IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

03/06/2015 00:00:00 - 04/06/2015 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 03/06/2015 00:00:00 - 04/06/2015 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 03/06/2015 00:00:00 - 04/06/2015 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)	10581	10584	20150603110137.824	20150603110139.988
PX1 (130)	10671	10823	20150603110201.824	20150603110243.769
PX1 (130)	10886	10912	20150603110300.418	20150603110307.551
PX1 (130)	10912	10914	20150603110307.551	20150603110307.984
PX1 (130)	10919	11002	20150603110309.066	20150603110331.551
PX1 (130)	11053	11062	20150603110344.090	20150603110347.551
PX1 (130)	11081	11092	20150603110351.656	20150603110355.551
PX1 (130)	11245	11295	20150603110436.199	20150603110448.523
PX1 (130)	11541	11551	20150603110553.816	20150603110557.492
PX1 (130)	11635	11651	20150603110620.195	20150603110623.656
PX1 (130)	11949	11962	20150603110743.218	20150603110747.542
PX1 (130)	11991	12013	20150603110753.812	20150603110800.085
PX1 (130)	12306	12350	20150603110918.566	20150603110929.593
PX1 (130)	12611	12622	20150603111039.683	20150603111043.577
PX1 (130)	12677	12688	20150603111056.980	20150603111100.874
PX1 (130)	12991	13004	20150603111221.519	20150603111224.331
PX1 (130)	13034	13050	20150603111232.327	20150603111237.304
PX2 (135)	10581	10584	20150603110137.824	20150603110139.988

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	10671	10823	20150603110201.824	20150603110243.769
PX2 (135)	10885	10912	20150603110300.199	20150603110307.551
PX2 (135)	10912	10914	20150603110307.551	20150603110307.984
PX2 (135)	10919	11002	20150603110309.066	20150603110331.551
PX2 (135)	11053	11062	20150603110344.090	20150603110347.551
PX2 (135)	11080	11092	20150603110351.441	20150603110355.551
PX2 (135)	11245	11275	20150603110436.199	20150603110444.199
PX2 (135)	11275	11295	20150603110444.199	20150603110448.523
PX2 (135)	11541	11551	20150603110553.816	20150603110557.492
PX2 (135)	11635	11651	20150603110620.195	20150603110623.656
PX2 (135)	11949	11962	20150603110743.218	20150603110747.542
PX2 (135)	11991	12013	20150603110753.812	20150603110800.085
PX2 (135)	12305	12350	20150603110918.351	20150603110929.593
PX2 (135)	12610	12622	20150603111039.468	20150603111043.577
PX2 (135)	12676	12688	20150603111056.765	20150603111100.874
PX2 (135)	12991	13004	20150603111221.519	20150603111224.331
PX2 (135)	13030	13032	20150603111231.464	20150603111231.897
PX2 (135)	13034	13050	20150603111232.327	20150603111237.304
PX2 (135)	13050	13052	20150603111237.304	20150603111237.733
PX3 (140)	10581	10584	20150603110137.824	20150603110139.988
PX3 (140)	10671	10823	20150603110201.824	20150603110243.769
PX3 (140)	10886	10912	20150603110300.418	20150603110307.551
PX3 (140)	10919	11002	20150603110309.066	20150603110331.551
PX3 (140)	11053	11062	20150603110344.090	20150603110347.551
PX3 (140)	11080	11092	20150603110351.441	20150603110355.551
PX3 (140)	11245	11295	20150603110436.199	20150603110448.523
PX3 (140)	11541	11552	20150603110553.816	20150603110557.711
PX3 (140)	11635	11652	20150603110620.195	20150603110623.871
PX3 (140)	11949	11962	20150603110743.218	20150603110747.542
PX3 (140)	11991	12013	20150603110753.812	20150603110800.085
PX3 (140)	12305	12349	20150603110918.351	20150603110929.378
PX3 (140)	12610	12622	20150603111039.468	20150603111043.577
PX3 (140)	12676	12688	20150603111056.765	20150603111100.874
PX3 (140)	12991	13004	20150603111221.519	20150603111224.331
PX3 (140)	13023	13025	20150603111229.952	20150603111230.382
PX3 (140)	13034	13050	20150603111232.327	20150603111237.304
PX4 (145)	10581	10583	20150603110137.824	20150603110139.770
PX4 (145)	10671	10823	20150603110201.824	20150603110243.769
PX4 (145)	10886	10912	20150603110300.418	20150603110307.551
PX4 (145)	10918	11002	20150603110308.848	20150603110331.551
PX4 (145)	11052	11062	20150603110343.875	20150603110347.551
PX4 (145)	11080	11092	20150603110351.441	20150603110355.551
PX4 (145)	11243	11245	20150603110435.765	20150603110436.199
PX4 (145)	11245	11294	20150603110436.199	20150603110448.304
PX4 (145)	11541	11551	20150603110553.816	20150603110557.492
PX4 (145)	11551	11553	20150603110557.492	20150603110557.925
PX4 (145)	11634	11651	20150603110619.980	20150603110623.656
PX4 (145)	11949	11962	20150603110743.218	20150603110747.542
PX4 (145)	11991	12013	20150603110753.812	20150603110800.085
PX4 (145)	12305	12349	20150603110918.351	20150603110929.378
PX4 (145)	12610	12622	20150603111039.468	20150603111043.577
PX4 (145)	12676	12687	20150603111056.765	20150603111100.655
PX4 (145)	12991	13003	20150603111221.519	20150603111224.112

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	13034	13050	20150603111232.327	20150603111237.304
IMG (150)	7909	7915	20150603110137.824	20150603110139.770
IMG (150)	8011	8187	20150603110201.824	20150603110243.769
IMG (150)	8258	8284	20150603110300.418	20150603110306.254
IMG (150)	8294	8386	20150603110308.848	20150603110330.254
IMG (150)	8444	8453	20150603110343.875	20150603110345.820
IMG (150)	8476	8488	20150603110351.441	20150603110354.254
IMG (150)	8664	8718	20150603110435.980	20150603110448.304
IMG (150)	8997	9011	20150603110553.816	20150603110557.492
IMG (150)	9106	9123	20150603110619.980	20150603110623.656
IMG (150)	9461	9474	20150603110743.218	20150603110746.246
IMG (150)	9507	9533	20150603110753.812	20150603110800.085
IMG (150)	9865	9913	20150603110918.351	20150603110929.378
IMG (150)	10210	10221	20150603111039.468	20150603111041.847
IMG (150)	10284	10299	20150603111056.765	20150603111100.655
IMG (150)	10642	10655	20150603111221.304	20150603111224.112
IMG (150)	10690	10709	20150603111232.327	20150603111237.085
VER (160)	767	771	20150603110137.824	20150603110145.824
VER (160)	780	811	20150603110153.824	20150603110249.820
VER (160)	820	825	20150603110257.824	20150603110300.418
VER (160)	825	840	20150603110300.418	20150603110309.066
VER (160)	850	853	20150603110345.820	20150603110351.656
VER (160)	880	886	20150603110433.820	20150603110449.820
VER (160)	928	931	20150603110553.816	20150603110601.816
VER (160)	995	997	20150603110737.812	20150603110743.218
VER (160)	1001	1006	20150603110753.812	20150603110801.812
VER (160)	1055	1061	20150603110913.812	20150603110929.812
VER (160)	1115	1121	20150603111049.843	20150603111105.843
VER (160)	1175	1181	20150603111225.843	20150603111241.843
AUX (180)	3427	3429	20150603110130.258	20150603110146.254
AUX (180)	3430	3437	20150603110154.258	20150603110250.254
AUX (180)	3439	3442	20150603110306.254	20150603110330.254
AUX (180)	3450	3452	20150603110434.254	20150603110450.250
AUX (180)	3474	3476	20150603110746.246	20150603110802.246
AUX (180)	3485	3487	20150603110914.242	20150603110930.242
AUX (180)	3497	3499	20150603111050.277	20150603111106.277
AUX (180)	3509	3511	20150603111226.276	20150603111242.272

