

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

06/07/2015 00:00:00 - 07/07/2015 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 06/07/2015 00:00:00 - 07/07/2015 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 06/07/2015 00:00:00 - 07/07/2015 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	479	-
L1 ENG distinct GEPSGranule	480	-
L1 DPX PDUs (RM: IASI-HIRS)	479	-
L1 DPS Files (RM: OBS-CAL NWP based)	479	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	6529	6531	20150706225534.619	20150706225535.049
PX1 (130)	6531	6533	20150706225535.049	20150706225535.483
PX1 (130)	6534	6536	20150706225535.701	20150706225536.131
PX1 (130)	6538	6540	20150706225536.565	20150706225536.998
PX1 (130)	6544	6548	20150706225537.862	20150706225538.729
PX1 (130)	6549	6551	20150706225538.944	20150706225539.373
PX1 (130)	6555	6558	20150706225540.241	20150706225542.401
PX1 (130)	6558	6561	20150706225542.401	20150706225543.053
PX1 (130)	6561	6567	20150706225543.053	20150706225544.350
PX1 (130)	6568	6571	20150706225544.565	20150706225545.213
PX1 (130)	6572	6578	20150706225545.428	20150706225546.725
PX1 (130)	6578	6581	20150706225546.725	20150706225547.377
PX1 (130)	6581	6583	20150706225547.377	20150706225547.807
PX1 (130)	6583	6585	20150706225547.807	20150706225548.241
PX1 (130)	6585	6594	20150706225548.241	20150706225551.701
PX1 (130)	6594	6596	20150706225551.701	20150706225552.131
PX1 (130)	6596	6600	20150706225552.131	20150706225552.998
PX1 (130)	6600	6602	20150706225552.998	20150706225553.428

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	6602	6612	20150706225553.428	20150706225555.592
PX1 (130)	6612	6614	20150706225555.592	20150706225556.026
PX1 (130)	6615	6622	20150706225556.241	20150706225559.268
PX1 (130)	6622	6638	20150706225559.268	20150706225602.725
PX1 (130)	6638	6643	20150706225602.725	20150706225603.807
PX1 (130)	6643	6650	20150706225603.807	20150706225606.834
PX1 (130)	6650	6653	20150706225606.834	20150706225607.483
PX1 (130)	6653	6656	20150706225607.483	20150706225608.131
PX1 (130)	6656	6658	20150706225608.131	20150706225608.565
PX2 (135)	6531	6533	20150706225535.049	20150706225535.483
PX2 (135)	6534	6536	20150706225535.701	20150706225536.131
PX2 (135)	6538	6540	20150706225536.565	20150706225536.998
PX2 (135)	6544	6547	20150706225537.862	20150706225538.510
PX2 (135)	6549	6551	20150706225538.944	20150706225539.373
PX2 (135)	6553	6555	20150706225539.807	20150706225540.241
PX2 (135)	6555	6558	20150706225540.241	20150706225542.401
PX2 (135)	6559	6561	20150706225542.619	20150706225543.053
PX2 (135)	6561	6567	20150706225543.053	20150706225544.350
PX2 (135)	6568	6572	20150706225544.565	20150706225545.428
PX2 (135)	6572	6575	20150706225545.428	20150706225546.076
PX2 (135)	6576	6578	20150706225546.295	20150706225546.725
PX2 (135)	6578	6600	20150706225546.725	20150706225552.998
PX2 (135)	6600	6602	20150706225552.998	20150706225553.428
PX2 (135)	6602	6604	20150706225553.428	20150706225553.862
PX2 (135)	6604	6612	20150706225553.862	20150706225555.592
PX2 (135)	6612	6628	20150706225555.592	20150706225600.565
PX2 (135)	6629	6638	20150706225600.780	20150706225602.725
PX2 (135)	6638	6650	20150706225602.725	20150706225606.834
PX2 (135)	6650	6653	20150706225606.834	20150706225607.483
PX2 (135)	6653	6656	20150706225607.483	20150706225608.131
PX2 (135)	6656	6658	20150706225608.131	20150706225608.565
PX3 (140)	6528	6530	20150706225534.405	20150706225534.834
PX3 (140)	6531	6533	20150706225535.049	20150706225535.483
PX3 (140)	6534	6536	20150706225535.701	20150706225536.131
PX3 (140)	6544	6546	20150706225537.862	20150706225538.295
PX3 (140)	6546	6549	20150706225538.295	20150706225538.944
PX3 (140)	6549	6551	20150706225538.944	20150706225539.373
PX3 (140)	6553	6555	20150706225539.807	20150706225540.241
PX3 (140)	6555	6559	20150706225540.241	20150706225542.619
PX3 (140)	6559	6566	20150706225542.619	20150706225544.131
PX3 (140)	6569	6578	20150706225544.780	20150706225546.725
PX3 (140)	6578	6582	20150706225546.725	20150706225547.592
PX3 (140)	6582	6584	20150706225547.592	20150706225548.026
PX3 (140)	6584	6600	20150706225548.026	20150706225552.998
PX3 (140)	6600	6612	20150706225552.998	20150706225555.592
PX3 (140)	6612	6619	20150706225555.592	20150706225558.619
PX3 (140)	6619	6621	20150706225558.619	20150706225559.049
PX3 (140)	6621	6628	20150706225559.049	20150706225600.565
PX3 (140)	6628	6638	20150706225600.565	20150706225602.725
PX3 (140)	6638	6646	20150706225602.725	20150706225605.971
PX3 (140)	6646	6648	20150706225605.971	20150706225606.401
PX3 (140)	6648	6656	20150706225606.401	20150706225608.131
PX3 (140)	6656	6658	20150706225608.131	20150706225608.565

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX4 (145)	6528	6530	20150706225534.405	20150706225534.834
PX4 (145)	6546	6551	20150706225538.295	20150706225539.373
PX4 (145)	6551	6555	20150706225539.373	20150706225540.241
PX4 (145)	6556	6559	20150706225541.971	20150706225542.619
PX4 (145)	6560	6563	20150706225542.834	20150706225543.483
PX4 (145)	6563	6569	20150706225543.483	20150706225544.780
PX4 (145)	6569	6574	20150706225544.780	20150706225545.862
PX4 (145)	6574	6578	20150706225545.862	20150706225546.725
PX4 (145)	6578	6600	20150706225546.725	20150706225552.998
PX4 (145)	6601	6605	20150706225553.213	20150706225554.076
PX4 (145)	6605	6612	20150706225554.076	20150706225555.592
PX4 (145)	6612	6621	20150706225555.592	20150706225559.049
PX4 (145)	6621	6624	20150706225559.049	20150706225559.698
PX4 (145)	6624	6627	20150706225559.698	20150706225600.350
PX4 (145)	6628	6652	20150706225600.565	20150706225607.268
PX4 (145)	6652	6655	20150706225607.268	20150706225607.916
PX4 (145)	6656	6658	20150706225608.131	20150706225608.565
IMG (150)	15044	15046	20150706225534.405	20150706225534.834
IMG (150)	15046	15048	20150706225534.834	20150706225535.268
IMG (150)	15053	15055	20150706225536.346	20150706225536.780
IMG (150)	15059	15067	20150706225537.647	20150706225539.373
IMG (150)	15067	15070	20150706225539.373	20150706225540.026
IMG (150)	15071	15074	20150706225540.241	20150706225541.323
IMG (150)	15075	15080	20150706225541.537	20150706225542.834
IMG (150)	15080	15097	20150706225542.834	20150706225546.510
IMG (150)	15097	15107	20150706225546.510	20150706225548.889
IMG (150)	15109	15117	20150706225549.537	20150706225551.483
IMG (150)	15117	15125	20150706225551.483	20150706225553.213
IMG (150)	15125	15129	20150706225553.213	20150706225554.076
IMG (150)	15129	15174	20150706225554.076	20150706225604.674
IMG (150)	15176	15187	20150706225605.319	20150706225607.916
IMG (150)	15187	15189	20150706225607.916	20150706225608.346
VER (160)	6549	6551	20150706225540.241	20150706225540.241
VER (160)	6551	6569	20150706225540.241	20150706225612.240
AUX (180)	14416	14420	20150706225532.674	20150706225604.674

