IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

06/02/2013 00:00:00 - 07/02/2013 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 06/02/2013 00:00:00 - 07/02/2013 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 06/02/2013 00:00:00 - 07/02/2013 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)	10746	10751	20130206011835.160	20130206011836.238
PX1 (130)	1746	1752	20130206015124.007	20130206015125.303
PX1 (130)	302	308	20130206025748.009	20130206025749.306
PX1 (130)	1224	1226	20130206030154.270	20130206030154.704
PX1 (130)	4903	4907	20130206031815.900	20130206031816.768
PX1 (130)	8510	8514	20130206033417.390	20130206033418.254
PX1 (130)	14925	14931	20130206051537.192	20130206051538.485
PX1 (130)	15482	15485	20130206051804.860	20130206051807.024
PX2 (135)	10745	10750	20130206011834.941	20130206011836.023
PX2 (135)	1745	1752	20130206015123.788	20130206015125.303
PX2 (135)	302	308	20130206025748.009	20130206025749.306
PX2 (135)	1224	1226	20130206030154.270	20130206030154.704
PX2 (135)	4903	4907	20130206031815.900	20130206031816.768
PX2 (135)	8510	8514	20130206033417.390	20130206033418.254
PX2 (135)	14925	14931	20130206051537.192	20130206051538.485
PX2 (135)	15482	15485	20130206051804.860	20130206051807.024
PX3 (140)	10745	10750	20130206011834.941	20130206011836.023
PX3 (140)	1745	1752	20130206015123.788	20130206015125.303

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	302	307	20130206025748.009	20130206025749.087
PX3 (140)	1224	1226	20130206030154.270	20130206030154.704
PX3 (140)	4903	4907	20130206031815.900	20130206031816.768
PX3 (140)	8510	8514	20130206033417.390	20130206033418.254
PX3 (140)	14925	14931	20130206051537.192	20130206051538.485
PX3 (140)	15482	15485	20130206051804.860	20130206051807.024
PX4 (145)	10745	10750	20130206011834.941	20130206011836.023
PX4 (145)	1745	1752	20130206015123.788	20130206015125.303
PX4 (145)	302	307	20130206025748.009	20130206025749.087
PX4 (145)	1223	1225	20130206030154.055	20130206030154.489
PX4 (145)	4903	4907	20130206031815.900	20130206031816.768
PX4 (145)	8509	8514	20130206033417.172	20130206033418.254
PX4 (145)	14925	14931	20130206051537.192	20130206051538.485
PX4 (145)	15481	15485	20130206051804.645	20130206051807.024
IMG (150)	13693	13698	20130206011834.941	20130206011836.023
IMG (150)	3848	3853	20130206014413.316	20130206014415.047
IMG (150)	5677	5684	20130206015123.788	20130206015125.303
IMG (150)	6225	6231	20130206025747.790	20130206025749.087
IMG (150)	7271	7273	20130206030154.055	20130206030154.489
IMG (150)	11442	11447	20130206031815.686	20130206031816.768
IMG (150)	15529	15534	20130206033417.172	20130206033418.254
IMG (150)	8601	8607	20130206051537.192	20130206051538.485
IMG (150)	9229	9233	20130206051804.645	20130206051805.727
VER (160)	3893	3896	20130206012013.320	20130206012021.320
VER (160)	4788	4794	20130206014405.316	20130206014421.316
VER (160)	11128	11130	20130206043309.292	20130206043317.292
VER (160)	12808	12811	20130206051757.293	20130206051804.860
AUX (180)	928	930	20130206014405.746	20130206014421.746

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
06/02/2013 00:00:04	-	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)	99.38 %	-
GQisFlagQual set (PX2)	99.25 %	-
GQisFlagQual set (PX3)	99.32 %	-
GQisFlagQual set (PX4)	99.44 %	-
GQisFlagQual set (all)	99.35 %	-

