

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

22/11/2015 00:00:00 - 23/11/2015 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 22/11/2015 00:00:00 - 23/11/2015 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 22/11/2015 00:00:00 - 23/11/2015 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	478	-
L1 DPX PDUs (RM: IASI-HIRS)	480	-
L1 DPS Files (RM: OBS-CAL NWP based)	0	e

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	3974	3976	20151122181156.539	20151122181156.968
PX1 (130)	3976	3979	20151122181156.968	20151122181157.617
PX1 (130)	3979	3982	20151122181157.617	20151122181158.265
PX1 (130)	3982	3991	20151122181158.265	20151122181201.726
PX1 (130)	3991	4006	20151122181201.726	20151122181204.968
PX1 (130)	4007	4015	20151122181205.187	20151122181206.913
PX1 (130)	4015	4018	20151122181206.913	20151122181207.562
PX1 (130)	4018	4028	20151122181207.562	20151122181211.238
PX1 (130)	4028	4031	20151122181211.238	20151122181211.886
PX1 (130)	4031	4045	20151122181211.886	20151122181214.913
PX1 (130)	4046	4056	20151122181215.132	20151122181218.804
PX1 (130)	4056	4083	20151122181218.804	20151122181226.156
PX1 (130)	4083	4088	20151122181226.156	20151122181227.238
PX1 (130)	4102	4104	20151122181230.265	20151122181230.699
PX1 (130)	4109	4111	20151122181231.781	20151122181233.726
PX2 (135)	3973	3976	20151122181156.320	20151122181156.968
PX2 (135)	3976	3982	20151122181156.968	20151122181158.265
PX2 (135)	3983	3985	20151122181158.484	20151122181158.913

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	3985	3991	20151122181158.913	20151122181201.726
PX2 (135)	3991	3993	20151122181201.726	20151122181202.160
PX2 (135)	3993	4021	20151122181202.160	20151122181209.726
PX2 (135)	4021	4028	20151122181209.726	20151122181211.238
PX2 (135)	4028	4039	20151122181211.238	20151122181213.617
PX2 (135)	4041	4046	20151122181214.050	20151122181215.132
PX2 (135)	4046	4062	20151122181215.132	20151122181220.105
PX2 (135)	4062	4083	20151122181220.105	20151122181226.156
PX2 (135)	4083	4088	20151122181226.156	20151122181227.238
PX2 (135)	4102	4104	20151122181230.265	20151122181230.699
PX2 (135)	4109	4111	20151122181231.781	20151122181233.726
PX3 (140)	3973	3976	20151122181156.320	20151122181156.968
PX3 (140)	3978	3983	20151122181157.402	20151122181158.484
PX3 (140)	3983	3985	20151122181158.484	20151122181158.913
PX3 (140)	3985	3989	20151122181158.913	20151122181159.781
PX3 (140)	3989	3993	20151122181159.781	20151122181202.160
PX3 (140)	3993	3999	20151122181202.160	20151122181203.456
PX3 (140)	3999	4001	20151122181203.456	20151122181203.890
PX3 (140)	4002	4021	20151122181204.105	20151122181209.726
PX3 (140)	4021	4028	20151122181209.726	20151122181211.238
PX3 (140)	4028	4041	20151122181211.238	20151122181214.050
PX3 (140)	4041	4046	20151122181214.050	20151122181215.132
PX3 (140)	4046	4053	20151122181215.132	20151122181218.160
PX3 (140)	4053	4083	20151122181218.160	20151122181226.156
PX3 (140)	4083	4087	20151122181226.156	20151122181227.023
PX3 (140)	4102	4104	20151122181230.265	20151122181230.699
PX4 (145)	3973	3977	20151122181156.320	20151122181157.183
PX4 (145)	3977	3980	20151122181157.183	20151122181157.835
PX4 (145)	3980	3983	20151122181157.835	20151122181158.484
PX4 (145)	3983	3985	20151122181158.484	20151122181158.913
PX4 (145)	3985	3992	20151122181158.913	20151122181201.941
PX4 (145)	3993	3995	20151122181202.160	20151122181202.589
PX4 (145)	3995	4002	20151122181202.589	20151122181204.105
PX4 (145)	4002	4009	20151122181204.105	20151122181205.617
PX4 (145)	4009	4011	20151122181205.617	20151122181206.050
PX4 (145)	4011	4013	20151122181206.050	20151122181206.484
PX4 (145)	4014	4021	20151122181206.699	20151122181209.726
PX4 (145)	4022	4024	20151122181209.941	20151122181210.374
PX4 (145)	4024	4038	20151122181210.374	20151122181213.402
PX4 (145)	4038	4046	20151122181213.402	20151122181215.132
PX4 (145)	4046	4079	20151122181215.132	20151122181223.781
PX4 (145)	4079	4083	20151122181223.781	20151122181226.156
PX4 (145)	4083	4087	20151122181226.156	20151122181227.023
IMG (150)	16117	16127	20151122181156.320	20151122181158.484
IMG (150)	16127	16130	20151122181158.484	20151122181159.132
IMG (150)	16130	16135	20151122181159.132	20151122181200.429
IMG (150)	16135	16141	20151122181200.429	20151122181202.160
IMG (150)	16141	16143	20151122181202.160	20151122181202.589
IMG (150)	16143	16159	20151122181202.589	20151122181206.050
IMG (150)	16159	16161	20151122181206.050	20151122181206.484
IMG (150)	16163	16169	20151122181206.913	20151122181208.429
IMG (150)	16170	16174	20151122181208.644	20151122181209.941
IMG (150)	16174	16182	20151122181209.941	20151122181211.671
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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	16182	16247	20151122181211.671	20151122181227.023
VER (160)	6991	6996	20151122181151.996	20151122181159.781
VER (160)	6996	7001	20151122181159.781	20151122181207.562
VER (160)	7001	7012	20151122181207.562	20151122181231.995
AUX (180)	11229	11232	20151122181208.429	20151122181232.429

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
22/11/2015 00:00:05	-	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	478	-
GQisFlagQual set (PX1)	99.57 %	-
GQisFlagQual set (PX2)	99.62 %	-
GQisFlagQual set (PX3)	99.62 %	-
GQisFlagQual set (PX4)	99.56 %	-
GQisFlagQual set (all)	99.59 %	-