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
06/07/2015 00:00:09	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	481	-
L1 ENG PDUs	479	-
L1 ENG distinct GEPSGranule	480	-
GQisFlagQual set (PX1)	99.54 %	-
GQisFlagQual set (PX2)	99.66 %	-
GQisFlagQual set (PX3)	99.67 %	-
GQisFlagQual set (PX4)	99.60 %	-
GQisFlagQual set (all)	99.62 %	-

Table 4: Quality flags

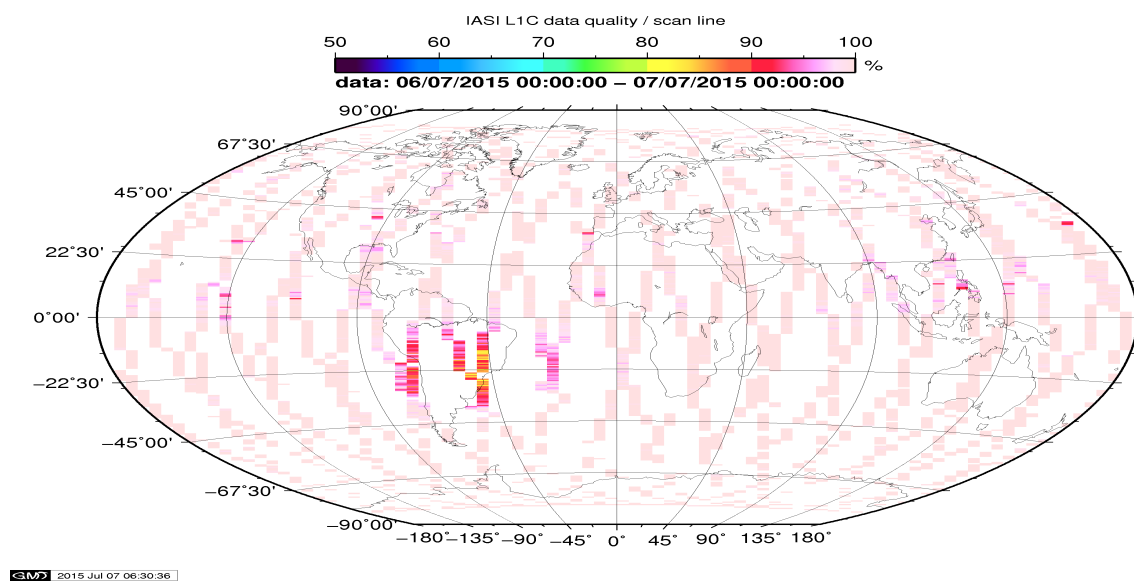


Figure 1: L1C data quality

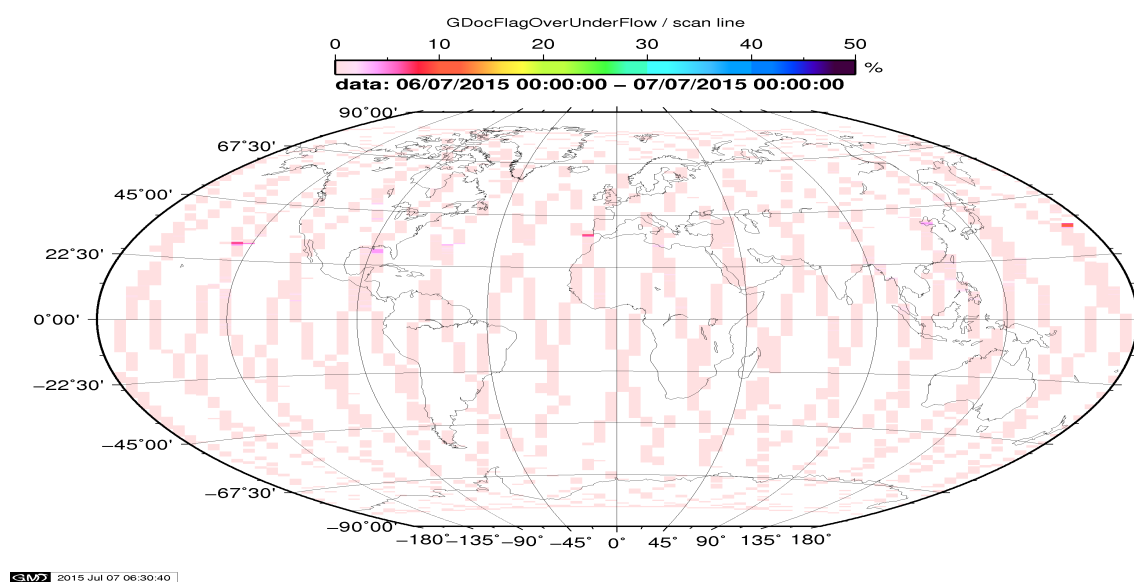


Figure 2: Flag of Over and Under Flows

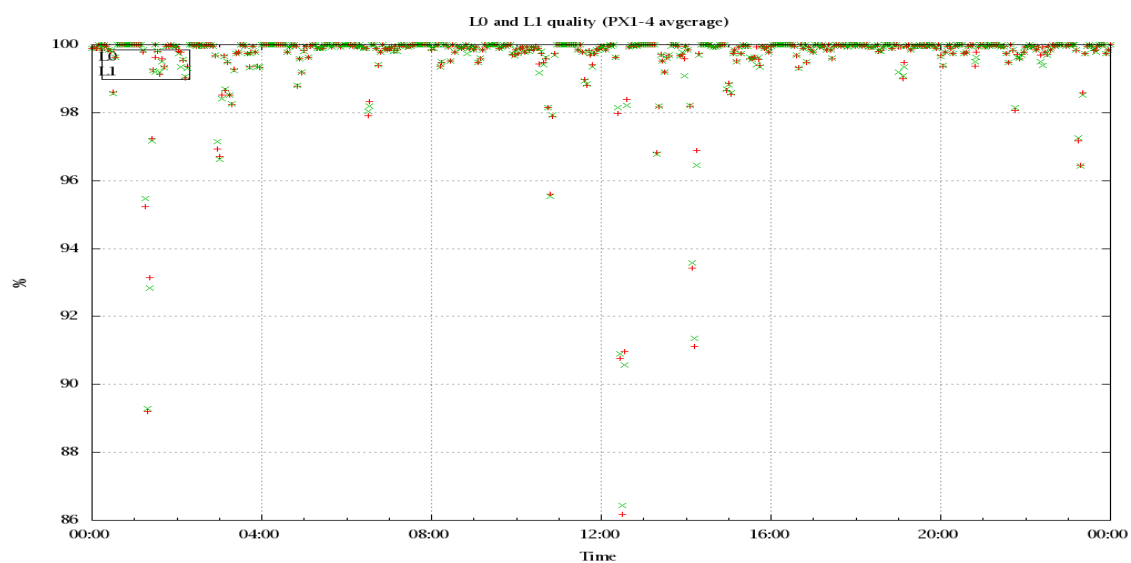


Figure 3: Level 0 and 1C overall quality

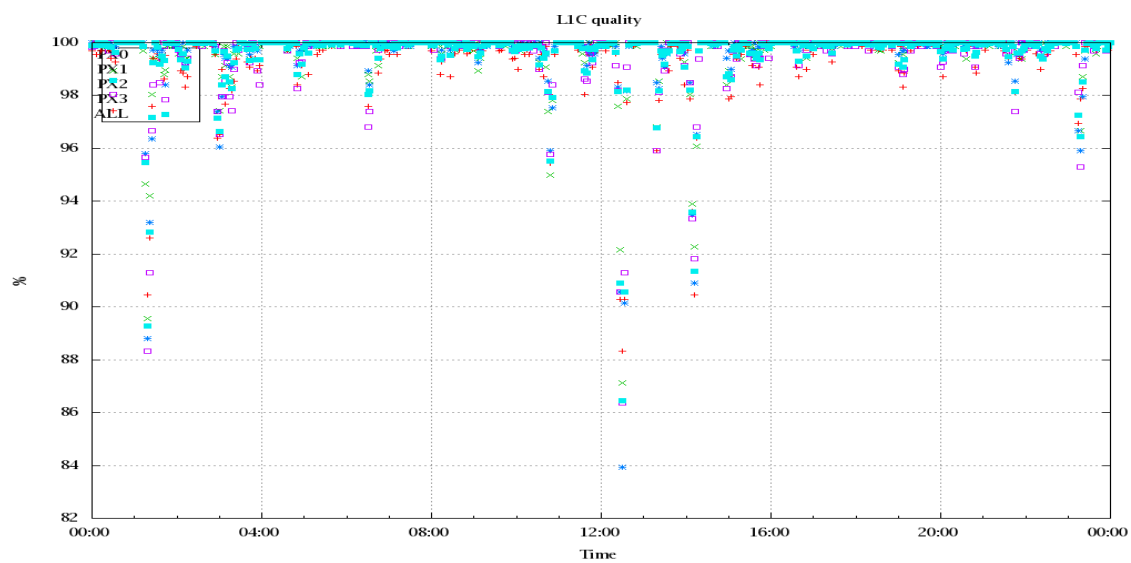


Figure 4: Level 1C quality

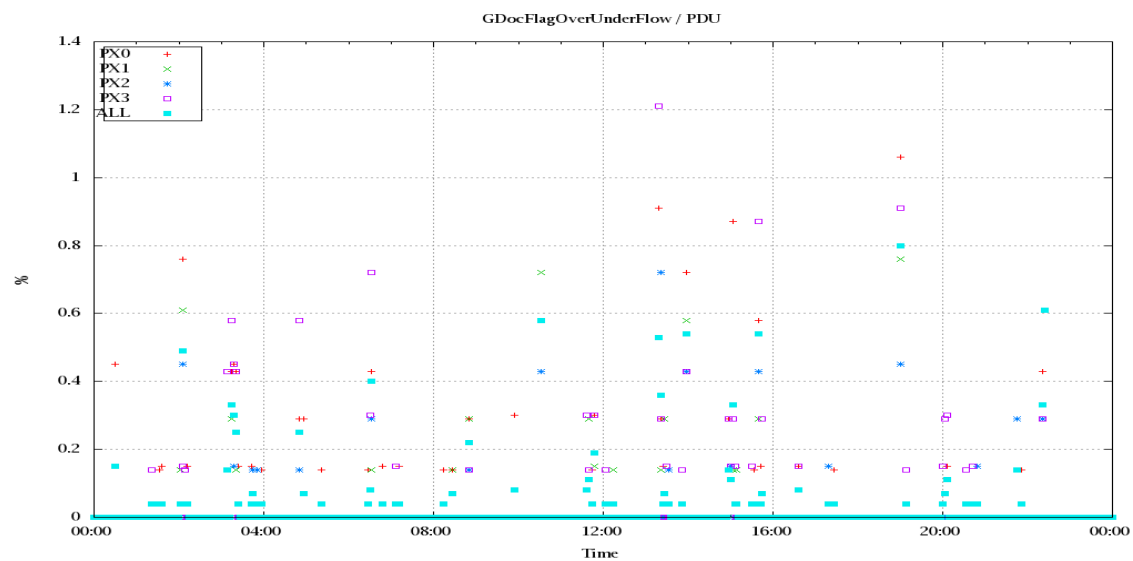


Figure 5: OverUnderFlowFlag timeseries

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.

