

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

23/07/2015 00:00:00 - 24/07/2015 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 23/07/2015 00:00:00 - 24/07/2015 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 23/07/2015 00:00:00 - 24/07/2015 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)	11449	11451	20150723120848.180	20150723120848.610
PX1 (130)	11452	11454	20150723120848.825	20150723120849.258
PX1 (130)	11454	11456	20150723120849.258	20150723120849.692
PX1 (130)	11458	11460	20150723120851.637	20150723120852.071
PX1 (130)	11461	11463	20150723120852.286	20150723120852.719
PX1 (130)	11464	11466	20150723120852.934	20150723120853.368
PX1 (130)	11468	11471	20150723120853.801	20150723120854.450
PX1 (130)	11472	11475	20150723120854.665	20150723120855.313
PX1 (130)	11476	11481	20150723120855.528	20150723120856.610
PX1 (130)	11484	11486	20150723120857.258	20150723120857.692
PX1 (130)	11507	11509	20150723120903.747	20150723120904.176
PX1 (130)	11509	11511	20150723120904.176	20150723120904.610
PX1 (130)	11519	11521	20150723120907.852	20150723120908.286
PX1 (130)	11524	11528	20150723120908.934	20150723120909.801
PX1 (130)	11530	11533	20150723120910.231	20150723120910.879
PX1 (130)	11536	11539	20150723120911.528	20150723120912.176
PX1 (130)	11542	11545	20150723120912.825	20150723120913.473
PX1 (130)	11546	11549	20150723120913.692	20150723120915.852

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	11549	11551	20150723120915.852	20150723120916.286
PX1 (130)	11552	11554	20150723120916.501	20150723120916.934
PX1 (130)	11554	11556	20150723120916.934	20150723120917.368
PX1 (130)	11556	11558	20150723120917.368	20150723120917.797
PX1 (130)	11559	11561	20150723120918.016	20150723120918.450
PX1 (130)	11561	11563	20150723120918.450	20150723120918.879
PX1 (130)	11563	11565	20150723120918.879	20150723120919.313
PX1 (130)	11569	11573	20150723120920.176	20150723120921.044
PX1 (130)	11575	11579	20150723120921.473	20150723120923.852
PX1 (130)	11579	11582	20150723120923.852	20150723120924.501
PX1 (130)	11582	11585	20150723120924.501	20150723120925.149
PX2 (135)	11452	11454	20150723120848.825	20150723120849.258
PX2 (135)	11461	11463	20150723120852.286	20150723120852.719
PX2 (135)	11464	11466	20150723120852.934	20150723120853.368
PX2 (135)	11468	11475	20150723120853.801	20150723120855.313
PX2 (135)	11476	11480	20150723120855.528	20150723120856.395
PX2 (135)	11484	11486	20150723120857.258	20150723120857.692
PX2 (135)	11509	11511	20150723120904.176	20150723120904.610
PX2 (135)	11518	11522	20150723120907.637	20150723120908.501
PX2 (135)	11524	11529	20150723120908.934	20150723120910.016
PX2 (135)	11530	11533	20150723120910.231	20150723120910.879
PX2 (135)	11533	11535	20150723120910.879	20150723120911.313
PX2 (135)	11536	11541	20150723120911.528	20150723120912.610
PX2 (135)	11542	11545	20150723120912.825	20150723120913.473
PX2 (135)	11546	11549	20150723120913.692	20150723120915.852
PX2 (135)	11549	11551	20150723120915.852	20150723120916.286
PX2 (135)	11552	11556	20150723120916.501	20150723120917.368
PX2 (135)	11556	11558	20150723120917.368	20150723120917.797
PX2 (135)	11561	11563	20150723120918.450	20150723120918.879
PX2 (135)	11563	11565	20150723120918.879	20150723120919.313
PX2 (135)	11565	11567	20150723120919.313	20150723120919.747
PX2 (135)	11567	11569	20150723120919.747	20150723120920.176
PX2 (135)	11569	11573	20150723120920.176	20150723120921.044
PX2 (135)	11576	11579	20150723120921.692	20150723120923.852
PX2 (135)	11579	11582	20150723120923.852	20150723120924.501
PX2 (135)	11582	11584	20150723120924.501	20150723120924.934
PX3 (140)	11447	11449	20150723120847.747	20150723120848.180
PX3 (140)	11449	11451	20150723120848.180	20150723120848.610
PX3 (140)	11452	11454	20150723120848.825	20150723120849.258
PX3 (140)	11458	11461	20150723120851.637	20150723120852.286
PX3 (140)	11461	11463	20150723120852.286	20150723120852.719
PX3 (140)	11464	11466	20150723120852.934	20150723120853.368
PX3 (140)	11468	11470	20150723120853.801	20150723120854.231
PX3 (140)	11470	11473	20150723120854.231	20150723120854.879
PX3 (140)	11473	11475	20150723120854.879	20150723120855.313
PX3 (140)	11476	11481	20150723120855.528	20150723120856.610
PX3 (140)	11484	11486	20150723120857.258	20150723120857.692
PX3 (140)	11500	11502	20150723120902.231	20150723120902.665
PX3 (140)	11509	11511	20150723120904.176	20150723120904.610
PX3 (140)	11518	11520	20150723120907.637	20150723120908.071
PX3 (140)	11520	11522	20150723120908.071	20150723120908.501
PX3 (140)	11524	11526	20150723120908.934	20150723120909.368
PX3 (140)	11526	11529	20150723120909.368	20150723120910.016

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	11529	11533	20150723120910.016	20150723120910.879
PX3 (140)	11533	11535	20150723120910.879	20150723120911.313
PX3 (140)	11537	11541	20150723120911.747	20150723120912.610
PX3 (140)	11542	11545	20150723120912.825	20150723120913.473
PX3 (140)	11546	11549	20150723120913.692	20150723120915.852
PX3 (140)	11549	11551	20150723120915.852	20150723120916.286
PX3 (140)	11552	11556	20150723120916.501	20150723120917.368
PX3 (140)	11556	11558	20150723120917.368	20150723120917.797
PX3 (140)	11558	11563	20150723120917.797	20150723120918.879
PX3 (140)	11565	11567	20150723120919.313	20150723120919.747
PX3 (140)	11567	11571	20150723120919.747	20150723120920.610
PX3 (140)	11571	11573	20150723120920.610	20150723120921.044
PX3 (140)	11575	11579	20150723120921.473	20150723120923.852
PX3 (140)	11579	11581	20150723120923.852	20150723120924.286
PX3 (140)	11581	11584	20150723120924.286	20150723120924.934
PX4 (145)	11447	11449	20150723120847.747	20150723120848.180
PX4 (145)	11449	11451	20150723120848.180	20150723120848.610
PX4 (145)	11458	11461	20150723120851.637	20150723120852.286
PX4 (145)	11461	11463	20150723120852.286	20150723120852.719
PX4 (145)	11465	11467	20150723120853.149	20150723120853.583
PX4 (145)	11468	11470	20150723120853.801	20150723120854.231
PX4 (145)	11470	11473	20150723120854.231	20150723120854.879
PX4 (145)	11473	11475	20150723120854.879	20150723120855.313
PX4 (145)	11477	11479	20150723120855.747	20150723120856.176
PX4 (145)	11479	11481	20150723120856.176	20150723120856.610
PX4 (145)	11481	11486	20150723120856.610	20150723120857.692
PX4 (145)	11500	11502	20150723120902.231	20150723120902.665
PX4 (145)	11507	11509	20150723120903.747	20150723120904.176
PX4 (145)	11509	11511	20150723120904.176	20150723120904.610
PX4 (145)	11513	11515	20150723120905.044	20150723120905.477
PX4 (145)	11518	11520	20150723120907.637	20150723120908.071
PX4 (145)	11520	11524	20150723120908.071	20150723120908.934
PX4 (145)	11524	11526	20150723120908.934	20150723120909.368
PX4 (145)	11529	11531	20150723120910.016	20150723120910.446
PX4 (145)	11532	11535	20150723120910.665	20150723120911.313
PX4 (145)	11535	11537	20150723120911.313	20150723120911.747
PX4 (145)	11537	11541	20150723120911.747	20150723120912.610
PX4 (145)	11542	11544	20150723120912.825	20150723120913.258
PX4 (145)	11546	11551	20150723120913.692	20150723120916.286
PX4 (145)	11552	11554	20150723120916.501	20150723120916.934
PX4 (145)	11556	11558	20150723120917.368	20150723120917.797
PX4 (145)	11558	11571	20150723120917.797	20150723120920.610
PX4 (145)	11574	11577	20150723120921.258	20150723120921.907
PX4 (145)	11579	11581	20150723120923.852	20150723120924.286
PX4 (145)	11581	11584	20150723120924.286	20150723120924.934
IMG (150)	14059	14061	20150723120846.880	20150723120847.313
IMG (150)	14063	14067	20150723120847.747	20150723120848.610
IMG (150)	14067	14069	20150723120848.610	20150723120849.044
IMG (150)	14069	14071	20150723120849.044	20150723120849.477
IMG (150)	14077	14081	20150723120851.204	20150723120852.286
IMG (150)	14081	14083	20150723120852.286	20150723120852.719
IMG (150)	14085	14087	20150723120853.149	20150723120853.583
IMG (150)	14087	14090	20150723120853.583	20150723120854.231

