

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

26/05/2016 00:00:00 - 27/05/2016 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 26/05/2016 00:00:00 - 27/05/2016 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 26/05/2016 00:00:00 - 27/05/2016 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	478	-
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)	12632	12648	20160526091050.539	20160526091055.512
PX1 (130)	12648	12652	20160526091055.512	20160526091056.375
PX1 (130)	12652	12674	20160526091056.375	20160526091102.645
PX1 (130)	12677	12680	20160526091103.297	20160526091103.941
PX1 (130)	12681	12684	20160526091104.160	20160526091104.809
PX1 (130)	12684	12686	20160526091104.809	20160526091105.242
PX1 (130)	12688	12691	20160526091105.672	20160526091106.324
PX1 (130)	12693	12696	20160526091108.266	20160526091108.918
PX1 (130)	12702	12705	20160526091110.215	20160526091110.863
PX1 (130)	12705	12707	20160526091110.863	20160526091111.293
PX1 (130)	12707	12709	20160526091111.293	20160526091111.727
PX1 (130)	12709	12712	20160526091111.727	20160526091112.375
PX1 (130)	12786	12788	20160526091132.914	20160526091133.348
PX1 (130)	12790	12792	20160526091133.781	20160526091134.211
PX1 (130)	12808	12810	20160526091137.672	20160526091138.105
PX1 (130)	12815	12817	20160526091140.699	20160526091141.133
PX1 (130)	12817	12820	20160526091141.133	20160526091141.781
PX1 (130)	12821	12824	20160526091141.996	20160526091142.644

Continued on next page

Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	12829	12833	20160526091143.727	20160526091144.590
PX2 (135)	12632	12674	20160526091050.539	20160526091102.645
PX2 (135)	12675	12680	20160526091102.863	20160526091103.941
PX2 (135)	12687	12692	20160526091105.457	20160526091106.539
PX2 (135)	12693	12696	20160526091108.266	20160526091108.918
PX2 (135)	12702	12705	20160526091110.215	20160526091110.863
PX2 (135)	12705	12707	20160526091110.863	20160526091111.293
PX2 (135)	12707	12709	20160526091111.293	20160526091111.727
PX2 (135)	12709	12711	20160526091111.727	20160526091112.160
PX2 (135)	12790	12792	20160526091133.781	20160526091134.211
PX2 (135)	12797	12799	20160526091135.293	20160526091135.727
PX2 (135)	12808	12810	20160526091137.672	20160526091138.105
PX2 (135)	12815	12817	20160526091140.699	20160526091141.133
PX2 (135)	12817	12819	20160526091141.133	20160526091141.562
PX2 (135)	12826	12828	20160526091143.082	20160526091143.512
PX2 (135)	12829	12832	20160526091143.727	20160526091144.375
PX3 (140)	12632	12661	20160526091050.539	20160526091058.320
PX3 (140)	12661	12673	20160526091058.320	20160526091102.430
PX3 (140)	12675	12678	20160526091102.863	20160526091103.512
PX3 (140)	12687	12692	20160526091105.457	20160526091106.539
PX3 (140)	12692	12696	20160526091106.539	20160526091108.918
PX3 (140)	12703	12706	20160526091110.430	20160526091111.082
PX3 (140)	12707	12709	20160526091111.293	20160526091111.727
PX3 (140)	12709	12711	20160526091111.727	20160526091112.160
PX3 (140)	12790	12792	20160526091133.781	20160526091134.211
PX3 (140)	12797	12799	20160526091135.293	20160526091135.727
PX3 (140)	12808	12810	20160526091137.672	20160526091138.105
PX3 (140)	12814	12817	20160526091140.484	20160526091141.133
PX3 (140)	12817	12819	20160526091141.133	20160526091141.562
PX3 (140)	12825	12829	20160526091142.863	20160526091143.727
PX3 (140)	12829	12832	20160526091143.727	20160526091144.375
PX4 (145)	12632	12655	20160526091050.539	20160526091057.024
PX4 (145)	12655	12673	20160526091057.024	20160526091102.430
PX4 (145)	12675	12677	20160526091102.863	20160526091103.297
PX4 (145)	12685	12692	20160526091105.023	20160526091106.539
PX4 (145)	12692	12694	20160526091106.539	20160526091108.484
PX4 (145)	12696	12698	20160526091108.918	20160526091109.348
PX4 (145)	12703	12706	20160526091110.430	20160526091111.082
PX4 (145)	12707	12709	20160526091111.293	20160526091111.727
PX4 (145)	12709	12711	20160526091111.727	20160526091112.160
PX4 (145)	12797	12799	20160526091135.293	20160526091135.727
PX4 (145)	12808	12810	20160526091137.672	20160526091138.105
PX4 (145)	12814	12817	20160526091140.484	20160526091141.133
PX4 (145)	12817	12819	20160526091141.133	20160526091141.562
PX4 (145)	12820	12822	20160526091141.781	20160526091142.215
PX4 (145)	12823	12829	20160526091142.430	20160526091143.727
PX4 (145)	12830	12832	20160526091143.941	20160526091144.375
IMG (150)	4672	4721	20160526091050.539	20160526091102.430
IMG (150)	4721	4723	20160526091102.430	20160526091102.863
IMG (150)	4724	4727	20160526091103.078	20160526091103.727
IMG (150)	4728	4731	20160526091103.941	20160526091104.594
IMG (150)	4731	4733	20160526091104.594	20160526091105.023
IMG (150)	4733	4738	20160526091105.023	20160526091106.106
Continued on next page				

Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	4740	4742	20160526091106.539	20160526091107.188
IMG (150)	4744	4746	20160526091107.836	20160526091108.484
IMG (150)	4748	4750	20160526091108.918	20160526091109.348
IMG (150)	4753	4761	20160526091109.996	20160526091111.727
IMG (150)	4761	4763	20160526091111.727	20160526091112.160
IMG (150)	4843	4847	20160526091130.969	20160526091132.270
IMG (150)	4847	4849	20160526091132.270	20160526091132.699
IMG (150)	4849	4851	20160526091132.699	20160526091133.133
IMG (150)	4872	4874	20160526091137.672	20160526091138.105
IMG (150)	4877	4882	20160526091138.969	20160526091140.484
IMG (150)	4882	4885	20160526091140.484	20160526091141.133
IMG (150)	4885	4887	20160526091141.133	20160526091141.562
IMG (150)	4888	4891	20160526091141.781	20160526091142.430
IMG (150)	4891	4897	20160526091142.430	20160526091143.727
IMG (150)	4897	4901	20160526091143.727	20160526091144.590
VER (160)	14647	14658	20160526091050.539	20160526091106.539
VER (160)	14658	14661	20160526091106.539	20160526091114.539
VER (160)	14670	14672	20160526091122.539	20160526091130.539
VER (160)	14676	14680	20160526091138.535	20160526091138.535
AUX (180)	6201	6205	20160526091042.973	20160526091114.973

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
26/05/2016 00:00:02	-	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	478	-
GQisFlagQual set (PX1)	99.46 %	-
GQisFlagQual set (PX2)	99.41 %	-
GQisFlagQual set (PX3)	99.44 %	-
GQisFlagQual set (PX4)	99.45 %	-
GQisFlagQual set (all)	99.44 %	-

