

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

05/09/2011 00:00:00 - 06/09/2011 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 05/09/2011 00:00:00 - 06/09/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 05/09/2011 00:00:00 - 06/09/2011 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	472	-
L0 IASI PDUs	474	-
L1 ENG PDUs	473	-
L1 ENG distinct GEPSGranule	474	-
L1 DPX PDUs (RM: IASI-HIRS)	471	-
L1 DPS Files (RM: OBS-CAL NWP based)	473	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	7480	7482	20110905194454.330	20110905194454.764
PX1 (130)	7789	7791	20110905194617.822	20110905194618.256
PX1 (130)	7948	7950	20110905194659.768	20110905194700.201
PX1 (130)	8105	8108	20110905194741.279	20110905194741.931
PX1 (130)	8415	8417	20110905194904.955	20110905194905.388
PX1 (130)	8574	8576	20110905194946.900	20110905194947.334
PX1 (130)	8731	8734	20110905195028.412	20110905195029.060
PX1 (130)	8889	8892	20110905195110.138	20110905195110.790
PX1 (130)	9515	9518	20110905195357.270	20110905195357.919
PX1 (130)	9825	9828	20110905195520.946	20110905195521.594
PX1 (130)	9983	9985	20110905195602.672	20110905195603.106
PX1 (130)	10142	10144	20110905195644.618	20110905195645.051
PX1 (130)	10299	10302	20110905195726.129	20110905195726.778
PX1 (130)	10609	10611	20110905195849.801	20110905195850.235
PX1 (130)	10768	10770	20110905195931.746	20110905195932.180
PX1 (130)	10926	10928	20110905200013.477	20110905200013.910
PX1 (130)	11235	11237	20110905200136.933	20110905200137.367
PX1 (130)	11393	11395	20110905200218.664	20110905200219.093

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	11551	11553	20110905200300.390	20110905200300.824
PX1 (130)	11709	11712	20110905200342.121	20110905200342.769
PX1 (130)	12019	12022	20110905200505.792	20110905200506.441
PX1 (130)	12336	12338	20110905200629.464	20110905200629.897
PX1 (130)	12644	12647	20110905200752.706	20110905200753.354
PX1 (130)	12803	12805	20110905200834.651	20110905200835.085
PX1 (130)	12962	12964	20110905200916.596	20110905200917.030
PX1 (130)	12992	2140	20110905200924.596	20110905203400.702
PX2 (135)	7479	7482	20110905194454.115	20110905194454.764
PX2 (135)	7789	7791	20110905194617.822	20110905194618.256
PX2 (135)	8105	8108	20110905194741.279	20110905194741.931
PX2 (135)	8415	8417	20110905194904.955	20110905194905.388
PX2 (135)	8574	8576	20110905194946.900	20110905194947.334
PX2 (135)	8889	8892	20110905195110.138	20110905195110.790
PX2 (135)	9199	9201	20110905195233.814	20110905195234.247
PX2 (135)	9516	9518	20110905195357.485	20110905195357.919
PX2 (135)	9824	9828	20110905195520.727	20110905195521.594
PX2 (135)	9983	9985	20110905195602.672	20110905195603.106
PX2 (135)	10299	10302	20110905195726.129	20110905195726.778
PX2 (135)	10608	10611	20110905195849.586	20110905195850.235
PX2 (135)	10768	10770	20110905195931.746	20110905195932.180
PX2 (135)	11234	11237	20110905200136.719	20110905200137.367
PX2 (135)	11393	11395	20110905200218.664	20110905200219.093
PX2 (135)	11551	11553	20110905200300.390	20110905200300.824
PX2 (135)	11710	11712	20110905200342.335	20110905200342.769
PX2 (135)	12018	12021	20110905200505.577	20110905200506.226
PX2 (135)	12177	12179	20110905200547.523	20110905200547.952
PX2 (135)	12336	12338	20110905200629.464	20110905200629.897
PX2 (135)	12644	12647	20110905200752.706	20110905200753.354
PX2 (135)	12802	12805	20110905200834.436	20110905200835.085
PX2 (135)	12961	12963	20110905200916.381	20110905200916.811
PX2 (135)	12992	2140	20110905200924.596	20110905203400.702
PX3 (140)	7479	7482	20110905194454.115	20110905194454.764
PX3 (140)	7789	7791	20110905194617.822	20110905194618.256
PX3 (140)	8106	8108	20110905194741.498	20110905194741.931
PX3 (140)	8414	8417	20110905194904.736	20110905194905.388
PX3 (140)	8573	8576	20110905194946.681	20110905194947.334
PX3 (140)	8890	8892	20110905195110.357	20110905195110.790
PX3 (140)	9198	9201	20110905195233.599	20110905195234.247
PX3 (140)	9357	9359	20110905195315.540	20110905195315.974
PX3 (140)	9516	9518	20110905195357.485	20110905195357.919
PX3 (140)	9824	9827	20110905195520.727	20110905195521.376
PX3 (140)	9983	9985	20110905195602.672	20110905195603.106
PX3 (140)	10141	10143	20110905195644.403	20110905195644.833
PX3 (140)	10299	10301	20110905195726.129	20110905195726.563
PX3 (140)	10608	10611	20110905195849.586	20110905195850.235
PX3 (140)	10767	10770	20110905195931.531	20110905195932.180
PX3 (140)	11234	11237	20110905200136.719	20110905200137.367
PX3 (140)	11392	11395	20110905200218.445	20110905200219.093
PX3 (140)	11551	11553	20110905200300.390	20110905200300.824
PX3 (140)	11710	11712	20110905200342.335	20110905200342.769
PX3 (140)	12018	12021	20110905200505.577	20110905200506.226
PX3 (140)	12176	12179	20110905200547.308	20110905200547.952
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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	12335	12338	20110905200629.249	20110905200629.897
PX3 (140)	12644	12647	20110905200752.706	20110905200753.354
PX3 (140)	12802	12805	20110905200834.436	20110905200835.085
PX3 (140)	12961	12963	20110905200916.381	20110905200916.811
PX3 (140)	12991	2140	20110905200924.381	20110905203400.702
PX4 (145)	7479	7482	20110905194454.115	20110905194454.764
PX4 (145)	7788	7791	20110905194617.607	20110905194618.256
PX4 (145)	7947	7949	20110905194659.553	20110905194659.986
PX4 (145)	8414	8417	20110905194904.736	20110905194905.388
PX4 (145)	8572	8576	20110905194946.466	20110905194947.334
PX4 (145)	8731	8733	20110905195028.412	20110905195028.845
PX4 (145)	9198	9201	20110905195233.599	20110905195234.247
PX4 (145)	9357	9359	20110905195315.540	20110905195315.974
PX4 (145)	9516	9518	20110905195357.485	20110905195357.919
PX4 (145)	9824	9827	20110905195520.727	20110905195521.376
PX4 (145)	9982	9985	20110905195602.458	20110905195603.106
PX4 (145)	10141	10143	20110905195644.403	20110905195644.833
PX4 (145)	10299	10301	20110905195726.129	20110905195726.563
PX4 (145)	10608	10611	20110905195849.586	20110905195850.235
PX4 (145)	10766	10769	20110905195931.316	20110905195931.965
PX4 (145)	10925	10927	20110905200013.262	20110905200013.691
PX4 (145)	11234	11237	20110905200136.719	20110905200137.367
PX4 (145)	11392	11395	20110905200218.445	20110905200219.093
PX4 (145)	11551	11553	20110905200300.390	20110905200300.824
PX4 (145)	11709	11712	20110905200342.121	20110905200342.769
PX4 (145)	12018	12021	20110905200505.577	20110905200506.226
PX4 (145)	12176	12179	20110905200547.308	20110905200547.952
PX4 (145)	12335	12338	20110905200629.249	20110905200629.897
PX4 (145)	12645	12647	20110905200752.925	20110905200753.354
PX4 (145)	12802	12805	20110905200834.436	20110905200835.085
PX4 (145)	12960	12963	20110905200916.167	20110905200916.811
PX4 (145)	12991	2140	20110905200924.381	20110905203400.702
IMG (150)	15696	15698	20110905194454.330	20110905194454.764
IMG (150)	16048	16051	20110905194617.607	20110905194618.256
IMG (150)	16226	16228	20110905194659.338	20110905194659.768
IMG (150)	374	376	20110905194904.736	20110905194905.170
IMG (150)	552	556	20110905194946.466	20110905194947.334
IMG (150)	730	732	20110905195028.197	20110905195028.626
IMG (150)	908	911	20110905195109.923	20110905195110.572
IMG (150)	1262	1265	20110905195233.599	20110905195234.247
IMG (150)	1440	1443	20110905195315.325	20110905195315.974
IMG (150)	1618	1622	20110905195357.056	20110905195357.919
IMG (150)	1972	1975	20110905195520.727	20110905195521.376
IMG (150)	2150	2153	20110905195602.458	20110905195603.106
IMG (150)	2329	2331	20110905195644.403	20110905195644.833
IMG (150)	2507	2509	20110905195726.129	20110905195726.563
IMG (150)	2861	2863	20110905195849.801	20110905195850.235
IMG (150)	3038	3041	20110905195931.316	20110905195931.965
IMG (150)	3216	3218	20110905200013.043	20110905200013.477
IMG (150)	3394	3396	20110905200054.773	20110905200055.422
IMG (150)	3570	3572	20110905200136.719	20110905200137.148
IMG (150)	3748	3751	20110905200218.445	20110905200219.093
IMG (150)	3926	3929	20110905200300.175	20110905200300.824
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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	4104	4107	20110905200341.906	20110905200342.550
IMG (150)	4458	4461	20110905200505.577	20110905200506.226
IMG (150)	4636	4639	20110905200547.308	20110905200547.952
IMG (150)	4815	4818	20110905200629.249	20110905200629.897
IMG (150)	4992	4994	20110905200710.765	20110905200711.409
IMG (150)	5168	5170	20110905200752.706	20110905200753.139
IMG (150)	5346	5349	20110905200834.436	20110905200835.085
IMG (150)	5525	5527	20110905200916.381	20110905200916.811
IMG (150)	5559	11828	20110905200924.381	20110905203359.405
VER (160)	6241	6243	20110905194535.014	20110905194535.014
VER (160)	6343	6346	20110905194815.010	20110905194823.010
VER (160)	6475	6478	20110905195151.005	20110905195151.005
VER (160)	6578	6580	20110905195431.001	20110905195439.001
VER (160)	6711	6713	20110905195806.992	20110905195806.992
VER (160)	6813	6815	20110905200046.988	20110905200054.988
VER (160)	6946	6948	20110905200422.984	20110905200422.984
VER (160)	7048	7050	20110905200702.979	20110905200710.979
VER (160)	7133	8059	20110905200918.975	20110905203406.972
AUX (180)	14525	14710	20110905200919.409	20110905203359.405

