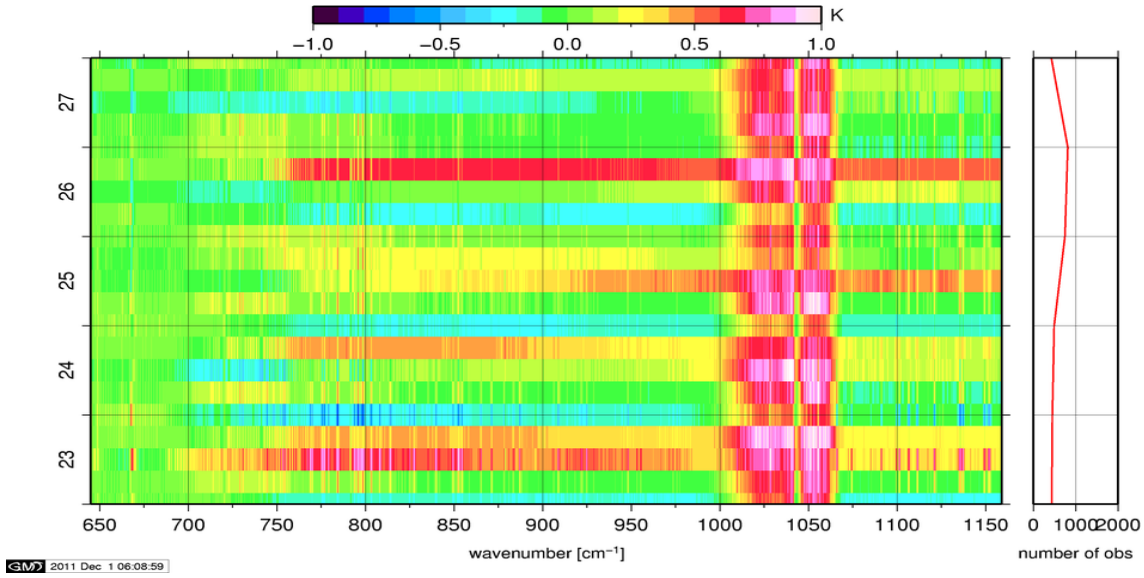

Figure 11: Radiance Anomaly in BRT: IASI Band 1

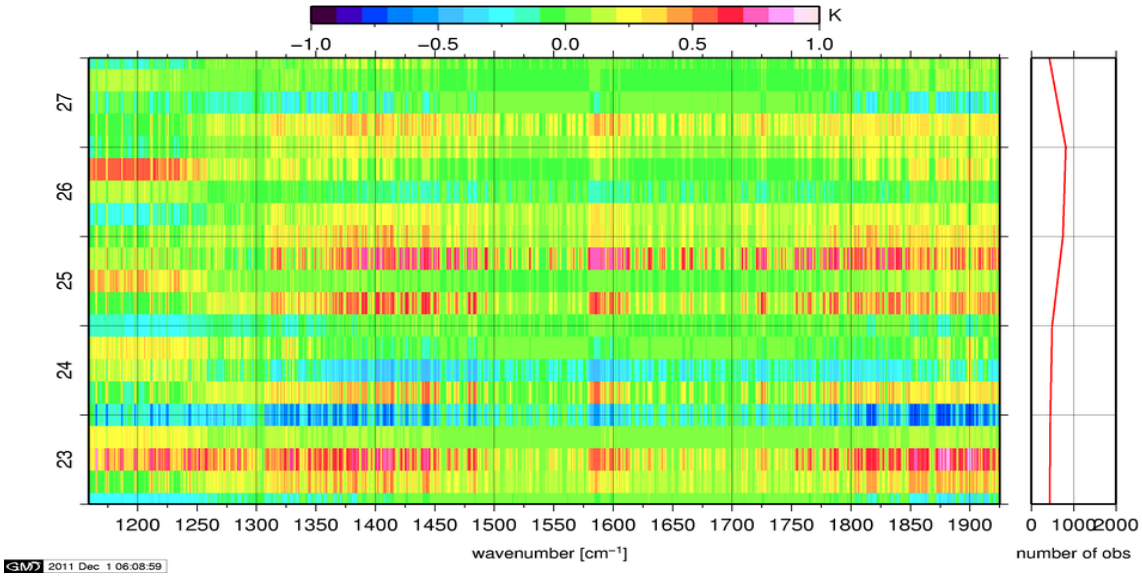

Figure 12: Radiance Anomaly in BRT: IASI Band 2

