

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

26/06/2013 00:00:00 - 27/06/2013 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 26/06/2013 00:00:00 - 27/06/2013 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 26/06/2013 00:00:00 - 27/06/2013 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)	4523	4766	20130626180446.938	20130626180553.098
PX1 (130)	4772	4775	20130626180554.395	20130626180555.047
PX1 (130)	4776	4778	20130626180555.262	20130626180555.696
PX1 (130)	4779	4782	20130626180555.910	20130626180556.559
PX1 (130)	4782	4788	20130626180556.559	20130626180557.856
PX1 (130)	4788	4791	20130626180557.856	20130626180558.504
PX1 (130)	4791	4793	20130626180558.504	20130626180558.938
PX1 (130)	4793	4795	20130626180558.938	20130626180600.883
PX1 (130)	4796	4798	20130626180601.098	20130626180601.532
PX1 (130)	4798	4800	20130626180601.532	20130626180601.965
PX1 (130)	4801	4804	20130626180602.180	20130626180602.828
PX1 (130)	4804	4806	20130626180602.828	20130626180603.262
PX1 (130)	4806	4809	20130626180603.262	20130626180603.910
PX2 (135)	4523	4762	20130626180446.938	20130626180550.723
PX2 (135)	4762	4767	20130626180550.723	20130626180553.317
PX2 (135)	4769	4772	20130626180553.750	20130626180554.395
PX2 (135)	4772	4774	20130626180554.395	20130626180554.828
PX2 (135)	4776	4778	20130626180555.262	20130626180555.696

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	4779	4781	20130626180555.910	20130626180556.344
PX2 (135)	4782	4788	20130626180556.559	20130626180557.856
PX2 (135)	4789	4791	20130626180558.074	20130626180558.504
PX2 (135)	4791	4793	20130626180558.504	20130626180558.938
PX2 (135)	4793	4795	20130626180558.938	20130626180600.883
PX2 (135)	4795	4798	20130626180600.883	20130626180601.532
PX2 (135)	4798	4800	20130626180601.532	20130626180601.965
PX2 (135)	4801	4804	20130626180602.180	20130626180602.828
PX2 (135)	4804	4806	20130626180602.828	20130626180603.262
PX2 (135)	4806	4808	20130626180603.262	20130626180603.696
PX3 (140)	4523	4759	20130626180446.938	20130626180550.071
PX3 (140)	4759	4767	20130626180550.071	20130626180553.317
PX3 (140)	4768	4772	20130626180553.532	20130626180554.395
PX3 (140)	4772	4774	20130626180554.395	20130626180554.828
PX3 (140)	4776	4778	20130626180555.262	20130626180555.696
PX3 (140)	4783	4788	20130626180556.774	20130626180557.856
PX3 (140)	4788	4791	20130626180557.856	20130626180558.504
PX3 (140)	4791	4795	20130626180558.504	20130626180600.883
PX3 (140)	4795	4797	20130626180600.883	20130626180601.317
PX3 (140)	4798	4800	20130626180601.532	20130626180601.965
PX3 (140)	4801	4806	20130626180602.180	20130626180603.262
PX3 (140)	4806	4808	20130626180603.262	20130626180603.696
PX4 (145)	4523	4763	20130626180446.938	20130626180550.938
PX4 (145)	4763	4767	20130626180550.938	20130626180553.317
PX4 (145)	4768	4772	20130626180553.532	20130626180554.395
PX4 (145)	4772	4774	20130626180554.395	20130626180554.828
PX4 (145)	4774	4776	20130626180554.828	20130626180555.262
PX4 (145)	4777	4779	20130626180555.477	20130626180555.910
PX4 (145)	4779	4781	20130626180555.910	20130626180556.344
PX4 (145)	4781	4787	20130626180556.344	20130626180557.641
PX4 (145)	4788	4790	20130626180557.856	20130626180558.289
PX4 (145)	4790	4792	20130626180558.289	20130626180558.719
PX4 (145)	4792	4795	20130626180558.719	20130626180600.883
PX4 (145)	4795	4797	20130626180600.883	20130626180601.317
PX4 (145)	4803	4808	20130626180602.614	20130626180603.696
IMG (150)	14471	14749	20130626180446.938	20130626180552.883
IMG (150)	14752	14756	20130626180553.532	20130626180554.395
IMG (150)	14756	14761	20130626180554.395	20130626180555.477
IMG (150)	14761	14763	20130626180555.477	20130626180555.910
IMG (150)	14763	14765	20130626180555.910	20130626180556.344
IMG (150)	14765	14771	20130626180556.344	20130626180557.641
IMG (150)	14771	14774	20130626180557.641	20130626180558.289
IMG (150)	14774	14776	20130626180558.289	20130626180558.719
IMG (150)	14777	14780	20130626180558.938	20130626180600.016
IMG (150)	14780	14782	20130626180600.016	20130626180600.668
IMG (150)	14783	14785	20130626180600.883	20130626180601.317
IMG (150)	14792	14796	20130626180602.828	20130626180603.696
VER (160)	12602	12651	20130626180446.938	20130626180606.938
AUX (180)	2486	2497	20130626180439.372	20130626180607.367

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
26/06/2013 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	481	-
GQisFlagQual set (PX1)	99.44 %	-
GQisFlagQual set (PX2)	99.28 %	-
GQisFlagQual set (PX3)	99.34 %	-
GQisFlagQual set (PX4)	99.45 %	-
GQisFlagQual set (all)	99.38 %	-

