

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

15/03/2018 00:00:00 - 16/03/2018 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 15/03/2018 00:00:00 - 16/03/2018 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 15/03/2018 00:00:00 - 16/03/2018 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	480	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	468	-
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)	15333	15474	20180315144329.313	20180315144407.364
PX1 (130)	16015	16226	20180315171209.312	20180315171307.042
PX1 (130)	4565	4608	20180315184654.701	20180315184707.026
PX1 (130)	4611	4683	20180315184707.674	20180315184726.268
PX1 (130)	4686	4758	20180315184726.916	20180315184747.026
PX1 (130)	10698	11378	20180315202659.868	20180315203000.184
PX1 (130)	1254	1272	20180315221038.898	20180315221044.304
PX1 (130)	1280	1351	20180315221046.035	20180315221104.410
PX1 (130)	1355	1422	20180315221105.277	20180315221124.304
PX2 (135)	15333	15474	20180315144329.313	20180315144407.364
PX2 (135)	16015	16226	20180315171209.312	20180315171307.042
PX2 (135)	4565	4608	20180315184654.701	20180315184707.026
PX2 (135)	4611	4683	20180315184707.674	20180315184726.268
PX2 (135)	4686	4758	20180315184726.916	20180315184747.026
PX2 (135)	10698	11378	20180315202659.868	20180315203000.184
PX2 (135)	1254	1272	20180315221038.898	20180315221044.304
PX2 (135)	1279	1350	20180315221045.816	20180315221104.195
PX2 (135)	1355	1422	20180315221105.277	20180315221124.304

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	15333	15474	20180315144329.313	20180315144407.364
PX3 (140)	16015	16226	20180315171209.312	20180315171307.042
PX3 (140)	4565	4608	20180315184654.701	20180315184707.026
PX3 (140)	4611	4683	20180315184707.674	20180315184726.268
PX3 (140)	4685	4758	20180315184726.701	20180315184747.026
PX3 (140)	10698	11378	20180315202659.868	20180315203000.184
PX3 (140)	1254	1272	20180315221038.898	20180315221044.304
PX3 (140)	1279	1350	20180315221045.816	20180315221104.195
PX3 (140)	1355	1422	20180315221105.277	20180315221124.304
PX4 (145)	15333	15474	20180315144329.313	20180315144407.364
PX4 (145)	16015	16226	20180315171209.312	20180315171307.042
PX4 (145)	4565	4608	20180315184654.701	20180315184707.026
PX4 (145)	4611	4683	20180315184707.674	20180315184726.268
PX4 (145)	4685	4758	20180315184726.701	20180315184747.026
PX4 (145)	10698	11378	20180315202659.868	20180315203000.184
PX4 (145)	1254	1272	20180315221038.898	20180315221044.304
PX4 (145)	1279	1350	20180315221045.816	20180315221104.195
PX4 (145)	1355	1422	20180315221105.277	20180315221124.304
IMG (150)	9607	9765	20180315144329.958	20180315144407.149
IMG (150)	14750	14990	20180315171210.394	20180315171307.042
IMG (150)	6140	6188	20180315184654.487	20180315184705.729
IMG (150)	6194	6274	20180315184707.459	20180315184726.053
IMG (150)	6277	6358	20180315184726.701	20180315184745.729
IMG (150)	15278	16046	20180315202659.868	20180315203000.184
IMG (150)	8942	8964	20180315221038.898	20180315221044.304
IMG (150)	8971	9050	20180315221045.816	20180315221104.195
IMG (150)	9055	9134	20180315221105.277	20180315221124.304
VER (160)	13406	13427	20180315144329.313	20180315144409.309
VER (160)	2598	2603	20180315171308.772	20180315171308.772
VER (160)	2603	2608	20180315171308.772	20180315171308.772
VER (160)	2608	2613	20180315171308.772	20180315171308.772
VER (160)	2613	2618	20180315171308.772	20180315171308.772
VER (160)	2618	2623	20180315171308.772	20180315171308.772
VER (160)	2623	2628	20180315171308.772	20180315171308.772
VER (160)	2628	2599	20180315171308.772	20180315171308.772
VER (160)	2599	2604	20180315171308.772	20180315171308.772
VER (160)	2604	2609	20180315171308.772	20180315171308.772
VER (160)	2609	2614	20180315171308.772	20180315171308.772
VER (160)	2614	2619	20180315171308.772	20180315171308.772
VER (160)	2619	2624	20180315171308.772	20180315171308.772
VER (160)	2624	2629	20180315171308.772	20180315171308.772
VER (160)	2629	2600	20180315171308.772	20180315171308.772
VER (160)	2600	2605	20180315171308.772	20180315171308.772
VER (160)	2605	2610	20180315171308.772	20180315171308.772
VER (160)	2610	2615	20180315171308.772	20180315171308.772
VER (160)	2615	2620	20180315171308.772	20180315171308.772
VER (160)	2620	2625	20180315171308.772	20180315171308.772
VER (160)	2625	2630	20180315171308.772	20180315171308.772
VER (160)	2630	2601	20180315171308.772	20180315171308.772
VER (160)	2601	2606	20180315171308.772	20180315171308.772
VER (160)	2606	2611	20180315171308.772	20180315171308.772
VER (160)	2611	2616	20180315171308.772	20180315171308.772
VER (160)	2616	2621	20180315171308.772	20180315171308.772

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	2621	2626	20180315171308.772	20180315171308.772
VER (160)	2626	2631	20180315171308.772	20180315171308.772
VER (160)	2631	2602	20180315171308.772	20180315171308.772
VER (160)	2602	2607	20180315171308.772	20180315171308.772
VER (160)	2607	2612	20180315171308.772	20180315171308.772
VER (160)	2612	2617	20180315171308.772	20180315171308.772
VER (160)	2617	2622	20180315171308.772	20180315171308.772
VER (160)	2622	2627	20180315171308.772	20180315171308.772
VER (160)	2627	2632	20180315171308.772	20180315171308.772
VER (160)	6147	6155	20180315184649.295	20180315184654.701
VER (160)	6157	6180	20180315184654.701	20180315184726.916
VER (160)	9902	10013	20180315202657.271	20180315203001.266
VER (160)	13788	13793	20180315221124.734	20180315221124.734
VER (160)	13793	13798	20180315221124.734	20180315221124.734
VER (160)	13798	13803	20180315221124.734	20180315221124.734
VER (160)	13803	13808	20180315221124.734	20180315221124.734
VER (160)	13808	13813	20180315221124.734	20180315221124.734
VER (160)	13813	13789	20180315221124.734	20180315221124.734
VER (160)	13789	13794	20180315221124.734	20180315221124.734
VER (160)	13794	13799	20180315221124.734	20180315221124.734
VER (160)	13799	13804	20180315221124.734	20180315221124.734
VER (160)	13804	13809	20180315221124.734	20180315221124.734
VER (160)	13809	13814	20180315221124.734	20180315221124.734
VER (160)	13814	13790	20180315221124.734	20180315221124.734
VER (160)	13790	13795	20180315221124.734	20180315221124.734
VER (160)	13795	13800	20180315221124.734	20180315221124.734
VER (160)	13800	13805	20180315221124.734	20180315221124.734
VER (160)	13805	13810	20180315221124.734	20180315221124.734
VER (160)	13810	13815	20180315221124.734	20180315221124.734
VER (160)	13815	13791	20180315221124.734	20180315221124.734
VER (160)	13791	13796	20180315221124.734	20180315221124.734
VER (160)	13796	13801	20180315221124.734	20180315221124.734
VER (160)	13801	13806	20180315221124.734	20180315221124.734
VER (160)	13806	13811	20180315221124.734	20180315221124.734
VER (160)	13811	13816	20180315221124.734	20180315221124.734
VER (160)	13816	13792	20180315221124.734	20180315221124.734
VER (160)	13792	13797	20180315221124.734	20180315221124.734
VER (160)	13797	13802	20180315221124.734	20180315221124.734
VER (160)	13802	13807	20180315221124.734	20180315221124.734
VER (160)	13807	13812	20180315221124.734	20180315221124.734
VER (160)	13812	13817	20180315221124.734	20180315221124.734
AUX (180)	2664	2669	20180315144329.743	20180315144409.743
AUX (180)	4489	4491	20180315184649.729	20180315184705.729
AUX (180)	4491	4496	20180315184705.729	20180315184745.729
AUX (180)	5240	5263	20180315202657.704	20180315203001.700

