IASI L0 and L1 Daily Monitoring Report **Metop-A**

IASI monitoring team

14/03/2019 00:00:00 - 15/03/2019 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 minutes data packet) for 14/03/2019 00:00:00 - 15/03/2019 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 14/03/2019 00:00:00 - 15/03/2019 00:00:00

Product Type	**Number**	**Action**
L0 HKTM PDUs	480	-
L0 IASI PDUs	480	-
L1 ENG PDUs	479	-
L1 ENG distinct GEPSGranule	480	-
L1 DPX PDUs (RM: IASI-HIRS)	474	-
L1 DPS Files (RM: OBS-CAL NWP based)	479	-

Table 1: Data quantity

APID	**Seq from**	**Seq to**	**Time from**	**Time to**
PX1 (130)	15509	23	20190314065212.578	20190314065612.140
PX1 (130)	42	44	20190314065616.249	20190314065616.683
PX1 (130)	47	49	20190314065618.843	20190314065619.276
PX1 (130)	49	51	20190314065619.276	20190314065619.710
PX1 (130)	51	54	20190314065619.710	20190314065620.358
PX1 (130)	54	56	20190314065620.358	20190314065620.788
PX1 (130)	56	208	20190314065620.788	20190314065701.222
PX1 (130)	223	538	20190314065704.464	20190314065829.217
PX1 (130)	4168	5321	20190314082726.077	20190314083234.392
PX1 (130)	5639	5765	20190314083358.279	20190314083431.576
PX1 (130)	13300	14451	20190314090800.673	20190314091308.555
PX1 (130)	14635	14668	20190314091357.418	20190314091406.066
PX1 (130)	14690	14692	20190314091412.336	20190314091412.769
PX1 (130)	14692	14694	20190314091412.769	20190314091413.203
PX1 (130)	14697	14807	20190314091413.852	20190314091443.687
PX1 (130)	14870	14872	20190314091500.336	20190314091500.769
PX1 (130)	14886	14888	20190314091503.797	20190314091504.226
PX1 (130)	14900	14902	20190314091508.336	20190314091508.769
PX1 (130)	14909	14914	20190314091510.281	20190314091511.363
PX1 (130)	1950	2412	20190314093023.357	20190314093227.478

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	11815	11823	20190314101414.254	20190314101415.980
PX1 (130)	11944	11951	20190314101448.195	20190314101451.222
PX1 (130)	11965	11967	20190314101454.250	20190314101454.683
PX1 (130)	11981	12007	20190314101459.222	20190314101506.359
PX2 (135)	15509	23	20190314065212.578	20190314065612.140
PX2 (135)	42	44	20190314065616.249	20190314065616.683
PX2 (135)	47	49	20190314065618.843	20190314065619.276
PX2 (135)	49	51	20190314065619.276	20190314065619.710
PX2 (135)	51	54	20190314065619.710	20190314065620.358
PX2 (135)	54	56	20190314065620.358	20190314065620.788
PX2 (135)	56	208	20190314065620.788	20190314065701.222
PX2 (135)	223	537	20190314065704.464	20190314065829.003
PX2 (135)	4168	5321	20190314082726.077	20190314083234.392
PX2 (135)	5414	5416	20190314083259.037	20190314083259.470
PX2 (135)	5639	5765	20190314083358.279	20190314083431.576
PX2 (135)	13300	14451	20190314090800.673	20190314091308.555
PX2 (135)	14635	14668	20190314091357.418	20190314091406.066
PX2 (135)	14685	14687	20190314091411.258	20190314091411.687
PX2 (135)	14692	14694	20190314091412.769	20190314091413.203
PX2 (135)	14697	14807	20190314091413.852	20190314091443.687
PX2 (135)	14835	14837	20190314091451.254	20190314091451.687
PX2 (135)	14837	14839	20190314091451.687	20190314091452.121
PX2 (135)	14840	14842	20190314091452.336	20190314091452.769
PX2 (135)	14842	14844	20190314091452.769	20190314091453.203
PX2 (135)	14844	14846	20190314091453.203	20190314091453.633
PX2 (135)	14895	14897	20190314091507.254	20190314091507.687
PX2 (135)	14902	14904	20190314091508.769	20190314091509.203
PX2 (135)	14910	14914	20190314091510.500	20190314091511.363
PX2 (135)	1950	2412	20190314093023.357	20190314093227.478
PX2 (135)	11815	11823	20190314101414.254	20190314101415.980
PX2 (135)	11840	11842	20190314101421.172	20190314101421.601
PX2 (135)	11944	11950	20190314101448.195	20190314101451.007
PX2 (135)	11981	12007	20190314101459.222	20190314101506.359
PX3 (140)	15509	22	20190314065212.578	20190314065611.925
PX3 (140)	42	44	20190314065616.249	20190314065616.683
PX3 (140)	47	49	20190314065618.843	20190314065619.276
PX3 (140)	49	51	20190314065619.276	20190314065619.710
PX3 (140)	51	54	20190314065619.710	20190314065620.358
PX3 (140)	54	56	20190314065620.358	20190314065620.788
PX3 (140)	56	208	20190314065620.788	20190314065701.222
PX3 (140)	223	537	20190314065704.464	20190314065829.003
PX3 (140)	4167	5321	20190314082725.858	20190314083234.392
PX3 (140)	5639	5765	20190314083358.279	20190314083431.576
PX3 (140)	13300	14451	20190314090800.673	20190314091308.555
PX3 (140)	14546	14548	20190314091333.637	20190314091334.066
PX3 (140)	14635	14668	20190314091357.418	20190314091406.066
PX3 (140)	14692	14694	20190314091412.769	20190314091413.203
PX3 (140)	14694	14696	20190314091413.203	20190314091413.633
PX3 (140)	14697	14807	20190314091413.852	20190314091443.687
PX3 (140)	14832	14834	20190314091450.605	20190314091451.039
PX3 (140)	14835	14837	20190314091451.254	20190314091451.687
PX3 (140)	14865	14867	20190314091459.254	20190314091459.687
PX3 (140)	14888	14890	20190314091504.226	20190314091504.660

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	14902	14904	20190314091508.769	20190314091509.203
PX3 (140)	14909	14914	20190314091510.281	20190314091511.363
PX3 (140)	1950	2412	20190314093023.357	20190314093227.478
PX3 (140)	11814	11823	20190314101414.035	20190314101415.980
PX3 (140)	11849	11851	20190314101423.117	20190314101423.547
PX3 (140)	11944	11950	20190314101448.195	20190314101451.007
PX3 (140)	11967	11969	20190314101454.683	20190314101455.113
PX3 (140)	11981	12007	20190314101459.222	20190314101506.359
PX4 (145)	15509	22	20190314065212.578	20190314065611.925
PX4 (145)	42	44	20190314065616.249	20190314065616.683
PX4 (145)	47	49	20190314065618.843	20190314065619.276
PX4 (145)	49	51	20190314065619.276	20190314065619.710
PX4 (145)	51	54	20190314065619.710	20190314065620.358
PX4 (145)	54	56	20190314065620.358	20190314065620.788
PX4 (145)	56	208	20190314065620.788	20190314065701.222
PX4 (145)	223	537	20190314065704.464	20190314065829.003
PX4 (145)	4167	5321	20190314082725.858	20190314083234.392
PX4 (145)	5639	5765	20190314083358.279	20190314083431.576
PX4 (145)	13300	14451	20190314090800.673	20190314091308.555
PX4 (145)	14634	14668	20190314091357.203	20190314091406.066
PX4 (145)	14687	14689	20190314091411.687	20190314091412.121
PX4 (145)	14694	14696	20190314091413.203	20190314091413.633
PX4 (145)	14697	14807	20190314091413.852	20190314091443.687
PX4 (145)	14881	14883	20190314091502.715	20190314091503.148
PX4 (145)	14888	14890	20190314091504.226	20190314091504.660
PX4 (145)	14897	14899	20190314091507.687	20190314091508.117
PX4 (145)	14904	14906	20190314091509.203	20190314091509.633
PX4 (145)	14909	14914	20190314091510.281	20190314091511.363
PX4 (145)	1950	2412	20190314093023.357	20190314093227.478
PX4 (145)	11814	11823	20190314101414.035	20190314101415.980
PX4 (145)	11842	11844	20190314101421.601	20190314101422.035
PX4 (145)	11944	11950	20190314101448.195	20190314101451.007
PX4 (145)	11978	11980	20190314101458.574	20190314101459.007
PX4 (145)	11980	12007	20190314101459.007	20190314101506.359
IMG (150)	2976	3994	20190314065212.363	20190314065611.925
IMG (150)	4013	4016	20190314065616.034	20190314065616.683
IMG (150)	4022	4204	20190314065618.628	20190314065701.222
IMG (150)	4218	4577	20190314065704.249	20190314065829.003
IMG (150)	10875	12181	20190314082725.858	20190314083233.092
IMG (150)	12542	12685	20190314083358.064	20190314083431.576
IMG (150)	4840	6147	20190314090800.673	20190314091308.555
IMG (150)	6354	6392	20190314091357.203	20190314091406.066
IMG (150)	6408	6410	20190314091409.961	20190314091410.605
IMG (150)	6410	6412	20190314091410.605	20190314091411.039
IMG (150)	6417	6419	20190314091412.121	20190314091412.555
IMG (150)	6422	6424	20190314091413.203	20190314091413.633
IMG (150)	6424	6551	20190314091413.633	20190314091443.687
IMG (150)	6553	6555	20190314091444.121	20190314091444.555
IMG (150)	6555	6557	20190314091444.555	20190314091444.984
IMG (150)	6560	6562	20190314091445.633	20190314091446.066
IMG (150)	6612	6614	20190314091457.957	20190314091458.605
IMG (150)	6619	6621	20190314091459.687	20190314091500.121
IMG (150)	6628	6630	20190314091501.633	20190314091502.066