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
05/09/2011 00:00:02	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	474	-
L1 ENG PDUs	473	-
L1 ENG distinct GEPSGranule	474	-
GQisFlagQual set (PX1)	99.32 %	-
GQisFlagQual set (PX2)	99.17 %	-
GQisFlagQual set (PX3)	99.28 %	-
GQisFlagQual set (PX4)	99.39 %	-
GQisFlagQual set (all)	99.29 %	-

Table 4: Quality flags

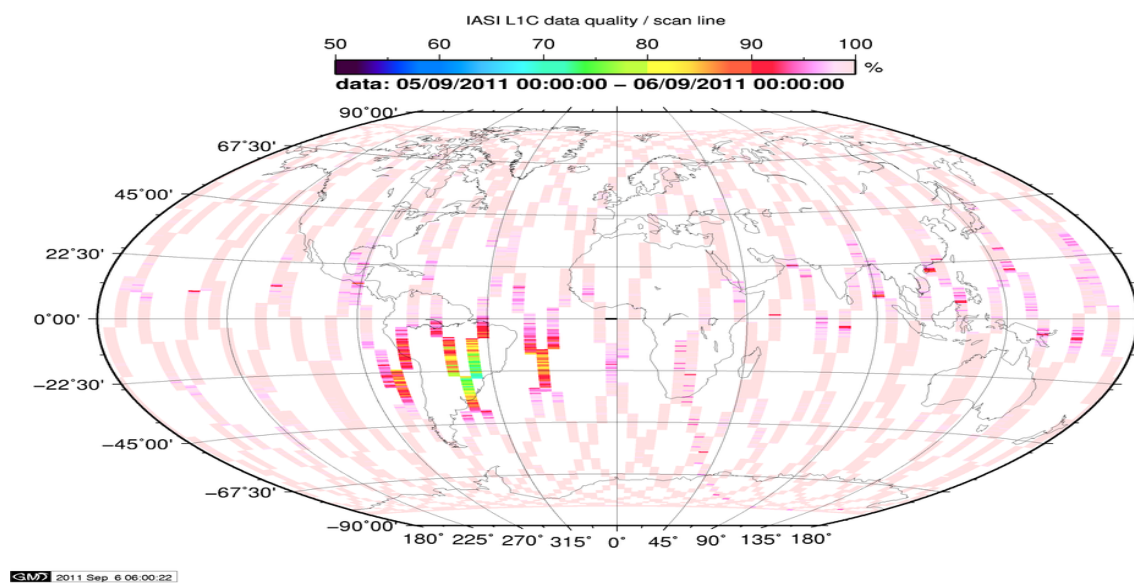


Figure 1: L1C data quality

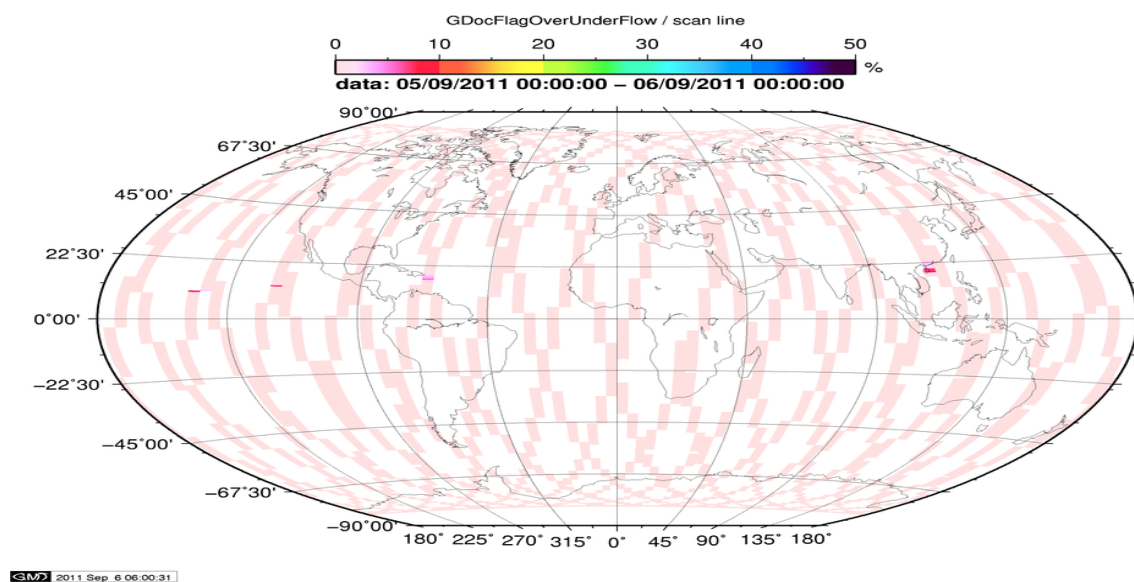


Figure 2: Flag of Over and Under Flows

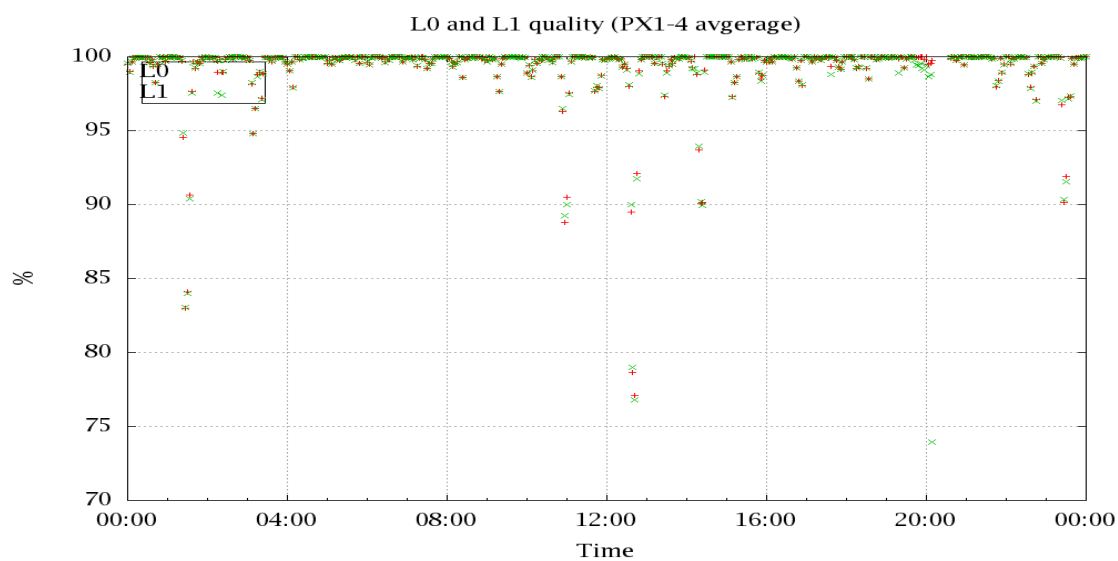


Figure 3: Level 0 and 1C overall quality

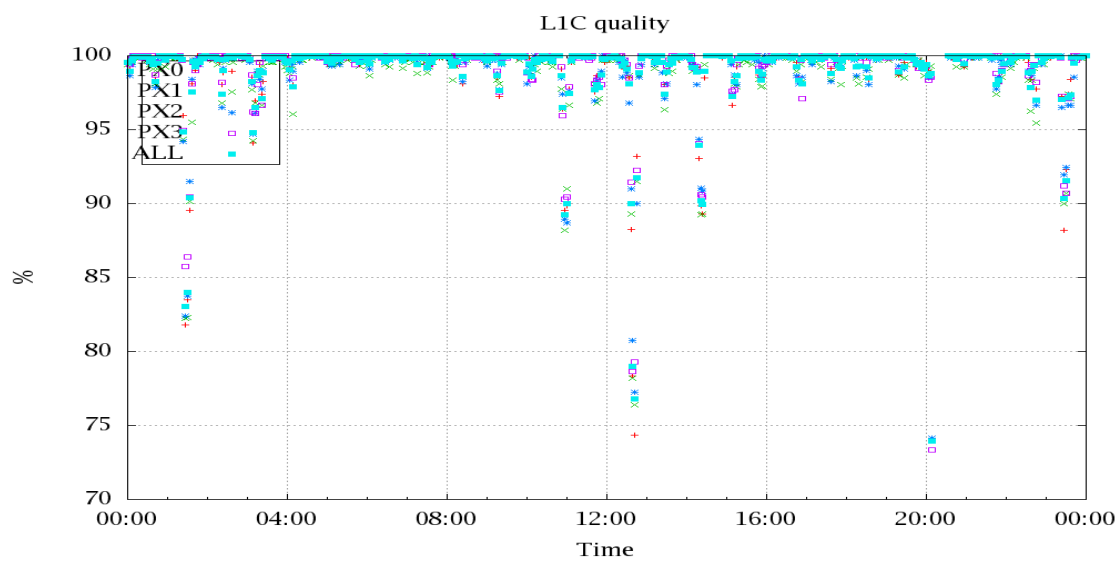


Figure 4: Level 1C quality

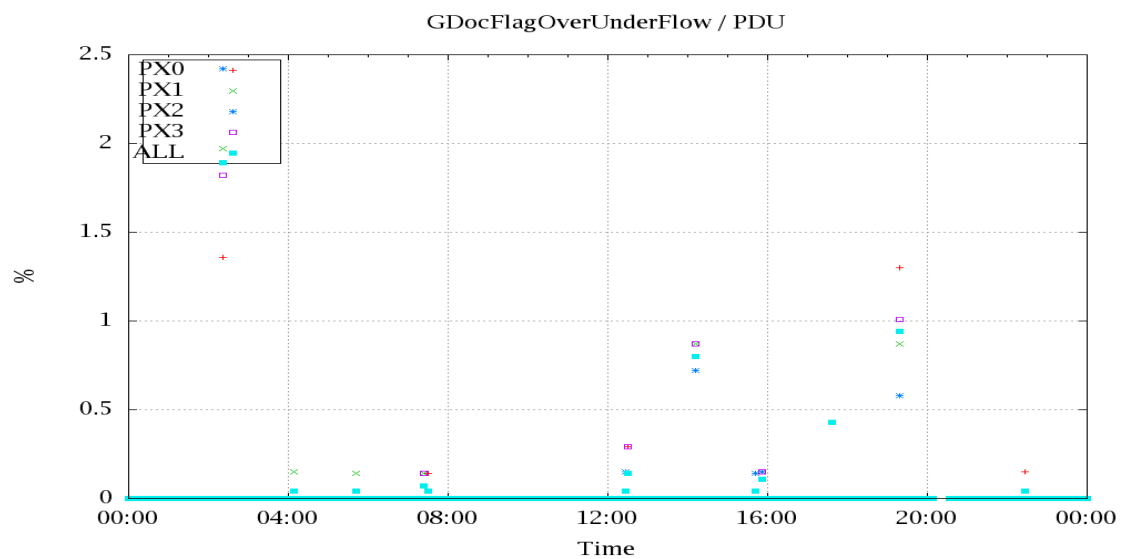


Figure 5: OverUnderFlowFlag timeseries

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.

