IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

29/11/2011 00:00:00 - 30/11/2011 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 29/11/2011 00:00:00 - 30/11/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 29/11/2011 00:00:00 - 30/11/2011 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	199	e
L0 IASI PDUs	99	e
L1 ENG PDUs	192	e
L1 ENG distinct GEPSGranule	193	a
L1 DPX PDUs (RM: IASI-HIRS)	9	e
L1 DPS Files (RM: OBS-CAL NWP based)	3	e

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	10793	11471	20111129001458.712	20111129001800.114
PX1 (130)	15520	16194	20111129003559.904	20111129003900.439
PX1 (130)	1159	1837	20111129004458.700	20111129004800.102
PX1 (130)	7909	8587	20111129011458.688	20111129011800.090
PX1 (130)	9259	9937	20111129012058.679	20111129012400.116
PX1 (130)	16009	303	20111129015058.702	20111129015400.104
PX1 (130)	3675	4353	20111129020858.672	20111129021200.109
PX1 (130)	9752	10426	20111129023559.852	20111129023900.426
PX1 (130)	791	1469	20111129030858.683	20111129031200.081
PX1 (130)	3491	4842	20111129032058.662	20111129032700.419
PX1 (130)	5518	6192	20111129032959.876	20111129033300.410
PX1 (130)	6868	8219	20111129033559.863	20111129034200.073
PX1 (130)	12268	13619	20111129035959.863	20111129040600.070
PX1 (130)	14968	16319	20111129041159.842	20111129041800.087
PX1 (130)	1957	2635	20111129042658.664	20111129043000.066
PX1 (130)	4657	6008	20111129043858.682	20111129044500.404
PX1 (130)	7357	8035	20111129045058.661	20111129045400.063
PX1 (130)	8707	9385	20111129045658.652	20111129050000.050

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	10057	10735	20111129050258.679	20111129050600.081
PX1 (130)	12084	13435	20111129051159.853	20111129051800.059
PX1 (130)	14107	14785	20111129052058.649	20111129052400.051
PX1 (130)	15457	16135	20111129052658.640	20111129053000.077
PX1 (130)	423	1101	20111129053258.667	20111129053600.065
PX1 (130)	5150	6501	20111129055359.859	20111129060000.065
PX1 (130)	8523	2940	20111129060858.646	20111129065700.369
PX1 (130)	3616	10367	20111129065959.822	20111129073000.064
PX1 (130)	11039	12390	20111129073258.653	20111129073900.371
PX1 (130)	13066	3433	20111129074159.828	20111129081200.030
PX1 (130)	4105	4783	20111129081458.620	20111129081800.057
PX1 (130)	5455	6133	20111129082058.646	20111129082400.044
PX1 (130)	6805	4599	20111129082658.638	20111129093000.011
PX2 (135)	10793	11471	20111129001458.712	20111129001800.114
PX2 (135)	15520	16194	20111129003559.904	20111129003900.439
PX2 (135)	1159	1837	20111129004458.700	20111129004800.102
PX2 (135)	7909	8587	20111129011458.688	20111129011800.090
PX2 (135)	9259	9937	20111129012058.679	20111129012400.116
PX2 (135)	16009	303	20111129015058.702	20111129015400.104
PX2 (135)	3675	4353	20111129020858.672	20111129021200.109
PX2 (135)	9752	10426	20111129023559.852	20111129023900.426
PX2 (135)	791	1469	20111129030858.683	20111129031200.081
PX2 (135)	3491	4842	20111129032058.662	20111129032700.419
PX2 (135)	5518	6192	20111129032959.876	20111129033300.410
PX2 (135)	6868	8219	20111129033559.863	20111129034200.073
PX2 (135)	12268	13619	20111129035959.863	20111129040600.070
PX2 (135)	14968	16319	20111129041159.842	20111129041800.087
PX2 (135)	1957	2635	20111129042658.664	20111129043000.066
PX2 (135)	4657	6008	20111129043858.682	20111129044500.404
PX2 (135)	7357	8035	20111129045058.661	20111129045400.063
PX2 (135)	8707	9385	20111129045658.652	20111129050000.050
PX2 (135)	10057	10735	20111129050258.679	20111129050600.081
PX2 (135)	12084	13435	20111129051159.853	20111129051800.059
PX2 (135)	14107	14785	20111129052058.649	20111129052400.051
PX2 (135)	15457	16135	20111129052658.640	20111129053000.077
PX2 (135)	423	1101	20111129053258.667	20111129053600.065
PX2 (135)	5150	6501	20111129055359.859	20111129060000.065
PX2 (135)	8523	2940	20111129060858.646	20111129065700.369
PX2 (135)	3616	10367	20111129065959.822	20111129073000.064
PX2 (135)	11039	12390	20111129073258.653	20111129073900.371
PX2 (135)	13066	3433	20111129074159.828	20111129081200.030
PX2 (135)	4105	4783	20111129081458.620	20111129081800.057
PX2 (135)	5455	6133	20111129082058.646	20111129082400.044
PX2 (135)	6805	4599	20111129082658.638	20111129093000.011
PX3 (140)	10793	11471	20111129001458.712	20111129001800.114
PX3 (140)	15520	16194	20111129003559.904	20111129003900.439
PX3 (140)	1159	1837	20111129004458.700	20111129004800.102
PX3 (140)	7909	8587	20111129011458.688	20111129011800.090
PX3 (140)	9259	9937	20111129012058.679	20111129012400.116
PX3 (140)	16009	303	20111129015058.702	20111129015400.104
PX3 (140)	3675	4353	20111129020858.672	20111129021200.109
PX3 (140)	9752	10426	20111129023559.852	20111129023900.426
PX3 (140)	791	1469	20111129030858.683	20111129031200.081

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	3491	4842	20111129032058.662	20111129032700.419
PX3 (140)	5518	6192	20111129032959.876	20111129033300.410
PX3 (140)	6868	8219	20111129033559.863	20111129034200.073
PX3 (140)	12268	13619	20111129035959.863	20111129040600.070
PX3 (140)	14968	16319	20111129041159.842	20111129041800.087
PX3 (140)	1957	2635	20111129042658.664	20111129043000.066
PX3 (140)	4657	6008	20111129043858.682	20111129044500.404
PX3 (140)	7357	8035	20111129045058.661	20111129045400.063
PX3 (140)	8707	9385	20111129045658.652	20111129050000.050
PX3 (140)	10057	10735	20111129050258.679	20111129050600.081
PX3 (140)	12084	13435	20111129051159.853	20111129051800.059
PX3 (140)	14107	14785	20111129052058.649	20111129052400.051
PX3 (140)	15457	16135	20111129052658.640	20111129053000.077
PX3 (140)	423	1101	20111129053258.667	20111129053600.065
PX3 (140)	5150	6501	20111129055359.859	20111129060000.065
PX3 (140)	8523	2940	20111129060858.646	20111129065700.369
PX3 (140)	3616	10367	20111129065959.822	20111129073000.064
PX3 (140)	11039	12390	20111129073258.653	20111129073900.371
PX3 (140)	13066	3433	20111129074159.828	20111129081200.030
PX3 (140)	4105	4783	20111129081458.620	20111129081800.057
PX3 (140)	5455	6133	20111129082058.646	20111129082400.044
PX3 (140)	6805	4599	20111129082658.638	20111129093000.011
PX4 (145)	10793	11471	20111129001458.712	20111129001800.114
PX4 (145)	15520	16194	20111129003559.904	20111129003900.439
PX4 (145)	1159	1837	20111129004458.700	20111129004800.102
PX4 (145)	7909	8587	20111129011458.688	20111129011800.090
PX4 (145)	9259	9937	20111129012058.679	20111129012400.116
PX4 (145)	16009	303	20111129015058.702	20111129015400.104
PX4 (145)	3675	4353	20111129020858.672	20111129021200.109
PX4 (145)	9752	10426	20111129023559.852	20111129023900.426
PX4 (145)	791	1469	20111129030858.683	20111129031200.081
PX4 (145)	3491	4842	20111129032058.662	20111129032700.419
PX4 (145)	5518	6192	20111129032959.876	20111129033300.410
PX4 (145)	6868	8219	20111129033559.863	20111129034200.073
PX4 (145)	12268	13619	20111129035959.863	20111129040600.070
PX4 (145)	14968	16319	20111129041159.842	20111129041800.087
PX4 (145)	1957	2635	20111129042658.664	20111129043000.066
PX4 (145)	4657	6008	20111129043858.682	20111129044500.404
PX4 (145)	7357	8035	20111129045058.661	20111129045400.063
PX4 (145)	8707	9385	20111129045658.652	20111129050000.050
PX4 (145)	10057	10735	20111129050258.679	20111129050600.081
PX4 (145)	12084	13435	20111129051159.853	20111129051800.059
PX4 (145)	14107	14785	20111129052058.649	20111129052400.051
PX4 (145)	15457	16135	20111129052658.640	20111129053000.077
PX4 (145)	423	1101	20111129053258.667	20111129053600.065
PX4 (145)	5150	6501	20111129055359.859	20111129060000.065
PX4 (145)	8523	2940	20111129060858.646	20111129065700.369
PX4 (145)	3616	10367	20111129065959.822	20111129073000.064
PX4 (145)	11039	12390	20111129073258.653	20111129073900.371
PX4 (145)	13066	3433	20111129074159.828	20111129081200.030
PX4 (145)	4105	4783	20111129081458.620	20111129081800.057
PX4 (145)	5455	6133	20111129082058.646	20111129082400.044
PX4 (145)	6805	4599	20111129082658.638	20111129093000.011

