

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

28/11/2014 00:00:00 - 29/11/2014 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 28/11/2014 00:00:00 - 29/11/2014 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 28/11/2014 00:00:00 - 29/11/2014 00:00:00

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

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	14482	14485	20141128115128.748	20141128115129.400
PX1 (130)	14485	14487	20141128115129.400	20141128115129.830
PX1 (130)	14492	14494	20141128115130.912	20141128115131.346
PX1 (130)	14494	14497	20141128115131.346	20141128115131.994
PX1 (130)	14501	14503	20141128115132.857	20141128115134.803
PX1 (130)	14503	14505	20141128115134.803	20141128115135.236
PX1 (130)	14510	14513	20141128115136.318	20141128115136.967
PX1 (130)	14513	14516	20141128115136.967	20141128115137.615
PX1 (130)	14518	14522	20141128115138.049	20141128115138.912
PX1 (130)	14524	14526	20141128115139.346	20141128115139.779
PX2 (135)	14482	14484	20141128115128.748	20141128115129.182
PX2 (135)	14484	14487	20141128115129.182	20141128115129.830
PX2 (135)	14492	14494	20141128115130.912	20141128115131.346
PX2 (135)	14494	14497	20141128115131.346	20141128115131.994
PX2 (135)	14502	14505	20141128115134.588	20141128115135.236
PX2 (135)	14506	14508	20141128115135.455	20141128115135.885
PX2 (135)	14510	14513	20141128115136.318	20141128115136.967
PX2 (135)	14513	14516	20141128115136.967	20141128115137.615

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	14518	14522	20141128115138.049	20141128115138.912
PX2 (135)	14524	14526	20141128115139.346	20141128115139.779
PX3 (140)	14482	14484	20141128115128.748	20141128115129.182
PX3 (140)	14484	14486	20141128115129.182	20141128115129.615
PX3 (140)	14492	14494	20141128115130.912	20141128115131.346
PX3 (140)	14494	14497	20141128115131.346	20141128115131.994
PX3 (140)	14502	14506	20141128115134.588	20141128115135.455
PX3 (140)	14506	14508	20141128115135.455	20141128115135.885
PX3 (140)	14510	14513	20141128115136.318	20141128115136.967
PX3 (140)	14513	14515	20141128115136.967	20141128115137.397
PX3 (140)	14517	14522	20141128115137.830	20141128115138.912
PX3 (140)	14522	14524	20141128115138.912	20141128115139.346
PX3 (140)	14524	14526	20141128115139.346	20141128115139.779
PX4 (145)	14482	14484	20141128115128.748	20141128115129.182
PX4 (145)	14484	14486	20141128115129.182	20141128115129.615
PX4 (145)	14492	14494	20141128115130.912	20141128115131.346
PX4 (145)	14495	14497	20141128115131.561	20141128115131.994
PX4 (145)	14502	14504	20141128115134.588	20141128115135.022
PX4 (145)	14504	14506	20141128115135.022	20141128115135.455
PX4 (145)	14506	14508	20141128115135.455	20141128115135.885
PX4 (145)	14510	14513	20141128115136.318	20141128115136.967
PX4 (145)	14513	14515	20141128115136.967	20141128115137.397
PX4 (145)	14517	14522	20141128115137.830	20141128115138.912
PX4 (145)	14522	14524	20141128115138.912	20141128115139.346
PX4 (145)	14524	14526	20141128115139.346	20141128115139.779
IMG (150)	3974	3976	20141128115124.643	20141128115125.291
IMG (150)	3990	3992	20141128115128.748	20141128115129.182
IMG (150)	3992	3994	20141128115129.182	20141128115129.615
IMG (150)	3999	4004	20141128115130.697	20141128115131.775
IMG (150)	4009	4014	20141128115132.857	20141128115134.588
IMG (150)	4014	4016	20141128115134.588	20141128115135.022
IMG (150)	4016	4018	20141128115135.022	20141128115135.455
IMG (150)	4021	4023	20141128115136.100	20141128115136.533
IMG (150)	4023	4025	20141128115136.533	20141128115136.967
IMG (150)	4025	4027	20141128115136.967	20141128115137.397
IMG (150)	4029	4038	20141128115137.830	20141128115139.779
VER (160)	3271	3273	20141128115116.858	20141128115124.858
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
28/11/2014 00:00:10	-	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	481	-
GQisFlagQual set (PX1)	99.57 %	-
GQisFlagQual set (PX2)	99.63 %	-
GQisFlagQual set (PX3)	99.64 %	-
GQisFlagQual set (PX4)	99.57 %	-
GQisFlagQual set (all)	99.60 %	-

