

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

17/03/2018 00:00:00 - 18/03/2018 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 17/03/2018 00:00:00 - 18/03/2018 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 17/03/2018 00:00:00 - 18/03/2018 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	479	-
L1 DPX PDUs (RM: IASI-HIRS)	480	-
L1 DPS Files (RM: OBS-CAL NWP based)	0	e

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	2330	2441	20180317130535.535	20180317130605.590
PX1 (130)	6781	6865	20180317155101.169	20180317155123.872
PX1 (130)	6919	7005	20180317155137.059	20180317155200.196
PX1 (130)	10641	10829	20180317194637.565	20180317194727.292
PX1 (130)	774	930	20180317212823.951	20180317212906.763
PX1 (130)	7225	7280	20180317230953.004	20180317231007.922
PX1 (130)	7298	7346	20180317231013.328	20180317231026.735
PX1 (130)	7357	7418	20180317231029.113	20180317231045.328
PX2 (135)	2330	2441	20180317130535.535	20180317130605.590
PX2 (135)	6781	6864	20180317155101.169	20180317155123.653
PX2 (135)	6919	7005	20180317155137.059	20180317155200.196
PX2 (135)	10641	10828	20180317194637.565	20180317194727.077
PX2 (135)	774	930	20180317212823.951	20180317212906.763
PX2 (135)	7225	7280	20180317230953.004	20180317231007.922
PX2 (135)	7298	7346	20180317231013.328	20180317231026.735
PX2 (135)	7357	7417	20180317231029.113	20180317231045.113
PX3 (140)	2330	2441	20180317130535.535	20180317130605.590
PX3 (140)	6781	6864	20180317155101.169	20180317155123.653

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	6919	7005	20180317155137.059	20180317155200.196
PX3 (140)	10641	10828	20180317194637.565	20180317194727.077
PX3 (140)	774	930	20180317212823.951	20180317212906.763
PX3 (140)	7225	7280	20180317230953.004	20180317231007.922
PX3 (140)	7298	7346	20180317231013.328	20180317231026.735
PX3 (140)	7357	7417	20180317231029.113	20180317231045.113
PX4 (145)	2330	2440	20180317130535.535	20180317130605.375
PX4 (145)	6781	6864	20180317155101.169	20180317155123.653
PX4 (145)	6919	7005	20180317155137.059	20180317155200.196
PX4 (145)	10641	10828	20180317194637.565	20180317194727.077
PX4 (145)	774	930	20180317212823.951	20180317212906.763
PX4 (145)	7225	7280	20180317230953.004	20180317231007.922
PX4 (145)	7298	7346	20180317231013.328	20180317231026.735
PX4 (145)	7356	7417	20180317231028.899	20180317231045.113
IMG (150)	14529	14656	20180317130535.320	20180317130605.375
IMG (150)	7560	7656	20180317155100.954	20180317155123.653
IMG (150)	7715	7813	20180317155137.059	20180317155200.196
IMG (150)	2104	2316	20180317194637.347	20180317194727.077
IMG (150)	11673	11850	20180317212823.736	20180317212905.466
IMG (150)	4785	4847	20180317230953.004	20180317231007.707
IMG (150)	4870	4922	20180317231013.328	20180317231025.438
IMG (150)	4936	5005	20180317231028.899	20180317231045.113
VER (160)	3043	3075	20180317130529.051	20180317130606.887
VER (160)	9248	9264	20180317155057.063	20180317155129.059
VER (160)	9269	9284	20180317155137.059	20180317155201.059
VER (160)	1700	1705	20180317194728.374	20180317194728.374
VER (160)	1705	1710	20180317194728.374	20180317194728.374
VER (160)	1710	1715	20180317194728.374	20180317194728.374
VER (160)	1715	1720	20180317194728.374	20180317194728.374
VER (160)	1720	1725	20180317194728.374	20180317194728.374
VER (160)	1725	1701	20180317194728.374	20180317194728.374
VER (160)	1701	1706	20180317194728.374	20180317194728.374
VER (160)	1706	1711	20180317194728.374	20180317194728.374
VER (160)	1711	1716	20180317194728.374	20180317194728.374
VER (160)	1716	1721	20180317194728.374	20180317194728.374
VER (160)	1721	1726	20180317194728.374	20180317194728.374
VER (160)	1726	1702	20180317194728.374	20180317194728.374
VER (160)	1702	1707	20180317194728.374	20180317194728.374
VER (160)	1707	1712	20180317194728.374	20180317194728.374
VER (160)	1712	1717	20180317194728.374	20180317194728.374
VER (160)	1717	1722	20180317194728.374	20180317194728.374
VER (160)	1722	1727	20180317194728.374	20180317194728.374
VER (160)	1727	1703	20180317194728.374	20180317194728.374
VER (160)	1703	1708	20180317194728.374	20180317194728.374
VER (160)	1708	1713	20180317194728.374	20180317194728.374
VER (160)	1713	1718	20180317194728.374	20180317194728.374
VER (160)	1718	1723	20180317194728.374	20180317194728.374
VER (160)	1723	1728	20180317194728.374	20180317194728.374
VER (160)	1728	1704	20180317194728.374	20180317194728.374
VER (160)	1704	1709	20180317194728.374	20180317194728.374
VER (160)	1709	1714	20180317194728.374	20180317194728.374
VER (160)	1714	1719	20180317194728.374	20180317194728.374
VER (160)	1719	1724	20180317194728.374	20180317194728.374

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APID	Seq from	Seq to	Time from	Time to
VER (160)	1724	1729	20180317194728.374	20180317194728.374
VER (160)	5514	5543	20180317212817.033	20180317212823.951
VER (160)	9322	9330	20180317230953.004	20180317231009.004
VER (160)	9334	9340	20180317231009.004	20180317231013.328
VER (160)	9345	9350	20180317231045.762	20180317231045.762
VER (160)	9350	9346	20180317231045.762	20180317231045.762
VER (160)	9346	9351	20180317231045.762	20180317231045.762
VER (160)	9351	9347	20180317231045.762	20180317231045.762
VER (160)	9347	9352	20180317231045.762	20180317231045.762
VER (160)	9352	9348	20180317231045.762	20180317231045.762
VER (160)	9348	9353	20180317231045.762	20180317231045.762
VER (160)	9353	9349	20180317231045.762	20180317231045.762
VER (160)	9349	9354	20180317231045.762	20180317231045.762
AUX (180)	8386	8390	20180317155057.493	20180317155129.493
AUX (180)	8390	8394	20180317155129.493	20180317155201.493
AUX (180)	10916	10922	20180317212817.466	20180317212905.466
AUX (180)	11677	11680	20180317230945.438	20180317231009.438
AUX (180)	11680	11682	20180317231009.438	20180317231025.438

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
17/03/2018 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	480	-
L1 ENG distinct GEPSGranule	479	-
GQisFlagQual set (PX1)	99.47 %	-
GQisFlagQual set (PX2)	99.53 %	-
GQisFlagQual set (PX3)	99.54 %	-
GQisFlagQual set (PX4)	99.46 %	-
GQisFlagQual set (all)	99.50 %	-