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	15504	16271	20111129001459.794	20111129001800.114
IMG (150)	4476	5241	20111129003559.904	20111129003900.005
IMG (150)	6771	7537	20111129004459.997	20111129004800.102
IMG (150)	14421	15187	20111129011459.985	20111129011800.090
IMG (150)	15951	333	20111129012059.976	20111129012400.116
IMG (150)	7217	7983	20111129015059.999	20111129015400.104
IMG (150)	11807	12573	20111129020859.969	20111129021200.109
IMG (150)	2308	3074	20111129023559.852	20111129023900.426
IMG (150)	10723	11489	20111129030859.980	20111129031200.081
IMG (150)	13783	15314	20111129032059.963	20111129032700.419
IMG (150)	16078	460	20111129032959.876	20111129033300.410
IMG (150)	1224	2755	20111129033559.863	20111129034200.073
IMG (150)	7344	8875	20111129035959.863	20111129040600.070
IMG (150)	10404	11935	20111129041159.842	20111129041800.087
IMG (150)	14229	14995	20111129042659.961	20111129043000.066
IMG (150)	905	2436	20111129043859.979	20111129044500.404
IMG (150)	3965	4731	20111129045059.958	20111129045400.063
IMG (150)	5495	6261	20111129045659.949	20111129050000.050
IMG (150)	7025	7791	20111129050259.976	20111129050600.081
IMG (150)	9320	10851	20111129051159.853	20111129051800.059
IMG (150)	11615	12381	20111129052059.946	20111129052400.051
IMG (150)	13145	13911	20111129052659.937	20111129053000.077
IMG (150)	14675	15441	20111129053259.964	20111129053600.065
IMG (150)	3646	5177	20111129055359.859	20111129060000.065
IMG (150)	7471	3328	20111129060859.943	20111129065700.369
IMG (150)	4092	11743	20111129065959.822	20111129073000.064
IMG (150)	12507	14038	20111129073259.950	20111129073900.371
IMG (150)	14802	6069	20111129074159.828	20111129081200.030
IMG (150)	6833	7599	20111129081459.917	20111129081800.057
IMG (150)	8363	9129	20111129082059.943	20111129082400.044
IMG (150)	9893	9575	20111129082659.935	20111129093000.011
VER (160)	9987	10098	20111129001458.712	20111129001802.708
VER (160)	10772	10888	20111129003554.717	20111129003906.709
VER (160)	11112	11223	20111129004458.700	20111129004802.696
VER (160)	12237	12348	20111129011458.688	20111129011802.683
VER (160)	12462	12573	20111129012058.679	20111129012402.710
VER (160)	13587	13698	20111129015058.702	20111129015402.698
VER (160)	14262	14373	20111129020858.672	20111129021202.703
VER (160)	15272	15388	20111129023554.665	20111129023906.695
VER (160)	128	239	20111129030858.683	20111129031202.679
VER (160)	578	804	20111129032058.662	20111129032706.692
VER (160)	913	1029	20111129032954.684	20111129033306.680
VER (160)	1138	1364	20111129033554.676	20111129034202.667
VER (160)	2038	2264	20111129035954.672	20111129040602.663
VER (160)	2488	2714	20111129041154.655	20111129041802.681
VER (160)	3053	3164	20111129042658.664	20111129043002.660
VER (160)	3503	3729	20111129043858.682	20111129044506.670
VER (160)	3953	4064	20111129045058.661	20111129045402.657
VER (160)	4178	4289	20111129045658.652	20111129050002.648
VER (160)	4403	4514	20111129050258.679	20111129050602.674
VER (160)	4738	4964	20111129051154.666	20111129051802.653
VER (160)	5078	5189	20111129052058.649	20111129052402.644
VER (160)	5303	5414	20111129052658.640	20111129053002.671

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	5528	5639	20111129053258.667	20111129053602.662
VER (160)	6313	6539	20111129055354.668	20111129060002.659
VER (160)	6878	8679	20111129060858.646	20111129065706.639
VER (160)	8788	9914	20111129065954.635	20111129073002.658
VER (160)	10028	10254	20111129073258.653	20111129073906.641
VER (160)	10363	11489	20111129074154.637	20111129081202.624
VER (160)	11603	11714	20111129081458.620	20111129081802.651
VER (160)	11828	11939	20111129082058.646	20111129082402.642
VER (160)	12053	14414	20111129082658.638	20111129093002.605
AUX (180)	5273	5296	20111129001459.146	20111129001803.141
AUX (180)	5430	5454	20111129003555.147	20111129003907.142
AUX (180)	5498	5521	20111129004459.134	20111129004803.125
AUX (180)	5723	5746	20111129011459.118	20111129011803.117
AUX (180)	5768	5791	20111129012059.109	20111129012403.140
AUX (180)	5993	6016	20111129015059.132	20111129015403.128
AUX (180)	6128	6151	20111129020859.106	20111129021203.137
AUX (180)	6330	6354	20111129023555.098	20111129023907.129
AUX (180)	6578	6601	20111129030859.117	20111129031203.109
AUX (180)	6668	6714	20111129032059.096	20111129032707.122
AUX (180)	6735	6759	20111129032955.118	20111129033307.113
AUX (180)	6780	6826	20111129033555.109	20111129034203.097
AUX (180)	6960	7006	20111129035955.106	20111129040603.097
AUX (180)	7050	7096	20111129041155.084	20111129041803.111
AUX (180)	7163	7186	20111129042659.098	20111129043003.094
AUX (180)	7253	7299	20111129043859.116	20111129044507.103
AUX (180)	7343	7366	20111129045059.094	20111129045403.090
AUX (180)	7388	7411	20111129045659.086	20111129050003.078
AUX (180)	7433	7456	20111129050259.112	20111129050603.108
AUX (180)	7500	7546	20111129051155.095	20111129051803.087
AUX (180)	7568	7591	20111129052059.082	20111129052403.074
AUX (180)	7613	7636	20111129052659.070	20111129053003.105
AUX (180)	7658	7681	20111129053259.100	20111129053603.092
AUX (180)	7815	7861	20111129055355.101	20111129060003.089
AUX (180)	7928	8289	20111129060859.076	20111129065707.069
AUX (180)	8310	8536	20111129065955.064	20111129073003.091
AUX (180)	8558	8604	20111129073259.087	20111129073907.074
AUX (180)	8625	8851	20111129074155.070	20111129081203.058
AUX (180)	8873	8896	20111129081459.050	20111129081803.084
AUX (180)	8918	8941	20111129082059.080	20111129082403.072
AUX (180)	8963	9436	20111129082659.067	20111129093003.039

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
29/11/2011 00:00:02	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	99	e
L1 ENG PDUs	192	e
L1 ENG distinct GEPSGranule	193	a
GQisFlagQual set (PX1)	99.38 %	-
GQisFlagQual set (PX2)	99.21 %	-
GQisFlagQual set (PX3)	99.32 %	-
GQisFlagQual set (PX4)	99.44 %	-
GQisFlagQual set (all)	99.34 %	-