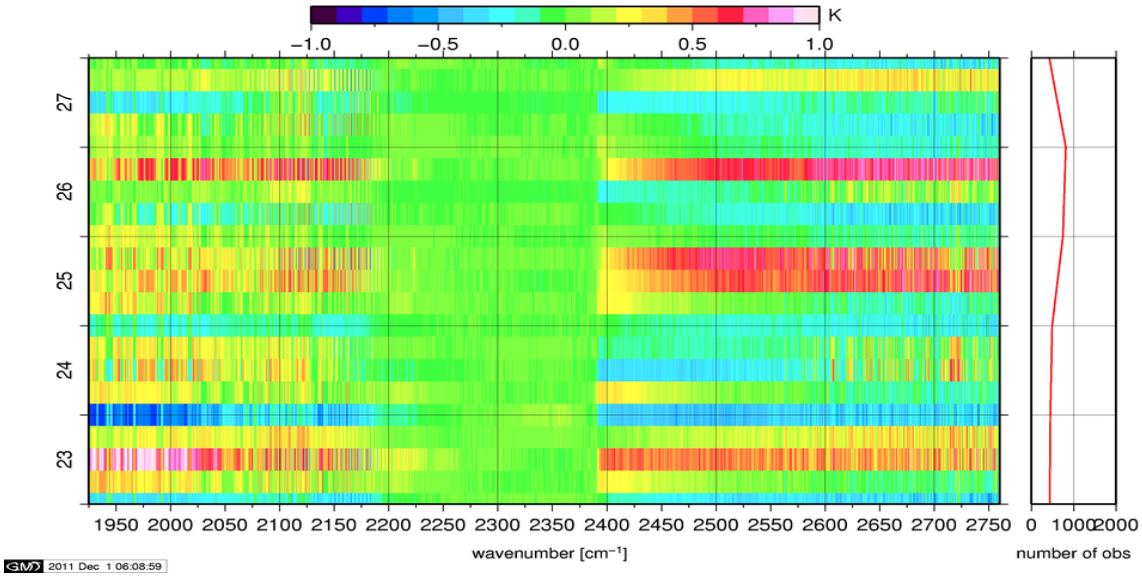

Figure 13: Radiance Anomaly in BRT: IASI Band 3

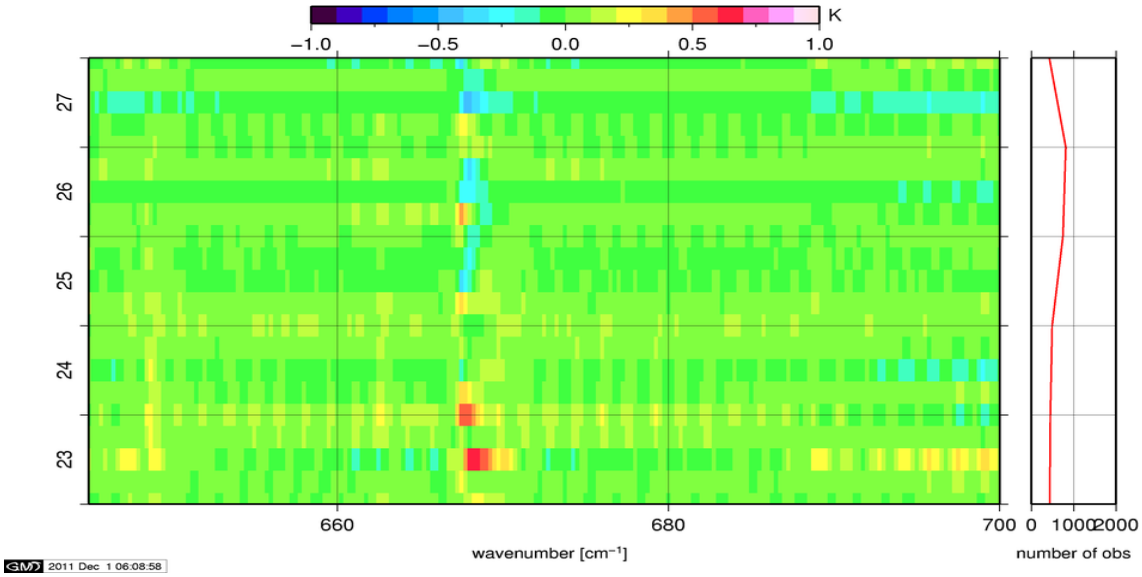

Figure 14: Radiance Anomaly in BRT: CO2 14

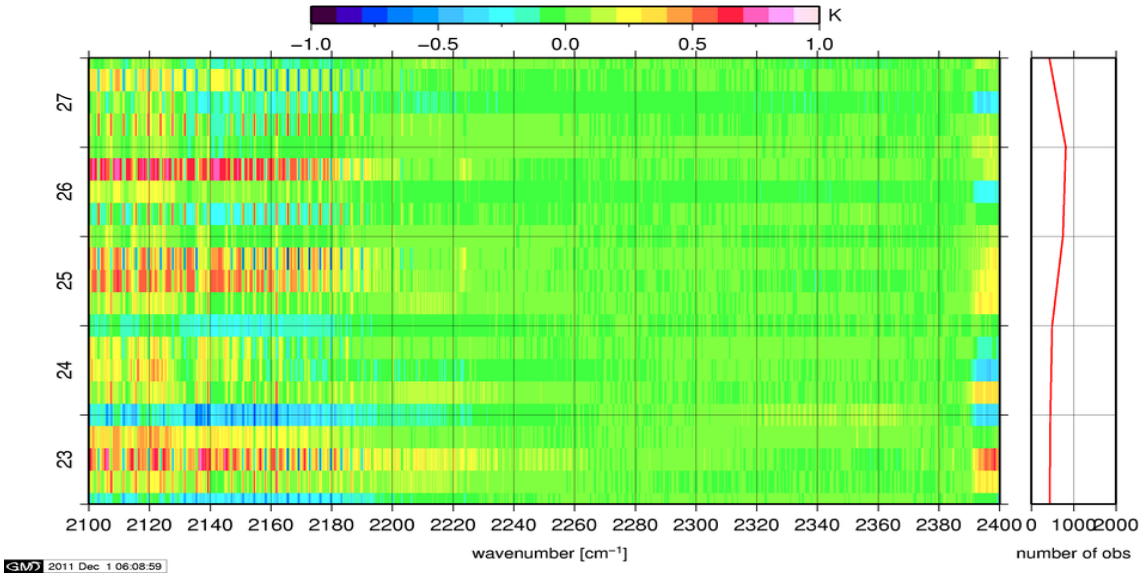

