

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

16/03/2018 00:00:00 - 17/03/2018 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 16/03/2018 00:00:00 - 17/03/2018 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 16/03/2018 00:00:00 - 17/03/2018 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	477	-
L1 ENG distinct GEPSGranule	474	-
L1 DPX PDUs (RM: IASI-HIRS)	477	-
L1 DPS Files (RM: OBS-CAL NWP based)	325	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	2089	2138	20180316064405.348	20180316064418.973
PX1 (130)	2151	2217	20180316064421.781	20180316064439.078
PX1 (130)	2227	2288	20180316064441.238	20180316064458.969
PX1 (130)	8924	8991	20180316082717.104	20180316082734.616
PX1 (130)	8996	9064	20180316082735.698	20180316082754.940
PX1 (130)	9066	9141	20180316082755.370	20180316082814.616
PX1 (130)	16326	16331	20180316150415.674	20180316150416.756
PX1 (130)	16337	19	20180316150419.568	20180316150436.865
PX1 (130)	29	97	20180316150439.025	20180316150456.756
PX1 (130)	99	169	20180316150457.189	20180316150516.865
PX1 (130)	6185	6217	20180316164449.165	20180316164459.110
PX1 (130)	6218	6295	20180316164459.325	20180316164519.001
PX1 (130)	6299	6367	20180316164519.868	20180316164539.106
PX1 (130)	12669	12706	20180316182628.417	20180316182637.929
PX1 (130)	2783	2961	20180316200809.147	20180316200856.713
PX1 (130)	9136	9143	20180316214912.509	20180316214915.536
PX1 (130)	9161	9221	20180316214919.427	20180316214935.427
PX2 (135)	2089	2138	20180316064405.348	20180316064418.973

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	2151	2216	20180316064421.781	20180316064438.863
PX2 (135)	2227	2288	20180316064441.238	20180316064458.969
PX2 (135)	8924	8991	20180316082717.104	20180316082734.616
PX2 (135)	8996	9064	20180316082735.698	20180316082754.940
PX2 (135)	9066	9141	20180316082755.370	20180316082814.616
PX2 (135)	16326	16331	20180316150415.674	20180316150416.756
PX2 (135)	16337	19	20180316150419.568	20180316150436.865
PX2 (135)	29	97	20180316150439.025	20180316150456.756
PX2 (135)	99	169	20180316150457.189	20180316150516.865
PX2 (135)	6185	6216	20180316164449.165	20180316164458.891
PX2 (135)	6218	6295	20180316164459.325	20180316164519.001
PX2 (135)	6299	6366	20180316164519.868	20180316164538.891
PX2 (135)	12669	12705	20180316182628.417	20180316182637.714
PX2 (135)	2783	2961	20180316200809.147	20180316200856.713
PX2 (135)	9136	9143	20180316214912.509	20180316214915.536
PX2 (135)	9161	9221	20180316214919.427	20180316214935.427
PX3 (140)	2089	2138	20180316064405.348	20180316064418.973
PX3 (140)	2151	2216	20180316064421.781	20180316064438.863
PX3 (140)	2227	2288	20180316064441.238	20180316064458.969
PX3 (140)	8924	8991	20180316082717.104	20180316082734.616
PX3 (140)	8996	9064	20180316082735.698	20180316082754.940
PX3 (140)	9066	9141	20180316082755.370	20180316082814.616
PX3 (140)	16326	16331	20180316150415.674	20180316150416.756
PX3 (140)	16337	18	20180316150419.568	20180316150436.650
PX3 (140)	29	97	20180316150439.025	20180316150456.756
PX3 (140)	99	168	20180316150457.189	20180316150516.646
PX3 (140)	6185	6216	20180316164449.165	20180316164458.891
PX3 (140)	6217	6295	20180316164459.110	20180316164519.001
PX3 (140)	6299	6366	20180316164519.868	20180316164538.891
PX3 (140)	12669	12705	20180316182628.417	20180316182637.714
PX3 (140)	2783	2961	20180316200809.147	20180316200856.713
PX3 (140)	9136	9143	20180316214912.509	20180316214915.536
PX3 (140)	9161	9221	20180316214919.427	20180316214935.427
PX4 (145)	2089	2138	20180316064405.348	20180316064418.973
PX4 (145)	2151	2216	20180316064421.781	20180316064438.863
PX4 (145)	2227	2288	20180316064441.238	20180316064458.969
PX4 (145)	8924	8990	20180316082717.104	20180316082734.401
PX4 (145)	8996	9064	20180316082735.698	20180316082754.940
PX4 (145)	9065	9140	20180316082755.155	20180316082814.397
PX4 (145)	16326	16331	20180316150415.674	20180316150416.756
PX4 (145)	16337	18	20180316150419.568	20180316150436.650
PX4 (145)	29	97	20180316150439.025	20180316150456.756
PX4 (145)	99	168	20180316150457.189	20180316150516.646
PX4 (145)	6185	6216	20180316164449.165	20180316164458.891
PX4 (145)	6217	6295	20180316164459.110	20180316164519.001
PX4 (145)	6299	6366	20180316164519.868	20180316164538.891
PX4 (145)	12668	12705	20180316182628.203	20180316182637.714
PX4 (145)	2783	2961	20180316200809.147	20180316200856.713
PX4 (145)	9135	9143	20180316214912.290	20180316214915.536
PX4 (145)	9161	9221	20180316214919.427	20180316214935.427
IMG (150)	8796	8854	20180316064405.133	20180316064418.973
IMG (150)	8866	8940	20180316064421.567	20180316064438.863
IMG (150)	8951	9024	20180316064441.238	20180316064458.969
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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	2343	2418	20180316082716.885	20180316082734.401
IMG (150)	2423	2500	20180316082735.479	20180316082753.639
IMG (150)	2505	2588	20180316082755.155	20180316082814.397
IMG (150)	5270	5275	20180316150415.674	20180316150416.756
IMG (150)	5284	5358	20180316150419.354	20180316150436.650
IMG (150)	5368	5445	20180316150438.811	20180316150456.756
IMG (150)	5450	5528	20180316150458.271	20180316150516.646
IMG (150)	14529	14568	20180316164449.165	20180316164458.891
IMG (150)	14569	14654	20180316164459.110	20180316164518.786
IMG (150)	14659	14738	20180316164519.868	20180316164538.891
IMG (150)	7680	7721	20180316182628.203	20180316182637.714
IMG (150)	843	1044	20180316200809.147	20180316200856.494
IMG (150)	10227	10238	20180316214912.290	20180316214915.317
IMG (150)	10257	10325	20180316214919.427	20180316214935.427
VER (160)	275	280	20180316064501.781	20180316064501.781
VER (160)	280	285	20180316064501.781	20180316064501.781
VER (160)	285	290	20180316064501.781	20180316064501.781
VER (160)	290	295	20180316064501.781	20180316064501.781
VER (160)	295	300	20180316064501.781	20180316064501.781
VER (160)	300	305	20180316064501.781	20180316064501.781
VER (160)	305	276	20180316064501.781	20180316064501.781
VER (160)	276	281	20180316064501.781	20180316064501.781
VER (160)	281	286	20180316064501.781	20180316064501.781
VER (160)	286	291	20180316064501.781	20180316064501.781
VER (160)	291	296	20180316064501.781	20180316064501.781
VER (160)	296	301	20180316064501.781	20180316064501.781
VER (160)	301	306	20180316064501.781	20180316064501.781
VER (160)	306	277	20180316064501.781	20180316064501.781
VER (160)	277	282	20180316064501.781	20180316064501.781
VER (160)	282	287	20180316064501.781	20180316064501.781
VER (160)	287	292	20180316064501.781	20180316064501.781
VER (160)	292	297	20180316064501.781	20180316064501.781
VER (160)	297	302	20180316064501.781	20180316064501.781
VER (160)	302	307	20180316064501.781	20180316064501.781
VER (160)	307	278	20180316064501.781	20180316064501.781
VER (160)	278	283	20180316064501.781	20180316064501.781
VER (160)	283	288	20180316064501.781	20180316064501.781
VER (160)	288	293	20180316064501.781	20180316064501.781
VER (160)	293	298	20180316064501.781	20180316064501.781
VER (160)	298	303	20180316064501.781	20180316064501.781
VER (160)	303	308	20180316064501.781	20180316064501.781
VER (160)	308	279	20180316064501.781	20180316064501.781
VER (160)	279	284	20180316064501.781	20180316064501.781
VER (160)	284	289	20180316064501.781	20180316064501.781
VER (160)	289	294	20180316064501.781	20180316064501.781
VER (160)	294	299	20180316064501.781	20180316064501.781
VER (160)	299	304	20180316064501.781	20180316064501.781
VER (160)	304	309	20180316064501.781	20180316064501.781
VER (160)	4144	4168	20180316082713.210	20180316082735.698
VER (160)	4169	4180	20180316082735.698	20180316082817.210
VER (160)	2650	2671	20180316150417.189	20180316150457.189
VER (160)	2676	2681	20180316150519.674	20180316150519.674
VER (160)	2681	2677	20180316150519.674	20180316150519.674

