

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

21/03/2018 00:00:00 - 22/03/2018 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 21/03/2018 00:00:00 - 22/03/2018 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 21/03/2018 00:00:00 - 22/03/2018 00:00:00

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

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	2433	2441	20180321080723.373	20180321080725.104
PX1 (130)	282	307	20180321113615.886	20180321113622.804
PX1 (130)	313	379	20180321113624.101	20180321113642.913
PX1 (130)	381	457	20180321113643.347	20180321113702.804
PX1 (130)	2127	2134	20180321125717.519	20180321125719.031
PX1 (130)	2345	2352	20180321125815.245	20180321125818.273
PX1 (130)	2561	2573	20180321125912.542	20180321125916.648
PX1 (130)	11075	11179	20180321160242.463	20180321160309.490
PX2 (135)	2433	2441	20180321080723.373	20180321080725.104
PX2 (135)	282	307	20180321113615.886	20180321113622.804
PX2 (135)	313	379	20180321113624.101	20180321113642.913
PX2 (135)	381	457	20180321113643.347	20180321113702.804
PX2 (135)	2127	2134	20180321125717.519	20180321125719.031
PX2 (135)	2345	2352	20180321125815.245	20180321125818.273
PX2 (135)	2561	2572	20180321125912.542	20180321125916.433
PX2 (135)	11075	11179	20180321160242.463	20180321160309.490
PX3 (140)	2433	2441	20180321080723.373	20180321080725.104
PX3 (140)	282	307	20180321113615.886	20180321113622.804

Continued on next page

Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	313	379	20180321113624.101	20180321113642.913
PX3 (140)	381	457	20180321113643.347	20180321113702.804
PX3 (140)	2127	2134	20180321125717.519	20180321125719.031
PX3 (140)	2344	2352	20180321125815.031	20180321125818.273
PX3 (140)	2561	2572	20180321125912.542	20180321125916.433
PX3 (140)	11075	11179	20180321160242.463	20180321160309.490
PX4 (145)	2432	2441	20180321080723.159	20180321080725.104
PX4 (145)	282	307	20180321113615.886	20180321113622.804
PX4 (145)	312	378	20180321113623.886	20180321113642.698
PX4 (145)	381	457	20180321113643.347	20180321113702.804
PX4 (145)	2126	2134	20180321125717.300	20180321125719.031
PX4 (145)	2344	2352	20180321125815.031	20180321125818.273
PX4 (145)	2561	2572	20180321125912.542	20180321125916.433
PX4 (145)	11075	11178	20180321160242.463	20180321160309.275
IMG (150)	14648	14656	20180321080723.159	20180321080724.889
IMG (150)	2378	2407	20180321113615.886	20180321113622.804
IMG (150)	2412	2490	20180321113623.886	20180321113642.698
IMG (150)	2492	2577	20180321113643.128	20180321113702.804
IMG (150)	6654	6662	20180321125717.300	20180321125719.031
IMG (150)	6900	6908	20180321125815.031	20180321125816.976
IMG (150)	7145	7160	20180321125912.542	20180321125916.433
IMG (150)	4782	4898	20180321160242.248	20180321160309.275
VER (160)	11255	11267	20180321080720.565	20180321080728.565
VER (160)	2701	2732	20180321113608.534	20180321113704.534
VER (160)	5776	5781	20180321125808.542	20180321125815.245
VER (160)	5813	5817	20180321125912.542	20180321125920.538
VER (160)	12697	12702	20180321160309.490	20180321160309.490
VER (160)	12702	12707	20180321160309.490	20180321160309.490
VER (160)	12707	12698	20180321160309.490	20180321160309.490
VER (160)	12698	12703	20180321160309.490	20180321160309.490
VER (160)	12703	12708	20180321160309.490	20180321160309.490
VER (160)	12708	12699	20180321160309.490	20180321160309.490
VER (160)	12699	12704	20180321160309.490	20180321160309.490
VER (160)	12704	12709	20180321160309.490	20180321160309.490
VER (160)	12709	12700	20180321160309.490	20180321160309.490
VER (160)	12700	12705	20180321160309.490	20180321160309.490
VER (160)	12705	12710	20180321160309.490	20180321160309.490
VER (160)	12710	12701	20180321160309.490	20180321160309.490
VER (160)	12701	12706	20180321160309.490	20180321160309.490
VER (160)	12706	12711	20180321160309.490	20180321160309.490
VER (160)	12342	12374	20180321231008.483	20180321231015.186
AUX (180)	1145	1147	20180321125904.972	20180321125920.972

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
21/03/2018 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	479	-
L1 ENG distinct GEPSGranule	479	-
GQisFlagQual set (PX1)	99.51 %	-
GQisFlagQual set (PX2)	99.54 %	-
GQisFlagQual set (PX3)	99.55 %	-
GQisFlagQual set (PX4)	99.50 %	-
GQisFlagQual set (all)	99.52 %	-

