

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

24/04/2018 00:00:00 - 25/04/2018 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 24/04/2018 00:00:00 - 25/04/2018 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 24/04/2018 00:00:00 - 25/04/2018 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	446	e
L1 ENG distinct GEPSGranule	447	a
L1 DPX PDUs (RM: IASI-HIRS)	446	e
L1 DPS Files (RM: OBS-CAL NWP based)	446	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	10806	10815	20180424073254.608	20180424073256.553
PX1 (130)	923	995	20180424091435.985	20180424091456.090
PX1 (130)	1523	1570	20180424091715.980	20180424091729.168
PX1 (130)	7233	7310	20180424105528.498	20180424105549.725
PX1 (130)	7362	7422	20180424105602.483	20180424105618.483
PX1 (130)	3111	3205	20180424141536.487	20180424141601.350
PX1 (130)	3637	3715	20180424141755.944	20180424141817.350
PX2 (135)	10806	10815	20180424073254.608	20180424073256.553
PX2 (135)	923	994	20180424091435.985	20180424091455.875
PX2 (135)	1523	1570	20180424091715.980	20180424091729.168
PX2 (135)	7233	7310	20180424105528.498	20180424105549.725
PX2 (135)	7362	7422	20180424105602.483	20180424105618.483
PX2 (135)	3111	3205	20180424141536.487	20180424141601.350
PX2 (135)	3637	3715	20180424141755.944	20180424141817.350
PX3 (140)	10806	10814	20180424073254.608	20180424073256.334
PX3 (140)	923	994	20180424091435.985	20180424091455.875
PX3 (140)	1523	1569	20180424091715.980	20180424091728.953

Continued on next page

Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	7233	7310	20180424105528.498	20180424105549.725
PX3 (140)	7362	7422	20180424105602.483	20180424105618.483
PX3 (140)	3111	3205	20180424141536.487	20180424141601.350
PX3 (140)	3637	3714	20180424141755.944	20180424141817.131
PX4 (145)	10806	10814	20180424073254.608	20180424073256.334
PX4 (145)	923	994	20180424091435.985	20180424091455.875
PX4 (145)	1523	1569	20180424091715.980	20180424091728.953
PX4 (145)	7233	7310	20180424105528.498	20180424105549.725
PX4 (145)	7362	7422	20180424105602.483	20180424105618.483
PX4 (145)	3111	3205	20180424141536.487	20180424141601.350
PX4 (145)	3637	3714	20180424141755.944	20180424141817.131
IMG (150)	16093	16102	20180424073254.389	20180424073256.334
IMG (150)	9259	9342	20180424091435.985	20180424091455.875
IMG (150)	9939	9993	20180424091715.980	20180424091728.953
IMG (150)	2212	2298	20180424105528.284	20180424105548.428
IMG (150)	2357	2425	20180424105602.264	20180424105618.264
IMG (150)	4094	4201	20180424141536.272	20180424141601.350
IMG (150)	4689	4778	20180424141755.944	20180424141817.131
VER (160)	14604	14617	20180424091435.985	20180424091459.985
VER (160)	14703	14707	20180424091715.980	20180424091731.980
VER (160)	14707	14712	20180424091731.980	20180424091731.980
VER (160)	14712	14708	20180424091731.980	20180424091731.980
VER (160)	14708	14713	20180424091731.980	20180424091731.980
VER (160)	14713	14704	20180424091731.980	20180424091731.980
VER (160)	14704	14709	20180424091731.980	20180424091731.980
VER (160)	14709	14714	20180424091731.980	20180424091731.980
VER (160)	14714	14705	20180424091731.980	20180424091731.980
VER (160)	14705	14710	20180424091731.980	20180424091731.980
VER (160)	14710	14715	20180424091731.980	20180424091731.980
VER (160)	14715	14706	20180424091731.980	20180424091731.980
VER (160)	14706	14711	20180424091731.980	20180424091731.980
VER (160)	14711	14716	20180424091731.980	20180424091731.980
VER (160)	2002	2014	20180424105523.959	20180424105528.498
VER (160)	2023	2028	20180424105618.698	20180424105618.698
VER (160)	2028	2024	20180424105618.698	20180424105618.698
VER (160)	2024	2029	20180424105618.698	20180424105618.698
VER (160)	2029	2025	20180424105618.698	20180424105618.698
VER (160)	2025	2030	20180424105618.698	20180424105618.698
VER (160)	2030	2026	20180424105618.698	20180424105618.698
VER (160)	2026	2031	20180424105618.698	20180424105618.698
VER (160)	2031	2027	20180424105618.698	20180424105618.698
VER (160)	2027	2032	20180424105618.698	20180424105618.698
VER (160)	5767	5786	20180424123547.969	20180424123619.969
VER (160)	9507	9523	20180424141531.948	20180424141603.948
VER (160)	9594	9608	20180424141755.944	20180424141819.944
AUX (180)	6179	6183	20180424091428.418	20180424091500.414
AUX (180)	6936	6939	20180424105524.393	20180424105548.428
AUX (180)	8437	8441	20180424141532.378	20180424141604.378
AUX (180)	8454	8458	20180424141748.377	20180424141820.373

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
24/04/2018 00:00:09	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	481	-
L1 ENG PDUs	446	e
L1 ENG distinct GEPSGranule	447	a
GQisFlagQual set (PX1)	99.52 %	-
GQisFlagQual set (PX2)	99.55 %	-
GQisFlagQual set (PX3)	99.56 %	-
GQisFlagQual set (PX4)	99.49 %	-
GQisFlagQual set (all)	99.53 %	-

