

IASI L0 and L1 Daily Monitoring Report Metop-A

IASI monitoring team

24/10/2018 00:00:00 - 25/10/2018 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 24/10/2018 00:00:00 - 25/10/2018 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 24/10/2018 00:00:00 - 25/10/2018 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	479	-
L0 IASI PDUs	478	-
L1 ENG PDUs	477	-
L1 ENG distinct GEPSGranule	478	-
L1 DPX PDUs (RM: IASI-HIRS)	475	-
L1 DPS Files (RM: OBS-CAL NWP based)	477	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	3936	5472	20181024071113.308	20181024071802.596
PX1 (130)	5562	5564	20181024071826.596	20181024071827.025
PX1 (130)	13060	14582	20181024075146.177	20181024075832.438
PX2 (135)	3936	5471	20181024071113.308	20181024071802.377
PX2 (135)	13060	14582	20181024075146.177	20181024075832.438
PX3 (140)	786	788	20181024005307.504	20181024005309.449
PX3 (140)	3936	5471	20181024071113.308	20181024071802.377
PX3 (140)	13060	14582	20181024075146.177	20181024075832.438
PX4 (145)	786	788	20181024005307.504	20181024005309.449
PX4 (145)	3936	5471	20181024071113.308	20181024071802.377
PX4 (145)	13059	14582	20181024075145.962	20181024075832.438
PX4 (145)	14652	14654	20181024075850.598	20181024075851.032
IMG (150)	4997	6737	20181024071113.093	20181024071802.377
IMG (150)	15337	680	20181024075145.962	20181024075832.438
VER (160)	1452	1708	20181024071107.687	20181024071803.678
VER (160)	2972	3228	20181024075139.693	20181024075835.680
AUX (180)	264	316	20181024071108.120	20181024071804.108
AUX (180)	568	620	20181024075140.122	20181024075836.110

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
24/10/2018 00:05:47	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	478	-
L1 ENG PDUs	477	-
L1 ENG distinct GEPSGranule	478	-
GQisFlagQual set (PX1)	99.52 %	-
GQisFlagQual set (PX2)	99.53 %	-
GQisFlagQual set (PX3)	99.49 %	-
GQisFlagQual set (PX4)	99.53 %	-
GQisFlagQual set (all)	99.52 %	-