Table 4: Quality flags

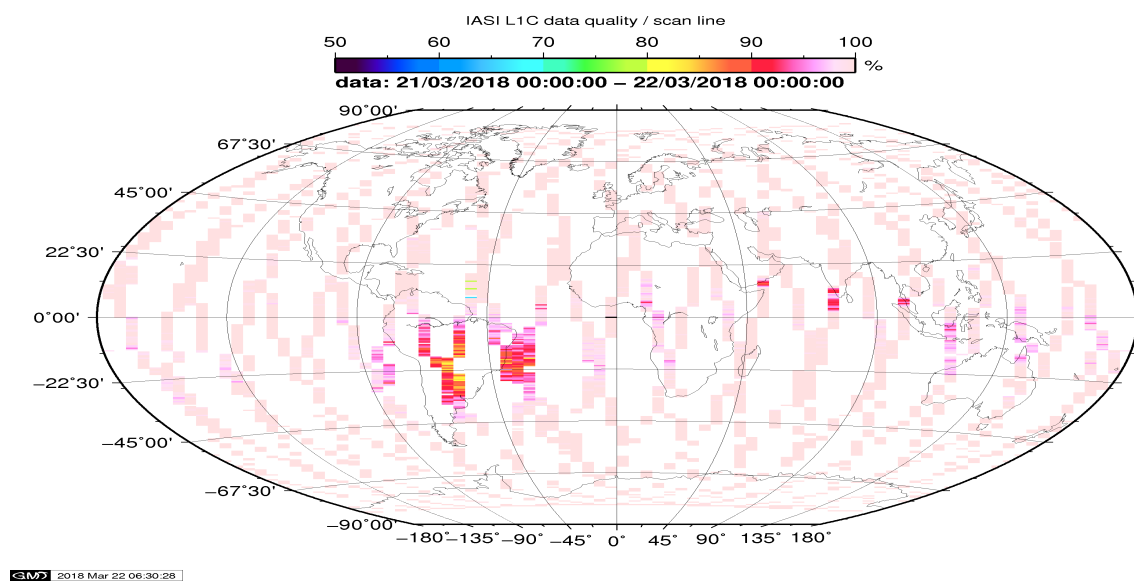


Figure 1: L1C data quality

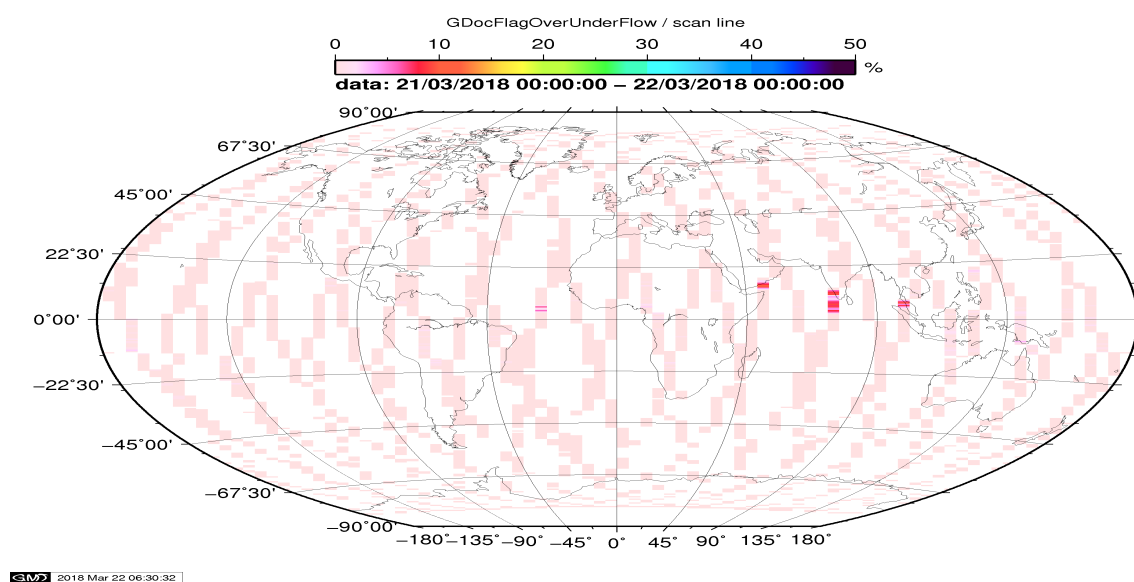


Figure 2: Flag of Over and Under Flows

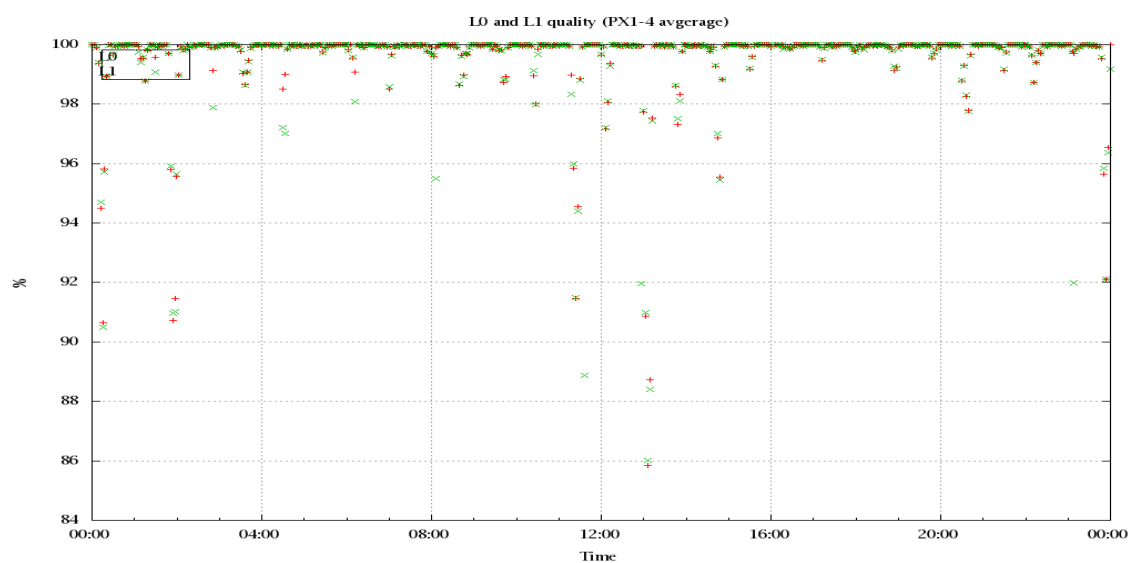


Figure 3: Level 0 and 1C overall quality

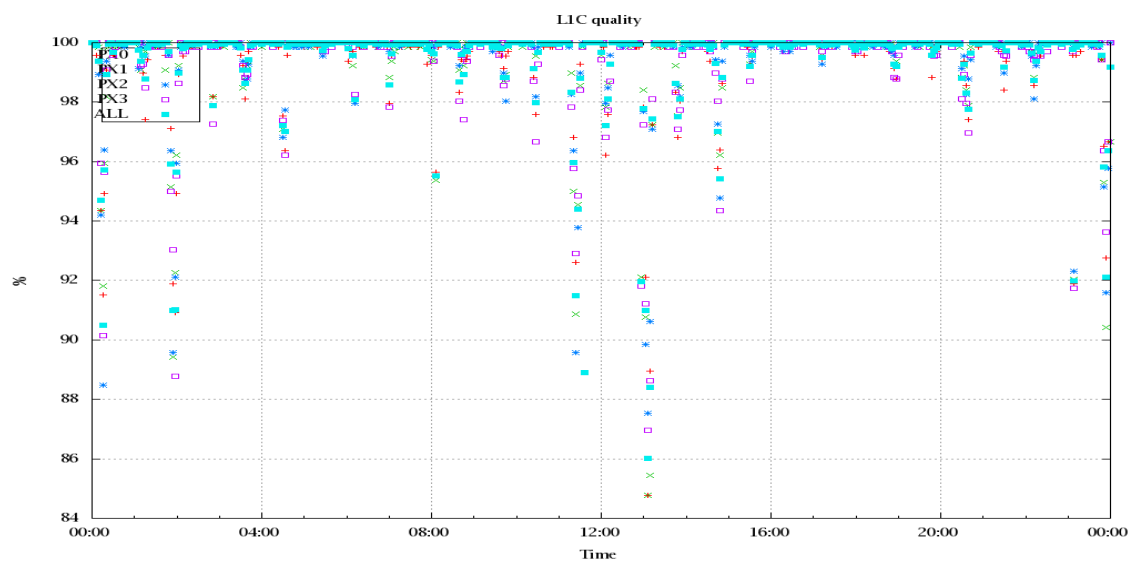


Figure 4: Level 1C quality

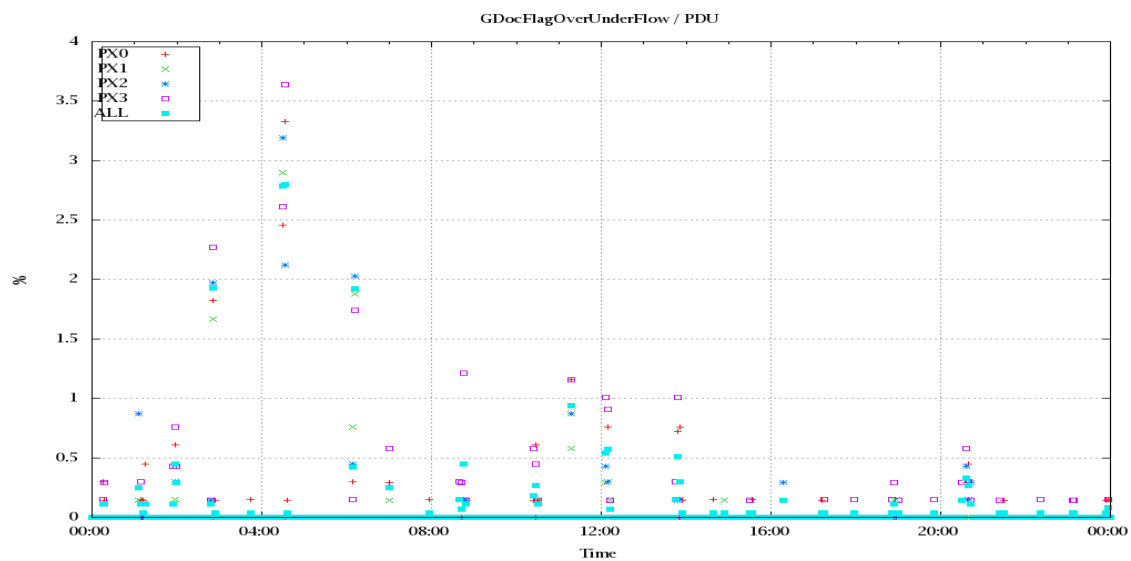


Figure 5: OverUnderFlowFlag timeseries

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.

