

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

29/03/2016 00:00:00 - 30/03/2016 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 29/03/2016 00:00:00 - 30/03/2016 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 29/03/2016 00:00:00 - 30/03/2016 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	481	-
L1 ENG distinct GEPSGranule	467	-
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)	9966	9968	20160329112914.095	20160329112914.524
PX1 (130)	9968	9971	20160329112914.524	20160329112915.173
PX1 (130)	9971	9974	20160329112915.173	20160329112915.825
PX1 (130)	9977	9980	20160329112916.470	20160329112917.122
PX1 (130)	9980	9982	20160329112917.122	20160329112917.552
PX1 (130)	9982	9984	20160329112917.552	20160329112917.985
PX1 (130)	9984	9986	20160329112917.985	20160329112919.931
PX1 (130)	9988	9990	20160329112920.364	20160329112920.794
PX1 (130)	9992	9994	20160329112921.227	20160329112921.661
PX1 (130)	10305	10308	20160329113044.075	20160329113044.723
PX1 (130)	10308	10310	20160329113044.723	20160329113045.153
PX1 (130)	10310	10317	20160329113045.153	20160329113048.180
PX1 (130)	10317	10332	20160329113048.180	20160329113051.426
PX1 (130)	10332	10352	20160329113051.426	20160329113057.262
PX1 (130)	10352	10358	20160329113057.262	20160329113058.559
PX1 (130)	10359	10361	20160329113058.778	20160329113059.208
PX1 (130)	10361	10364	20160329113059.208	20160329113059.856
PX1 (130)	10364	10369	20160329113059.856	20160329113100.938

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	10369	10371	20160329113100.938	20160329113101.372
PX1 (130)	10372	10374	20160329113101.587	20160329113102.020
PX1 (130)	10377	10379	20160329113104.180	20160329113104.614
PX1 (130)	10380	10382	20160329113104.829	20160329113105.262
PX1 (130)	10387	10389	20160329113106.344	20160329113106.774
PX1 (130)	10389	10391	20160329113106.774	20160329113107.208
PX1 (130)	10391	10393	20160329113107.208	20160329113107.641
PX1 (130)	10397	10399	20160329113108.505	20160329113108.938
PX1 (130)	10402	10404	20160329113109.587	20160329113110.020
PX1 (130)	10441	10443	20160329113121.044	20160329113121.477
PX1 (130)	10443	10445	20160329113121.477	20160329113121.911
PX1 (130)	10456	10458	20160329113124.290	20160329113124.723
PX2 (135)	9966	9968	20160329112914.095	20160329112914.524
PX2 (135)	9968	9971	20160329112914.524	20160329112915.173
PX2 (135)	9971	9975	20160329112915.173	20160329112916.040
PX2 (135)	9976	9980	20160329112916.255	20160329112917.122
PX2 (135)	9980	9982	20160329112917.122	20160329112917.552
PX2 (135)	9982	9984	20160329112917.552	20160329112917.985
PX2 (135)	9984	9986	20160329112917.985	20160329112919.931
PX2 (135)	9988	9990	20160329112920.364	20160329112920.794
PX2 (135)	10305	10308	20160329113044.075	20160329113044.723
PX2 (135)	10308	10321	20160329113044.723	20160329113049.048
PX2 (135)	10321	10349	20160329113049.048	20160329113056.614
PX2 (135)	10349	10352	20160329113056.614	20160329113057.262
PX2 (135)	10352	10359	20160329113057.262	20160329113058.778
PX2 (135)	10359	10372	20160329113058.778	20160329113101.587
PX2 (135)	10372	10376	20160329113101.587	20160329113103.966
PX2 (135)	10377	10379	20160329113104.180	20160329113104.614
PX2 (135)	10380	10382	20160329113104.829	20160329113105.262
PX2 (135)	10386	10389	20160329113106.126	20160329113106.774
PX2 (135)	10389	10391	20160329113106.774	20160329113107.208
PX2 (135)	10391	10393	20160329113107.208	20160329113107.641
PX2 (135)	10396	10399	20160329113108.290	20160329113108.938
PX2 (135)	10402	10404	20160329113109.587	20160329113110.020
PX2 (135)	10437	10439	20160329113120.180	20160329113120.614
PX2 (135)	10441	10443	20160329113121.044	20160329113121.477
PX2 (135)	10443	10445	20160329113121.477	20160329113121.911
PX2 (135)	10448	10450	20160329113122.559	20160329113122.993
PX2 (135)	10456	10458	20160329113124.290	20160329113124.723
PX3 (140)	9966	9968	20160329112914.095	20160329112914.524
PX3 (140)	9968	9970	20160329112914.524	20160329112914.958
PX3 (140)	9973	9975	20160329112915.606	20160329112916.040
PX3 (140)	9975	9984	20160329112916.040	20160329112917.985
PX3 (140)	9984	9987	20160329112917.985	20160329112920.149
PX3 (140)	9988	9990	20160329112920.364	20160329112920.794
PX3 (140)	10305	10352	20160329113044.075	20160329113057.262
PX3 (140)	10352	10354	20160329113057.262	20160329113057.696
PX3 (140)	10354	10357	20160329113057.696	20160329113058.344
PX3 (140)	10357	10359	20160329113058.344	20160329113058.778
PX3 (140)	10360	10363	20160329113058.993	20160329113059.641
PX3 (140)	10363	10372	20160329113059.641	20160329113101.587
PX3 (140)	10372	10376	20160329113101.587	20160329113103.966
PX3 (140)	10376	10379	20160329113103.966	20160329113104.614

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	10386	10389	20160329113106.126	20160329113106.774
PX3 (140)	10391	10393	20160329113107.208	20160329113107.641
PX3 (140)	10396	10398	20160329113108.290	20160329113108.723
PX3 (140)	10437	10439	20160329113120.180	20160329113120.614
PX3 (140)	10443	10445	20160329113121.477	20160329113121.911
PX3 (140)	10448	10450	20160329113122.559	20160329113122.993
PX3 (140)	10455	10457	20160329113124.071	20160329113124.505
PX4 (145)	9972	9975	20160329112915.391	20160329112916.040
PX4 (145)	9975	9978	20160329112916.040	20160329112916.688
PX4 (145)	9979	9981	20160329112916.903	20160329112917.337
PX4 (145)	9981	9983	20160329112917.337	20160329112917.770
PX4 (145)	9984	9987	20160329112917.985	20160329112920.149
PX4 (145)	9988	9992	20160329112920.364	20160329112921.227
PX4 (145)	10305	10310	20160329113044.075	20160329113045.153
PX4 (145)	10310	10348	20160329113045.153	20160329113056.395
PX4 (145)	10348	10350	20160329113056.395	20160329113056.829
PX4 (145)	10350	10352	20160329113056.829	20160329113057.262
PX4 (145)	10352	10357	20160329113057.262	20160329113058.344
PX4 (145)	10357	10359	20160329113058.344	20160329113058.778
PX4 (145)	10363	10365	20160329113059.641	20160329113100.075
PX4 (145)	10368	10372	20160329113100.723	20160329113101.587
PX4 (145)	10372	10376	20160329113101.587	20160329113103.966
PX4 (145)	10376	10379	20160329113103.966	20160329113104.614
PX4 (145)	10379	10381	20160329113104.614	20160329113105.048
PX4 (145)	10387	10389	20160329113106.344	20160329113106.774
PX4 (145)	10396	10398	20160329113108.290	20160329113108.723
PX4 (145)	10437	10439	20160329113120.180	20160329113120.614
PX4 (145)	10448	10450	20160329113122.559	20160329113122.993
PX4 (145)	10455	10457	20160329113124.071	20160329113124.505
IMG (150)	3397	3399	20160329112913.876	20160329112914.309
IMG (150)	3400	3402	20160329112914.524	20160329112914.958
IMG (150)	3402	3406	20160329112914.958	20160329112915.825
IMG (150)	3407	3411	20160329112916.040	20160329112916.903
IMG (150)	3411	3413	20160329112916.903	20160329112917.337
IMG (150)	3413	3415	20160329112917.337	20160329112917.770
IMG (150)	3416	3420	20160329112917.985	20160329112919.282
IMG (150)	3421	3429	20160329112919.497	20160329112921.446
IMG (150)	3469	3471	20160329112930.743	20160329112931.173
IMG (150)	3780	3794	20160329113043.856	20160329113047.317
IMG (150)	3794	3835	20160329113047.317	20160329113057.048
IMG (150)	3835	3841	20160329113057.048	20160329113058.344
IMG (150)	3841	3847	20160329113058.344	20160329113059.641
IMG (150)	3847	3850	20160329113059.641	20160329113100.290
IMG (150)	3850	3852	20160329113100.290	20160329113100.723
IMG (150)	3852	3854	20160329113100.723	20160329113101.153
IMG (150)	3855	3858	20160329113101.372	20160329113102.020
IMG (150)	3858	3860	20160329113102.020	20160329113102.669
IMG (150)	3864	3867	20160329113103.966	20160329113104.614
IMG (150)	3867	3869	20160329113104.614	20160329113105.048
IMG (150)	3870	3872	20160329113105.262	20160329113105.696
IMG (150)	3874	3878	20160329113106.126	20160329113106.993
IMG (150)	3878	3880	20160329113106.993	20160329113107.426
IMG (150)	3889	3891	20160329113109.368	20160329113109.801
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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	3928	3933	20160329113118.669	20160329113120.180
IMG (150)	3935	3938	20160329113120.614	20160329113121.262
IMG (150)	3939	3941	20160329113121.477	20160329113121.911
IMG (150)	3947	3950	20160329113123.208	20160329113123.856
IMG (150)	3950	3953	20160329113123.856	20160329113124.505
VER (160)	8239	8245	20160329112910.200	20160329112926.200
VER (160)	8247	8249	20160329112926.200	20160329112926.200
VER (160)	8251	8253	20160329112934.200	20160329112934.200
VER (160)	8294	8306	20160329113038.235	20160329113102.235
VER (160)	8306	8309	20160329113102.235	20160329113102.235
AUX (180)	14741	14743	20160329112910.634	20160329112926.634
AUX (180)	14752	14755	20160329113038.669	20160329113102.669