Table 4: Quality flags

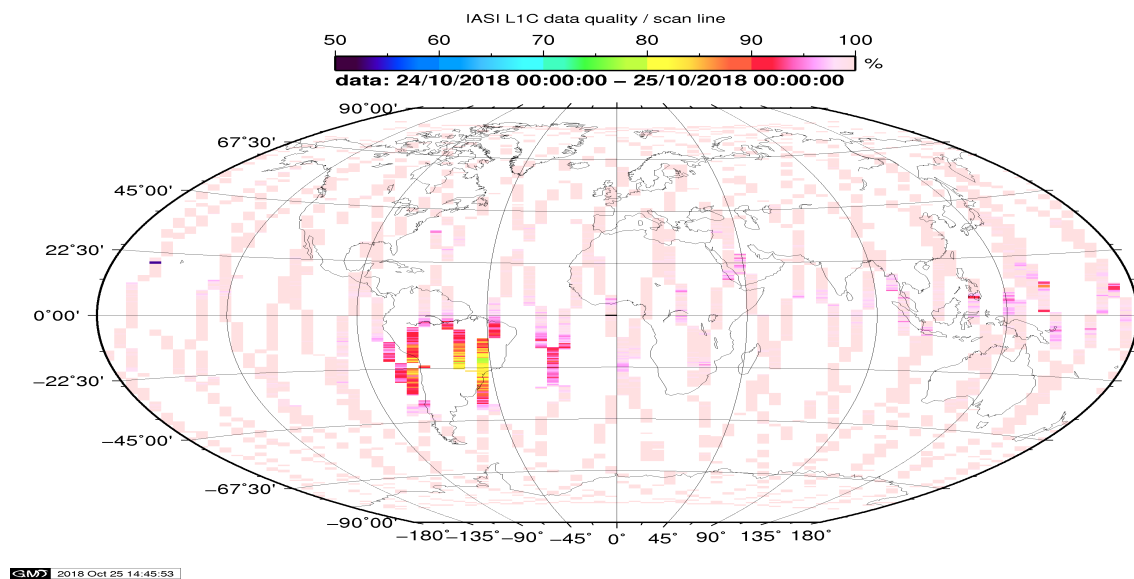


Figure 1: L1C data quality

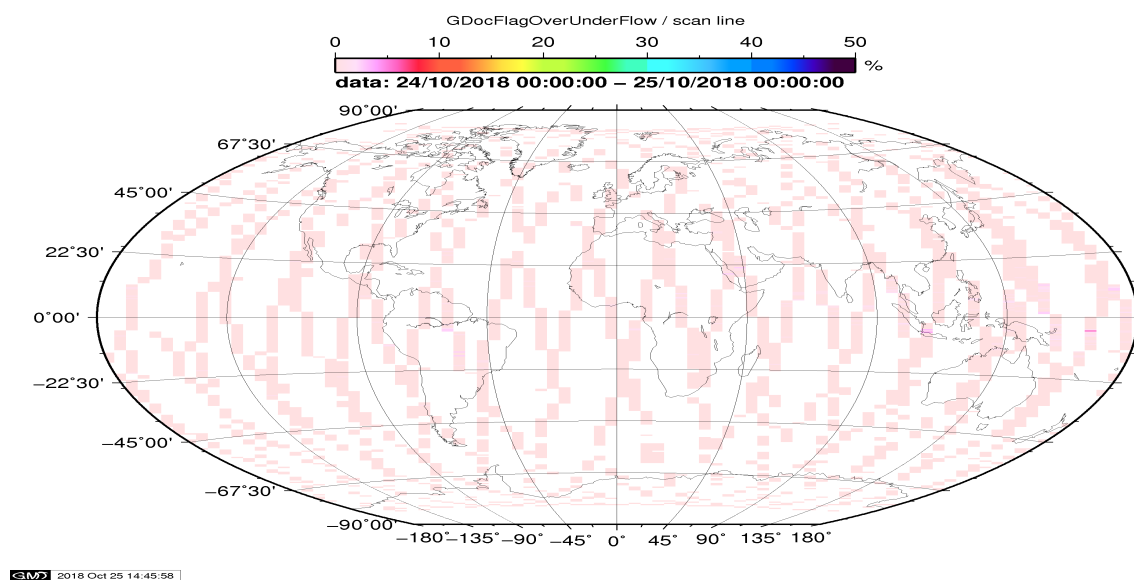


Figure 2: Flag of Over and Under Flows

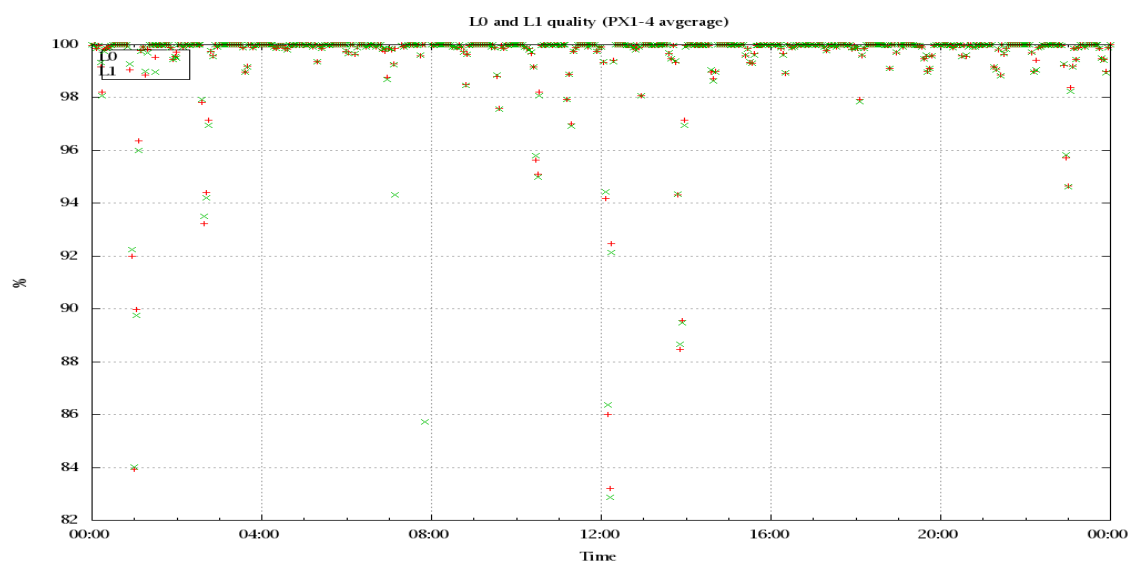


Figure 3: Level 0 and 1C overall quality

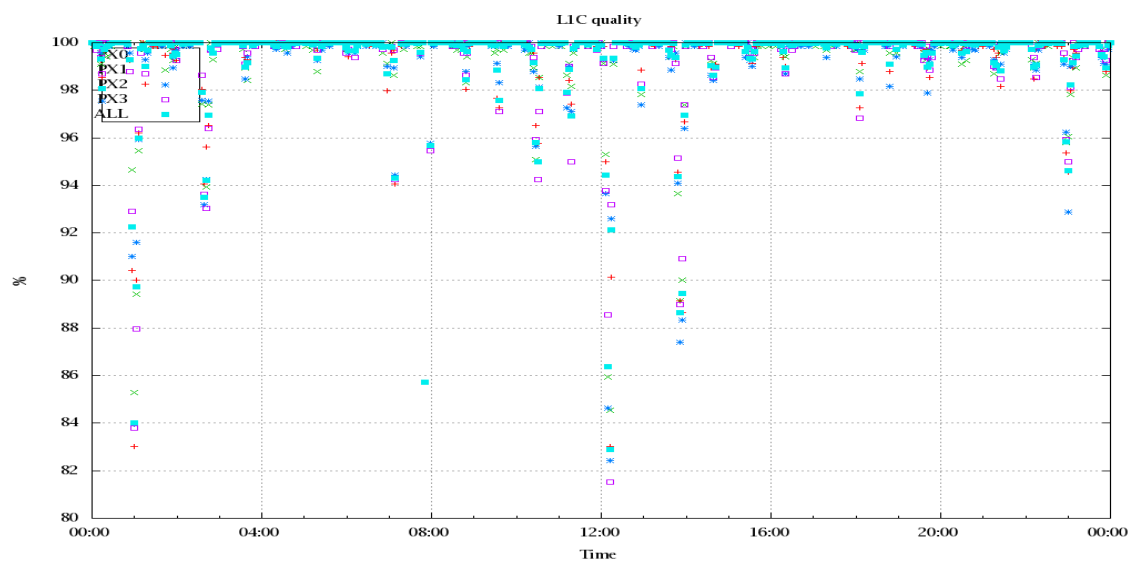


Figure 4: Level 1C quality

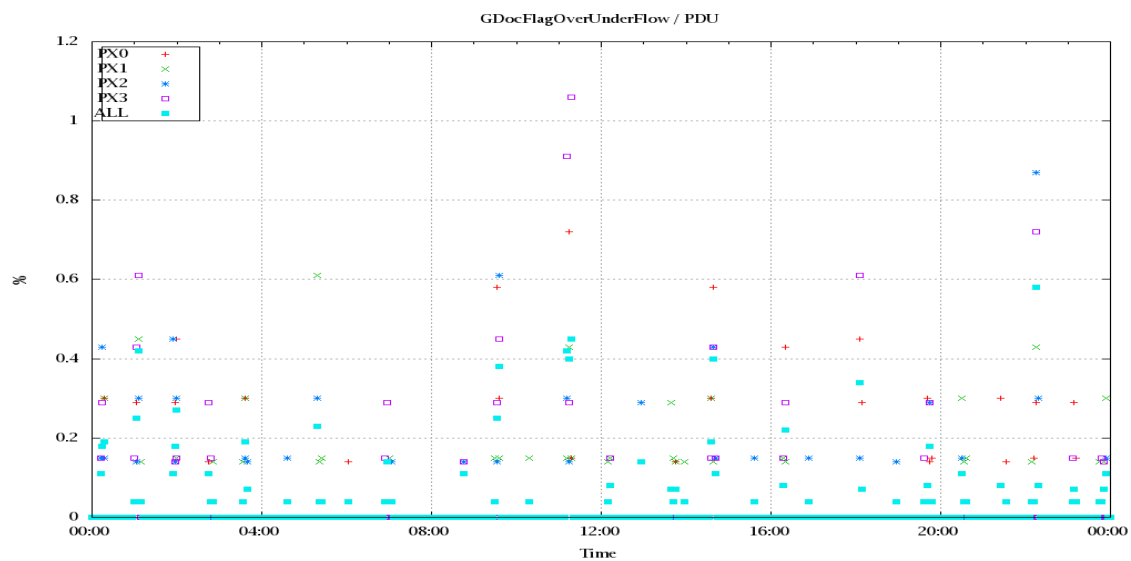


Figure 5: OverUnderFlowFlag timeseries

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.

Due to an anomaly, the statistics presented in figures 8 and 9 are not representative. However, the good quality of the data is ensured. Sorry for the inconvenience. Contact: helpdesk@eumetsat.int for any questions.

