

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

16/08/2015 00:00:00 - 17/08/2015 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 16/08/2015 00:00:00 - 17/08/2015 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 16/08/2015 00:00:00 - 17/08/2015 00:00:00

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

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	13348	13351	20150816211150.103	20150816211152.263
PX1 (130)	13353	13356	20150816211152.697	20150816211153.345
PX1 (130)	13357	13360	20150816211153.560	20150816211154.209
PX1 (130)	13360	13362	20150816211154.209	20150816211154.642
PX1 (130)	13364	13367	20150816211155.076	20150816211155.724
PX1 (130)	13370	13372	20150816211156.369	20150816211156.802
PX1 (130)	13372	13374	20150816211156.802	20150816211157.236
PX1 (130)	13376	13378	20150816211157.670	20150816211158.099
PX1 (130)	13384	13386	20150816211200.912	20150816211201.345
PX1 (130)	13387	13389	20150816211201.560	20150816211201.994
PX1 (130)	13397	13399	20150816211203.724	20150816211204.154
PX1 (130)	13400	13403	20150816211204.373	20150816211205.021
PX1 (130)	13418	13420	20150816211209.775	20150816211210.209
PX1 (130)	13457	13459	20150816211219.720	20150816211220.154
PX1 (130)	14930	14936	20150816211852.360	20150816211853.657
PX1 (130)	14943	14947	20150816211856.684	20150816211857.547
PX1 (130)	14947	14949	20150816211857.547	20150816211857.981
PX1 (130)	14949	14952	20150816211857.981	20150816211858.633

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	14953	14955	20150816211858.844	20150816211859.278
PX1 (130)	14955	14957	20150816211859.278	20150816211859.711
PX1 (130)	14957	14966	20150816211859.711	20150816211901.657
PX1 (130)	14967	14970	20150816211901.872	20150816211904.036
PX1 (130)	14972	14975	20150816211904.465	20150816211905.118
PX1 (130)	14978	14980	20150816211905.762	20150816211906.196
PX1 (130)	14980	14983	20150816211906.196	20150816211906.844
PX1 (130)	14984	14991	20150816211907.059	20150816211908.575
PX1 (130)	14991	14993	20150816211908.575	20150816211909.008
PX1 (130)	14994	14996	20150816211909.223	20150816211909.657
PX1 (130)	14996	14998	20150816211909.657	20150816211910.086
PX1 (130)	14998	15000	20150816211910.086	20150816211912.036
PX1 (130)	15001	15003	20150816211912.250	20150816211912.684
PX1 (130)	15007	15009	20150816211913.547	20150816211913.981
PX1 (130)	15014	15016	20150816211915.063	20150816211915.493
PX2 (135)	13348	13350	20150816211150.103	20150816211152.048
PX2 (135)	13350	13352	20150816211152.048	20150816211152.478
PX2 (135)	13353	13356	20150816211152.697	20150816211153.345
PX2 (135)	13357	13360	20150816211153.560	20150816211154.209
PX2 (135)	13360	13362	20150816211154.209	20150816211154.642
PX2 (135)	13364	13366	20150816211155.076	20150816211155.505
PX2 (135)	13366	13368	20150816211155.505	20150816211155.939
PX2 (135)	13370	13372	20150816211156.369	20150816211156.802
PX2 (135)	13372	13374	20150816211156.802	20150816211157.236
PX2 (135)	13376	13378	20150816211157.670	20150816211158.099
PX2 (135)	13380	13382	20150816211200.048	20150816211200.478
PX2 (135)	13384	13386	20150816211200.912	20150816211201.345
PX2 (135)	13392	13394	20150816211202.642	20150816211203.076
PX2 (135)	13395	13397	20150816211203.291	20150816211203.724
PX2 (135)	13397	13399	20150816211203.724	20150816211204.154
PX2 (135)	14930	14936	20150816211852.360	20150816211853.657
PX2 (135)	14943	14949	20150816211856.684	20150816211857.981
PX2 (135)	14949	14953	20150816211857.981	20150816211858.844
PX2 (135)	14953	14955	20150816211858.844	20150816211859.278
PX2 (135)	14955	14957	20150816211859.278	20150816211859.711
PX2 (135)	14957	14959	20150816211859.711	20150816211900.141
PX2 (135)	14960	14963	20150816211900.360	20150816211901.008
PX2 (135)	14963	14967	20150816211901.008	20150816211901.872
PX2 (135)	14967	14970	20150816211901.872	20150816211904.036
PX2 (135)	14971	14973	20150816211904.250	20150816211904.684
PX2 (135)	14973	14975	20150816211904.684	20150816211905.118
PX2 (135)	14978	14980	20150816211905.762	20150816211906.196
PX2 (135)	14980	14983	20150816211906.196	20150816211906.844
PX2 (135)	14985	14991	20150816211907.278	20150816211908.575
PX2 (135)	14991	14993	20150816211908.575	20150816211909.008
PX2 (135)	14994	14996	20150816211909.223	20150816211909.657
PX2 (135)	14997	15004	20150816211909.872	20150816211912.899
PX2 (135)	15014	15016	20150816211915.063	20150816211915.493
PX3 (140)	13348	13350	20150816211150.103	20150816211152.048
PX3 (140)	13350	13352	20150816211152.048	20150816211152.478
PX3 (140)	13354	13356	20150816211152.912	20150816211153.345
PX3 (140)	13357	13360	20150816211153.560	20150816211154.209
PX3 (140)	13360	13364	20150816211154.209	20150816211155.076

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	13364	13366	20150816211155.076	20150816211155.505
PX3 (140)	13366	13368	20150816211155.505	20150816211155.939
PX3 (140)	13370	13372	20150816211156.369	20150816211156.802
PX3 (140)	13376	13378	20150816211157.670	20150816211158.099
PX3 (140)	13380	13383	20150816211200.048	20150816211200.697
PX3 (140)	13392	13394	20150816211202.642	20150816211203.076
PX3 (140)	13395	13397	20150816211203.291	20150816211203.724
PX3 (140)	14930	14935	20150816211852.360	20150816211853.442
PX3 (140)	14943	14949	20150816211856.684	20150816211857.981
PX3 (140)	14950	14957	20150816211858.196	20150816211859.711
PX3 (140)	14957	14959	20150816211859.711	20150816211900.141
PX3 (140)	14960	14963	20150816211900.360	20150816211901.008
PX3 (140)	14963	14967	20150816211901.008	20150816211901.872
PX3 (140)	14967	14970	20150816211901.872	20150816211904.036
PX3 (140)	14971	14973	20150816211904.250	20150816211904.684
PX3 (140)	14973	14975	20150816211904.684	20150816211905.118
PX3 (140)	14977	14984	20150816211905.547	20150816211907.059
PX3 (140)	14985	14991	20150816211907.278	20150816211908.575
PX3 (140)	14994	14996	20150816211909.223	20150816211909.657
PX3 (140)	14996	14999	20150816211909.657	20150816211911.817
PX3 (140)	14999	15002	20150816211911.817	20150816211912.465
PX3 (140)	15002	15005	20150816211912.465	20150816211913.114
PX3 (140)	15006	15008	20150816211913.333	20150816211913.766
PX3 (140)	15014	15016	20150816211915.063	20150816211915.493
PX4 (145)	13348	13350	20150816211150.103	20150816211152.048
PX4 (145)	13350	13353	20150816211152.048	20150816211152.697
PX4 (145)	13353	13355	20150816211152.697	20150816211153.127
PX4 (145)	13360	13364	20150816211154.209	20150816211155.076
PX4 (145)	13366	13368	20150816211155.505	20150816211155.939
PX4 (145)	13370	13372	20150816211156.369	20150816211156.802
PX4 (145)	13376	13378	20150816211157.670	20150816211158.099
PX4 (145)	13381	13383	20150816211200.263	20150816211200.697
PX4 (145)	13389	13391	20150816211201.994	20150816211202.423
PX4 (145)	13391	13394	20150816211202.423	20150816211203.076
PX4 (145)	13395	13398	20150816211203.291	20150816211203.939
PX4 (145)	13415	13417	20150816211209.127	20150816211209.560
PX4 (145)	14930	14935	20150816211852.360	20150816211853.442
PX4 (145)	14943	14949	20150816211856.684	20150816211857.981
PX4 (145)	14950	14952	20150816211858.196	20150816211858.633
PX4 (145)	14952	14957	20150816211858.633	20150816211859.711
PX4 (145)	14960	14967	20150816211900.360	20150816211901.872
PX4 (145)	14967	14969	20150816211901.872	20150816211903.817
PX4 (145)	14969	14971	20150816211903.817	20150816211904.250
PX4 (145)	14971	14973	20150816211904.250	20150816211904.684
PX4 (145)	14973	14977	20150816211904.684	20150816211905.547
PX4 (145)	14977	14979	20150816211905.547	20150816211905.981
PX4 (145)	14979	14984	20150816211905.981	20150816211907.059
PX4 (145)	14985	14989	20150816211907.278	20150816211908.141
PX4 (145)	14989	14991	20150816211908.141	20150816211908.575
PX4 (145)	14996	14999	20150816211909.657	20150816211911.817
PX4 (145)	14999	15002	20150816211911.817	20150816211912.465
PX4 (145)	15002	15005	20150816211912.465	20150816211913.114
PX4 (145)	15006	15008	20150816211913.333	20150816211913.766

