

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

30/10/2013 00:00:00 - 31/10/2013 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 30/10/2013 00:00:00 - 31/10/2013 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 30/10/2013 00:00:00 - 31/10/2013 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	481	-
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)	9344	9368	20131030151512.099	20131030151518.802
PX1 (130)	9369	9383	20131030151519.017	20131030151522.044
PX1 (130)	9383	9385	20131030151522.044	20131030151522.478
PX1 (130)	9387	9398	20131030151522.912	20131030151526.802
PX1 (130)	9423	9425	20131030151532.209	20131030151532.642
PX1 (130)	13906	13908	20131030164817.387	20131030164817.816
PX1 (130)	14283	14285	20131030164957.058	20131030164959.004
PX1 (130)	14293	14295	20131030165000.734	20131030165001.164
PX1 (130)	14296	14299	20131030165001.383	20131030165002.031
PX1 (130)	14299	14302	20131030165002.031	20131030165002.679
PX1 (130)	14302	14305	20131030165002.679	20131030165003.328
PX1 (130)	14305	14329	20131030165003.328	20131030165010.031
PX1 (130)	14330	14334	20131030165010.246	20131030165011.113
PX1 (130)	14335	14337	20131030165011.328	20131030165011.761
PX1 (130)	14339	14341	20131030165012.195	20131030165012.625
PX1 (130)	14341	14343	20131030165012.625	20131030165013.058
PX1 (130)	14670	14672	20131030165140.406	20131030165140.839
PX1 (130)	14700	14702	20131030165148.406	20131030165148.839

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	14721	14724	20131030165154.460	20131030165155.109
PX1 (130)	14742	14744	20131030165200.515	20131030165200.945
PX1 (130)	15102	15104	20131030165336.511	20131030165336.945
PX1 (130)	15151	15153	20131030165348.620	20131030165349.050
PX1 (130)	15514	15516	20131030165526.776	20131030165527.210
PX1 (130)	15527	15529	20131030165529.589	20131030165530.023
PX1 (130)	15564	15566	20131030165539.105	20131030165539.534
PX1 (130)	359	375	20131030170053.038	20131030170058.010
PX1 (130)	392	399	20131030170103.202	20131030170104.713
PX2 (135)	9344	9368	20131030151512.099	20131030151518.802
PX2 (135)	9370	9372	20131030151519.236	20131030151519.669
PX2 (135)	9372	9383	20131030151519.669	20131030151522.044
PX2 (135)	9383	9385	20131030151522.044	20131030151522.478
PX2 (135)	9387	9398	20131030151522.912	20131030151526.802
PX2 (135)	14289	14291	20131030164959.867	20131030165000.300
PX2 (135)	14296	14299	20131030165001.383	20131030165002.031
PX2 (135)	14302	14304	20131030165002.679	20131030165003.113
PX2 (135)	14305	14328	20131030165003.328	20131030165009.816
PX2 (135)	14328	14332	20131030165009.816	20131030165010.679
PX2 (135)	14332	14335	20131030165010.679	20131030165011.328
PX2 (135)	14335	14339	20131030165011.328	20131030165012.195
PX2 (135)	14341	14344	20131030165012.625	20131030165014.789
PX2 (135)	14733	14735	20131030165157.054	20131030165159.000
PX2 (135)	15102	15105	20131030165336.511	20131030165337.159
PX2 (135)	15138	15140	20131030165345.808	20131030165346.242
PX2 (135)	15174	15176	20131030165355.105	20131030165355.538
PX2 (135)	15177	15179	20131030165355.753	20131030165356.187
PX2 (135)	15467	15469	20131030165513.589	20131030165514.023
PX2 (135)	15545	15547	20131030165534.995	20131030165535.425
PX2 (135)	15564	15566	20131030165539.105	20131030165539.534
PX2 (135)	359	373	20131030170053.038	20131030170057.581
PX2 (135)	391	399	20131030170102.987	20131030170104.713
PX3 (140)	9344	9370	20131030151512.099	20131030151519.236
PX3 (140)	9372	9383	20131030151519.669	20131030151522.044
PX3 (140)	9383	9386	20131030151522.044	20131030151522.697
PX3 (140)	9387	9398	20131030151522.912	20131030151526.802
PX3 (140)	14036	14038	20131030164851.547	20131030164851.976
PX3 (140)	14289	14291	20131030164959.867	20131030165000.300
PX3 (140)	14292	14294	20131030165000.519	20131030165000.949
PX3 (140)	14294	14296	20131030165000.949	20131030165001.383
PX3 (140)	14300	14303	20131030165002.246	20131030165002.894
PX3 (140)	14303	14305	20131030165002.894	20131030165003.328
PX3 (140)	14306	14327	20131030165003.547	20131030165009.597
PX3 (140)	14329	14334	20131030165010.031	20131030165011.113
PX3 (140)	14334	14336	20131030165011.113	20131030165011.543
PX3 (140)	14336	14338	20131030165011.543	20131030165011.976
PX3 (140)	14341	14343	20131030165012.625	20131030165013.058
PX3 (140)	14700	14702	20131030165148.406	20131030165148.839
PX3 (140)	14708	14710	20131030165151.648	20131030165152.082
PX3 (140)	14716	14718	20131030165153.378	20131030165153.812
PX3 (140)	14743	14745	20131030165200.730	20131030165201.164
PX3 (140)	14757	14759	20131030165203.757	20131030165204.191
PX3 (140)	15116	15118	20131030165339.538	20131030165339.968
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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	15524	15526	20131030165528.941	20131030165529.374
PX3 (140)	15526	15528	20131030165529.374	20131030165529.804
PX3 (140)	359	373	20131030170053.038	20131030170057.581
PX3 (140)	391	399	20131030170102.987	20131030170104.713
PX4 (145)	9343	9370	20131030151511.884	20131030151519.236
PX4 (145)	9371	9383	20131030151519.451	20131030151522.044
PX4 (145)	9384	9386	20131030151522.263	20131030151522.697
PX4 (145)	9387	9397	20131030151522.912	20131030151525.072
PX4 (145)	14265	14267	20131030164953.168	20131030164953.597
PX4 (145)	14271	14273	20131030164954.465	20131030164954.898
PX4 (145)	14296	14298	20131030165001.383	20131030165001.816
PX4 (145)	14300	14302	20131030165002.246	20131030165002.679
PX4 (145)	14302	14305	20131030165002.679	20131030165003.328
PX4 (145)	14305	14308	20131030165003.328	20131030165003.976
PX4 (145)	14308	14328	20131030165003.976	20131030165009.816
PX4 (145)	14329	14331	20131030165010.031	20131030165010.465
PX4 (145)	14331	14333	20131030165010.465	20131030165010.894
PX4 (145)	14334	14339	20131030165011.113	20131030165012.195
PX4 (145)	14342	14344	20131030165012.840	20131030165014.789
PX4 (145)	14365	14367	20131030165019.328	20131030165019.761
PX4 (145)	14599	14601	20131030165122.027	20131030165122.461
PX4 (145)	14672	14674	20131030165140.839	20131030165142.785
PX4 (145)	14688	14690	20131030165145.812	20131030165146.246
PX4 (145)	14694	14696	20131030165147.109	20131030165147.542
PX4 (145)	14719	14721	20131030165154.027	20131030165154.460
PX4 (145)	14724	14726	20131030165155.109	20131030165155.542
PX4 (145)	14732	14734	20131030165156.839	20131030165158.785
PX4 (145)	15542	15544	20131030165532.831	20131030165534.780
PX4 (145)	359	372	20131030170053.038	20131030170057.362
PX4 (145)	391	399	20131030170102.987	20131030170104.713
IMG (150)	14591	14616	20131030151511.884	20131030151517.505
IMG (150)	14616	14619	20131030151517.505	20131030151518.373
IMG (150)	14623	14635	20131030151519.451	20131030151522.044
IMG (150)	14636	14638	20131030151522.263	20131030151522.697
IMG (150)	14638	14650	20131030151522.697	20131030151525.505
IMG (150)	14678	14680	20131030151531.990	20131030151532.423
IMG (150)	5998	6000	20131030165000.086	20131030165000.519
IMG (150)	6000	6002	20131030165000.519	20131030165000.949
IMG (150)	6002	6004	20131030165000.949	20131030165001.383
IMG (150)	6004	6006	20131030165001.383	20131030165001.816
IMG (150)	6008	6010	20131030165002.246	20131030165002.679
IMG (150)	6010	6012	20131030165002.679	20131030165003.113
IMG (150)	6012	6014	20131030165003.113	20131030165003.547
IMG (150)	6015	6020	20131030165003.761	20131030165004.843
IMG (150)	6020	6043	20131030165004.843	20131030165010.465
IMG (150)	6046	6049	20131030165011.113	20131030165011.761
IMG (150)	6394	6396	20131030165132.839	20131030165133.488
IMG (150)	6459	6461	20131030165148.191	20131030165148.625
IMG (150)	6484	6487	20131030165154.246	20131030165154.894
IMG (150)	6508	6510	20131030165200.082	20131030165200.515
IMG (150)	6991	6993	20131030165353.593	20131030165354.023
IMG (150)	6996	6998	20131030165354.671	20131030165355.105
IMG (150)	7394	7396	20131030165528.507	20131030165528.941

