IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

28/11/2014 00:00:00 - 29/11/2014 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 28/11/2014 00:00:00 - 29/11/2014 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 28/11/2014 00:00:00 - 29/11/2014 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)	9892	9894	20141128105420.642	20141128105421.071
PX1 (130)	9902	9904	20141128105422.802	20141128105424.747
PX1 (130)	9905	9908	20141128105424.966	20141128105425.611
PX1 (130)	9908	9910	20141128105425.611	20141128105426.044
PX1 (130)	9977	9979	20141128105443.560	20141128105443.989
PX1 (130)	10001	10003	20141128105450.259	20141128105450.692
PX1 (130)	10004	10006	20141128105450.911	20141128105451.341
PX1 (130)	10006	10008	20141128105451.341	20141128105451.775
PX1 (130)	10019	10021	20141128105454.153	20141128105454.583
PX1 (130)	10029	10031	20141128105457.829	20141128105458.263
PX1 (130)	10033	10035	20141128105458.692	20141128105459.126
PX1 (130)	10035	10037	20141128105459.126	20141128105459.560
PX1 (130)	10037	10039	20141128105459.560	20141128105459.989
PX1 (130)	10040	10042	20141128105500.204	20141128105500.638
PX1 (130)	10042	10044	20141128105500.638	20141128105501.071
PX1 (130)	10047	10049	20141128105501.720	20141128105502.153
PX1 (130)	10049	10051	20141128105502.153	20141128105502.587
PX2 (135)	9892	9894	20141128105420.642	20141128105421.071

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	9902	9904	20141128105422.802	20141128105424.747
PX2 (135)	9905	9908	20141128105424.966	20141128105425.611
PX2 (135)	9908	9911	20141128105425.611	20141128105426.263
PX2 (135)	9911	9913	20141128105426.263	20141128105426.693
PX2 (135)	9950	9952	20141128105436.208	20141128105436.642
PX2 (135)	9954	9956	20141128105437.071	20141128105437.505
PX2 (135)	10001	10003	20141128105450.259	20141128105450.692
PX2 (135)	10004	10006	20141128105450.911	20141128105451.341
PX2 (135)	10006	10008	20141128105451.341	20141128105451.775
PX2 (135)	10019	10021	20141128105454.153	20141128105454.583
PX2 (135)	10022	10024	20141128105454.802	20141128105456.747
PX2 (135)	10029	10031	20141128105457.829	20141128105458.263
PX2 (135)	10032	10037	20141128105458.478	20141128105459.560
PX2 (135)	10040	10042	20141128105500.204	20141128105500.638
PX2 (135)	10047	10049	20141128105501.720	20141128105502.153
PX2 (135)	10049	10051	20141128105502.153	20141128105502.587
PX3 (140)	9892	9894	20141128105420.642	20141128105421.071
PX3 (140)	9905	9908	20141128105424.966	20141128105425.611
PX3 (140)	9909	9911	20141128105425.829	20141128105426.263
PX3 (140)	9911	9913	20141128105426.263	20141128105426.693
PX3 (140)	9950	9952	20141128105436.208	20141128105436.642
PX3 (140)	9954	9956	20141128105437.071	20141128105437.505
PX3 (140)	9994	9996	20141128105448.747	20141128105449.181
PX3 (140)	10013	10015	20141128105452.857	20141128105453.286
PX3 (140)	10022	10024	20141128105454.802	20141128105456.747
PX3 (140)	10032	10037	20141128105458.478	20141128105459.560
PX3 (140)	10040	10042	20141128105500.204	20141128105500.638
PX4 (145)	9898	9900	20141128105421.939	20141128105422.368
PX4 (145)	9905	9908	20141128105424.966	20141128105425.611
PX4 (145)	9909	9911	20141128105425.829	20141128105426.263
PX4 (145)	9911	9913	20141128105426.263	20141128105426.693
PX4 (145)	9950	9952	20141128105436.208	20141128105436.642
PX4 (145)	9994	9996	20141128105448.747	20141128105449.181
PX4 (145)	10001	10003	20141128105450.259	20141128105450.692
PX4 (145)	10003	10005	20141128105450.692	20141128105451.126
PX4 (145)	10022	10024	20141128105454.802	20141128105456.747
PX4 (145)	10028	10030	20141128105457.610	20141128105458.044
PX4 (145)	10031	10035	20141128105458.263	20141128105459.126
PX4 (145)	10035	10037	20141128105459.126	20141128105459.560
IMG (150)	5242	5244	20141128105421.939	20141128105422.368
IMG (150)	5244	5247	20141128105422.368	20141128105423.017
IMG (150)	5247	5251	20141128105423.017	20141128105424.314
IMG (150)	5252	5257	20141128105424.747	20141128105425.829
IMG (150)	5257	5259	20141128105425.829	20141128105426.263
IMG (150)	5302	5304	20141128105436.208	20141128105436.642
IMG (150)	5332	5334	20141128105443.341	20141128105443.775
IMG (150)	5349	5354	20141128105447.017	20141128105448.747
IMG (150)	5354	5356	20141128105448.747	20141128105449.181
IMG (150)	5360	5365	20141128105450.044	20141128105451.126
IMG (150)	5365	5367	20141128105451.126	20141128105451.556
IMG (150)	5378	5380	20141128105453.939	20141128105454.368
IMG (150)	5392	5394	20141128105457.610	20141128105458.044
IMG (150)	5395	5401	20141128105458.263	20141128105459.560