Table 4: Quality flags

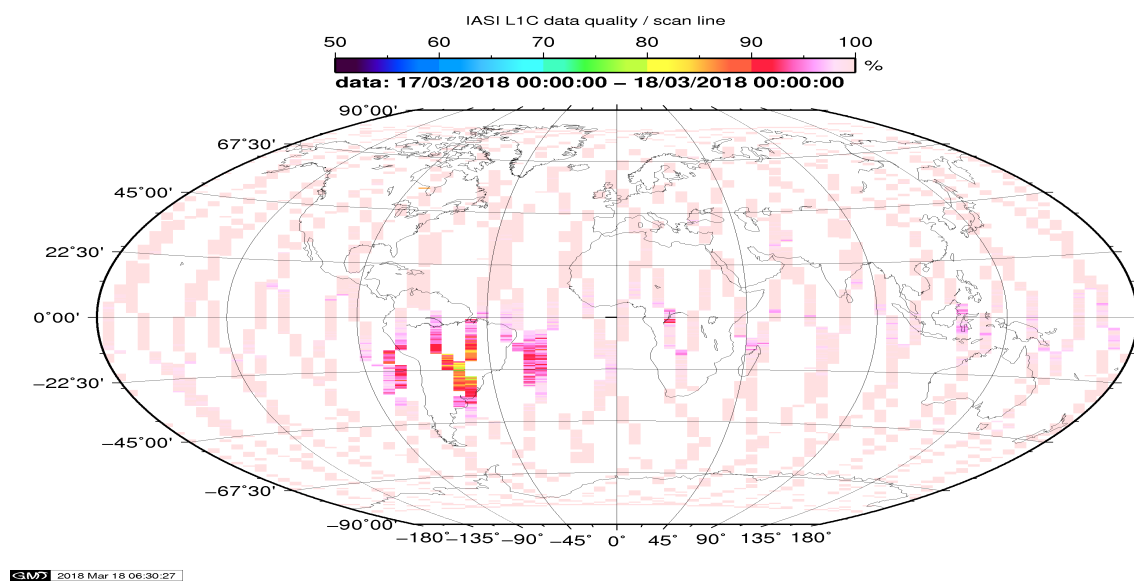


Figure 1: L1C data quality

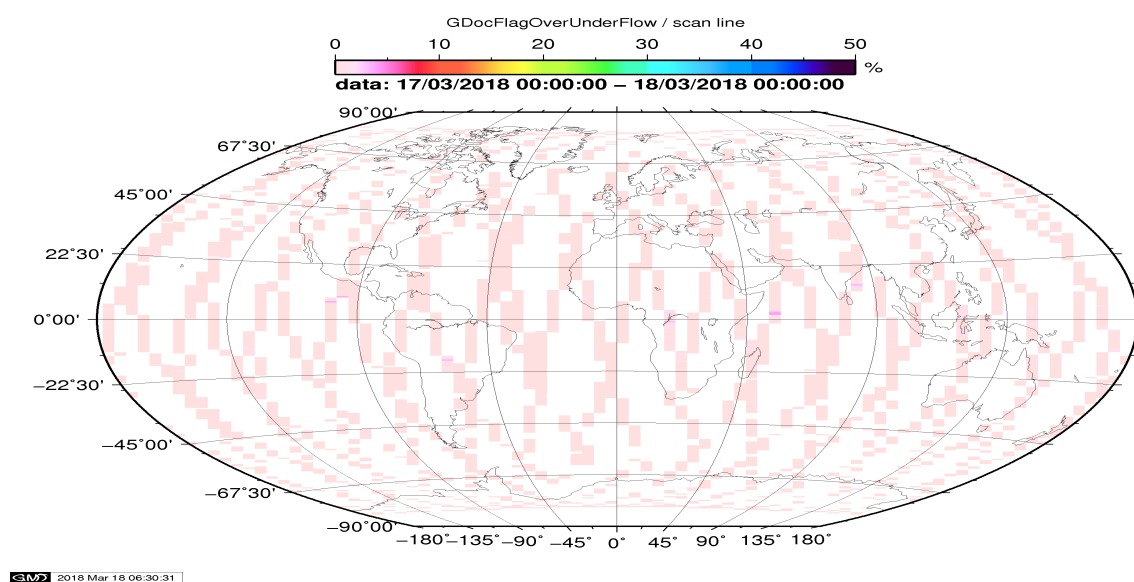


Figure 2: Flag of Over and Under Flows

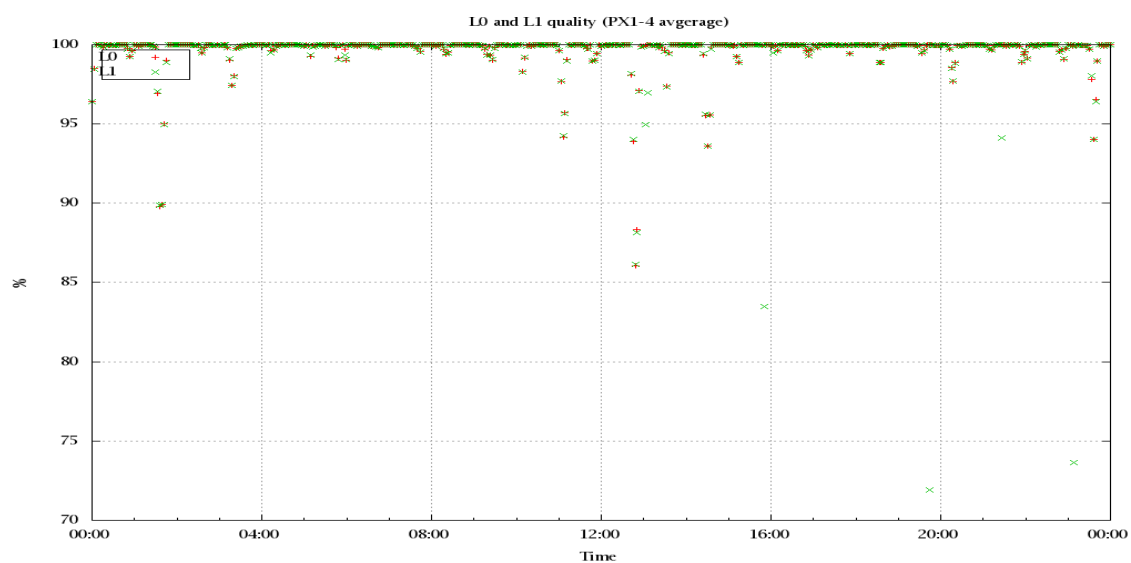


Figure 3: Level 0 and 1C overall quality

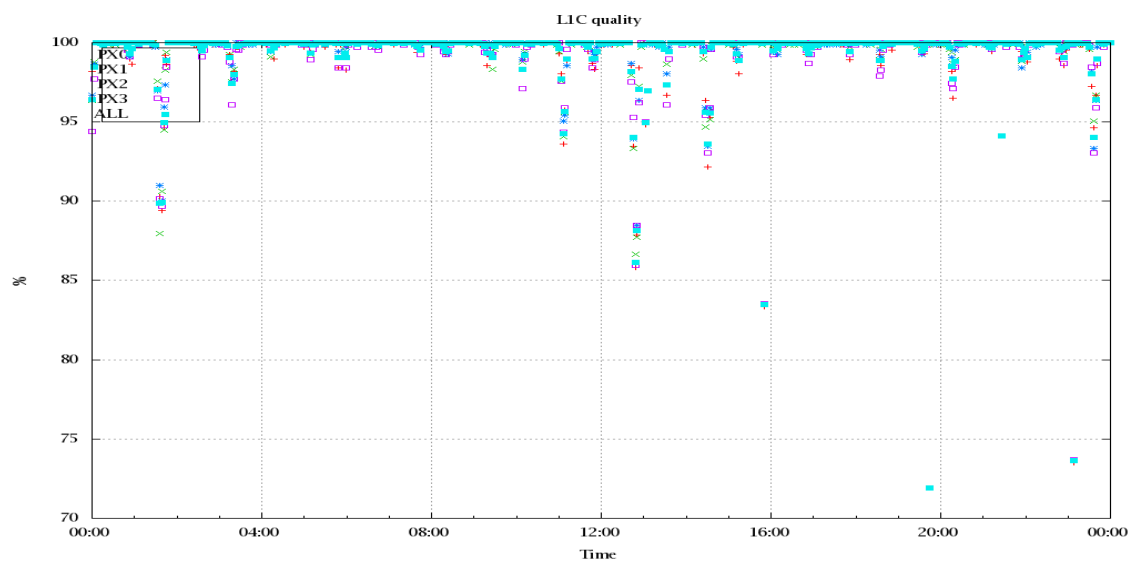


Figure 4: Level 1C quality

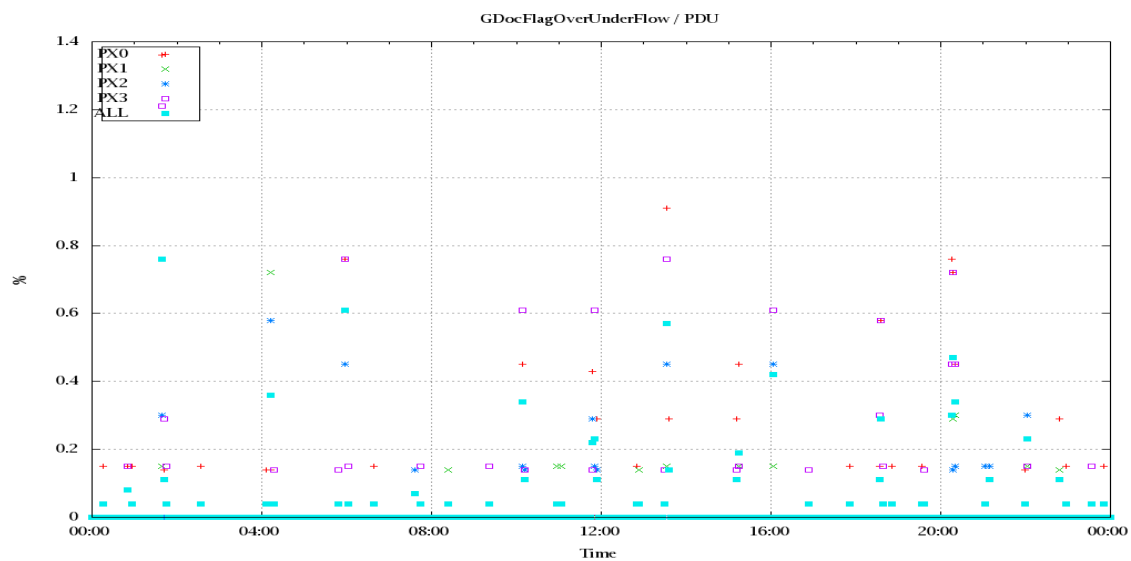


Figure 5: OverUnderFlowFlag timeseries

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.