Table 4: Quality flags

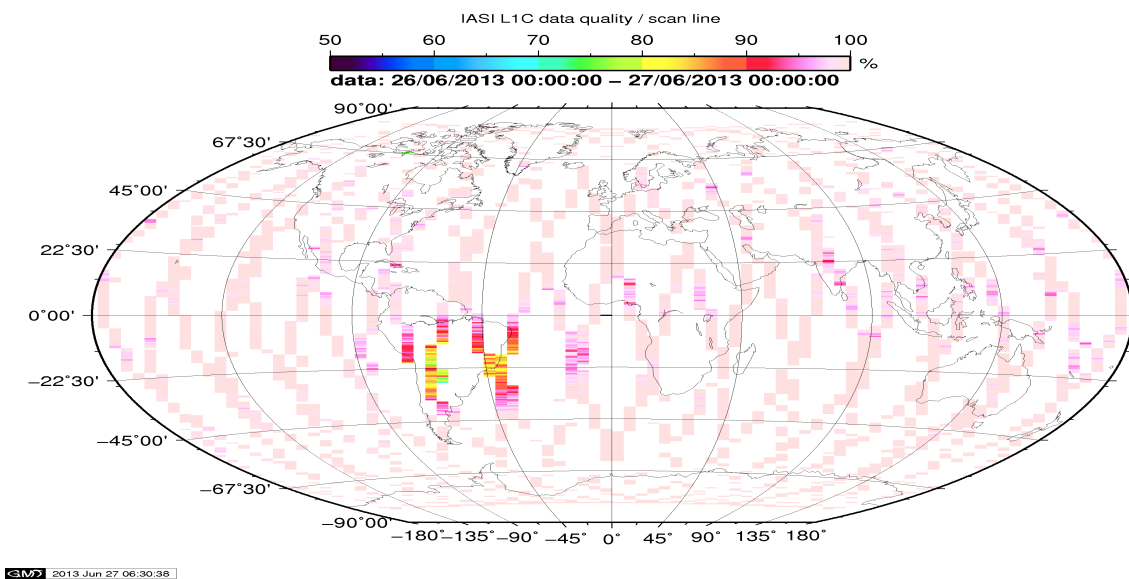


Figure 1: L1C data quality

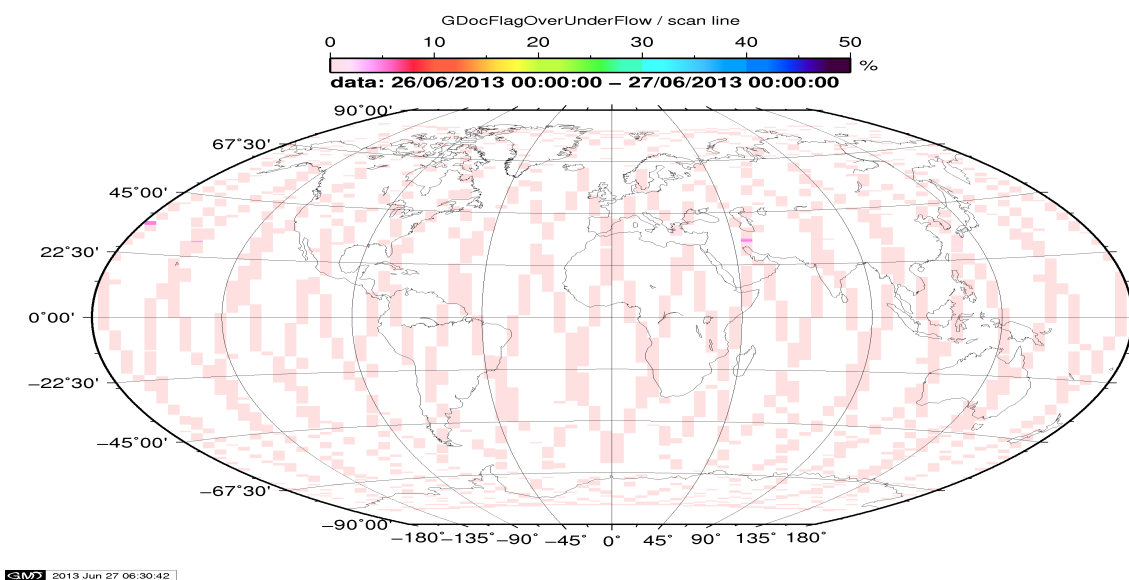


Figure 2: Flag of Over and Under Flows

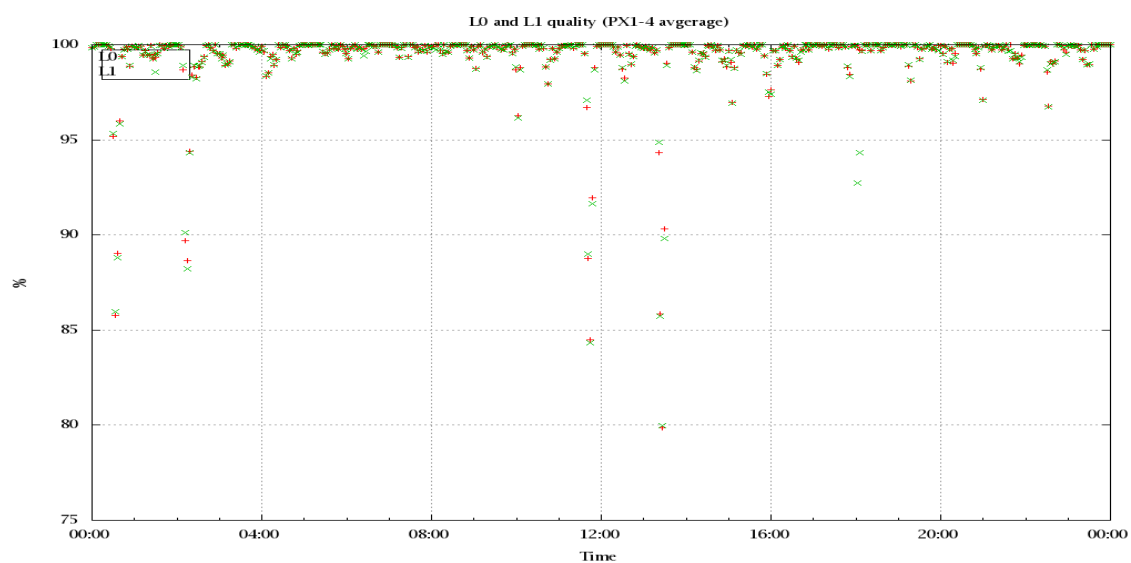


Figure 3: Level 0 and 1C overall quality

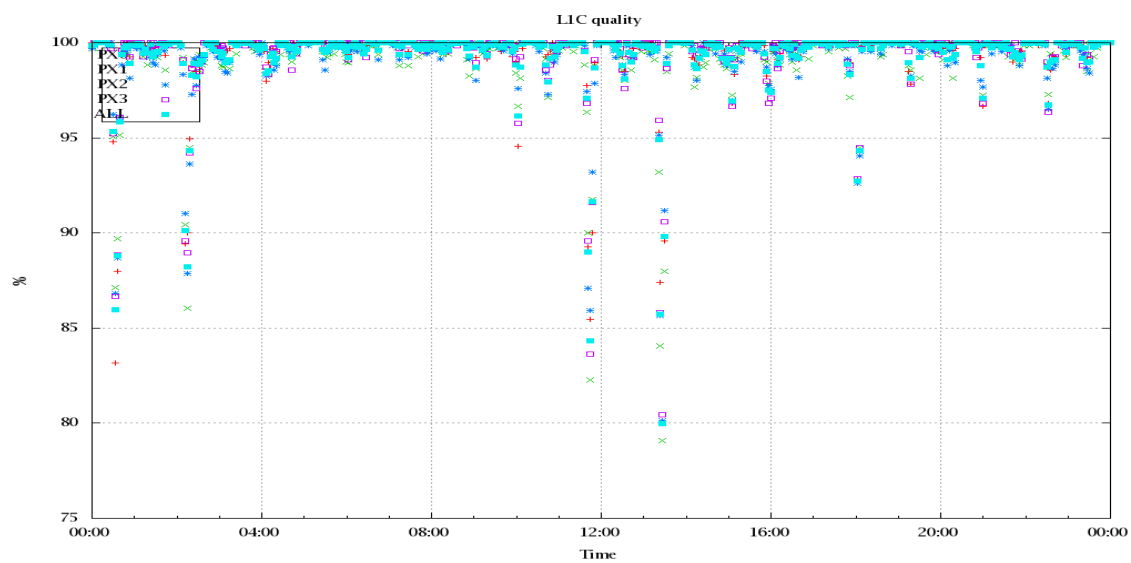


Figure 4: Level 1C quality

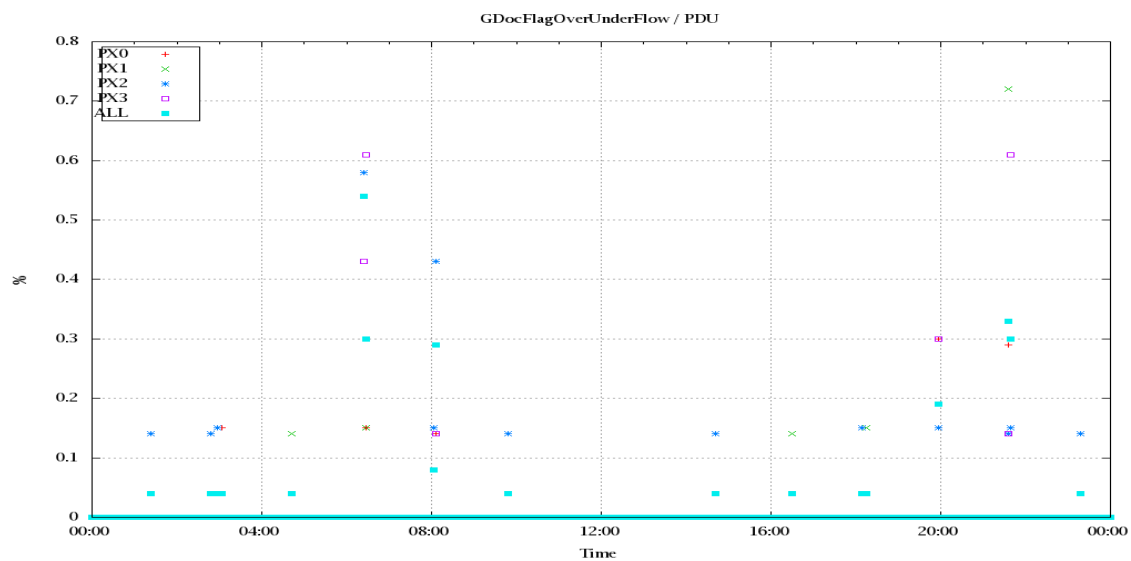


Figure 5: OverUnderFlowFlag timeseries

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.