Table 4: Quality flags

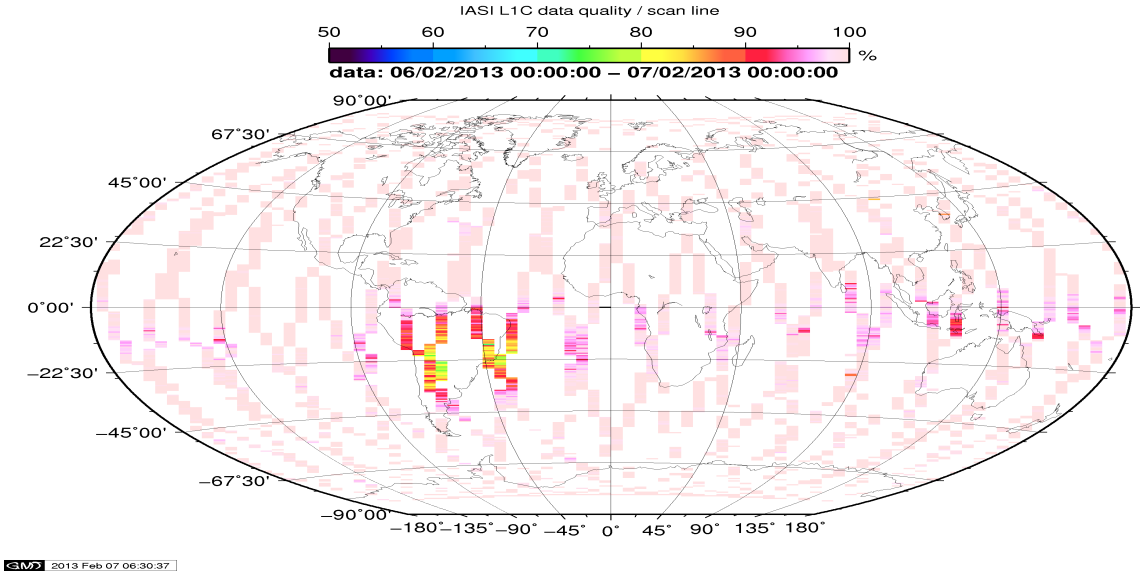

Figure 1: L1C data quality

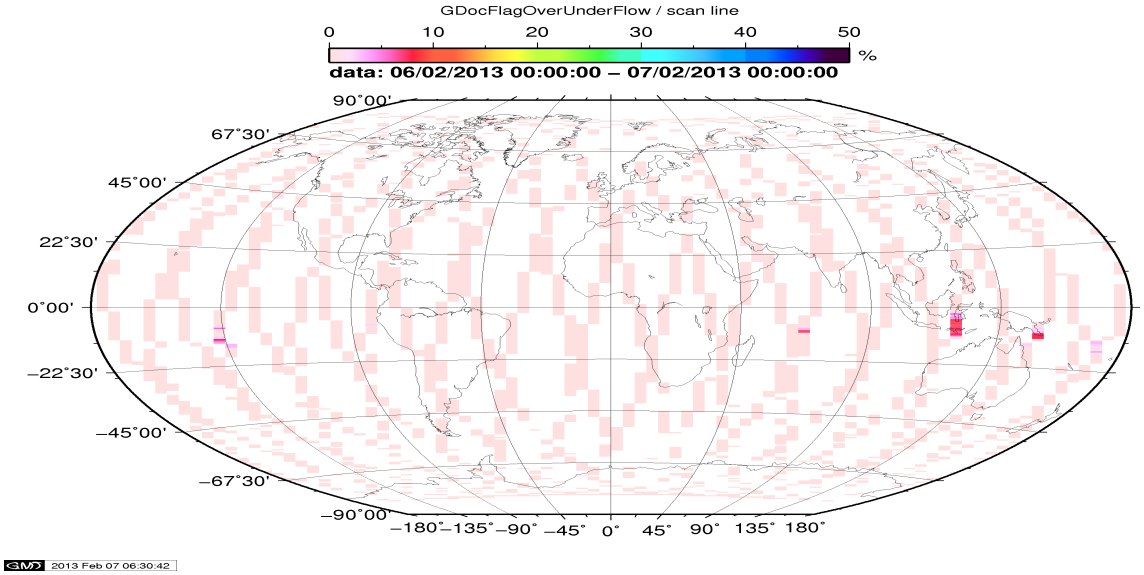

Figure 2: Flag of Over and Under Flows

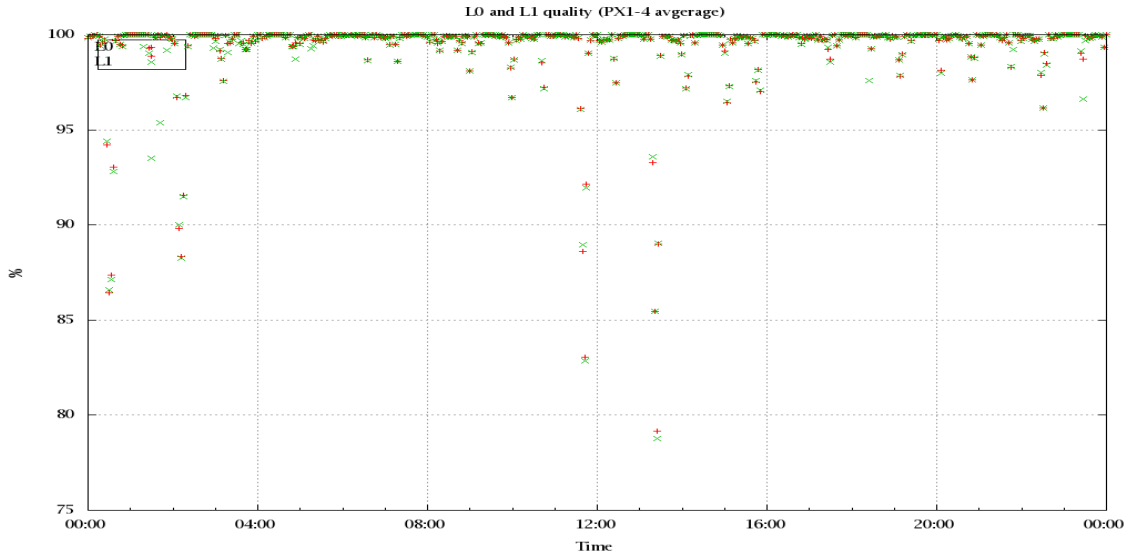

Figure 3: Level 0 and 1C overall quality

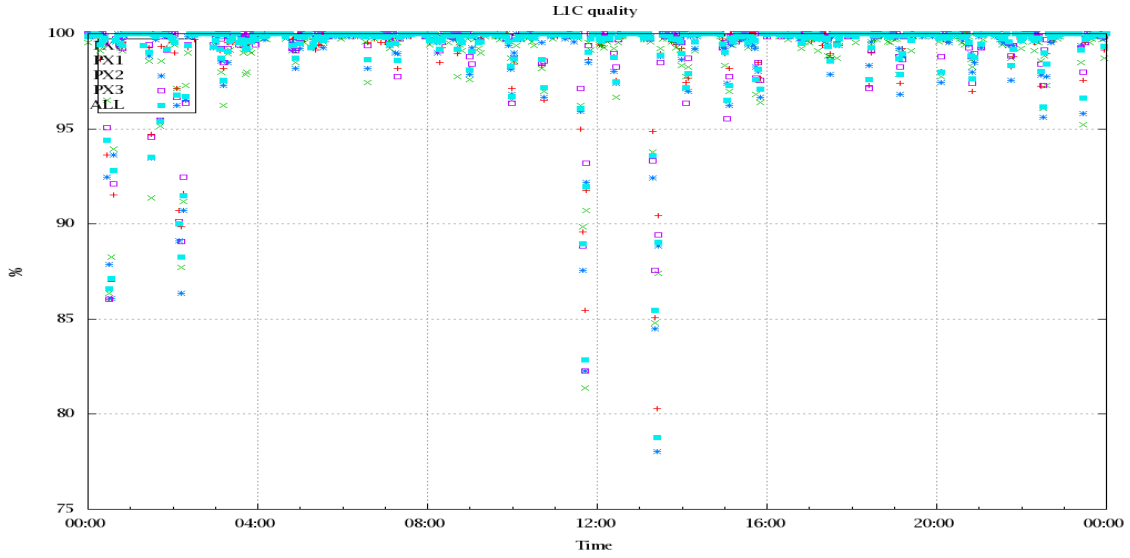

Figure 4: Level 1C quality

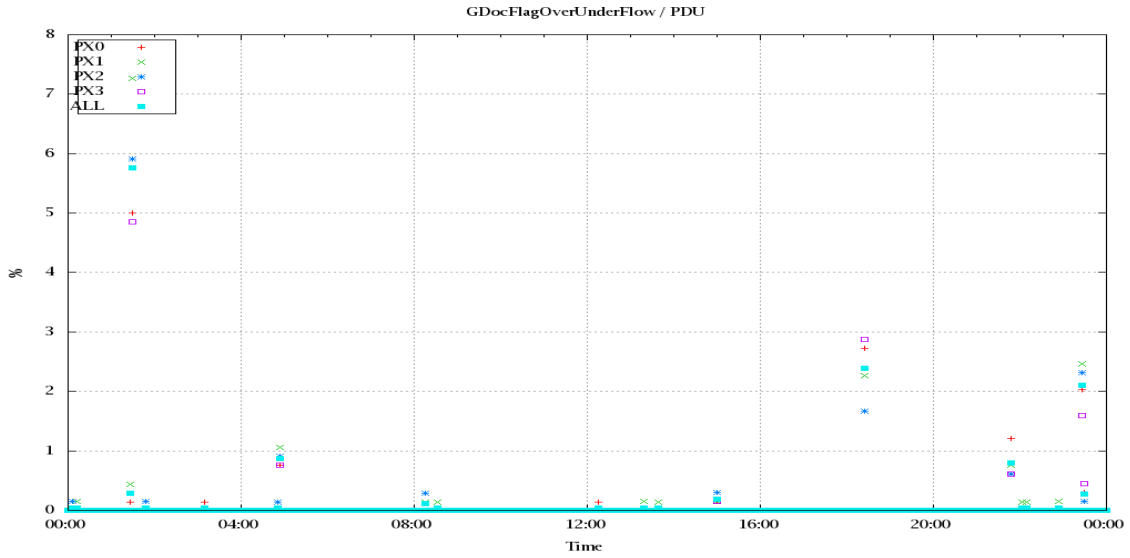

Figure 5: OverUnderFlowFlag timeseries

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.

