IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

12/04/2012 00:00:00 - 13/04/2012 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 12/04/2012 00:00:00 - 13/04/2012 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 12/04/2012 00:00:00 - 13/04/2012 00:00:00

Product Type	**Number**	**Action**
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	480	-
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)	13758	13762	20120412025557.881	20120412025558.748
PX1 (130)	13762	13766	20120412025558.748	20120412025601.123
PX1 (130)	13780	13787	20120412025604.151	20120412025605.666
PX1 (130)	13799	13802	20120412025609.772	20120412025610.420
PX2 (135)	13758	13766	20120412025557.881	20120412025601.123
PX2 (135)	13780	13787	20120412025604.151	20120412025605.666
PX2 (135)	13799	13802	20120412025609.772	20120412025610.420
PX3 (140)	13758	13765	20120412025557.881	20120412025600.909
PX3 (140)	13780	13787	20120412025604.151	20120412025605.666
PX3 (140)	13798	13801	20120412025609.557	20120412025610.205
PX4 (145)	13758	13761	20120412025557.881	20120412025558.530
PX4 (145)	13761	13765	20120412025558.530	20120412025600.909
PX4 (145)	13780	13787	20120412025604.151	20120412025605.666
PX4 (145)	13798	13801	20120412025609.557	20120412025610.205
IMG (150)	3286	3289	20120412025557.881	20120412025558.530
IMG (150)	3289	3297	20120412025558.530	20120412025600.909
IMG (150)	3311	3319	20120412025603.936	20120412025605.666
IMG (150)	3334	3337	20120412025609.557	20120412025610.205

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	11571	11577	20120412025550.745	20120412025606.745
AUX (180)	5573	5575	20120412025551.178	20120412025607.178

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
12/04/2012 00:00:06	-	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	480	-
GQisFlagQual set (PX1)	99.34 %	-
GQisFlagQual set (PX2)	99.17 %	-
GQisFlagQual set (PX3)	99.27 %	-
GQisFlagQual set (PX4)	99.38 %	-
GQisFlagQual set (all)	99.29 %	-

