

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

22/02/2011 00:00:00 - 23/02/2011 00:00:00

1 Introduction

This report provides summary monitoring plots and figures from IASI instrument on the MetOp-A satellite retrieved from the IASI L0 and L1 ENG product (3 minute data packet) for 22/02/2011 00:00:00 - 23/02/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 22/02/2011 00:00:00 - 23/02/2011 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)	1358	1449	20110222140939.507	20110222141003.722
PX1 (130)	1450	1452	20110222141003.937	20110222141004.370
PX1 (130)	1454	1456	20110222141004.800	20110222141005.233
PX1 (130)	1459	1461	20110222141005.882	20110222141006.315
PX1 (130)	1465	1467	20110222141007.179	20110222141007.612
PX1 (130)	1481	1484	20110222141012.151	20110222141012.800
PX1 (130)	1487	1489	20110222141013.448	20110222141013.882
PX1 (130)	1491	1493	20110222141014.315	20110222141014.745
PX1 (130)	1499	1501	20110222141016.042	20110222141017.991
PX1 (130)	1506	1508	20110222141019.069	20110222141019.503
PX1 (130)	1551	1553	20110222141030.315	20110222141030.745
PX1 (130)	1557	1559	20110222141031.612	20110222141032.042
PX1 (130)	1563	1565	20110222141034.421	20110222141034.854
PX1 (130)	1623	1625	20110222141050.421	20110222141050.854
PX1 (130)	1679	1681	20110222141104.042	20110222141105.991
PX1 (130)	1681	1683	20110222141105.991	20110222141106.421
PX2 (135)	1358	1448	20110222140939.507	20110222141003.503
PX2 (135)	1448	1450	20110222141003.503	20110222141003.937

Continued on next page

Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	1454	1456	20110222141004.800	20110222141005.233
PX2 (135)	1457	1459	20110222141005.452	20110222141005.882
PX2 (135)	1459	1461	20110222141005.882	20110222141006.315
PX2 (135)	1461	1463	20110222141006.315	20110222141006.749
PX2 (135)	1465	1467	20110222141007.179	20110222141007.612
PX2 (135)	1480	1484	20110222141011.937	20110222141012.800
PX2 (135)	1491	1493	20110222141014.315	20110222141014.745
PX2 (135)	1506	1508	20110222141019.069	20110222141019.503
PX2 (135)	1532	1534	20110222141026.206	20110222141026.640
PX2 (135)	1561	1564	20110222141033.991	20110222141034.640
PX2 (135)	1565	1567	20110222141034.854	20110222141035.288
PX2 (135)	1613	1615	20110222141046.745	20110222141047.179
PX2 (135)	1621	1623	20110222141049.991	20110222141050.421
PX2 (135)	1648	1650	20110222141055.827	20110222141057.772
PX2 (135)	1681	1683	20110222141105.991	20110222141106.421
PX3 (140)	1358	1448	20110222140939.507	20110222141003.503
PX3 (140)	1448	1450	20110222141003.503	20110222141003.937
PX3 (140)	1451	1454	20110222141004.155	20110222141004.800
PX3 (140)	1457	1459	20110222141005.452	20110222141005.882
PX3 (140)	1459	1461	20110222141005.882	20110222141006.315
PX3 (140)	1461	1463	20110222141006.315	20110222141006.749
PX3 (140)	1463	1465	20110222141006.749	20110222141007.179
PX3 (140)	1465	1467	20110222141007.179	20110222141007.612
PX3 (140)	1468	1470	20110222141007.827	20110222141009.776
PX3 (140)	1480	1483	20110222141011.937	20110222141012.585
PX3 (140)	1491	1493	20110222141014.315	20110222141014.745
PX3 (140)	1505	1507	20110222141018.855	20110222141019.288
PX3 (140)	1511	1513	20110222141020.151	20110222141020.585
PX3 (140)	1513	1515	20110222141020.585	20110222141021.019
PX3 (140)	1532	1534	20110222141026.206	20110222141026.640
PX3 (140)	1560	1562	20110222141033.772	20110222141034.206
PX3 (140)	1633	1635	20110222141052.585	20110222141053.018
PX3 (140)	1648	1650	20110222141055.827	20110222141057.772
PX4 (145)	1357	1450	20110222140939.288	20110222141003.937
PX4 (145)	1450	1454	20110222141003.937	20110222141004.800
PX4 (145)	1454	1456	20110222141004.800	20110222141005.233
PX4 (145)	1457	1459	20110222141005.452	20110222141005.882
PX4 (145)	1461	1463	20110222141006.315	20110222141006.749
PX4 (145)	1463	1465	20110222141006.749	20110222141007.179
PX4 (145)	1468	1470	20110222141007.827	20110222141009.776
PX4 (145)	1471	1473	20110222141009.991	20110222141010.421
PX4 (145)	1475	1477	20110222141010.855	20110222141011.288
PX4 (145)	1480	1482	20110222141011.937	20110222141012.370
PX4 (145)	1503	1505	20110222141018.425	20110222141018.855
PX4 (145)	1506	1508	20110222141019.069	20110222141019.503
PX4 (145)	1512	1514	20110222141020.366	20110222141020.800
PX4 (145)	1558	1561	20110222141031.827	20110222141033.991
PX4 (145)	1563	1565	20110222141034.421	20110222141034.854
PX4 (145)	1680	1682	20110222141105.772	20110222141106.206
IMG (150)	1533	1638	20110222140939.288	20110222141003.937
IMG (150)	1639	1644	20110222141004.155	20110222141005.233
IMG (150)	1651	1653	20110222141006.749	20110222141007.179
IMG (150)	1656	1658	20110222141007.827	20110222141008.480

Continued on next page

Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	1673	1675	20110222141012.151	20110222141012.585
IMG (150)	1678	1680	20110222141013.233	20110222141013.667
IMG (150)	1691	1694	20110222141016.042	20110222141017.124
IMG (150)	1767	1769	20110222141034.421	20110222141034.854
IMG (150)	1895	1897	20110222141104.042	20110222141104.690
IMG (150)	1898	1900	20110222141105.124	20110222141105.772
IMG (150)	1900	1902	20110222141105.772	20110222141106.206
VER (160)	8413	8430	20110222140936.046	20110222141008.046
VER (160)	8430	8432	20110222141008.046	20110222141008.046
VER (160)	8432	8436	20110222141008.046	20110222141016.042
VER (160)	8436	8438	20110222141016.042	20110222141016.042
VER (160)	8445	8448	20110222141032.042	20110222141032.042
VER (160)	8463	8467	20110222141056.042	20110222141104.042
AUX (180)	8235	8240	20110222140936.480	20110222141016.476

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
22/02/2011 00:00:11	-	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)	99.23 %	-
GQisFlagQual set (PX2)	99.12 %	-
GQisFlagQual set (PX3)	99.21 %	-
GQisFlagQual set (PX4)	99.33 %	-
GQisFlagQual set (all)	99.22 %	-