Table 4: Quality flags

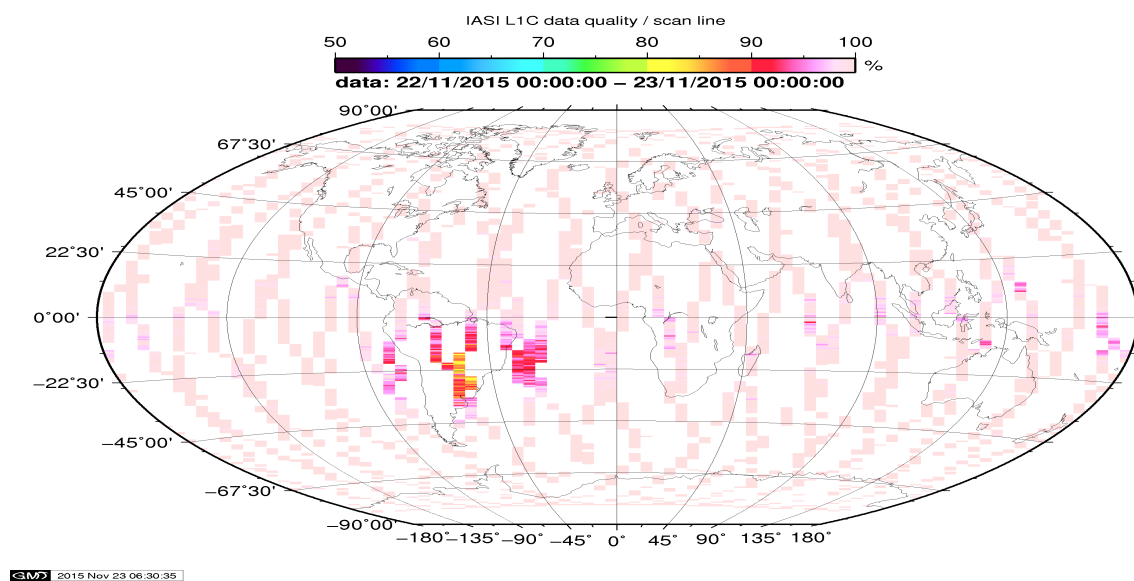


Figure 1: L1C data quality

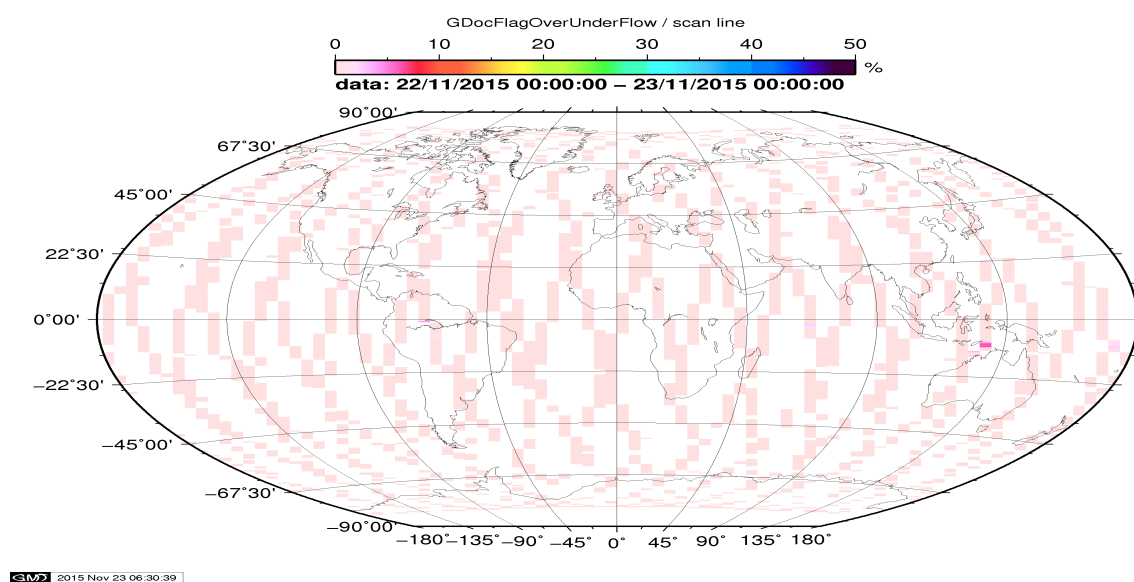


Figure 2: Flag of Over and Under Flows

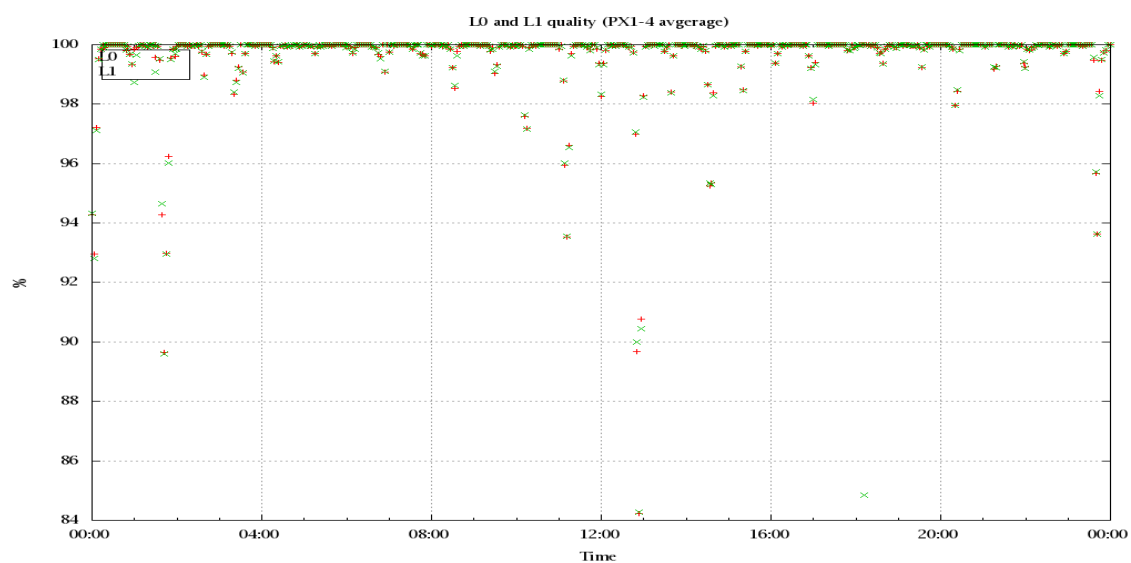


Figure 3: Level 0 and 1C overall quality

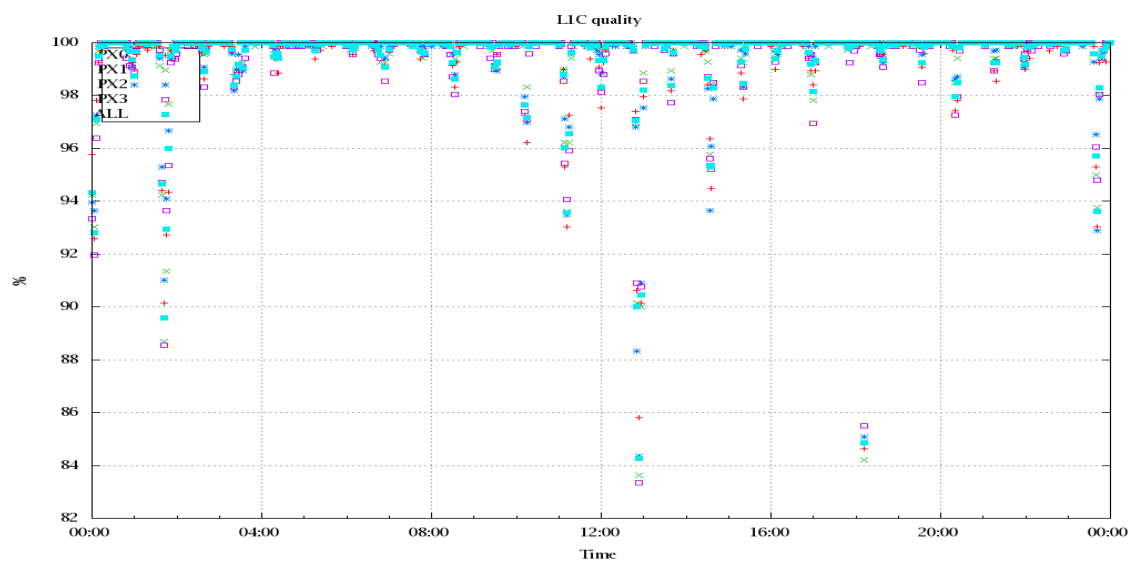


Figure 4: Level 1C quality

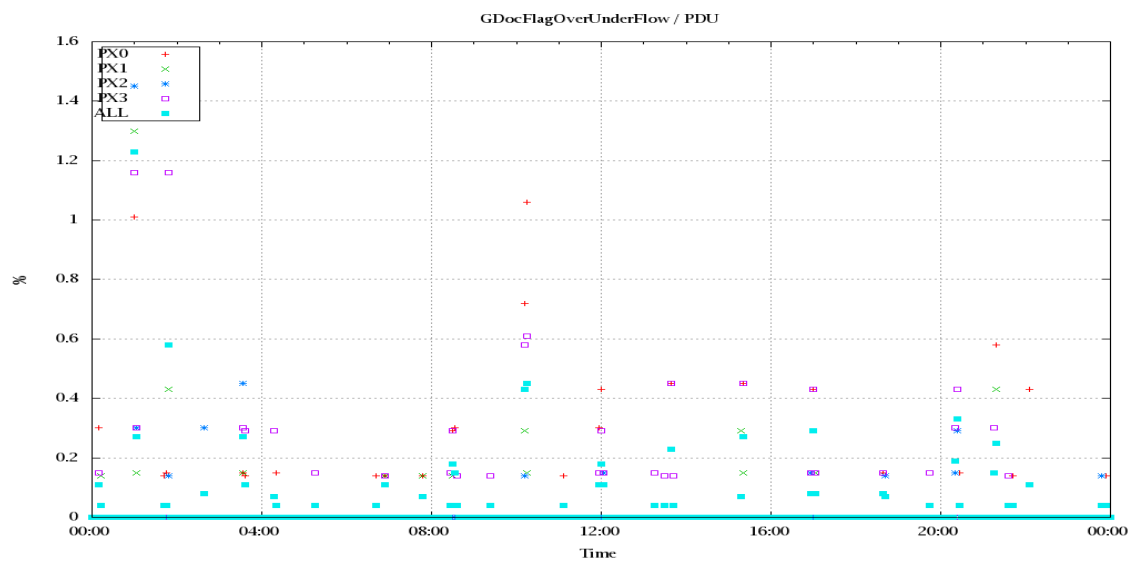


Figure 5: OverUnderFlowFlag timeseries

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.

