IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

29/12/2012 00:00:00 - 30/12/2012 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 29/12/2012 00:00:00 - 30/12/2012 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 29/12/2012 00:00:00 - 30/12/2012 00:00:00

Product Type	**Number**	**Action**
L0 HKTM PDUs	468	-
L0 IASI PDUs	472	-
L1 ENG PDUs	471	-
L1 ENG distinct GEPSGranule	472	-
L1 DPX PDUs (RM: IASI-HIRS)	470	-
L1 DPS Files (RM: OBS-CAL NWP based)	471	-

Table 1: Data quantity

APID	**Seq from**	**Seq to**	**Time from**	**Time to**
PX1 (130)	8073	8817	20121229121600.218	20121229121918.916
PX1 (130)	8857	8899	20121229121929.077	20121229121939.670
PX1 (130)	10074	10193	20121229122452.744	20121229122524.525
PX1 (130)	10226	10268	20121229122533.173	20121229122545.283
PX1 (130)	11092	11286	20121229122924.306	20121229123016.880
PX1 (130)	11366	11401	20121229123037.204	20121229123047.798
PX1 (130)	11518	11559	20121229123119.149	20121229123129.524
PX1 (130)	11696	2063	20121229123205.200	20121229130206.918
PX2 (135)	8073	8817	20121229121600.218	20121229121918.916
PX2 (135)	8857	8899	20121229121929.077	20121229121939.670
PX2 (135)	10074	10193	20121229122452.744	20121229122524.525
PX2 (135)	10226	10268	20121229122533.173	20121229122545.283
PX2 (135)	11092	11286	20121229122924.306	20121229123016.880
PX2 (135)	11366	11401	20121229123037.204	20121229123047.798
PX2 (135)	11518	11559	20121229123119.149	20121229123129.524
PX2 (135)	11696	2063	20121229123205.200	20121229130206.918
PX3 (140)	8073	8817	20121229121600.218	20121229121918.916
PX3 (140)	8857	8899	20121229121929.077	20121229121939.670

Continued on next page

Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	10074	10193	20121229122452.744	20121229122524.525
PX3 (140)	10226	10268	20121229122533.173	20121229122545.283
PX3 (140)	11092	11286	20121229122924.306	20121229123016.880
PX3 (140)	11366	11401	20121229123037.204	20121229123047.798
PX3 (140)	11518	11559	20121229123119.149	20121229123129.524
PX3 (140)	11696	2063	20121229123205.200	20121229130206.918
PX3 (140)	8882	8884	20121229133224.851	20121229133225.281
PX4 (145)	8073	8817	20121229121600.218	20121229121918.916
PX4 (145)	8857	8899	20121229121929.077	20121229121939.670
PX4 (145)	10074	10193	20121229122452.744	20121229122524.525
PX4 (145)	10226	10268	20121229122533.173	20121229122545.283
PX4 (145)	11092	11285	20121229122924.306	20121229123016.665
PX4 (145)	11366	11401	20121229123037.204	20121229123047.798
PX4 (145)	11518	11559	20121229123119.149	20121229123129.524
PX4 (145)	11696	2063	20121229123205.200	20121229130206.918
IMG (150)	3128	3973	20121229121600.003	20121229121918.916
IMG (150)	4016	4063	20121229121928.862	20121229121939.670
IMG (150)	5394	5528	20121229122452.744	20121229122524.310
IMG (150)	5568	5616	20121229122533.822	20121229122545.283
IMG (150)	6547	6769	20121229122924.087	20121229123016.665
IMG (150)	6858	6901	20121229123037.204	20121229123047.798
IMG (150)	7034	7079	20121229123119.149	20121229123129.524
IMG (150)	7235	14883	20121229123206.282	20121229130205.621
VER (160)	6183	6309	20121229121557.190	20121229121925.186
VER (160)	6313	6318	20121229121925.186	20121229121929.077
VER (160)	6513	6534	20121229122445.173	20121229122525.173
VER (160)	6543	6548	20121229122533.173	20121229122533.822
VER (160)	6683	6713	20121229122917.169	20121229122924.306
VER (160)	6713	6718	20121229122924.306	20121229122924.306
VER (160)	6728	6739	20121229123029.204	20121229123053.204
VER (160)	6758	6764	20121229123117.204	20121229123133.204
VER (160)	6788	7914	20121229123205.200	20121229130213.188
AUX (180)	11051	11077	20121229121557.624	20121229121925.616
AUX (180)	11117	11122	20121229122445.607	20121229122525.607
AUX (180)	11123	11125	20121229122533.607	20121229122549.607
AUX (180)	11151	11159	20121229122917.599	20121229123021.634
AUX (180)	11160	11163	20121229123029.638	20121229123053.634
AUX (180)	11166	11168	20121229123117.633	20121229123133.633
AUX (180)	11172	11397	20121229123205.633	20121229130205.621

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
29/12/2012 00:00:12	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	472	-
L1 ENG PDUs	471	-
L1 ENG distinct GEPSGranule	472	-
GQisFlagQual set (PX1)	99.30 %	-
GQisFlagQual set (PX2)	99.16 %	-
GQisFlagQual set (PX3)	99.25 %	-
GQisFlagQual set (PX4)	99.36 %	-
GQisFlagQual set (all)	99.27 %	-