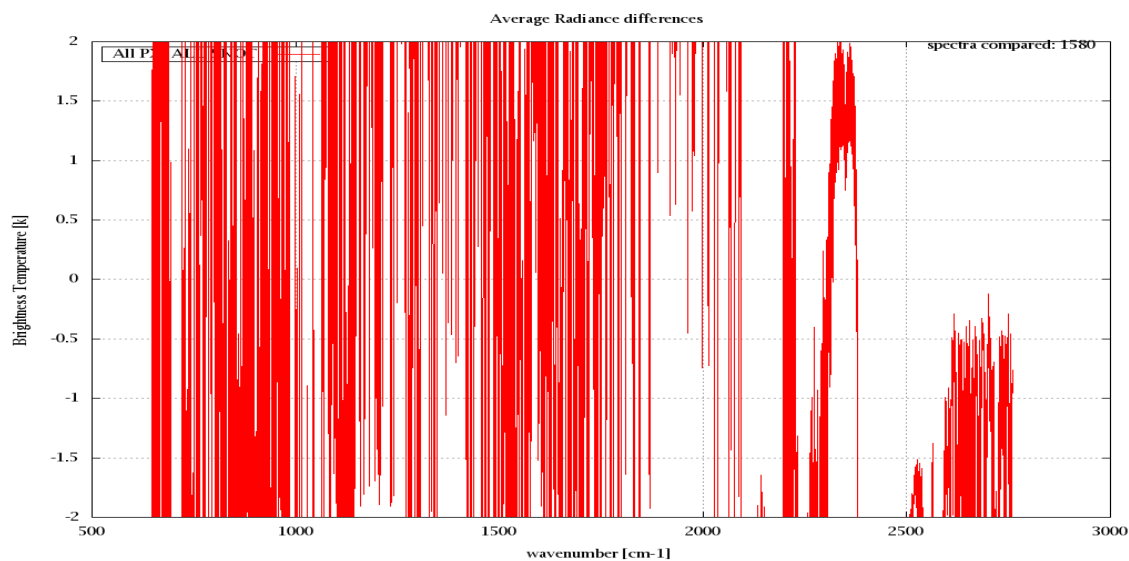


Figure 6: Average Radiance differences: OBS-CAL

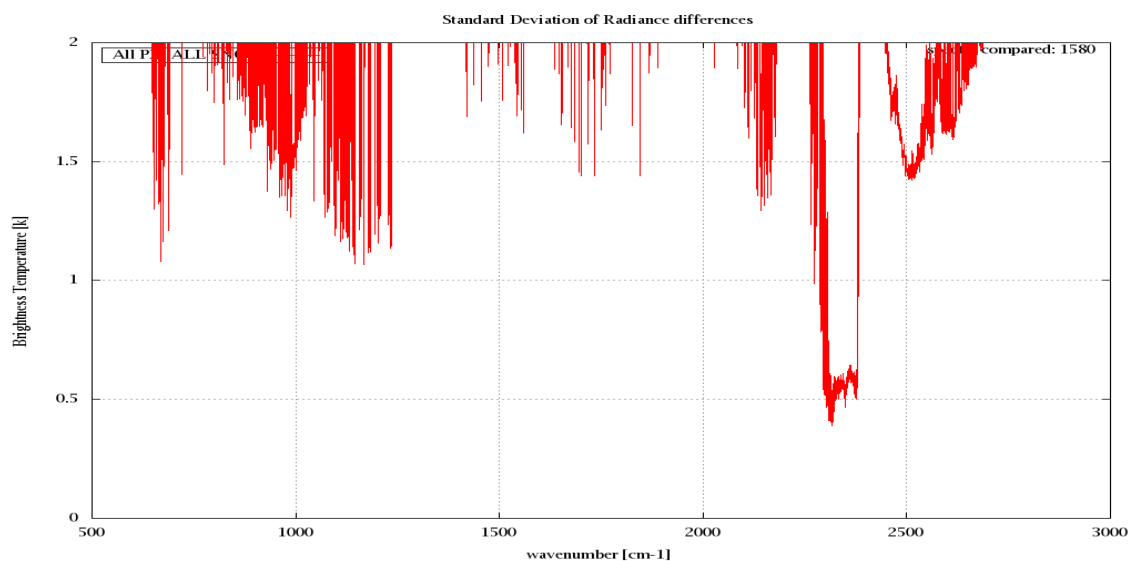


Figure 7: Standard Deviation of Radiance differences

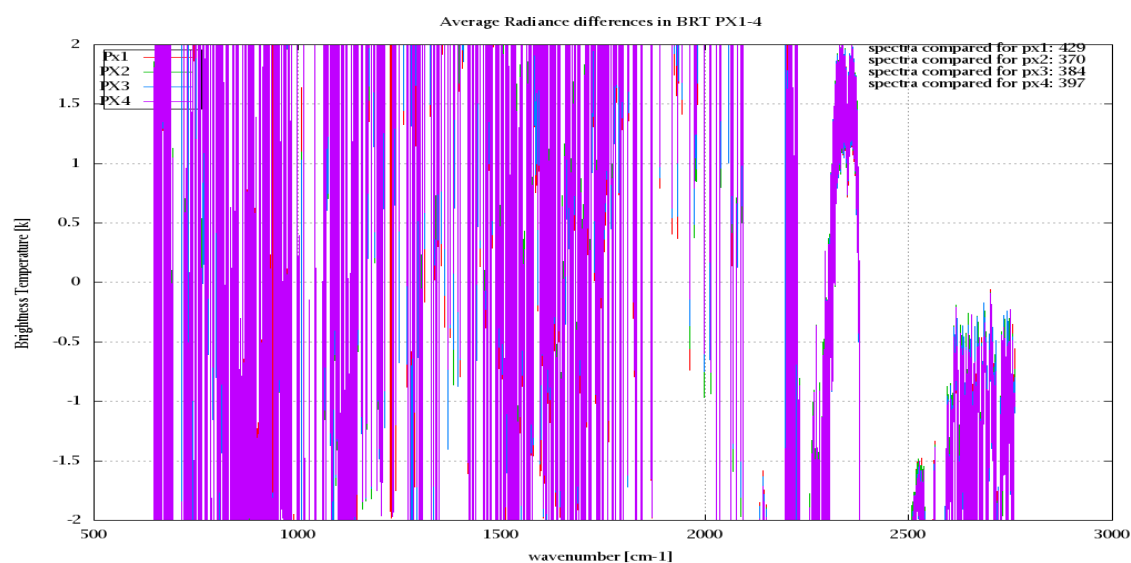


Figure 8: Average Radiance differences: OBS-CAL

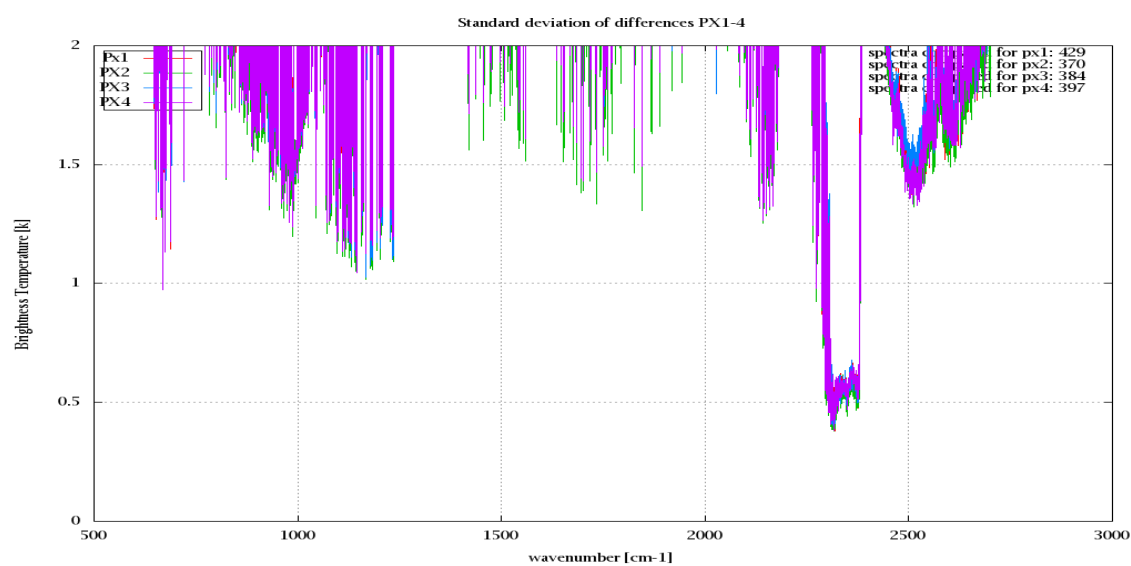


Figure 9: Standard Deviation of Radiance differences