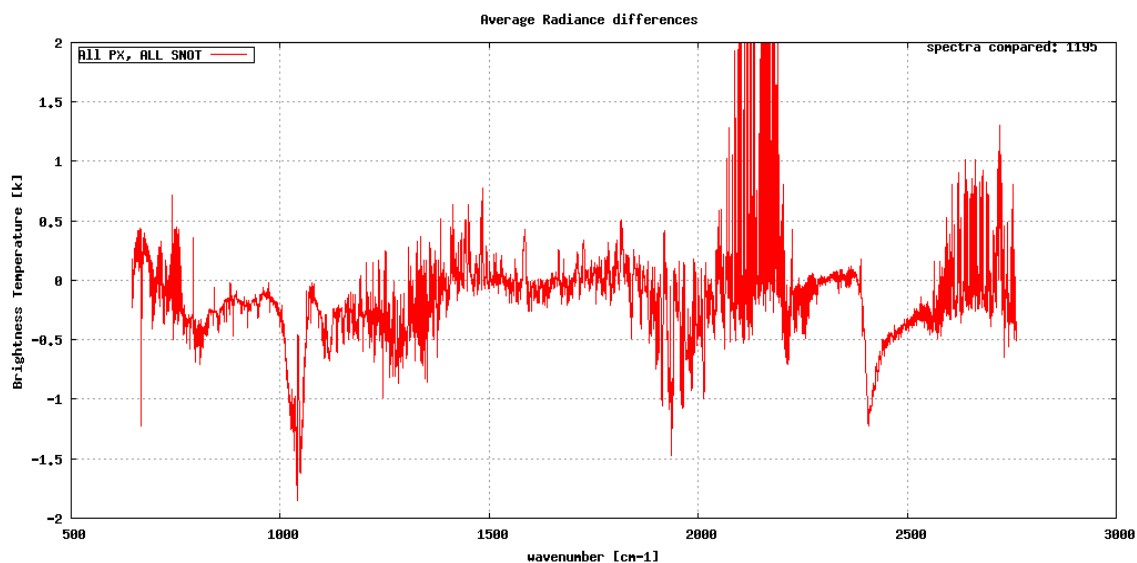


Figure 6: Average Radiance differences: OBS-CAL

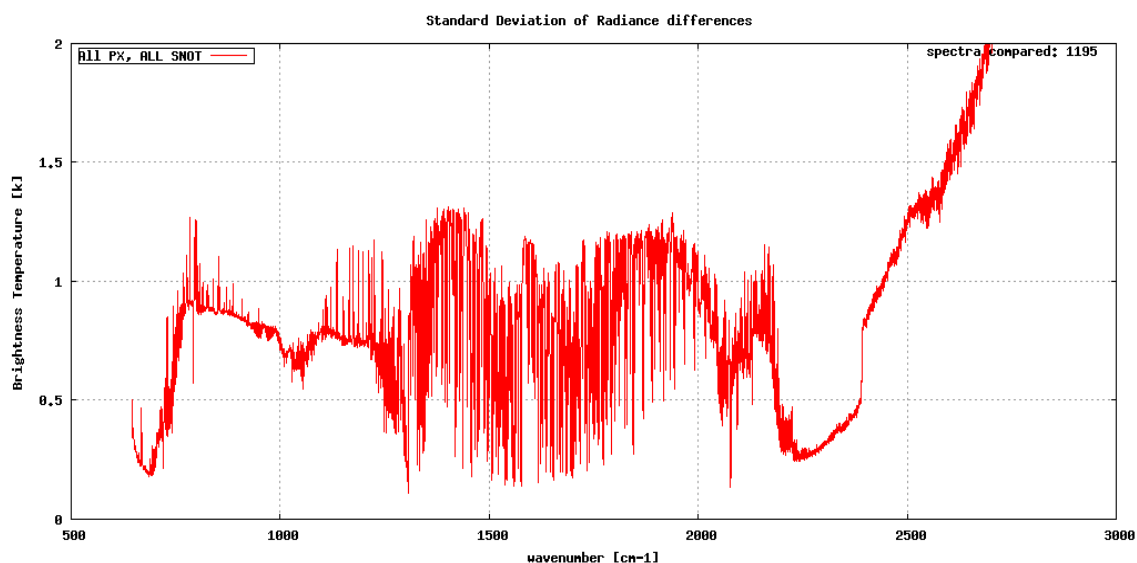


Figure 7: Standard Deviation of Radiance differences

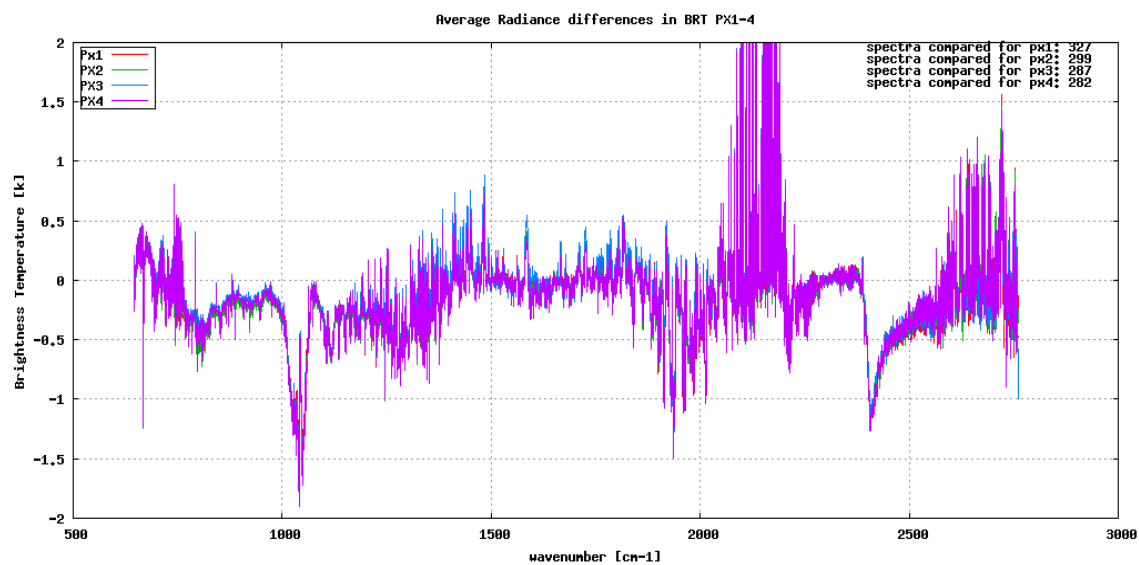


Figure 8: Average Radiance differences: OBS-CAL

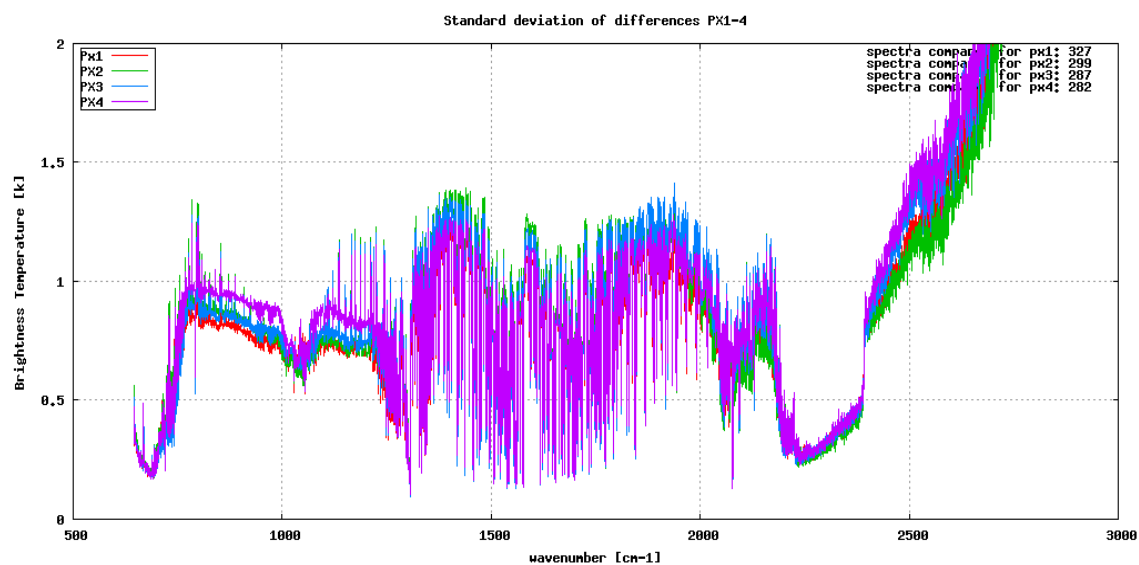


Figure 9: Standard Deviation of Radiance differences