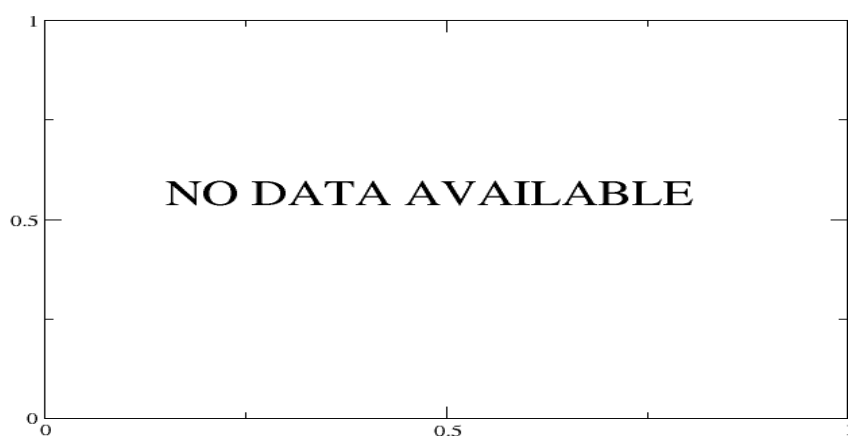


Figure 6: Average Radiance differences: OBS-CAL

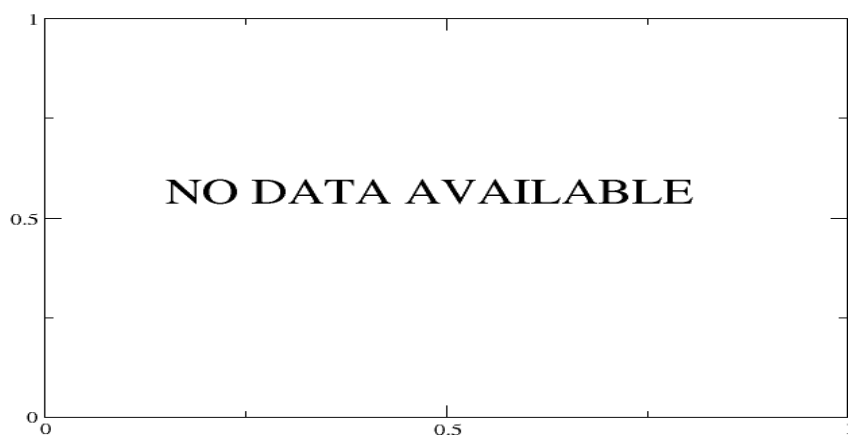


Figure 7: Standard Deviation of Radiance differences

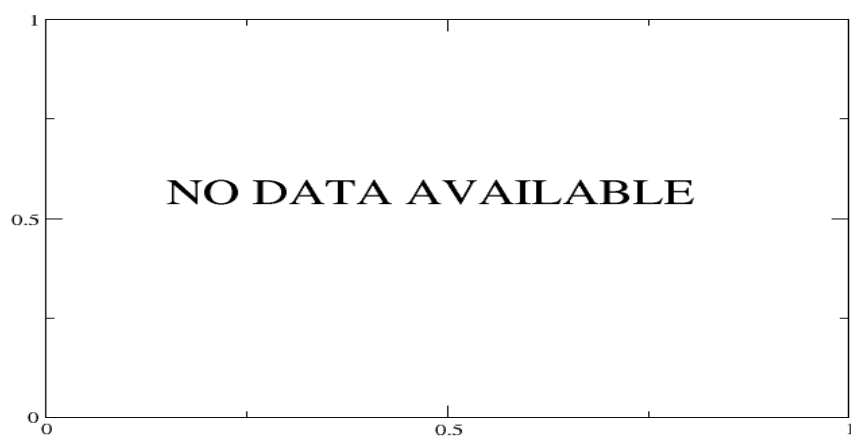


Figure 8: Average Radiance differences: OBS-CAL

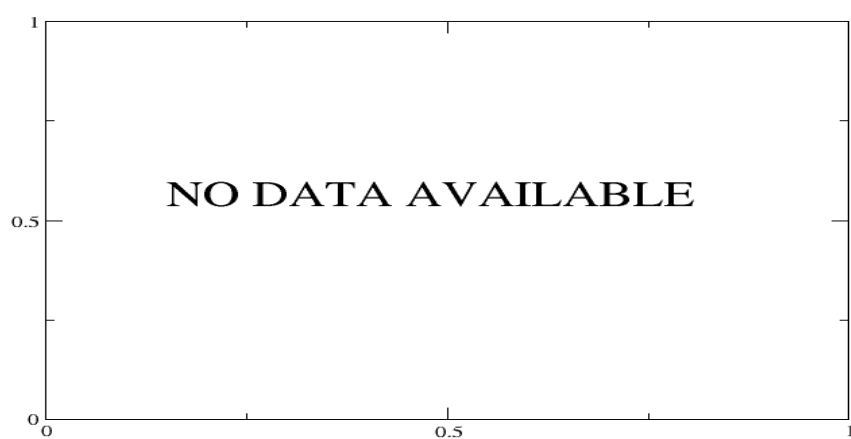


Figure 9: Standard Deviation of Radiance differences