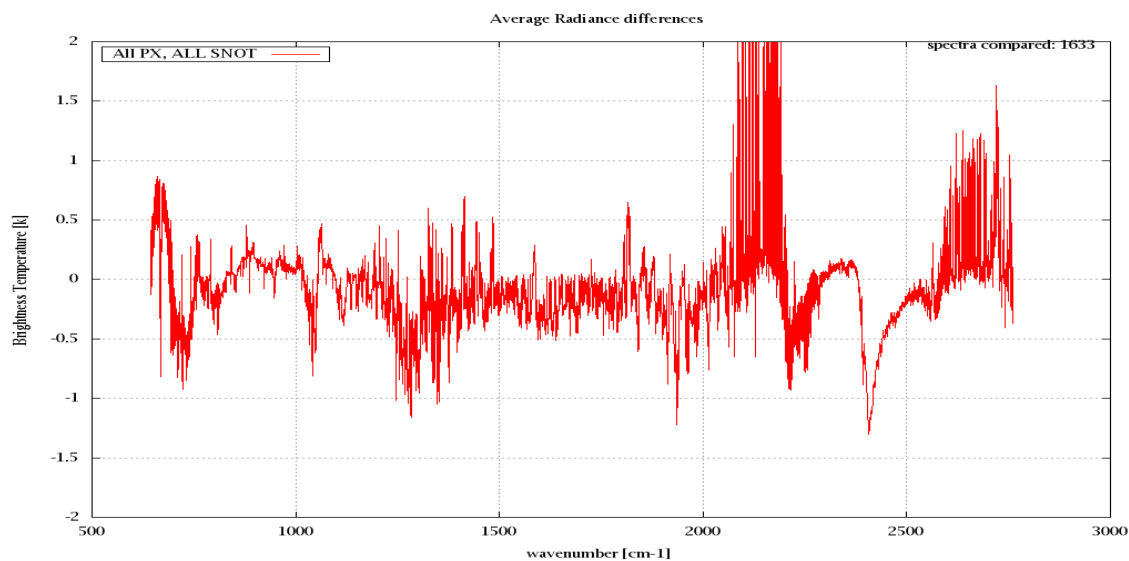


Figure 6: Average Radiance differences: OBS-CAL

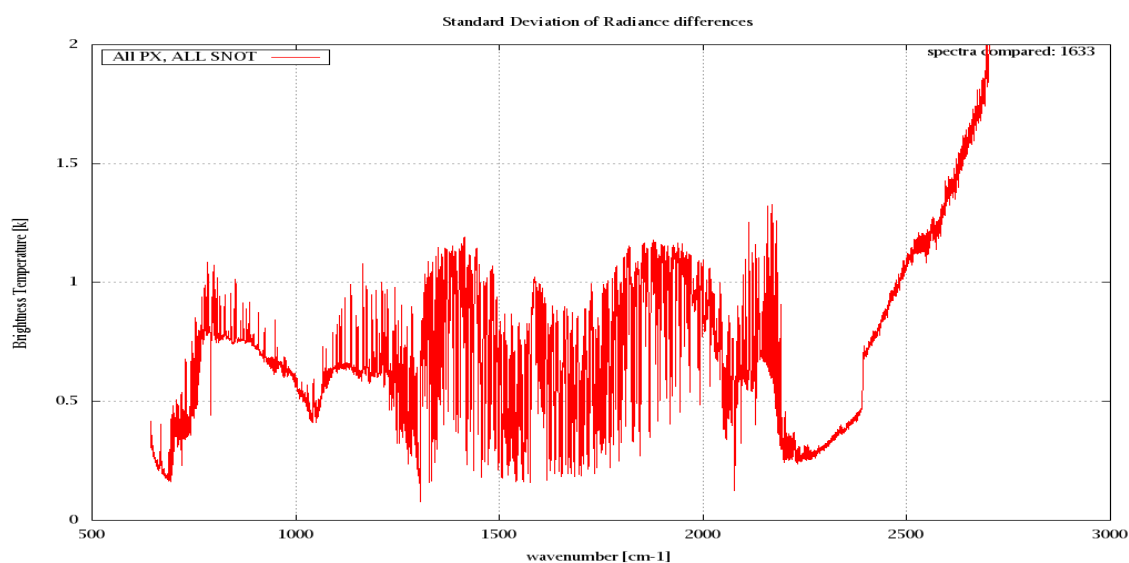


Figure 7: Standard Deviation of Radiance differences

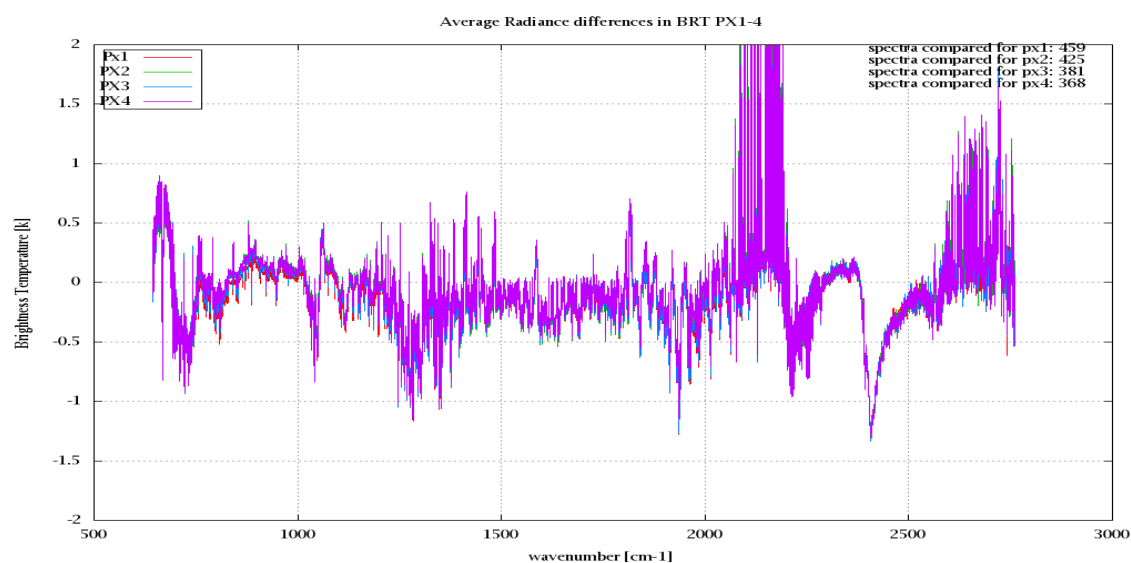


Figure 8: Average Radiance differences: OBS-CAL

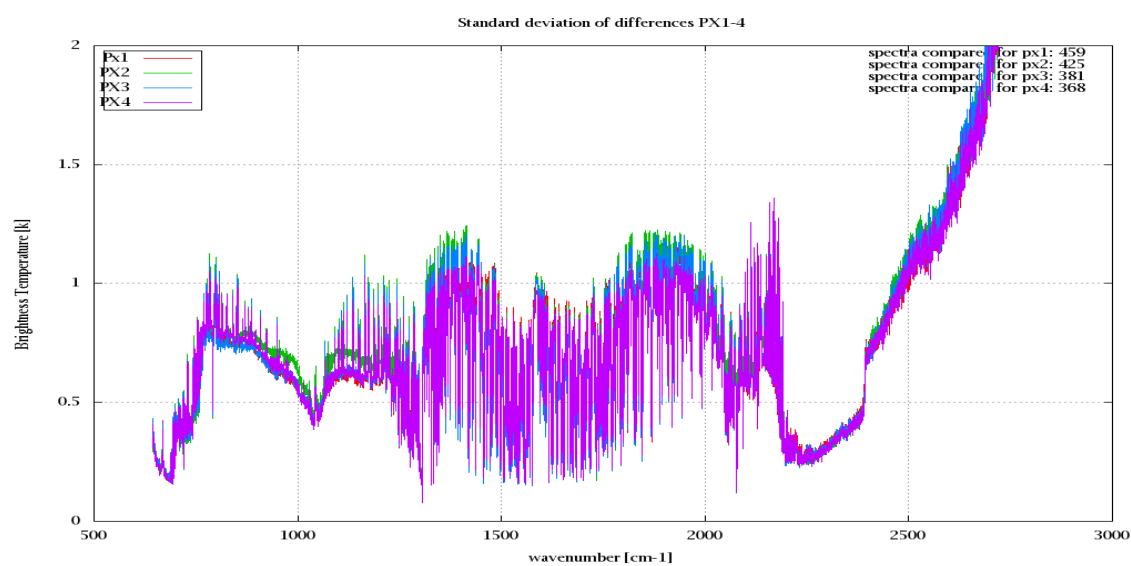


Figure 9: Standard Deviation of Radiance differences