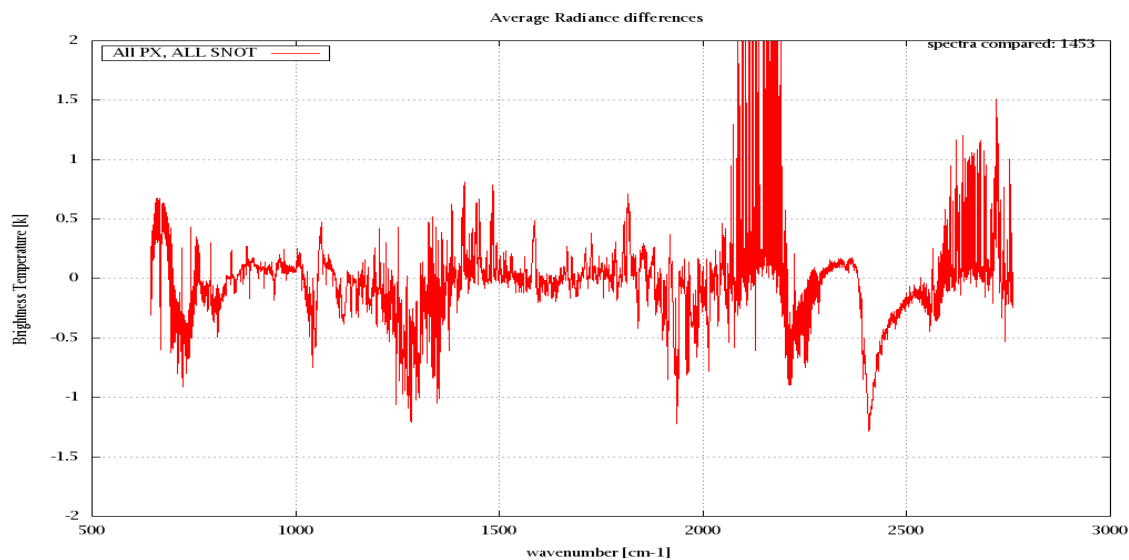


Figure 6: Average Radiance differences: OBS-CAL

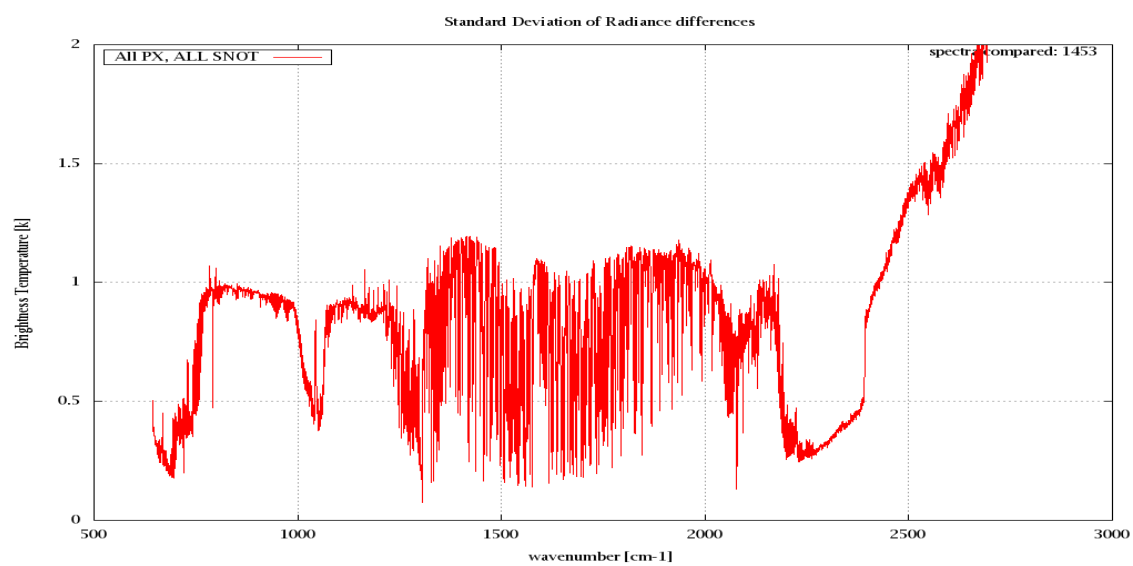


Figure 7: Standard Deviation of Radiance differences

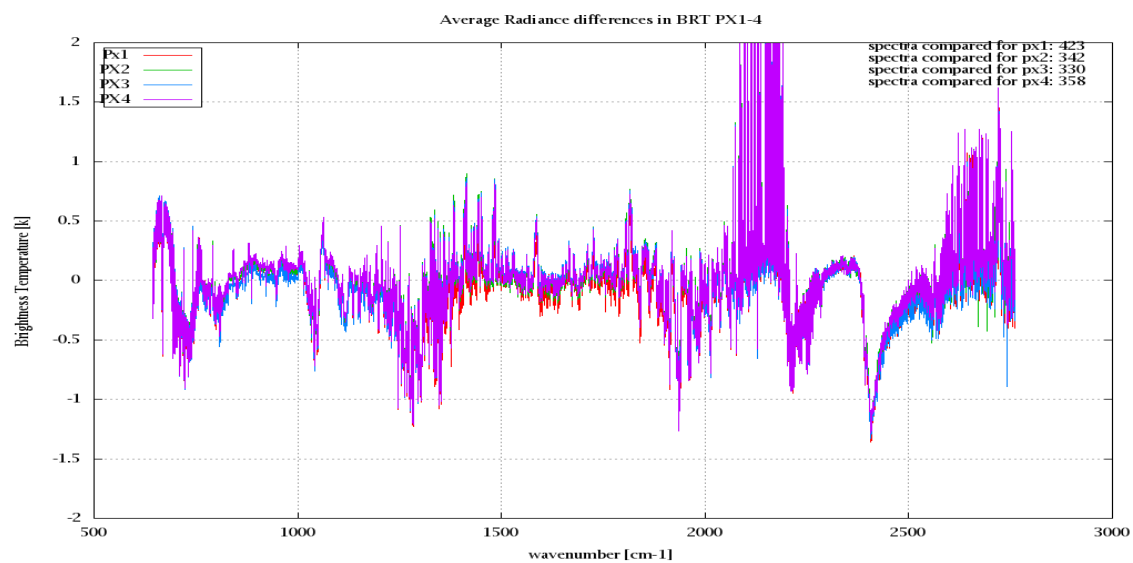


Figure 8: Average Radiance differences: OBS-CAL

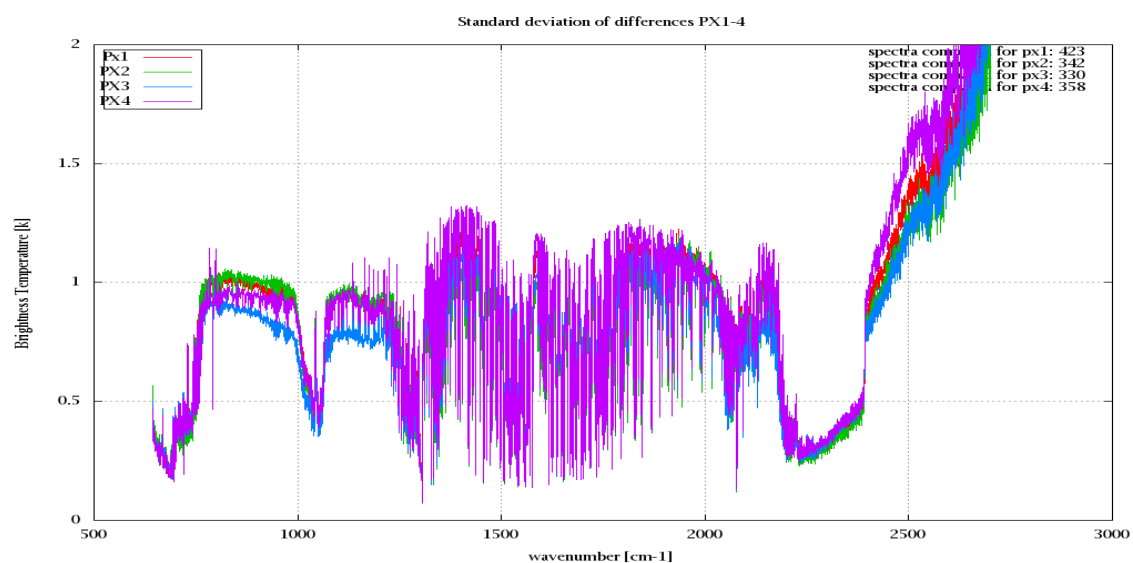


Figure 9: Standard Deviation of Radiance differences