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
15/03/2018 00:00:14	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	480	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	468	-
GQisFlagQual set (PX1)	99.51 %	-
GQisFlagQual set (PX2)	99.58 %	-
GQisFlagQual set (PX3)	99.59 %	-
GQisFlagQual set (PX4)	99.51 %	-
GQisFlagQual set (all)	99.55 %	-

Table 4: Quality flags

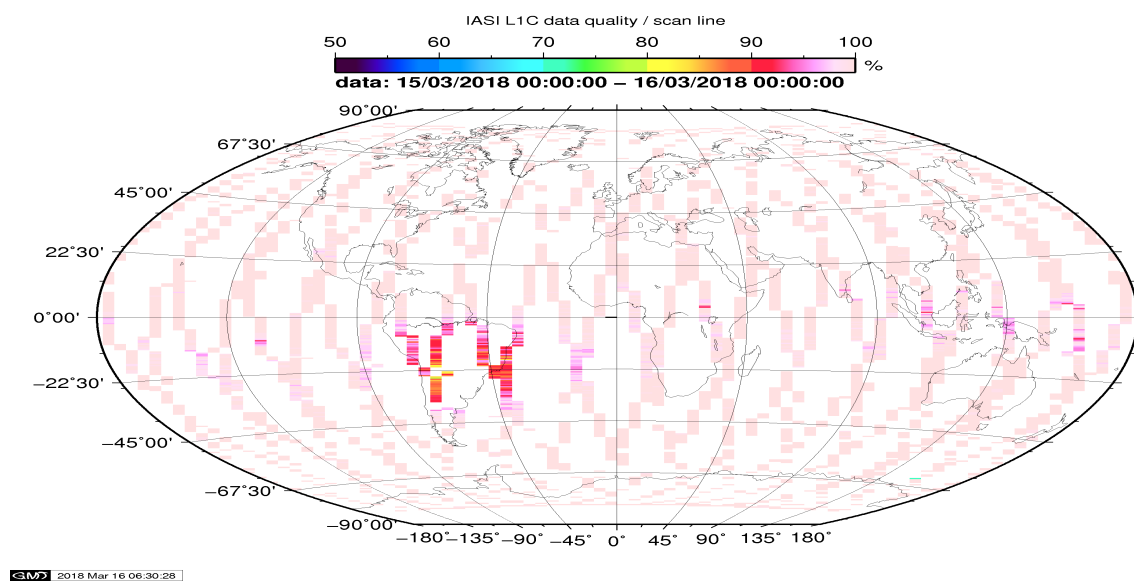


Figure 1: L1C data quality

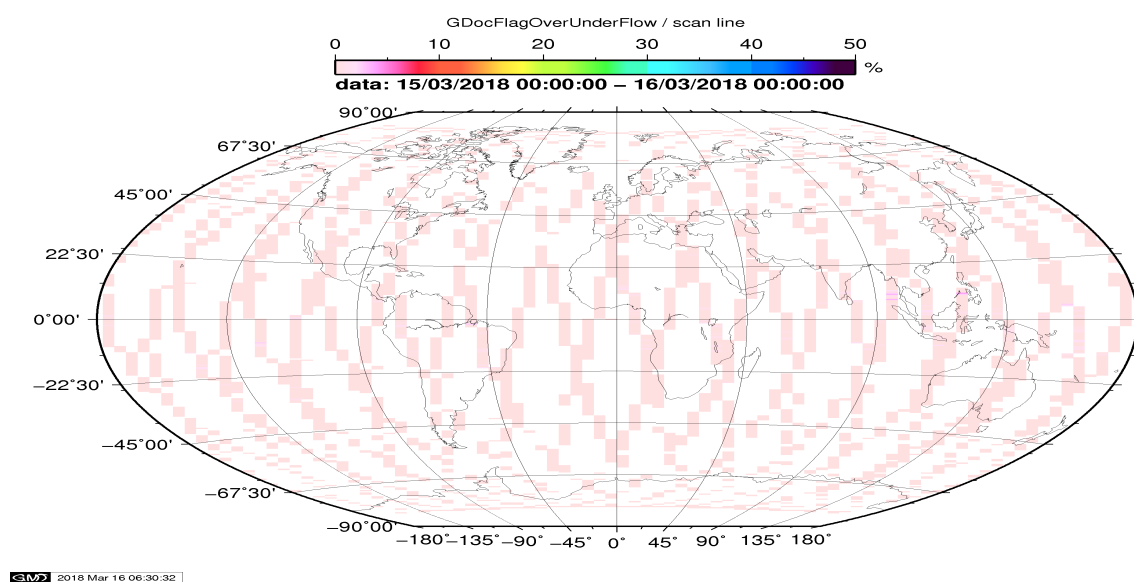


Figure 2: Flag of Over and Under Flows

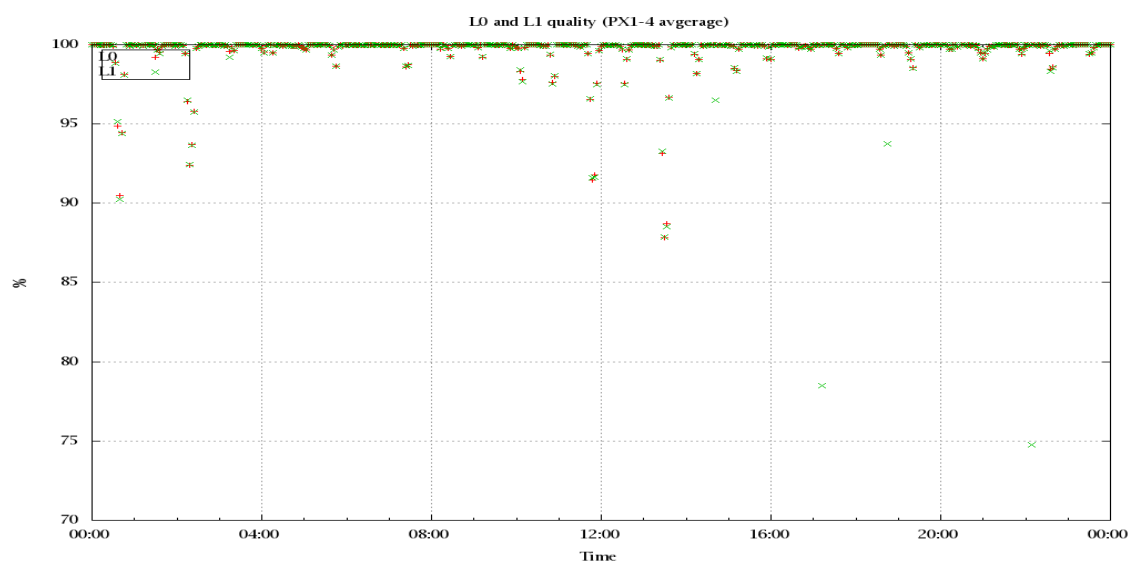


Figure 3: Level 0 and 1C overall quality

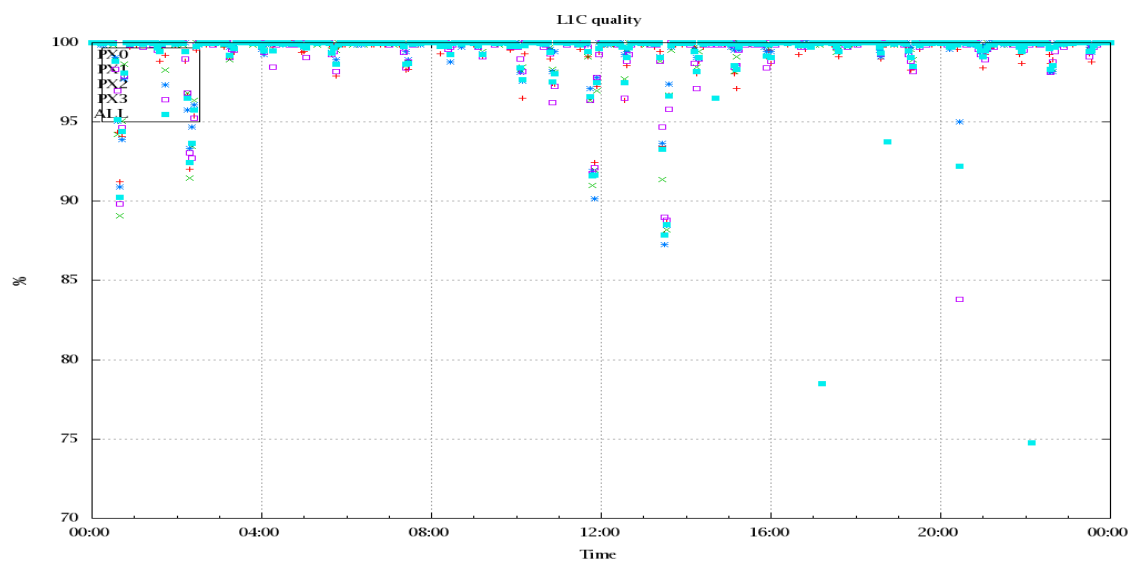


Figure 4: Level 1C quality

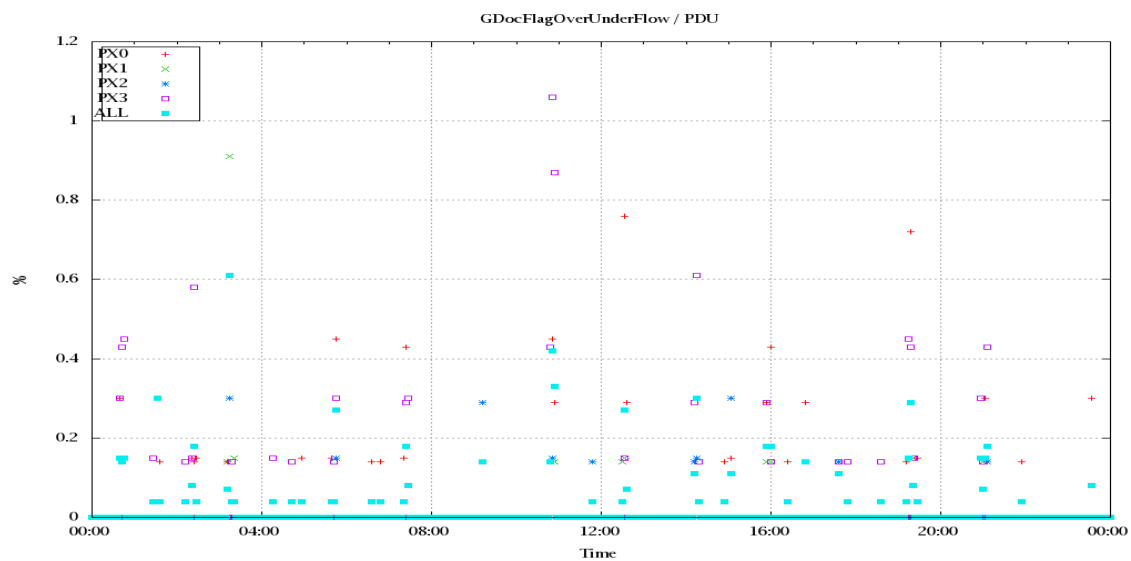


Figure 5: OverUnderFlowFlag timeseries

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.