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	7512	7514	20131030165555.968	20131030165556.398
IMG (150)	8775	8793	20131030170053.038	20131030170057.581
IMG (150)	8815	8823	20131030170102.987	20131030170104.713
VER (160)	2579	2583	20131030151509.072	20131030151512.099
VER (160)	2584	2588	20131030151512.099	20131030151525.072
VER (160)	6064	6066	20131030164805.062	20131030164813.062
VER (160)	6077	6079	20131030164829.058	20131030164829.058
VER (160)	6129	6132	20131030164949.058	20131030164957.058
VER (160)	6134	6141	20131030164957.058	20131030165013.058
VER (160)	6199	6202	20131030165141.054	20131030165149.054
VER (160)	6210	6212	20131030165205.054	20131030165205.054
VER (160)	6534	6536	20131030170037.042	20131030170045.038
VER (160)	6540	6545	20131030170053.038	20131030170101.038
AUX (180)	14310	14312	20131030164957.492	20131030165013.492
AUX (180)	14391	14393	20131030170045.471	20131030170101.471

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
30/10/2013 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	481	-
GQisFlagQual set (PX1)	99.51 %	-
GQisFlagQual set (PX2)	99.57 %	-
GQisFlagQual set (PX3)	99.60 %	-
GQisFlagQual set (PX4)	99.55 %	-
GQisFlagQual set (all)	99.56 %	-