Table 4: Quality flags

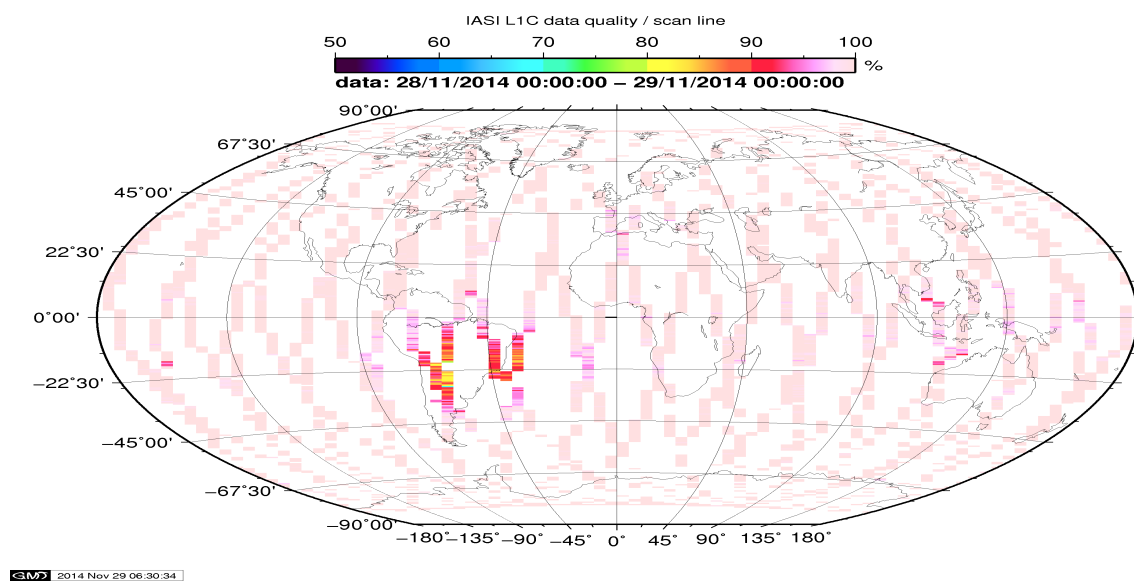


Figure 1: L1C data quality

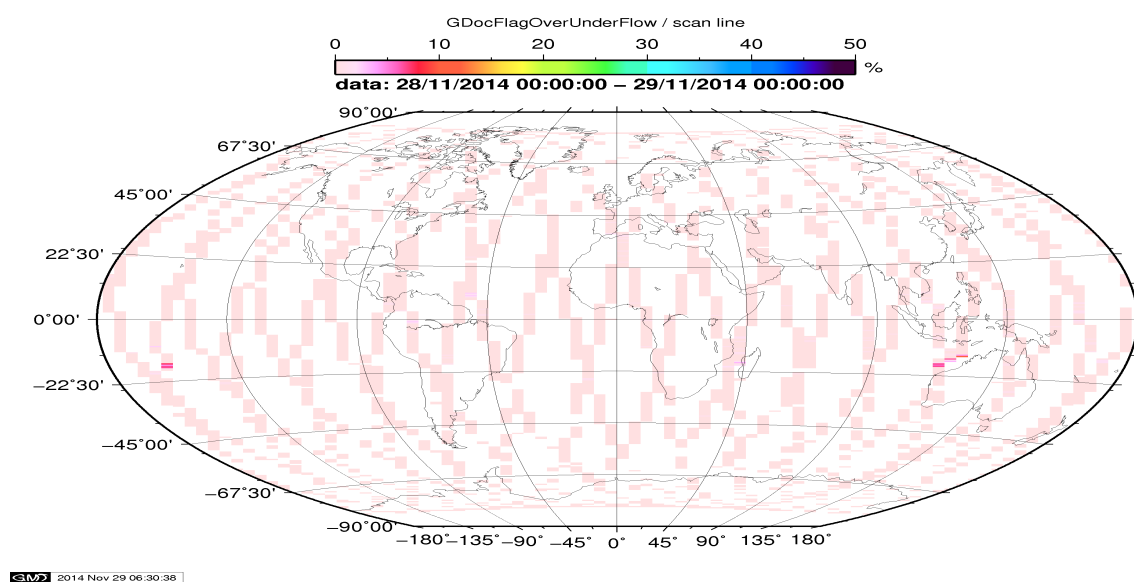


Figure 2: Flag of Over and Under Flows

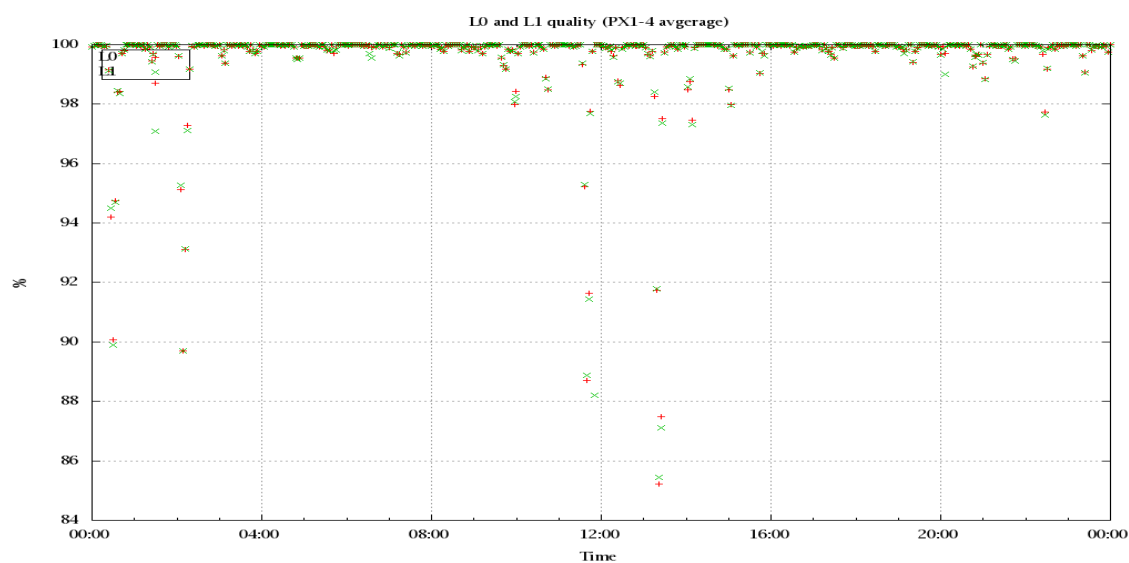


Figure 3: Level 0 and 1C overall quality

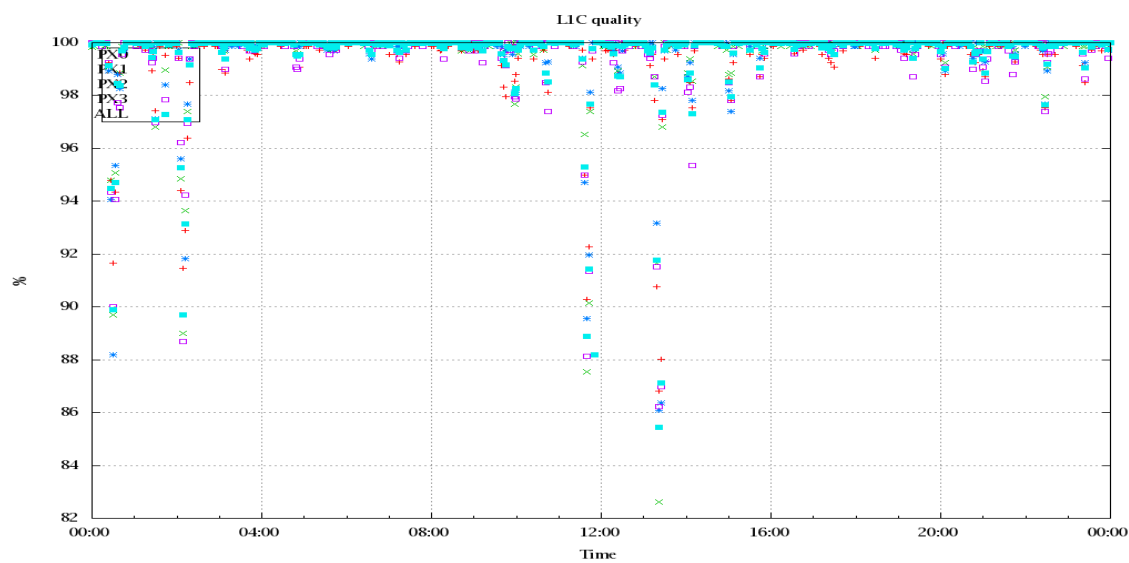


Figure 4: Level 1C quality

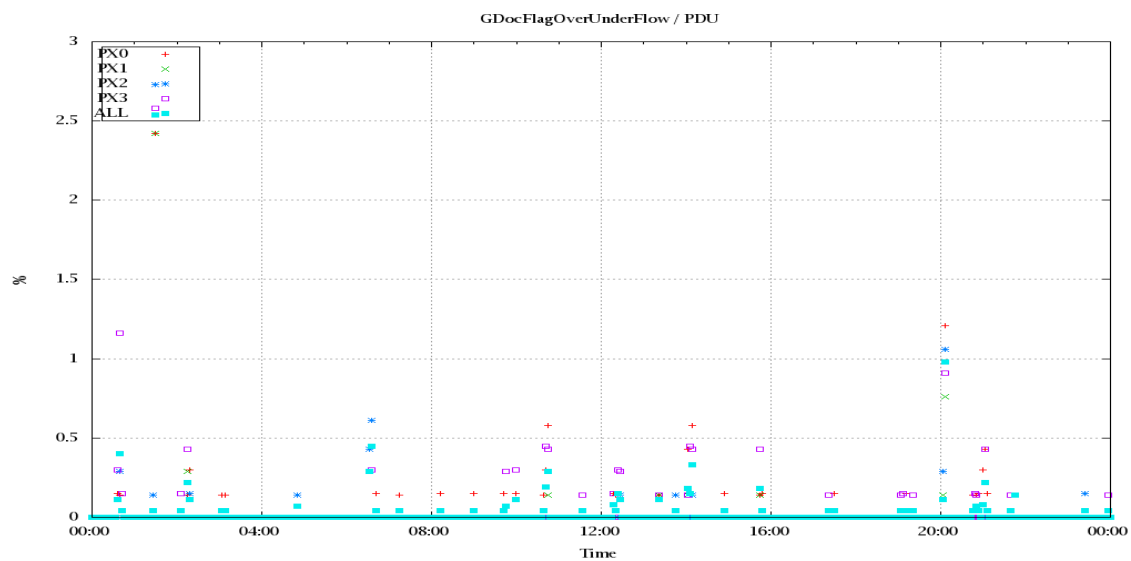


Figure 5: OverUnderFlowFlag timeseries

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.

