

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

30/04/2015 00:00:00 - 01/05/2015 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 30/04/2015 00:00:00 - 01/05/2015 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 30/04/2015 00:00:00 - 01/05/2015 00:00:00

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

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	1925	1927	20150430095353.858	20150430095354.288
PX1 (130)	1927	1929	20150430095354.288	20150430095354.722
PX1 (130)	1966	1968	20150430095404.233	20150430095404.667
PX1 (130)	1978	1980	20150430095408.343	20150430095408.772
PX1 (130)	1983	1985	20150430095409.425	20150430095409.854
PX1 (130)	1986	1988	20150430095410.073	20150430095410.503
PX1 (130)	3097	3099	20150430095906.315	20150430095906.748
PX2 (135)	1925	1927	20150430095353.858	20150430095354.288
PX2 (135)	1933	1935	20150430095355.585	20150430095356.018
PX2 (135)	1963	1965	20150430095403.585	20150430095404.018
PX2 (135)	1966	1968	20150430095404.233	20150430095404.667
PX2 (135)	1978	1980	20150430095408.343	20150430095408.772
PX2 (135)	1989	1991	20150430095410.722	20150430095411.155
PX2 (135)	1991	1993	20150430095411.155	20150430095411.585
PX2 (135)	3097	3099	20150430095906.315	20150430095906.748
PX3 (140)	1932	1935	20150430095355.370	20150430095356.018
PX3 (140)	1963	1965	20150430095403.585	20150430095404.018
PX3 (140)	1972	1974	20150430095405.530	20150430095405.964

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	1975	1977	20150430095406.179	20150430095406.612
PX3 (140)	1979	1981	20150430095408.558	20150430095408.995
PX3 (140)	1989	1991	20150430095410.722	20150430095411.155
PX3 (140)	1991	1993	20150430095411.155	20150430095411.585
PX3 (140)	3087	3089	20150430095902.643	20150430095904.588
PX3 (140)	3093	3095	20150430095905.452	20150430095905.885
PX3 (140)	3102	3104	20150430095907.397	20150430095907.830
PX4 (145)	1920	1922	20150430095352.776	20150430095353.206
PX4 (145)	1932	1935	20150430095355.370	20150430095356.018
PX4 (145)	1963	1965	20150430095403.585	20150430095404.018
PX4 (145)	1972	1974	20150430095405.530	20150430095405.964
PX4 (145)	1975	1977	20150430095406.179	20150430095406.612
PX4 (145)	1979	1981	20150430095408.558	20150430095408.995
PX4 (145)	1983	1985	20150430095409.425	20150430095409.854
PX4 (145)	1986	1988	20150430095410.073	20150430095410.503
PX4 (145)	1989	1991	20150430095410.722	20150430095411.155
PX4 (145)	1991	1993	20150430095411.155	20150430095411.585
PX4 (145)	3087	3089	20150430095902.643	20150430095904.588
PX4 (145)	3093	3096	20150430095905.452	20150430095906.100
PX4 (145)	3102	3104	20150430095907.397	20150430095907.830
IMG (150)	3264	3266	20150430095352.776	20150430095353.206
IMG (150)	3268	3272	20150430095353.640	20150430095354.507
IMG (150)	3313	3315	20150430095404.018	20150430095404.448
IMG (150)	3320	3322	20150430095405.530	20150430095405.964
IMG (150)	3323	3325	20150430095406.179	20150430095406.612
IMG (150)	3329	3331	20150430095407.909	20150430095408.558
IMG (150)	3331	3333	20150430095408.558	20150430095408.995
IMG (150)	3333	3337	20150430095408.995	20150430095409.854
IMG (150)	3337	3340	20150430095409.854	20150430095410.503
IMG (150)	4587	4589	20150430095903.940	20150430095904.588
IMG (150)	4594	4596	20150430095905.670	20150430095906.100
IMG (150)	4596	4598	20150430095906.100	20150430095906.534
IMG (150)	4602	4604	20150430095907.397	20150430095907.830
VER (160)	13966	13969	20150430095350.612	20150430095350.612
VER (160)	13974	13978	20150430095358.612	20150430095406.612
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
30/04/2015 00:00:04	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	481	-
L1 ENG PDUs	481	-
L1 ENG distinct GEPSGranule	480	-
GQisFlagQual set (PX1)	99.53 %	-
GQisFlagQual set (PX2)	99.63 %	-
GQisFlagQual set (PX3)	99.65 %	-
GQisFlagQual set (PX4)	99.57 %	-
GQisFlagQual set (all)	99.60 %	-

