

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

24/02/2018 00:00:00 - 25/02/2018 00:00:00

1 Introduction

This report provides summary monitoring plots and figures from IASI instrument on the MetOp-B satellite retrieved from the IASI L0 and L1 ENG product (3 minute data packet) for 24/02/2018 00:00:00 - 25/02/2018 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 24/02/2018 00:00:00 - 25/02/2018 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	467	-
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)	16227	57	20180224015150.183	20180224015247.046
PX1 (130)	14798	14989	20180224025817.424	20180224025907.798
PX1 (130)	10872	11082	20180224050629.533	20180224050725.529
PX1 (130)	9376	9543	20180224061239.258	20180224061322.934
PX1 (130)	798	1007	20180224080009.420	20180224080105.201
PX1 (130)	5965	6040	20180224093555.779	20180224093616.537
PX2 (135)	16227	57	20180224015150.183	20180224015247.046
PX2 (135)	14798	14989	20180224025817.424	20180224025907.798
PX2 (135)	10872	11081	20180224050629.533	20180224050723.799
PX2 (135)	9376	9543	20180224061239.258	20180224061322.934
PX2 (135)	798	1007	20180224080009.420	20180224080105.201
PX2 (135)	5965	6040	20180224093555.779	20180224093616.537
PX3 (140)	16227	57	20180224015150.183	20180224015247.046
PX3 (140)	14798	14989	20180224025817.424	20180224025907.798
PX3 (140)	10871	11081	20180224050627.803	20180224050723.799
PX3 (140)	9376	9543	20180224061239.258	20180224061322.934
PX3 (140)	798	1007	20180224080009.420	20180224080105.201
PX3 (140)	5965	6039	20180224093555.779	20180224093616.322

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	16227	57	20180224015150.183	20180224015247.046
PX4 (145)	14798	14989	20180224025817.424	20180224025907.798
PX4 (145)	10871	11081	20180224050627.803	20180224050723.799
PX4 (145)	9376	9542	20180224061239.258	20180224061322.715
PX4 (145)	798	1007	20180224080009.420	20180224080105.201
PX4 (145)	5965	6039	20180224093555.779	20180224093616.322
IMG (150)	2282	2525	20180224015149.968	20180224015247.046
IMG (150)	2846	3060	20180224025817.424	20180224025907.584
IMG (150)	2767	3001	20180224050629.100	20180224050723.799
IMG (150)	3255	3442	20180224061239.043	20180224061322.715
IMG (150)	14285	14523	20180224080009.202	20180224080105.201
IMG (150)	5941	6027	20180224093555.779	20180224093616.322
VER (160)	7223	7259	20180224015147.808	20180224015251.804
VER (160)	9713	9744	20180224025811.802	20180224025907.798
VER (160)	14523	14554	20180224050627.803	20180224050723.799
VER (160)	619	645	20180224061235.801	20180224061323.797
VER (160)	4649	4685	20180224080003.799	20180224080107.795
VER (160)	8241	8245	20180224093555.779	20180224093616.752
VER (160)	8245	8250	20180224093616.752	20180224093616.752
VER (160)	8250	8246	20180224093616.752	20180224093616.752
VER (160)	8246	8251	20180224093616.752	20180224093616.752
VER (160)	8251	8242	20180224093616.752	20180224093616.752
VER (160)	8242	8247	20180224093616.752	20180224093616.752
VER (160)	8247	8252	20180224093616.752	20180224093616.752
VER (160)	8252	8243	20180224093616.752	20180224093616.752
VER (160)	8243	8248	20180224093616.752	20180224093616.752
VER (160)	8248	8253	20180224093616.752	20180224093616.752
VER (160)	8253	8244	20180224093616.752	20180224093616.752
VER (160)	8244	8249	20180224093616.752	20180224093616.752
VER (160)	8249	8254	20180224093616.752	20180224093616.752
AUX (180)	4705	4713	20180224015148.238	20180224015252.238
AUX (180)	5203	5210	20180224025812.236	20180224025908.232
AUX (180)	6165	6172	20180224050628.237	20180224050724.233
AUX (180)	6661	6667	20180224061236.231	20180224061324.231
AUX (180)	7467	7475	20180224080004.229	20180224080108.229

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
24/02/2018 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	467	-
GQisFlagQual set (PX1)	99.53 %	-
GQisFlagQual set (PX2)	99.60 %	-
GQisFlagQual set (PX3)	99.62 %	-
GQisFlagQual set (PX4)	99.53 %	-
GQisFlagQual set (all)	99.57 %	-