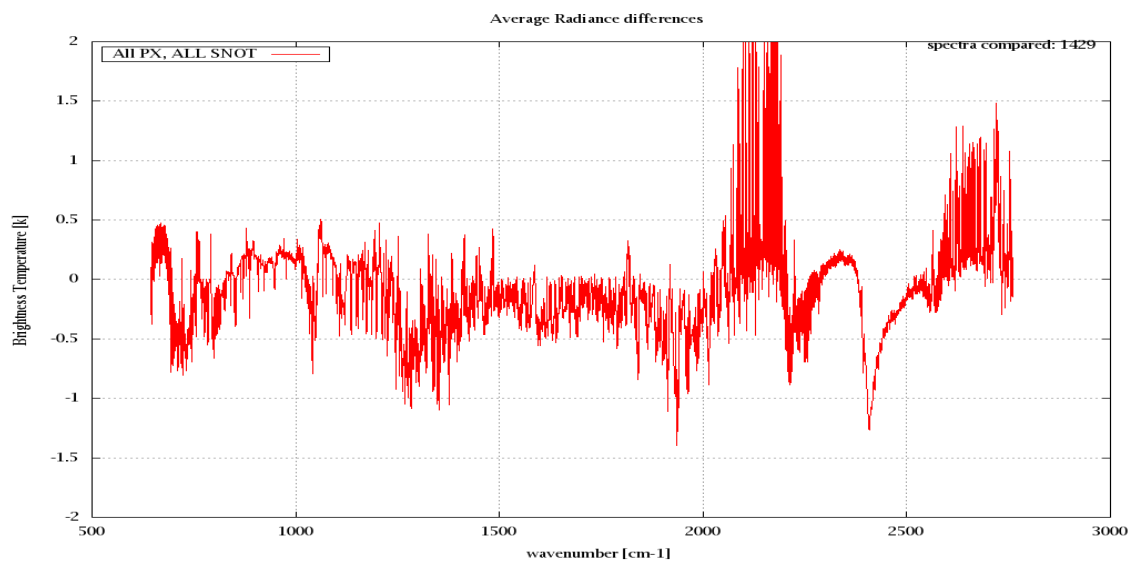


Figure 6: Average Radiance differences: OBS-CAL

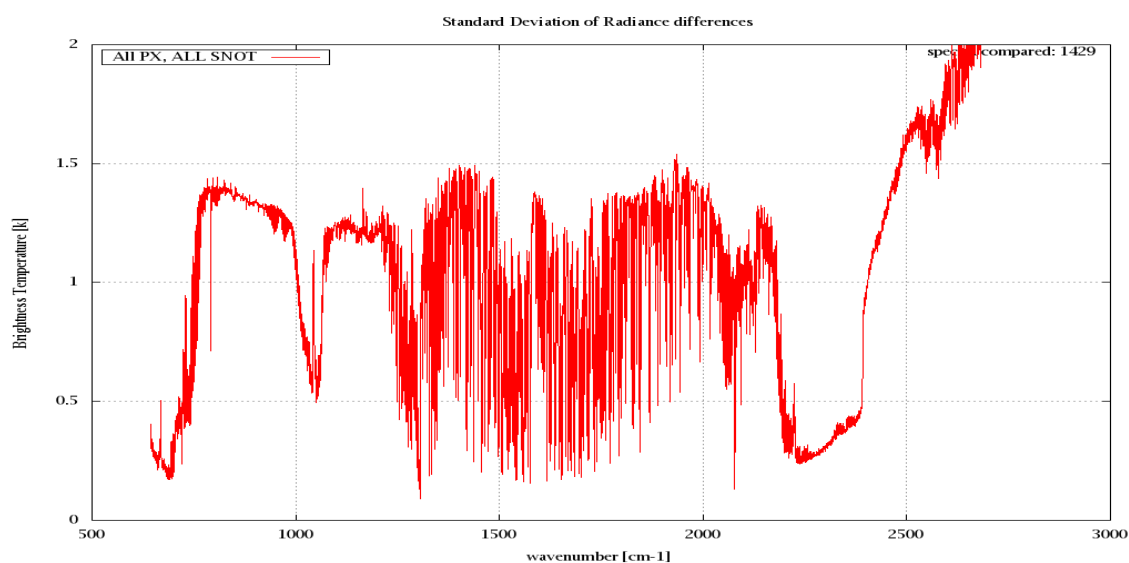


Figure 7: Standard Deviation of Radiance differences

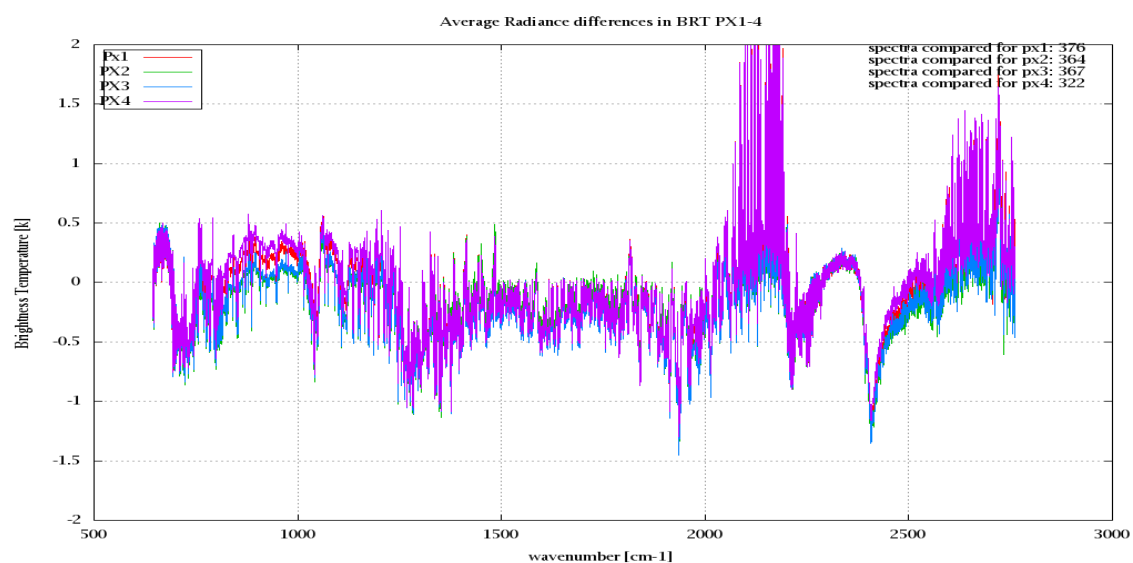


Figure 8: Average Radiance differences: OBS-CAL

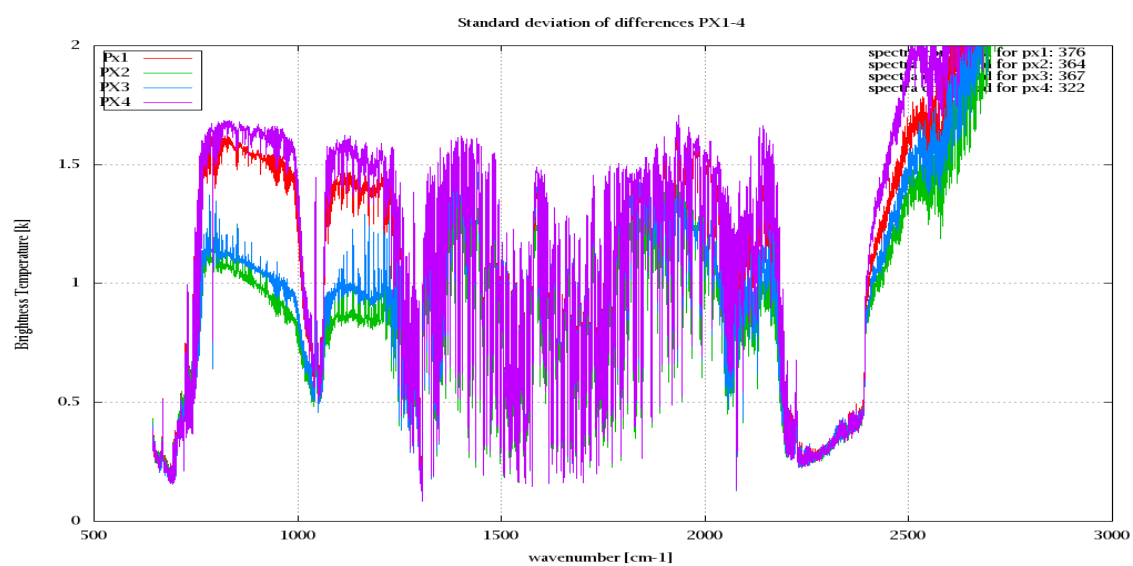


Figure 9: Standard Deviation of Radiance differences