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	6635	6637	20190314091503.148	20190314091503.578
IMG (150)	6648	6650	20190314091506.605	20190314091507.039
IMG (150)	6660	6662	20190314091509.203	20190314091509.633
IMG (150)	6662	6664	20190314091509.633	20190314091510.066
IMG (150)	6665	6670	20190314091510.281	20190314091511.363
IMG (150)	10546	11071	20190314093023.357	20190314093227.259
IMG (150)	5342	5351	20190314101414.035	20190314101415.980
IMG (150)	5376	5378	20190314101422.035	20190314101422.468
IMG (150)	5487	5498	20190314101447.980	20190314101451.007
IMG (150)	5510	5512	20190314101453.601	20190314101454.035
IMG (150)	5517	5519	20190314101455.113	20190314101455.546
IMG (150)	5527	5529	20190314101457.710	20190314101458.359
IMG (150)	5532	5559	20190314101459.007	20190314101505.062
VER (160)	722	873	20190314065208.687	20190314065616.683
VER (160)	873	876	20190314065616.683	20190314065616.683
VER (160)	877	958	20190314065616.683	20190314065832.674
VER (160)	4292	4486	20190314082720.670	20190314082726.077
VER (160)	4537	4558	20190314083352.658	20190314083432.658
VER (160)	5814	6008	20190314090800.673	20190314091312.664
VER (160)	6037	6043	20190314091352.664	20190314091408.660
VER (160)	6047	6068	20190314091408.660	20190314091448.660
VER (160)	6072	6083	20190314091448.660	20190314091512.660
VER (160)	6652	6733	20190314093016.635	20190314093232.665
VER (160)	8317	8319	20190314101440.628	20190314101454.250
VER (160)	8319	8322	20190314101454.250	20190314101455.332
VER (160)	8324	8326	20190314101456.628	20190314101456.628
VER (160)	8327	8333	20190314101456.628	20190314101512.628
AUX (180)	13250	13281	20190314065209.121	20190314065617.112
AUX (180)	13281	13298	20190314065617.112	20190314065833.108
AUX (180)	13964	14003	20190314082721.100	20190314083233.092
AUX (180)	14013	14018	20190314083353.091	20190314083433.087
AUX (180)	14268	14308	20190314090753.106	20190314091313.094
AUX (180)	14313	14315	20190314091353.094	20190314091409.094
AUX (180)	14315	14320	20190314091409.094	20190314091449.094
AUX (180)	14436	14453	20190314093017.064	20190314093233.099

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
14/03/2019 00:00:00	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	480	-
L1 ENG PDUs	479	-
L1 ENG distinct GEPSGranule	480	-
GQisFlagQual set (PX1)	99.36 %	-
GQisFlagQual set (PX2)	99.34 %	-
GQisFlagQual set (PX3)	99.35 %	-
GQisFlagQual set (PX4)	99.36 %	-
GQisFlagQual set (all)	99.35 %	-

