

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

18/05/2016 00:00:00 - 19/05/2016 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 18/05/2016 00:00:00 - 19/05/2016 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 18/05/2016 00:00:00 - 19/05/2016 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	466	-
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)	9953	9955	20160518053513.176	20160518053513.610
PX1 (130)	9966	9968	20160518053515.989	20160518053516.423
PX1 (130)	9969	9971	20160518053516.637	20160518053517.071
PX1 (130)	9975	9979	20160518053517.934	20160518053518.798
PX1 (130)	9979	9981	20160518053518.798	20160518053520.747
PX1 (130)	9981	9983	20160518053520.747	20160518053521.180
PX1 (130)	10004	10006	20160518053525.719	20160518053526.149
PX1 (130)	10007	10009	20160518053526.368	20160518053526.801
PX1 (130)	10013	10016	20160518053529.176	20160518053529.829
PX1 (130)	10018	10020	20160518053530.258	20160518053530.692
PX1 (130)	10024	10029	20160518053531.555	20160518053532.637
PX1 (130)	10029	10031	20160518053532.637	20160518053533.071
PX1 (130)	10033	10040	20160518053533.505	20160518053536.528
PX1 (130)	10041	10050	20160518053536.747	20160518053538.692
PX1 (130)	10050	10052	20160518053538.692	20160518053539.122
PX1 (130)	10052	10055	20160518053539.122	20160518053539.774
PX1 (130)	10055	10058	20160518053539.774	20160518053540.419
PX1 (130)	10058	10061	20160518053540.419	20160518053541.071

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	10061	10065	20160518053541.071	20160518053541.934
PX2 (135)	9953	9957	20160518053513.176	20160518053514.044
PX2 (135)	9966	9968	20160518053515.989	20160518053516.423
PX2 (135)	9975	9978	20160518053517.934	20160518053518.583
PX2 (135)	9981	9983	20160518053520.747	20160518053521.180
PX2 (135)	9999	10001	20160518053524.637	20160518053525.071
PX2 (135)	10004	10006	20160518053525.719	20160518053526.149
PX2 (135)	10007	10009	20160518053526.368	20160518053526.801
PX2 (135)	10013	10016	20160518053529.176	20160518053529.829
PX2 (135)	10021	10029	20160518053530.907	20160518053532.637
PX2 (135)	10029	10031	20160518053532.637	20160518053533.071
PX2 (135)	10033	10036	20160518053533.505	20160518053534.153
PX2 (135)	10038	10040	20160518053534.583	20160518053536.528
PX2 (135)	10041	10044	20160518053536.747	20160518053537.395
PX2 (135)	10044	10048	20160518053537.395	20160518053538.258
PX2 (135)	10048	10055	20160518053538.258	20160518053539.774
PX2 (135)	10055	10057	20160518053539.774	20160518053540.204
PX2 (135)	10061	10065	20160518053541.071	20160518053541.934
PX3 (140)	9953	9957	20160518053513.176	20160518053514.044
PX3 (140)	9960	9962	20160518053514.692	20160518053515.126
PX3 (140)	9964	9966	20160518053515.555	20160518053515.989
PX3 (140)	9966	9968	20160518053515.989	20160518053516.423
PX3 (140)	9974	9977	20160518053517.719	20160518053518.368
PX3 (140)	9999	10001	20160518053524.637	20160518053525.071
PX3 (140)	10003	10006	20160518053525.505	20160518053526.149
PX3 (140)	10007	10009	20160518053526.368	20160518053526.801
PX3 (140)	10013	10016	20160518053529.176	20160518053529.829
PX3 (140)	10017	10019	20160518053530.044	20160518053530.473
PX3 (140)	10021	10025	20160518053530.907	20160518053531.774
PX3 (140)	10025	10027	20160518053531.774	20160518053532.204
PX3 (140)	10029	10031	20160518053532.637	20160518053533.071
PX3 (140)	10033	10036	20160518053533.505	20160518053534.153
PX3 (140)	10038	10040	20160518053534.583	20160518053536.528
PX3 (140)	10041	10044	20160518053536.747	20160518053537.395
PX3 (140)	10044	10047	20160518053537.395	20160518053538.044
PX3 (140)	10049	10054	20160518053538.477	20160518053539.555
PX3 (140)	10054	10057	20160518053539.555	20160518053540.204
PX3 (140)	10059	10063	20160518053540.637	20160518053541.505
PX4 (145)	9953	9957	20160518053513.176	20160518053514.044
PX4 (145)	9960	9962	20160518053514.692	20160518053515.126
PX4 (145)	9963	9966	20160518053515.341	20160518053515.989
PX4 (145)	9966	9968	20160518053515.989	20160518053516.423
PX4 (145)	9970	9972	20160518053516.856	20160518053517.286
PX4 (145)	9974	9976	20160518053517.719	20160518053518.153
PX4 (145)	9980	9983	20160518053520.528	20160518053521.180
PX4 (145)	9999	10001	20160518053524.637	20160518053525.071
PX4 (145)	10003	10005	20160518053525.505	20160518053525.934
PX4 (145)	10007	10009	20160518053526.368	20160518053526.801
PX4 (145)	10017	10019	20160518053530.044	20160518053530.473
PX4 (145)	10019	10021	20160518053530.473	20160518053530.907
PX4 (145)	10021	10025	20160518053530.907	20160518053531.774
PX4 (145)	10025	10027	20160518053531.774	20160518053532.204
PX4 (145)	10033	10037	20160518053533.505	20160518053534.368
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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	10038	10040	20160518053534.583	20160518053536.528
PX4 (145)	10042	10044	20160518053536.962	20160518053537.395
PX4 (145)	10044	10047	20160518053537.395	20160518053538.044
PX4 (145)	10048	10054	20160518053538.258	20160518053539.555
PX4 (145)	10054	10057	20160518053539.555	20160518053540.204
PX4 (145)	10059	10063	20160518053540.637	20160518053541.505
IMG (150)	11320	11322	20160518053512.962	20160518053513.395
IMG (150)	11326	11328	20160518053514.259	20160518053514.692
IMG (150)	11328	11330	20160518053514.692	20160518053515.126
IMG (150)	11331	11334	20160518053515.341	20160518053515.989
IMG (150)	11334	11336	20160518053515.989	20160518053516.423
IMG (150)	11336	11338	20160518053516.423	20160518053516.856
IMG (150)	11338	11340	20160518053516.856	20160518053517.286
IMG (150)	11342	11346	20160518053517.719	20160518053518.583
IMG (150)	11348	11352	20160518053519.231	20160518053520.528
IMG (150)	11352	11355	20160518053520.528	20160518053521.180
IMG (150)	11370	11372	20160518053524.423	20160518053524.852
IMG (150)	11372	11374	20160518053524.852	20160518053525.286
IMG (150)	11375	11377	20160518053525.505	20160518053525.934
IMG (150)	11377	11380	20160518053525.934	20160518053526.583
IMG (150)	11385	11388	20160518053528.098	20160518053528.962
IMG (150)	11393	11395	20160518053530.044	20160518053530.473
IMG (150)	11395	11397	20160518053530.473	20160518053530.907
IMG (150)	11397	11399	20160518053530.907	20160518053531.341
IMG (150)	11399	11405	20160518053531.341	20160518053532.637
IMG (150)	11406	11408	20160518053532.852	20160518053533.286
IMG (150)	11408	11415	20160518053533.286	20160518053534.798
IMG (150)	11419	11421	20160518053536.094	20160518053536.747
IMG (150)	11422	11425	20160518053536.962	20160518053537.610
IMG (150)	11425	11428	20160518053537.610	20160518053538.258
IMG (150)	11428	11431	20160518053538.258	20160518053538.907
IMG (150)	11431	11437	20160518053538.907	20160518053540.204
IMG (150)	11437	11443	20160518053540.204	20160518053541.505
VER (160)	9977	9985	20160518053510.801	20160518053526.801
VER (160)	9985	9987	20160518053526.801	20160518053526.801
VER (160)	9987	9990	20160518053526.801	20160518053534.798
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
18/05/2016 00:00:12	-	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	466	-
GQisFlagQual set (PX1)	99.56 %	-
GQisFlagQual set (PX2)	99.61 %	-
GQisFlagQual set (PX3)	99.61 %	-
GQisFlagQual set (PX4)	99.54 %	-
GQisFlagQual set (all)	99.58 %	-