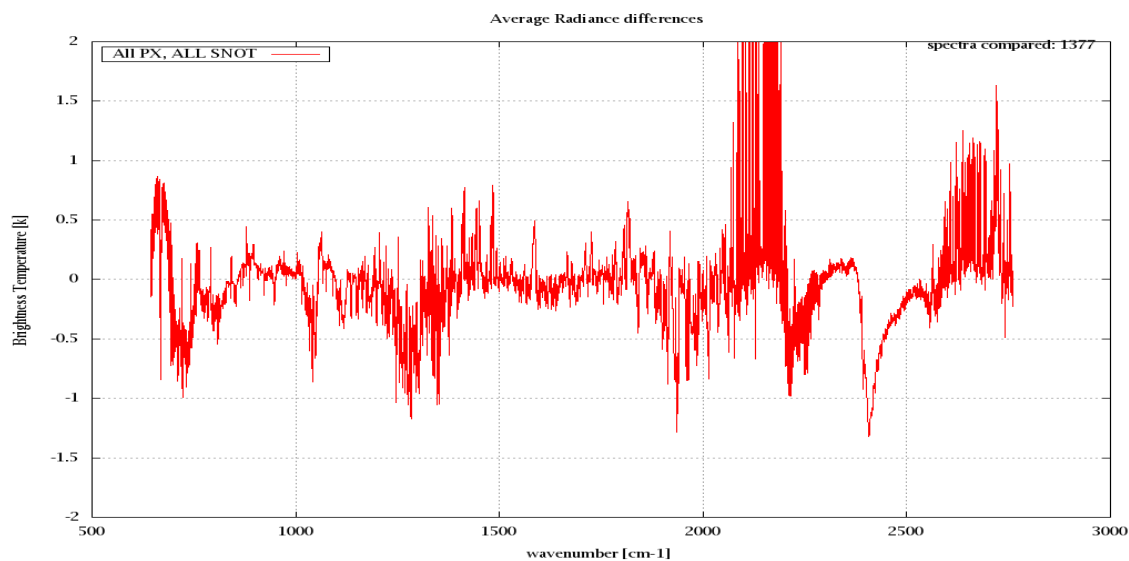


Figure 6: Average Radiance differences: OBS-CAL

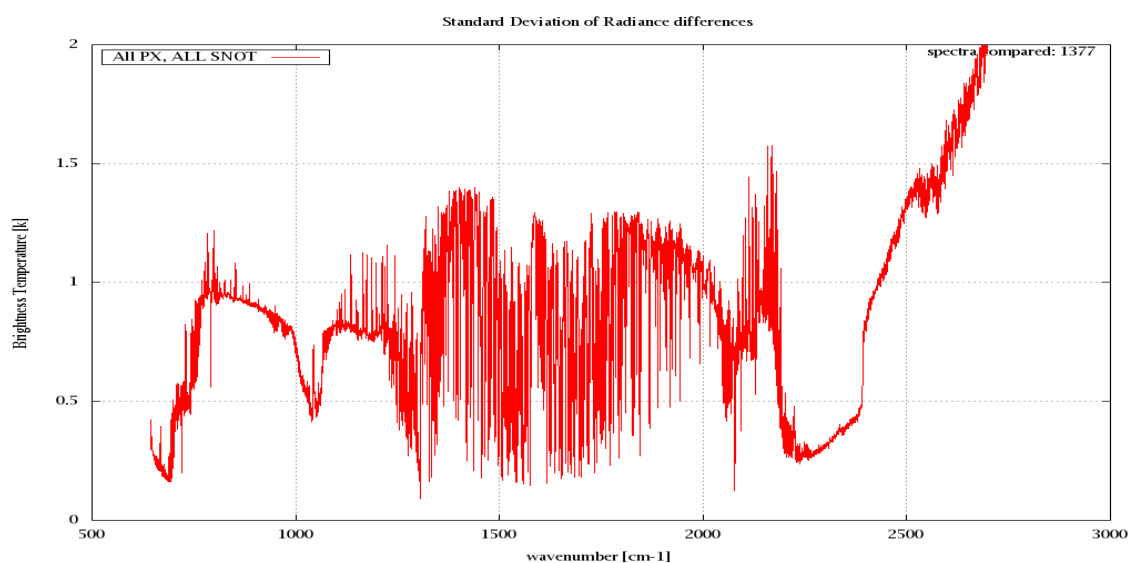


Figure 7: Standard Deviation of Radiance differences

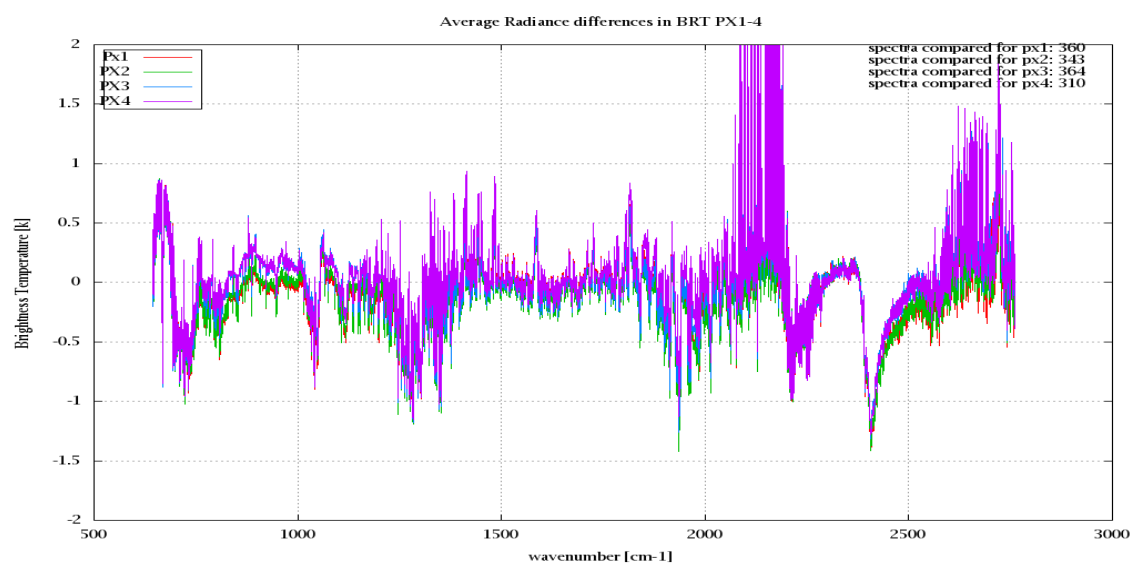


Figure 8: Average Radiance differences: OBS-CAL

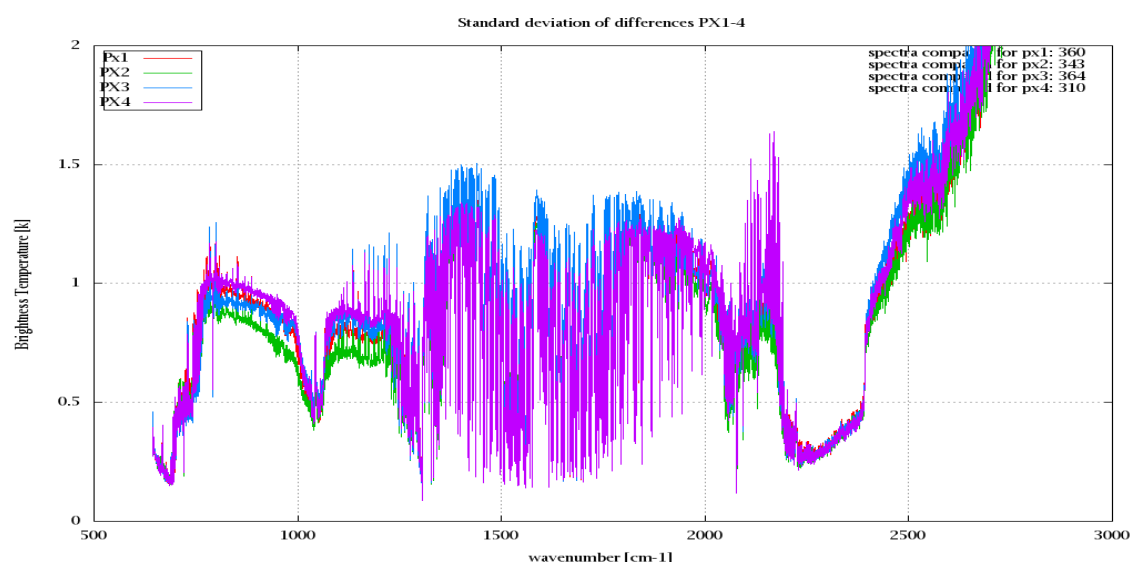


Figure 9: Standard Deviation of Radiance differences