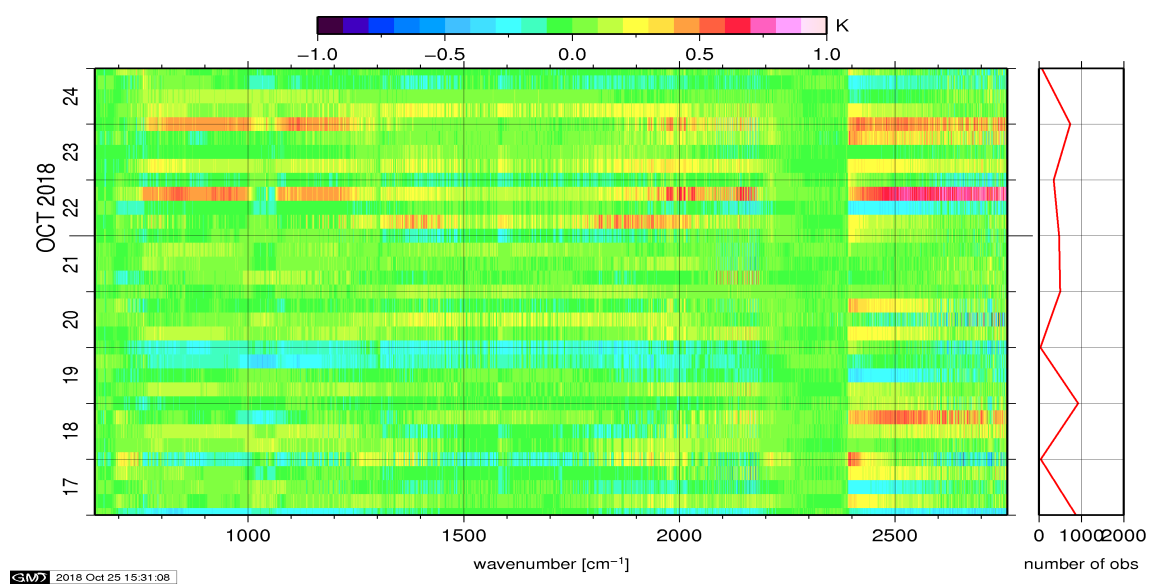


Figure 10: Radiance Anomaly in BRT: All Channels

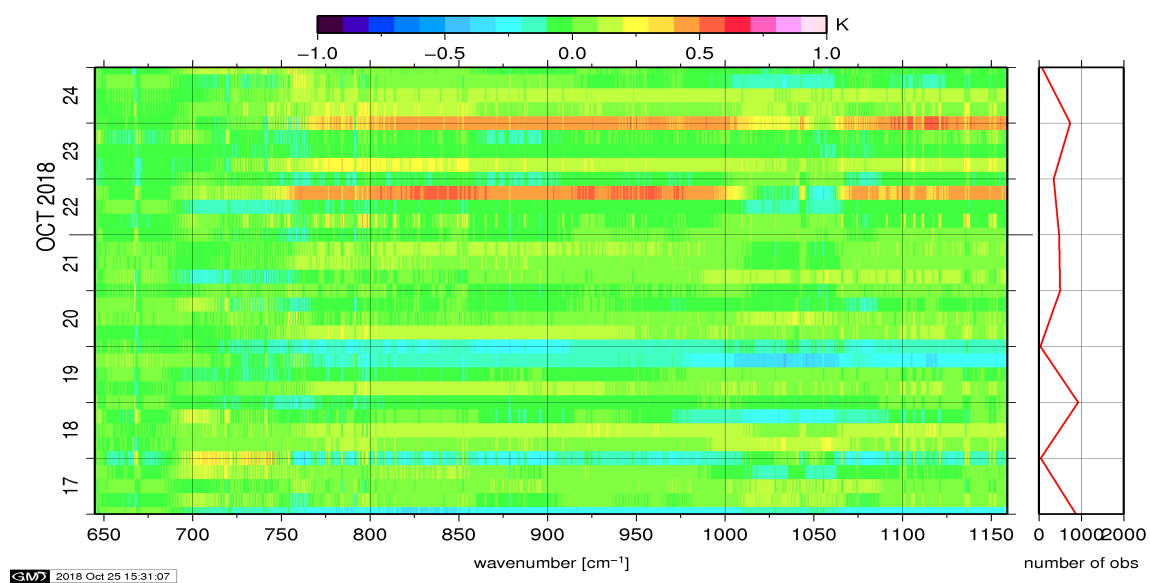


Figure 11: Radiance Anomaly in BRT: IASI Band 1

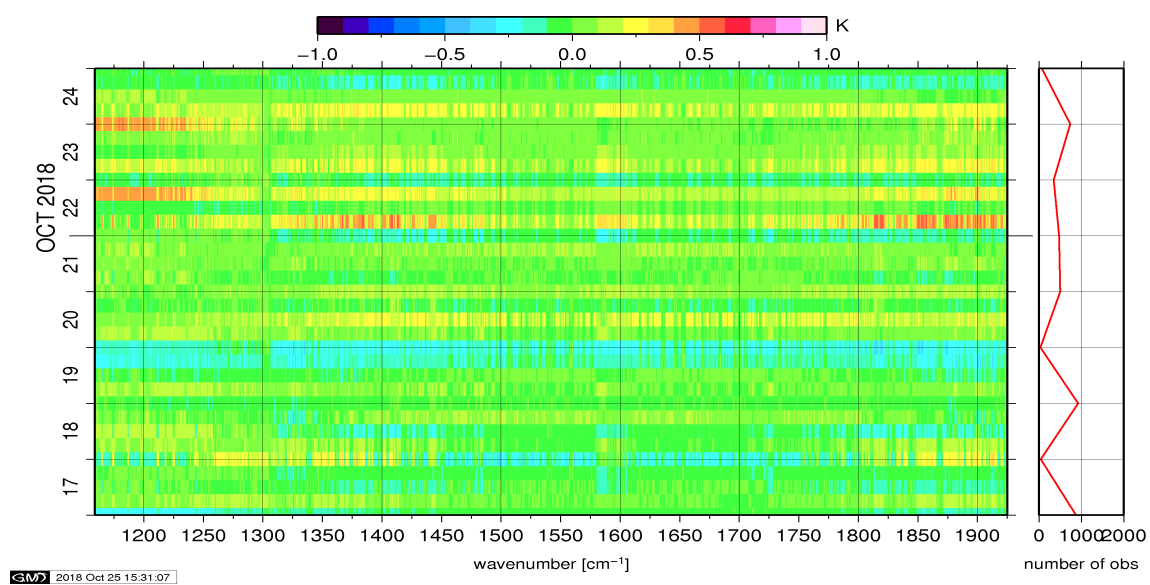


Figure 12: Radiance Anomaly in BRT: IASI Band 2

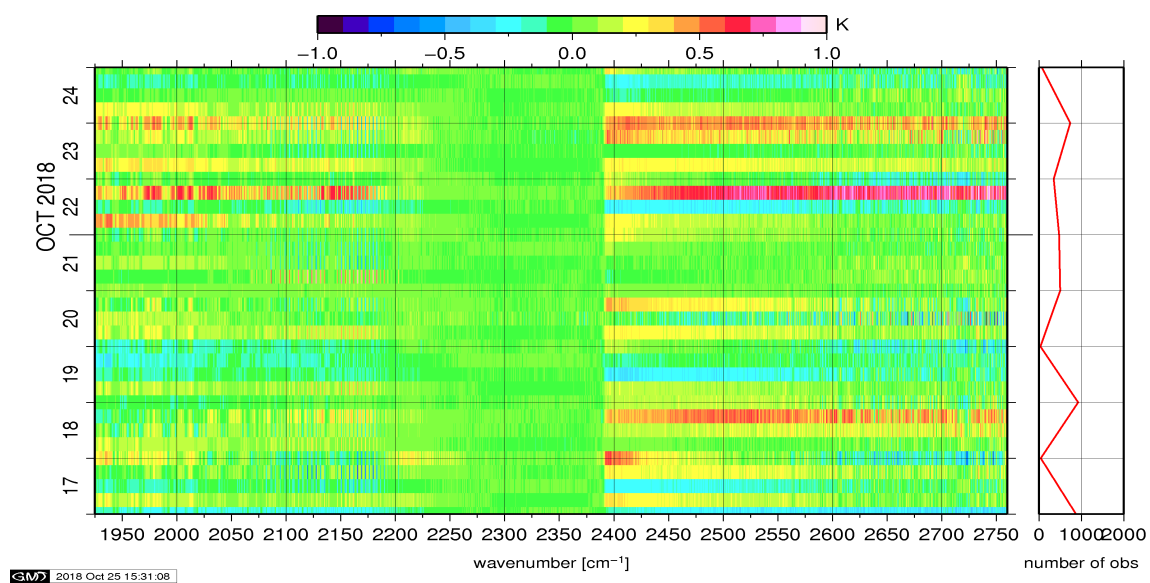


