

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

12/02/2016 00:00:00 - 13/02/2016 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 12/02/2016 00:00:00 - 13/02/2016 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 12/02/2016 00:00:00 - 13/02/2016 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	478	-
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)	7497	7500	20160212210455.648	20160212210456.297
PX1 (130)	7501	7510	20160212210456.515	20160212210459.972
PX1 (130)	7510	7525	20160212210459.972	20160212210503.219
PX1 (130)	7525	7528	20160212210503.219	20160212210503.867
PX1 (130)	7528	7530	20160212210503.867	20160212210504.297
PX1 (130)	7530	7533	20160212210504.297	20160212210506.461
PX1 (130)	7533	7543	20160212210506.461	20160212210508.621
PX1 (130)	7543	7548	20160212210508.621	20160212210509.703
PX1 (130)	7554	7556	20160212210511.000	20160212210511.433
PX1 (130)	7557	7561	20160212210511.648	20160212210512.515
PX1 (130)	7561	7575	20160212210512.515	20160212210517.054
PX1 (130)	7576	7580	20160212210517.269	20160212210518.136
PX1 (130)	7580	7583	20160212210518.136	20160212210518.785
PX1 (130)	7583	7587	20160212210518.785	20160212210519.648
PX1 (130)	7587	7591	20160212210519.648	20160212210520.511
PX1 (130)	7592	7594	20160212210522.242	20160212210522.676
PX1 (130)	7598	7602	20160212210523.539	20160212210524.406
PX1 (130)	7603	7605	20160212210524.621	20160212210525.054

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	7649	7651	20160212210536.082	20160212210536.511
PX1 (130)	7654	7656	20160212210538.675	20160212210539.109
PX1 (130)	7661	7663	20160212210540.187	20160212210540.621
PX1 (130)	7675	7679	20160212210543.215	20160212210544.082
PX1 (130)	7695	7697	20160212210549.054	20160212210549.484
PX1 (130)	7729	7731	20160212210557.918	20160212210558.351
PX1 (130)	7743	7745	20160212210602.457	20160212210602.890
PX1 (130)	7748	7750	20160212210603.539	20160212210603.972
PX1 (130)	8135	8152	20160212210746.890	20160212210750.562
PX1 (130)	8152	8154	20160212210750.562	20160212210750.995
PX1 (130)	8155	8177	20160212210751.214	20160212210757.484
PX1 (130)	8178	8194	20160212210757.699	20160212210802.671
PX1 (130)	8194	8198	20160212210802.671	20160212210803.535
PX1 (130)	8198	8205	20160212210803.535	20160212210805.050
PX1 (130)	8205	8208	20160212210805.050	20160212210805.699
PX1 (130)	8208	8212	20160212210805.699	20160212210806.562
PX1 (130)	8213	8218	20160212210806.781	20160212210807.859
PX1 (130)	8218	8220	20160212210807.859	20160212210808.292
PX1 (130)	8236	8238	20160212210813.265	20160212210813.699
PX1 (130)	8267	8269	20160212210821.484	20160212210821.913
PX1 (130)	8269	8271	20160212210821.913	20160212210822.347
PX2 (135)	7496	7500	20160212210455.433	20160212210456.297
PX2 (135)	7501	7528	20160212210456.515	20160212210503.867
PX2 (135)	7528	7530	20160212210503.867	20160212210504.297
PX2 (135)	7530	7533	20160212210504.297	20160212210506.461
PX2 (135)	7533	7541	20160212210506.461	20160212210508.191
PX2 (135)	7541	7543	20160212210508.191	20160212210508.621
PX2 (135)	7544	7548	20160212210508.840	20160212210509.703
PX2 (135)	7553	7556	20160212210510.785	20160212210511.433
PX2 (135)	7557	7561	20160212210511.648	20160212210512.515
PX2 (135)	7561	7568	20160212210512.515	20160212210515.543
PX2 (135)	7568	7576	20160212210515.543	20160212210517.269
PX2 (135)	7576	7580	20160212210517.269	20160212210518.136
PX2 (135)	7580	7583	20160212210518.136	20160212210518.785
PX2 (135)	7583	7586	20160212210518.785	20160212210519.433
PX2 (135)	7588	7590	20160212210519.867	20160212210520.297
PX2 (135)	7592	7594	20160212210522.242	20160212210522.676
PX2 (135)	7598	7600	20160212210523.539	20160212210523.972
PX2 (135)	7600	7605	20160212210523.972	20160212210525.054
PX2 (135)	7649	7651	20160212210536.082	20160212210536.511
PX2 (135)	7654	7656	20160212210538.675	20160212210539.109
PX2 (135)	7661	7663	20160212210540.187	20160212210540.621
PX2 (135)	7668	7670	20160212210541.703	20160212210542.132
PX2 (135)	7670	7673	20160212210542.132	20160212210542.785
PX2 (135)	7674	7680	20160212210543.000	20160212210544.297
PX2 (135)	7729	7731	20160212210557.918	20160212210558.351
PX2 (135)	7737	7739	20160212210559.648	20160212210600.082
PX2 (135)	7748	7750	20160212210603.539	20160212210603.972
PX2 (135)	8134	8144	20160212210746.671	20160212210748.831
PX2 (135)	8144	8154	20160212210748.831	20160212210750.995
PX2 (135)	8154	8166	20160212210750.995	20160212210755.105
PX2 (135)	8166	8174	20160212210755.105	20160212210756.835
PX2 (135)	8174	8194	20160212210756.835	20160212210802.671

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	8194	8196	20160212210802.671	20160212210803.105
PX2 (135)	8198	8210	20160212210803.535	20160212210806.128
PX2 (135)	8210	8212	20160212210806.128	20160212210806.562
PX2 (135)	8212	8221	20160212210806.562	20160212210808.511
PX2 (135)	8240	8242	20160212210814.132	20160212210814.562
PX2 (135)	8267	8269	20160212210821.484	20160212210821.913
PX2 (135)	8269	8271	20160212210821.913	20160212210822.347
PX3 (140)	7496	7500	20160212210455.433	20160212210456.297
PX3 (140)	7504	7519	20160212210458.676	20160212210501.918
PX3 (140)	7519	7521	20160212210501.918	20160212210502.351
PX3 (140)	7521	7529	20160212210502.351	20160212210504.082
PX3 (140)	7530	7533	20160212210504.297	20160212210506.461
PX3 (140)	7533	7535	20160212210506.461	20160212210506.894
PX3 (140)	7535	7541	20160212210506.894	20160212210508.191
PX3 (140)	7541	7543	20160212210508.191	20160212210508.621
PX3 (140)	7543	7545	20160212210508.621	20160212210509.054
PX3 (140)	7545	7547	20160212210509.054	20160212210509.488
PX3 (140)	7553	7555	20160212210510.785	20160212210511.219
PX3 (140)	7555	7561	20160212210511.219	20160212210512.515
PX3 (140)	7561	7568	20160212210512.515	20160212210515.543
PX3 (140)	7568	7576	20160212210515.543	20160212210517.269
PX3 (140)	7576	7581	20160212210517.269	20160212210518.351
PX3 (140)	7581	7584	20160212210518.351	20160212210519.000
PX3 (140)	7584	7586	20160212210519.000	20160212210519.433
PX3 (140)	7591	7594	20160212210520.511	20160212210522.676
PX3 (140)	7597	7600	20160212210523.324	20160212210523.972
PX3 (140)	7600	7604	20160212210523.972	20160212210524.840
PX3 (140)	7664	7666	20160212210540.836	20160212210541.269
PX3 (140)	7666	7668	20160212210541.269	20160212210541.703
PX3 (140)	7668	7670	20160212210541.703	20160212210542.132
PX3 (140)	7670	7673	20160212210542.132	20160212210542.785
PX3 (140)	7674	7677	20160212210543.000	20160212210543.648
PX3 (140)	7678	7680	20160212210543.863	20160212210544.297
PX3 (140)	7680	7682	20160212210544.297	20160212210546.242
PX3 (140)	7737	7739	20160212210559.648	20160212210600.082
PX3 (140)	7748	7750	20160212210603.539	20160212210603.972
PX3 (140)	8134	8146	20160212210746.671	20160212210749.265
PX3 (140)	8146	8174	20160212210749.265	20160212210756.835
PX3 (140)	8174	8176	20160212210756.835	20160212210757.265
PX3 (140)	8176	8191	20160212210757.265	20160212210800.507
PX3 (140)	8191	8197	20160212210800.507	20160212210803.320
PX3 (140)	8197	8201	20160212210803.320	20160212210804.187
PX3 (140)	8202	8212	20160212210804.402	20160212210806.562
PX3 (140)	8212	8219	20160212210806.562	20160212210808.077
PX3 (140)	8219	8221	20160212210808.077	20160212210808.511
PX3 (140)	8240	8242	20160212210814.132	20160212210814.562
PX3 (140)	8276	8278	20160212210823.429	20160212210823.859
PX4 (145)	7496	7499	20160212210455.433	20160212210456.082
PX4 (145)	7503	7513	20160212210458.461	20160212210500.621
PX4 (145)	7513	7529	20160212210500.621	20160212210504.082
PX4 (145)	7531	7533	20160212210504.515	20160212210506.461
PX4 (145)	7533	7539	20160212210506.461	20160212210507.758
PX4 (145)	7539	7541	20160212210507.758	20160212210508.191