Table 4: Quality flags

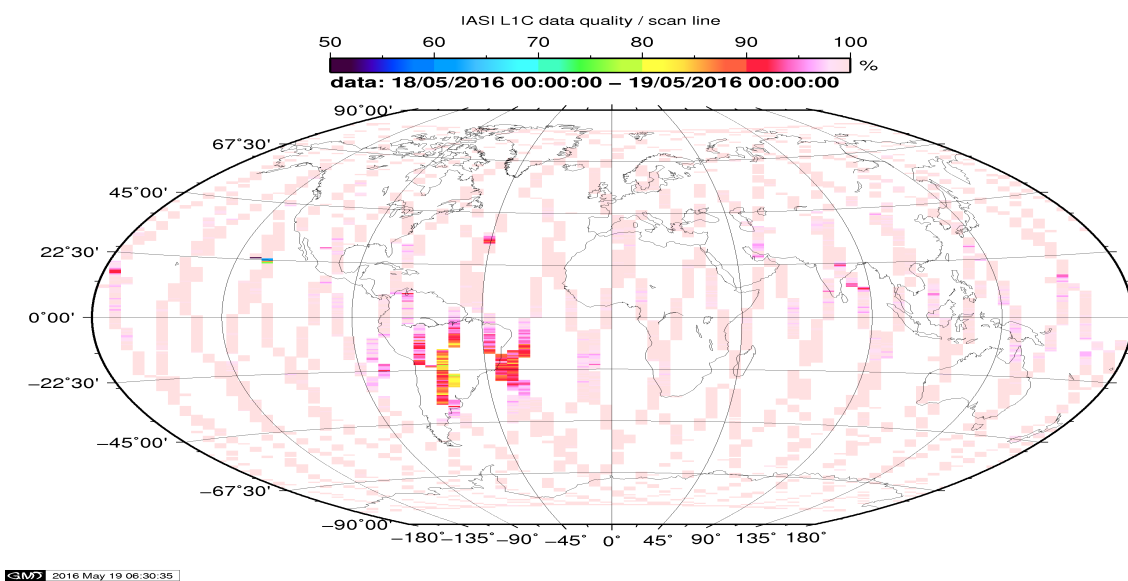


Figure 1: L1C data quality

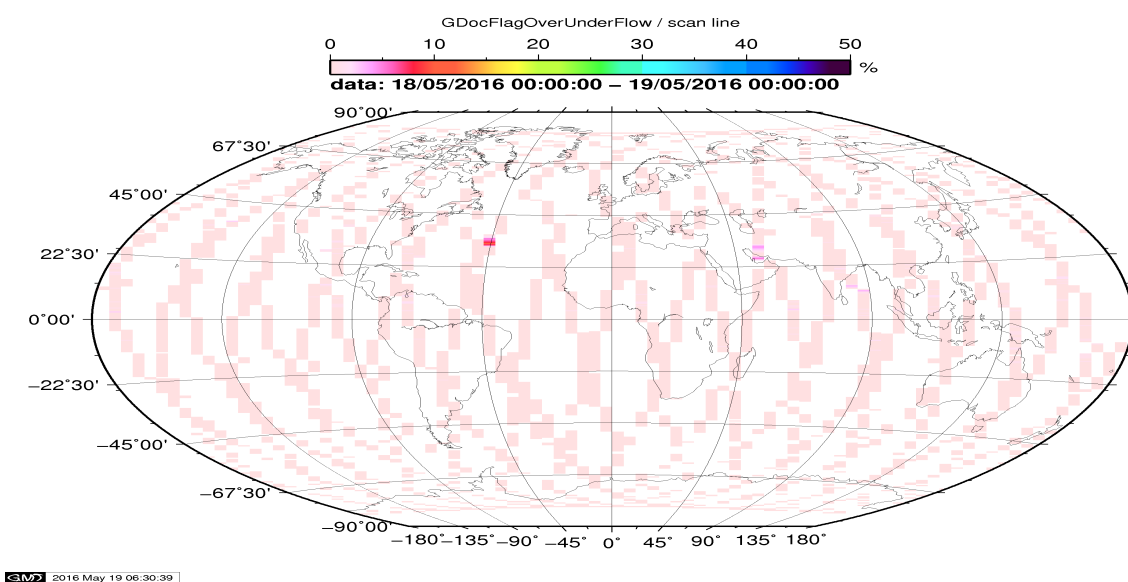


Figure 2: Flag of Over and Under Flows

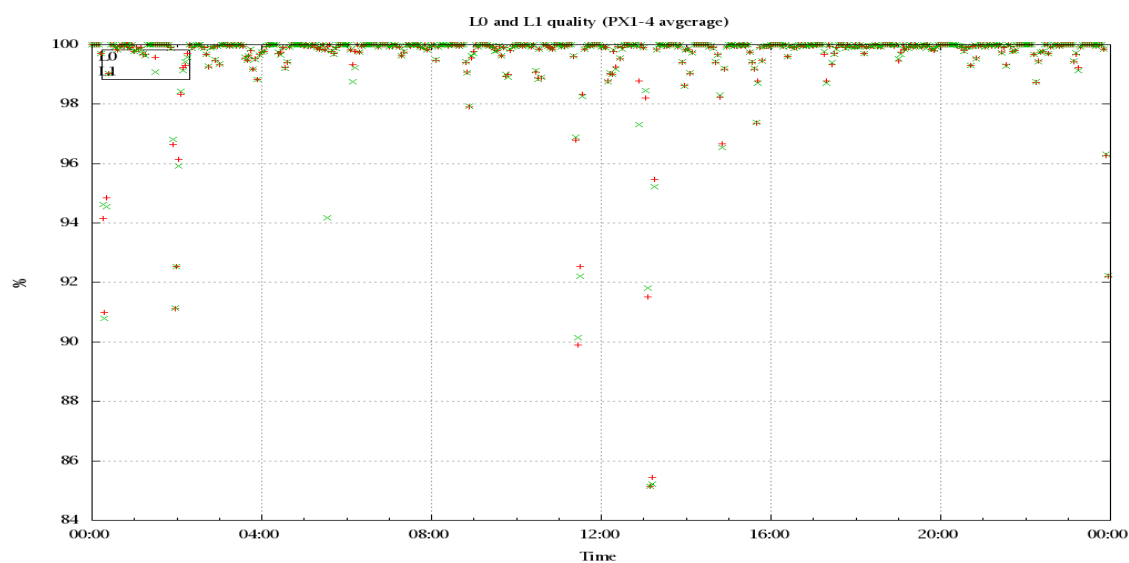


Figure 3: Level 0 and 1C overall quality

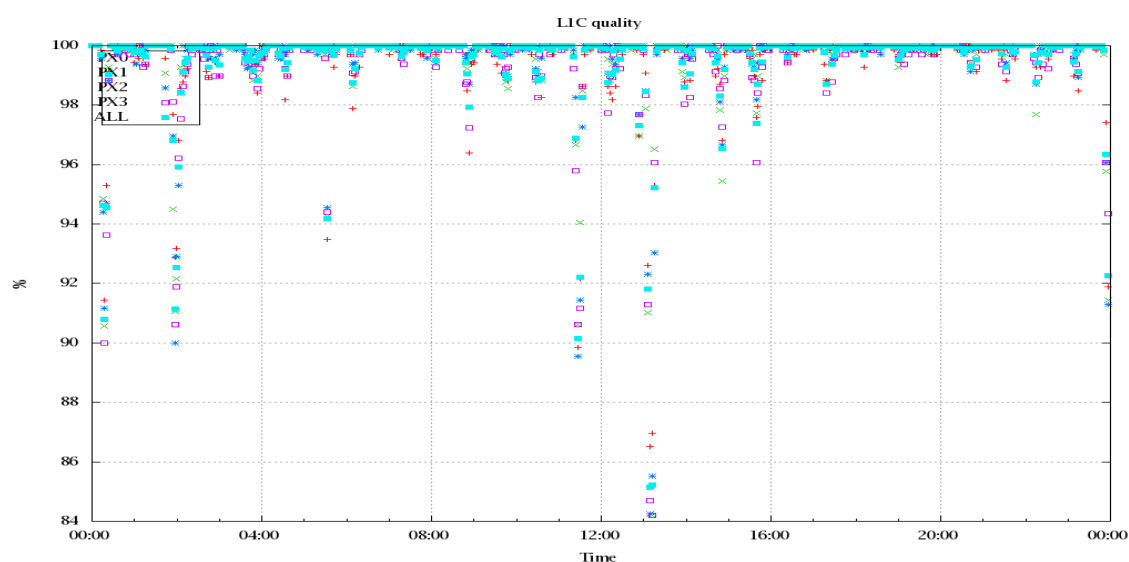


Figure 4: Level 1C quality

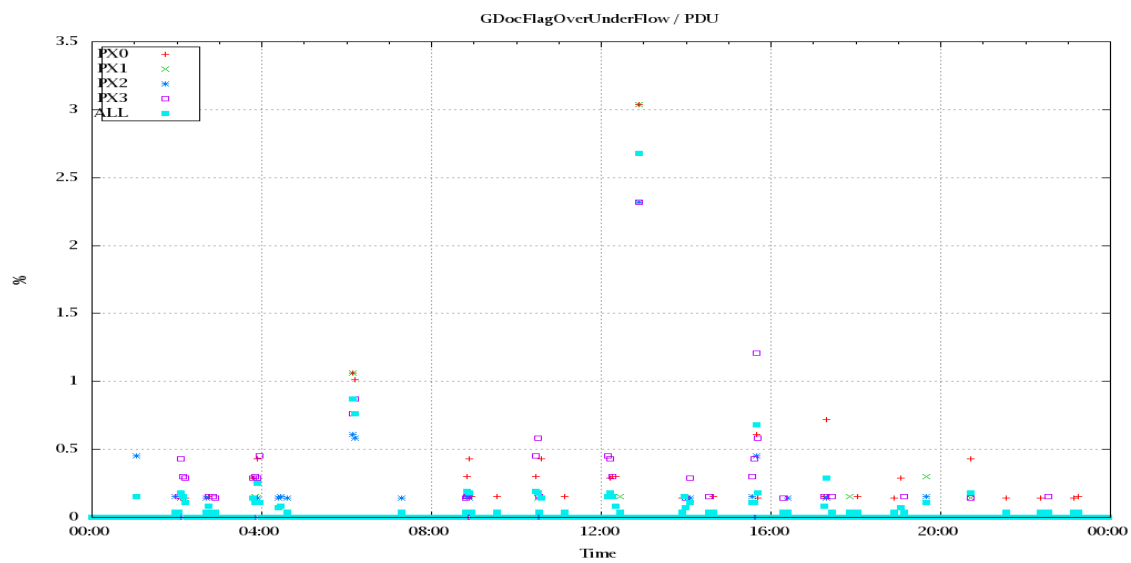


Figure 5: OverUnderFlowFlag timeseries

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.