Table 4: Quality flags

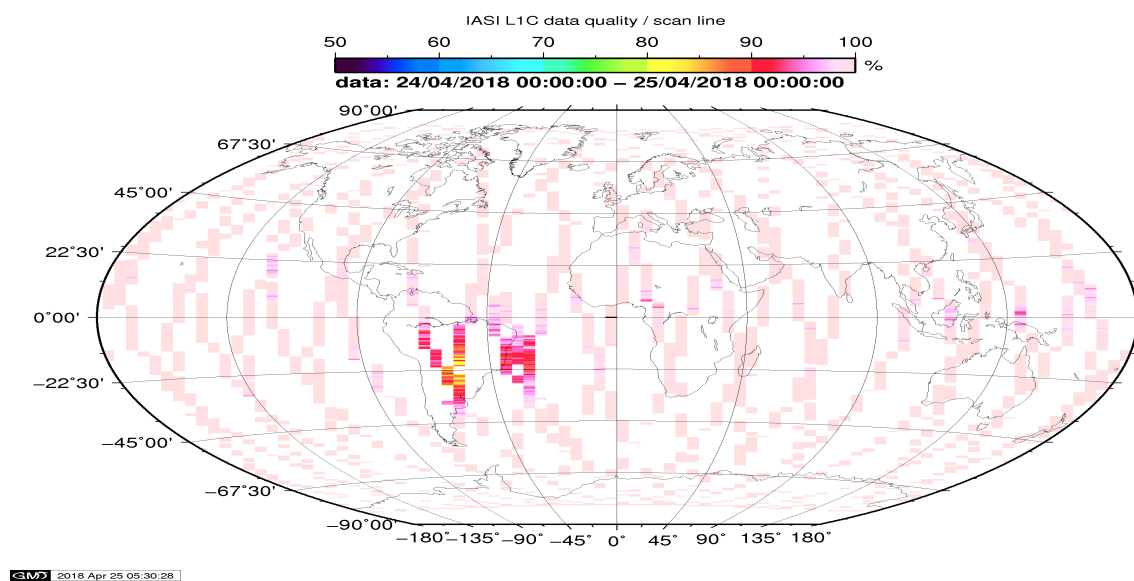


Figure 1: L1C data quality

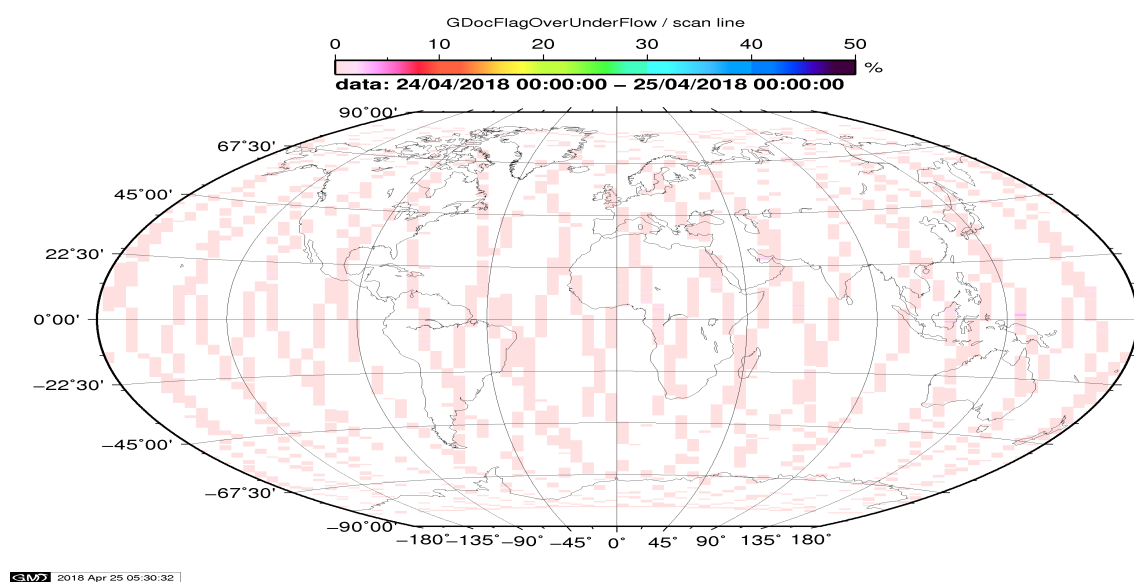


Figure 2: Flag of Over and Under Flows

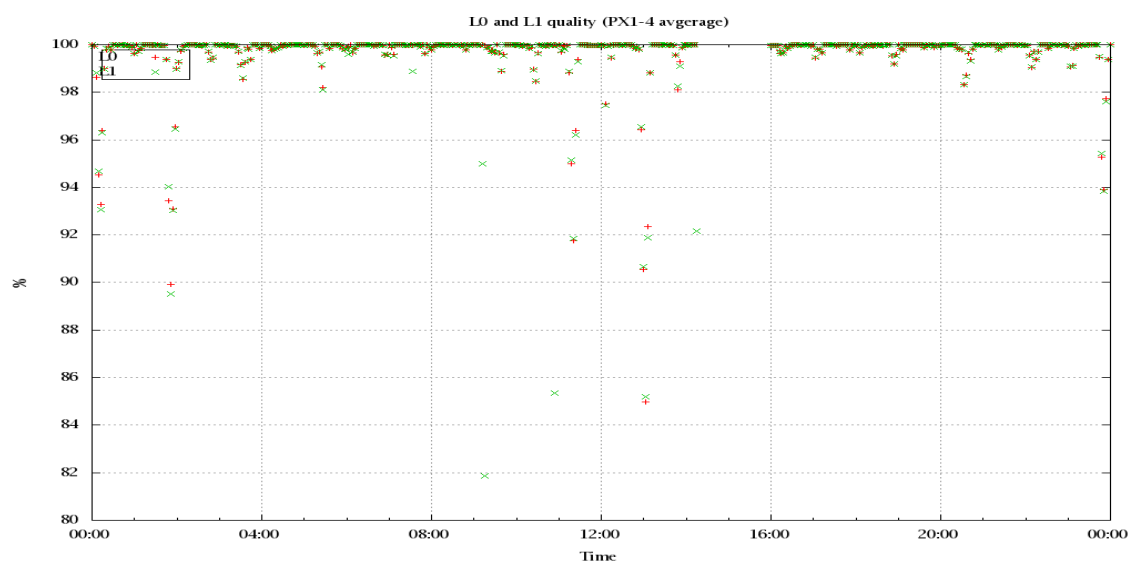


Figure 3: Level 0 and 1C overall quality

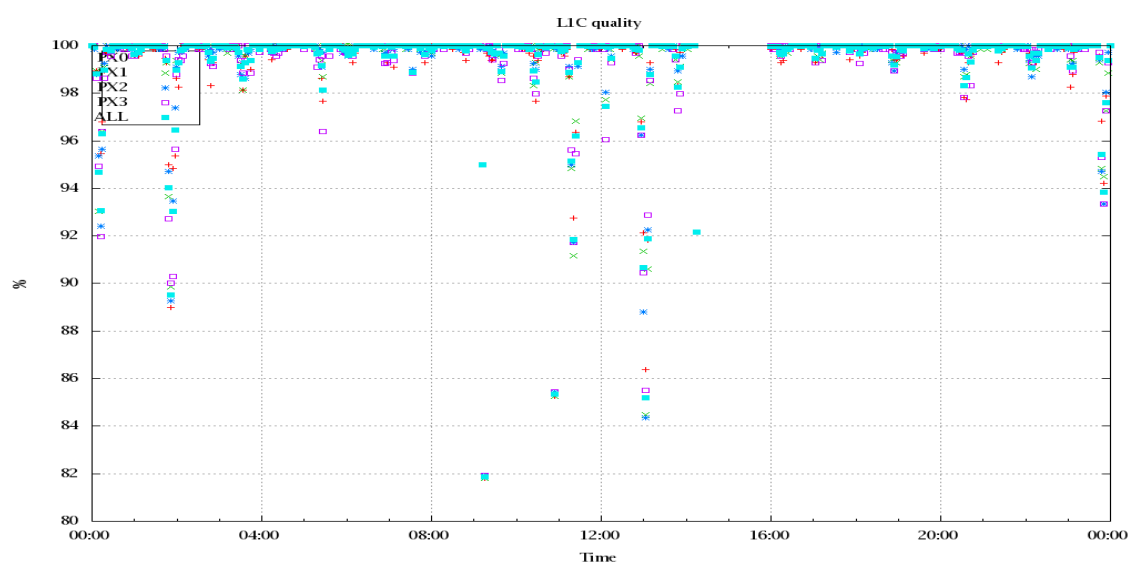


Figure 4: Level 1C quality

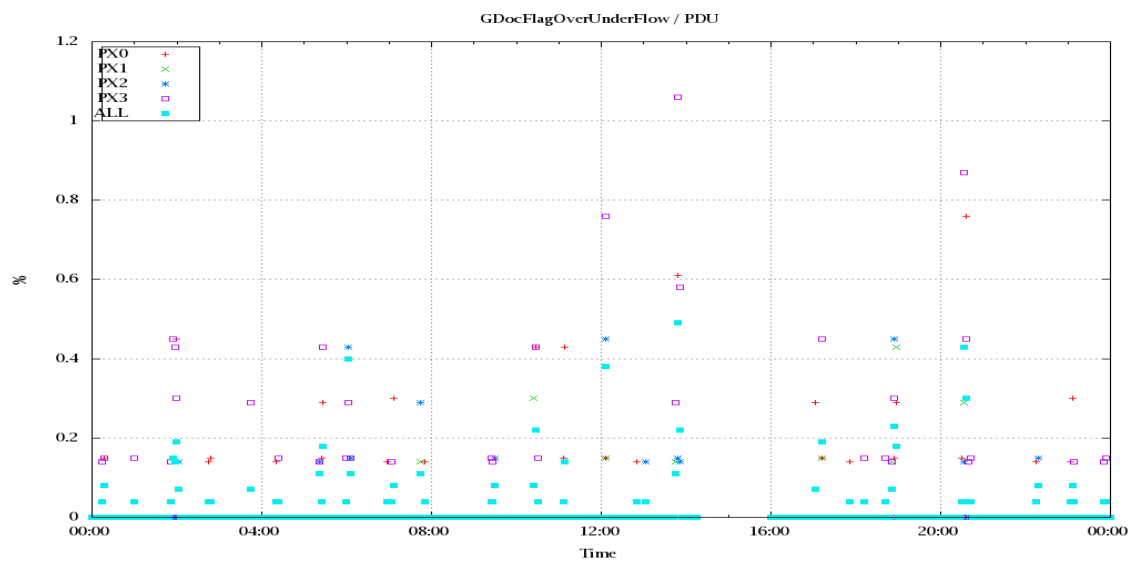


Figure 5: OverUnderFlowFlag timeseries

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.