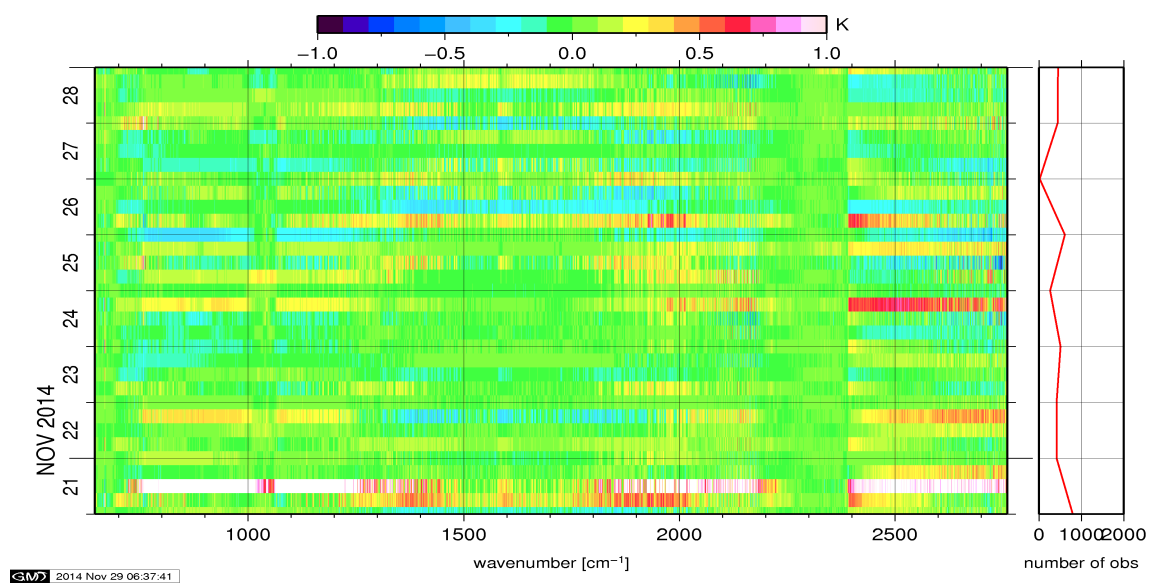


Figure 10: Radiance Anomaly in BRT: All Channels

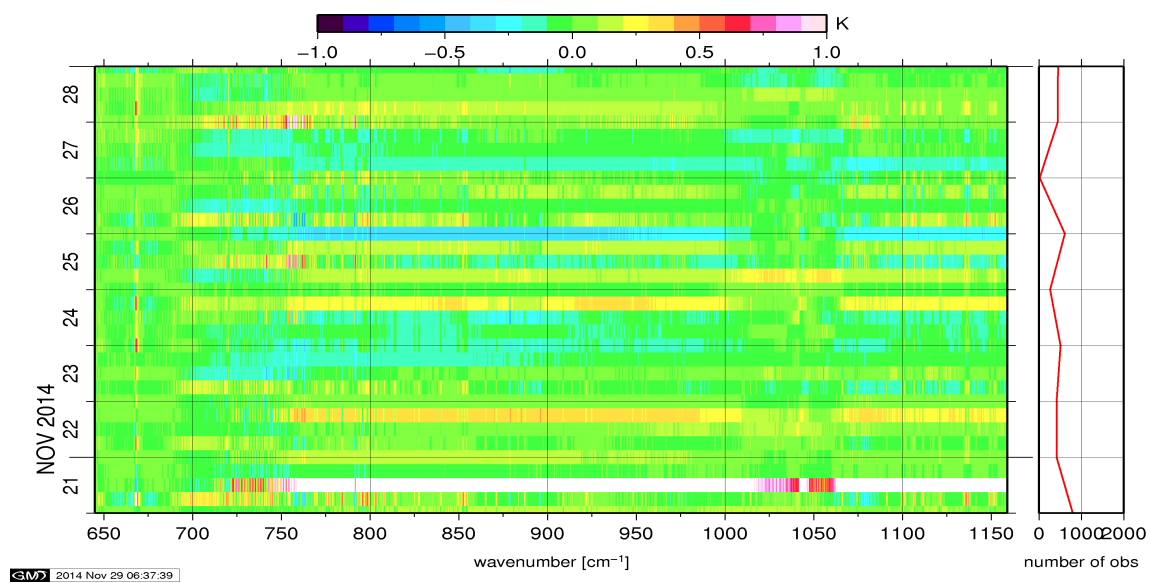


Figure 11: Radiance Anomaly in BRT: IASI Band 1

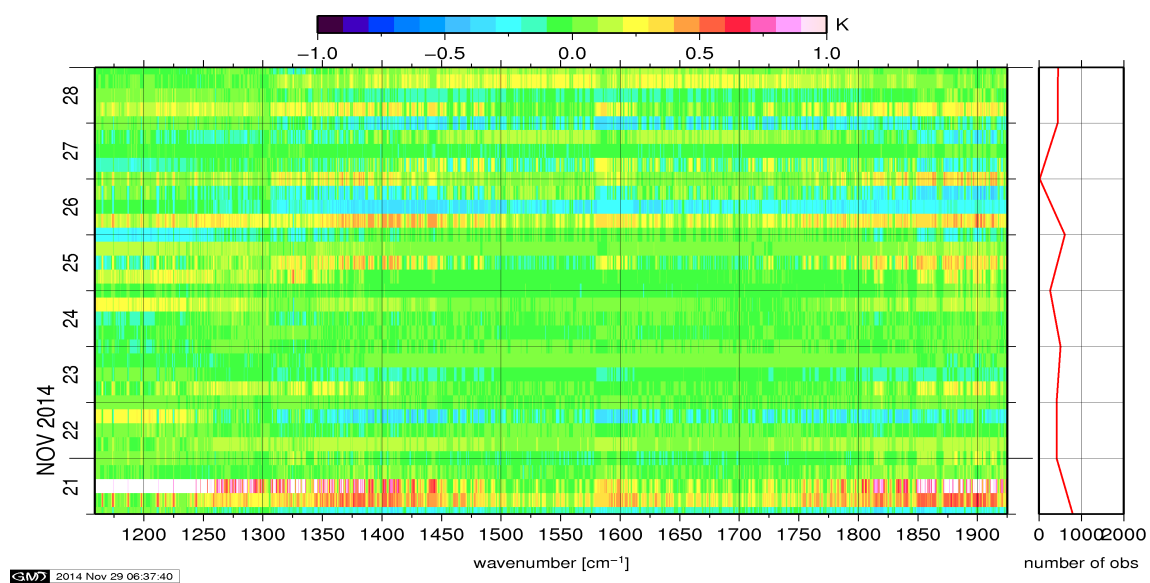


Figure 12: Radiance Anomaly in BRT: IASI Band 2

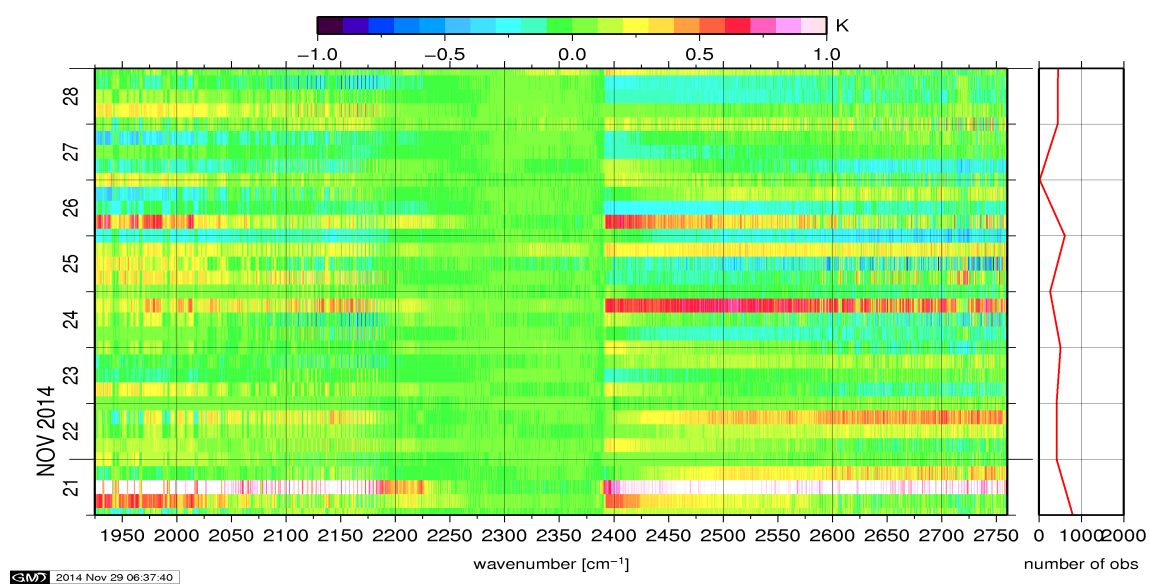