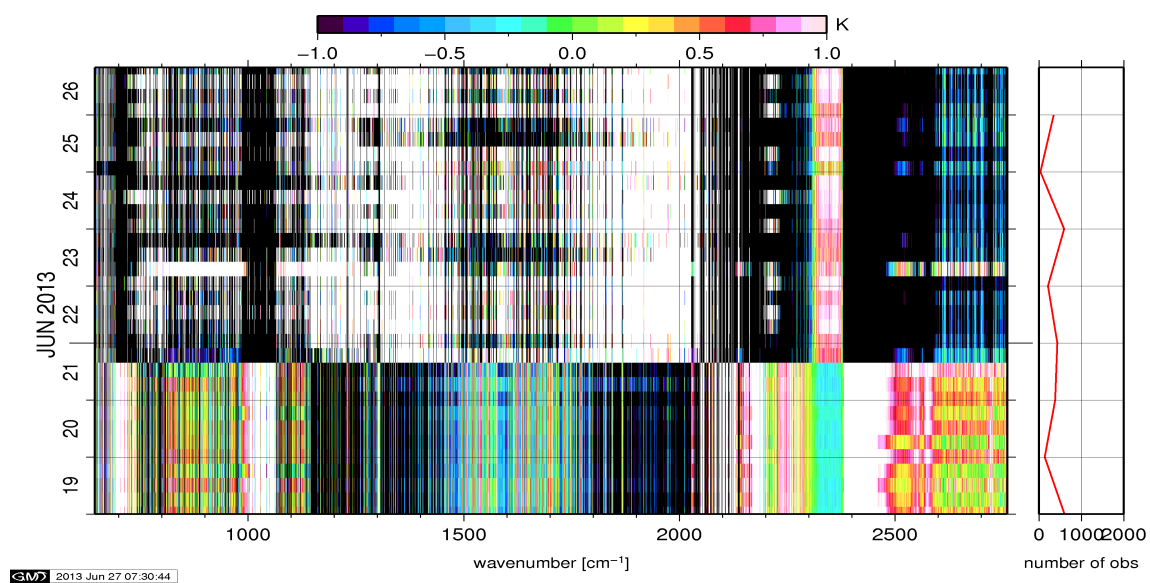


Figure 10: Radiance Anomaly in BRT: All Channels

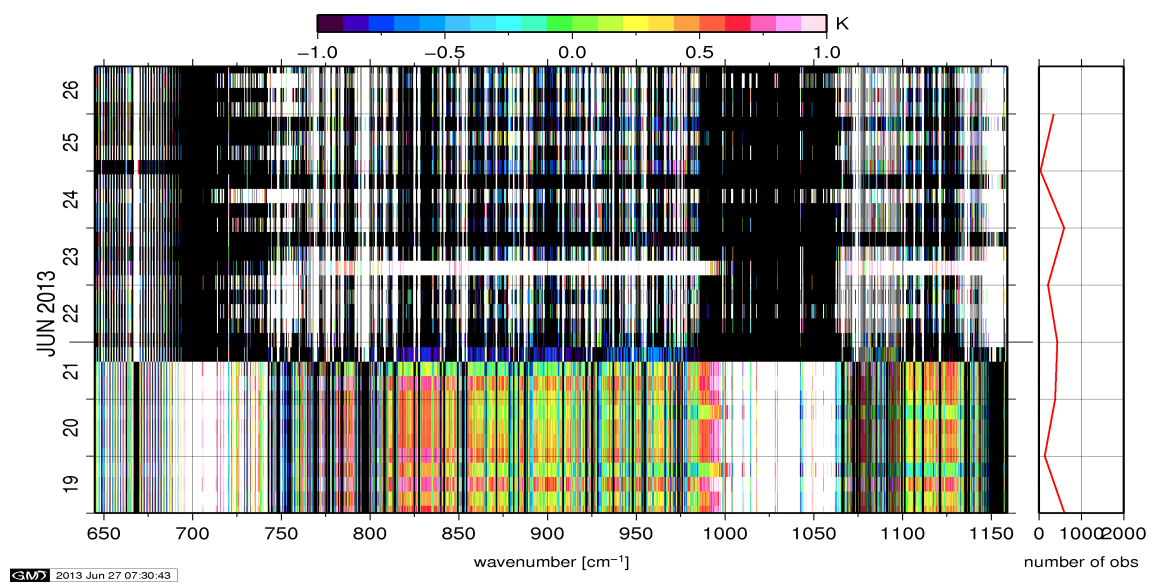


Figure 11: Radiance Anomaly in BRT: IASI Band 1

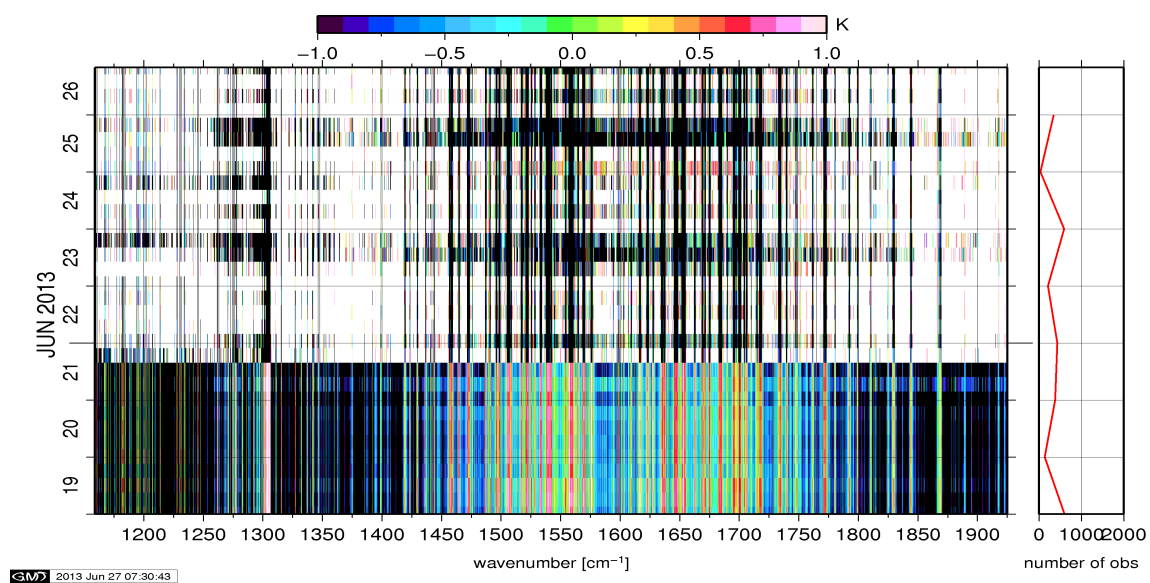


Figure 12: Radiance Anomaly in BRT: IASI Band 2

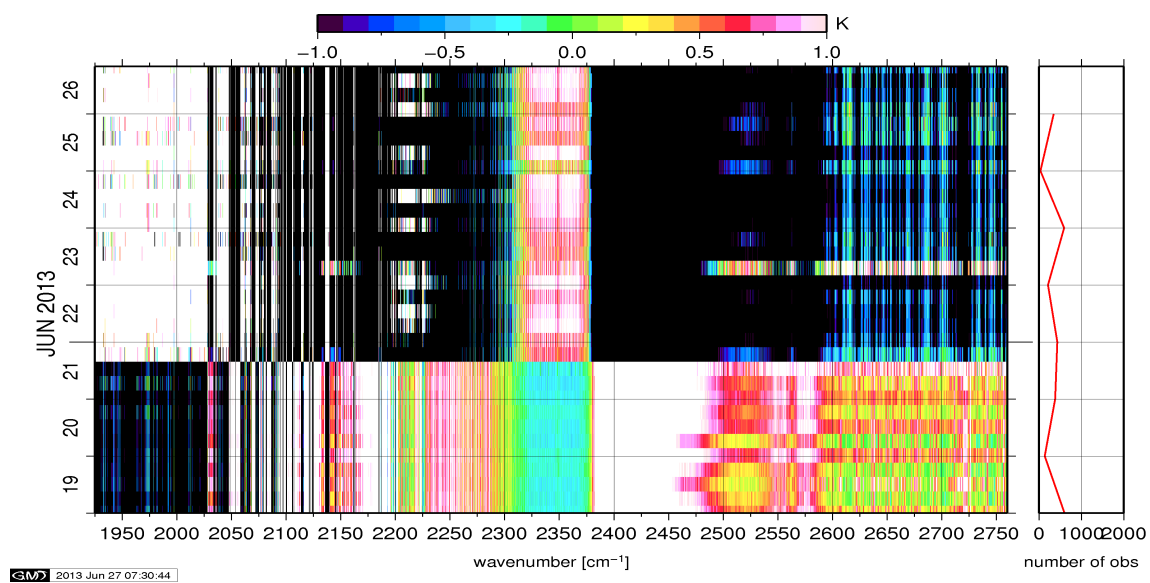