Table 4: Quality flags

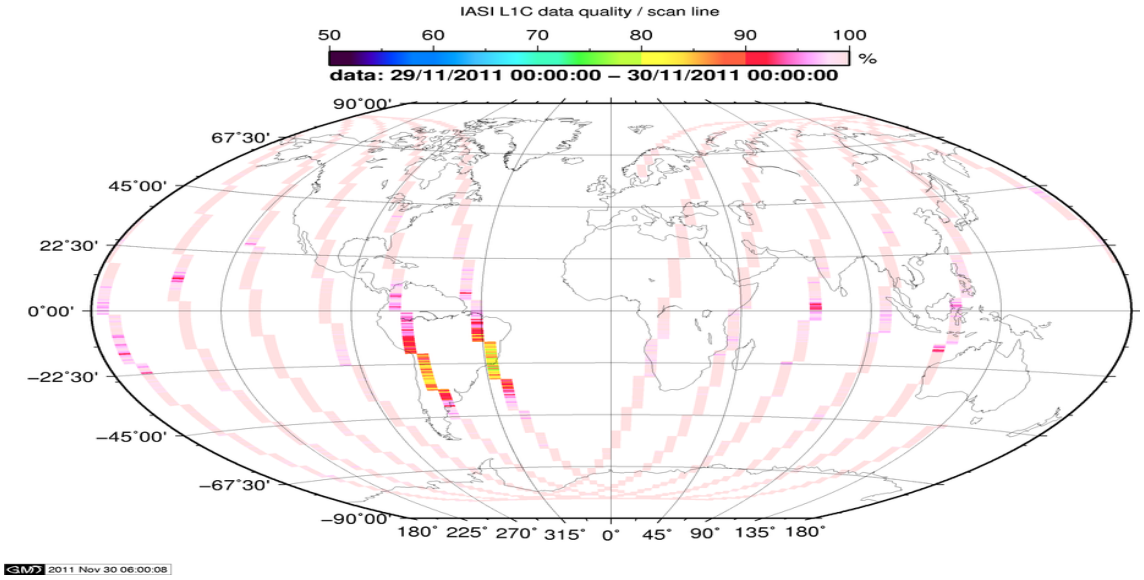

Figure 1: L1C data quality

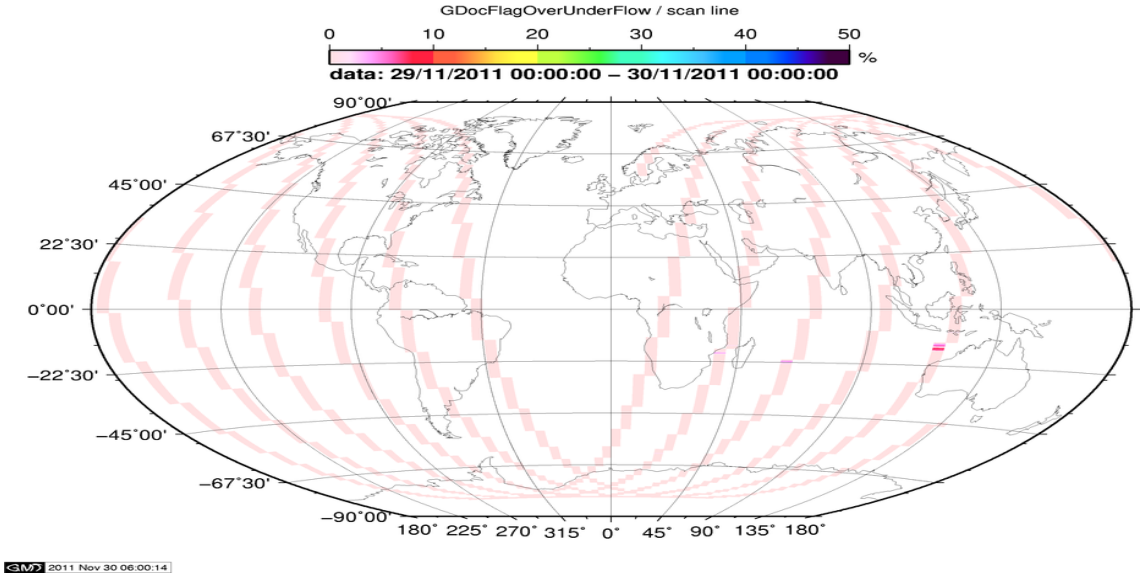

Figure 2: Flag of Over and Under Flows

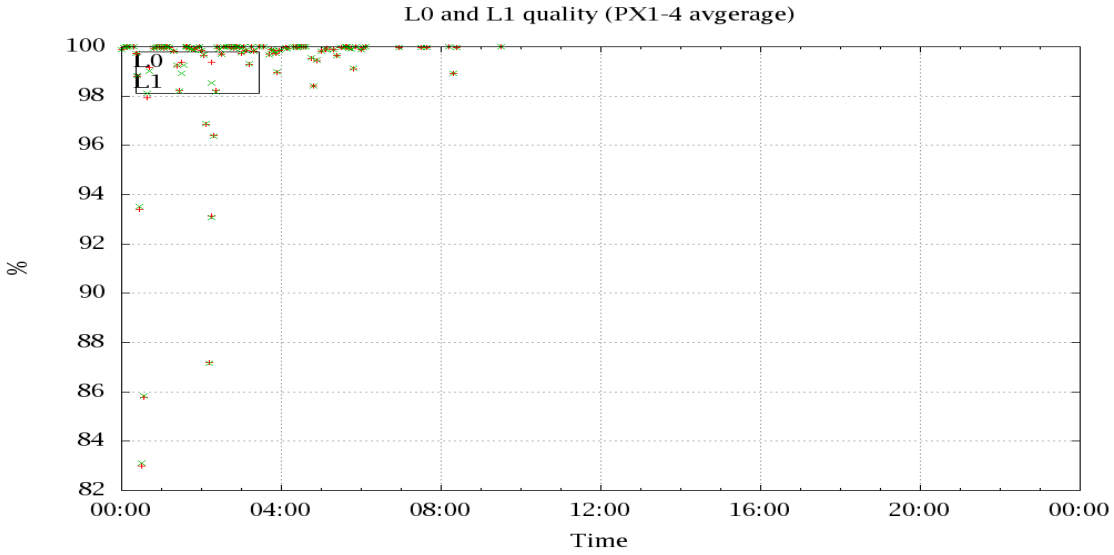

Figure 3: Level 0 and 1C overall quality

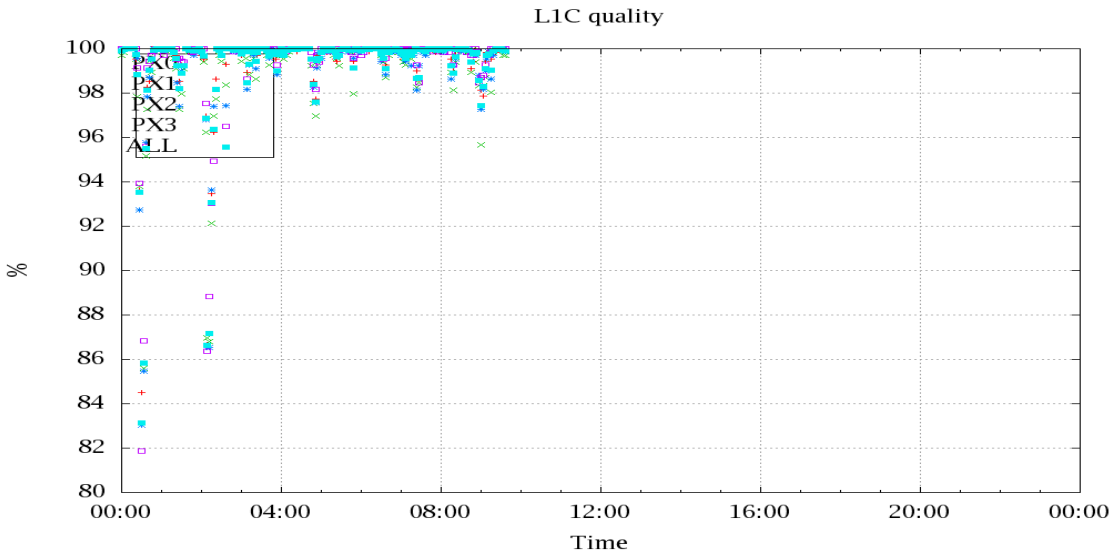

Figure 4: Level 1C quality

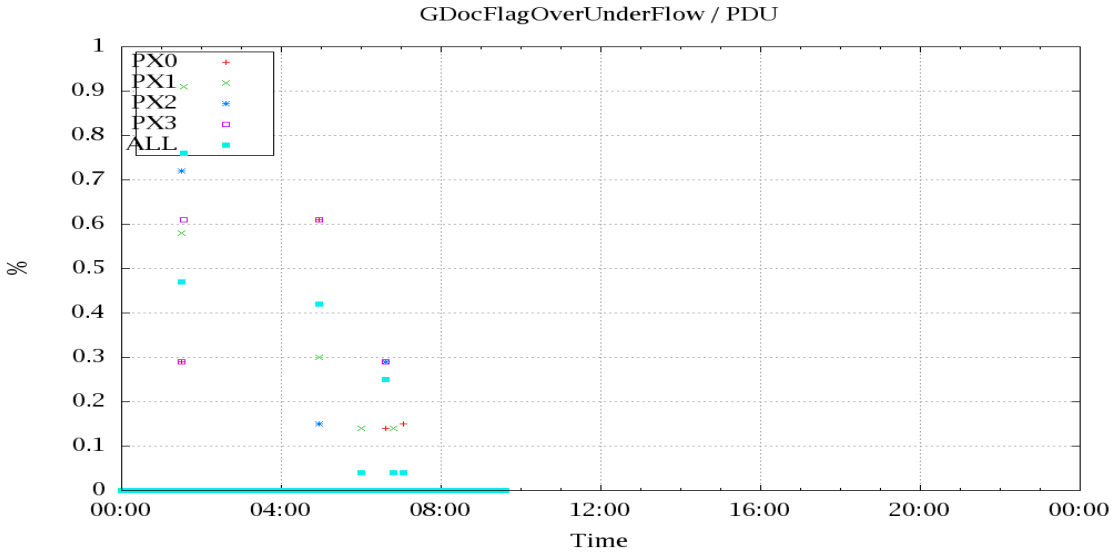

Figure 5: OverUnderFlowFlag timeseries

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.