Figure 15: Radiance Anomaly in BRT: CO2 4.3

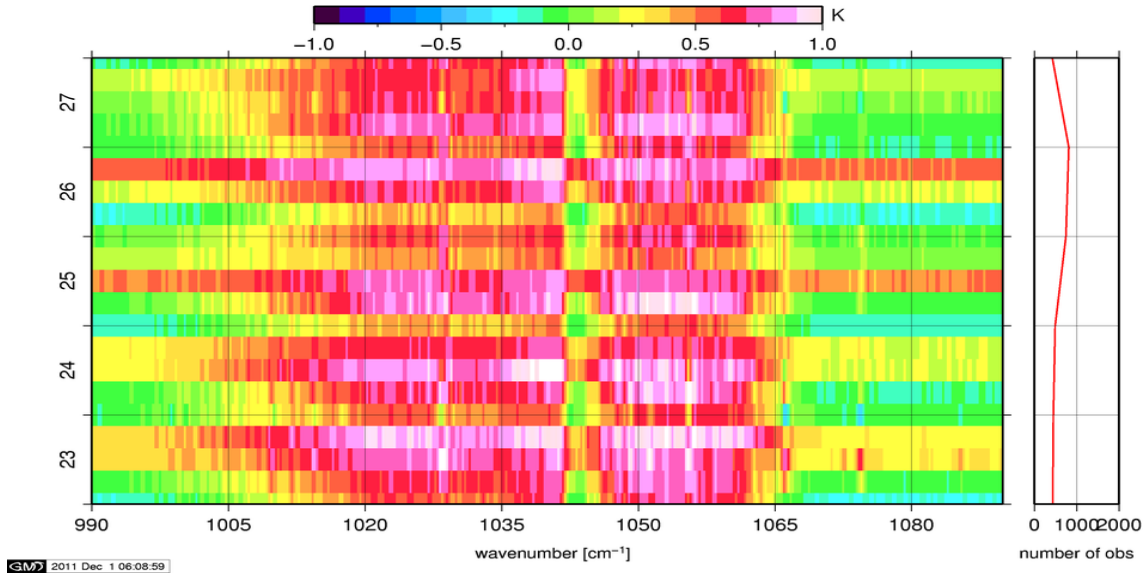

Figure 16: Radiance Anomaly in BRT: O3

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.