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	7541	7545	20160212210508.191	20160212210509.054
PX4 (145)	7545	7547	20160212210509.054	20160212210509.488
PX4 (145)	7555	7558	20160212210511.219	20160212210511.867
PX4 (145)	7558	7561	20160212210511.867	20160212210512.515
PX4 (145)	7561	7564	20160212210512.515	20160212210514.676
PX4 (145)	7565	7571	20160212210514.890	20160212210516.191
PX4 (145)	7571	7581	20160212210516.191	20160212210518.351
PX4 (145)	7581	7584	20160212210518.351	20160212210519.000
PX4 (145)	7584	7590	20160212210519.000	20160212210520.297
PX4 (145)	7590	7593	20160212210520.297	20160212210522.461
PX4 (145)	7596	7600	20160212210523.109	20160212210523.972
PX4 (145)	7600	7604	20160212210523.972	20160212210524.840
PX4 (145)	7642	7644	20160212210534.566	20160212210535.000
PX4 (145)	7664	7668	20160212210540.836	20160212210541.703
PX4 (145)	7668	7673	20160212210541.703	20160212210542.785
PX4 (145)	7674	7676	20160212210543.000	20160212210543.429
PX4 (145)	7678	7680	20160212210543.863	20160212210544.297
PX4 (145)	7680	7682	20160212210544.297	20160212210546.242
PX4 (145)	7737	7739	20160212210559.648	20160212210600.082
PX4 (145)	7746	7748	20160212210603.109	20160212210603.539
PX4 (145)	7753	7755	20160212210604.621	20160212210605.054
PX4 (145)	7765	7767	20160212210607.214	20160212210607.648
PX4 (145)	8134	8164	20160212210746.671	20160212210754.671
PX4 (145)	8164	8176	20160212210754.671	20160212210757.265
PX4 (145)	8176	8181	20160212210757.265	20160212210758.347
PX4 (145)	8181	8185	20160212210758.347	20160212210759.210
PX4 (145)	8185	8193	20160212210759.210	20160212210802.456
PX4 (145)	8193	8201	20160212210802.456	20160212210804.187
PX4 (145)	8201	8209	20160212210804.187	20160212210805.913
PX4 (145)	8209	8211	20160212210805.913	20160212210806.347
PX4 (145)	8212	8214	20160212210806.562	20160212210806.995
PX4 (145)	8214	8221	20160212210806.995	20160212210808.511
PX4 (145)	8240	8242	20160212210814.132	20160212210814.562
PX4 (145)	8276	8278	20160212210823.429	20160212210823.859
IMG (150)	1540	1543	20160212210455.433	20160212210456.082
IMG (150)	1548	1577	20160212210457.594	20160212210504.082
IMG (150)	1578	1582	20160212210504.297	20160212210505.597
IMG (150)	1582	1597	20160212210505.597	20160212210509.054
IMG (150)	1597	1599	20160212210509.054	20160212210509.488
IMG (150)	1605	1607	20160212210510.785	20160212210511.219
IMG (150)	1607	1646	20160212210511.219	20160212210520.297
IMG (150)	1646	1648	20160212210520.297	20160212210520.945
IMG (150)	1651	1653	20160212210521.812	20160212210522.461
IMG (150)	1654	1656	20160212210522.676	20160212210523.109
IMG (150)	1656	1661	20160212210523.109	20160212210524.191
IMG (150)	1661	1664	20160212210524.191	20160212210524.840
IMG (150)	1699	1701	20160212210533.054	20160212210533.484
IMG (150)	1706	1708	20160212210534.566	20160212210535.000
IMG (150)	1712	1714	20160212210535.867	20160212210536.297
IMG (150)	1721	1723	20160212210538.461	20160212210538.890
IMG (150)	1728	1730	20160212210539.972	20160212210540.406
IMG (150)	1732	1735	20160212210540.836	20160212210541.488
IMG (150)	1737	1739	20160212210541.918	20160212210542.351

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APID	Seq from	Seq to	Time from	Time to
IMG (150)	1742	1746	20160212210543.000	20160212210543.863
IMG (150)	1746	1748	20160212210543.863	20160212210544.297
IMG (150)	1748	1750	20160212210544.297	20160212210544.945
IMG (150)	1766	1768	20160212210548.836	20160212210549.269
IMG (150)	1804	1806	20160212210557.703	20160212210558.132
IMG (150)	1822	1825	20160212210602.242	20160212210602.890
IMG (150)	1826	1828	20160212210603.109	20160212210603.539
IMG (150)	1833	1835	20160212210604.621	20160212210605.054
IMG (150)	1845	1847	20160212210607.214	20160212210607.648
IMG (150)	2266	2333	20160212210746.671	20160212210802.456
IMG (150)	2333	2355	20160212210802.456	20160212210807.210
IMG (150)	2355	2361	20160212210807.210	20160212210808.511
IMG (150)	2377	2379	20160212210812.617	20160212210813.050
IMG (150)	2379	2381	20160212210813.050	20160212210813.480
IMG (150)	2422	2424	20160212210822.995	20160212210823.429
IMG (150)	2424	2426	20160212210823.429	20160212210823.859
VER (160)	13043	13057	20160212210456.515	20160212210520.511
VER (160)	13066	13068	20160212210536.511	20160212210536.511
VER (160)	13068	13072	20160212210536.511	20160212210544.511
VER (160)	13078	13080	20160212210552.511	20160212210600.511
VER (160)	13083	13087	20160212210600.511	20160212210608.511
VER (160)	13145	13147	20160212210744.507	20160212210744.507
VER (160)	13148	13159	20160212210744.507	20160212210808.511
AUX (180)	2607	2610	20160212210456.949	20160212210520.945
AUX (180)	2628	2631	20160212210744.941	20160212210808.941

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
12/02/2016 00:00:08	-	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	478	-
GQisFlagQual set (PX1)	99.49 %	-
GQisFlagQual set (PX2)	99.46 %	-
GQisFlagQual set (PX3)	99.48 %	-
GQisFlagQual set (PX4)	99.47 %	-
GQisFlagQual set (all)	99.47 %	-