Table 4: Quality flags

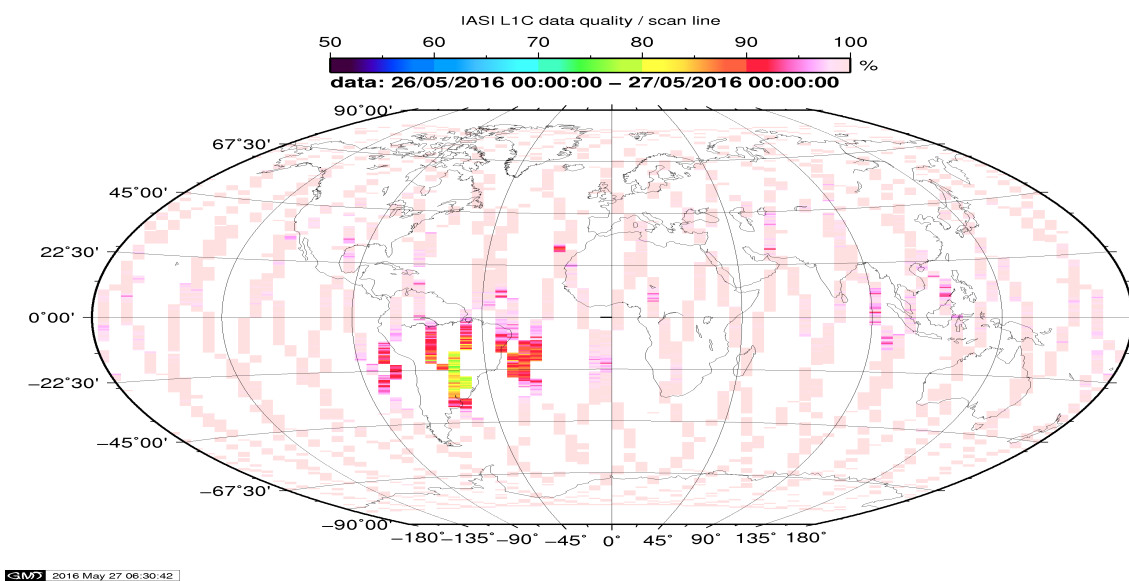


Figure 1: L1C data quality

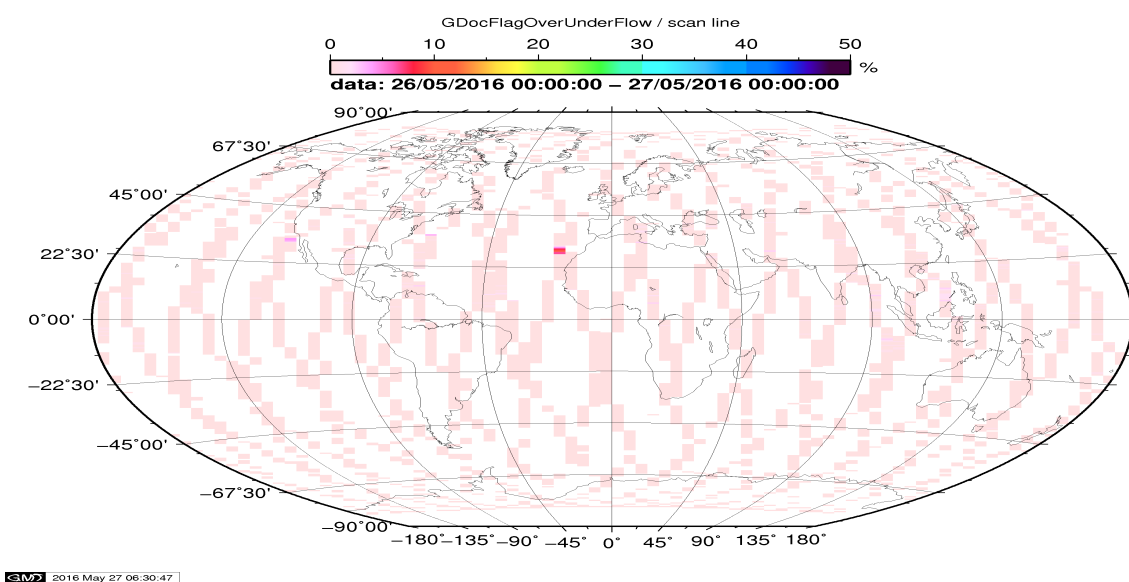


Figure 2: Flag of Over and Under Flows

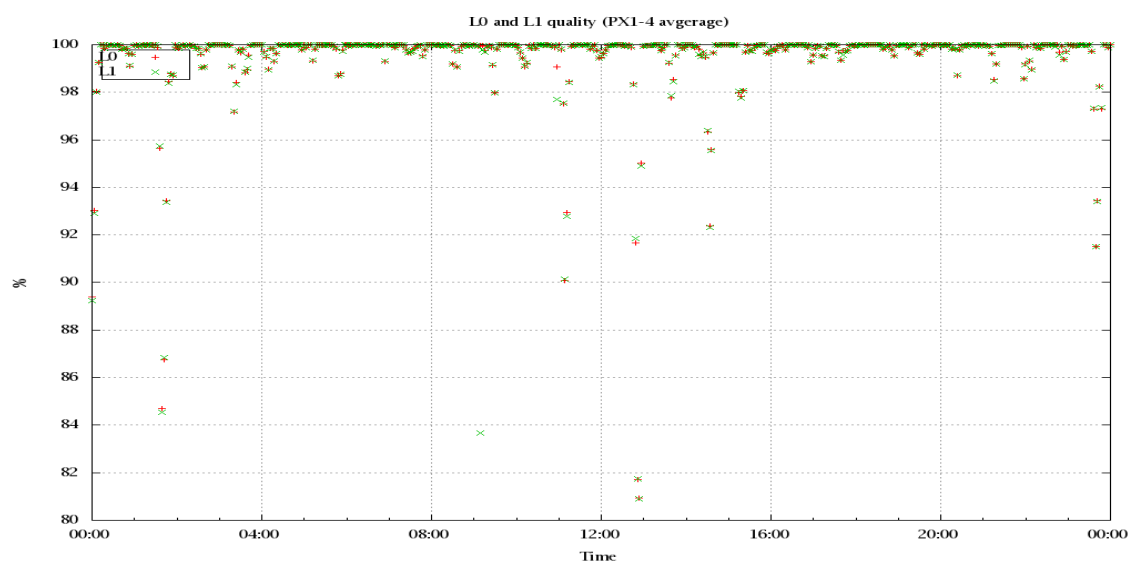


Figure 3: Level 0 and 1C overall quality

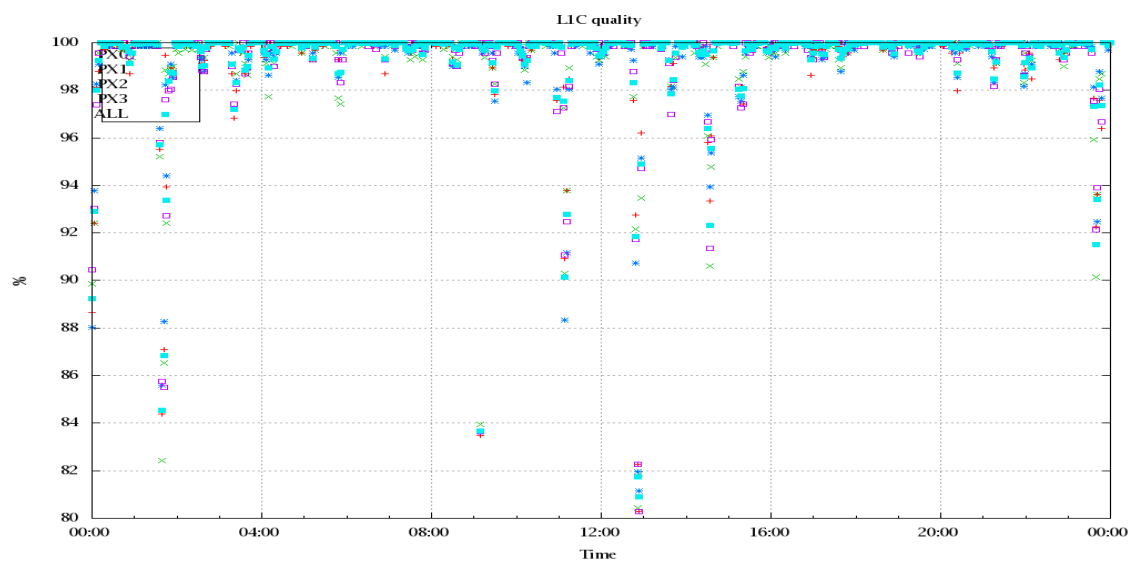


Figure 4: Level 1C quality

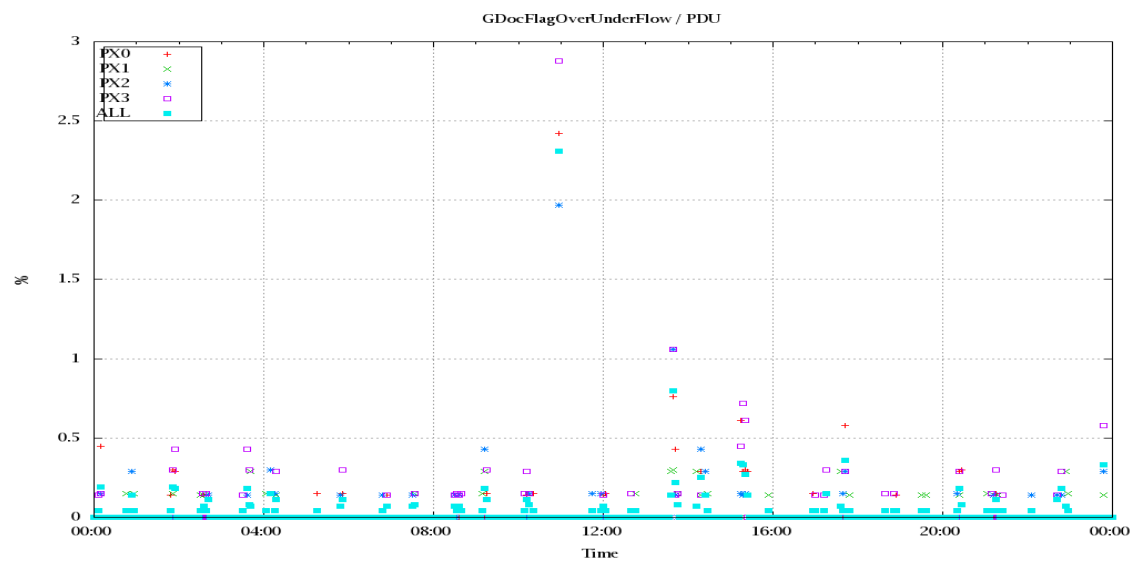


Figure 5: OverUnderFlowFlag timeseries

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.