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	14091	14095	20150723120854.450	20150723120855.313
IMG (150)	14097	14101	20150723120855.747	20150723120856.610
IMG (150)	14101	14105	20150723120856.610	20150723120857.473
IMG (150)	14124	14126	20150723120902.231	20150723120902.665
IMG (150)	14130	14133	20150723120903.528	20150723120904.176
IMG (150)	14137	14139	20150723120905.044	20150723120905.477
IMG (150)	14149	14155	20150723120908.286	20150723120909.583
IMG (150)	14156	14160	20150723120909.801	20150723120910.665
IMG (150)	14160	14163	20150723120910.665	20150723120911.313
IMG (150)	14163	14169	20150723120911.313	20150723120912.610
IMG (150)	14169	14172	20150723120912.610	20150723120913.258
IMG (150)	14173	14182	20150723120913.473	20150723120916.071
IMG (150)	14183	14186	20150723120916.286	20150723120916.934
IMG (150)	14187	14190	20150723120917.149	20150723120917.797
IMG (150)	14190	14192	20150723120917.797	20150723120918.231
IMG (150)	14192	14204	20150723120918.231	20150723120920.825
IMG (150)	14205	14215	20150723120921.044	20150723120923.852
IMG (150)	14215	14217	20150723120923.852	20150723120924.286
IMG (150)	14217	14220	20150723120924.286	20150723120924.934
VER (160)	15559	15561	20150723120849.907	20150723120849.907
VER (160)	15567	15571	20150723120857.907	20150723120905.907
VER (160)	15572	15583	20150723120905.907	20150723120929.907
AUX (180)	12944	12947	20150723120906.340	20150723120930.340

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
23/07/2015 00:00:07	-	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)	99.50 %	-
GQisFlagQual set (PX2)	99.61 %	-
GQisFlagQual set (PX3)	99.64 %	-
GQisFlagQual set (PX4)	99.54 %	-
GQisFlagQual set (all)	99.57 %	-