Table 4: Quality flags

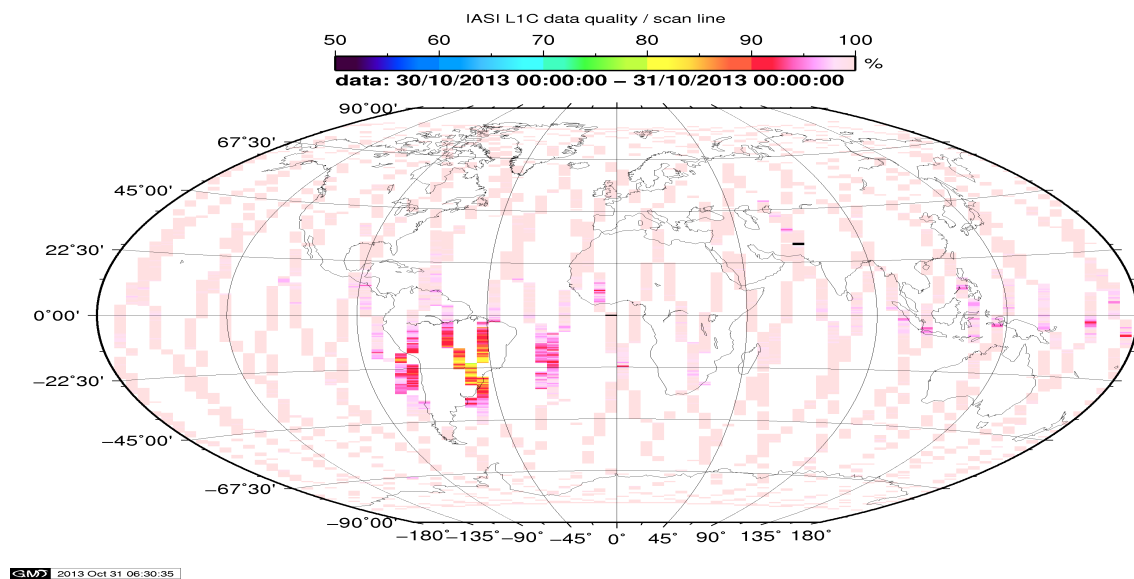


Figure 1: L1C data quality

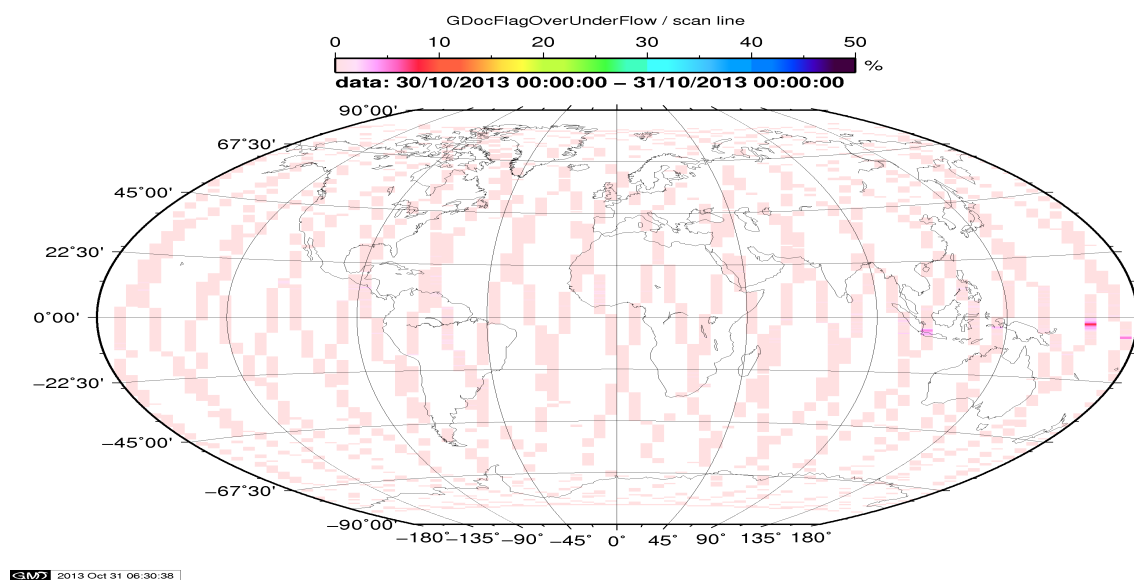


Figure 2: Flag of Over and Under Flows

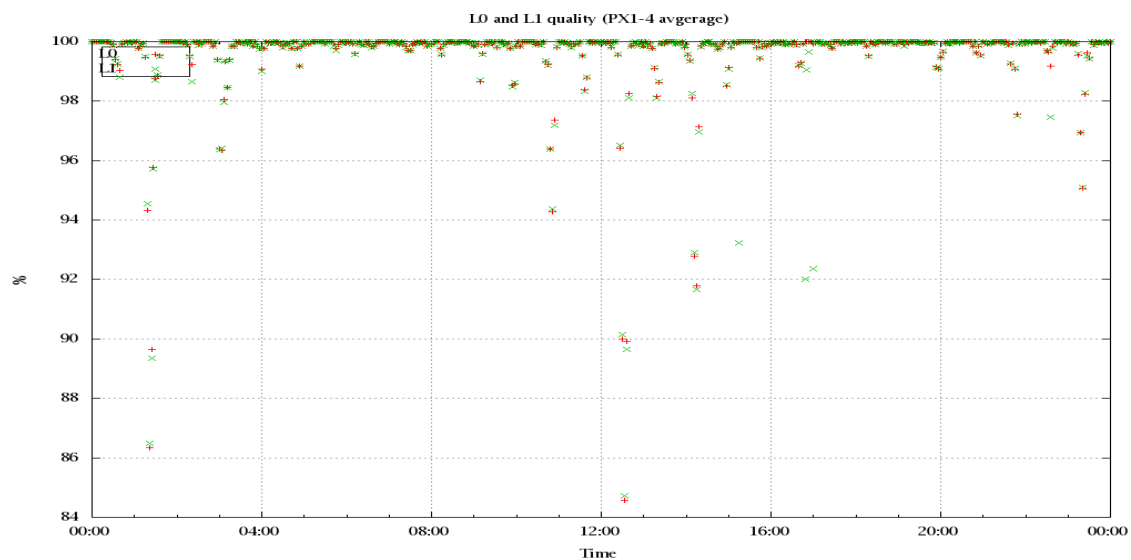


Figure 3: Level 0 and 1C overall quality

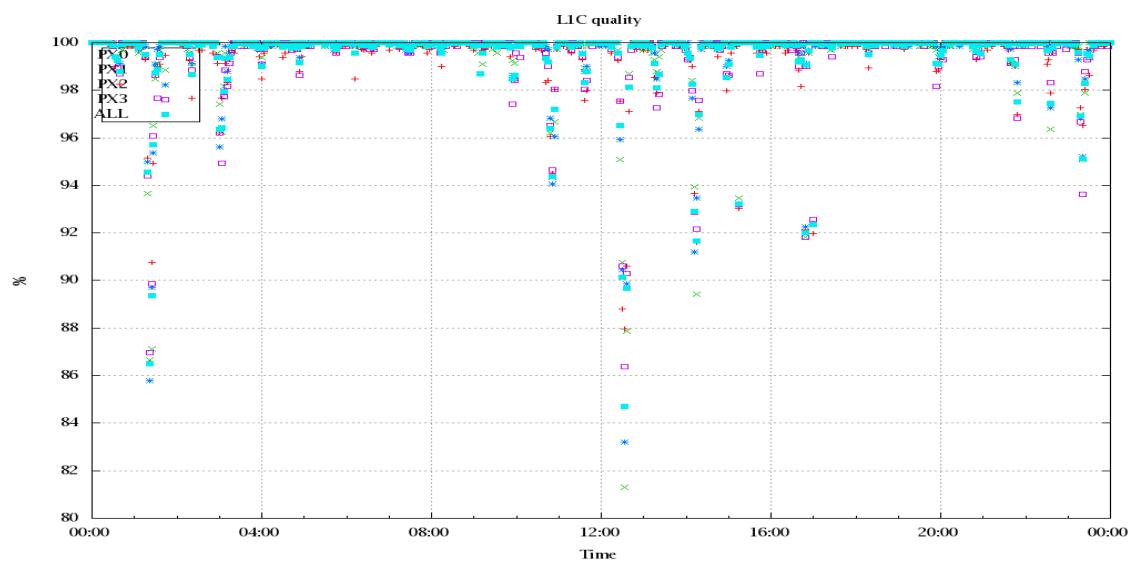


Figure 4: Level 1C quality

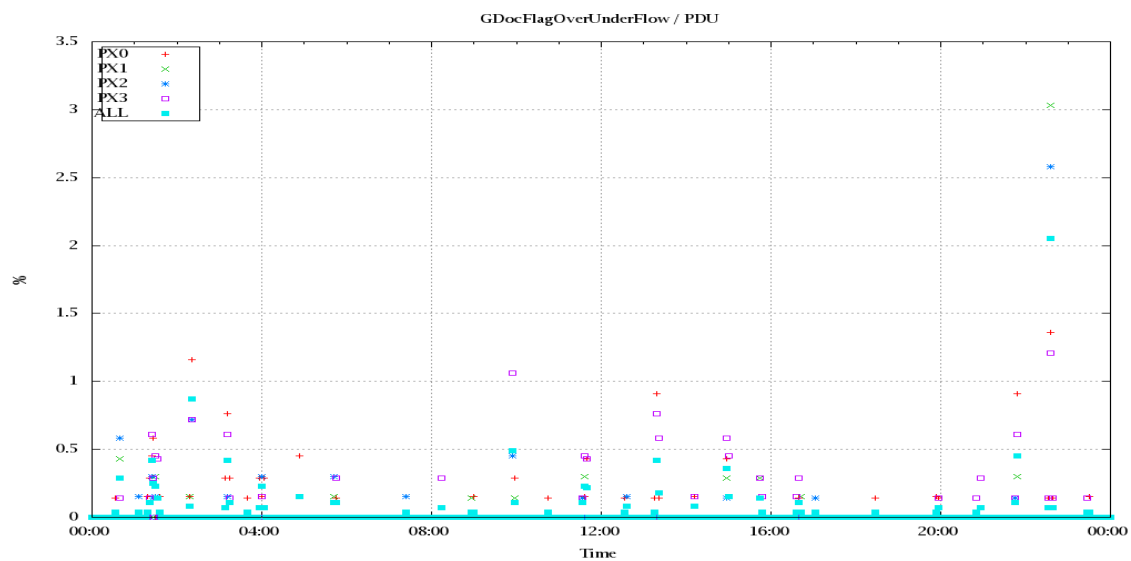


Figure 5: OverUnderFlowFlag timeseries

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.