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
29/03/2016 00:00:03	-	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	467	-
GQisFlagQual set (PX1)	99.56 %	-
GQisFlagQual set (PX2)	99.62 %	-
GQisFlagQual set (PX3)	99.62 %	-
GQisFlagQual set (PX4)	99.56 %	-
GQisFlagQual set (all)	99.59 %	-

Table 4: Quality flags

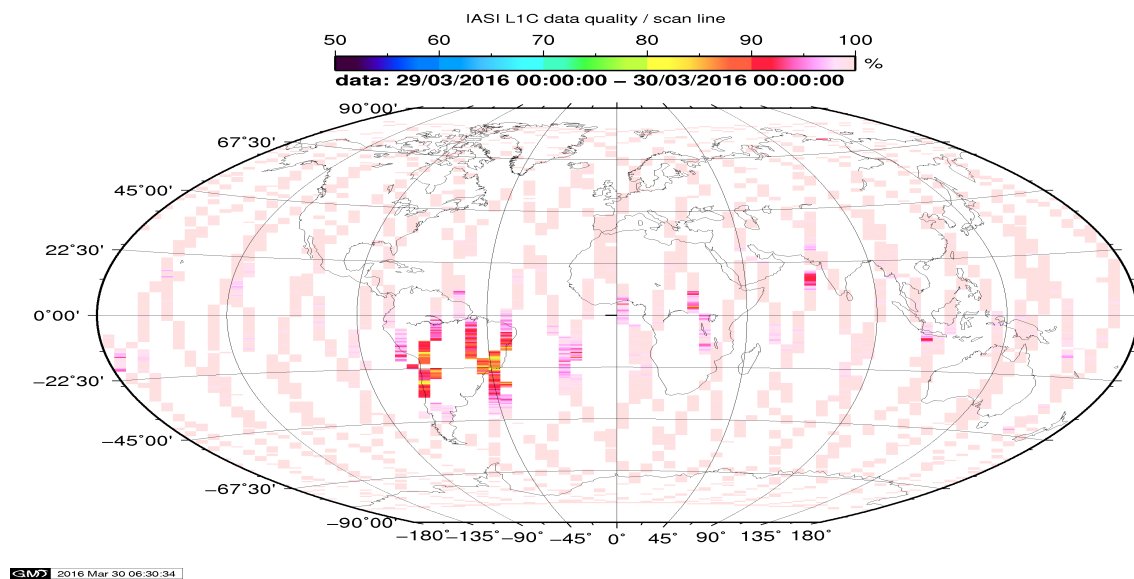


Figure 1: L1C data quality

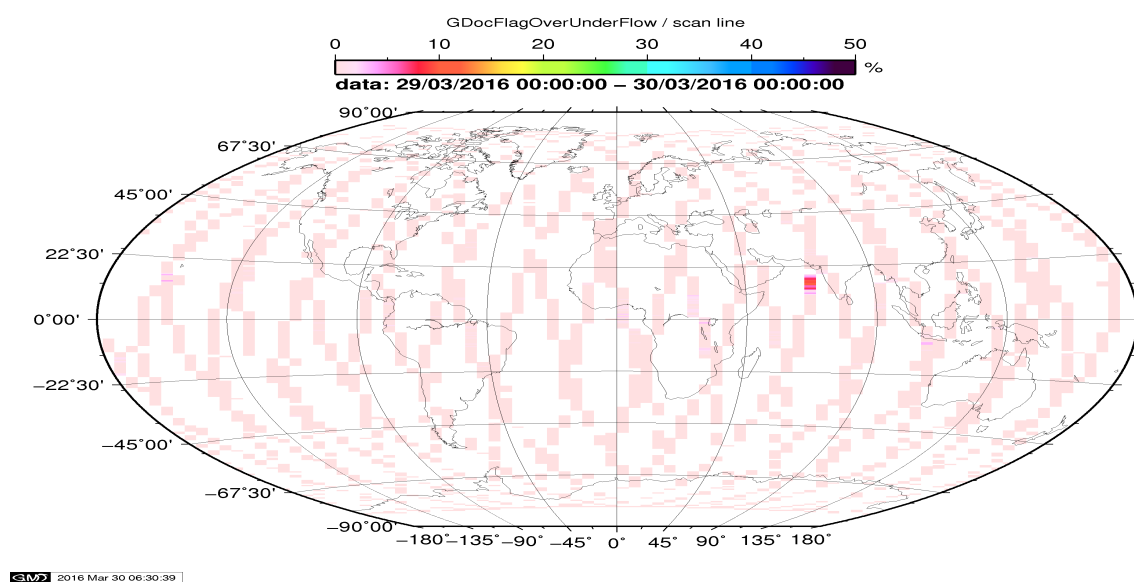


Figure 2: Flag of Over and Under Flows

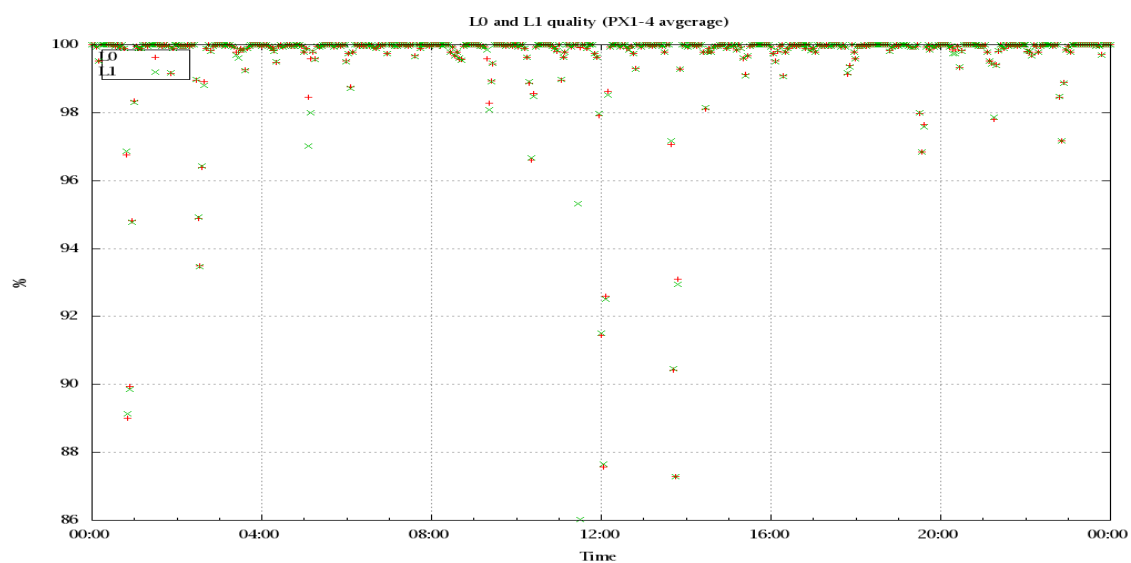


Figure 3: Level 0 and 1C overall quality

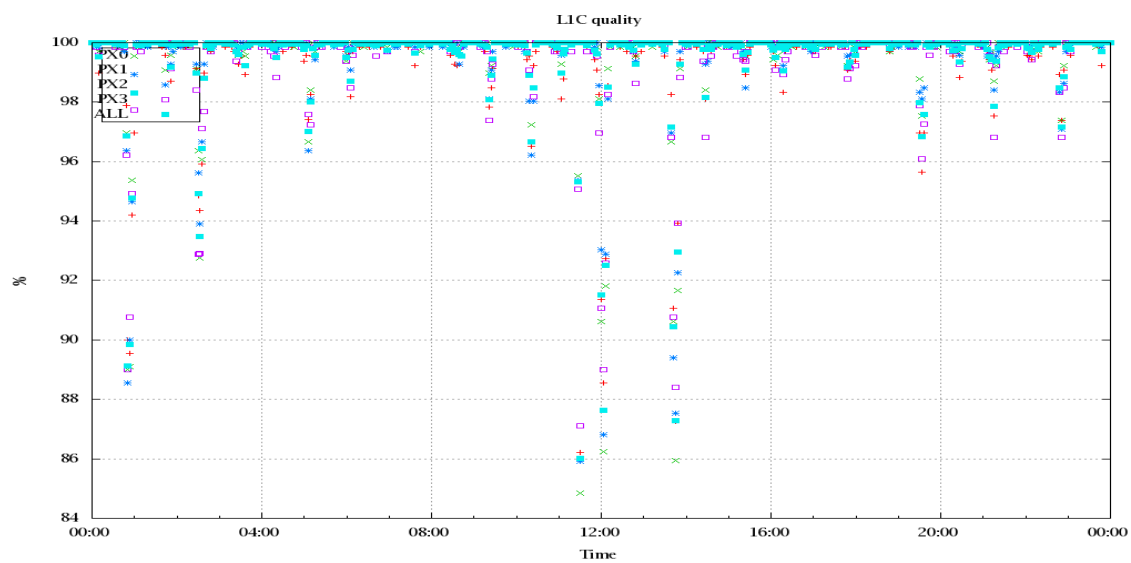


Figure 4: Level 1C quality

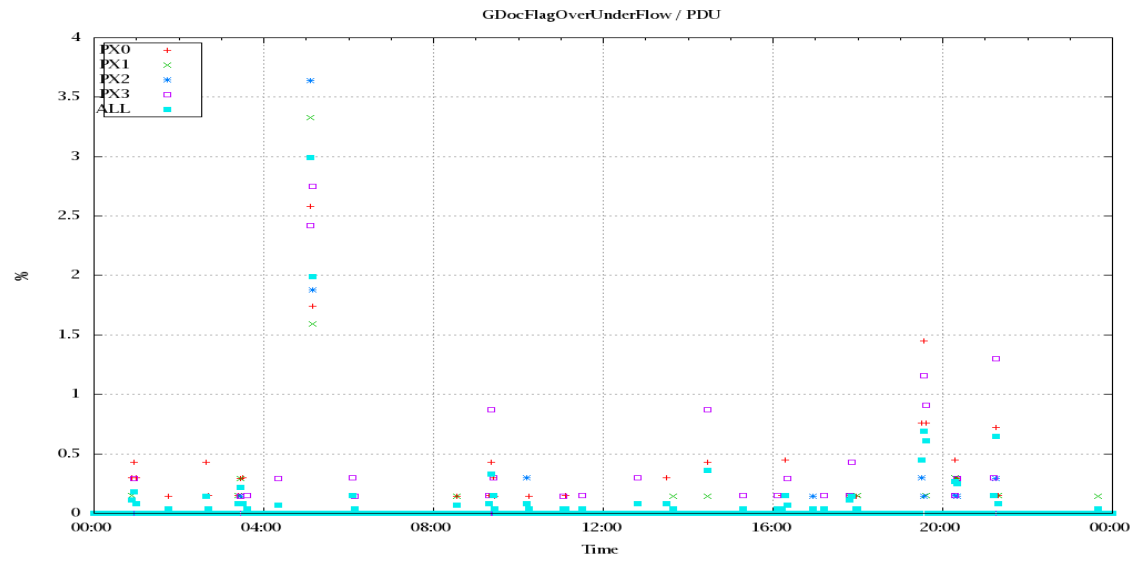


Figure 5: OverUnderFlowFlag timeseries

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.