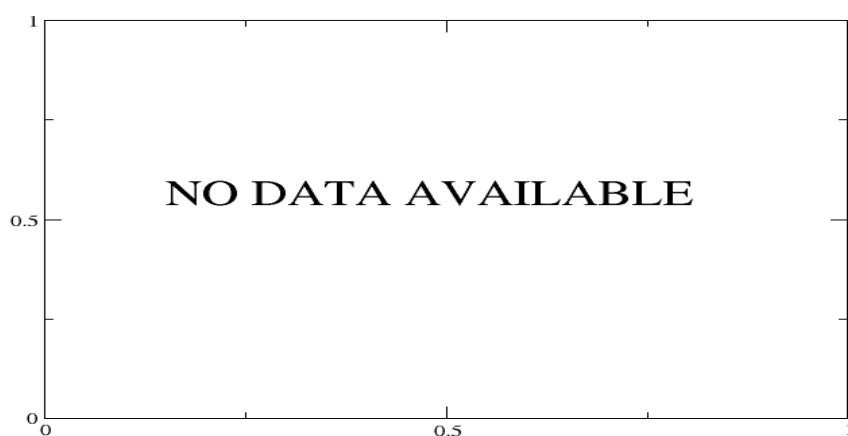


Figure 6: Average Radiance differences: OBS-CAL

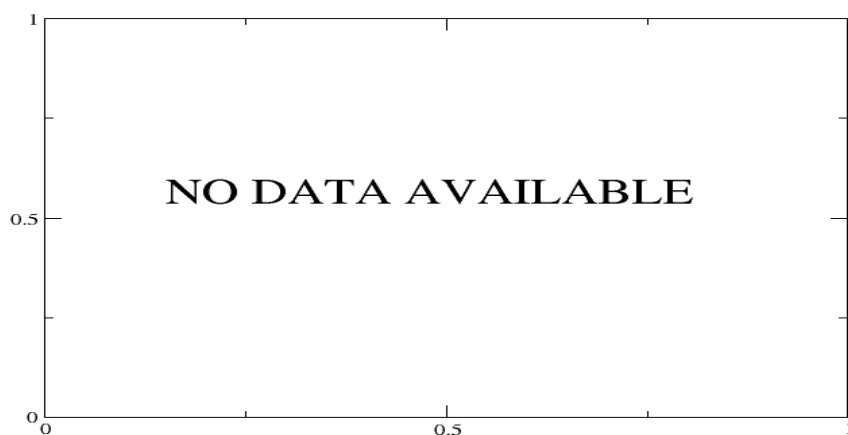


Figure 7: Standard Deviation of Radiance differences



Figure 8: Average Radiance differences: OBS-CAL



Figure 9: Standard Deviation of Radiance differences

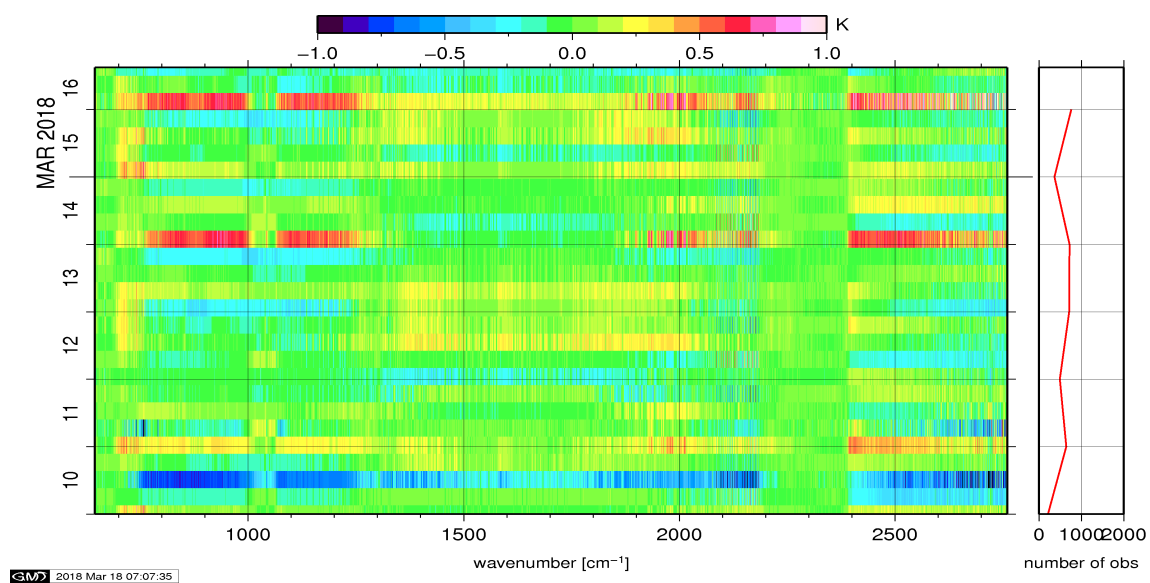