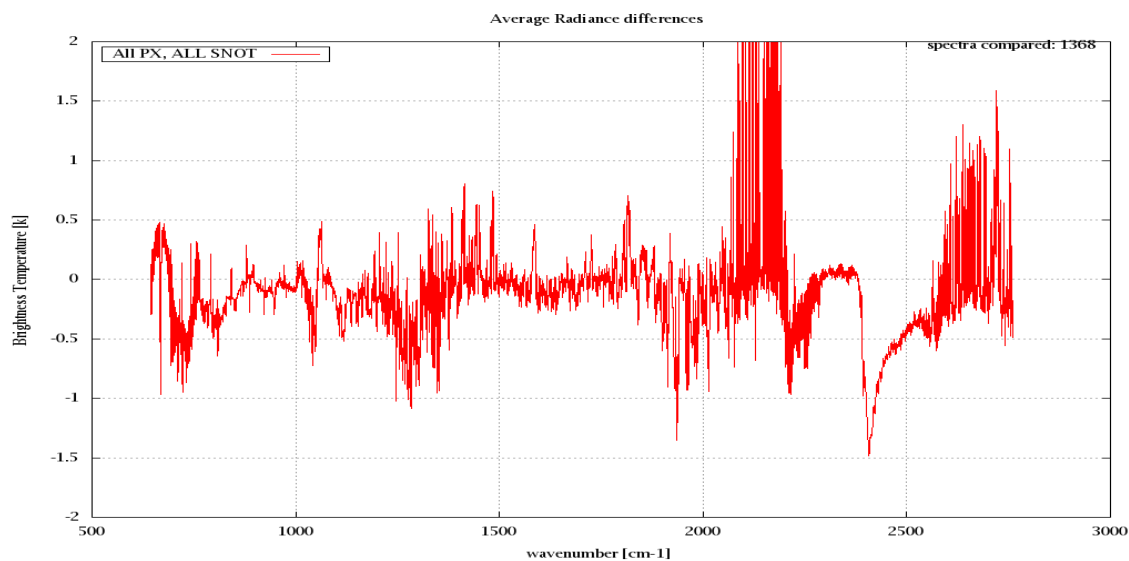


Figure 6: Average Radiance differences: OBS-CAL

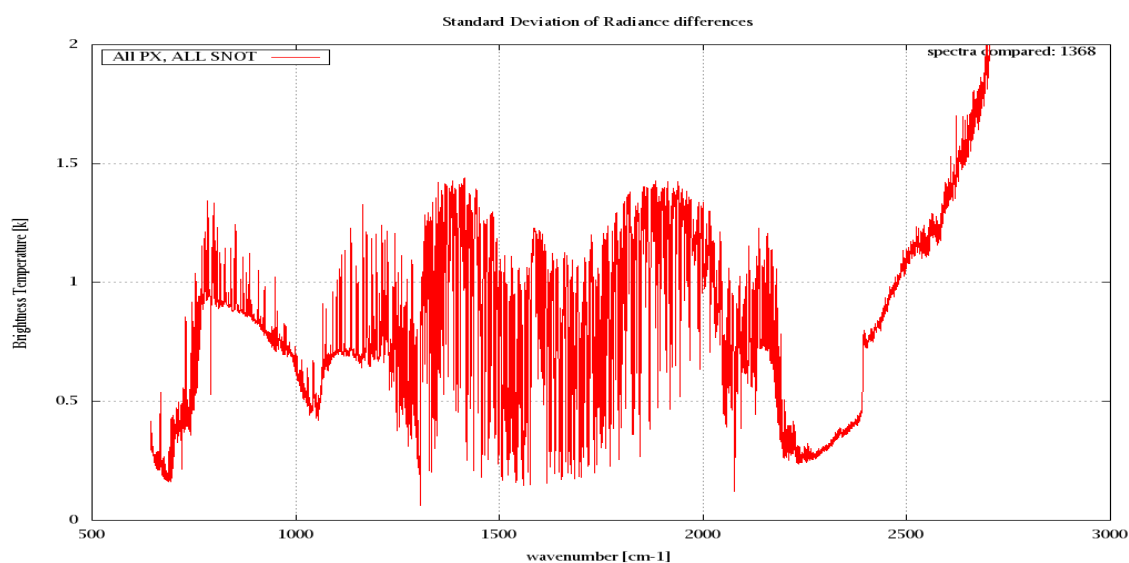


Figure 7: Standard Deviation of Radiance differences

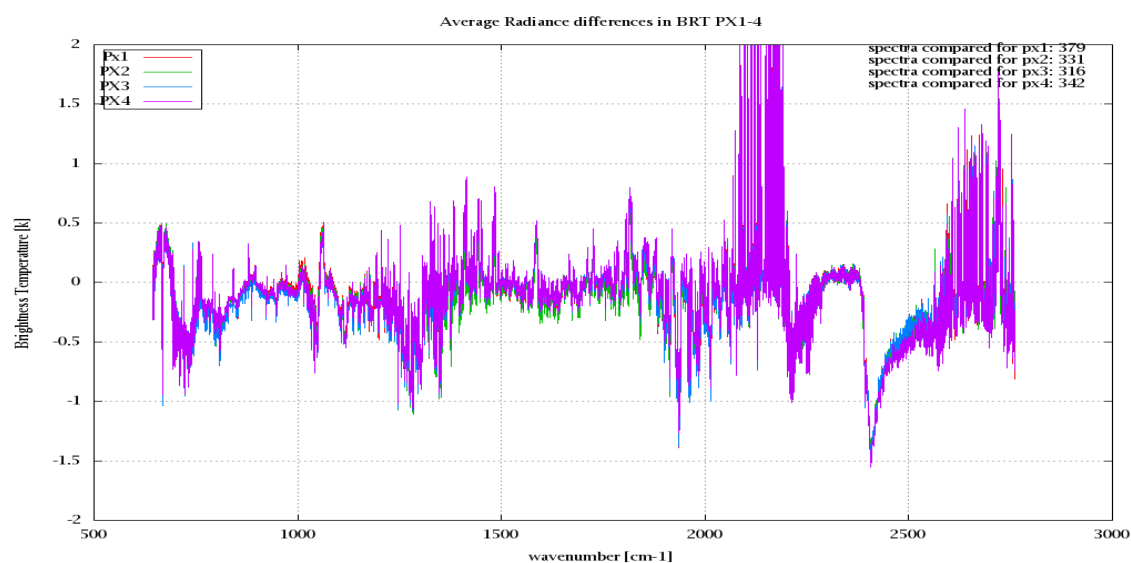


Figure 8: Average Radiance differences: OBS-CAL

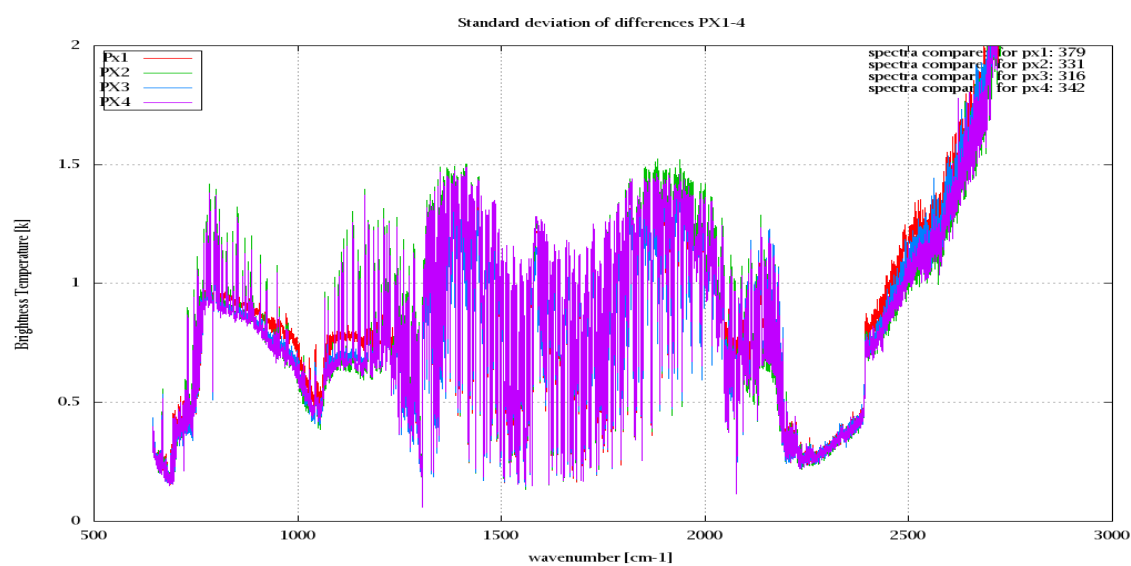


Figure 9: Standard Deviation of Radiance differences