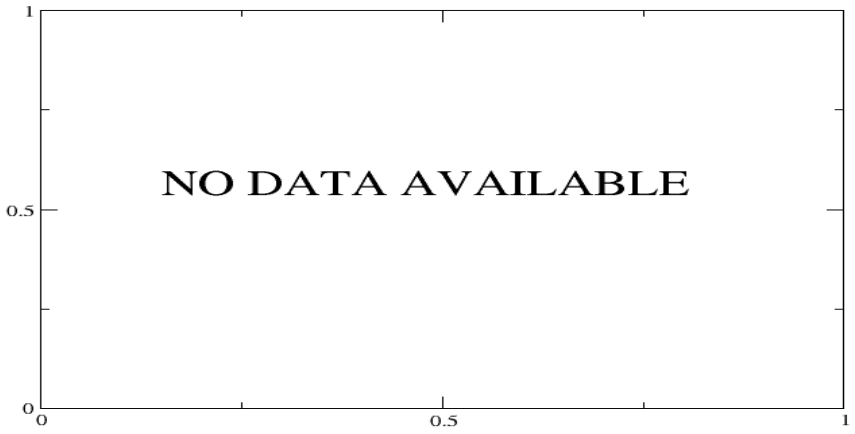

Figure 6: Average Radiance differences: OBS-CAL

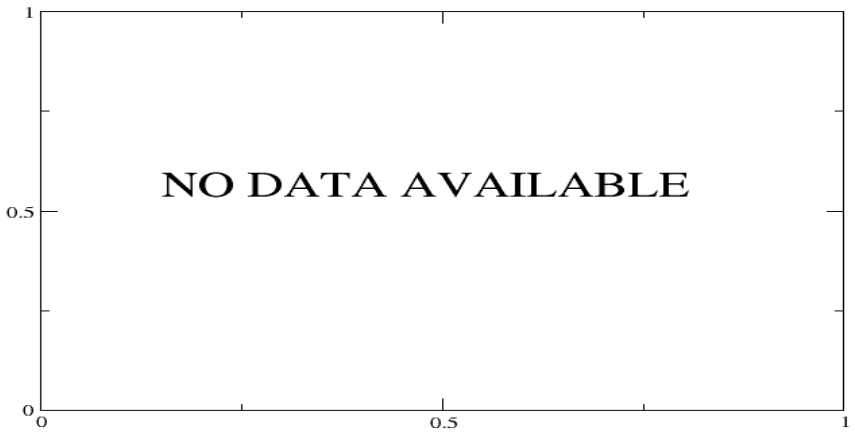

Figure 7: Standard Deviation of Radiance differences

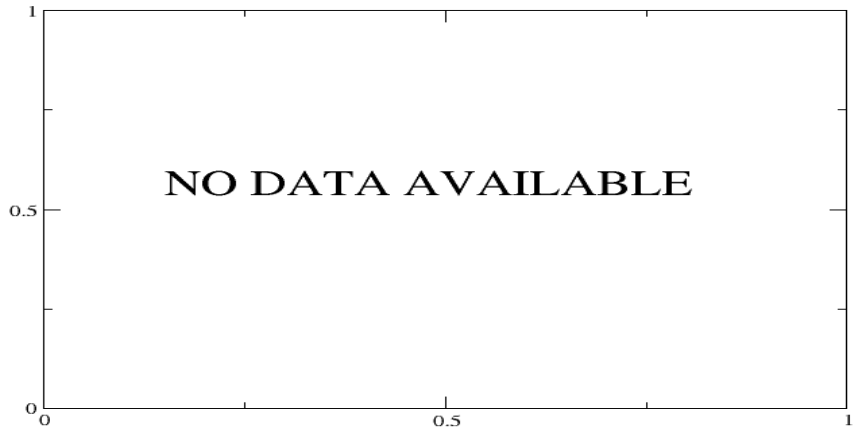

Figure 8: Average Radiance differences: OBS-CAL

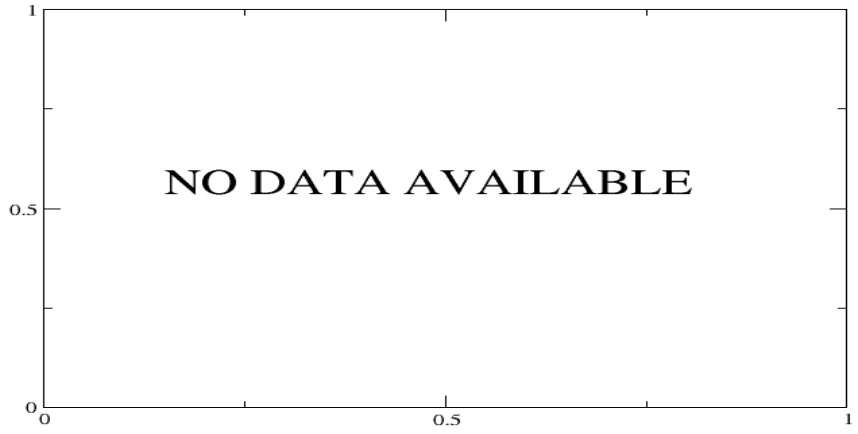

Figure 9: Standard Deviation of Radiance differences