Figure 13: Radiance Anomaly in BRT: IASI Band 3

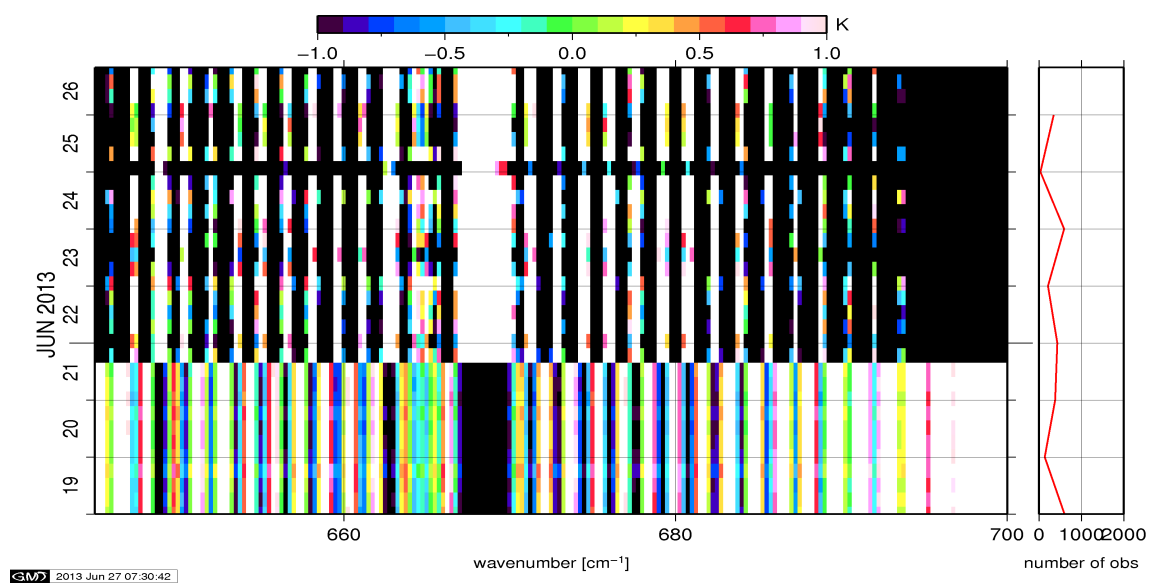


Figure 14: Radiance Anomaly in BRT: CO2 14

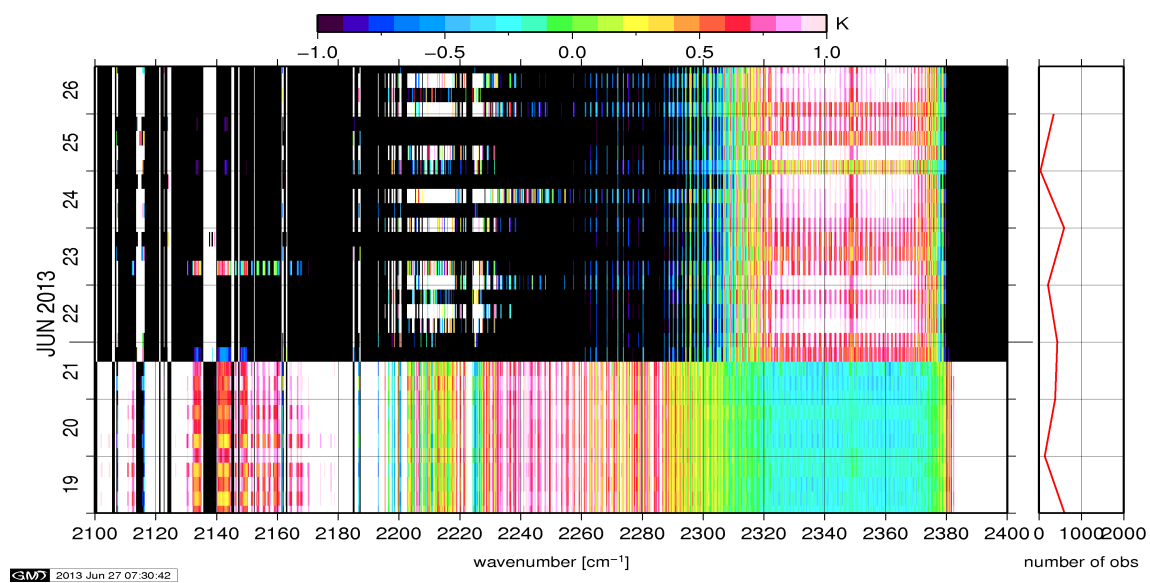


Figure 15: Radiance Anomaly in BRT: CO2 4.3

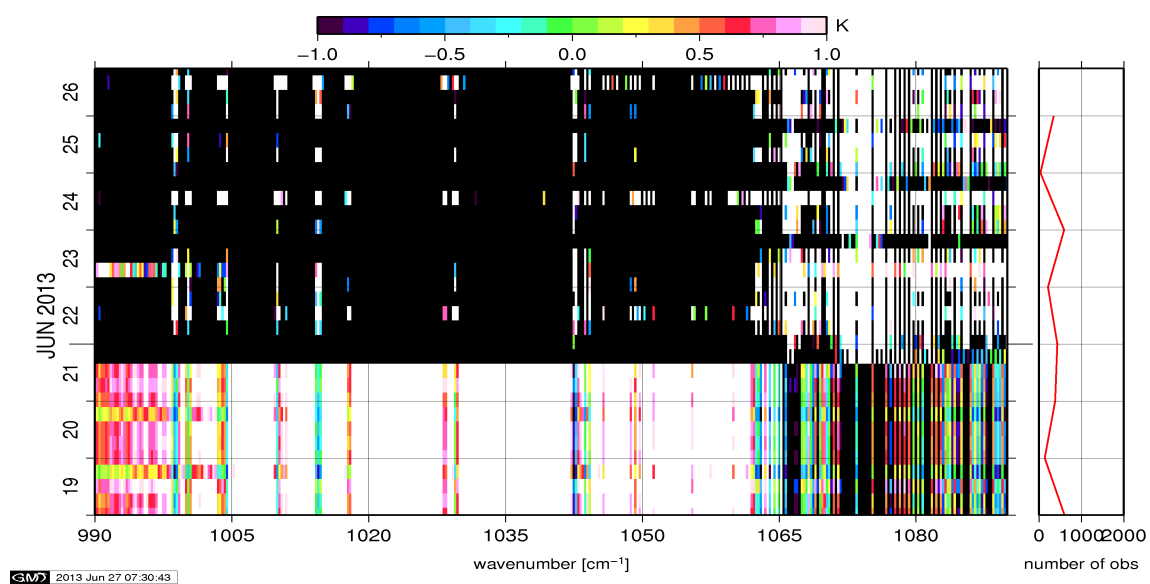


Figure 16: Radiance Anomaly in BRT: O3

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.