Table 4: Quality flags

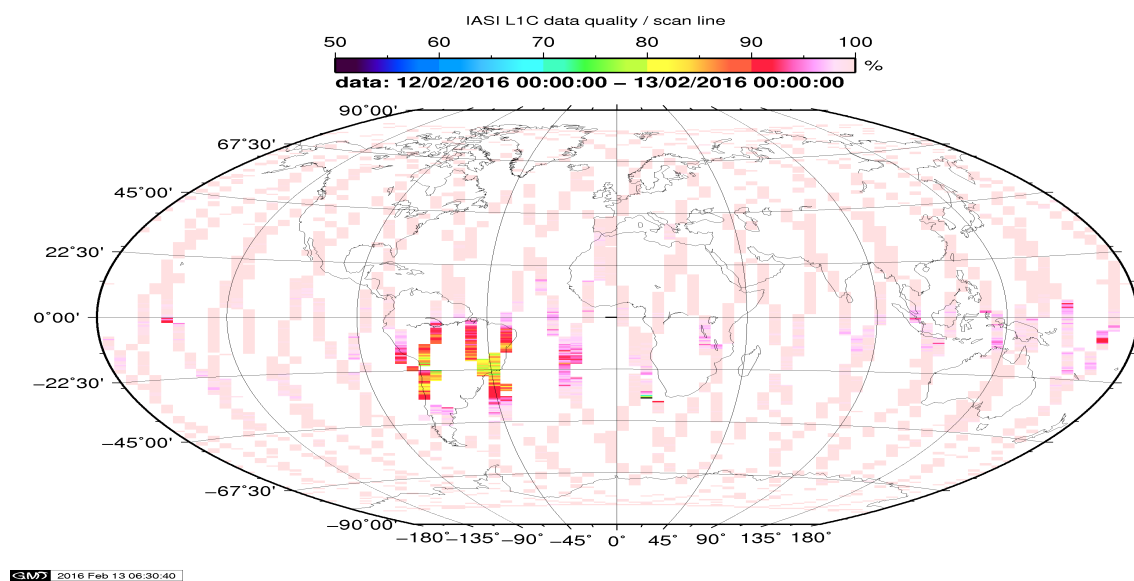


Figure 1: L1C data quality

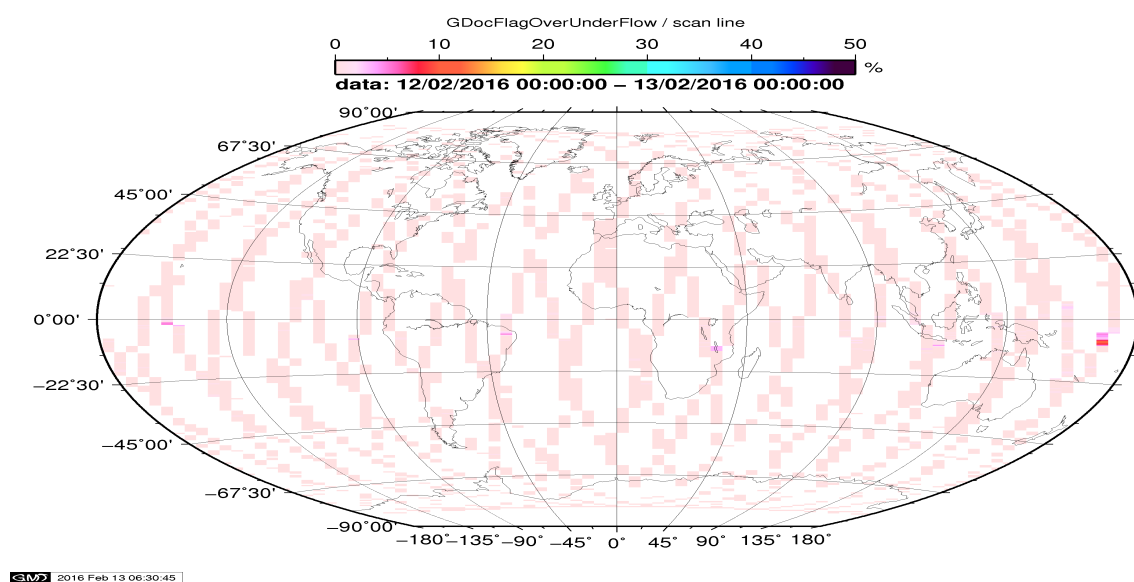


Figure 2: Flag of Over and Under Flows

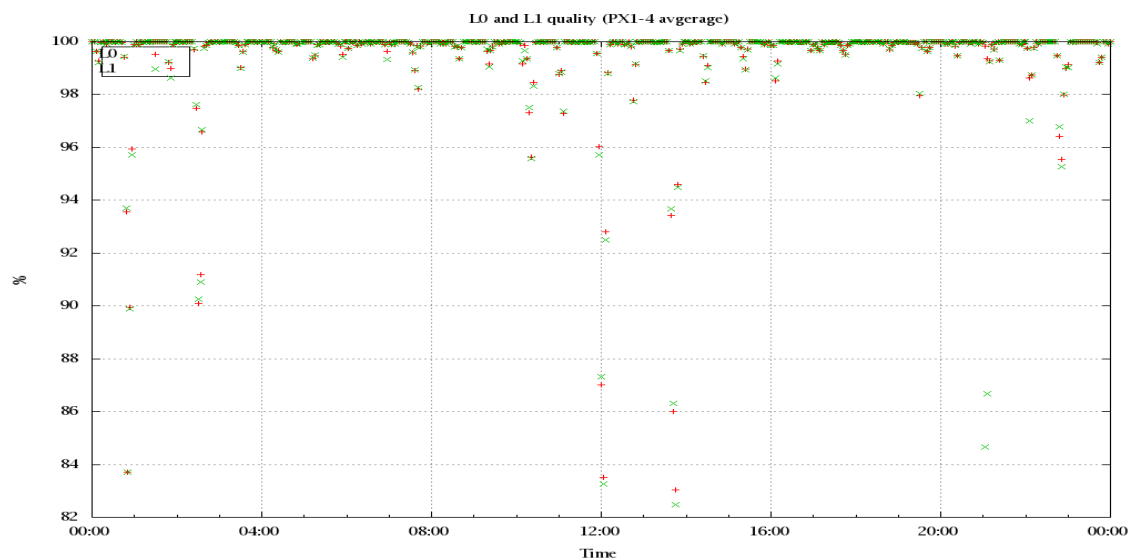


Figure 3: Level 0 and 1C overall quality

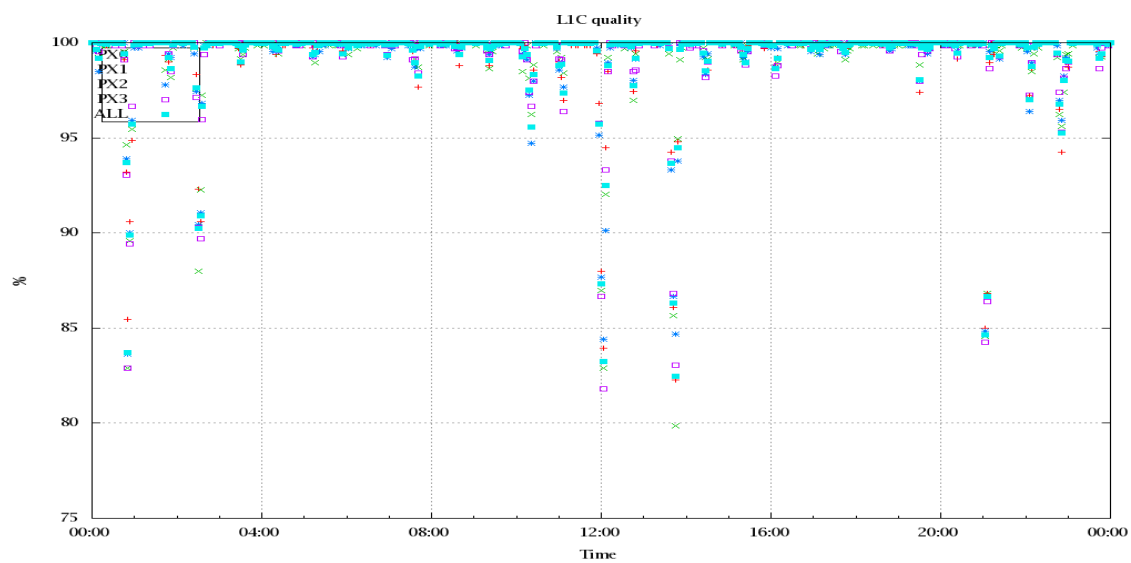


Figure 4: Level 1C quality

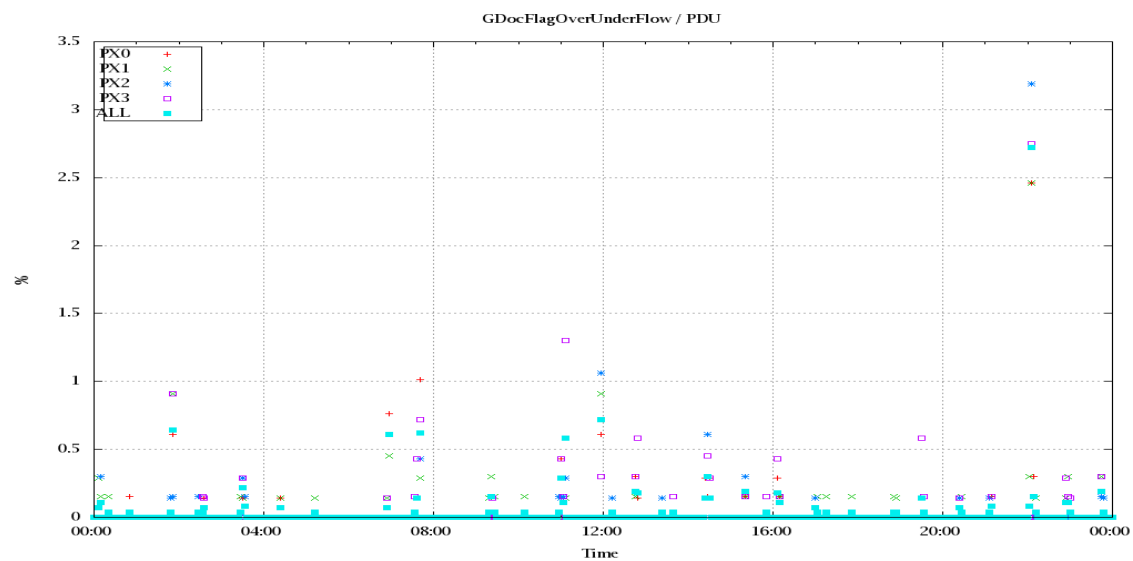


Figure 5: OverUnderFlowFlag timeseries

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.