Table 4: Quality flags

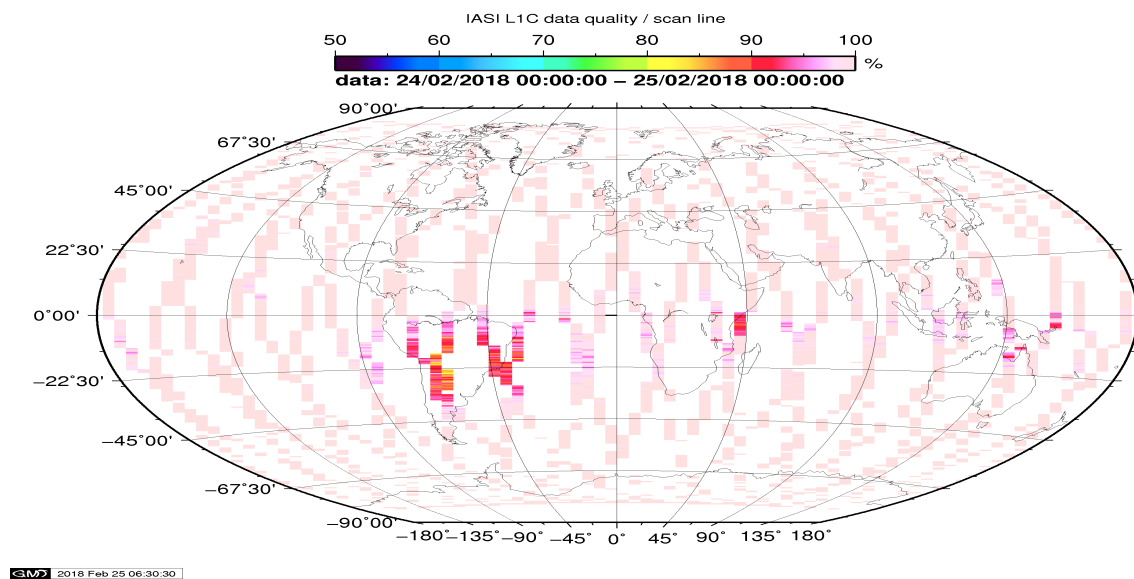


Figure 1: L1C data quality

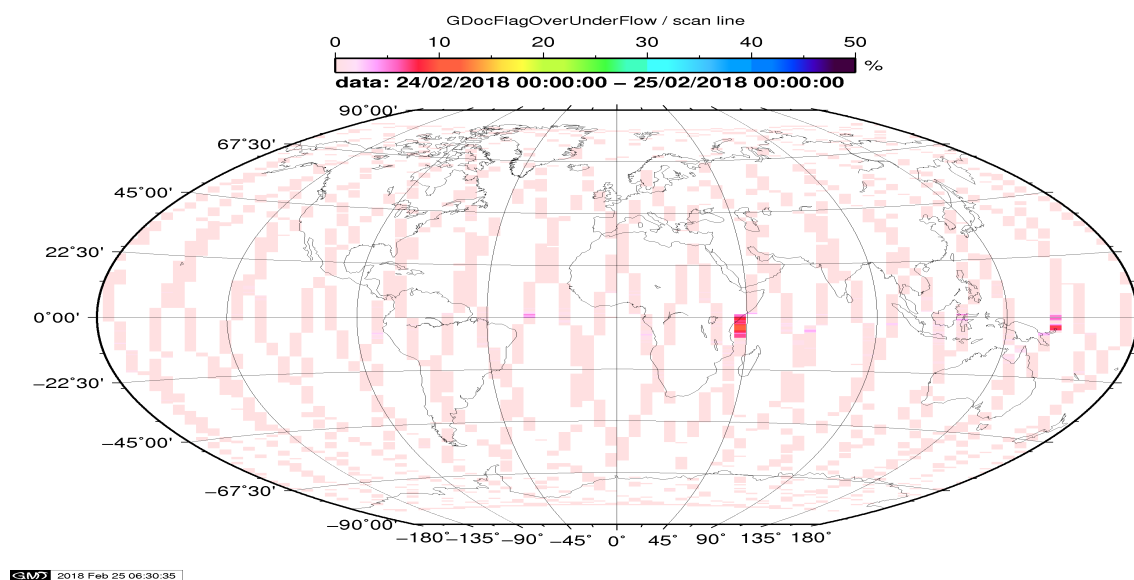


Figure 2: Flag of Over and Under Flows

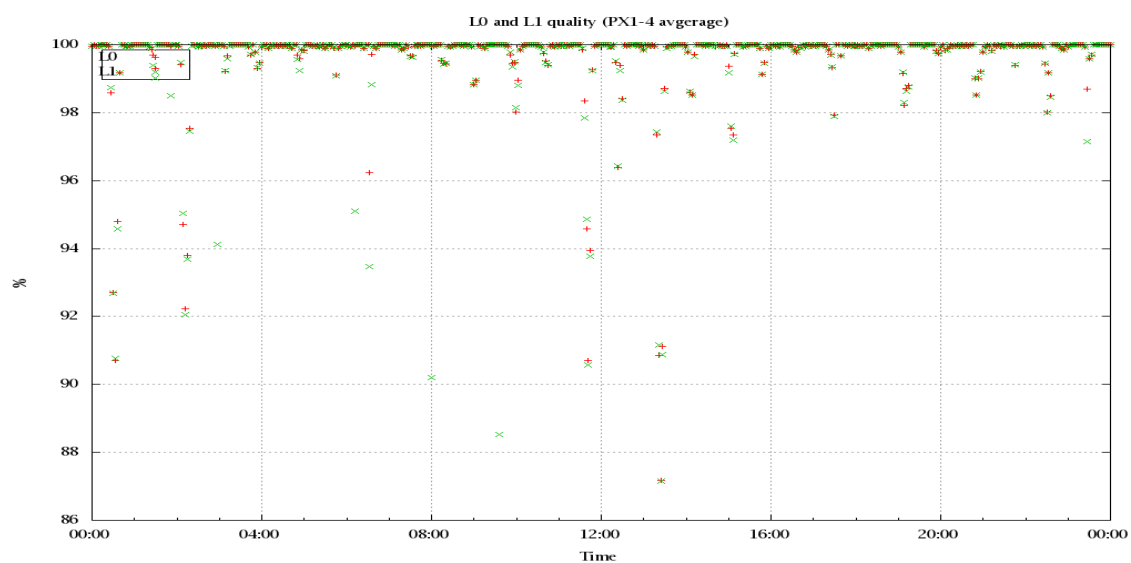


Figure 3: Level 0 and 1C overall quality

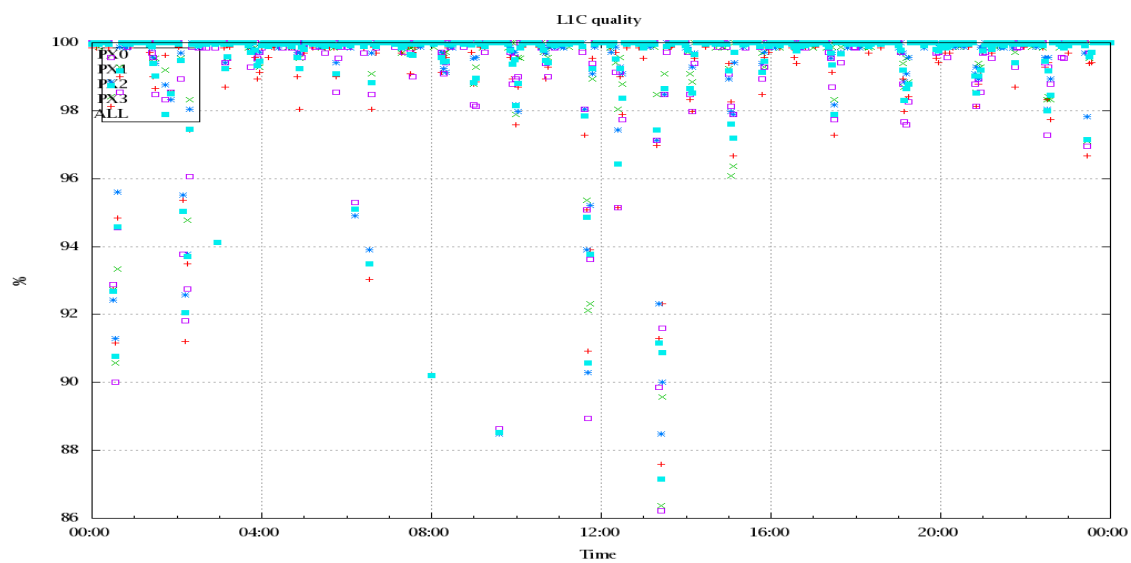


Figure 4: Level 1C quality

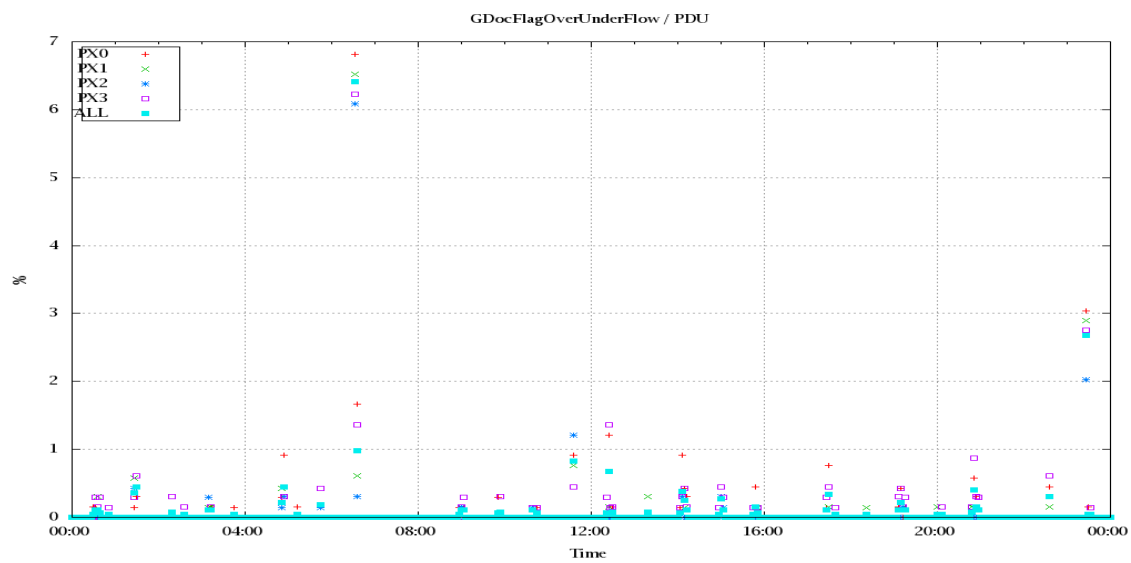


Figure 5: OverUnderFlowFlag timeseries

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 identification 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.