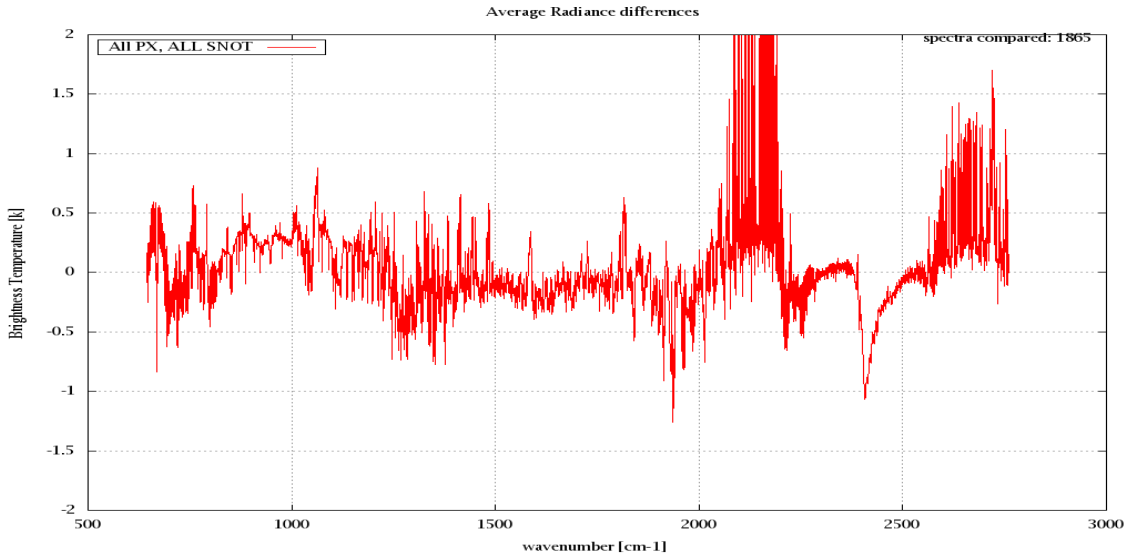

Figure 6: Average Radiance differences: OBS-CAL

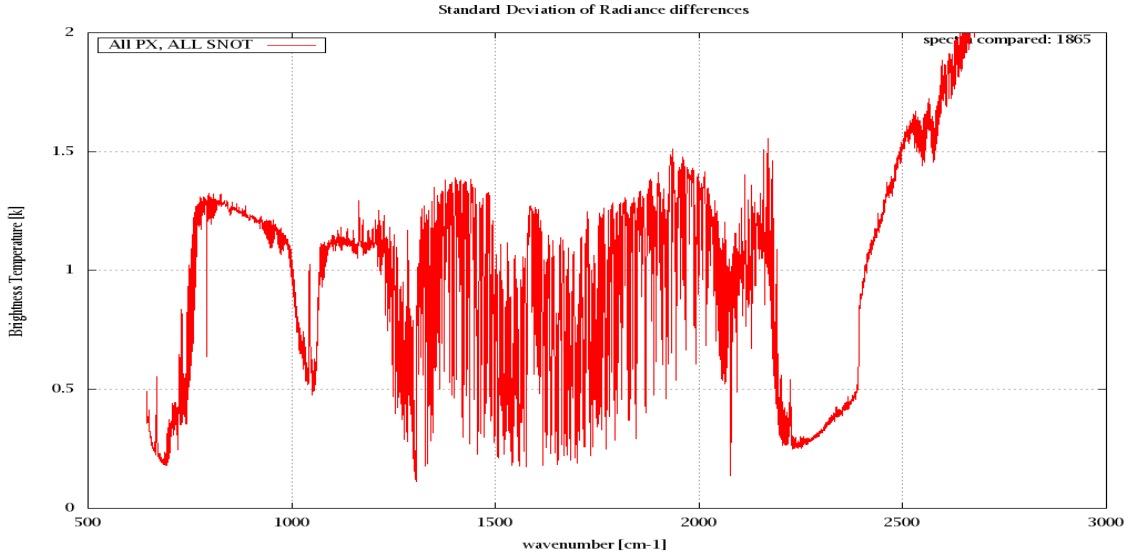

Figure 7: Standard Deviation of Radiance differences

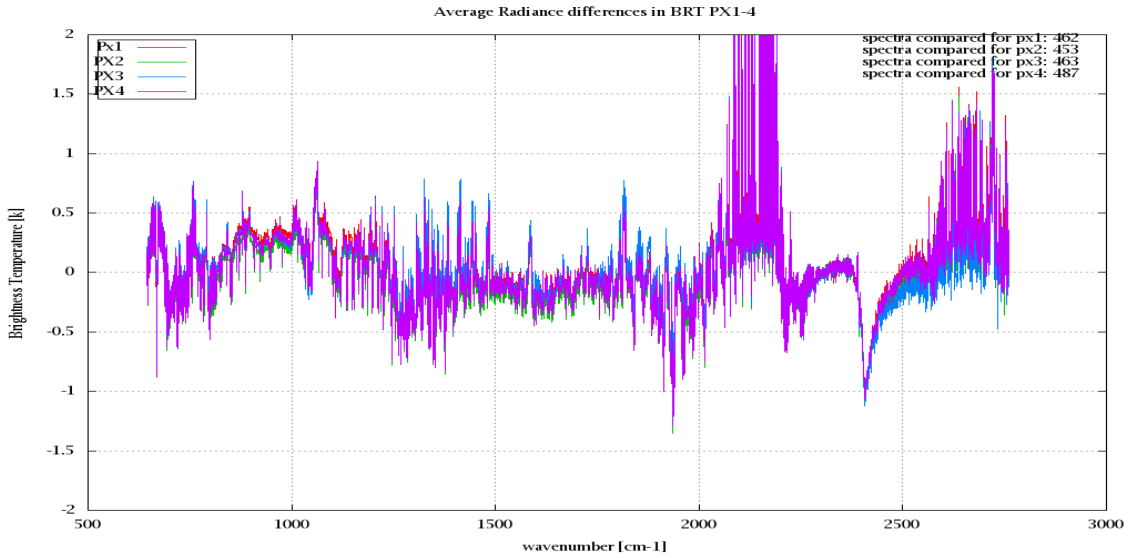

Figure 8: Average Radiance differences: OBS-CAL

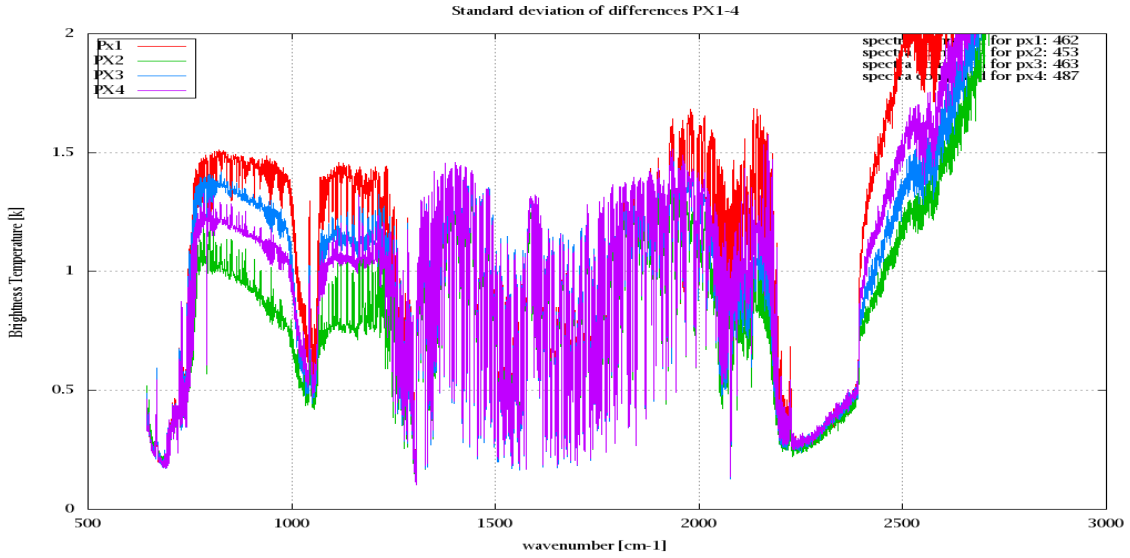

Figure 9: Standard Deviation of Radiance differences