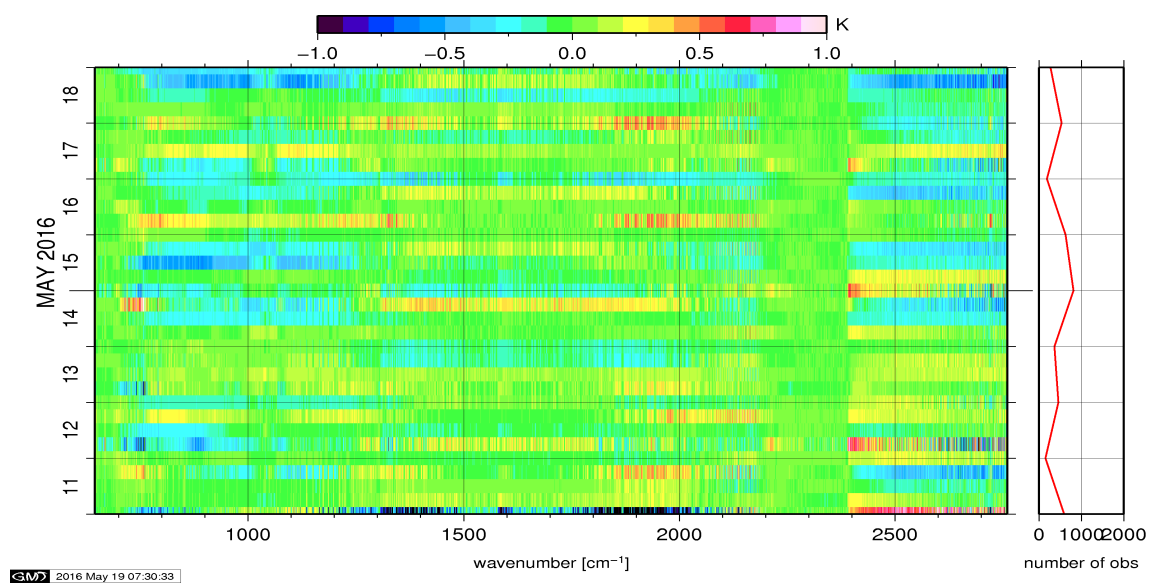


Figure 10: Radiance Anomaly in BRT: All Channels

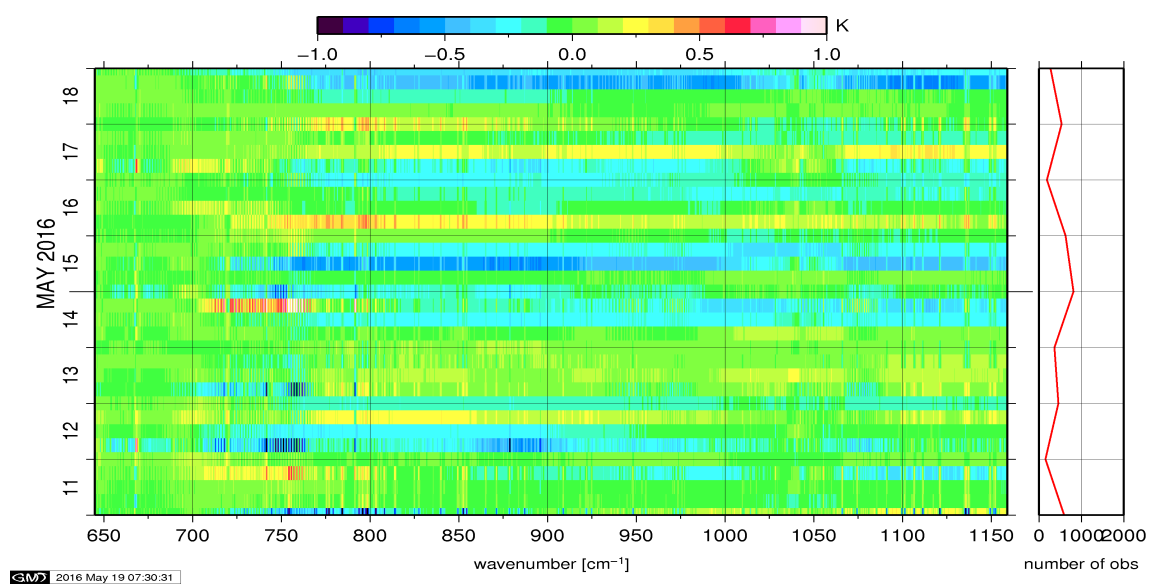


Figure 11: Radiance Anomaly in BRT: IASI Band 1

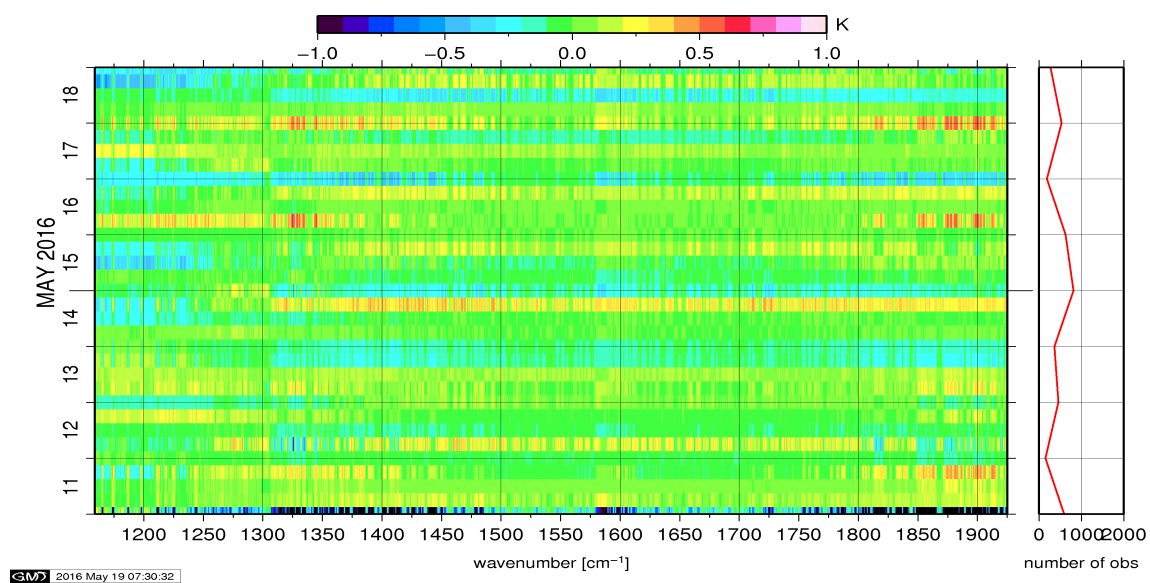


Figure 12: Radiance Anomaly in BRT: IASI Band 2

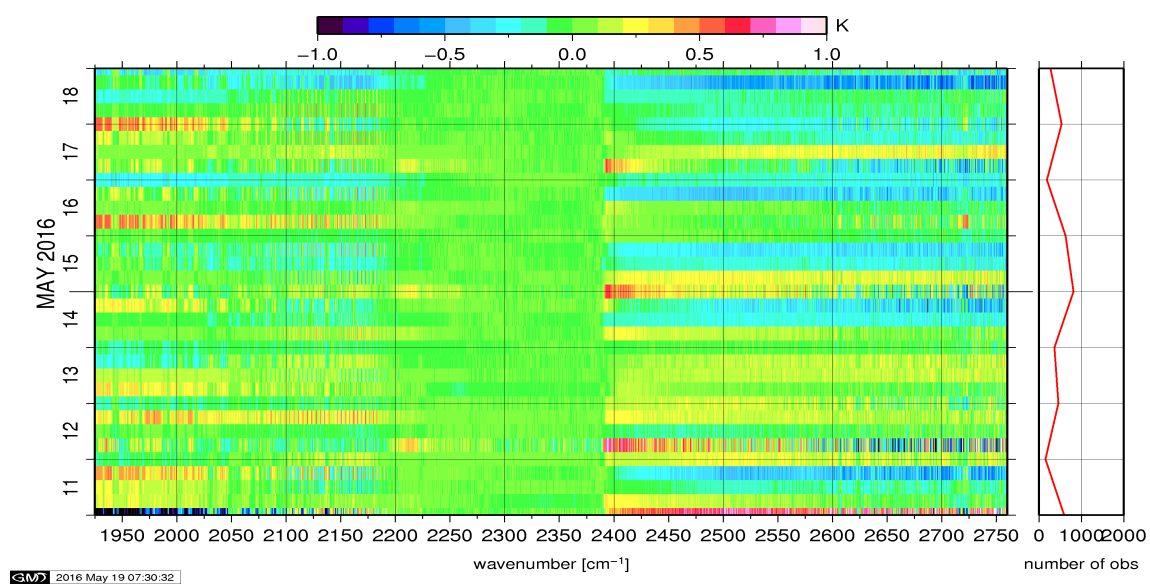