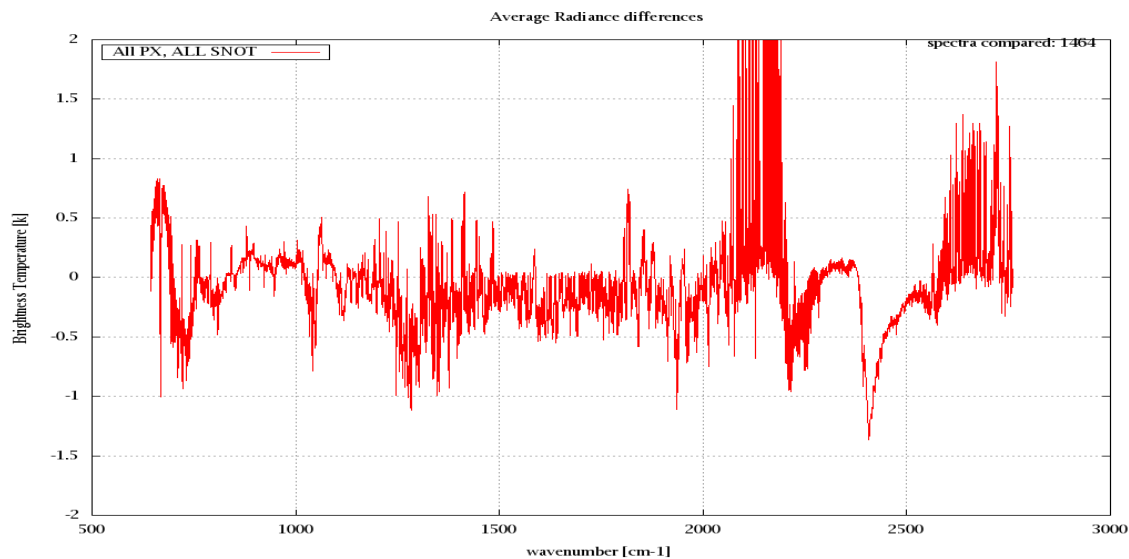


Figure 6: Average Radiance differences: OBS-CAL

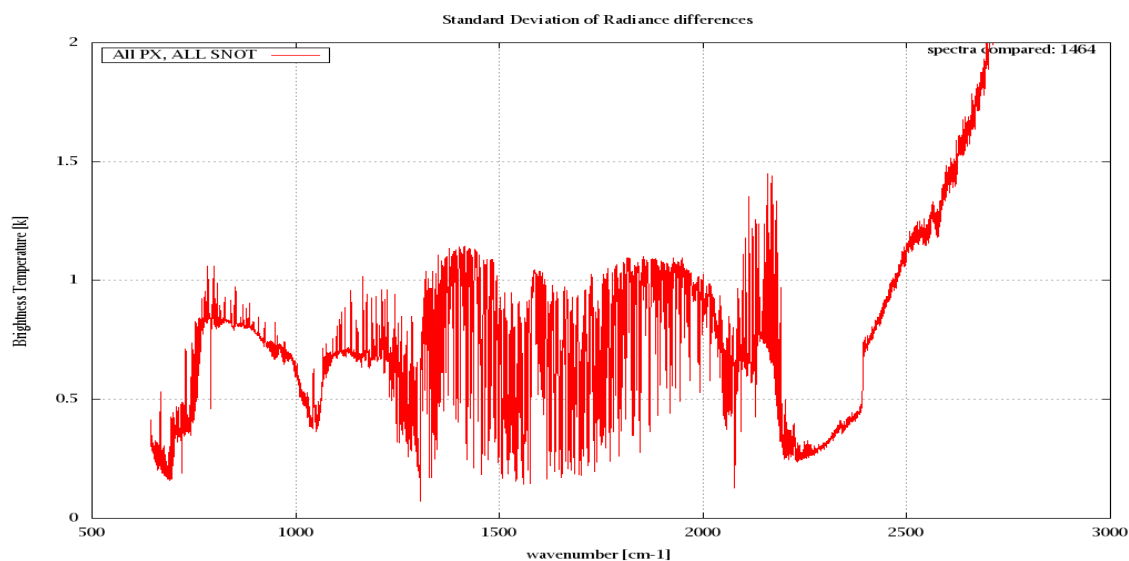


Figure 7: Standard Deviation of Radiance differences

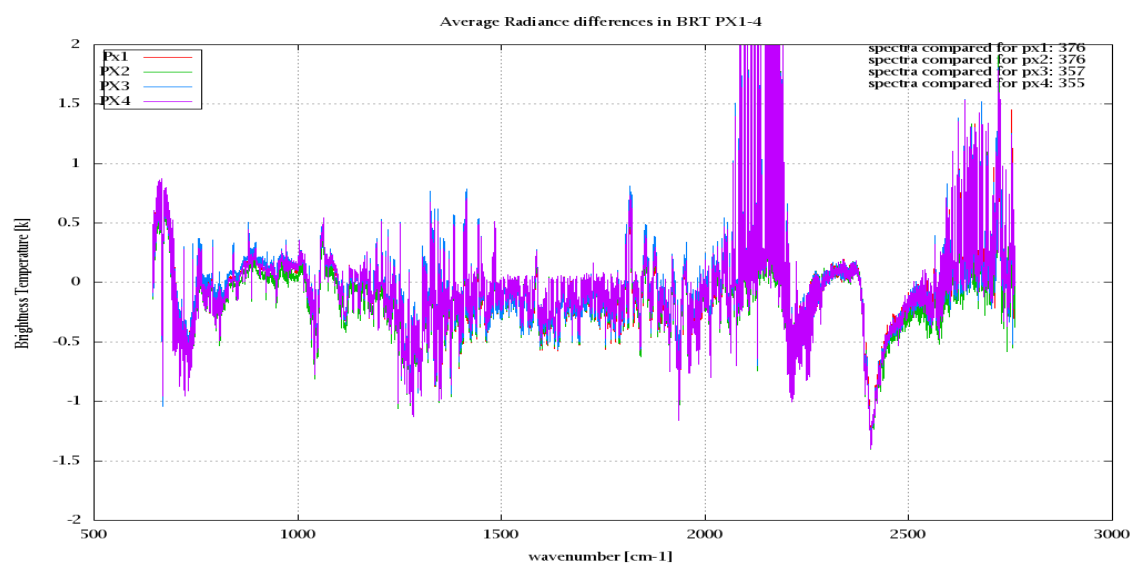


Figure 8: Average Radiance differences: OBS-CAL

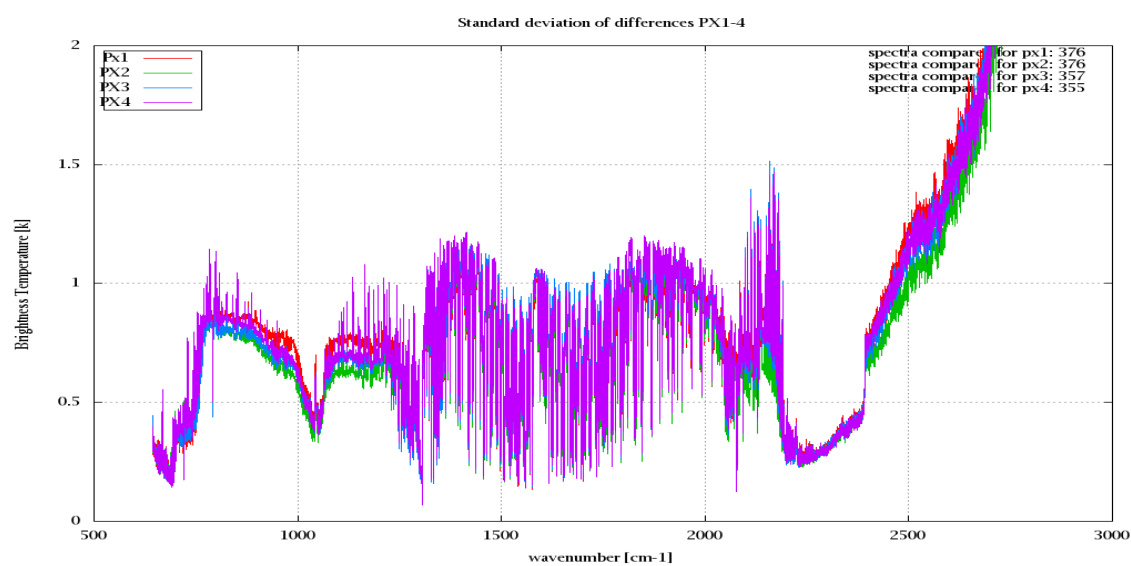


Figure 9: Standard Deviation of Radiance differences