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	5410	5412	20141128105501.505	20141128105501.935
IMG (150)	5412	5414	20141128105501.935	20141128105502.368
VER (160)	10585	10589	20141128105423.017	20141128105431.017
AUX (180)	15219	15221	20141128105415.450	20141128105431.450

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
28/11/2014 00:00:06	-	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)	99.42 %	-
GQisFlagQual set (PX2)	99.39 %	-
GQisFlagQual set (PX3)	99.44 %	-
GQisFlagQual set (PX4)	99.43 %	-
GQisFlagQual set (all)	99.42 %	-

Table 4: Quality flags

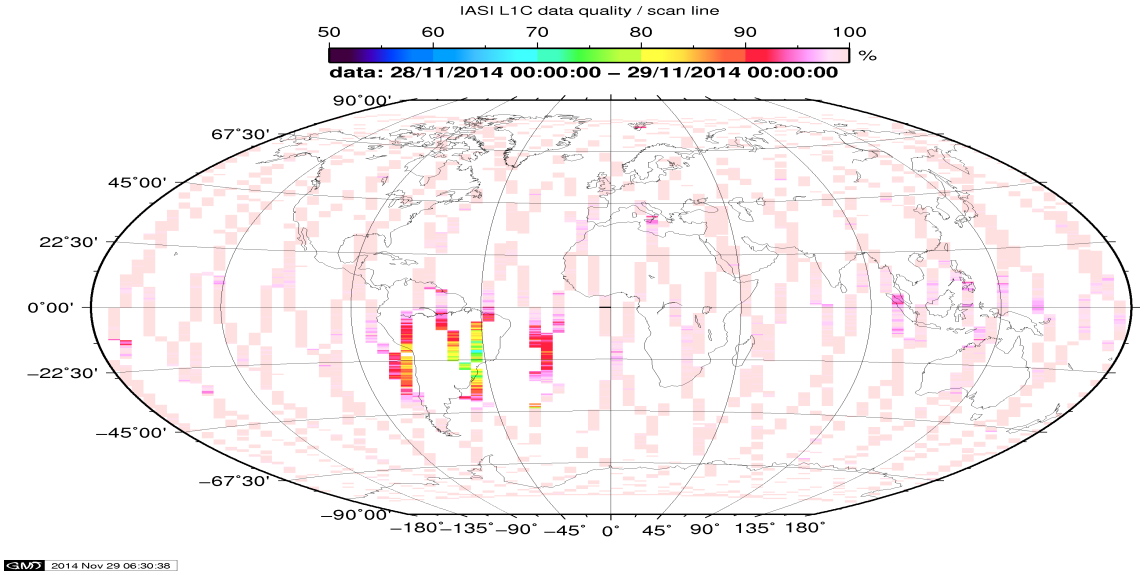

Figure 1: L1C data quality

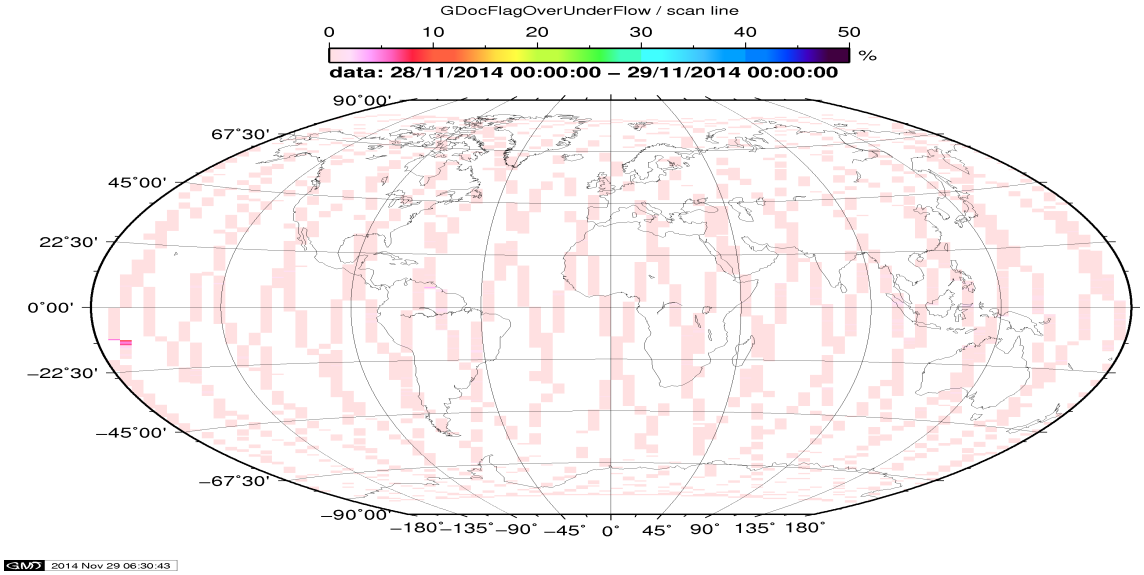

Figure 2: Flag of Over and Under Flows