Table 4: Quality flags

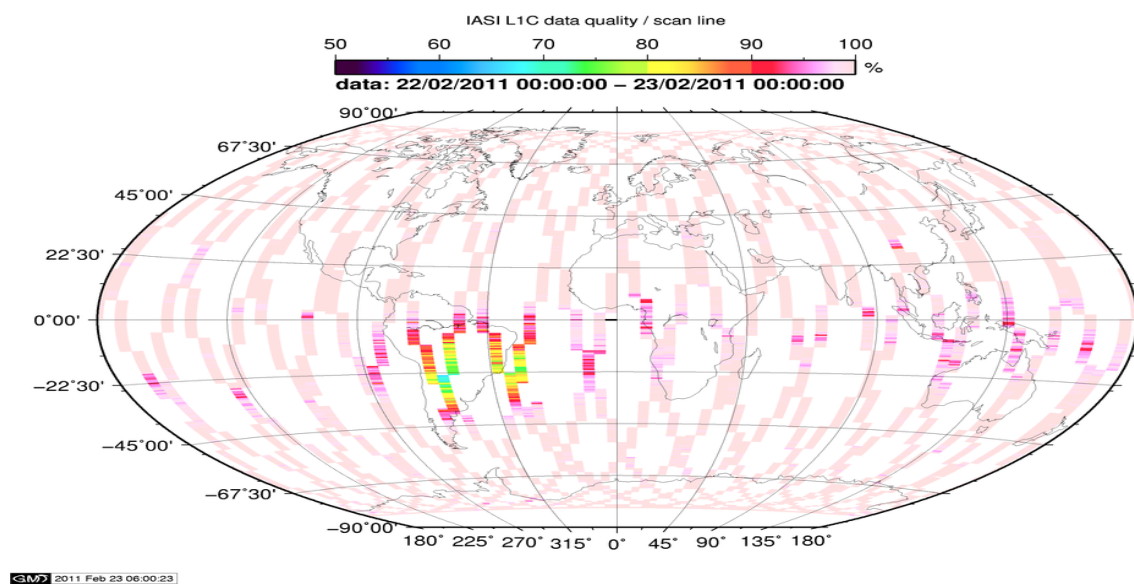


Figure 1: L1C data quality

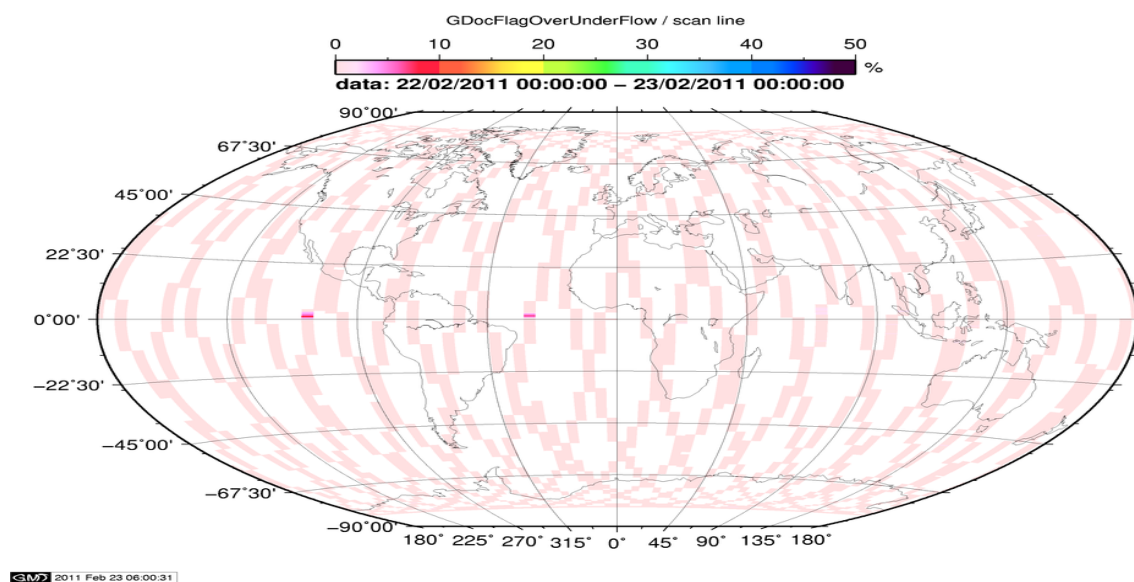


Figure 2: Flag of Over and Under Flows

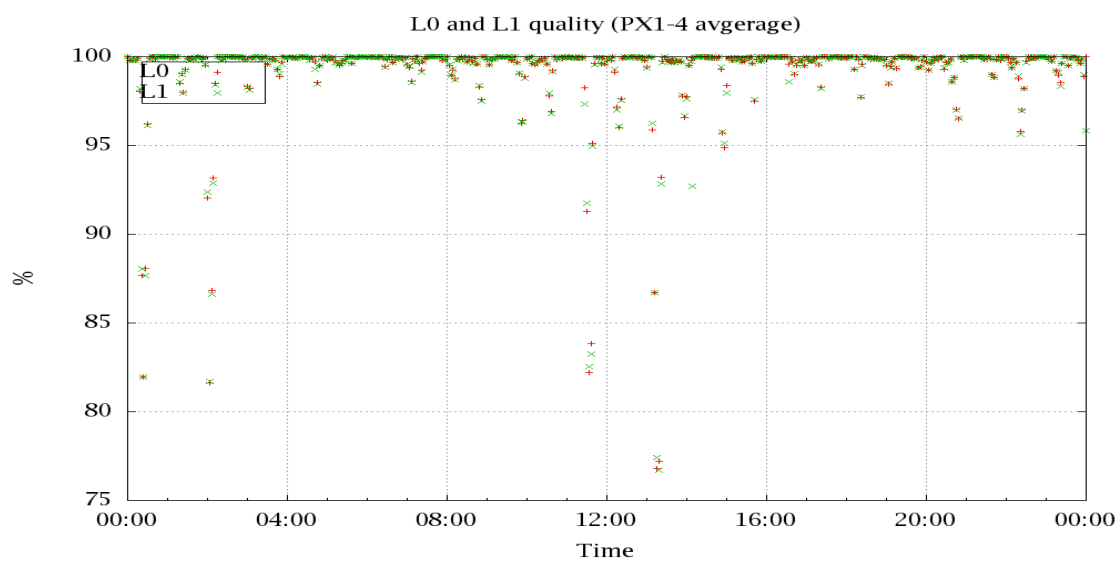


Figure 3: Level 0 and 1C overall quality

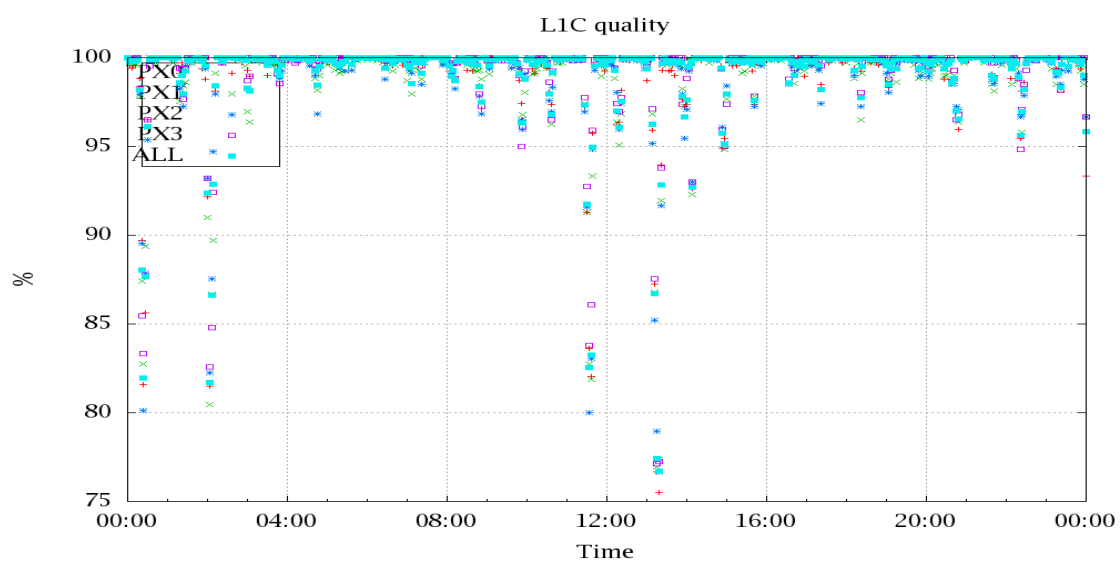


Figure 4: Level 1C quality

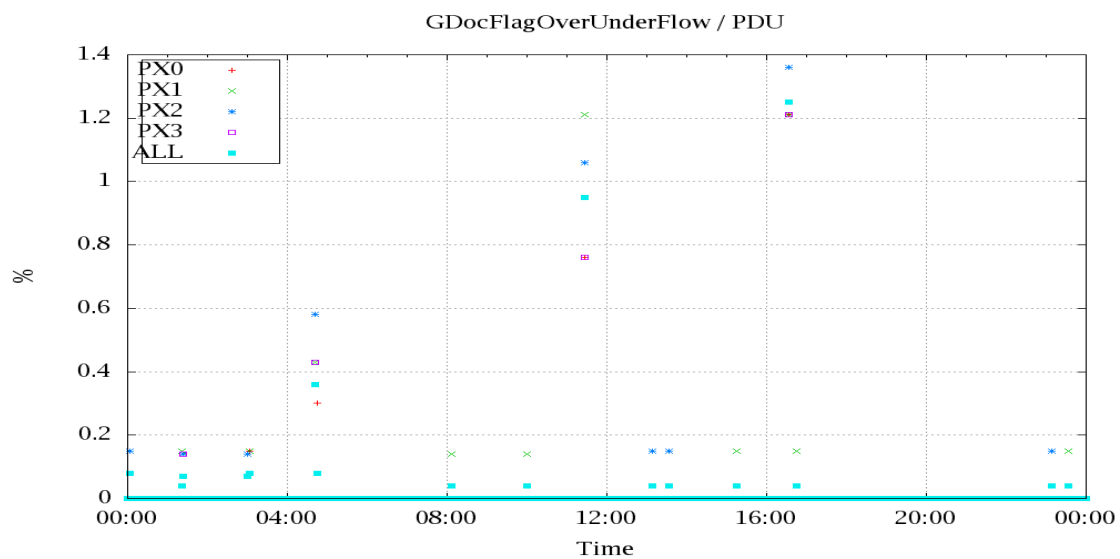


Figure 5: OverUnderFlowFlag timeseries

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.