Table 4: Quality flags

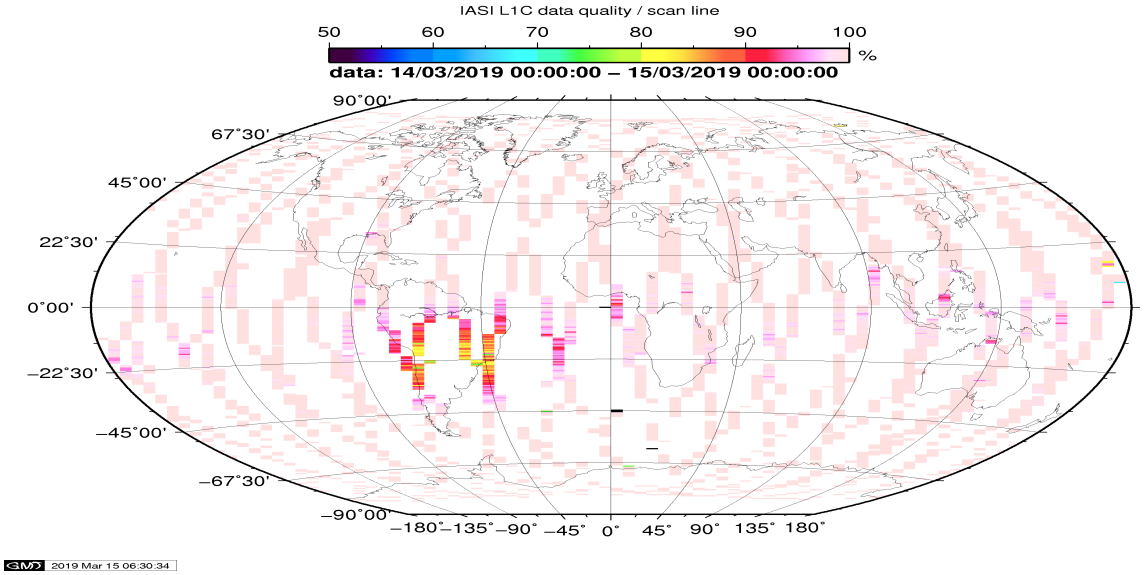

Figure 1: L1C data quality

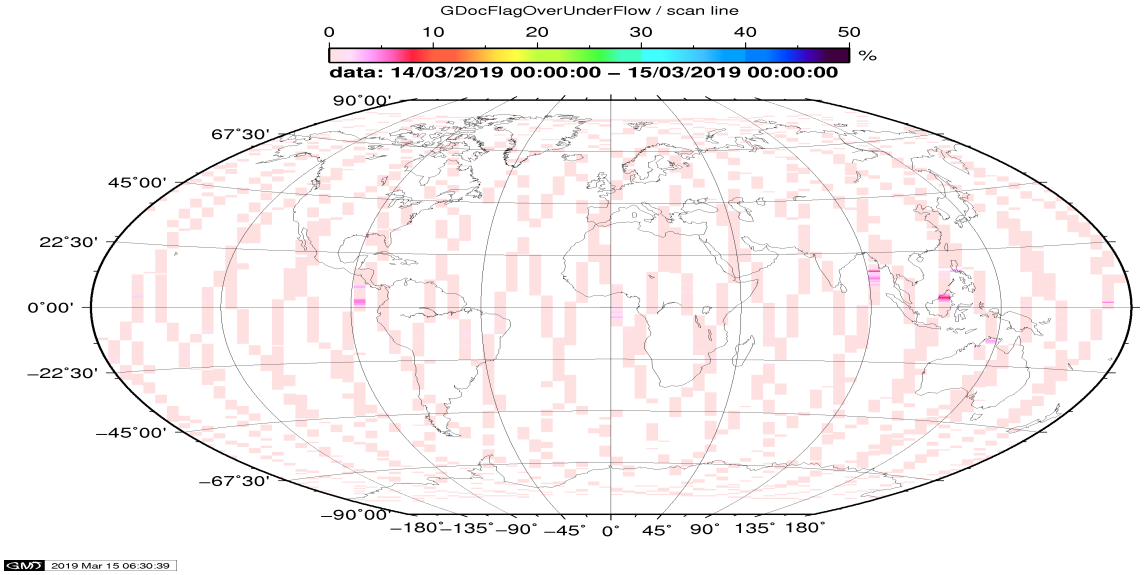

Figure 2: Flag of Over and Under Flows

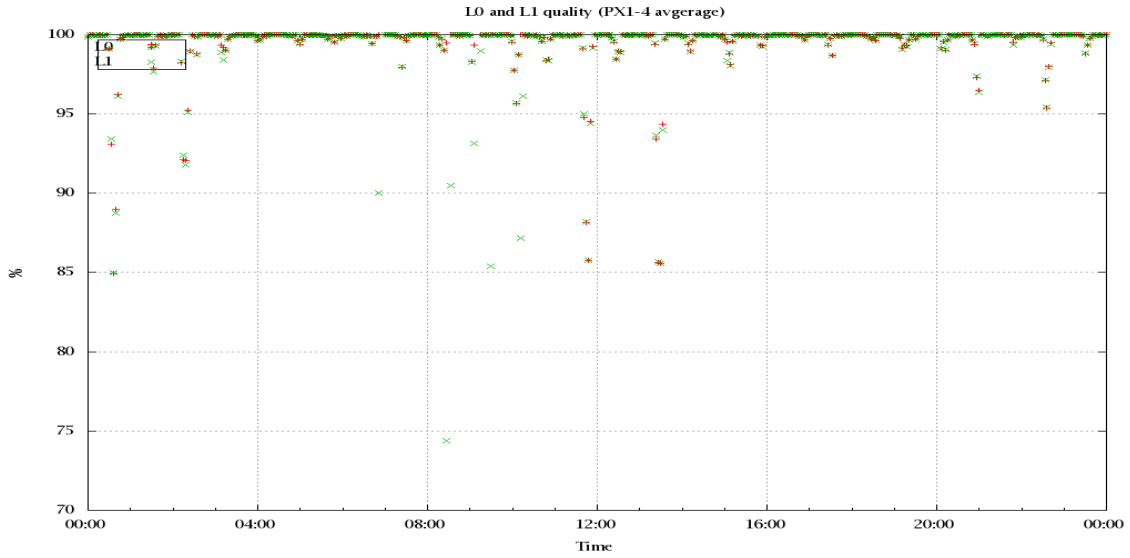

Figure 3: Level 0 and 1C overall quality

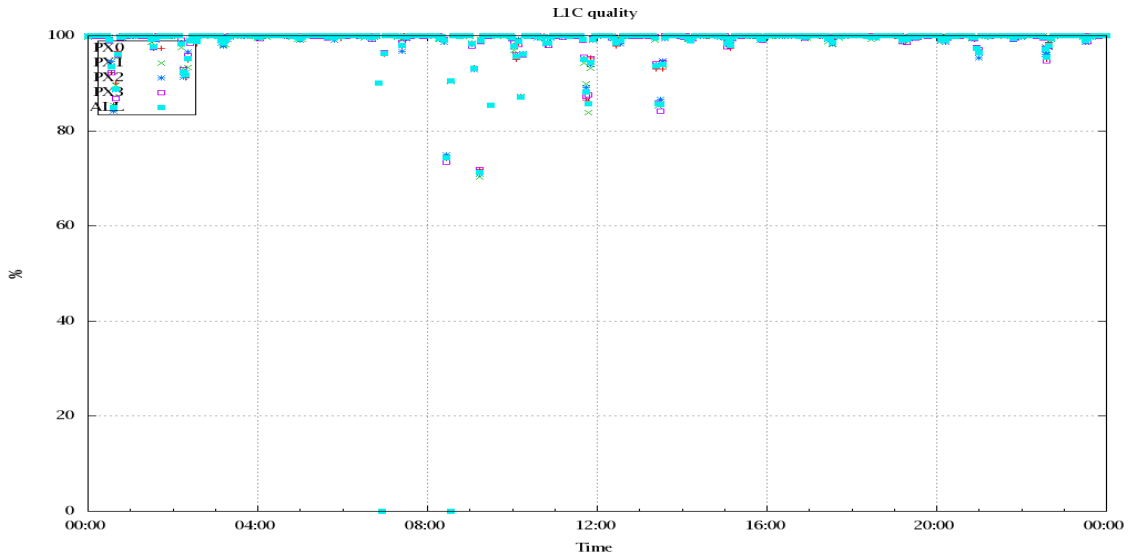

Figure 4: Level 1C quality

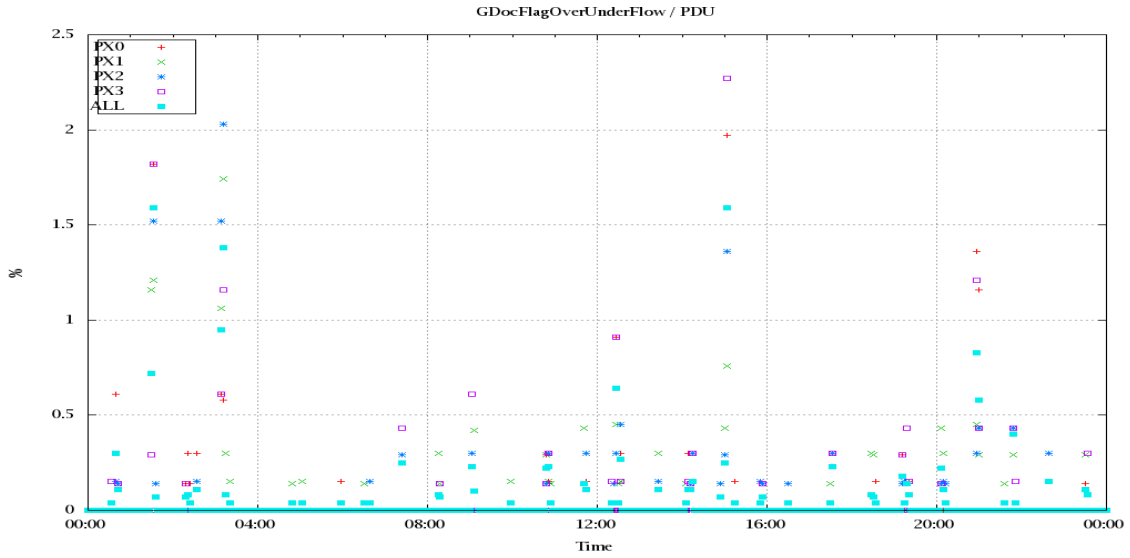

Figure 5: Timeseries of flag of Over and Under Flows

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, water vapor and Ozone. 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 28 to 34, 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 pixels and scan positions 10 to 20) and the average bias OBS-CAL (over all pixels and scan positions 10 to 20) of the last 30 days.