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APID	Seq from	Seq to	Time from	Time to
VER (160)	2677	2682	20180316150519.674	20180316150519.674
VER (160)	2682	2678	20180316150519.674	20180316150519.674
VER (160)	2678	2683	20180316150519.674	20180316150519.674
VER (160)	2683	2679	20180316150519.674	20180316150519.674
VER (160)	2679	2684	20180316150519.674	20180316150519.674
VER (160)	2684	2680	20180316150519.674	20180316150519.674
VER (160)	2680	2685	20180316150519.674	20180316150519.674
VER (160)	6418	6421	20180316164449.165	20180316164540.407
VER (160)	6421	6426	20180316164540.407	20180316164540.407
VER (160)	6426	6431	20180316164540.407	20180316164540.407
VER (160)	6431	6436	20180316164540.407	20180316164540.407
VER (160)	6436	6441	20180316164540.407	20180316164540.407
VER (160)	6441	6446	20180316164540.407	20180316164540.407
VER (160)	6446	6422	20180316164540.407	20180316164540.407
VER (160)	6422	6427	20180316164540.407	20180316164540.407
VER (160)	6427	6432	20180316164540.407	20180316164540.407
VER (160)	6432	6437	20180316164540.407	20180316164540.407
VER (160)	6437	6442	20180316164540.407	20180316164540.407
VER (160)	6442	6447	20180316164540.407	20180316164540.407
VER (160)	6447	6423	20180316164540.407	20180316164540.407
VER (160)	6423	6428	20180316164540.407	20180316164540.407
VER (160)	6428	6433	20180316164540.407	20180316164540.407
VER (160)	6433	6438	20180316164540.407	20180316164540.407
VER (160)	6438	6443	20180316164540.407	20180316164540.407
VER (160)	6443	6448	20180316164540.407	20180316164540.407
VER (160)	6448	6419	20180316164540.407	20180316164540.407
VER (160)	6419	6424	20180316164540.407	20180316164540.407
VER (160)	6424	6429	20180316164540.407	20180316164540.407
VER (160)	6429	6434	20180316164540.407	20180316164540.407
VER (160)	6434	6439	20180316164540.407	20180316164540.407
VER (160)	6439	6444	20180316164540.407	20180316164540.407
VER (160)	6444	6449	20180316164540.407	20180316164540.407
VER (160)	6449	6420	20180316164540.407	20180316164540.407
VER (160)	6420	6425	20180316164540.407	20180316164540.407
VER (160)	6425	6430	20180316164540.407	20180316164540.407
VER (160)	6430	6435	20180316164540.407	20180316164540.407
VER (160)	6435	6440	20180316164540.407	20180316164540.407
VER (160)	6440	6445	20180316164540.407	20180316164540.407
VER (160)	6445	6450	20180316164540.407	20180316164540.407
VER (160)	14042	14071	20180316200809.147	20180316200857.143
VER (160)	1447	1452	20180316214937.157	20180316214937.157
VER (160)	1452	1457	20180316214937.157	20180316214937.157
VER (160)	1457	1462	20180316214937.157	20180316214937.157
VER (160)	1462	1448	20180316214937.157	20180316214937.157
VER (160)	1448	1453	20180316214937.157	20180316214937.157
VER (160)	1453	1458	20180316214937.157	20180316214937.157
VER (160)	1458	1463	20180316214937.157	20180316214937.157
VER (160)	1463	1449	20180316214937.157	20180316214937.157
VER (160)	1449	1454	20180316214937.157	20180316214937.157
VER (160)	1454	1459	20180316214937.157	20180316214937.157
VER (160)	1459	1464	20180316214937.157	20180316214937.157
VER (160)	1464	1450	20180316214937.157	20180316214937.157
VER (160)	1450	1455	20180316214937.157	20180316214937.157

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APID	Seq from	Seq to	Time from	Time to
VER (160)	1455	1460	20180316214937.157	20180316214937.157
VER (160)	1460	1465	20180316214937.157	20180316214937.157
VER (160)	1465	1451	20180316214937.157	20180316214937.157
VER (160)	1451	1456	20180316214937.157	20180316214937.157
VER (160)	1456	1461	20180316214937.157	20180316214937.157
VER (160)	1461	1466	20180316214937.157	20180316214937.157
AUX (180)	10642	10647	20180316082713.643	20180316082753.639
AUX (180)	13620	13625	20180316150417.623	20180316150457.619

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
16/03/2018 00:00:14	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	481	-
L1 ENG PDUs	477	-
L1 ENG distinct GEPSGranule	474	-
GQisFlagQual set (PX1)	99.48 %	-
GQisFlagQual set (PX2)	99.52 %	-
GQisFlagQual set (PX3)	99.55 %	-
GQisFlagQual set (PX4)	99.49 %	-
GQisFlagQual set (all)	99.51 %	-

