

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

26/02/2013 00:00:00 - 27/02/2013 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 26/02/2013 00:00:00 - 27/02/2013 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 26/02/2013 00:00:00 - 27/02/2013 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	479	-
L1 ENG distinct GEPSGranule	480	-
L1 DPX PDUs (RM: IASI-HIRS)	479	-
L1 DPS Files (RM: OBS-CAL NWP based)	479	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	4971	4975	20130226042214.118	20130226042214.981
PX1 (130)	8984	9007	20130226142236.926	20130226142243.410
PX1 (130)	9188	9191	20130226142331.625	20130226142332.273
PX1 (130)	9194	9196	20130226142332.922	20130226142333.355
PX1 (130)	9197	9199	20130226142333.570	20130226142334.004
PX1 (130)	9199	9201	20130226142334.004	20130226142334.437
PX1 (130)	9201	9205	20130226142334.437	20130226142335.301
PX1 (130)	9205	9211	20130226142335.301	20130226142336.597
PX1 (130)	9213	9307	20130226142337.031	20130226142403.445
PX1 (130)	9307	9340	20130226142403.445	20130226142412.094
PX1 (130)	9340	9356	20130226142412.094	20130226142415.554
PX1 (130)	9363	9409	20130226142417.066	20130226142430.039
PX1 (130)	9409	9411	20130226142430.039	20130226142430.468
PX2 (135)	4971	4975	20130226042214.118	20130226042214.981
PX2 (135)	8984	9006	20130226142236.926	20130226142243.191
PX2 (135)	9188	9190	20130226142331.625	20130226142332.058
PX2 (135)	9194	9196	20130226142332.922	20130226142333.355
PX2 (135)	9197	9199	20130226142333.570	20130226142334.004

Continued on next page

Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	9199	9201	20130226142334.004	20130226142334.437
PX2 (135)	9201	9211	20130226142334.437	20130226142336.597
PX2 (135)	9213	9307	20130226142337.031	20130226142403.445
PX2 (135)	9307	9340	20130226142403.445	20130226142412.094
PX2 (135)	9340	9356	20130226142412.094	20130226142415.554
PX2 (135)	9363	9408	20130226142417.066	20130226142429.824
PX2 (135)	9409	9411	20130226142430.039	20130226142430.468
PX3 (140)	4971	4975	20130226042214.118	20130226042214.981
PX3 (140)	8984	9006	20130226142236.926	20130226142243.191
PX3 (140)	9188	9190	20130226142331.625	20130226142332.058
PX3 (140)	9193	9196	20130226142332.707	20130226142333.355
PX3 (140)	9197	9199	20130226142333.570	20130226142334.004
PX3 (140)	9199	9201	20130226142334.004	20130226142334.437
PX3 (140)	9201	9204	20130226142334.437	20130226142335.082
PX3 (140)	9204	9211	20130226142335.082	20130226142336.597
PX3 (140)	9213	9307	20130226142337.031	20130226142403.445
PX3 (140)	9307	9340	20130226142403.445	20130226142412.094
PX3 (140)	9340	9356	20130226142412.094	20130226142415.554
PX3 (140)	9363	9408	20130226142417.066	20130226142429.824
PX4 (145)	4971	4974	20130226042214.118	20130226042214.762
PX4 (145)	8984	9006	20130226142236.926	20130226142243.191
PX4 (145)	9188	9190	20130226142331.625	20130226142332.058
PX4 (145)	9193	9196	20130226142332.707	20130226142333.355
PX4 (145)	9197	9199	20130226142333.570	20130226142334.004
PX4 (145)	9199	9201	20130226142334.004	20130226142334.437
PX4 (145)	9201	9204	20130226142334.437	20130226142335.082
PX4 (145)	9204	9211	20130226142335.082	20130226142336.597
PX4 (145)	9213	9307	20130226142337.031	20130226142403.445
PX4 (145)	9307	9340	20130226142403.445	20130226142412.094
PX4 (145)	9340	9356	20130226142412.094	20130226142415.554
PX4 (145)	9363	9408	20130226142417.066	20130226142429.824
IMG (150)	8934	8938	20130226042213.899	20130226042214.762
IMG (150)	14575	14602	20130226142236.707	20130226142243.191
IMG (150)	14808	14810	20130226142331.625	20130226142332.058
IMG (150)	14813	14815	20130226142332.707	20130226142333.140
IMG (150)	14816	14824	20130226142333.355	20130226142335.082
IMG (150)	14824	14831	20130226142335.082	20130226142336.597
IMG (150)	14833	14996	20130226142337.031	20130226142415.554
IMG (150)	15003	15056	20130226142417.066	20130226142429.824
VER (160)	7096	7099	20130226032609.161	20130226032617.161
VER (160)	15329	15335	20130226142233.031	20130226142249.031
VER (160)	15365	15390	20130226142337.031	20130226142417.066
VER (160)	15391	15400	20130226142417.066	20130226142433.066
AUX (180)	9589	9591	20130226142233.465	20130226142249.465
AUX (180)	9596	9604	20130226142329.461	20130226142433.496

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
26/02/2013 00:00:00	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	481	-
L1 ENG PDUs	479	-
L1 ENG distinct GEPSGranule	480	-
GQisFlagQual set (PX1)	99.40 %	-
GQisFlagQual set (PX2)	99.22 %	-
GQisFlagQual set (PX3)	99.34 %	-
GQisFlagQual set (PX4)	99.40 %	-
GQisFlagQual set (all)	99.34 %	-