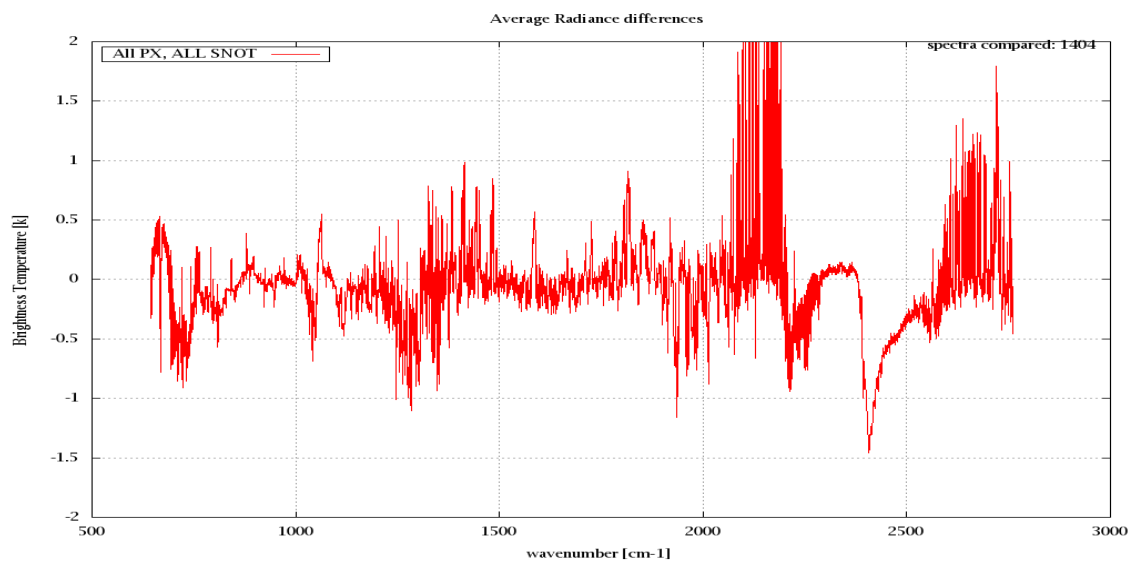


Figure 6: Average Radiance differences: OBS-CAL

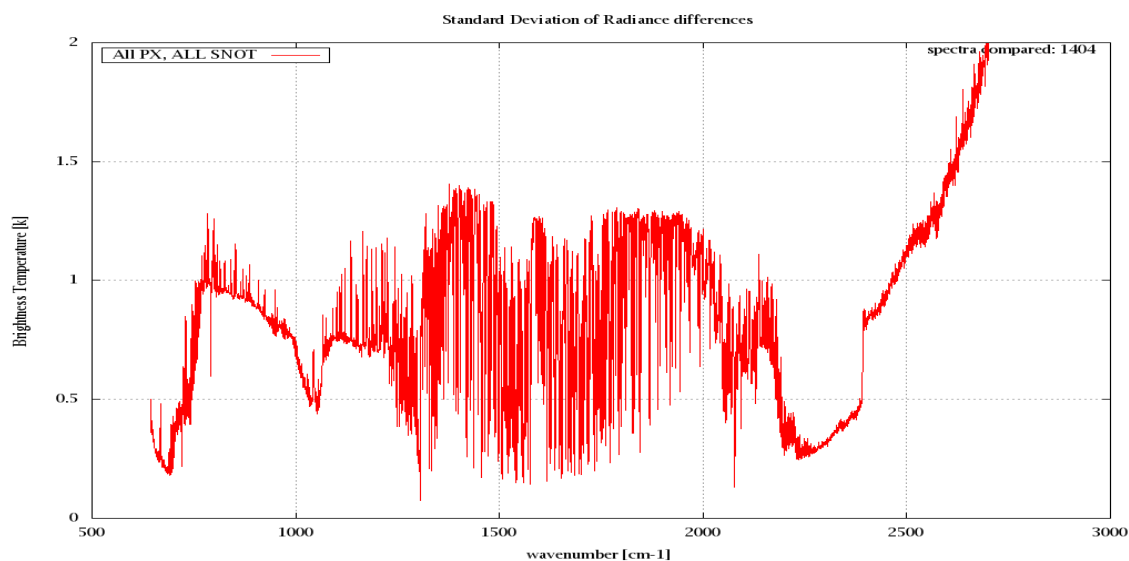


Figure 7: Standard Deviation of Radiance differences

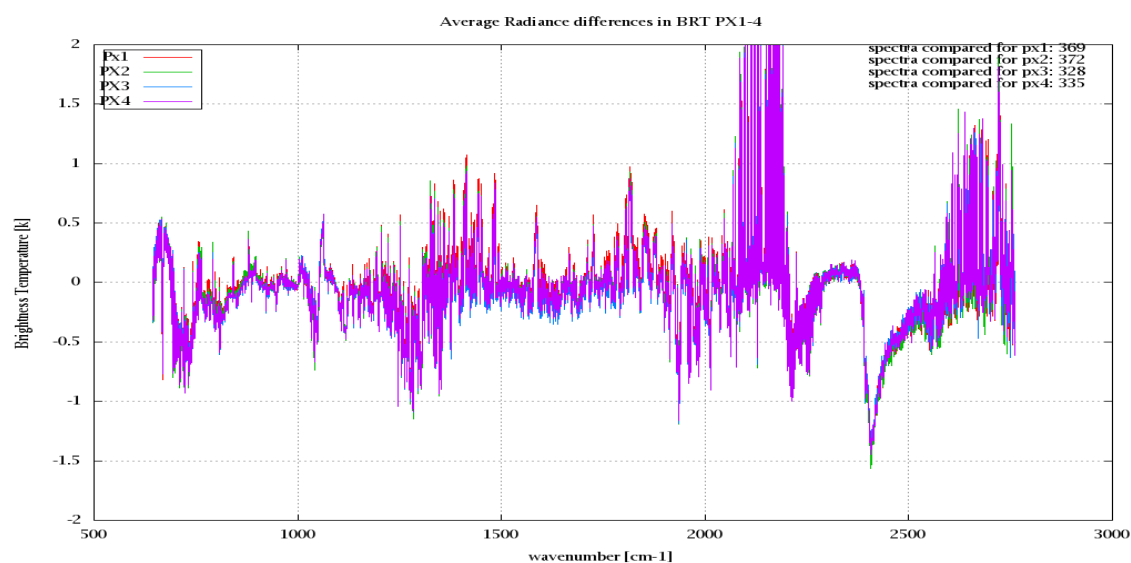


Figure 8: Average Radiance differences: OBS-CAL

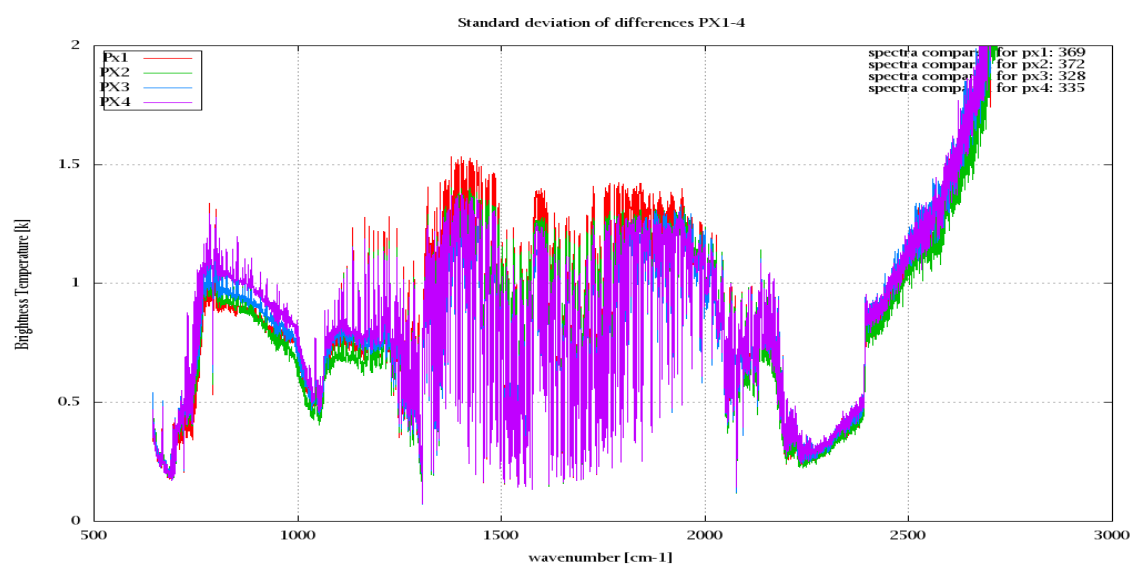


Figure 9: Standard Deviation of Radiance differences