Table 4: Quality flags

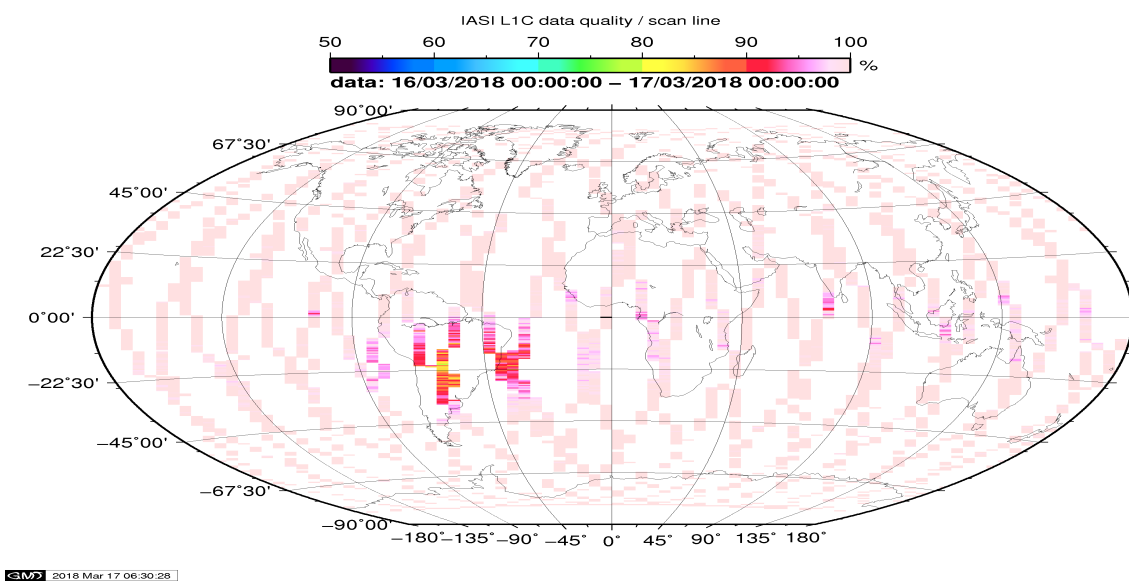


Figure 1: L1C data quality

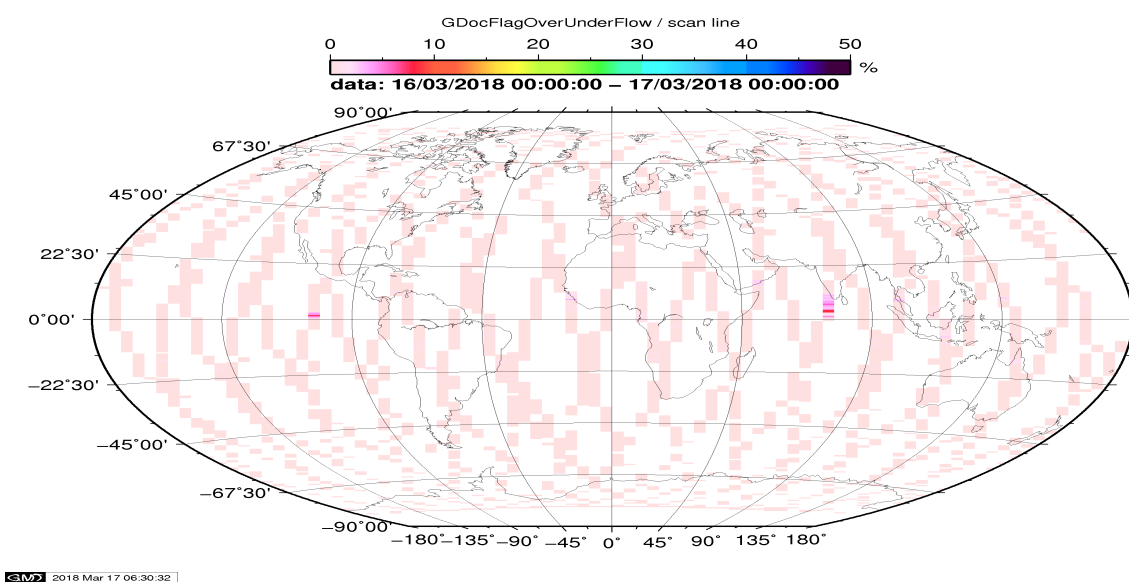


Figure 2: Flag of Over and Under Flows

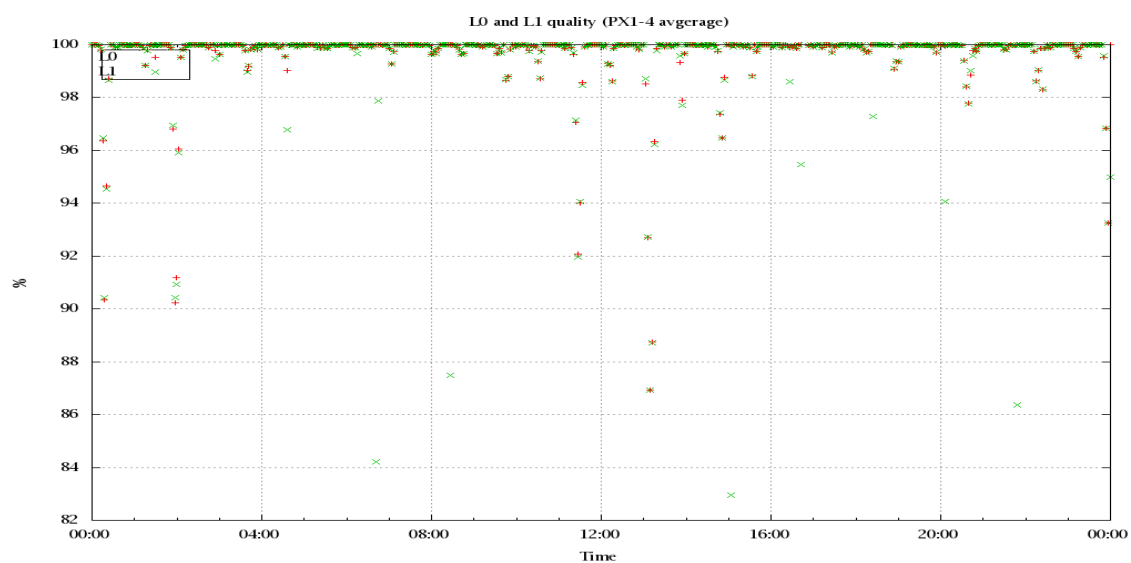


Figure 3: Level 0 and 1C overall quality

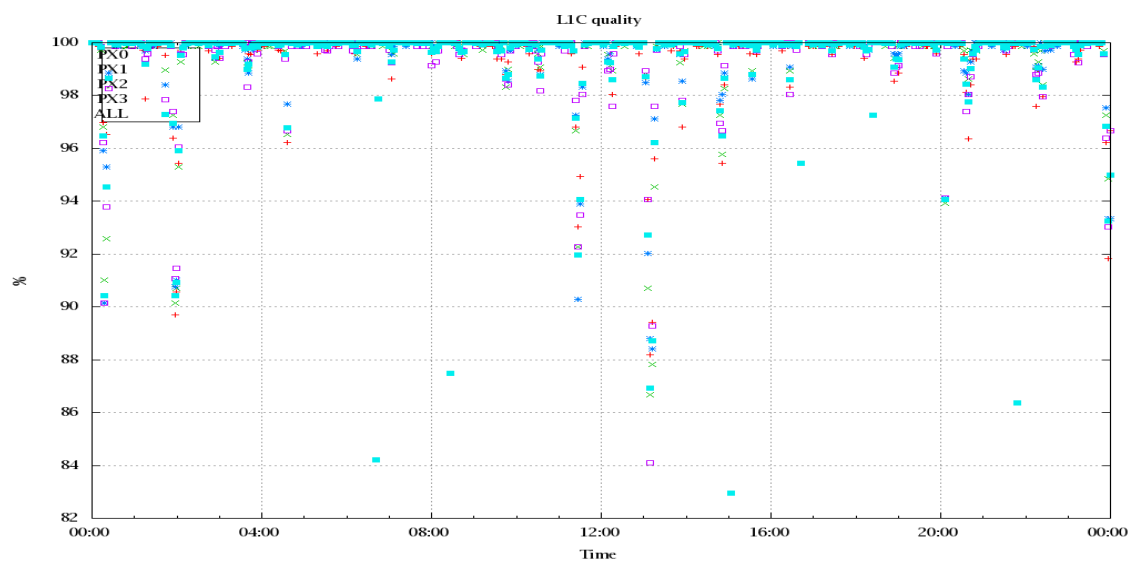


Figure 4: Level 1C quality

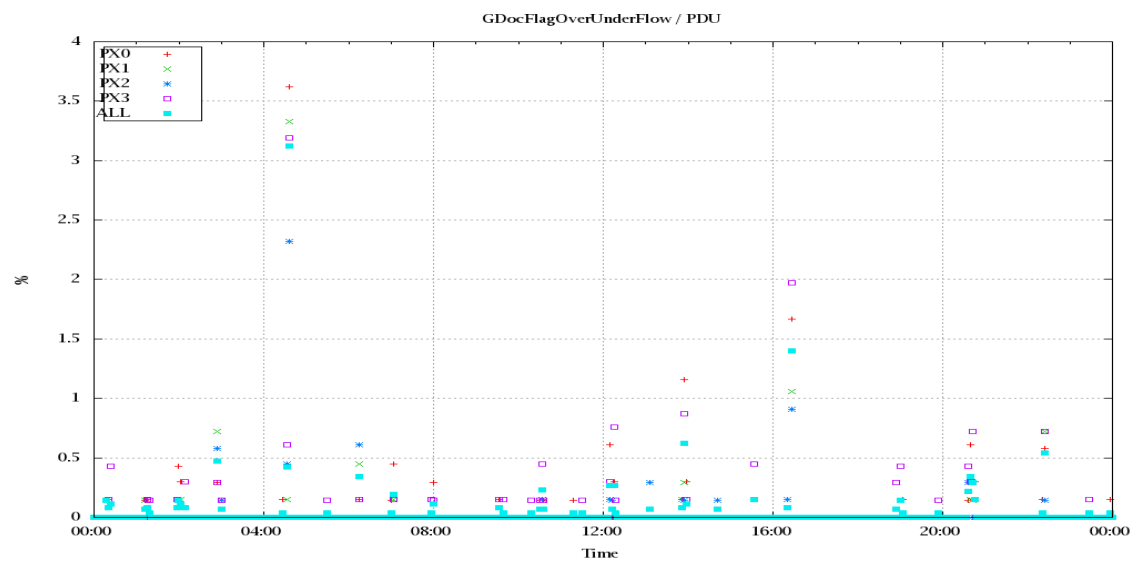


Figure 5: OverUnderFlowFlag timeseries

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.