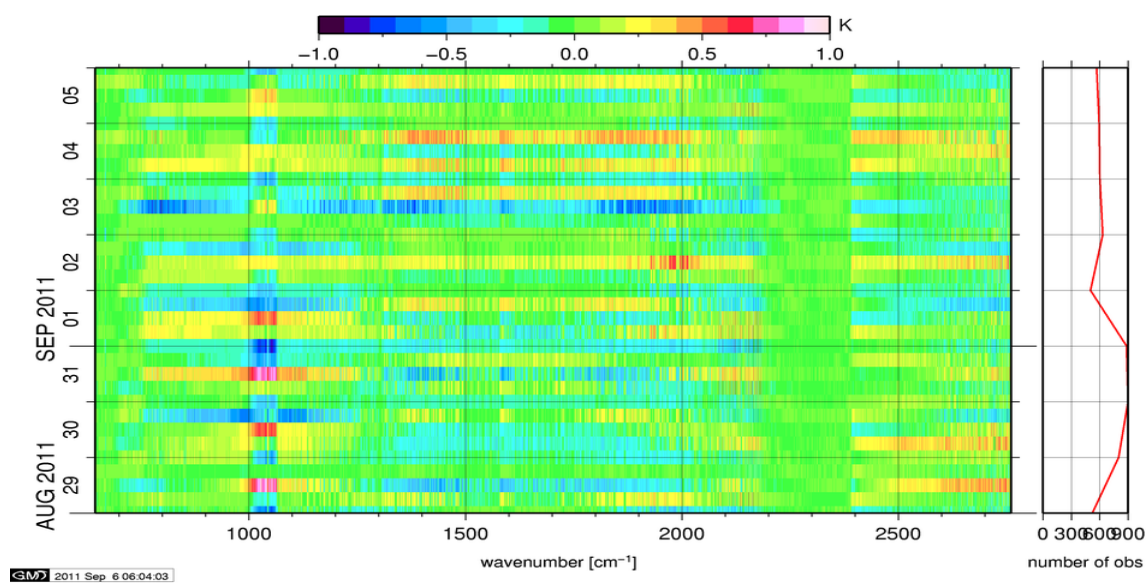


Figure 10: Radiance Anomaly in BRT: All Channels

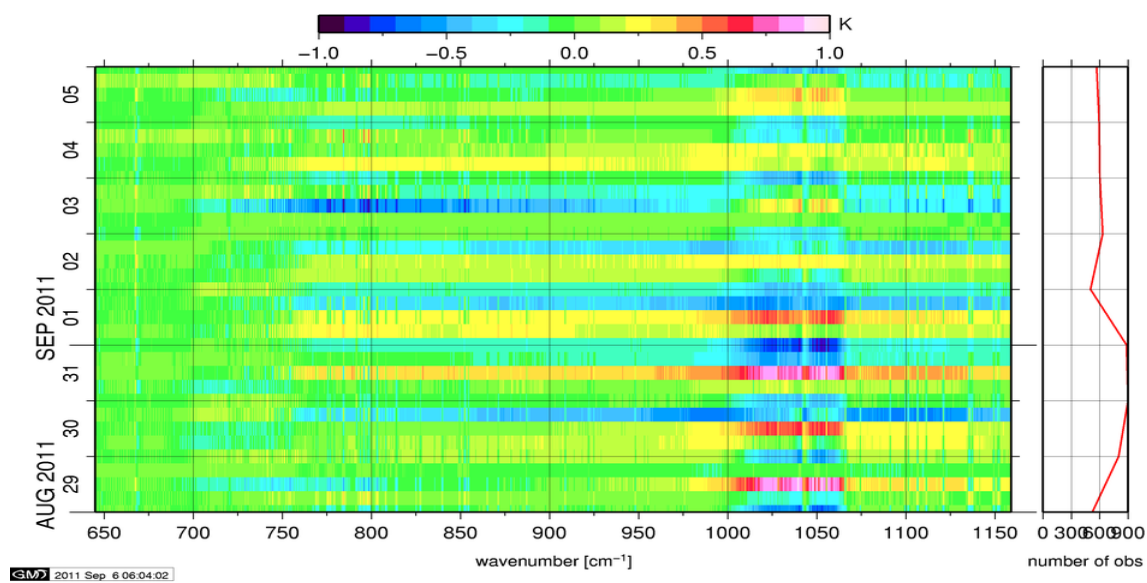


Figure 11: Radiance Anomaly in BRT: IASI Band 1

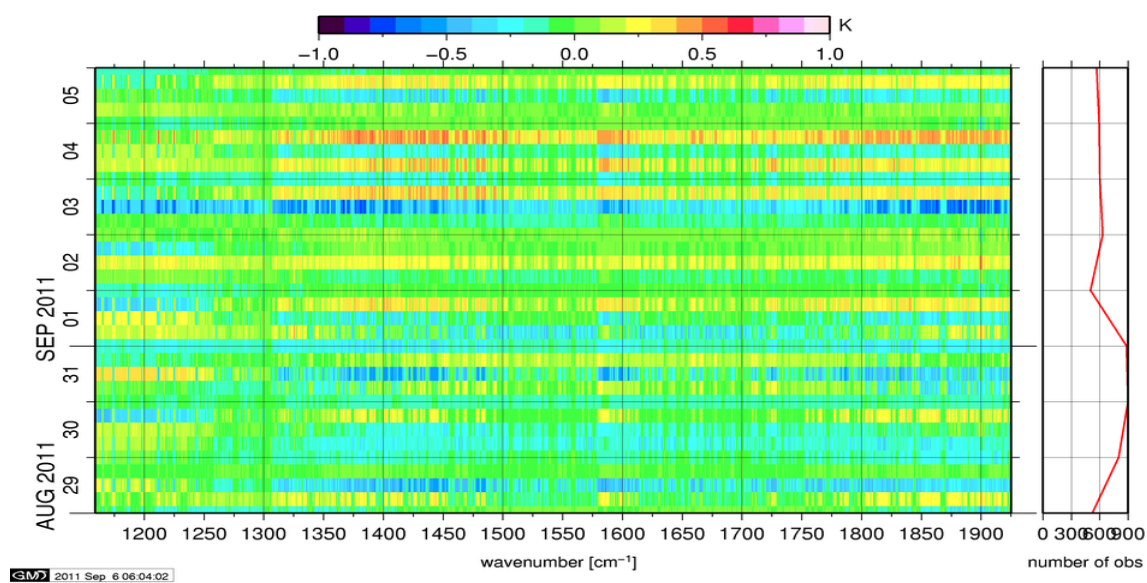


Figure 12: Radiance Anomaly in BRT: IASI Band 2

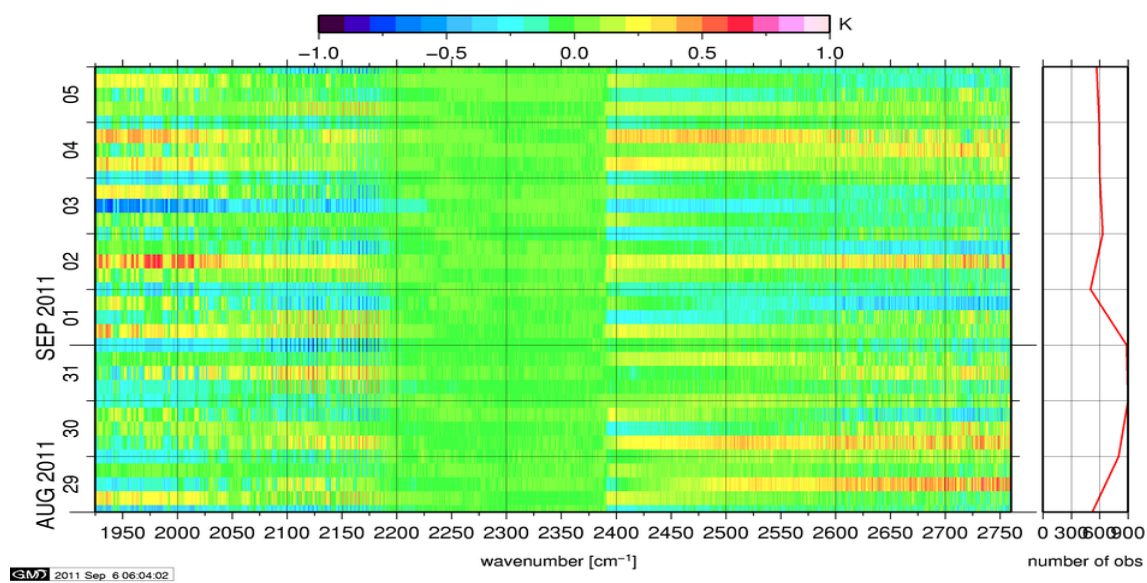