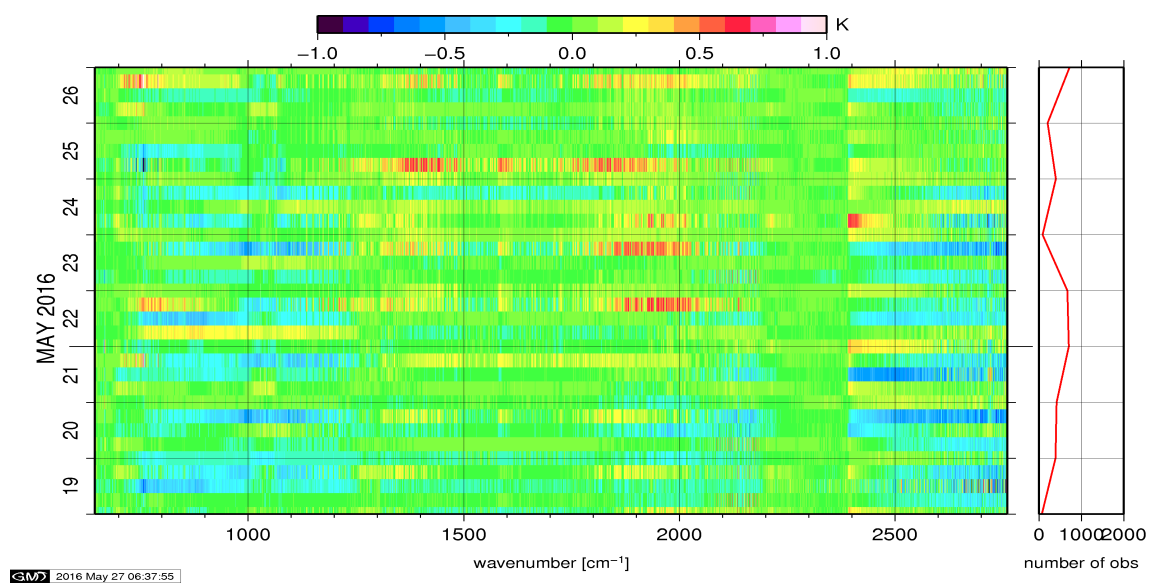


Figure 10: Radiance Anomaly in BRT: All Channels

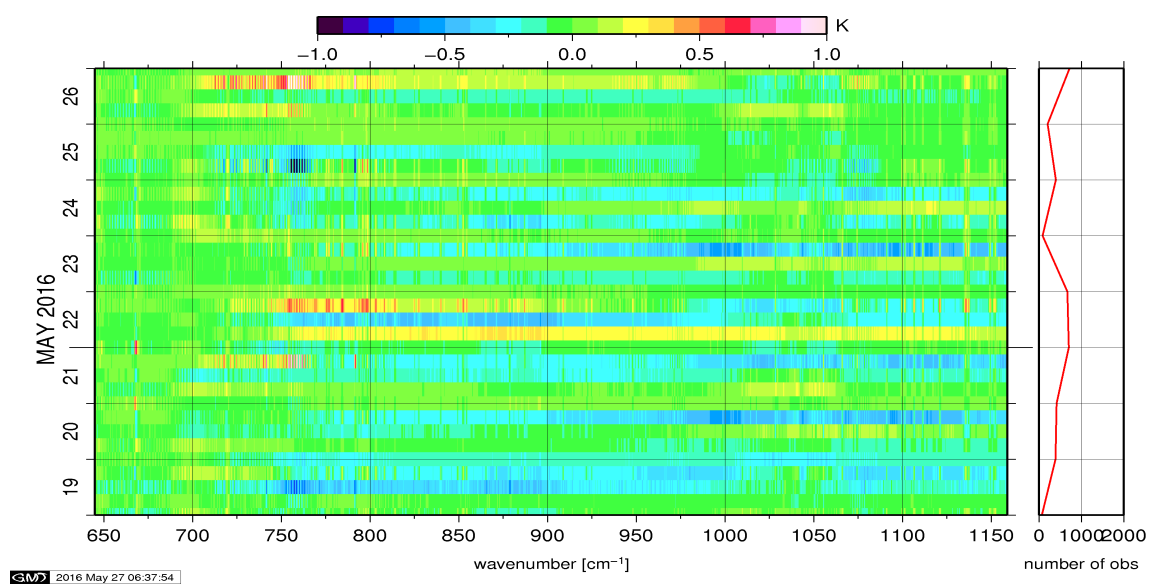


Figure 11: Radiance Anomaly in BRT: IASI Band 1

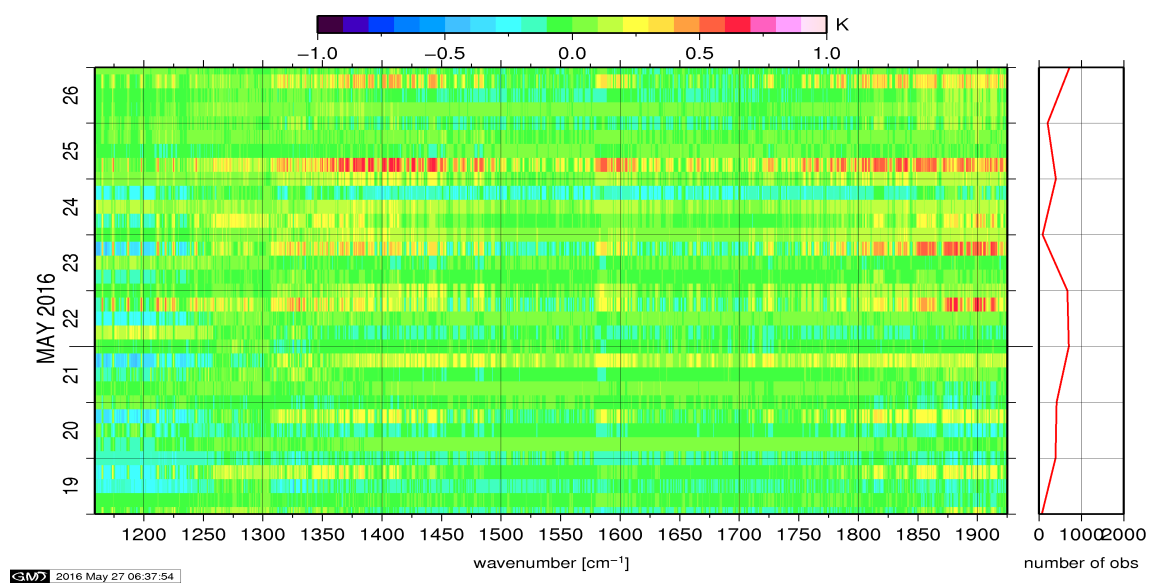


Figure 12: Radiance Anomaly in BRT: IASI Band 2

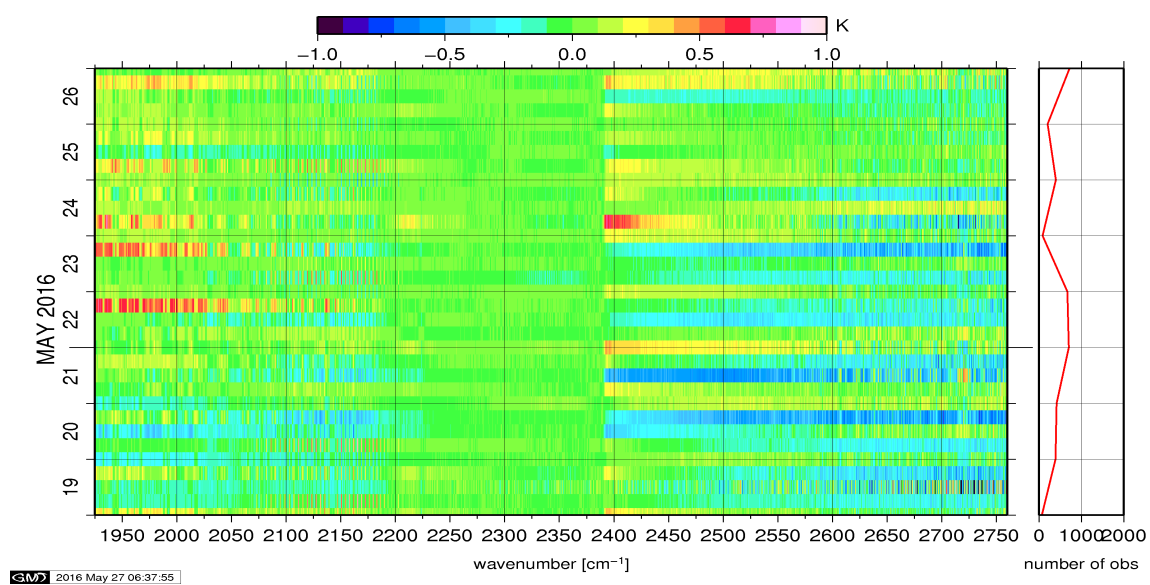