Table 4: Quality flags

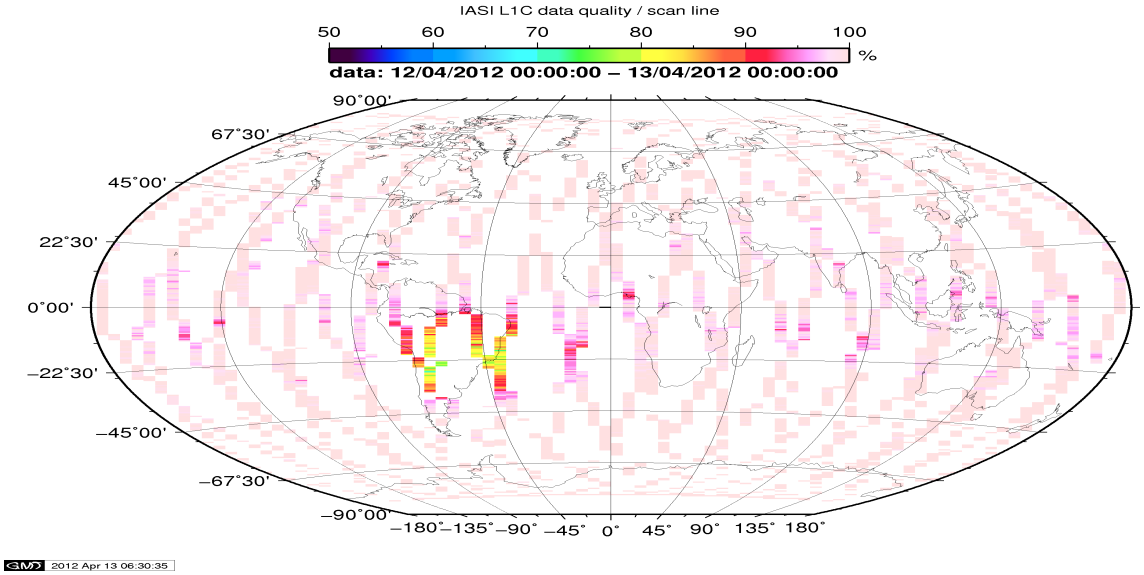

Figure 1: L1C data quality

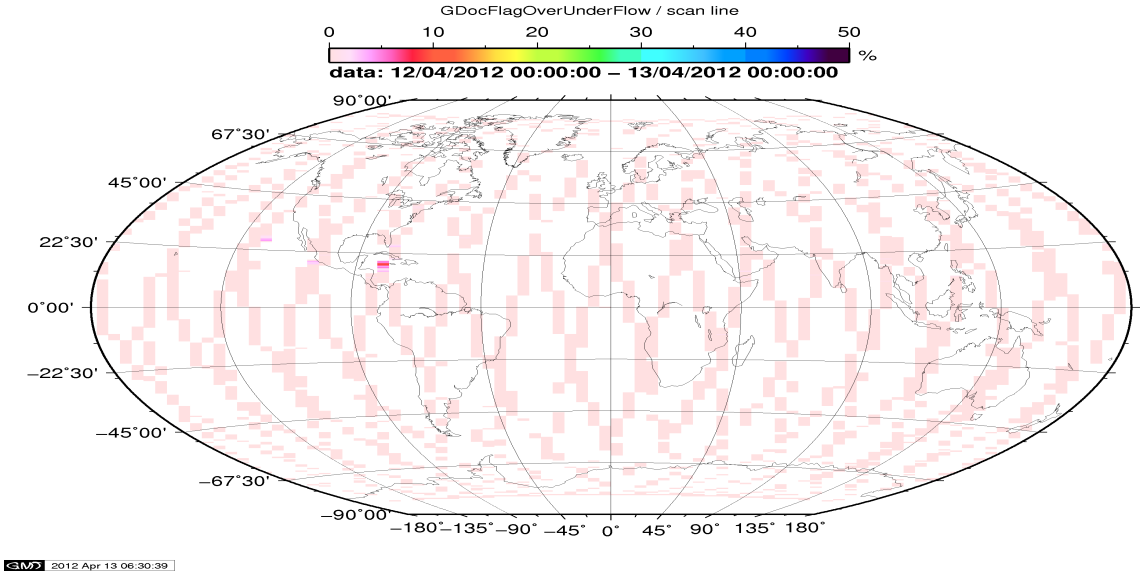

Figure 2: Flag of Over and Under Flows

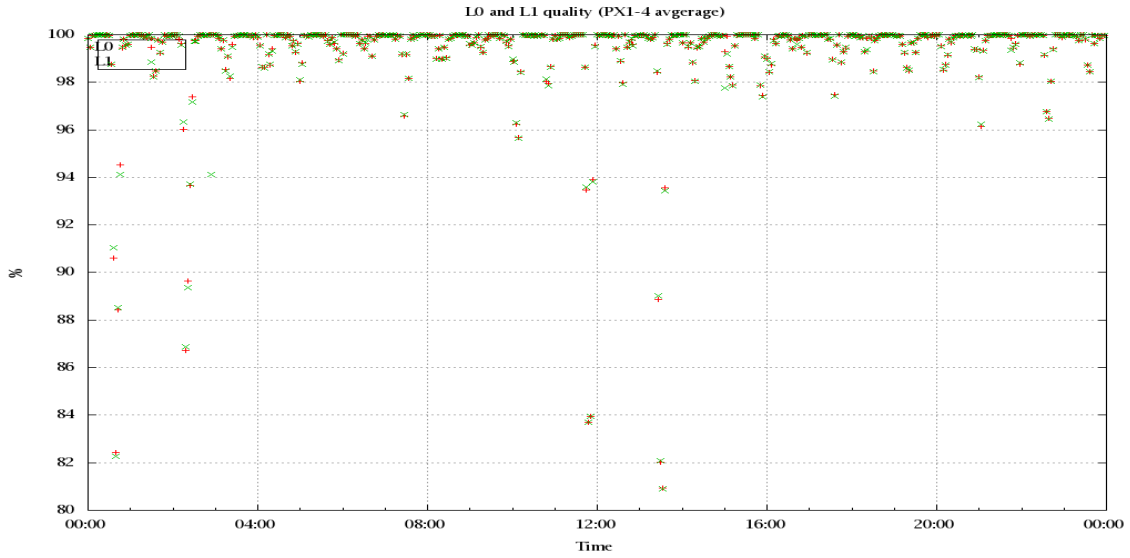

Figure 3: Level 0 and 1C overall quality

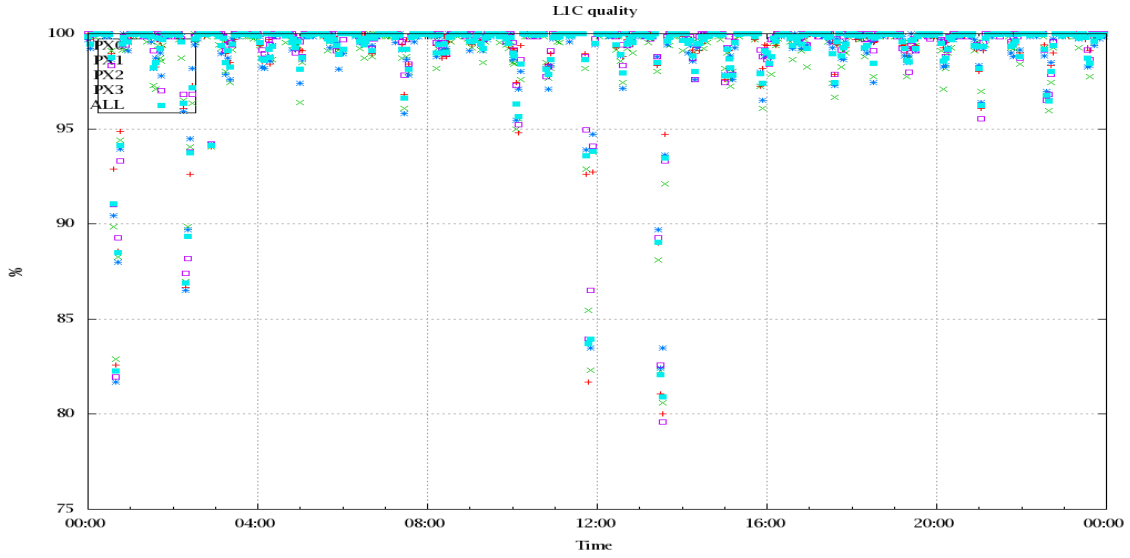

Figure 4: Level 1C quality

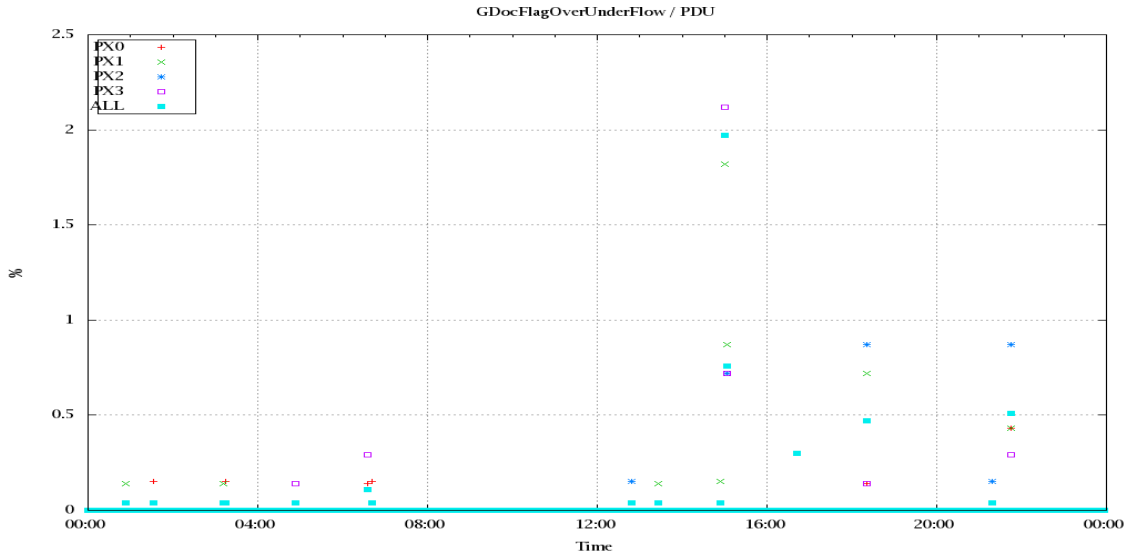

Figure 5: OverUnderFlowFlag timeseries

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.