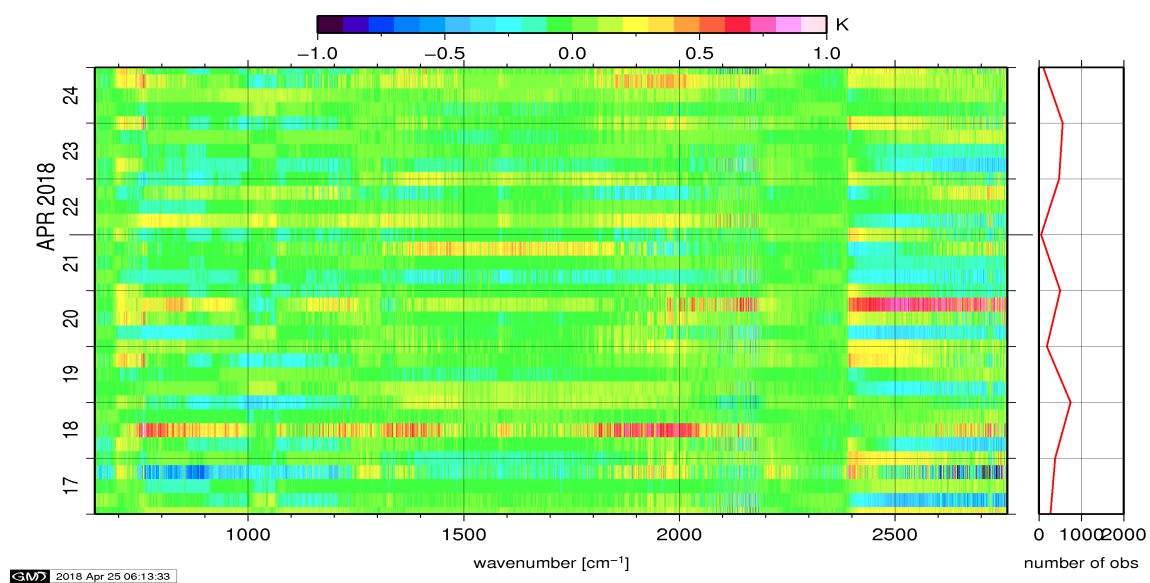


Figure 10: Radiance Anomaly in BRT: All Channels

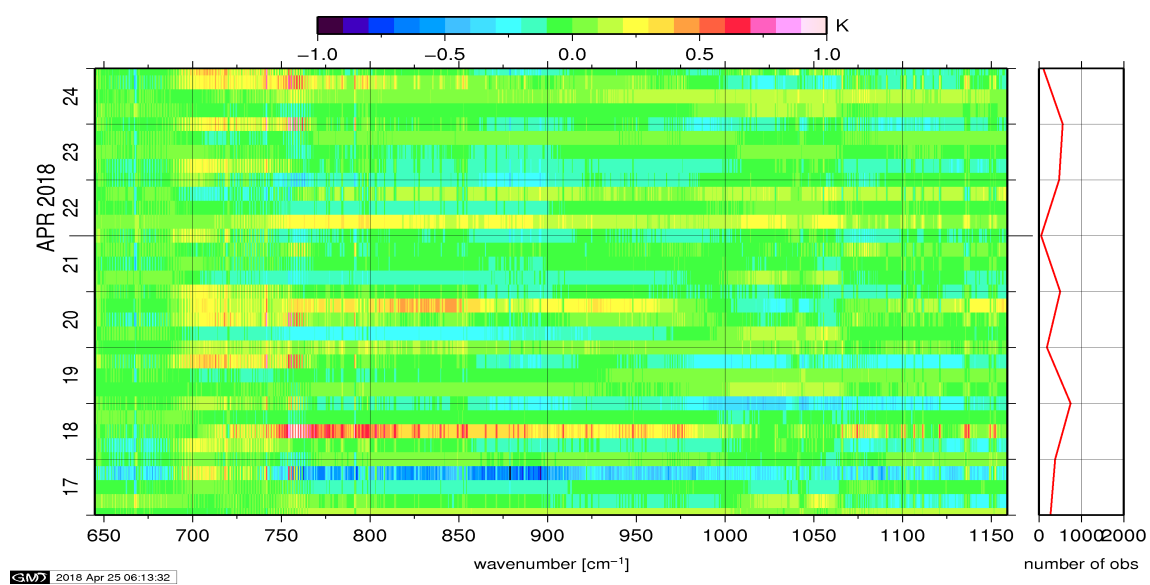


Figure 11: Radiance Anomaly in BRT: IASI Band 1

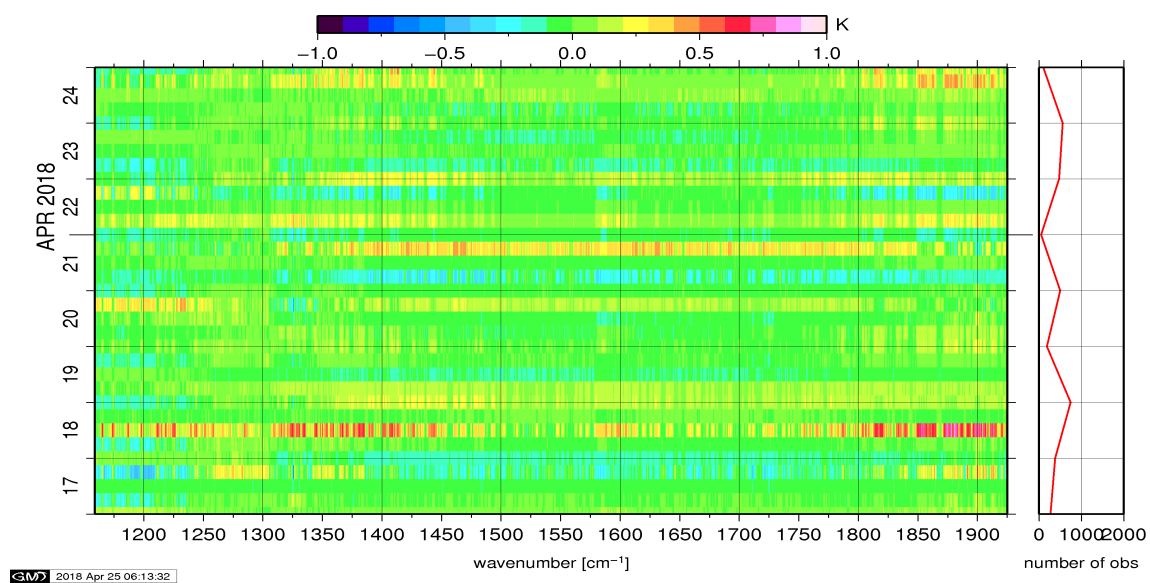


Figure 12: Radiance Anomaly in BRT: IASI Band 2

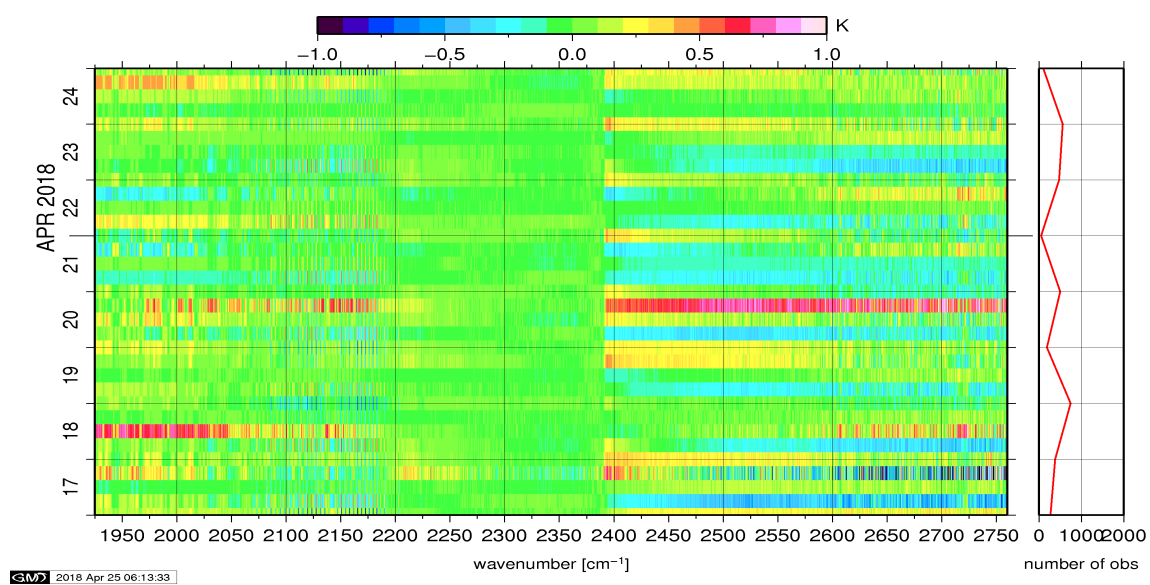