Figure 10: Radiance Anomaly in BRT: All Channels

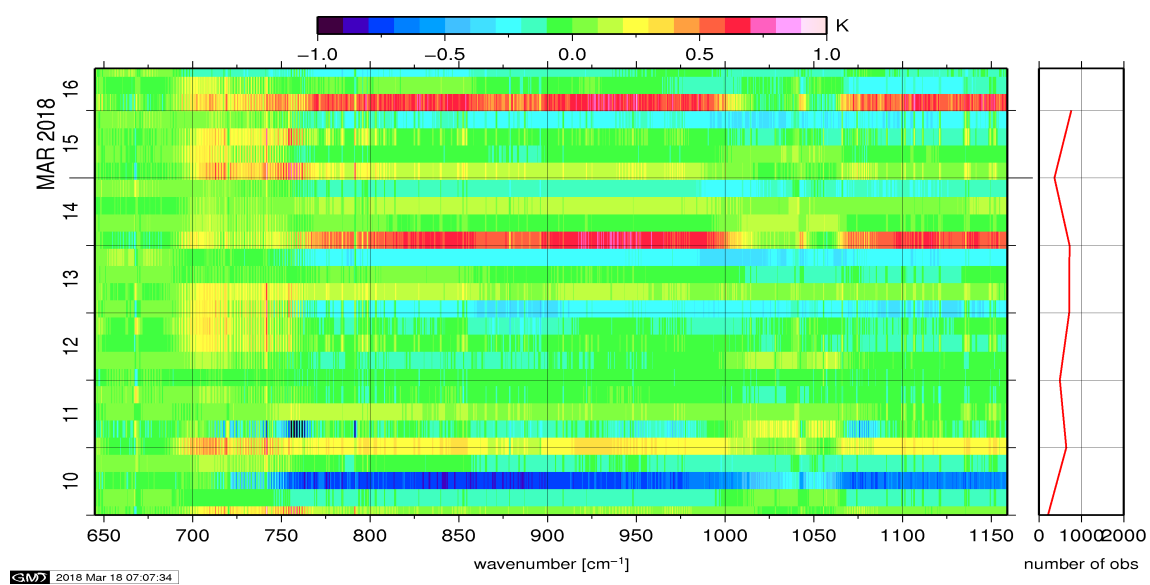


Figure 11: Radiance Anomaly in BRT: IASI Band 1

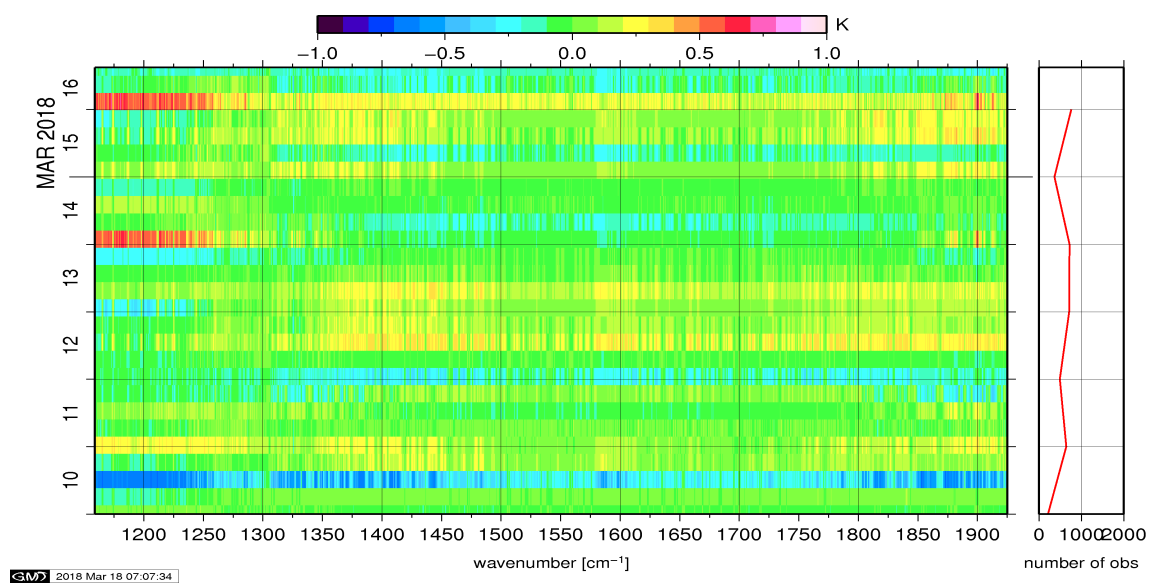


Figure 12: Radiance Anomaly in BRT: IASI Band 2

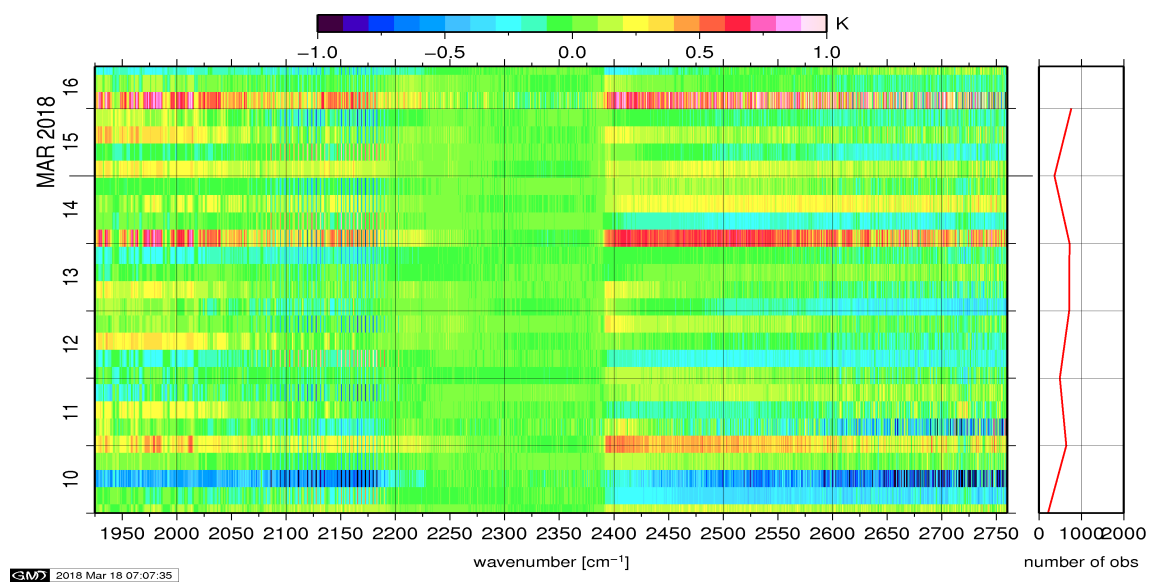


Figure 13: Radiance Anomaly in BRT: IASI Band 3