Figure 13: Radiance Anomaly in BRT: IASI Band 3

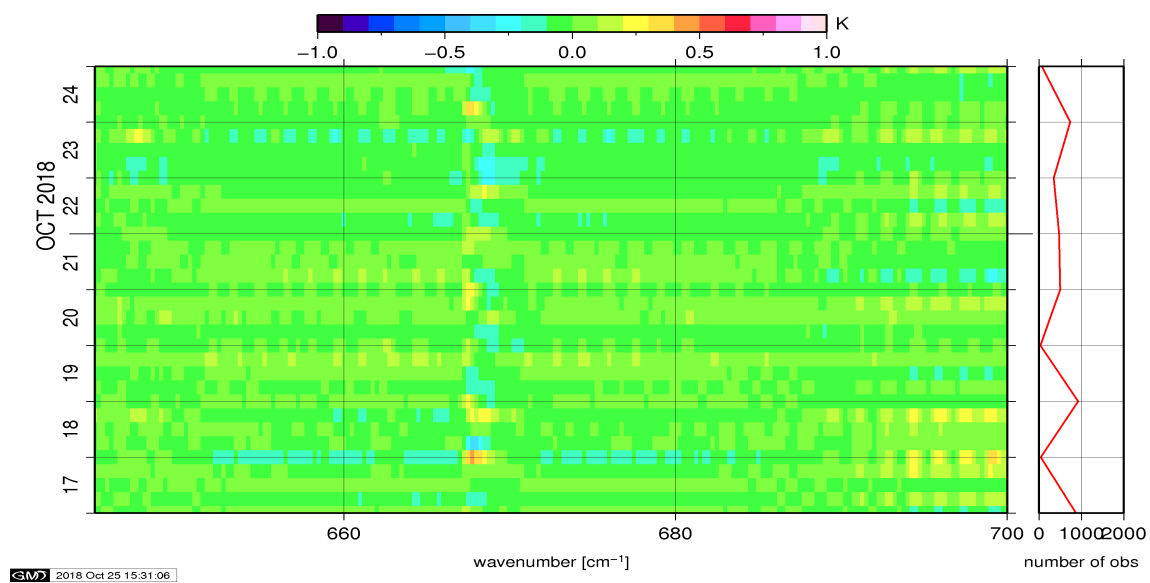


Figure 14: Radiance Anomaly in BRT: CO2 14

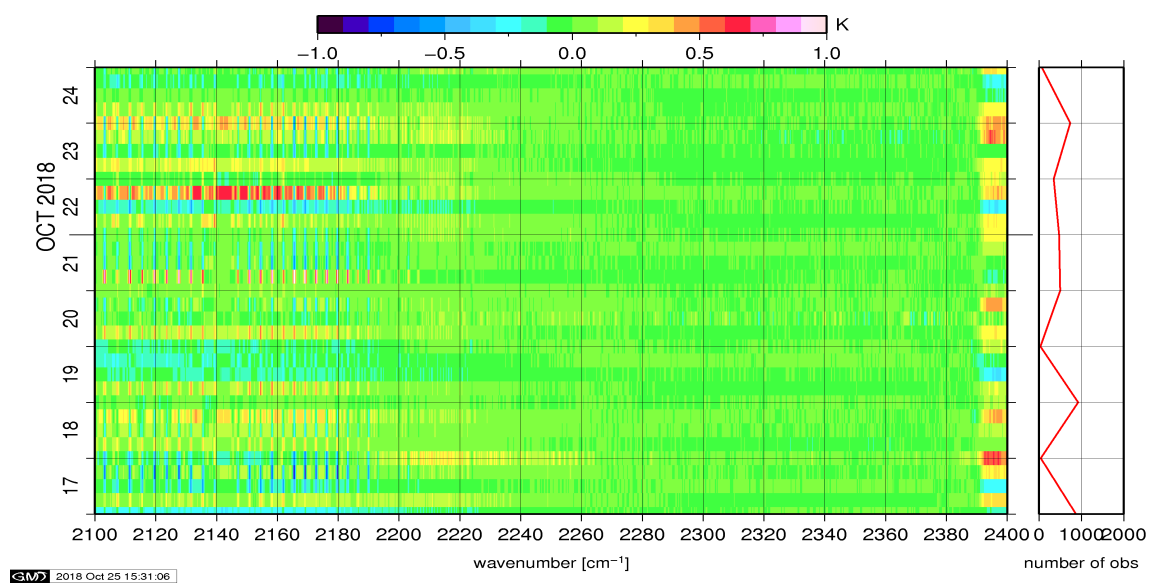


Figure 15: Radiance Anomaly in BRT: CO2 4.3

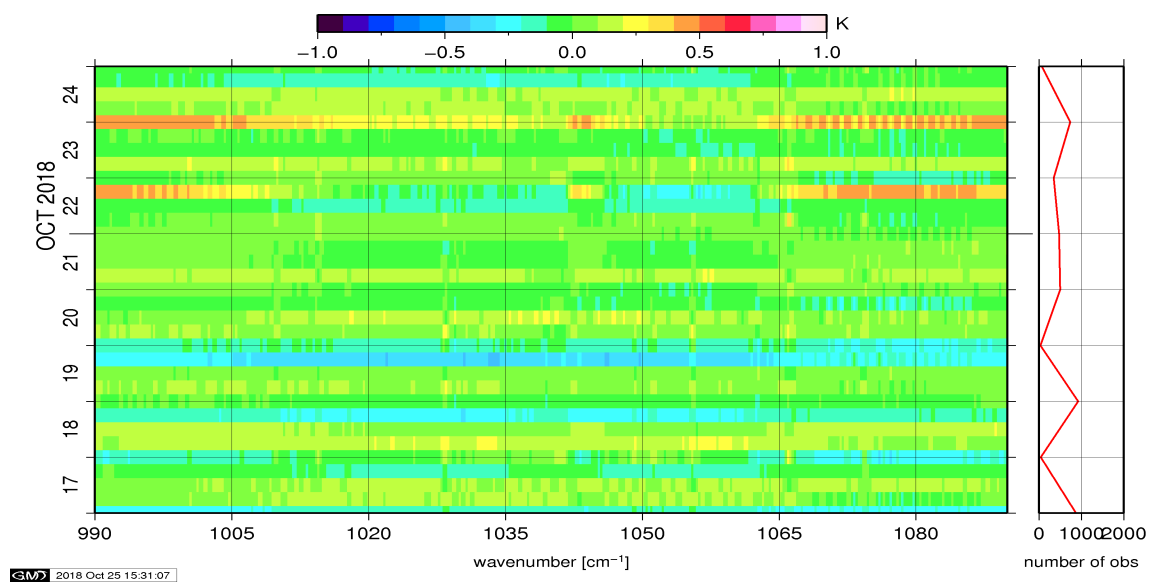


Figure 16: Radiance Anomaly in BRT: O3

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.