Figure 13: Radiance Anomaly in BRT: IASI Band 3

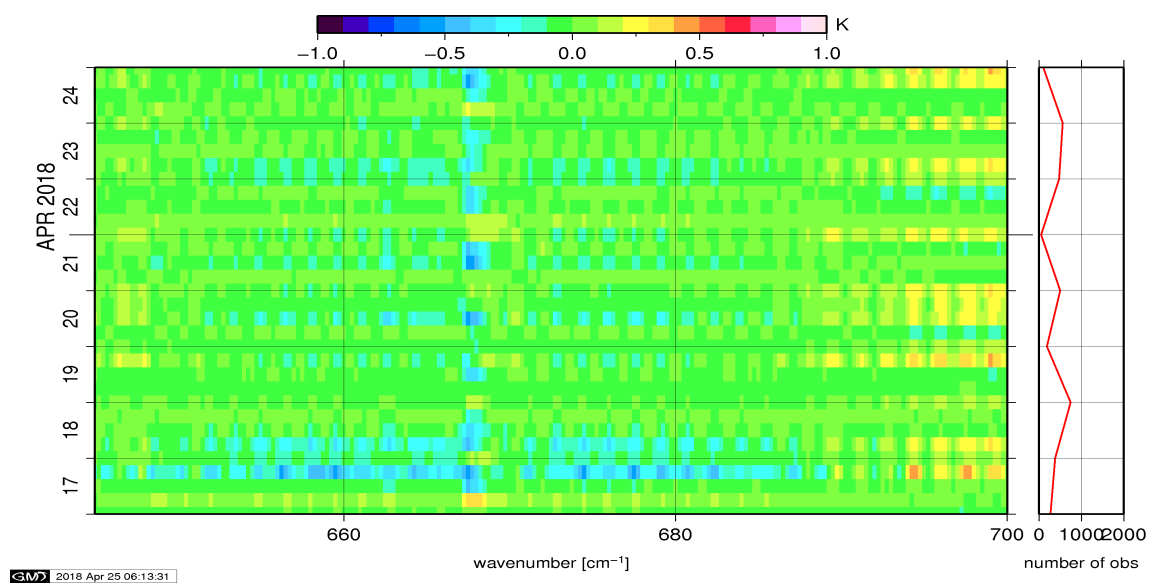


Figure 14: Radiance Anomaly in BRT: CO2 14

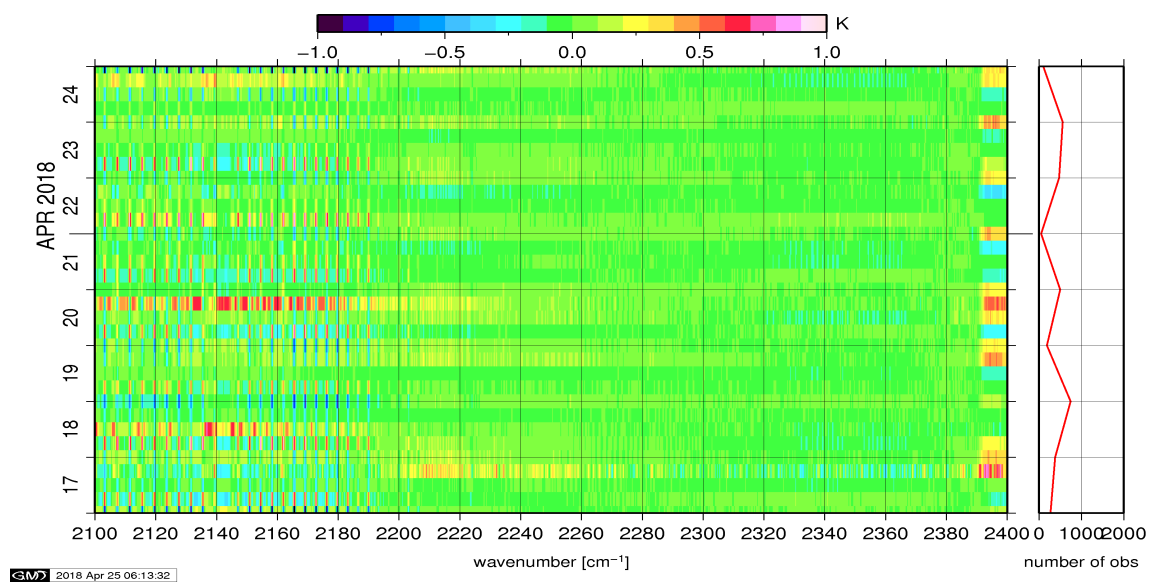


Figure 15: Radiance Anomaly in BRT: CO2 4.3

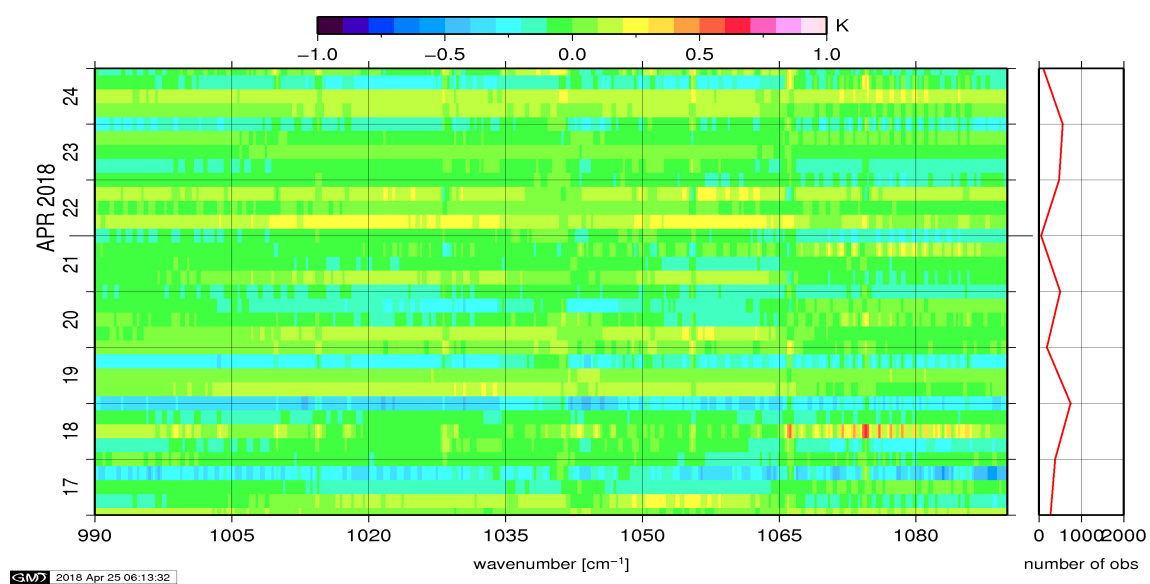


Figure 16: Radiance Anomaly in BRT: O3

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.