Figure 13: Radiance Anomaly in BRT: IASI Band 3

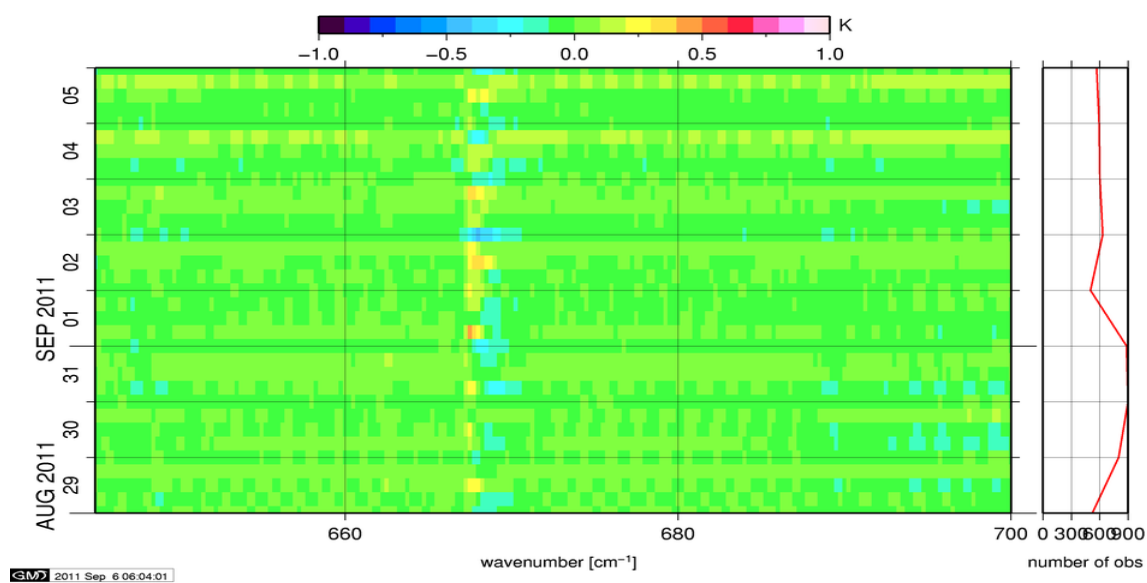


Figure 14: Radiance Anomaly in BRT: CO2 14

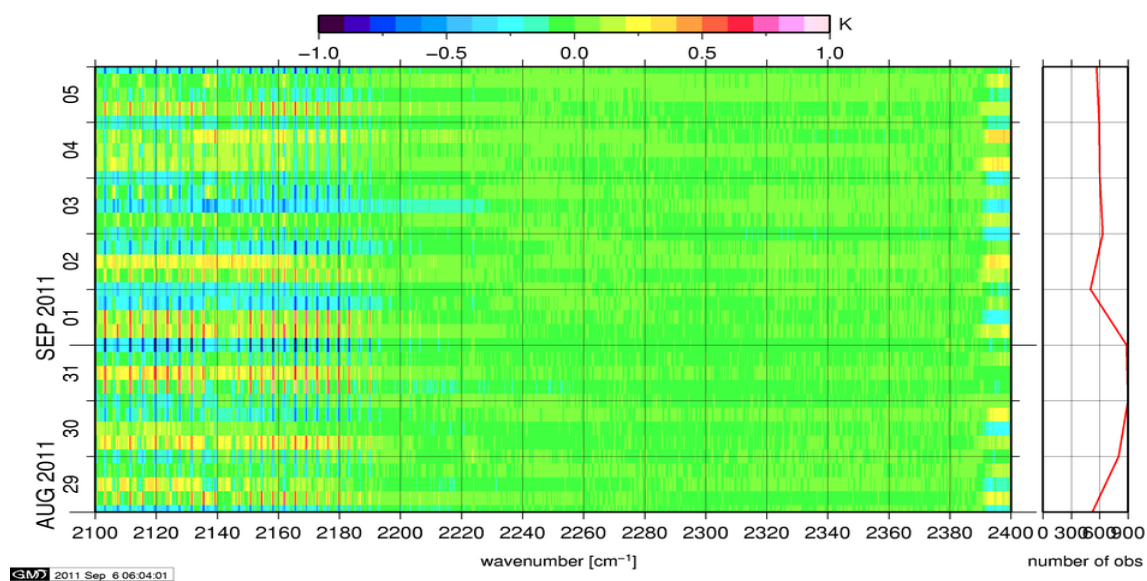


Figure 15: Radiance Anomaly in BRT: CO2 4.3

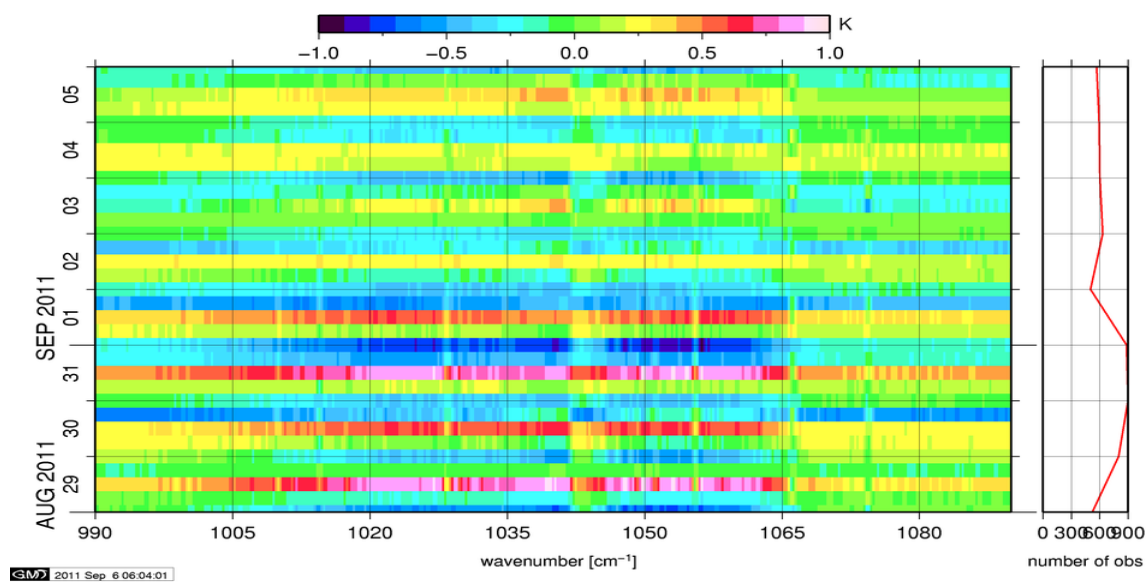


Figure 16: Radiance Anomaly in BRT: O3

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.