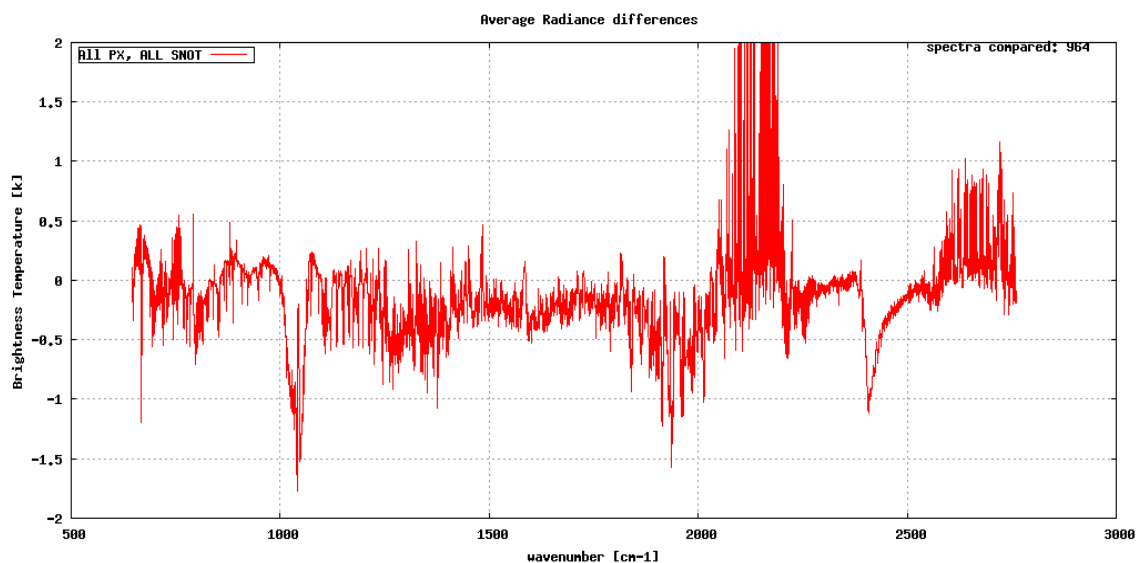


Figure 6: Average Radiance differences: OBS-CAL

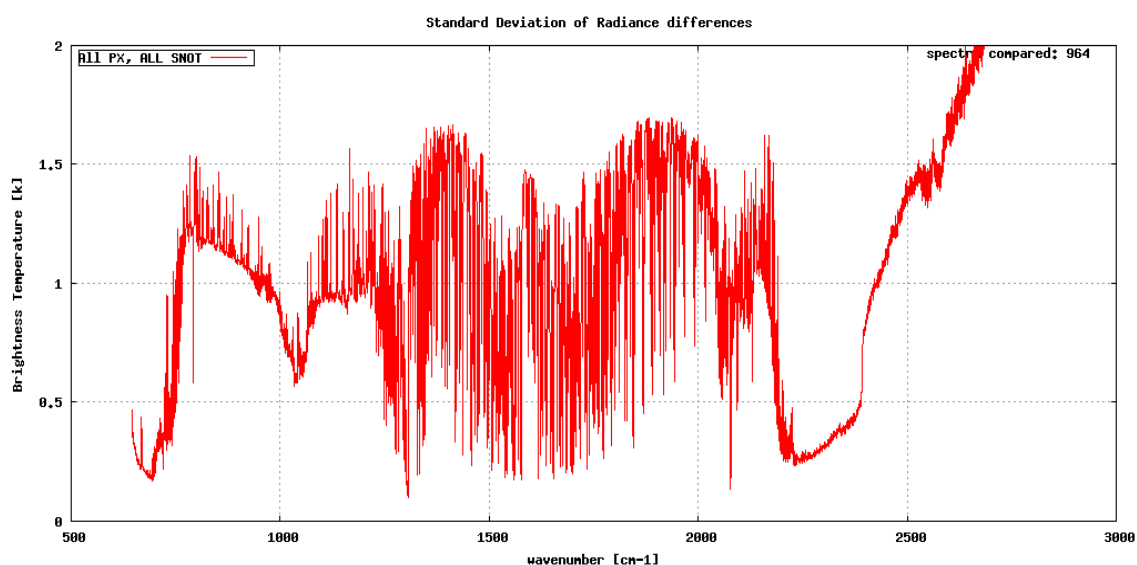


Figure 7: Standard Deviation of Radiance differences

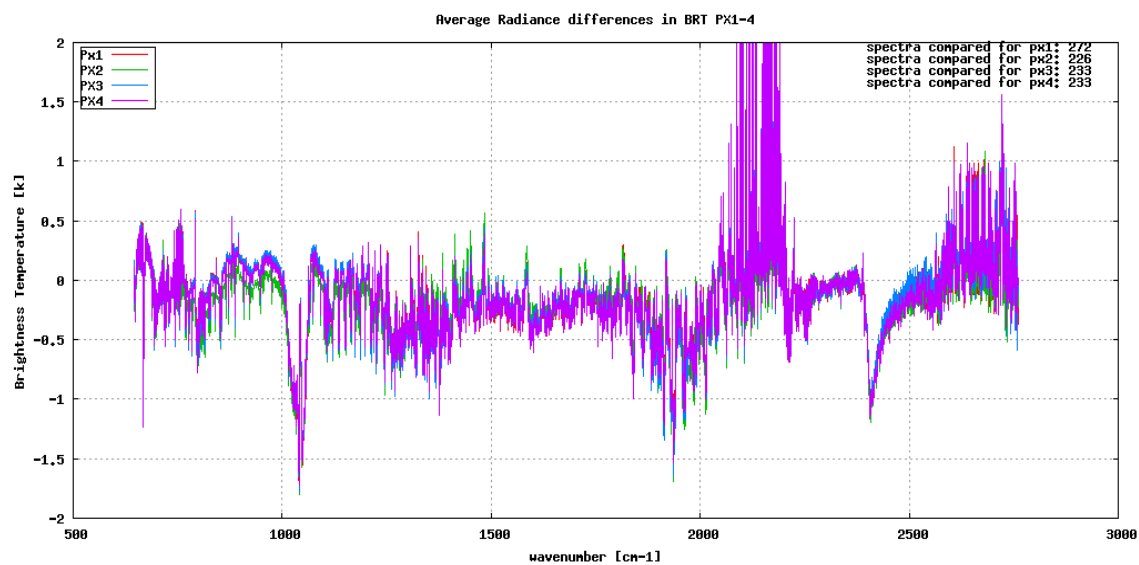


Figure 8: Average Radiance differences: OBS-CAL

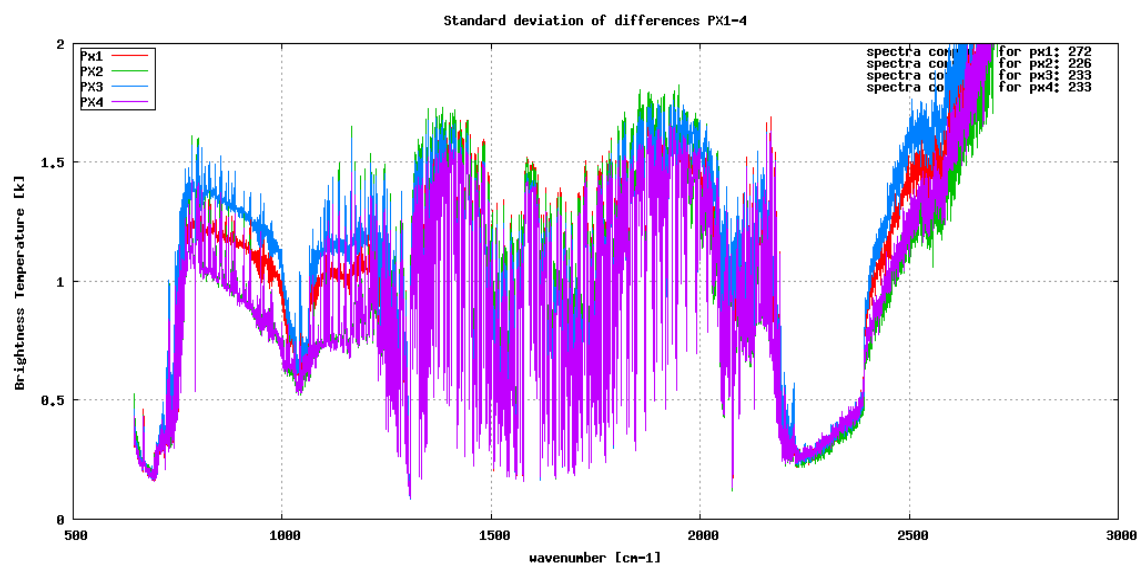


Figure 9: Standard Deviation of Radiance differences