Table 4: Quality flags

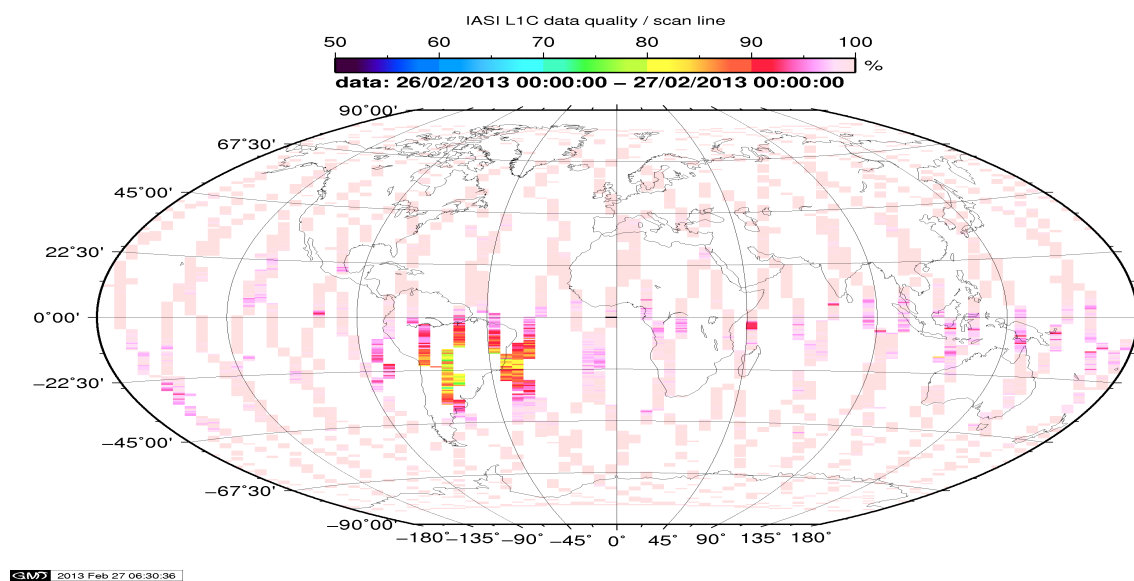


Figure 1: L1C data quality

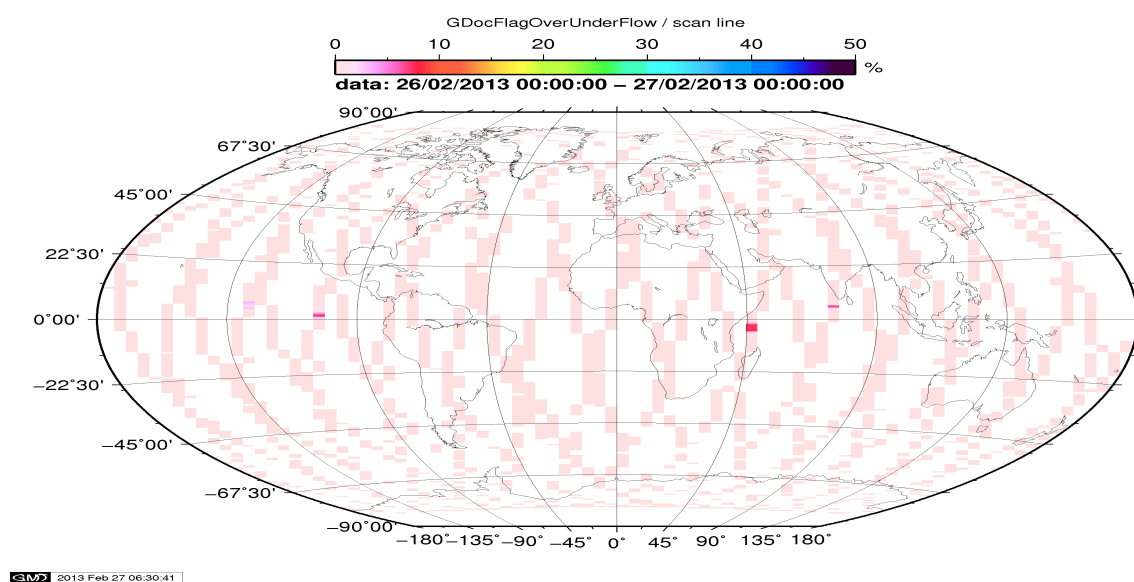


Figure 2: Flag of Over and Under Flows

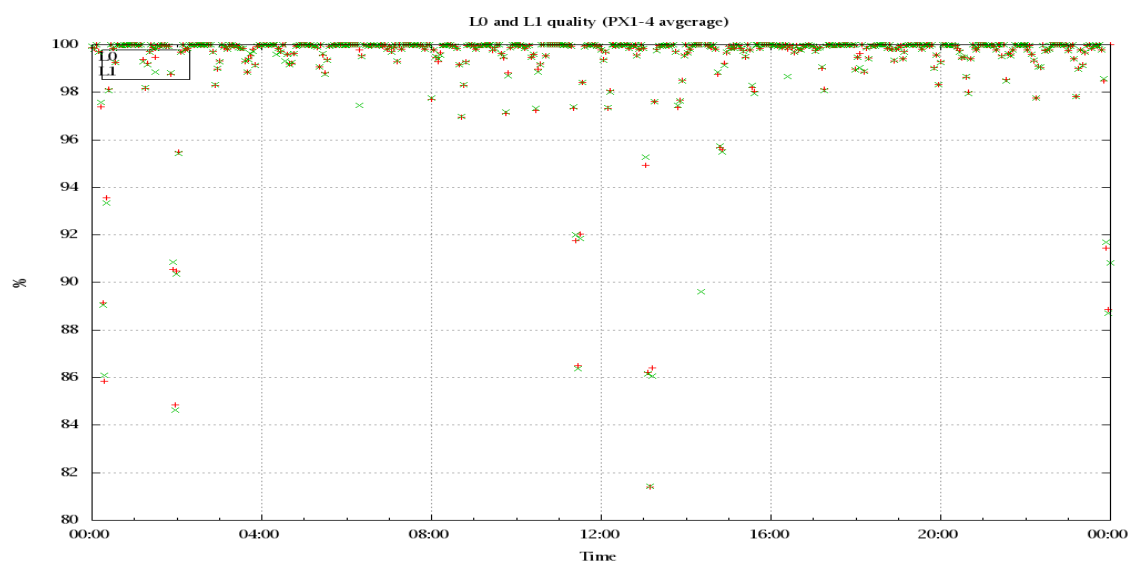


Figure 3: Level 0 and 1C overall quality

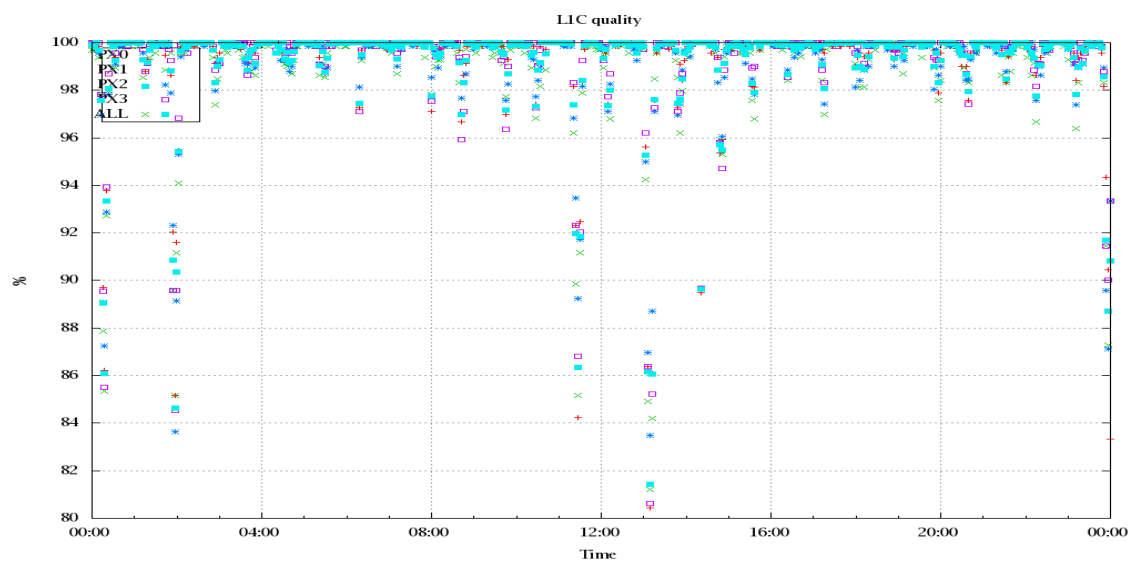


Figure 4: Level 1C quality

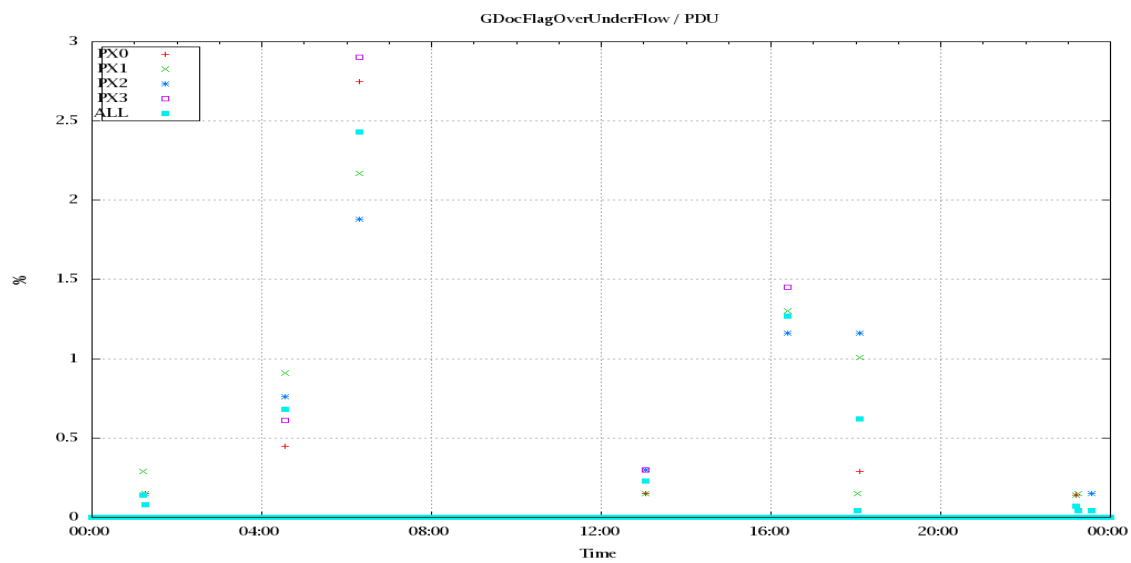


Figure 5: OverUnderFlowFlag timeseries

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.