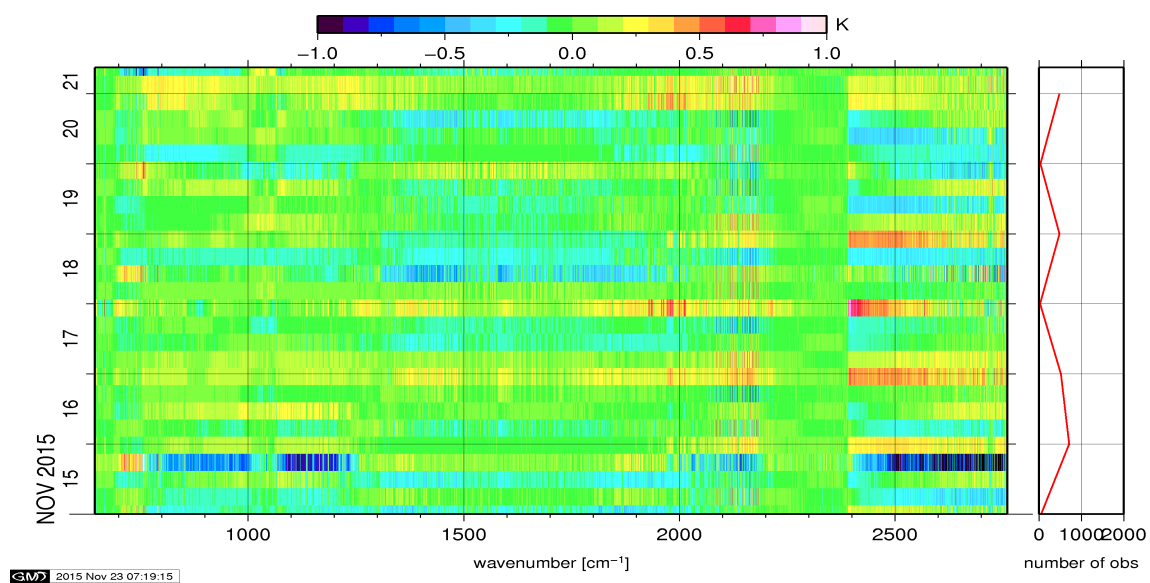


Figure 10: Radiance Anomaly in BRT: All Channels

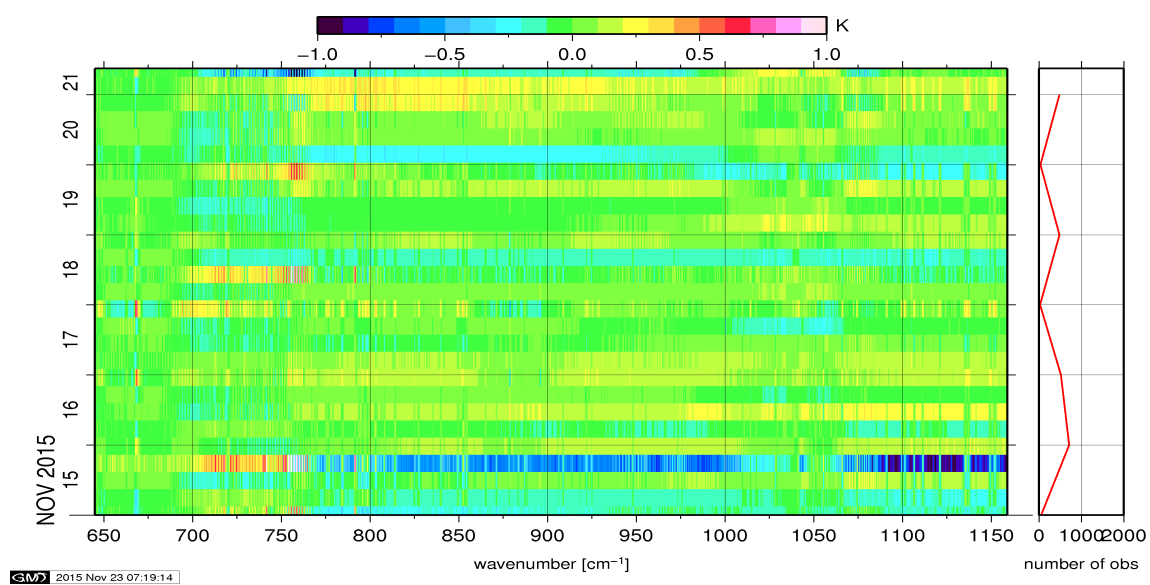


Figure 11: Radiance Anomaly in BRT: IASI Band 1

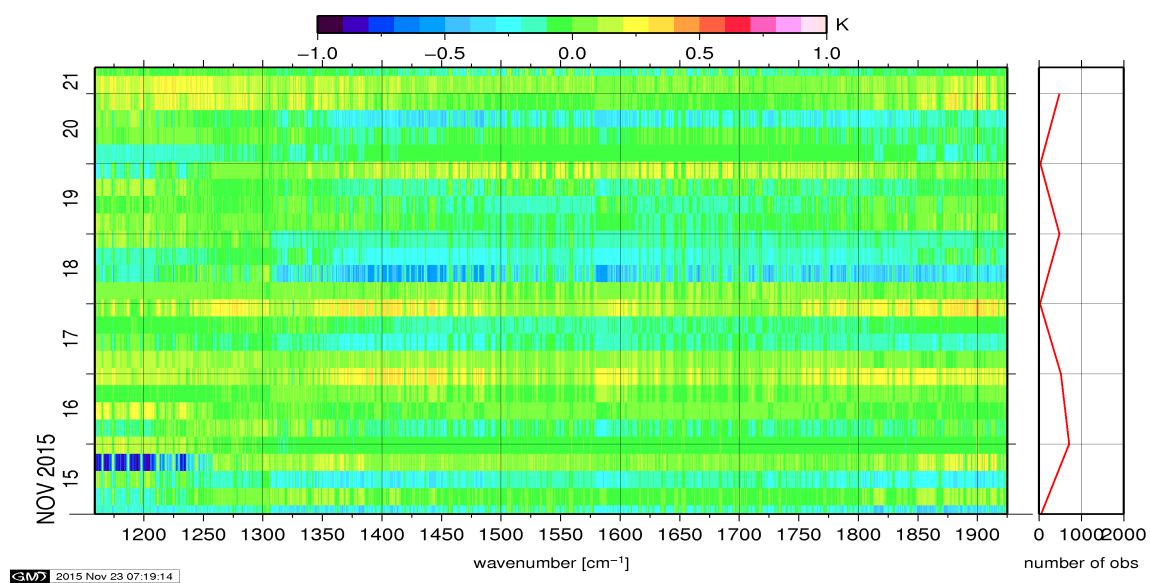


Figure 12: Radiance Anomaly in BRT: IASI Band 2

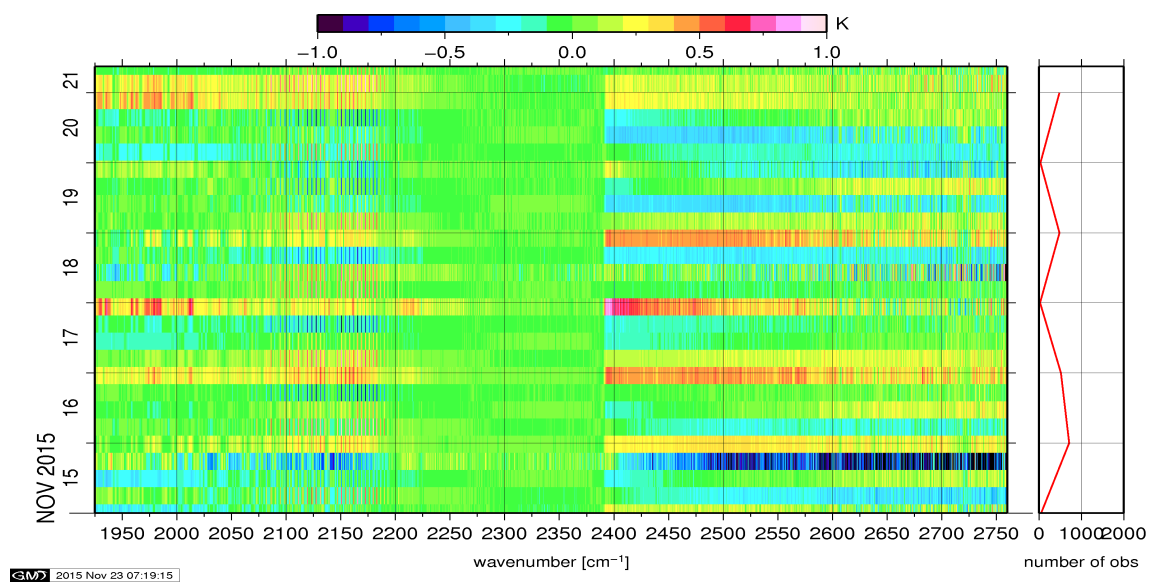