Table 4: Quality flags

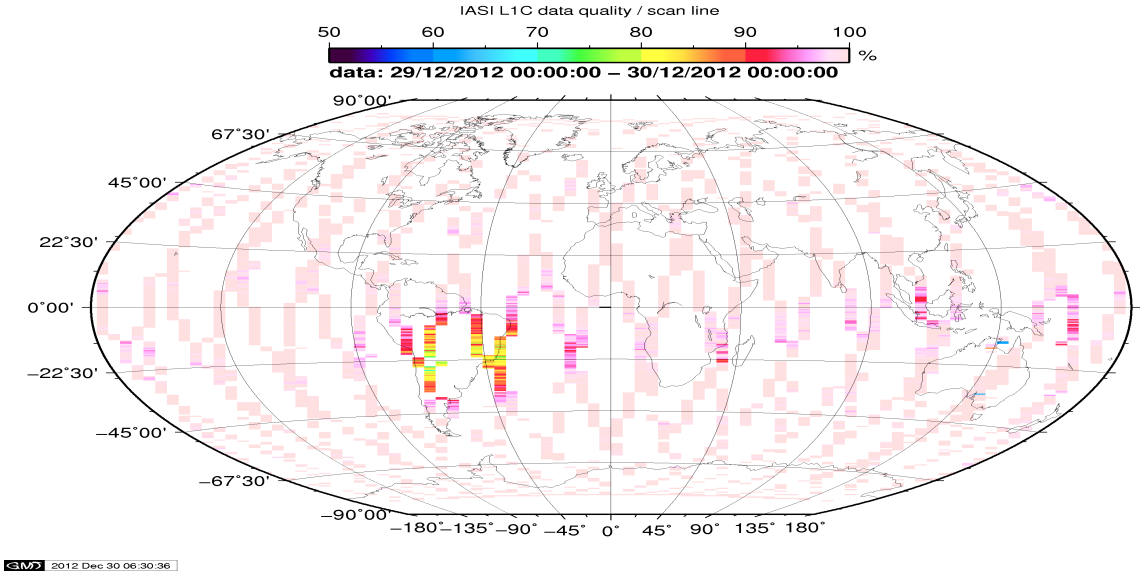

Figure 1: L1C data quality

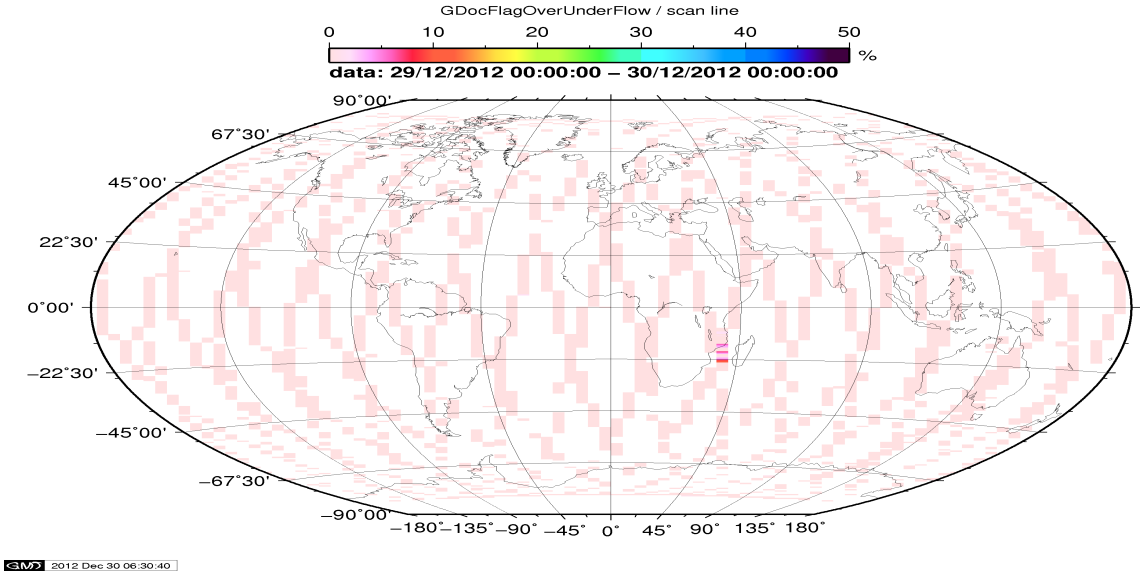

Figure 2: Flag of Over and Under Flows

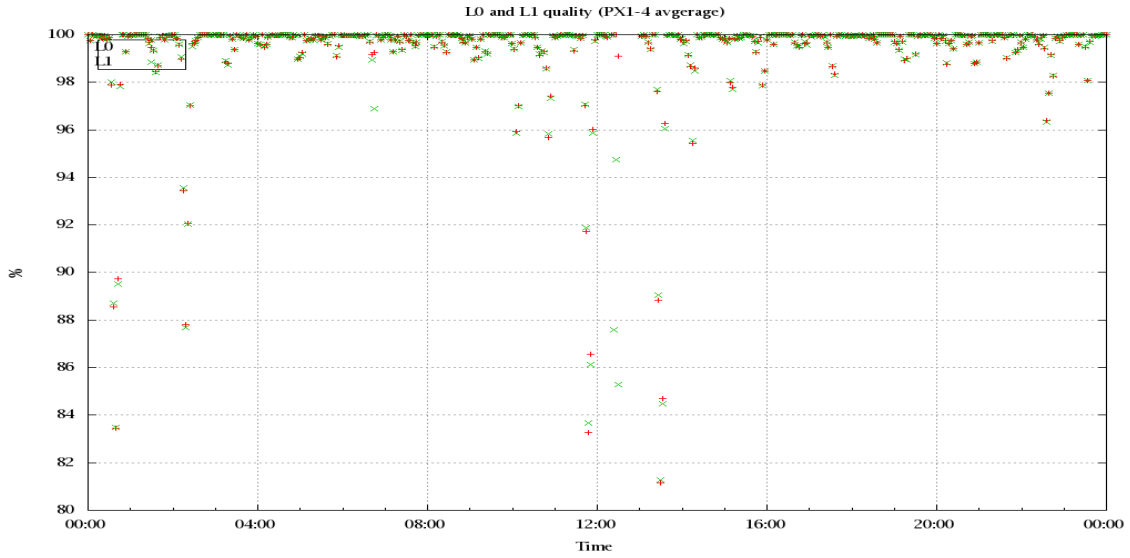

Figure 3: Level 0 and 1C overall quality

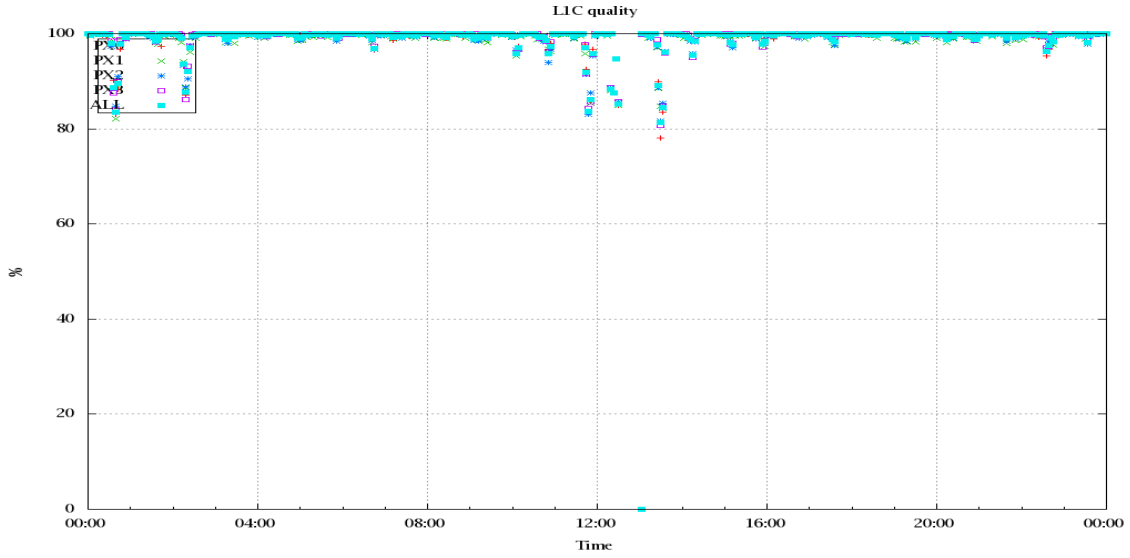

Figure 4: Level 1C quality

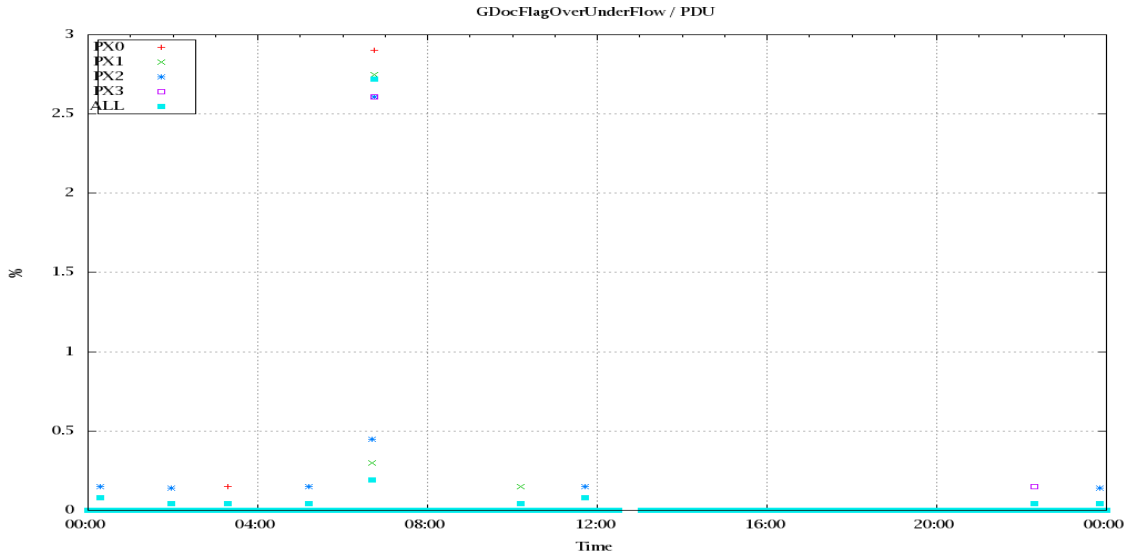

Figure 5: OverUnderFlowFlag timeseries

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.