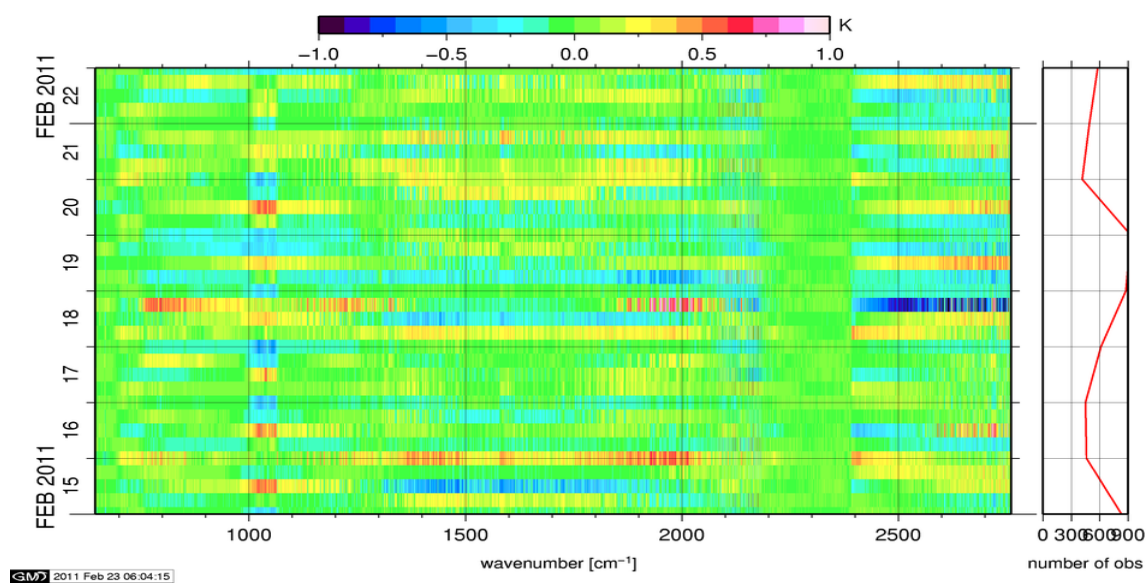


Figure 10: Radiance Anomaly in BRT: All Channels

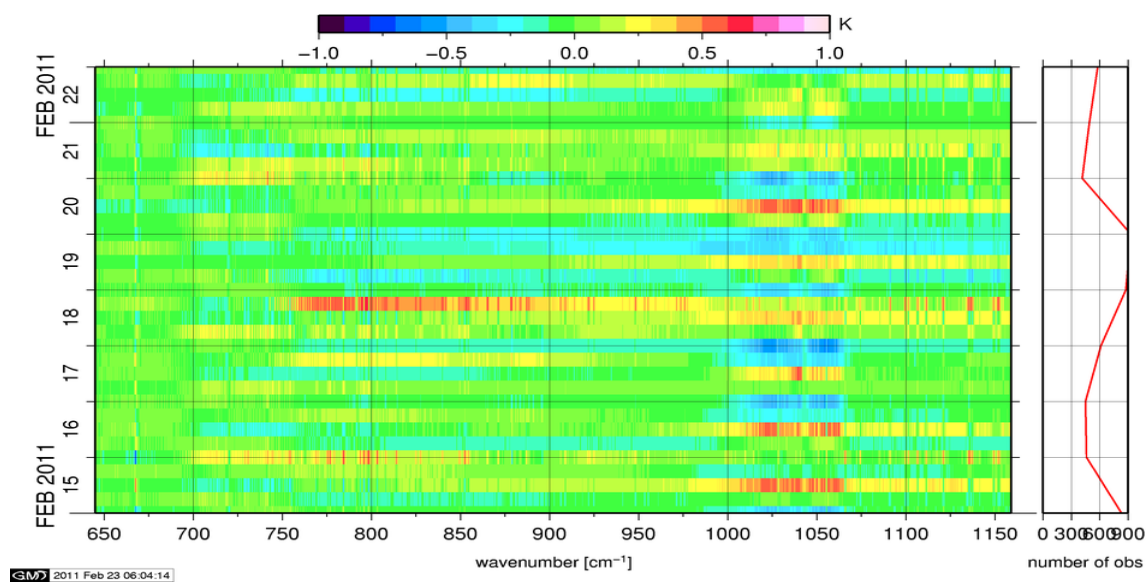


Figure 11: Radiance Anomaly in BRT: IASI Band 1

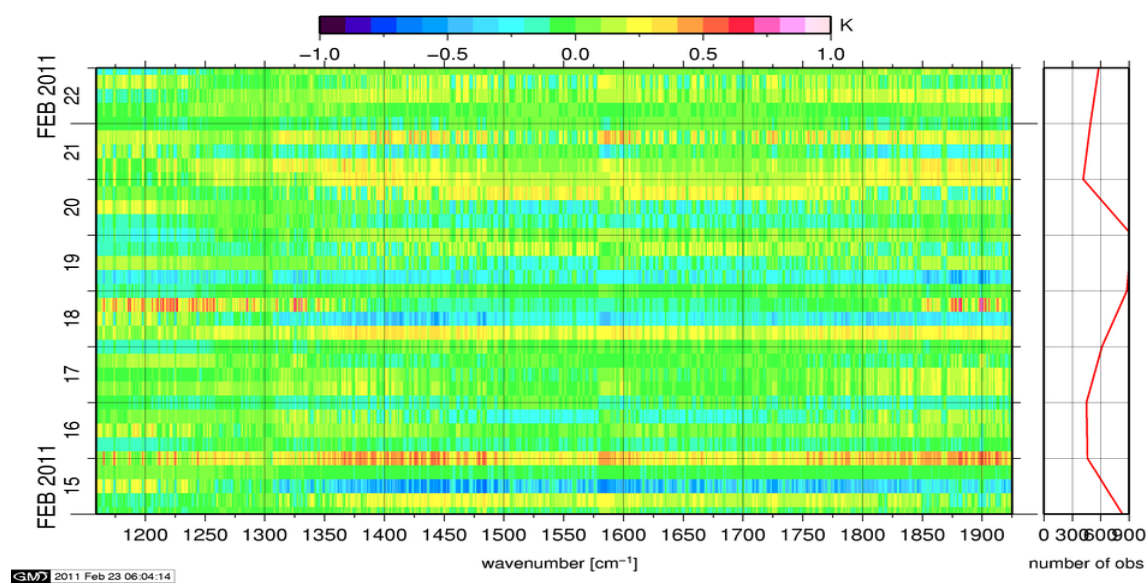


Figure 12: Radiance Anomaly in BRT: IASI Band 2

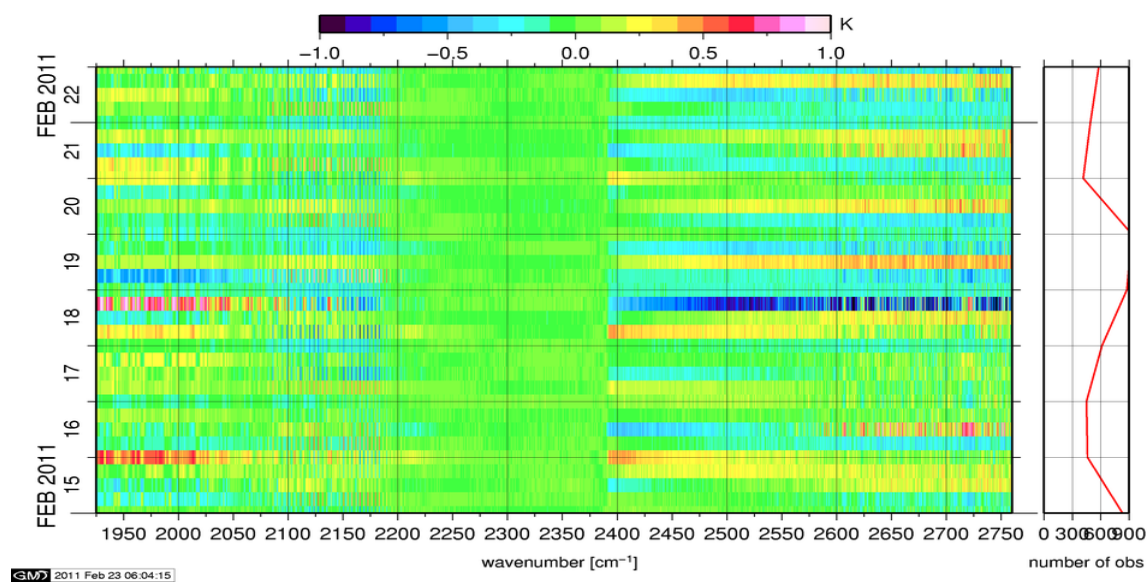