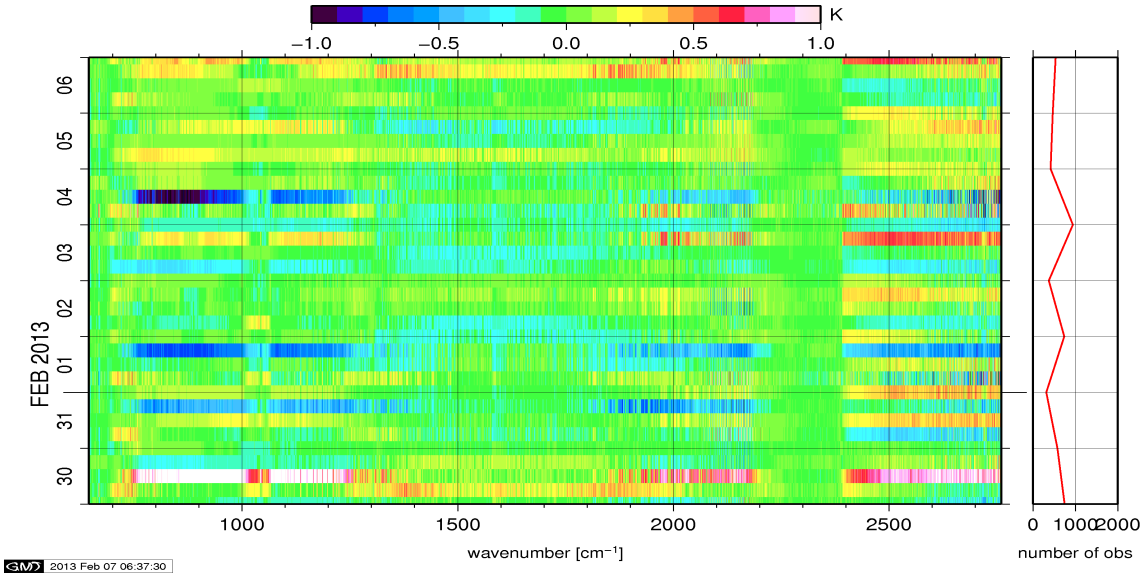

Figure 10: Radiance Anomaly in BRT: All Channels

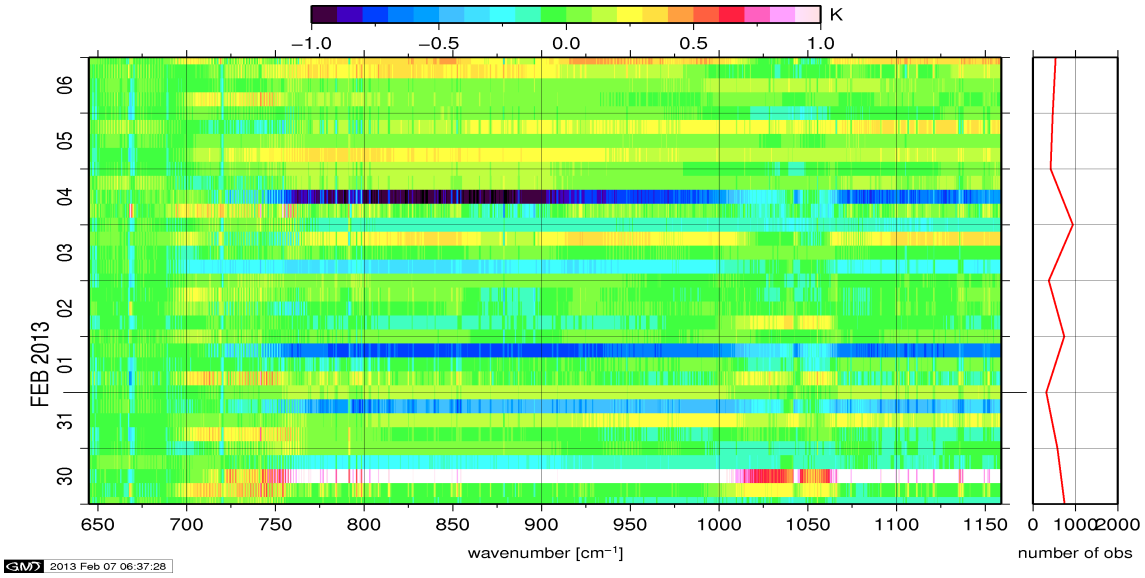

Figure 11: Radiance Anomaly in BRT: IASI Band 1

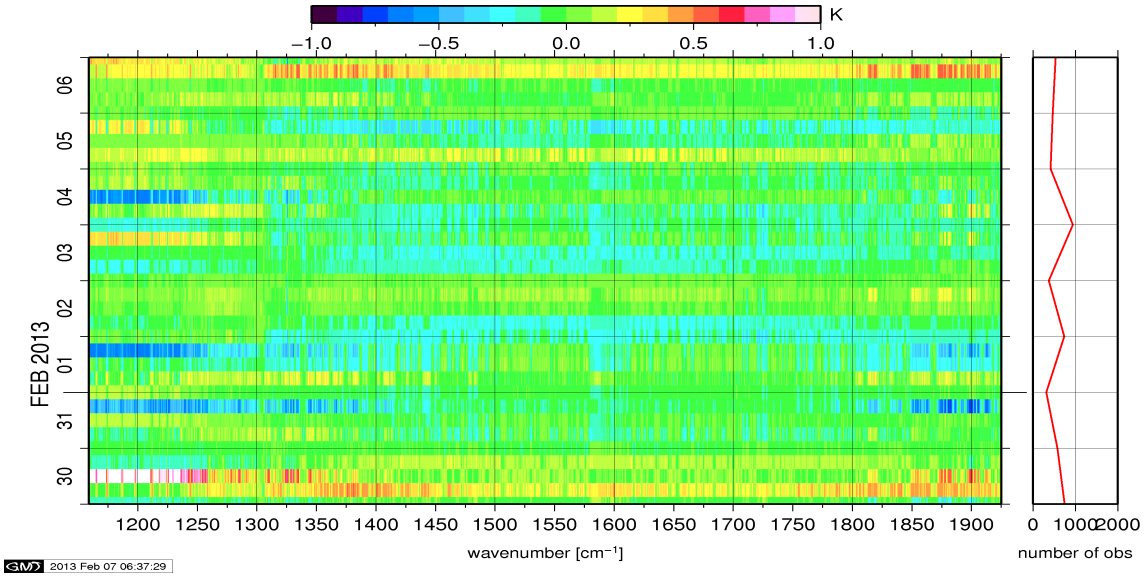

Figure 12: Radiance Anomaly in BRT: IASI Band 2

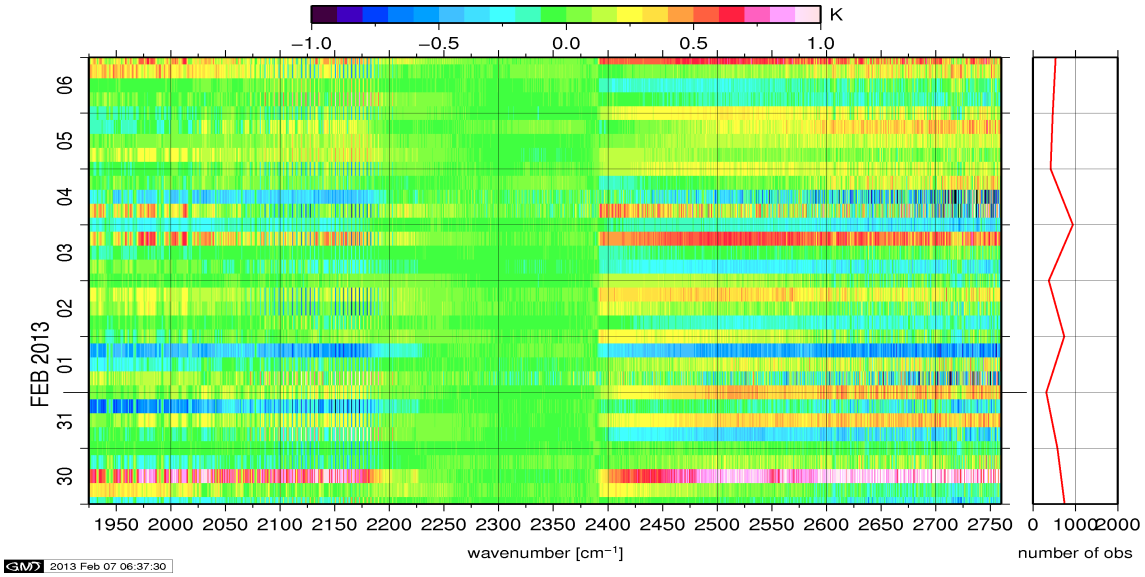