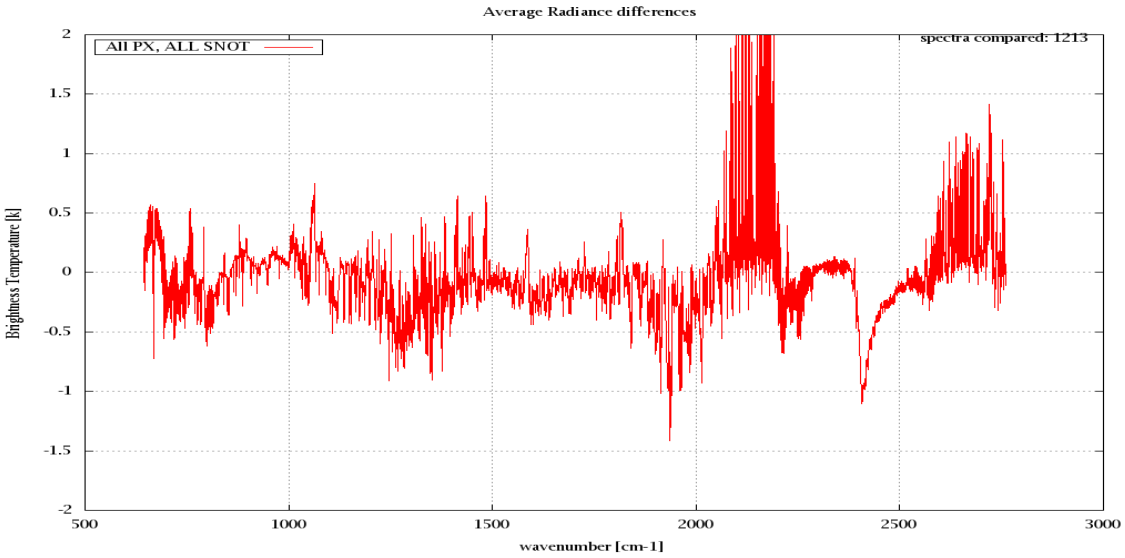

Figure 6: Average Radiance differences: OBS-CAL

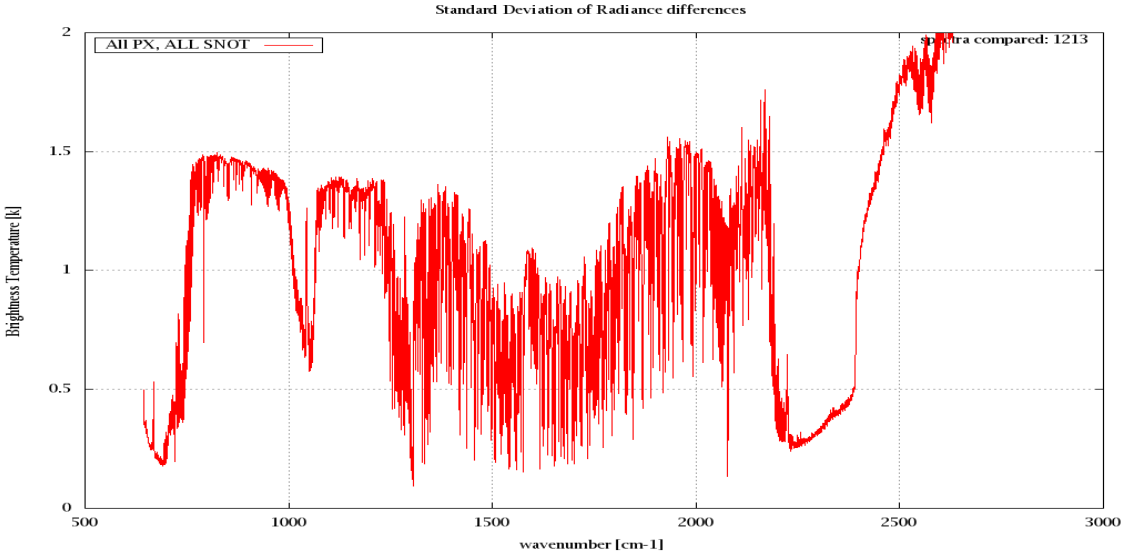

Figure 7: Standard Deviation of Radiance differences

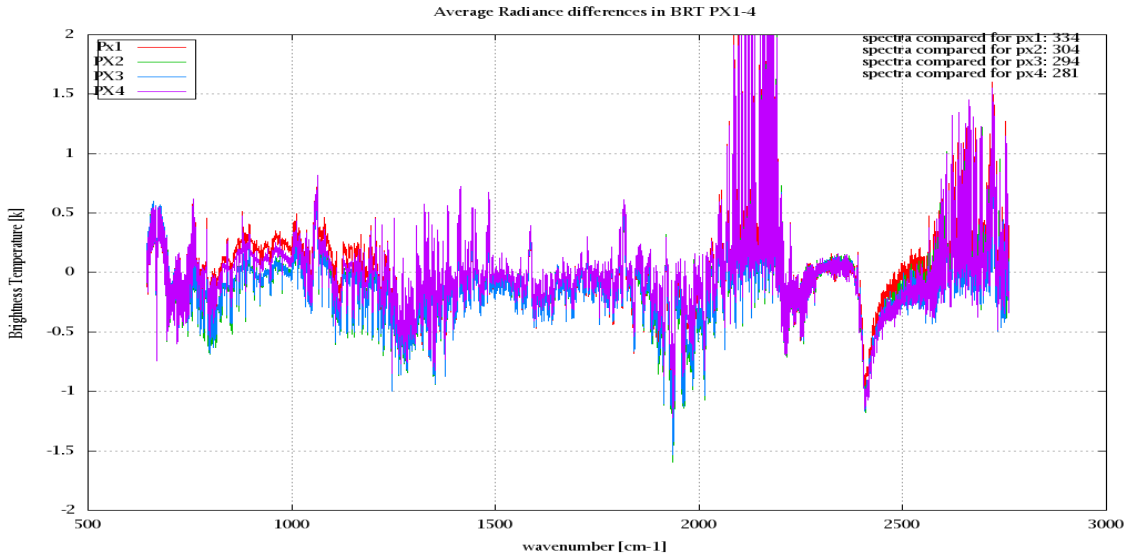

Figure 8: Average Radiance differences: OBS-CAL

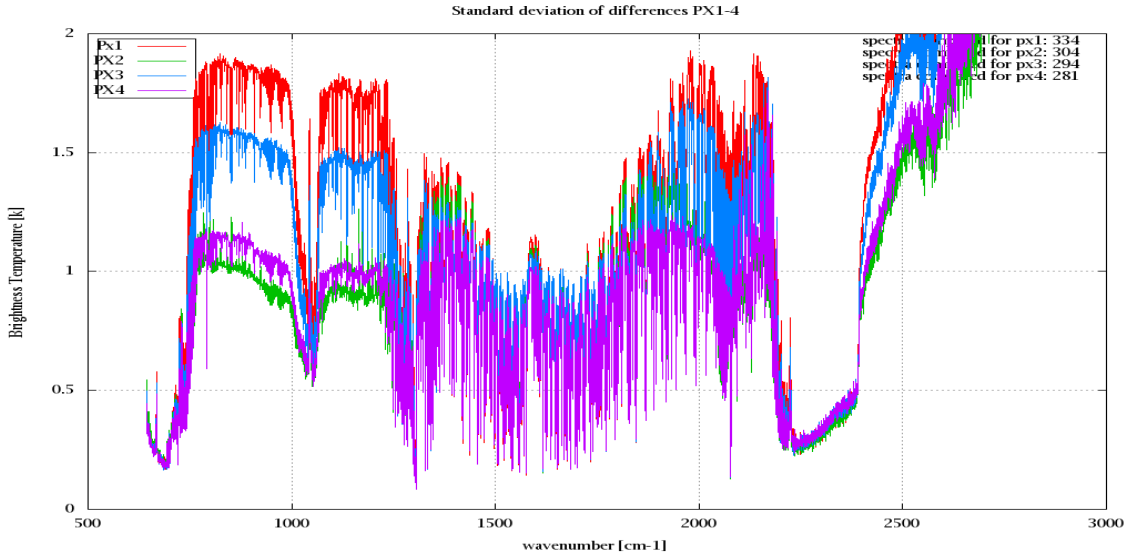

Figure 9: Standard Deviation of Radiance differences