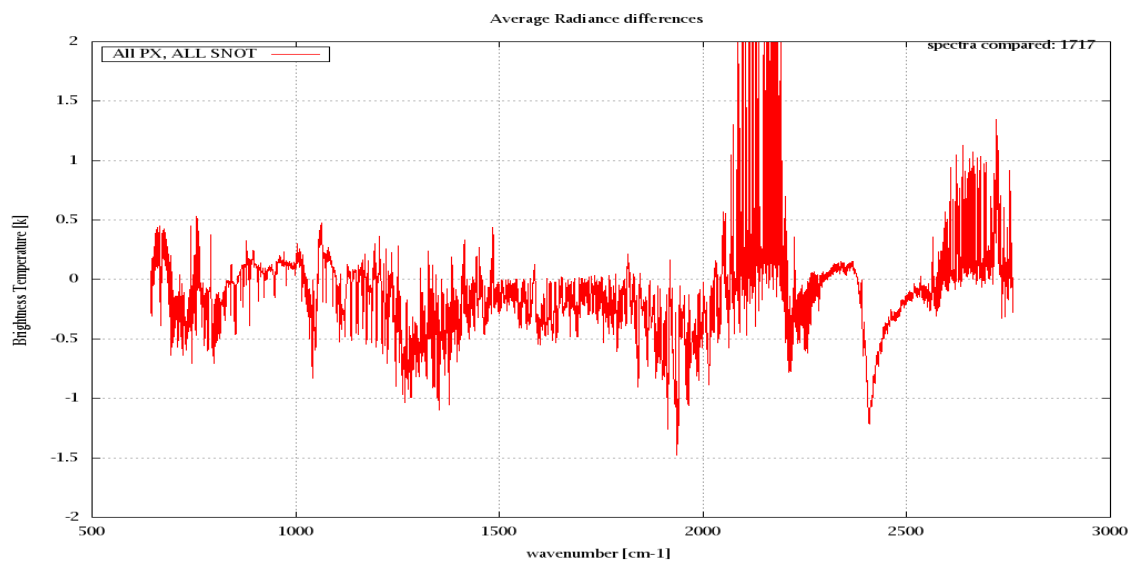


Figure 6: Average Radiance differences: OBS-CAL

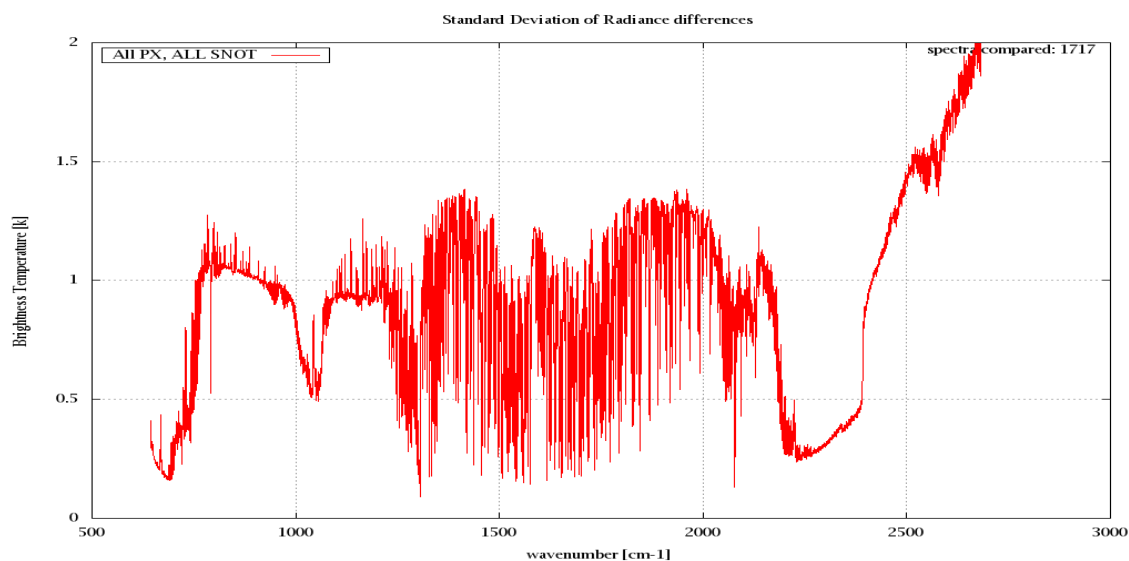


Figure 7: Standard Deviation of Radiance differences

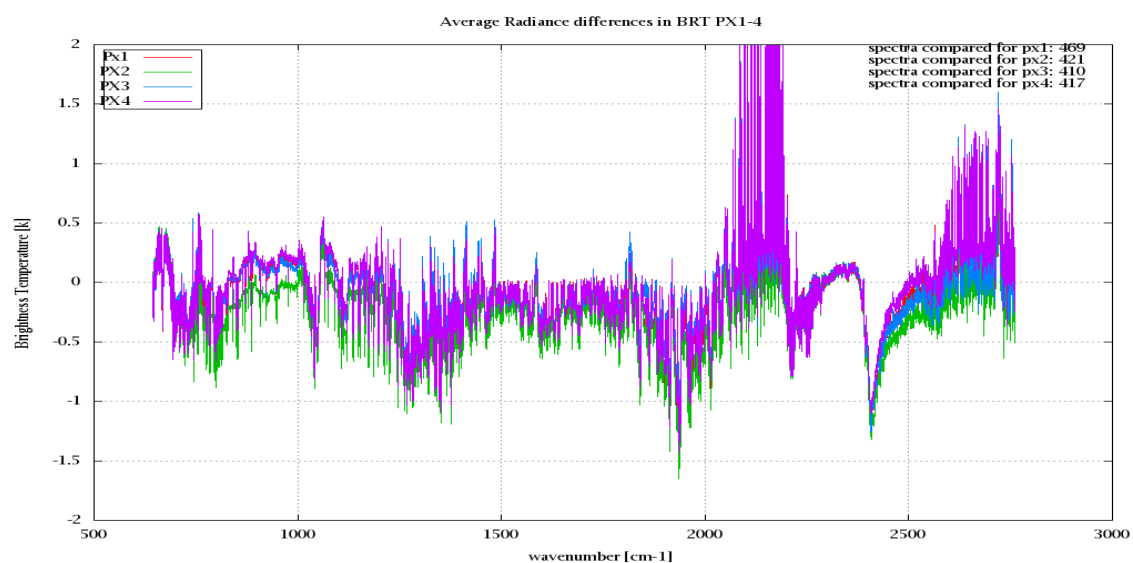


Figure 8: Average Radiance differences: OBS-CAL

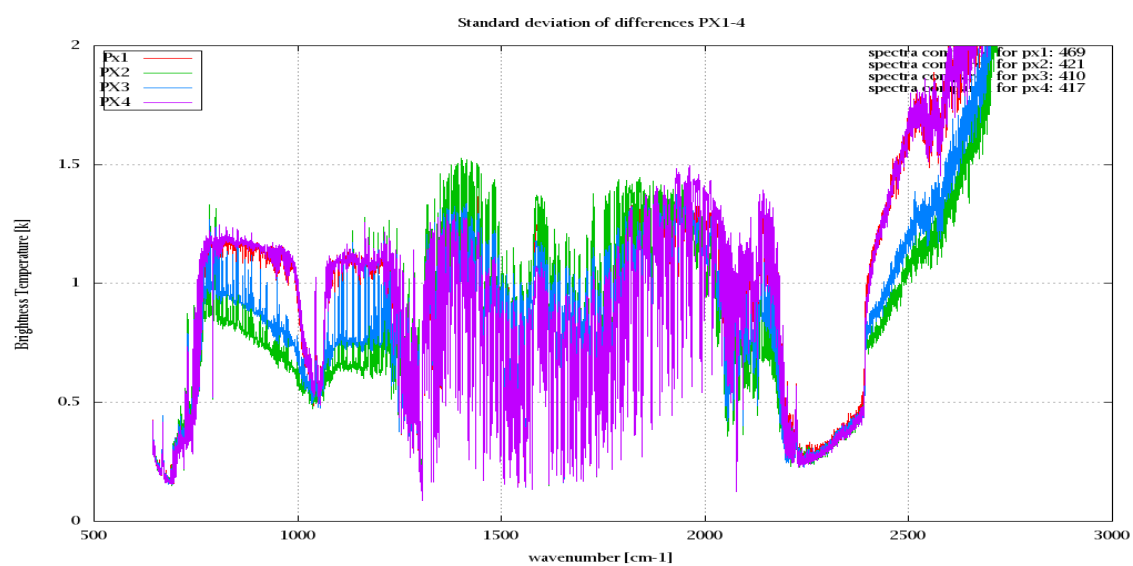


Figure 9: Standard Deviation of Radiance differences