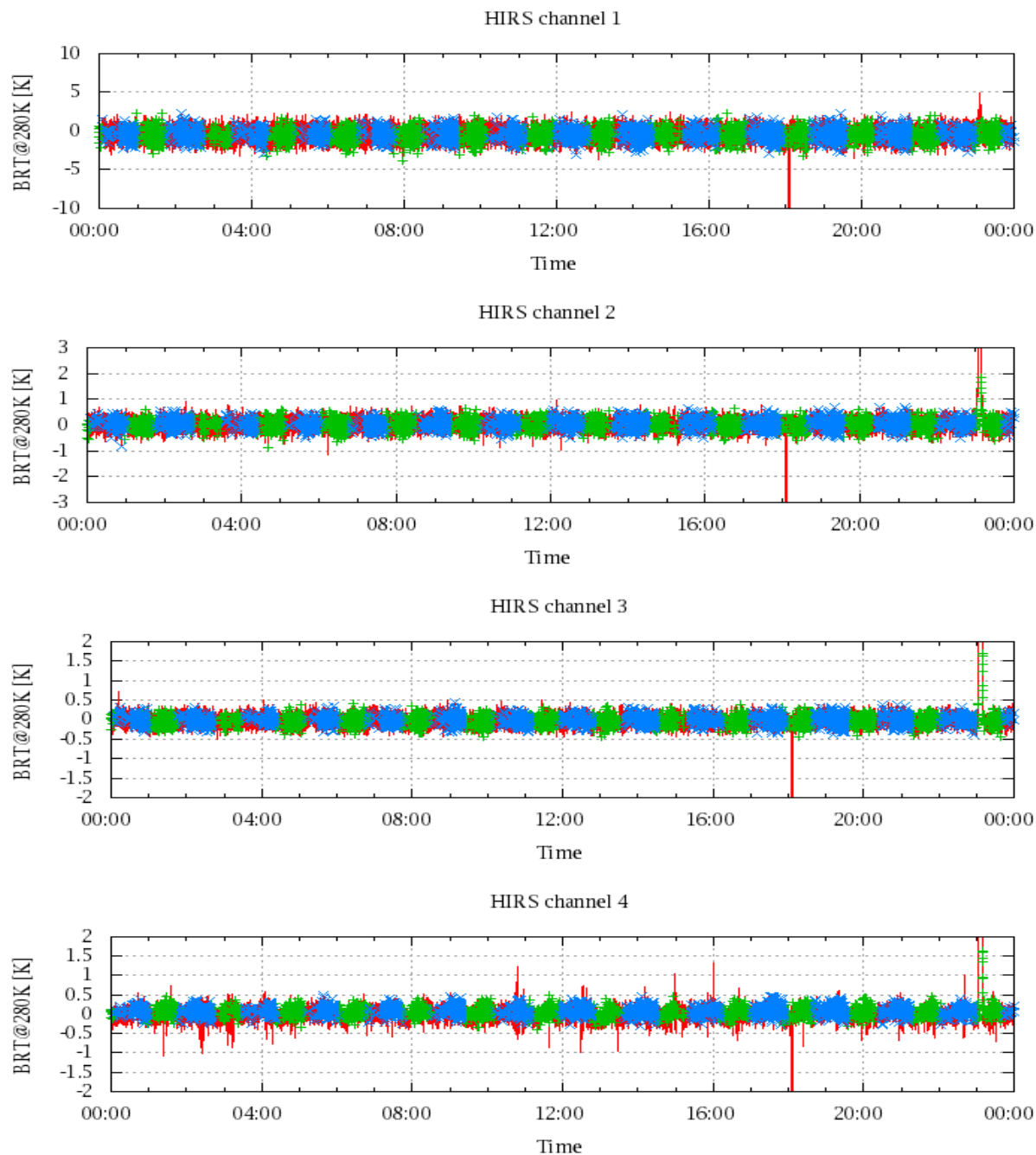


Figure 17: Radiance Differences in BRT

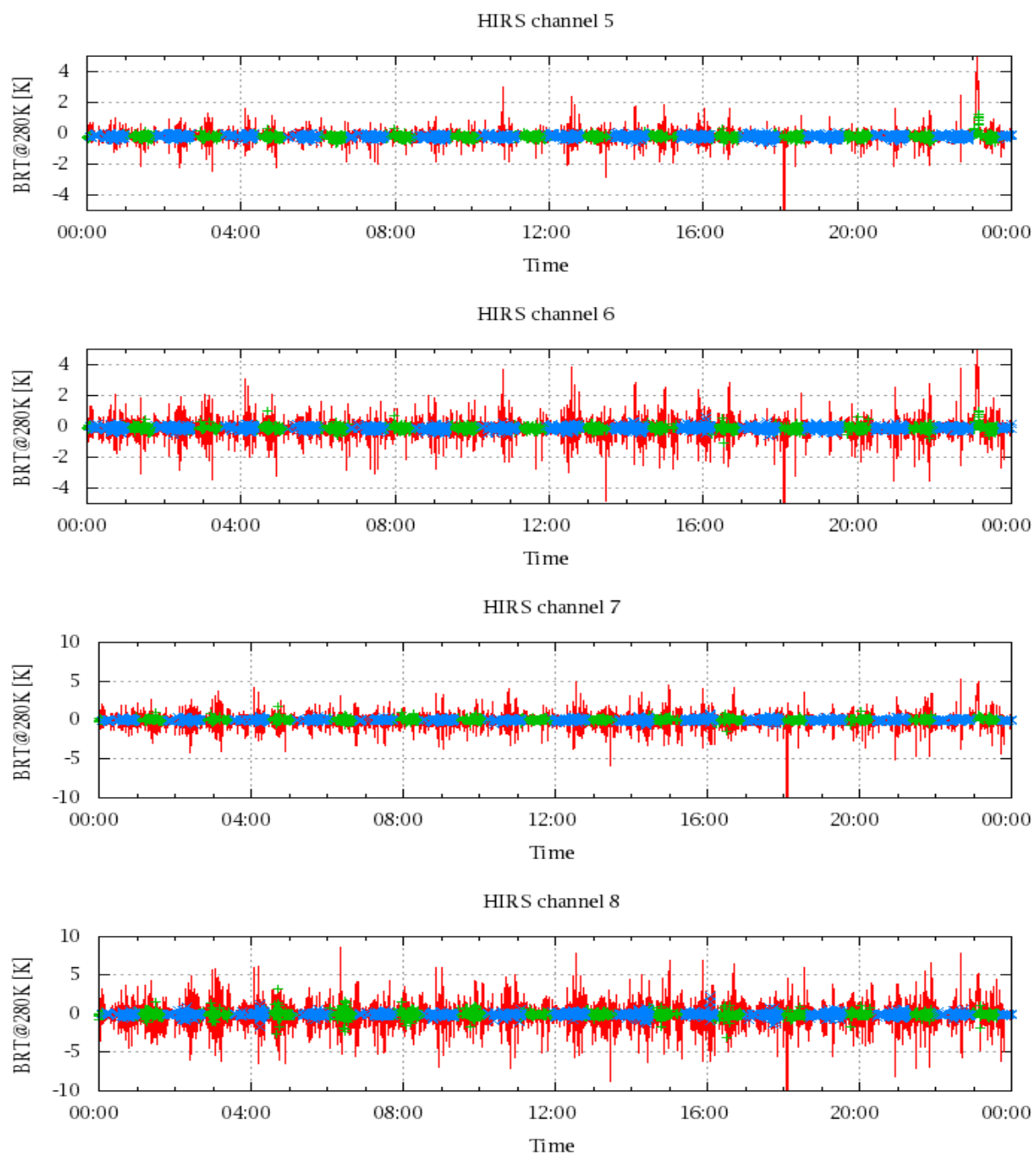