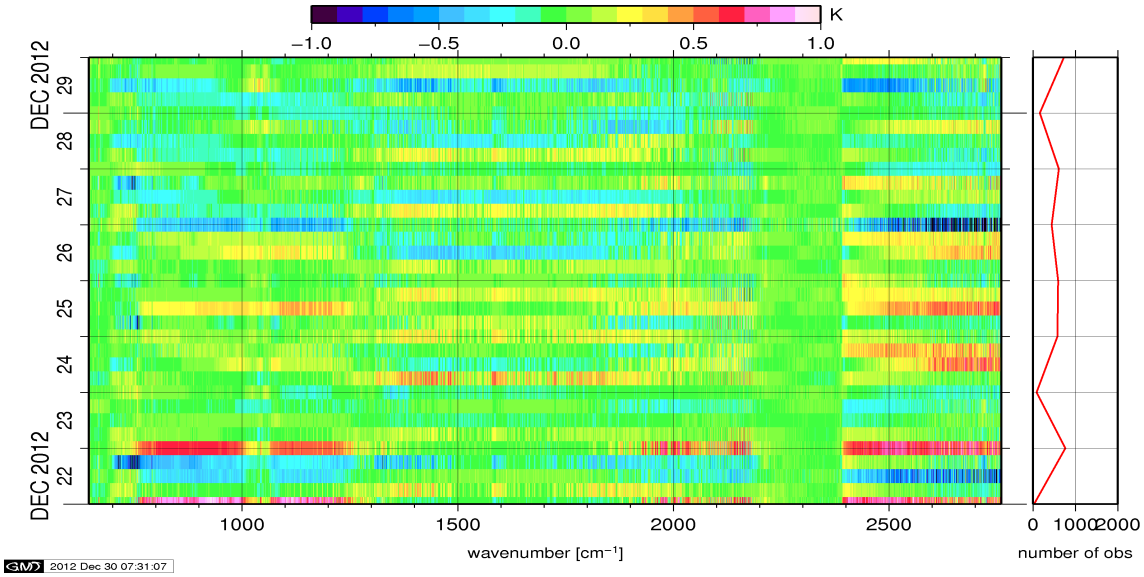

Figure 10: Radiance Anomaly in BRT: All Channels

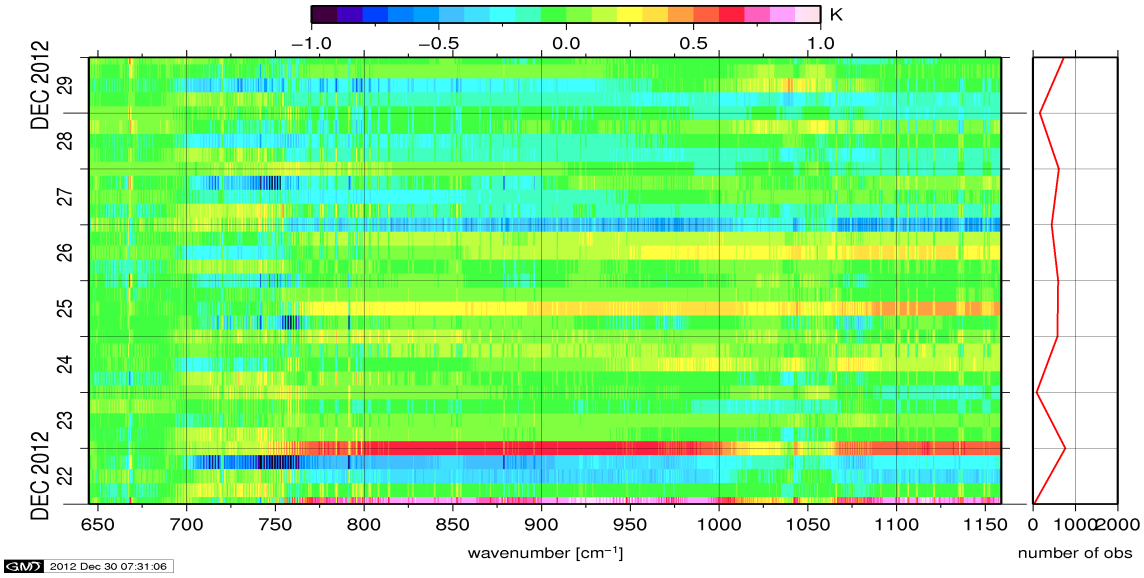

Figure 11: Radiance Anomaly in BRT: IASI Band 1

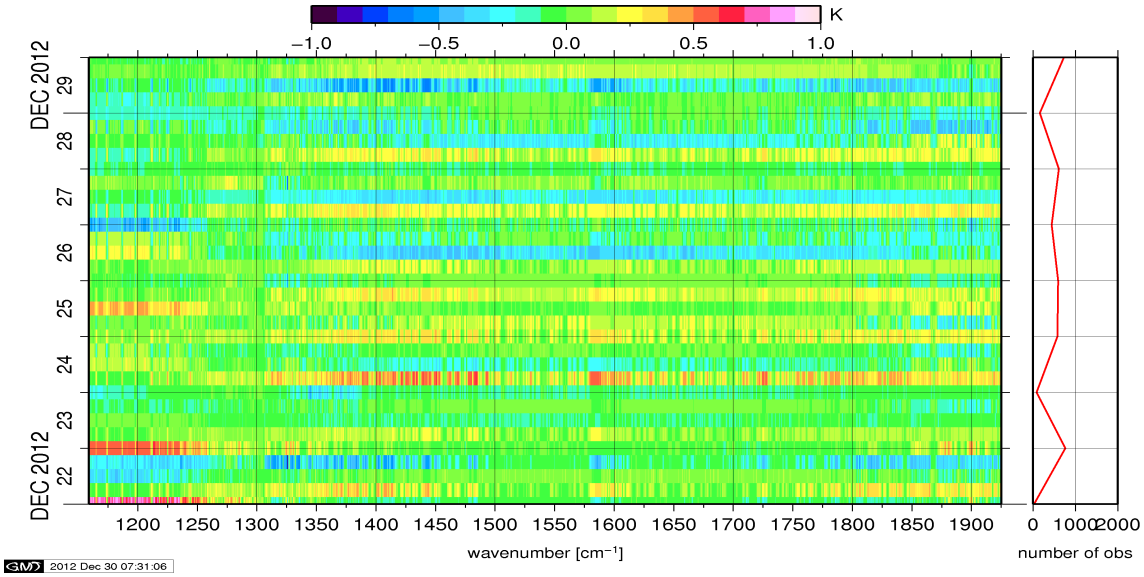

Figure 12: Radiance Anomaly in BRT: IASI Band 2

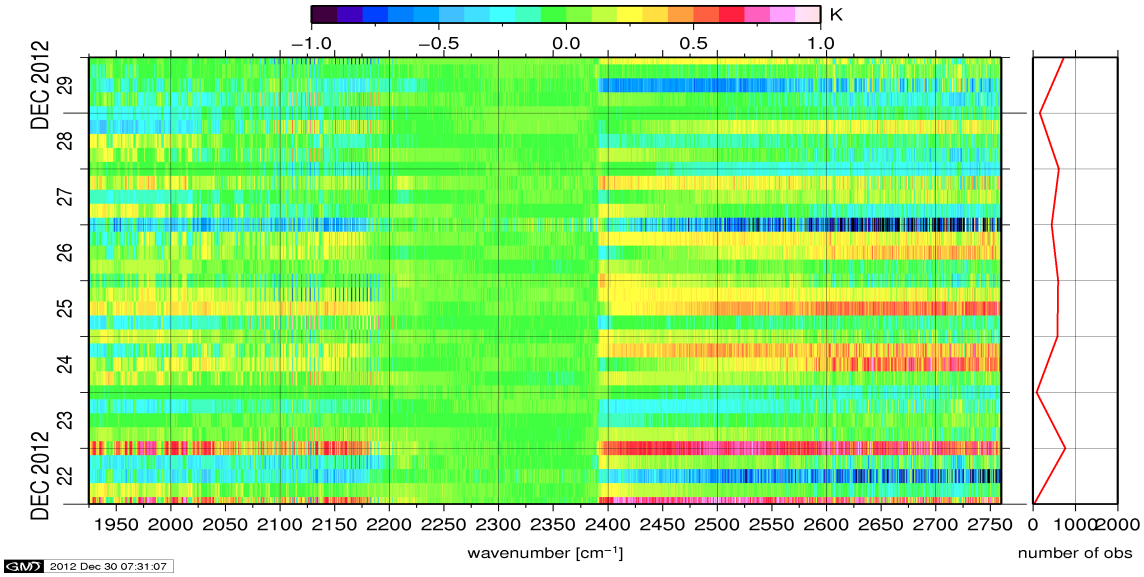