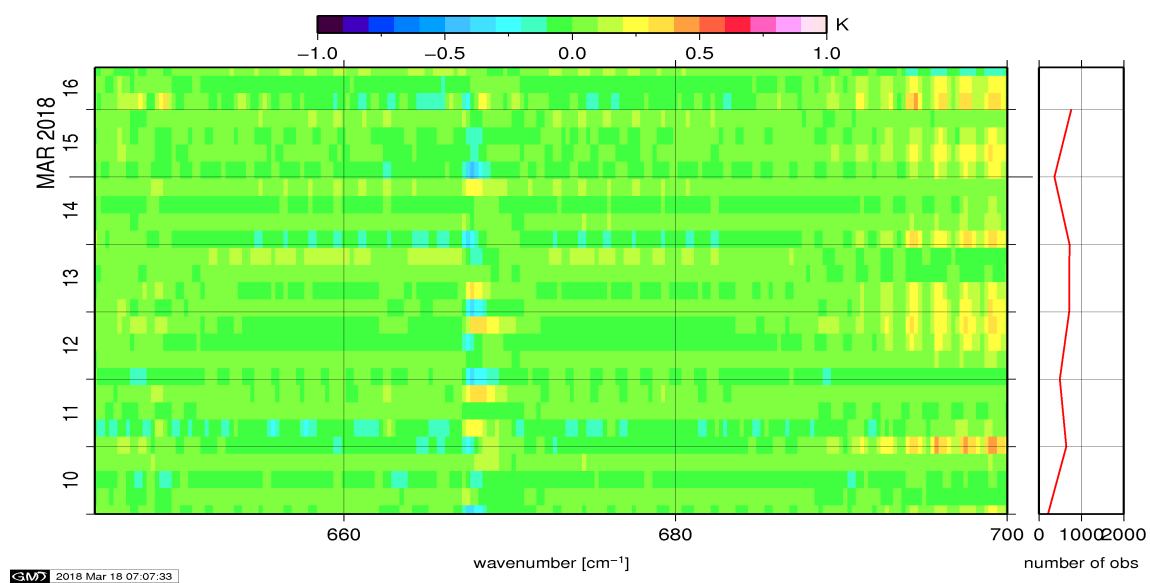


Figure 14: Radiance Anomaly in BRT: CO2 14

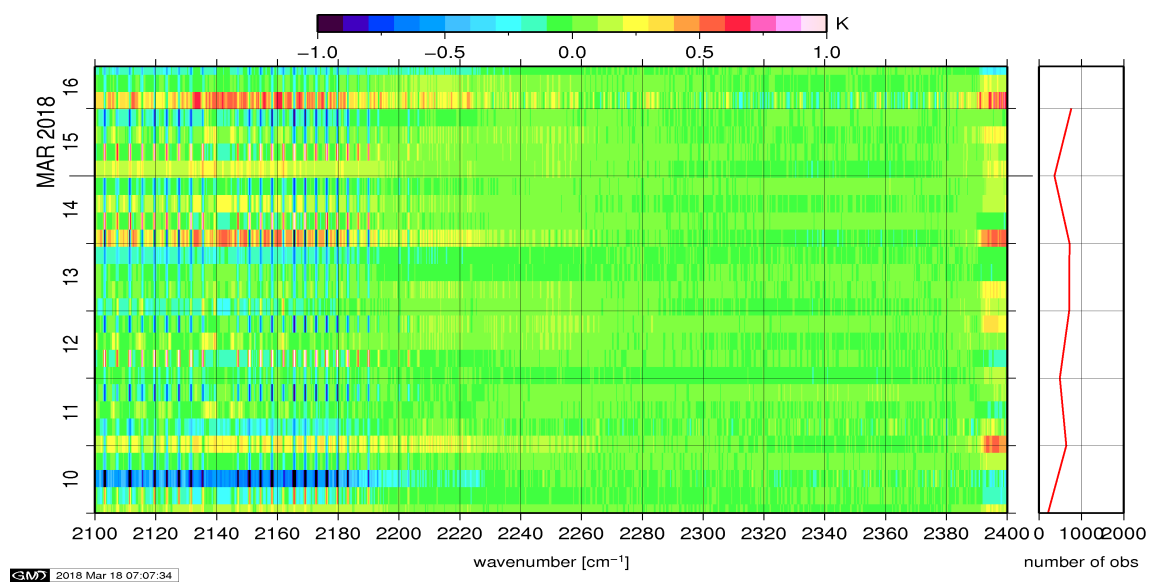


Figure 15: Radiance Anomaly in BRT: CO2 4.3

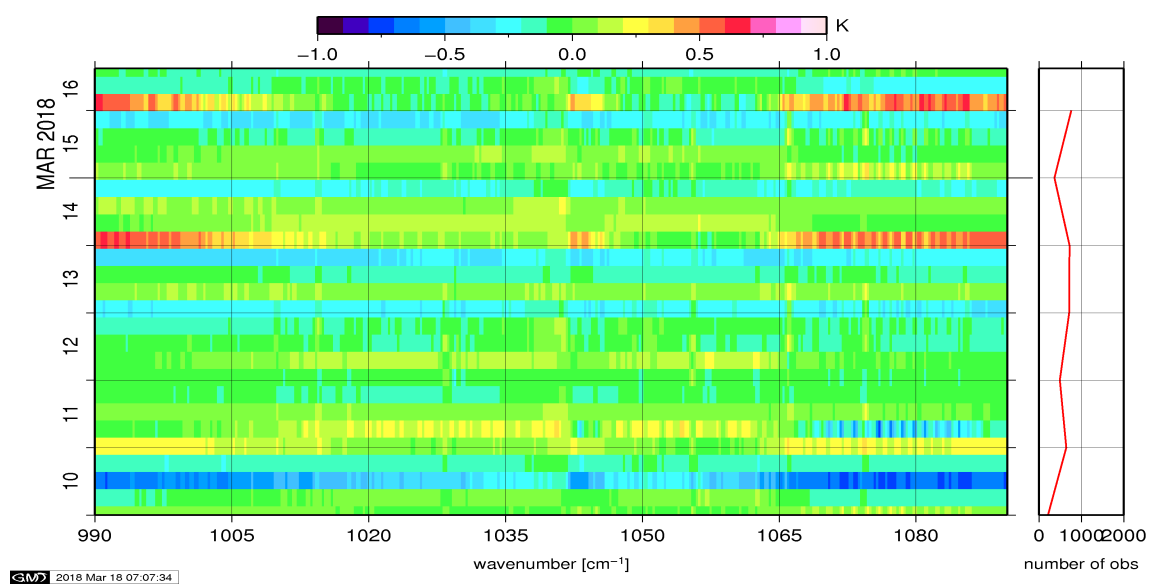


Figure 16: Radiance Anomaly in BRT: O3

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.