Figure 18: Radiance Differences in BRT

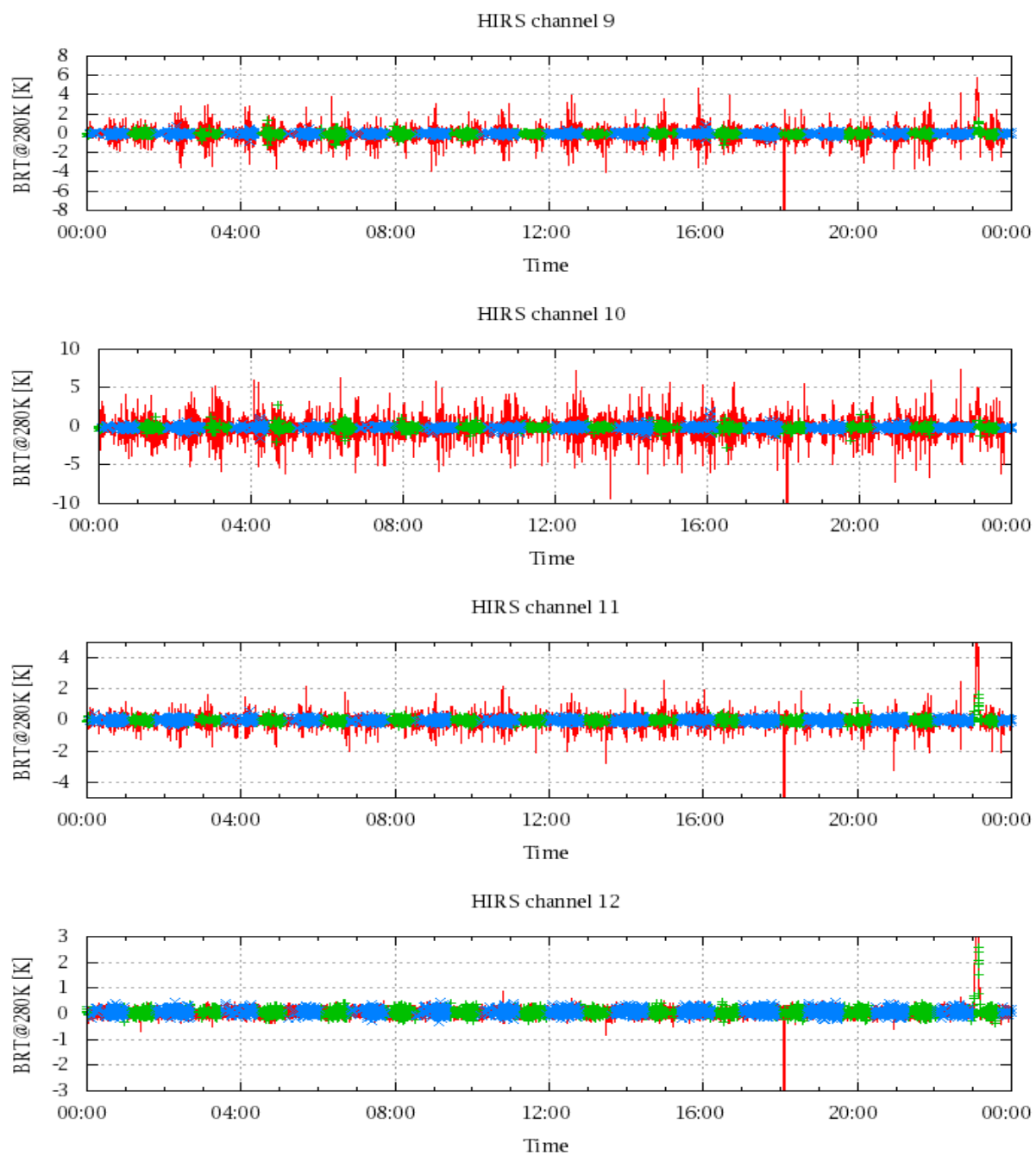


Figure 19: Radiance Differences in BRT

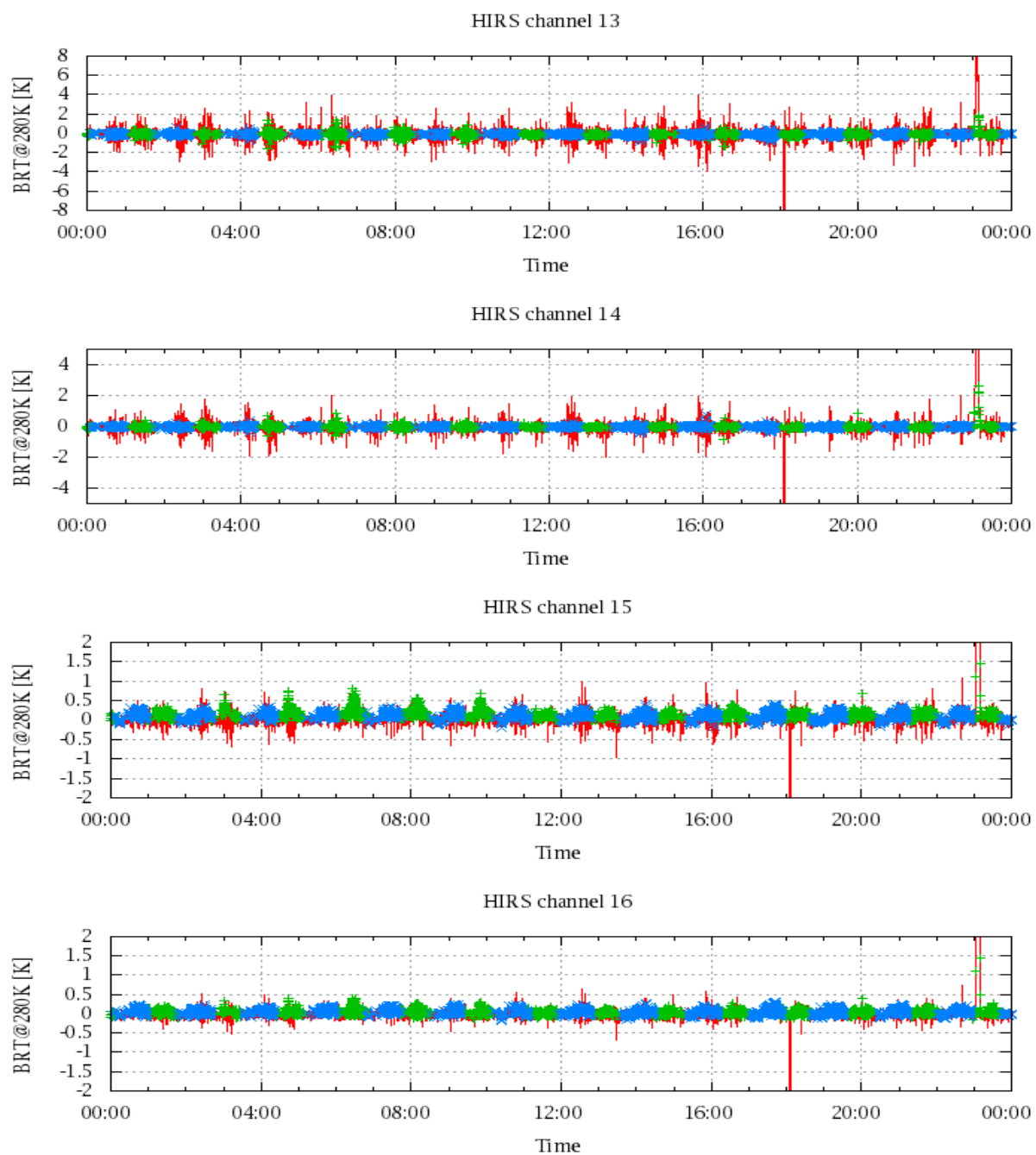