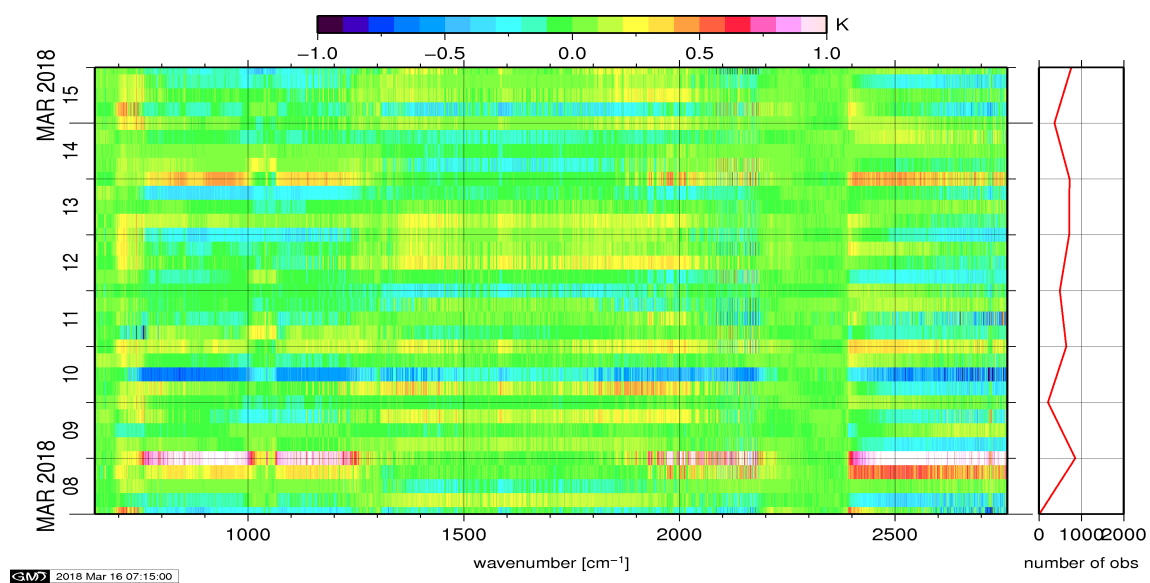


Figure 10: Radiance Anomaly in BRT: All Channels

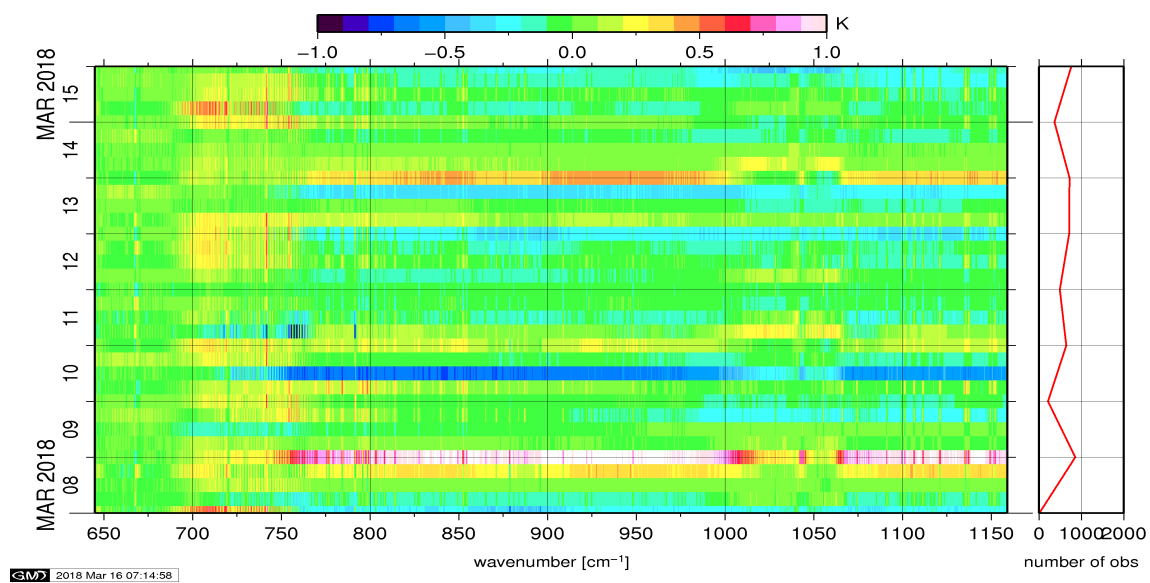


Figure 11: Radiance Anomaly in BRT: IASI Band 1

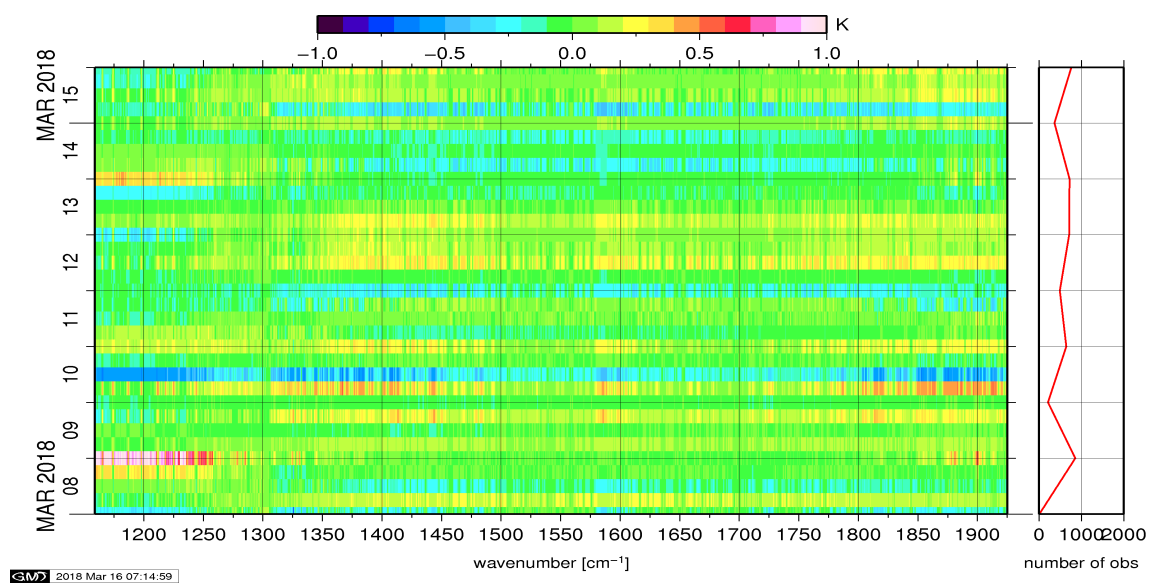


Figure 12: Radiance Anomaly in BRT: IASI Band 2

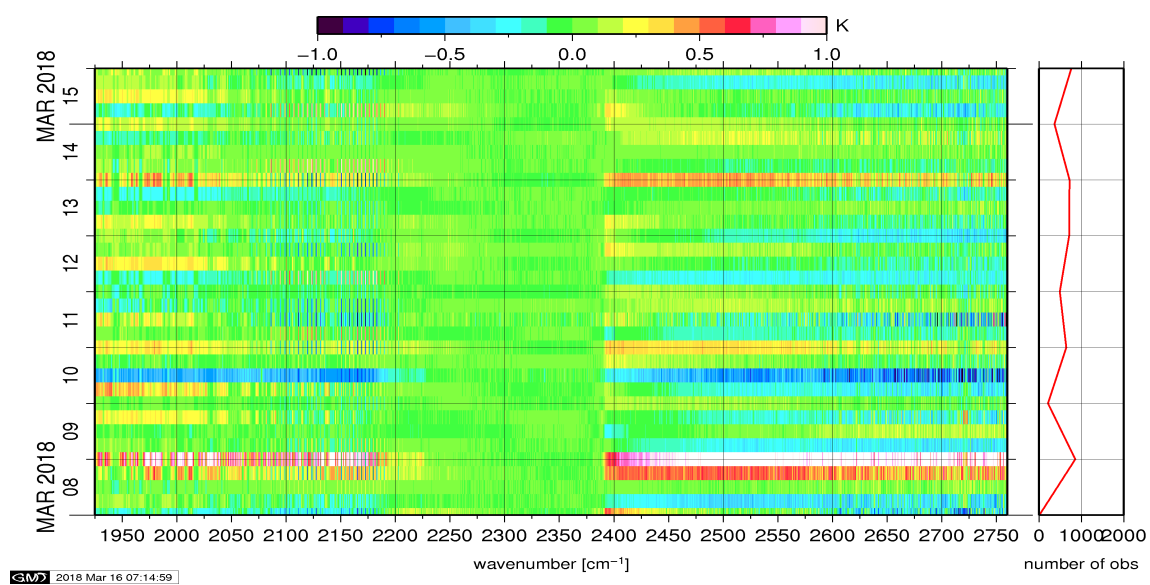