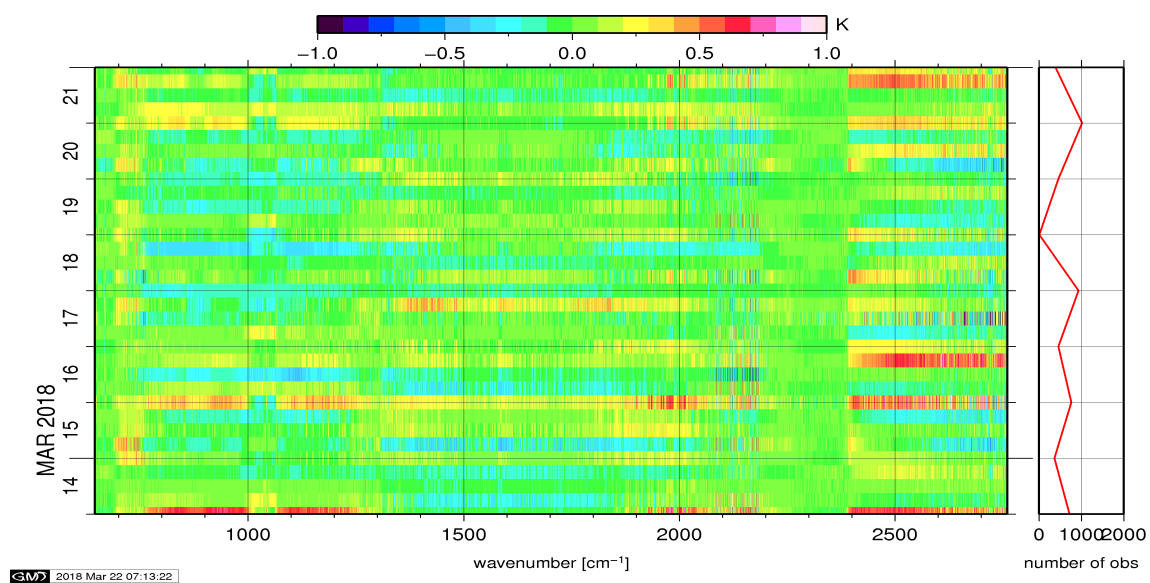


Figure 10: Radiance Anomaly in BRT: All Channels

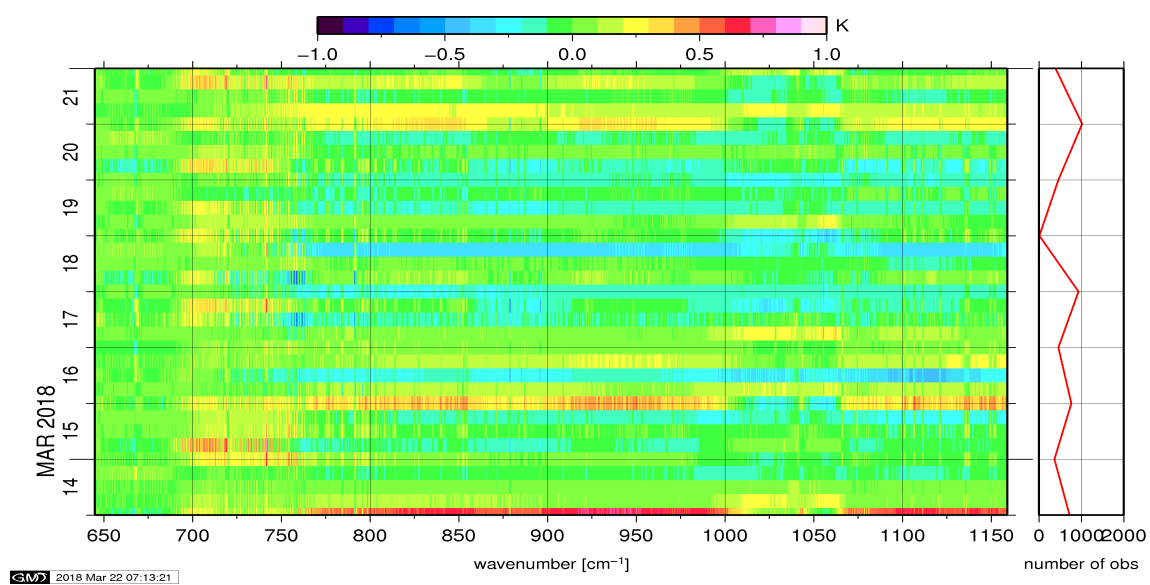


Figure 11: Radiance Anomaly in BRT: IASI Band 1

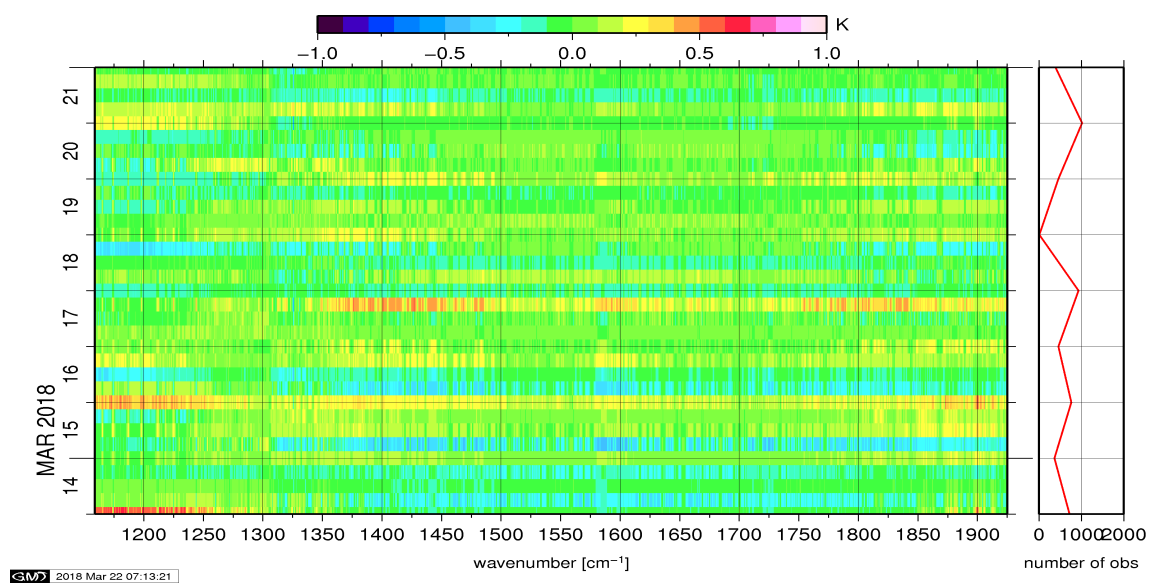


Figure 12: Radiance Anomaly in BRT: IASI Band 2

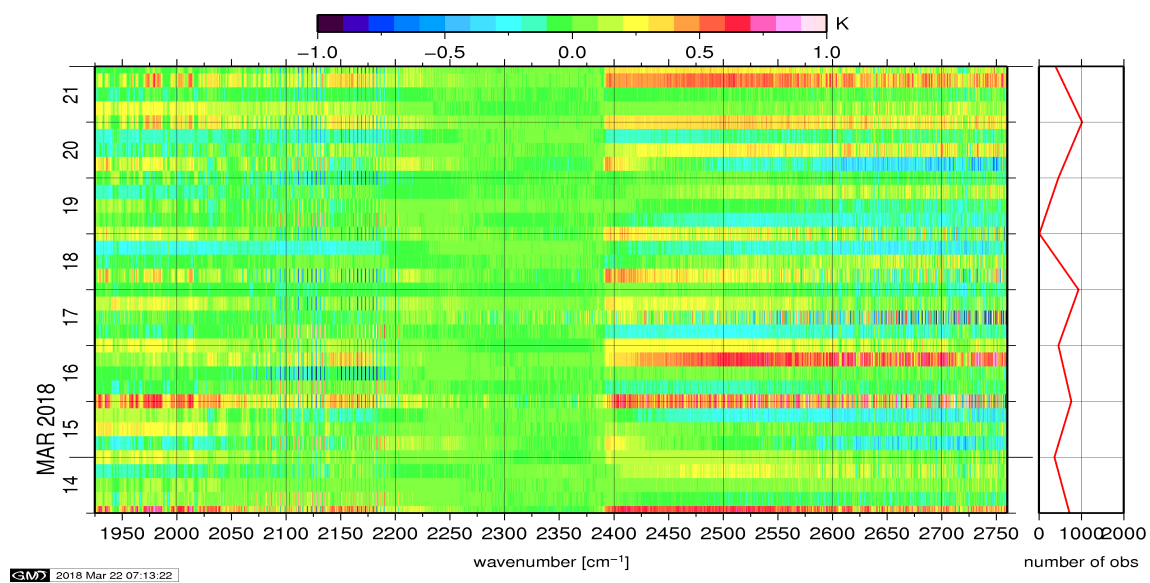