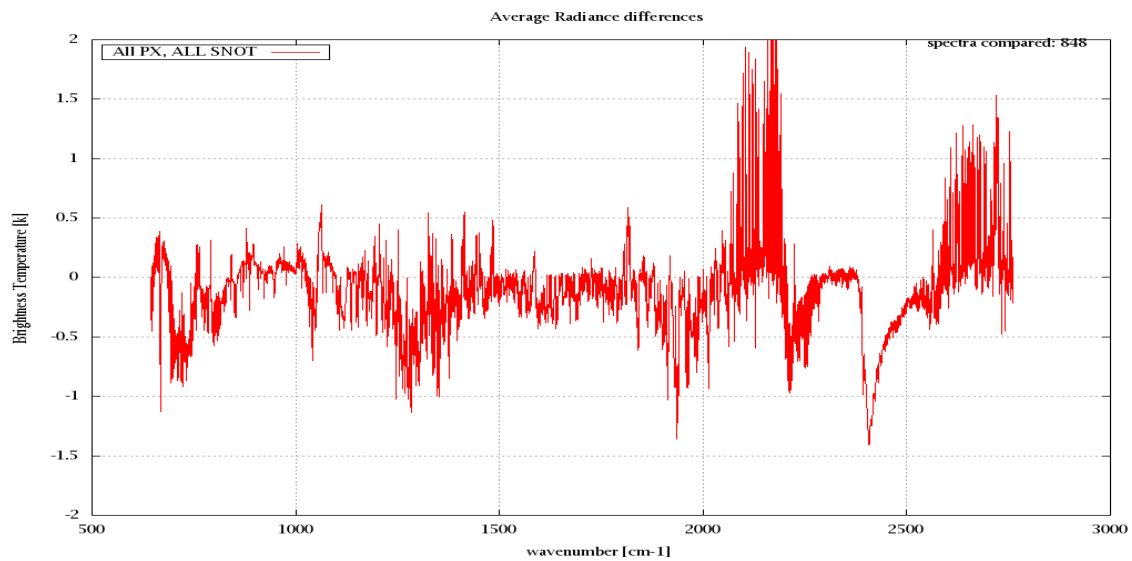


Figure 6: Average Radiance differences: OBS-CAL

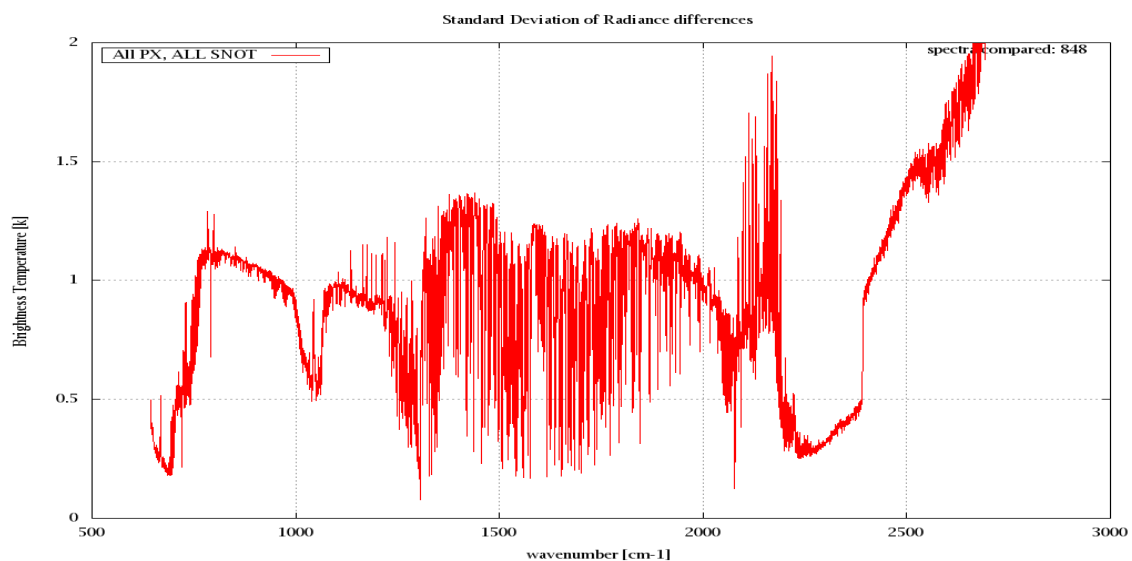


Figure 7: Standard Deviation of Radiance differences

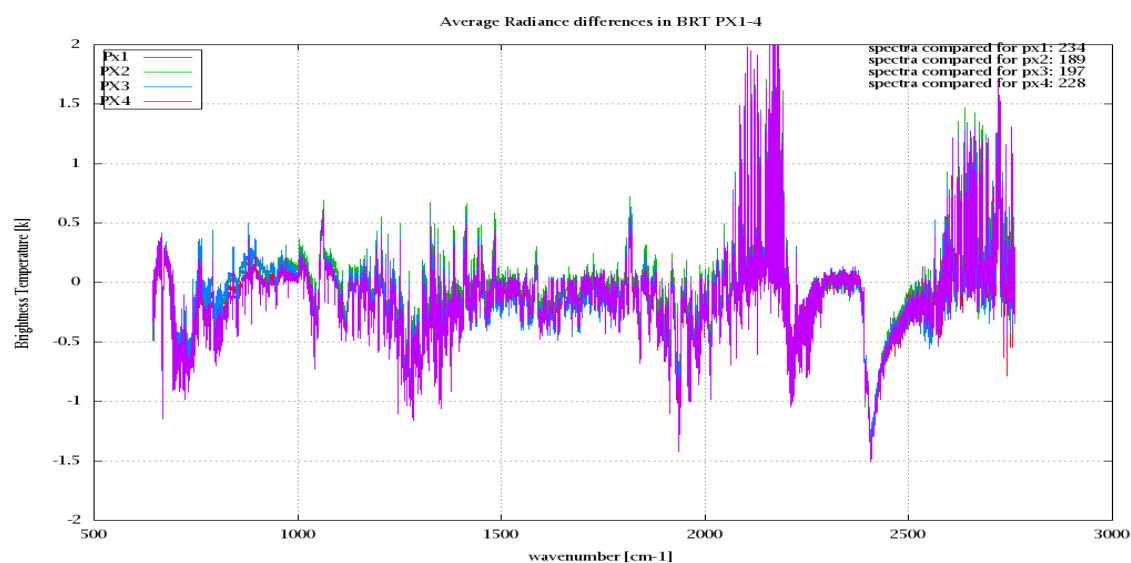


Figure 8: Average Radiance differences: OBS-CAL

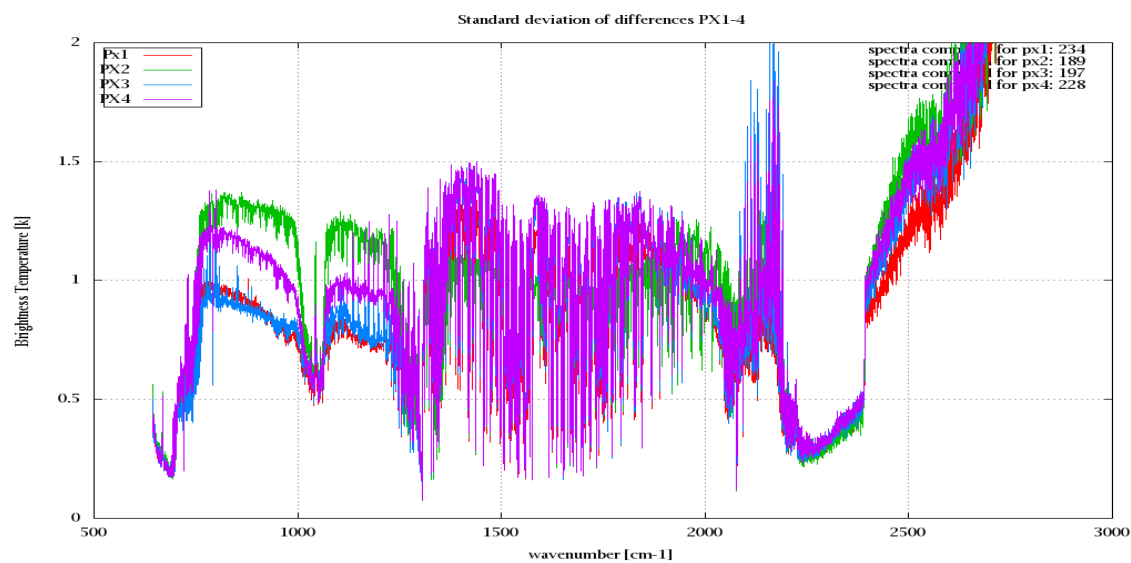


Figure 9: Standard Deviation of Radiance differences