Figure 13: Radiance Anomaly in BRT: IASI Band 3

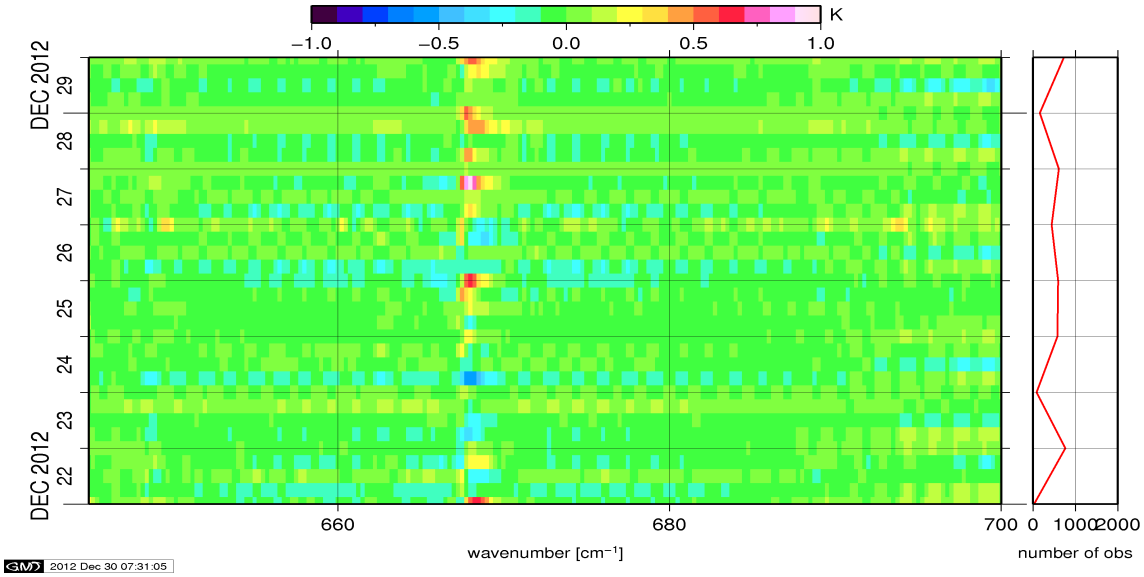

Figure 14: Radiance Anomaly in BRT: CO2 14

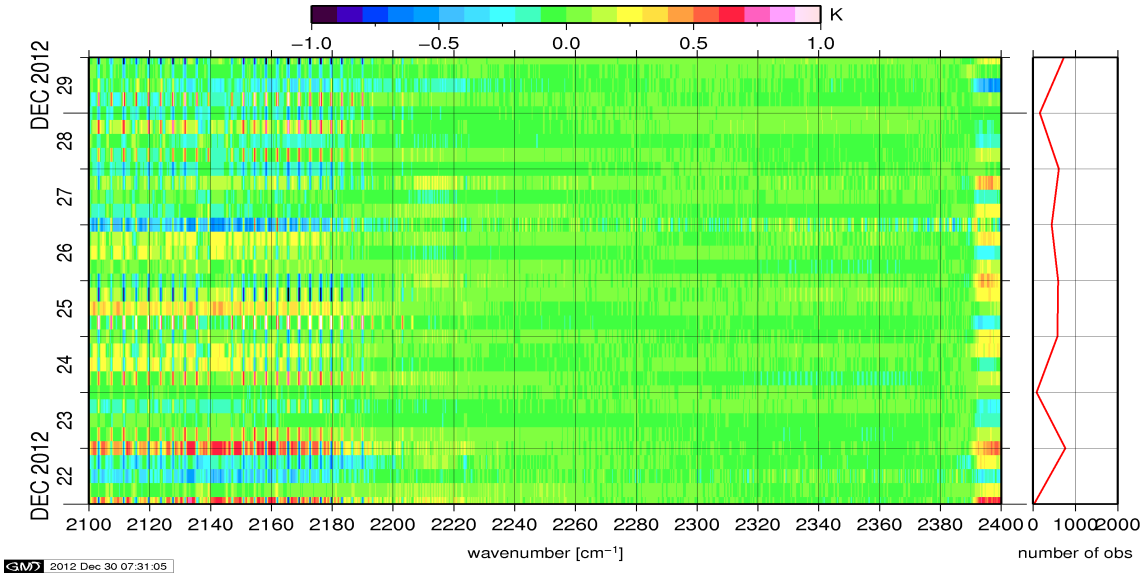

Figure 15: Radiance Anomaly in BRT: CO2 4.3

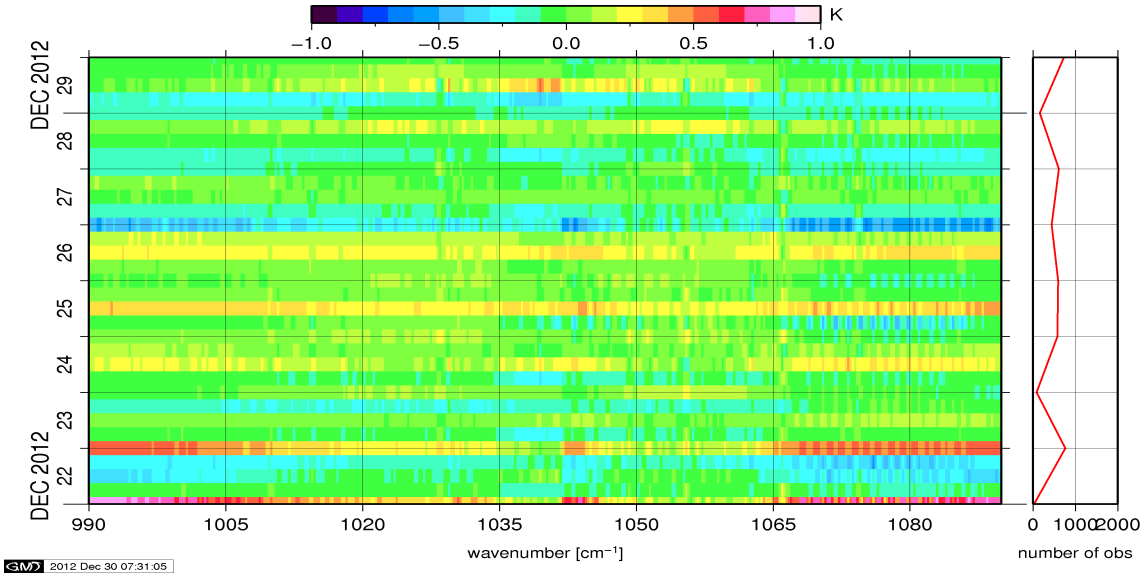

Figure 16: Radiance Anomaly in BRT: O3

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.