Figure 13: Radiance Anomaly in BRT: IASI Band 3

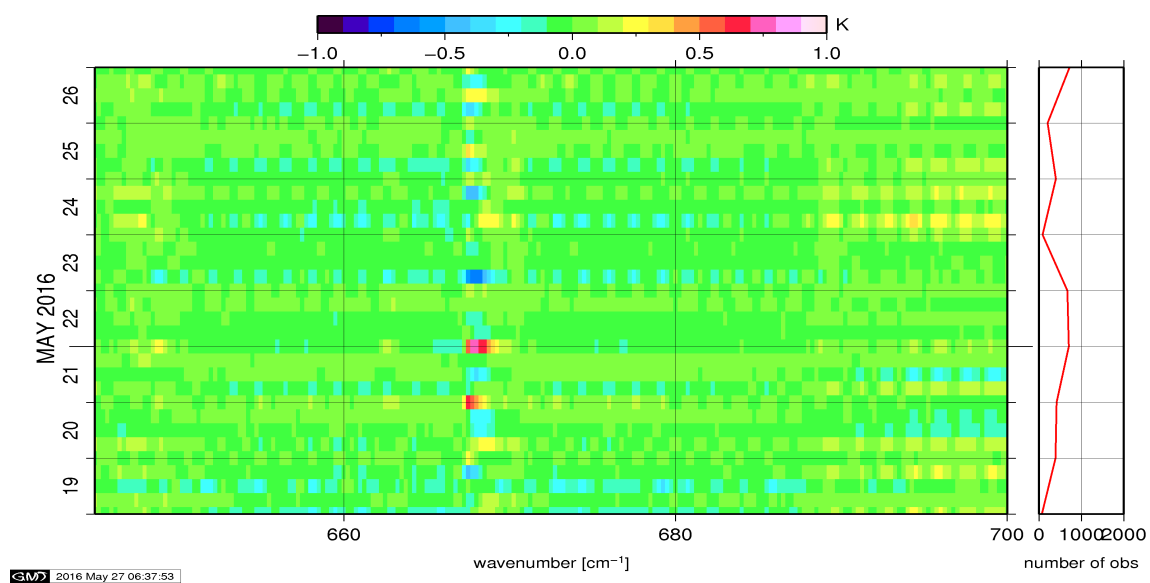


Figure 14: Radiance Anomaly in BRT: CO2 14

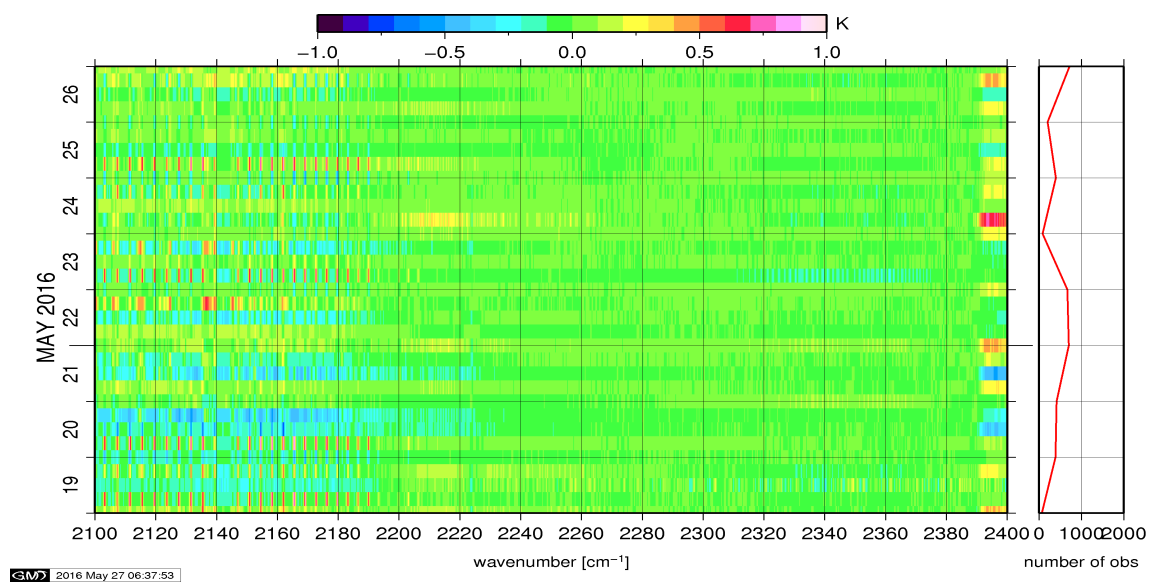


Figure 15: Radiance Anomaly in BRT: CO2 4.3

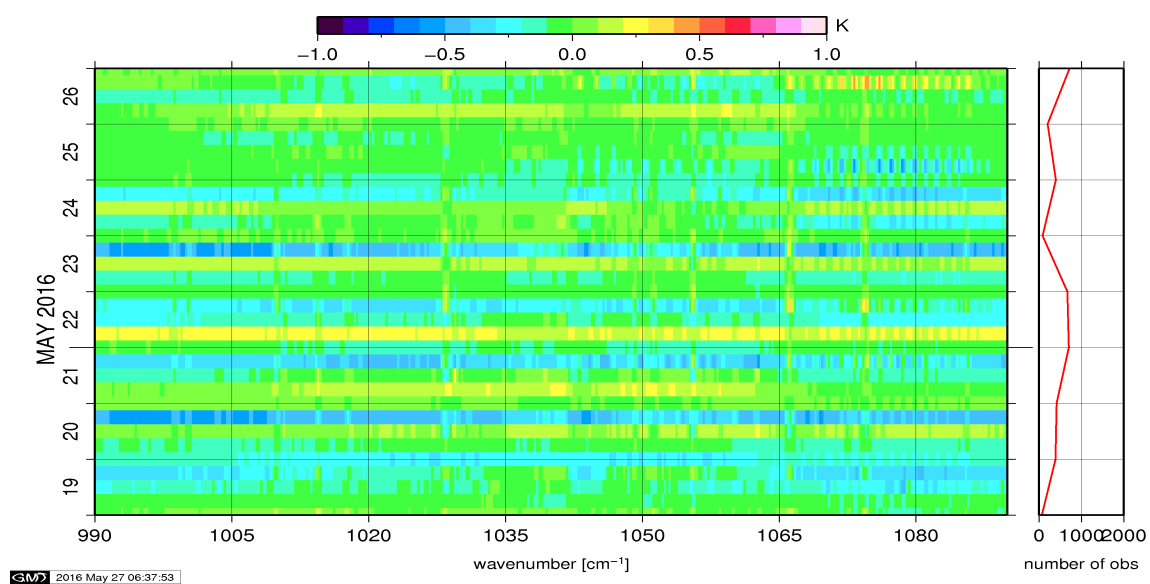


Figure 16: Radiance Anomaly in BRT: O3

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.