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
03/06/2015 00:06:55	-	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)	99.42 %	-
GQisFlagQual set (PX2)	99.51 %	-
GQisFlagQual set (PX3)	99.54 %	-
GQisFlagQual set (PX4)	99.48 %	-
GQisFlagQual set (all)	99.49 %	-

Table 4: Quality flags

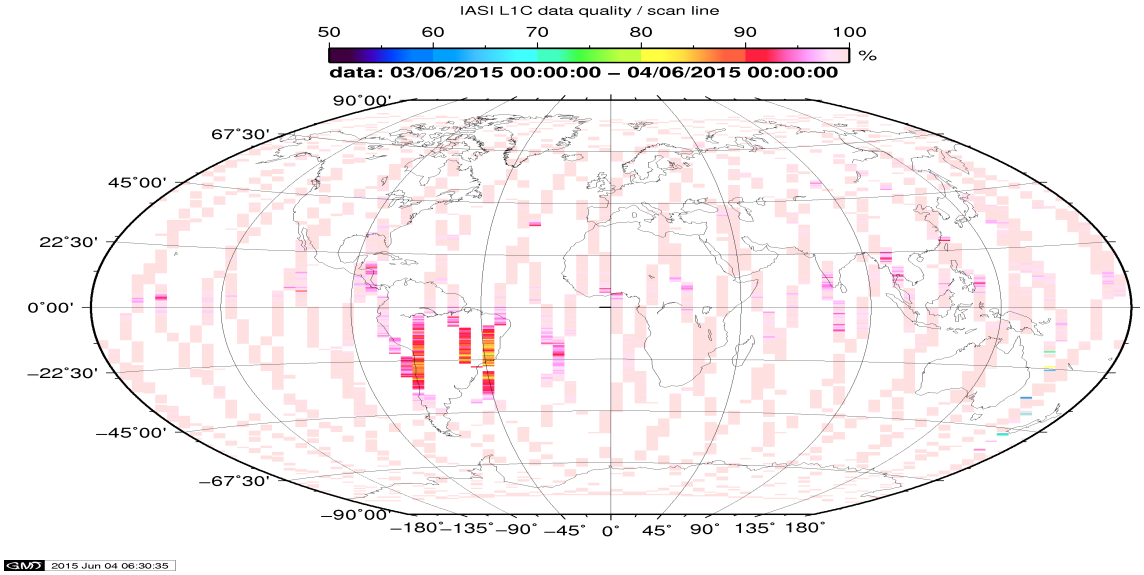

Figure 1: L1C data quality

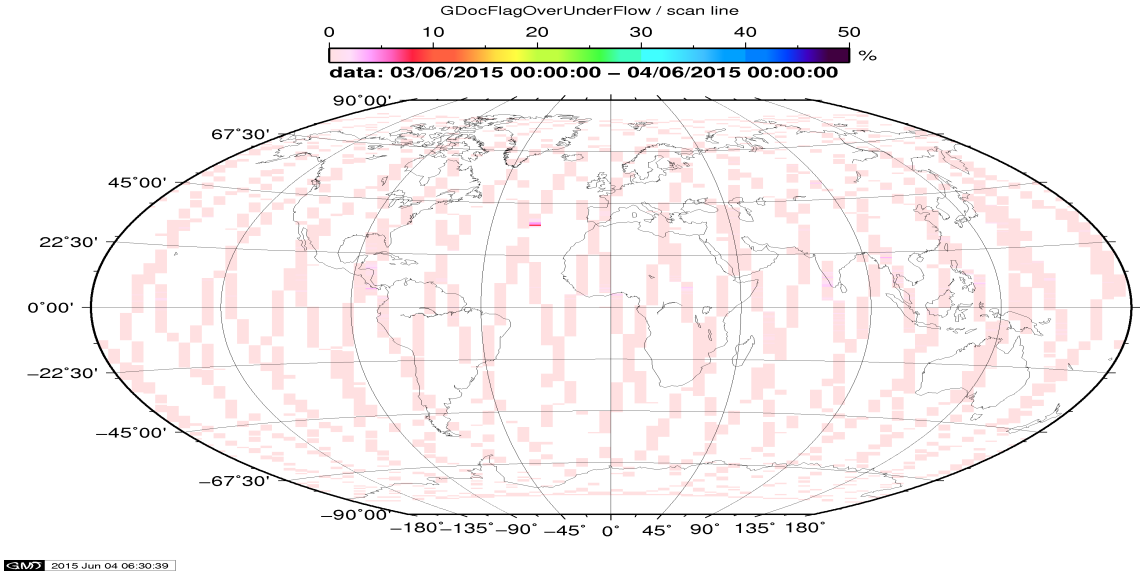

Figure 2: Flag of Over and Under Flows

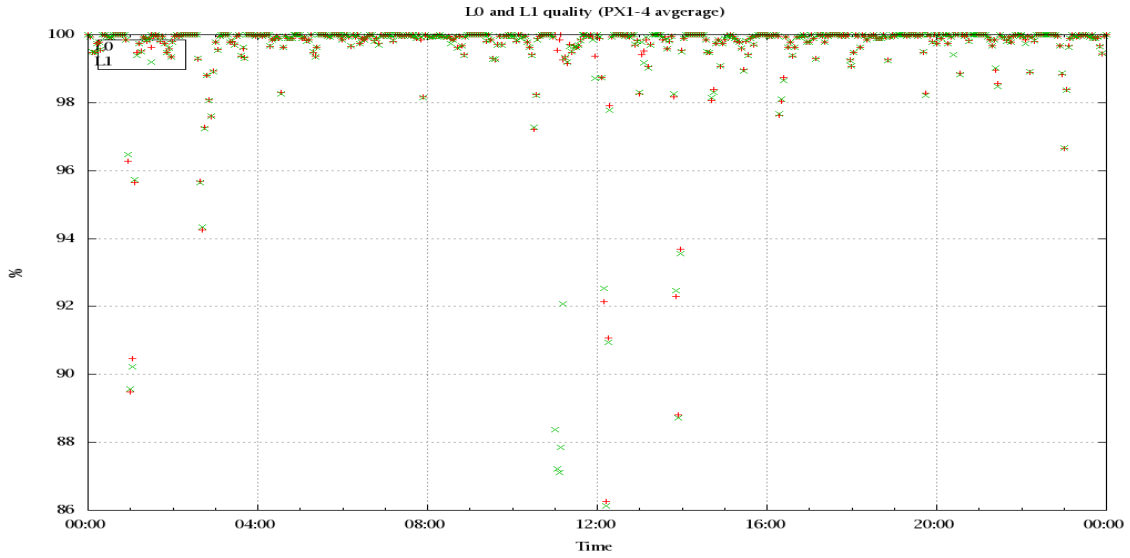

Figure 3: Level 0 and 1C overall quality

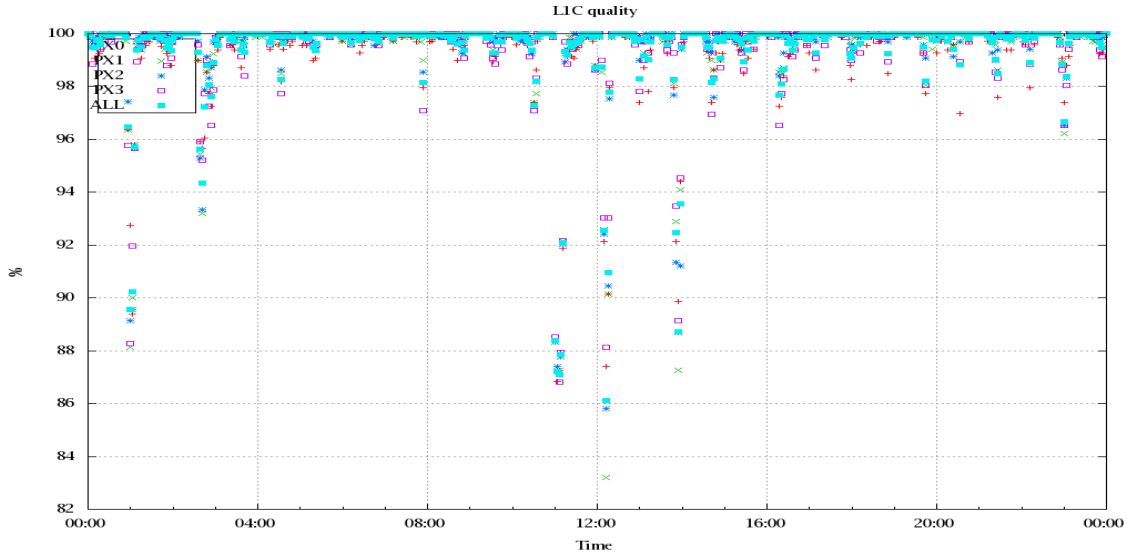

Figure 4: Level 1C quality

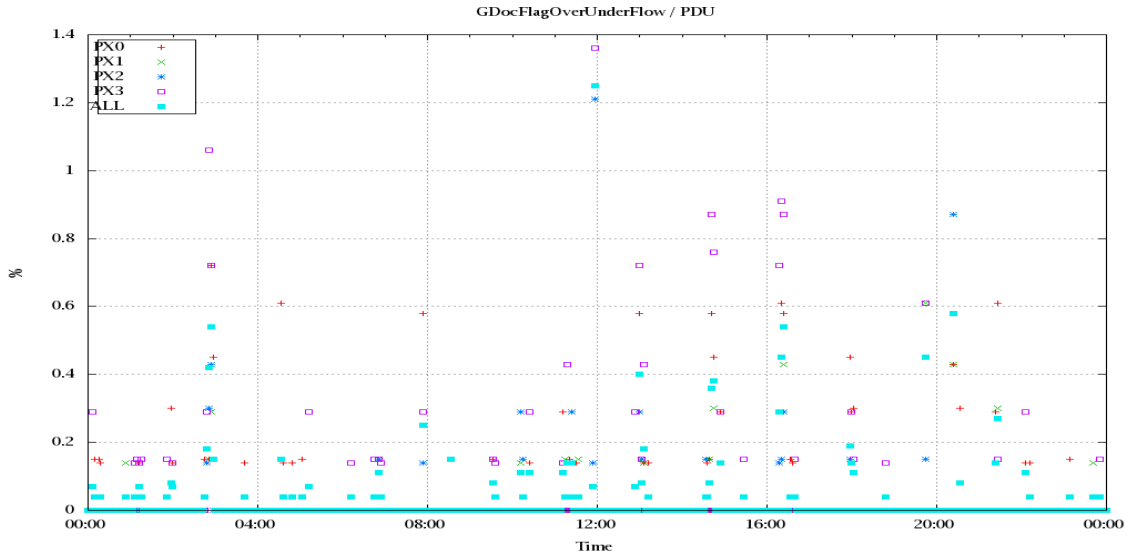

Figure 5: OverUnderFlowFlag timeseries

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 indentification 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.