Figure 13: Radiance Anomaly in BRT: IASI Band 3

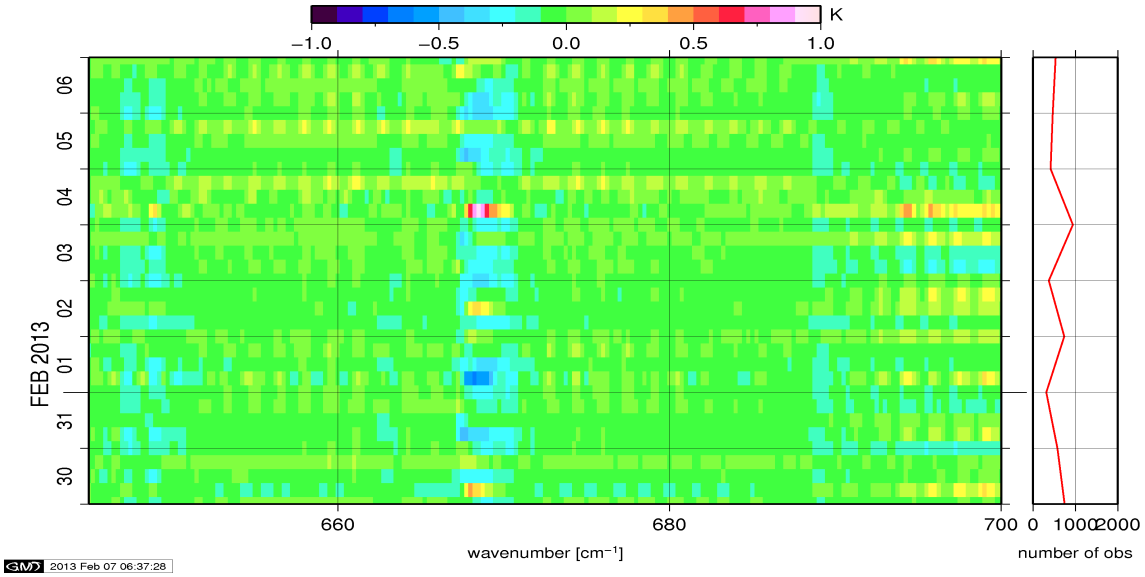

Figure 14: Radiance Anomaly in BRT: CO2 14

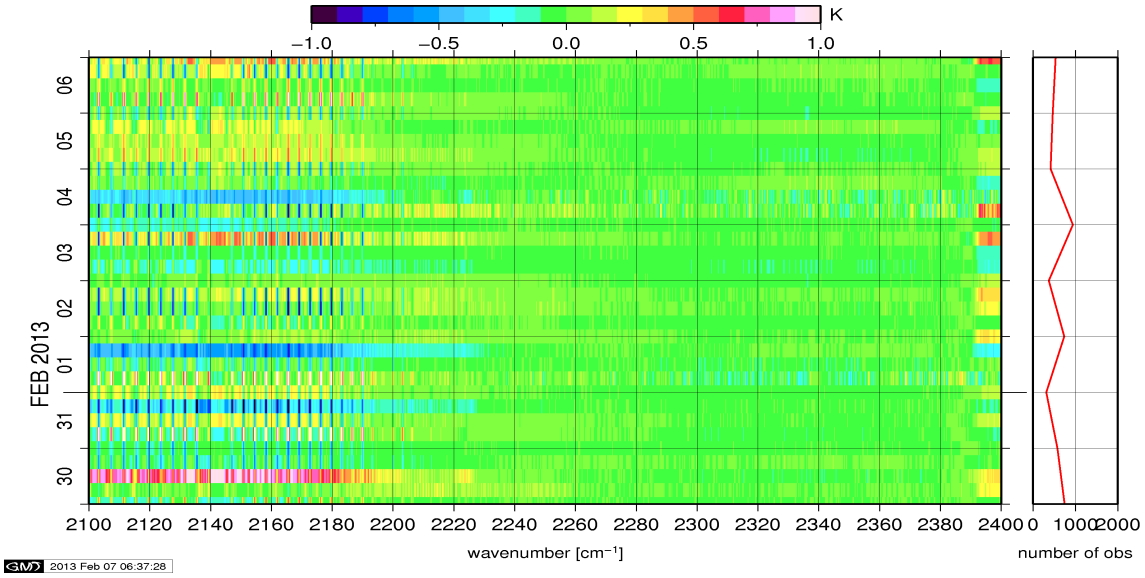

Figure 15: Radiance Anomaly in BRT: CO2 4.3

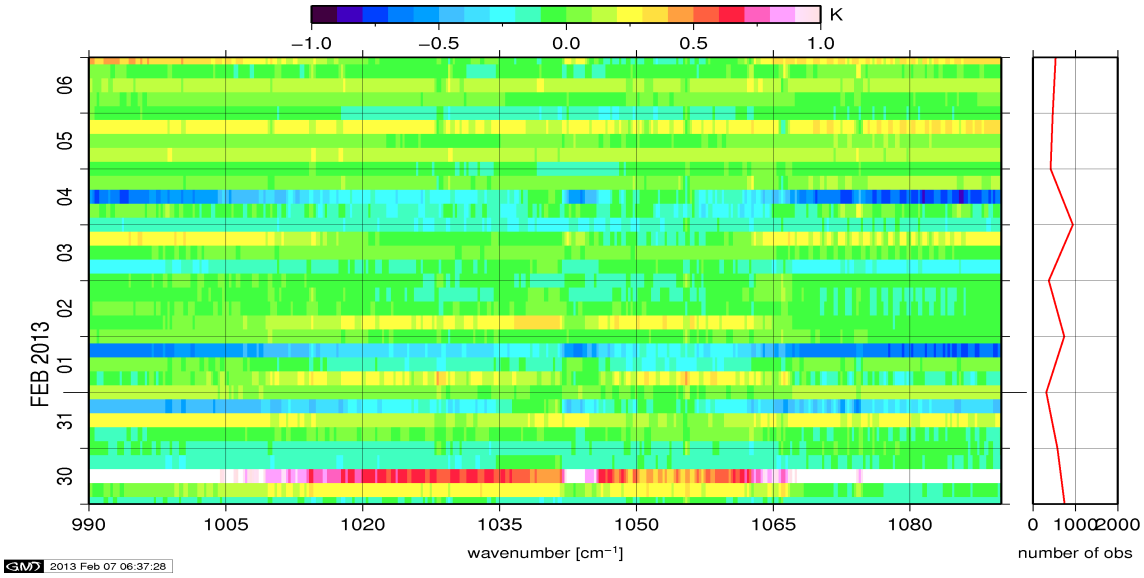

Figure 16: Radiance Anomaly in BRT: O3

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.