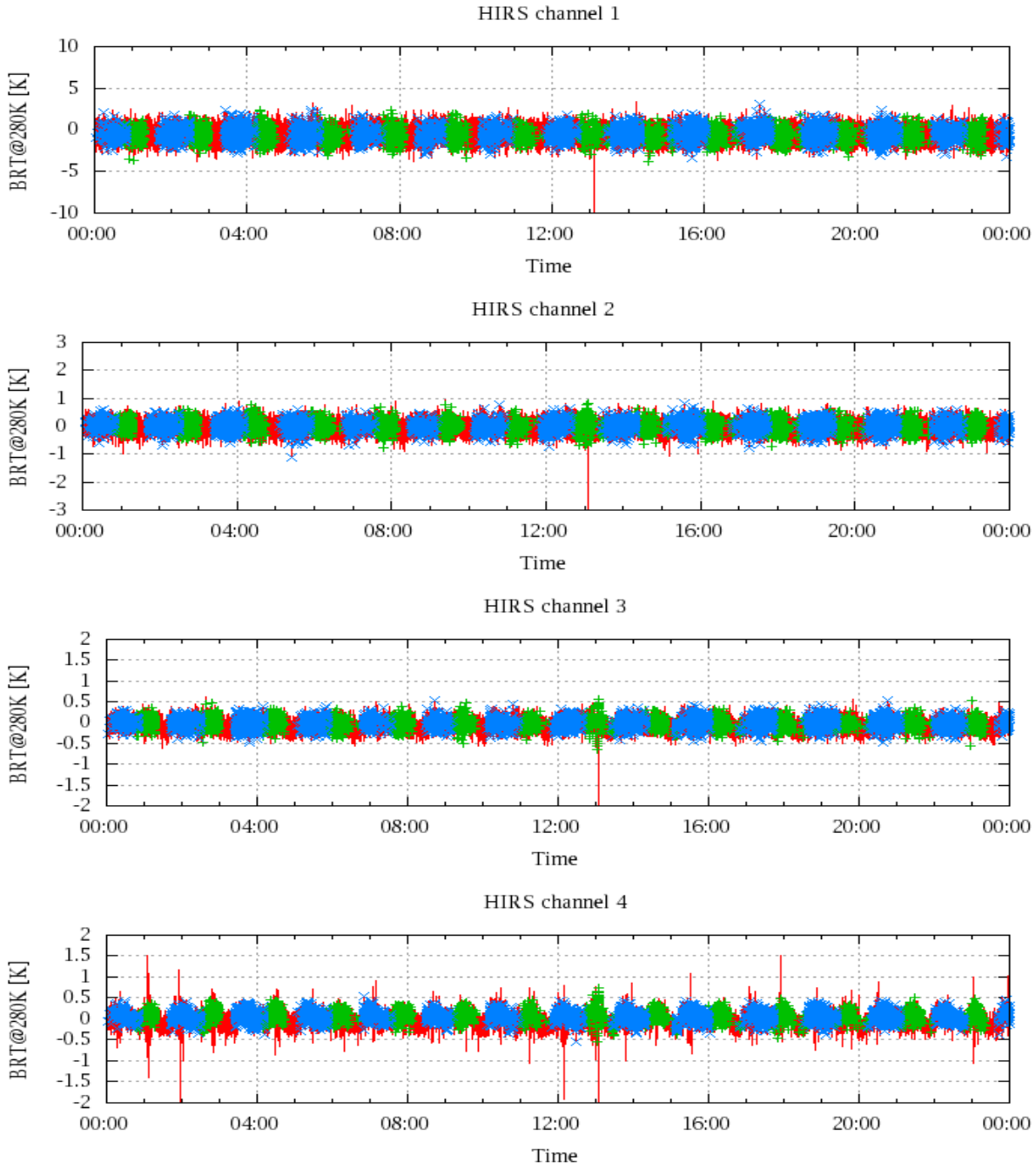

Figure 17: Radiance Differences in BRT