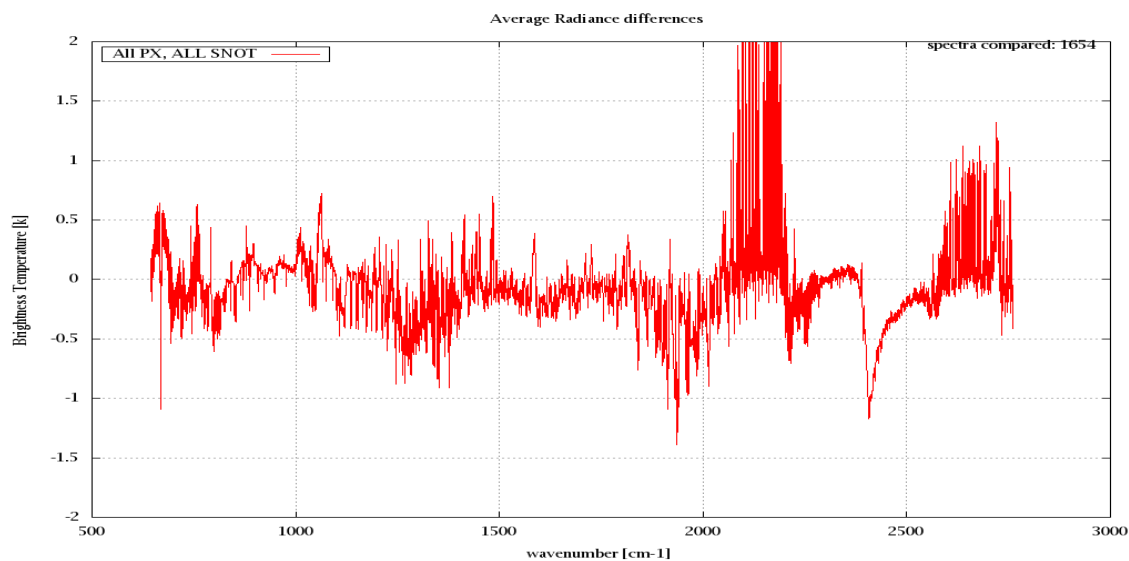


Figure 6: Average Radiance differences: OBS-CAL

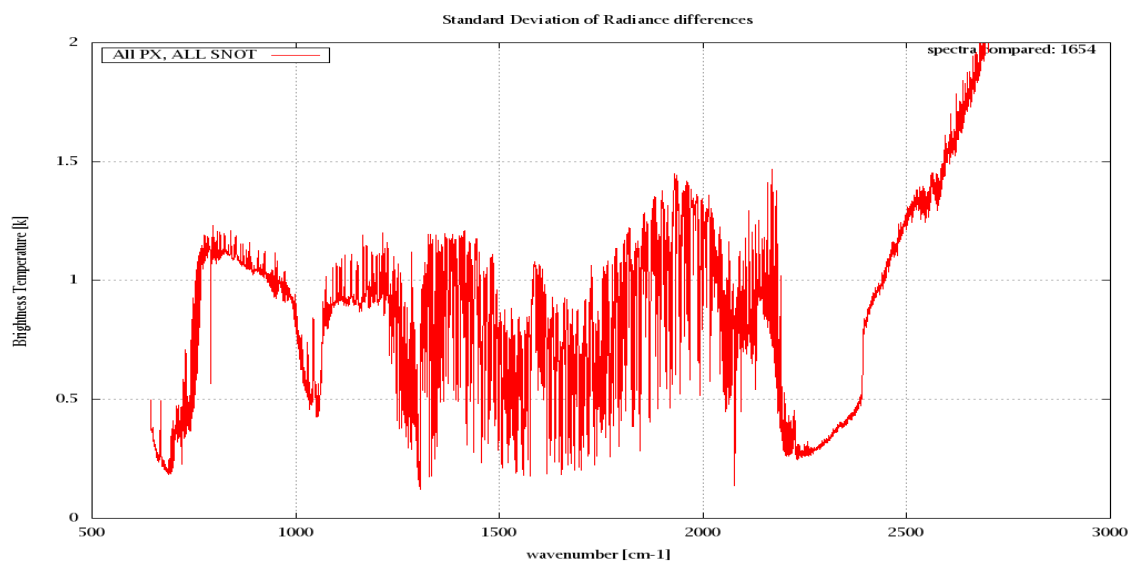


Figure 7: Standard Deviation of Radiance differences

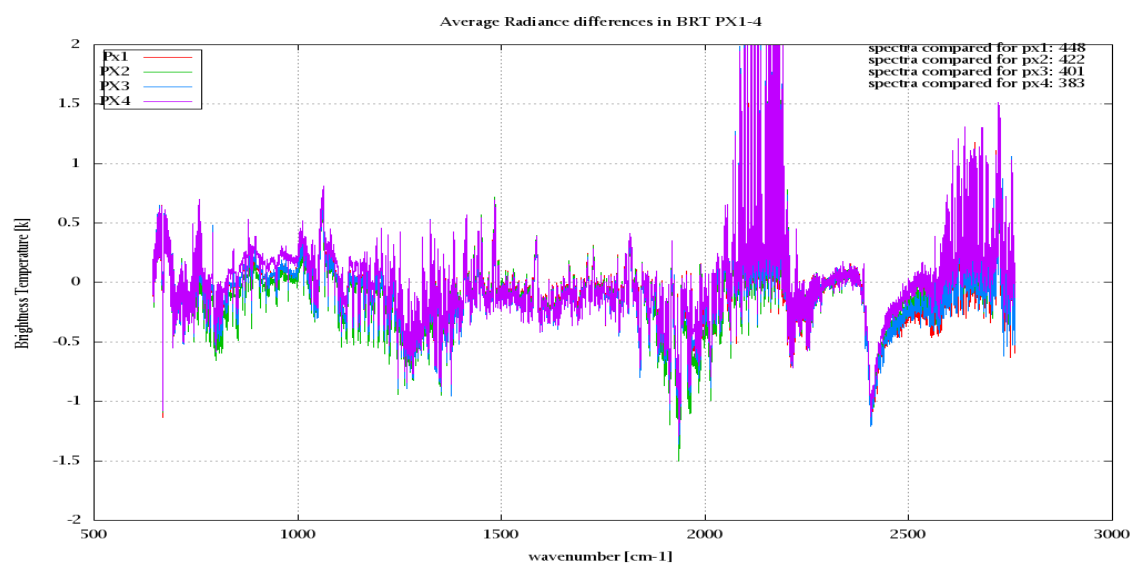


Figure 8: Average Radiance differences: OBS-CAL

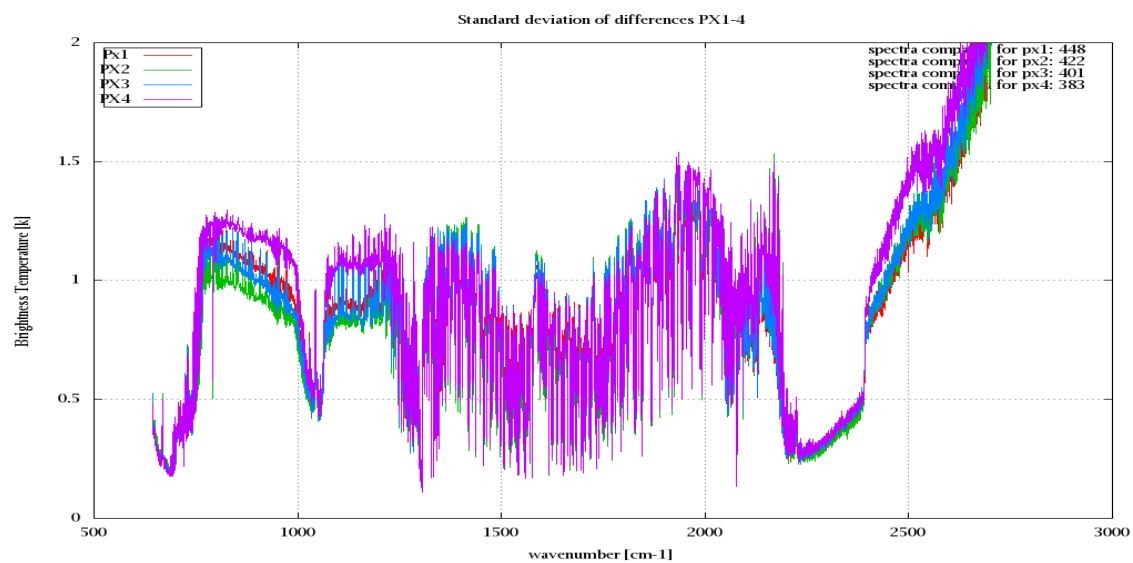


Figure 9: Standard Deviation of Radiance differences