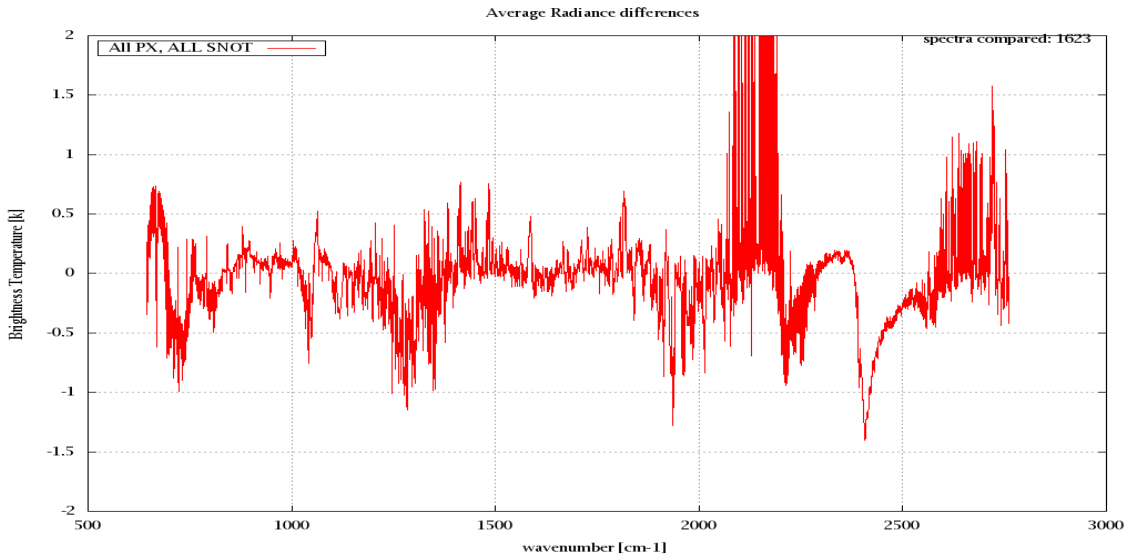

Figure 6: Average Radiance differences: OBS-CAL

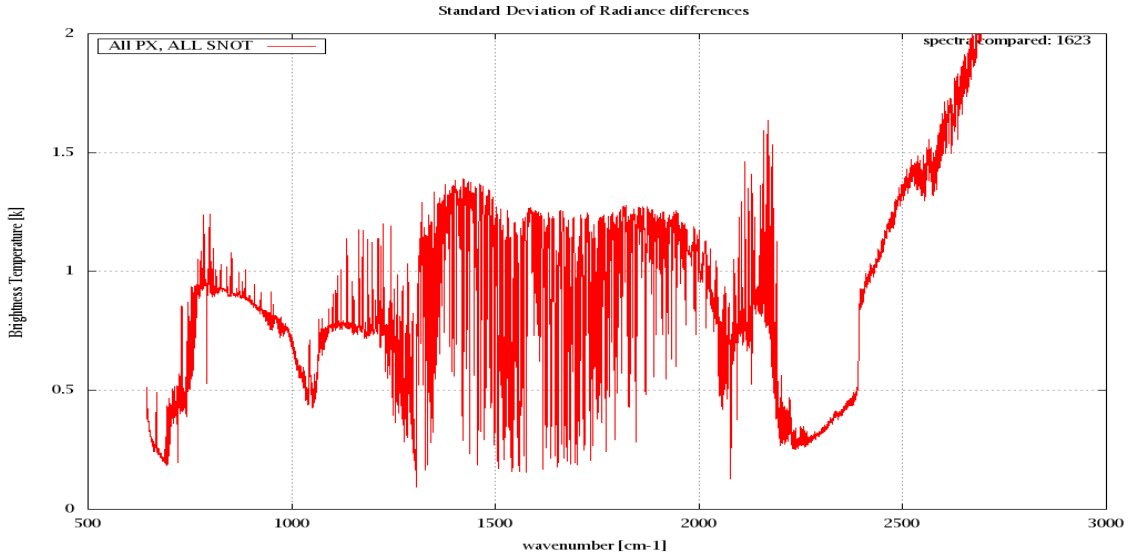

Figure 7: Standard Deviation of Radiance differences

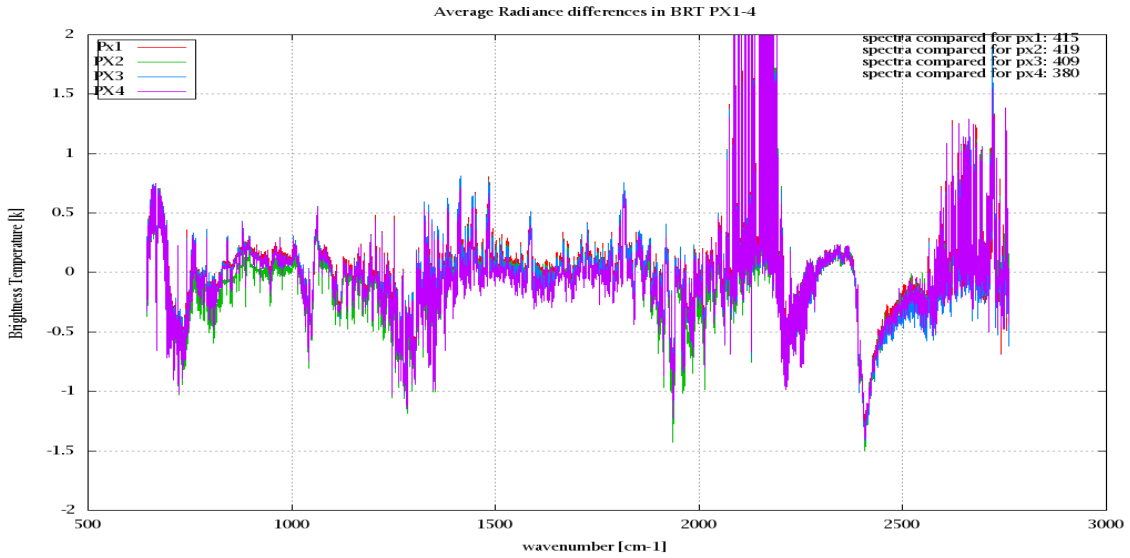

Figure 8: Average Radiance differences: OBS-CAL

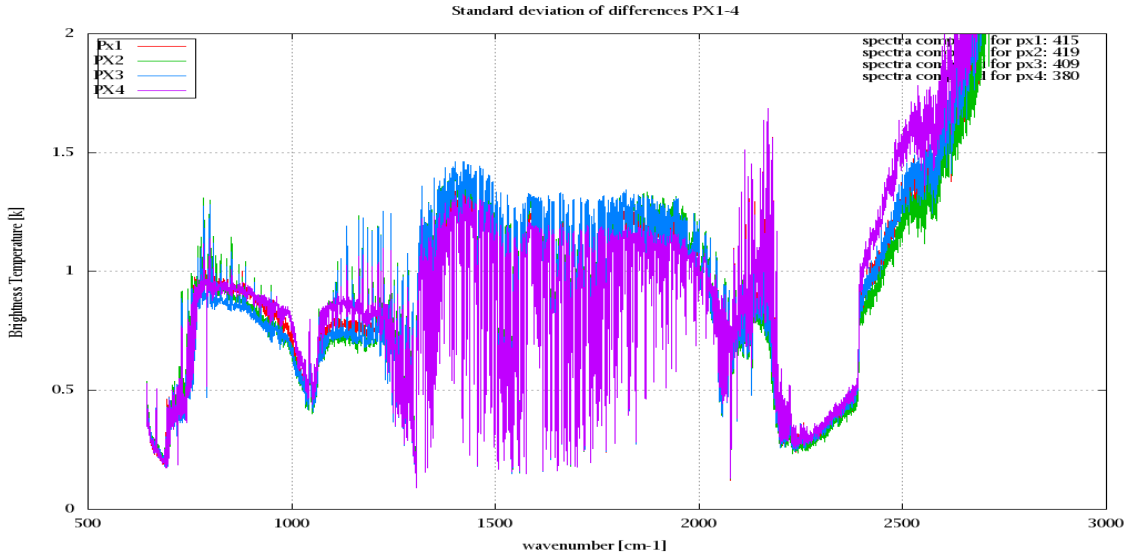

Figure 9: Standard Deviation of Radiance differences

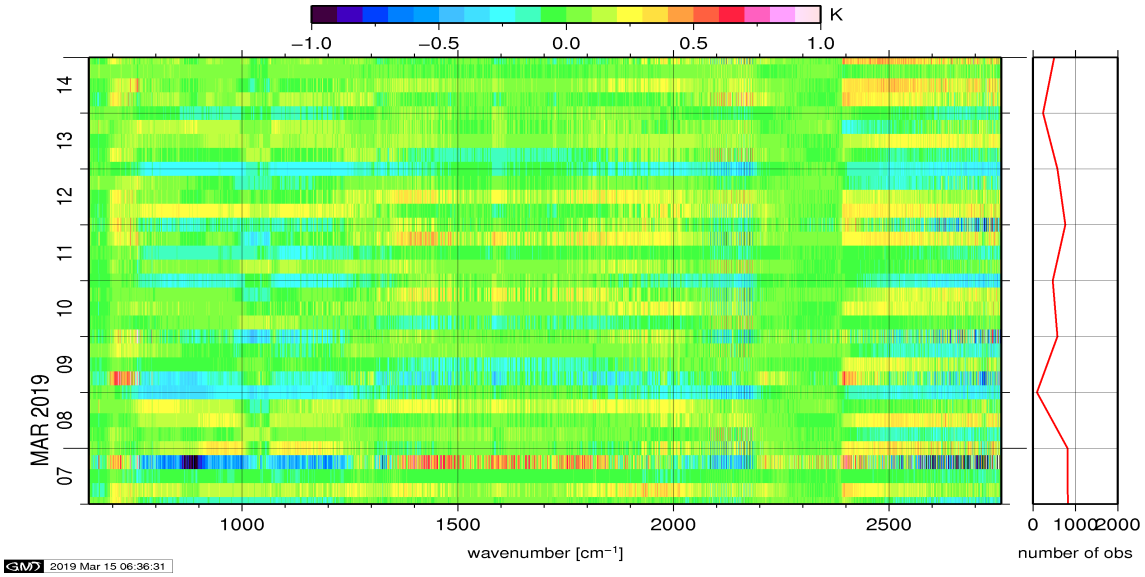