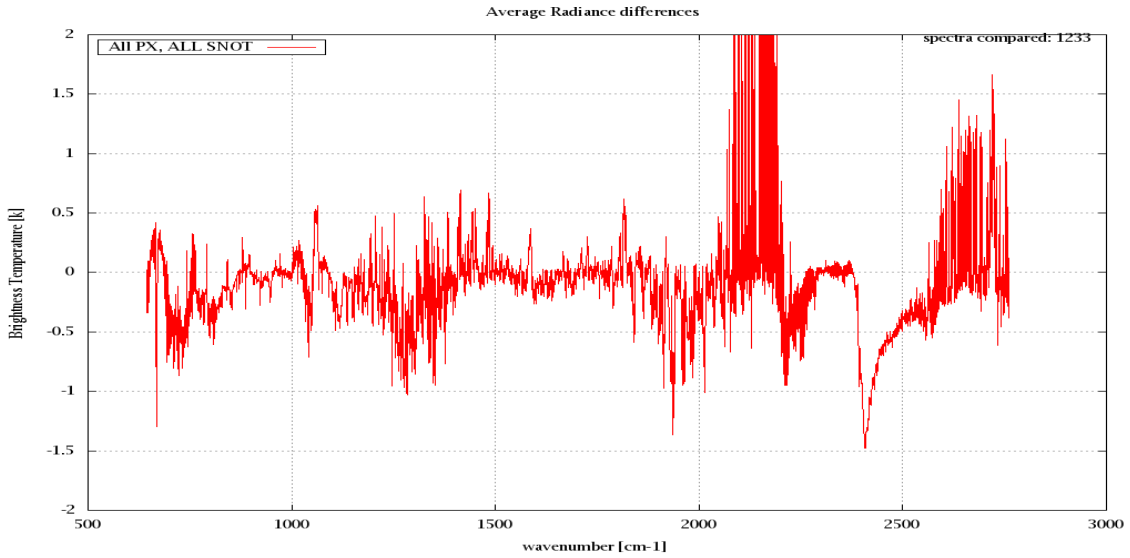

Figure 6: Average Radiance differences: OBS-CAL

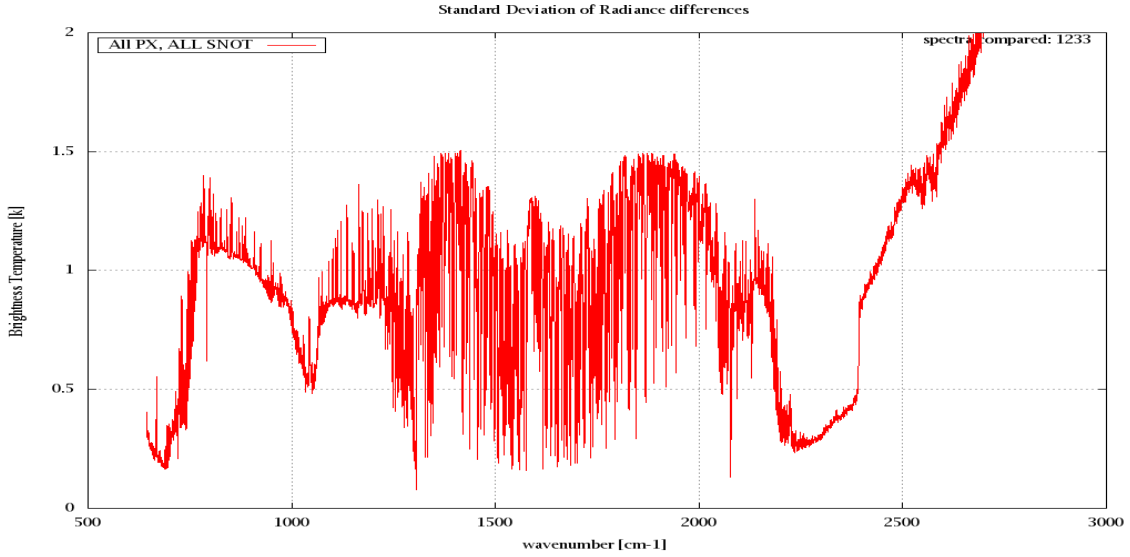

Figure 7: Standard Deviation of Radiance differences

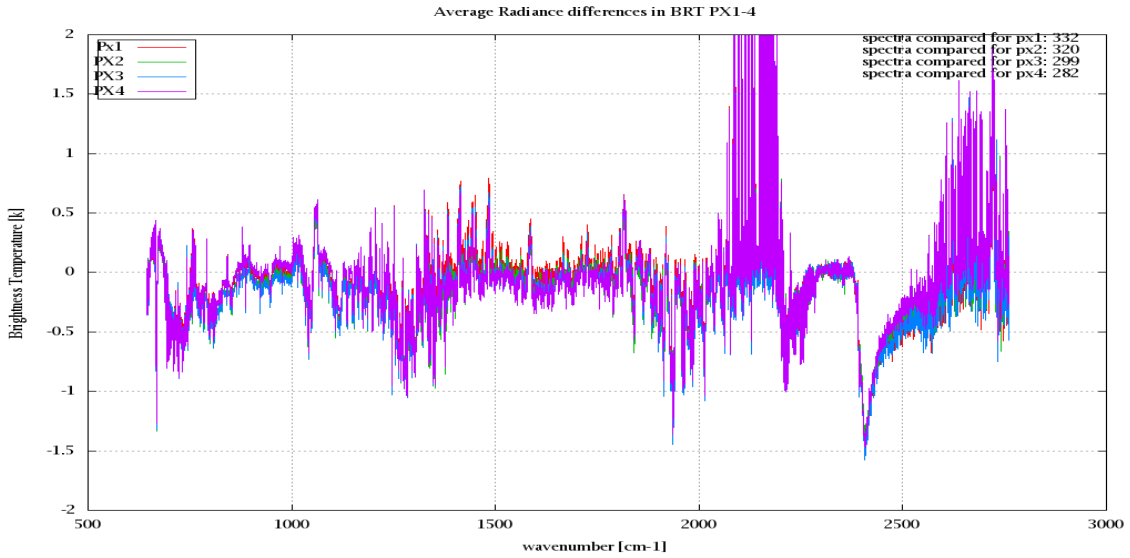

Figure 8: Average Radiance differences: OBS-CAL

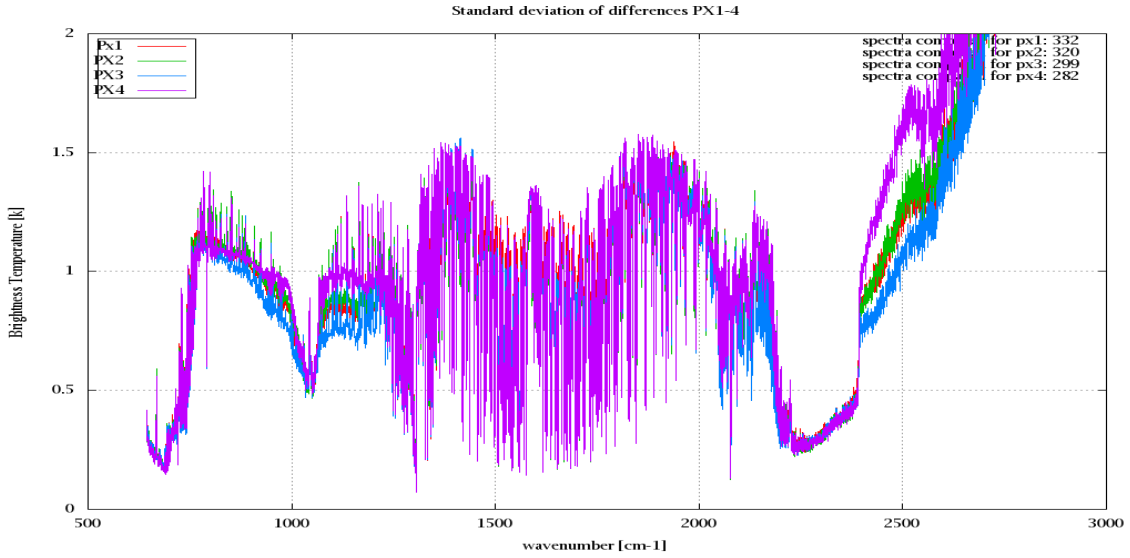

Figure 9: Standard Deviation of Radiance differences