Table 4: Quality flags

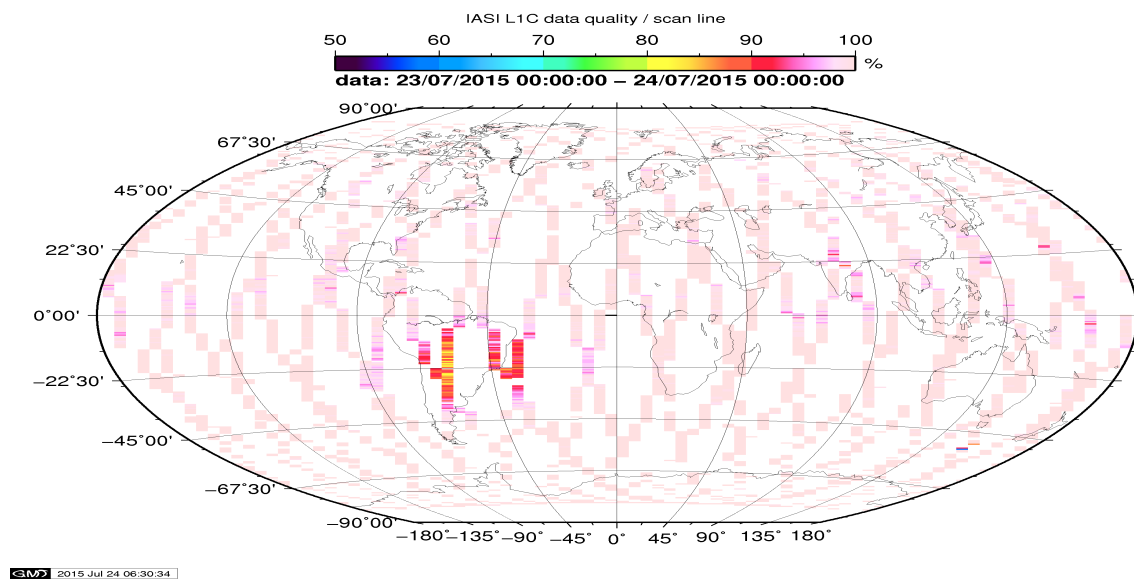


Figure 1: L1C data quality

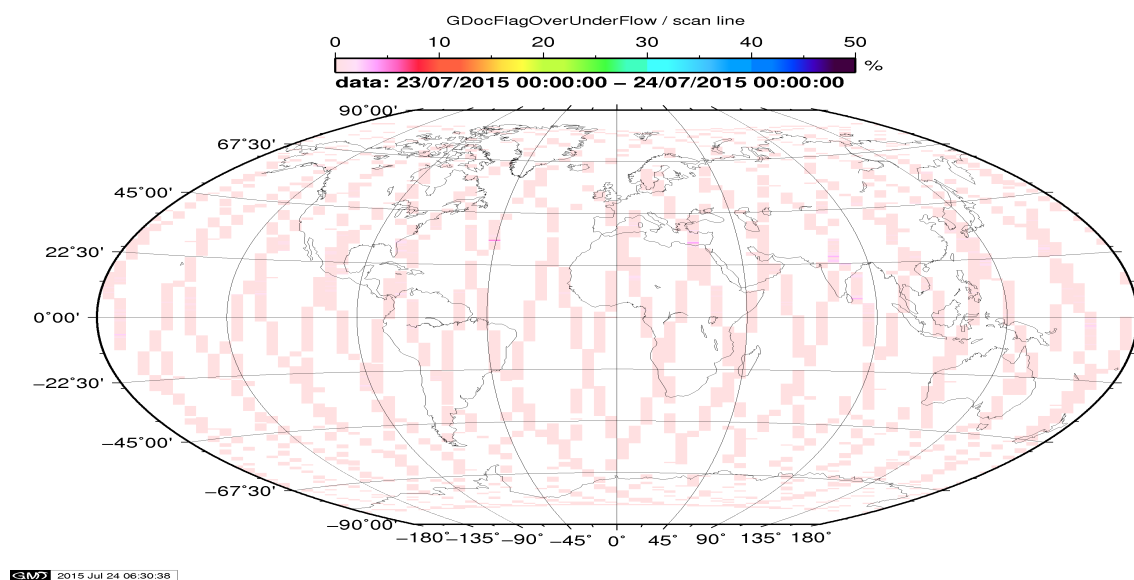


Figure 2: Flag of Over and Under Flows

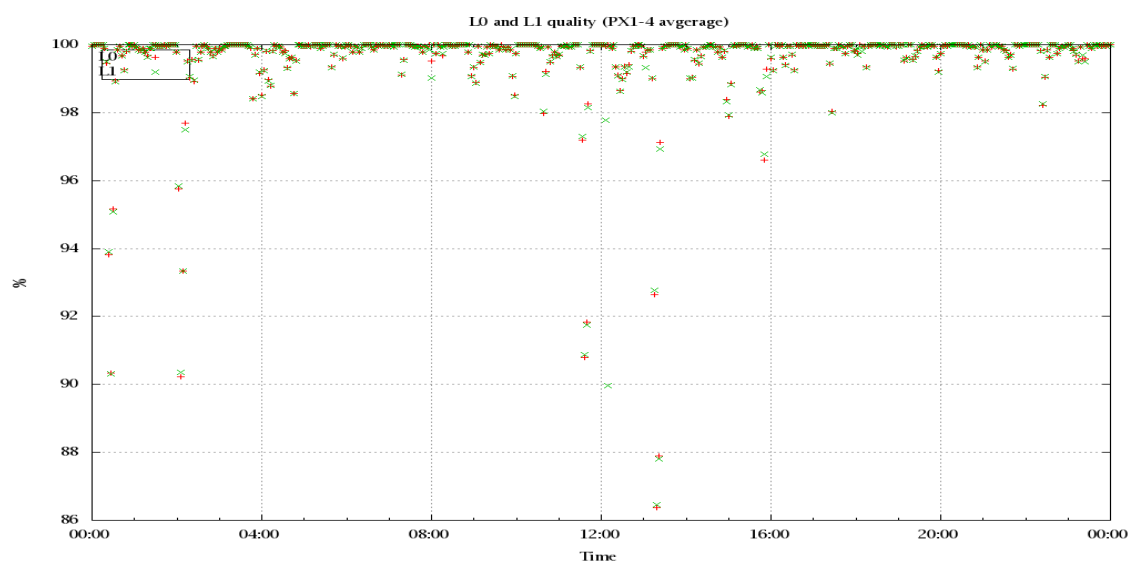


Figure 3: Level 0 and 1C overall quality

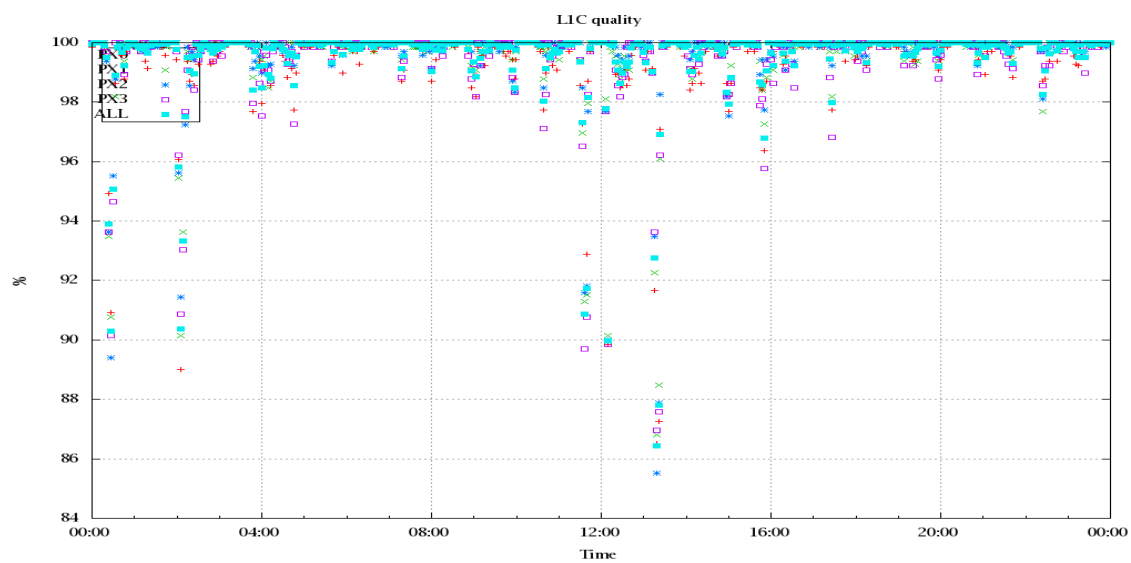


Figure 4: Level 1C quality

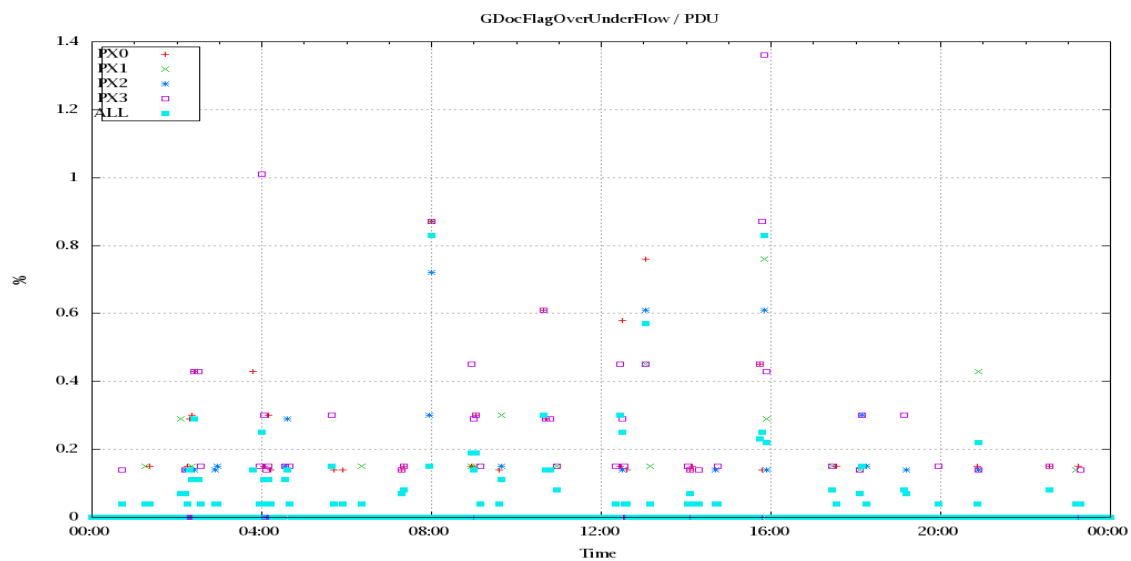


Figure 5: OverUnderFlowFlag timeseries

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.