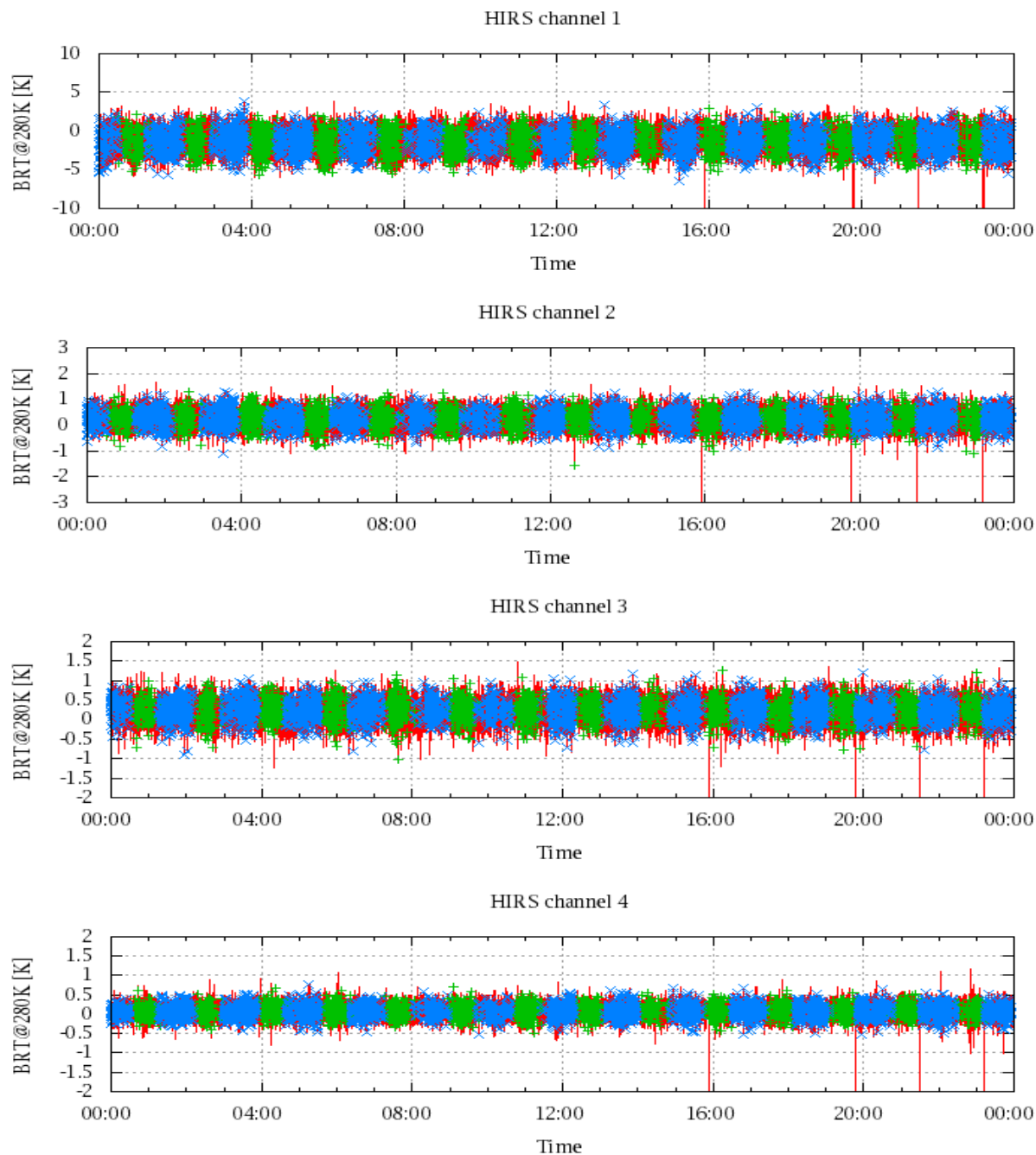


Figure 17: Radiance Differences in BRT

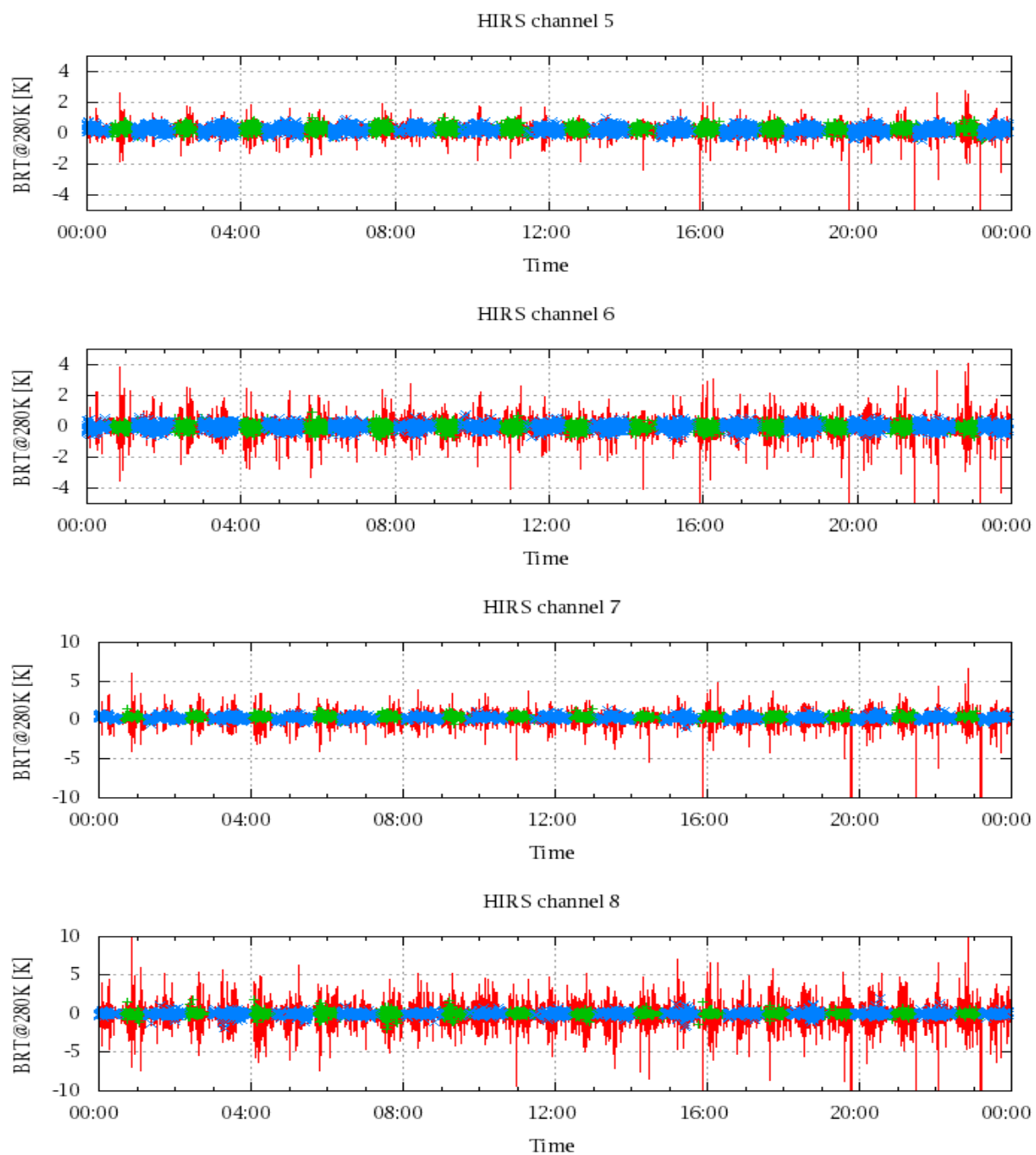