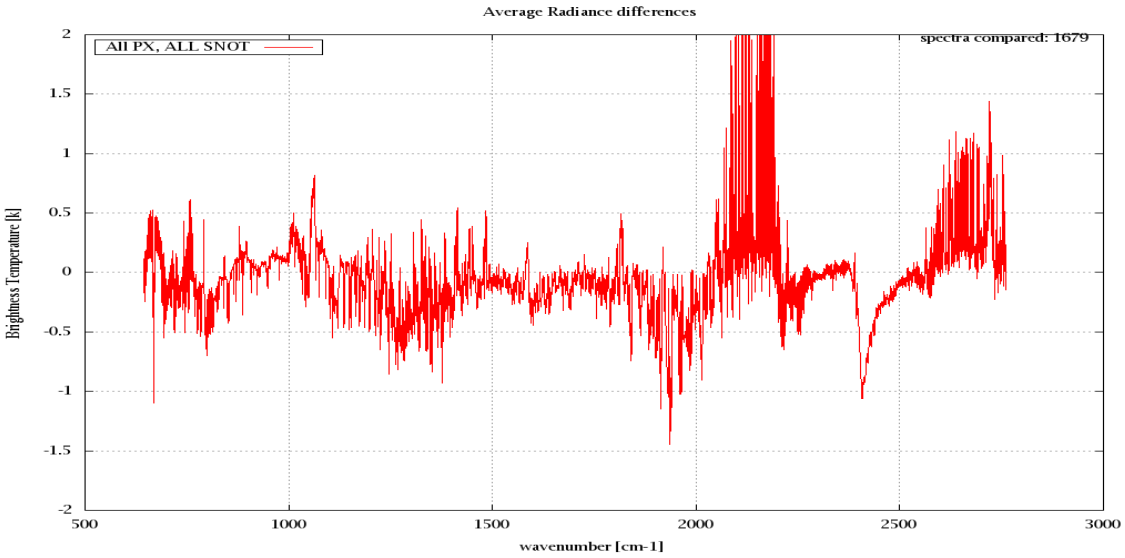

Figure 6: Average Radiance differences: OBS-CAL

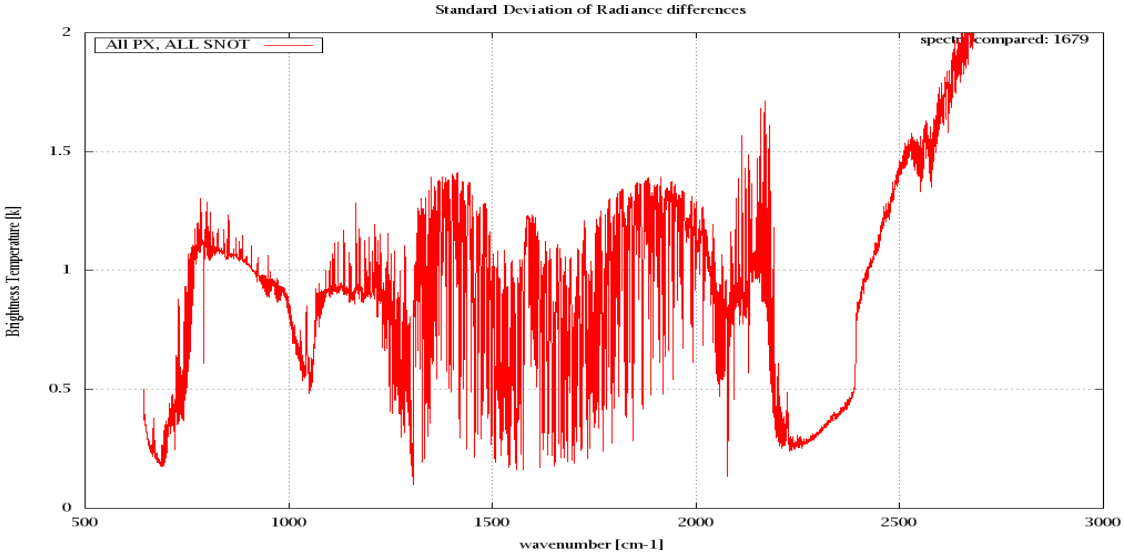

Figure 7: Standard Deviation of Radiance differences

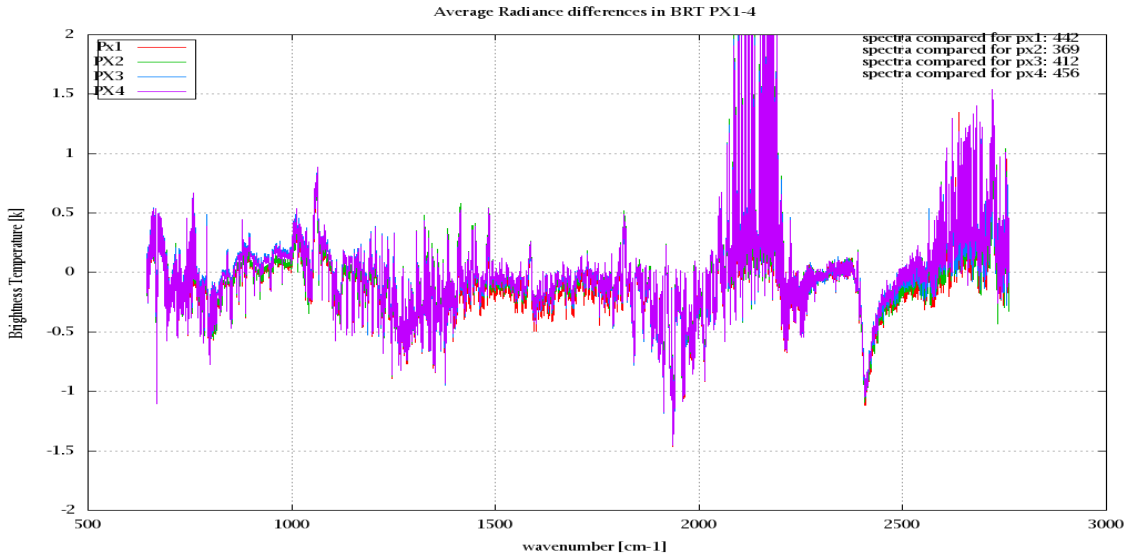

Figure 8: Average Radiance differences: OBS-CAL

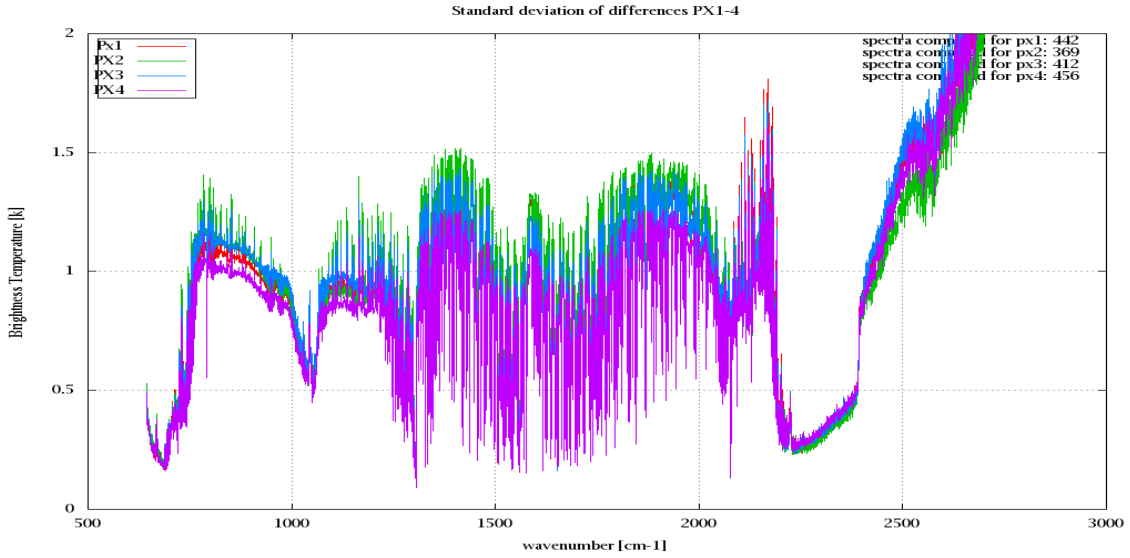

Figure 9: Standard Deviation of Radiance differences