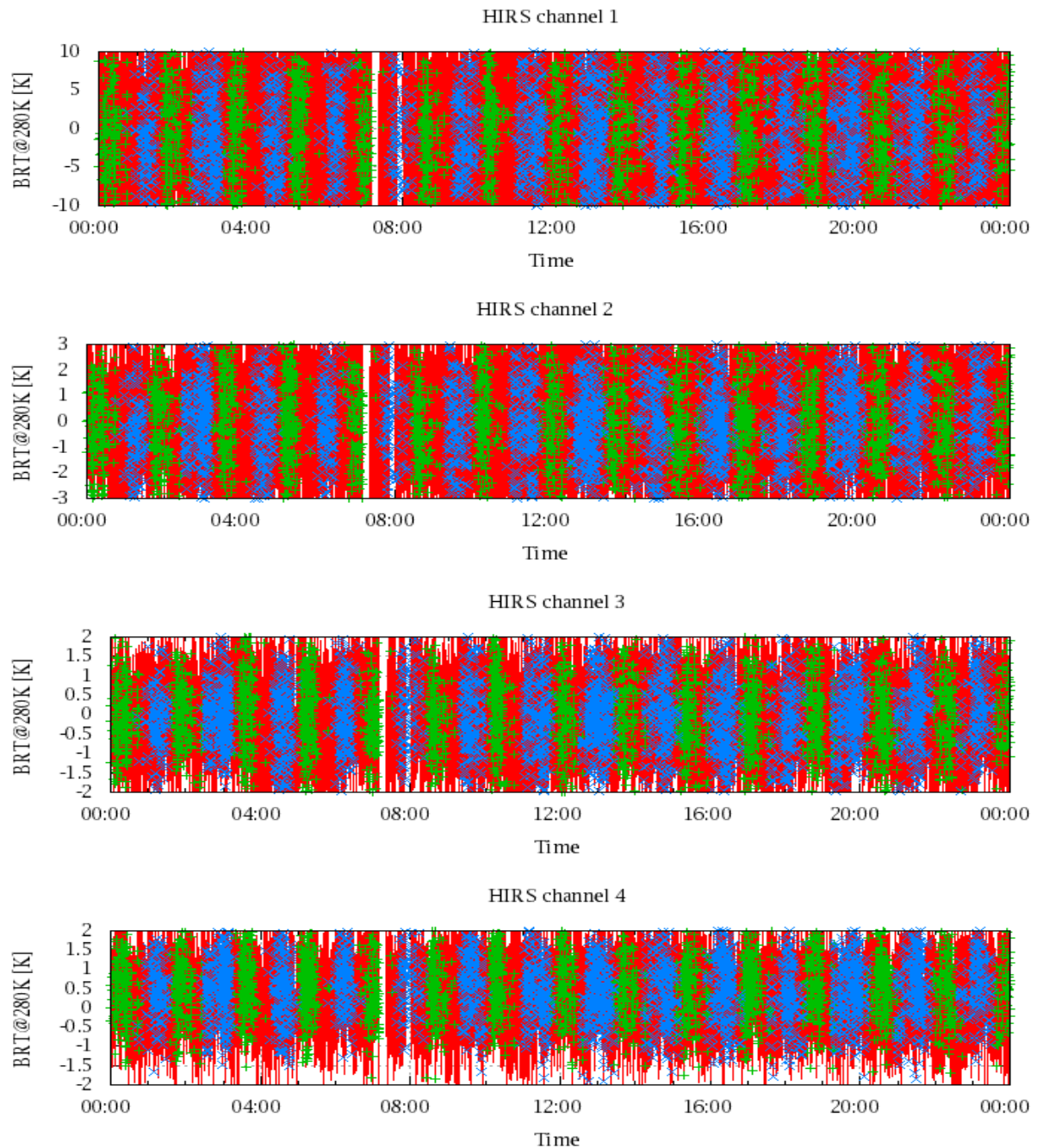


Figure 17: Radiance Differences in BRT

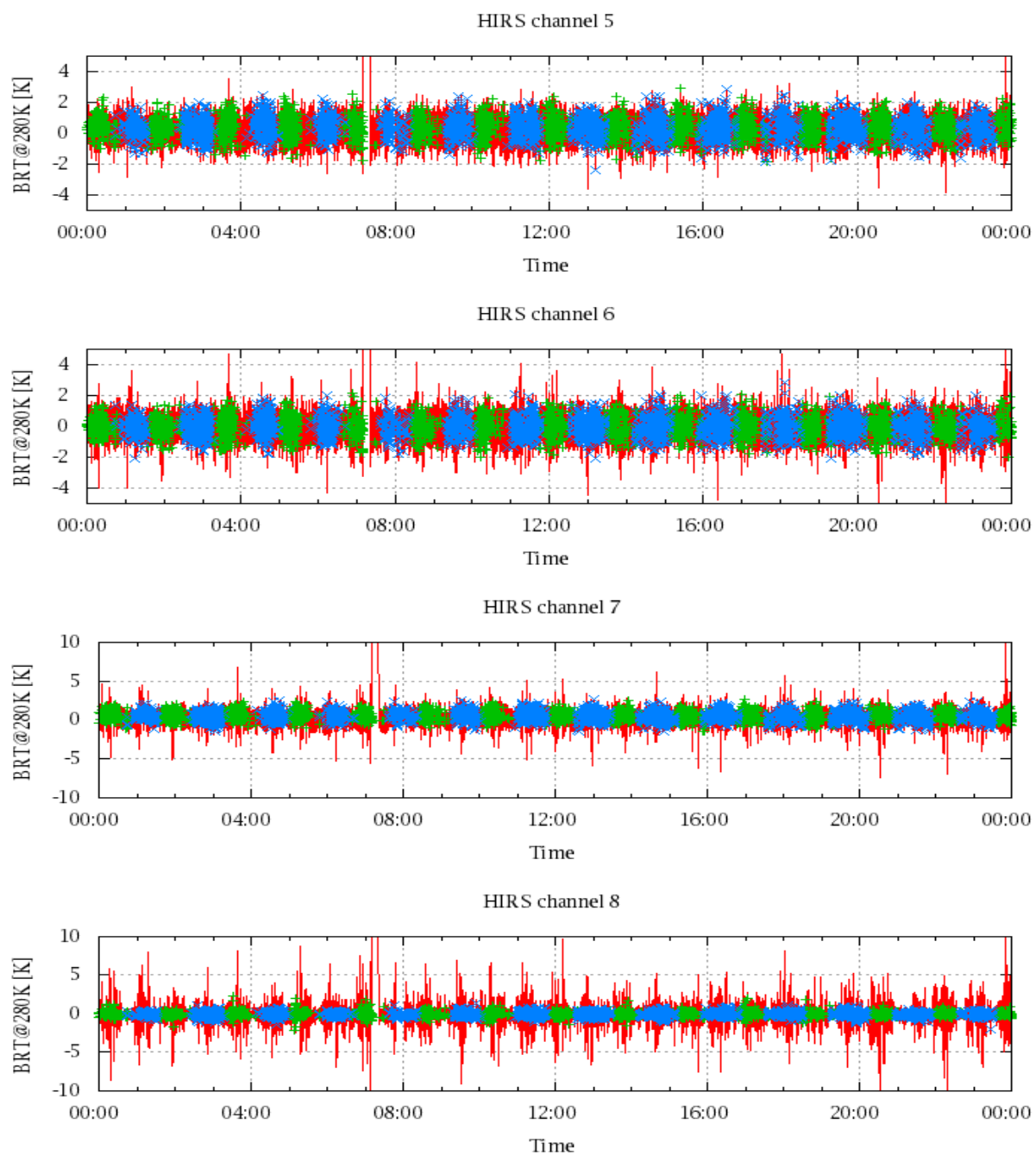