Figure 13: Radiance Anomaly in BRT: IASI Band 3

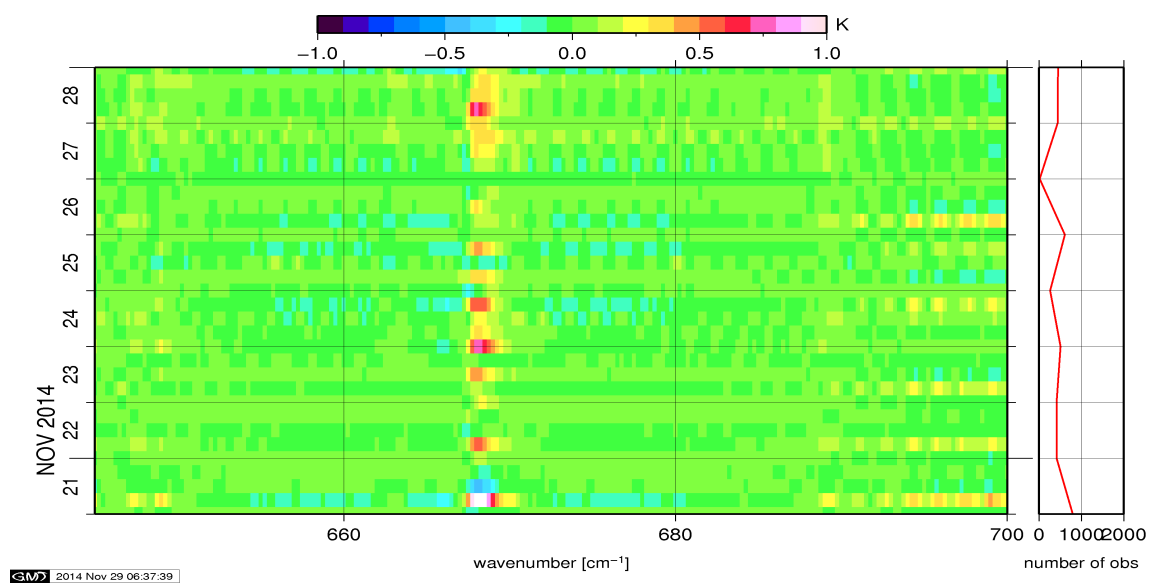


Figure 14: Radiance Anomaly in BRT: CO2 14

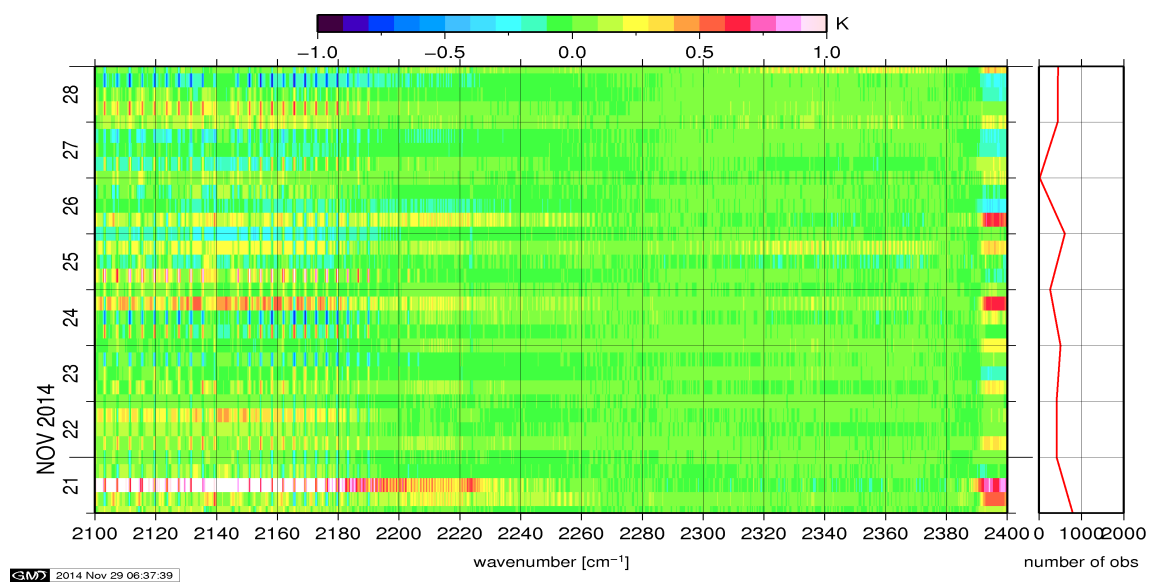


Figure 15: Radiance Anomaly in BRT: CO2 4.3

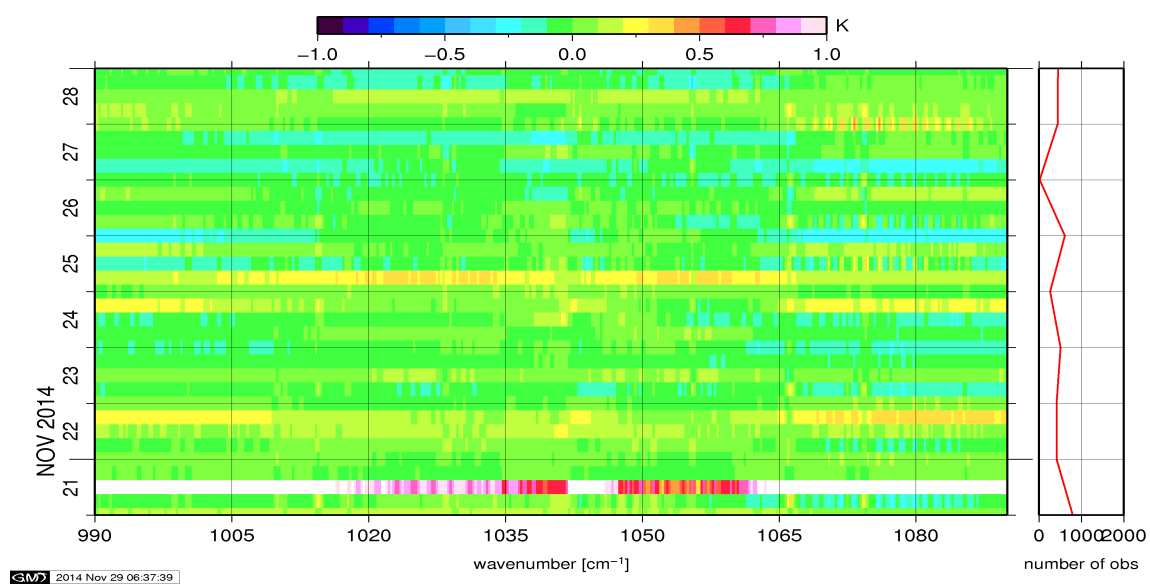


Figure 16: Radiance Anomaly in BRT: O3

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.