Figure 13: Radiance Anomaly in BRT: IASI Band 3

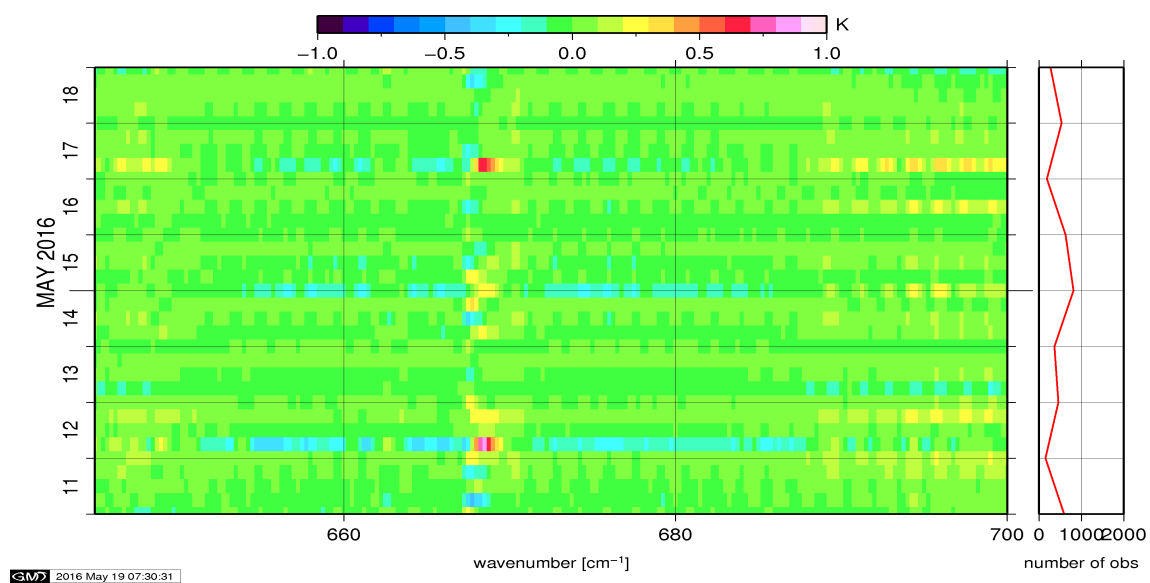


Figure 14: Radiance Anomaly in BRT: CO2 14

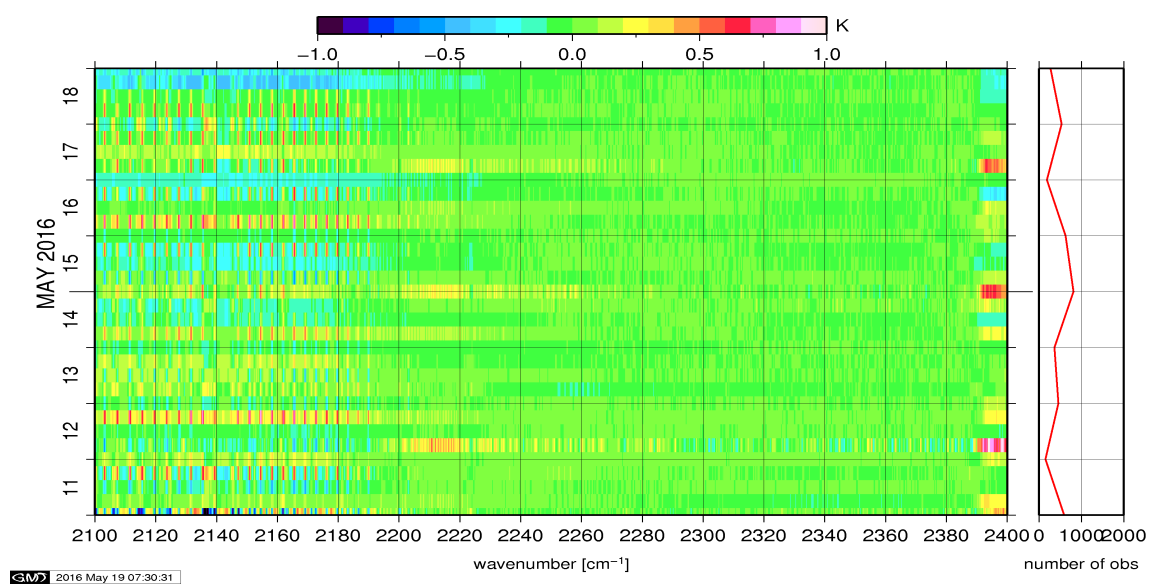


Figure 15: Radiance Anomaly in BRT: CO2 4.3

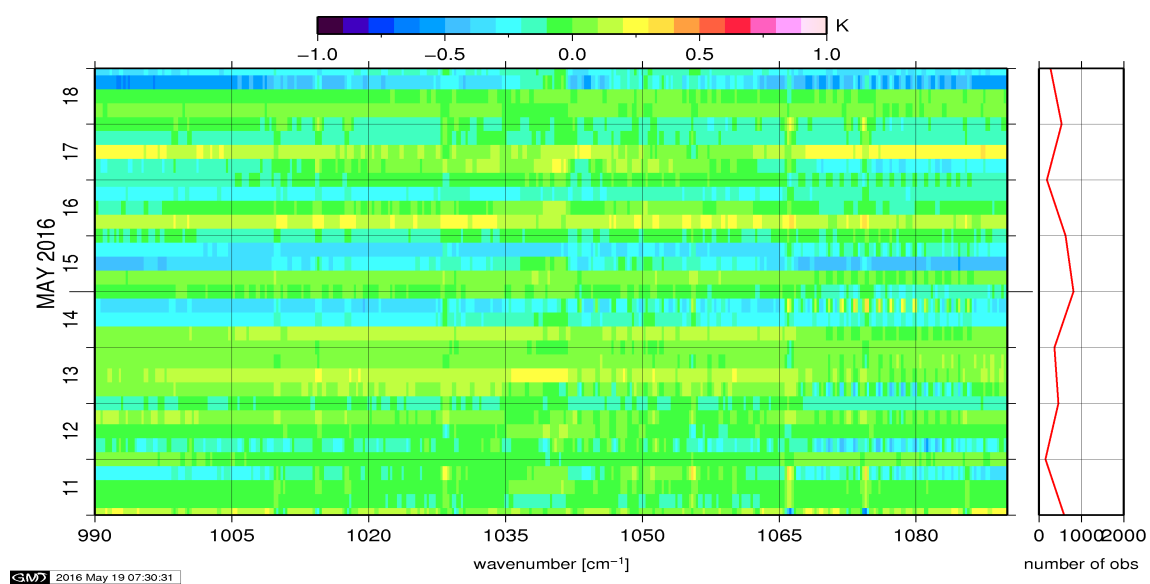


Figure 16: Radiance Anomaly in BRT: O3

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.