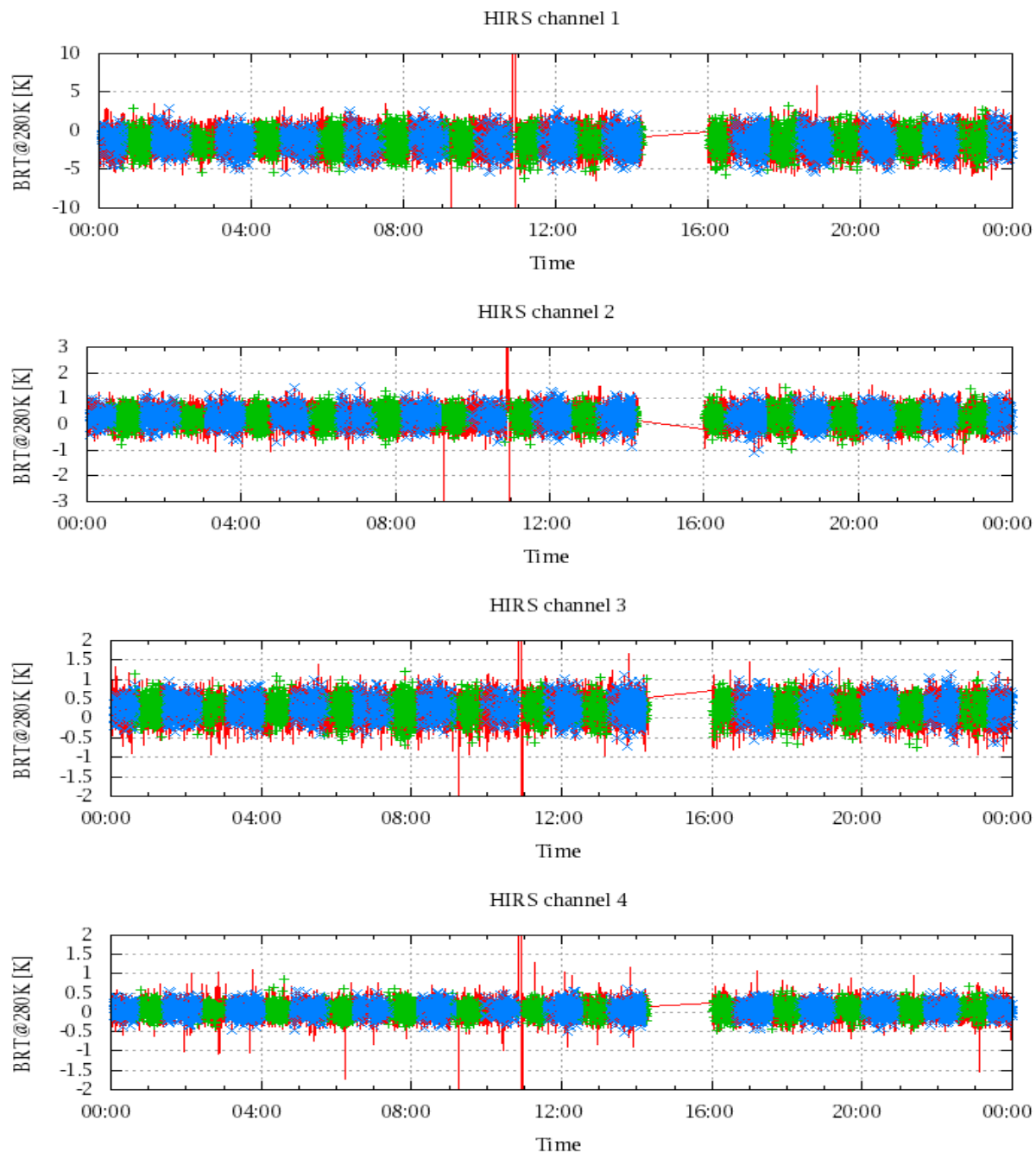


Figure 17: Radiance Differences in BRT

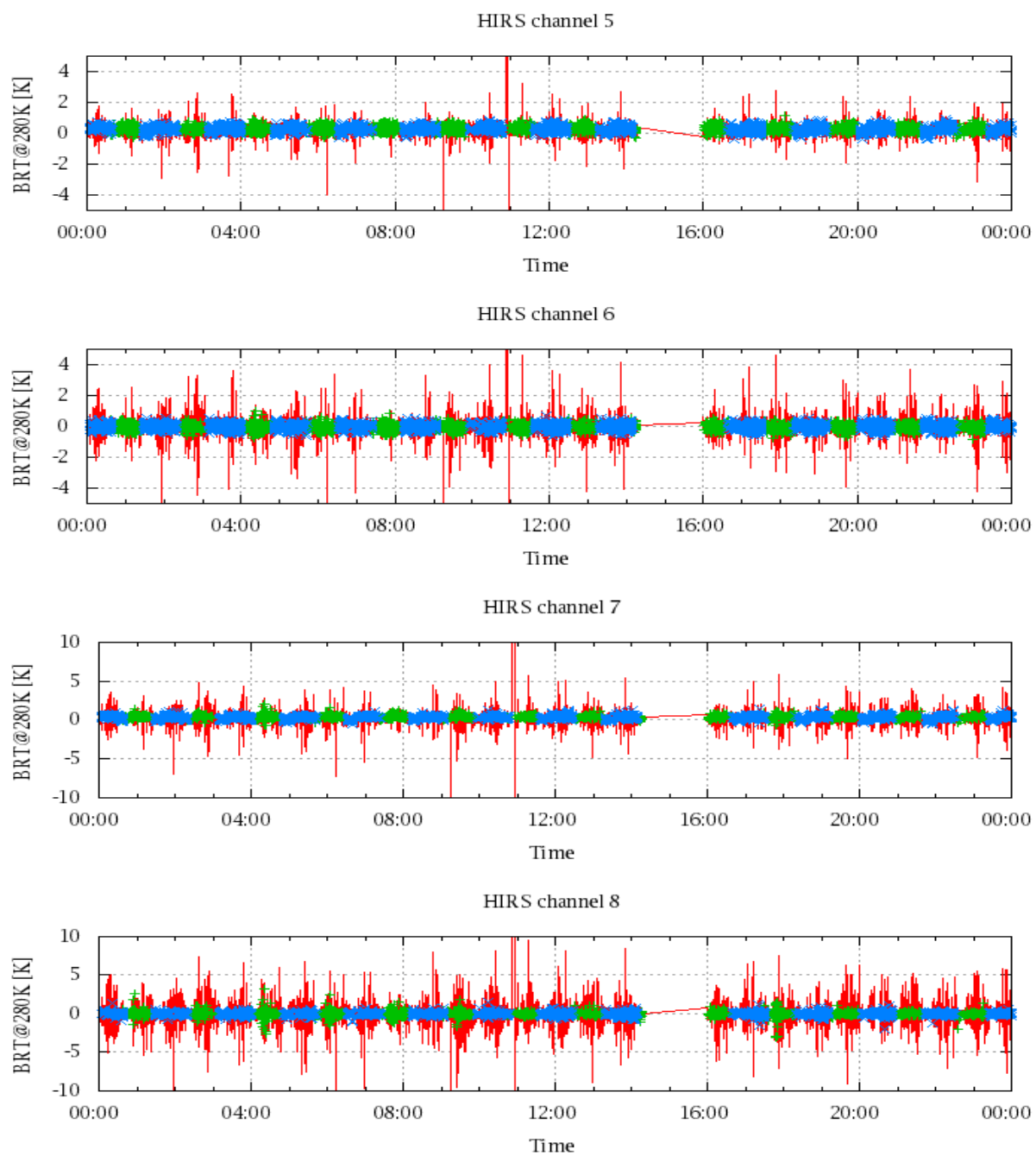