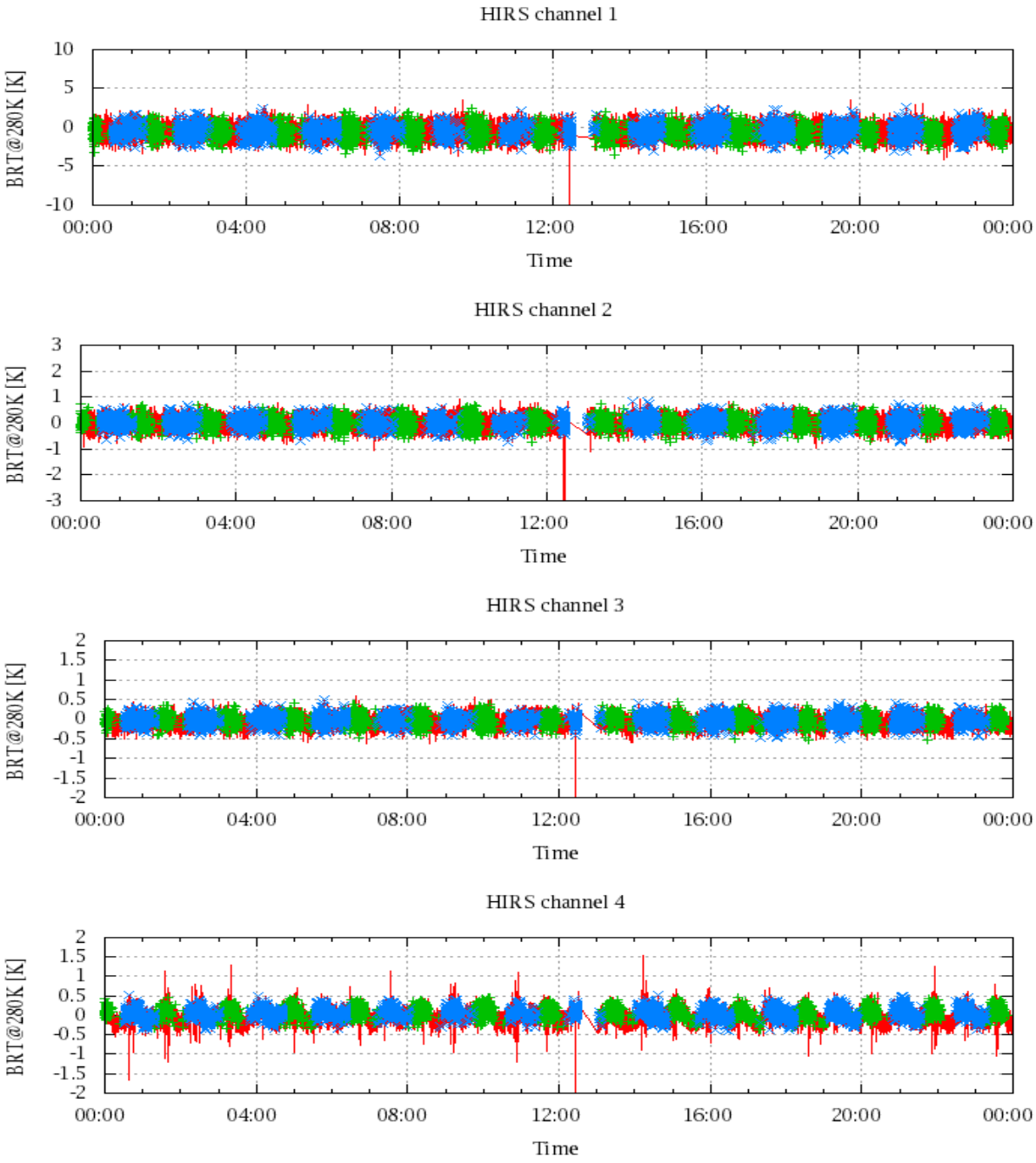

Figure 17: Radiance Differences in BRT

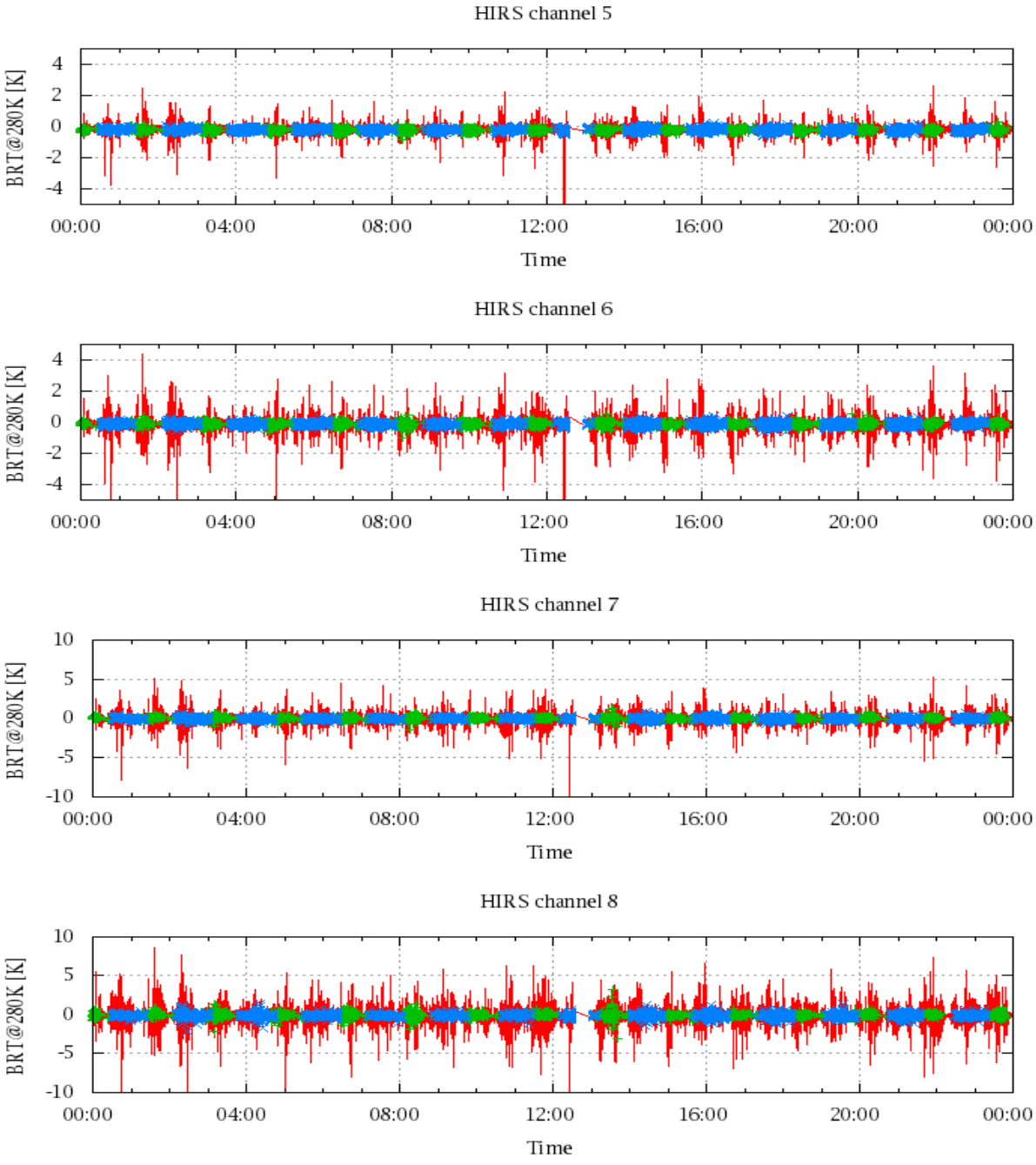