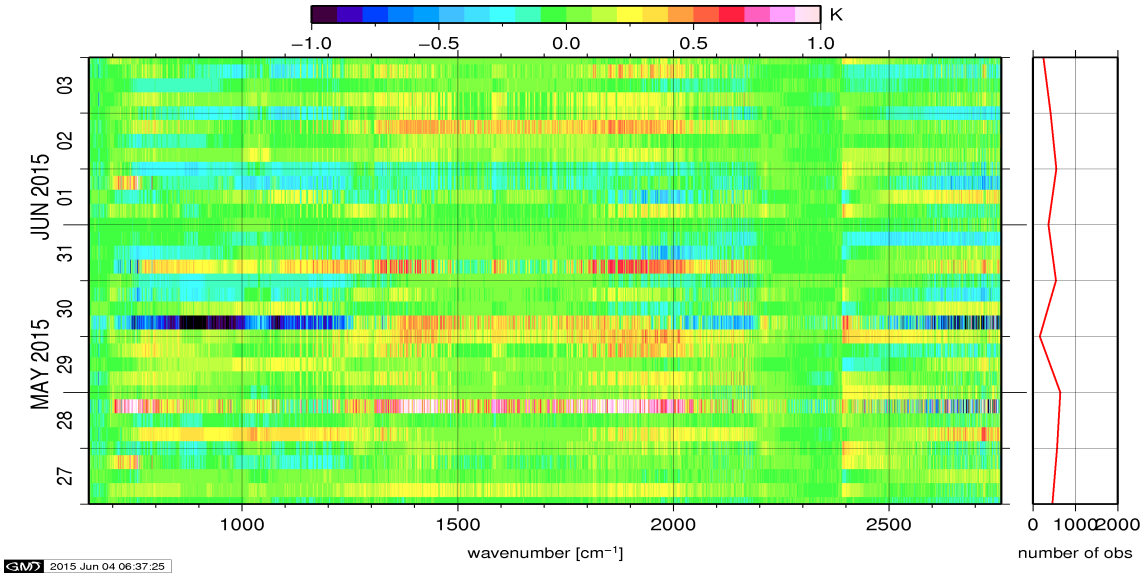

Figure 10: Radiance Anomaly in BRT: All Channels

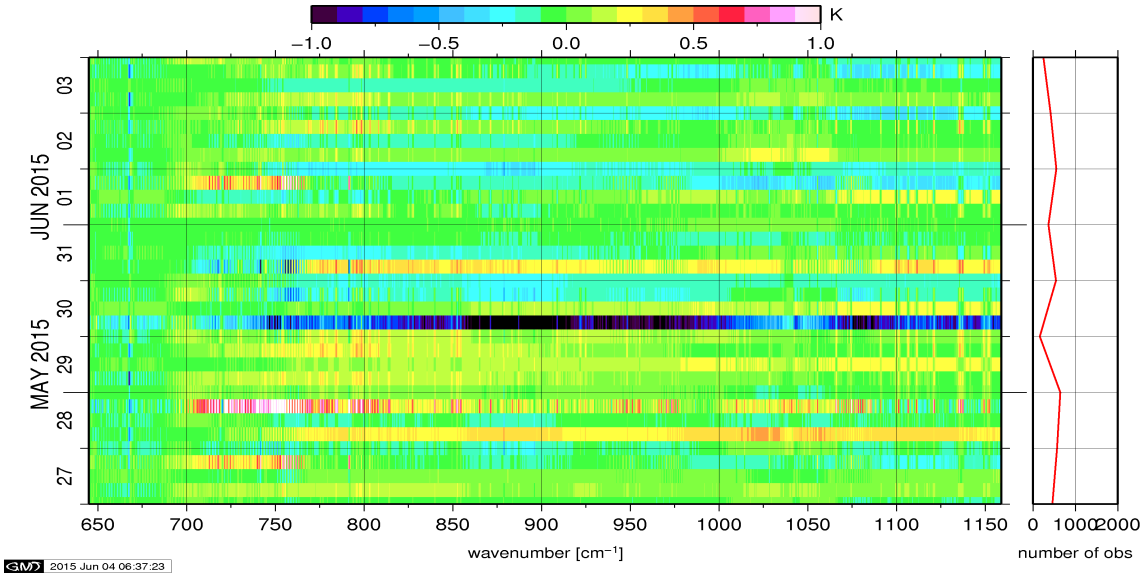

Figure 11: Radiance Anomaly in BRT: IASI Band 1

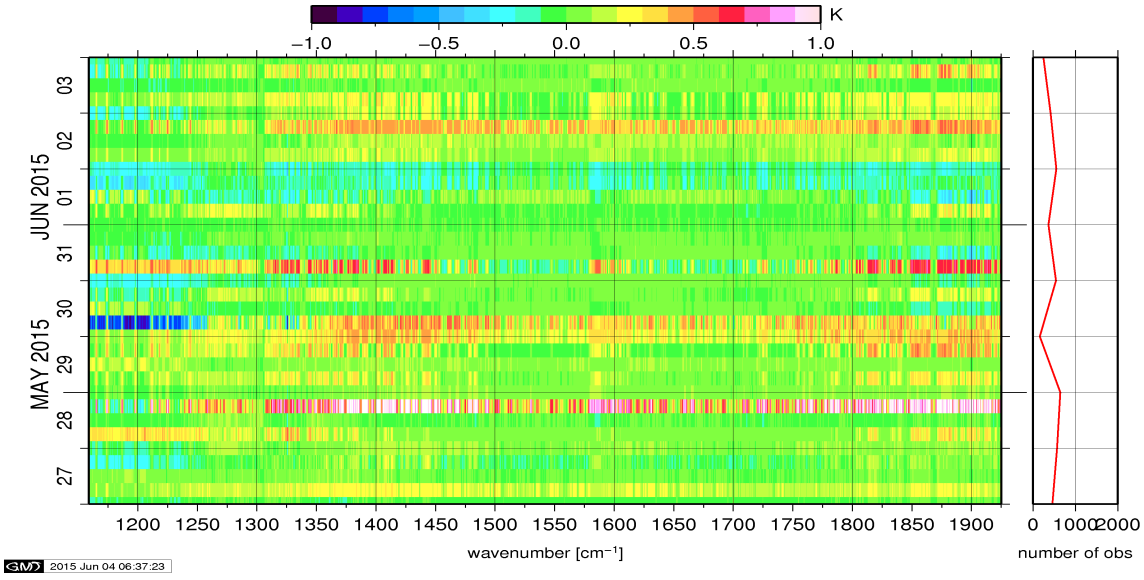

Figure 12: Radiance Anomaly in BRT: IASI Band 2

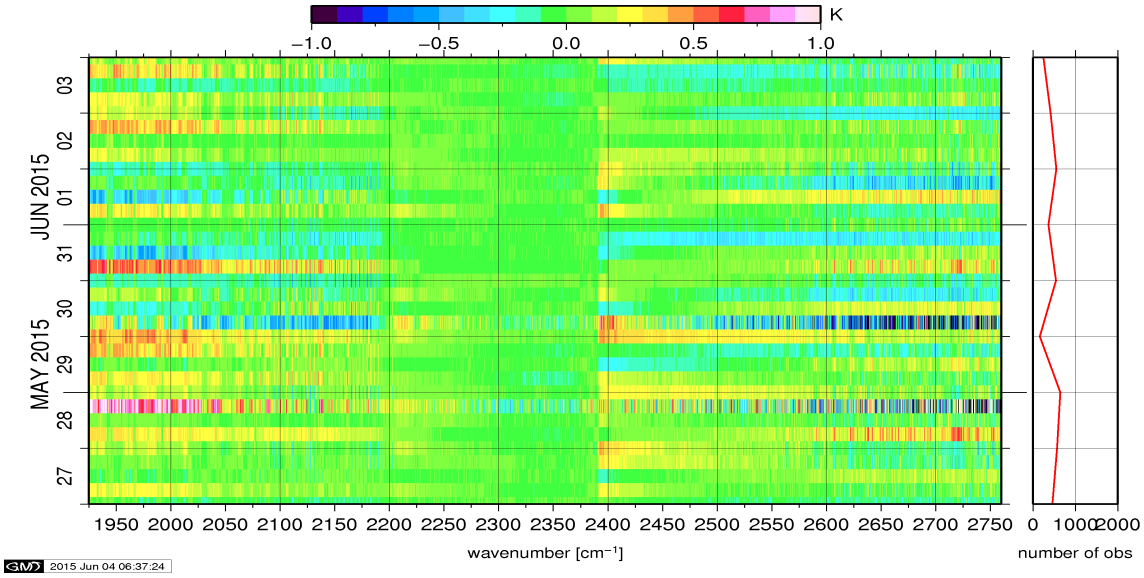

Figure 13: Radiance Anomaly in BRT: IASI Band 3