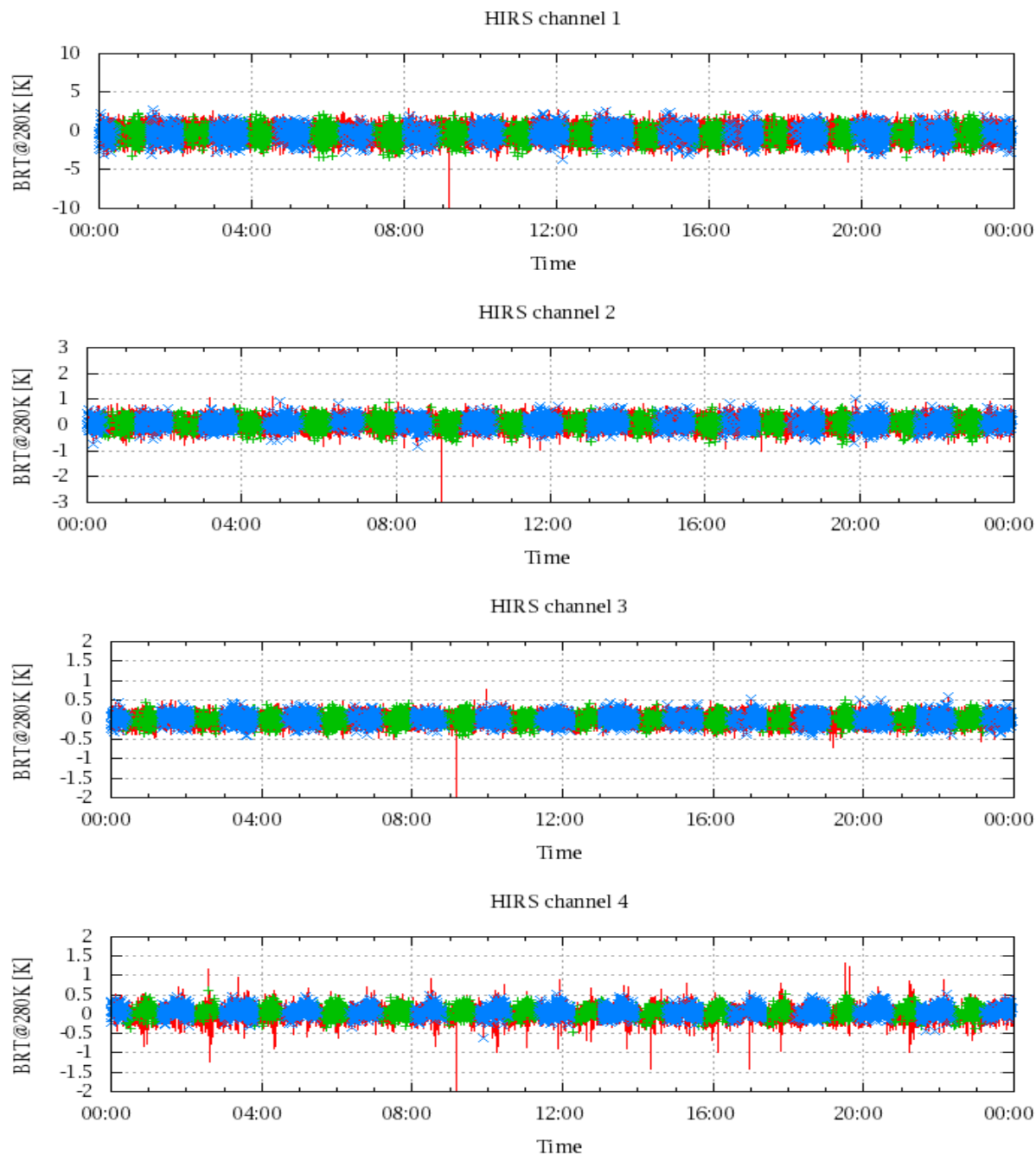


Figure 17: Radiance Differences in BRT

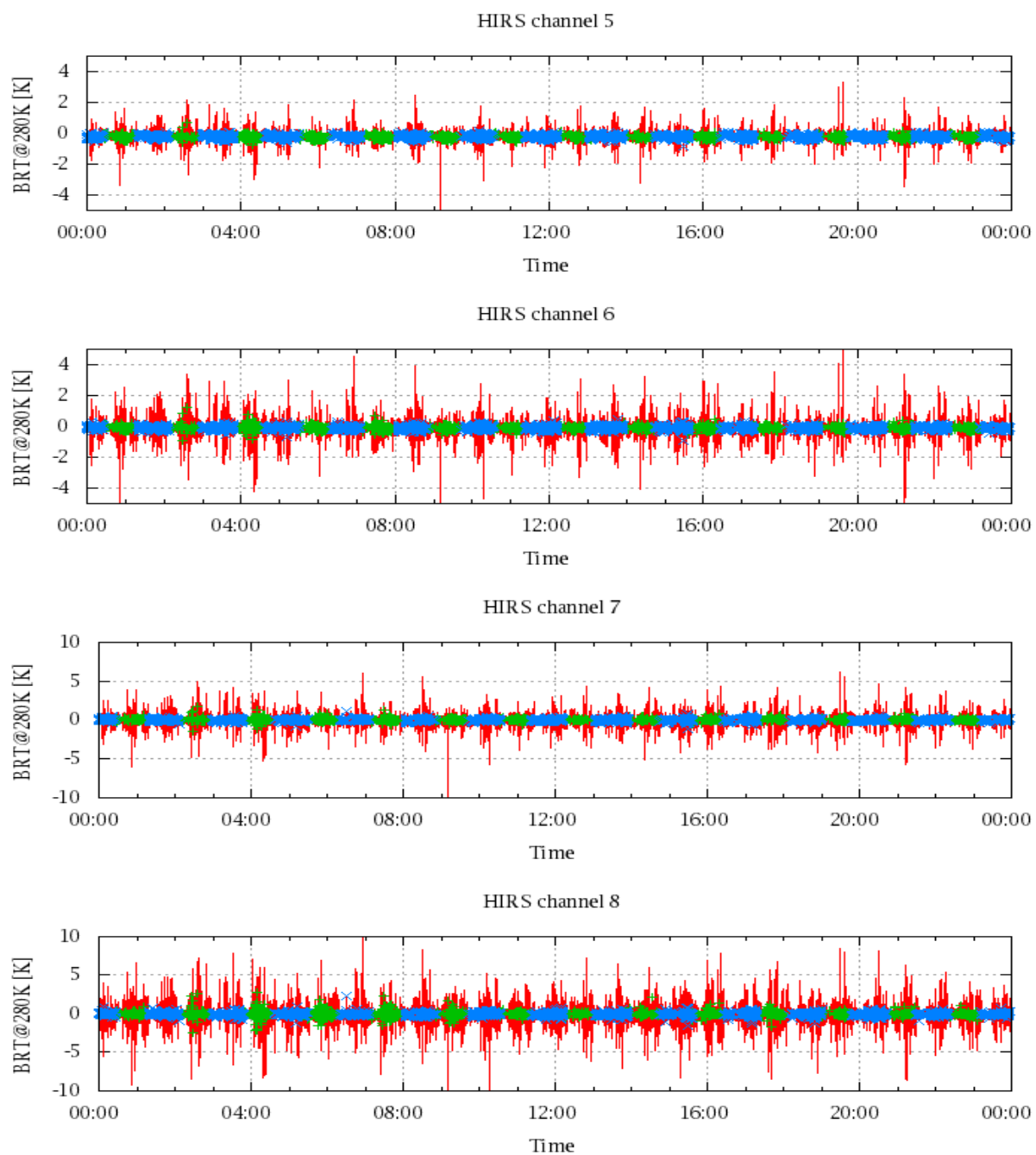