Figure 18: Radiance Differences in BRT

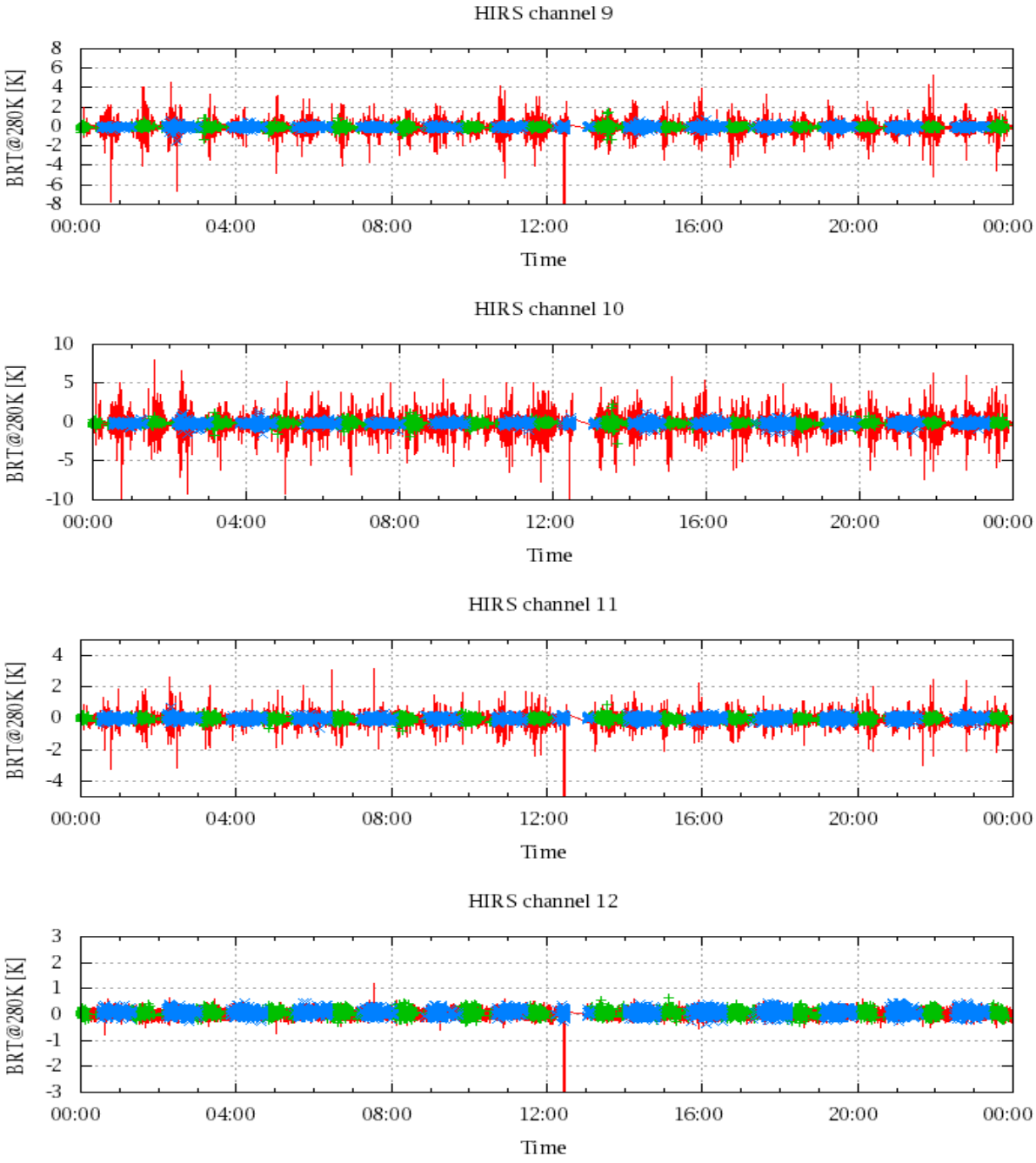

Figure 19: Radiance Differences in BRT

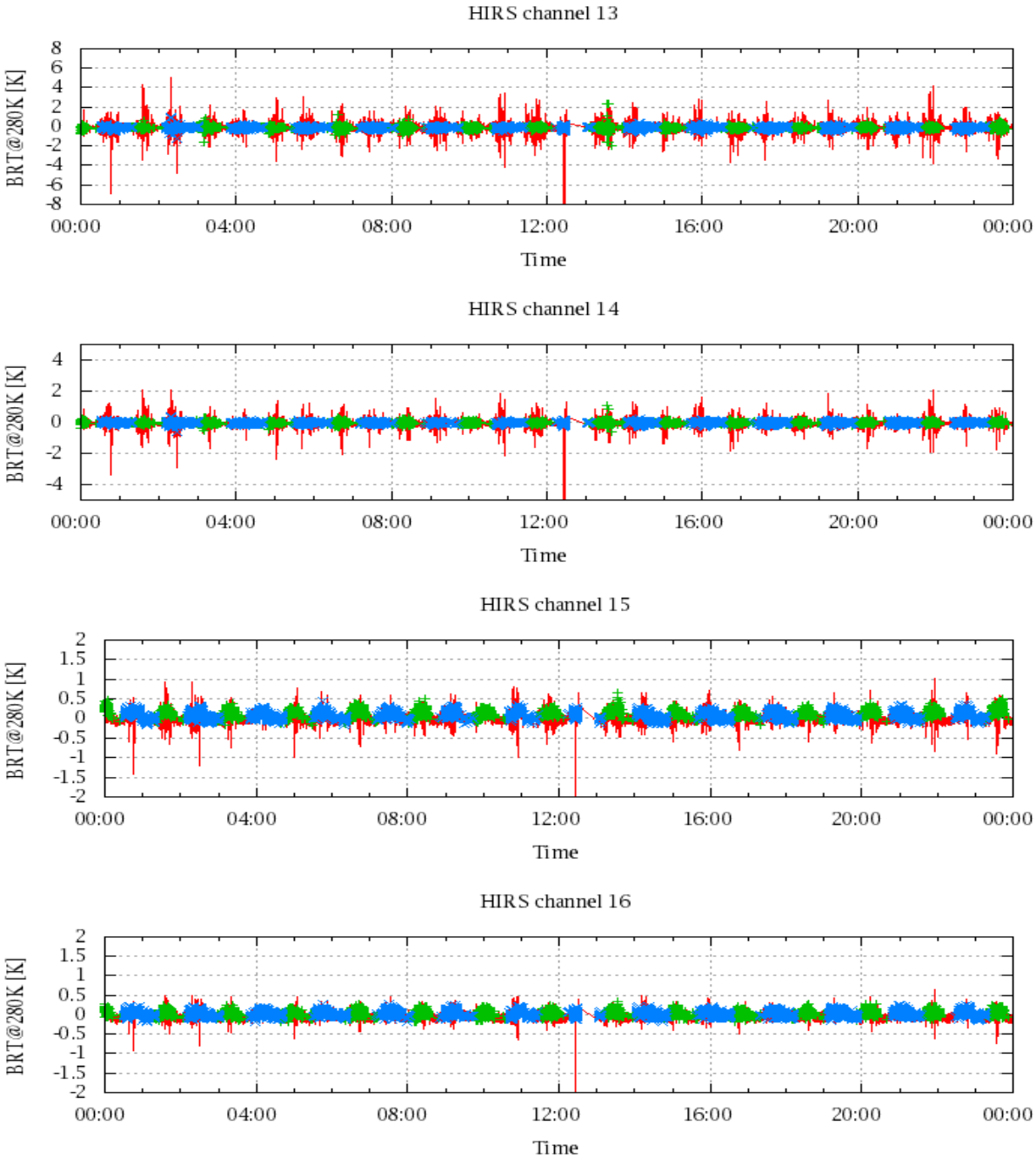