Figure 10: Radiance Anomaly in BT: All Channels

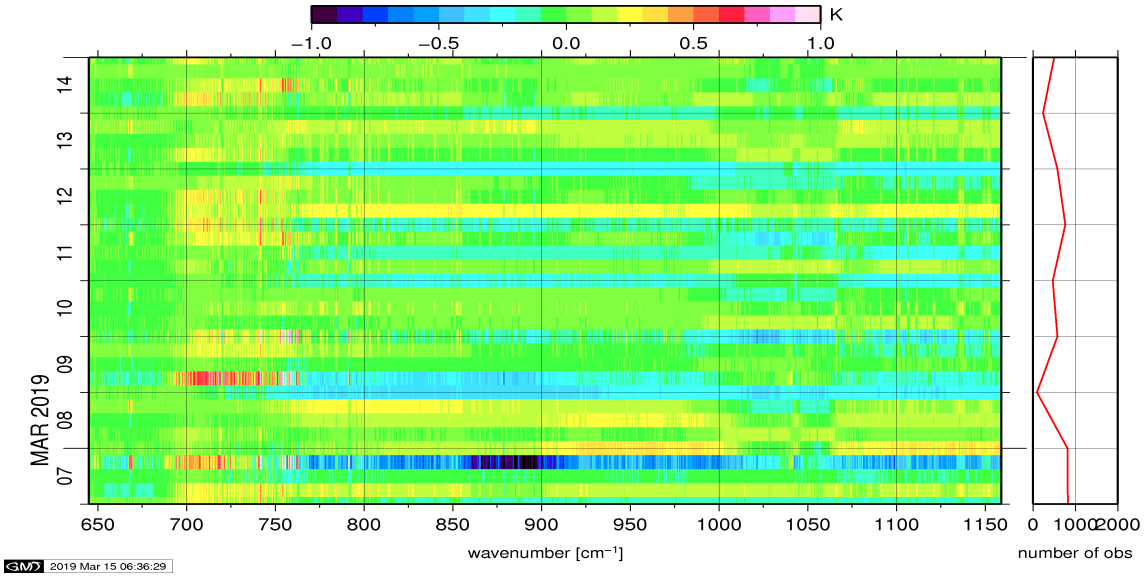

Figure 11: Radiance Anomaly in BT: IASI Band 1

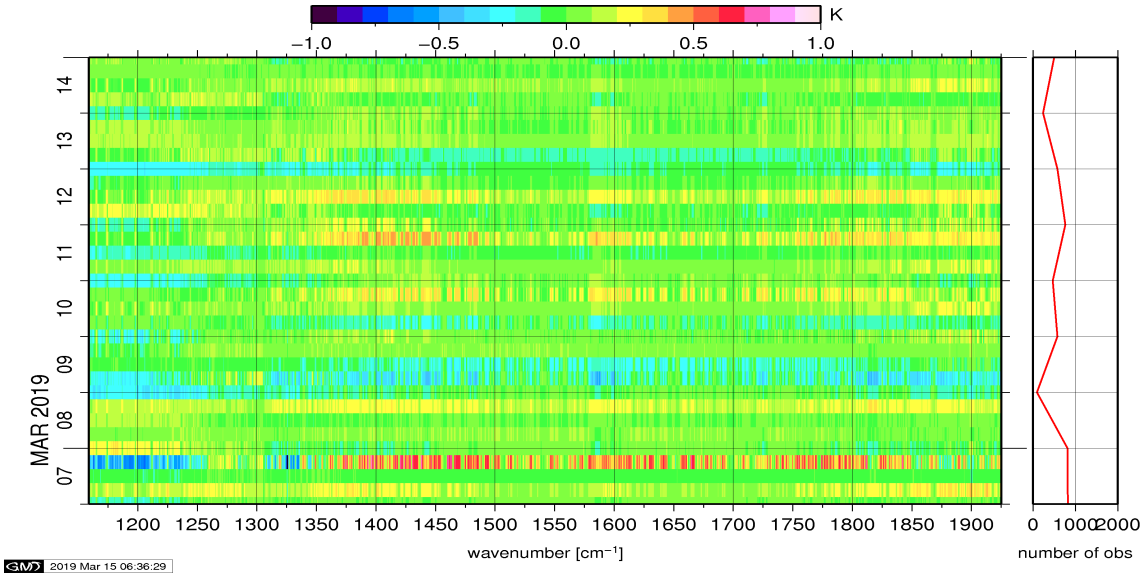

Figure 12: Radiance Anomaly in BT: IASI Band 2

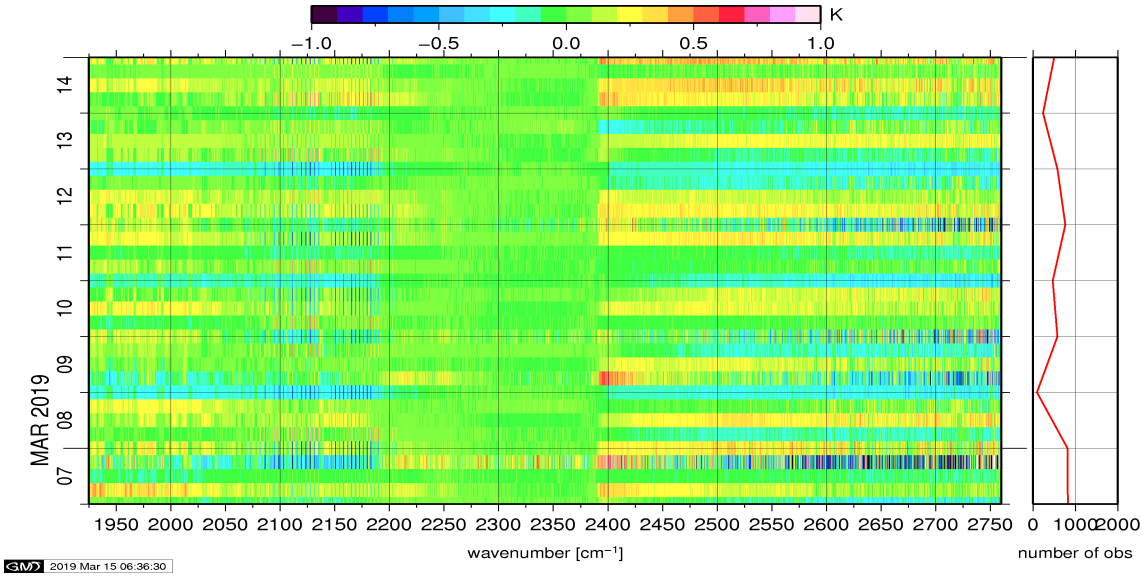

Figure 13: Radiance Anomaly in BT: IASI Band 3

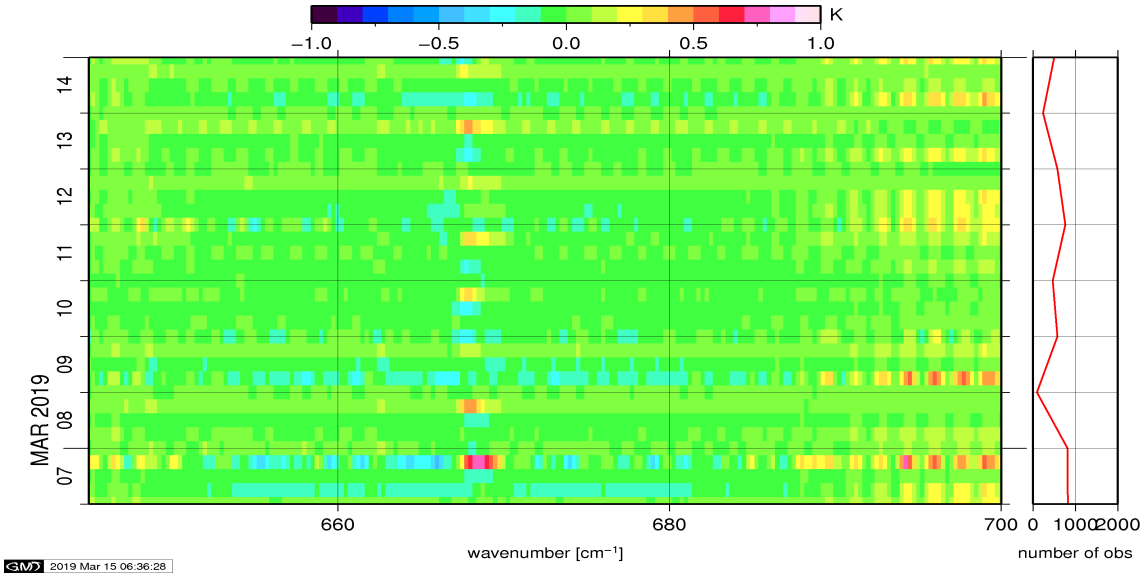

Figure 14: Radiance Anomaly in BT: CO2 14