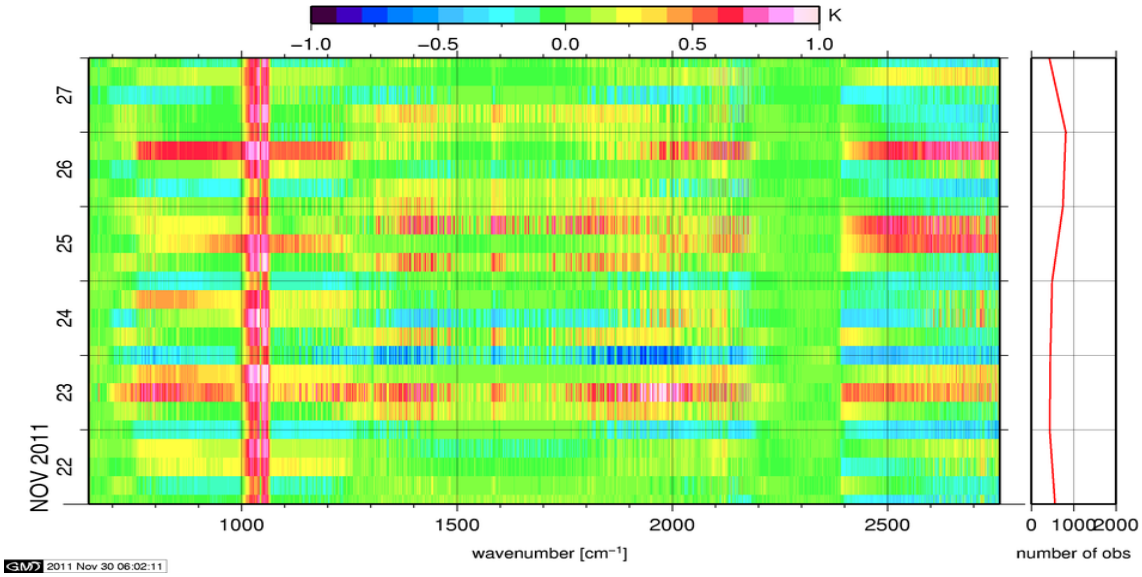

Figure 10: Radiance Anomaly in BRT: All Channels

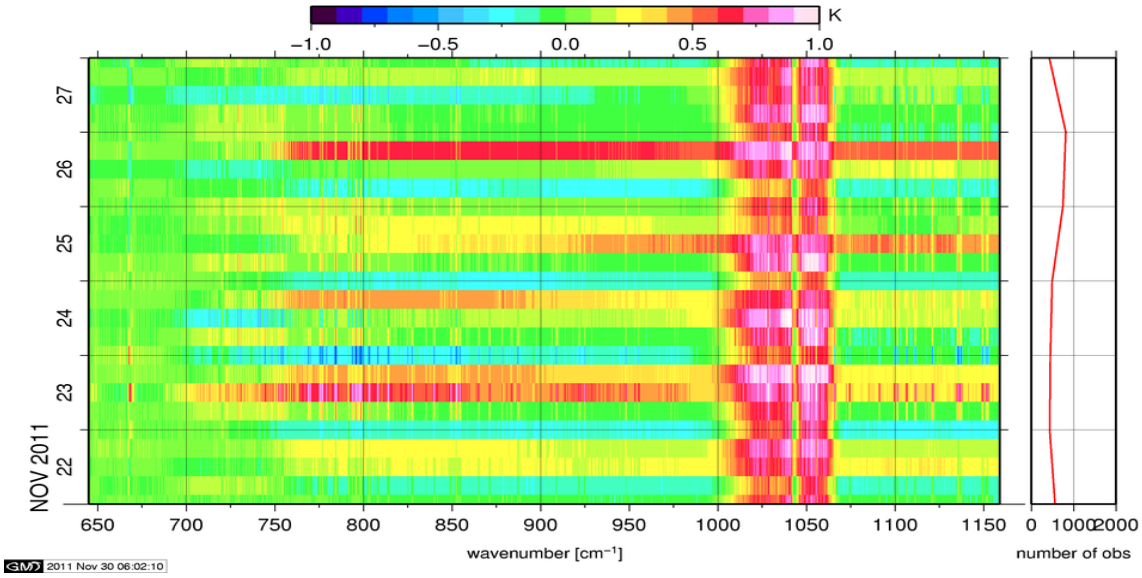

Figure 11: Radiance Anomaly in BRT: IASI Band 1

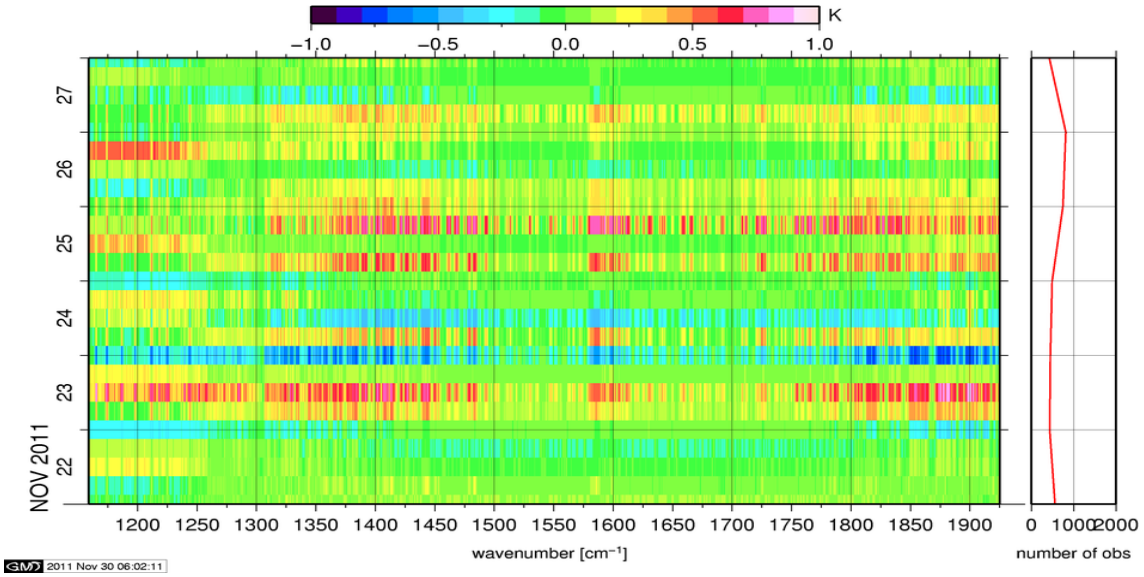

Figure 12: Radiance Anomaly in BRT: IASI Band 2

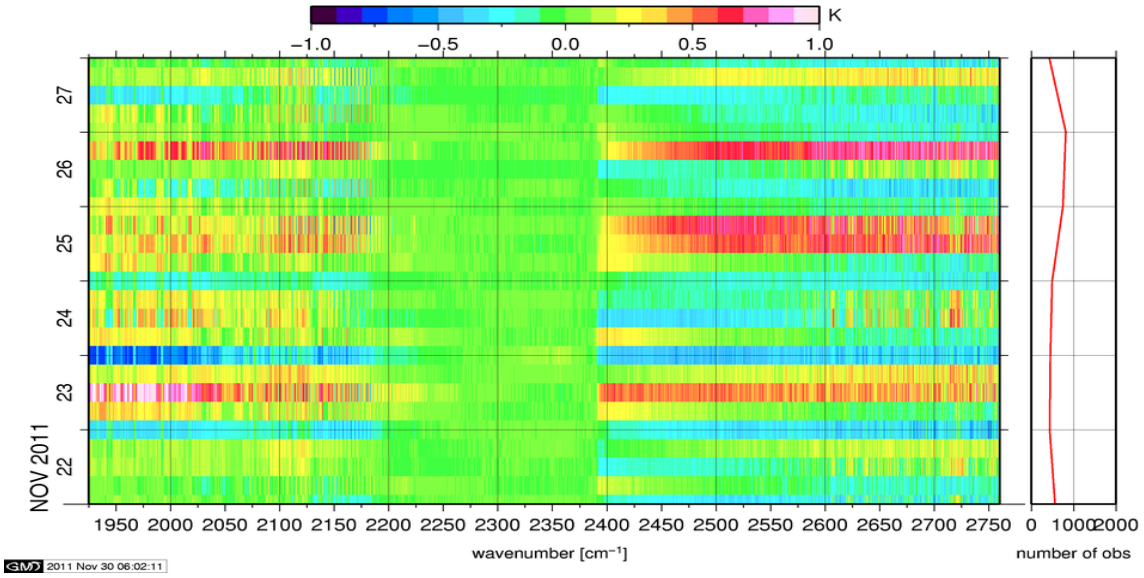