Figure 13: Radiance Anomaly in BRT: IASI Band 3

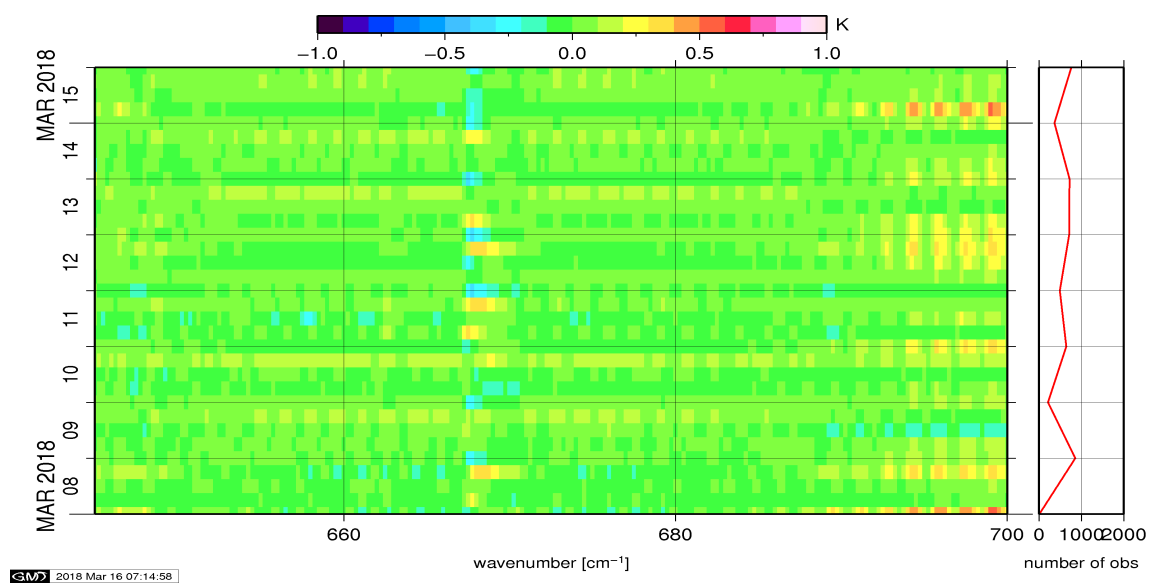


Figure 14: Radiance Anomaly in BRT: CO2 14

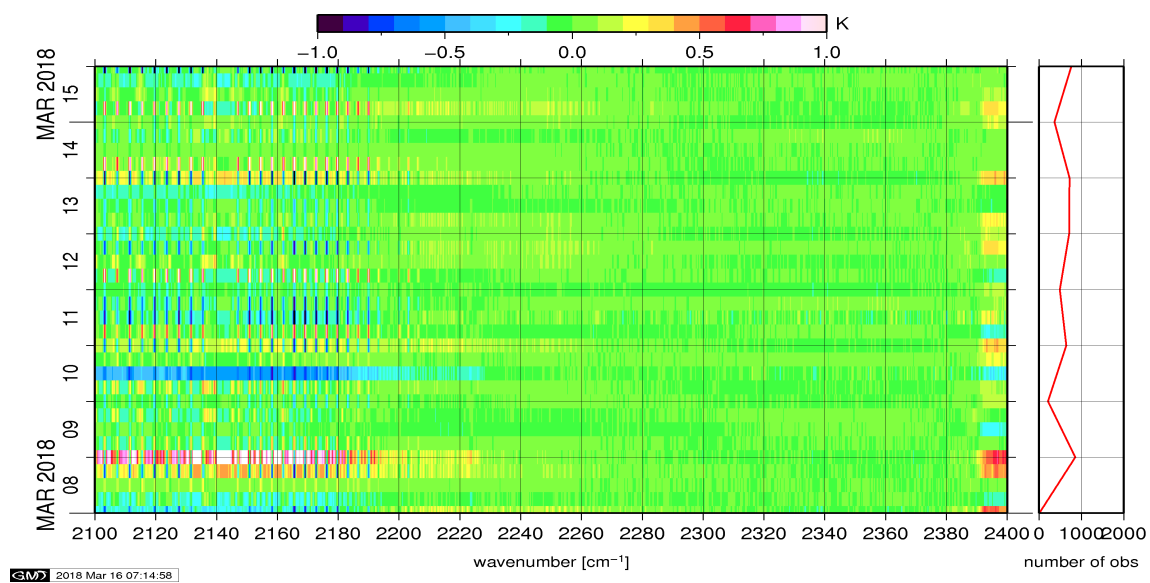


Figure 15: Radiance Anomaly in BRT: CO2 4.3

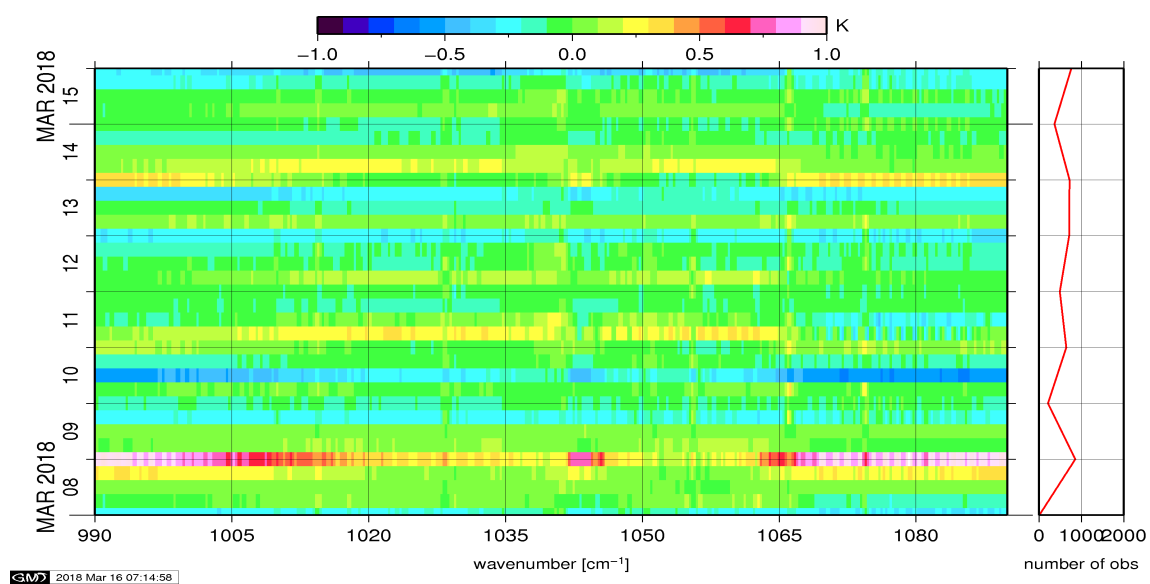


Figure 16: Radiance Anomaly in BRT: O3

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.