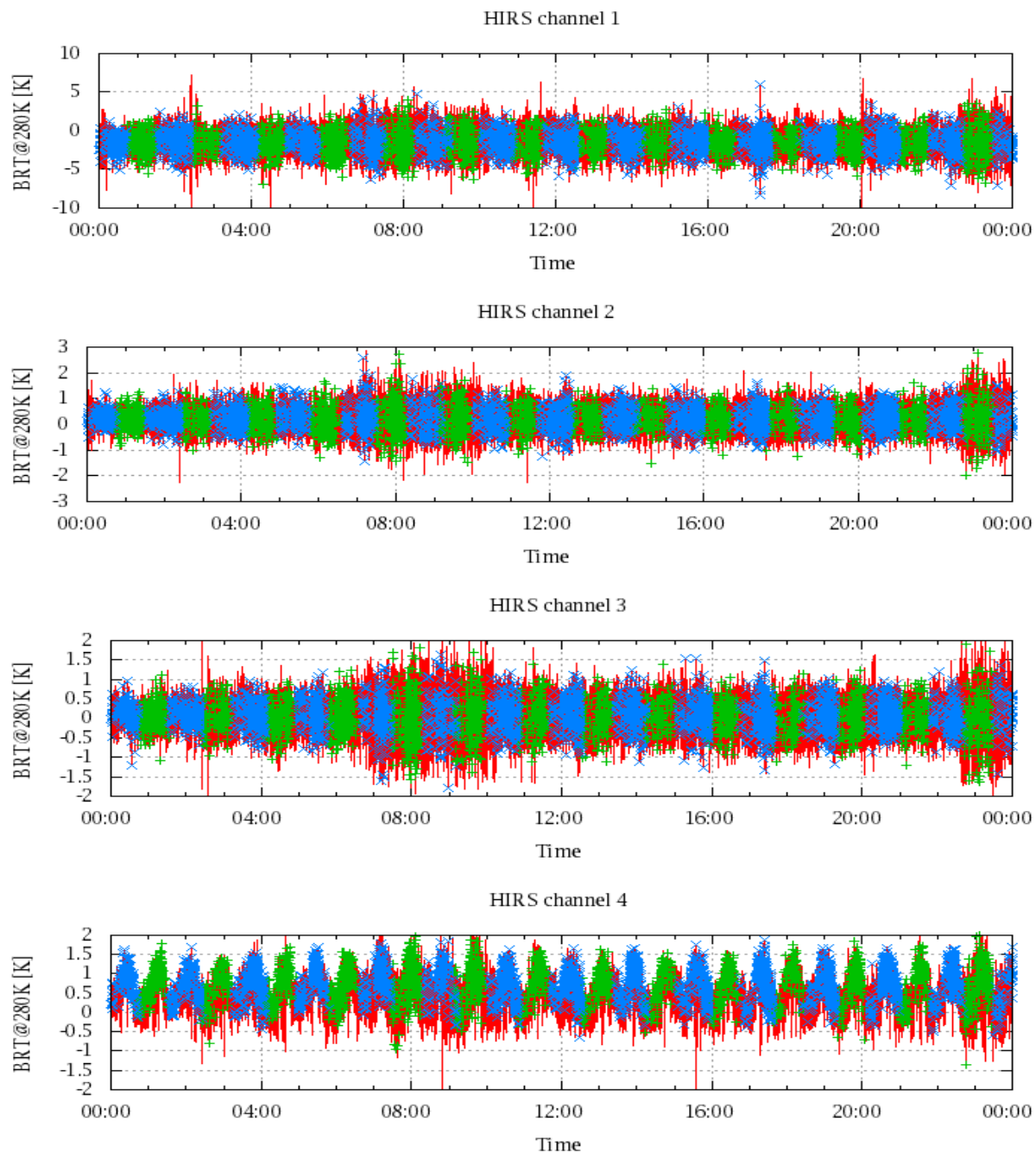


Figure 17: Radiance Differences in BRT

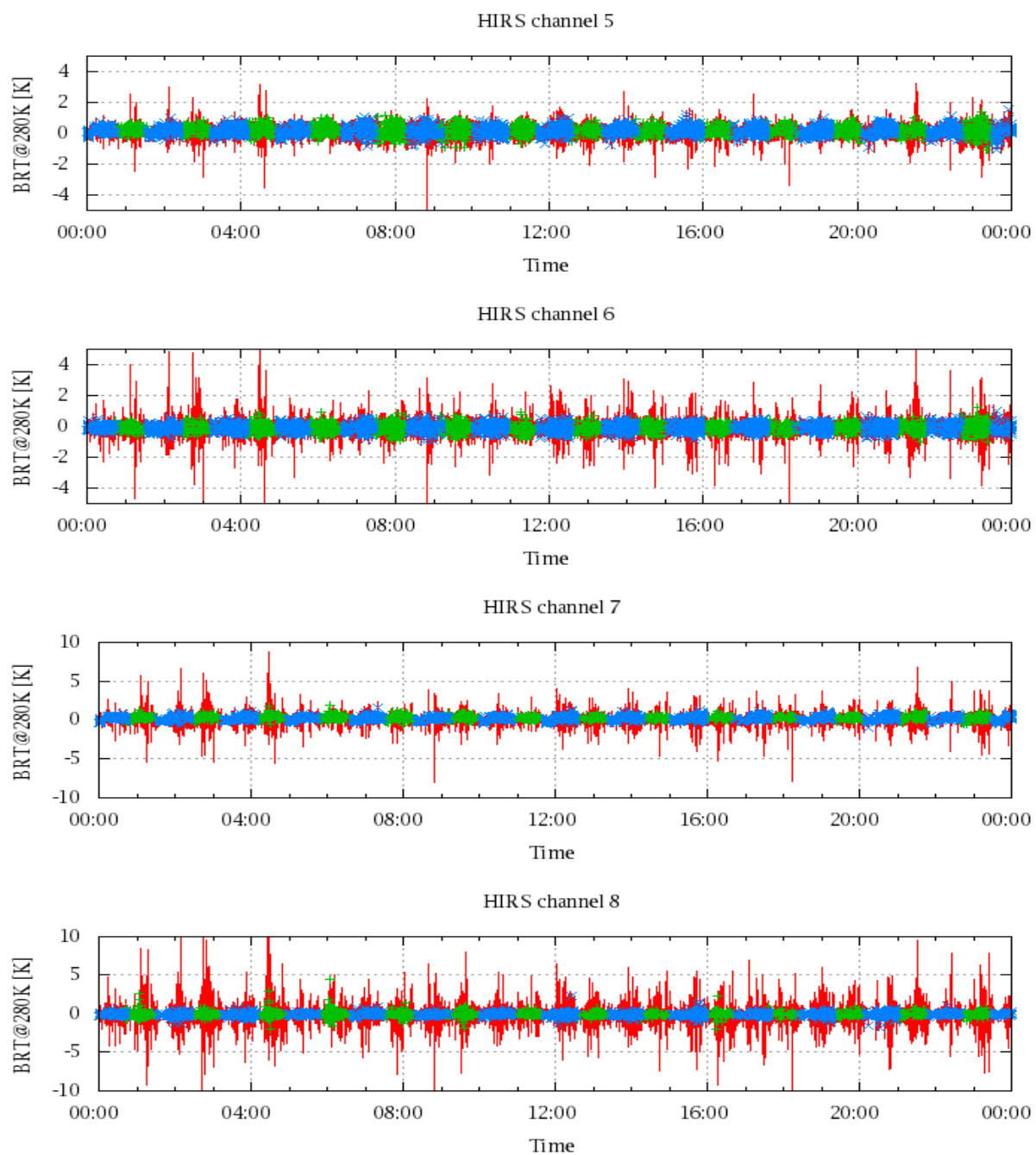