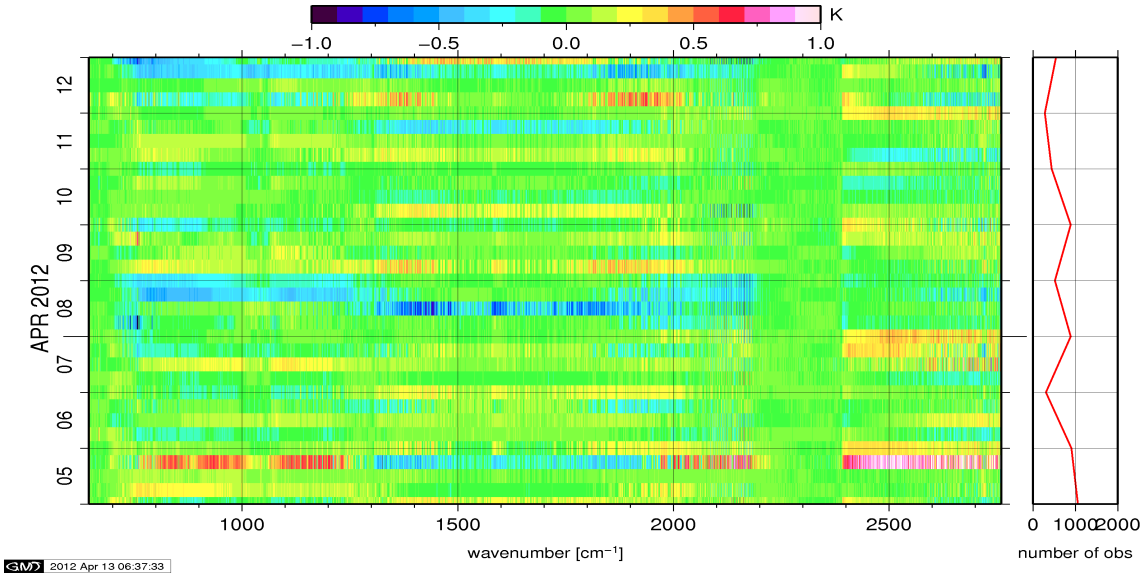

Figure 10: Radiance Anomaly in BRT: All Channels

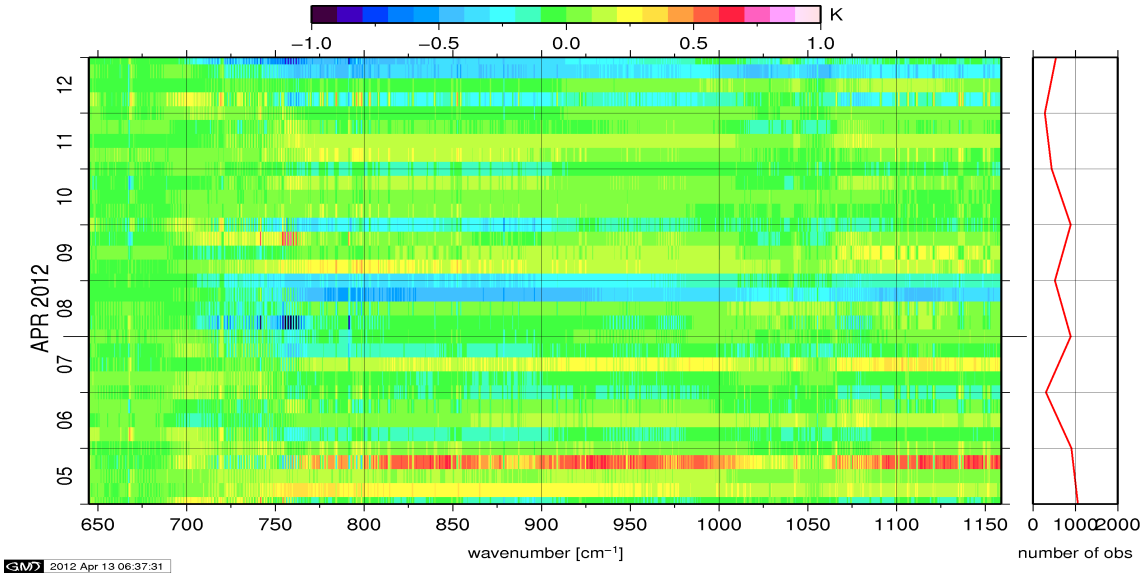

Figure 11: Radiance Anomaly in BRT: IASI Band 1

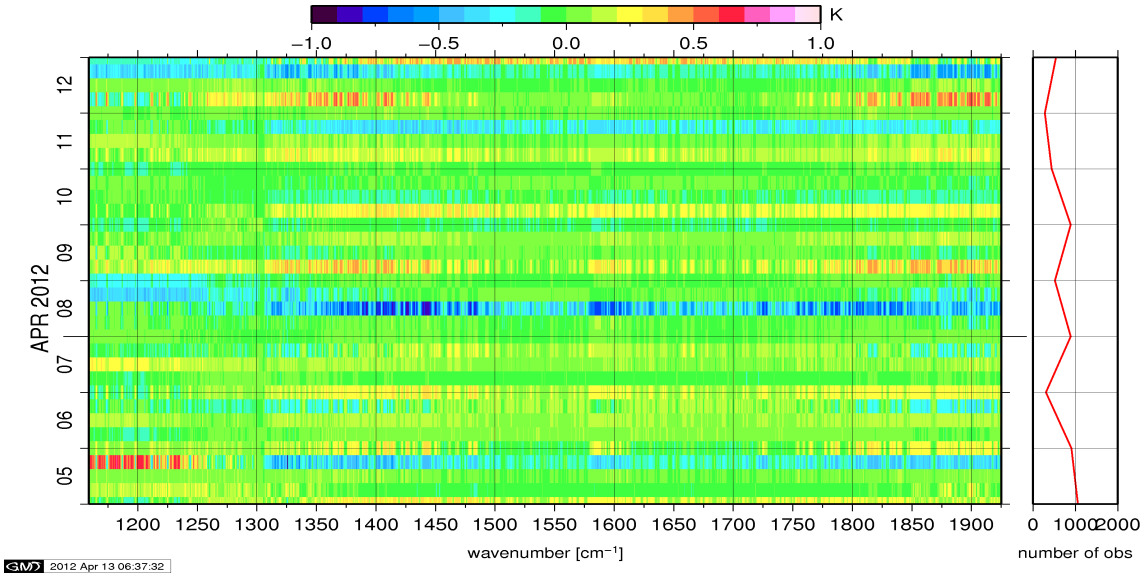

Figure 12: Radiance Anomaly in BRT: IASI Band 2

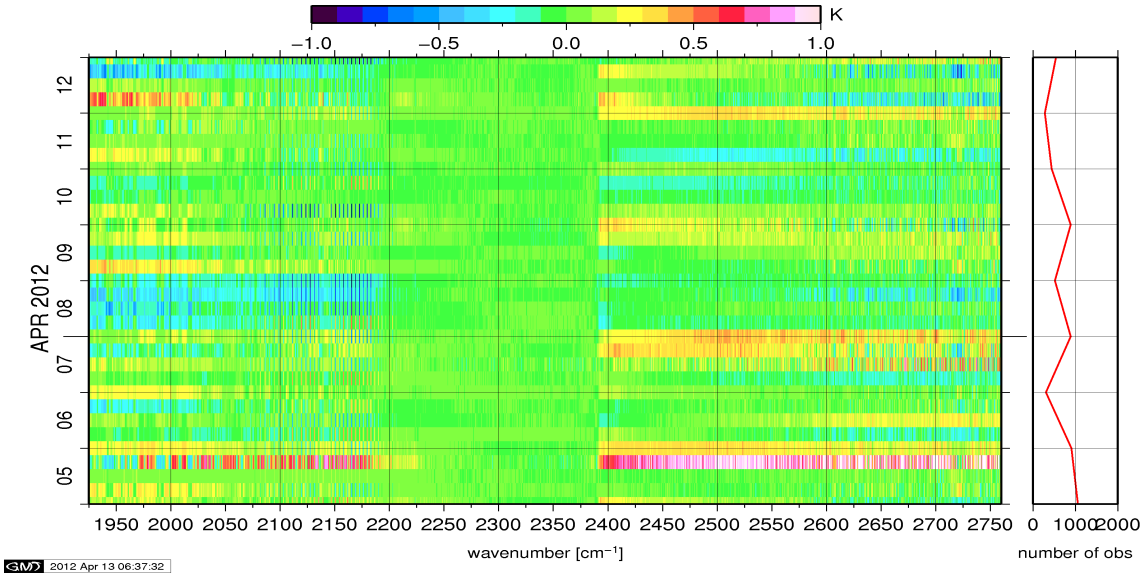