Table 4: Quality flags

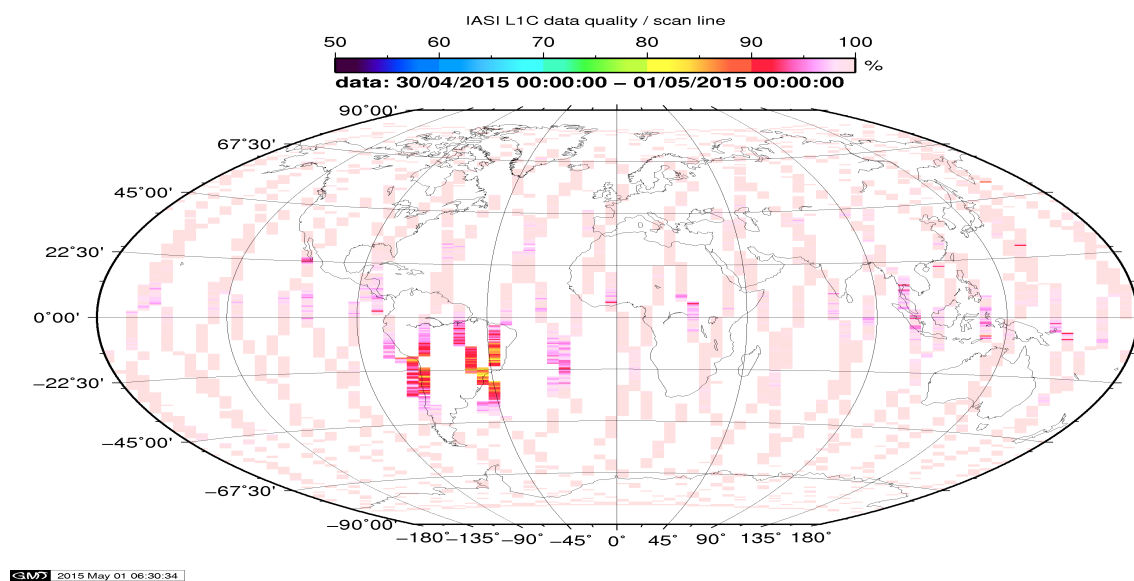


Figure 1: L1C data quality

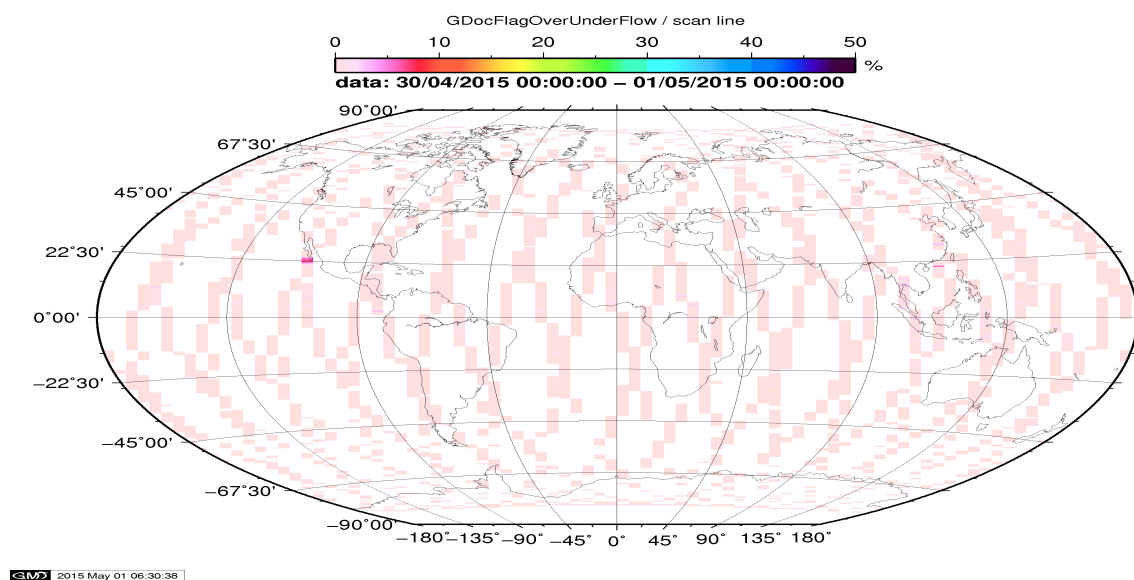


Figure 2: Flag of Over and Under Flows

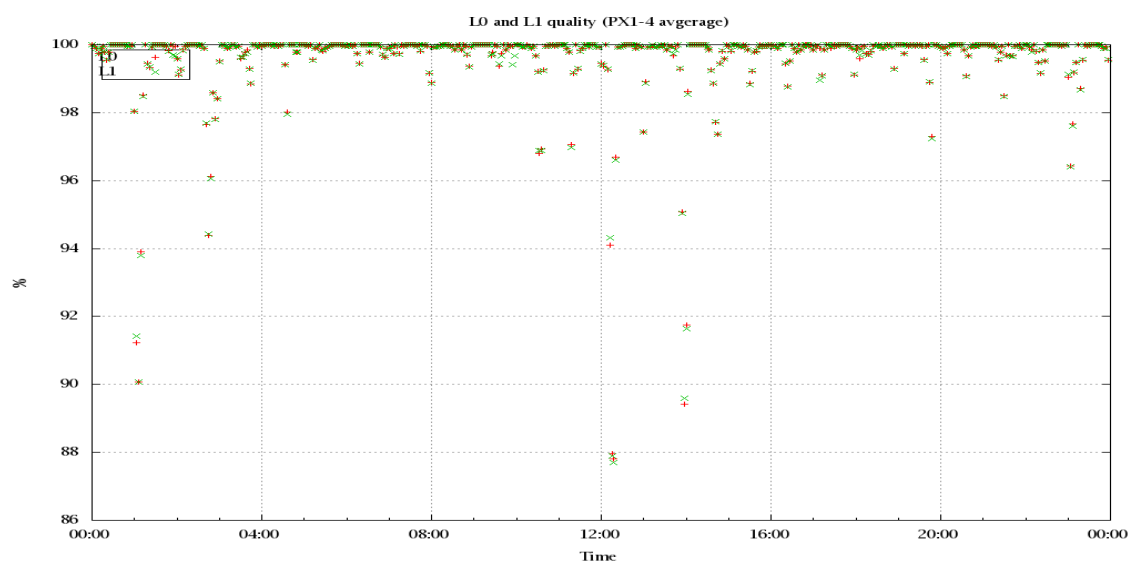


Figure 3: Level 0 and 1C overall quality

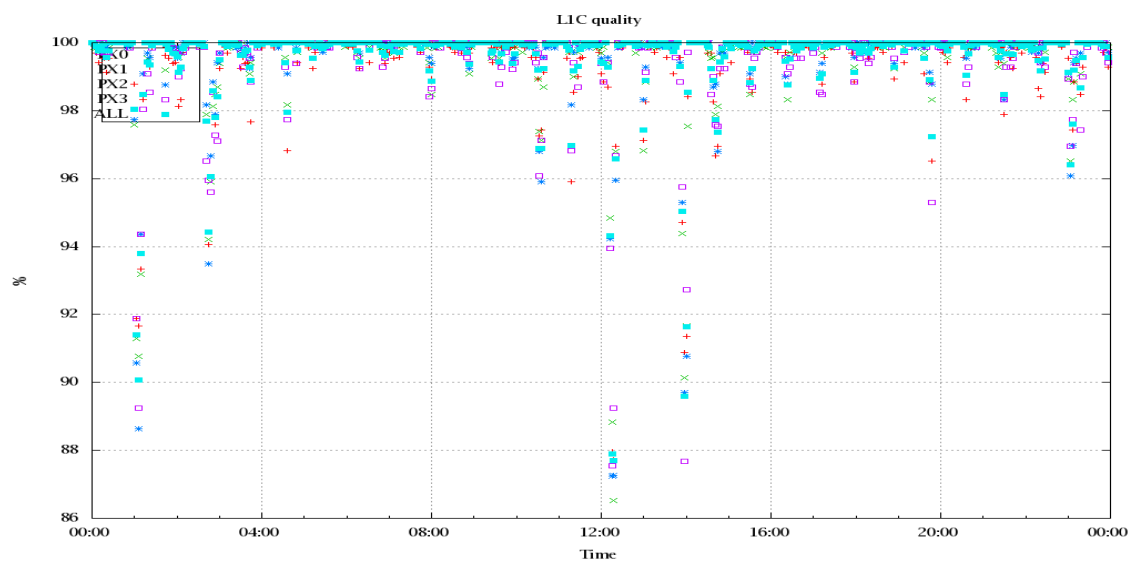


Figure 4: Level 1C quality

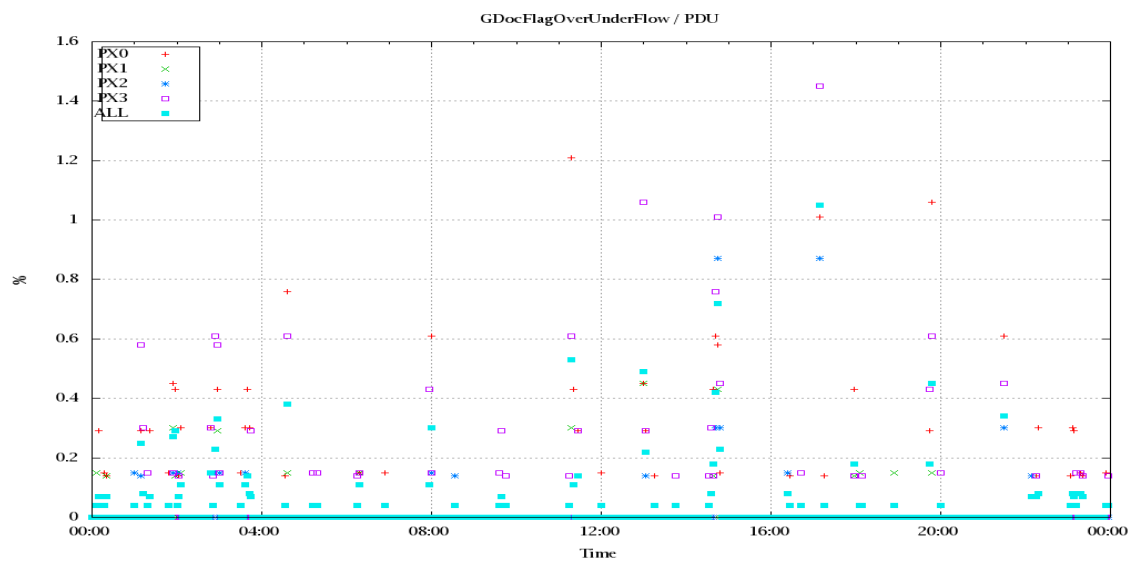


Figure 5: OverUnderFlowFlag timeseries

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.