Figure 18: Radiance Differences in BRT

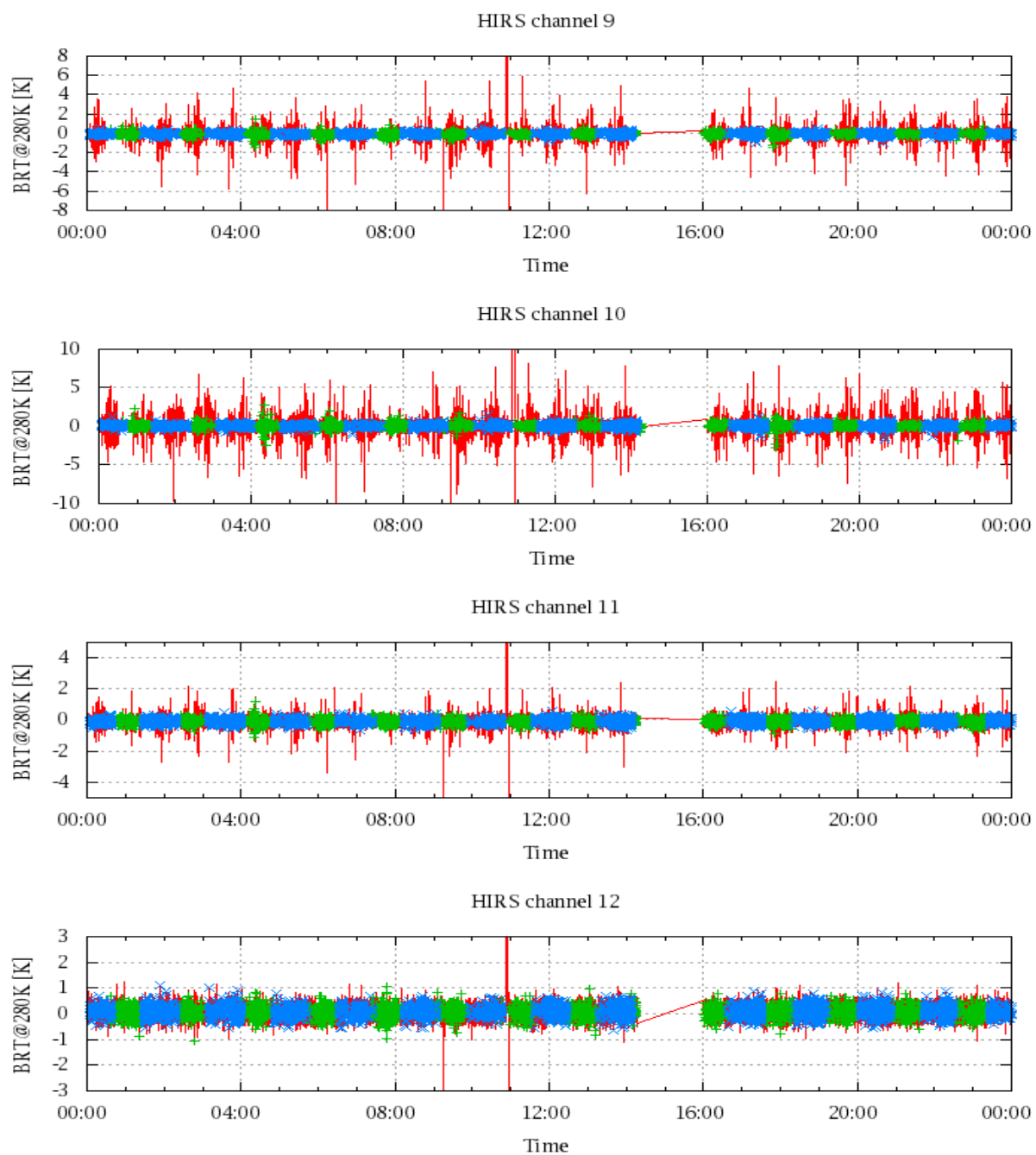


Figure 19: Radiance Differences in BRT

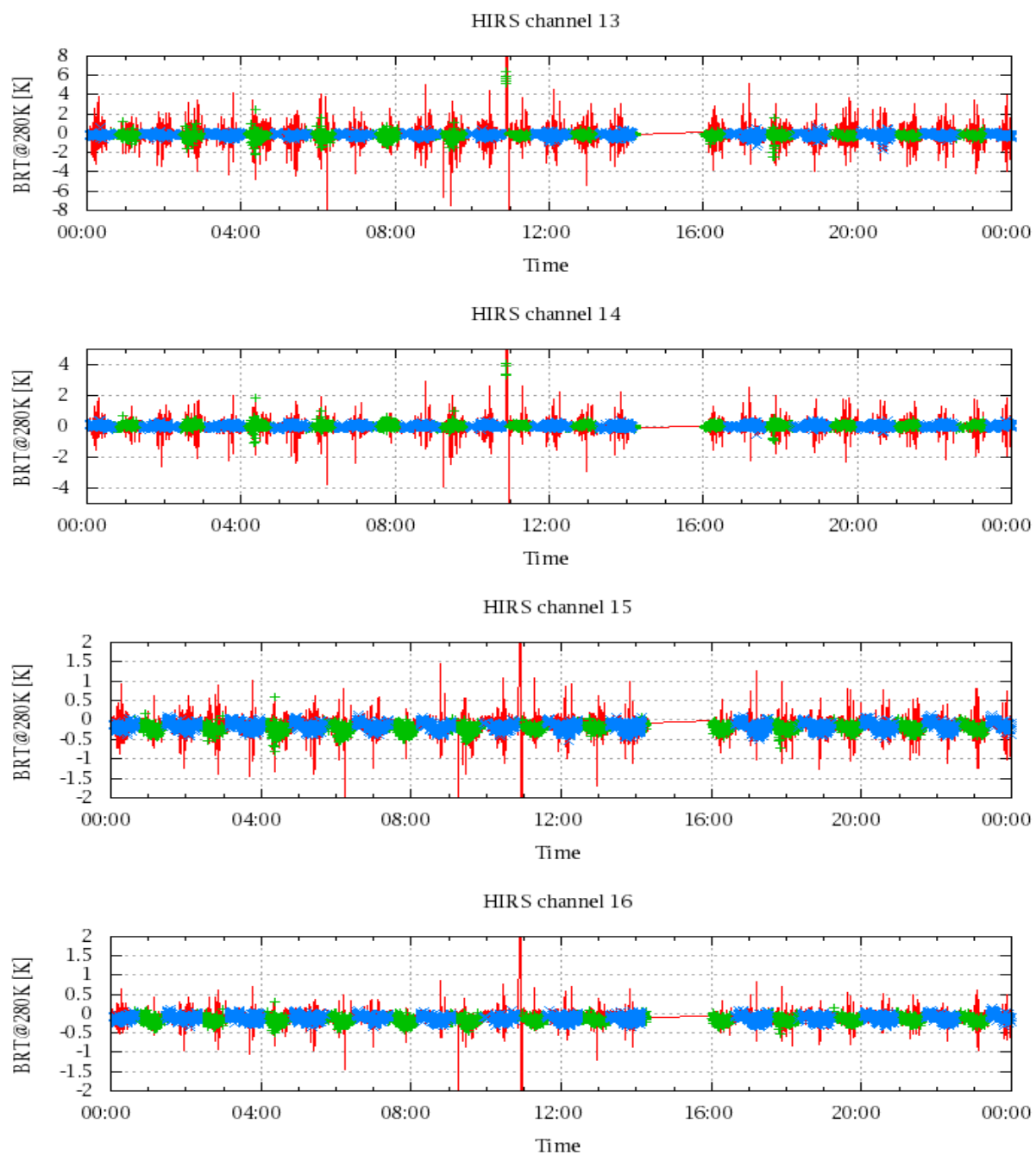