Figure 13: Radiance Anomaly in BRT: IASI Band 3

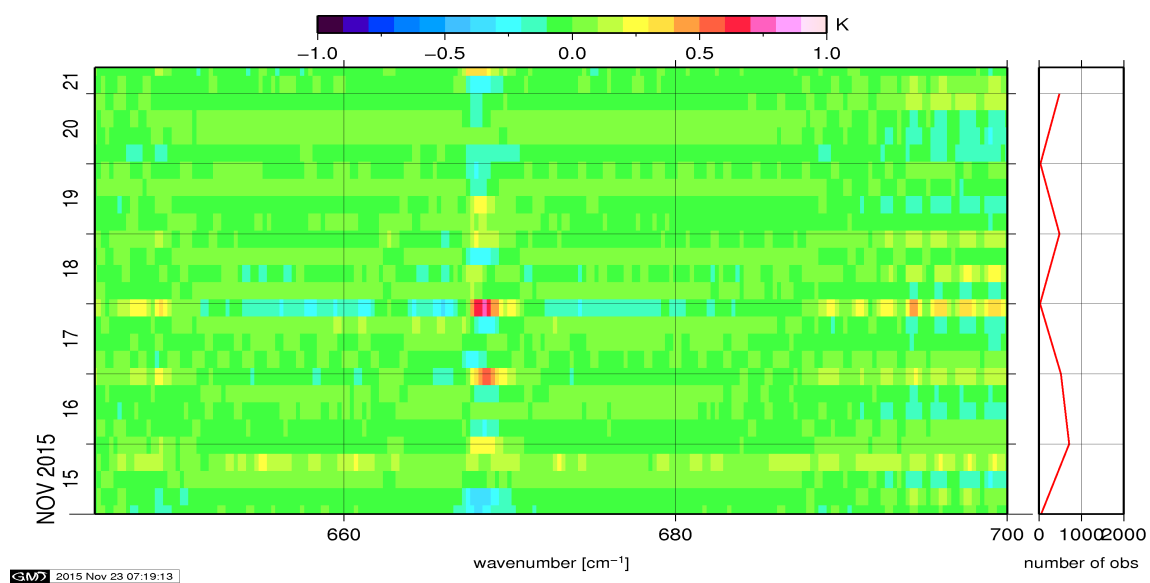


Figure 14: Radiance Anomaly in BRT: CO2 14

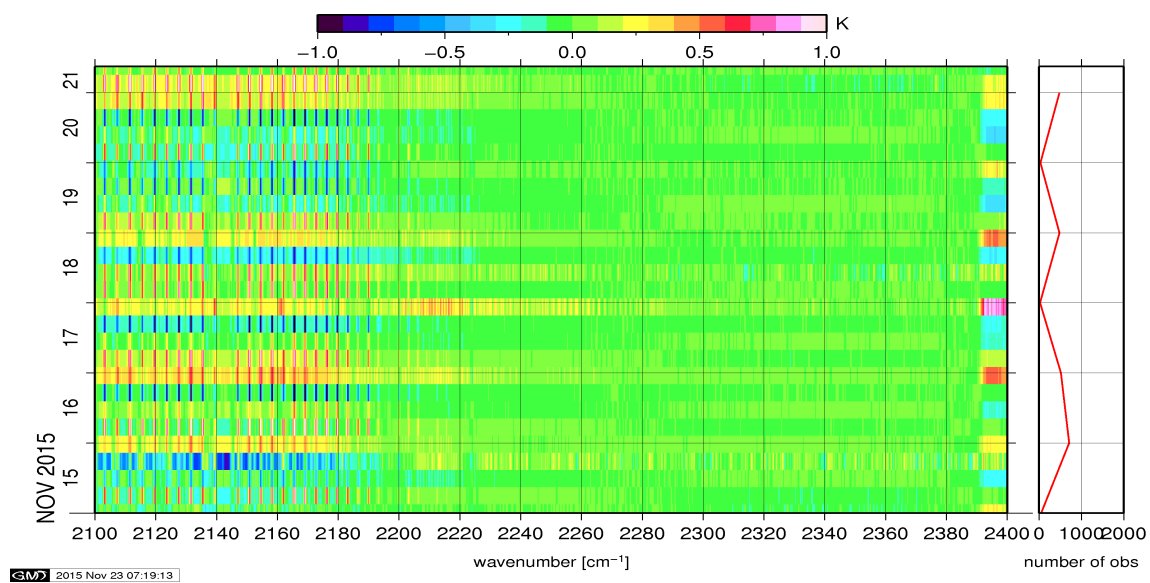


Figure 15: Radiance Anomaly in BRT: CO2 4.3

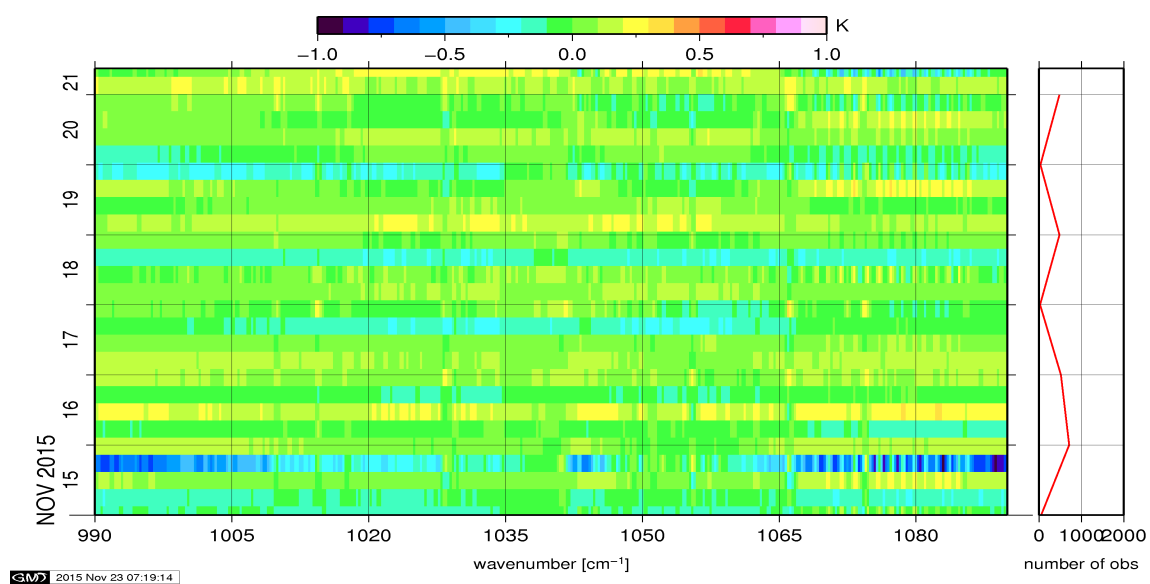


Figure 16: Radiance Anomaly in BRT: O3

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.