Figure 18: Radiance Differences in BRT

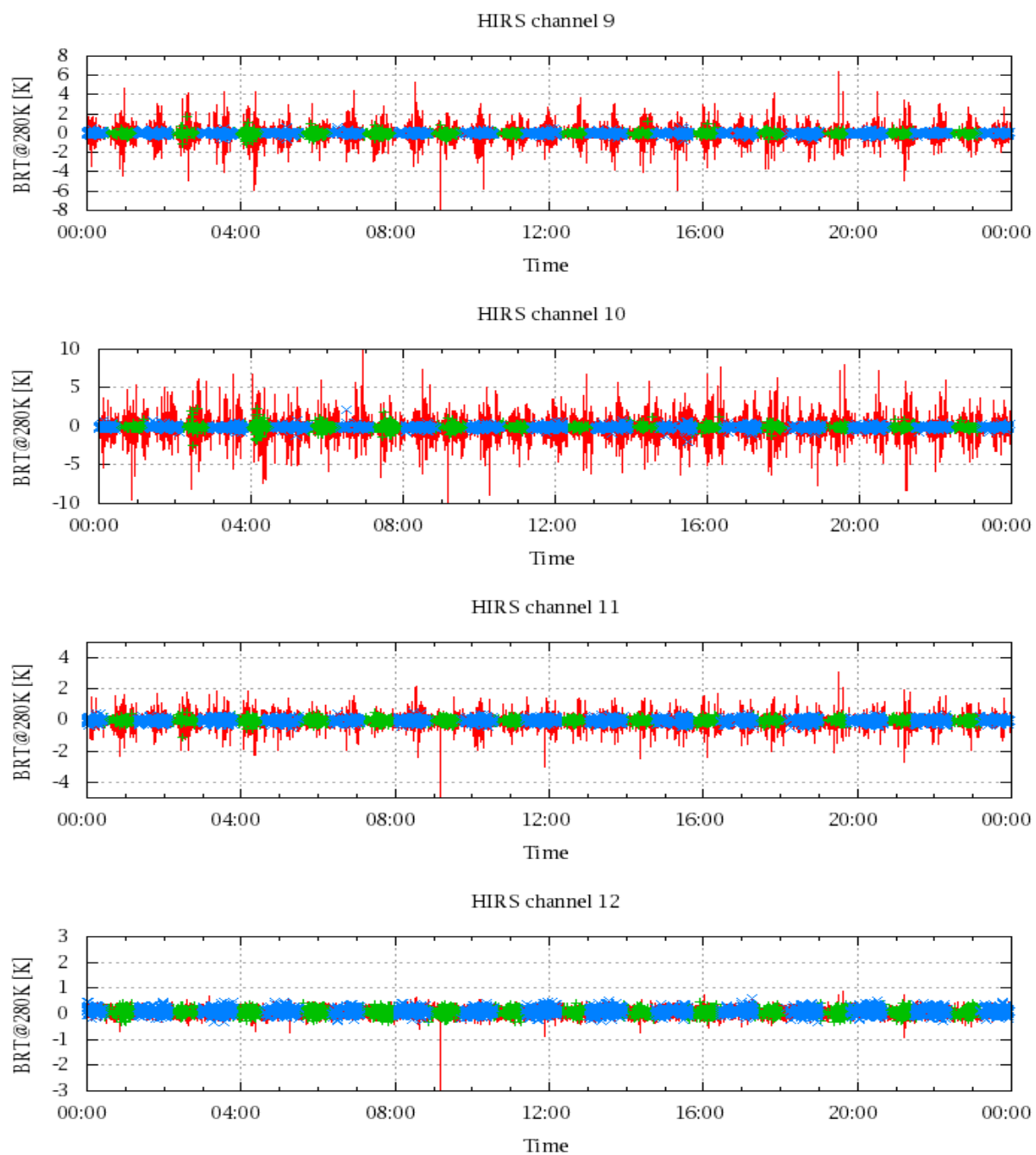


Figure 19: Radiance Differences in BRT

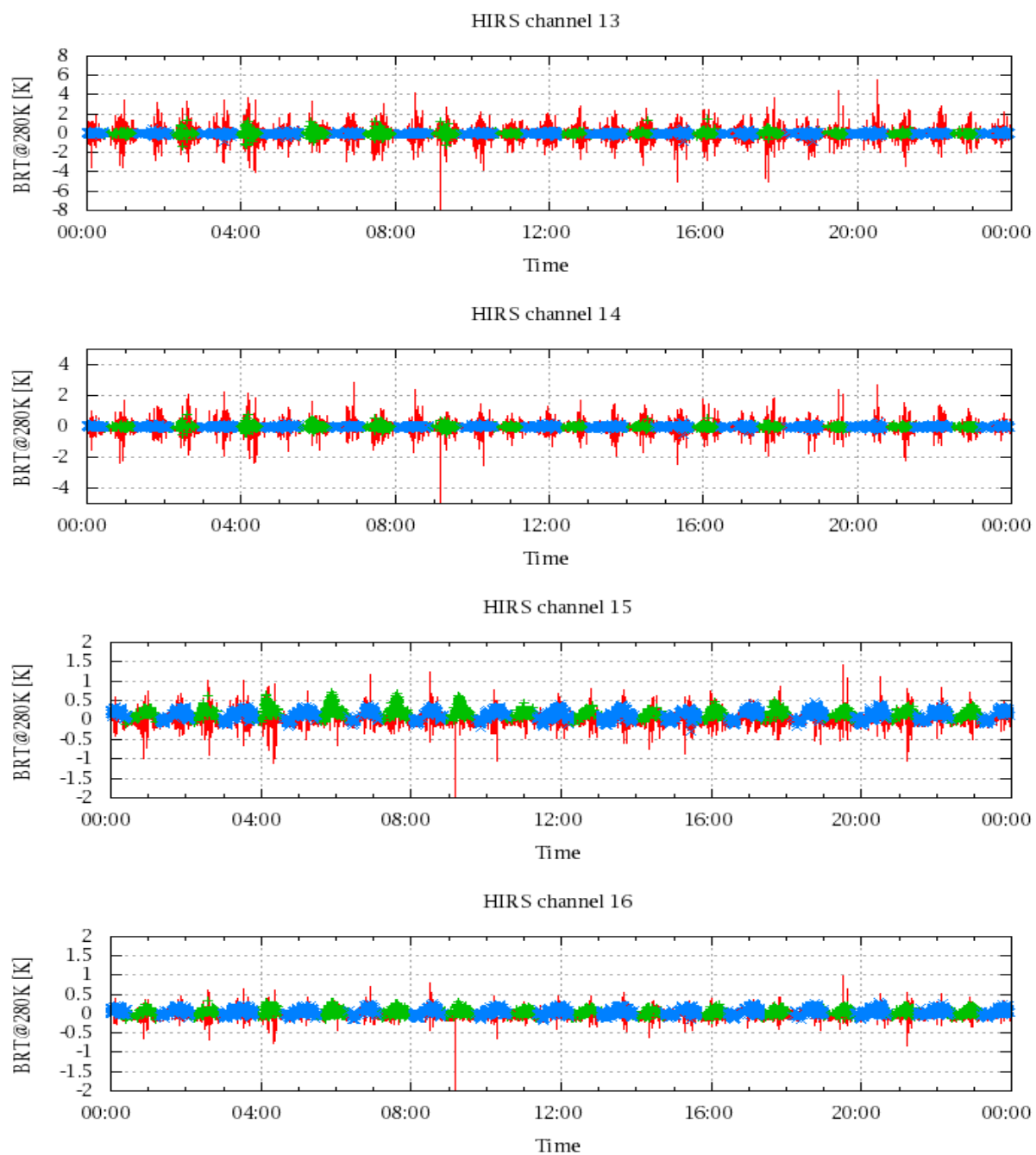