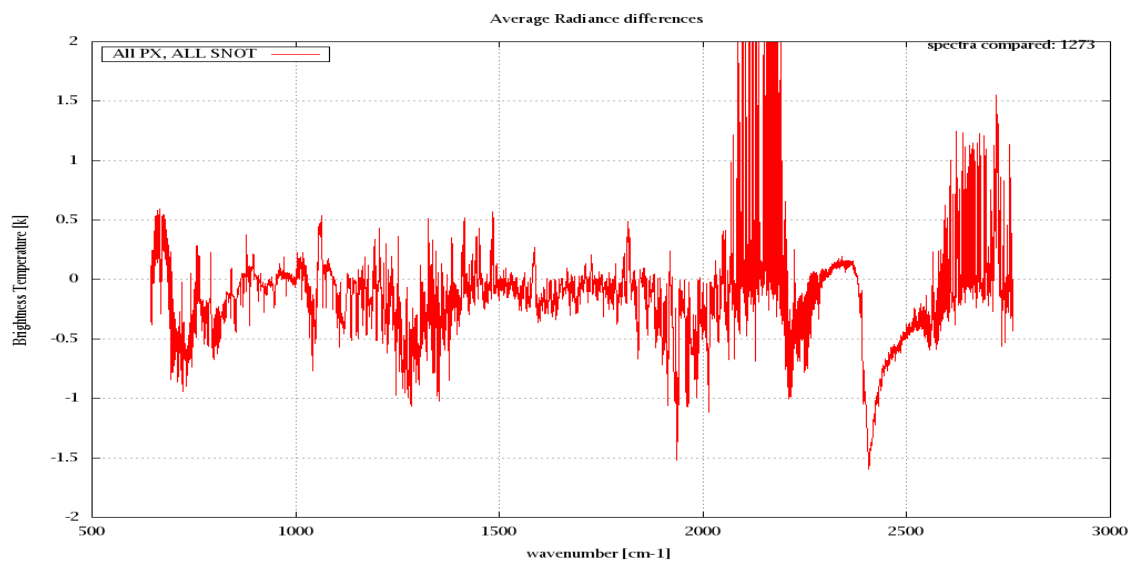


Figure 6: Average Radiance differences: OBS-CAL

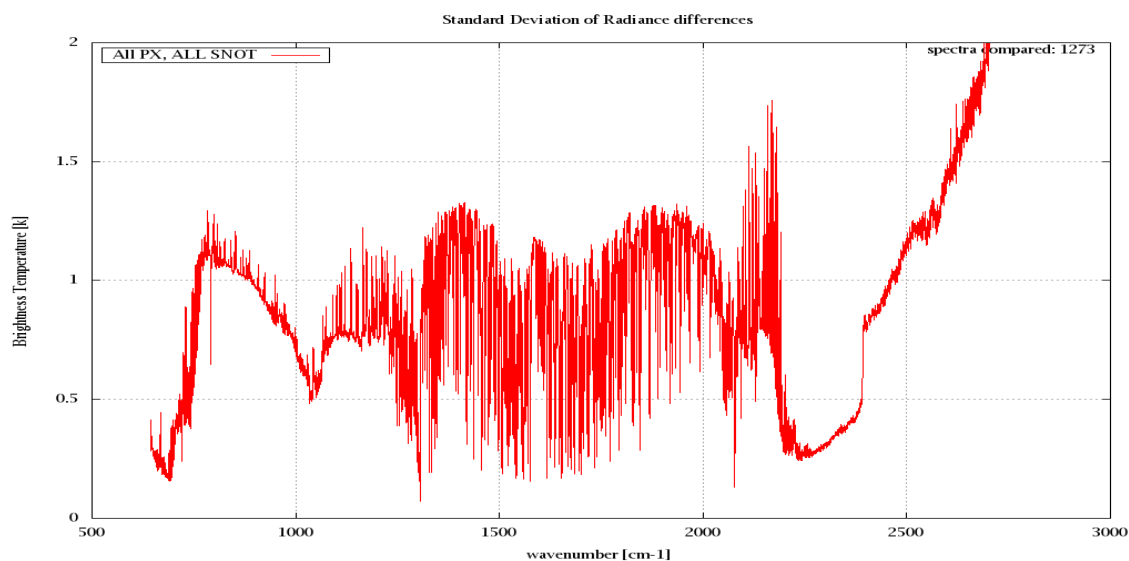


Figure 7: Standard Deviation of Radiance differences

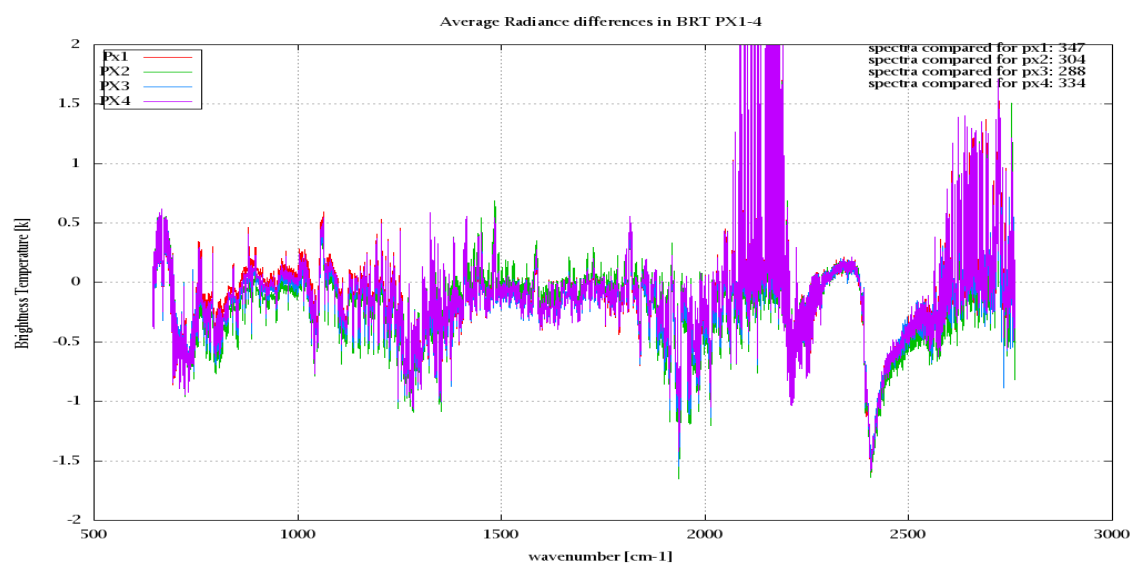


Figure 8: Average Radiance differences: OBS-CAL

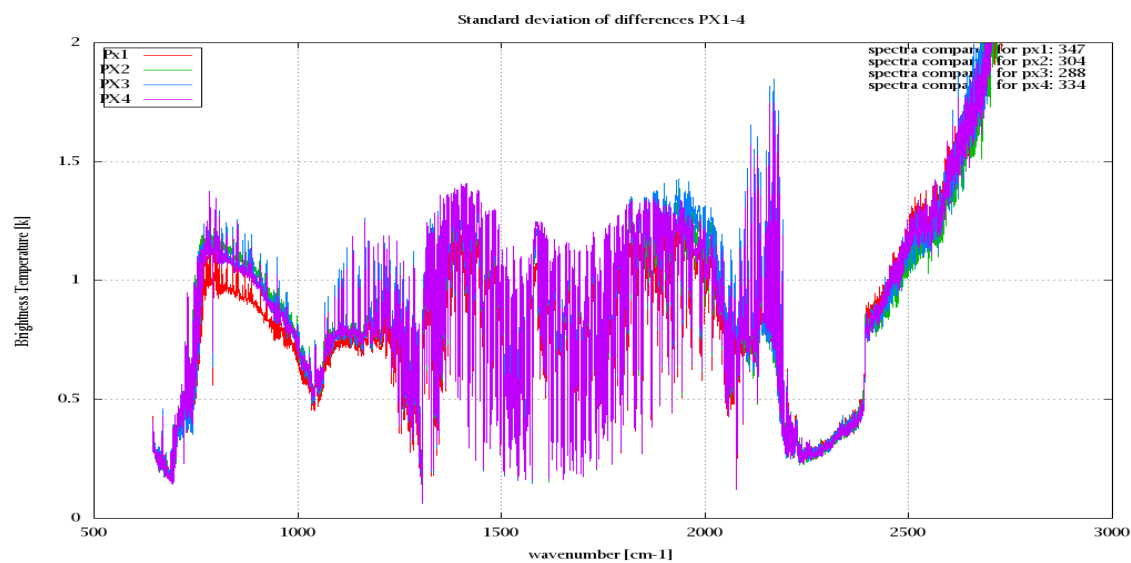


Figure 9: Standard Deviation of Radiance differences