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	15014	15016	20150816211915.063	20150816211915.493
IMG (150)	11451	11454	20150816211151.181	20150816211152.048
IMG (150)	11454	11460	20150816211152.048	20150816211153.345
IMG (150)	11460	11463	20150816211153.345	20150816211153.994
IMG (150)	11464	11466	20150816211154.209	20150816211154.642
IMG (150)	11468	11470	20150816211155.076	20150816211155.505
IMG (150)	11470	11473	20150816211155.505	20150816211156.154
IMG (150)	11473	11475	20150816211156.154	20150816211156.588
IMG (150)	11475	11477	20150816211156.588	20150816211157.021
IMG (150)	11479	11482	20150816211157.451	20150816211158.099
IMG (150)	11483	11487	20150816211158.533	20150816211159.830
IMG (150)	11489	11491	20150816211200.263	20150816211200.697
IMG (150)	11491	11493	20150816211200.697	20150816211201.127
IMG (150)	11494	11496	20150816211201.345	20150816211201.775
IMG (150)	11497	11499	20150816211201.994	20150816211202.423
IMG (150)	11499	11501	20150816211202.423	20150816211202.857
IMG (150)	11504	11506	20150816211203.505	20150816211203.939
IMG (150)	11507	11510	20150816211204.154	20150816211204.802
IMG (150)	11527	11529	20150816211209.127	20150816211209.560
IMG (150)	11529	11531	20150816211209.560	20150816211209.994
IMG (150)	11572	11574	20150816211219.505	20150816211219.939
IMG (150)	13242	13247	20150816211852.360	20150816211853.442
IMG (150)	13258	13282	20150816211856.469	20150816211901.657
IMG (150)	13282	13288	20150816211901.657	20150816211903.387
IMG (150)	13289	13291	20150816211903.817	20150816211904.250
IMG (150)	13291	13297	20150816211904.250	20150816211905.547
IMG (150)	13297	13299	20150816211905.547	20150816211905.981
IMG (150)	13299	13305	20150816211905.981	20150816211907.278
IMG (150)	13305	13312	20150816211907.278	20150816211908.790
IMG (150)	13312	13315	20150816211908.790	20150816211909.442
IMG (150)	13315	13319	20150816211909.442	20150816211910.520
IMG (150)	13319	13323	20150816211910.520	20150816211911.817
IMG (150)	13324	13327	20150816211912.036	20150816211912.684
IMG (150)	13327	13329	20150816211912.684	20150816211913.114
IMG (150)	13330	13332	20150816211913.333	20150816211913.766
VER (160)	5822	5825	20150816211150.103	20150816211150.103
VER (160)	5831	5833	20150816211206.099	20150816211206.099
VER (160)	6090	6101	20150816211854.086	20150816211918.090
AUX (180)	7770	7773	20150816211854.520	20150816211918.520

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
16/08/2015 00:00:13	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	481	-
L1 ENG PDUs	481	-
L1 ENG distinct GEPSGranule	481	-
GQisFlagQual set (PX1)	99.49 %	-
GQisFlagQual set (PX2)	99.43 %	-
GQisFlagQual set (PX3)	99.46 %	-
GQisFlagQual set (PX4)	99.47 %	-
GQisFlagQual set (all)	99.46 %	-