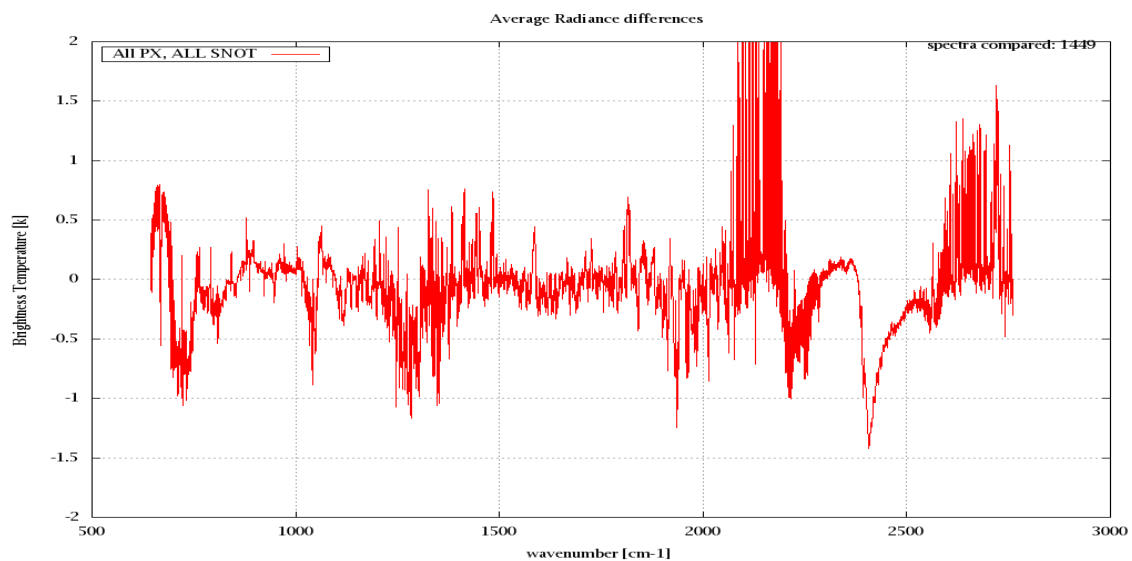


Figure 6: Average Radiance differences: OBS-CAL

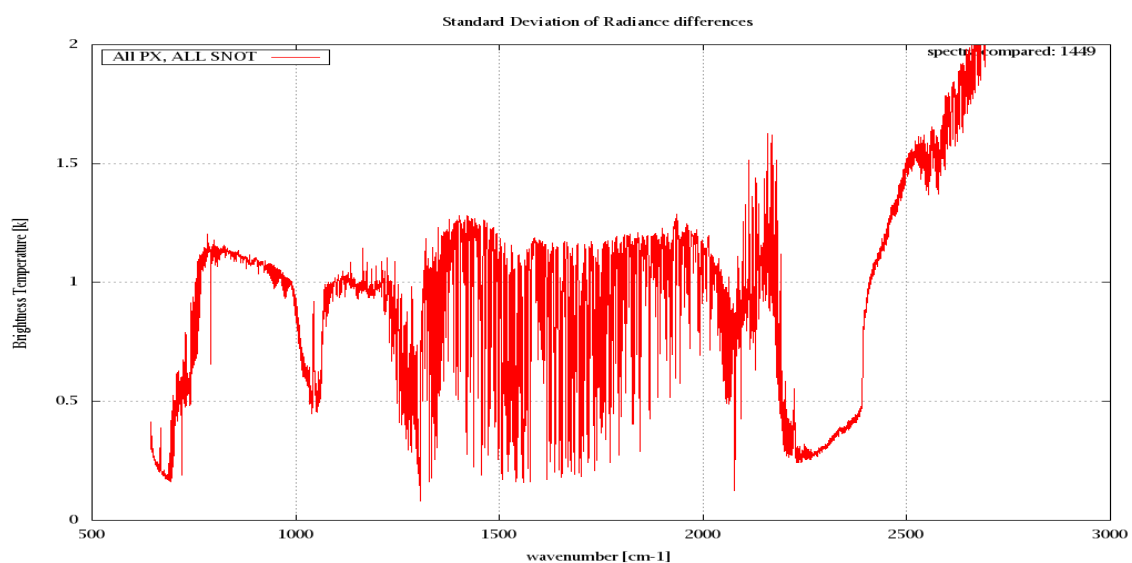


Figure 7: Standard Deviation of Radiance differences

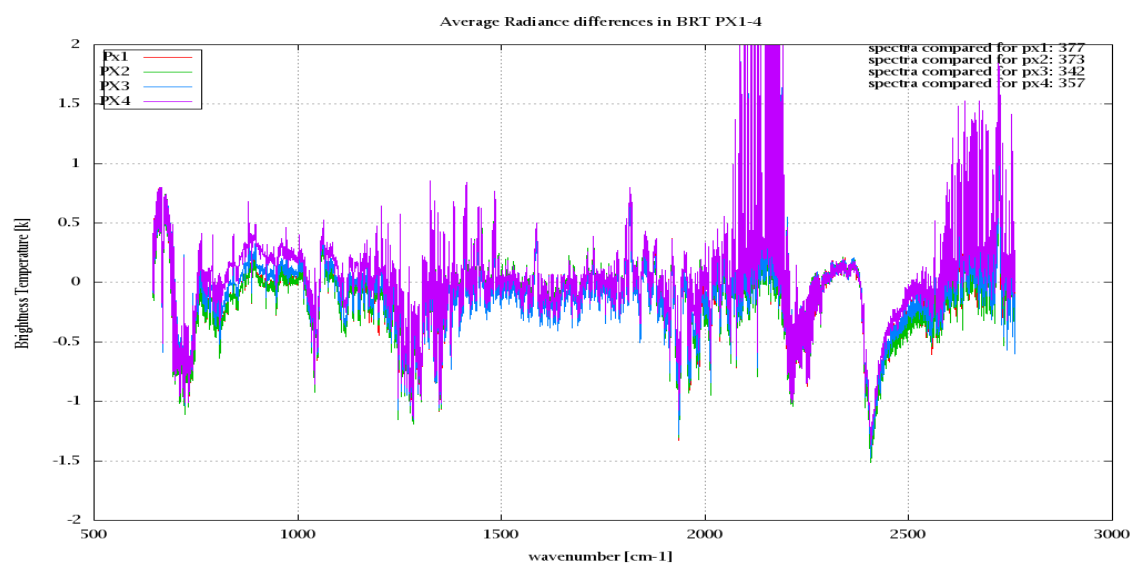


Figure 8: Average Radiance differences: OBS-CAL

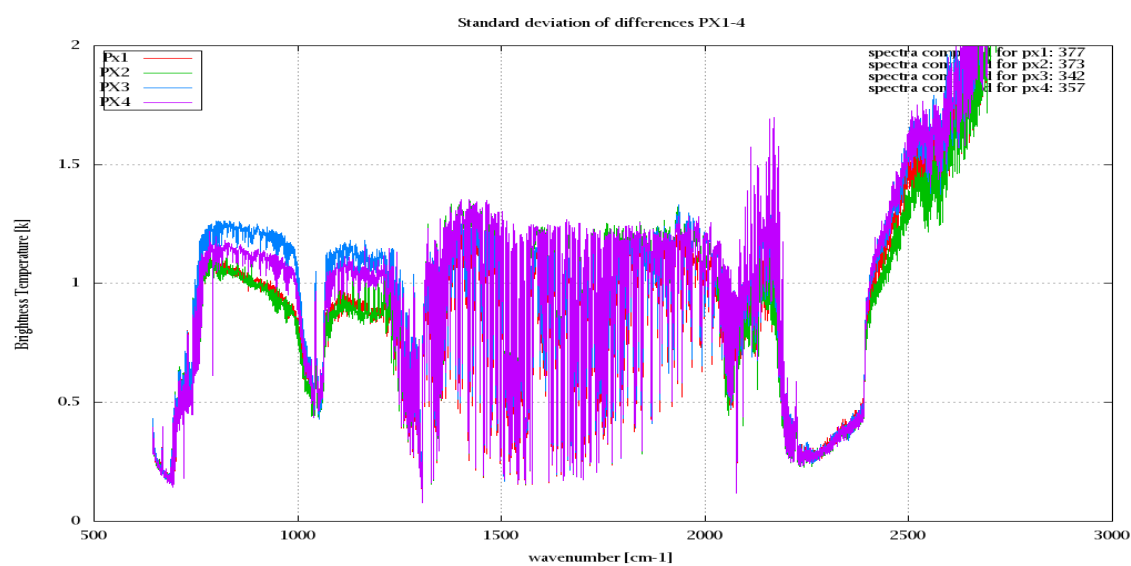


Figure 9: Standard Deviation of Radiance differences