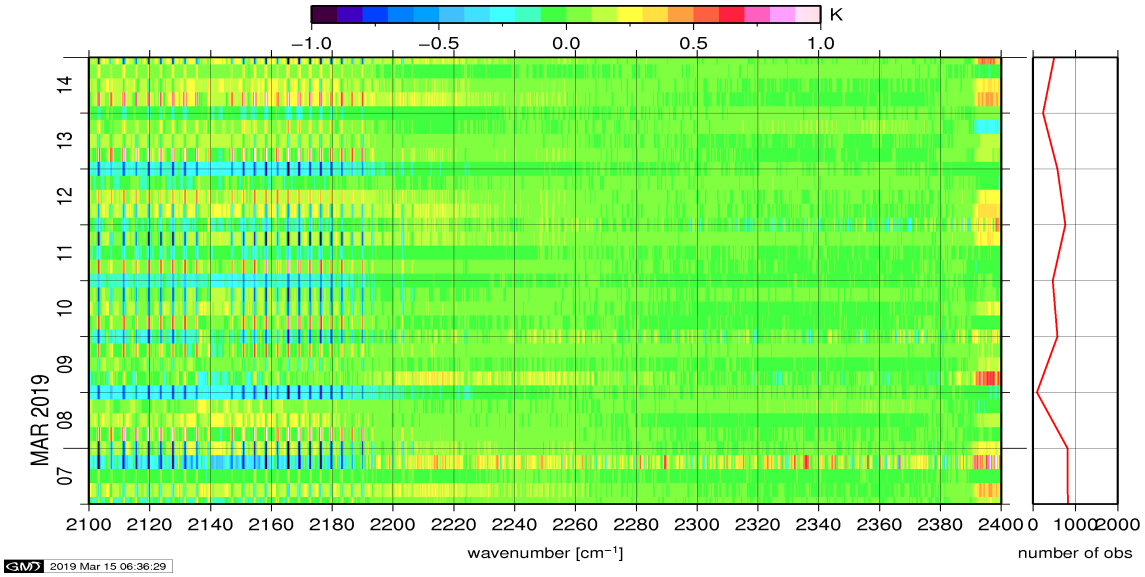

Figure 15: Radiance Anomaly in BT: CO2 4.3

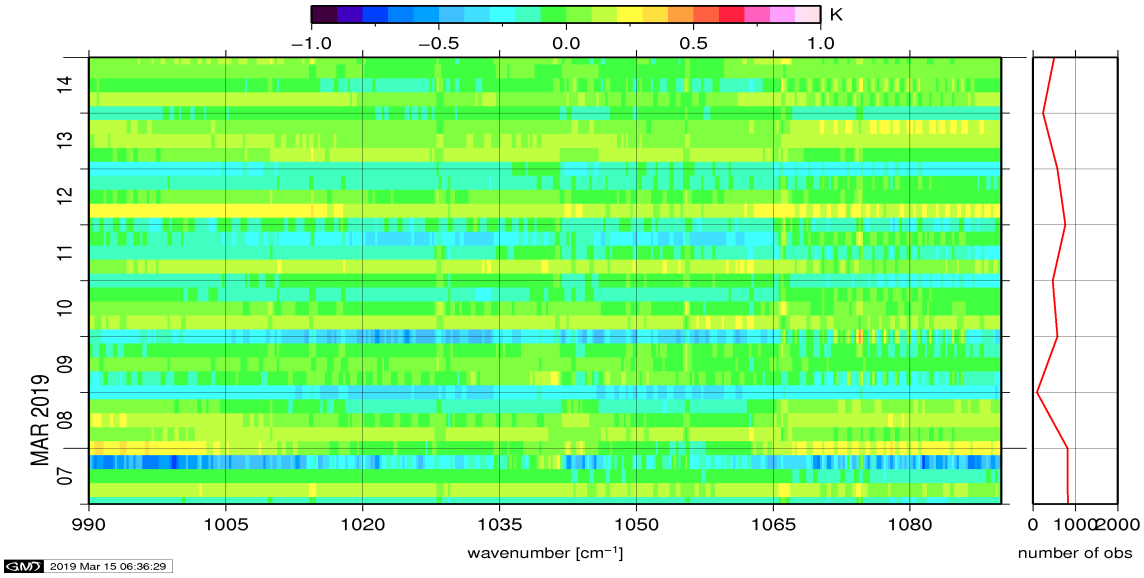

Figure 16: Radiance Anomaly in BT: O3

6 IASI-HIRS radiance comparison Channel 1-19

The radiance comparison of IASI and HIRS/4 on-board Metop is performed on all pixels 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 NeDT. 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.