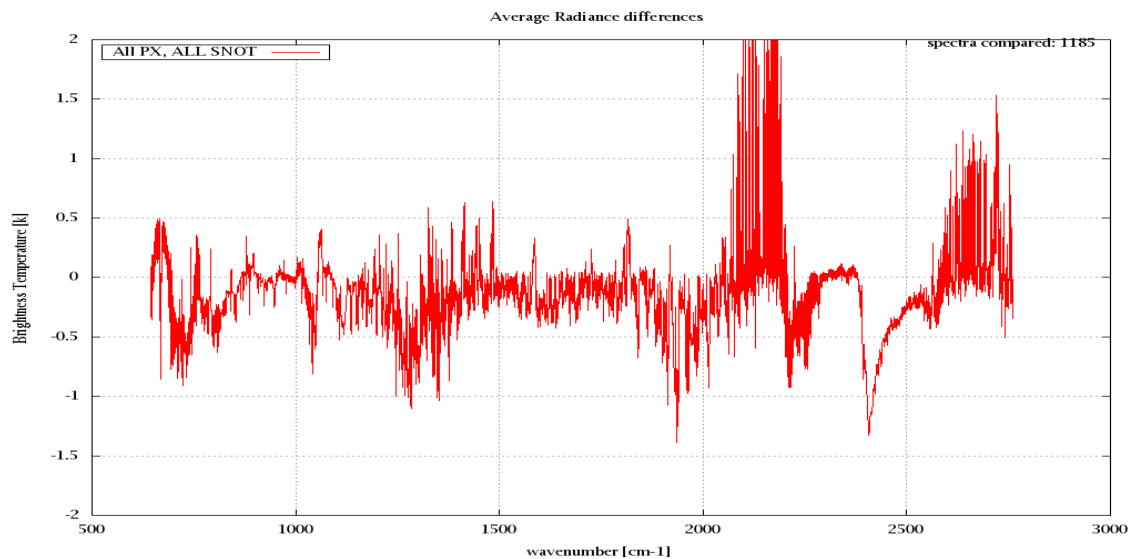


Figure 6: Average Radiance differences: OBS-CAL

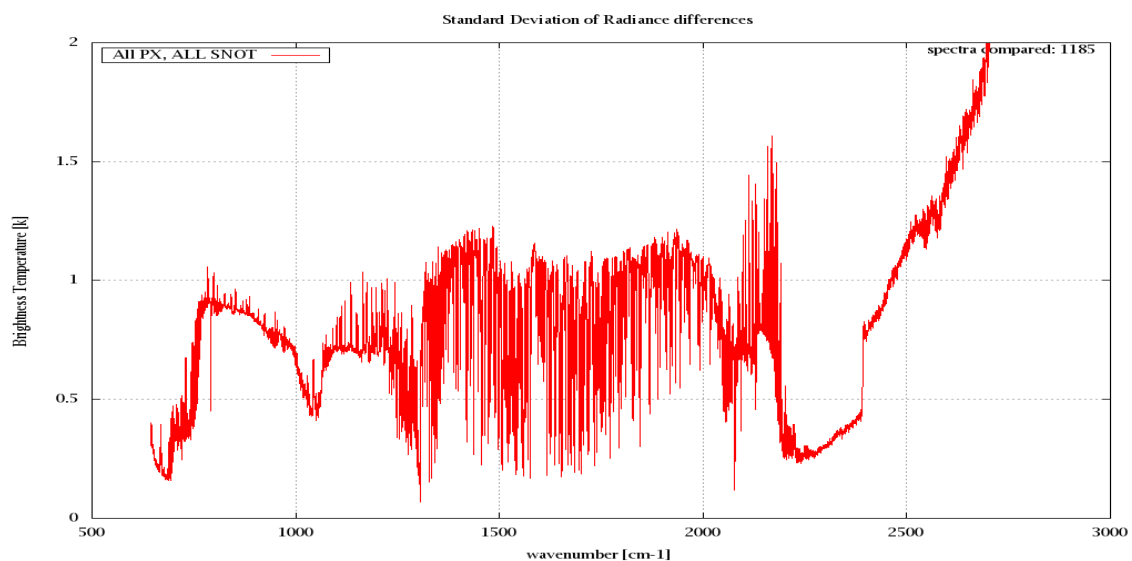


Figure 7: Standard Deviation of Radiance differences

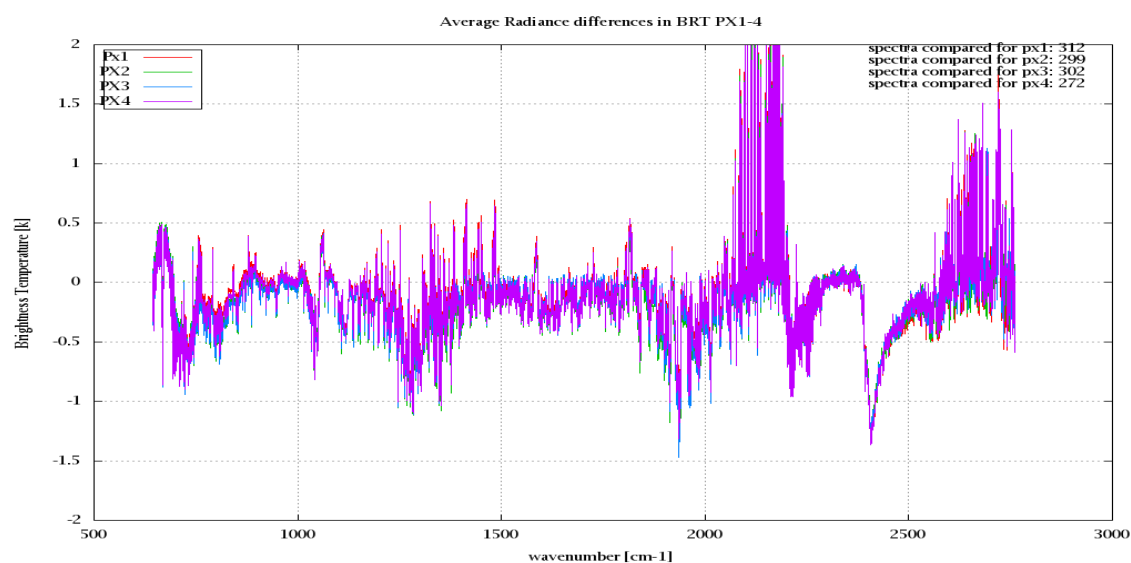


Figure 8: Average Radiance differences: OBS-CAL

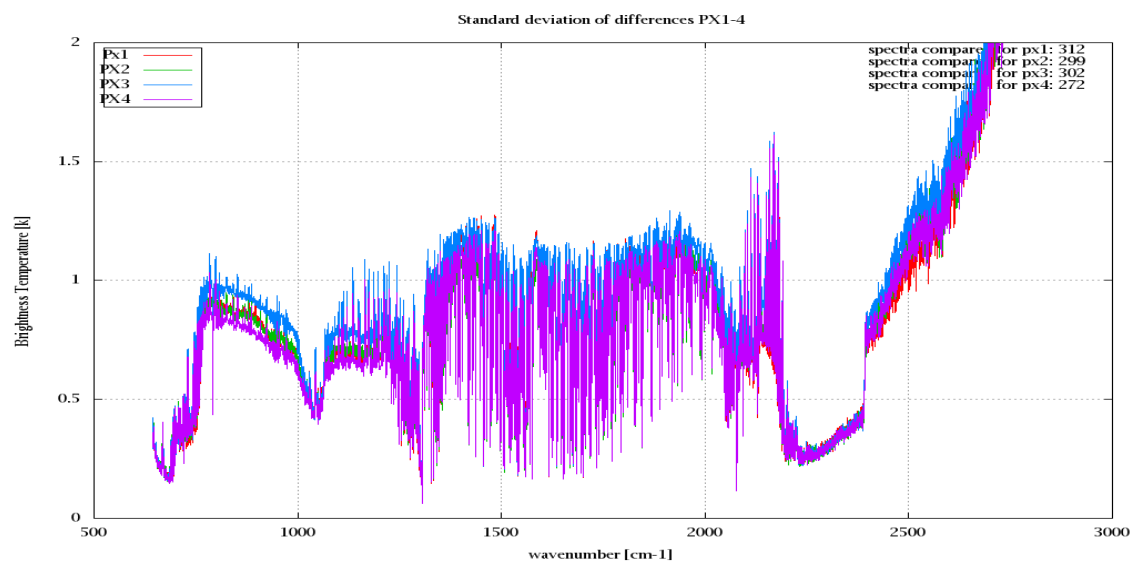


Figure 9: Standard Deviation of Radiance differences