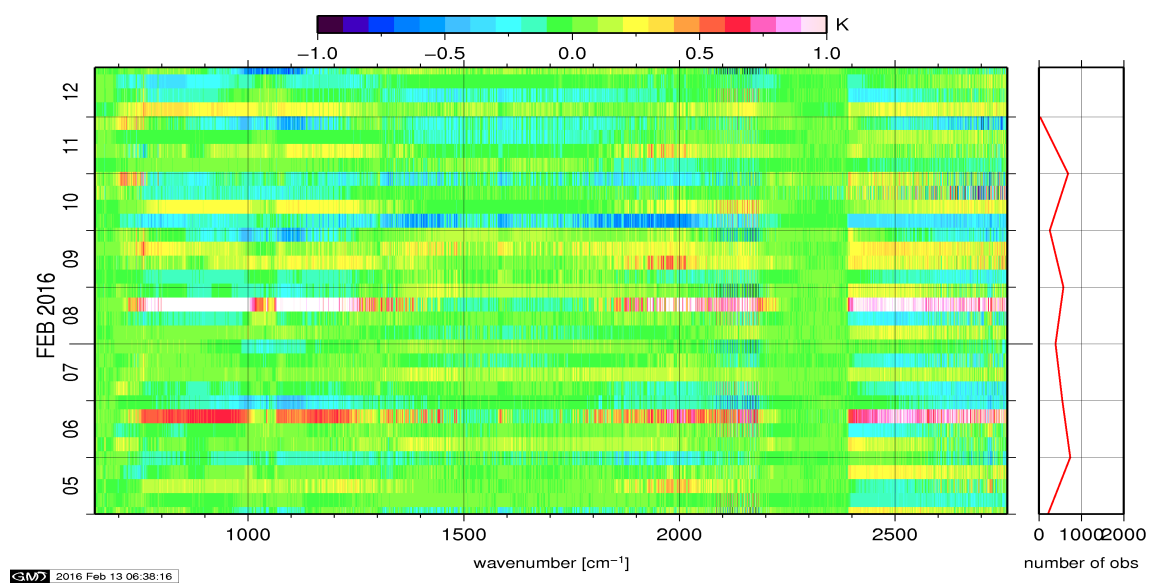


Figure 10: Radiance Anomaly in BRT: All Channels

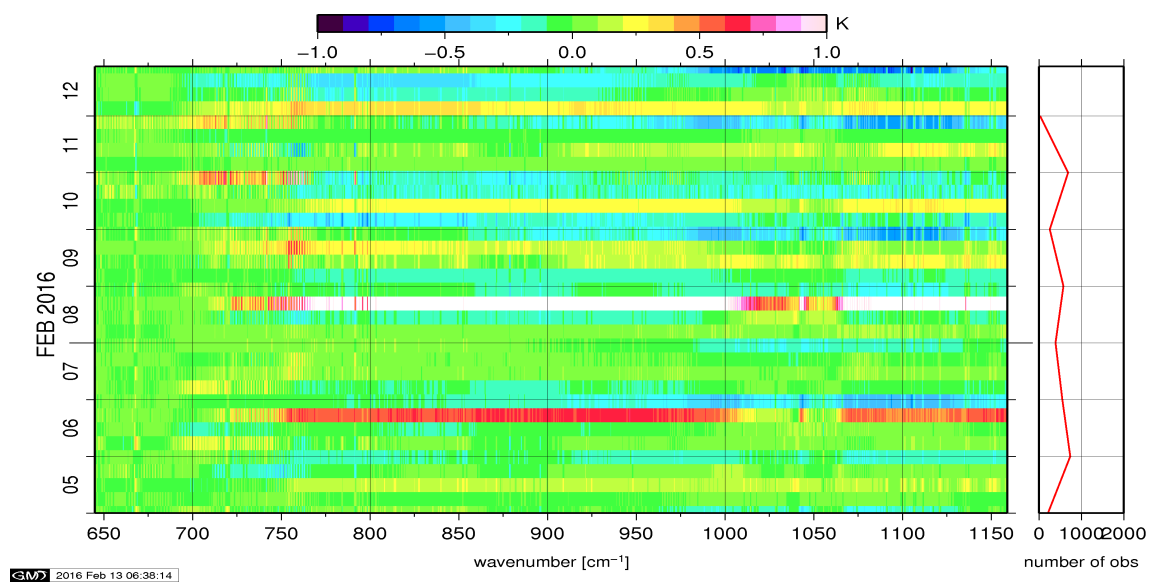


Figure 11: Radiance Anomaly in BRT: IASI Band 1

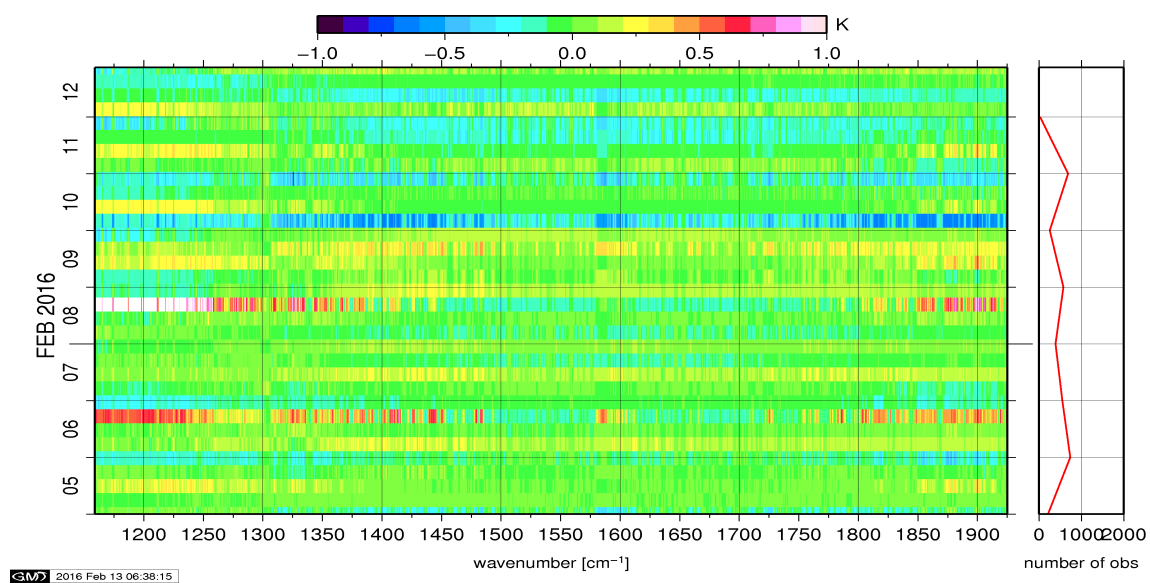


Figure 12: Radiance Anomaly in BRT: IASI Band 2

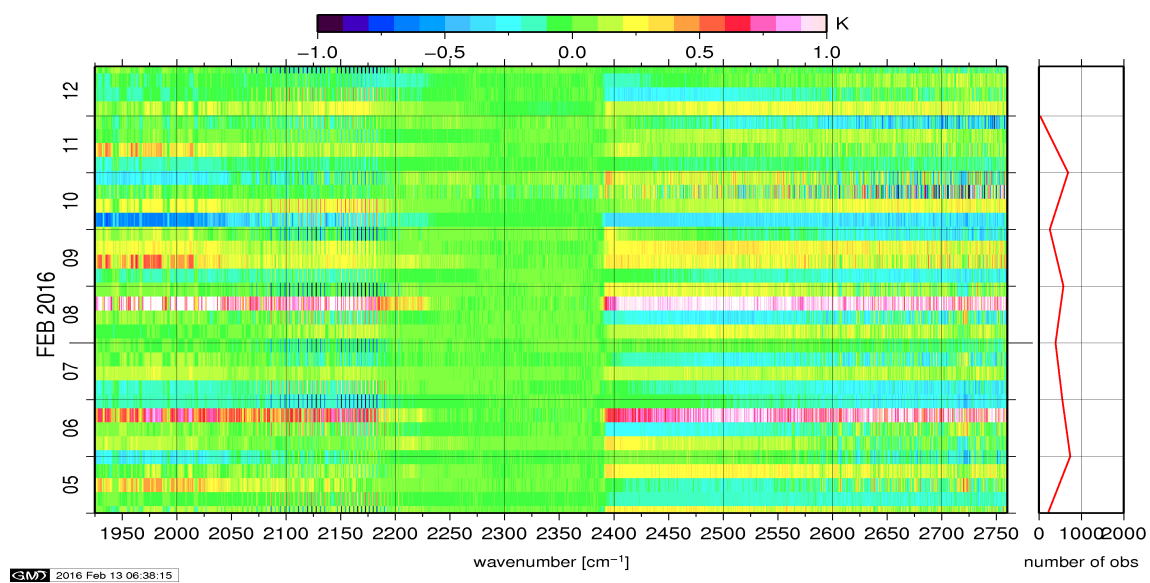