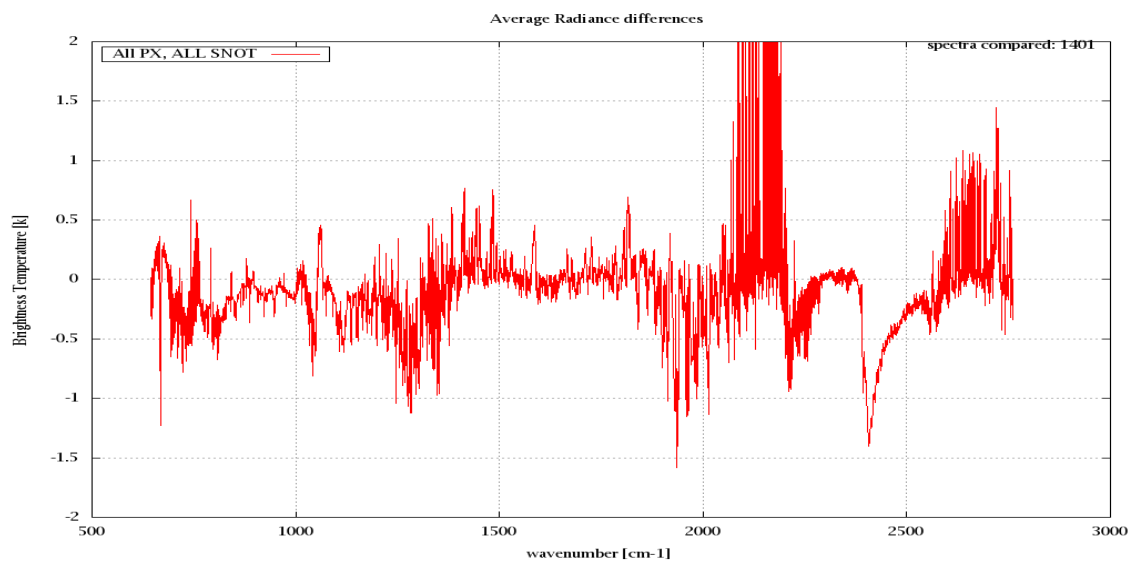


Figure 6: Average Radiance differences: OBS-CAL

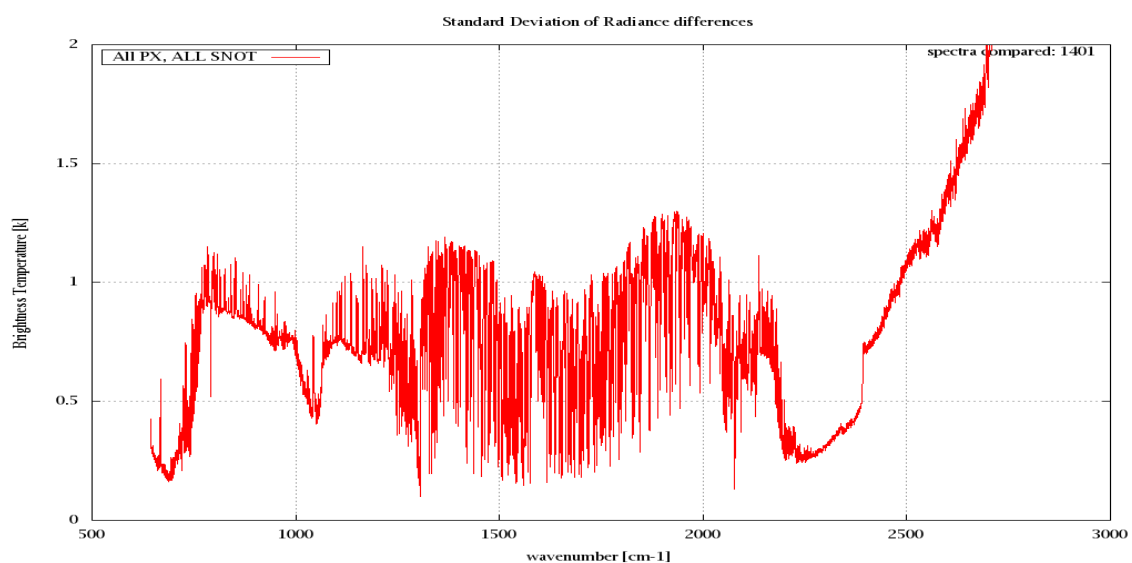


Figure 7: Standard Deviation of Radiance differences

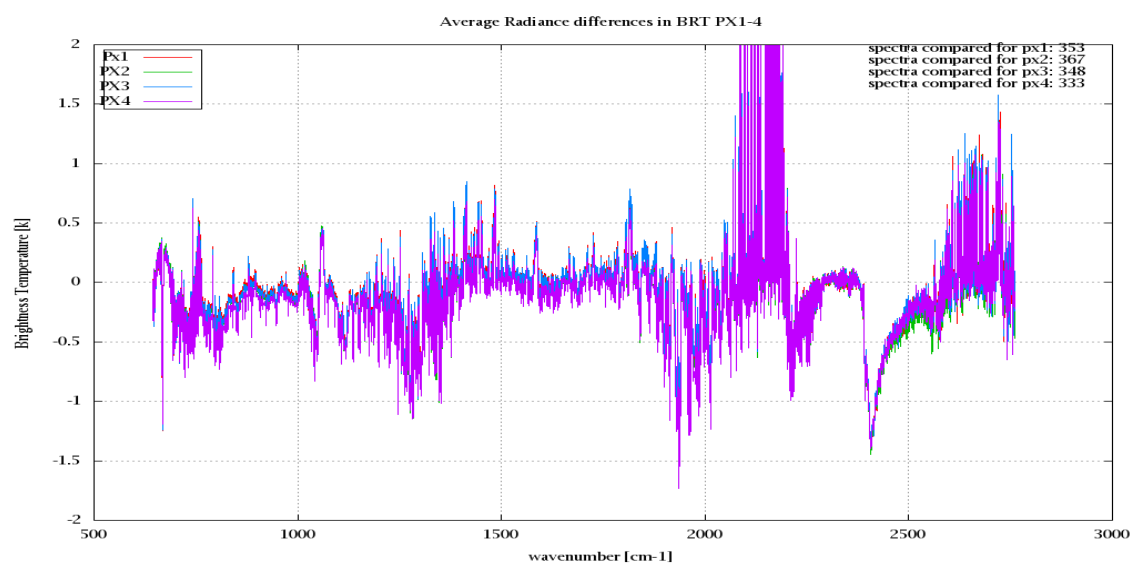


Figure 8: Average Radiance differences: OBS-CAL

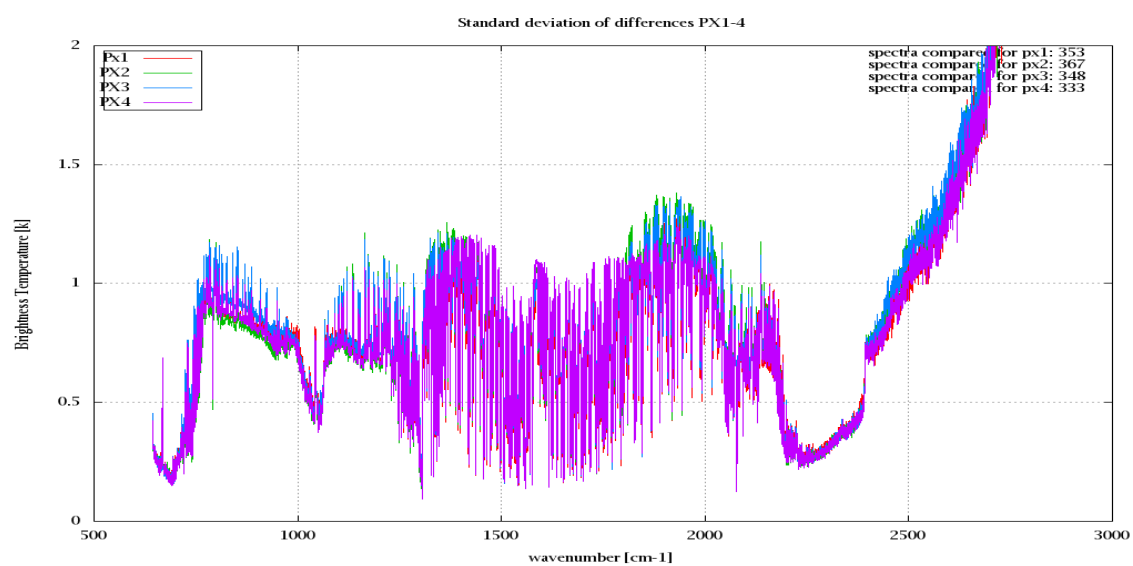


Figure 9: Standard Deviation of Radiance differences