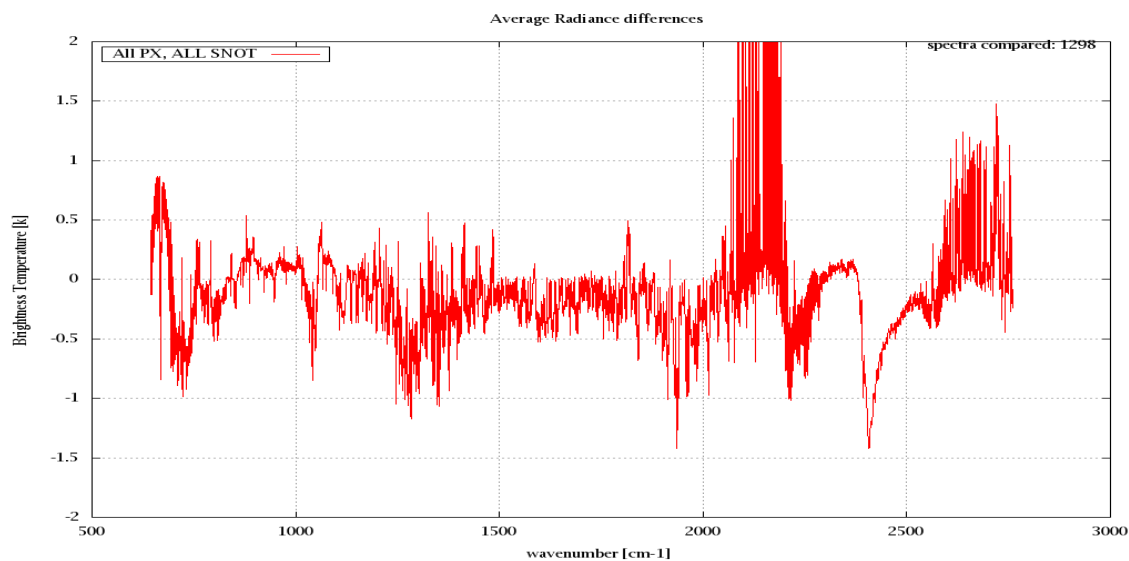


Figure 6: Average Radiance differences: OBS-CAL

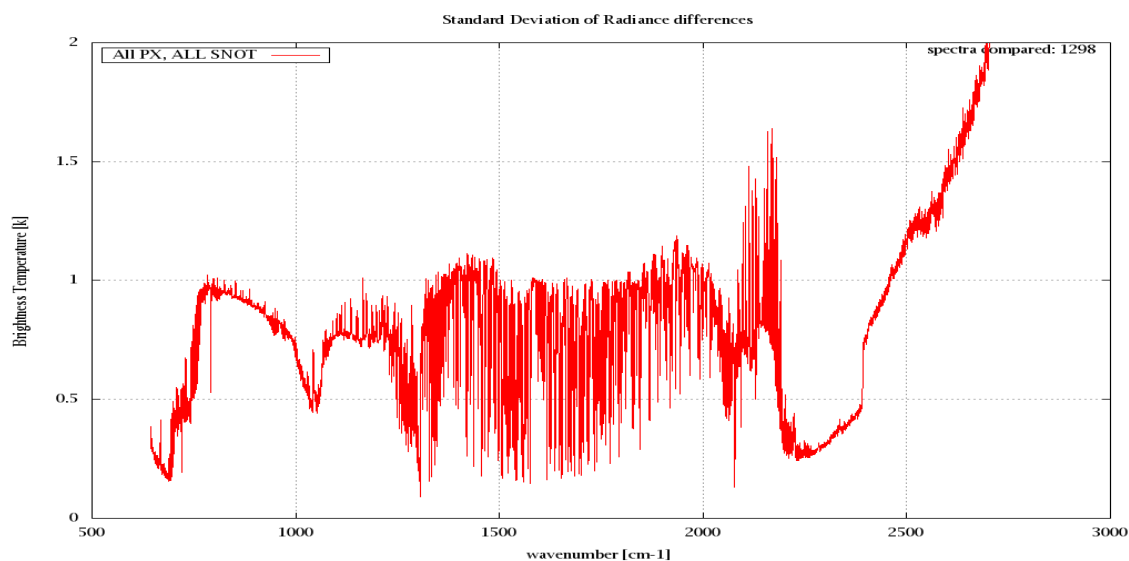


Figure 7: Standard Deviation of Radiance differences

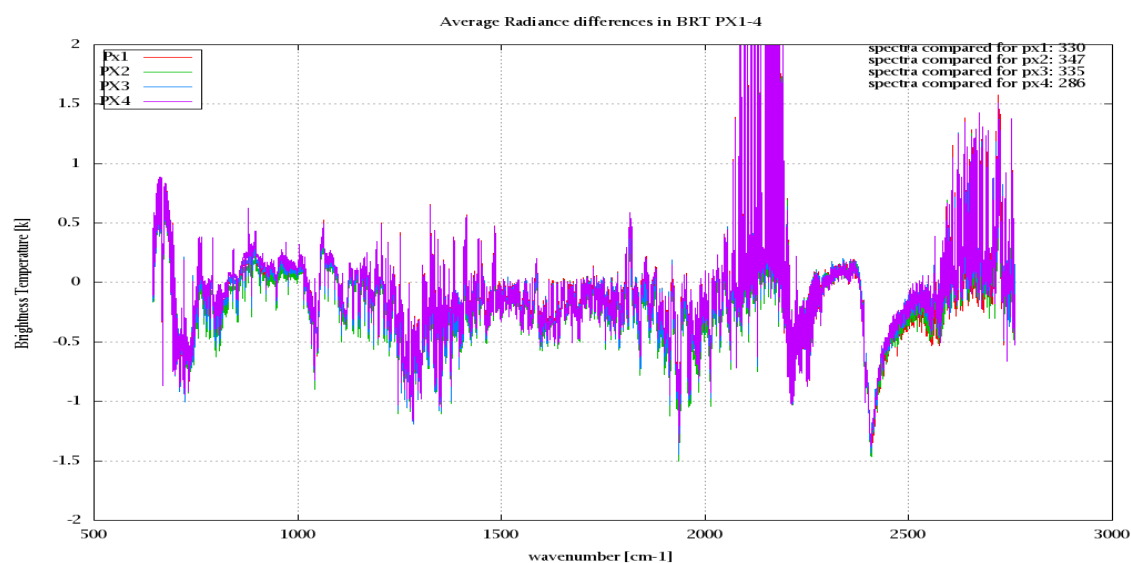


Figure 8: Average Radiance differences: OBS-CAL

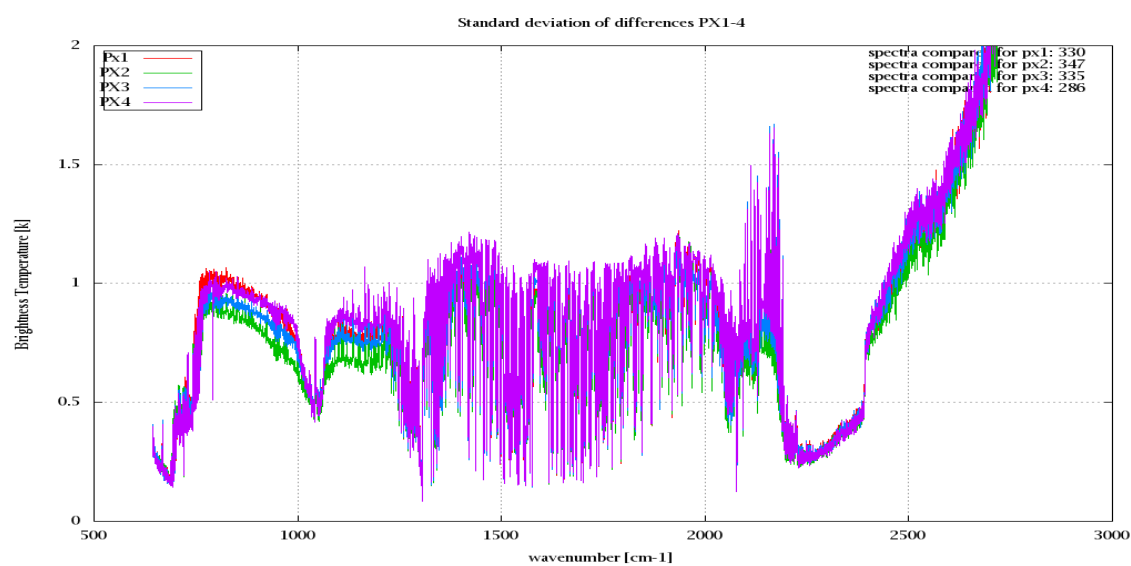


Figure 9: Standard Deviation of Radiance differences