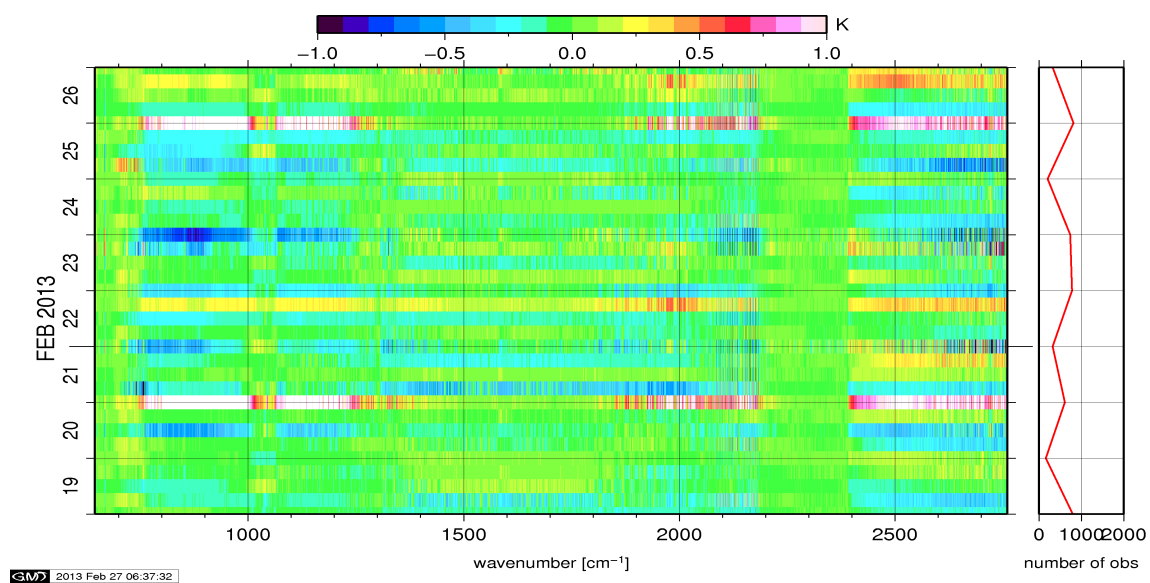


Figure 10: Radiance Anomaly in BRT: All Channels

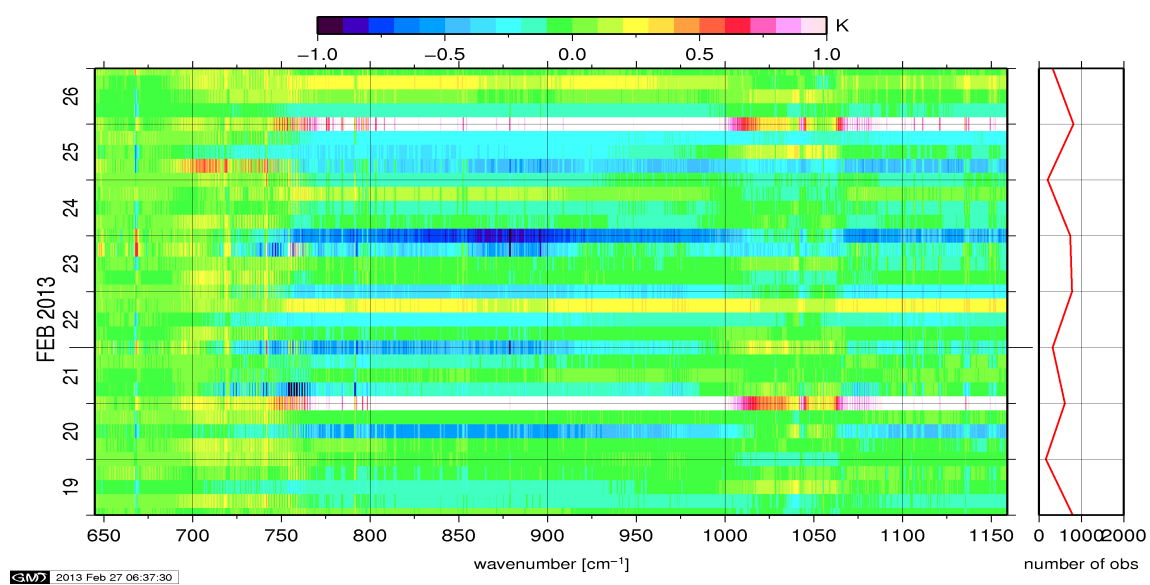


Figure 11: Radiance Anomaly in BRT: IASI Band 1

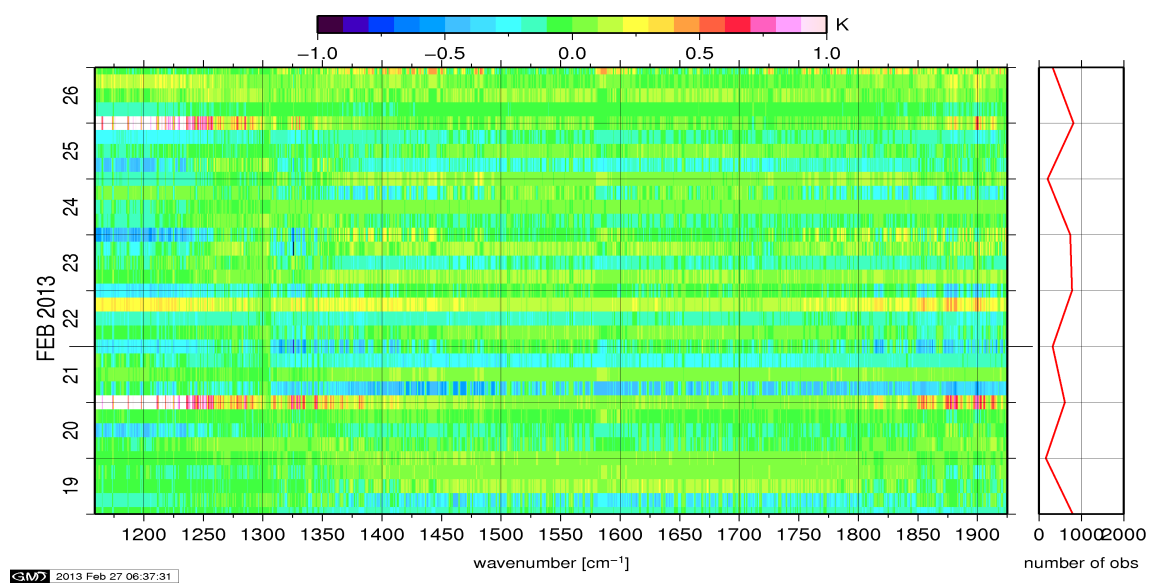


Figure 12: Radiance Anomaly in BRT: IASI Band 2

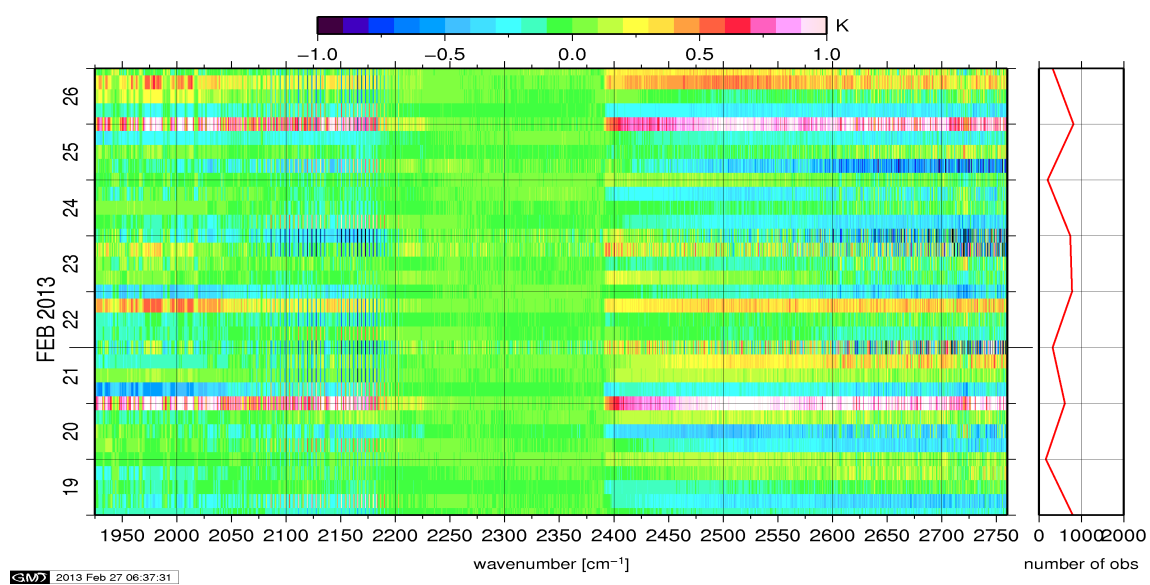