Figure 18: Radiance Differences in BRT

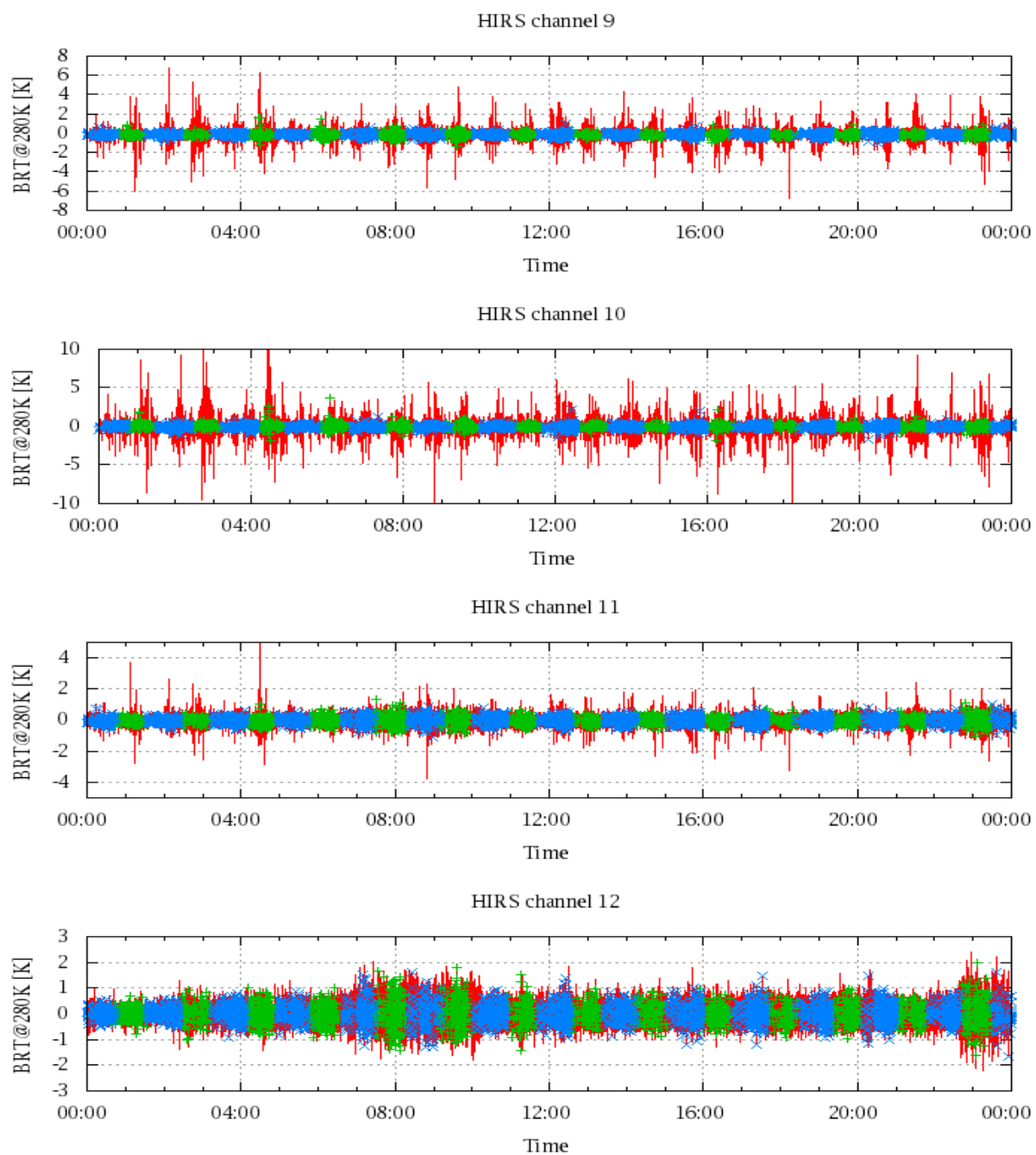


Figure 19: Radiance Differences in BRT

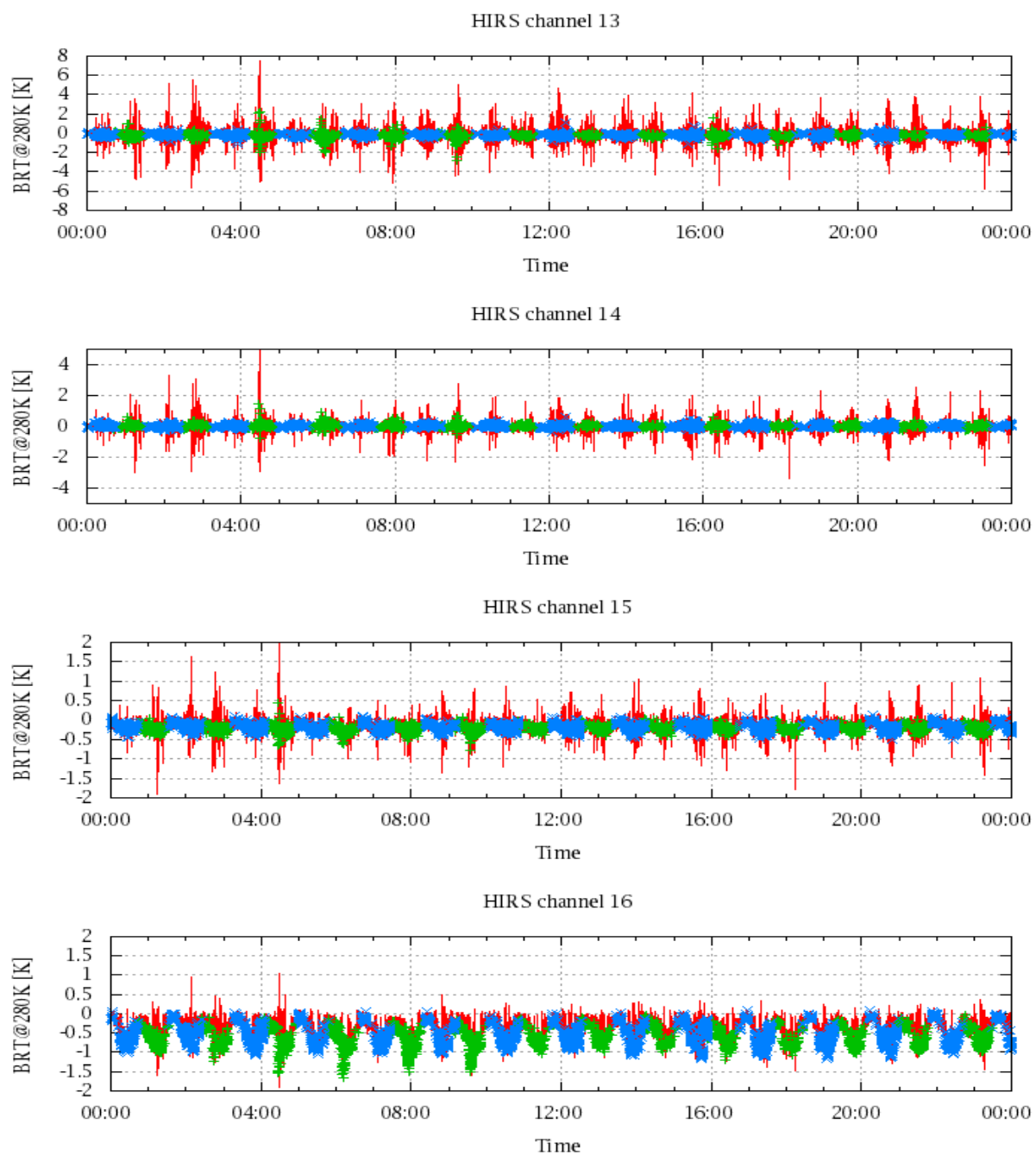