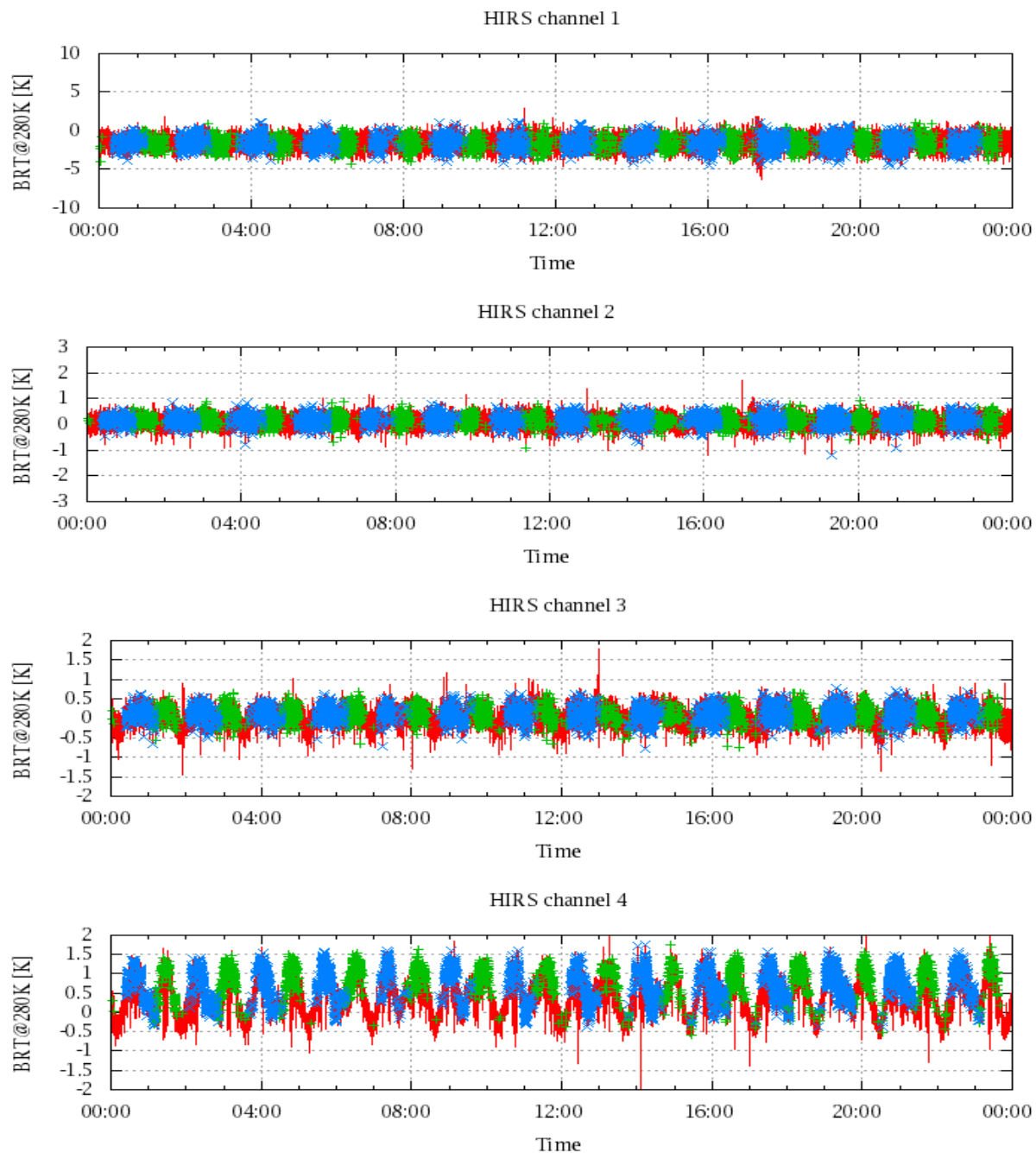


Figure 17: Radiance Differences in BRT

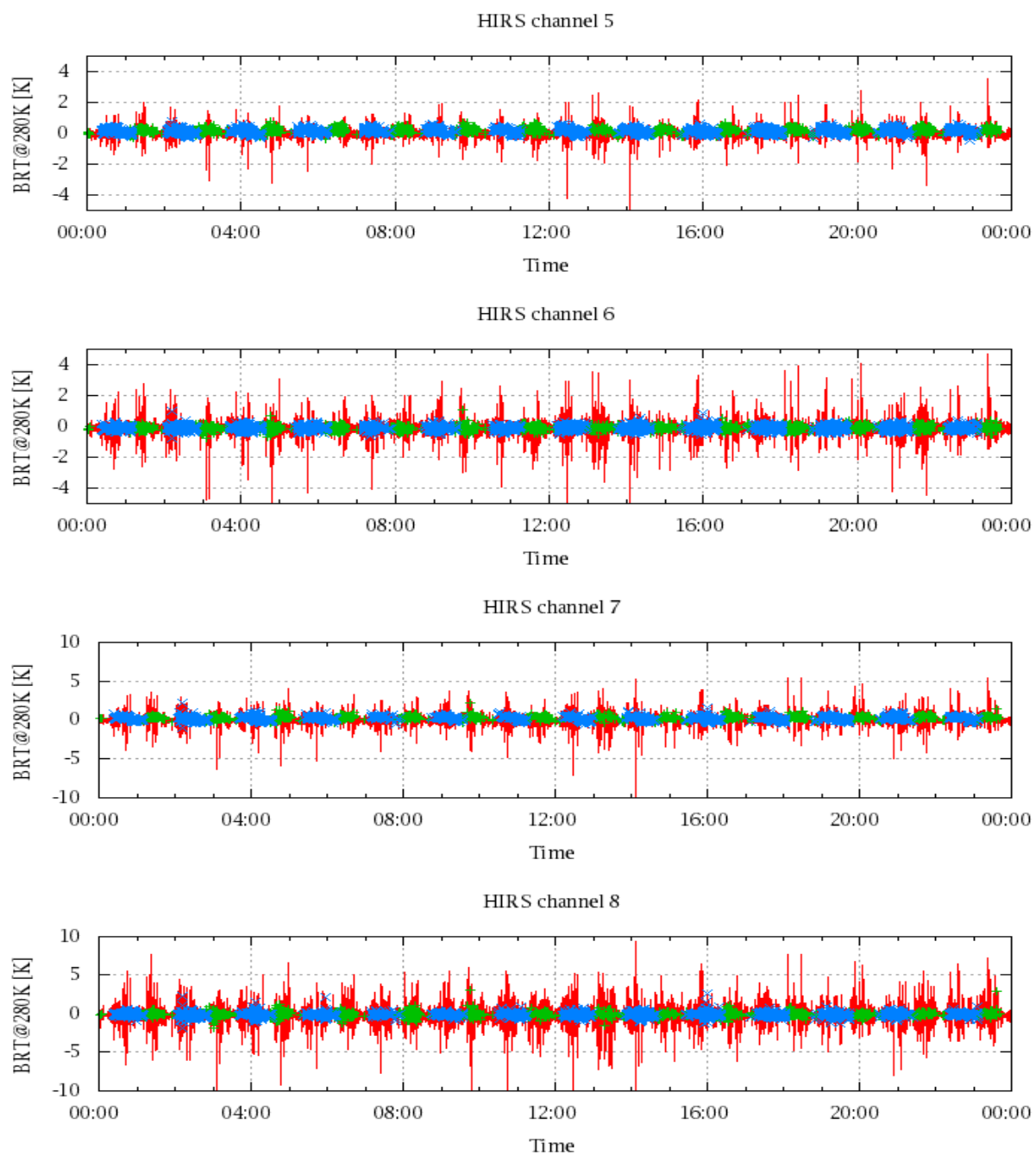