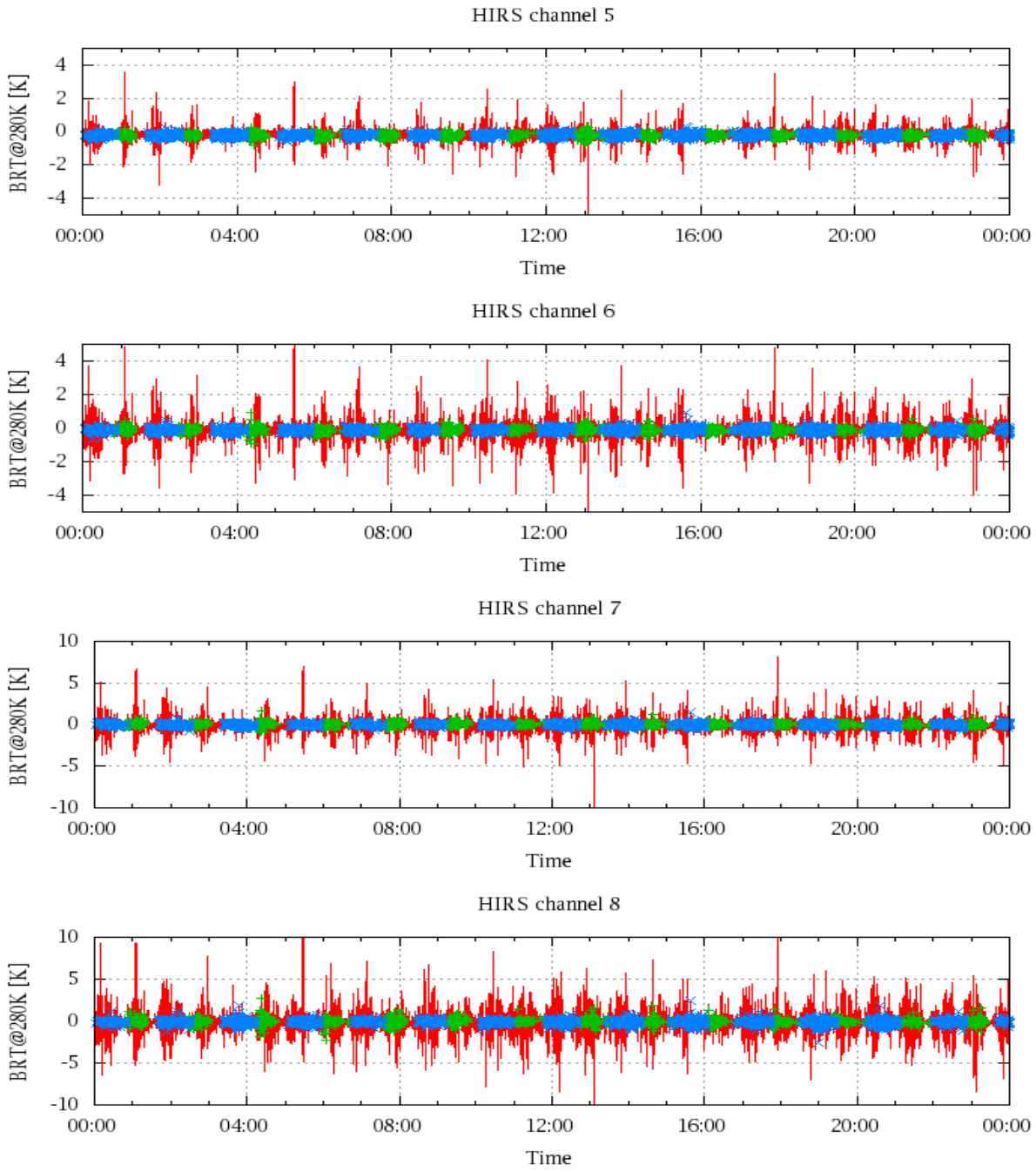

Figure 18: Radiance Differences in BRT