Figure 13: Radiance Anomaly in BRT: IASI Band 3

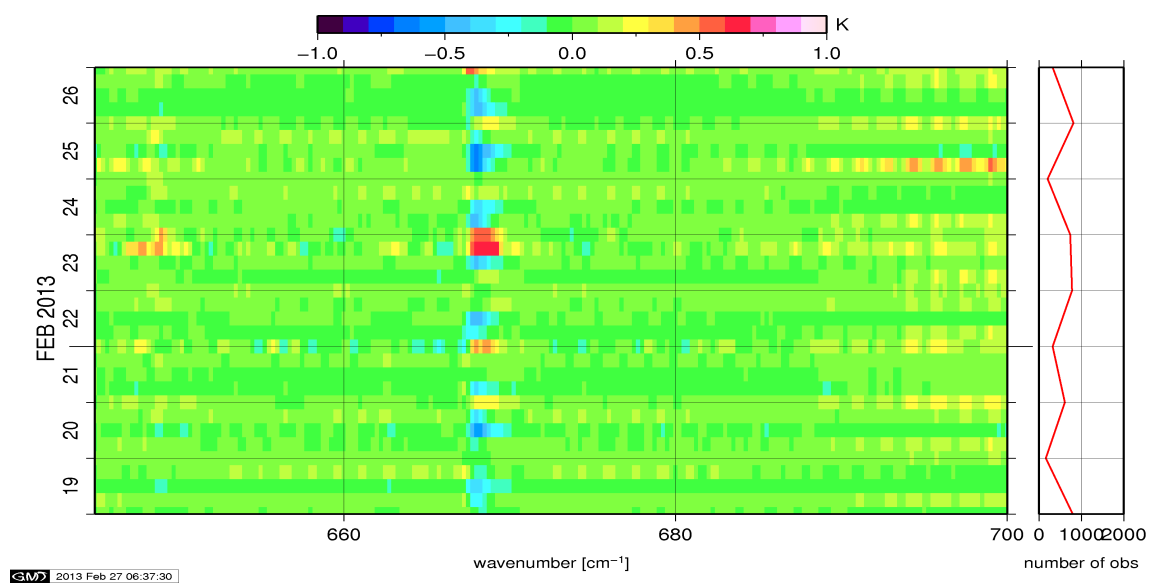


Figure 14: Radiance Anomaly in BRT: CO2 14

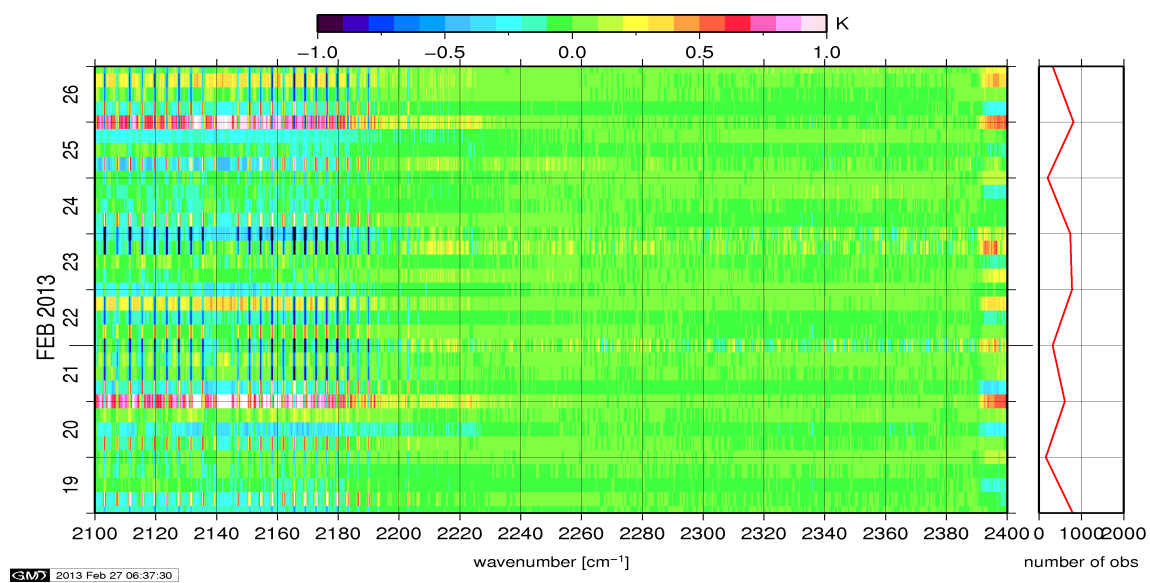


Figure 15: Radiance Anomaly in BRT: CO2 4.3

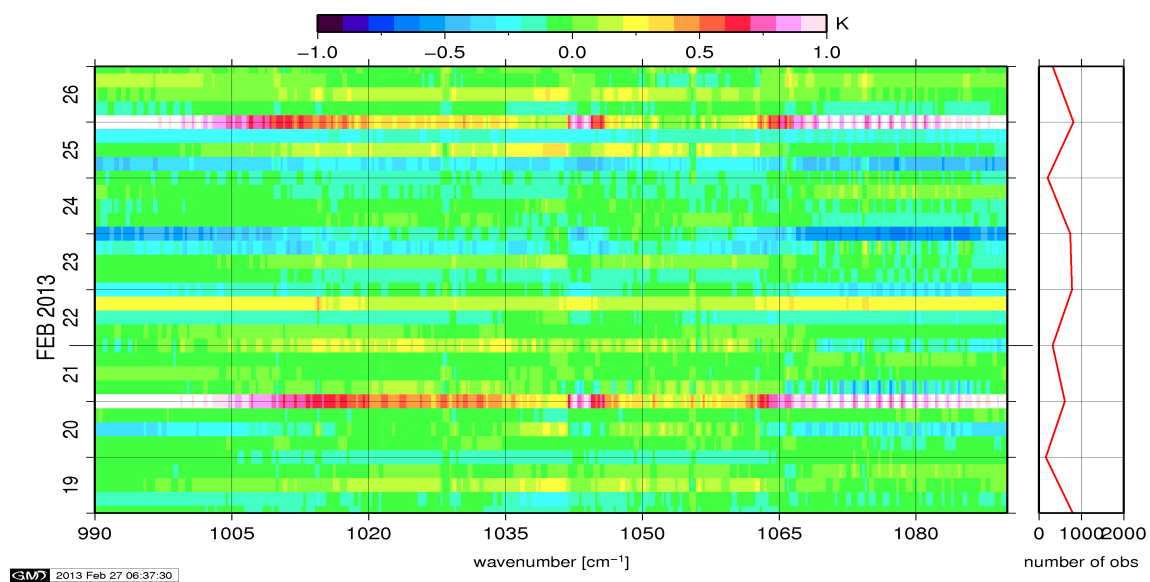


Figure 16: Radiance Anomaly in BRT: O3

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.