Figure 18: Radiance Differences in BRT

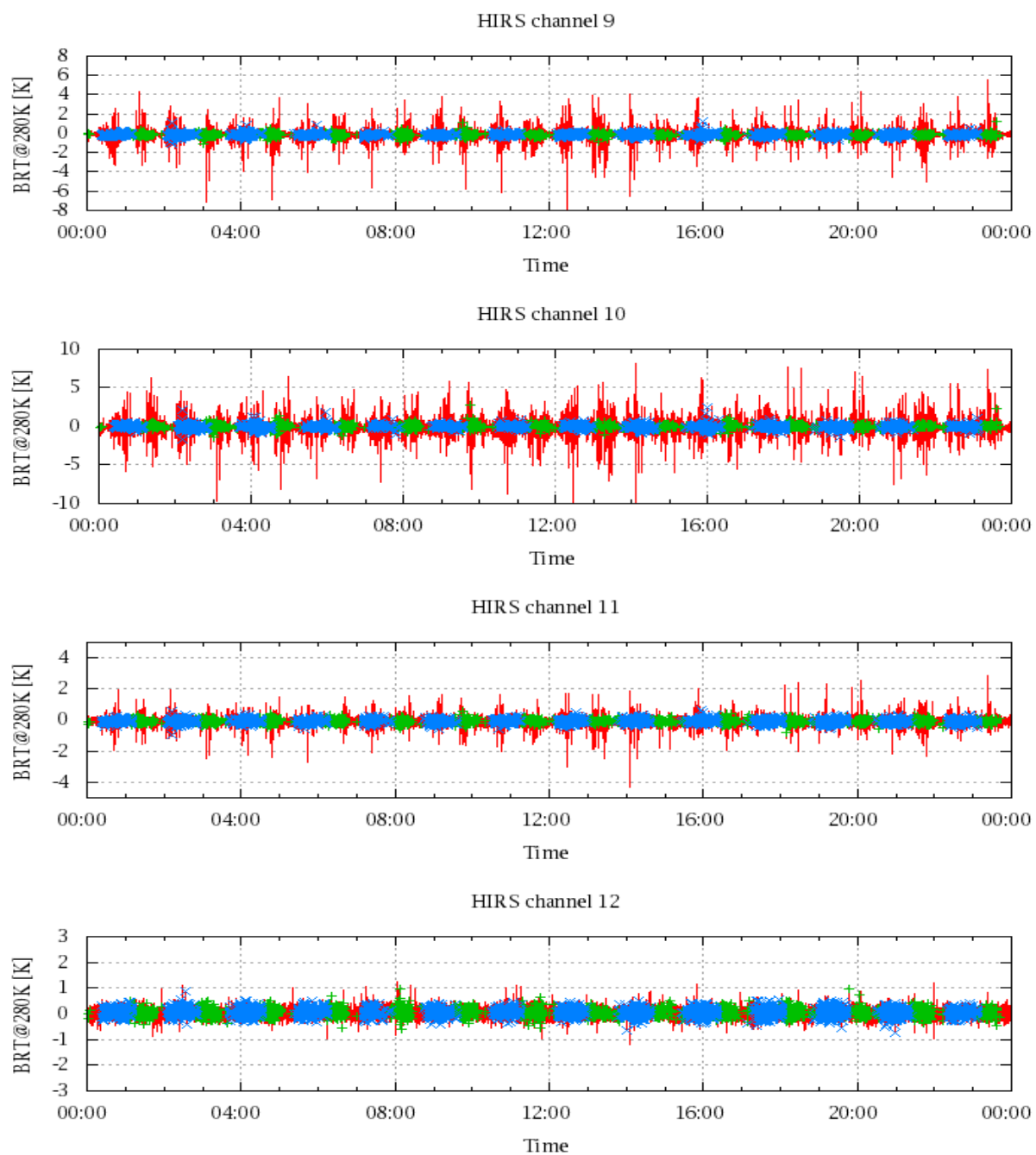


Figure 19: Radiance Differences in BRT

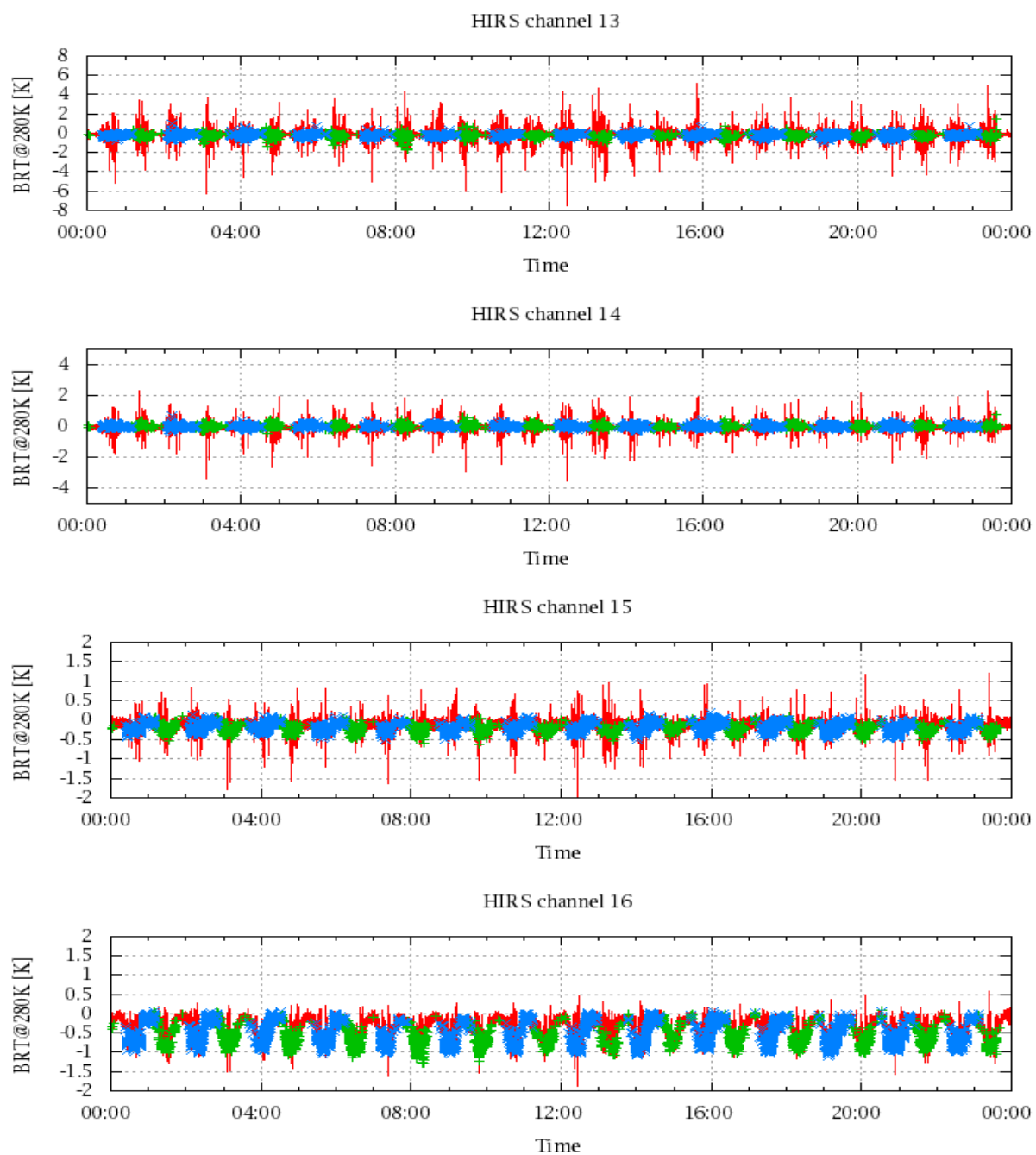