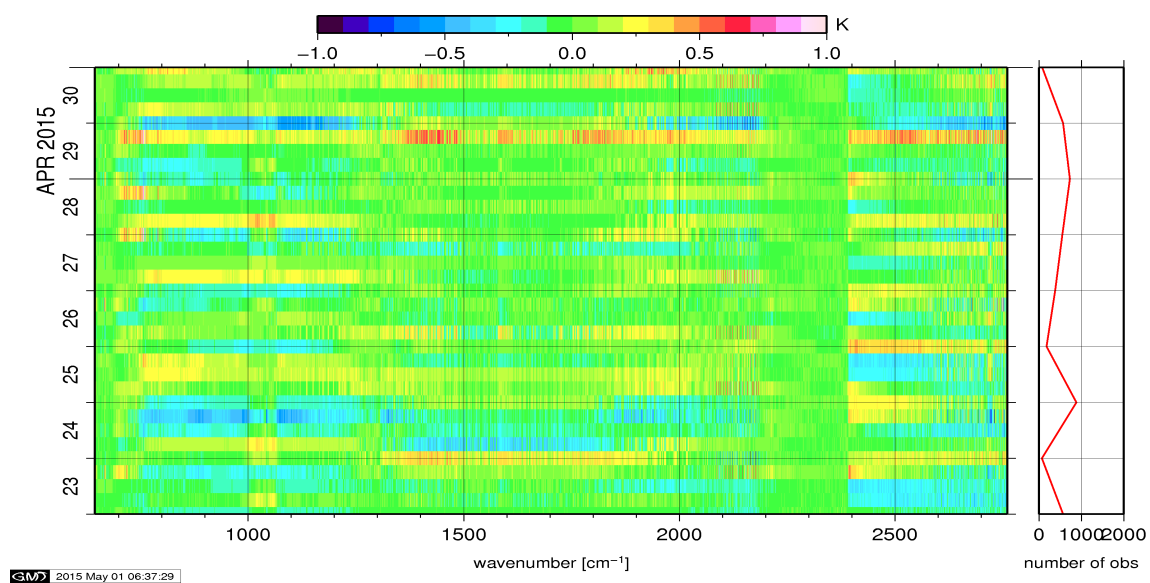


Figure 10: Radiance Anomaly in BRT: All Channels

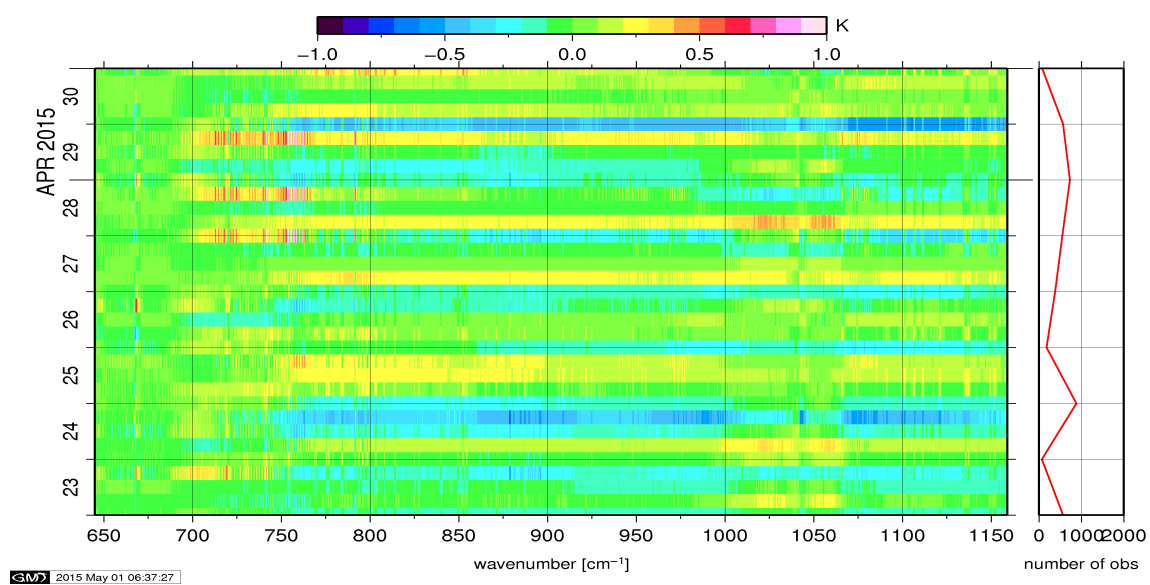


Figure 11: Radiance Anomaly in BRT: IASI Band 1

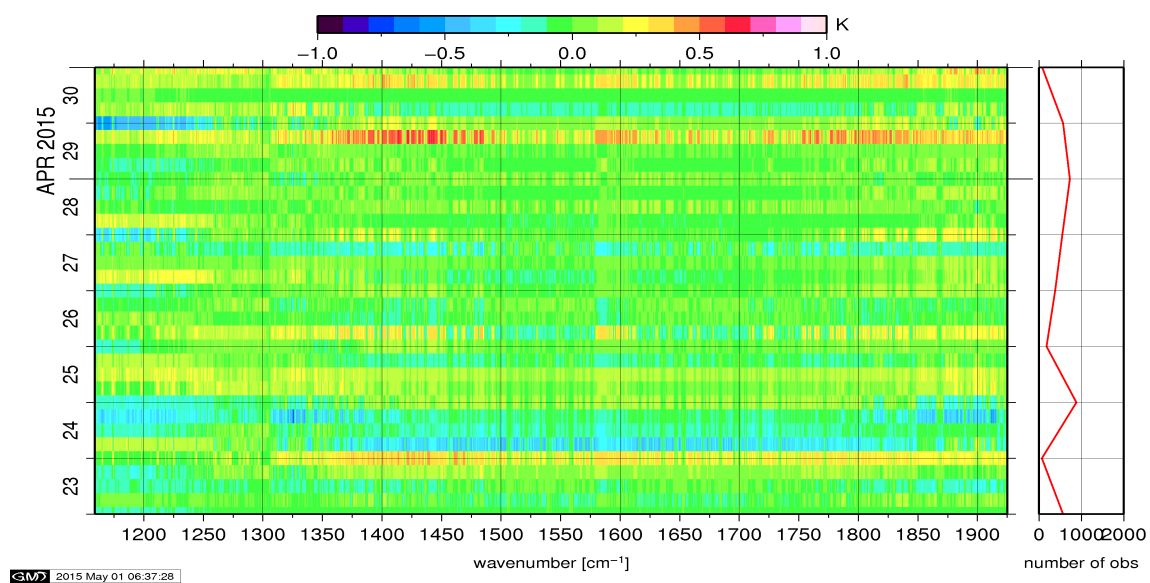


Figure 12: Radiance Anomaly in BRT: IASI Band 2

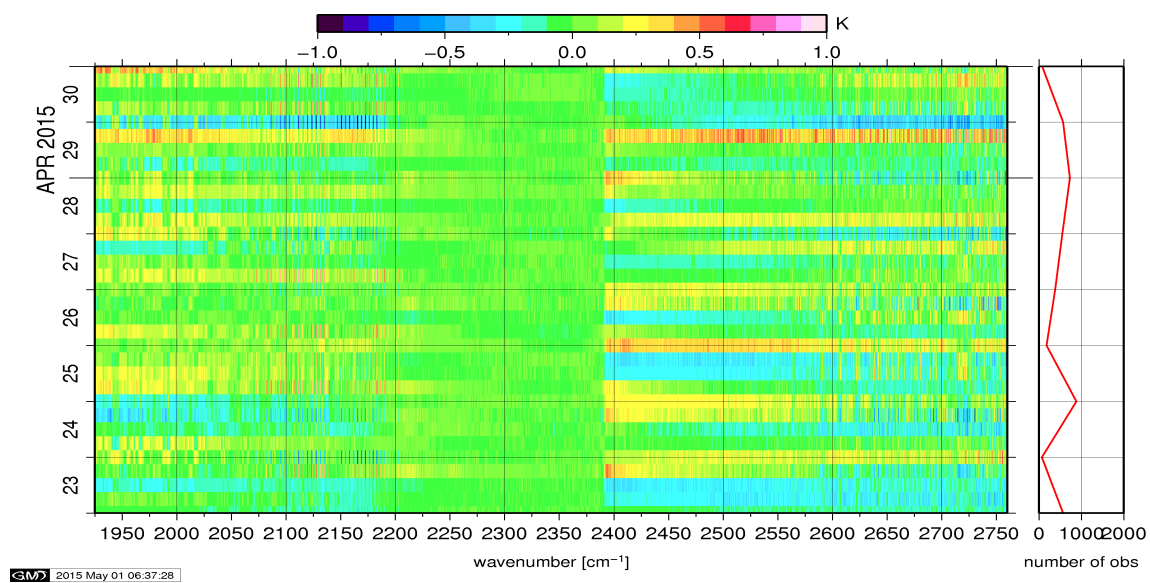