Table 4: Quality flags

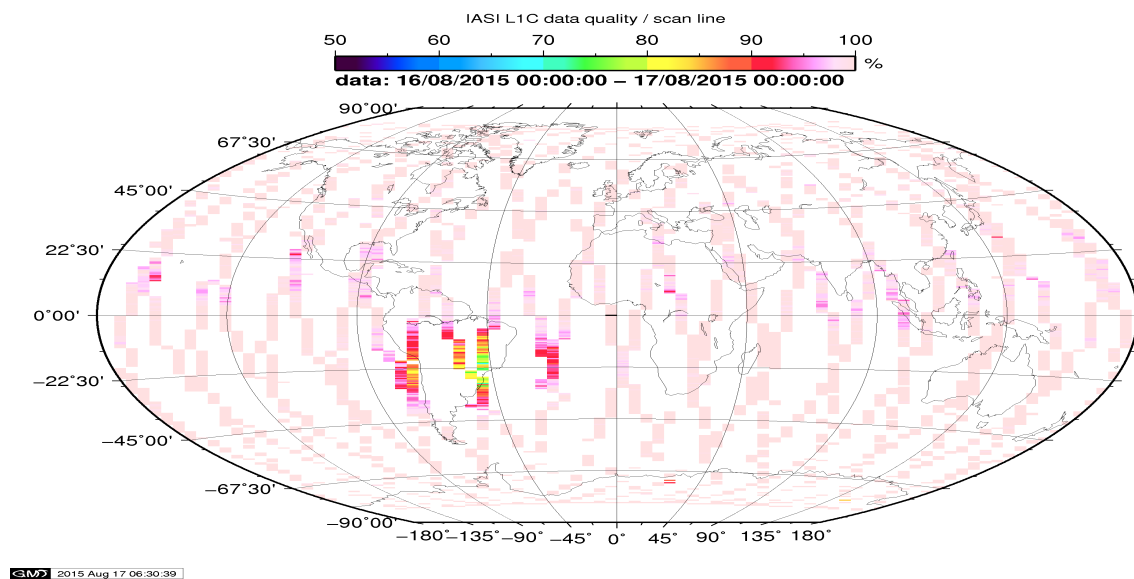


Figure 1: L1C data quality

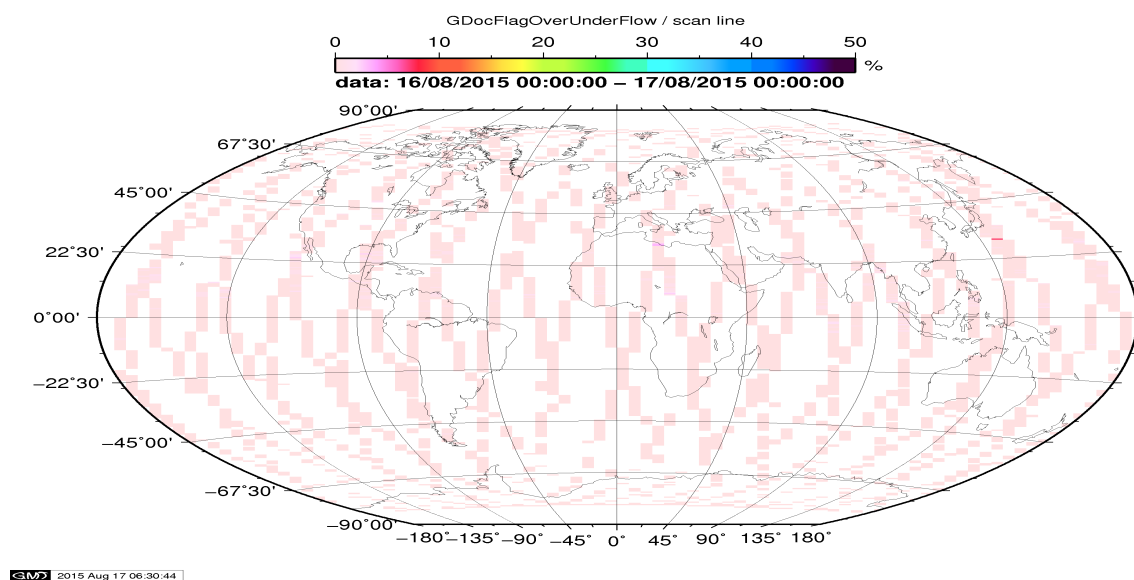


Figure 2: Flag of Over and Under Flows

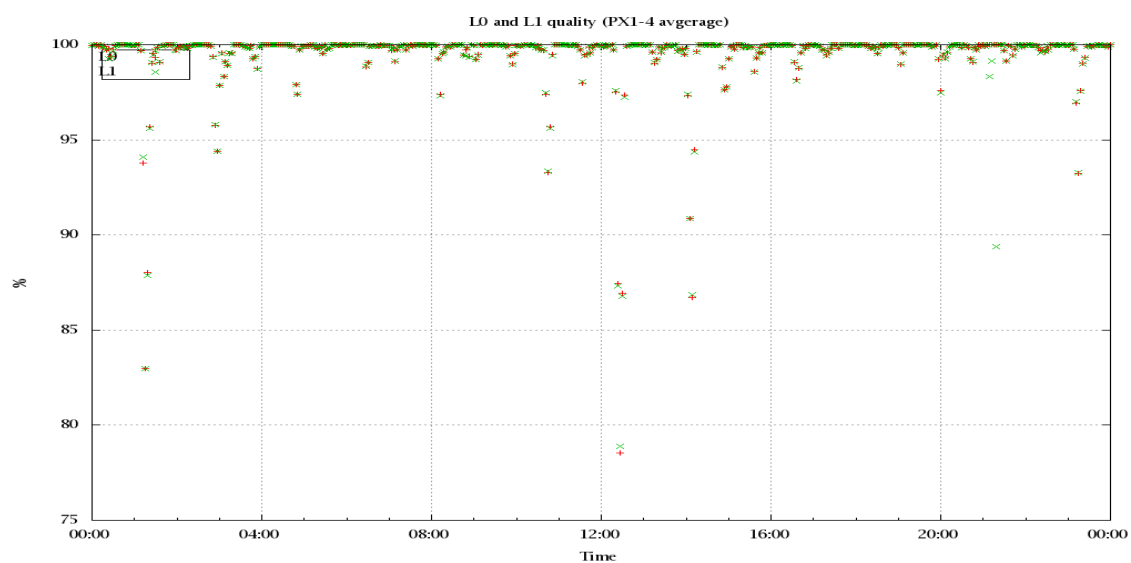


Figure 3: Level 0 and 1C overall quality

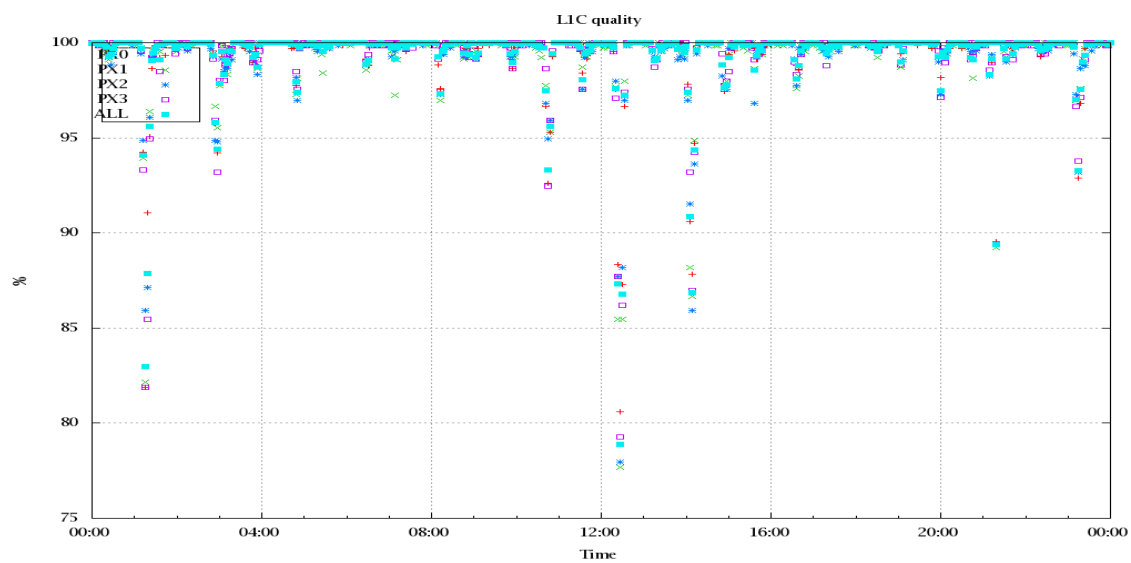


Figure 4: Level 1C quality

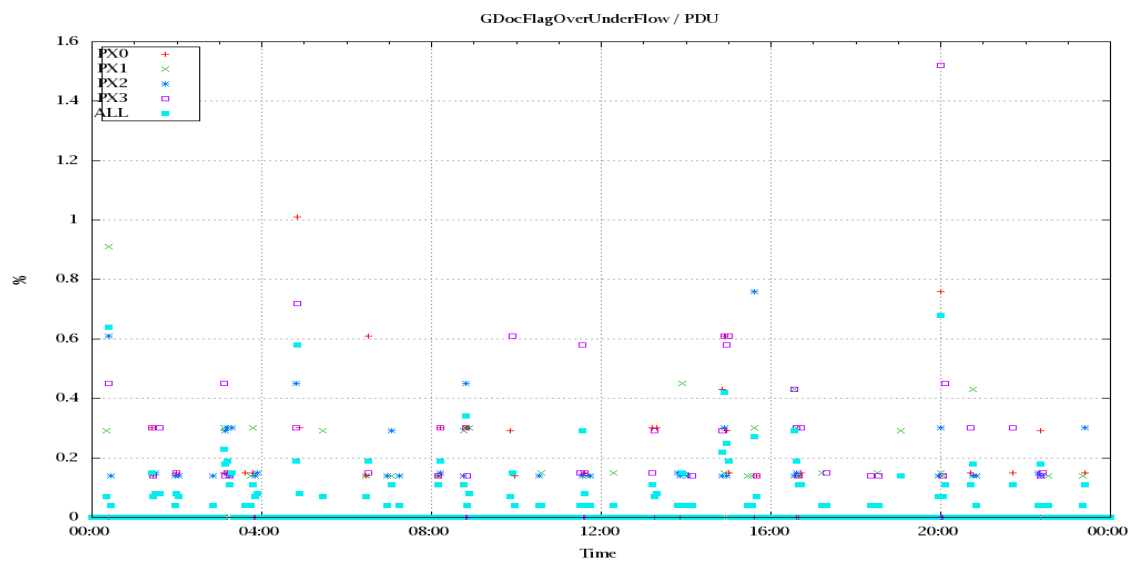


Figure 5: OverUnderFlowFlag timeseries

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.