Figure 20: Radiance Differences in BRT

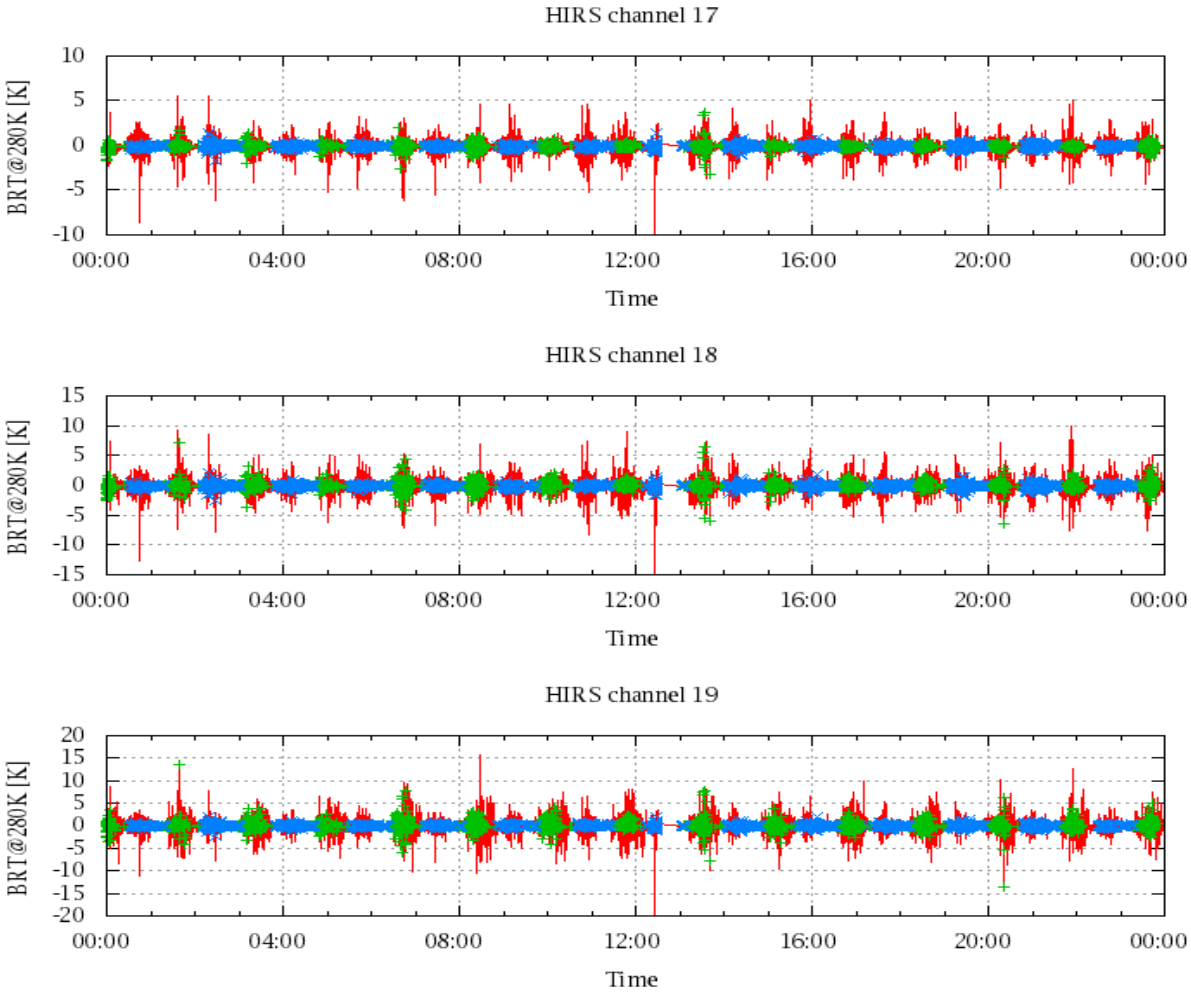

Figure 21: Radinace Differences in BRT