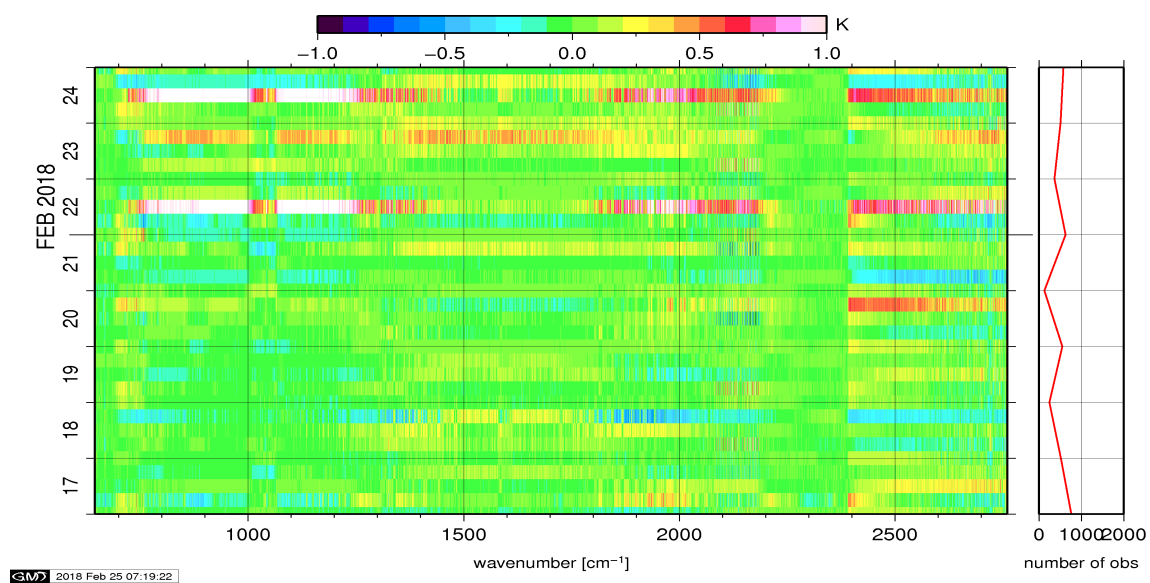


Figure 10: Radiance Anomaly in BRT: All Channels

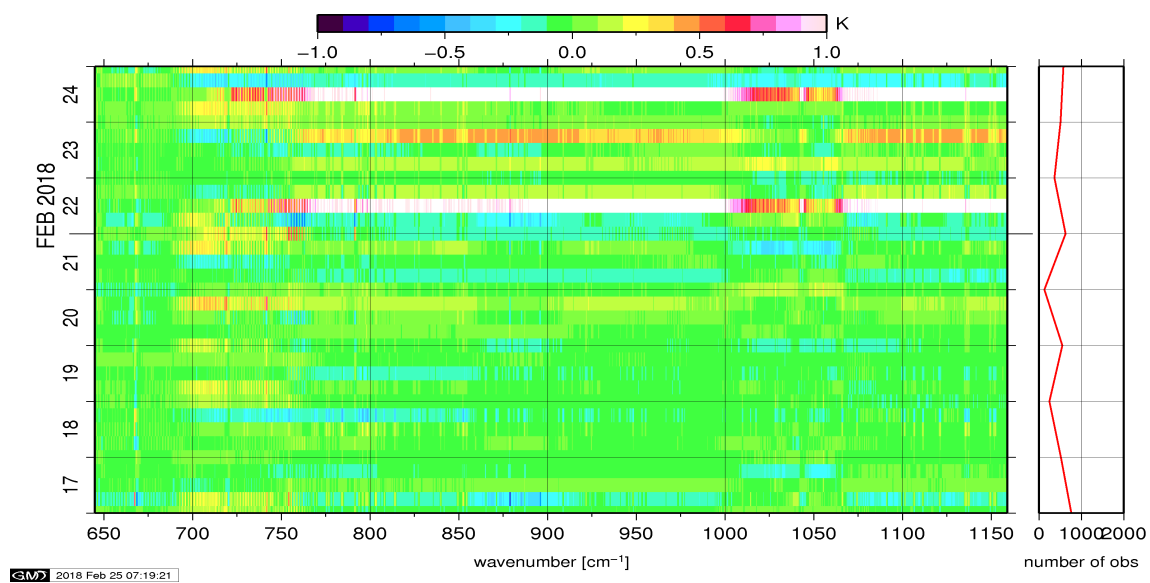


Figure 11: Radiance Anomaly in BRT: IASI Band 1

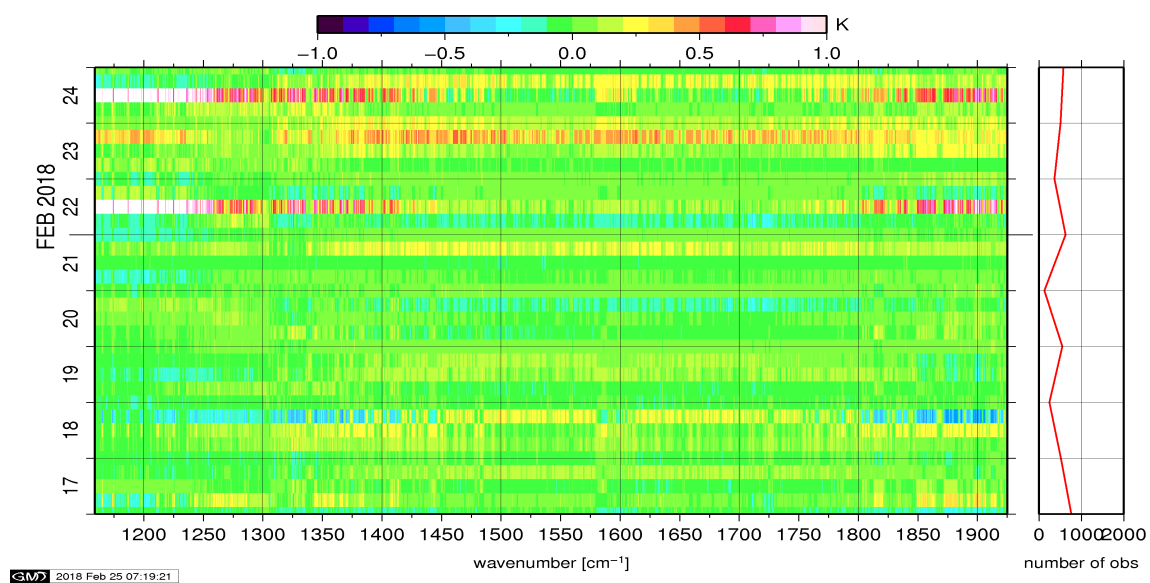


Figure 12: Radiance Anomaly in BRT: IASI Band 2

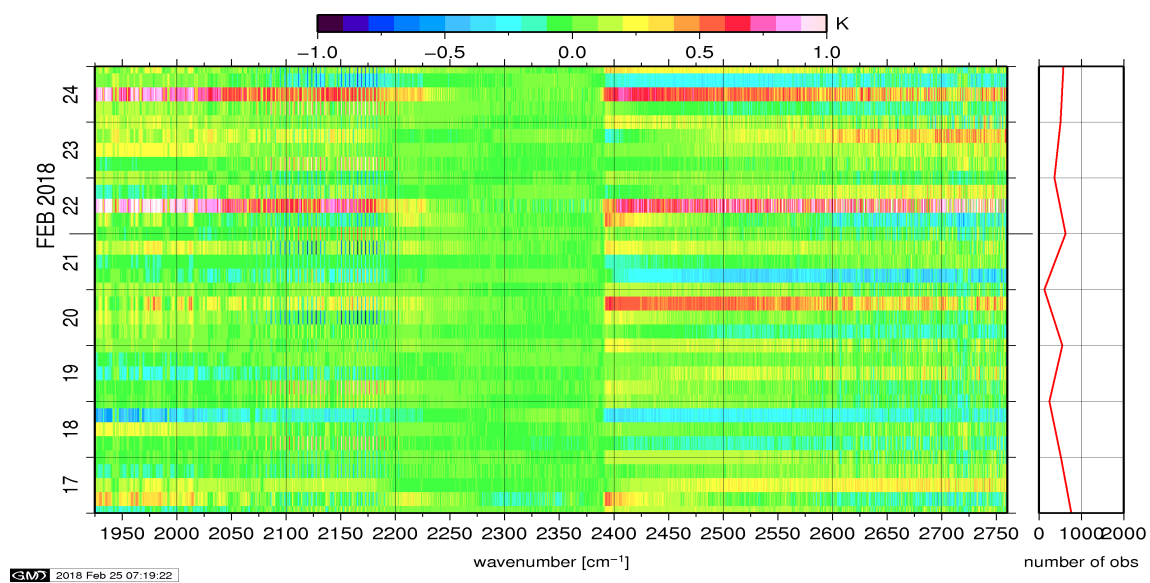


Figure 13: Radiance Anomaly in BRT: IASI Band 3