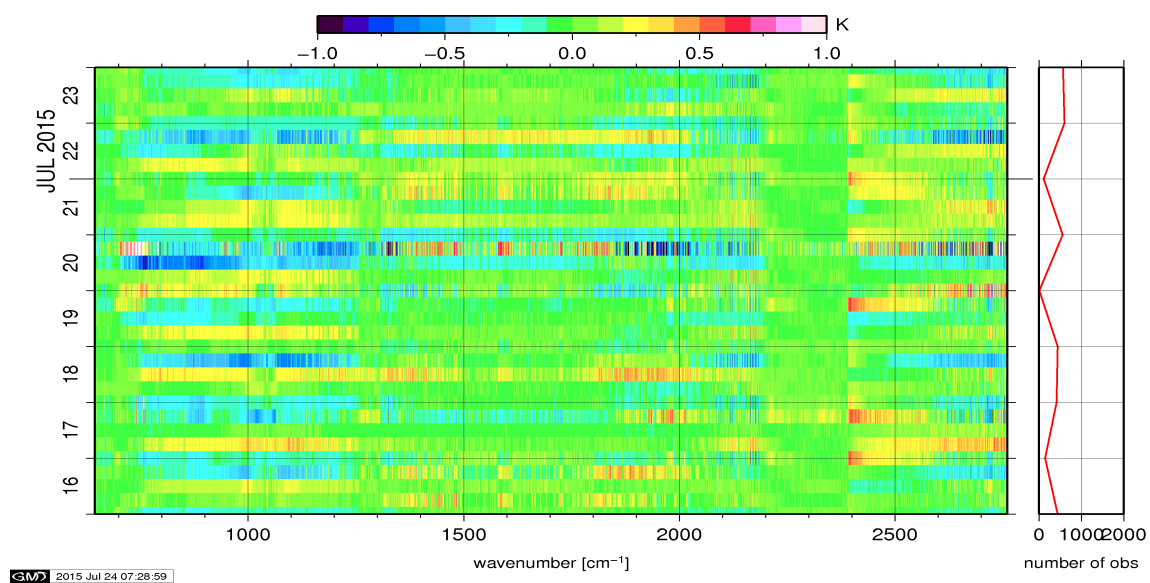


Figure 10: Radiance Anomaly in BRT: All Channels

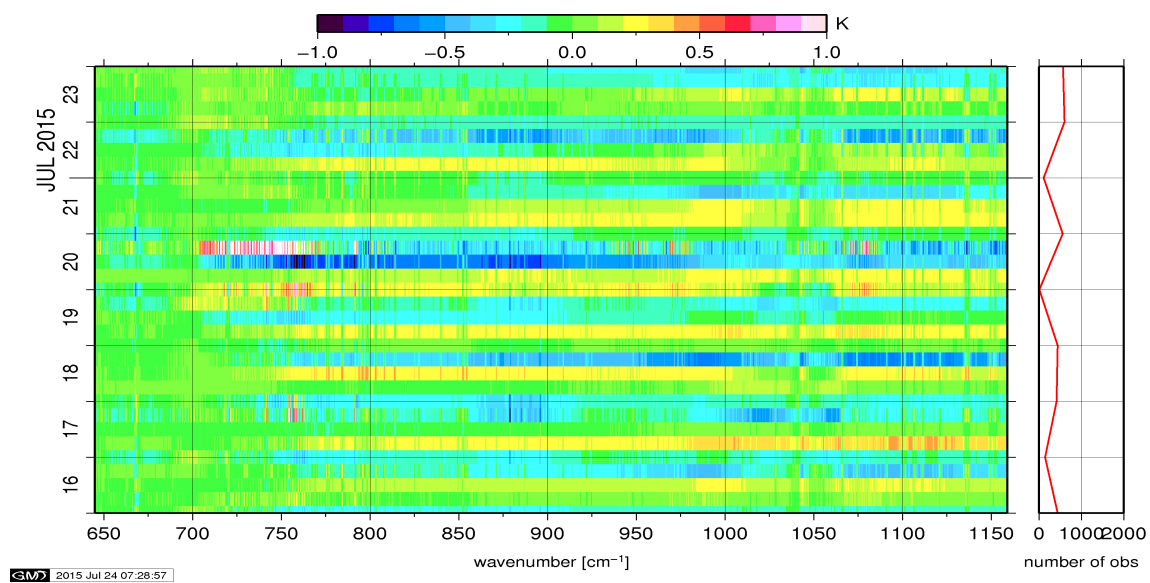


Figure 11: Radiance Anomaly in BRT: IASI Band 1

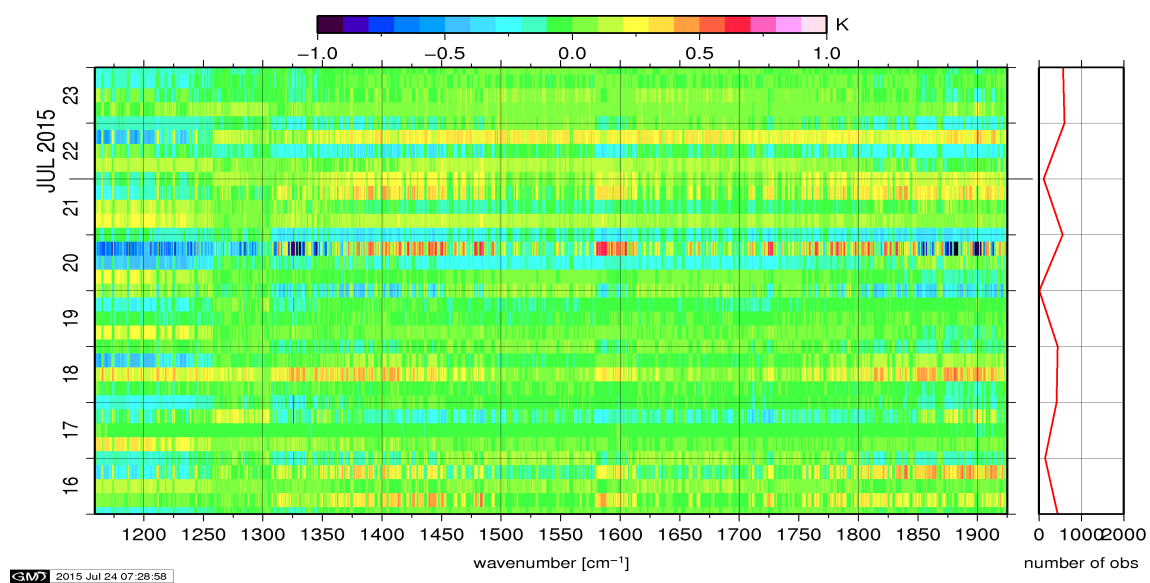


Figure 12: Radiance Anomaly in BRT: IASI Band 2

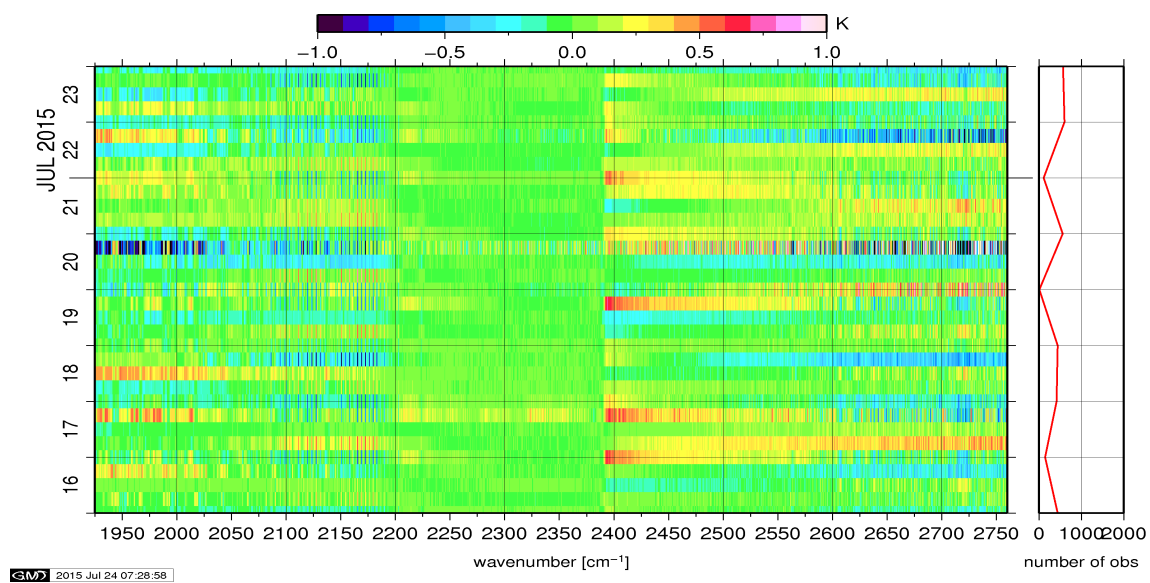