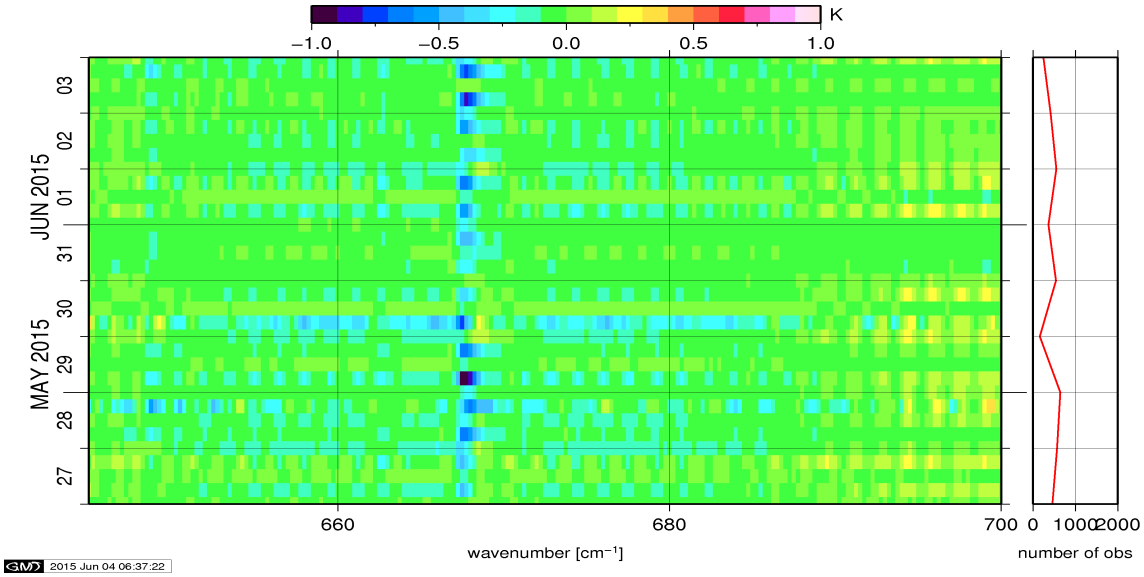

Figure 14: Radiance Anomaly in BRT: CO2 14

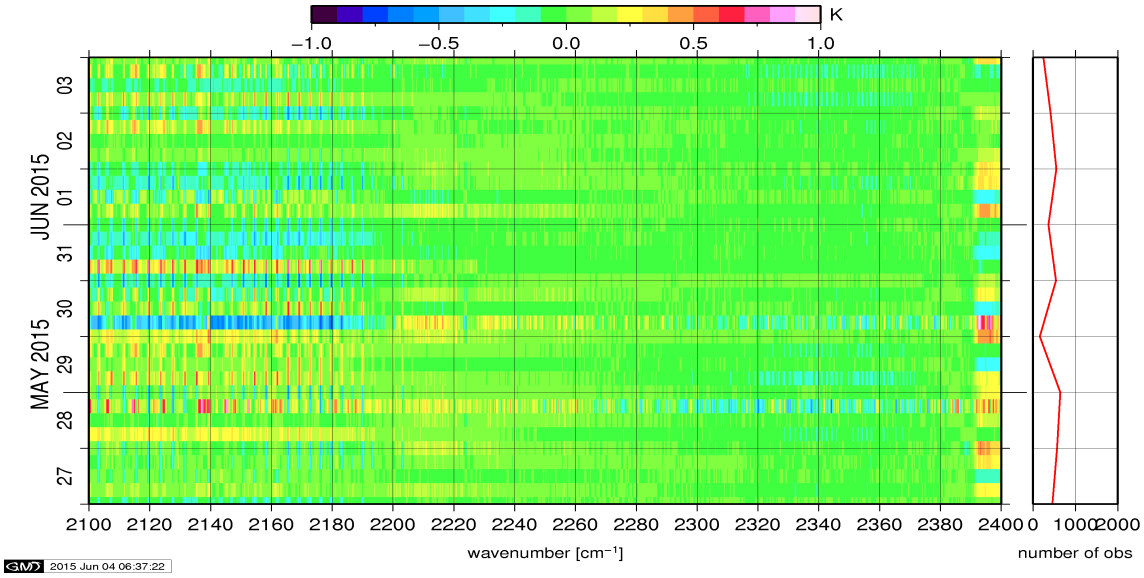

Figure 15: Radiance Anomaly in BRT: CO2 4.3

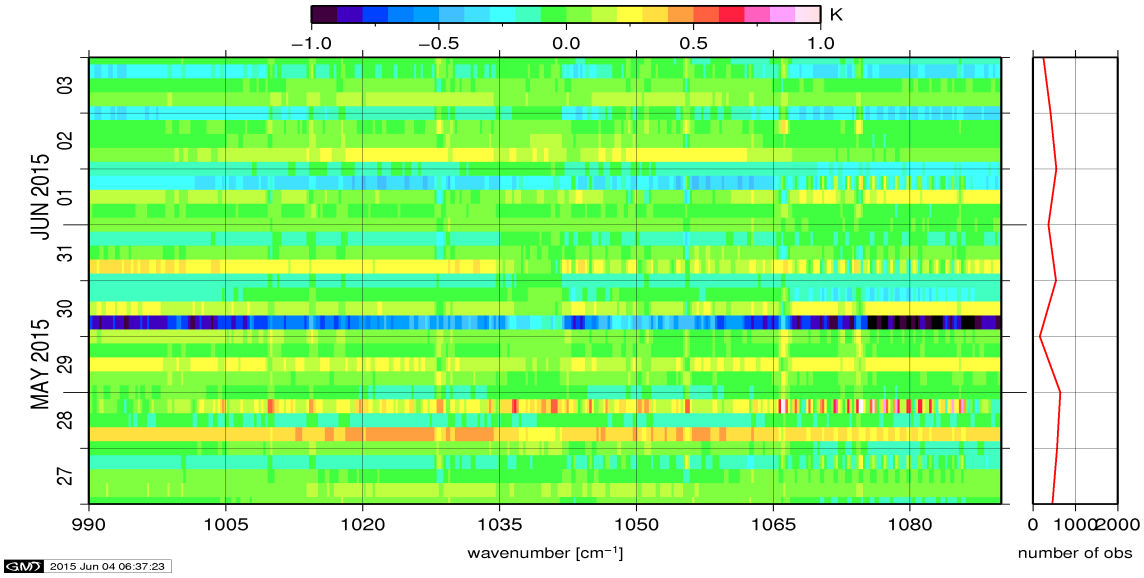

Figure 16: Radiance Anomaly in BRT: O3

6 IASI-HIRS radiance comparision Channel 1-19

The radiance comparision 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.