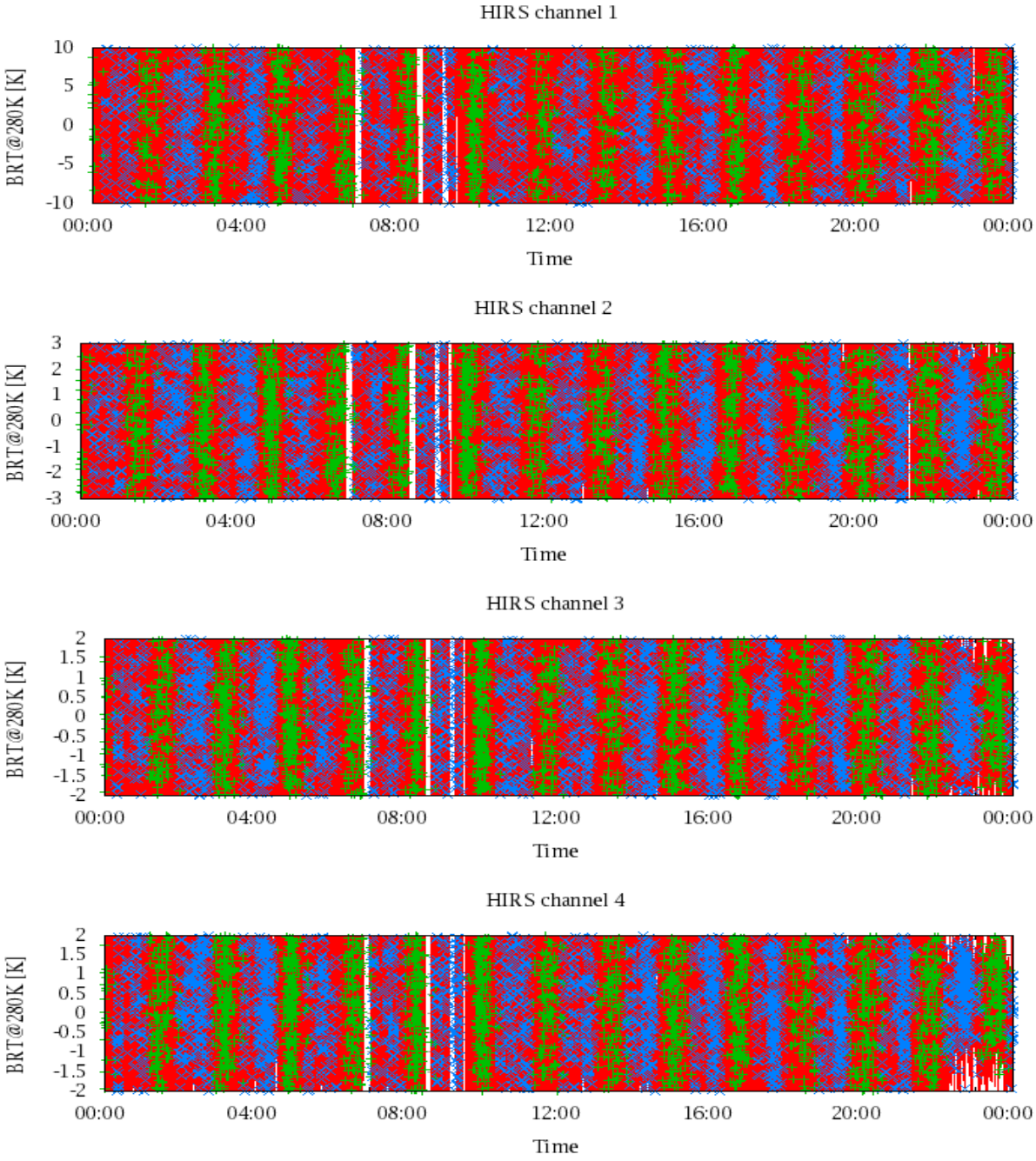

Figure 17: Radiance Differences in BT

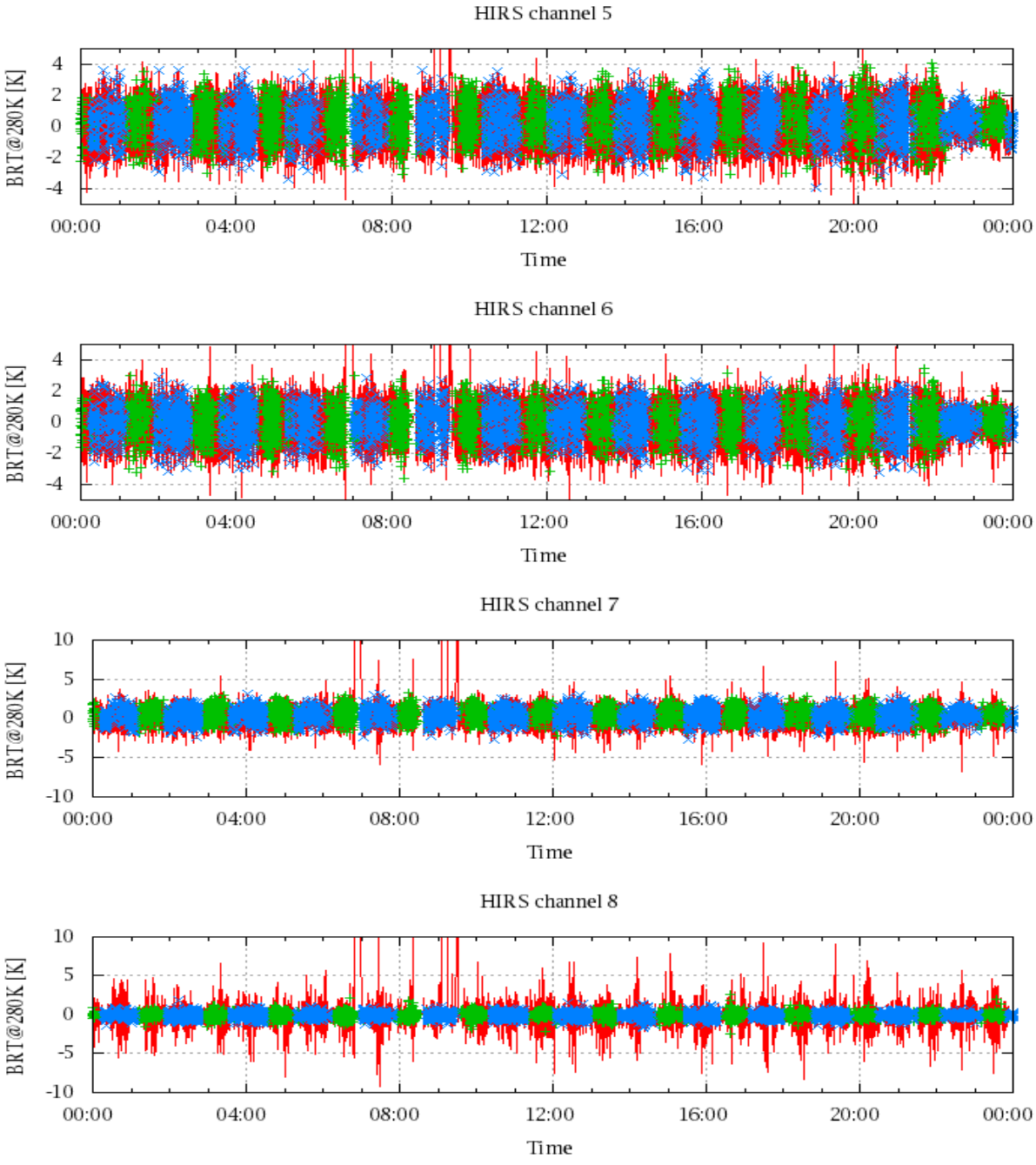

Figure 18: Radiance Differences in BT

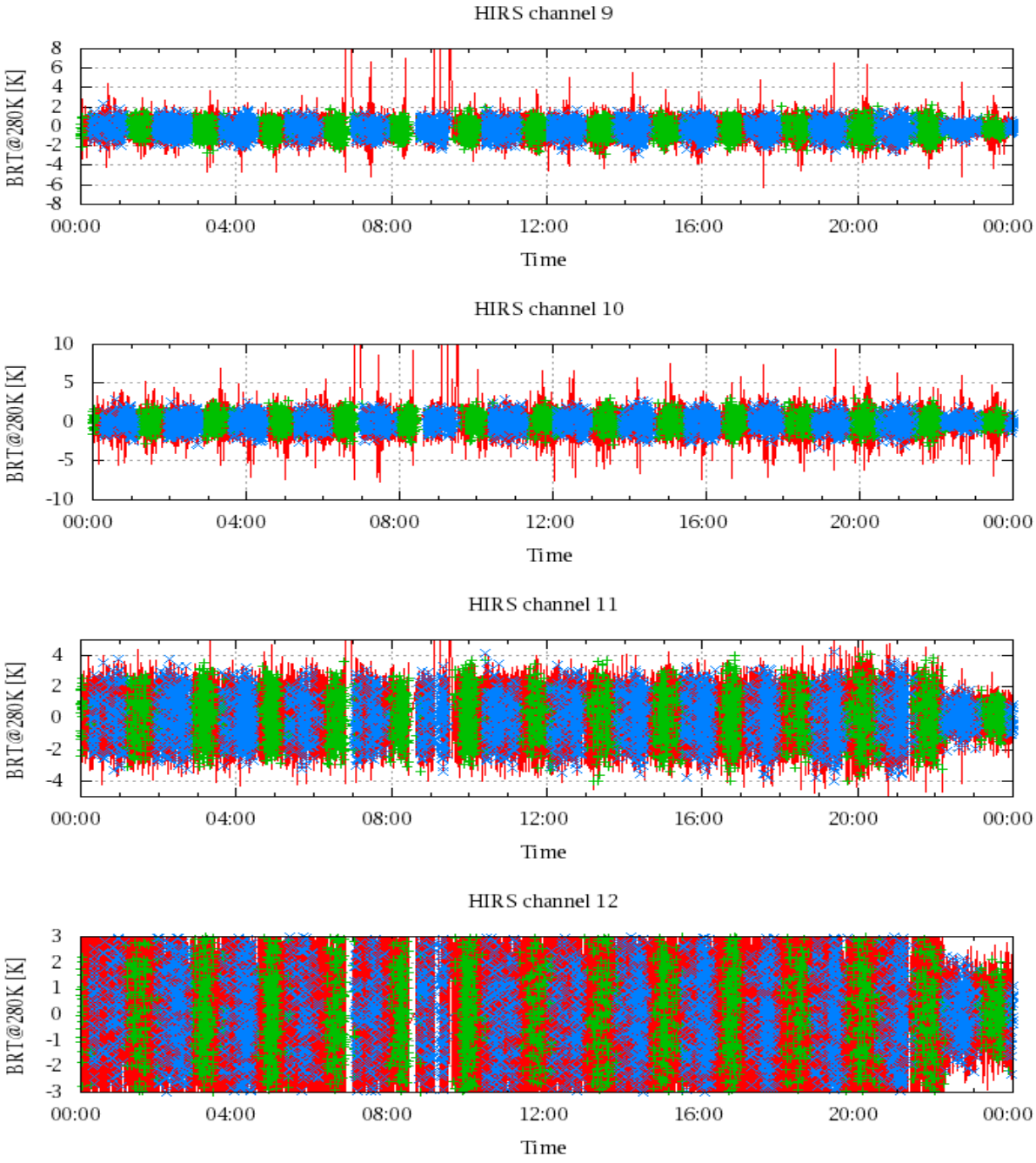