Figure 13: Radiance Anomaly in BRT: IASI Band 3

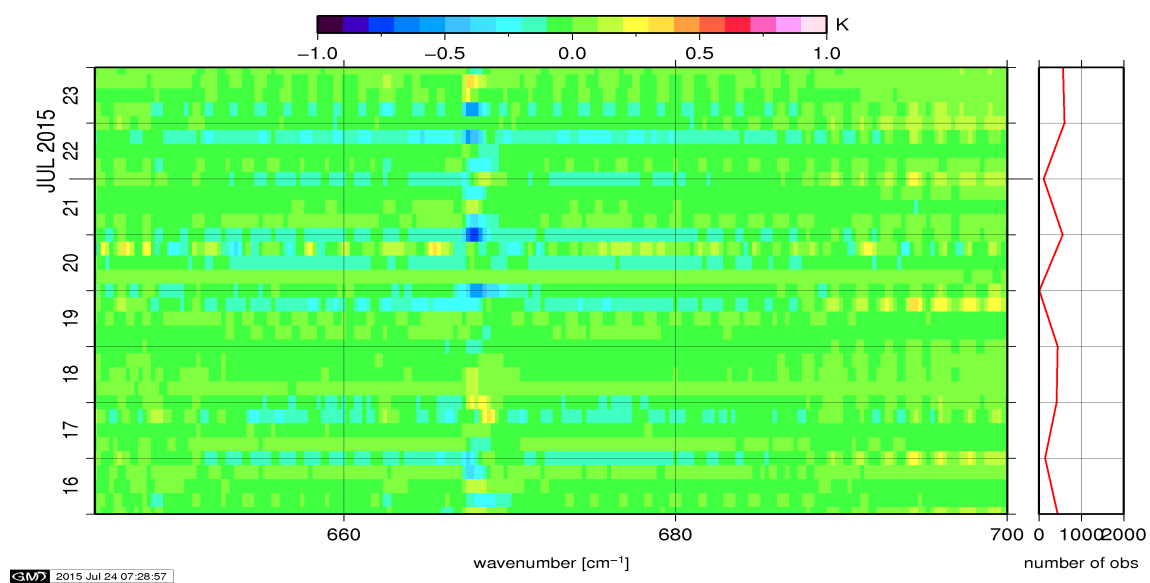


Figure 14: Radiance Anomaly in BRT: CO2 14

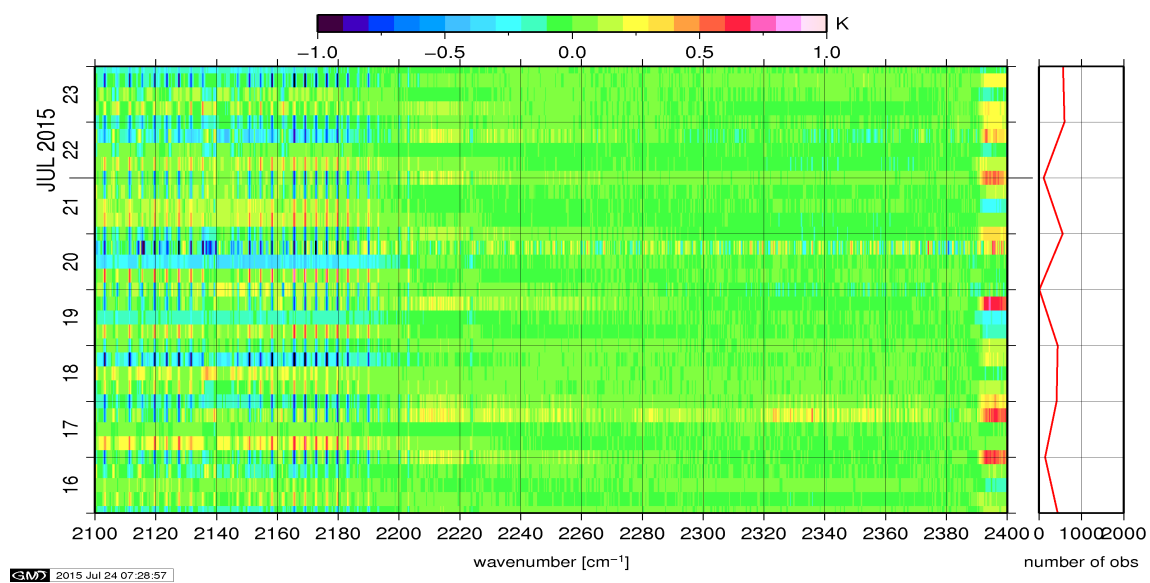


Figure 15: Radiance Anomaly in BRT: CO2 4.3

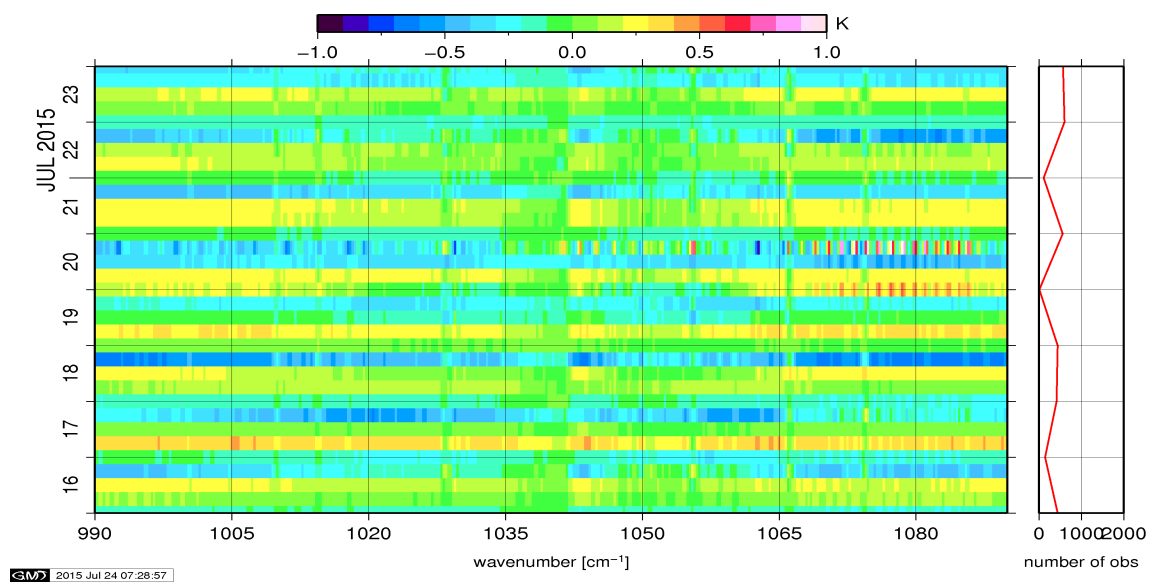


Figure 16: Radiance Anomaly in BRT: O3

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.