Figure 13: Radiance Anomaly in BRT: IASI Band 3

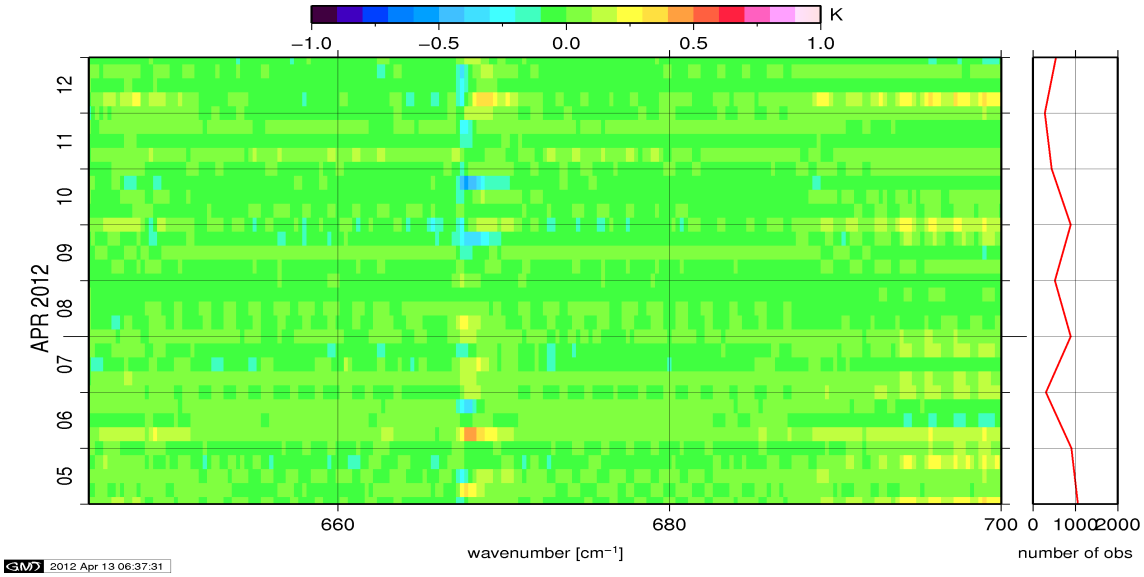

Figure 14: Radiance Anomaly in BRT: CO2 14

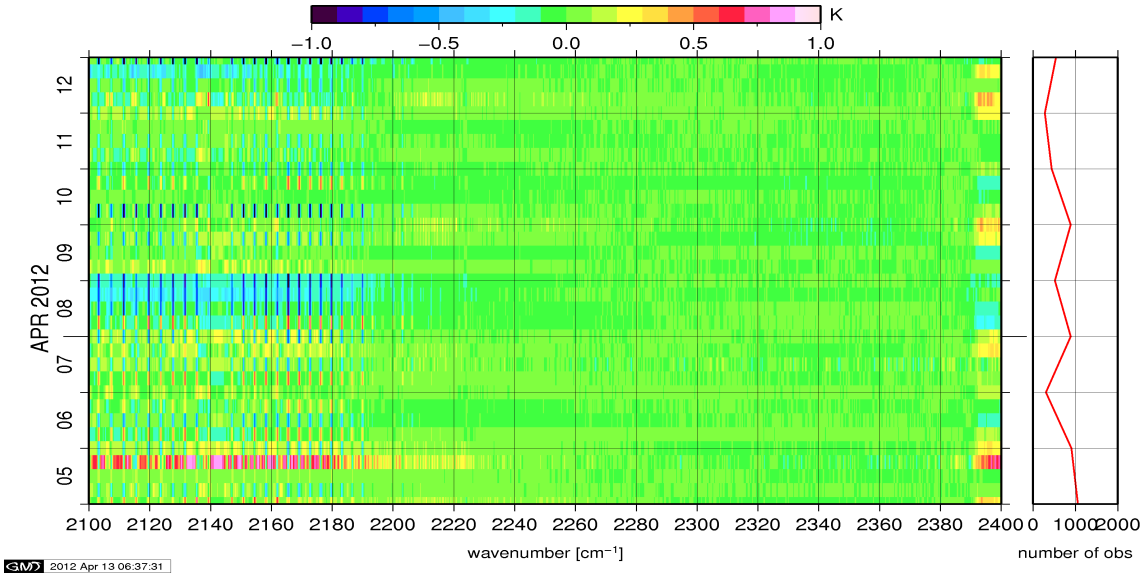

Figure 15: Radiance Anomaly in BRT: CO2 4.3

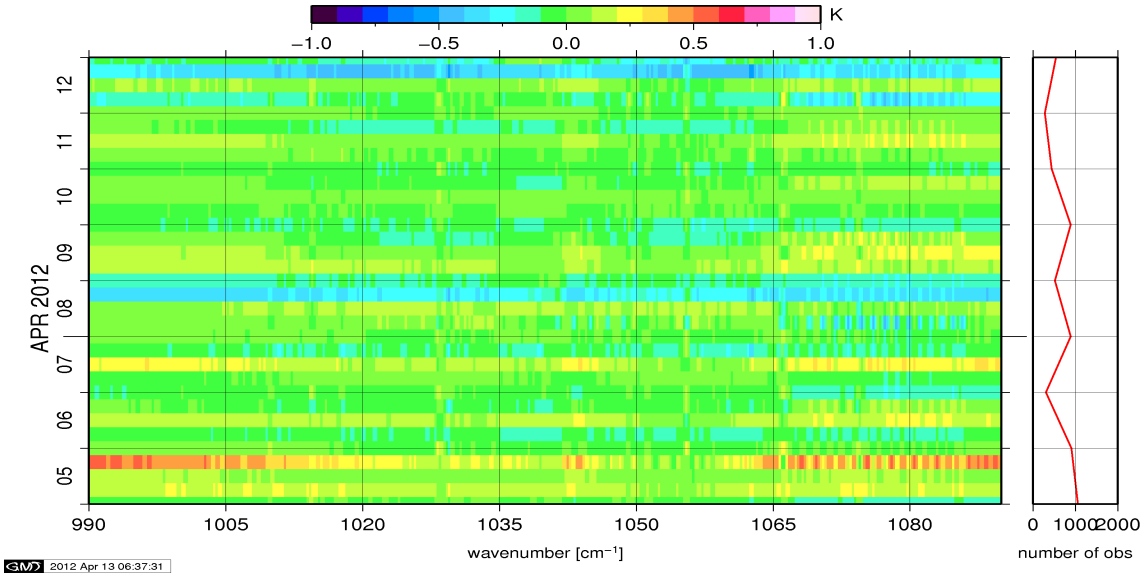

Figure 16: Radiance Anomaly in BRT: O3

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.