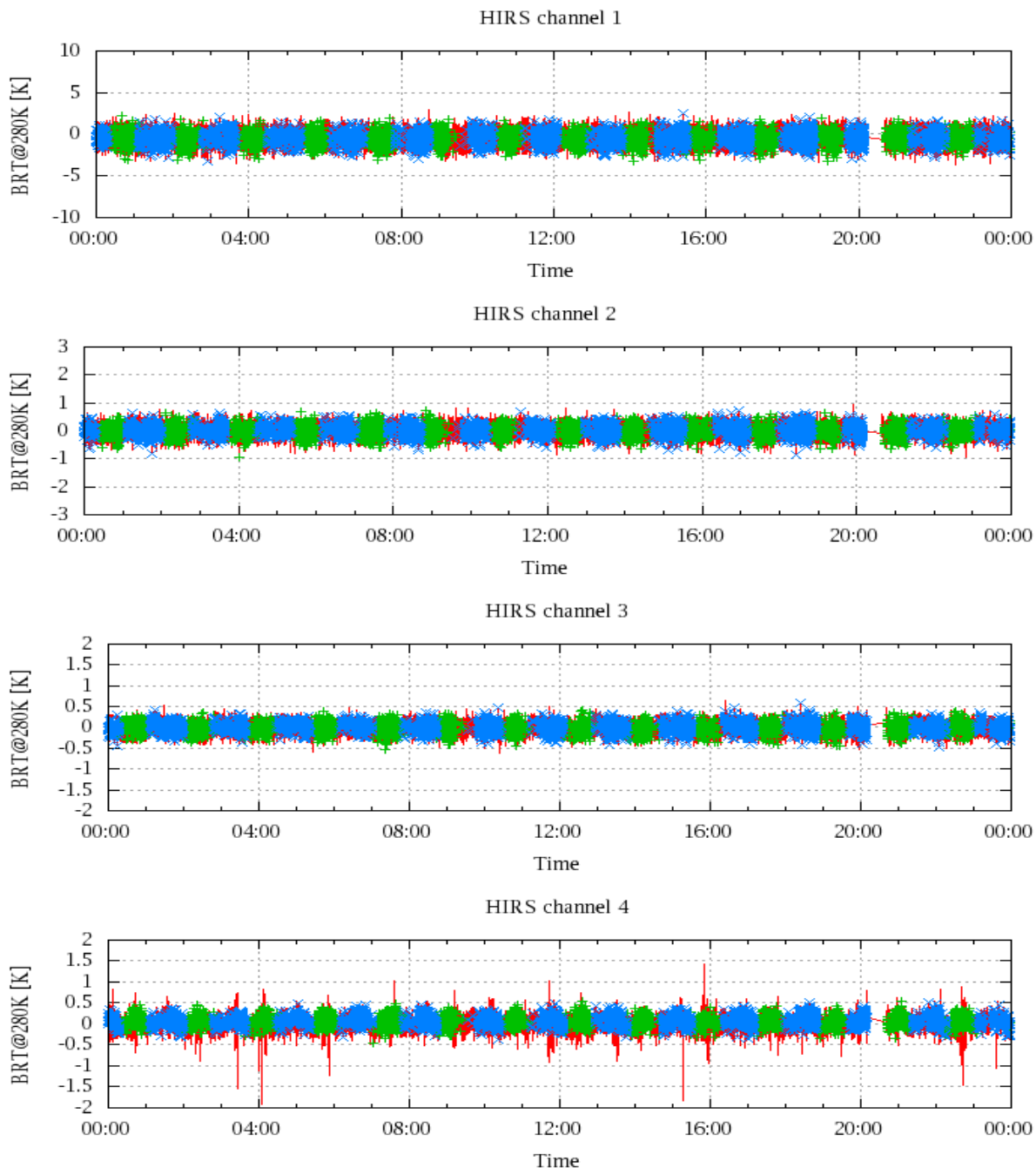


Figure 17: Radiance Differences in BRT

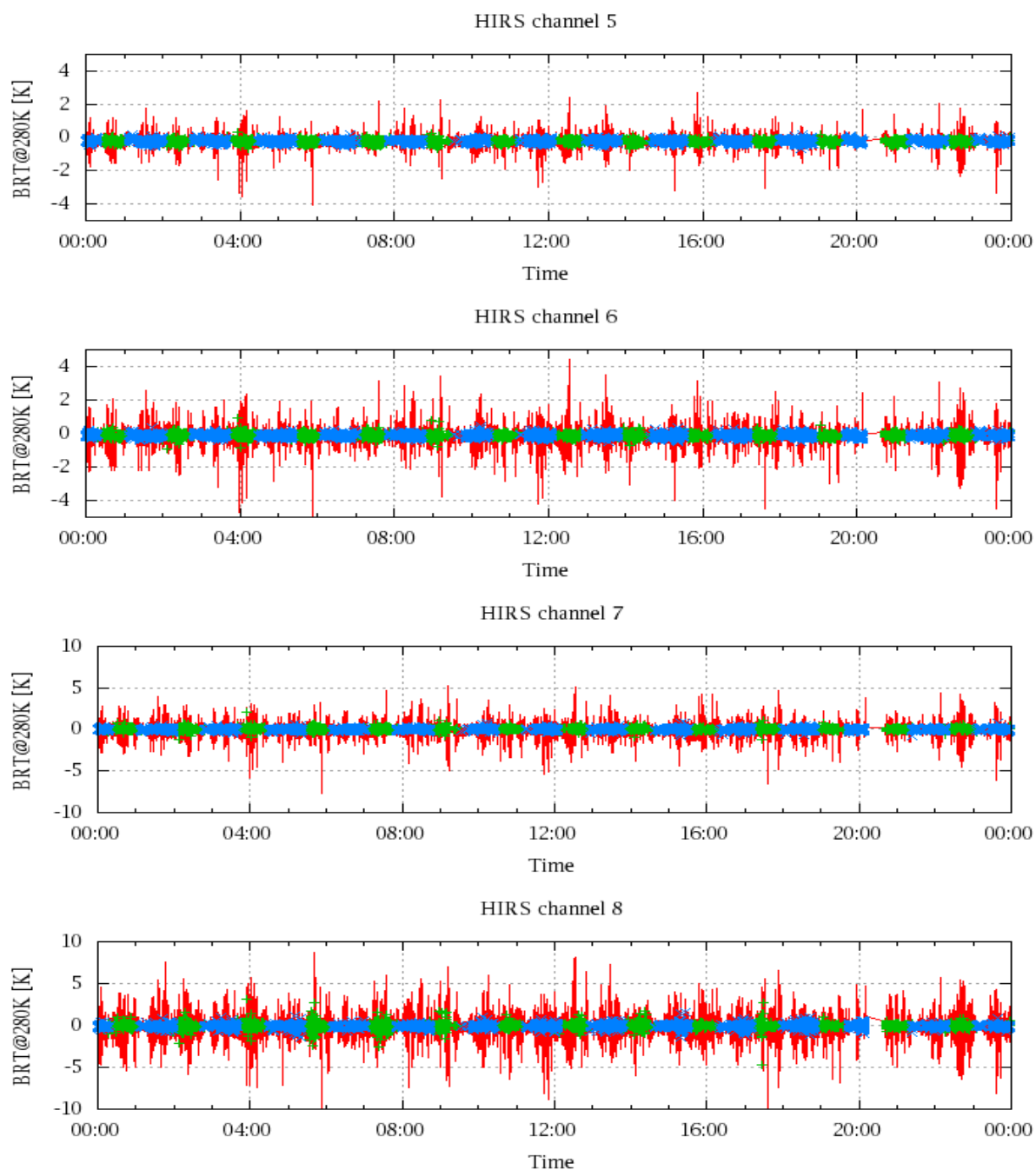