Figure 13: Radiance Anomaly in BRT: IASI Band 3

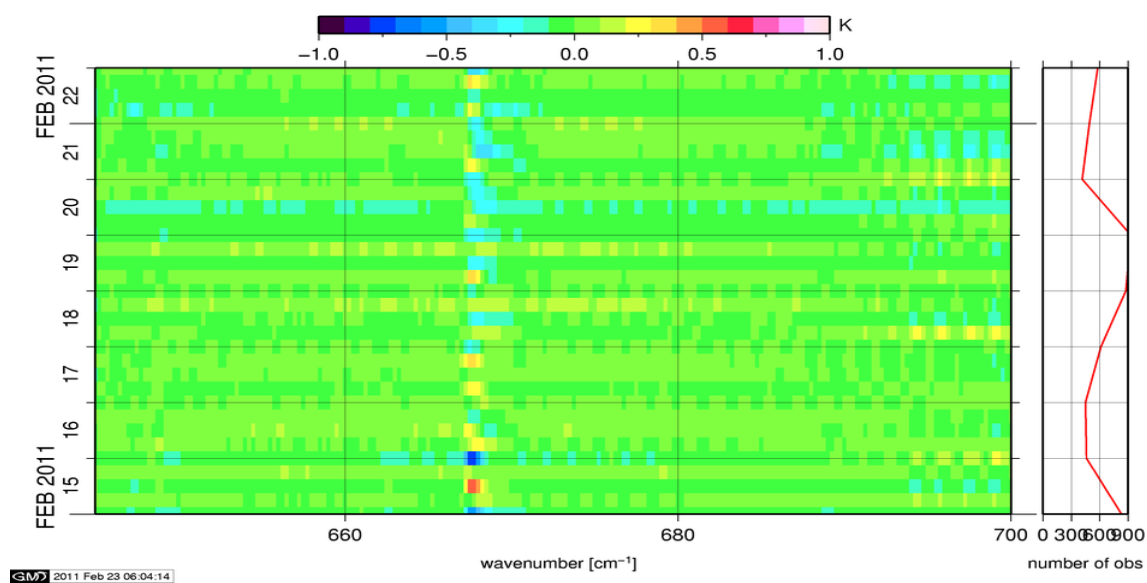


Figure 14: Radiance Anomaly in BRT: CO2 14

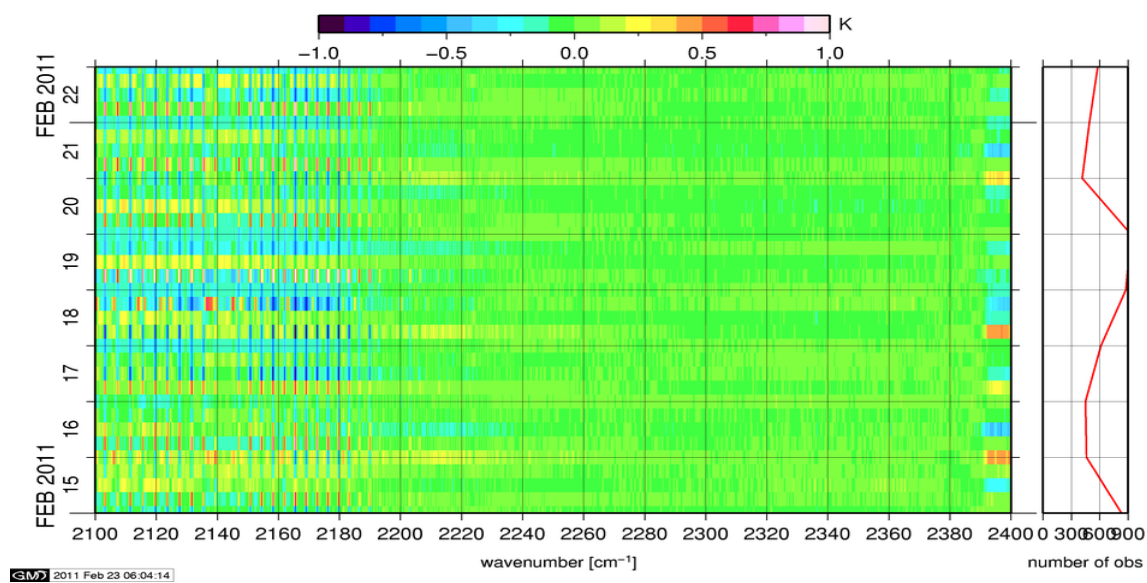


Figure 15: Radiance Anomaly in BRT: CO2 4.3

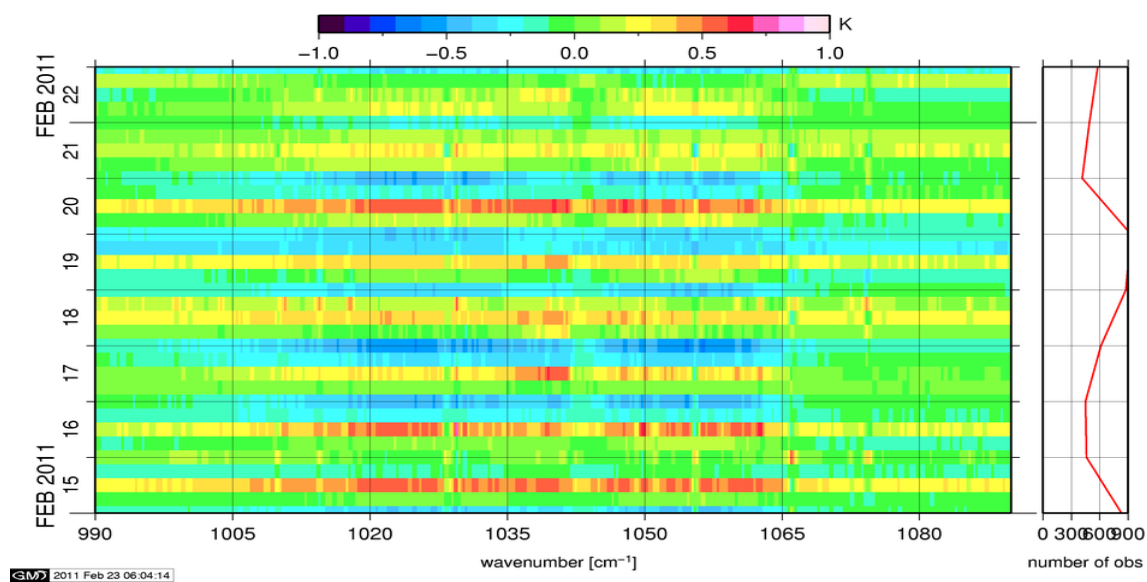


Figure 16: Radiance Anomaly in BRT: O3

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.