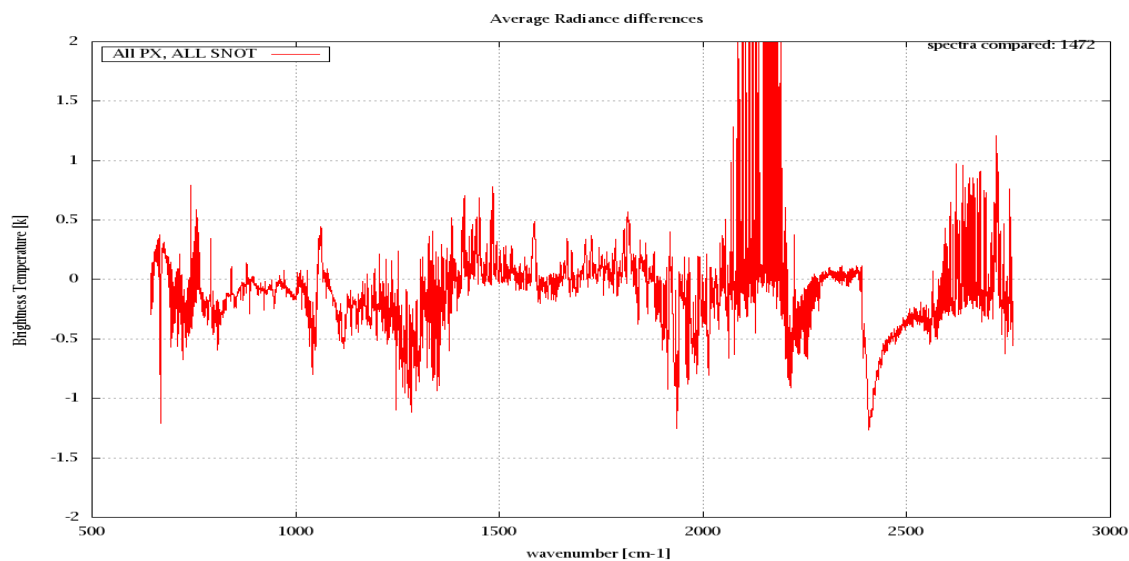


Figure 6: Average Radiance differences: OBS-CAL

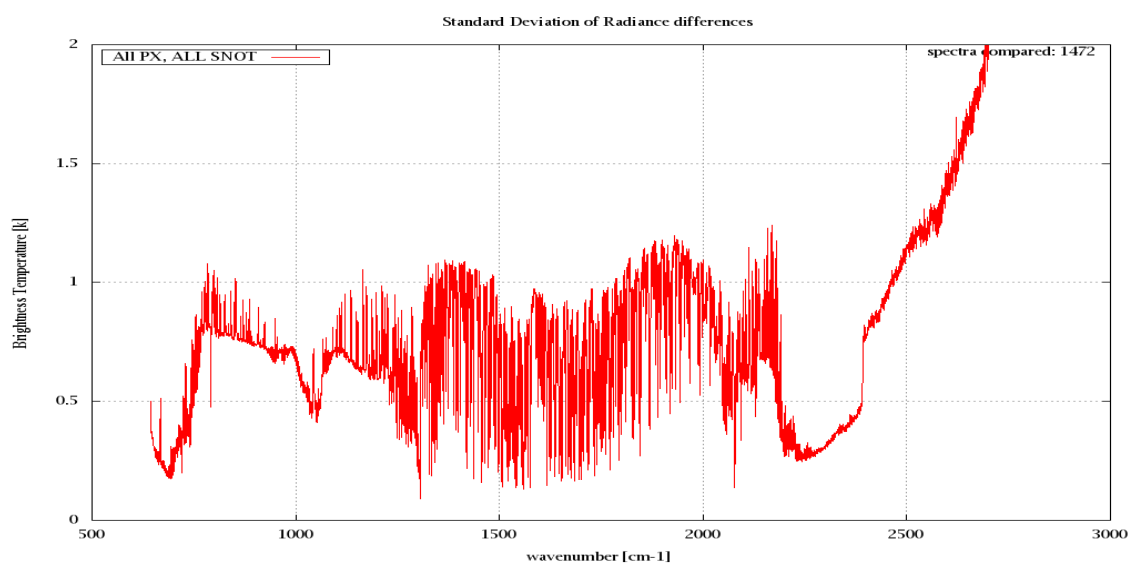


Figure 7: Standard Deviation of Radiance differences

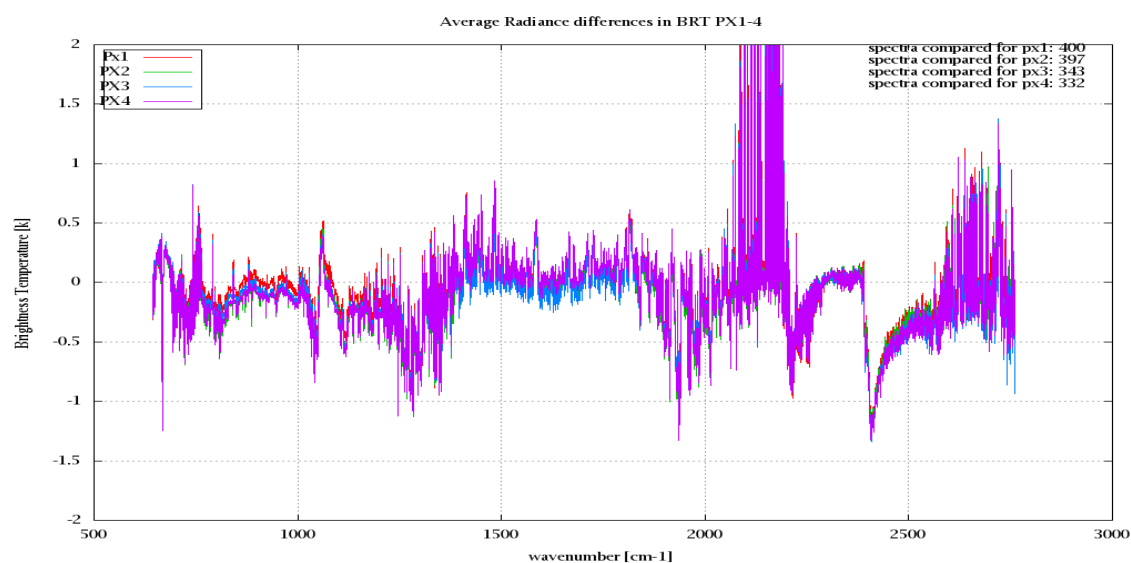


Figure 8: Average Radiance differences: OBS-CAL

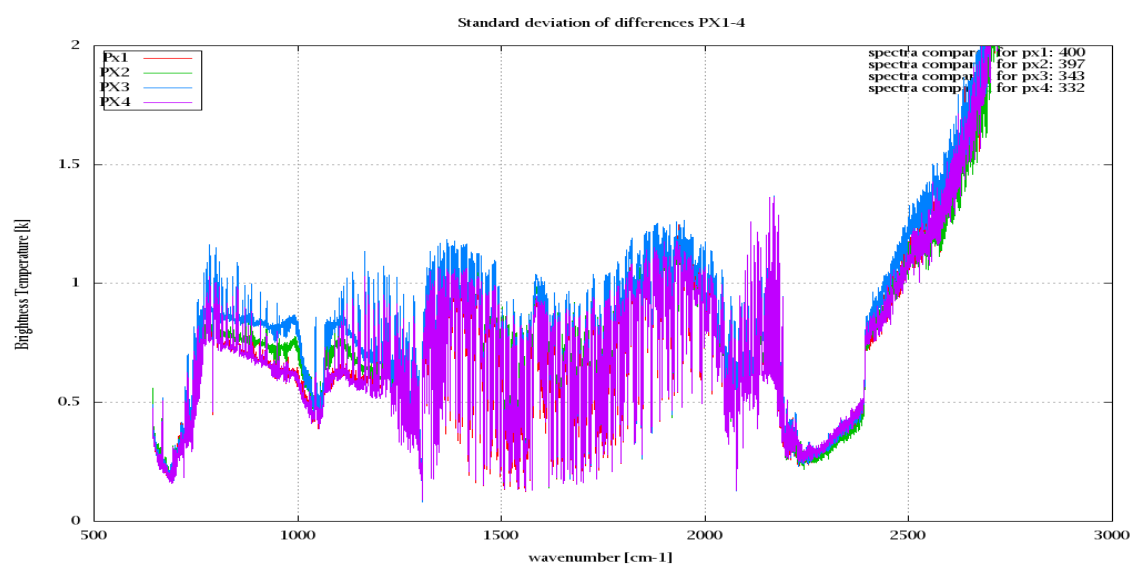


Figure 9: Standard Deviation of Radiance differences