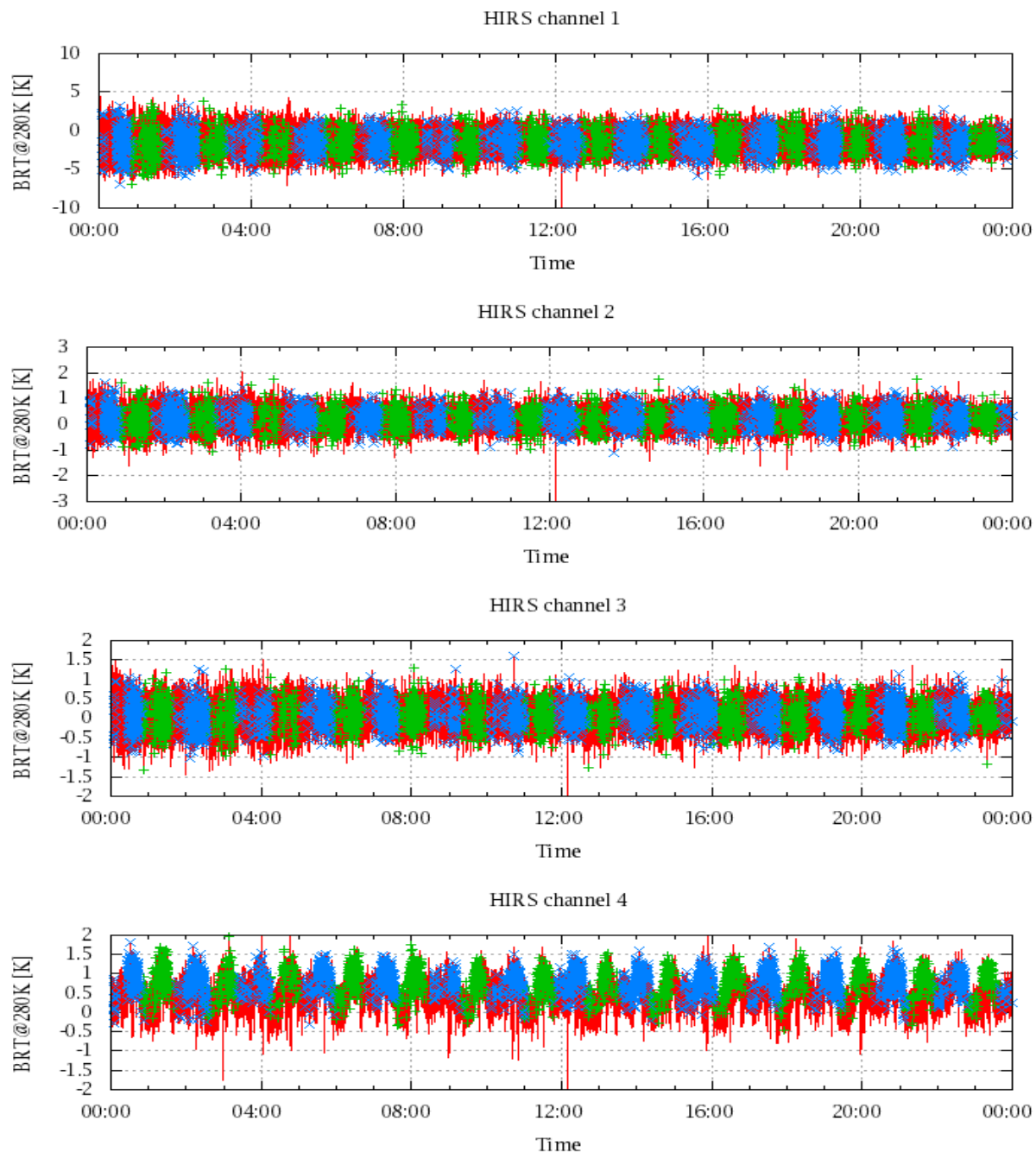


Figure 17: Radiance Differences in BRT

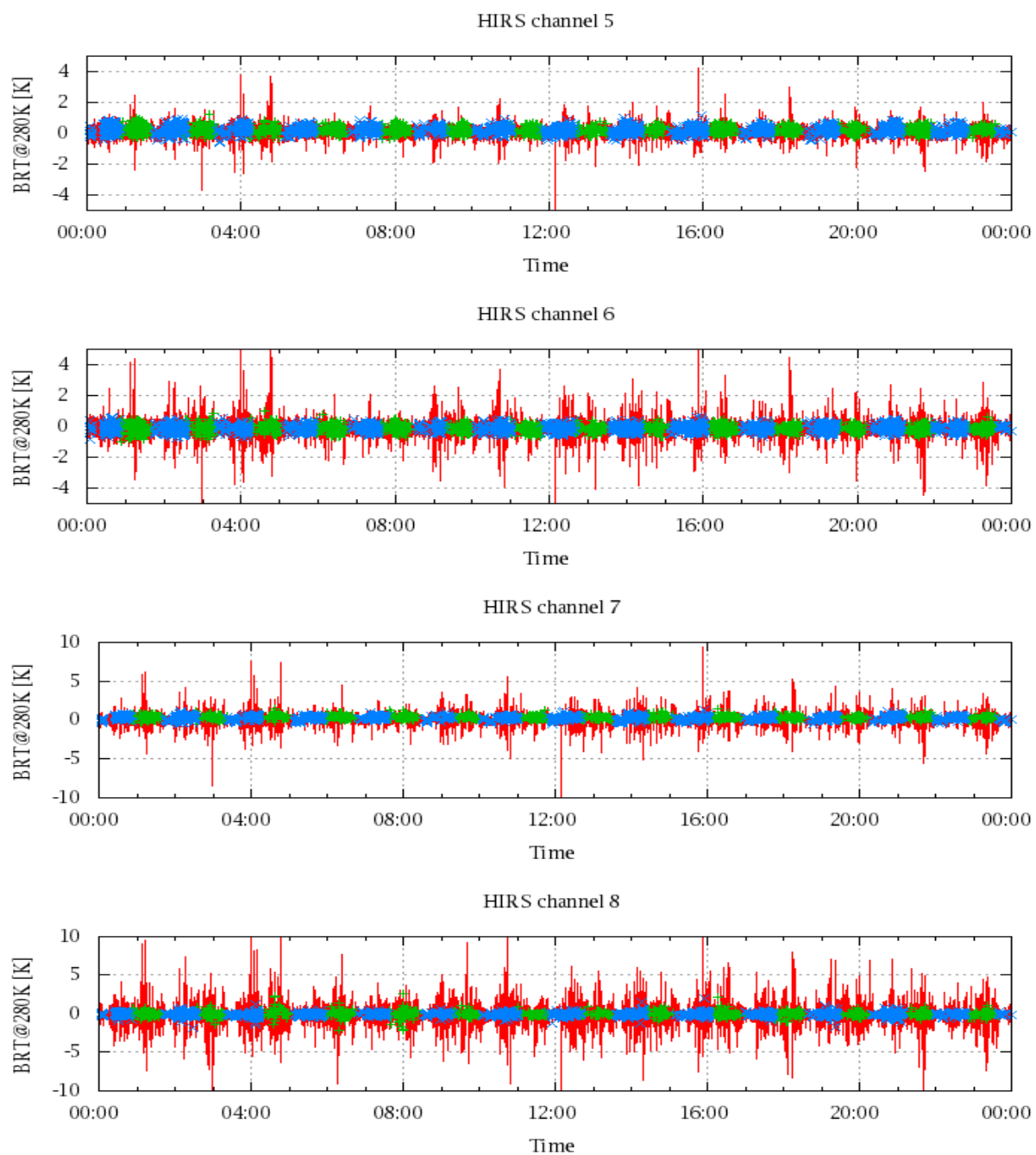


Figure 18: Radiance Differences in BRT

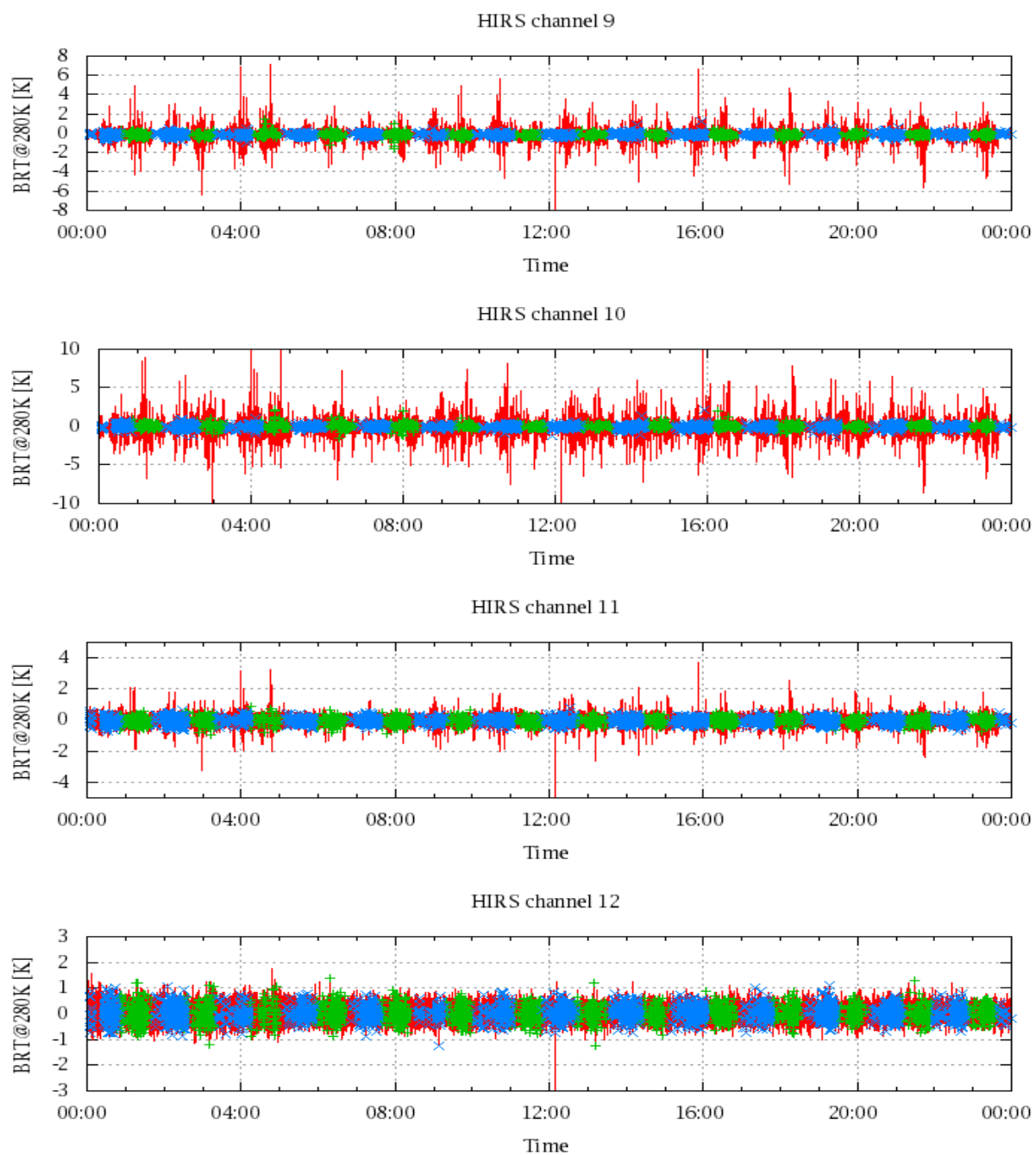