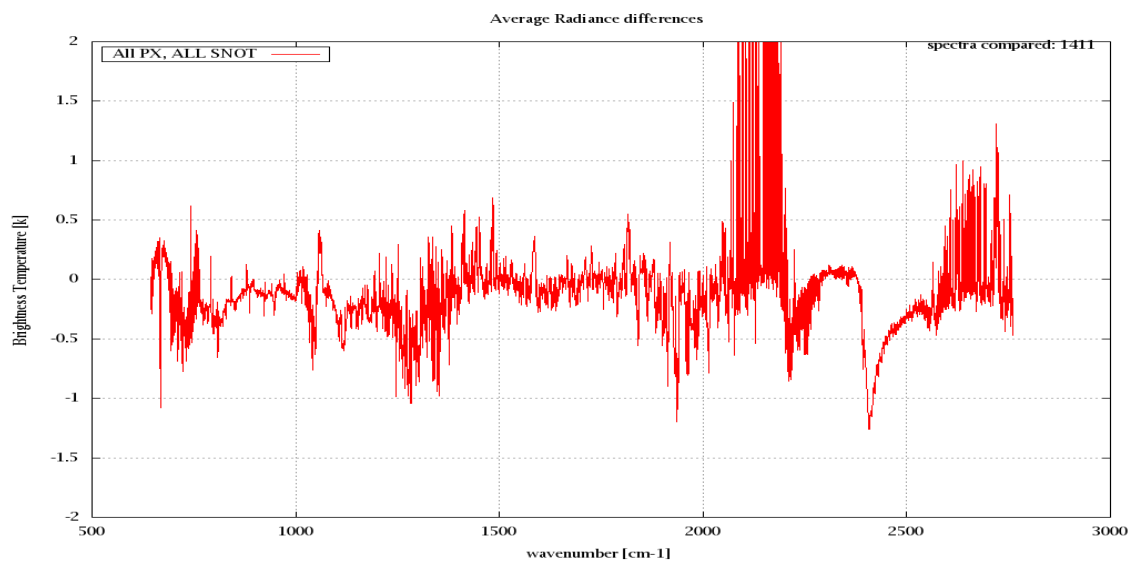


Figure 6: Average Radiance differences: OBS-CAL

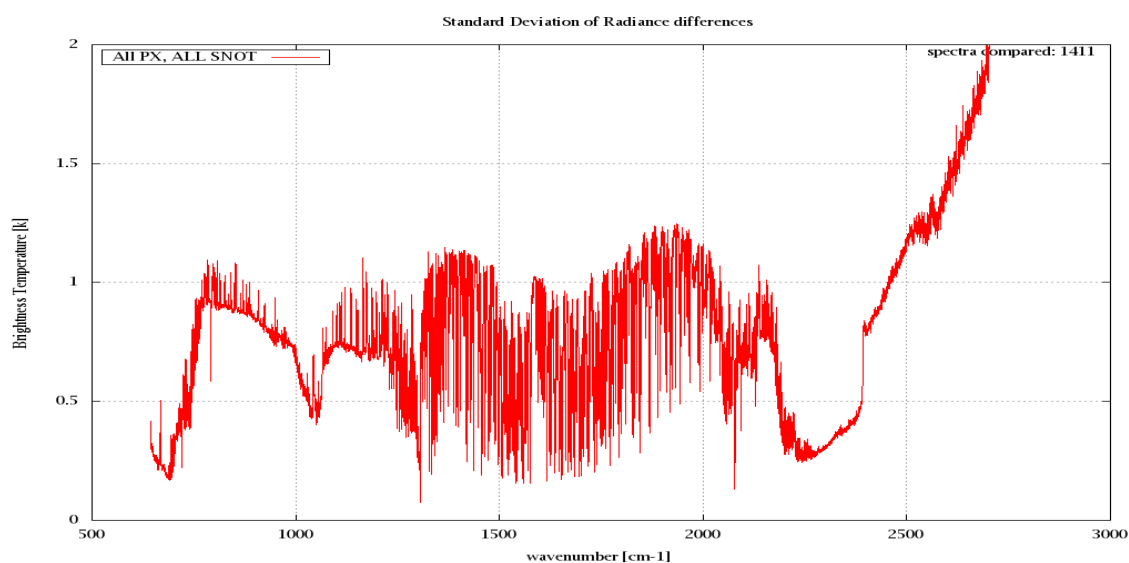


Figure 7: Standard Deviation of Radiance differences

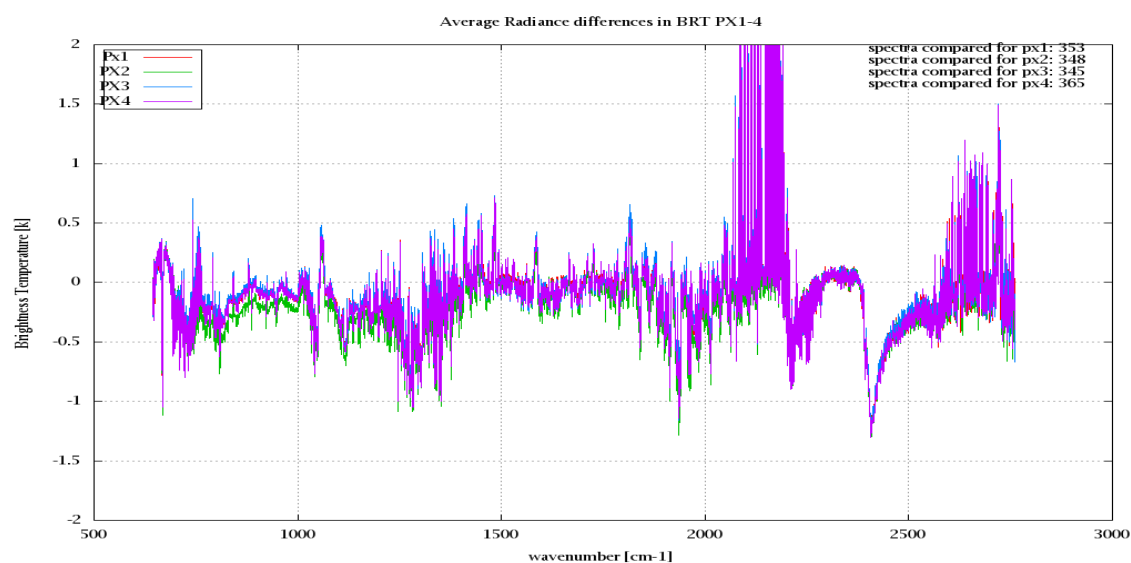


Figure 8: Average Radiance differences: OBS-CAL

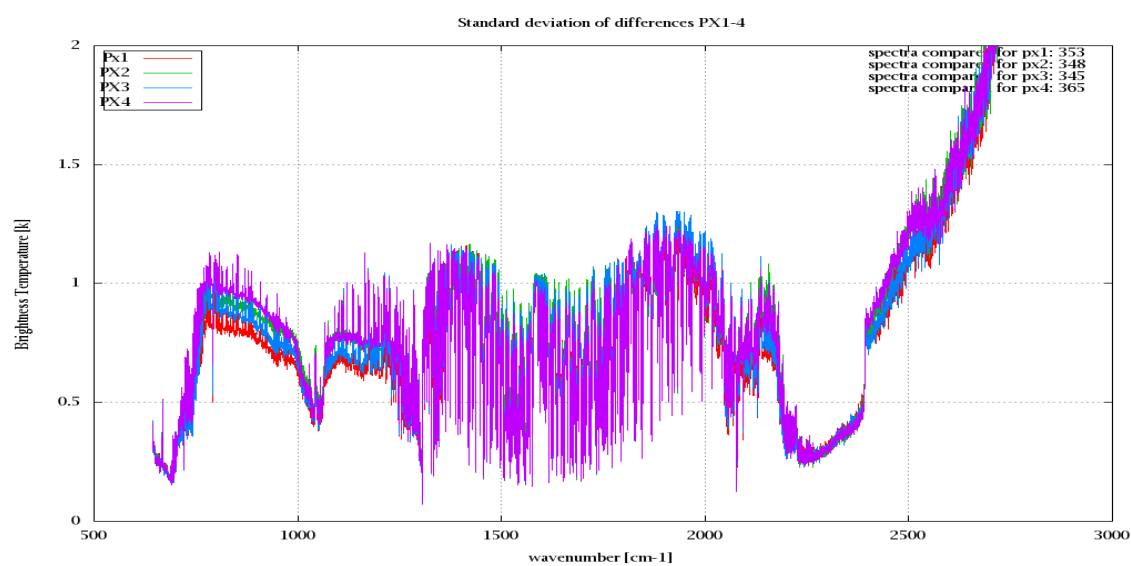


Figure 9: Standard Deviation of Radiance differences