Figure 13: Radiance Anomaly in BRT: IASI Band 3

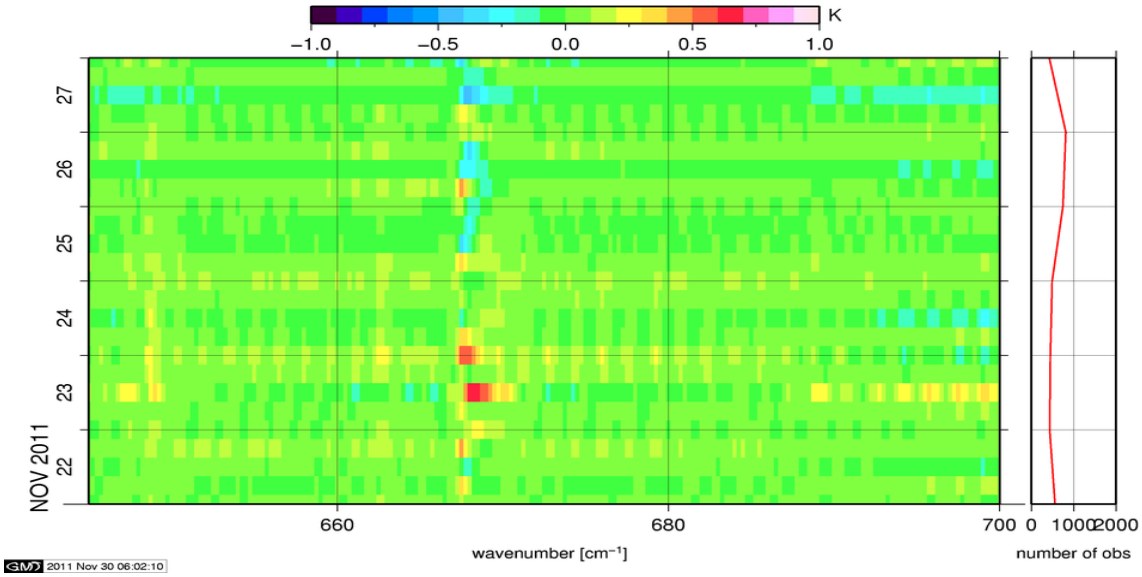

Figure 14: Radiance Anomaly in BRT: CO2 14

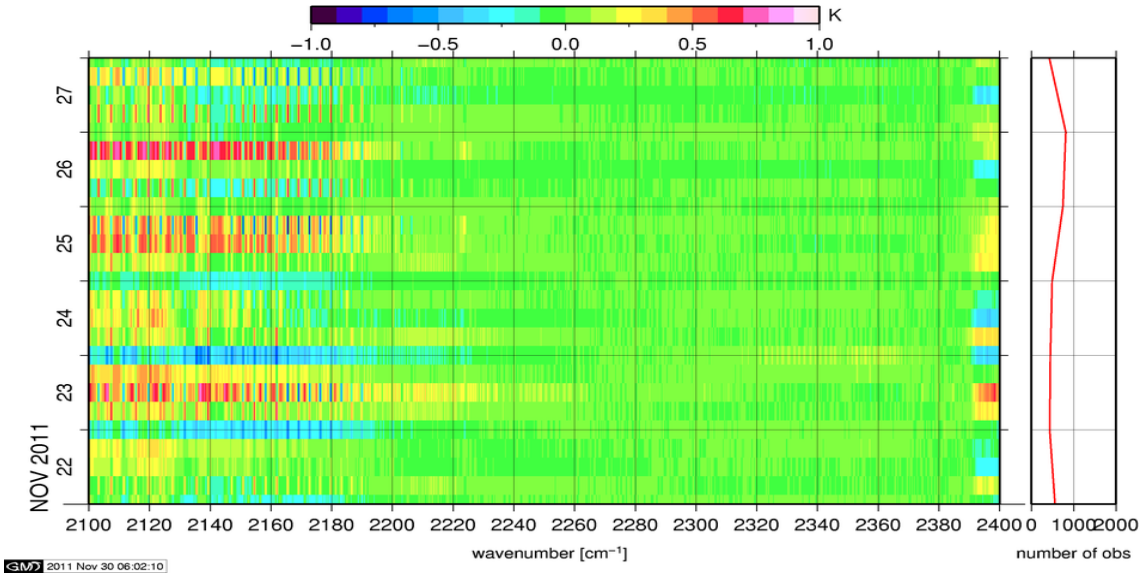

Figure 15: Radiance Anomaly in BRT: CO2 4.3

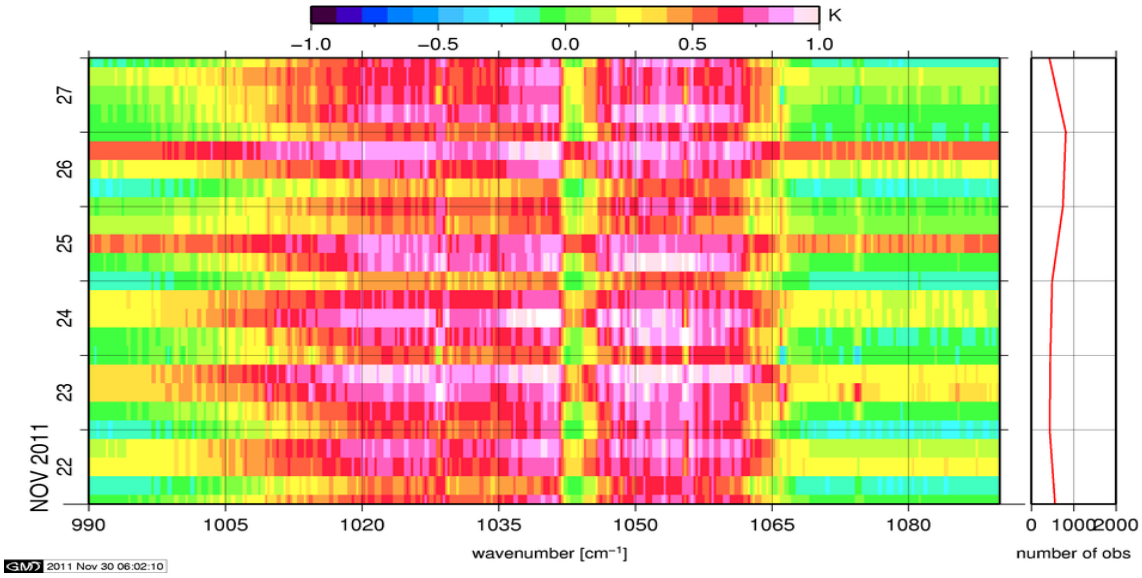

Figure 16: Radiance Anomaly in BRT: O3

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.