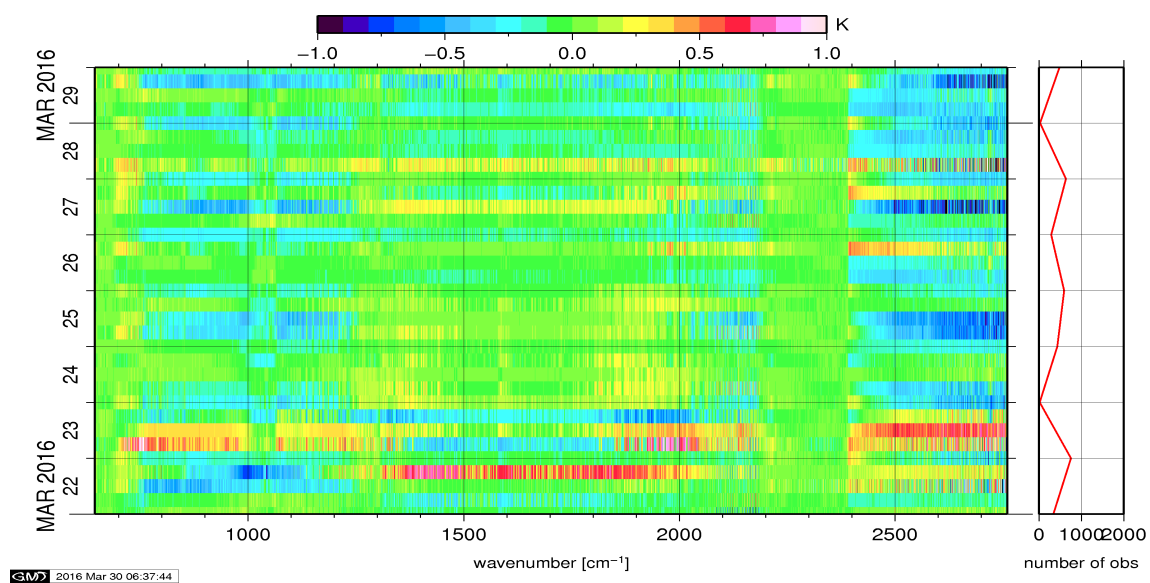


Figure 10: Radiance Anomaly in BRT: All Channels

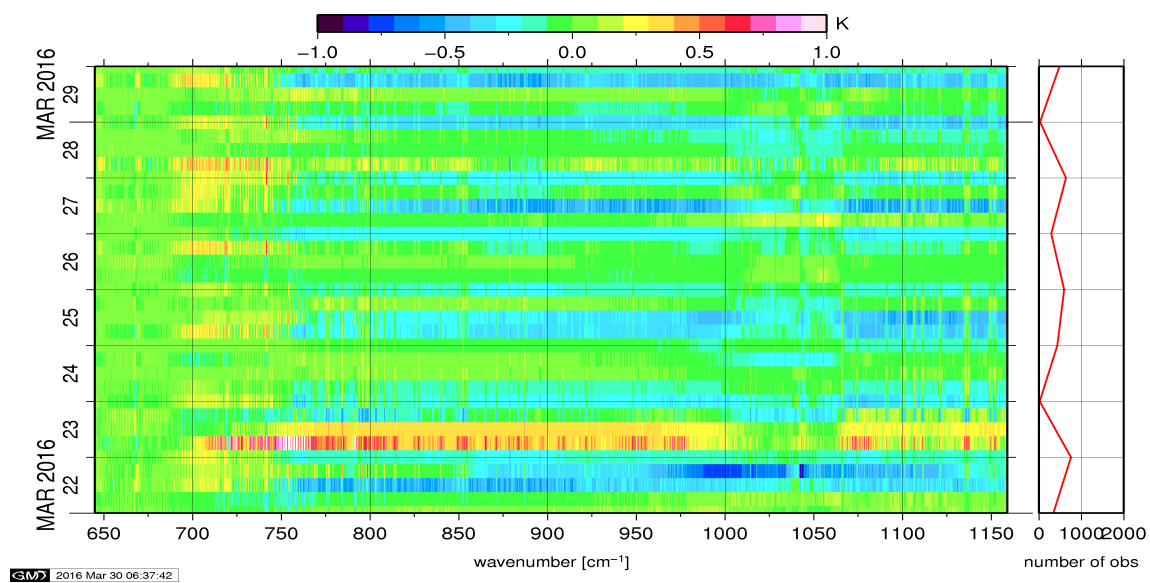


Figure 11: Radiance Anomaly in BRT: IASI Band 1

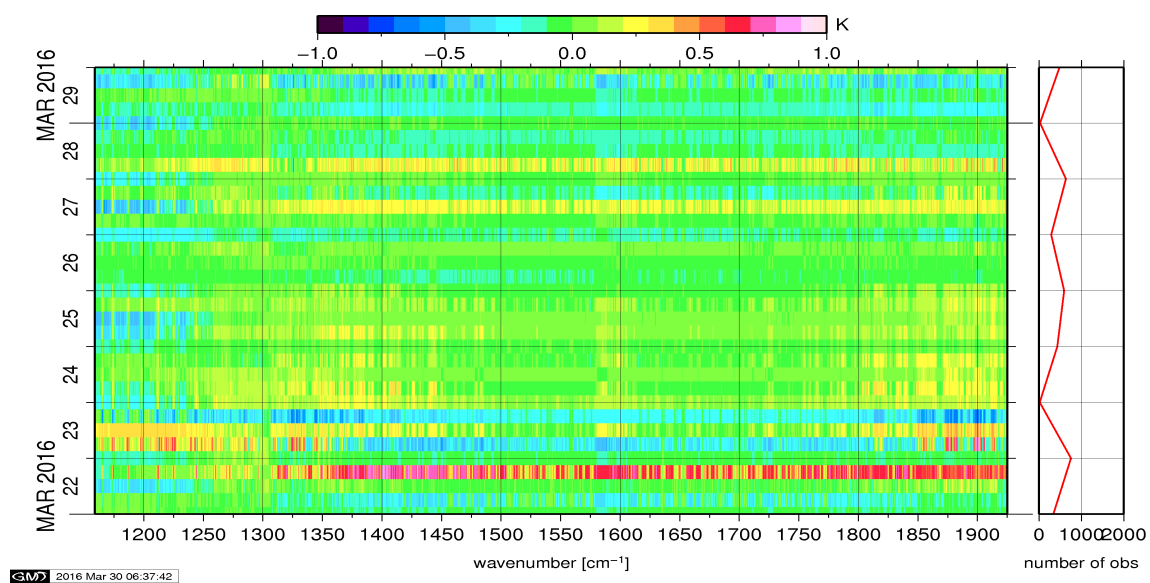


Figure 12: Radiance Anomaly in BRT: IASI Band 2

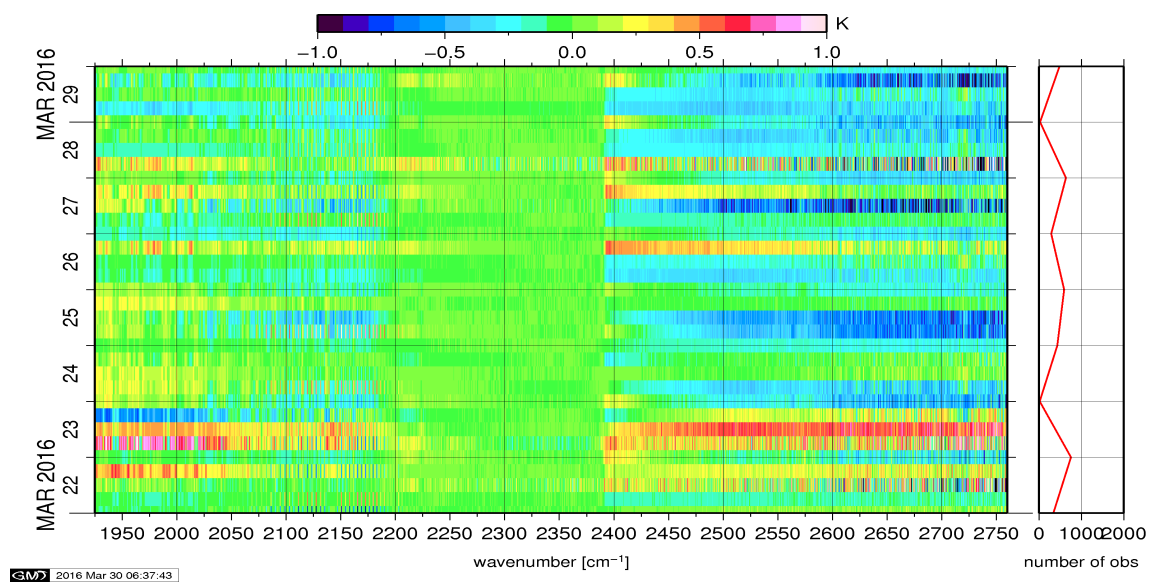