Figure 18: Radiance Differences in BRT

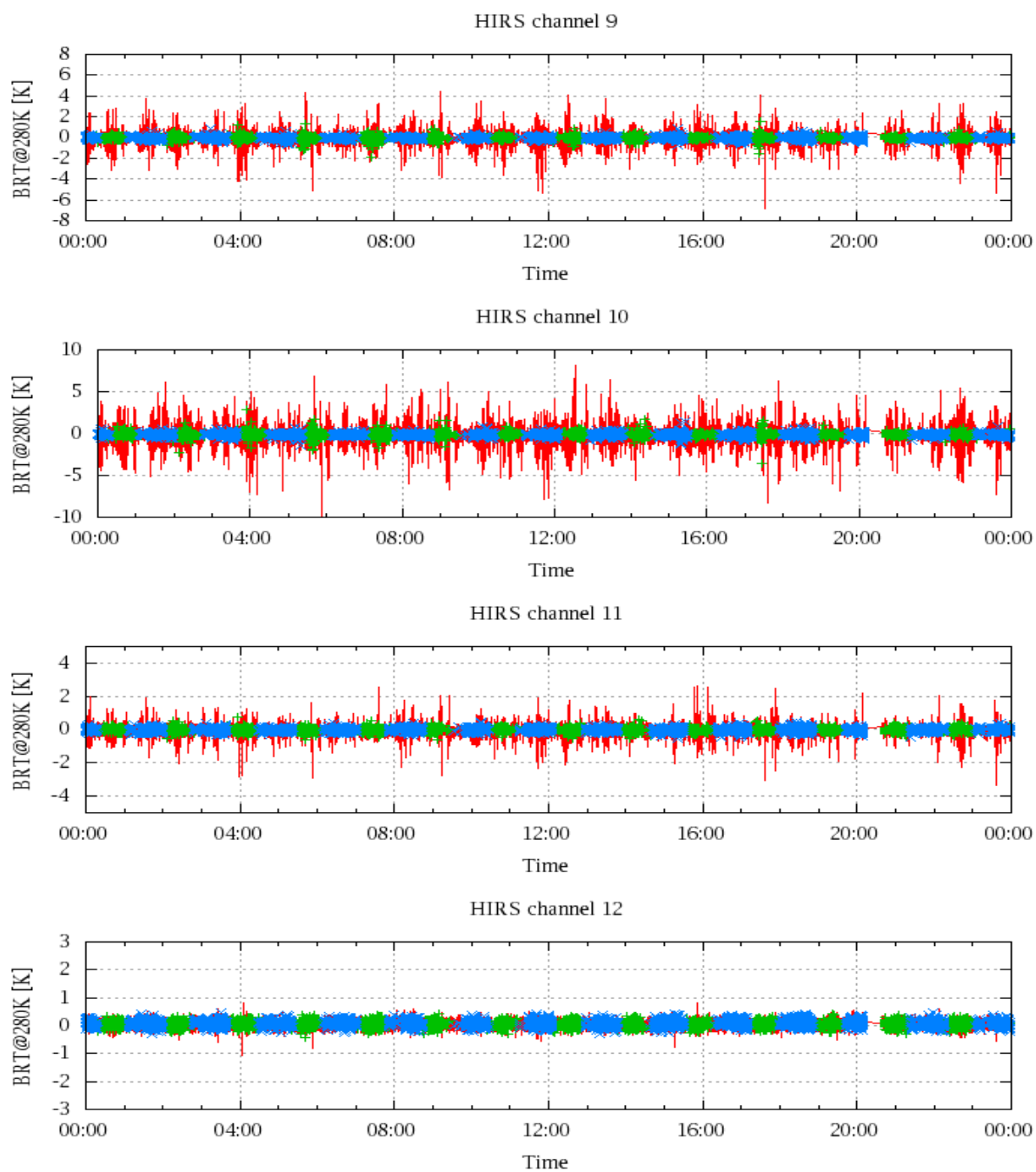


Figure 19: Radiance Differences in BRT

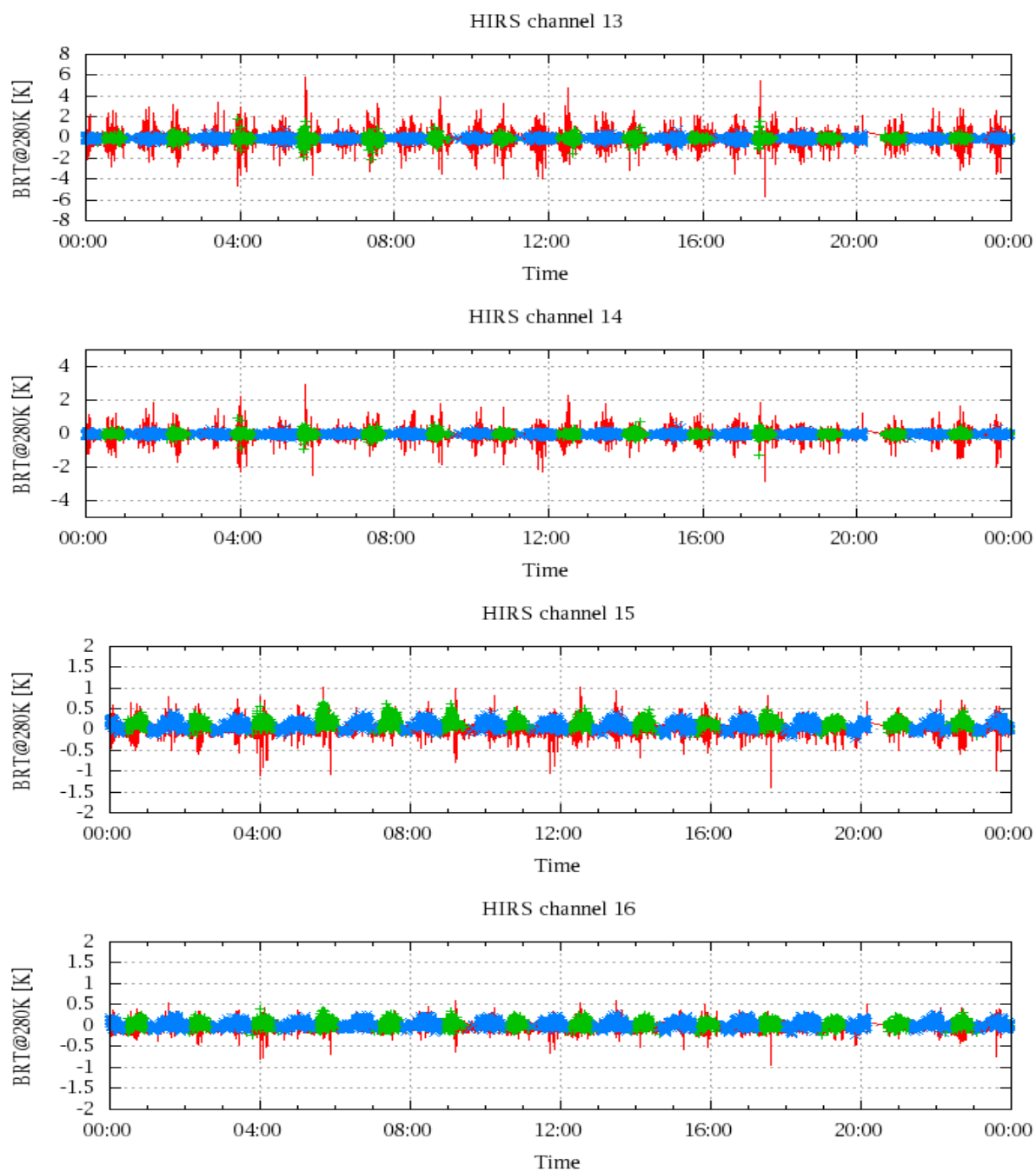