Figure 20: Radiance Differences in BRT

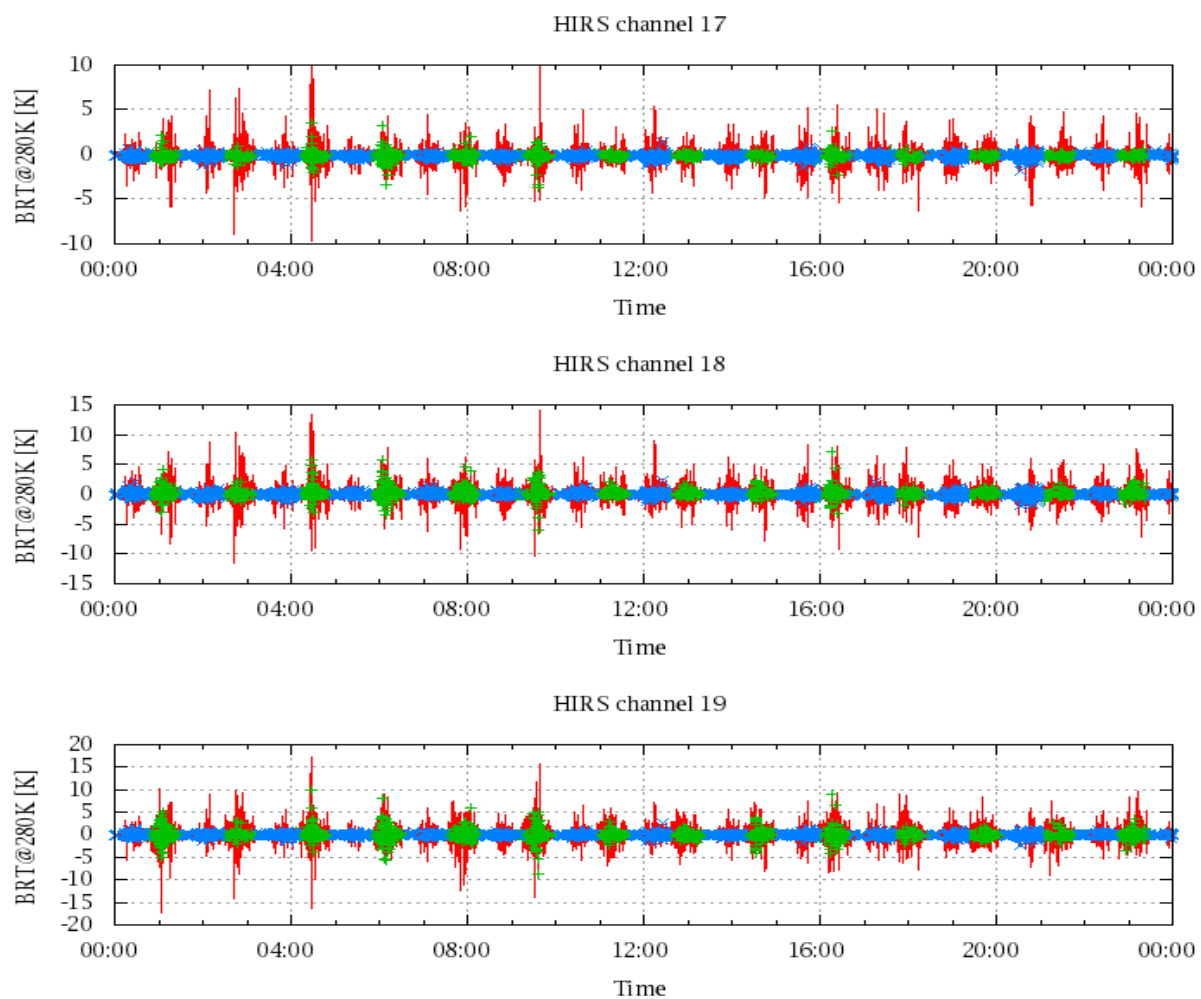


Figure 21: Radinace Differences in BRT