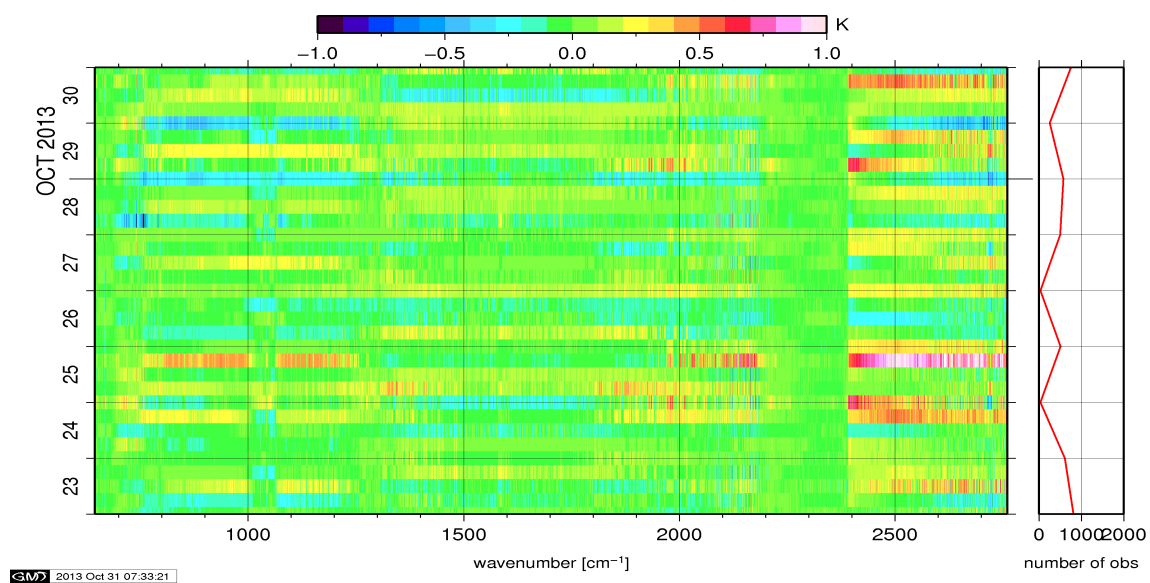


Figure 10: Radiance Anomaly in BRT: All Channels

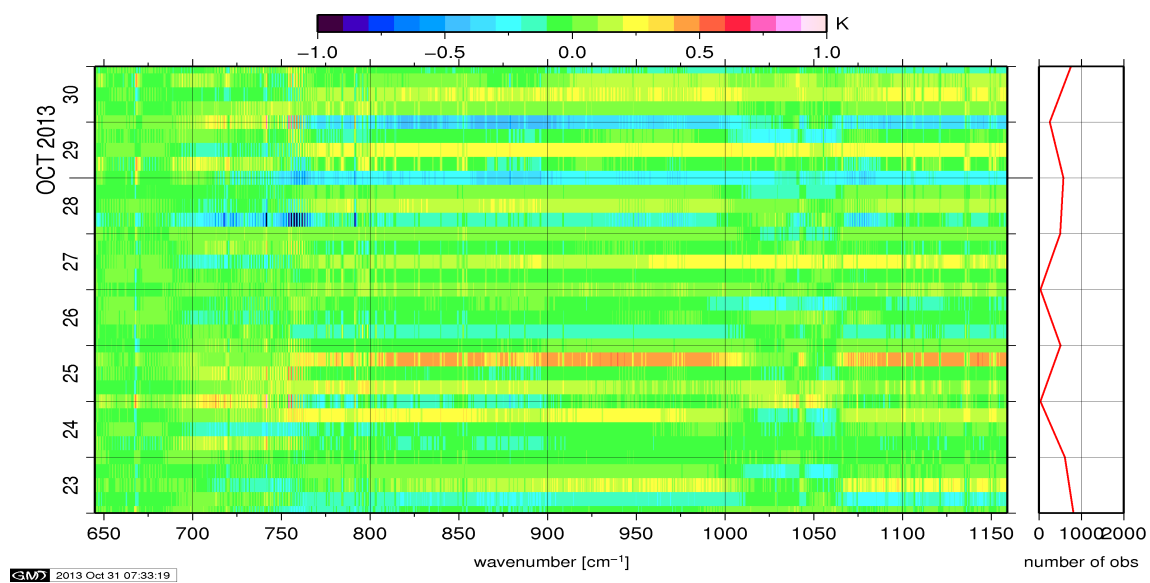


Figure 11: Radiance Anomaly in BRT: IASI Band 1

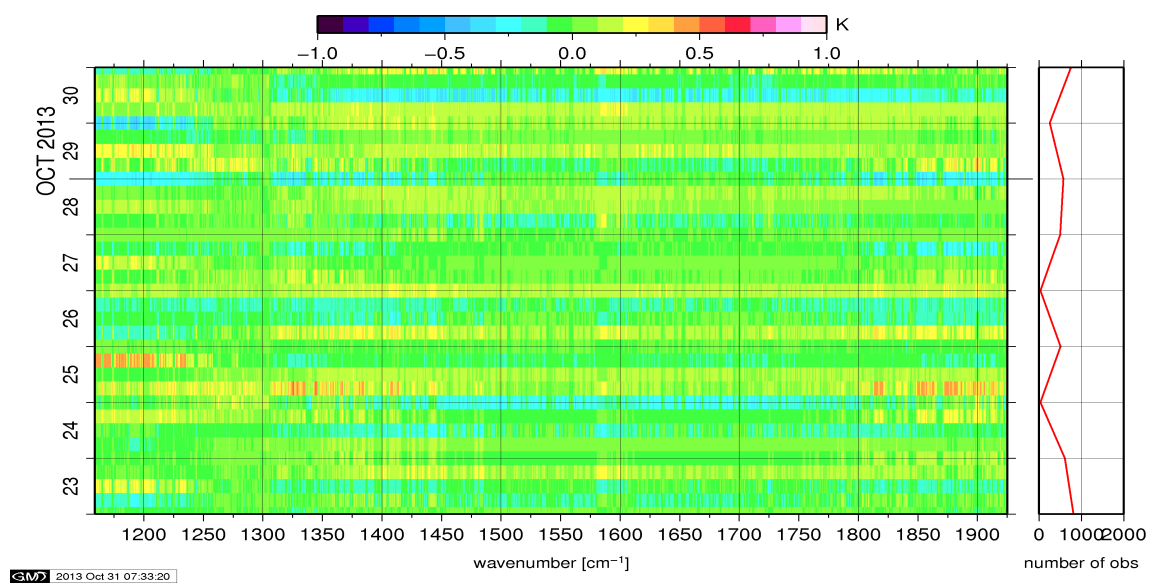


Figure 12: Radiance Anomaly in BRT: IASI Band 2

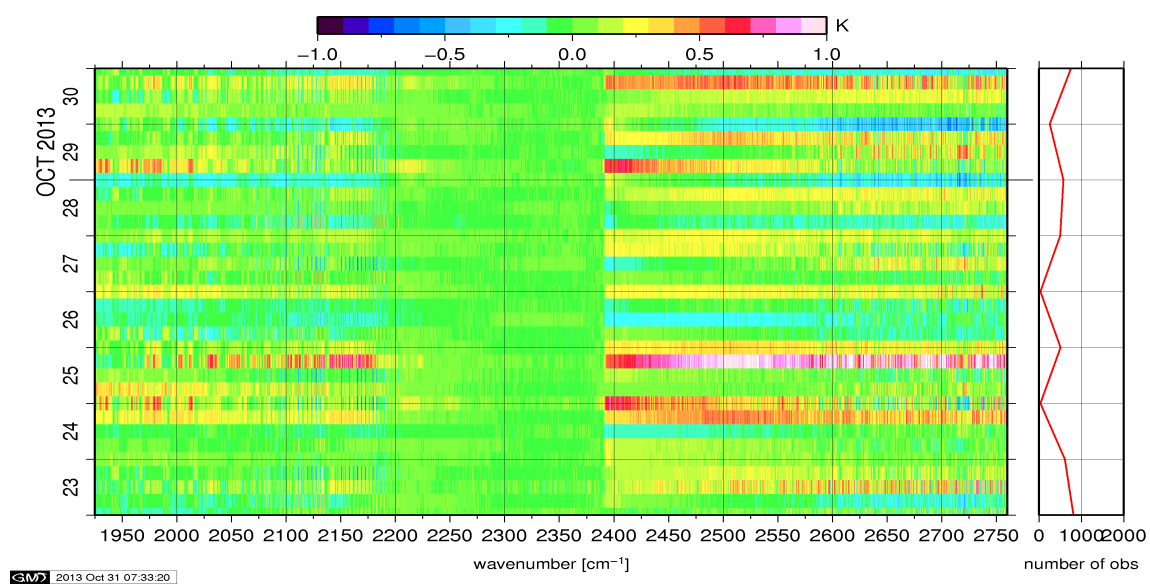