Figure 13: Radiance Anomaly in BRT: IASI Band 3

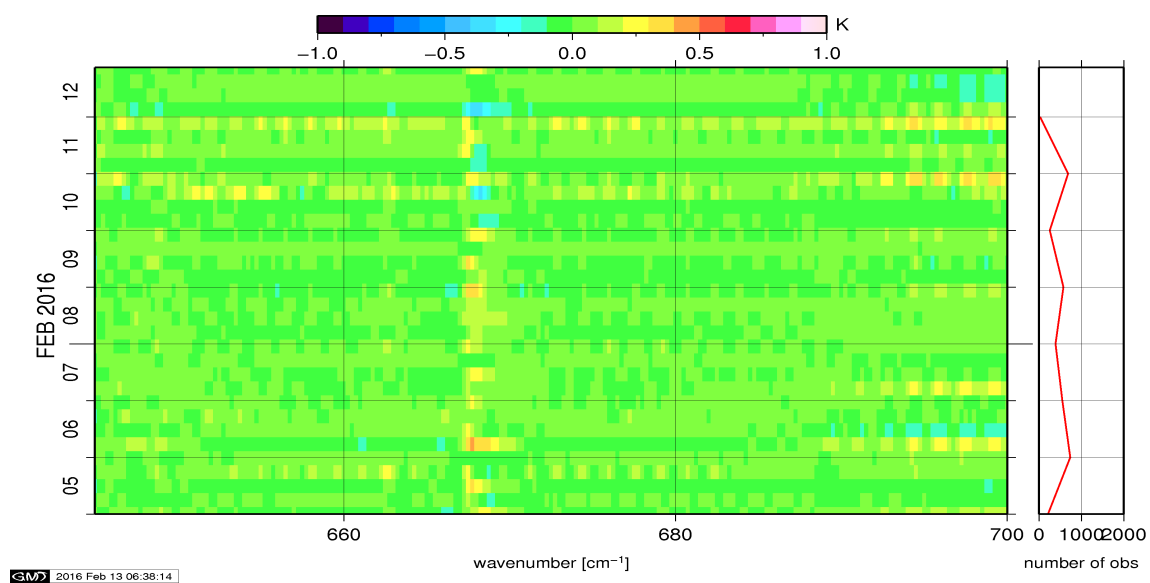


Figure 14: Radiance Anomaly in BRT: CO2 14

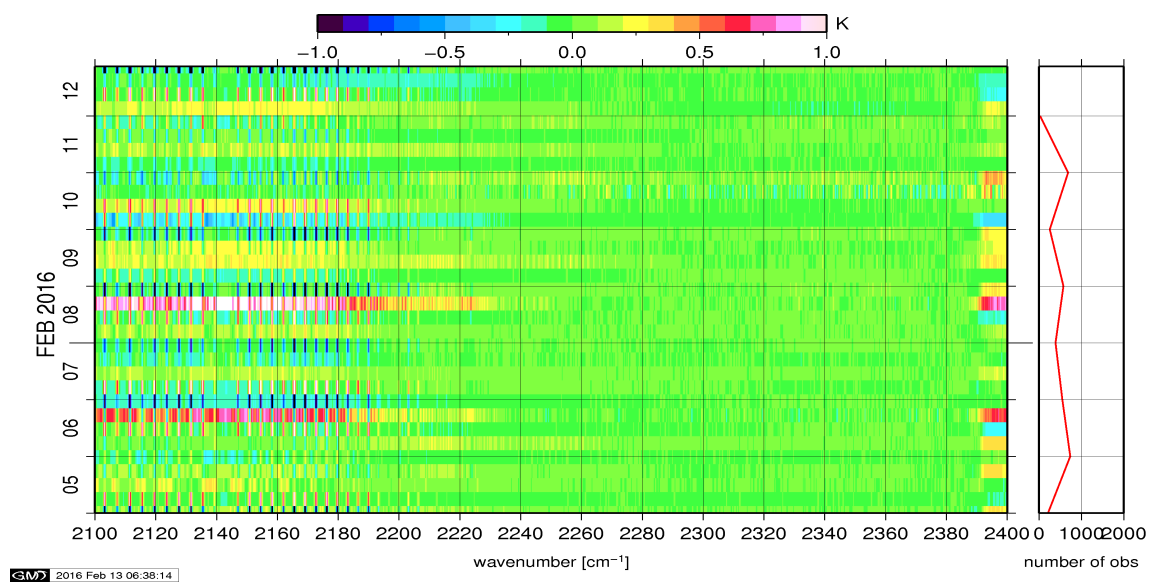


Figure 15: Radiance Anomaly in BRT: CO2 4.3

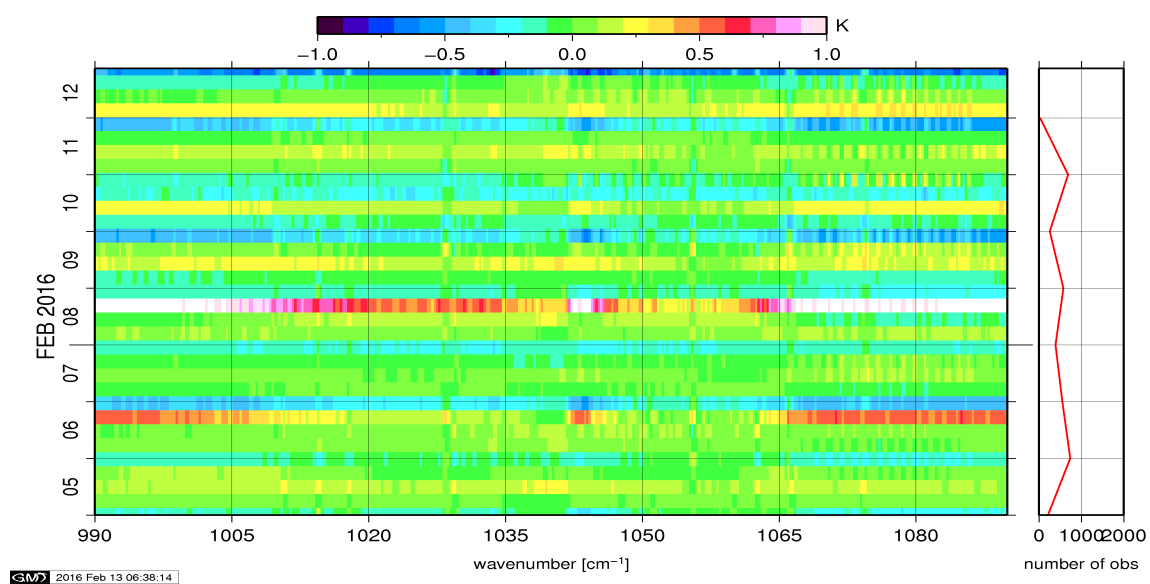


Figure 16: Radiance Anomaly in BRT: O3

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.