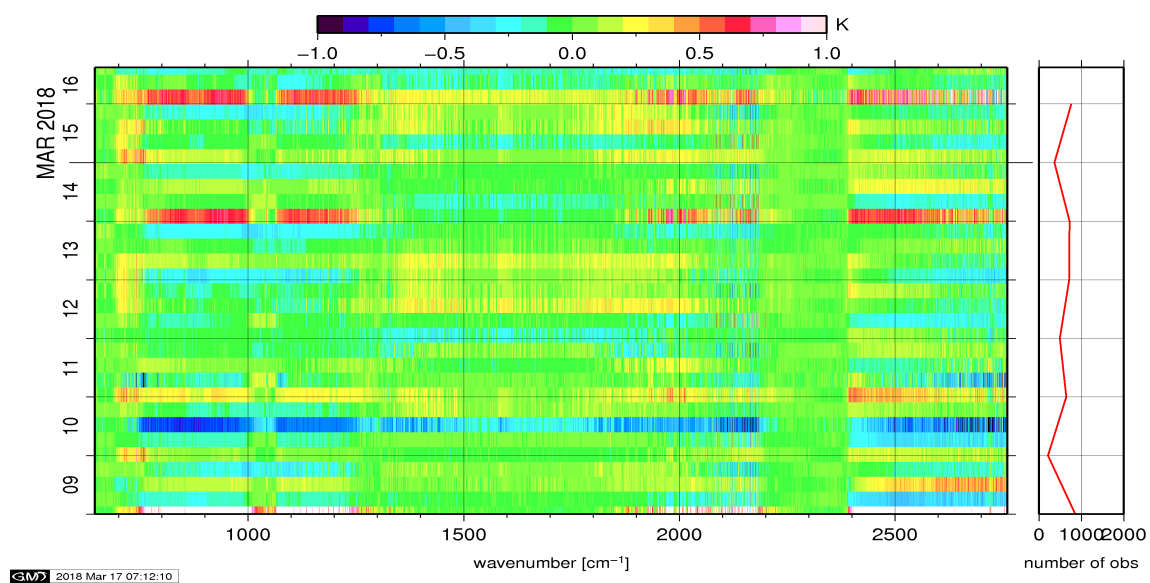


Figure 10: Radiance Anomaly in BRT: All Channels

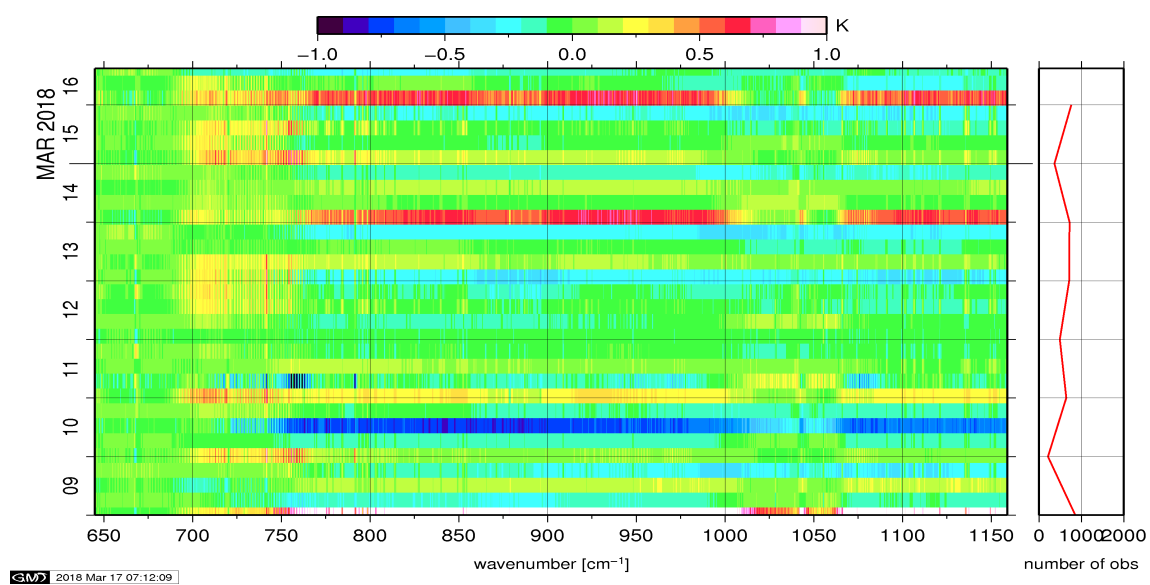


Figure 11: Radiance Anomaly in BRT: IASI Band 1

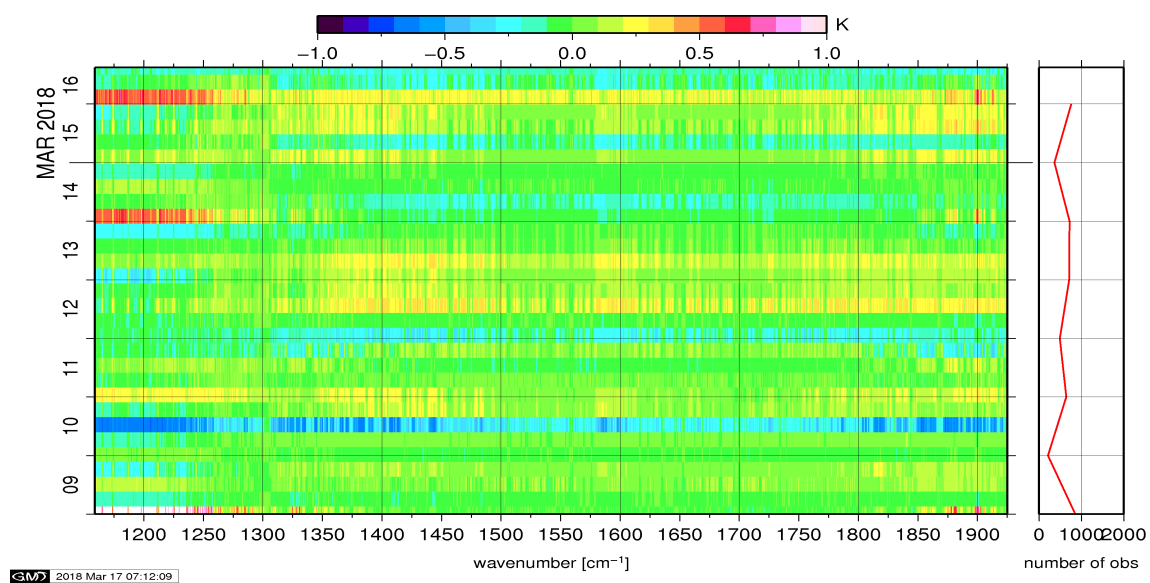


Figure 12: Radiance Anomaly in BRT: IASI Band 2

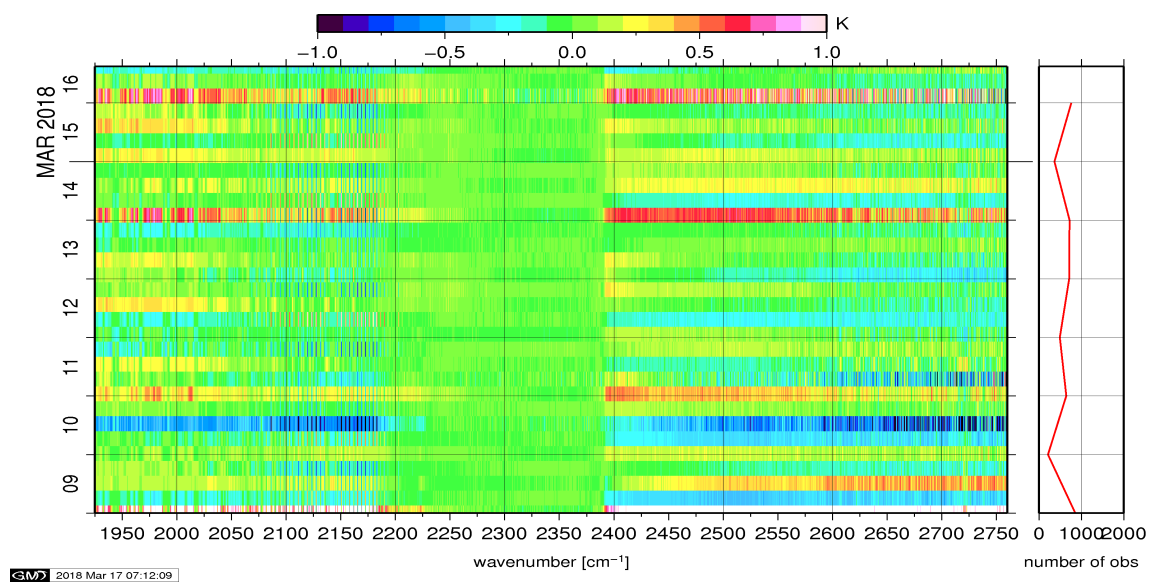