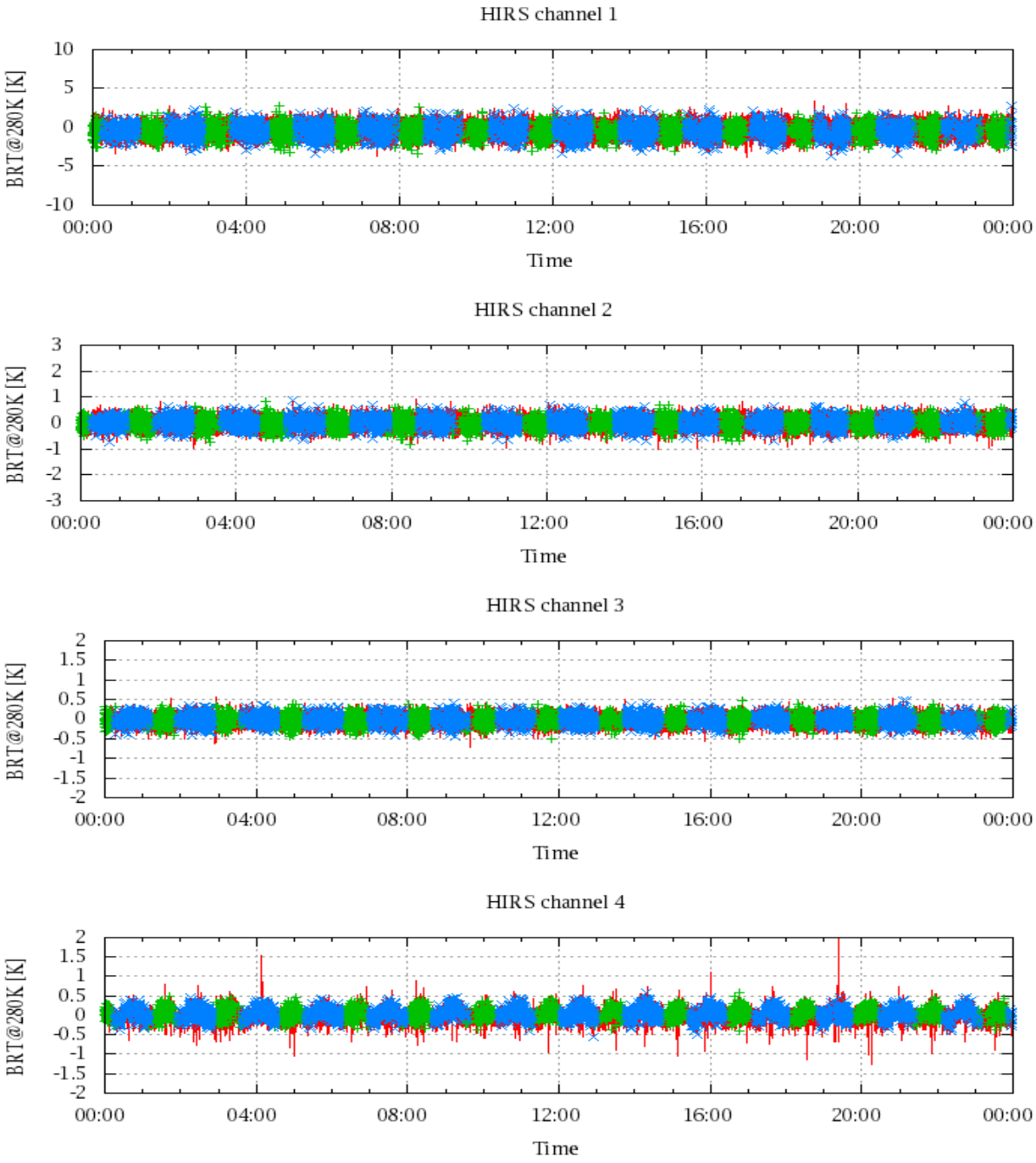

Figure 17: Radiance Differences in BRT

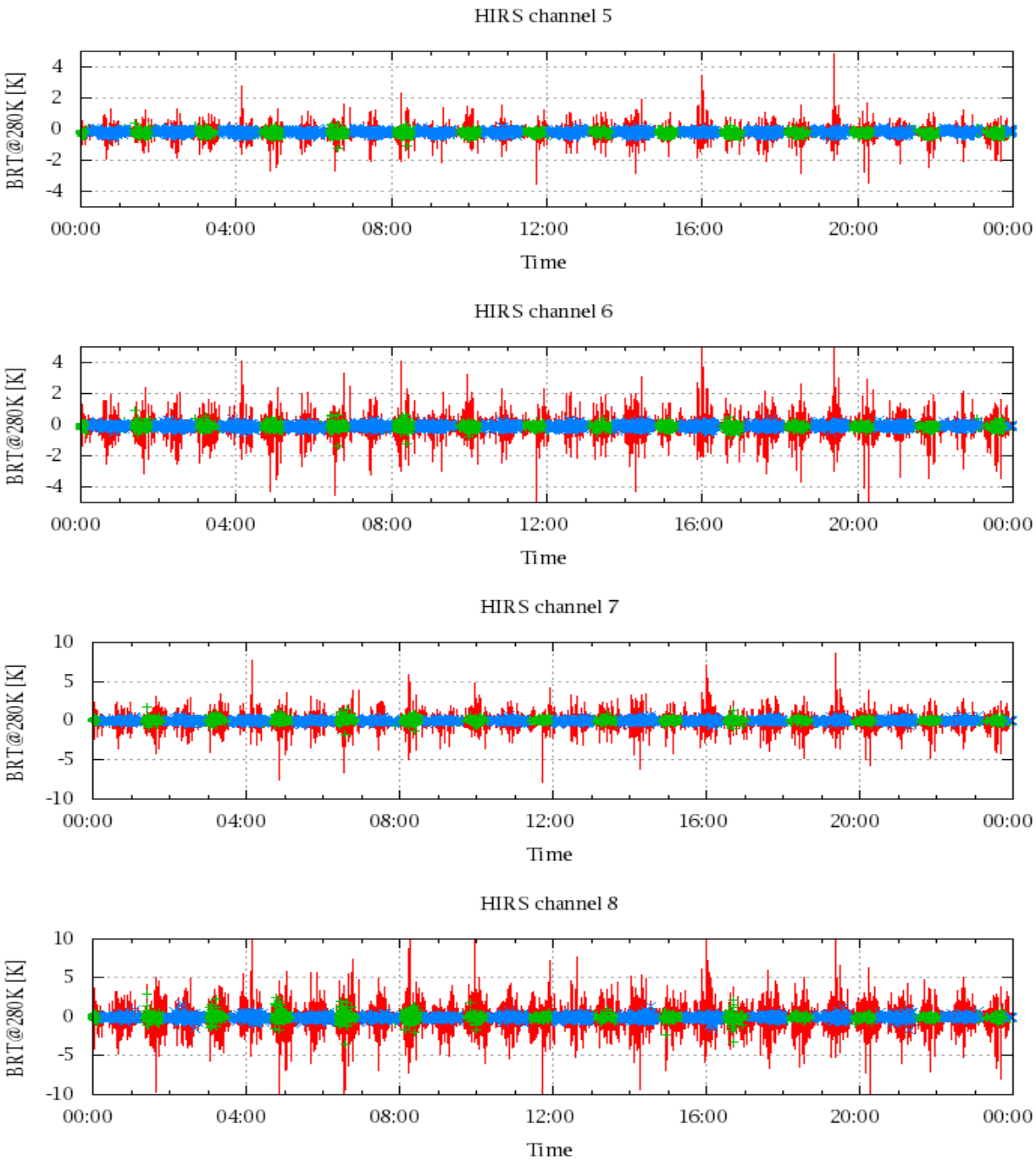