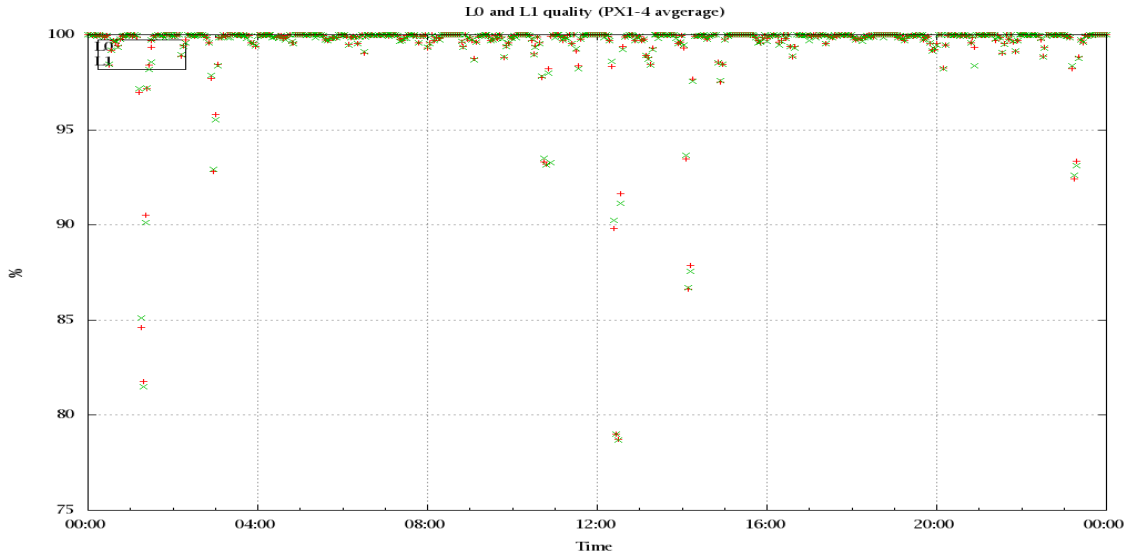

Figure 3: Level 0 and 1C overall quality

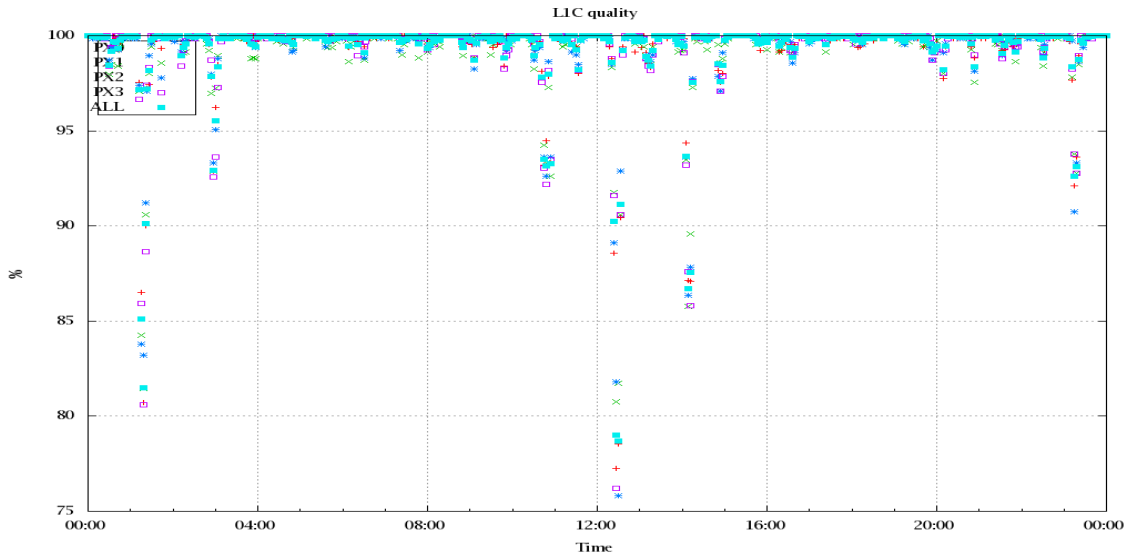

Figure 4: Level 1C quality

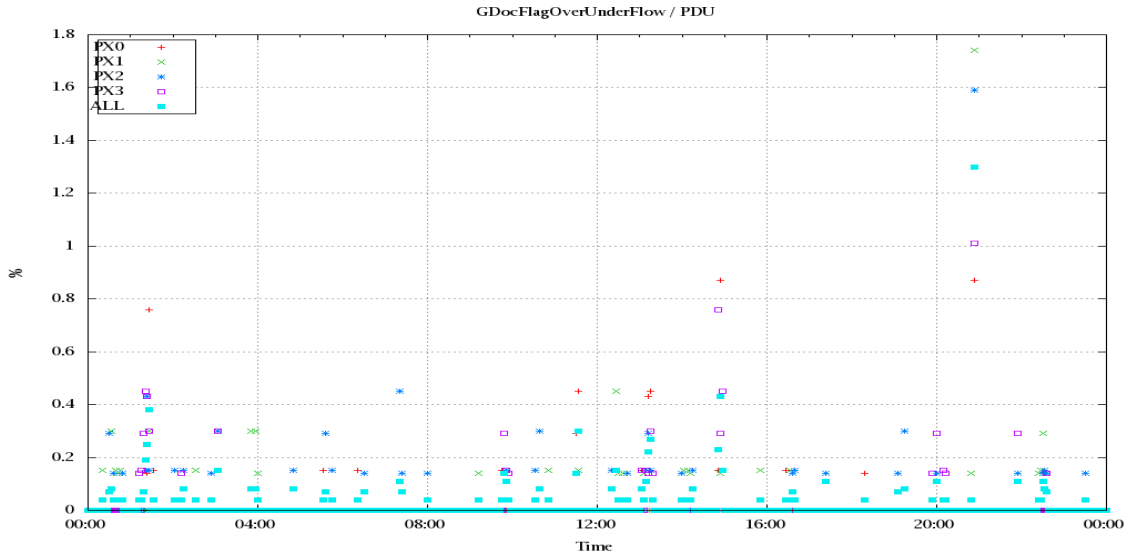

Figure 5: OverUnderFlowFlag timeseries

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 indentification 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.