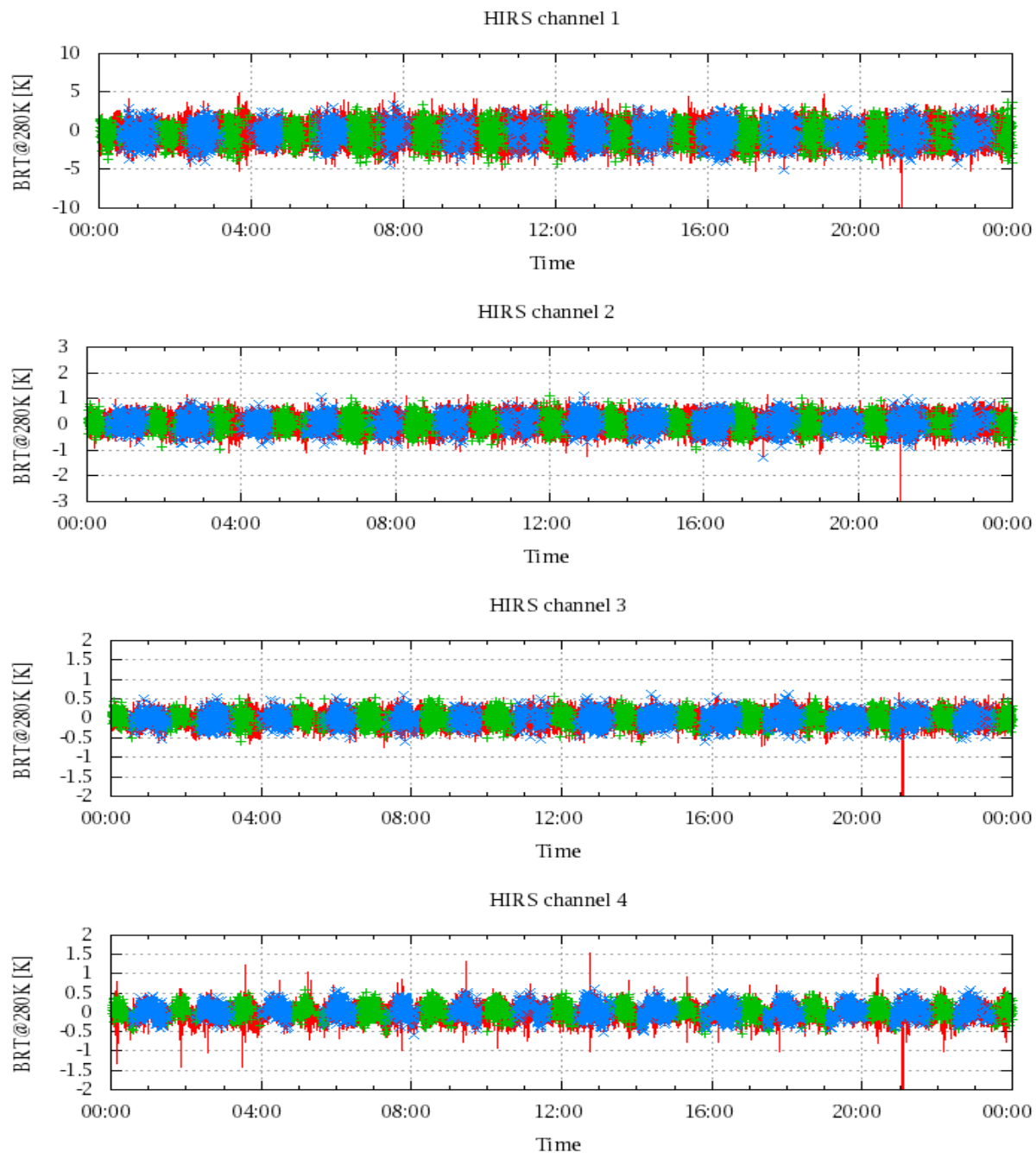


Figure 17: Radiance Differences in BRT

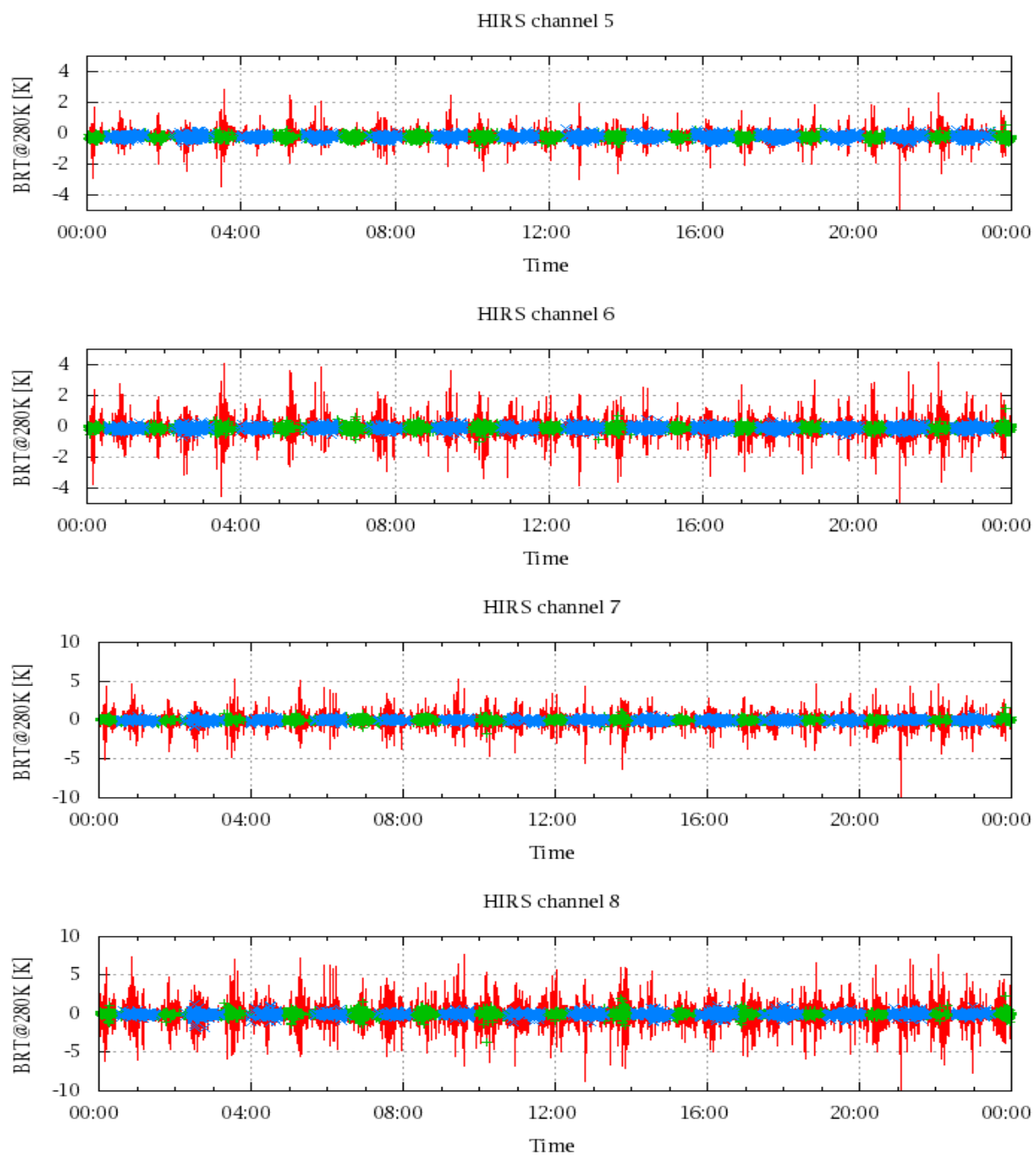


Figure 18: Radiance Differences in BRT

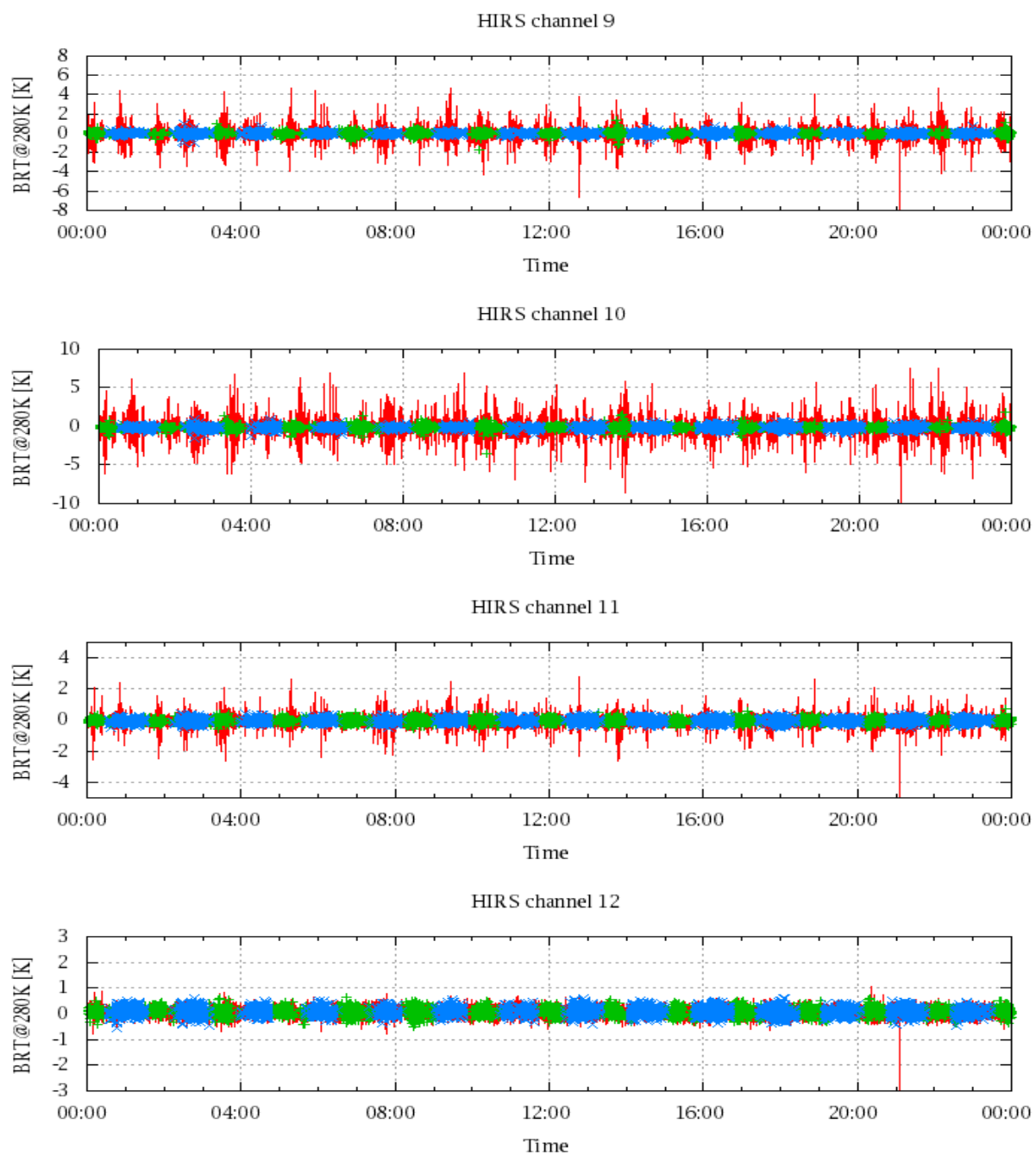