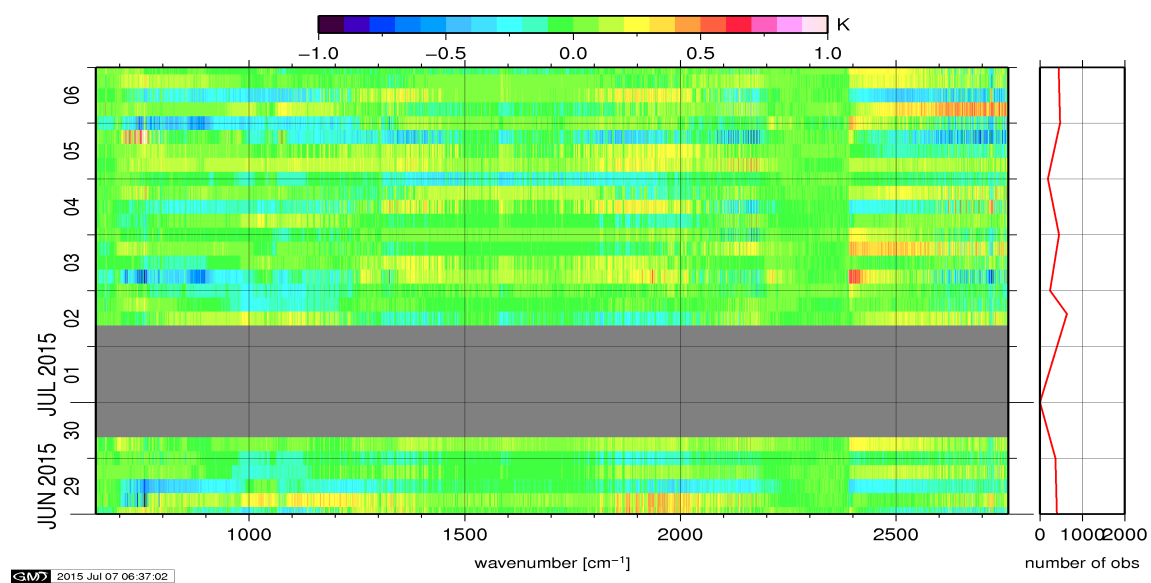


Figure 10: Radiance Anomaly in BRT: All Channels

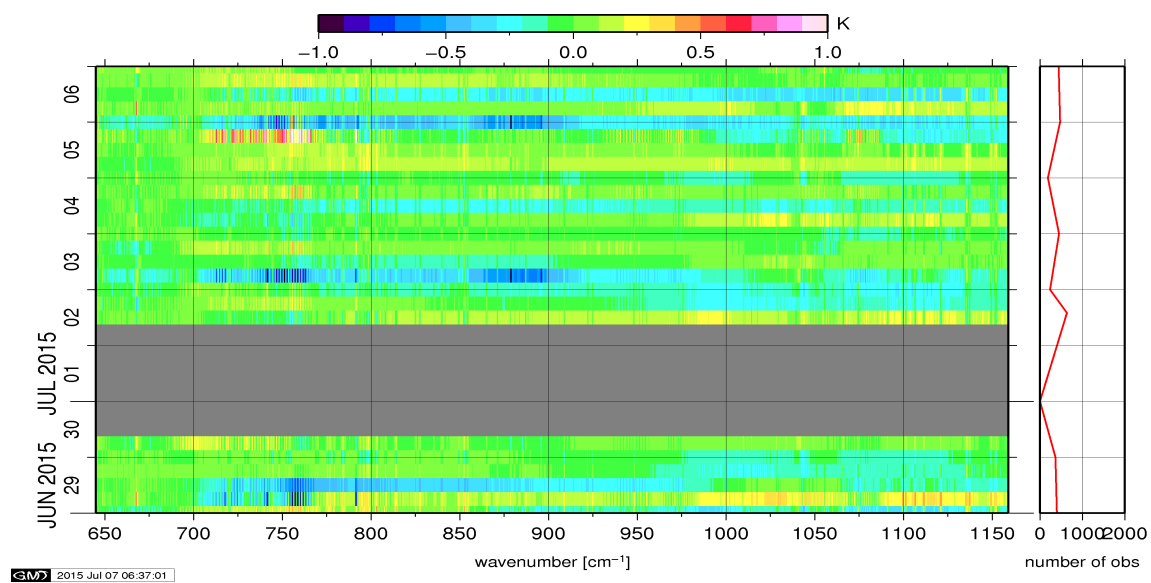


Figure 11: Radiance Anomaly in BRT: IASI Band 1

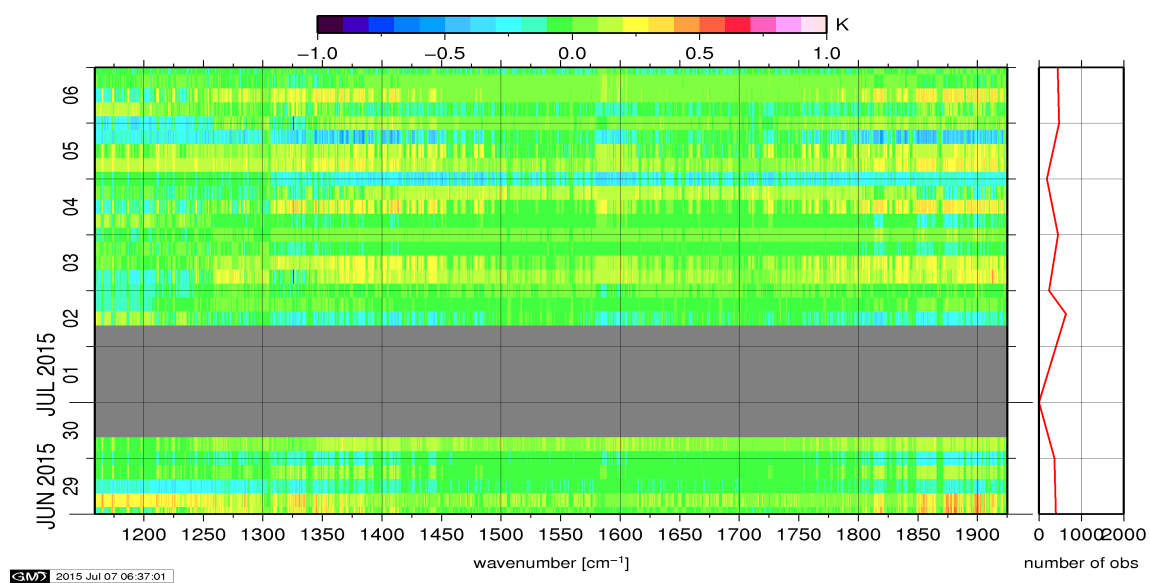


Figure 12: Radiance Anomaly in BRT: IASI Band 2

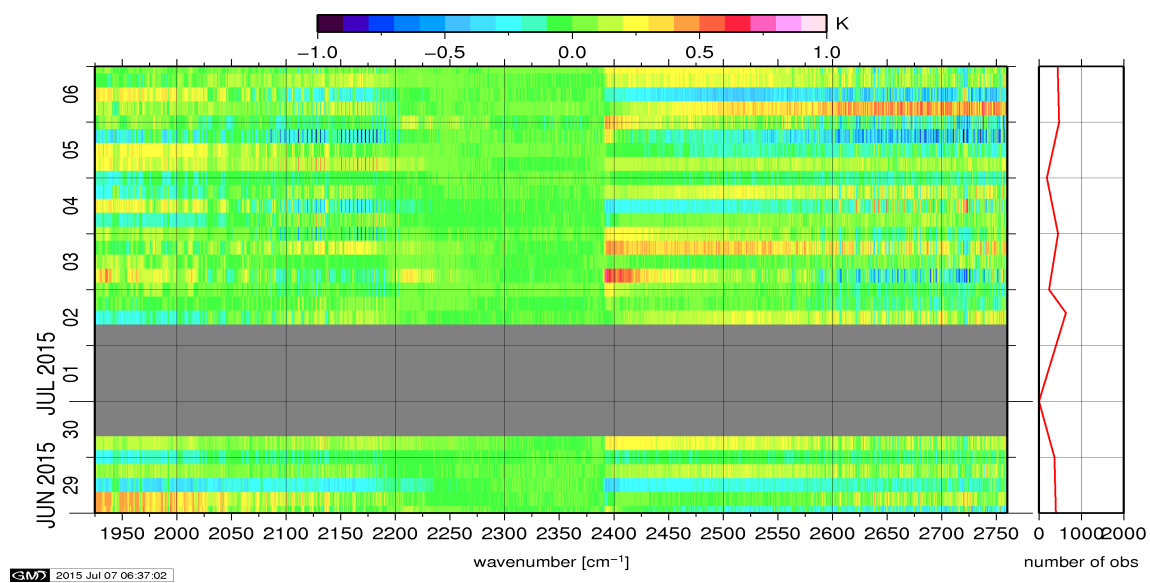