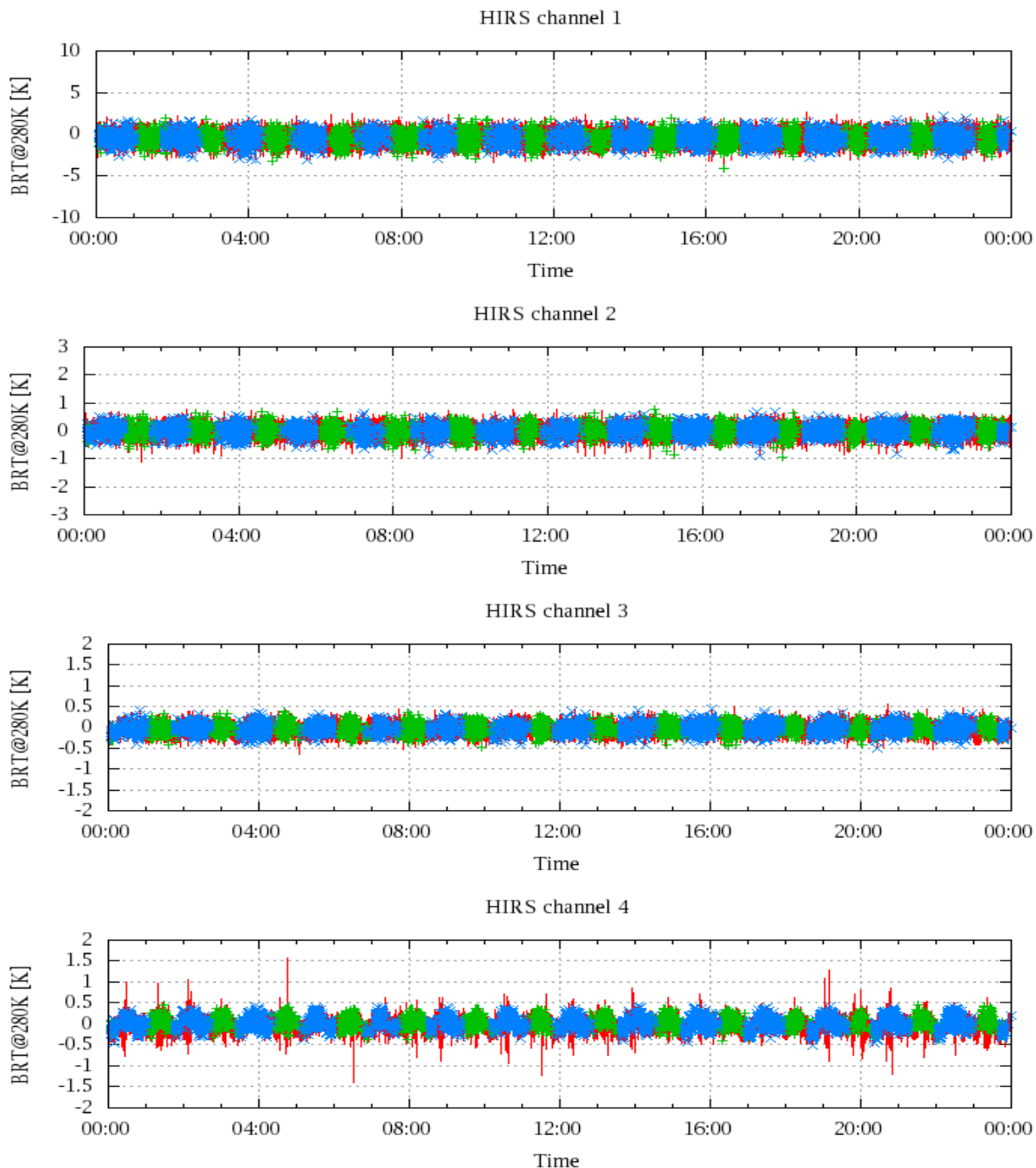


Figure 17: Radiance Differences in BRT

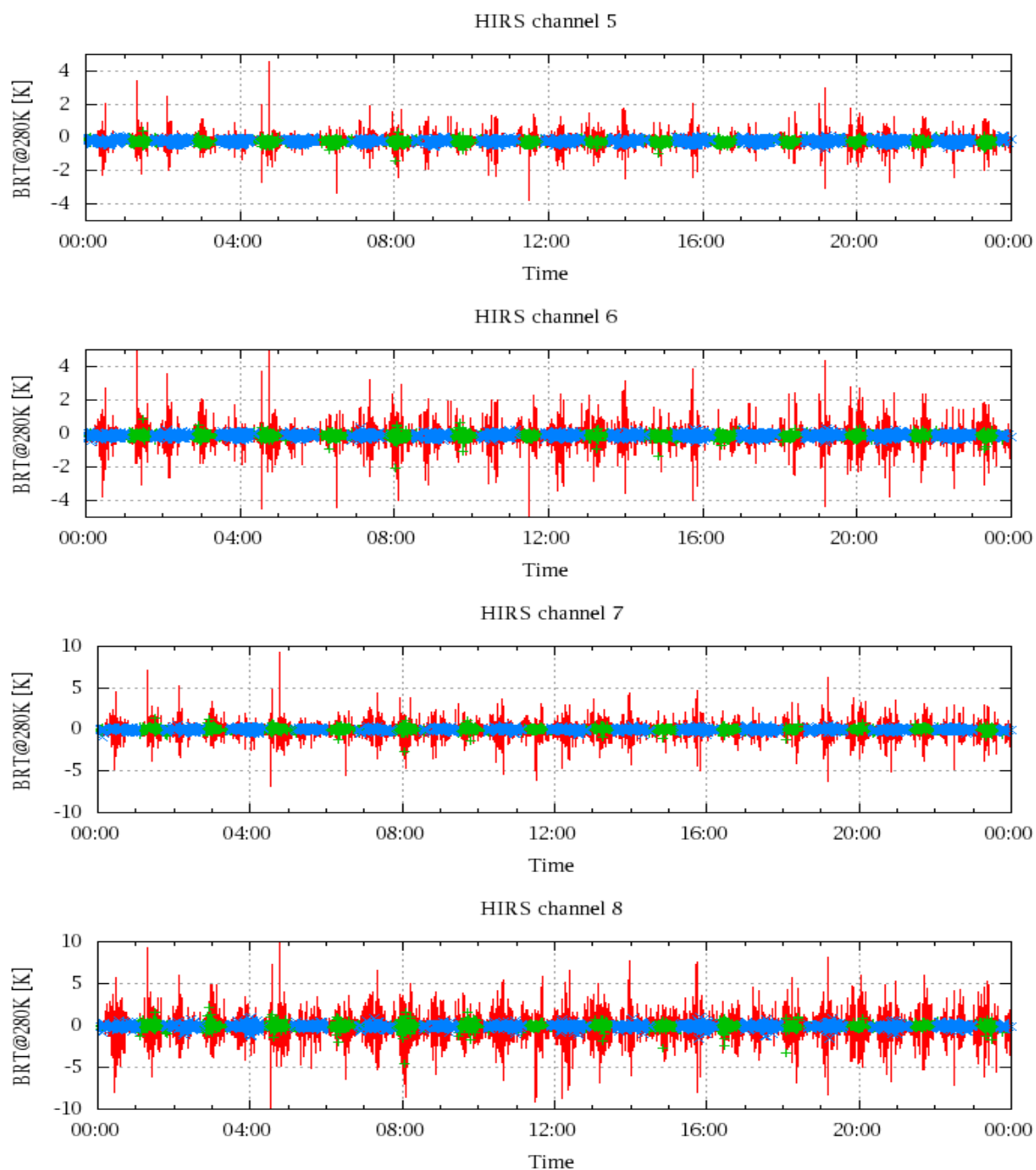