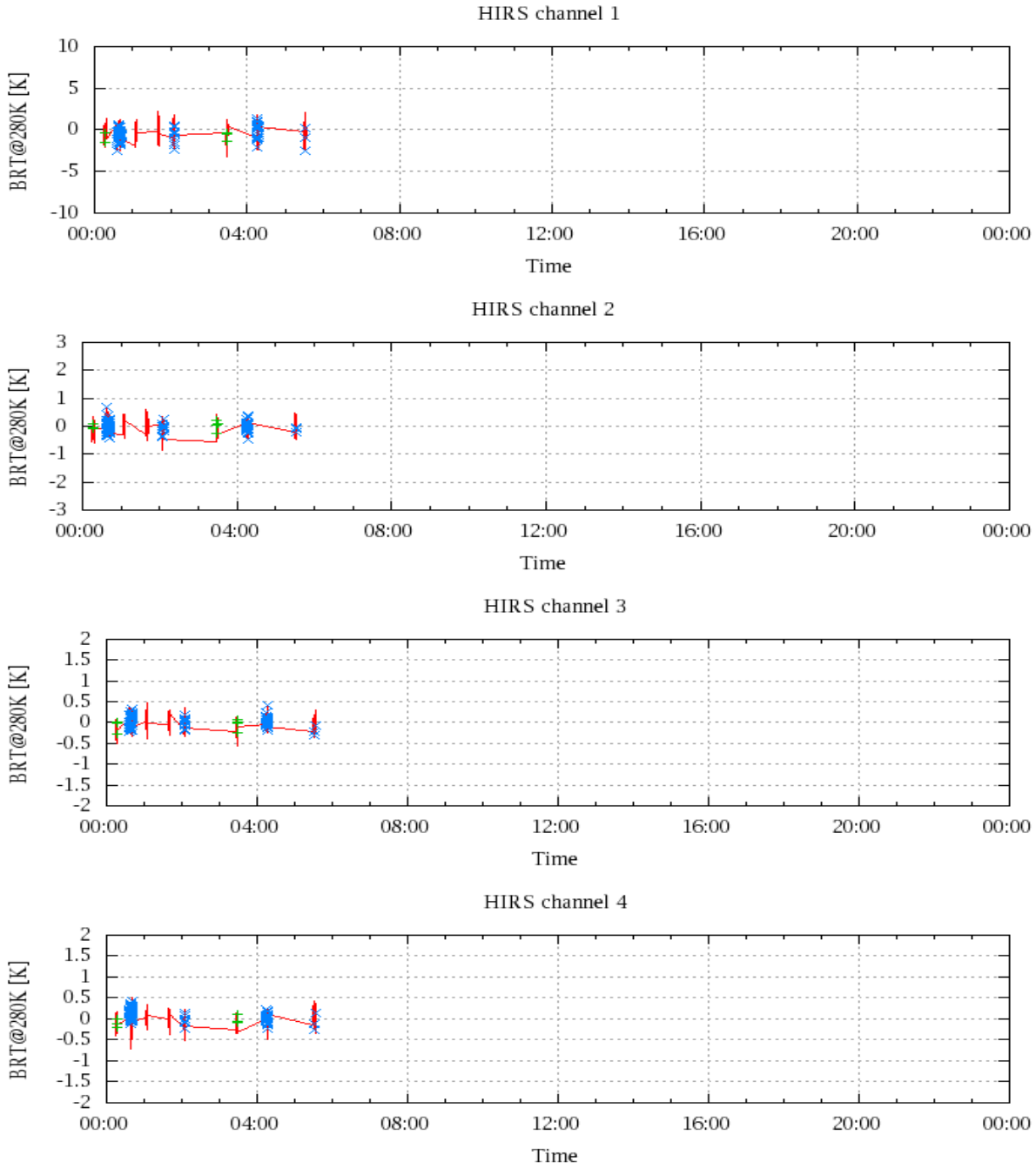

Figure 17: Radiance Differences in BRT

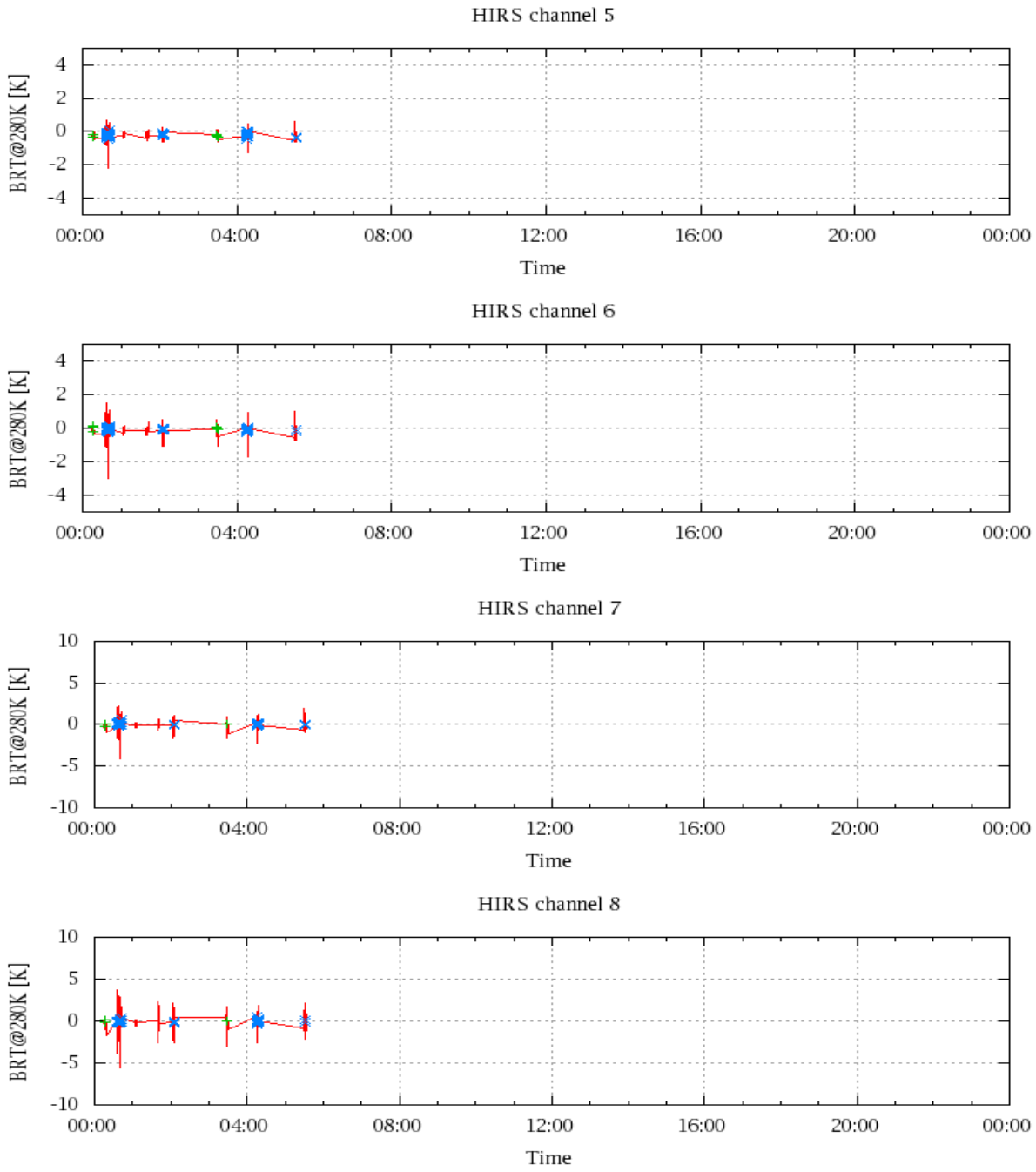

Figure 18: Radiance Differences in BRT

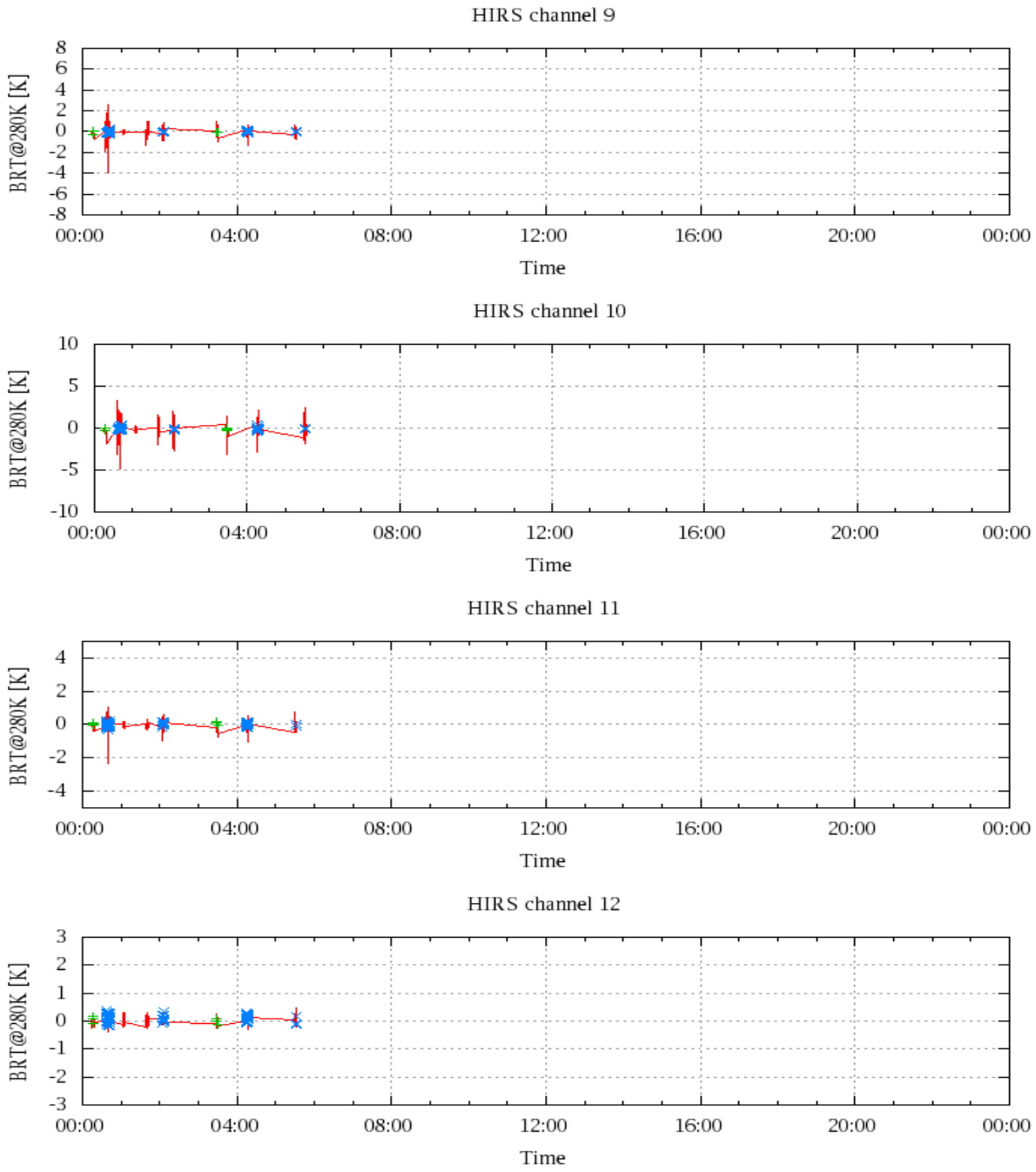