Figure 19: Radiance Differences in BRT

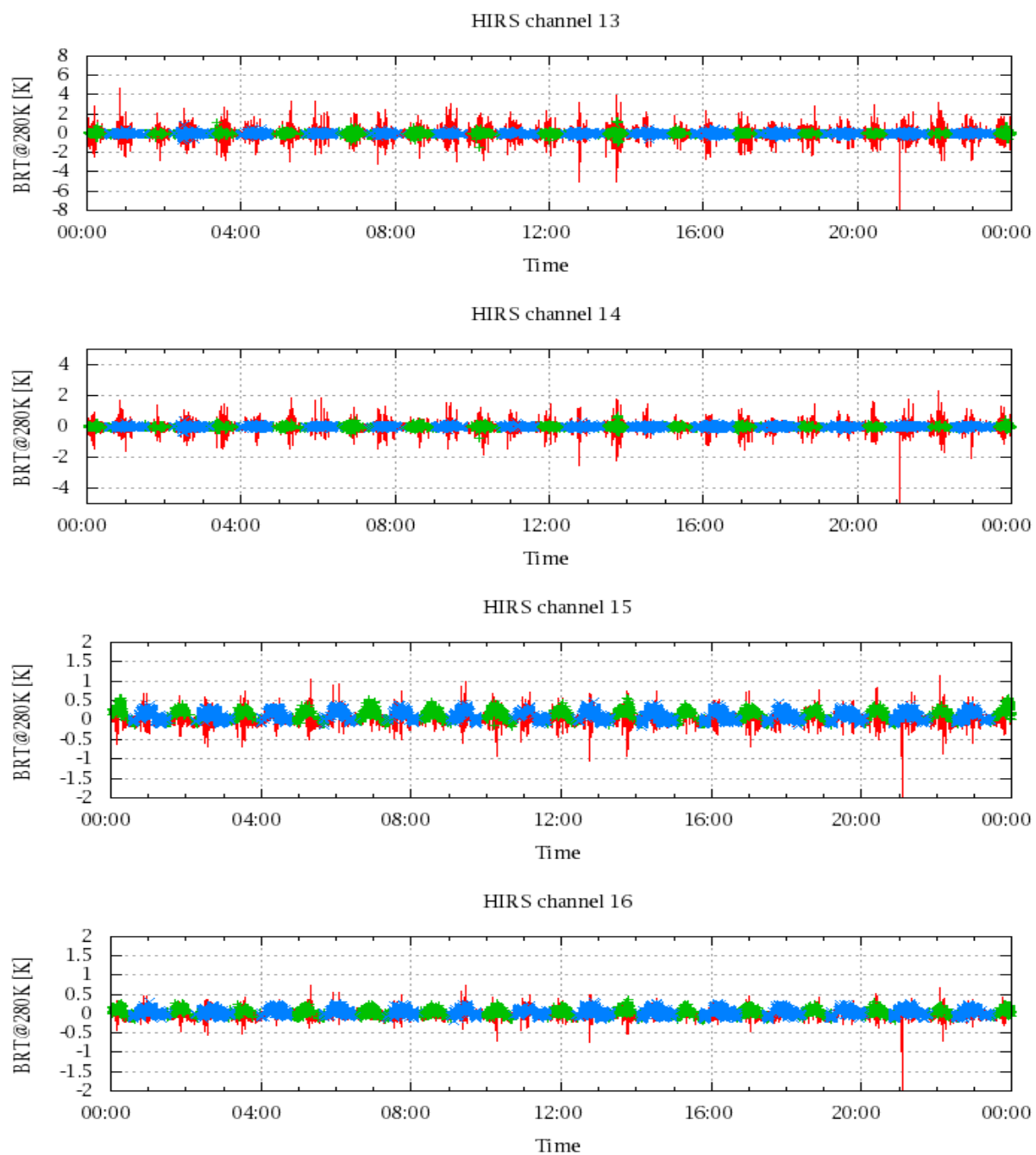


Figure 20: Radiance Differences in BRT

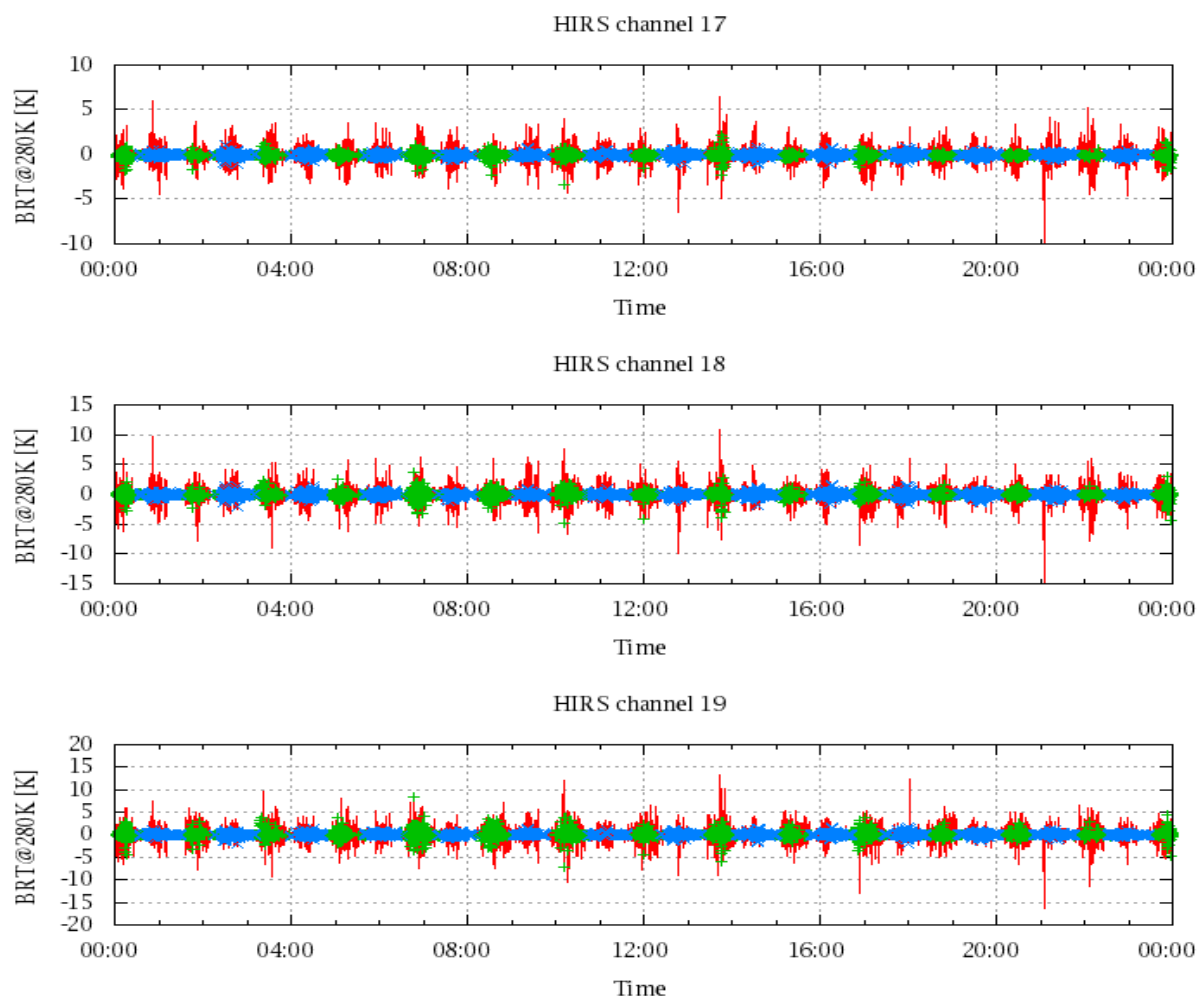


Figure 21: Radinace Differences in BRT