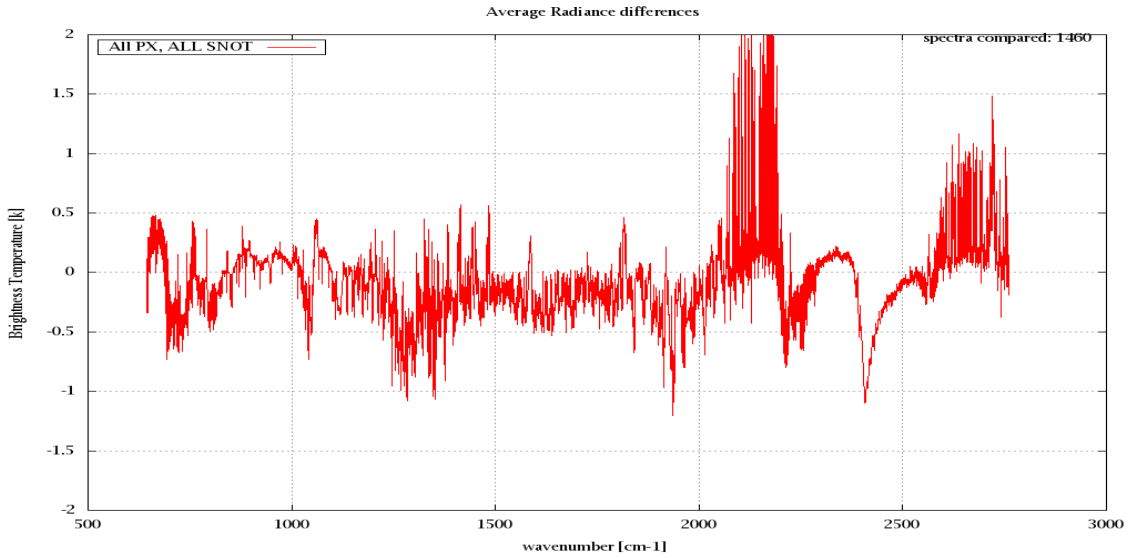

Figure 6: Average Radiance differences: OBS-CAL

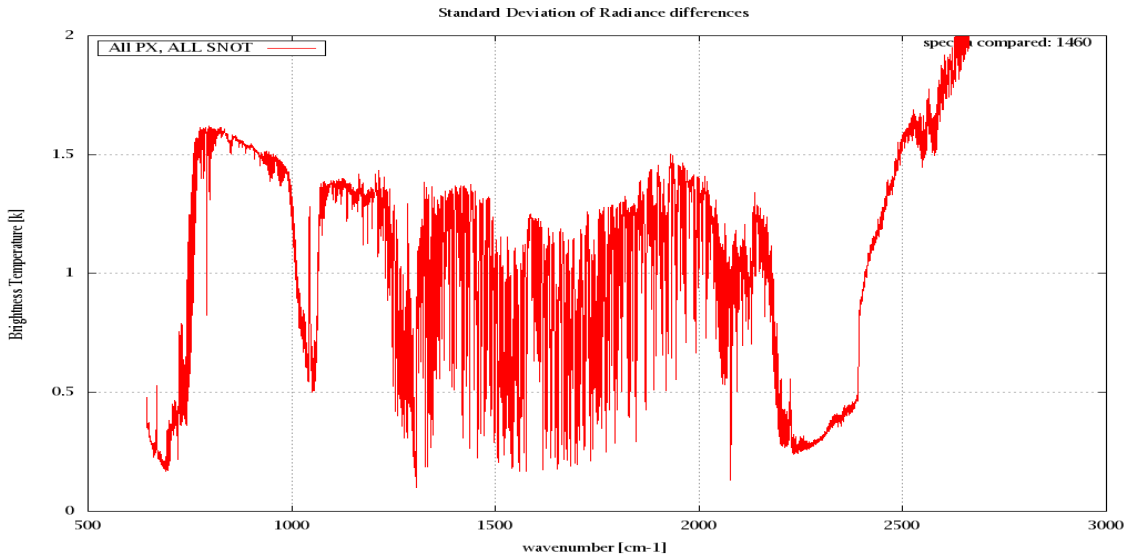

Figure 7: Standard Deviation of Radiance differences