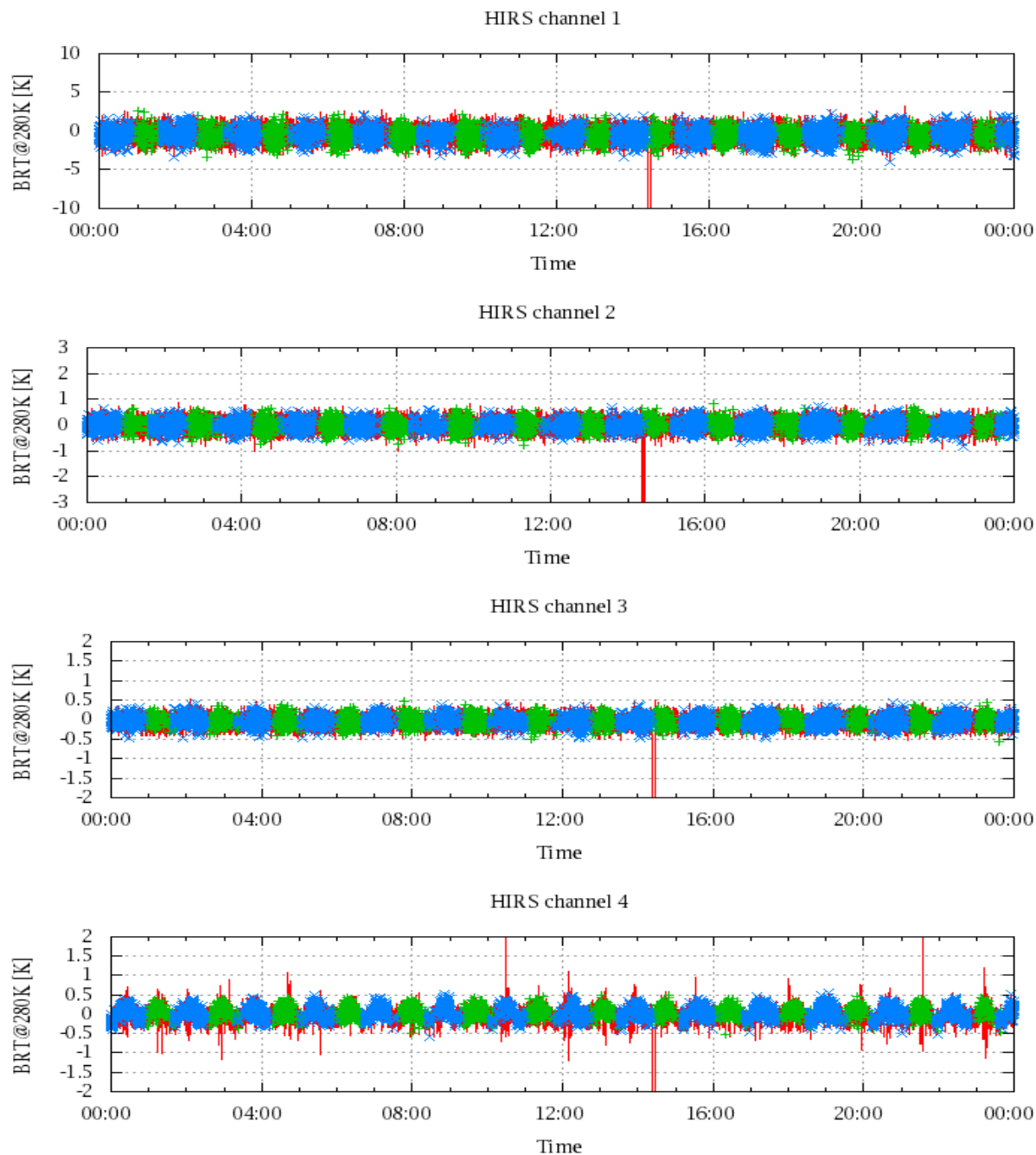


Figure 17: Radiance Differences in BRT

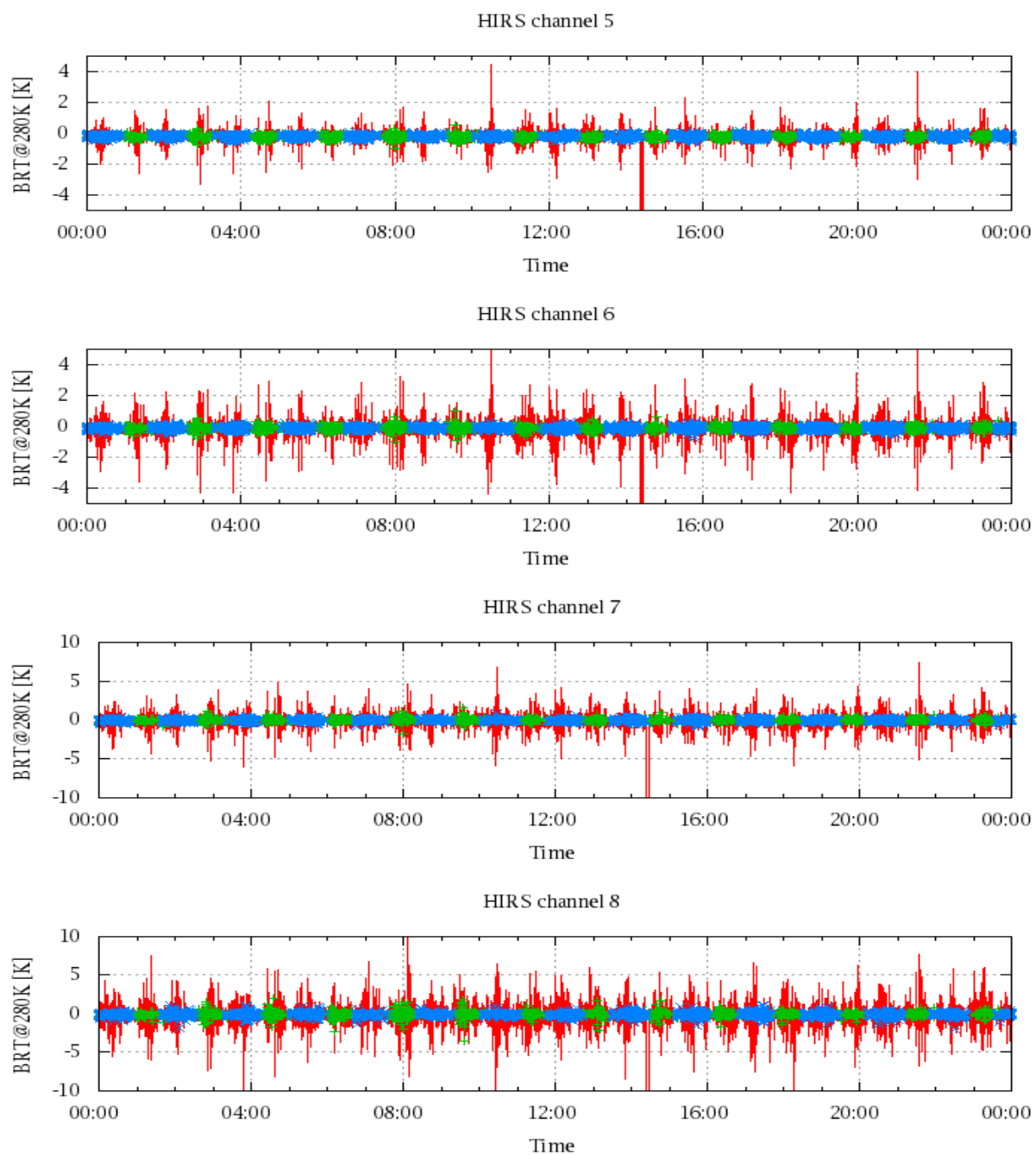