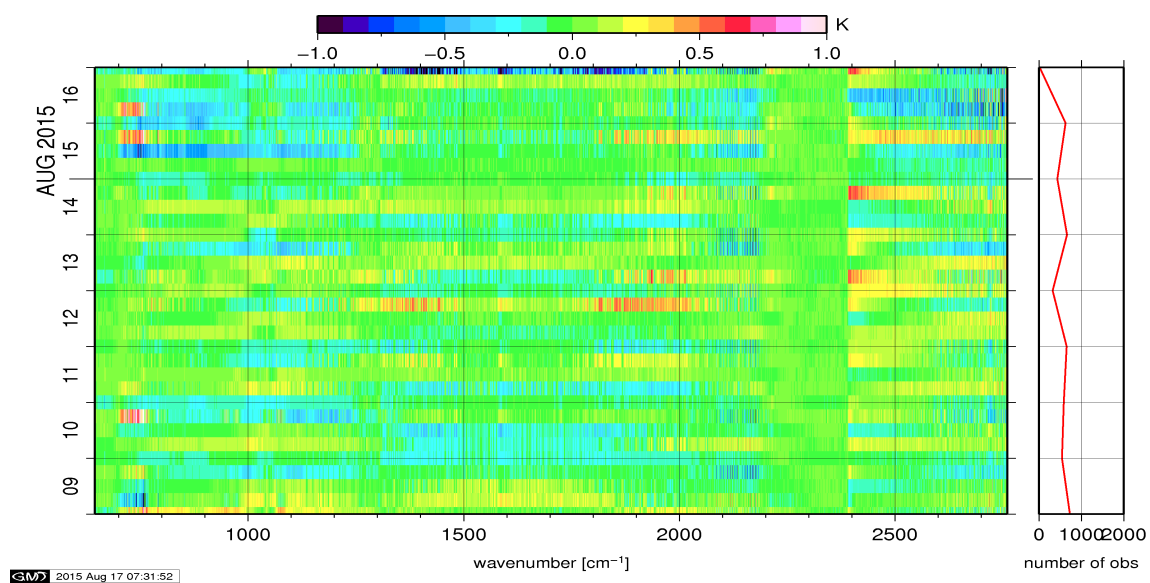


Figure 10: Radiance Anomaly in BRT: All Channels

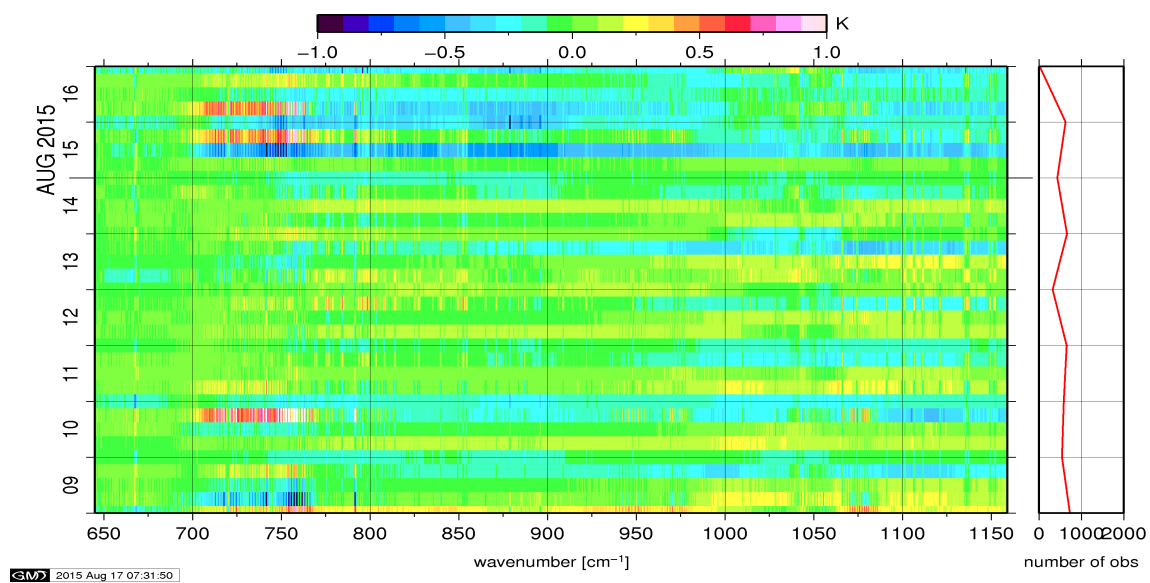


Figure 11: Radiance Anomaly in BRT: IASI Band 1

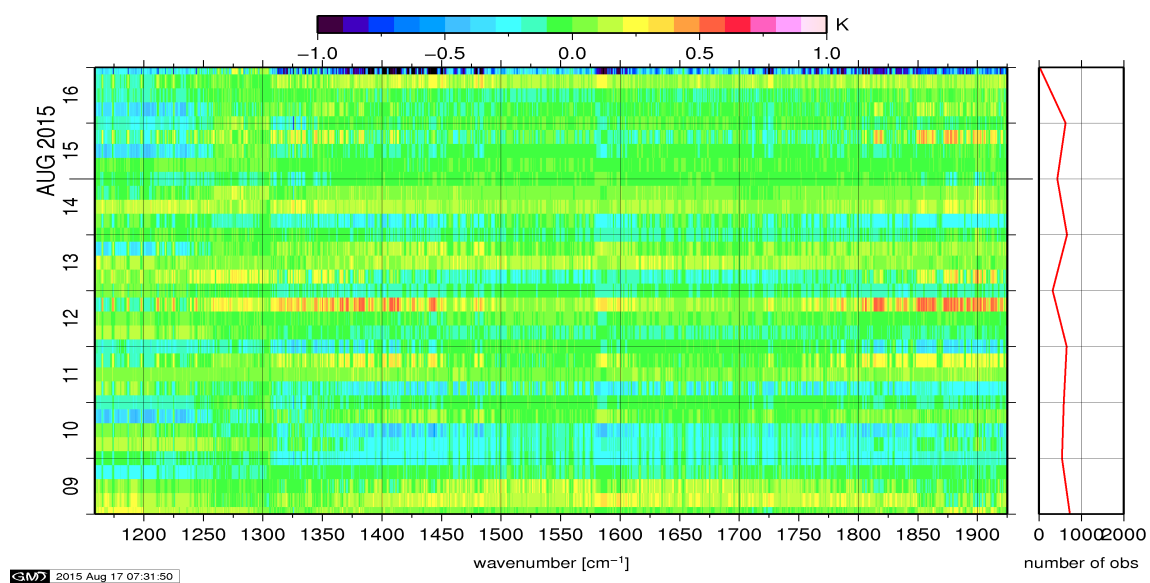


Figure 12: Radiance Anomaly in BRT: IASI Band 2

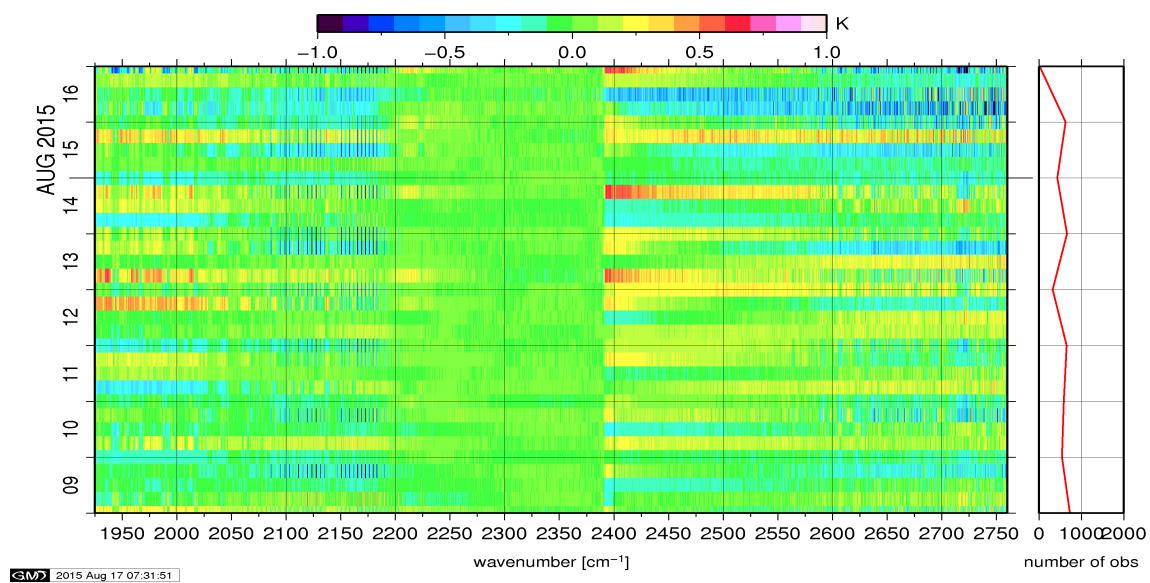