Figure 13: Radiance Anomaly in BRT: IASI Band 3

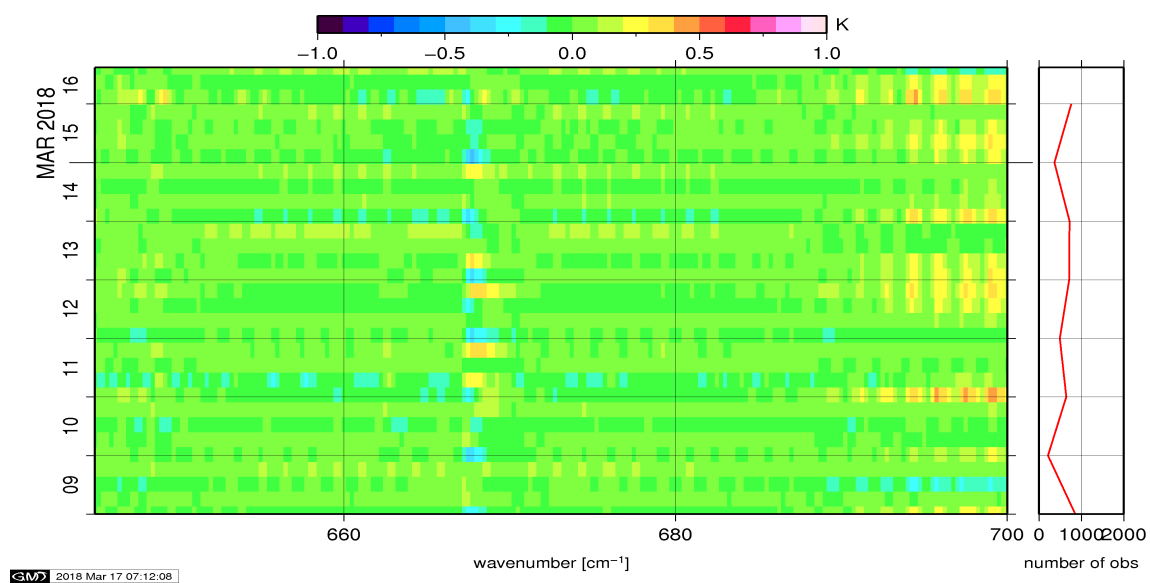


Figure 14: Radiance Anomaly in BRT: CO2 14

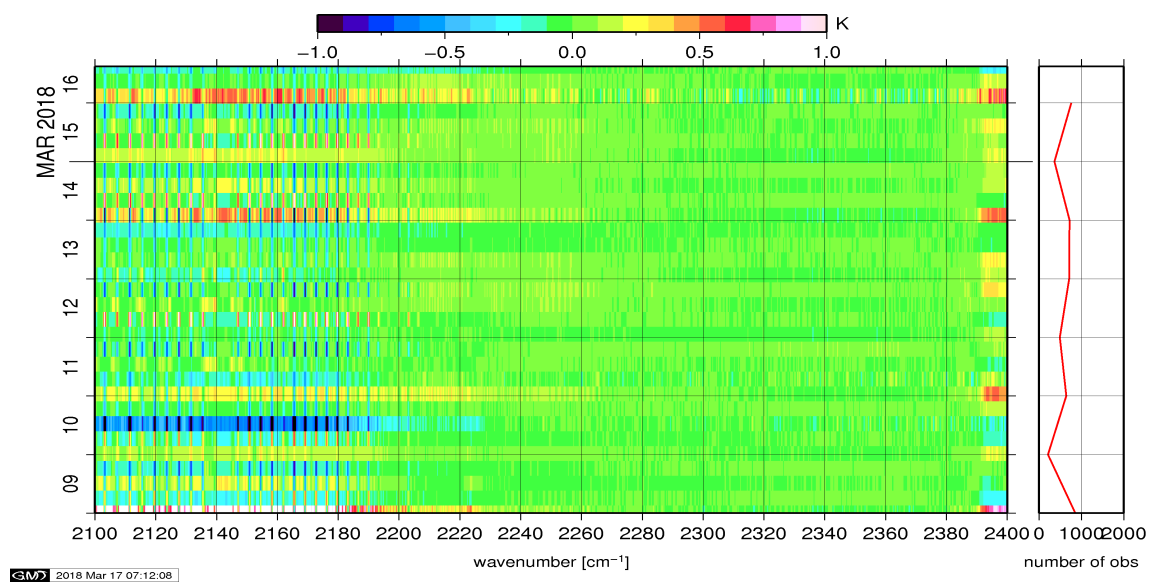


Figure 15: Radiance Anomaly in BRT: CO2 4.3

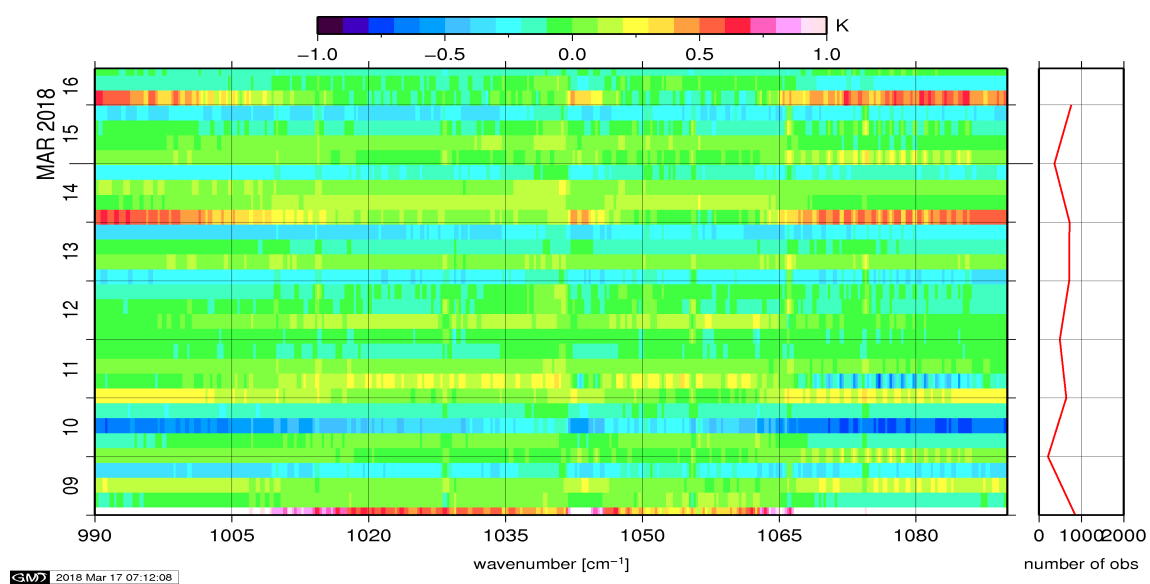


Figure 16: Radiance Anomaly in BRT: O3

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.