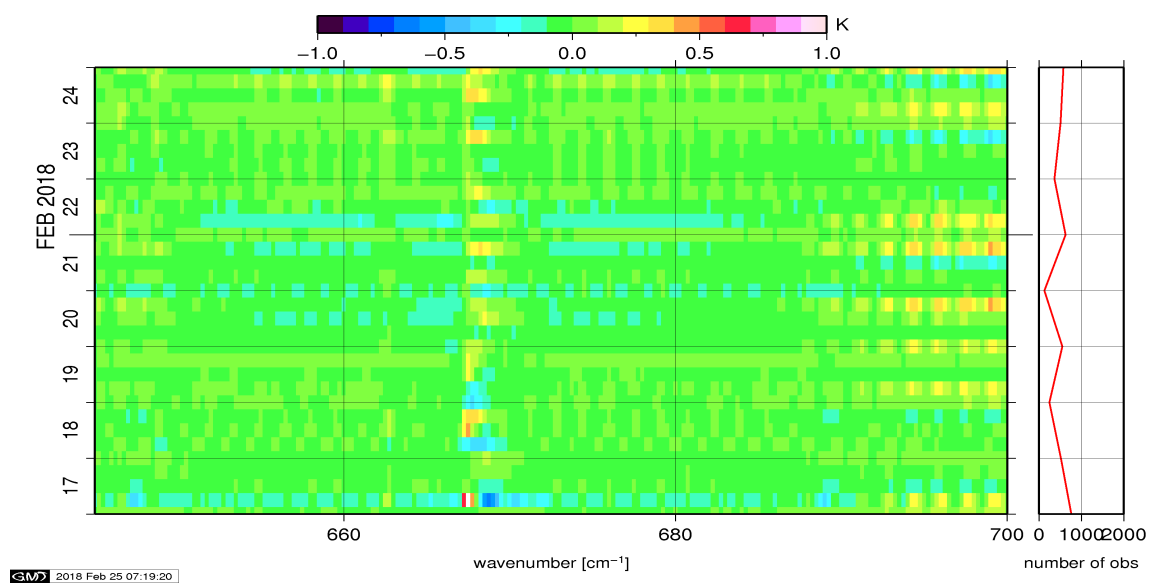


Figure 14: Radiance Anomaly in BRT: CO2 14

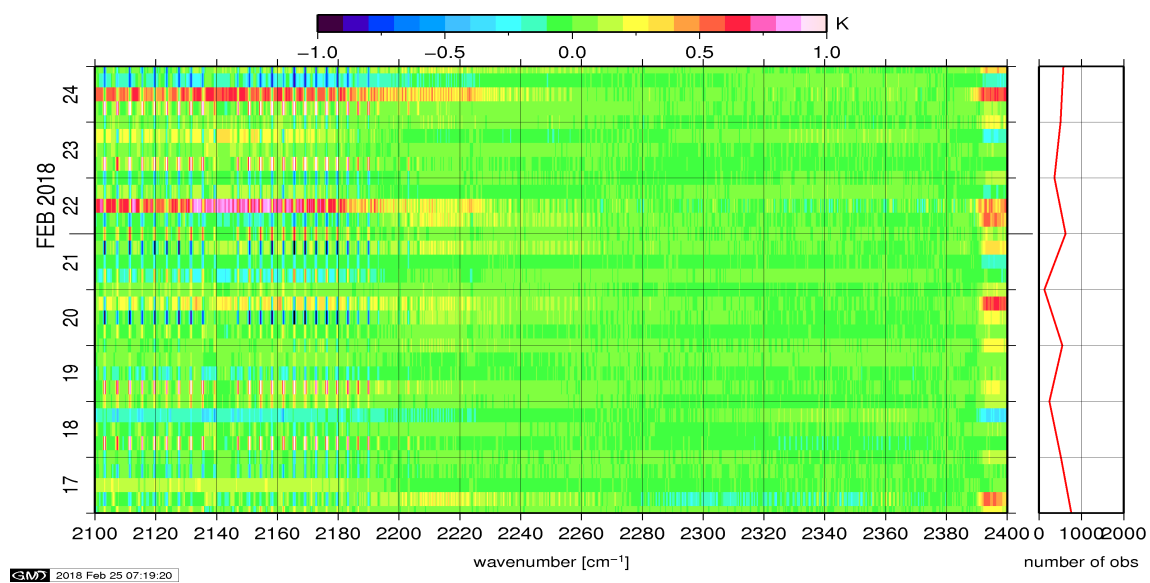


Figure 15: Radiance Anomaly in BRT: CO2 4.3

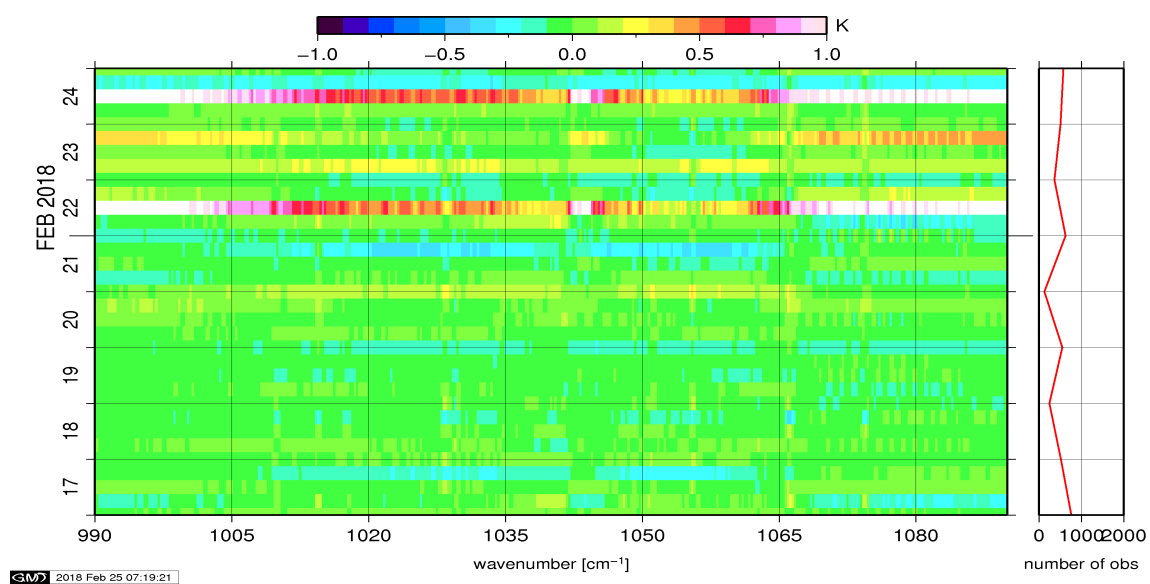


Figure 16: Radiance Anomaly in BRT: O3

6 IASI-HIRS radiance comparison Channel 1-19

The radiance comparison 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.