Figure 20: Radiance Differences in BRT

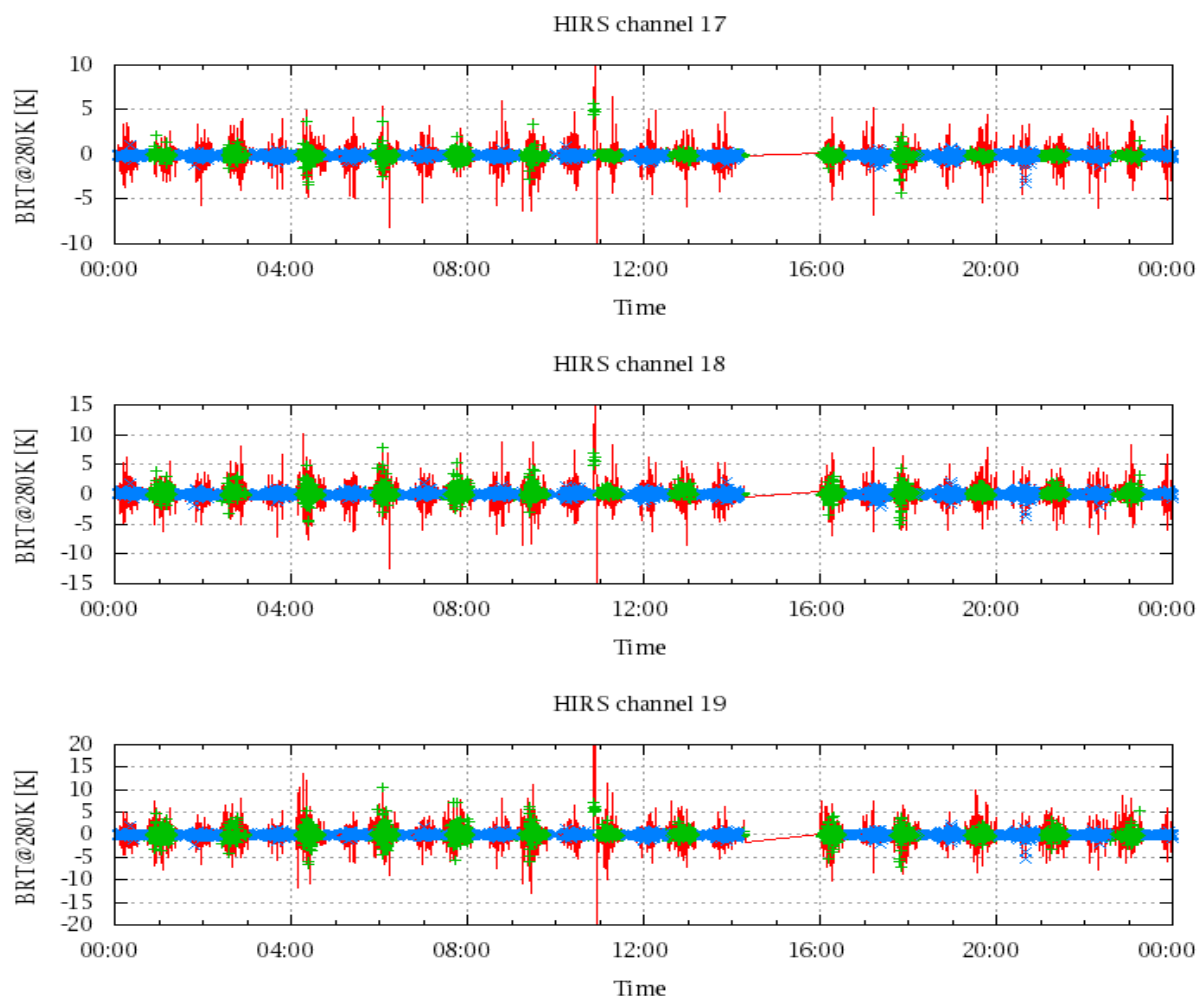


Figure 21: Radinace Differences in BRT