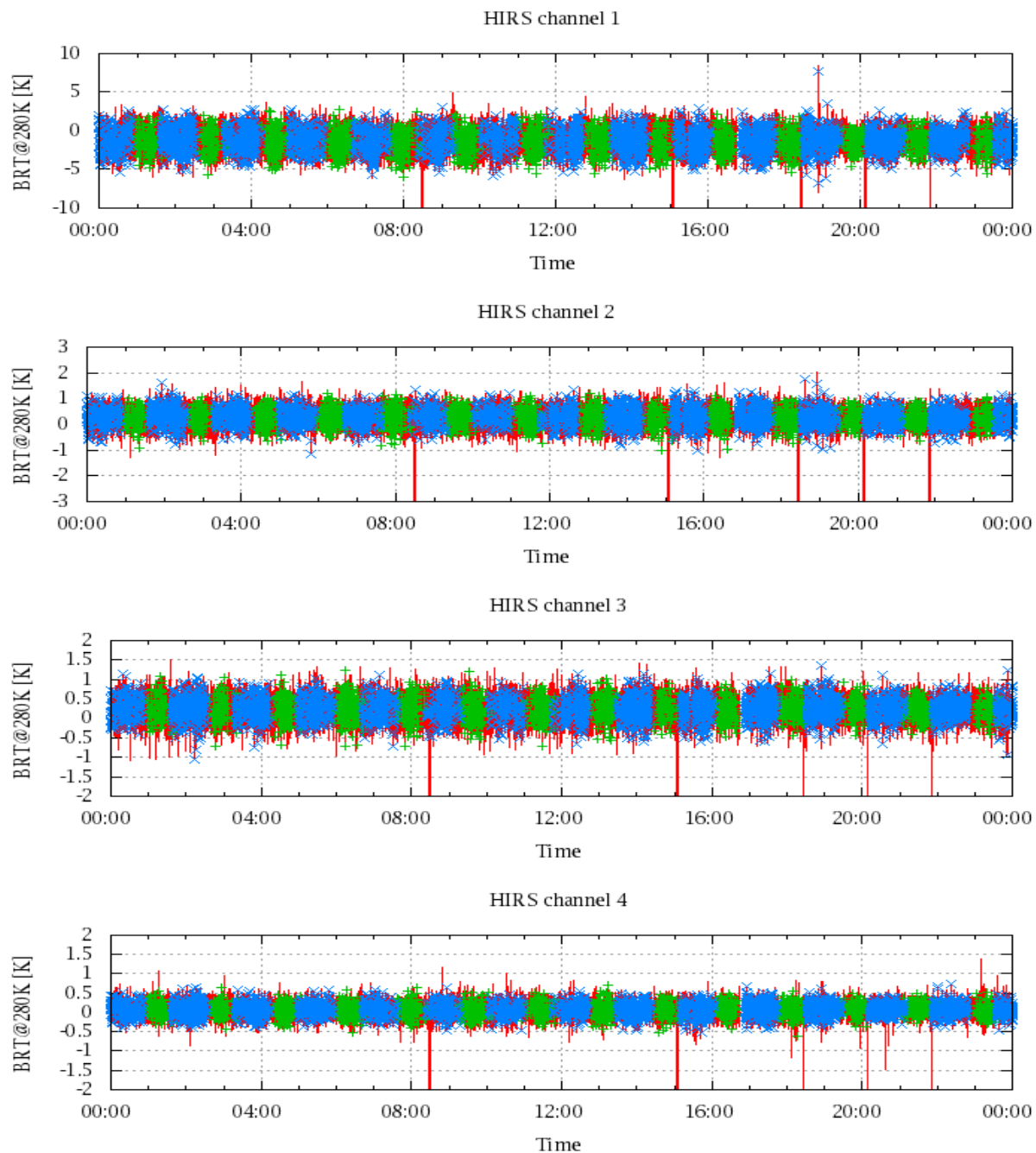


Figure 17: Radiance Differences in BRT

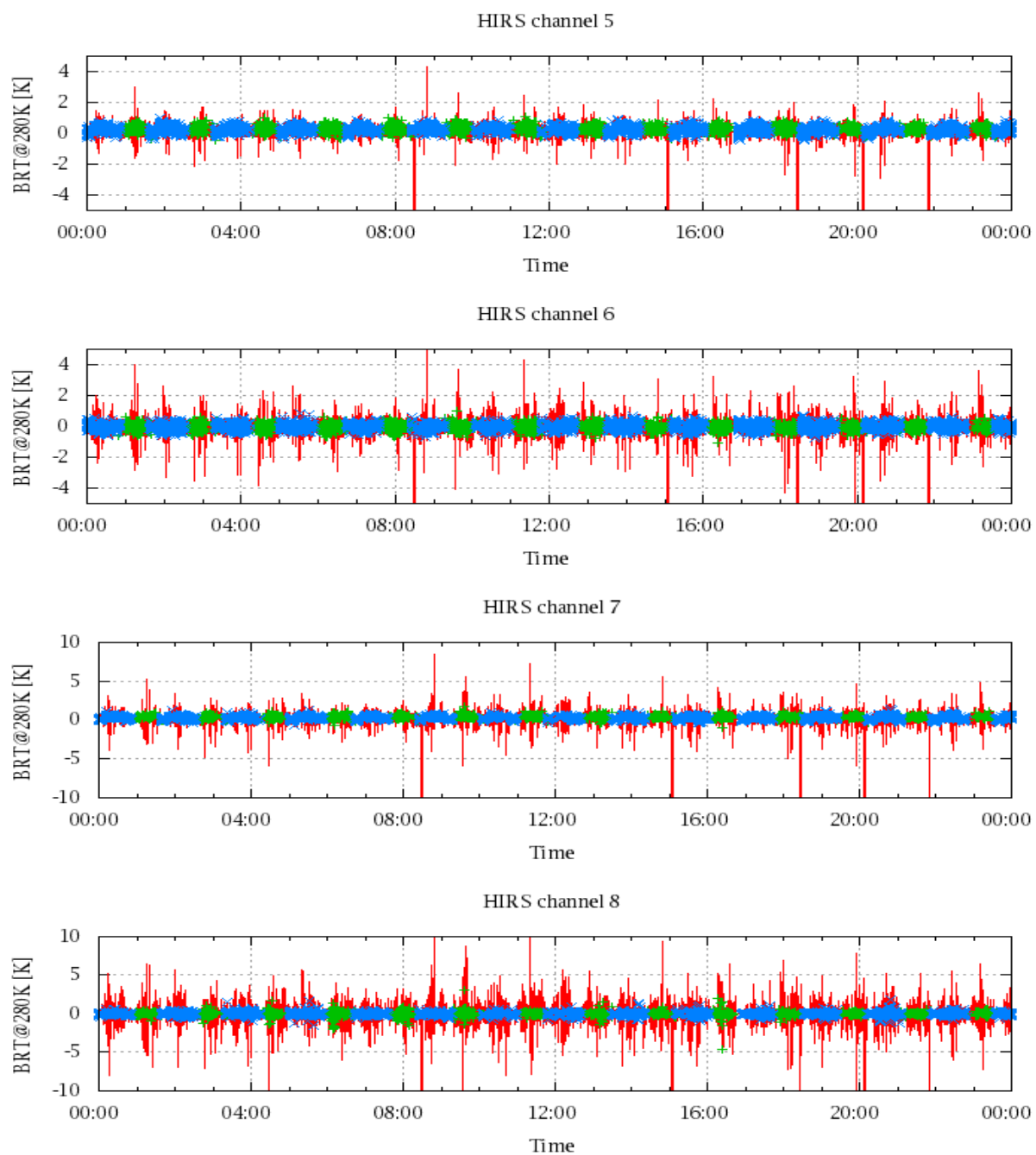


Figure 18: Radiance Differences in BRT

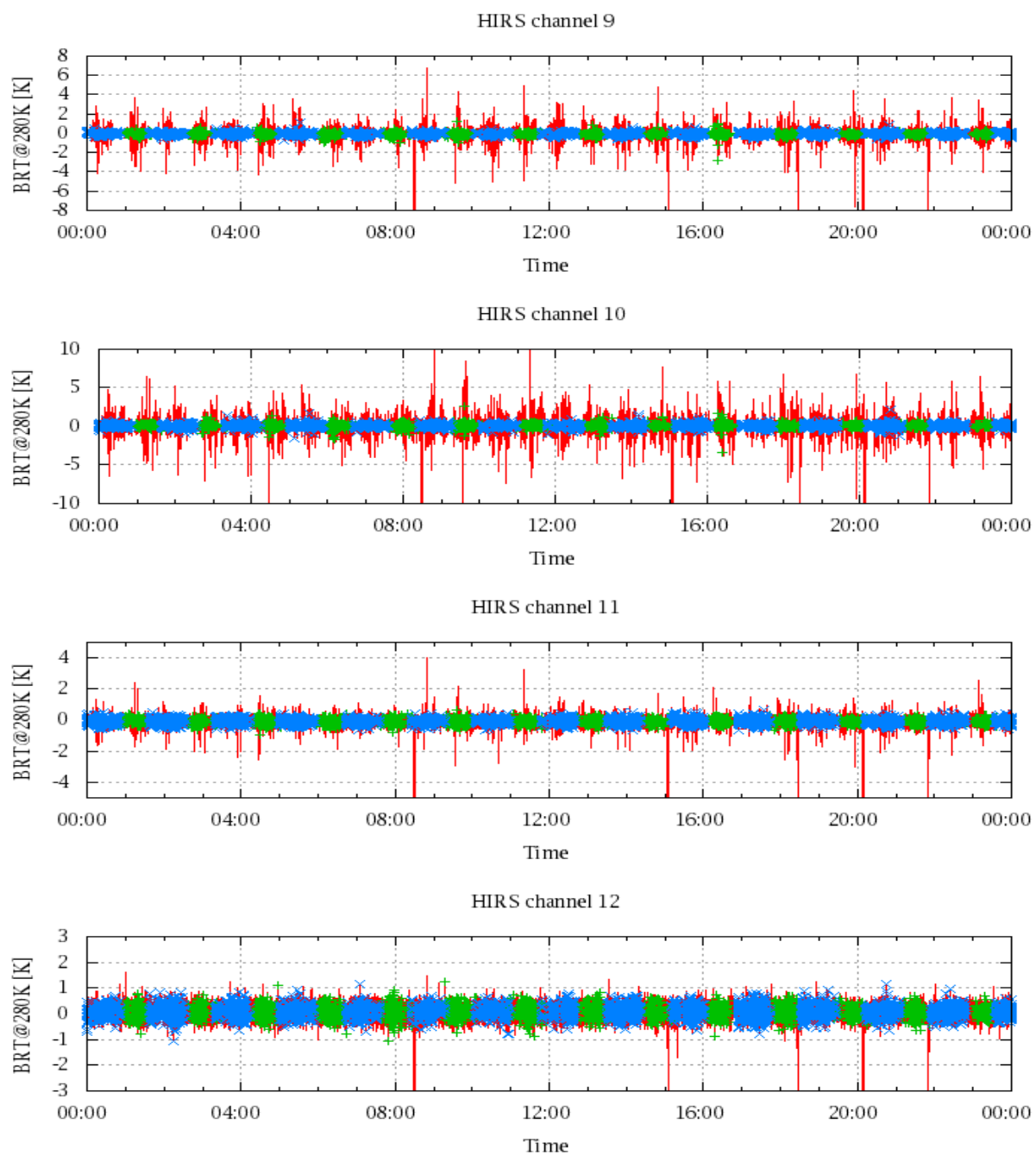