Figure 13: Radiance Anomaly in BRT: IASI Band 3

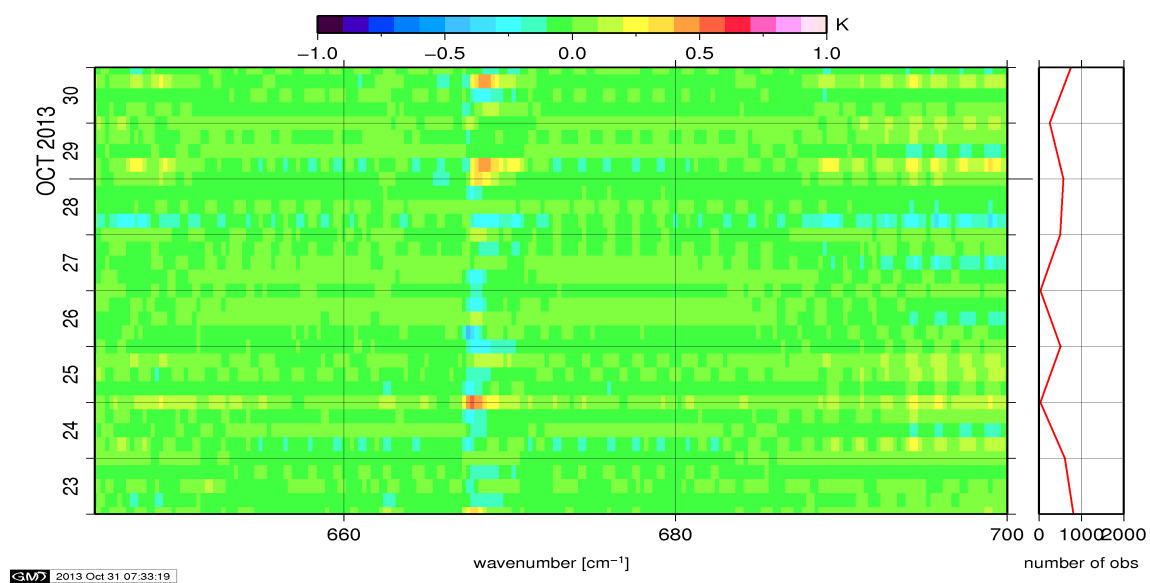


Figure 14: Radiance Anomaly in BRT: CO2 14

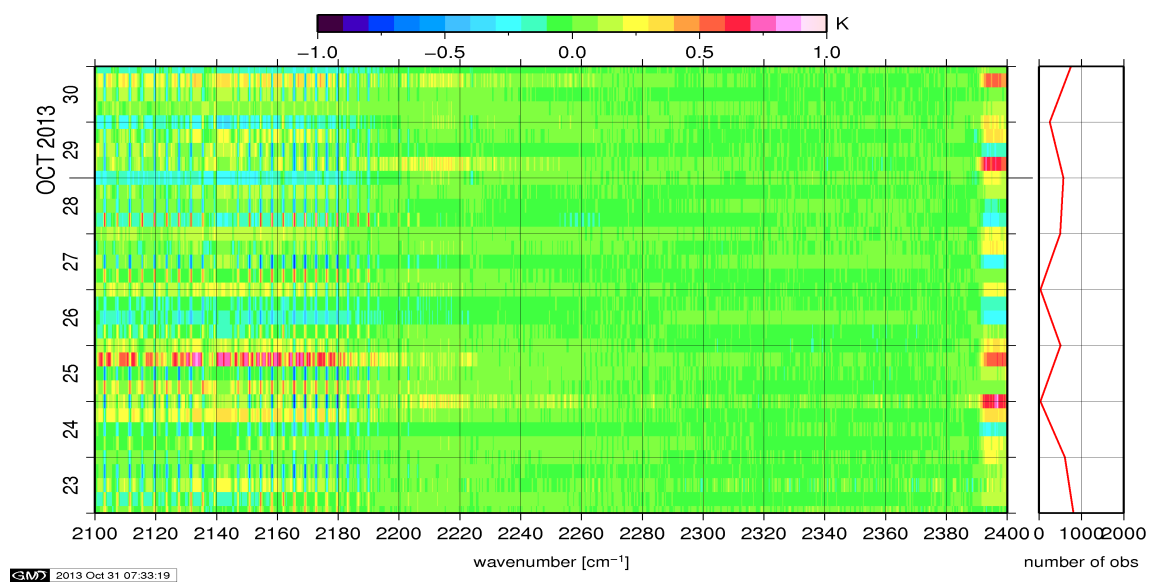


Figure 15: Radiance Anomaly in BRT: CO2 4.3

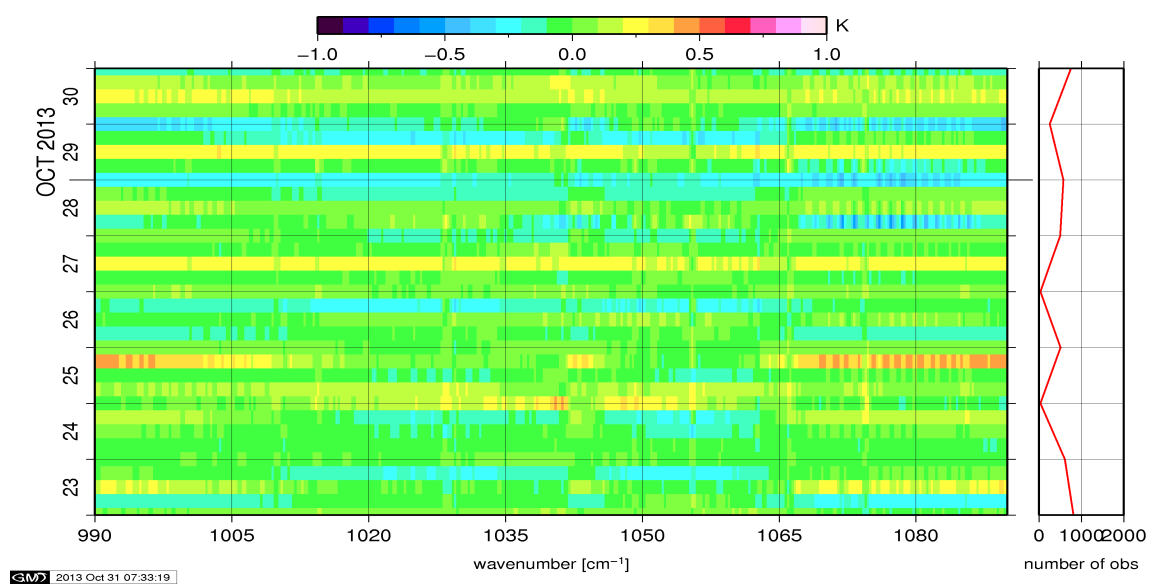


Figure 16: Radiance Anomaly in BRT: O3

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.