Figure 18: Radiance Differences in BRT

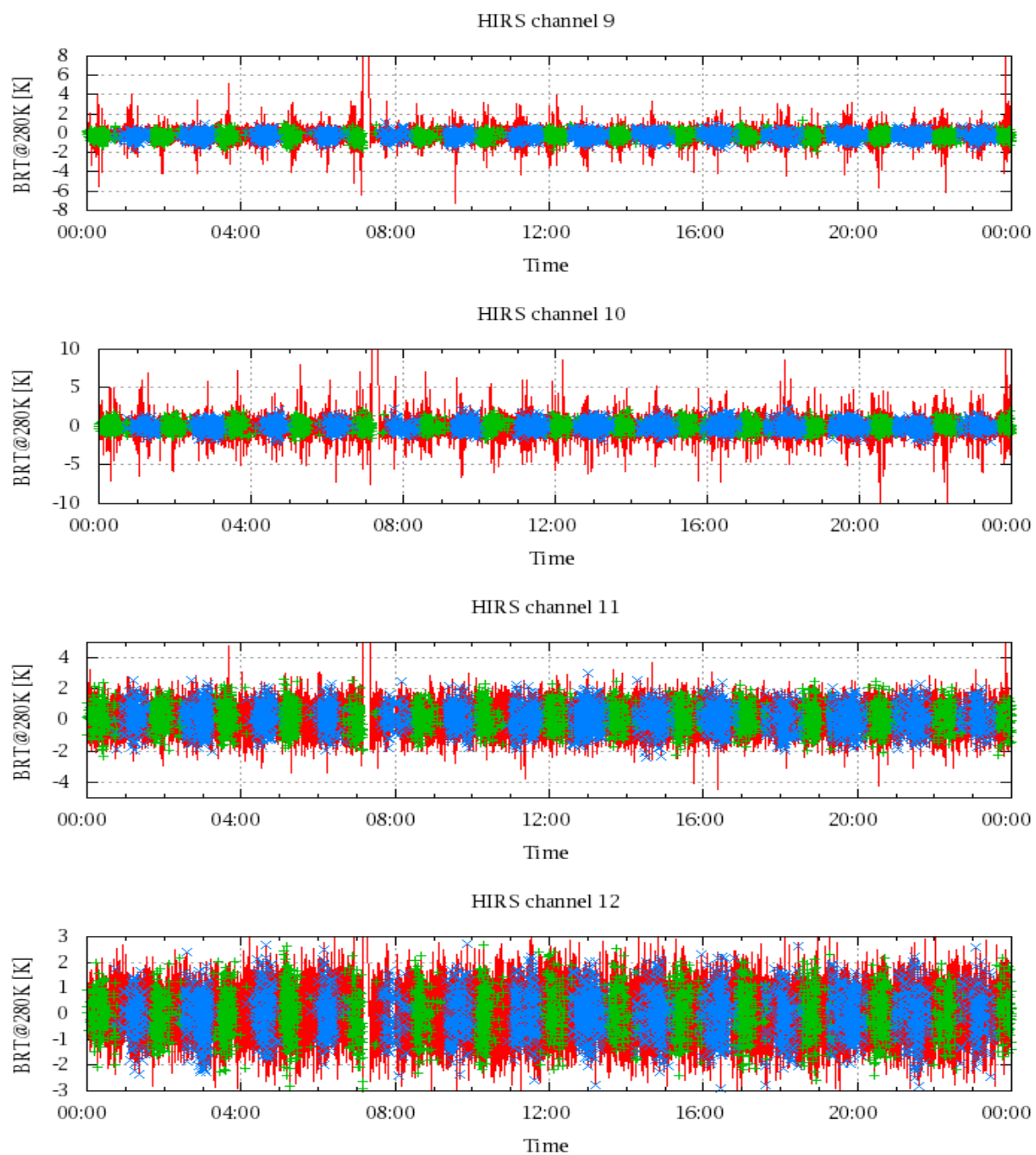


Figure 19: Radiance Differences in BRT

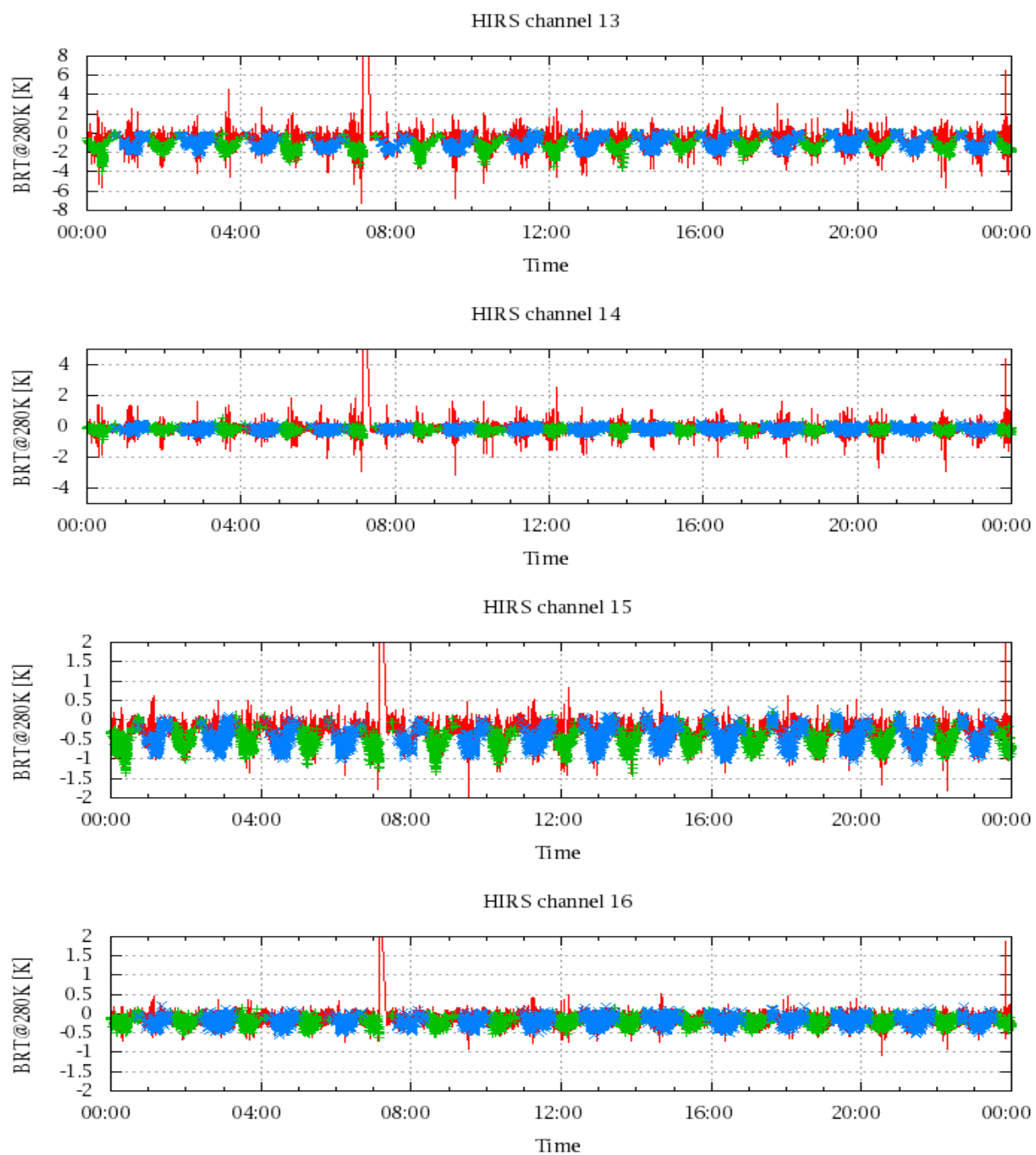