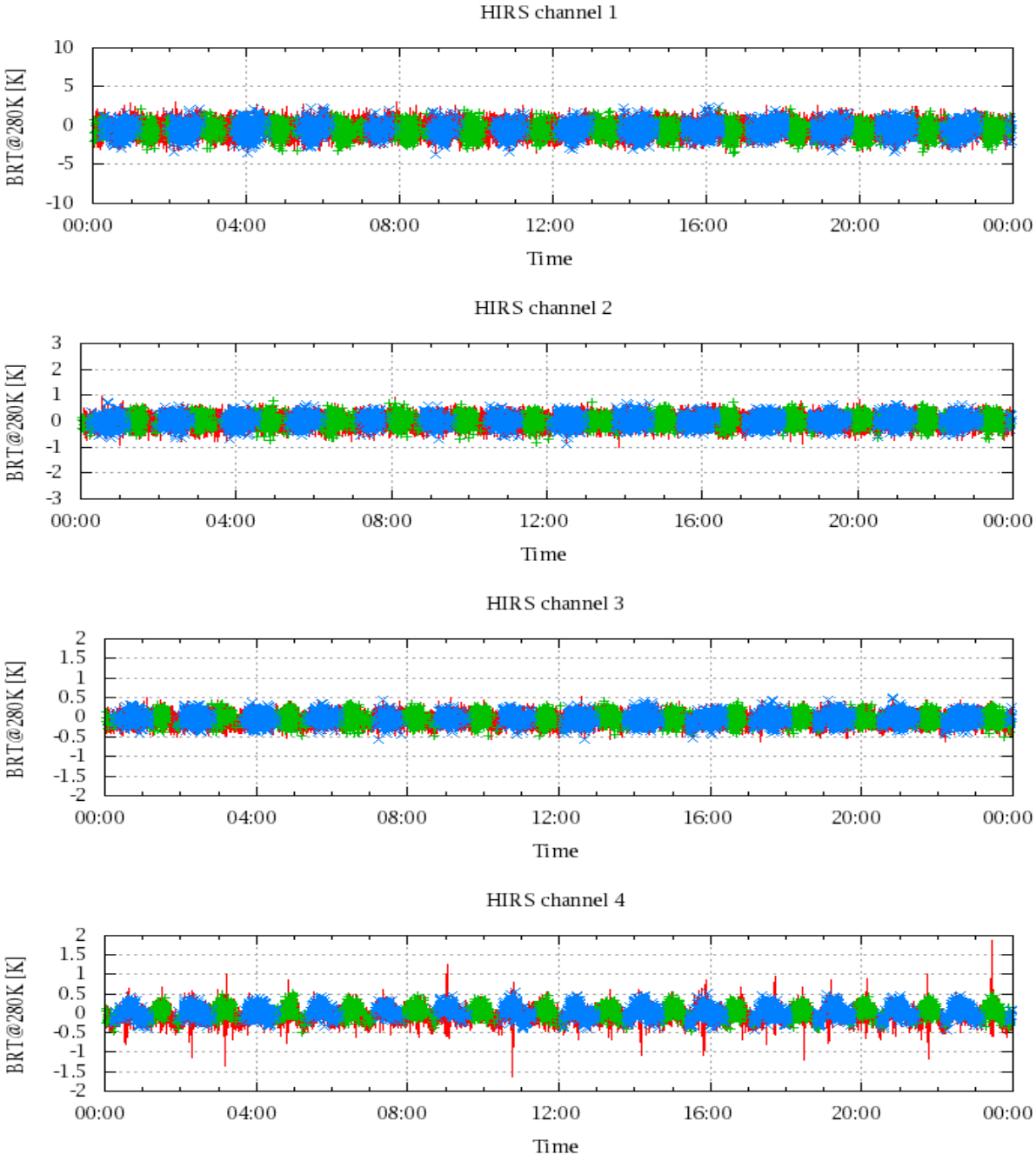

Figure 17: Radiance Differences in BRT

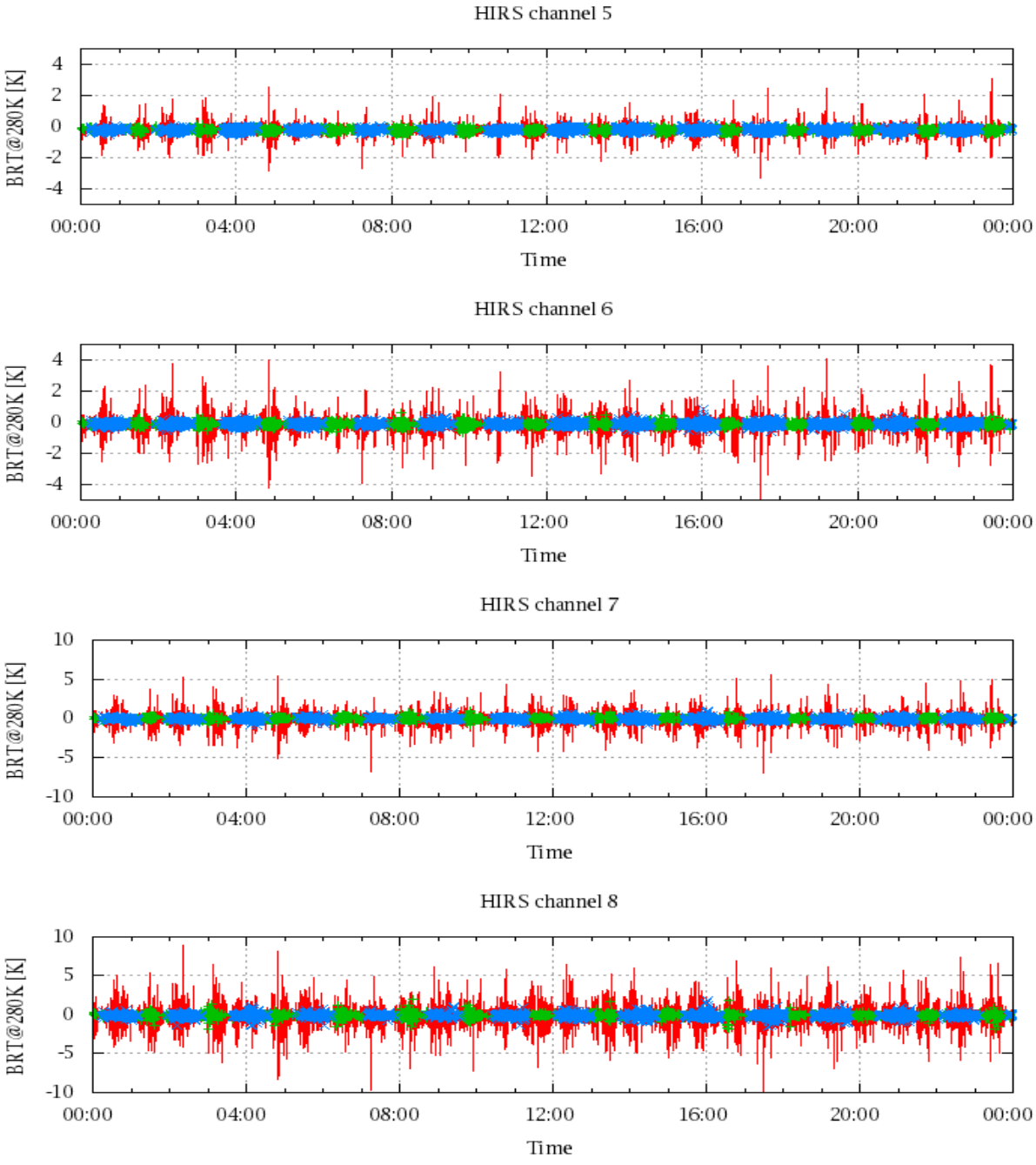