Figure 13: Radiance Anomaly in BRT: IASI Band 3

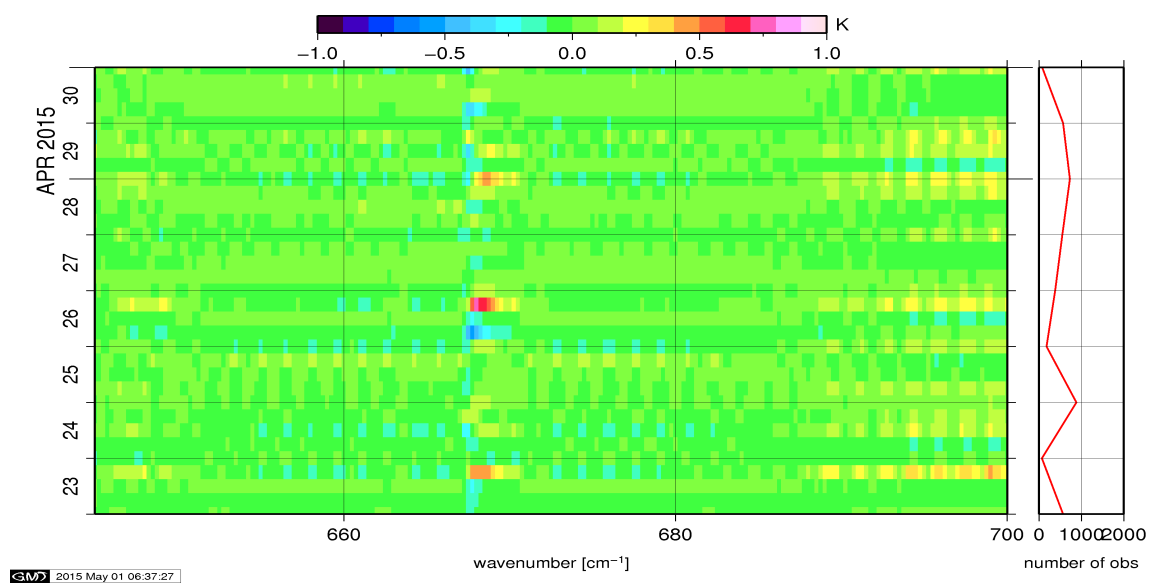


Figure 14: Radiance Anomaly in BRT: CO2 14

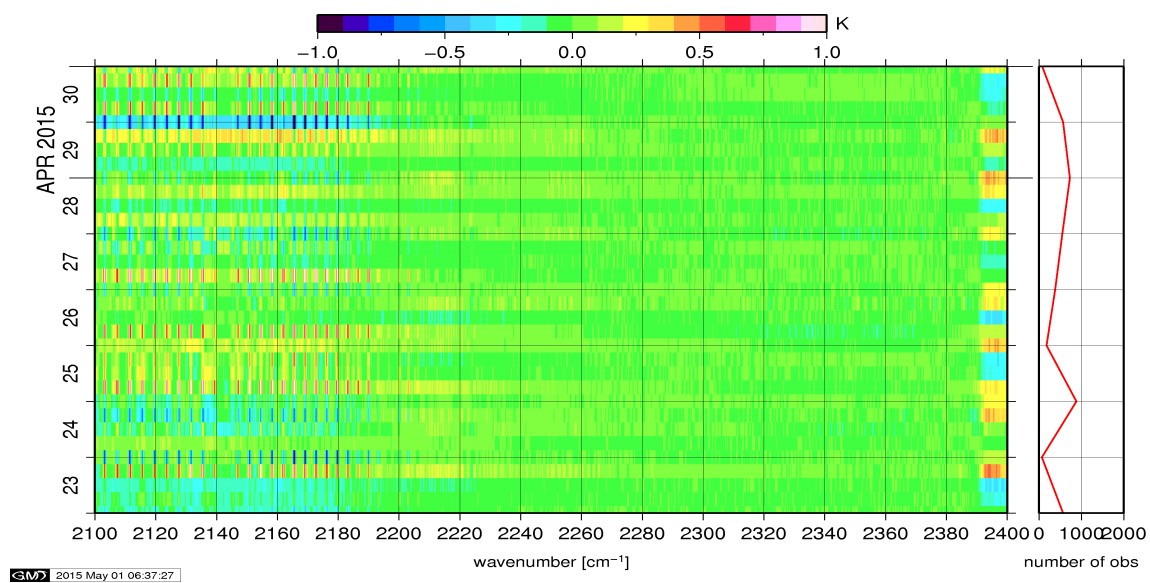


Figure 15: Radiance Anomaly in BRT: CO2 4.3

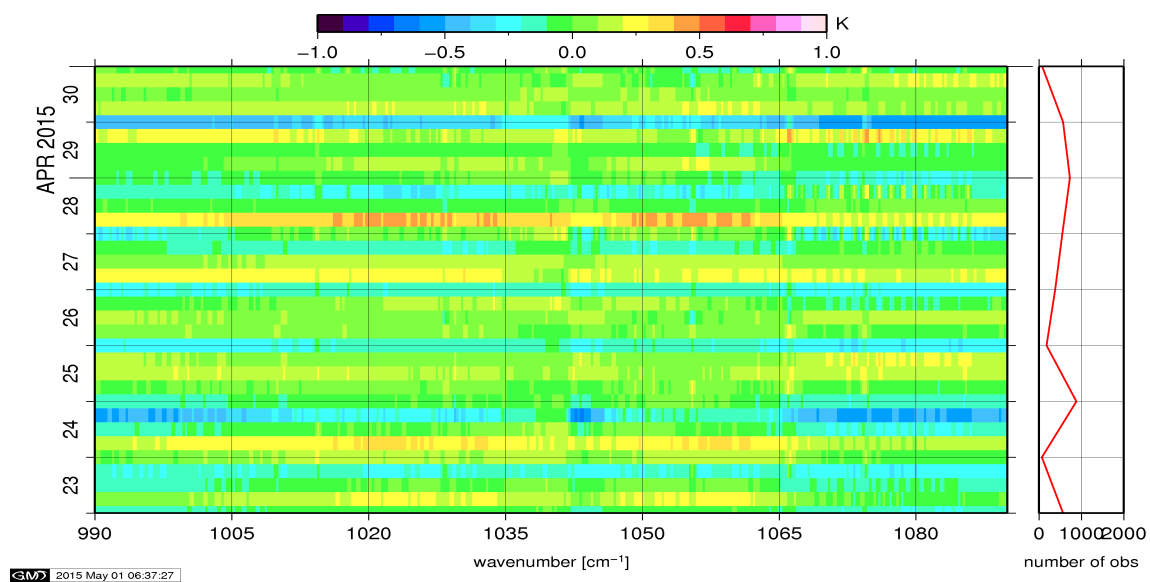


Figure 16: Radiance Anomaly in BRT: O3

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.