Figure 20: Radiance Differences in BRT

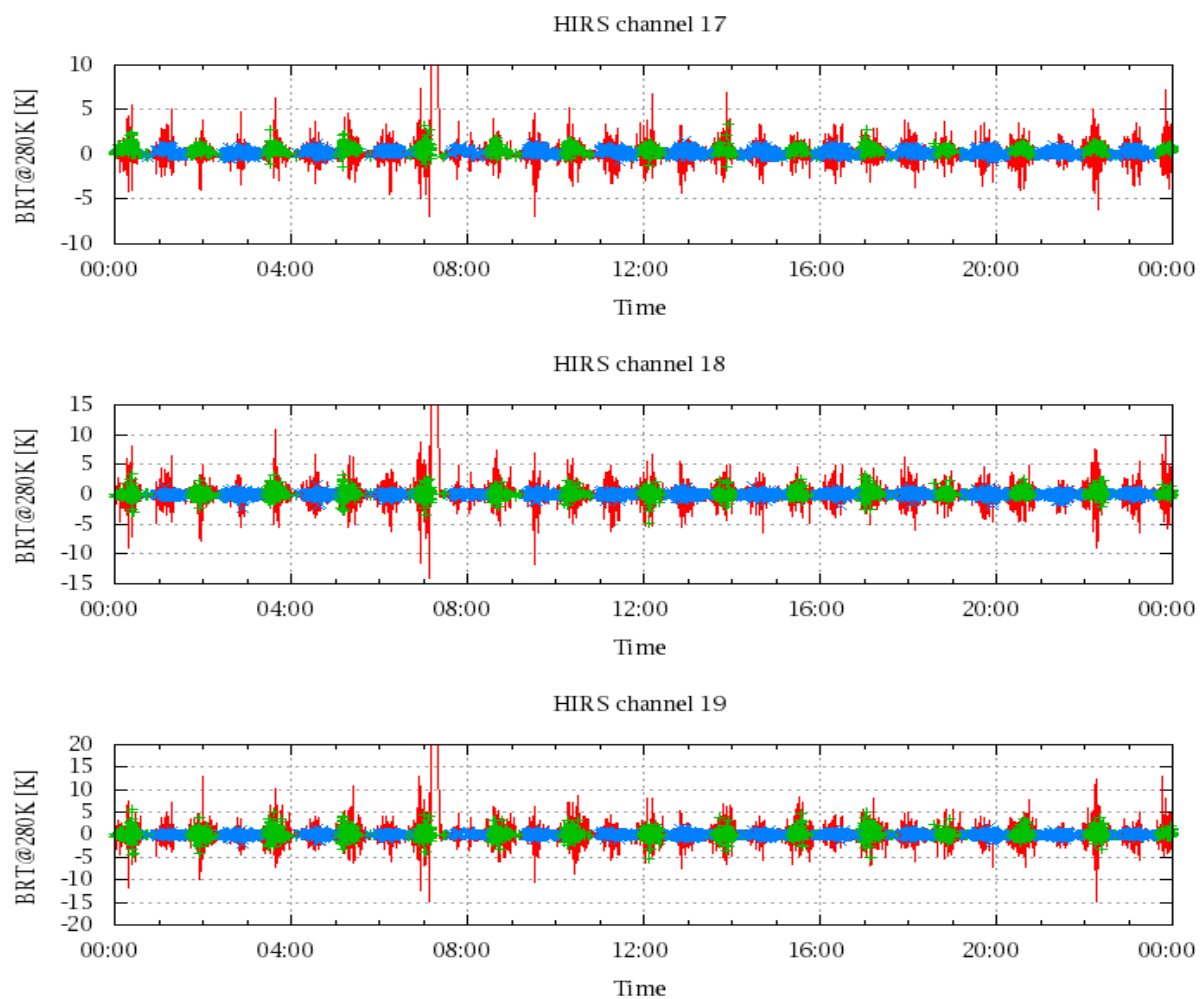


Figure 21: Radinace Differences in BRT