Figure 18: Radiance Differences in BRT

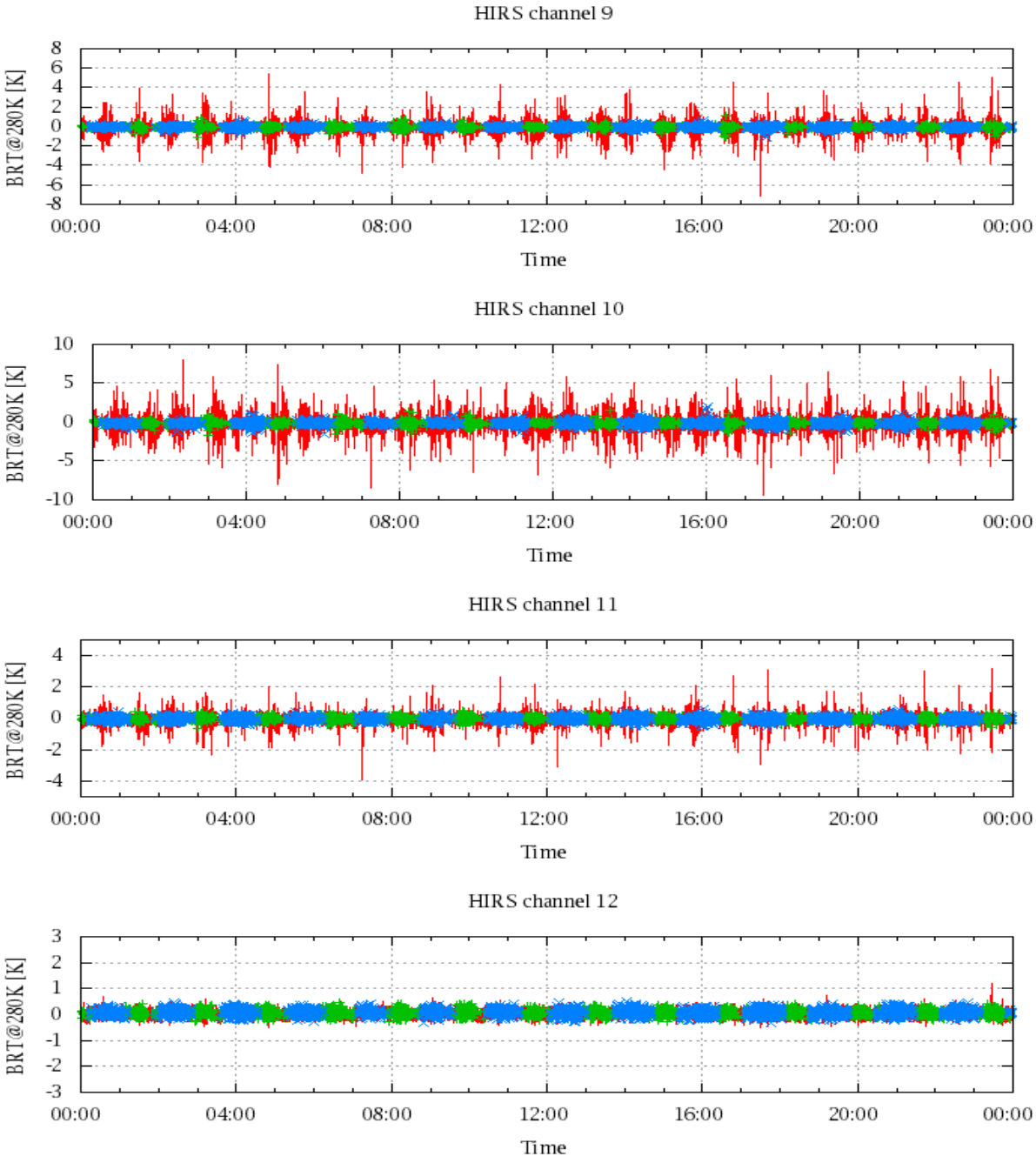

Figure 19: Radiance Differences in BRT

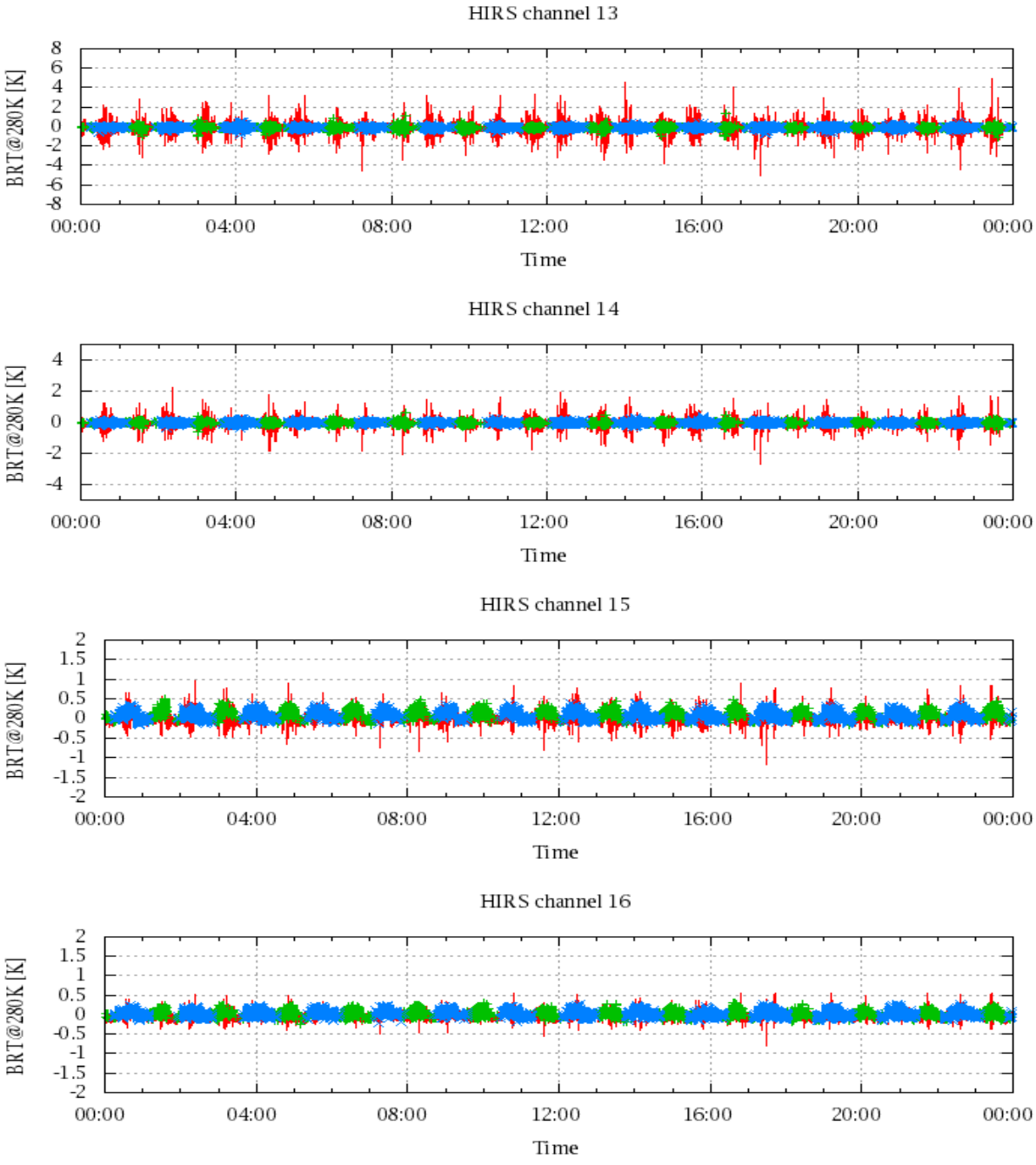