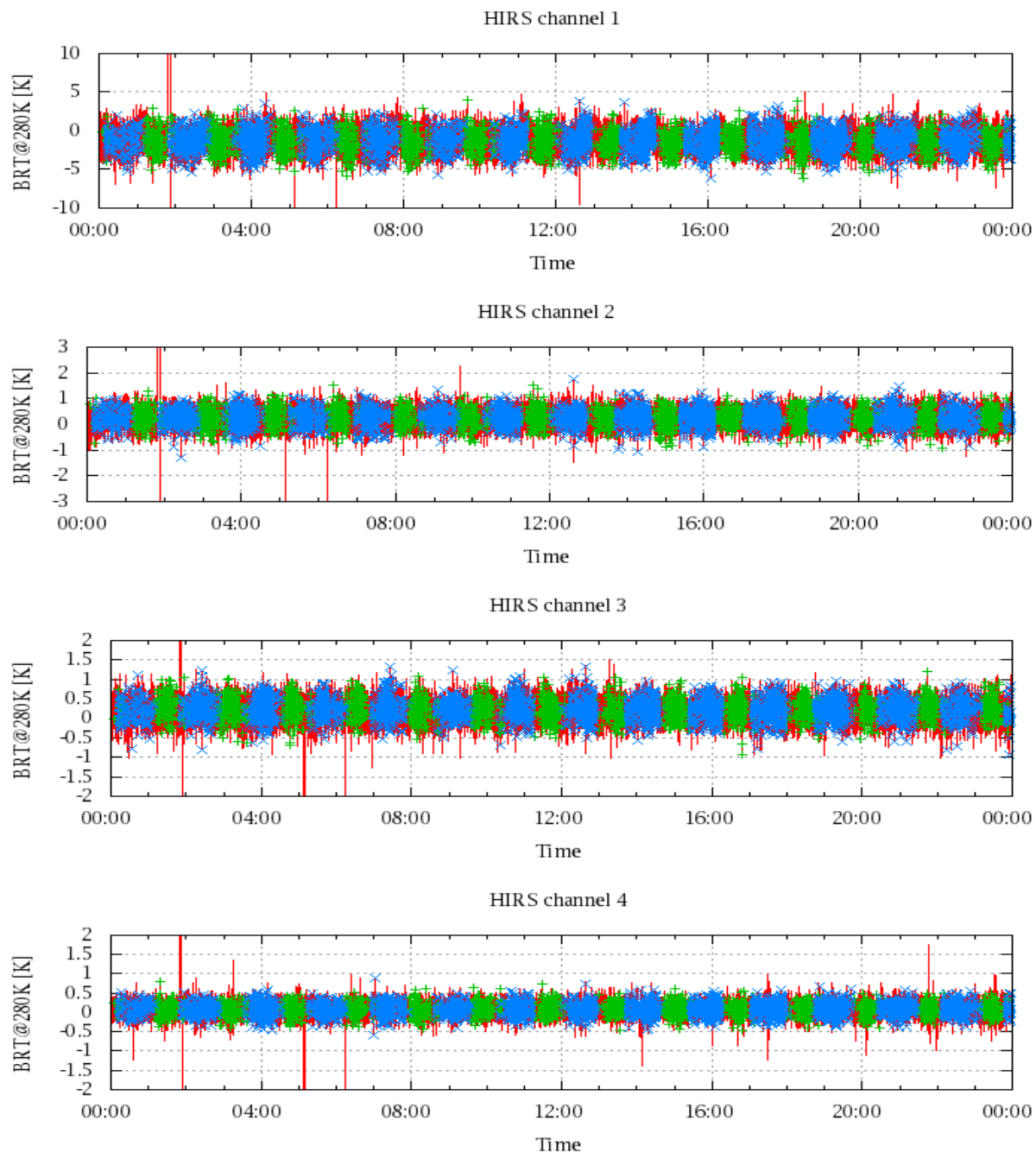


Figure 17: Radiance Differences in BRT

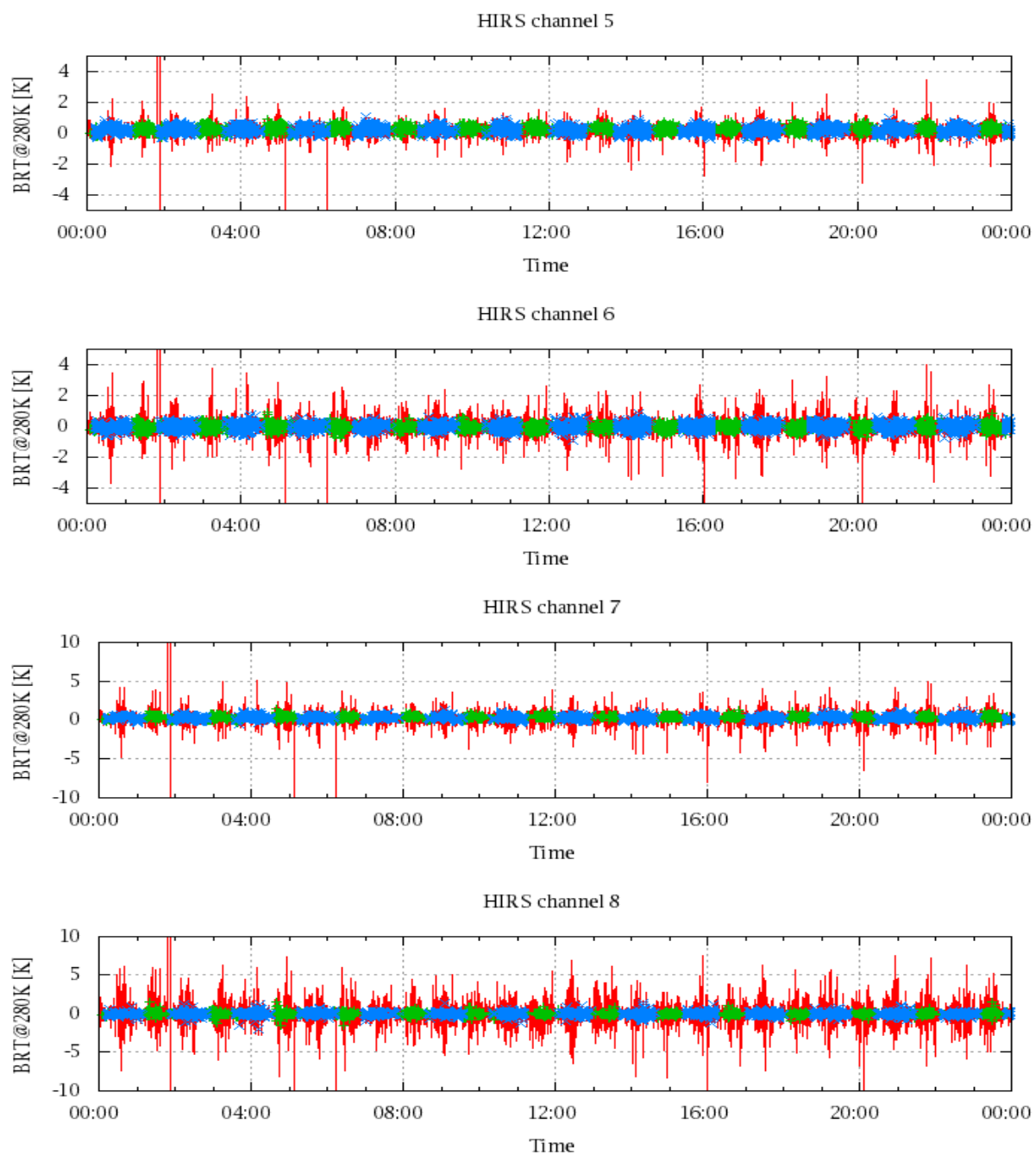