Figure 13: Radiance Anomaly in BRT: IASI Band 3

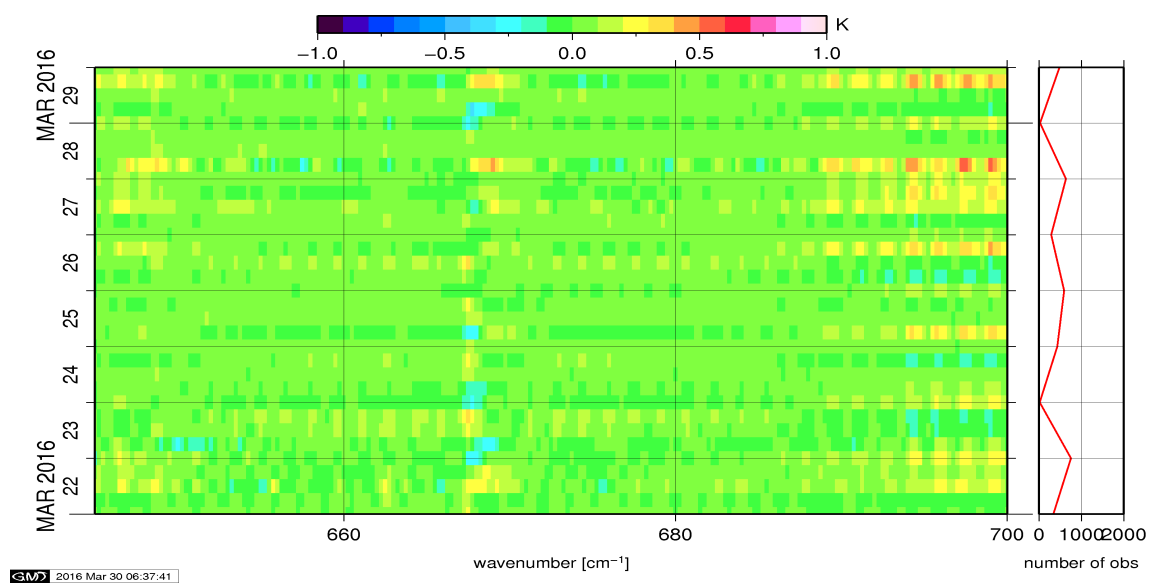


Figure 14: Radiance Anomaly in BRT: CO2 14

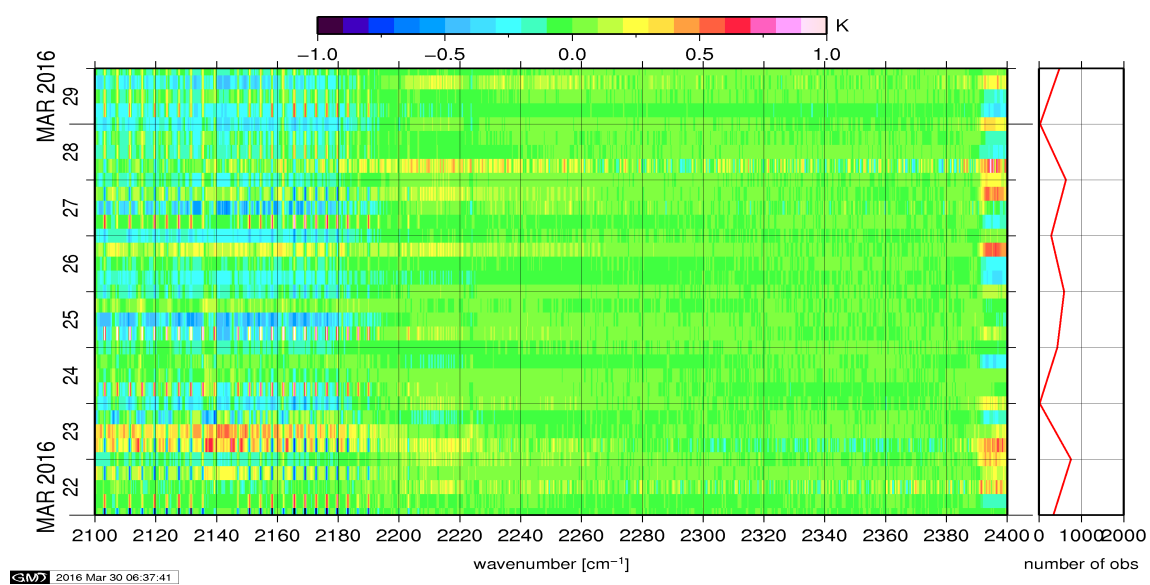


Figure 15: Radiance Anomaly in BRT: CO2 4.3

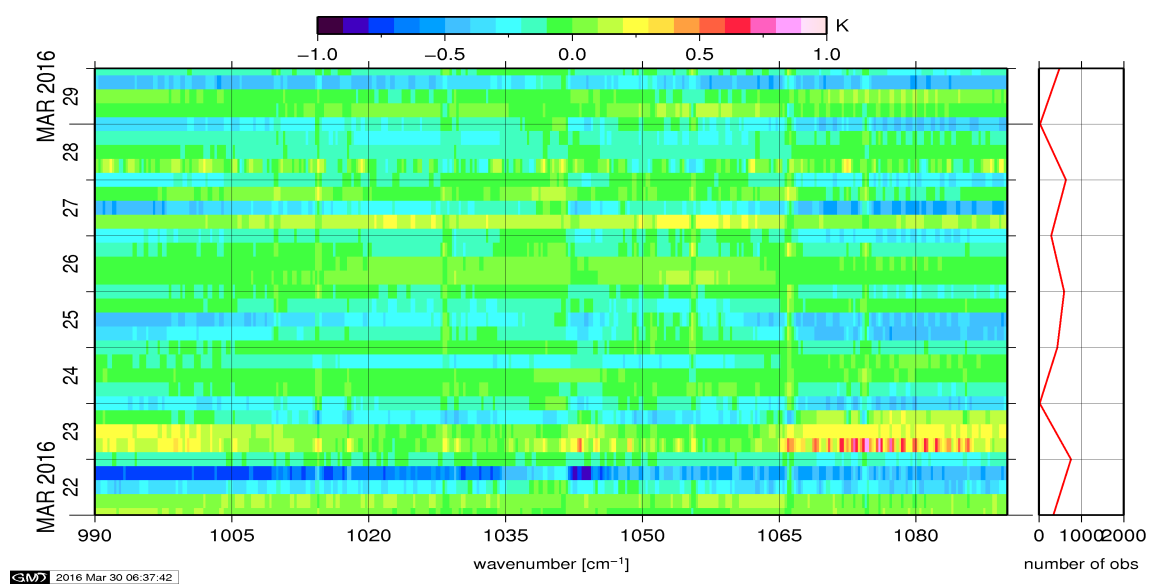


Figure 16: Radiance Anomaly in BRT: O3

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.