Figure 13: Radiance Anomaly in BRT: IASI Band 3

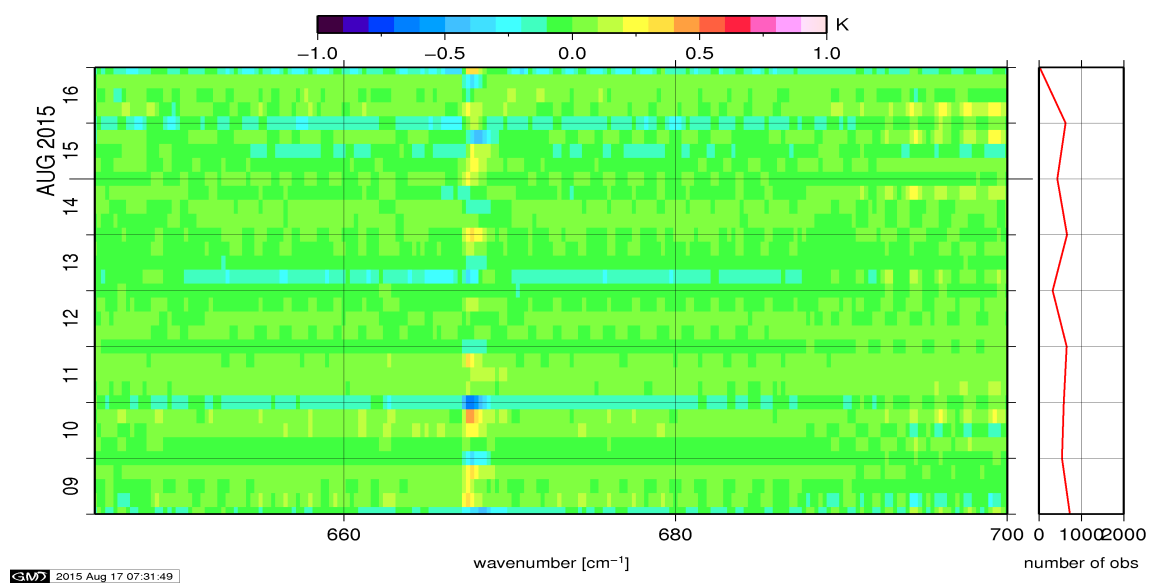


Figure 14: Radiance Anomaly in BRT: CO2 14

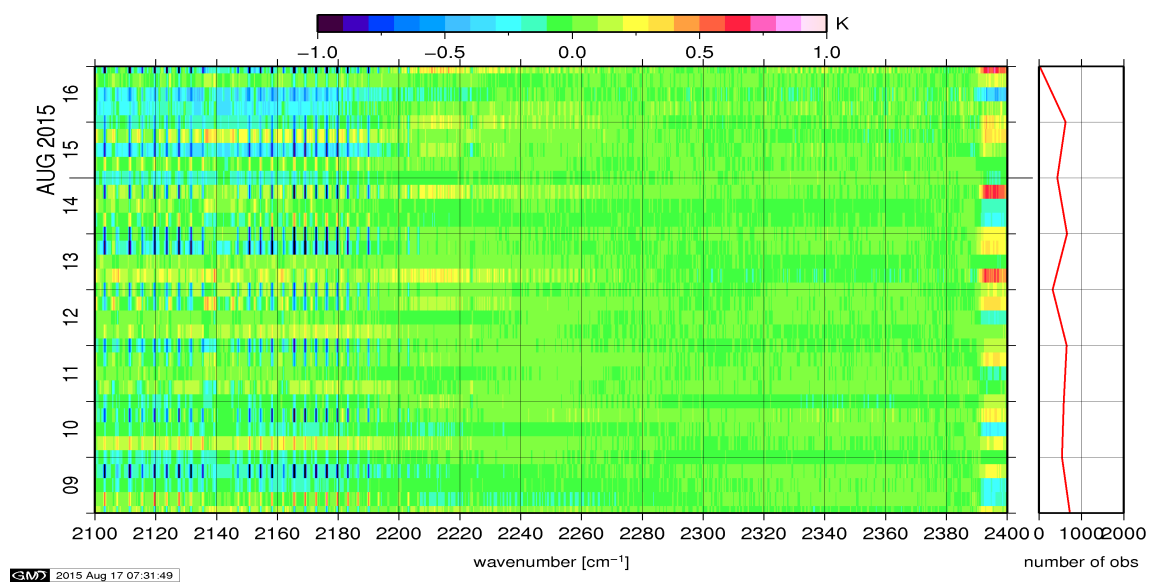


Figure 15: Radiance Anomaly in BRT: CO2 4.3

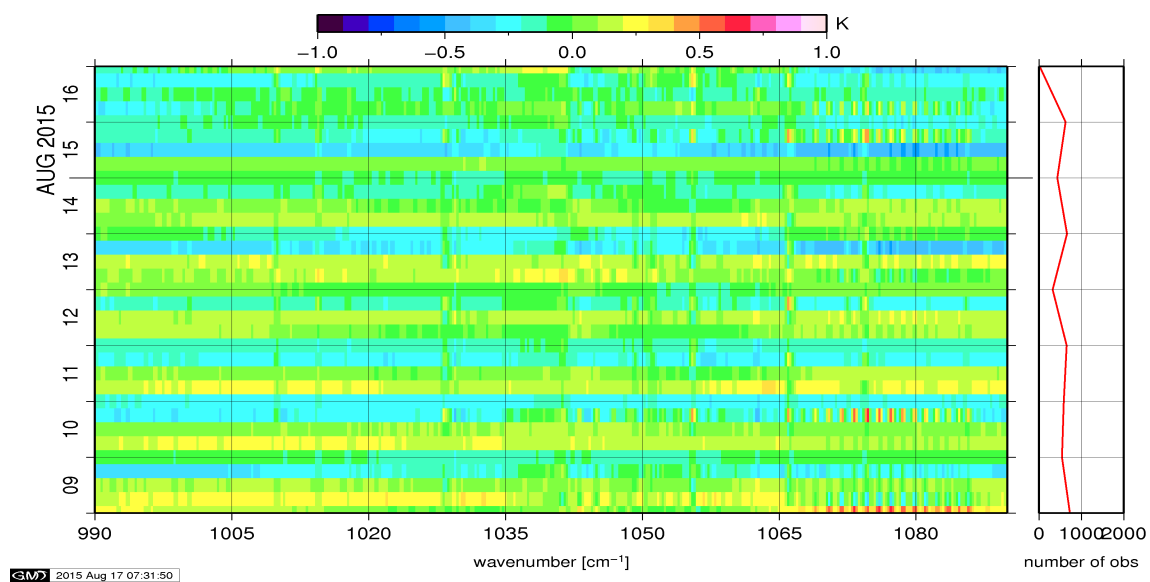


Figure 16: Radiance Anomaly in BRT: O3

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.