Figure 18: Radiance Differences in BRT

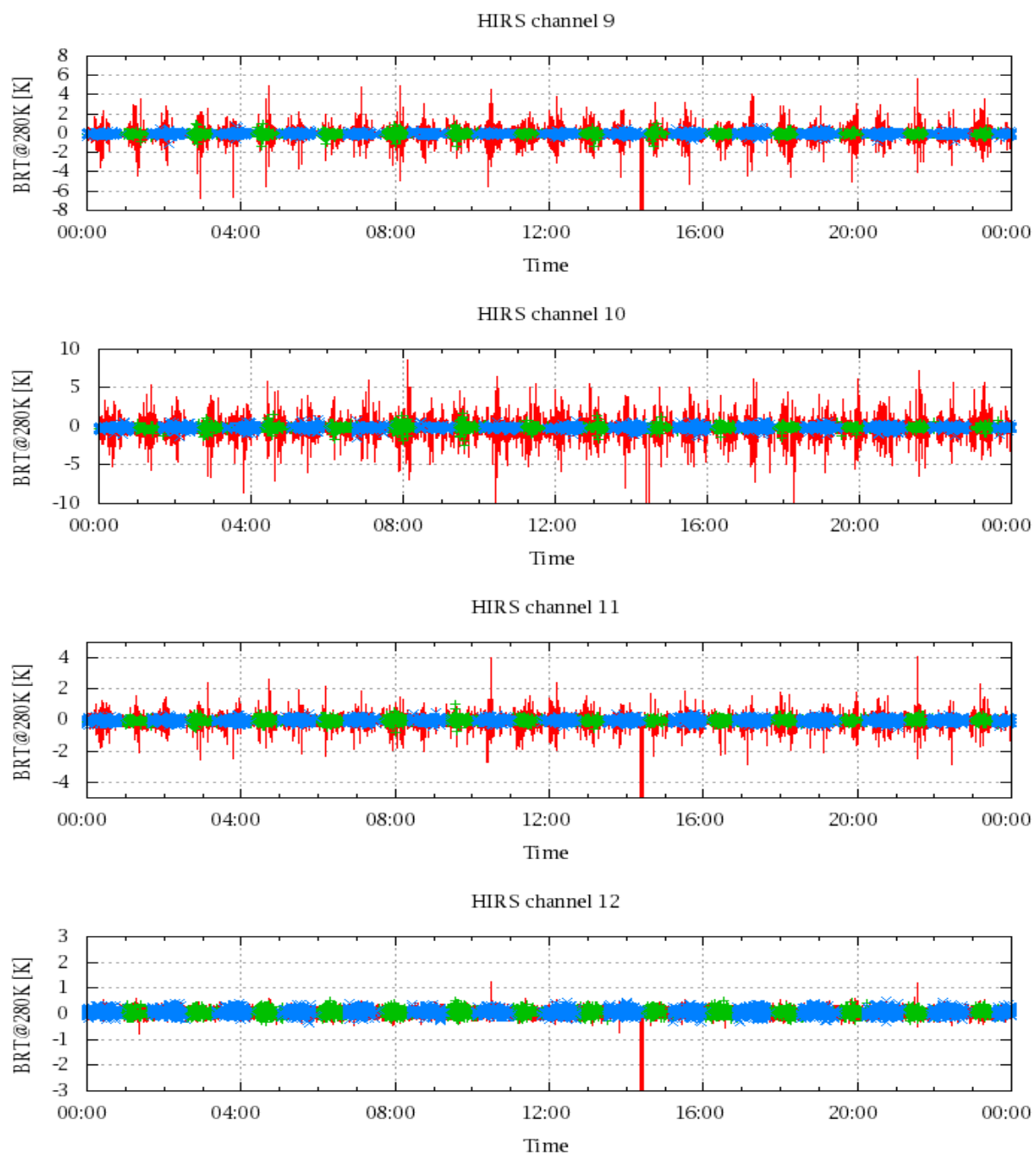


Figure 19: Radiance Differences in BRT

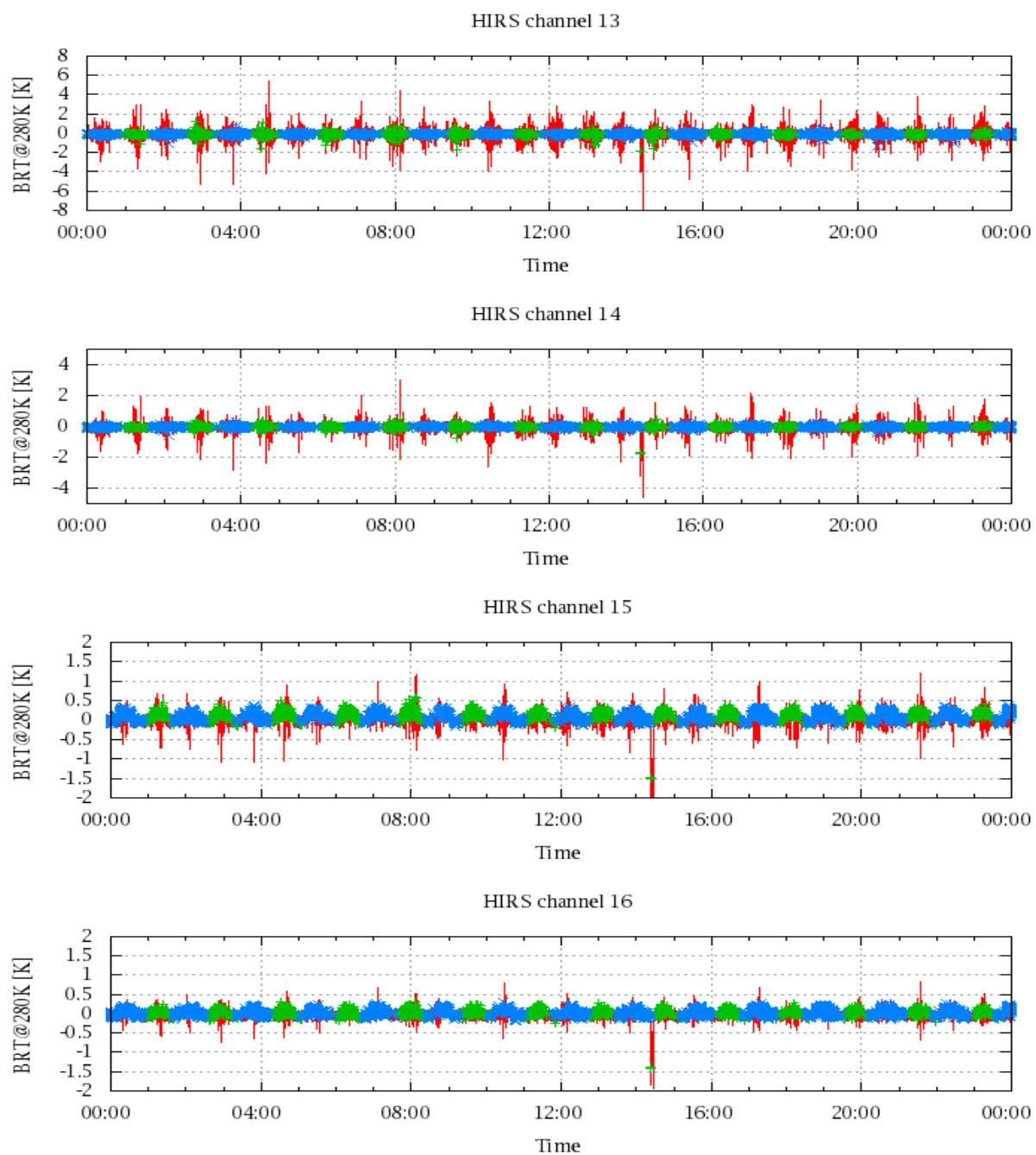