Figure 13: Radiance Anomaly in BRT: IASI Band 3

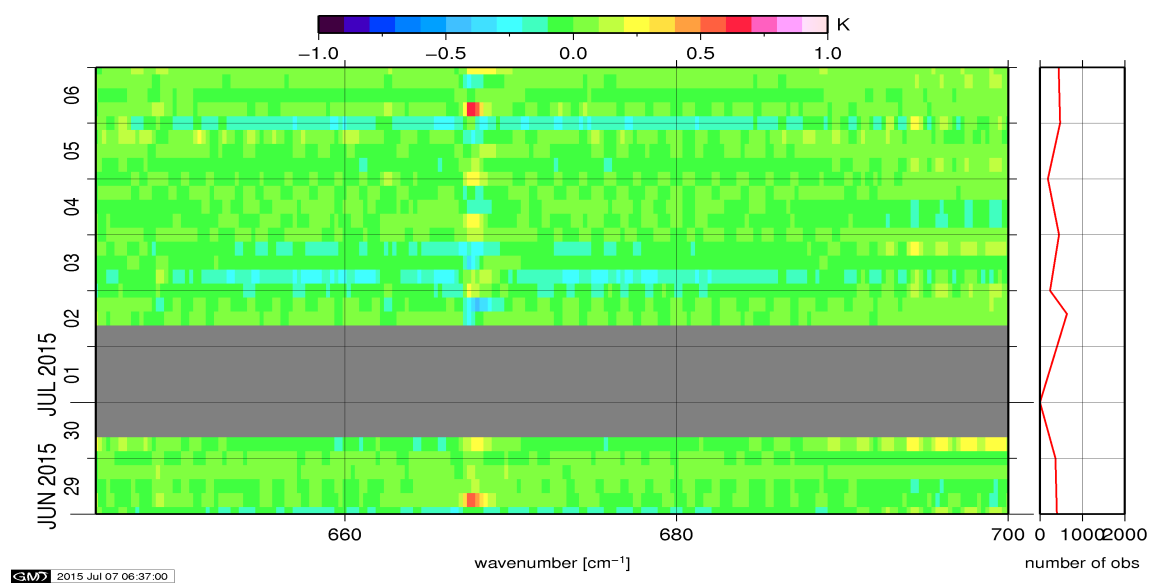


Figure 14: Radiance Anomaly in BRT: CO2 14

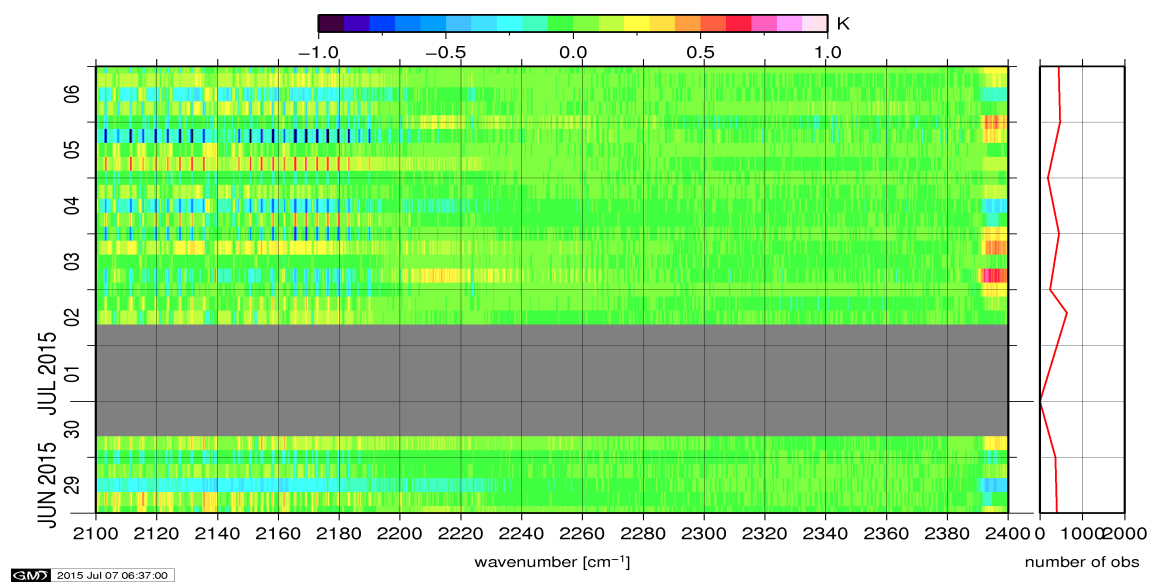


Figure 15: Radiance Anomaly in BRT: CO2 4.3

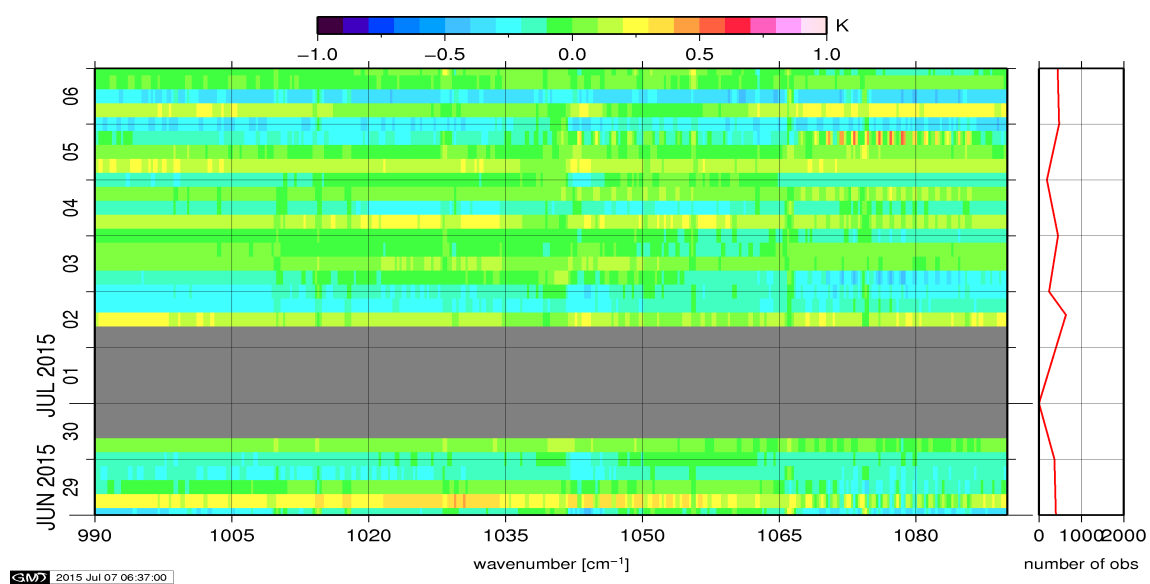


Figure 16: Radiance Anomaly in BRT: O3

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.