Figure 13: Radiance Anomaly in BRT: IASI Band 3

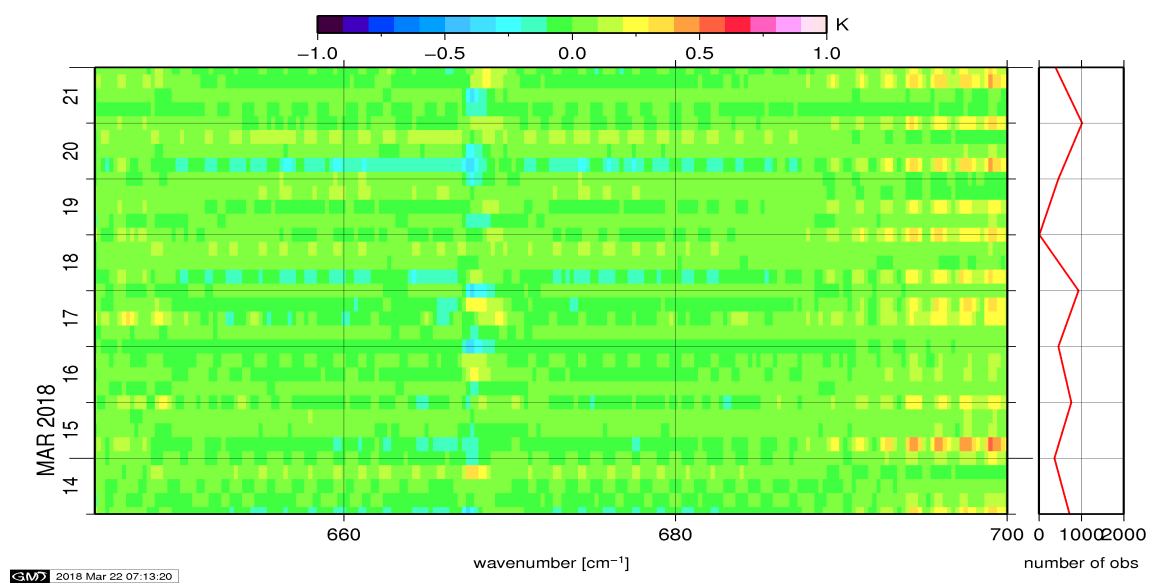


Figure 14: Radiance Anomaly in BRT: CO2 14

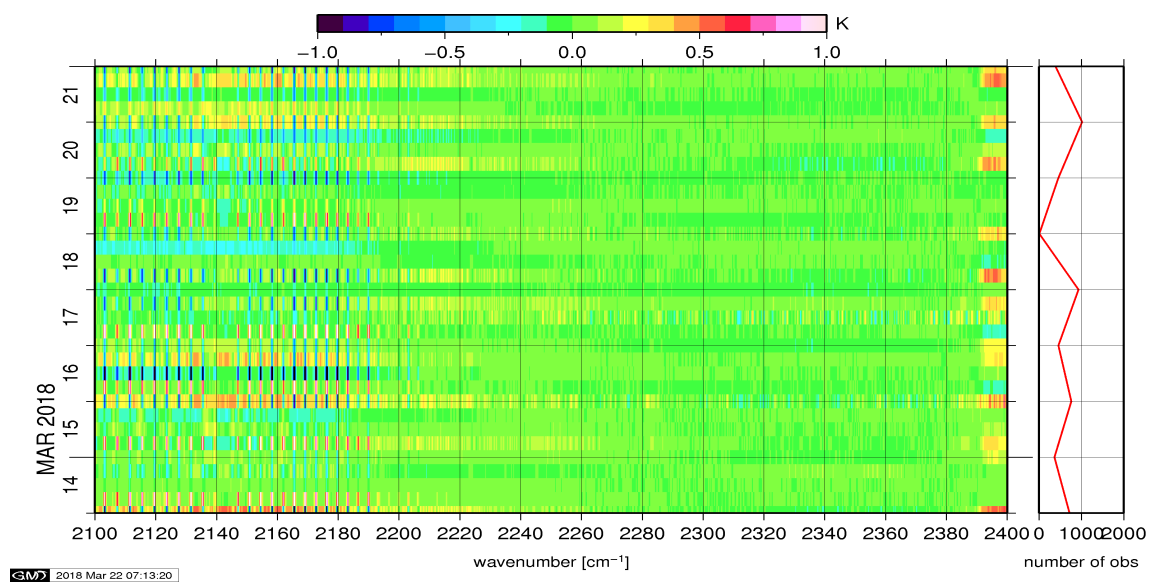


Figure 15: Radiance Anomaly in BRT: CO2 4.3

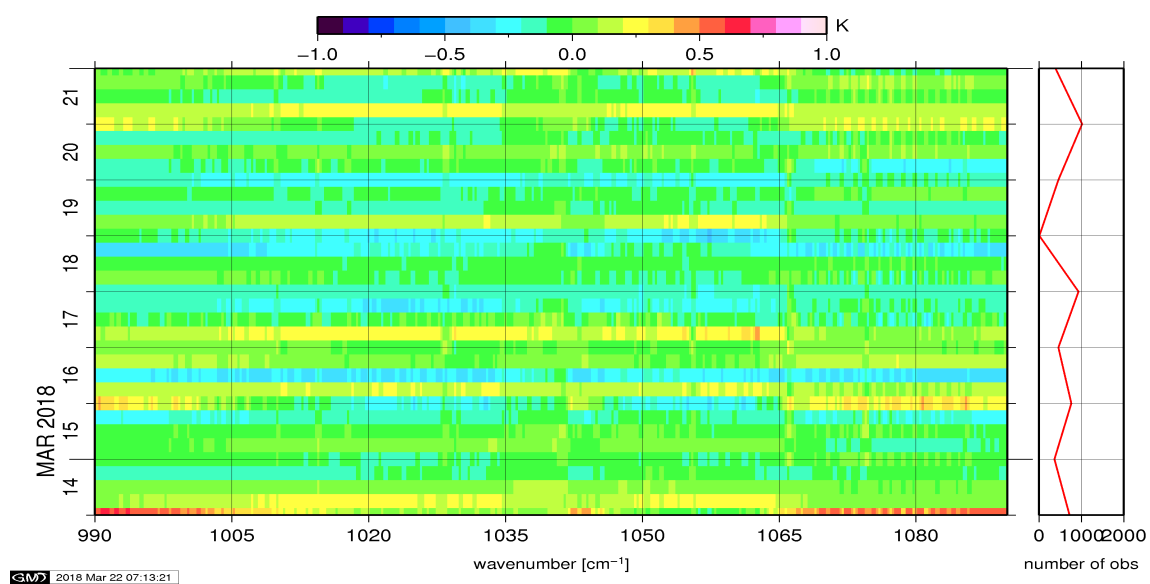


Figure 16: Radiance Anomaly in BRT: O3

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.