Figure 18: Radiance Differences in BRT

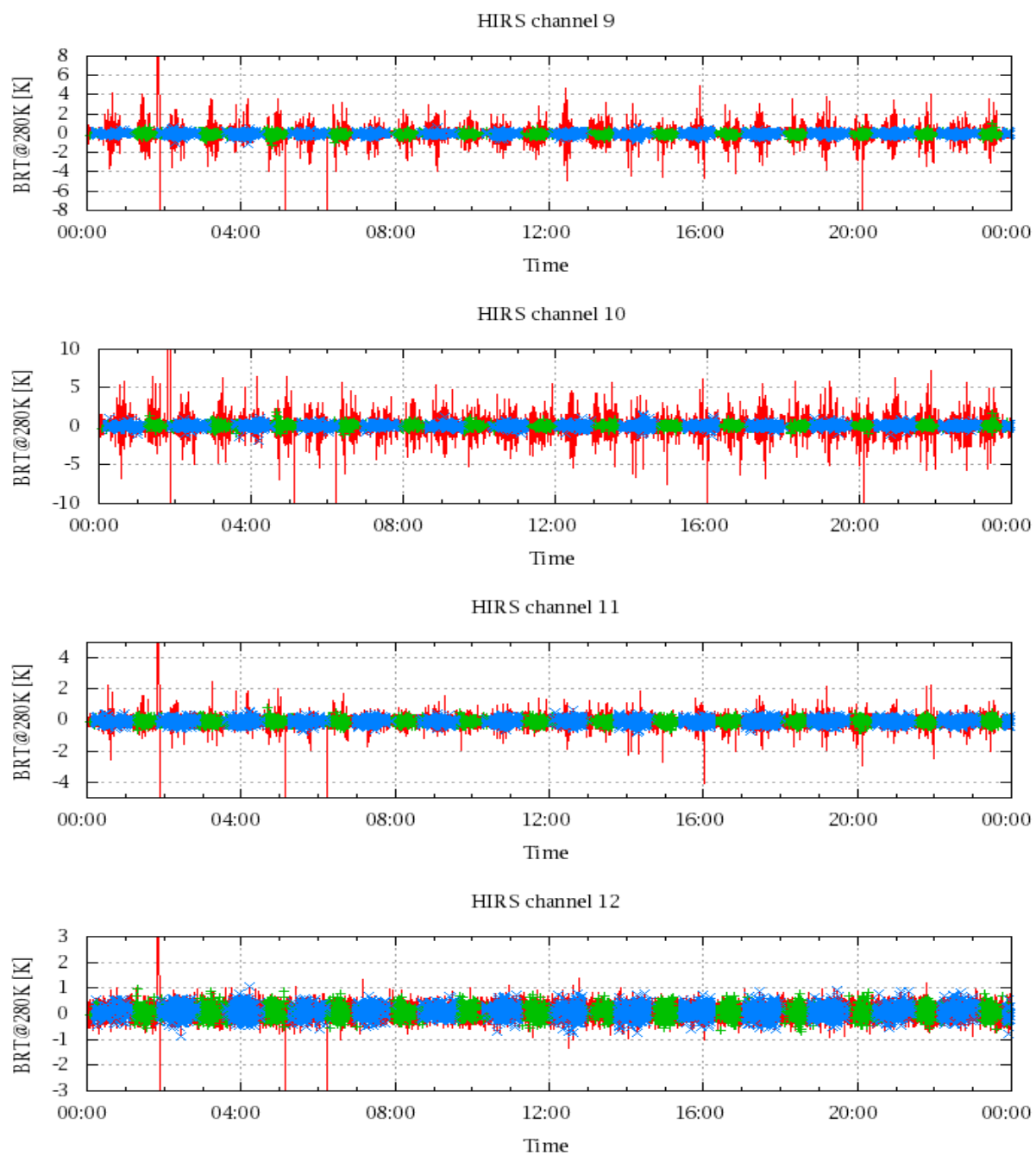


Figure 19: Radiance Differences in BRT

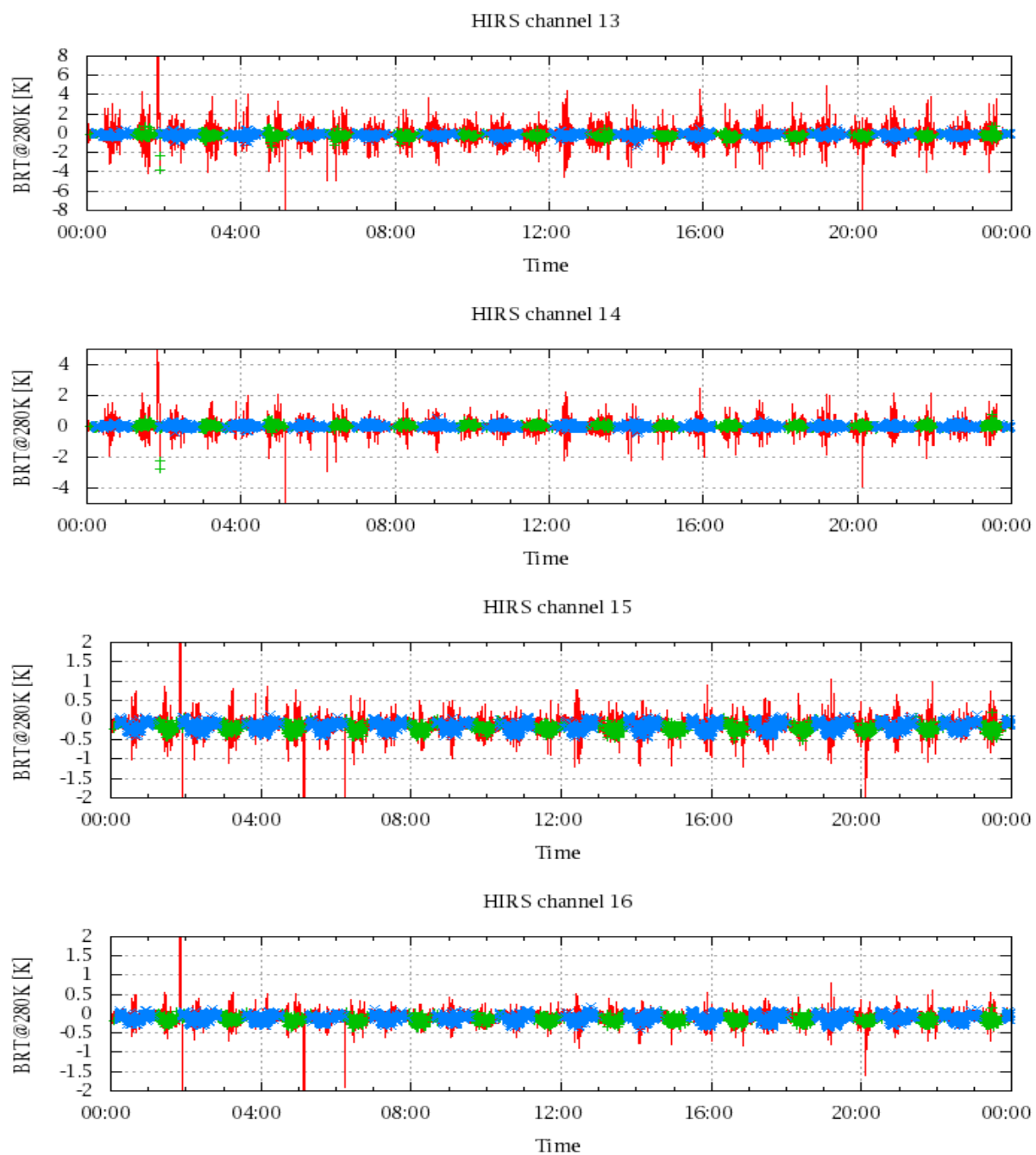