Figure 18: Radiance Differences in BRT

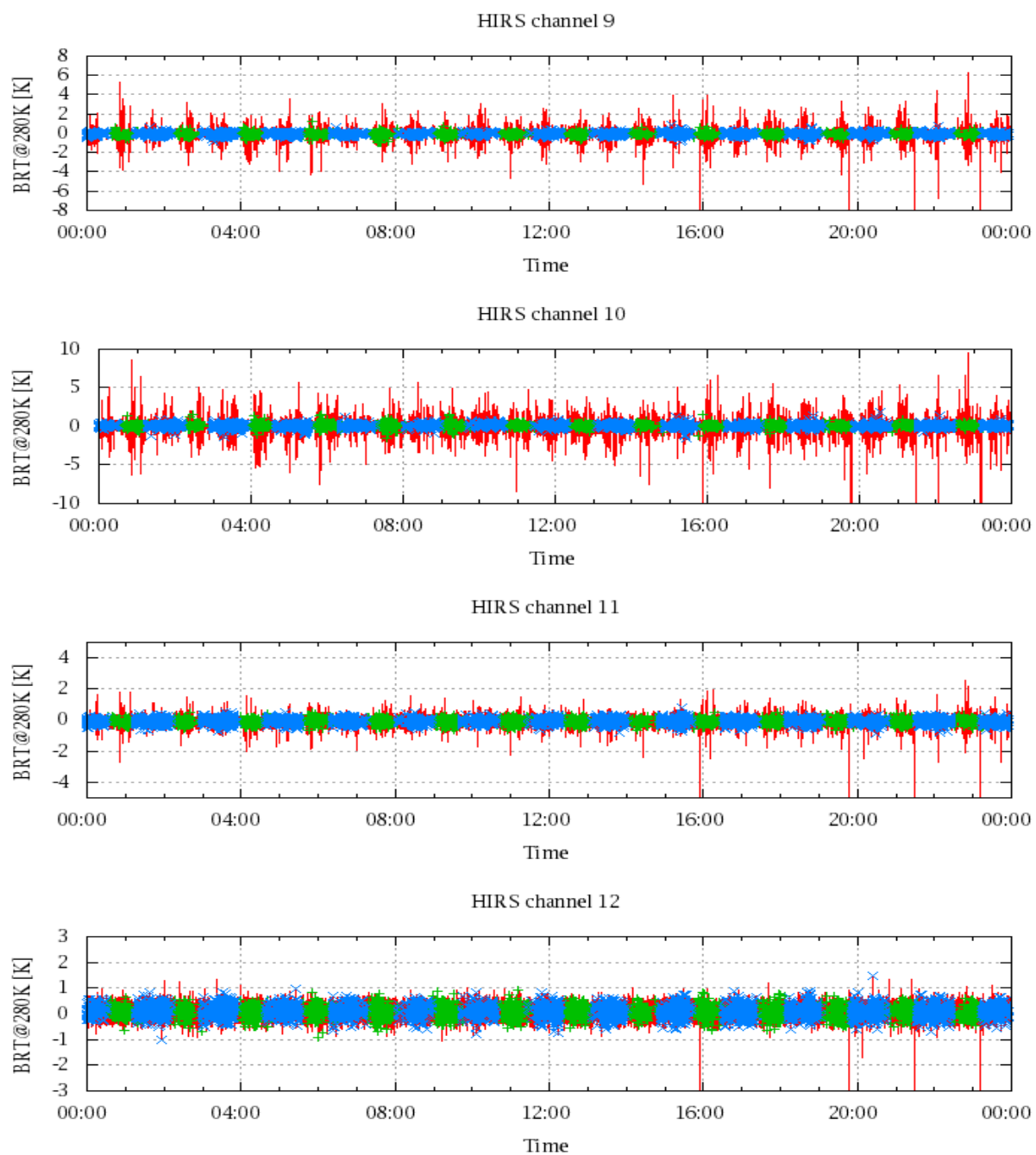


Figure 19: Radiance Differences in BRT

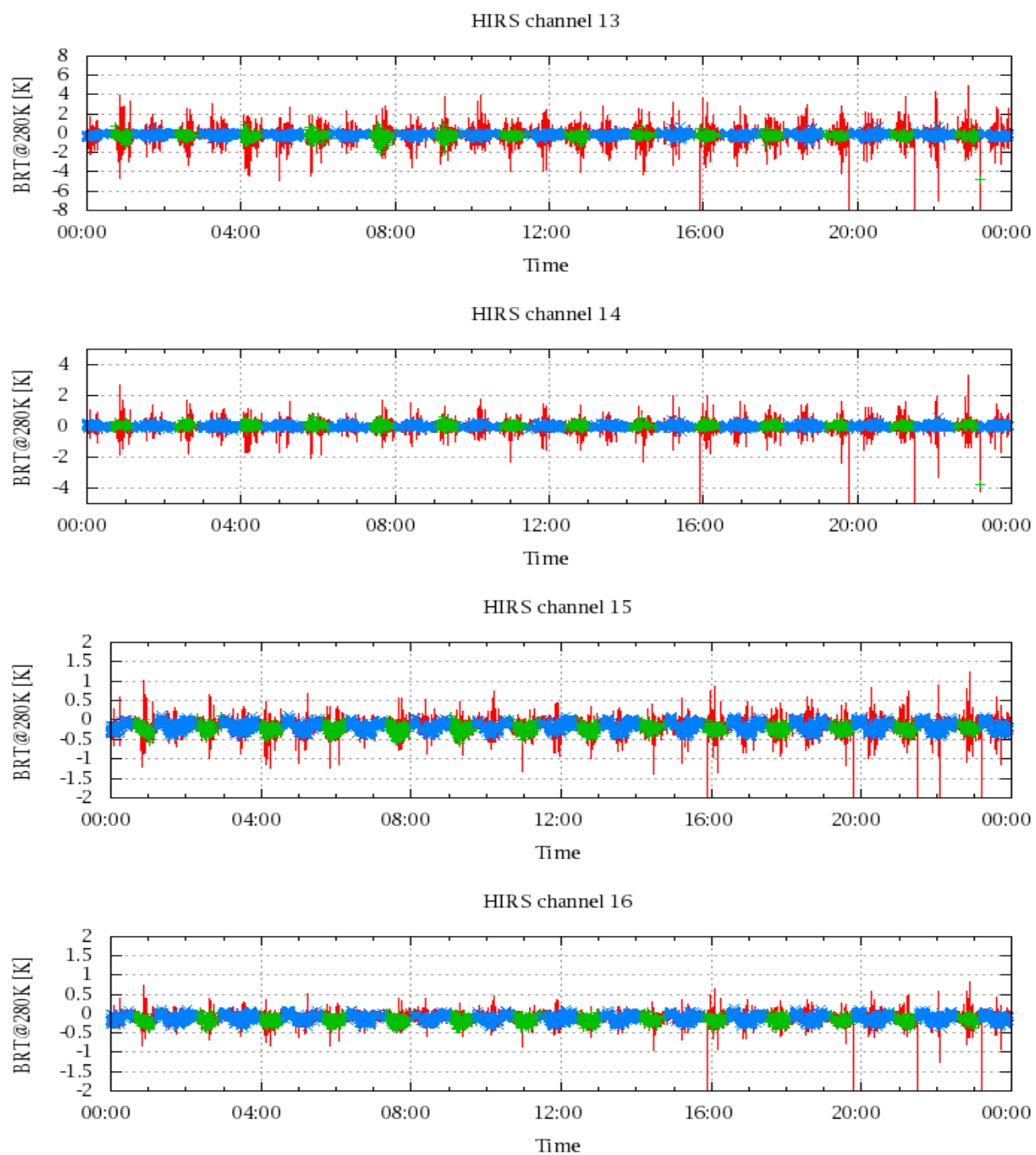