Figure 18: Radiance Differences in BRT

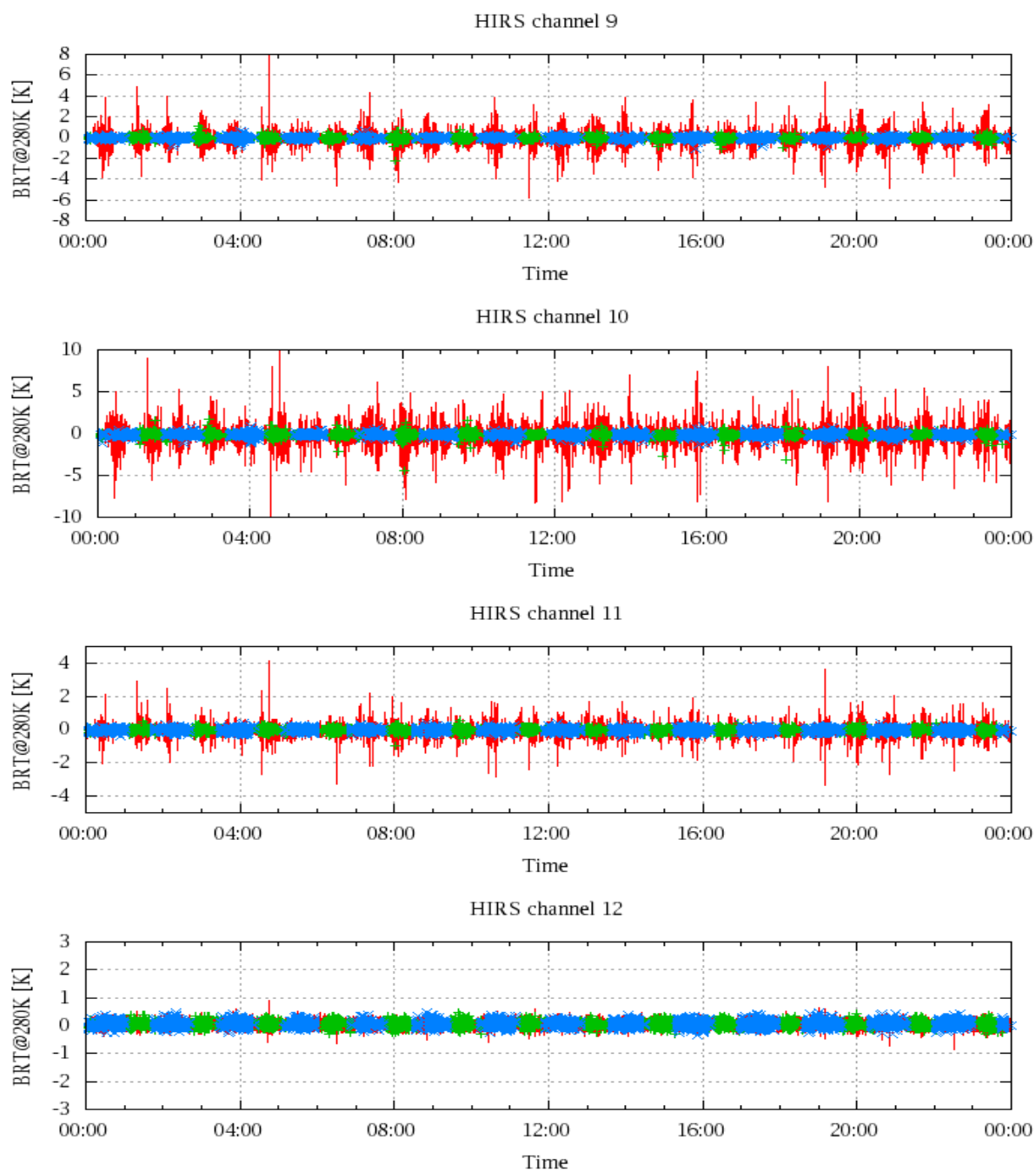


Figure 19: Radiance Differences in BRT

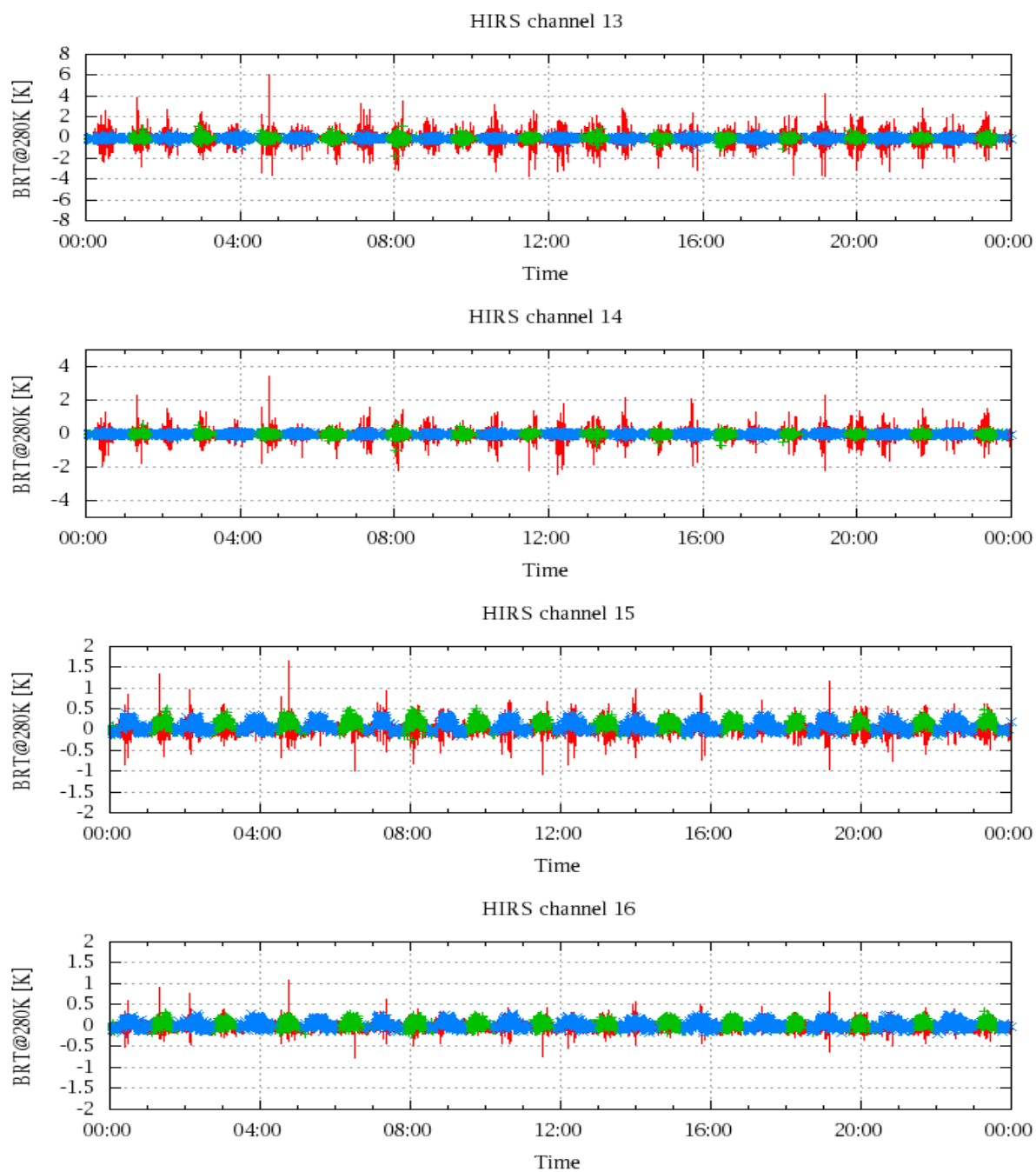