Figure 19: Radiance Differences in BRT

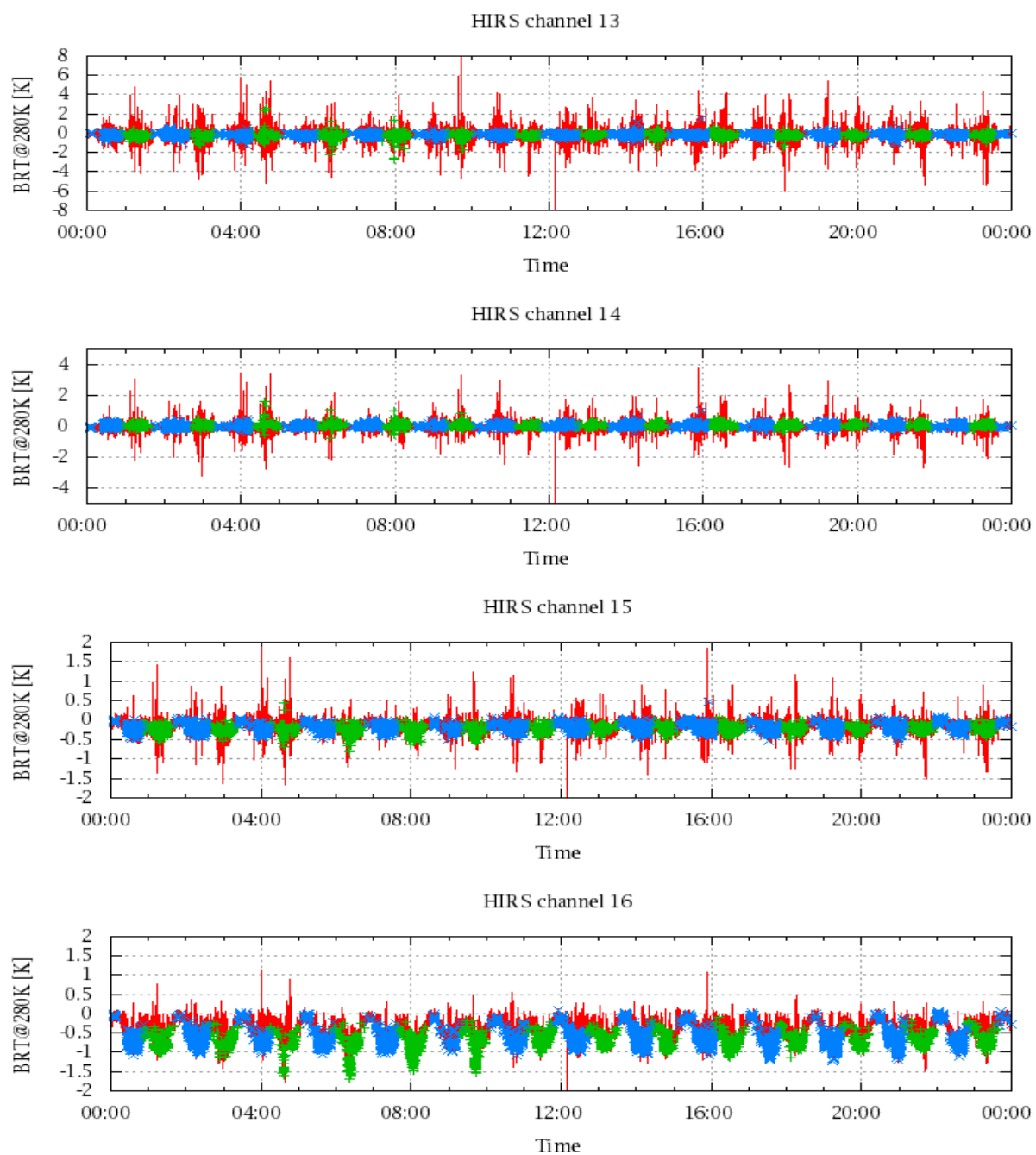


Figure 20: Radiance Differences in BRT

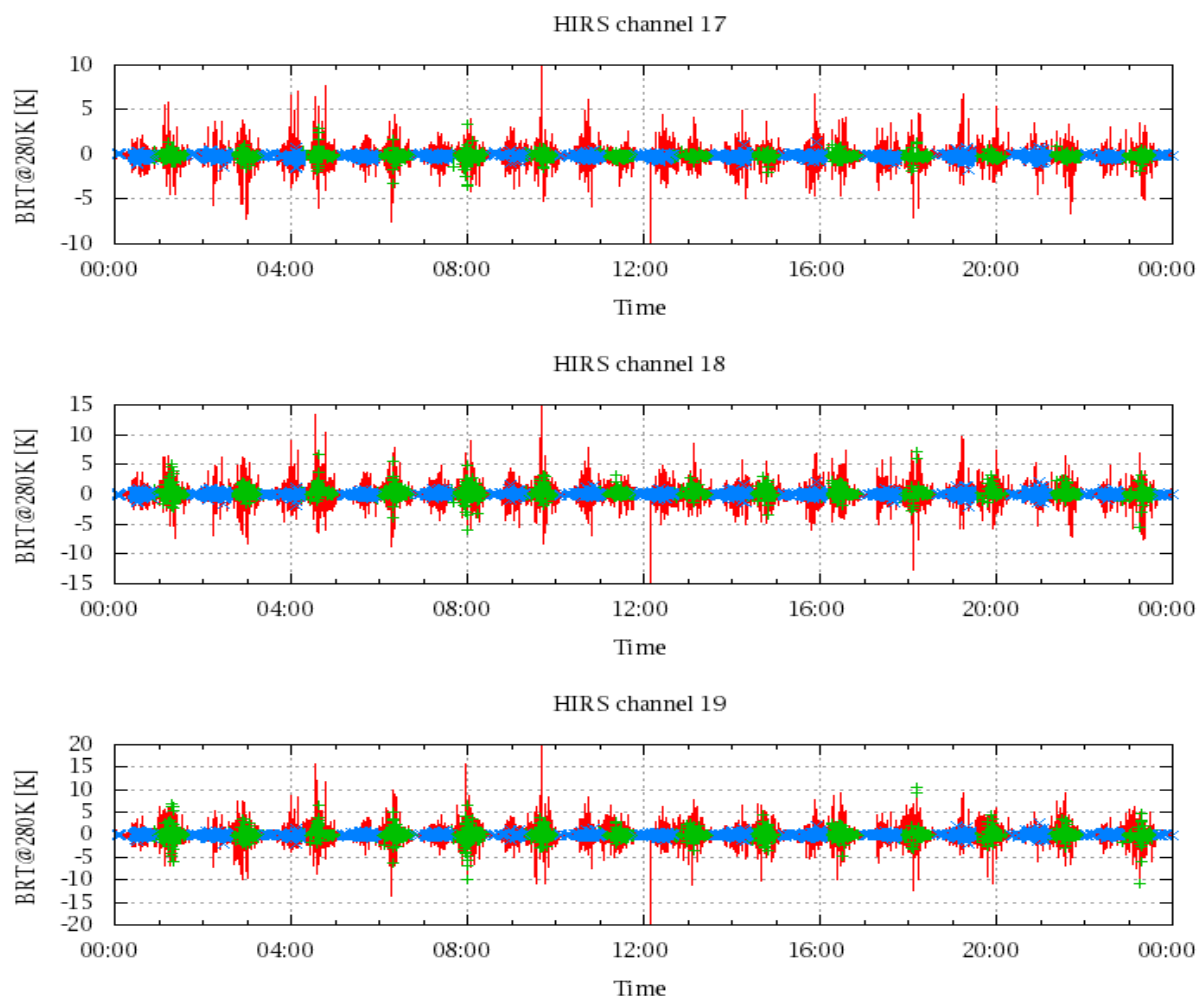


Figure 21: Radinace Differences in BRT