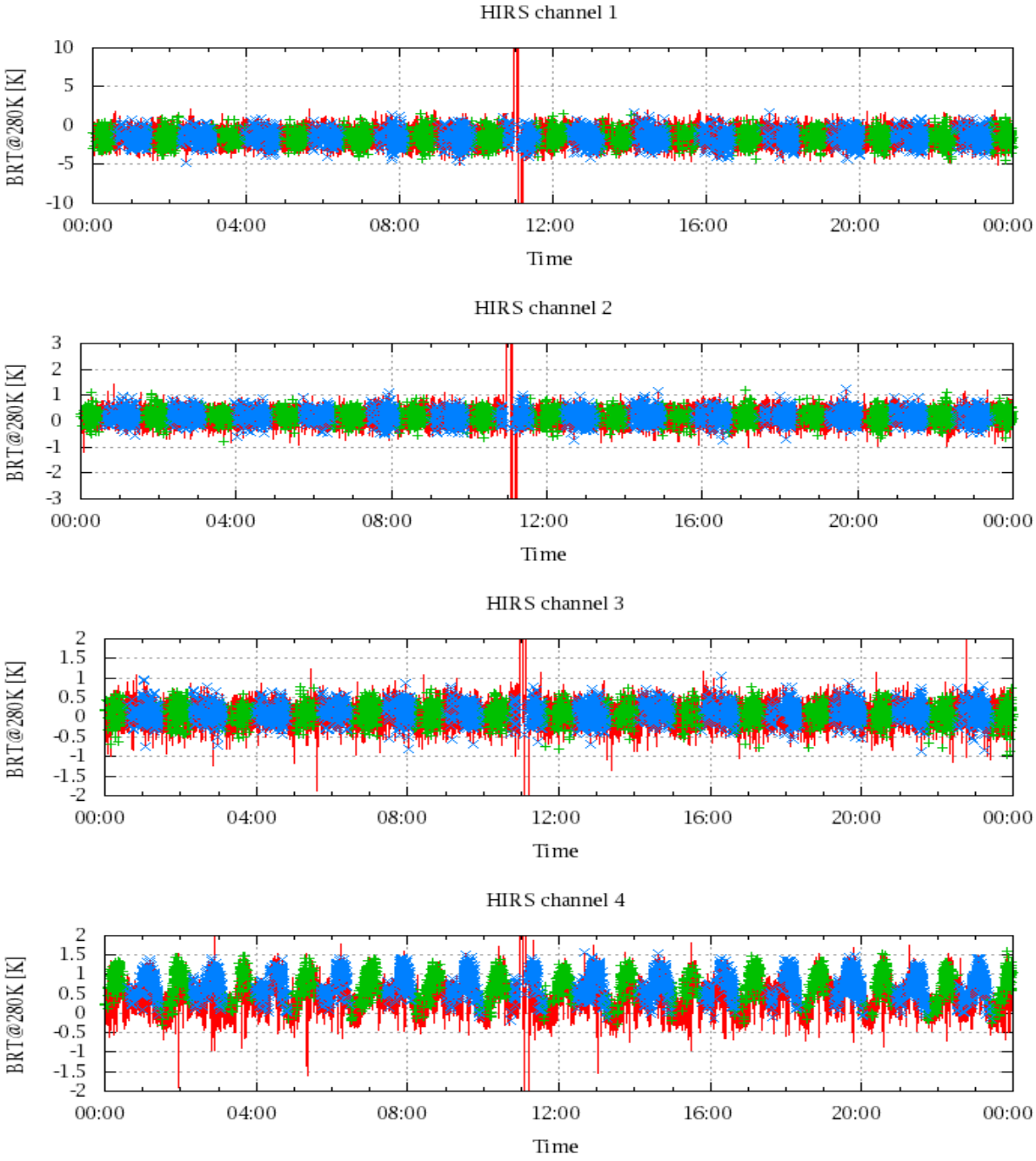

Figure 17: Radiance Differences in BRT

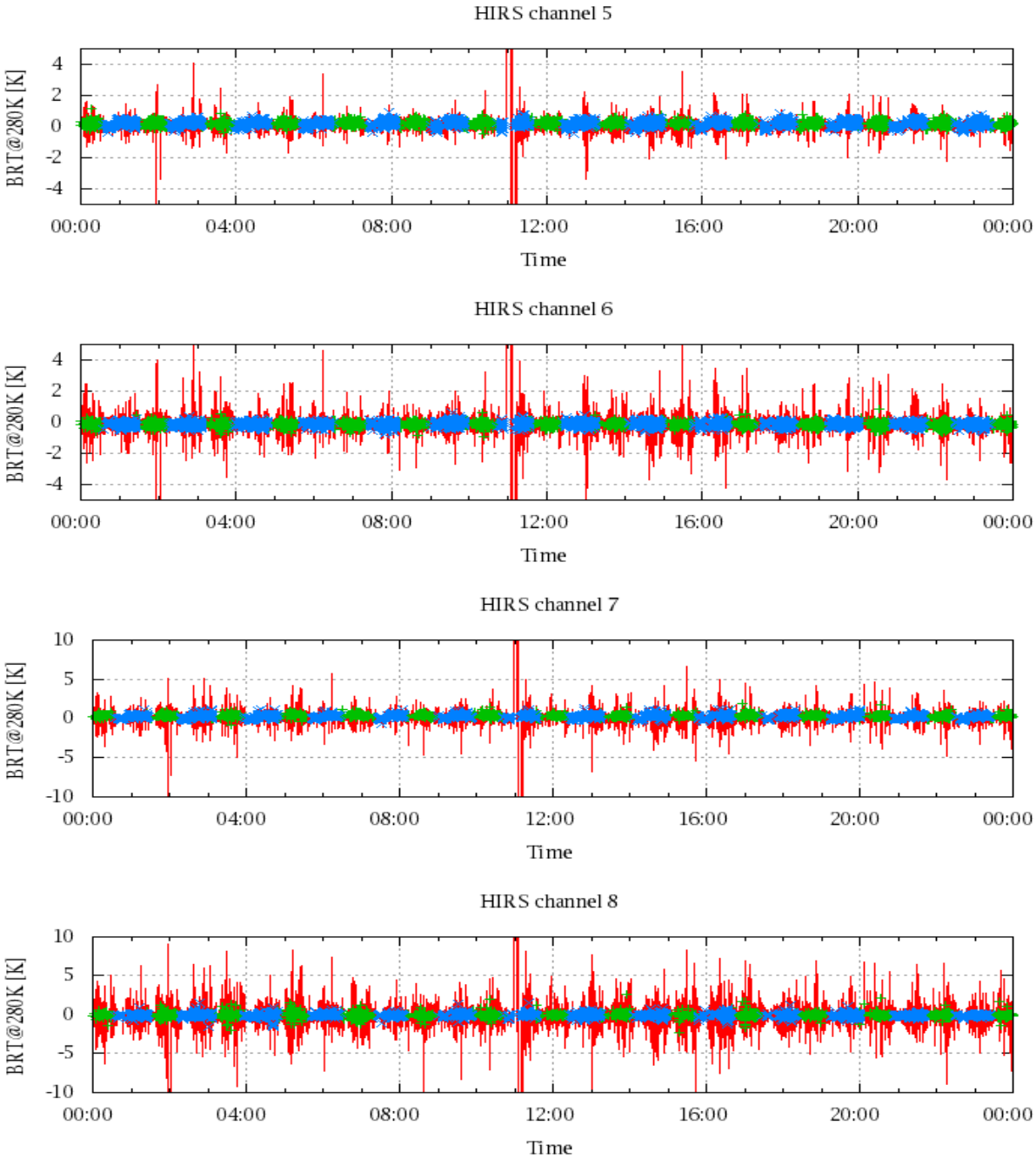