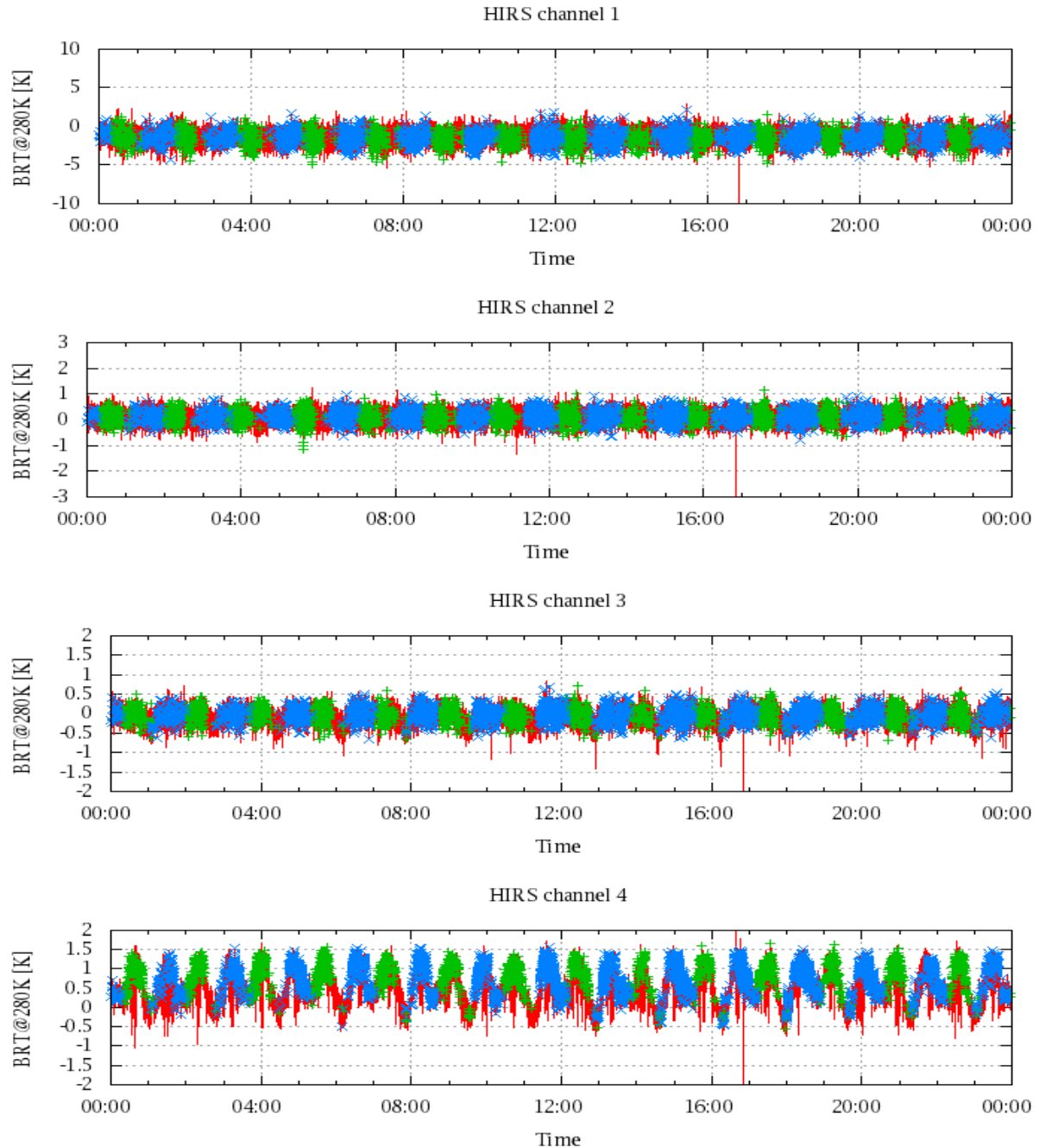


Figure 17: Radiance Differences in BRT

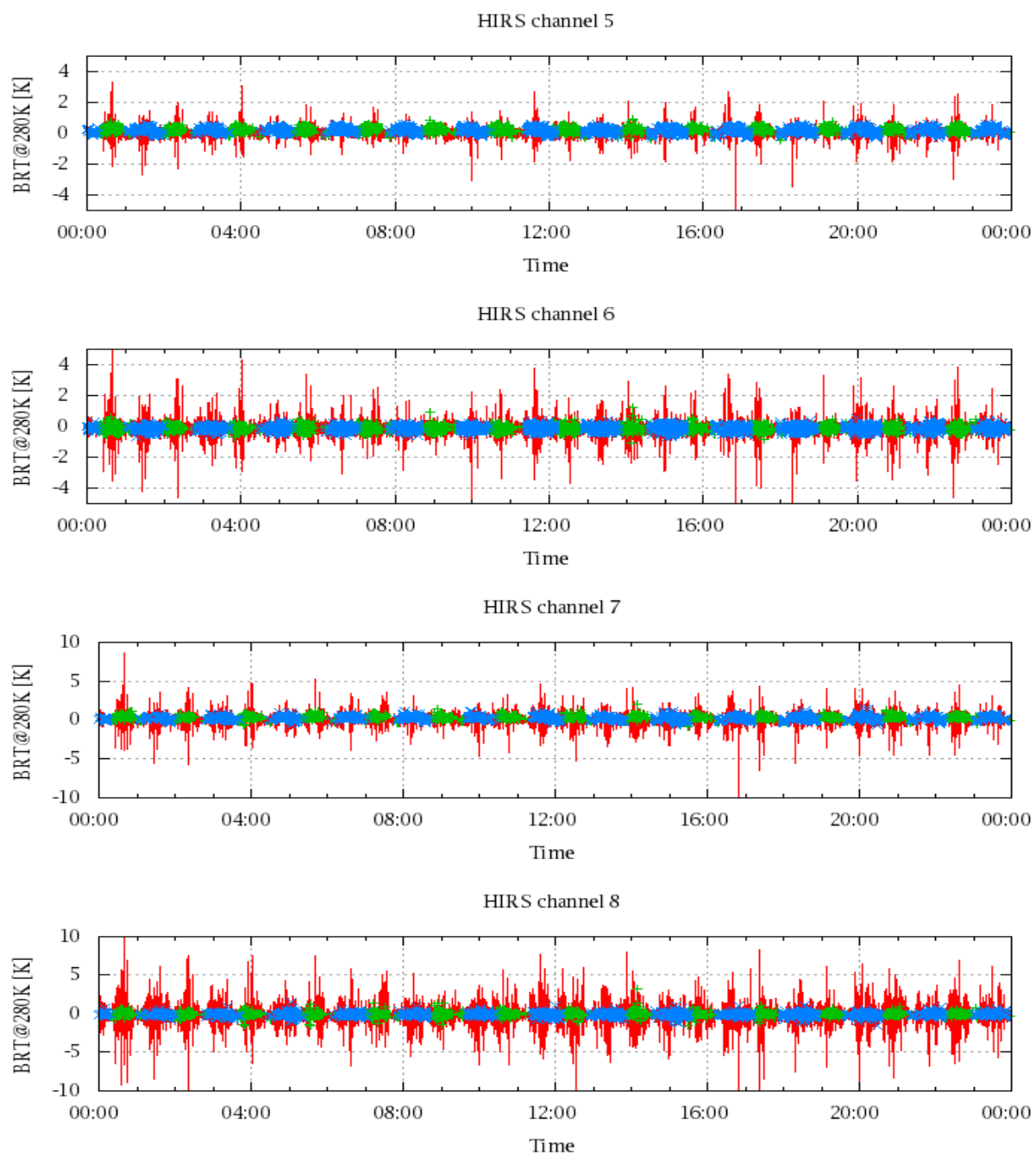


Figure 18: Radiance Differences in BRT

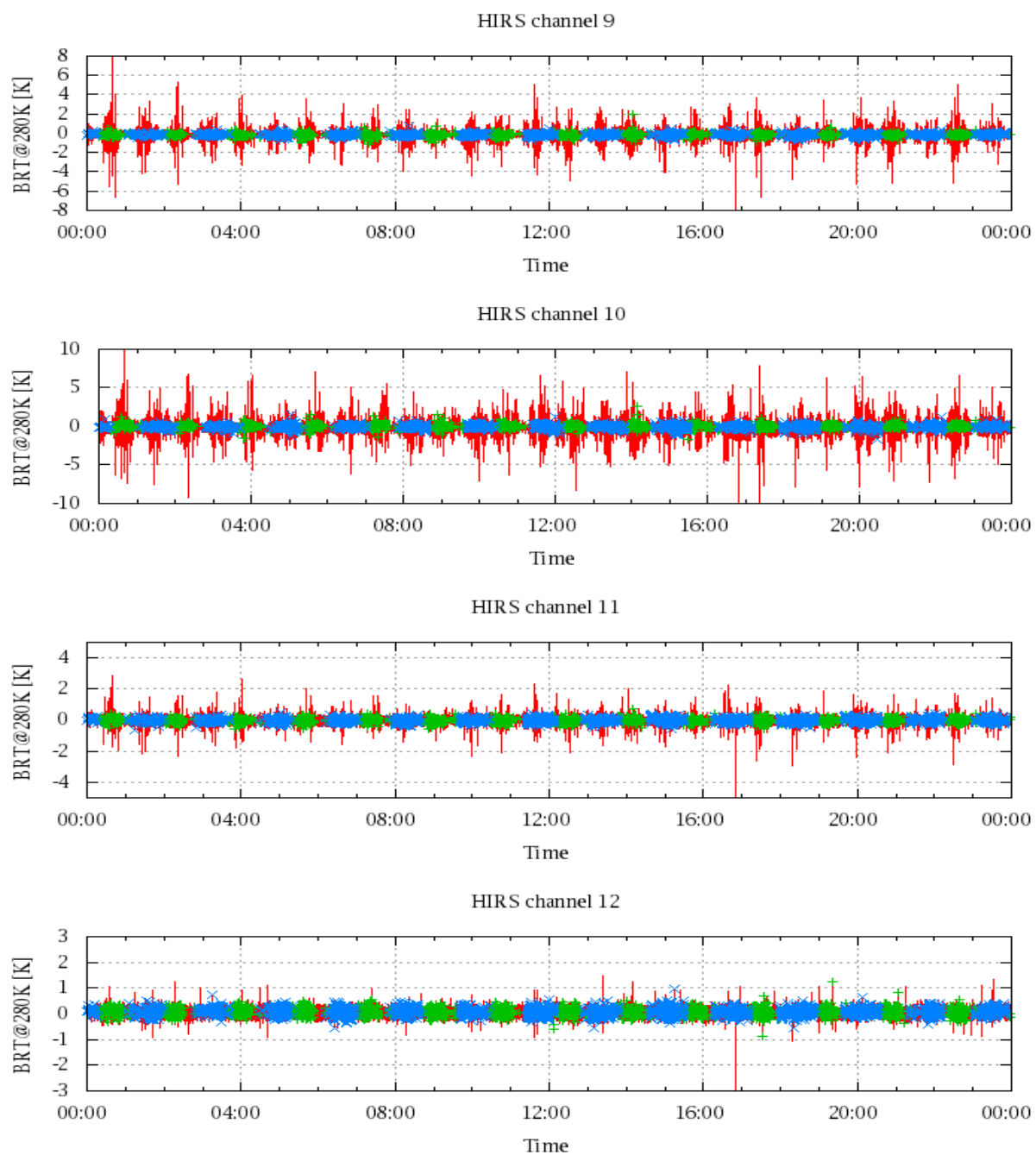