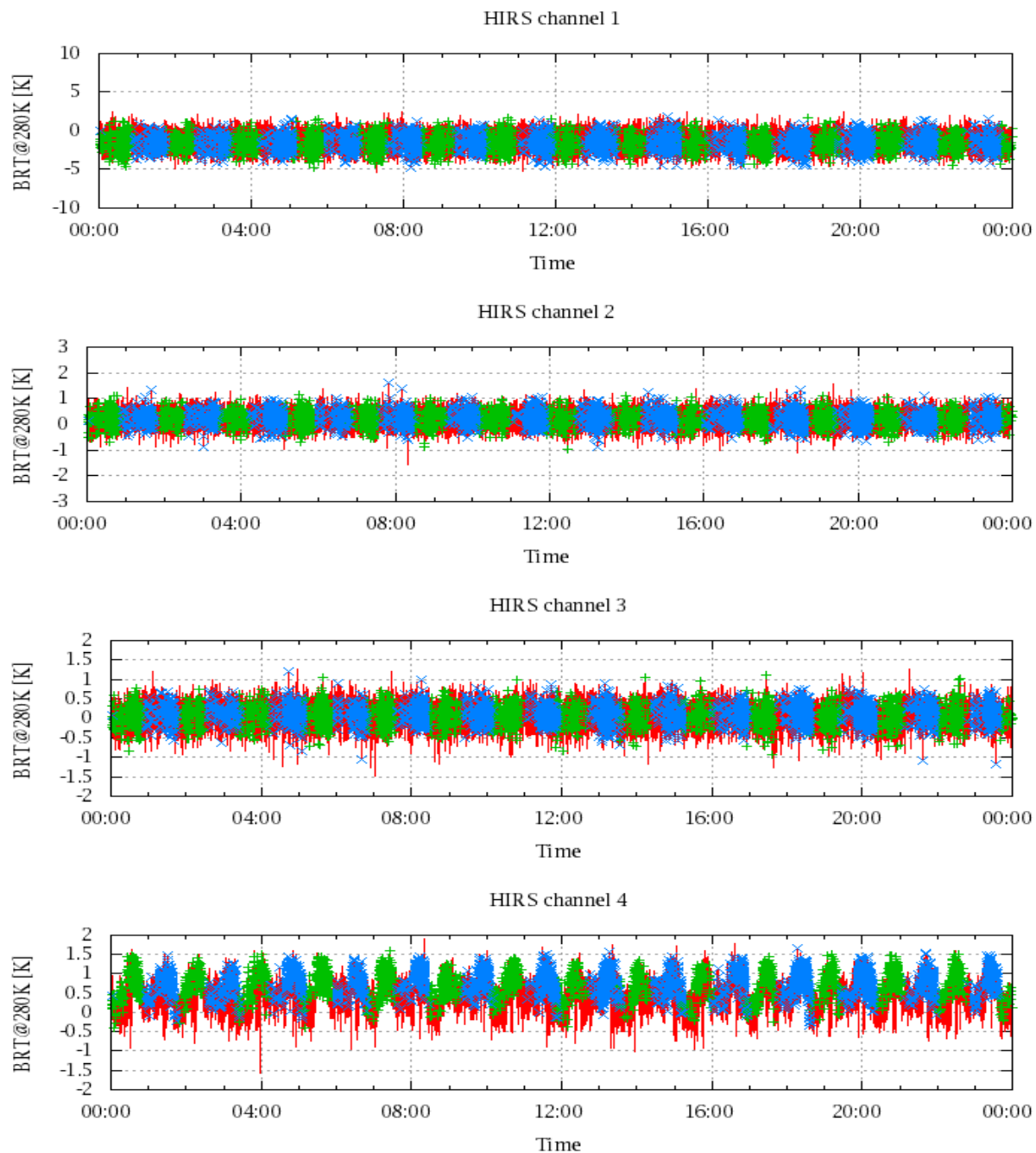


Figure 17: Radiance Differences in BRT

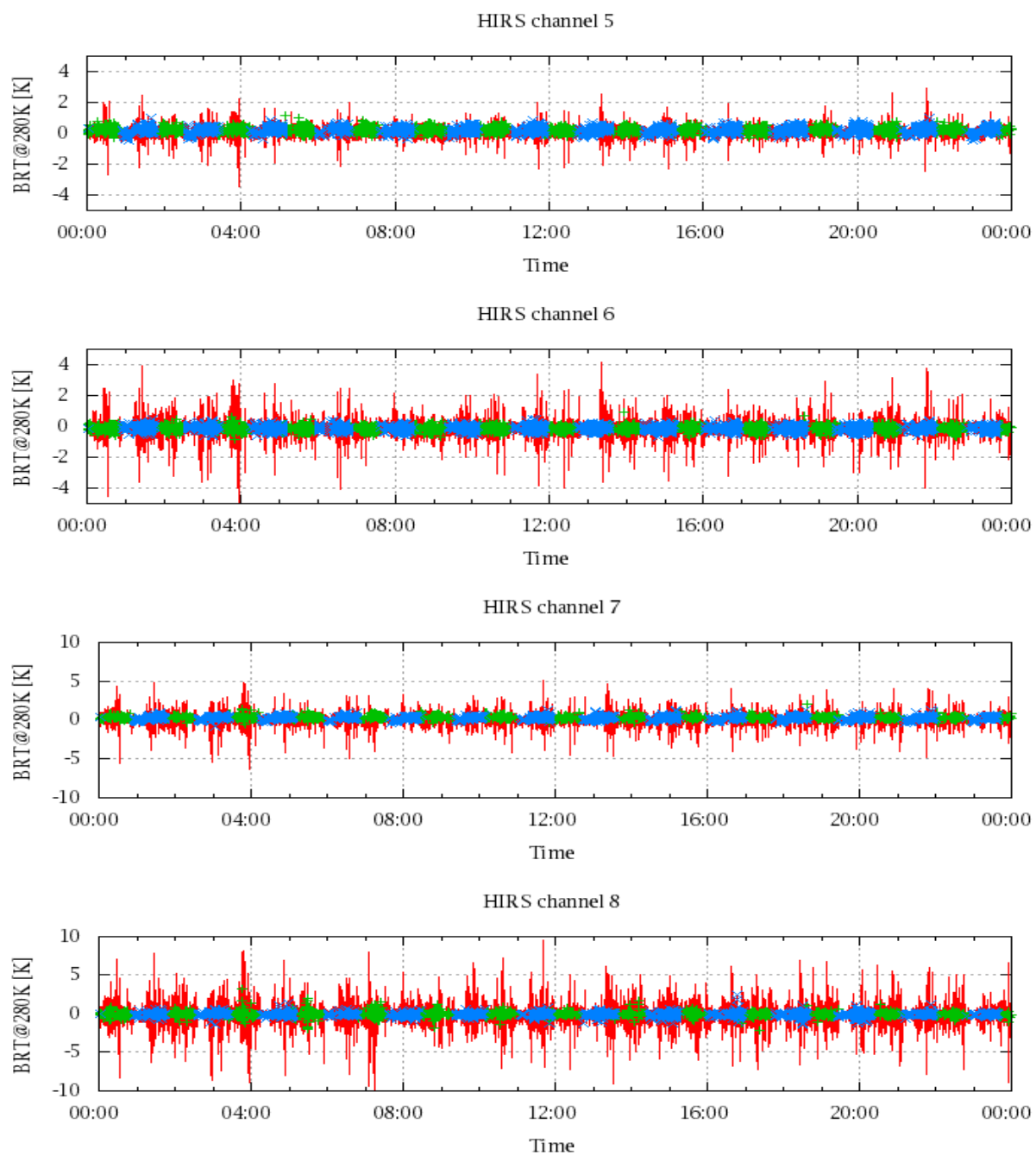