Figure 20: Radiance Differences in BRT

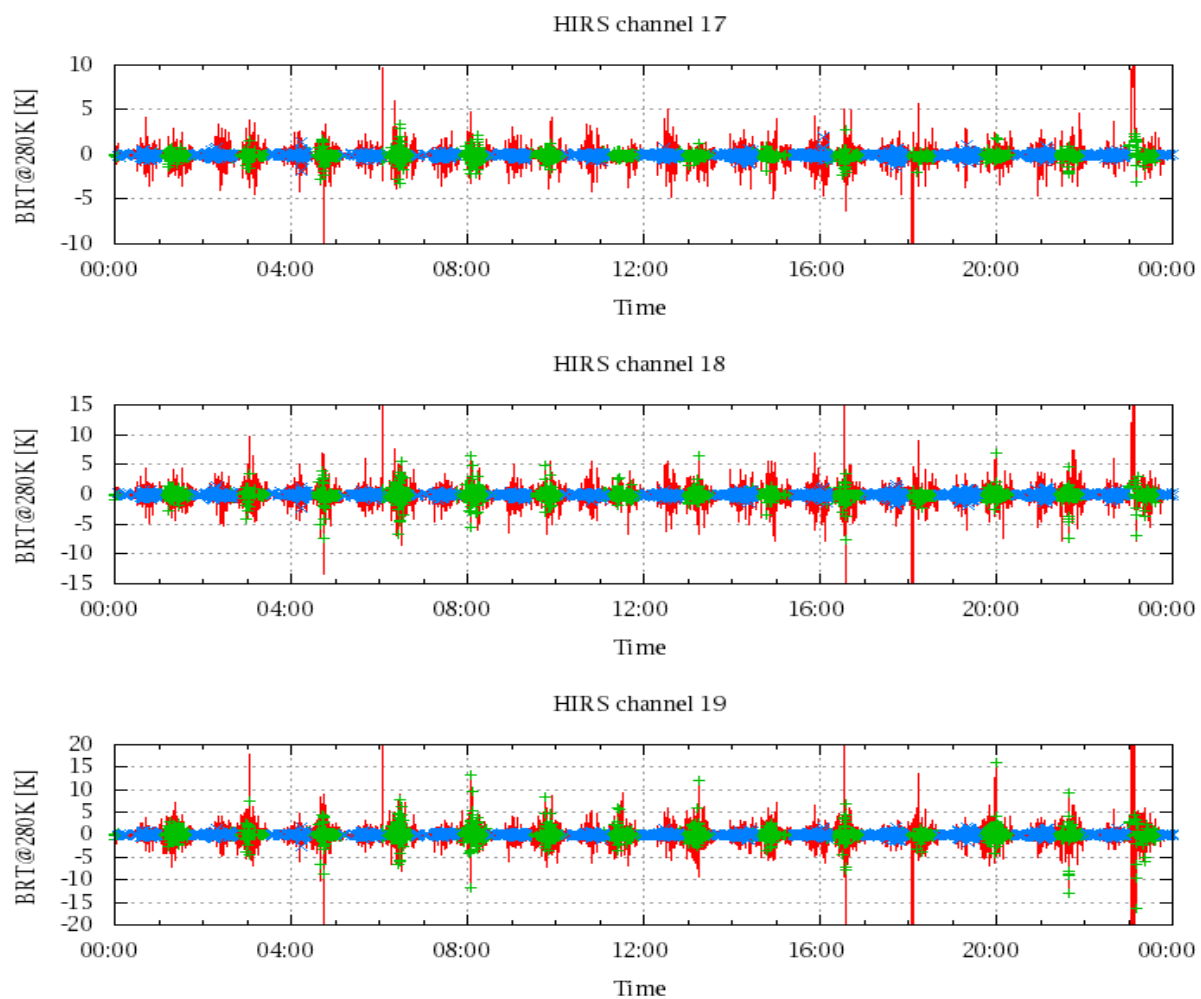


Figure 21: Radinace Differences in BRT