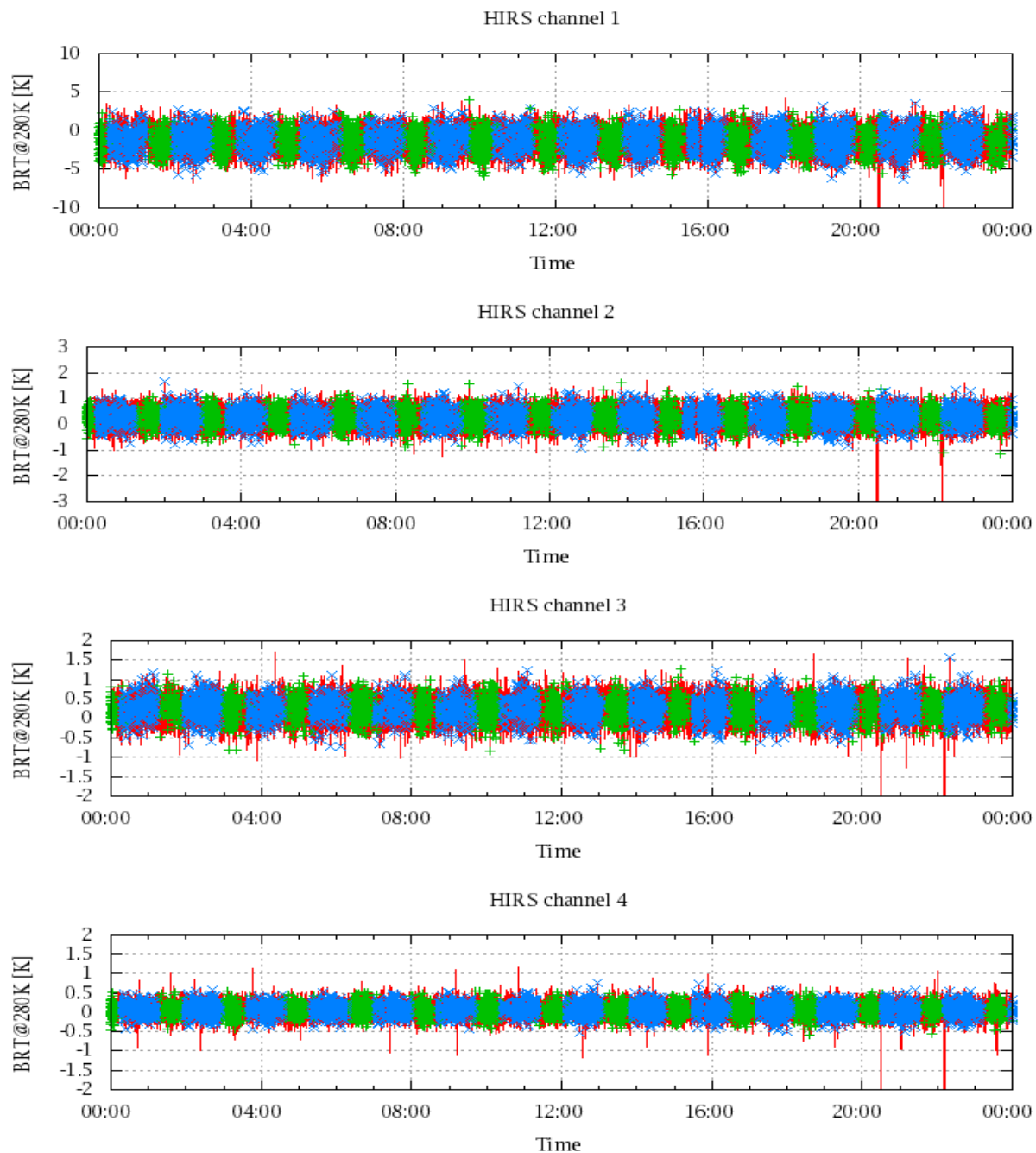


Figure 17: Radiance Differences in BRT

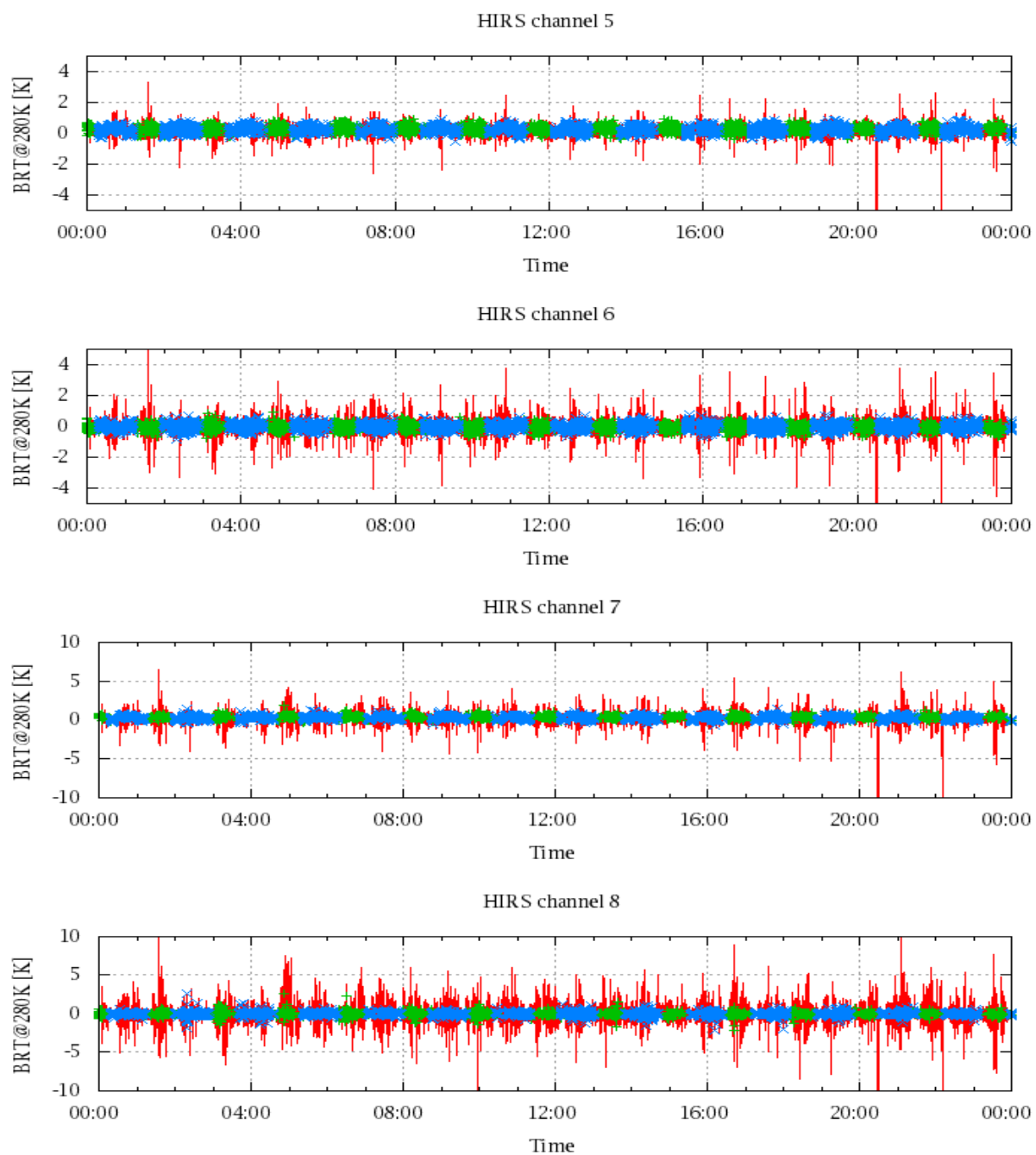