Figure 19: Radiance Differences in BRT

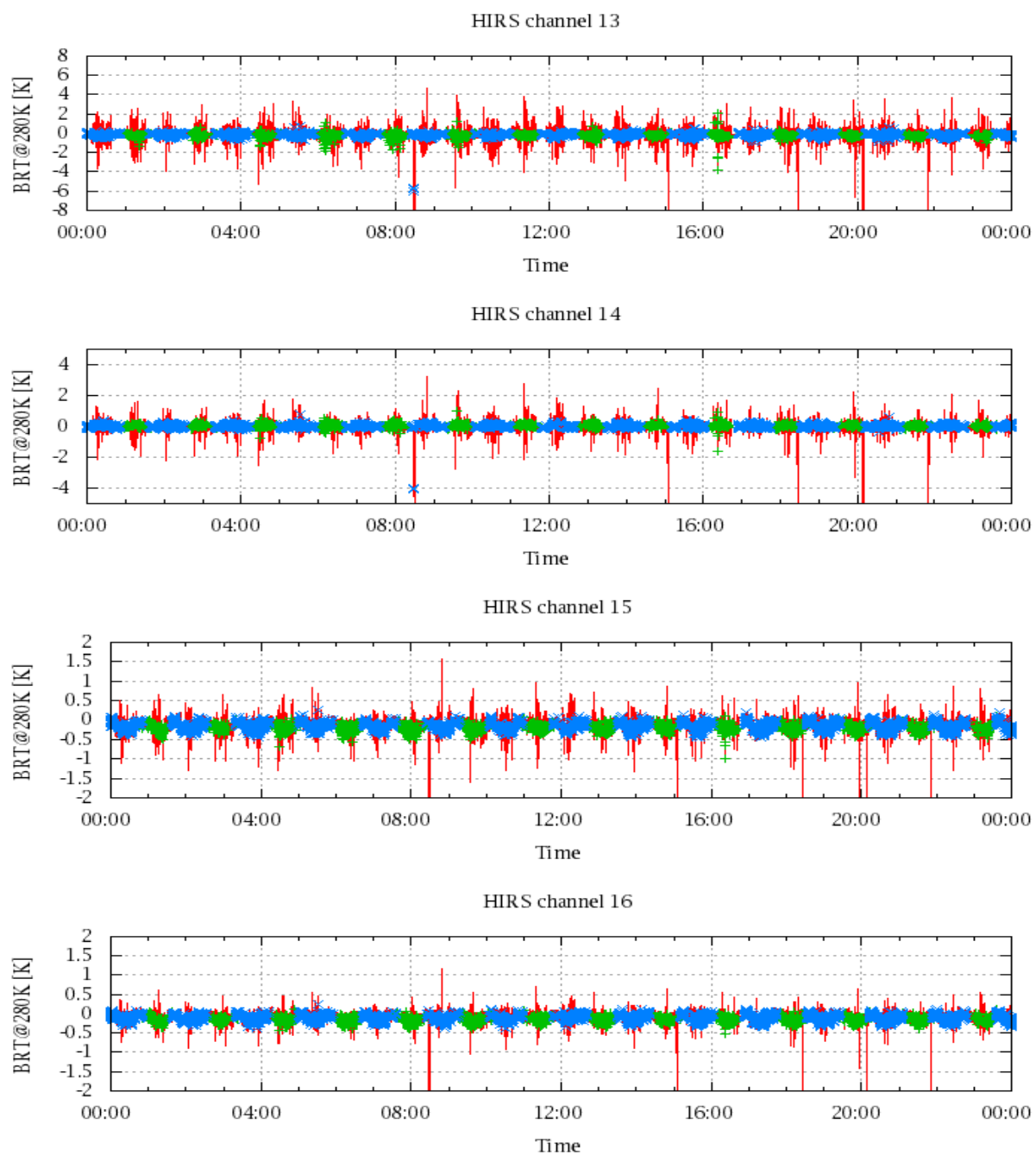


Figure 20: Radiance Differences in BRT

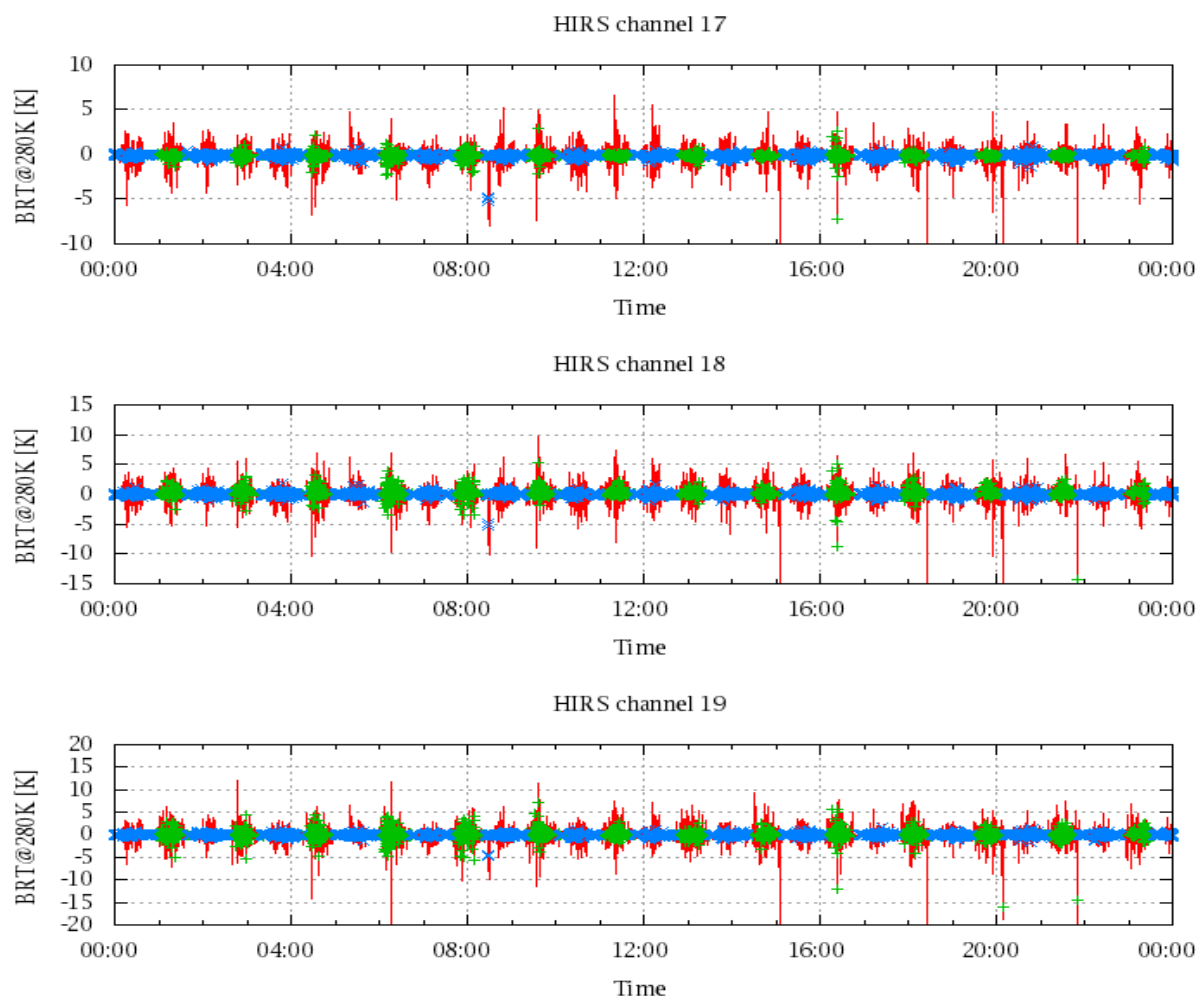


Figure 21: Radinace Differences in BRT