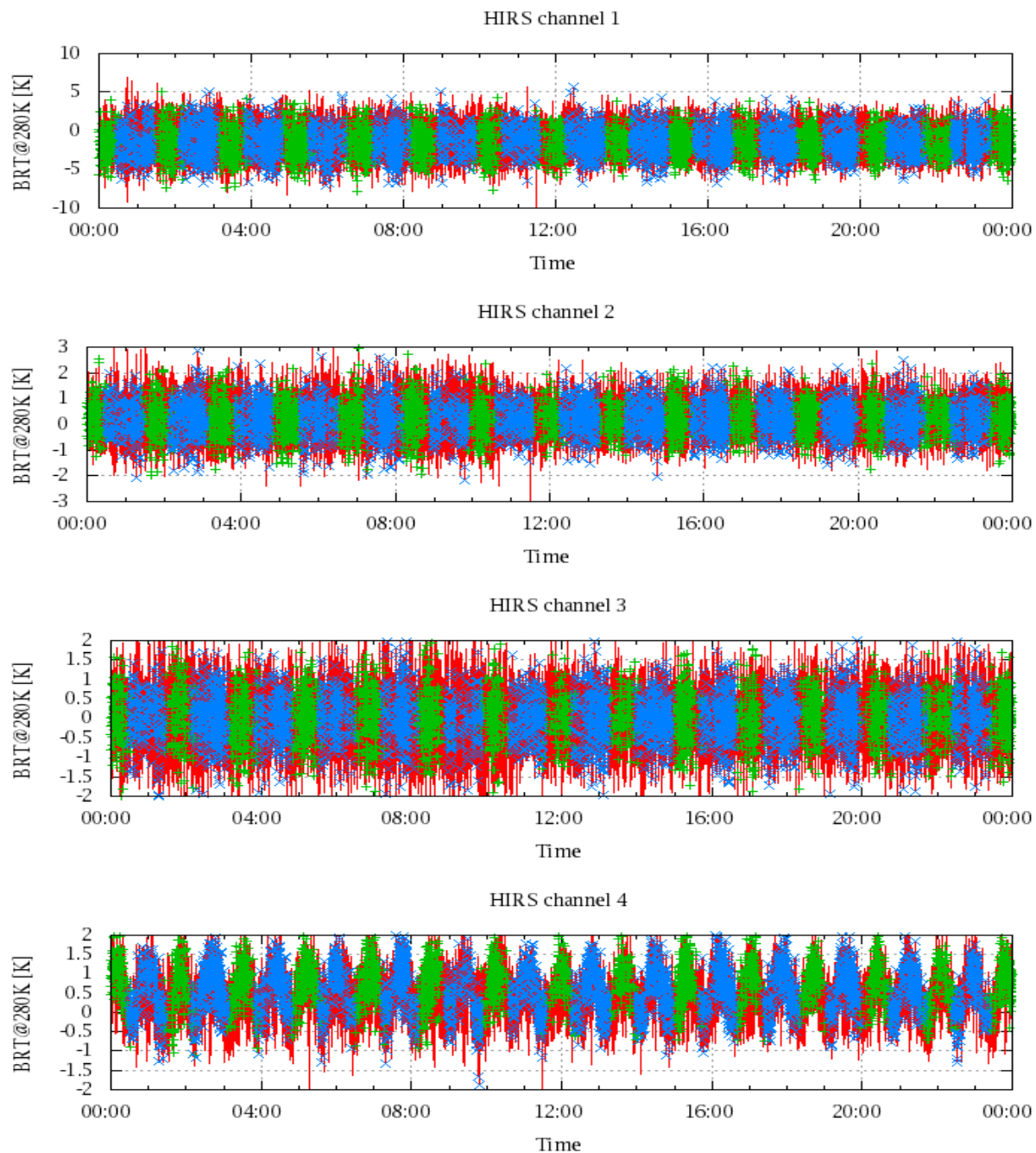


Figure 17: Radiance Differences in BRT

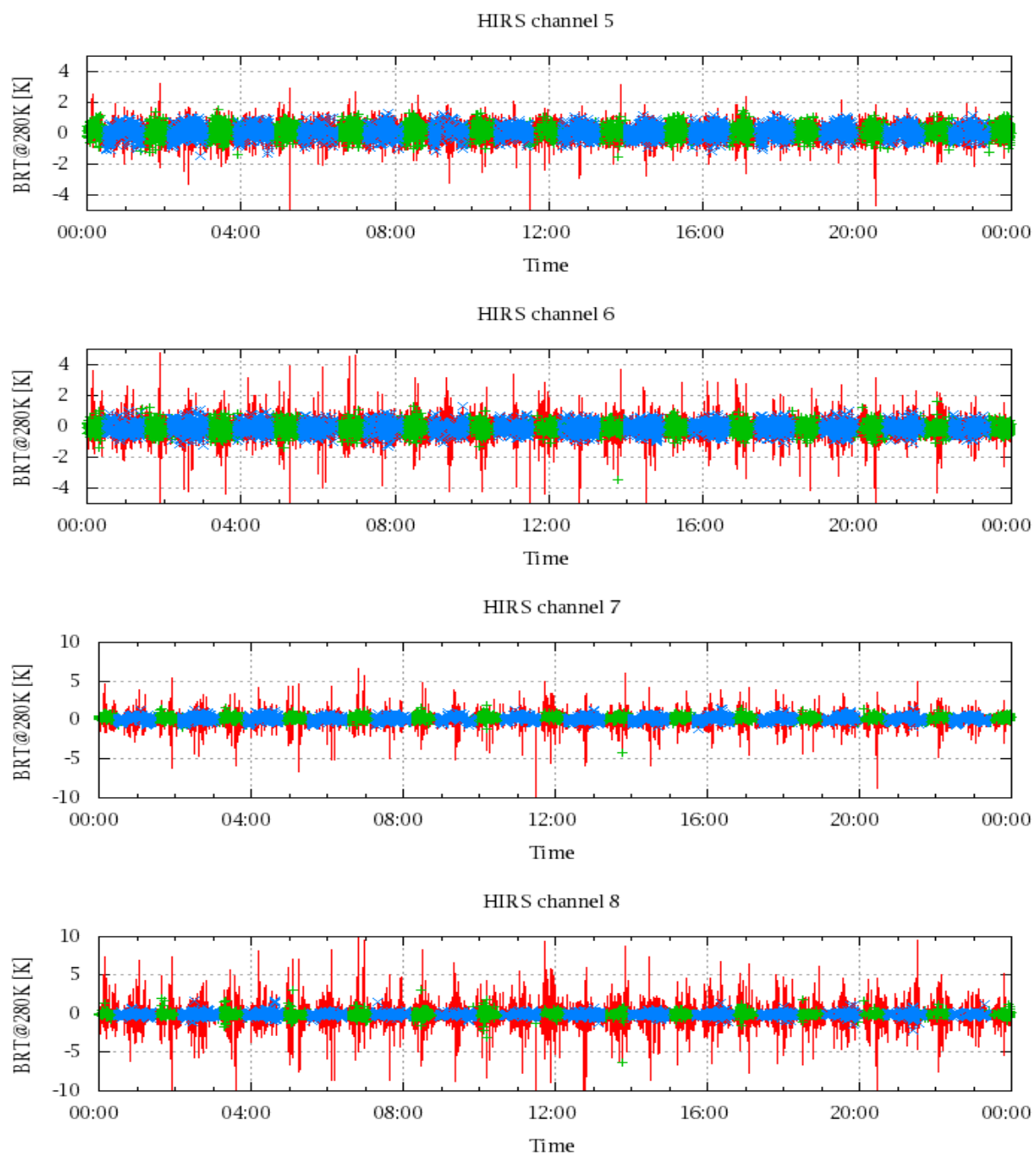