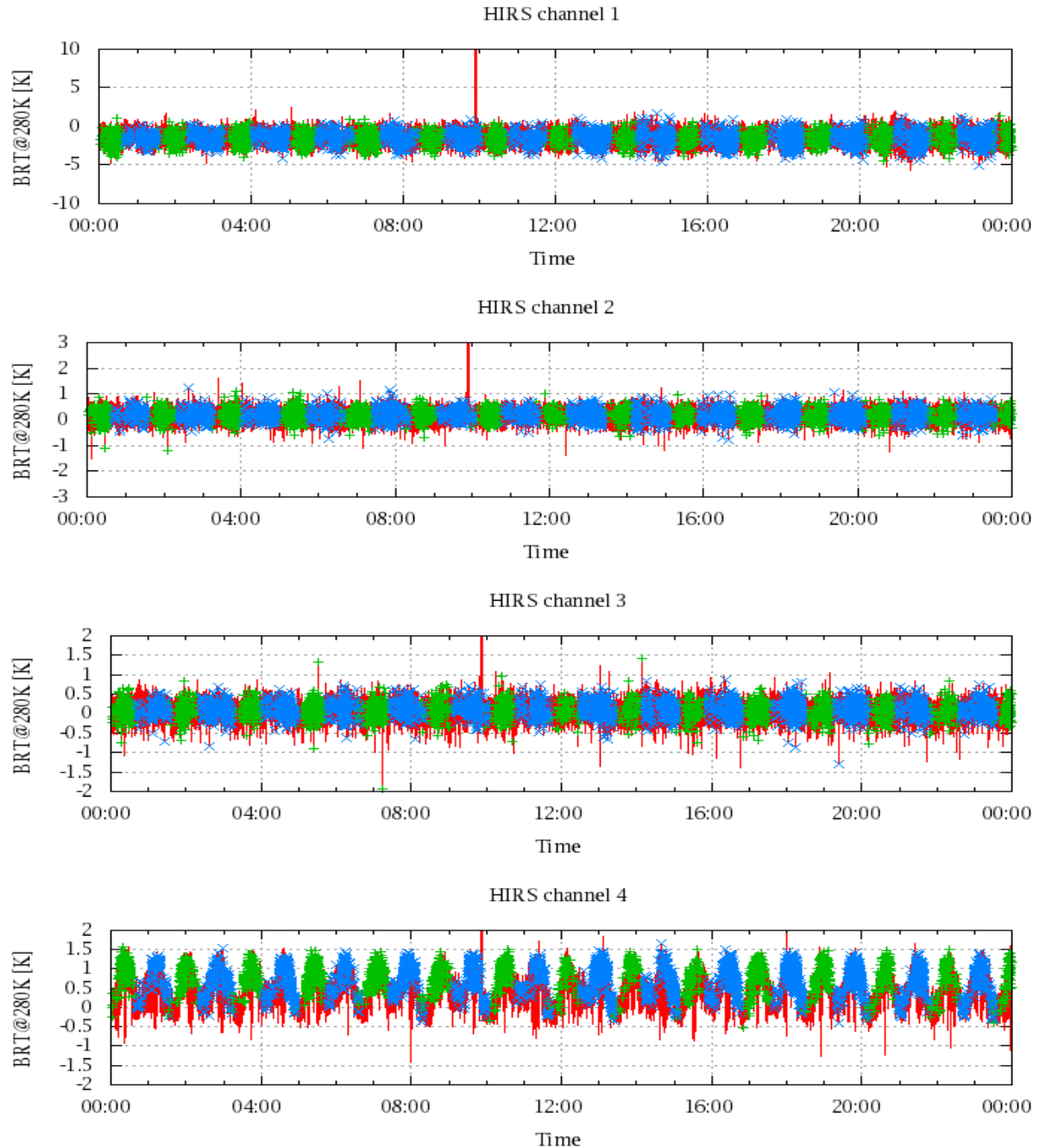


Figure 17: Radiance Differences in BRT

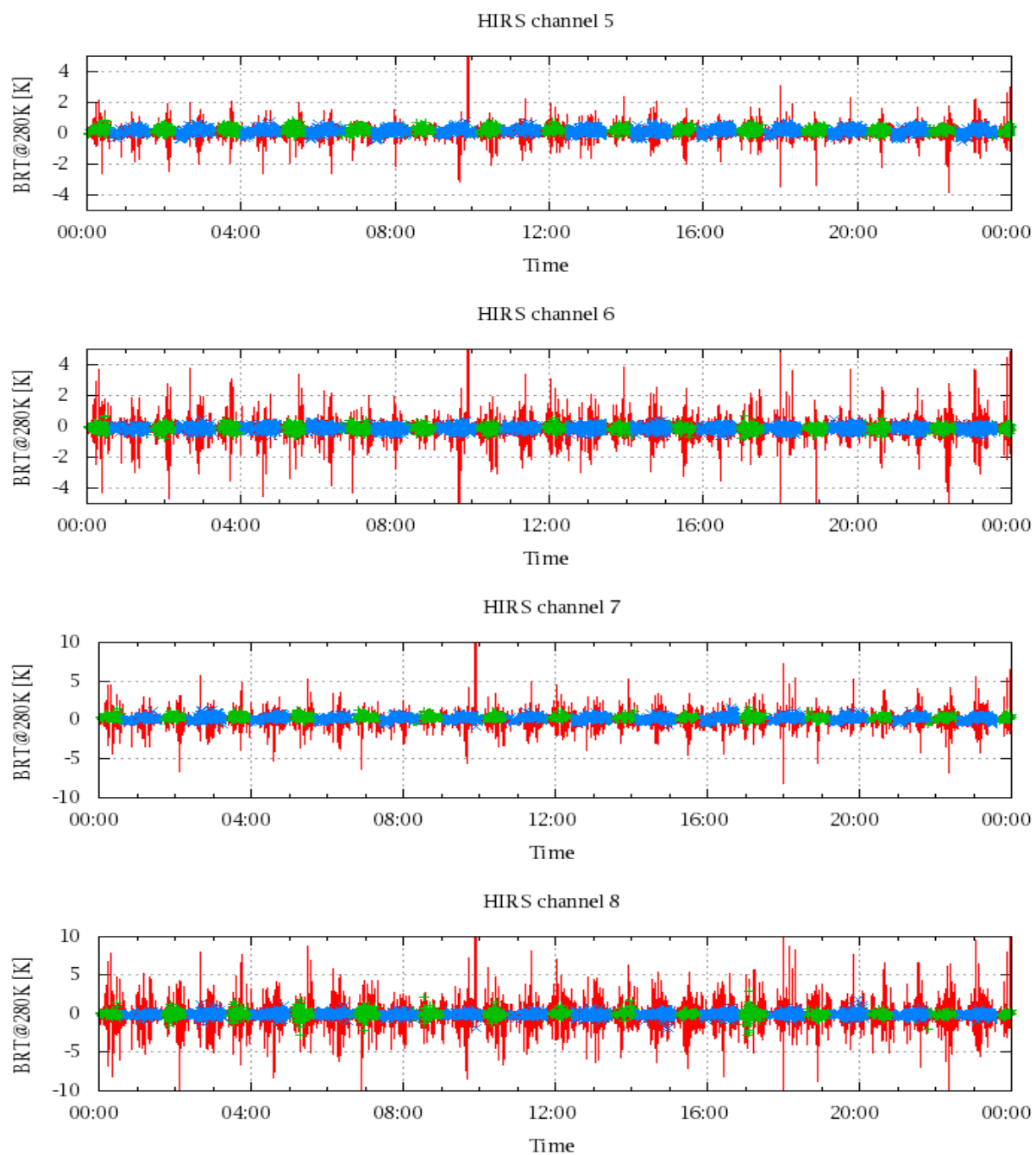