Figure 20: Radiance Differences in BRT

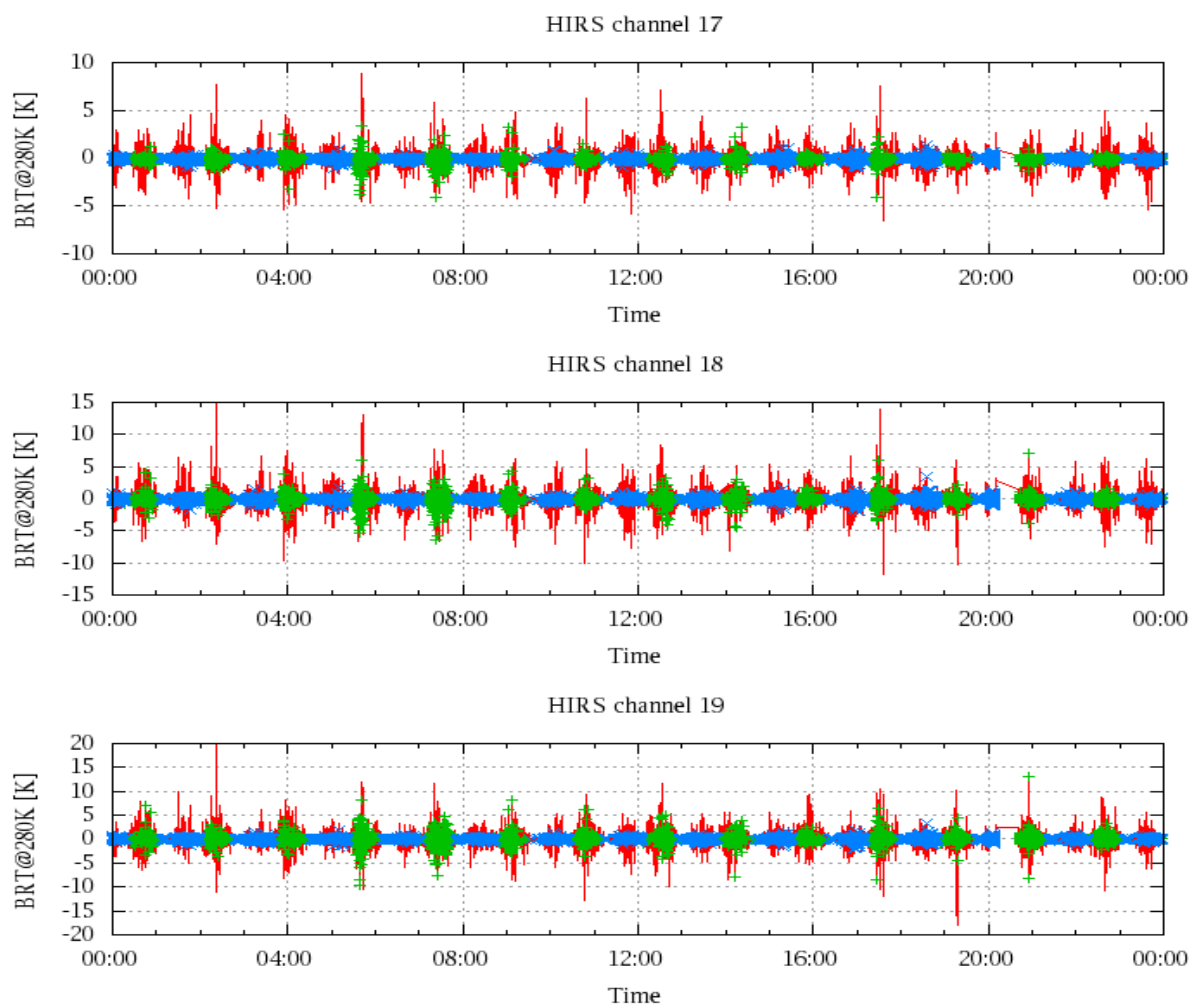


Figure 21: Radinace Differences in BRT