Figure 20: Radiance Differences in BRT

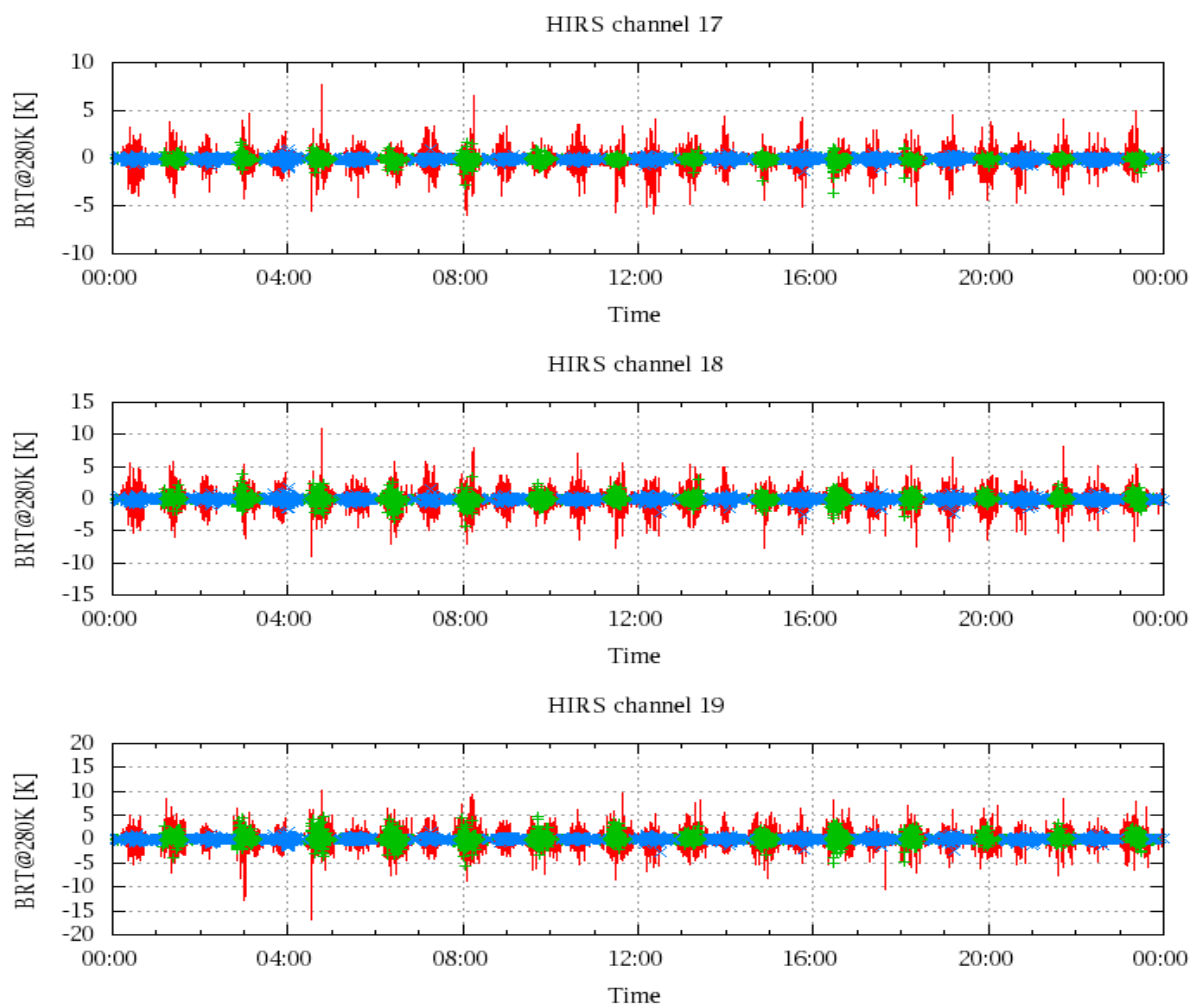


Figure 21: Radinace Differences in BRT