Figure 20: Radiance Differences in BRT

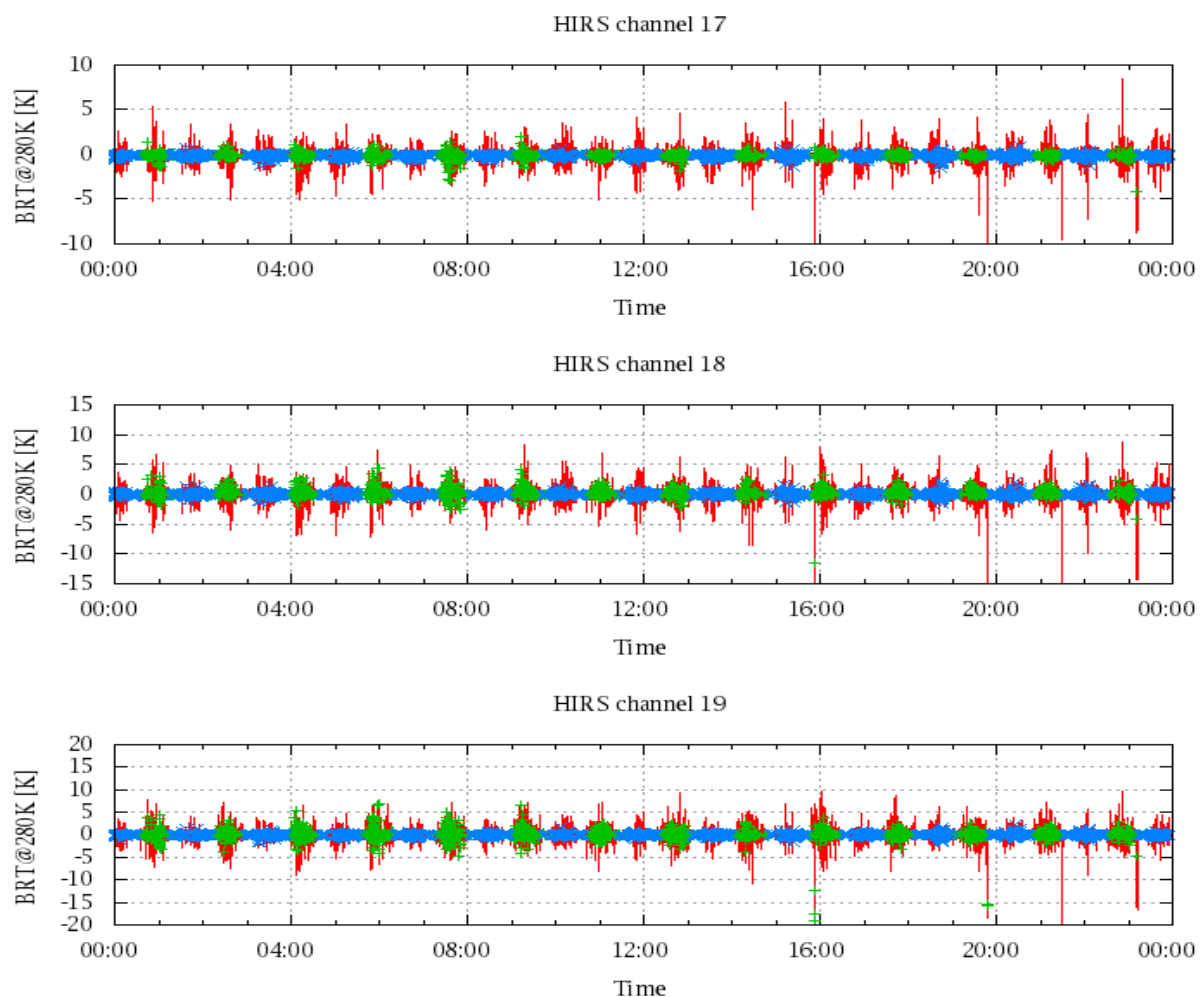


Figure 21: Radiances Differences in BRT