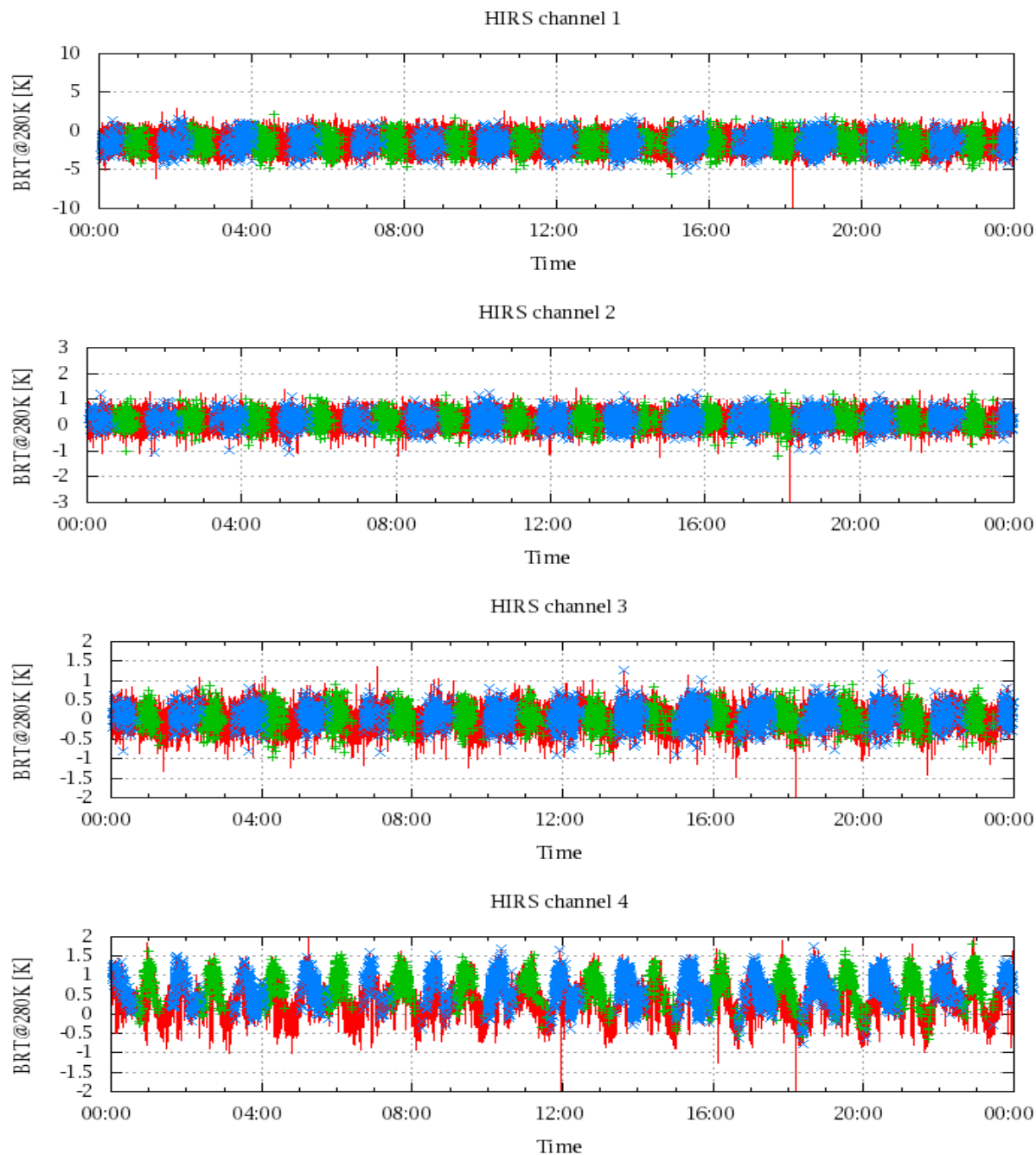


Figure 17: Radiance Differences in BRT

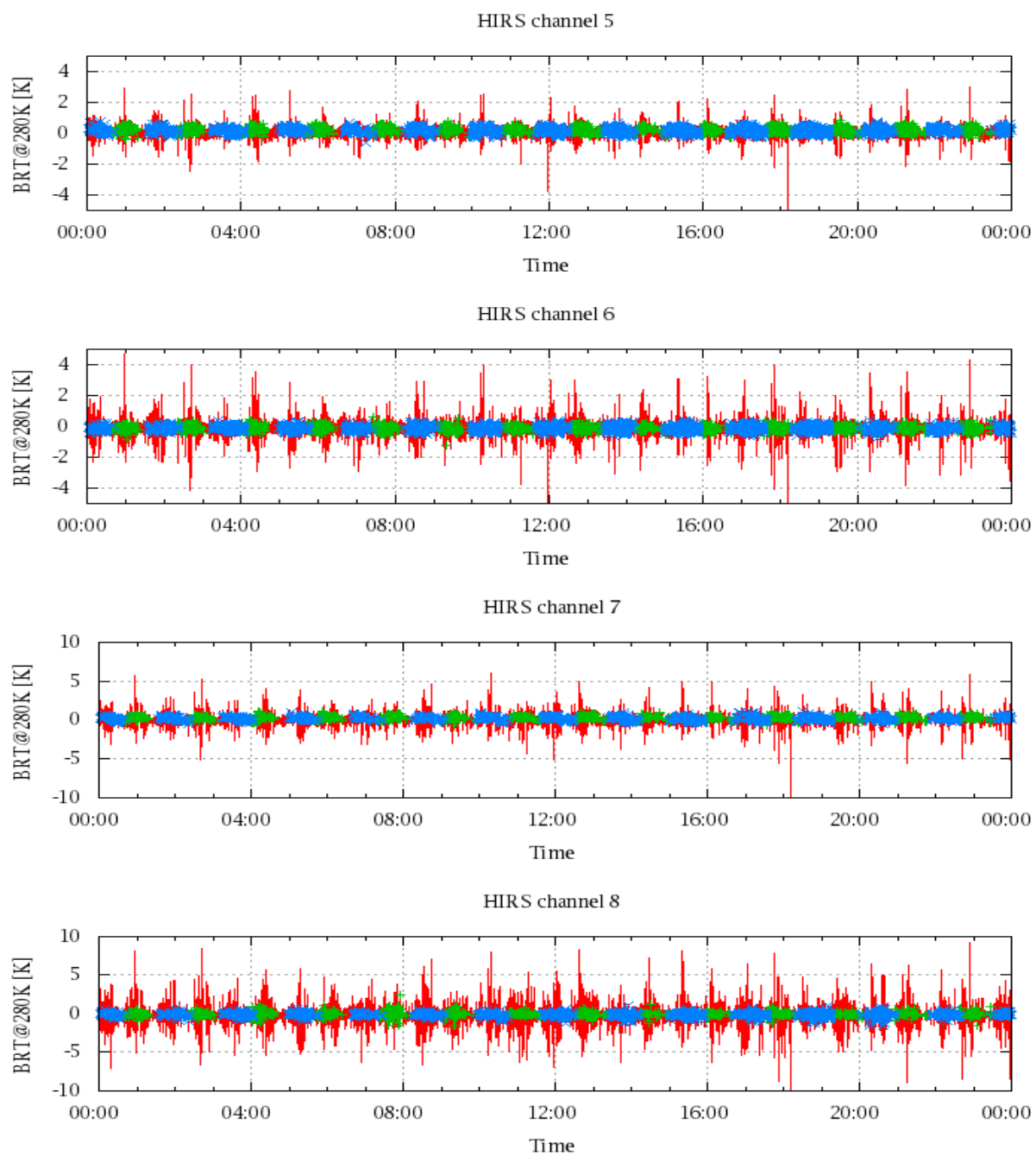