Figure 20: Radiance Differences in BRT

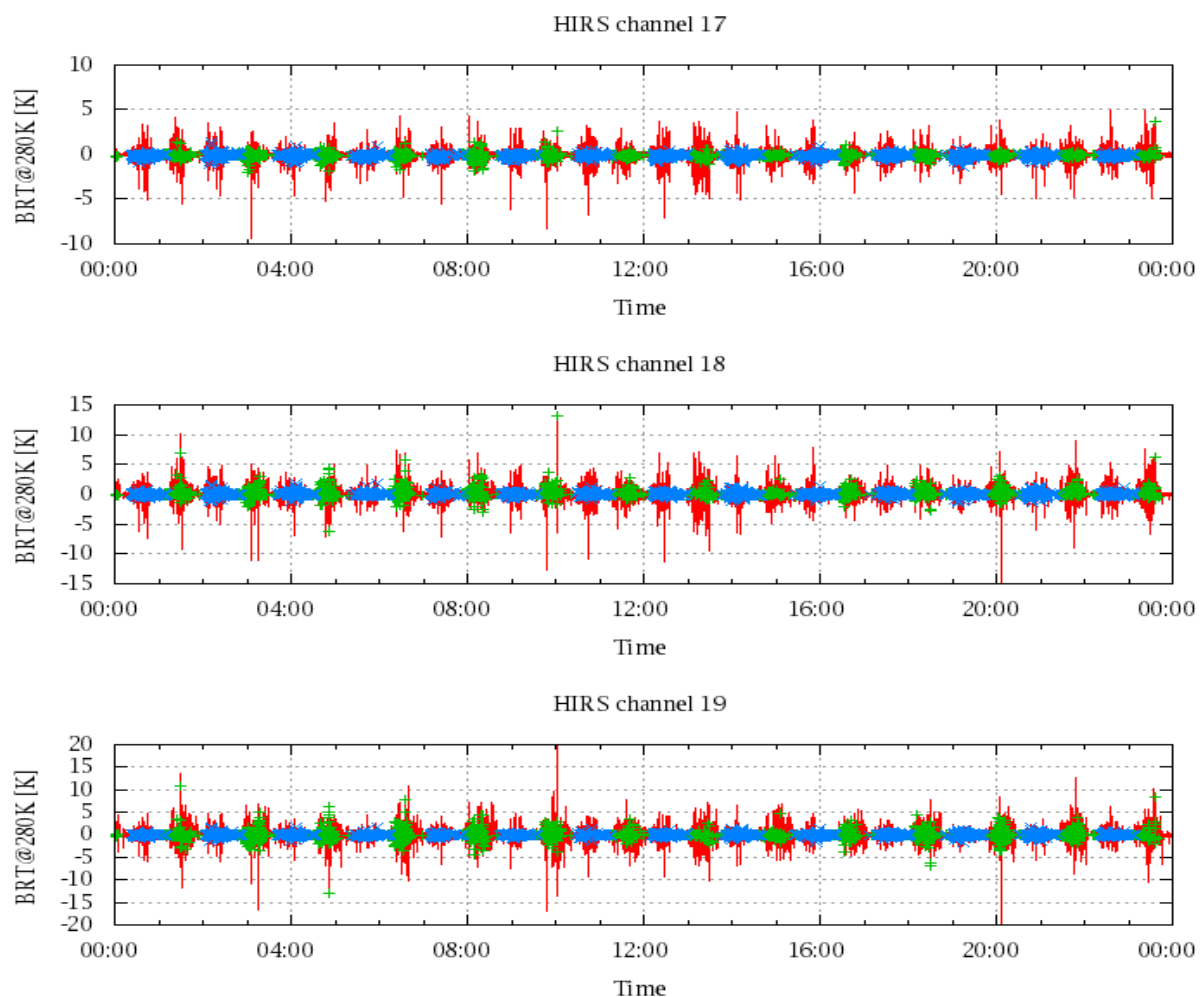


Figure 21: Radinace Differences in BRT