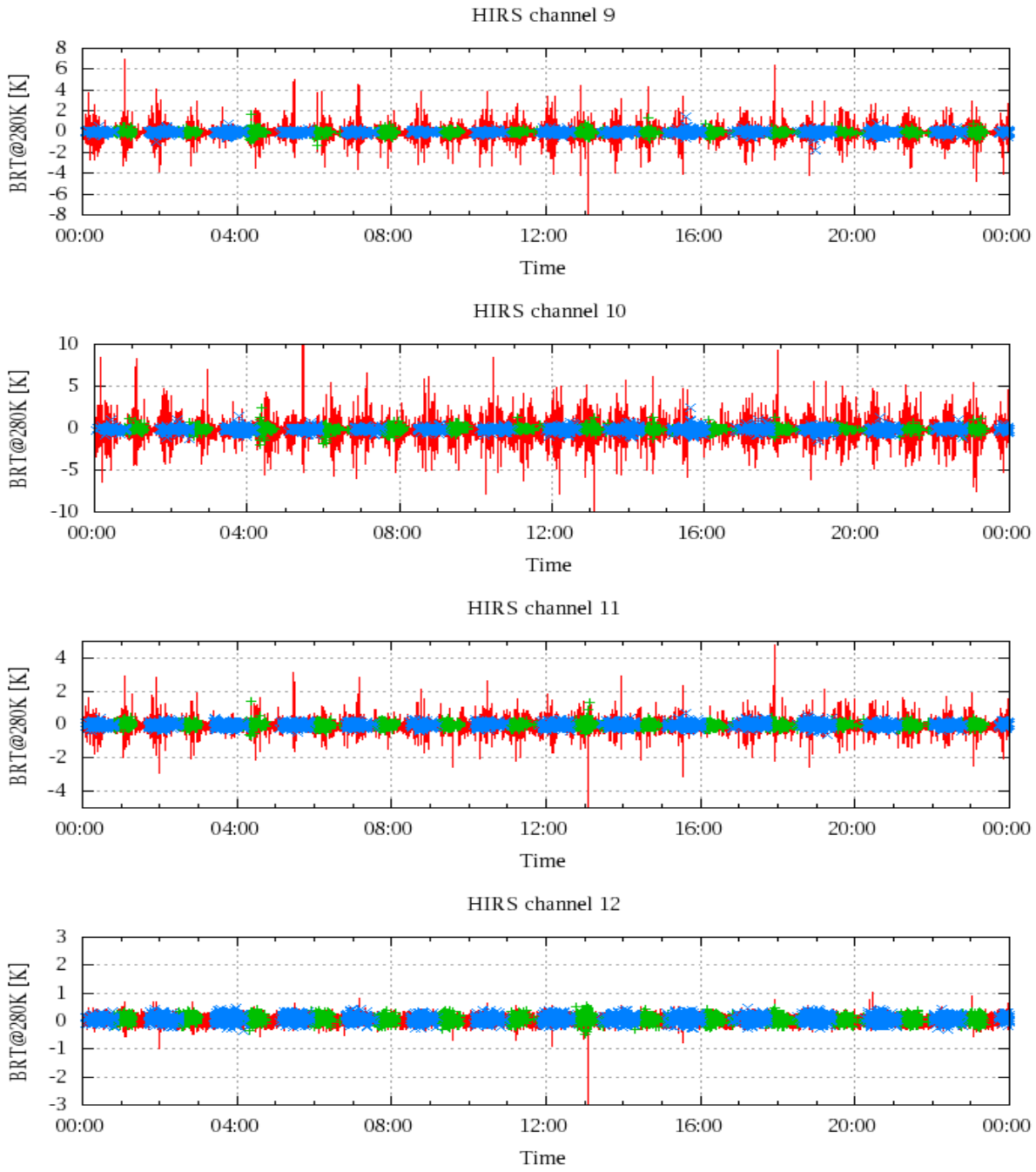

Figure 19: Radiance Differences in BRT