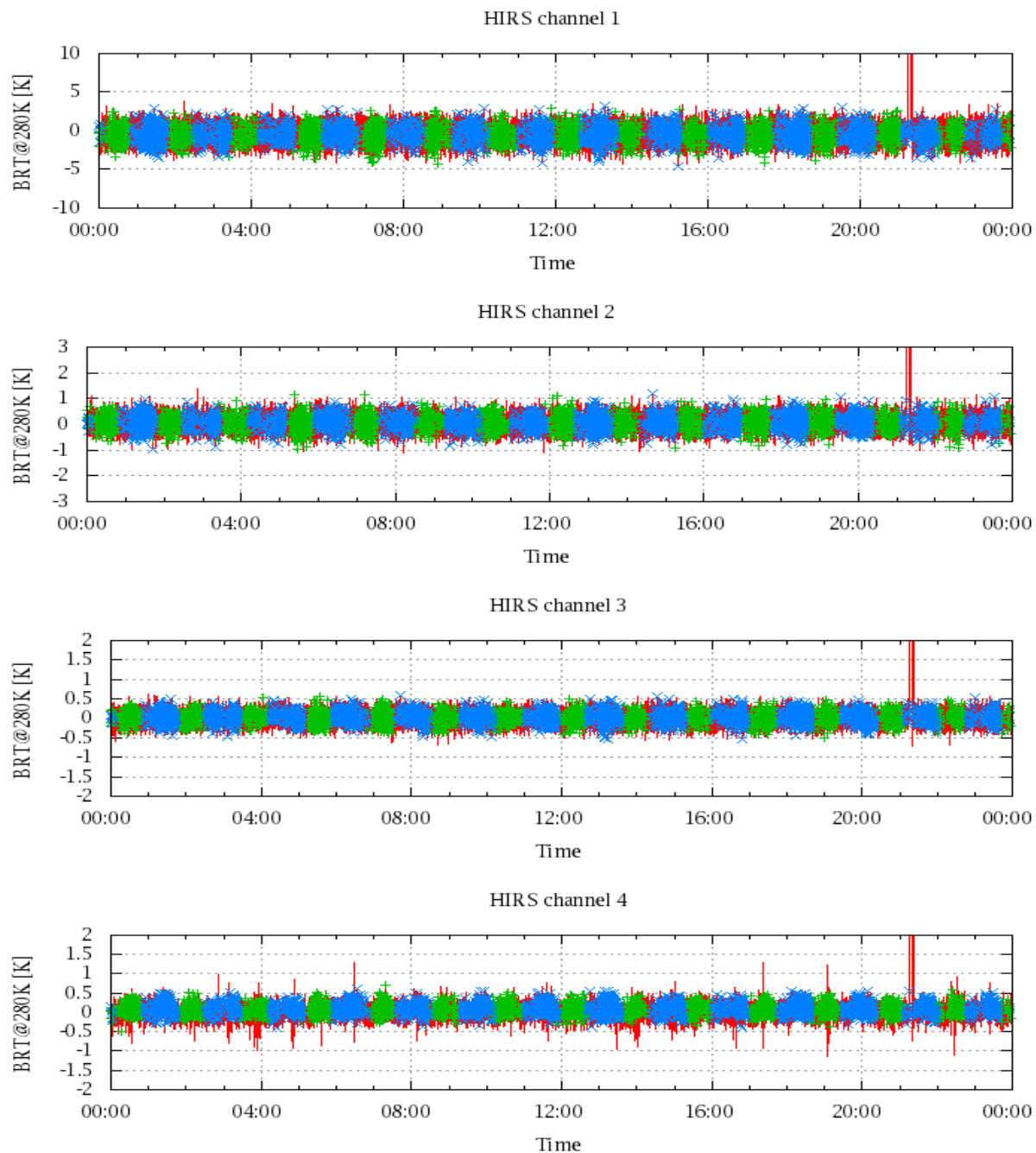


Figure 17: Radiance Differences in BRT

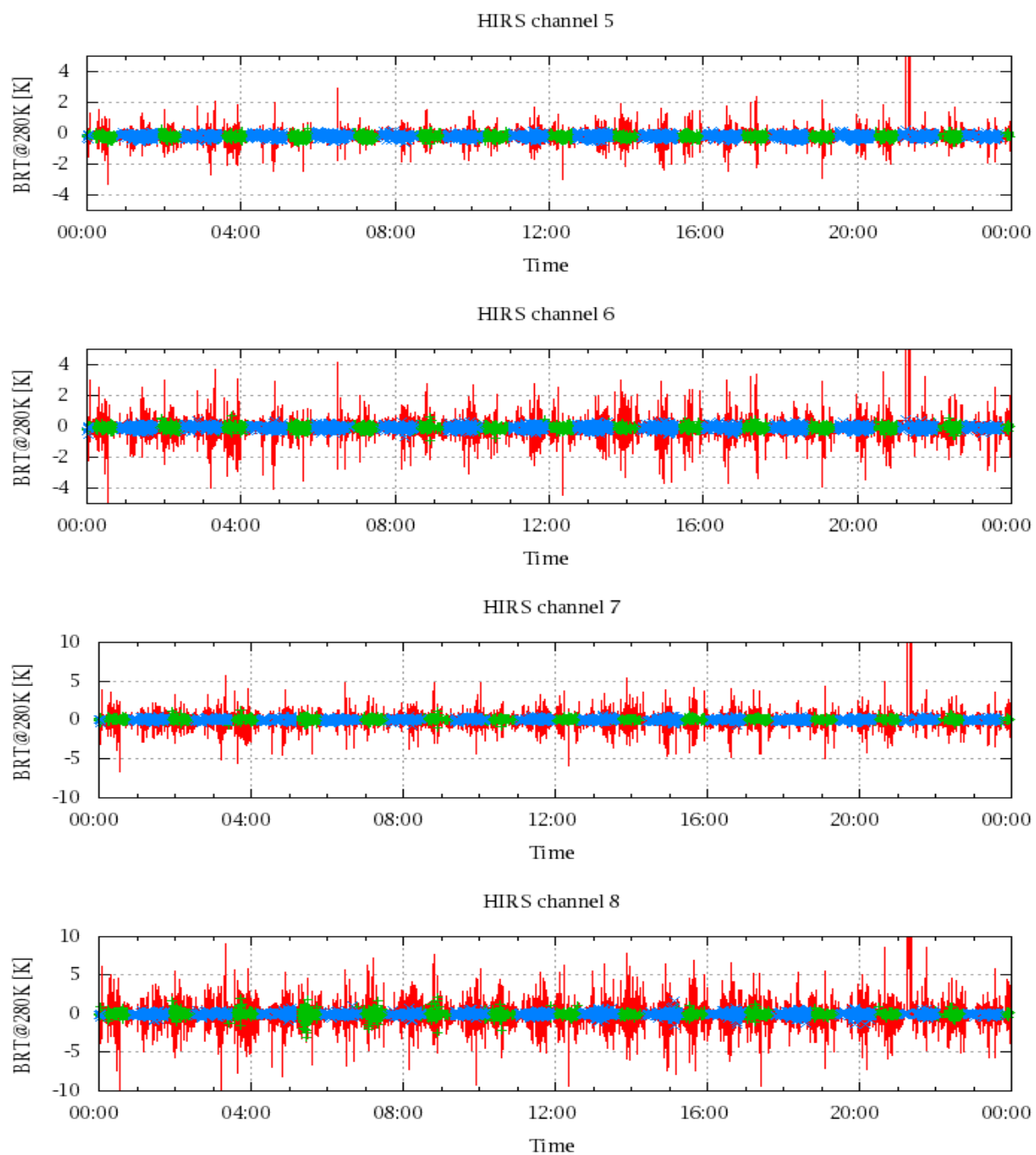


Figure 18: Radiance Differences in BRT

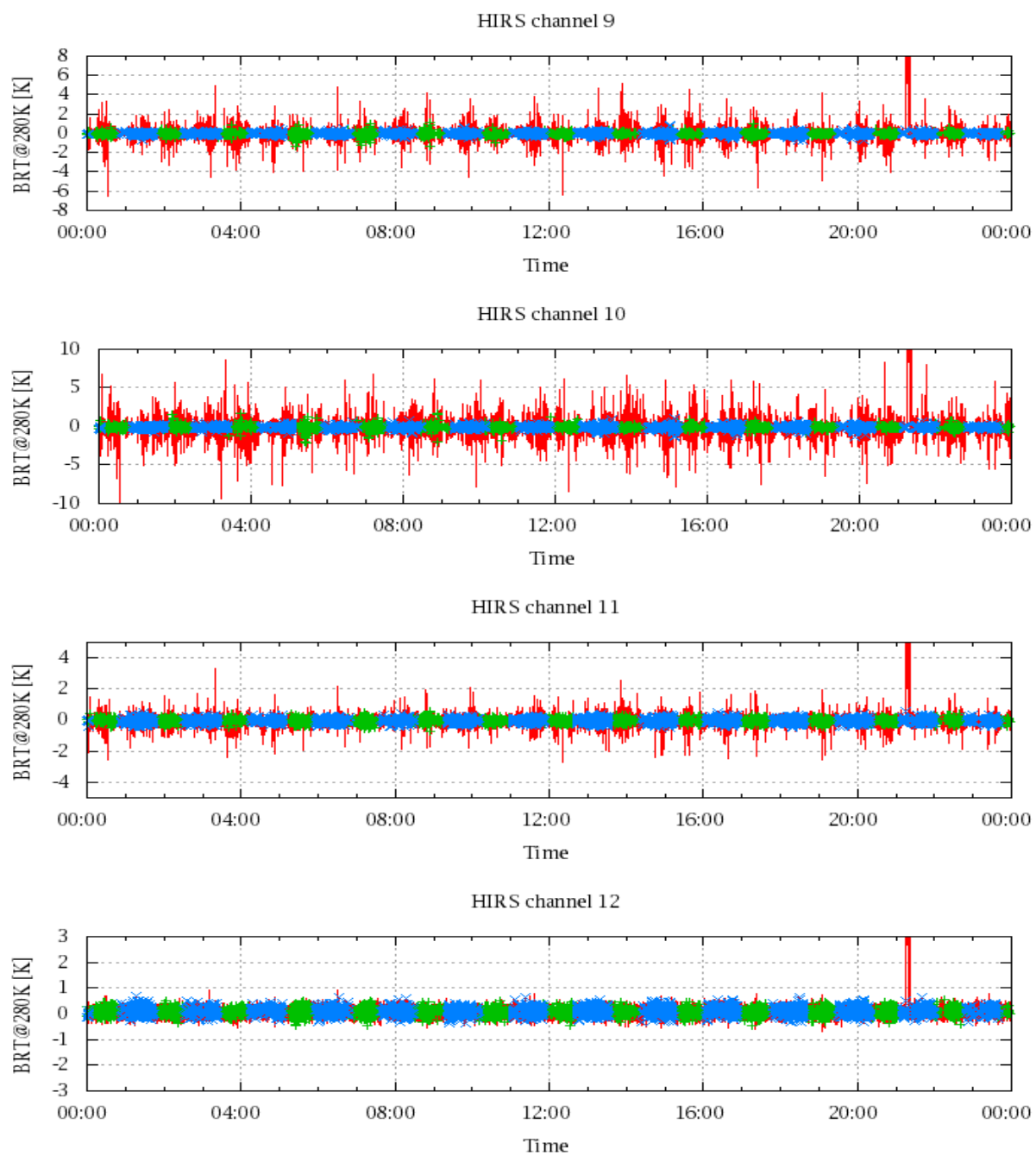