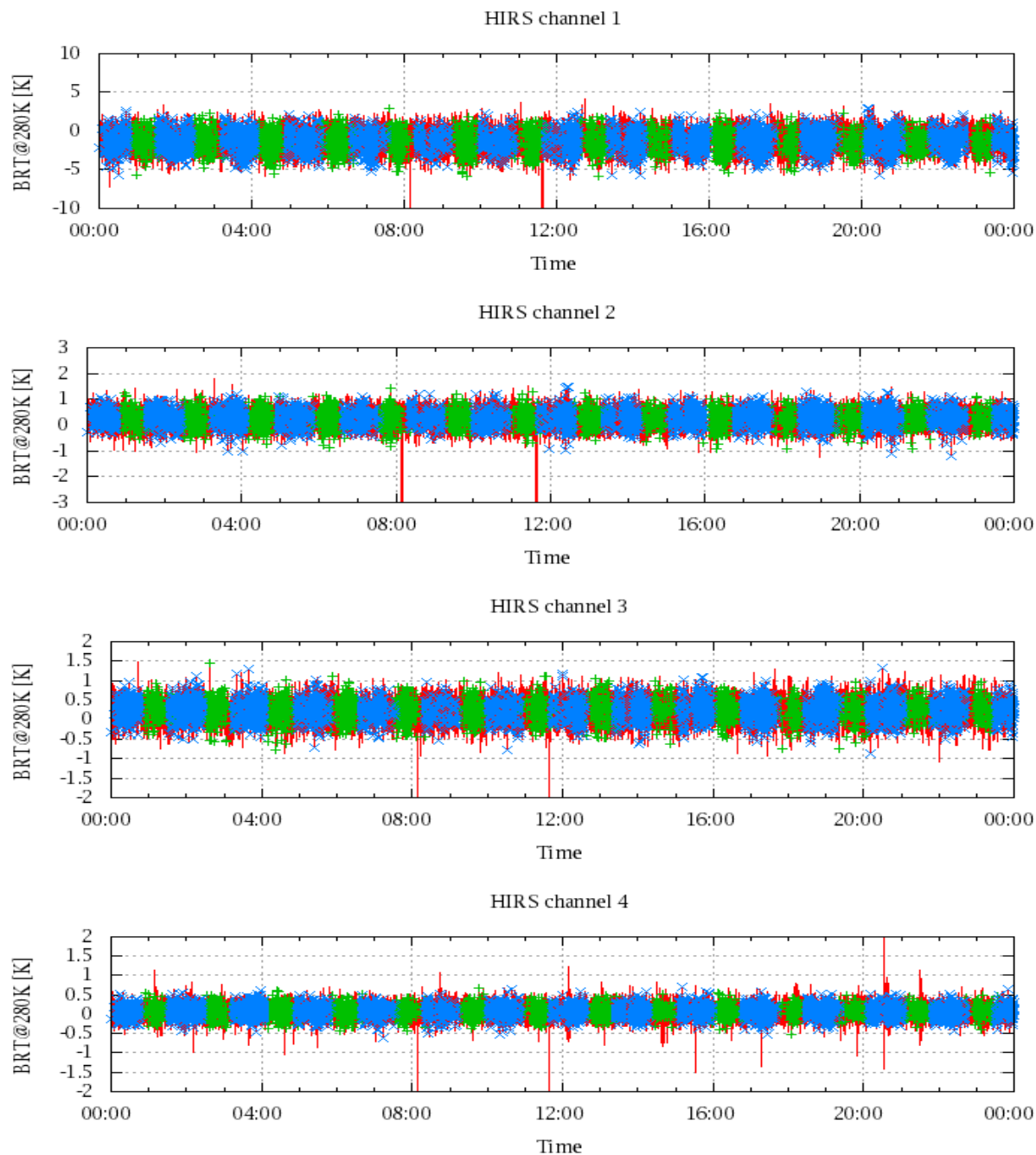


Figure 17: Radiance Differences in BRT

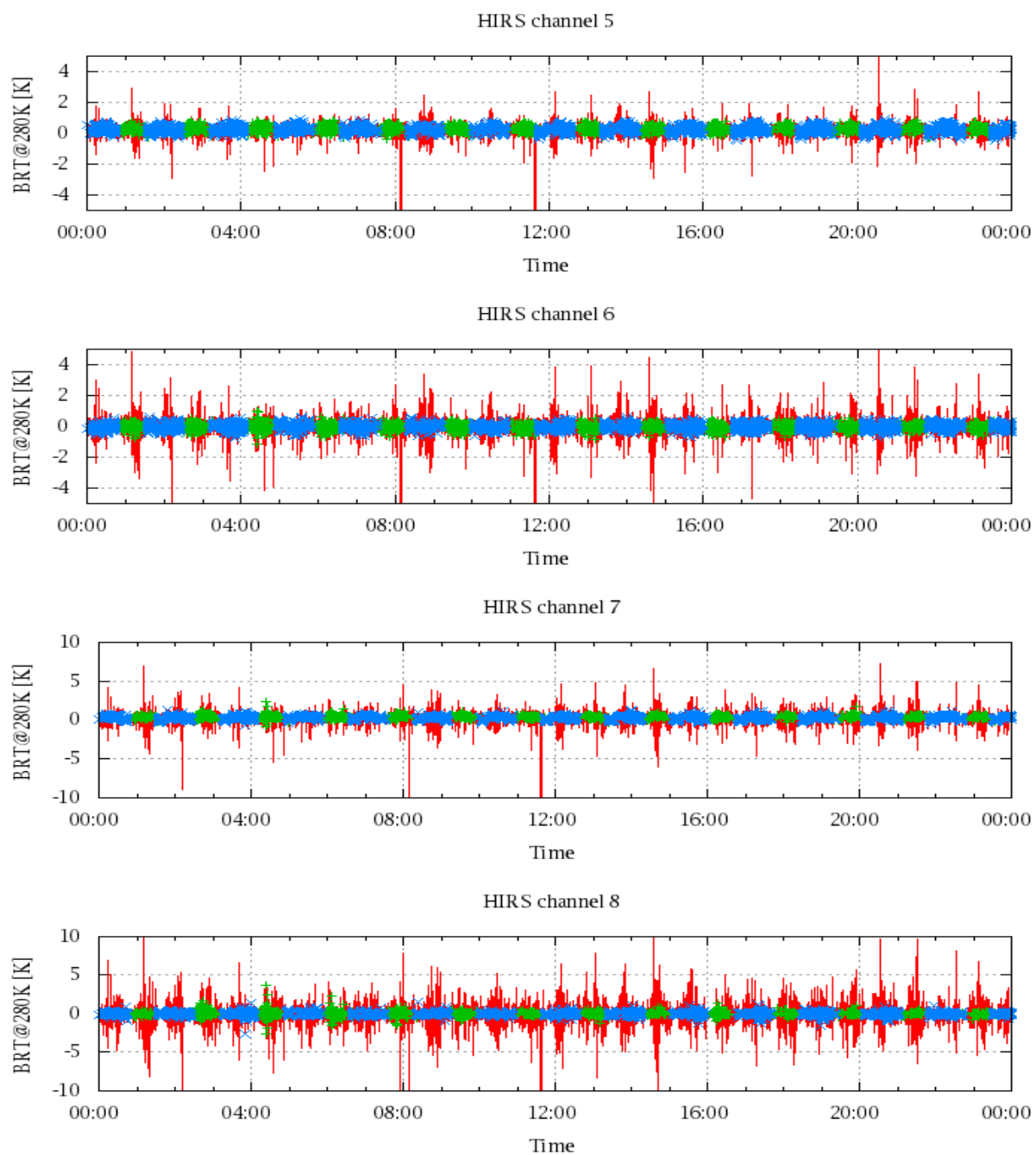