Figure 19: Radiance Differences in BRT

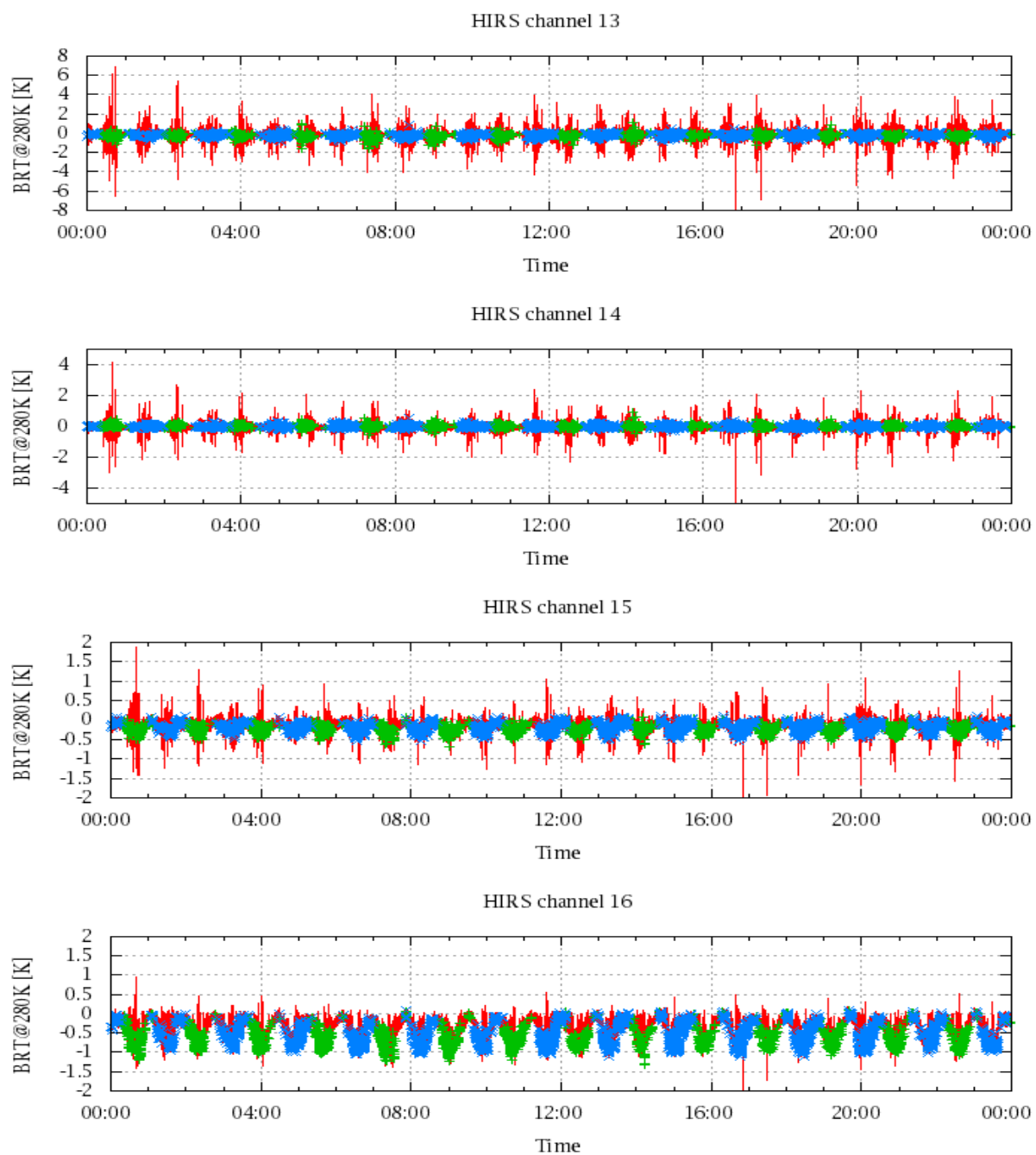


Figure 20: Radiance Differences in BRT

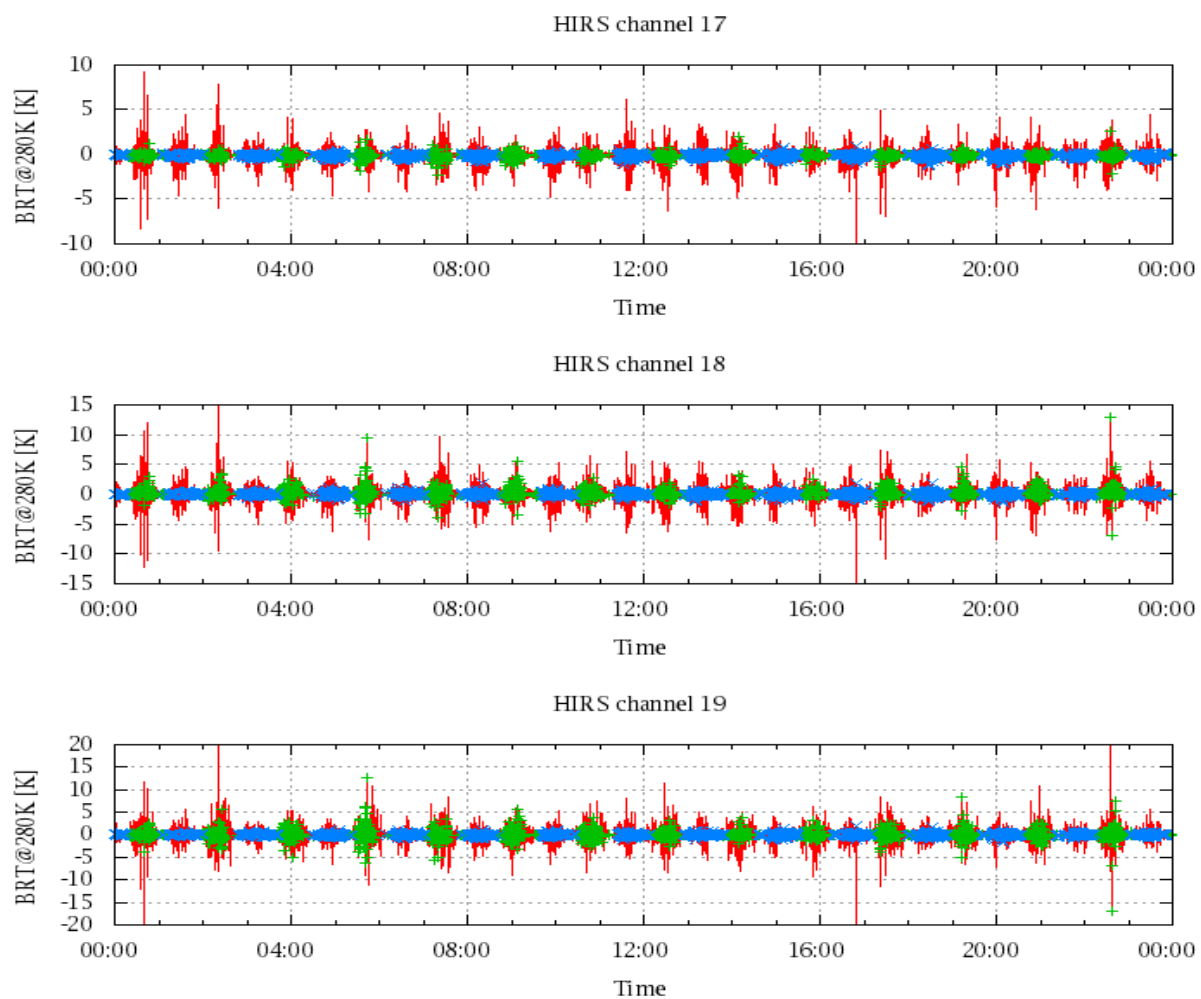


Figure 21: Radinace Differences in BRT