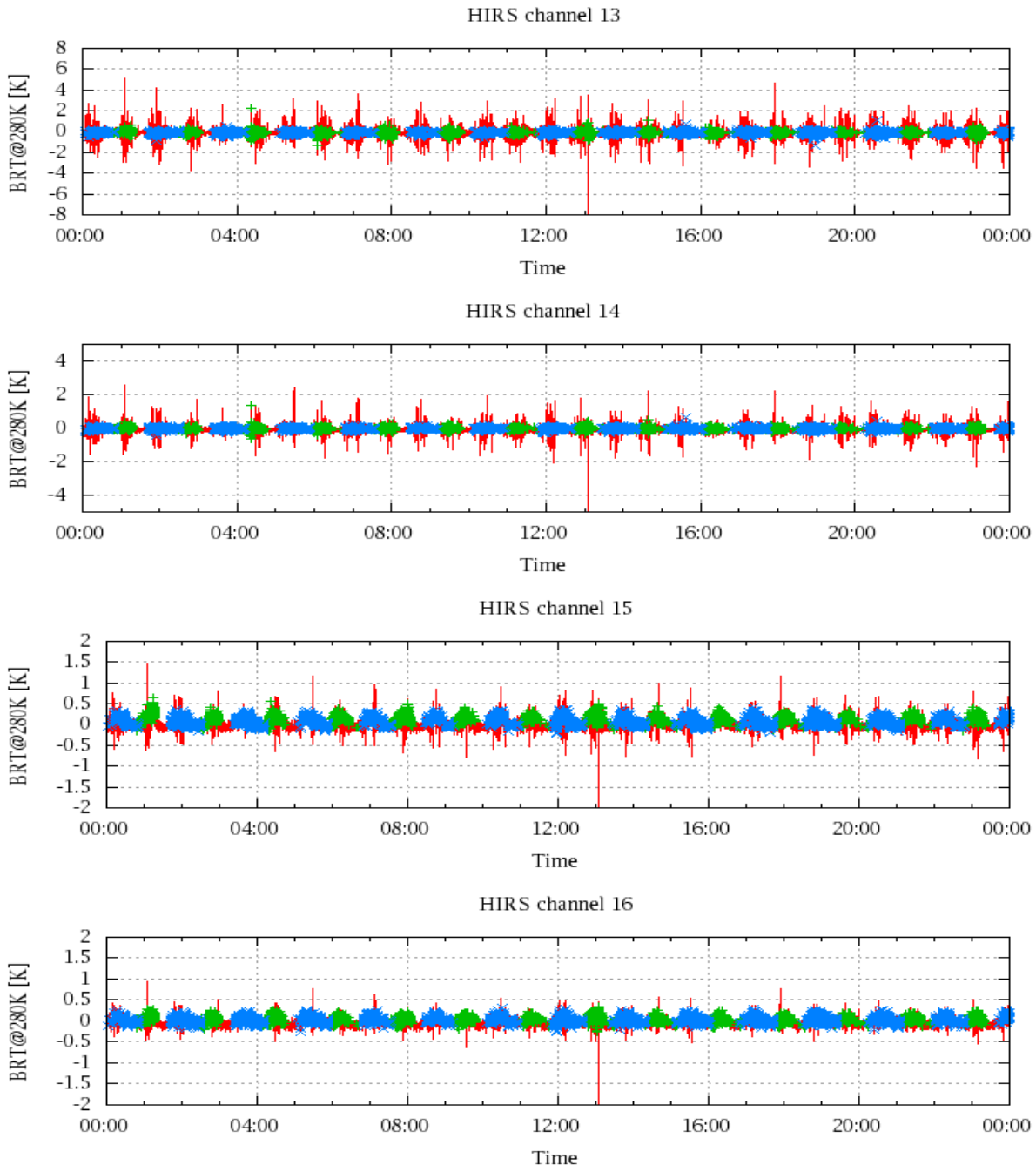

Figure 20: Radiance Differences in BRT