Figure 18: Radiance Differences in BRT

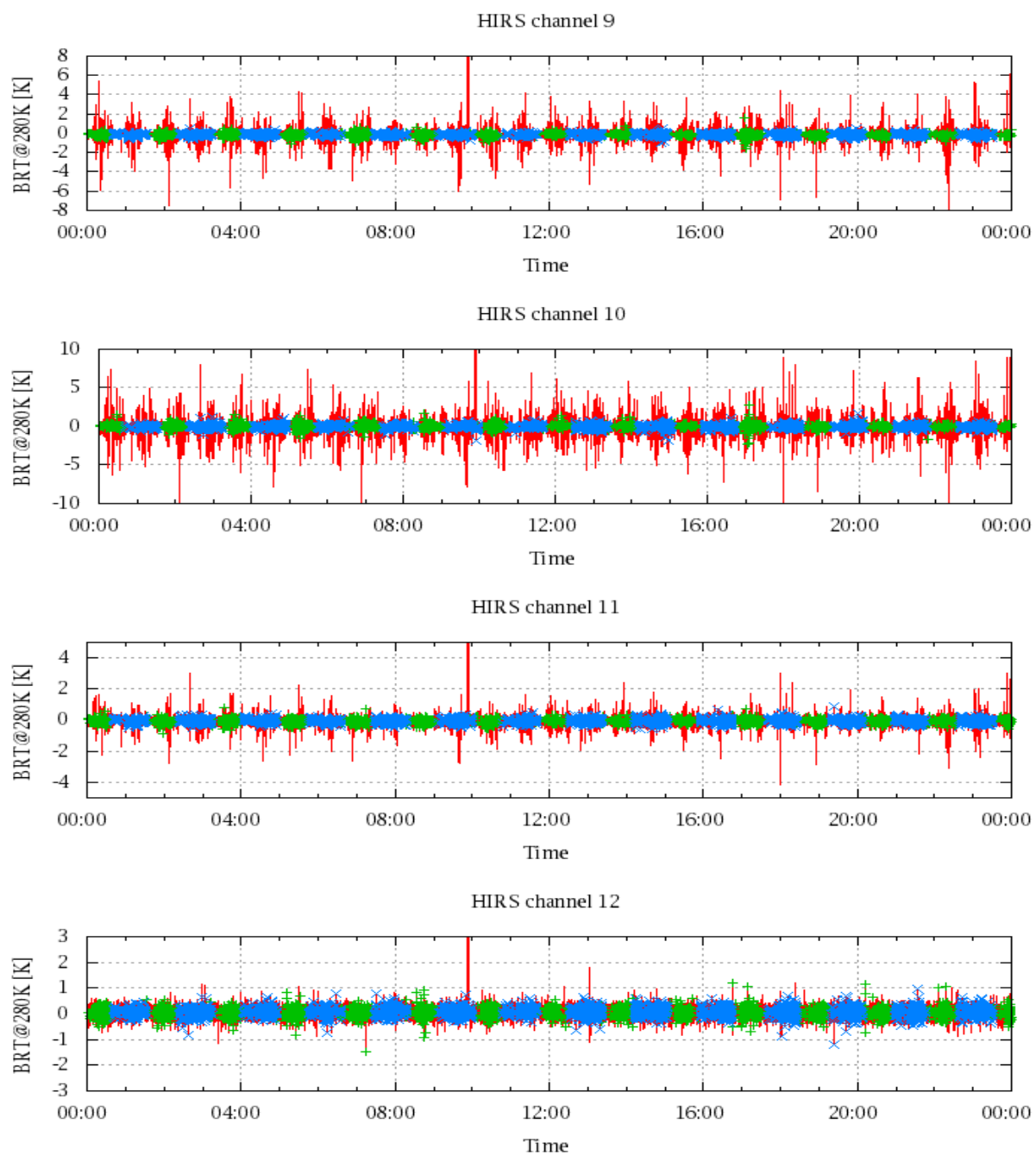


Figure 19: Radiance Differences in BRT

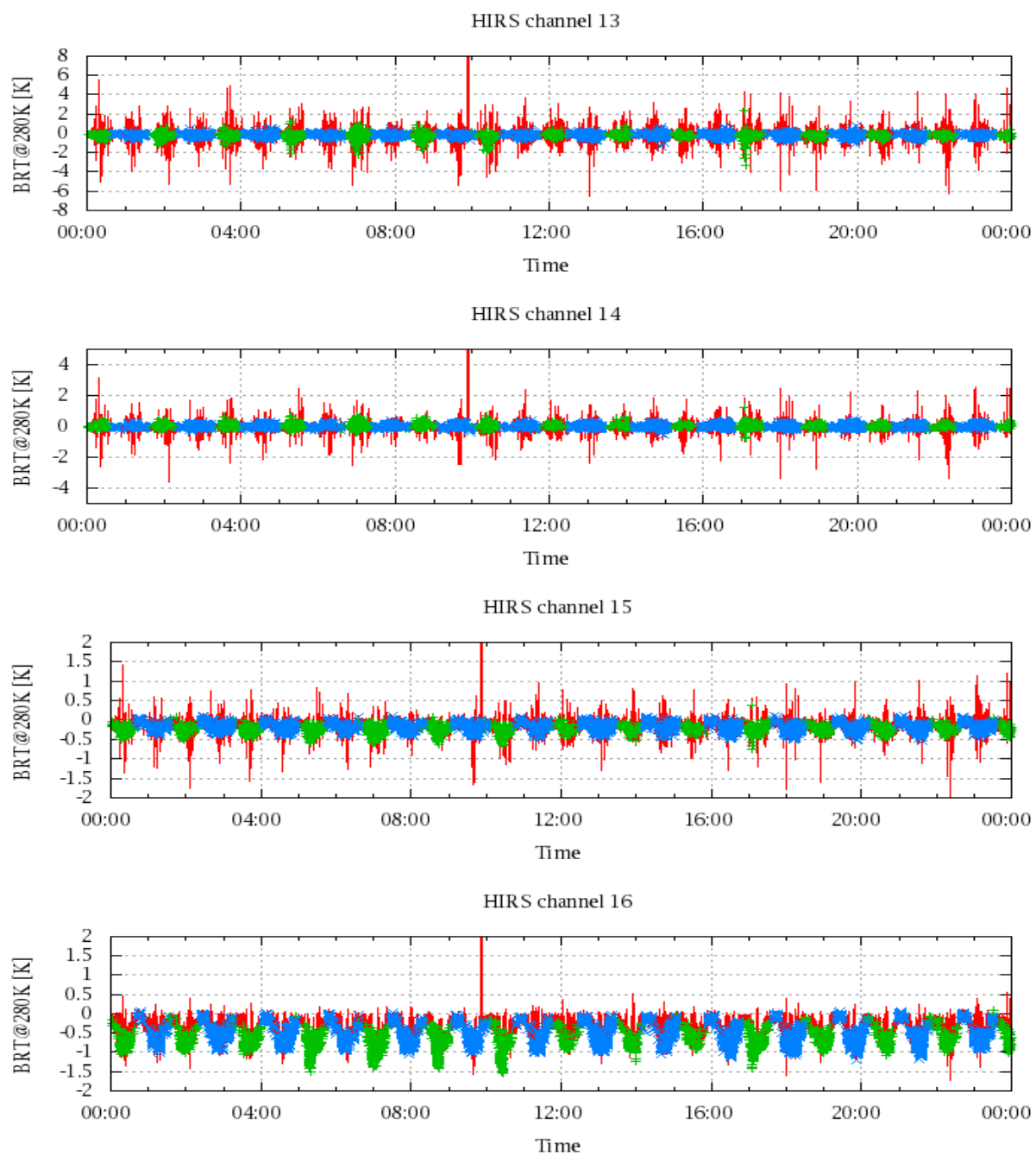