Figure 18: Radiance Differences in BRT

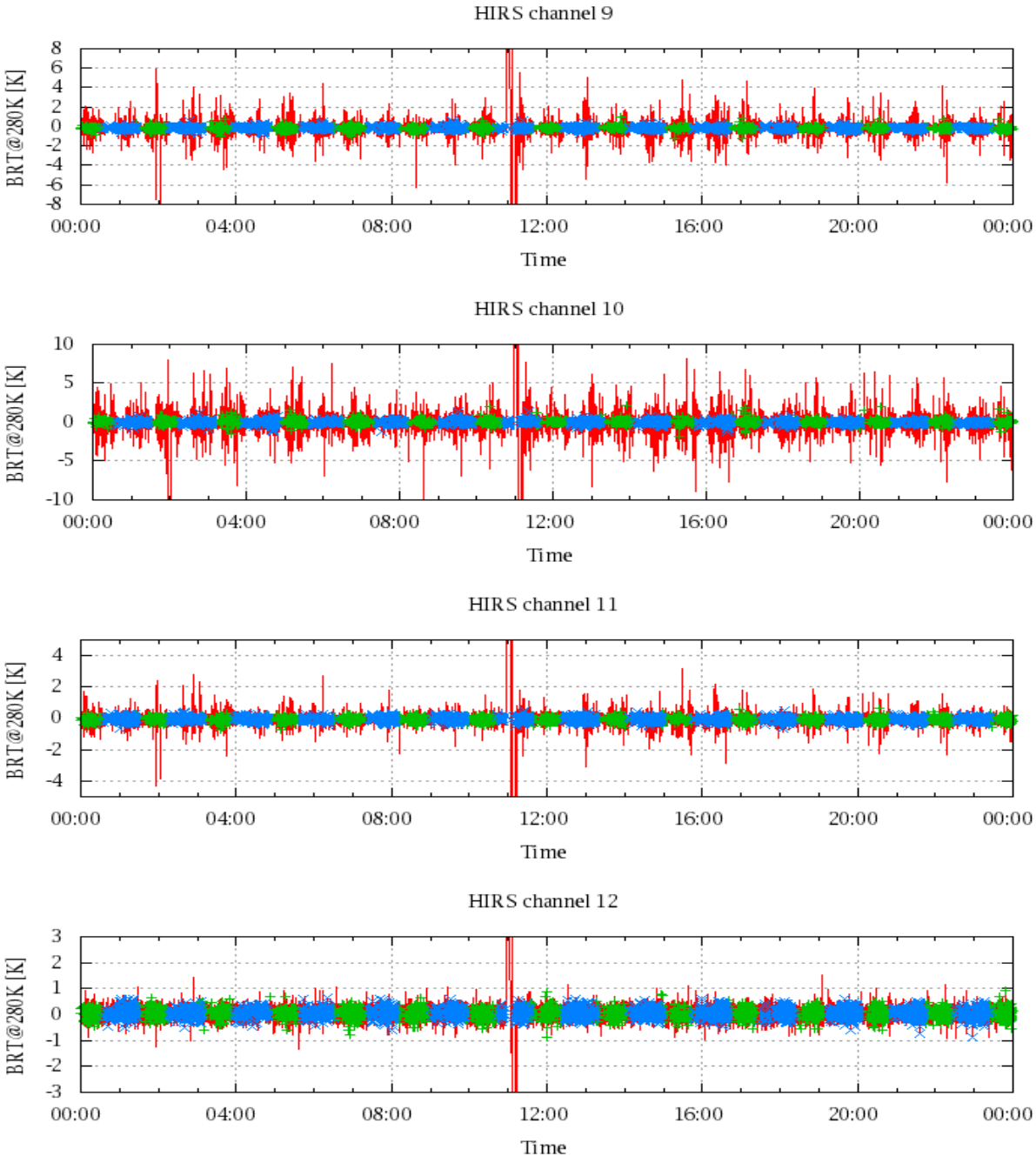

Figure 19: Radiance Differences in BRT

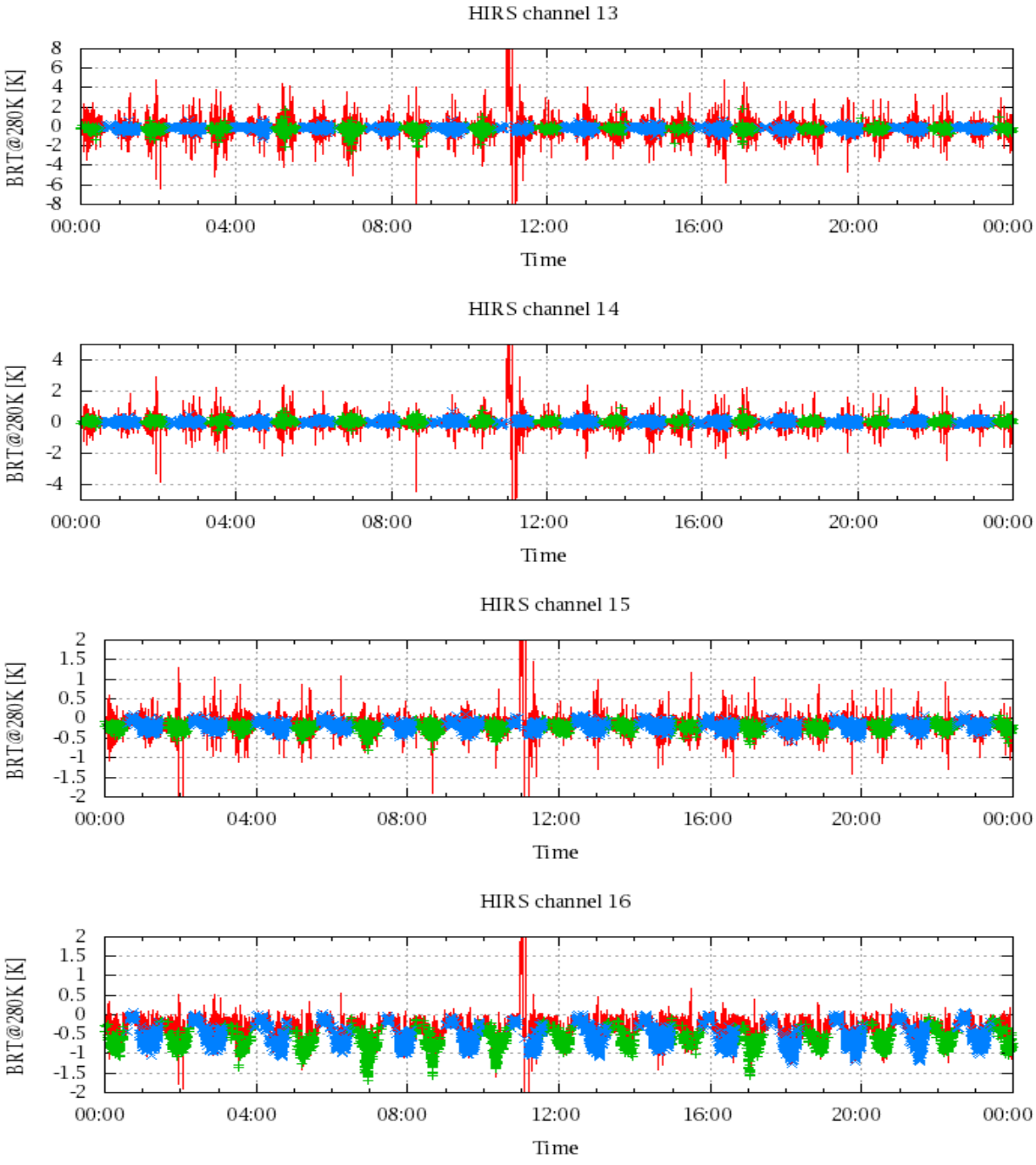