Figure 18: Radiance Differences in BRT

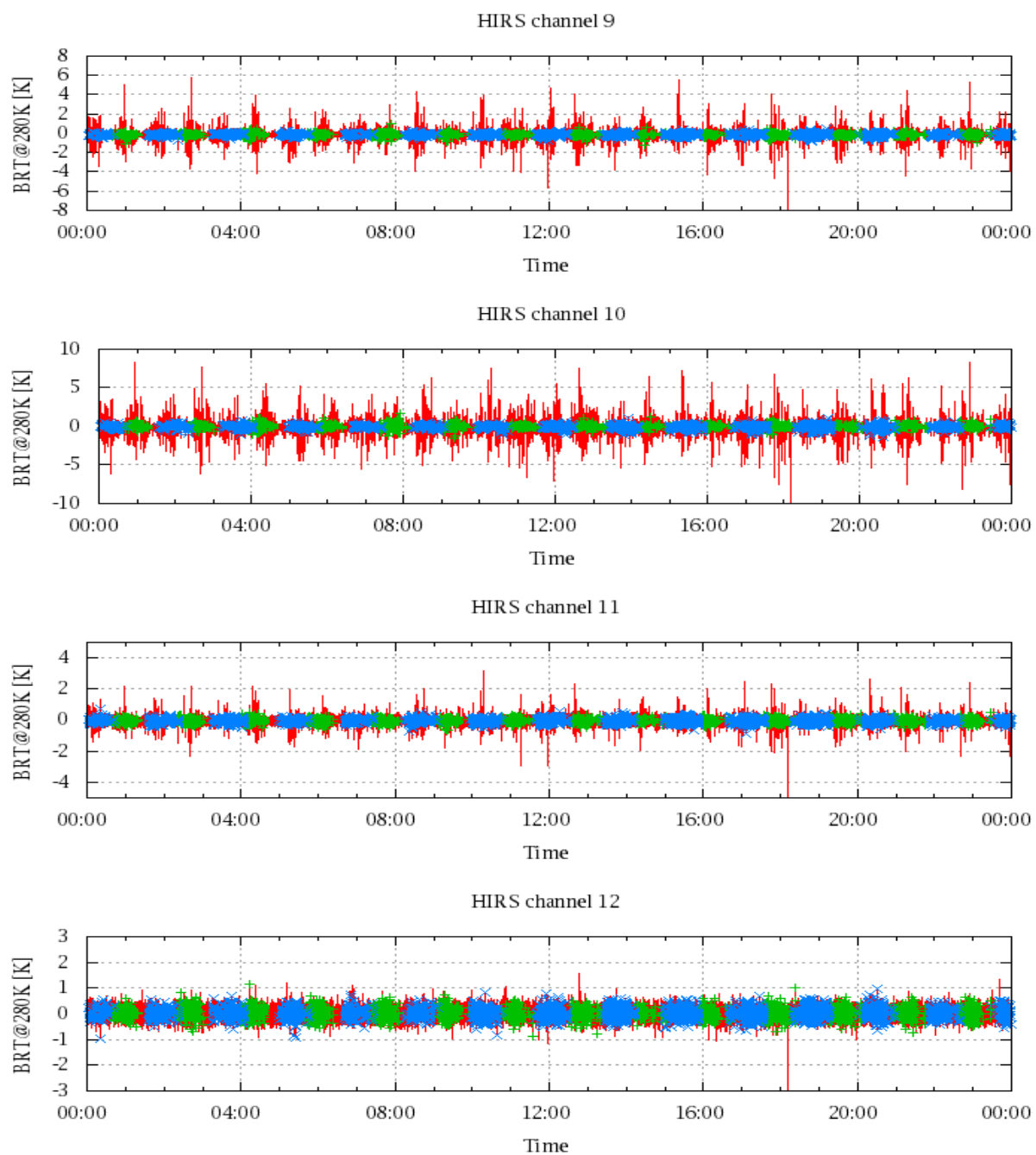


Figure 19: Radiance Differences in BRT

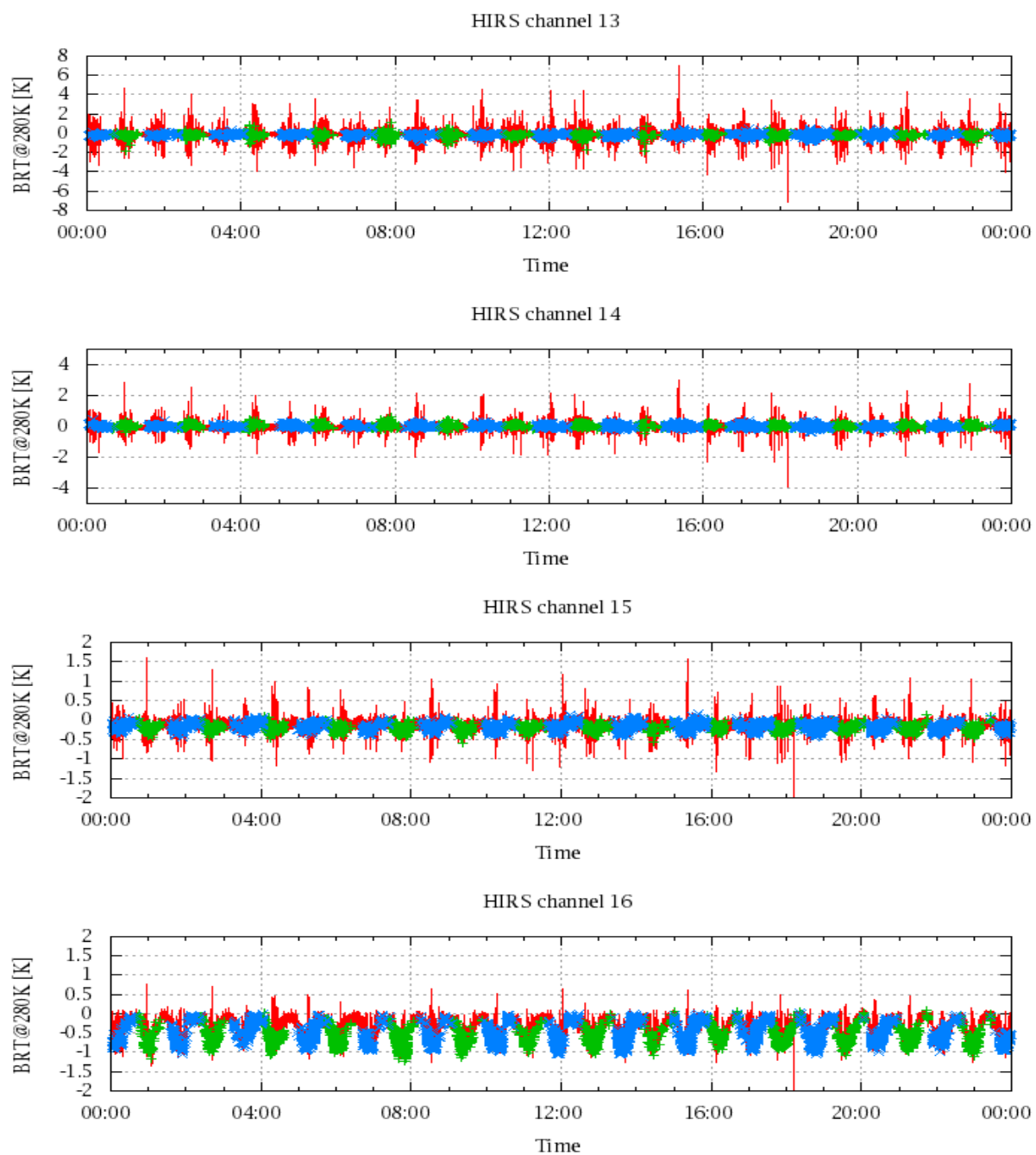