Figure 18: Radiance Differences in BRT

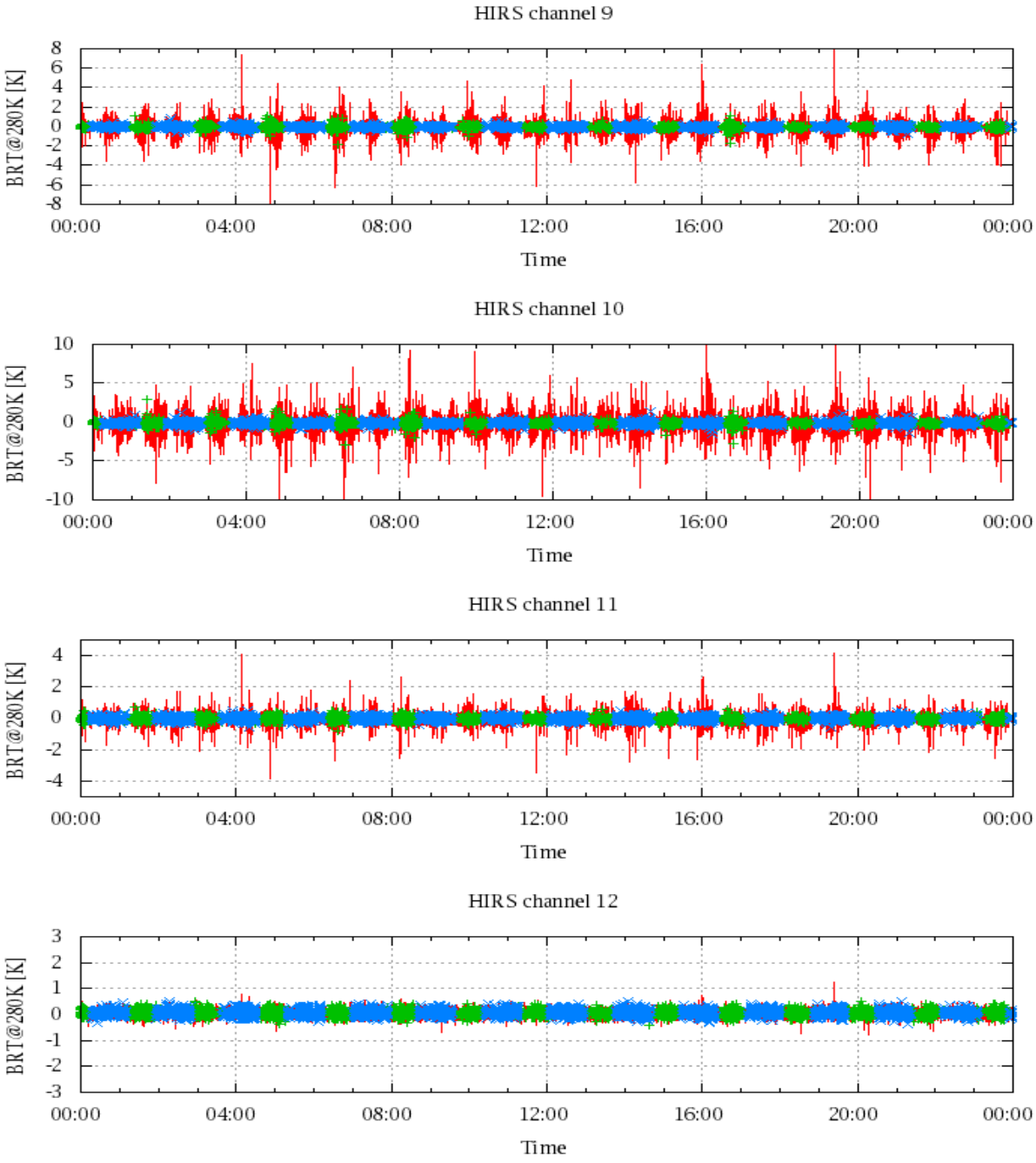

Figure 19: Radiance Differences in BRT

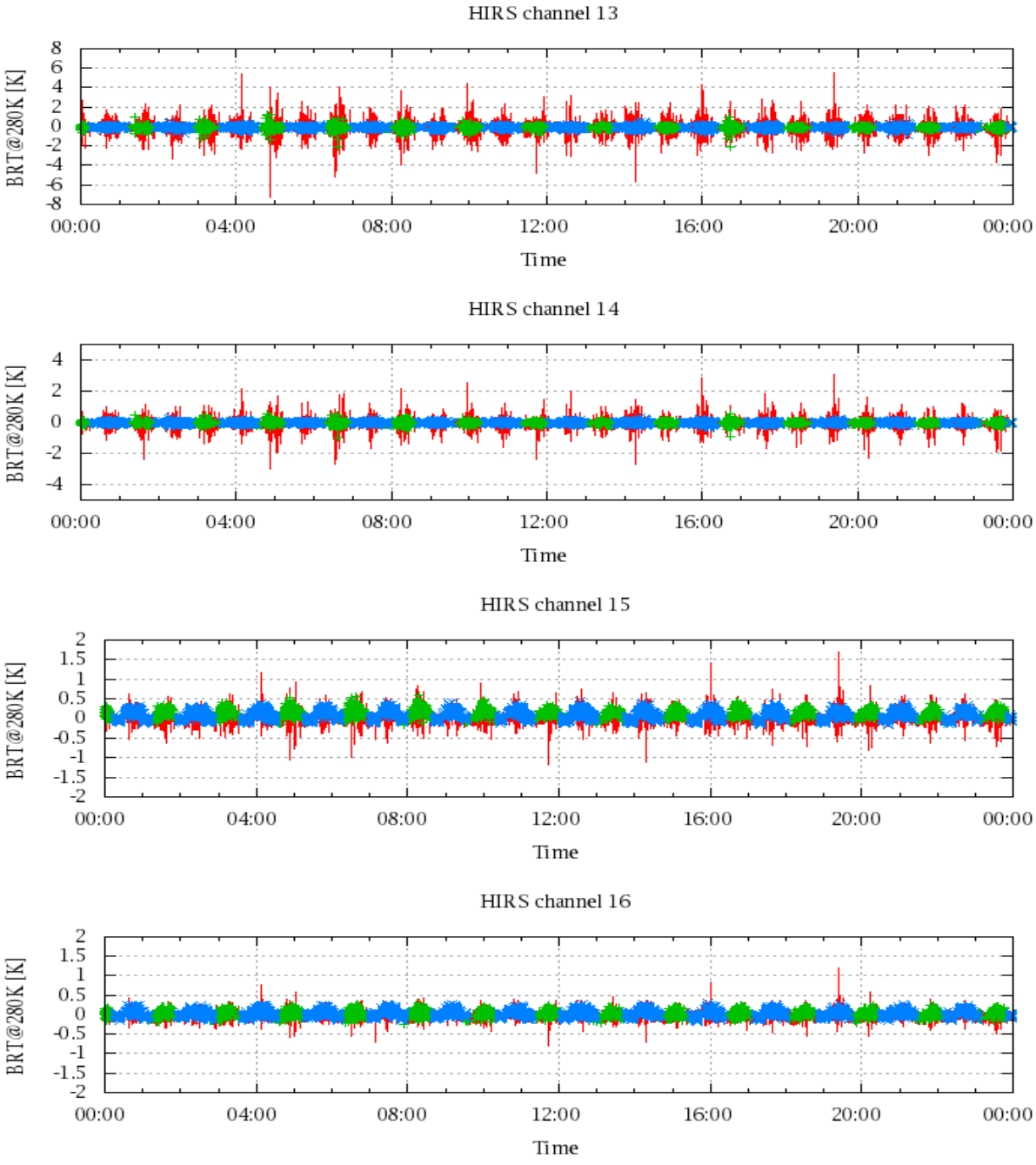