Figure 20: Radiance Differences in BRT

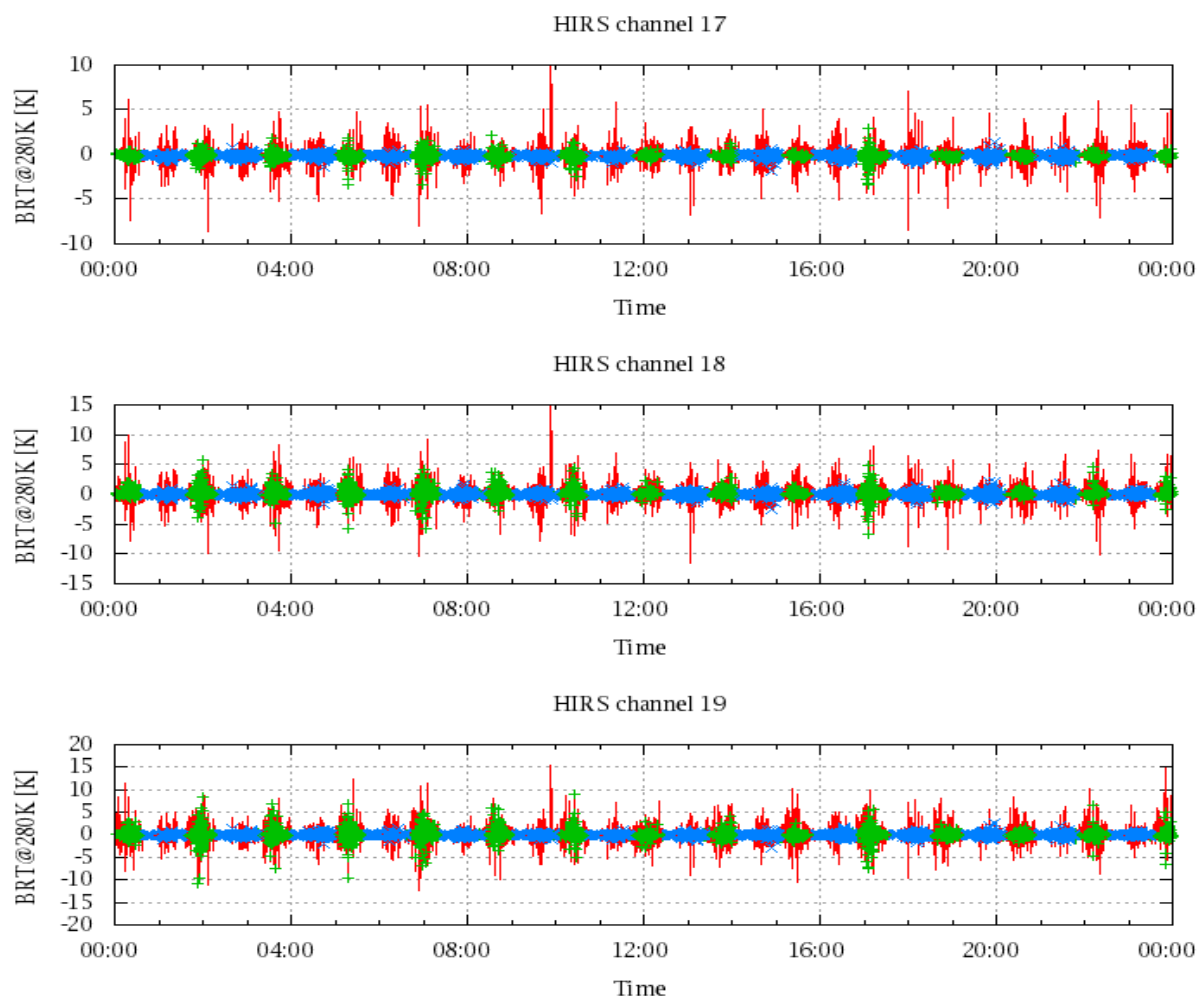


Figure 21: Radinace Differences in BRT