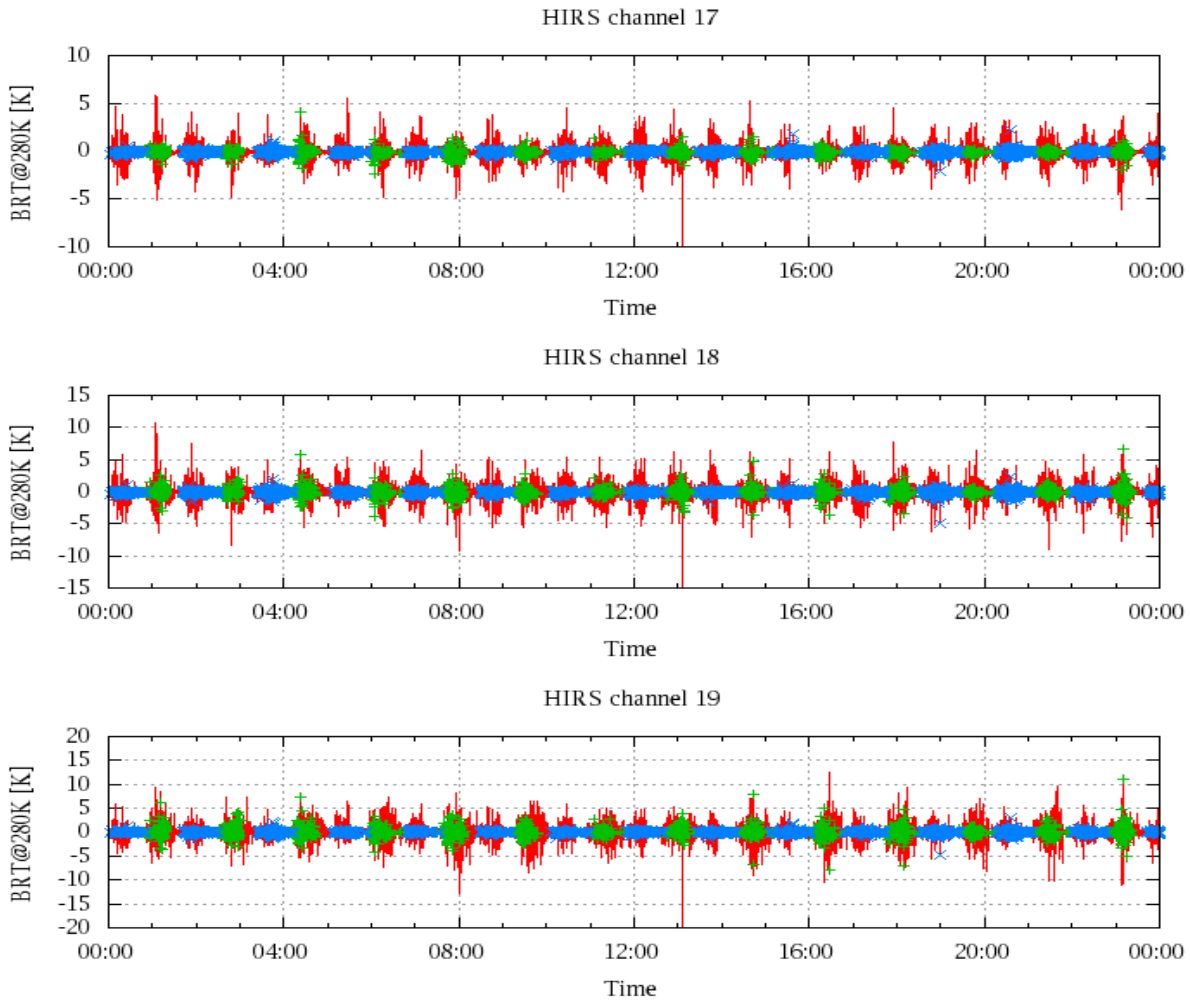

Figure 21: Radinace Differences in BRT