Figure 20: Radiance Differences in BRT

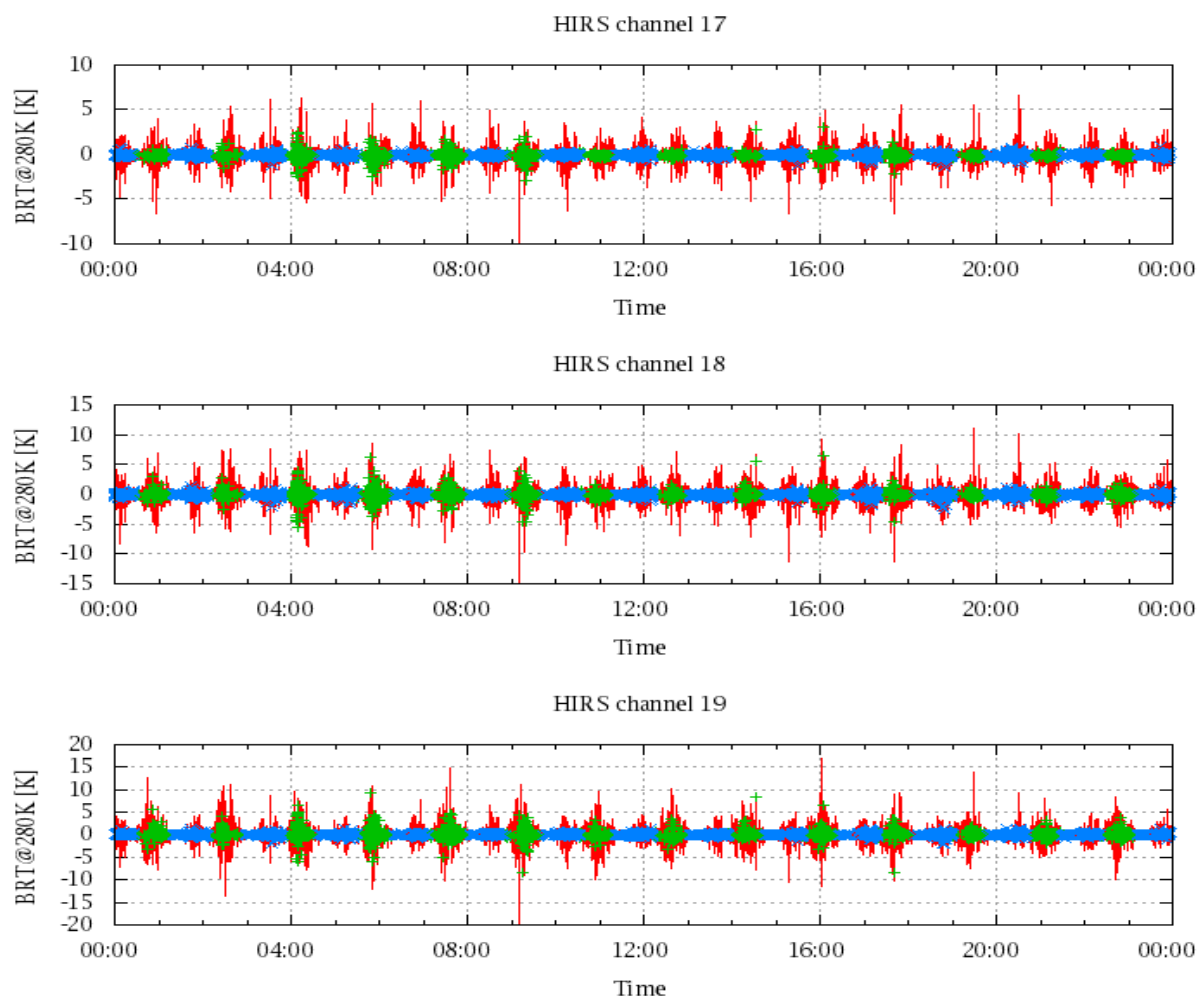


Figure 21: Radinace Differences in BRT