Figure 18: Radiance Differences in BRT

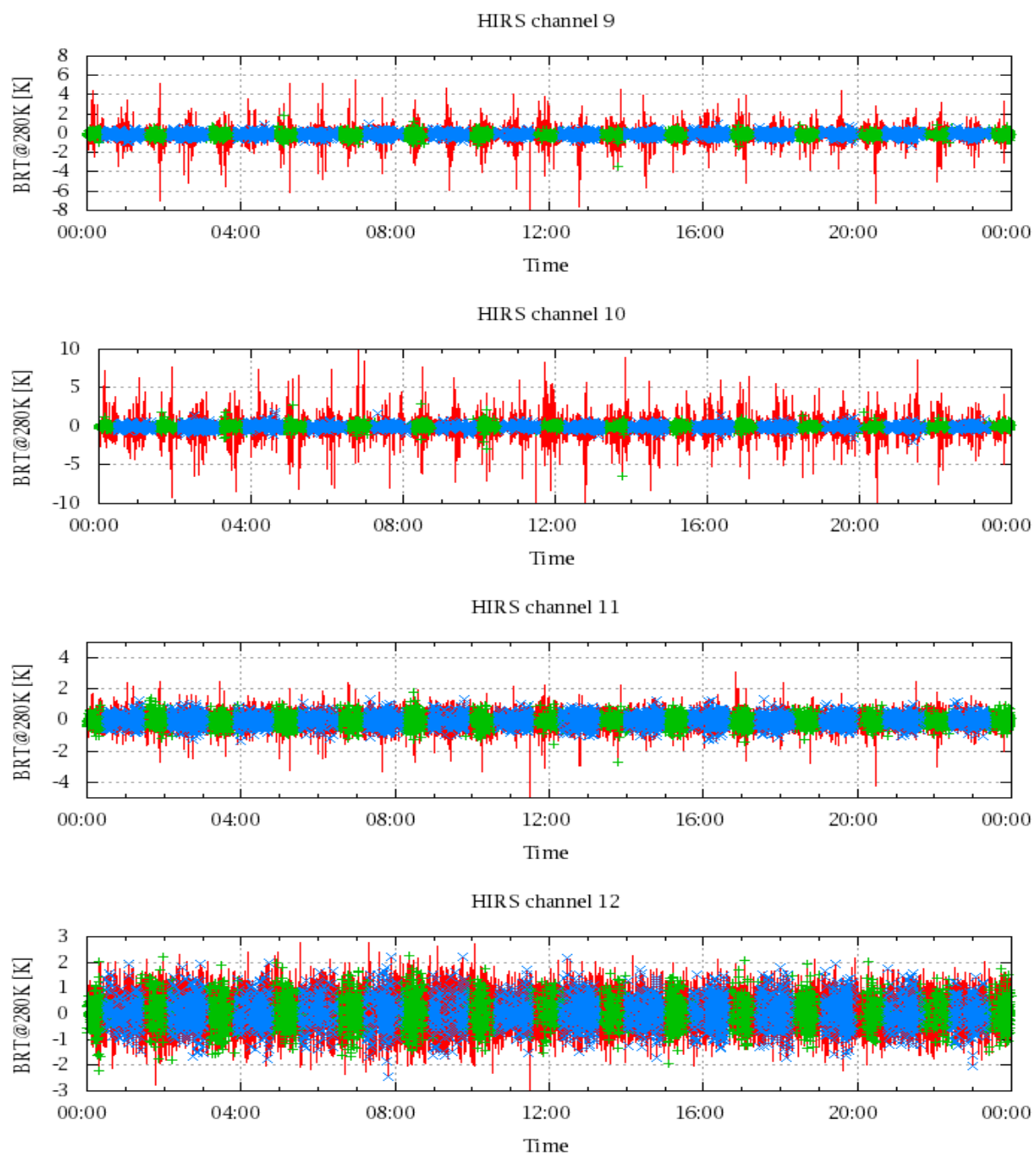


Figure 19: Radiance Differences in BRT

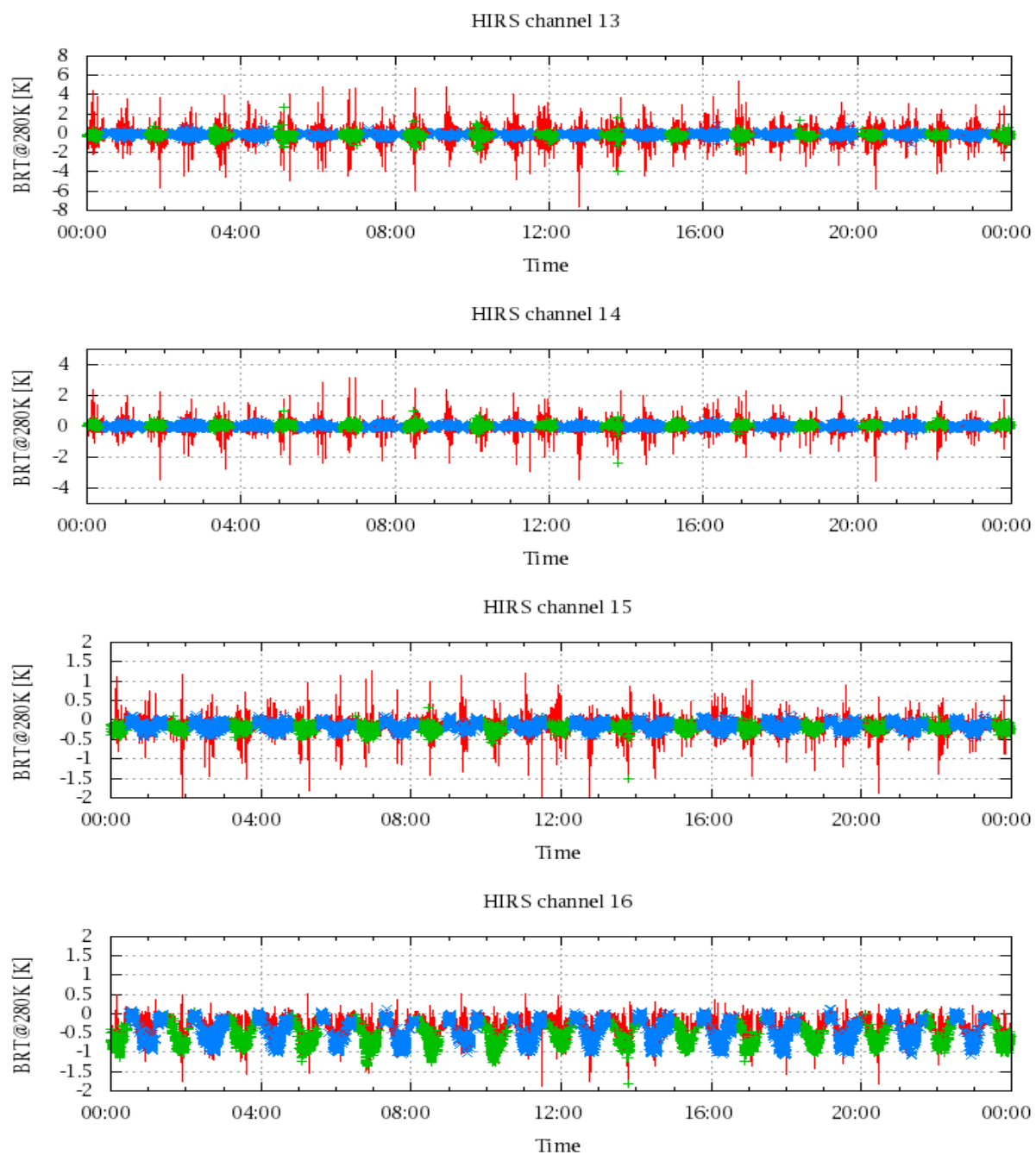