Figure 18: Radiance Differences in BRT

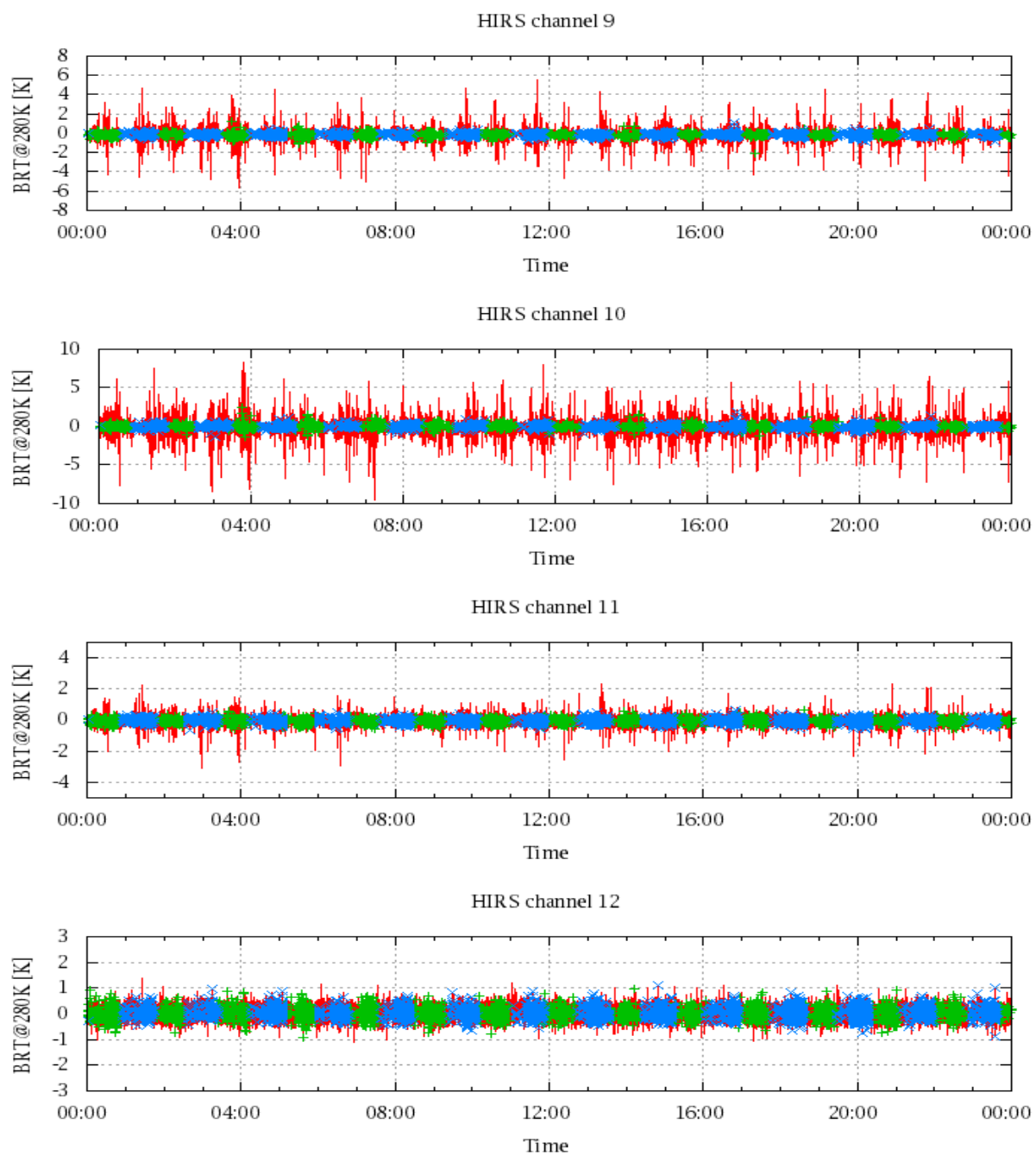


Figure 19: Radiance Differences in BRT

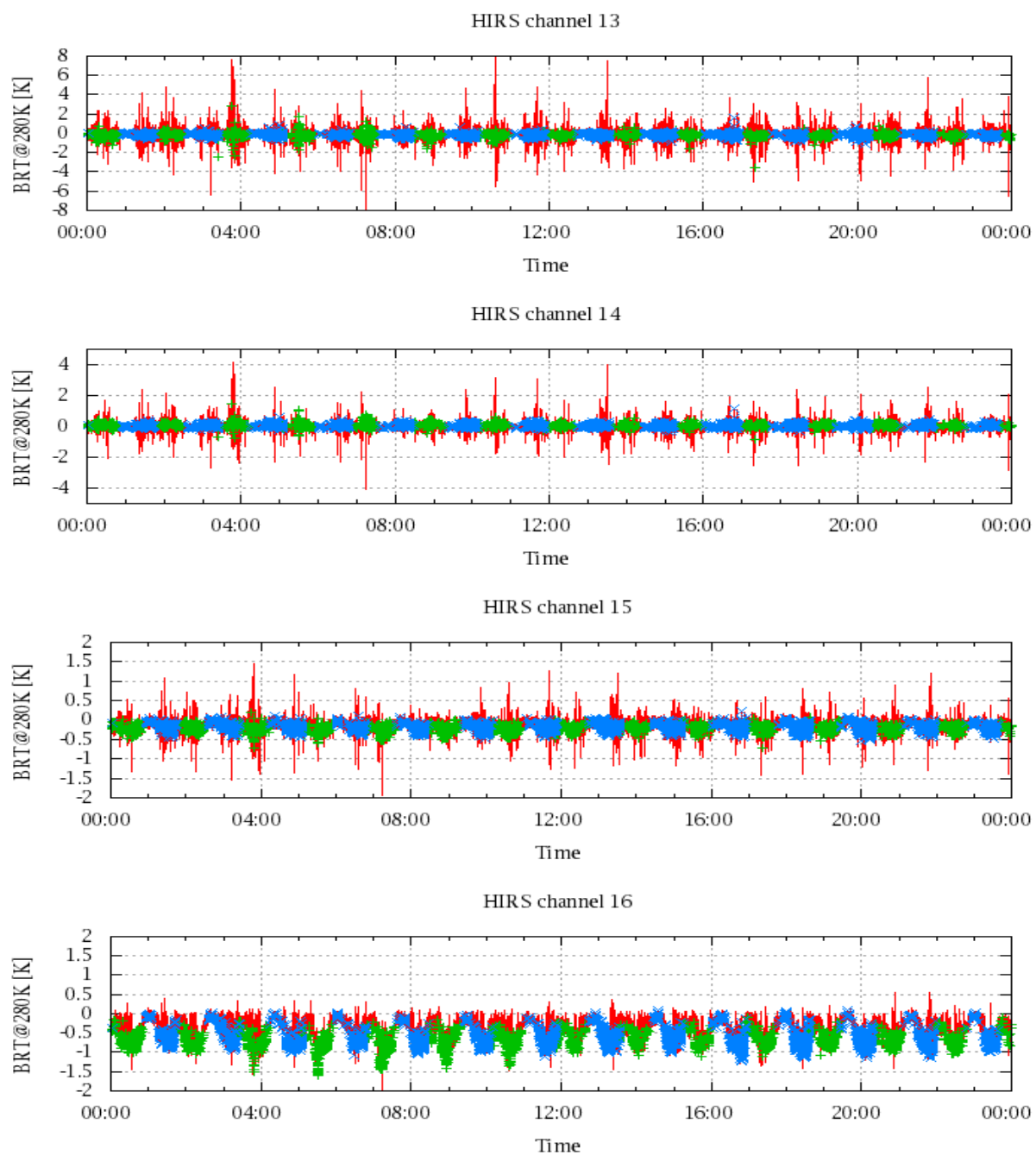