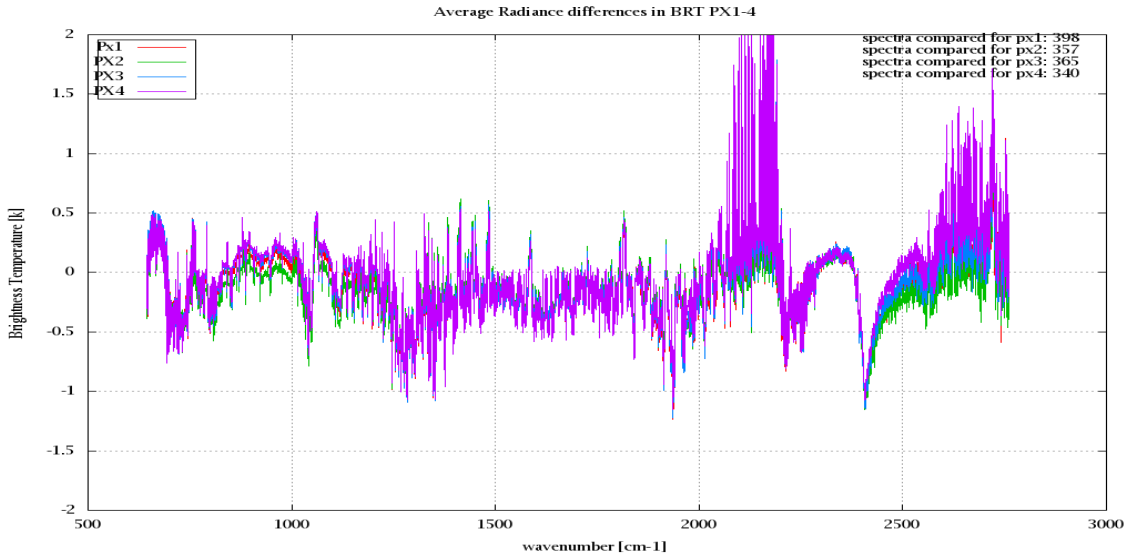

Figure 8: Average Radiance differences: OBS-CAL

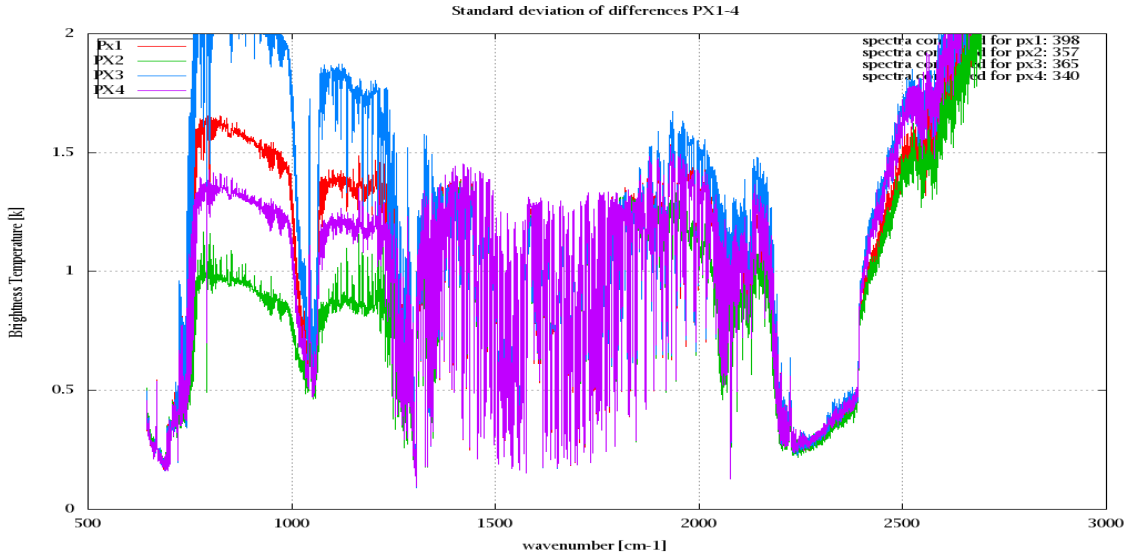

Figure 9: Standard Deviation of Radiance differences