Figure 18: Radiance Differences in BRT

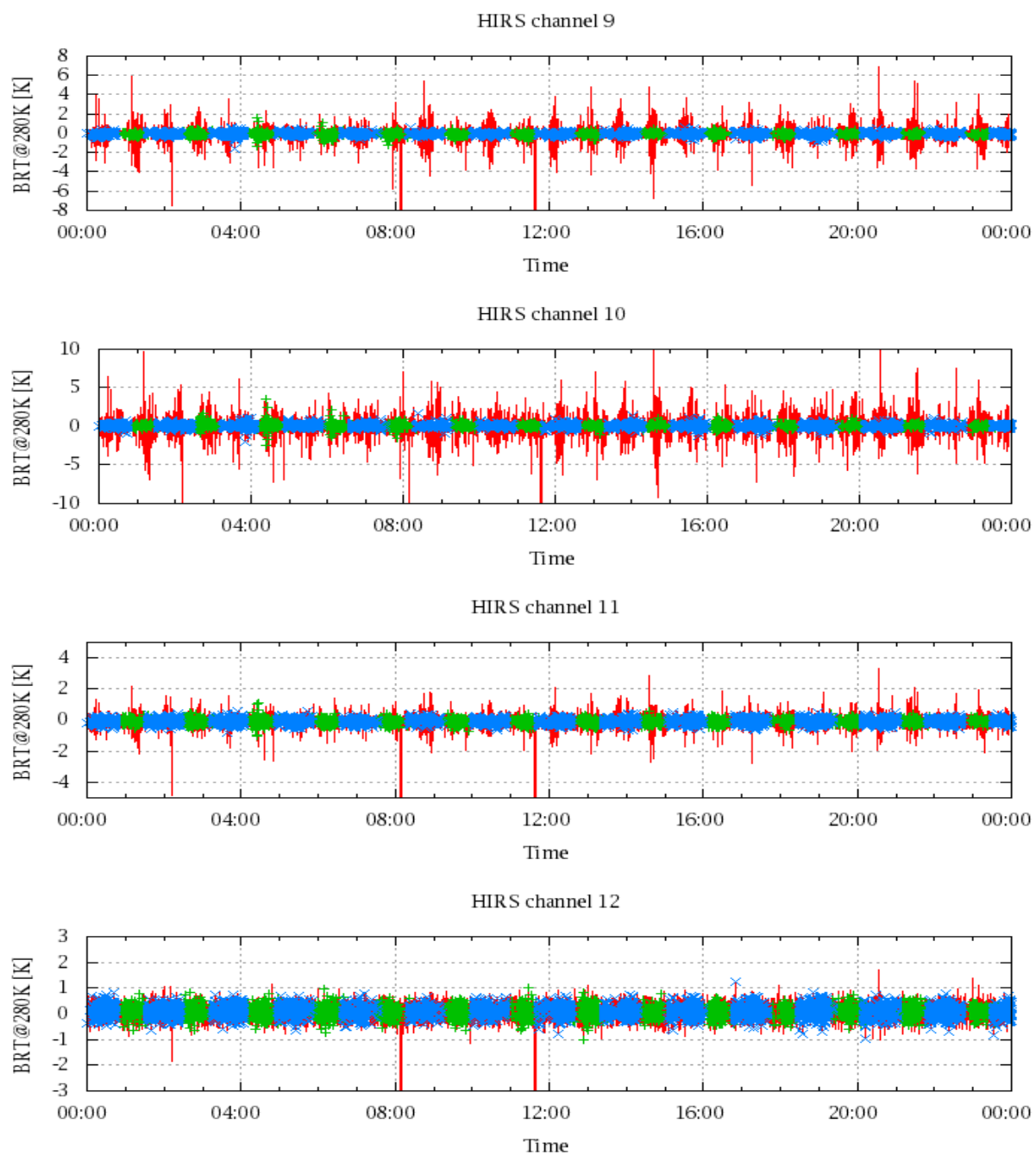


Figure 19: Radiance Differences in BRT

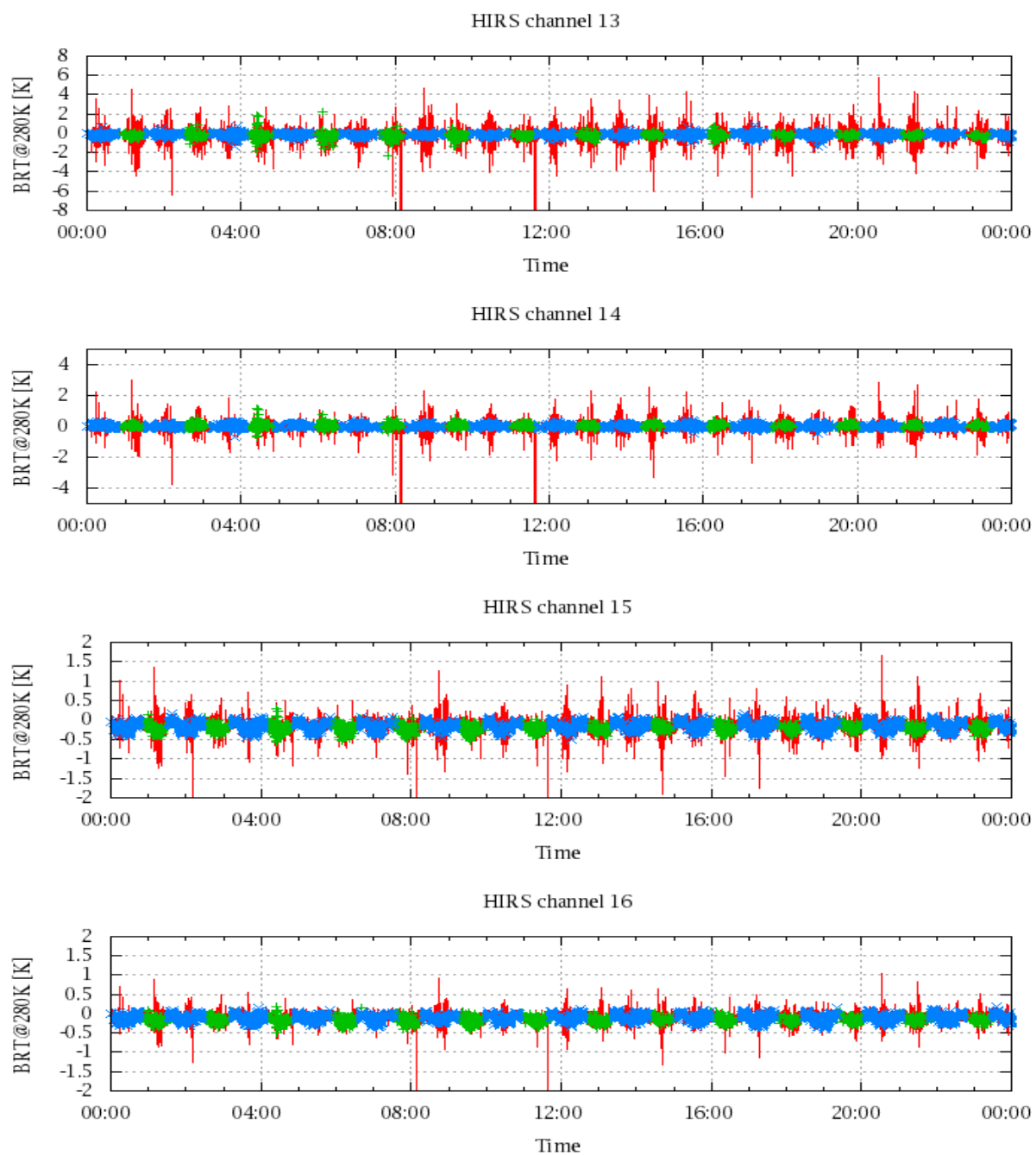