Figure 20: Radiance Differences in BRT

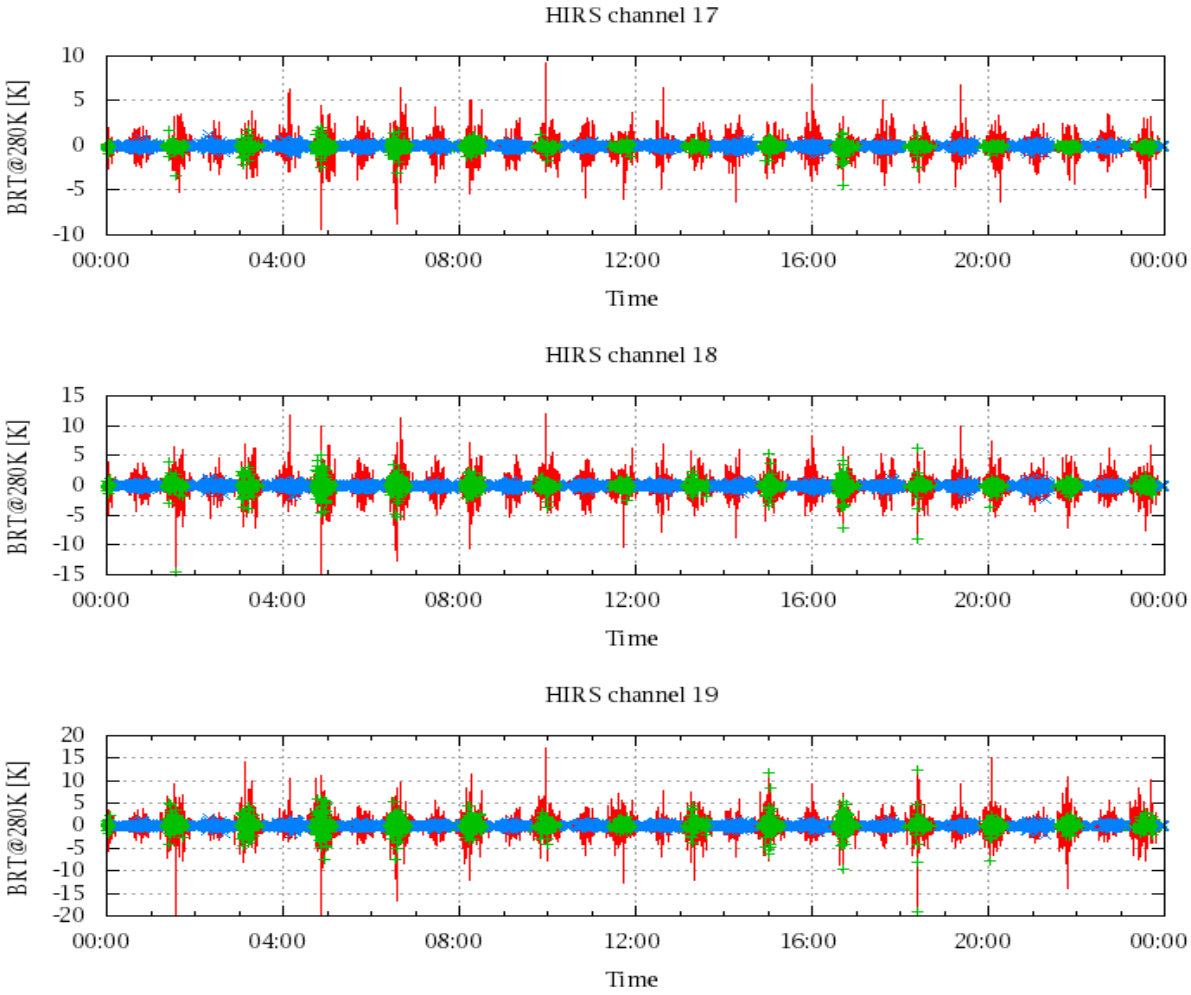

Figure 21: Radinace Differences in BRT