Figure 20: Radiance Differences in BRT

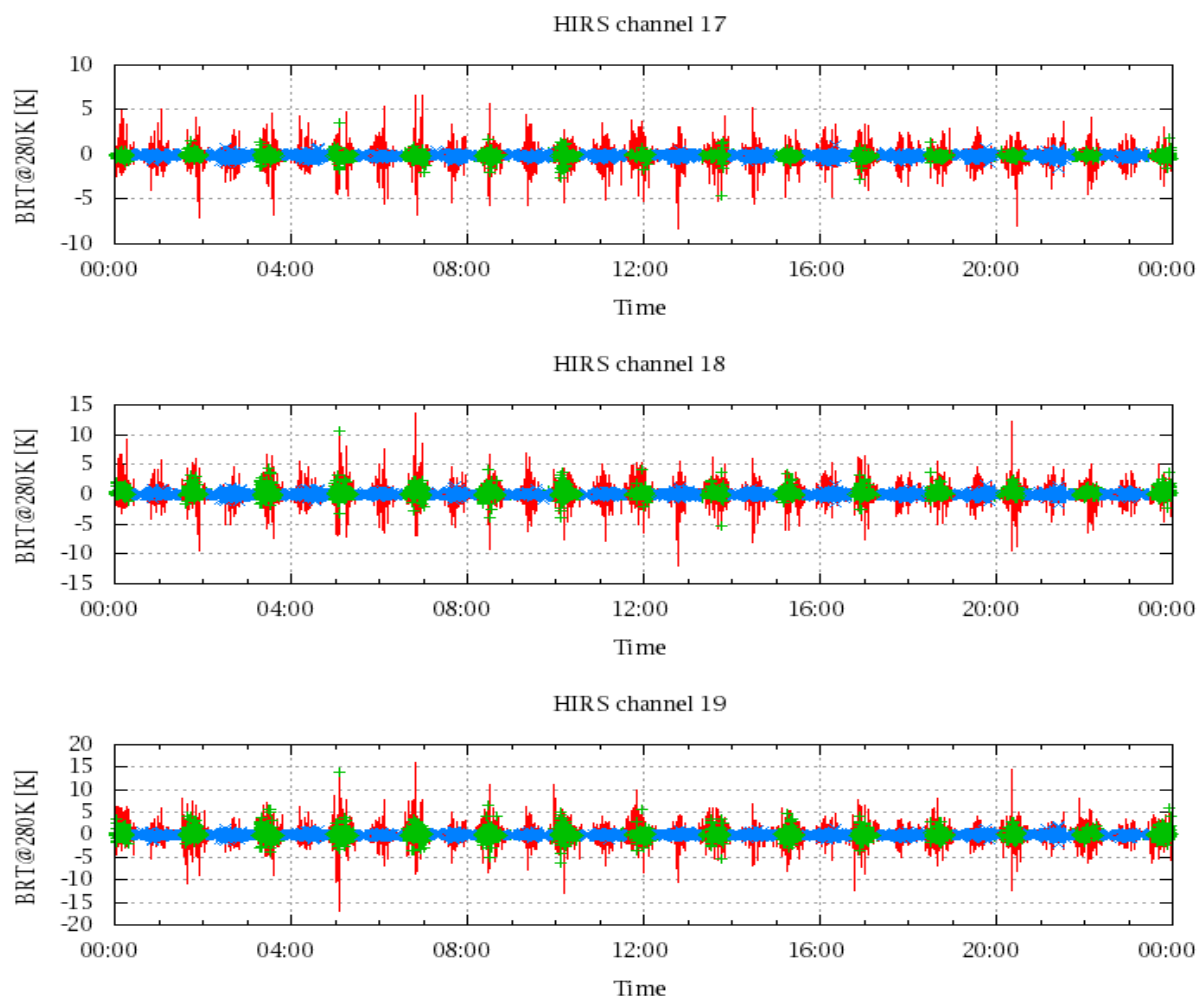


Figure 21: Radiances Differences in BRT