Figure 18: Radiance Differences in BRT

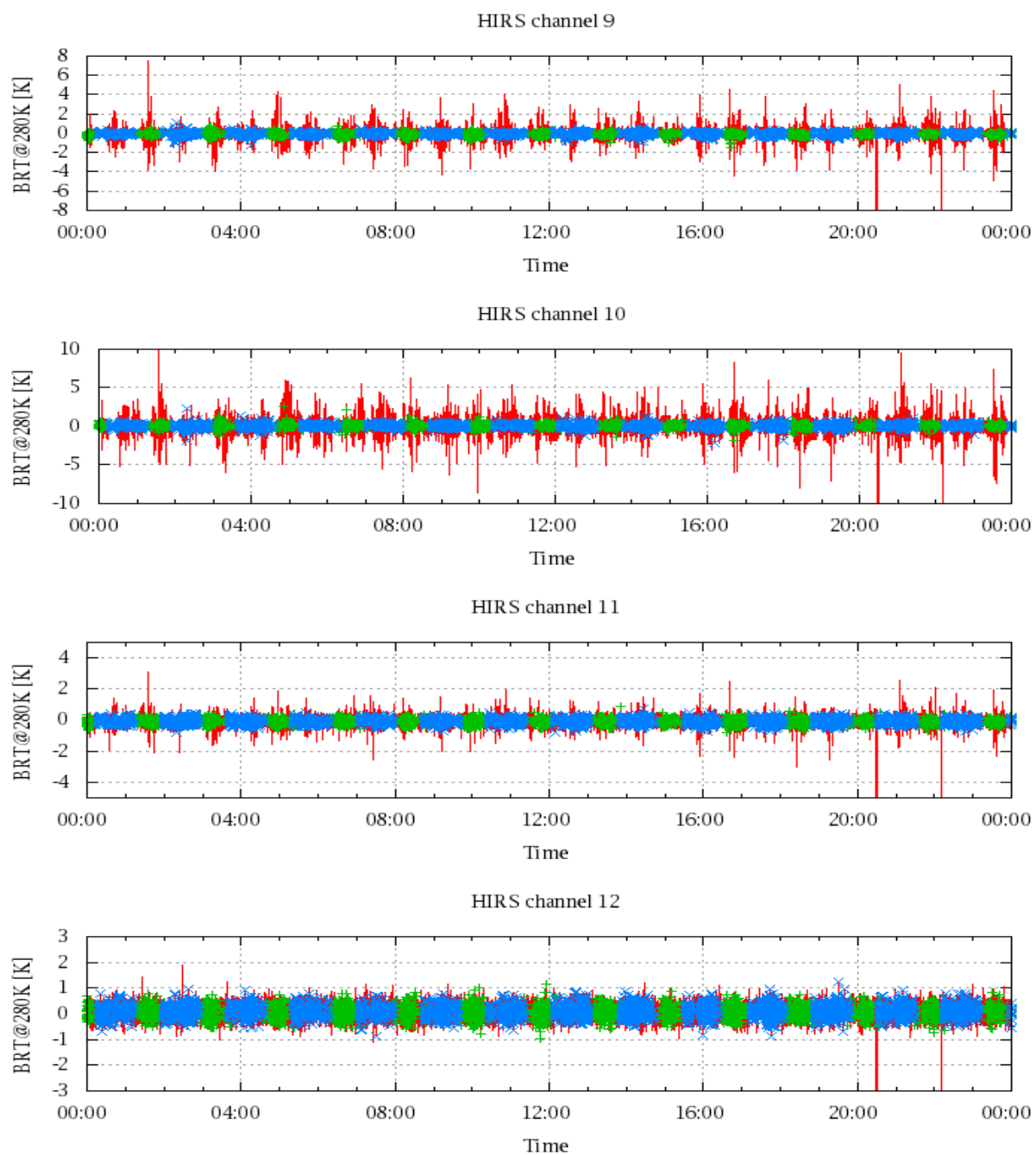


Figure 19: Radiance Differences in BRT

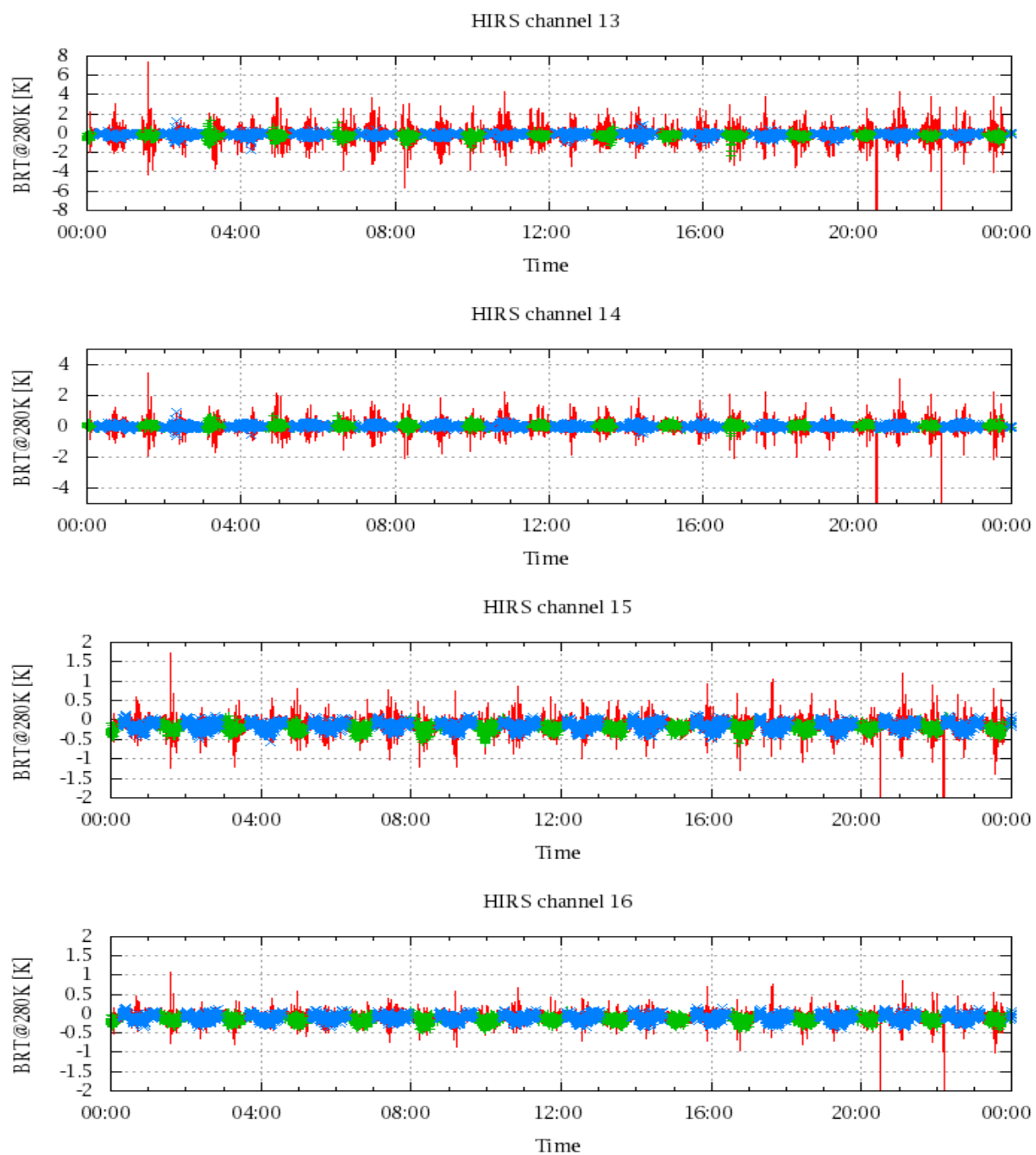