Figure 20: Radiance Differences in BRT

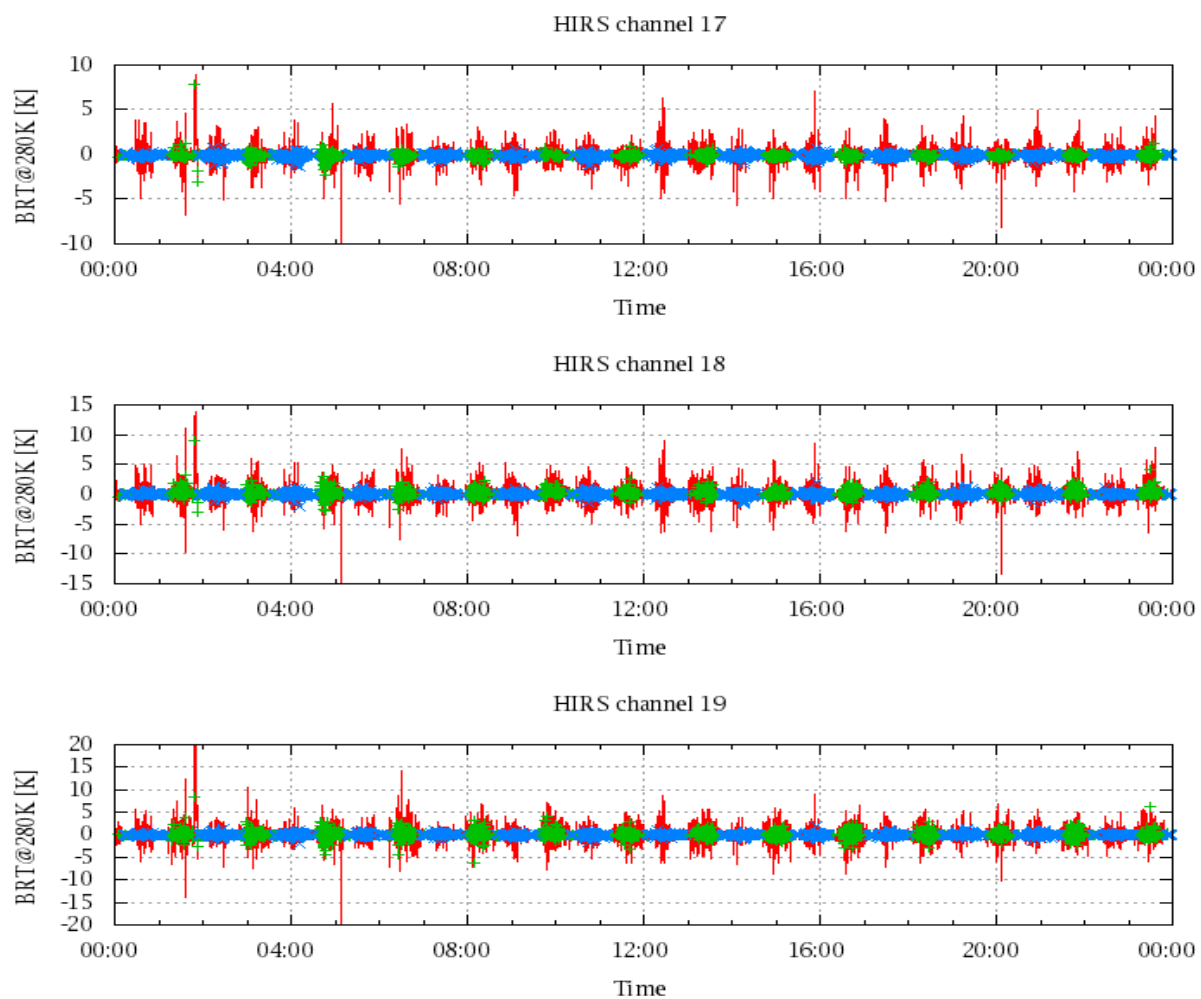


Figure 21: Radinace Differences in BRT