Figure 19: Radiance Differences in BRT

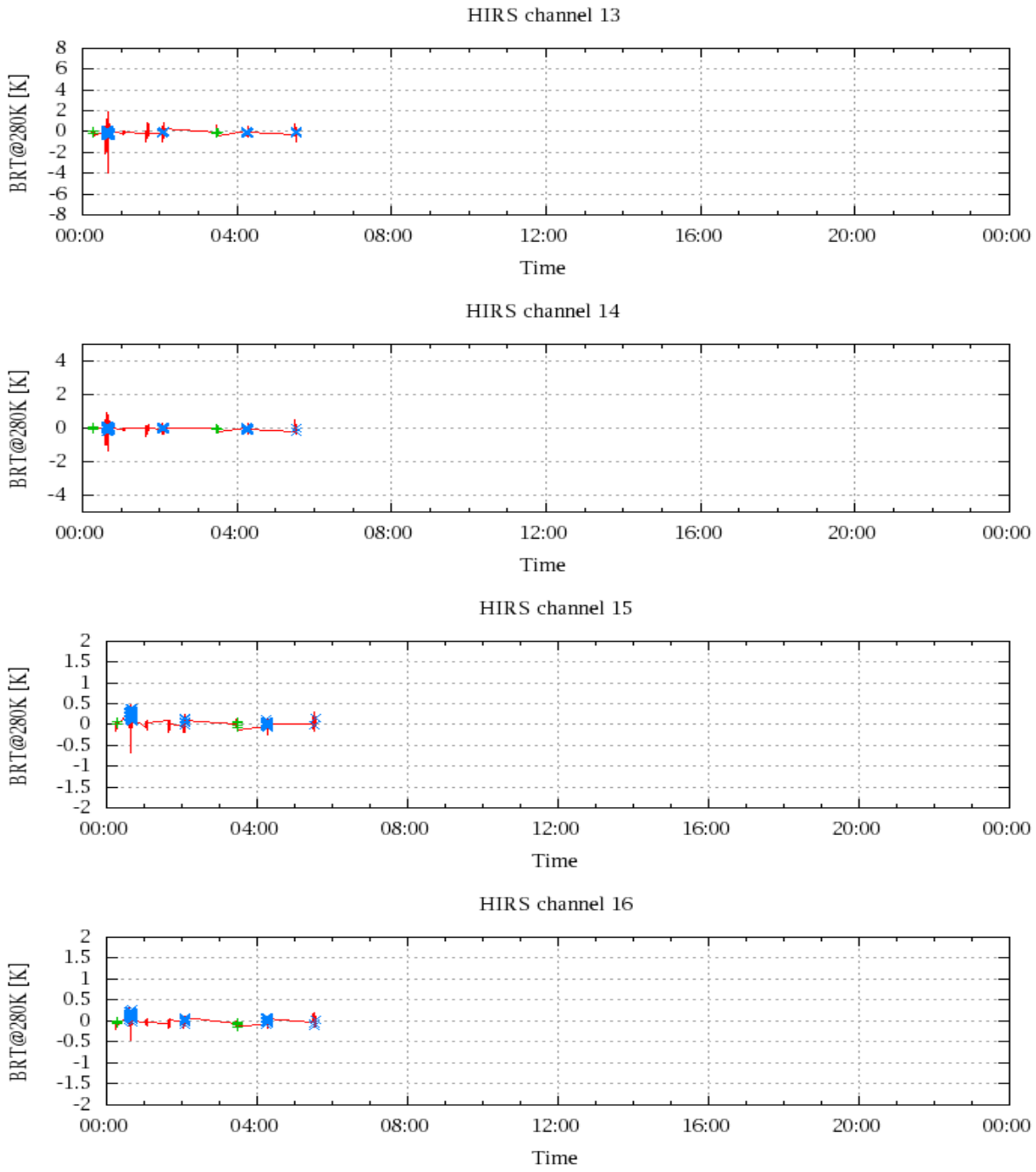

Figure 20: Radiance Differences in BRT

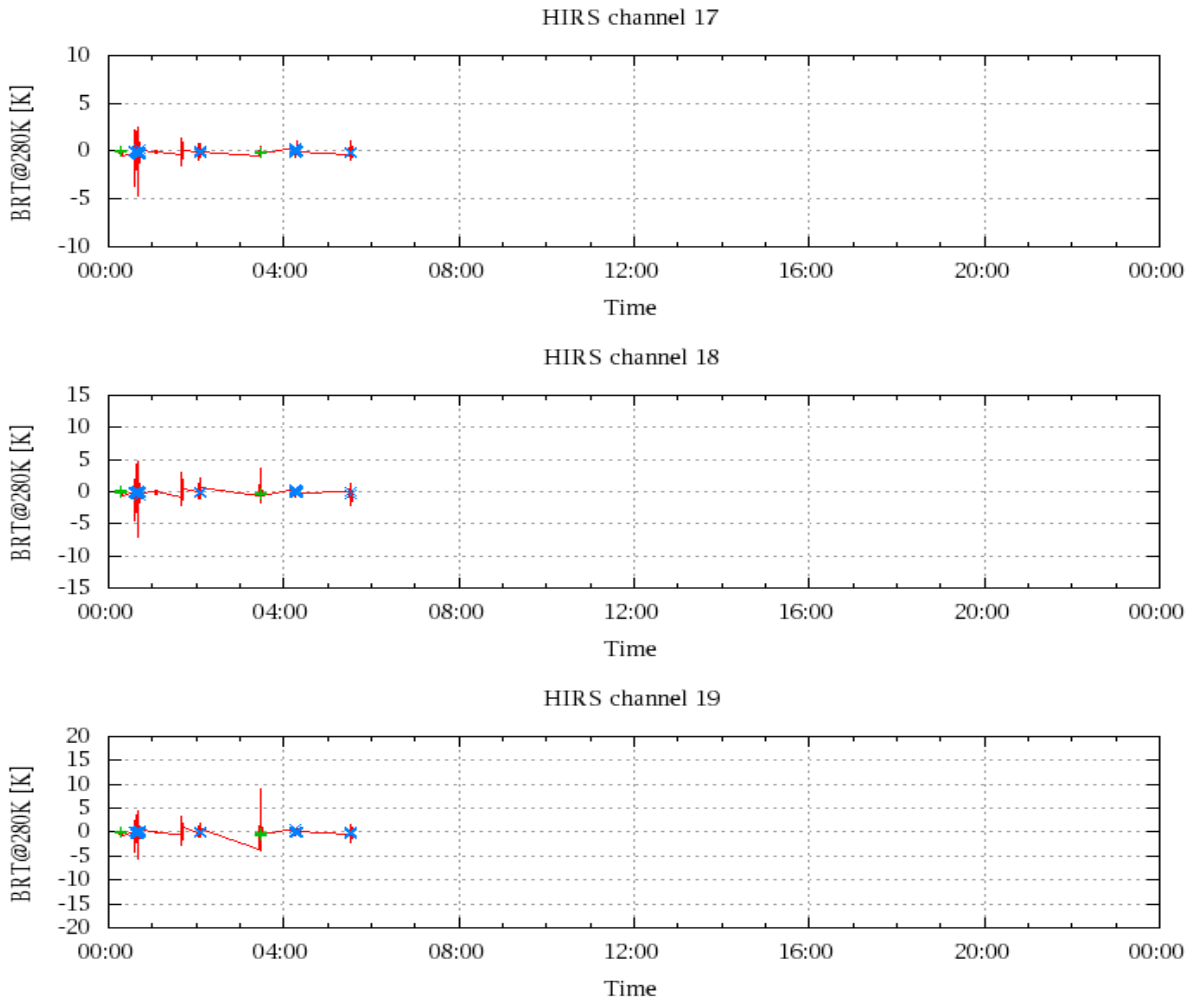

Figure 21: Radinace Differences in BRT