Figure 20: Radiance Differences in BRT

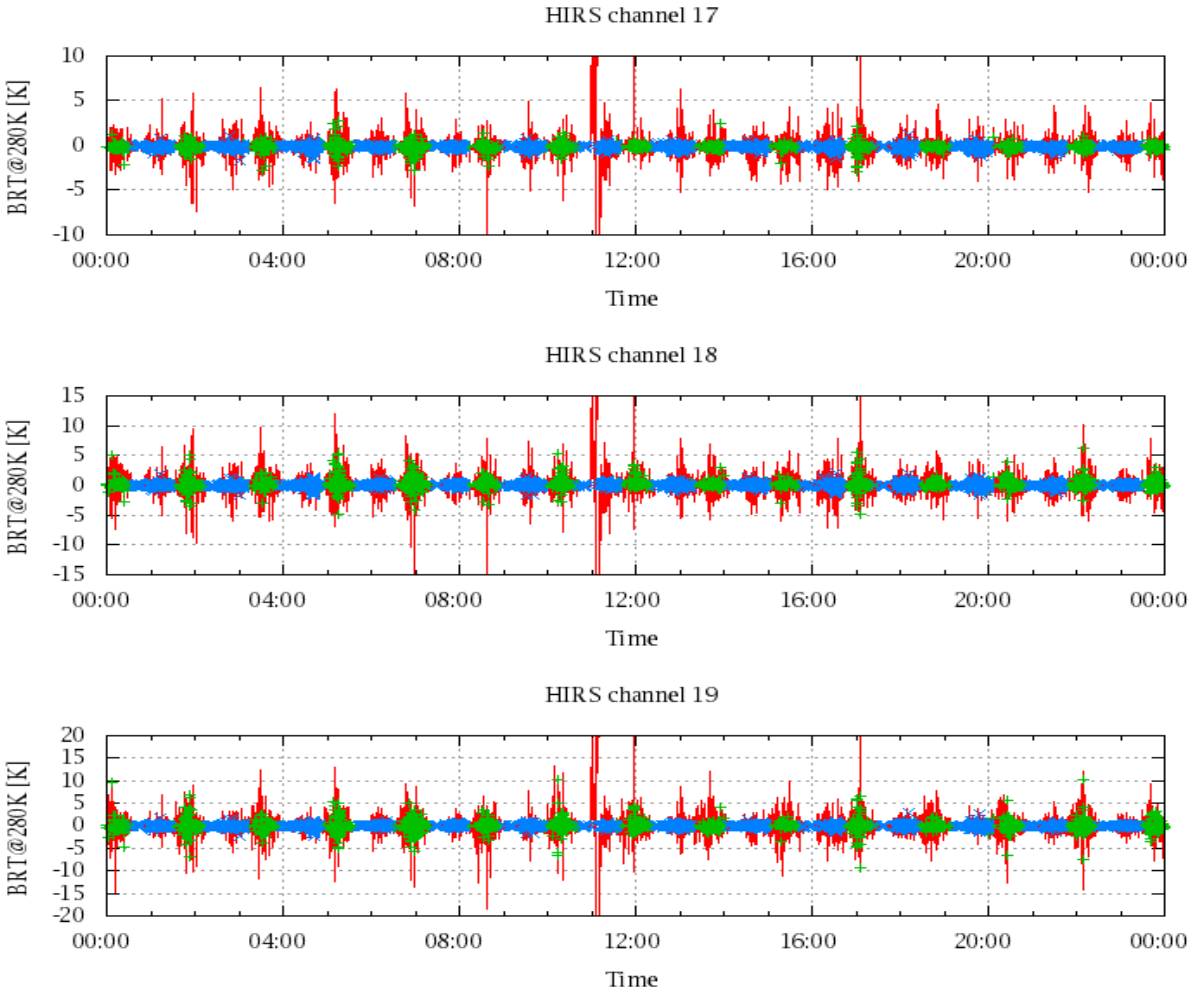

Figure 21: Radinace Differences in BRT