Figure 20: Radiance Differences in BRT

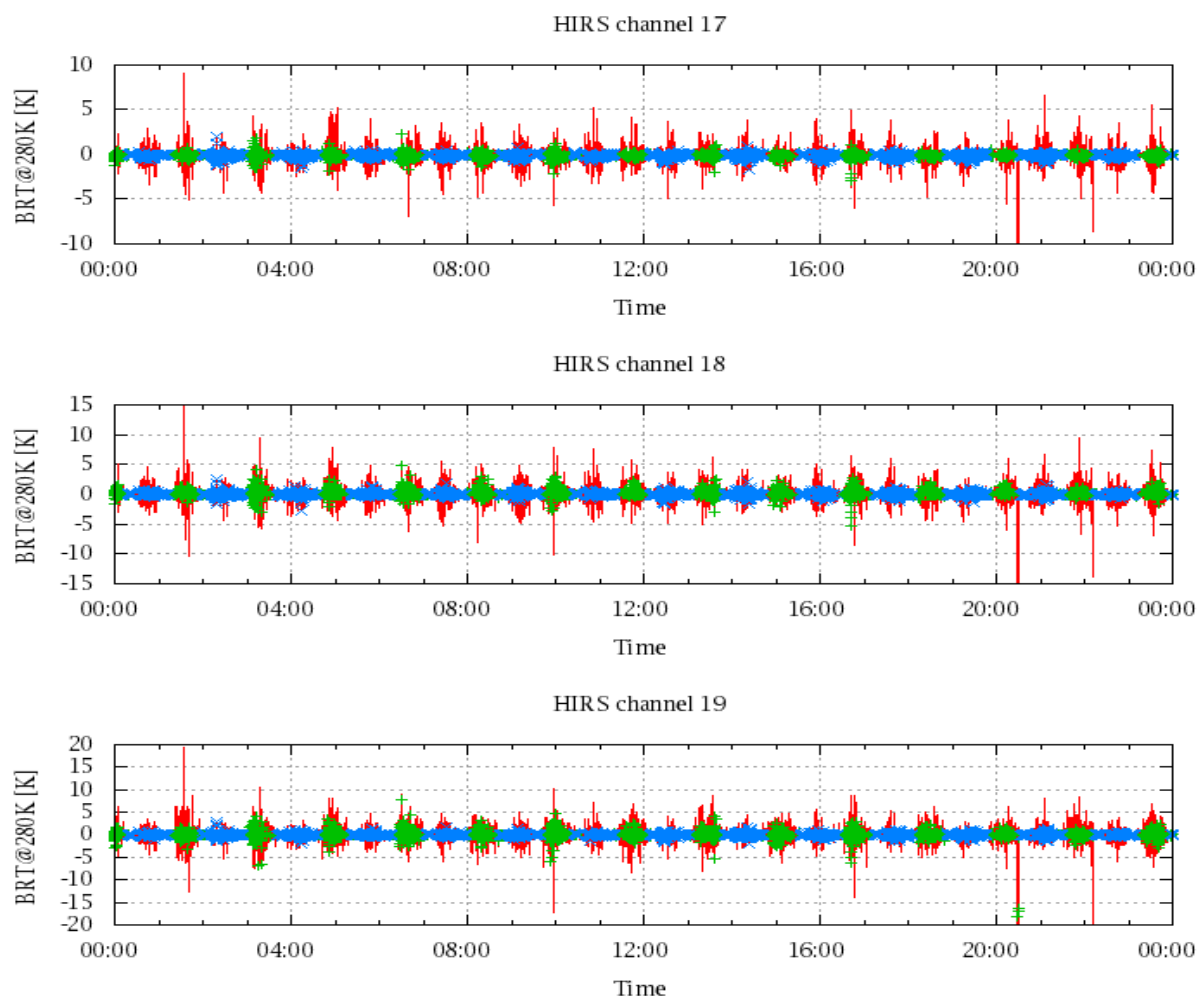


Figure 21: Radinace Differences in BRT