Figure 20: Radiance Differences in BRT

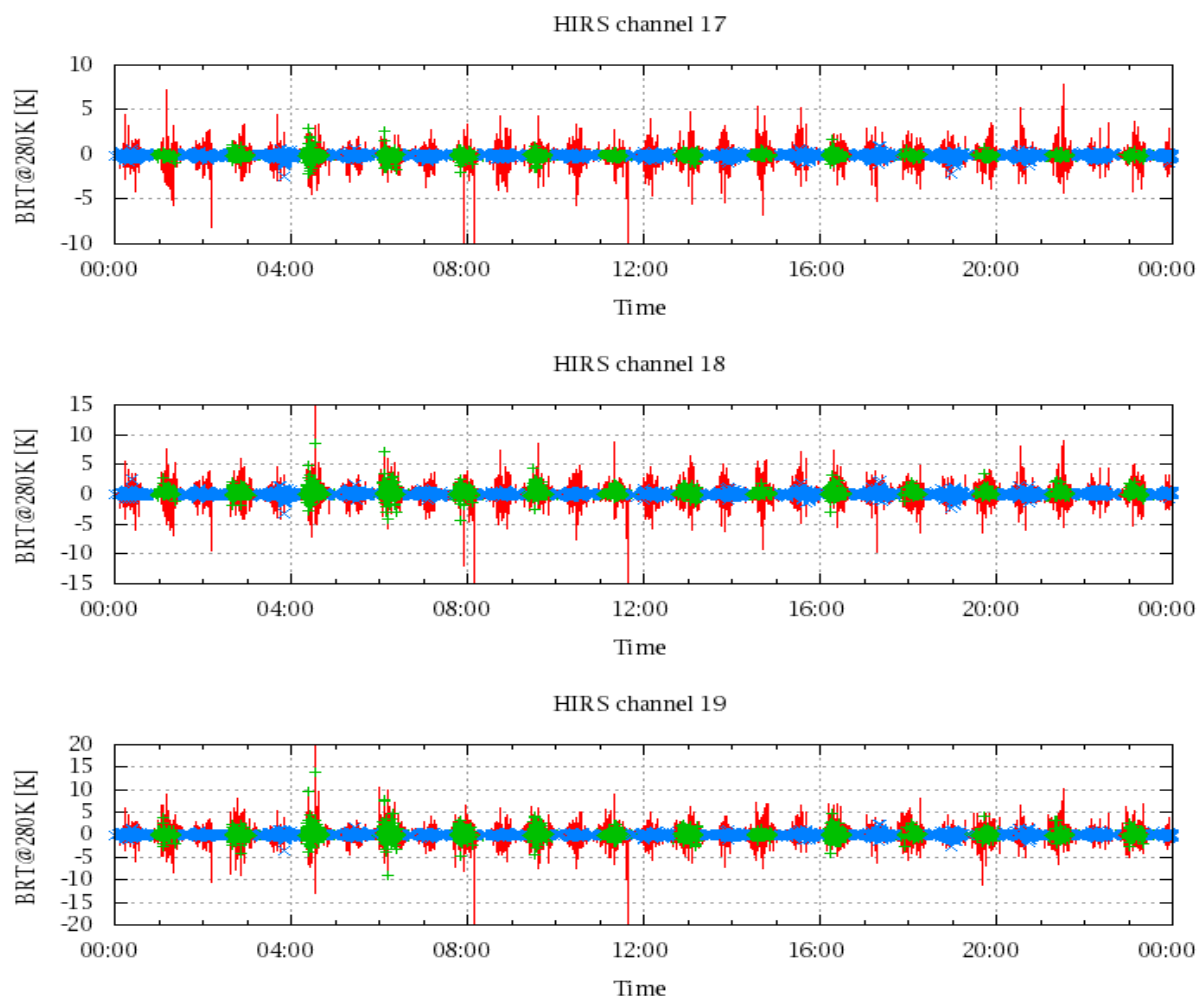


Figure 21: Radinace Differences in BRT