Figure 19: Radiance Differences in BRT

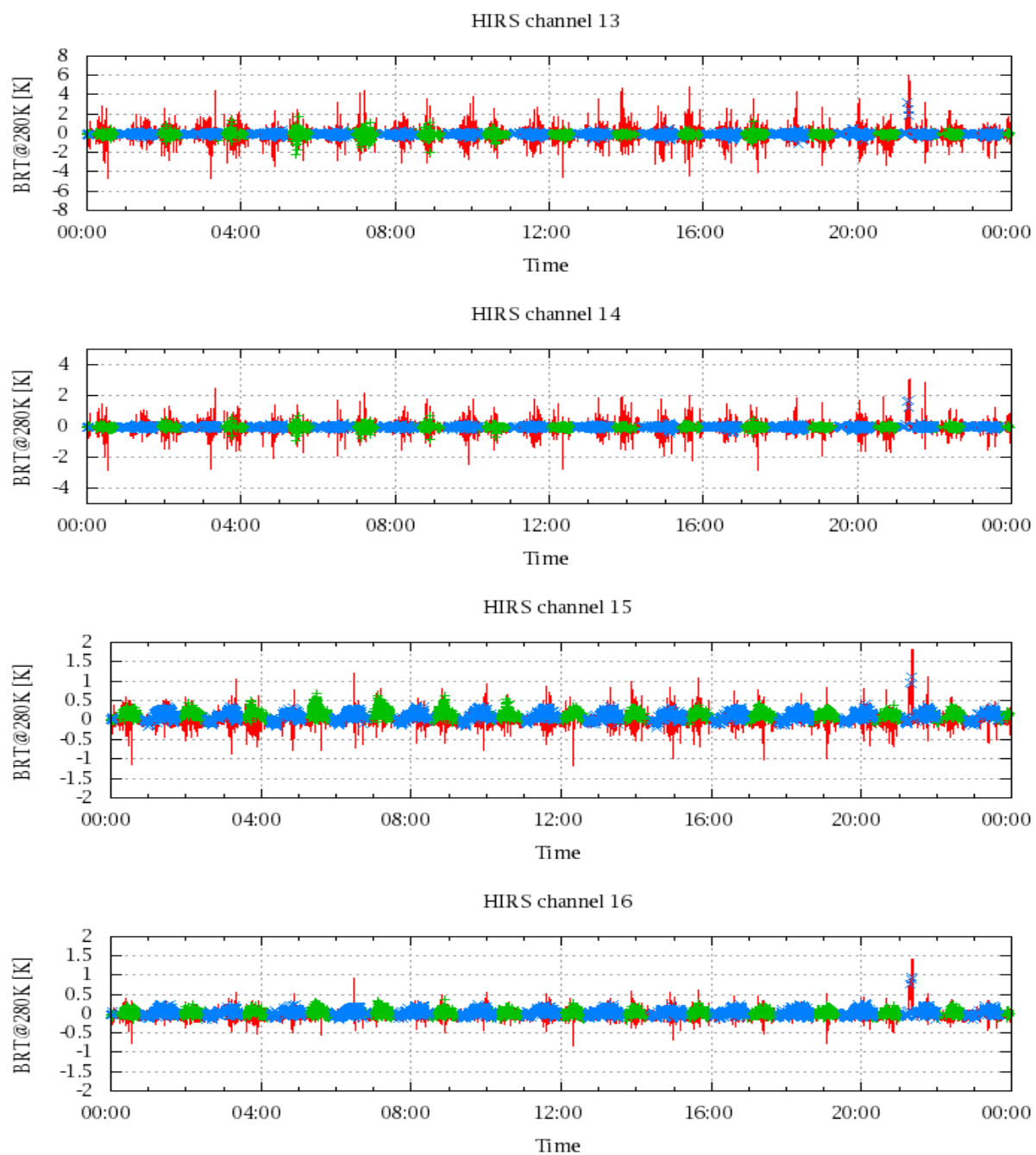


Figure 20: Radiance Differences in BRT

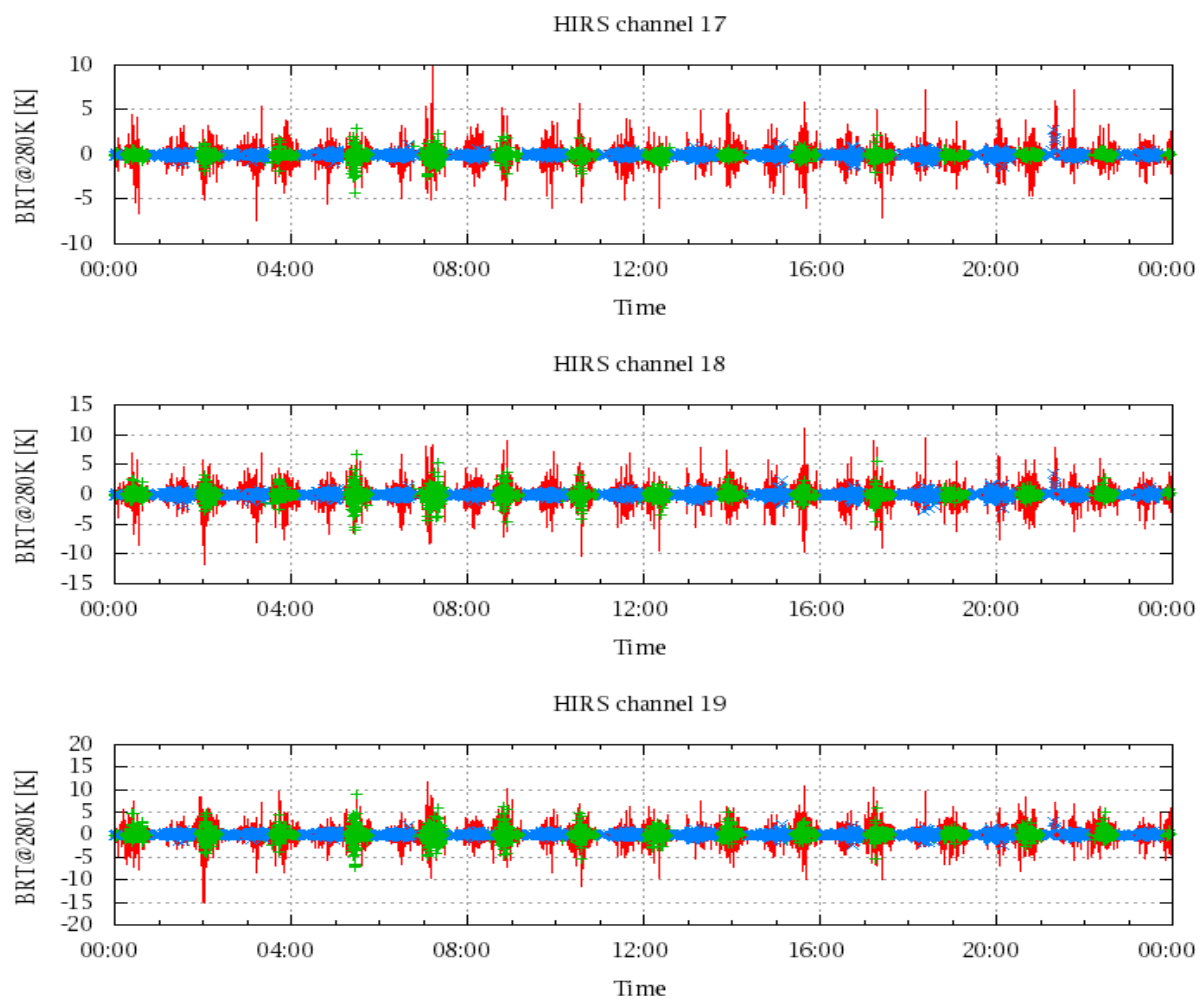


Figure 21: Radinace Differences in BRT