Figure 20: Radiance Differences in BRT

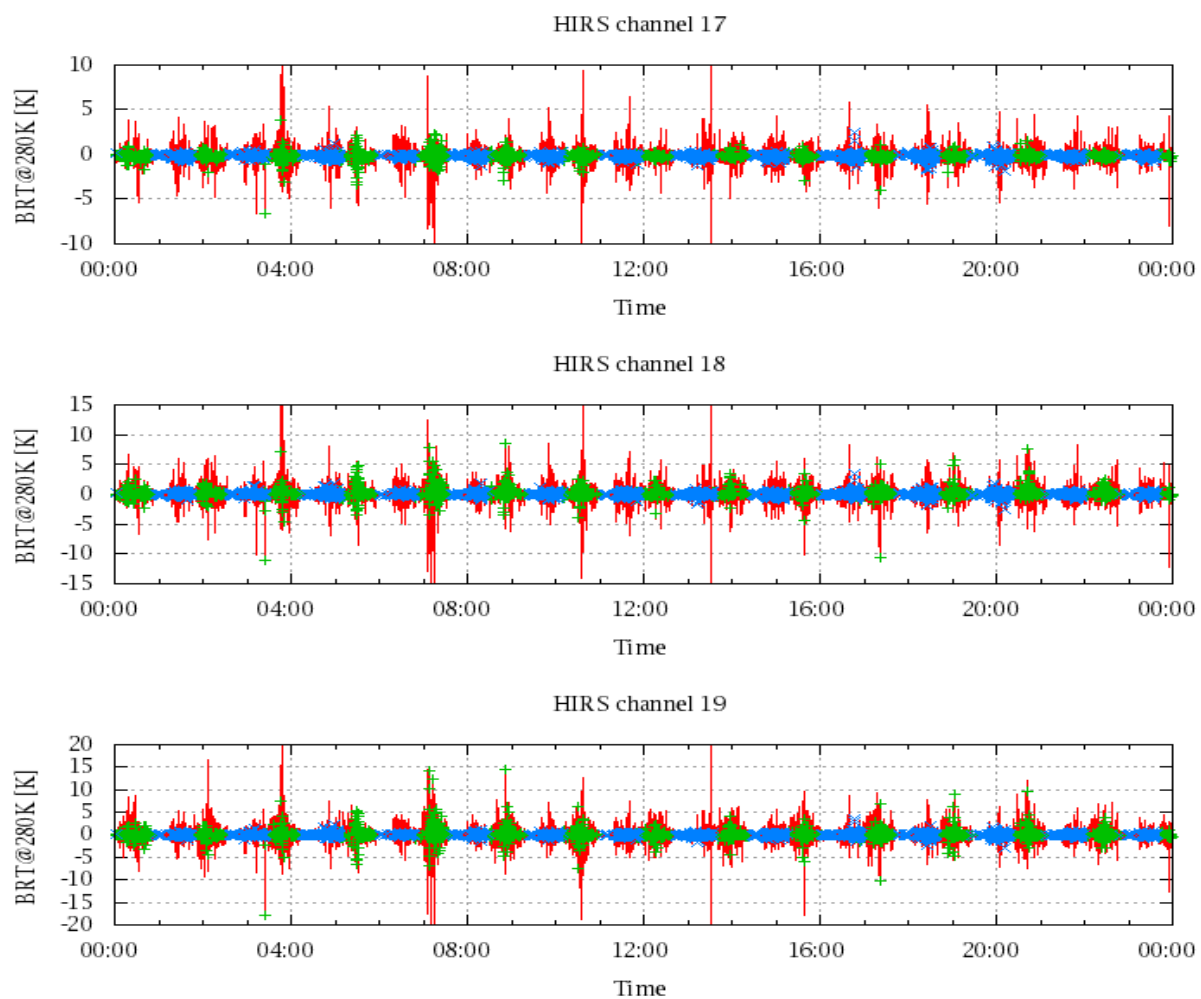


Figure 21: Radinace Differences in BRT