Figure 20: Radiance Differences in BRT

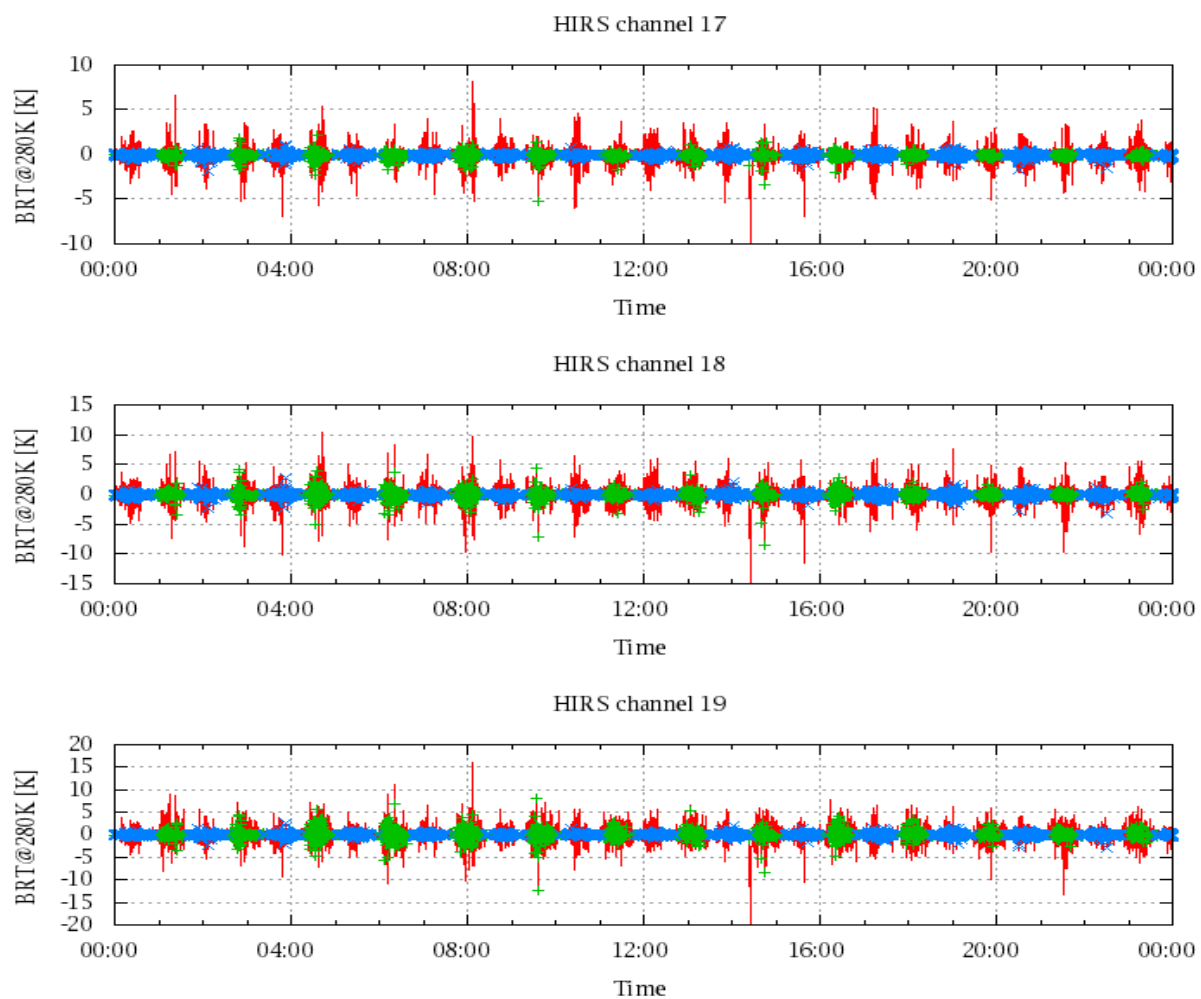


Figure 21: Radinace Differences in BRT