Figure 20: Radiance Differences in BRT

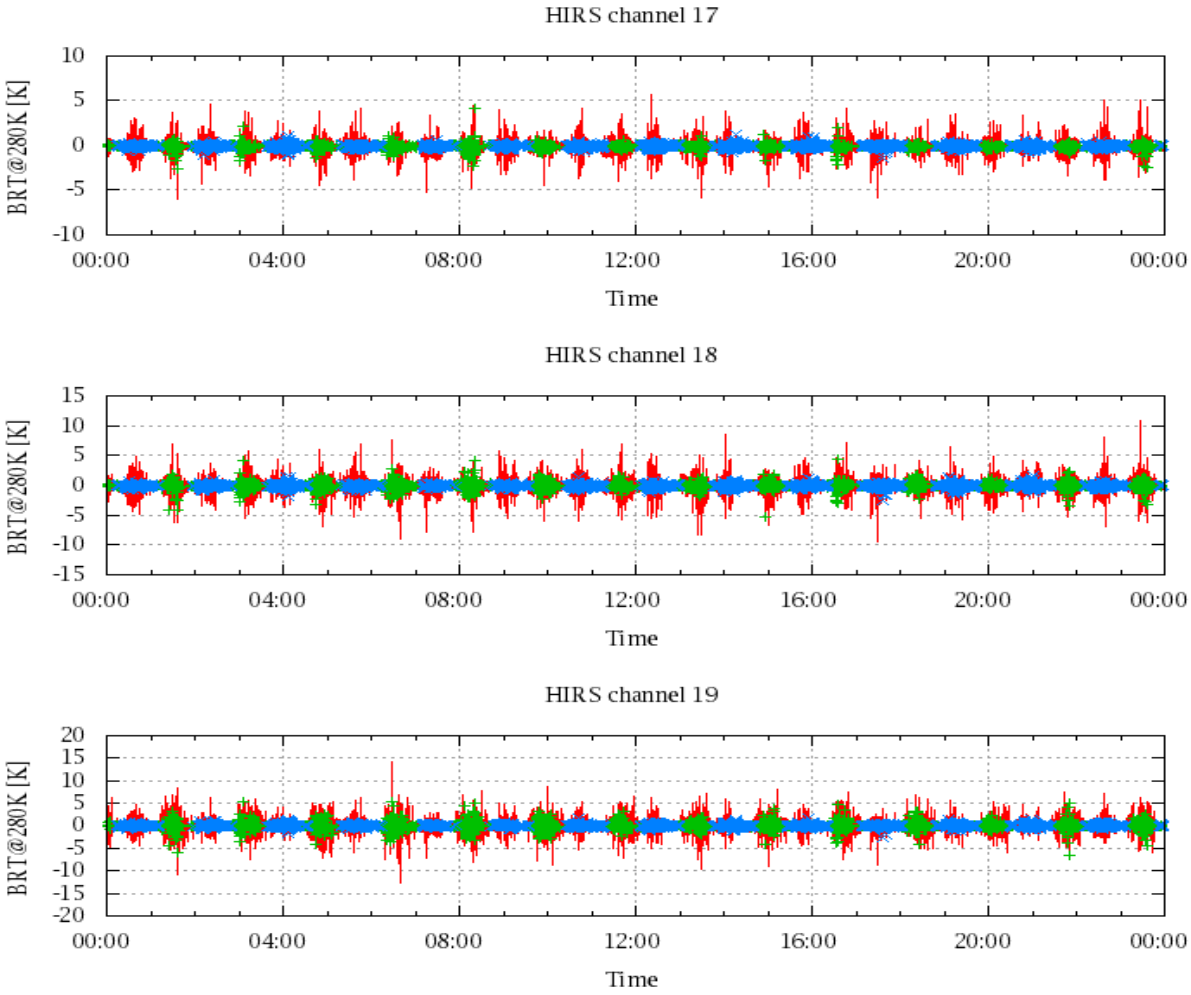

Figure 21: Radinace Differences in BRT