Figure 20: Radiance Differences in BRT

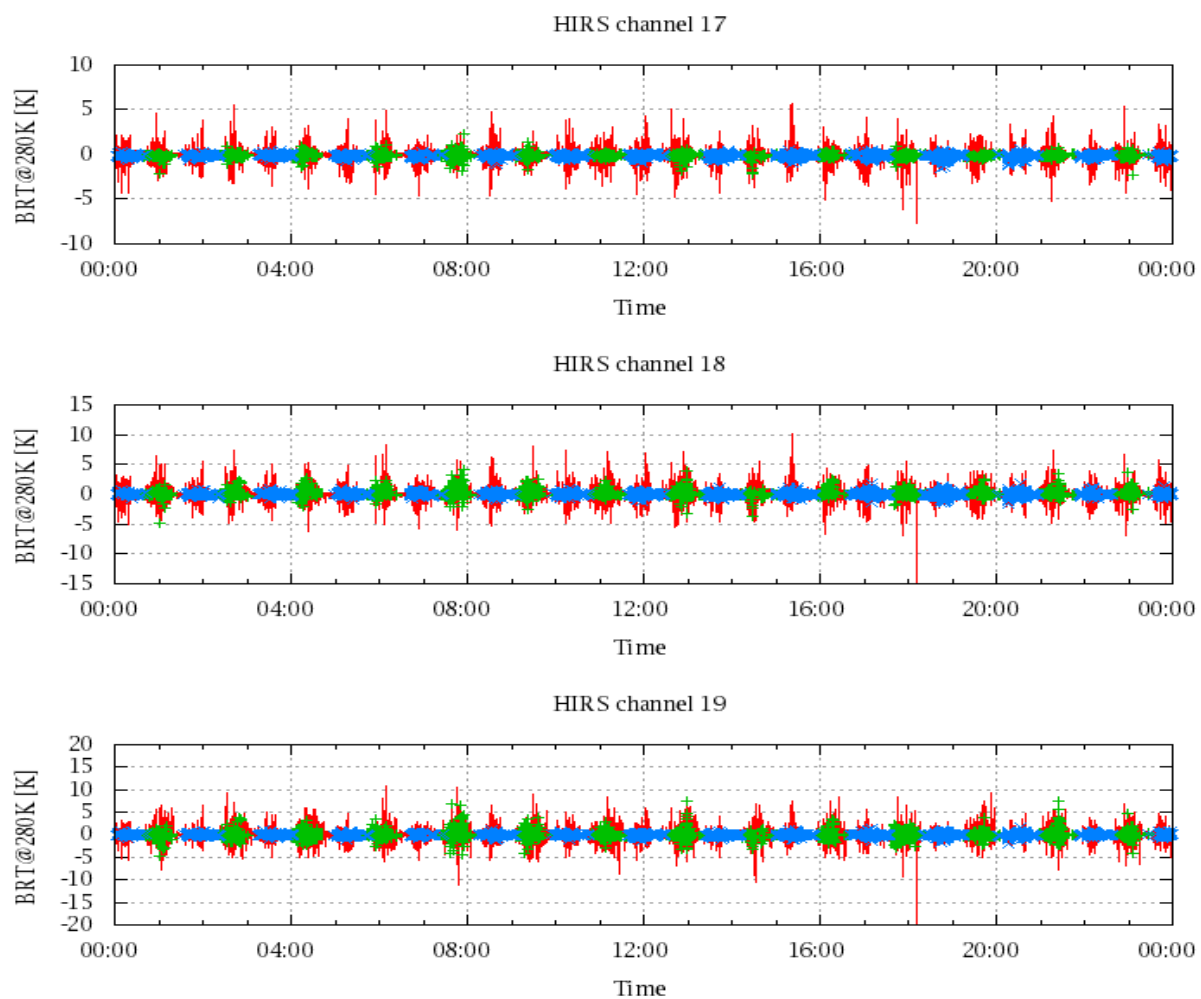


Figure 21: Radinace Differences in BRT