Figure 19: Radiance Differences in BT

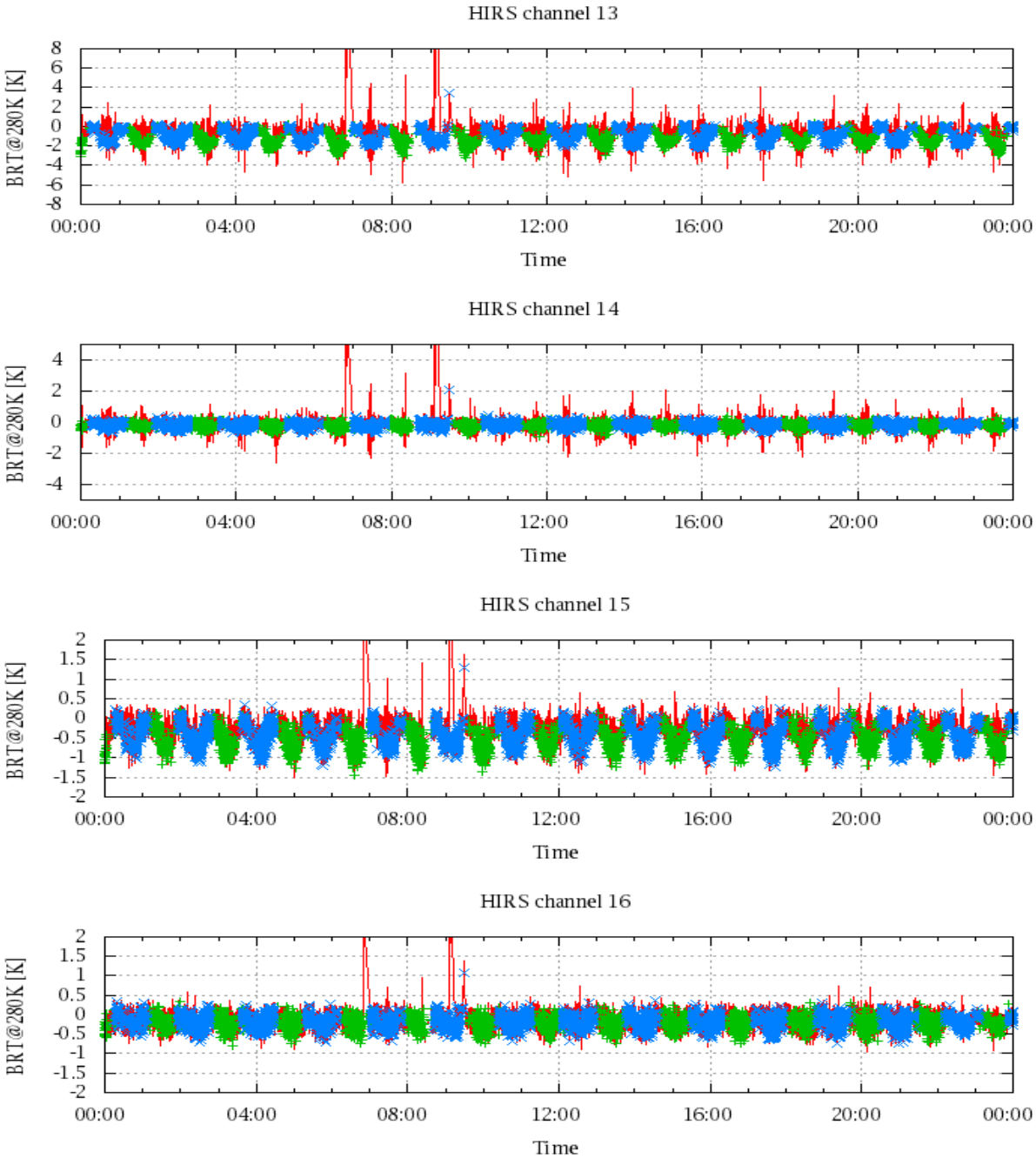

Figure 20: Radiance Differences in BT

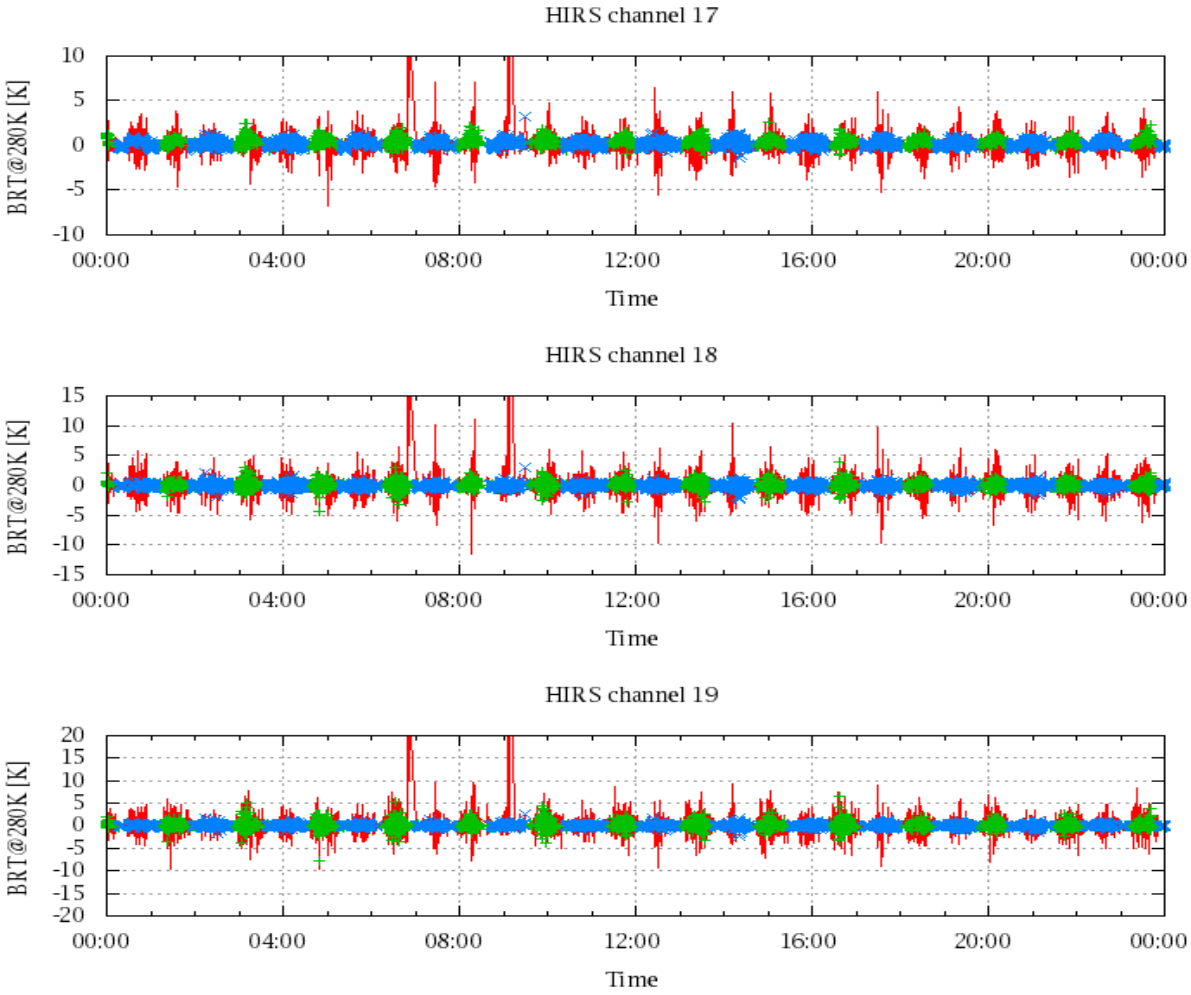

Figure 21: Radinace Differences in BT