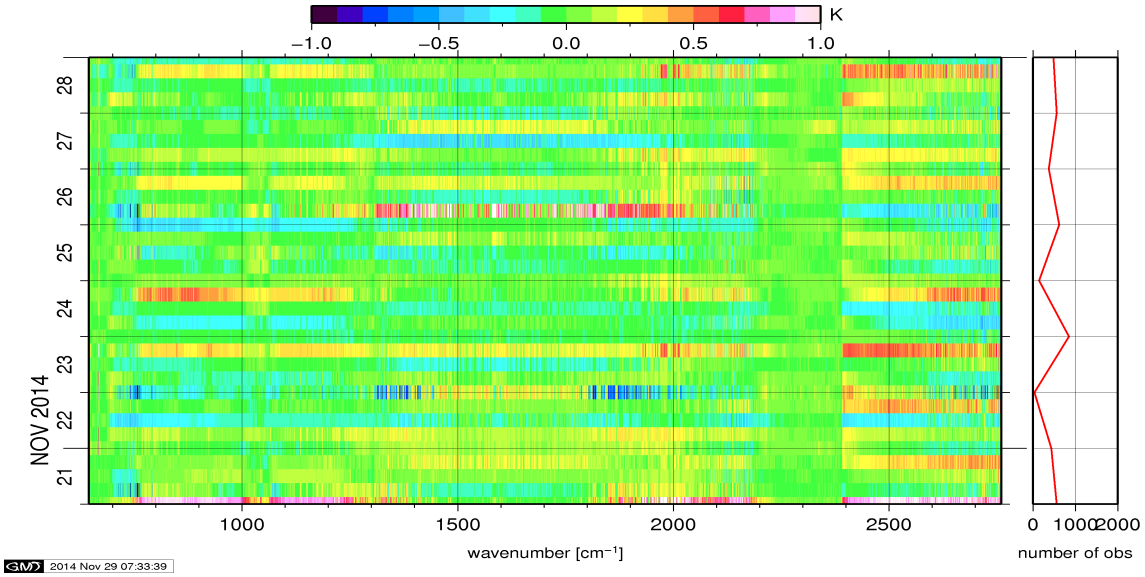

Figure 10: Radiance Anomaly in BRT: All Channels

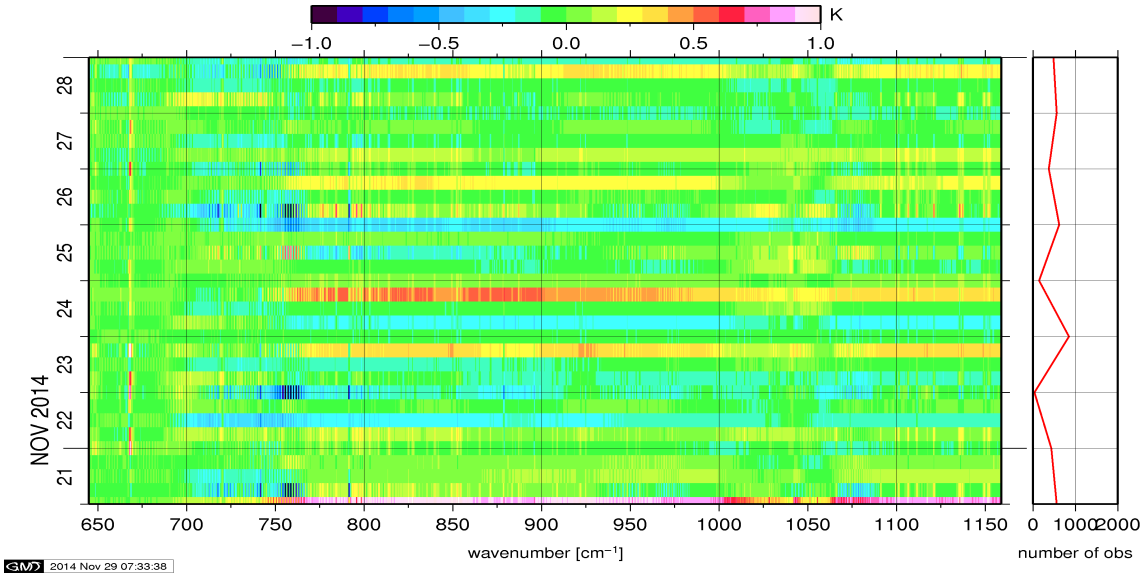

Figure 11: Radiance Anomaly in BRT: IASI Band 1

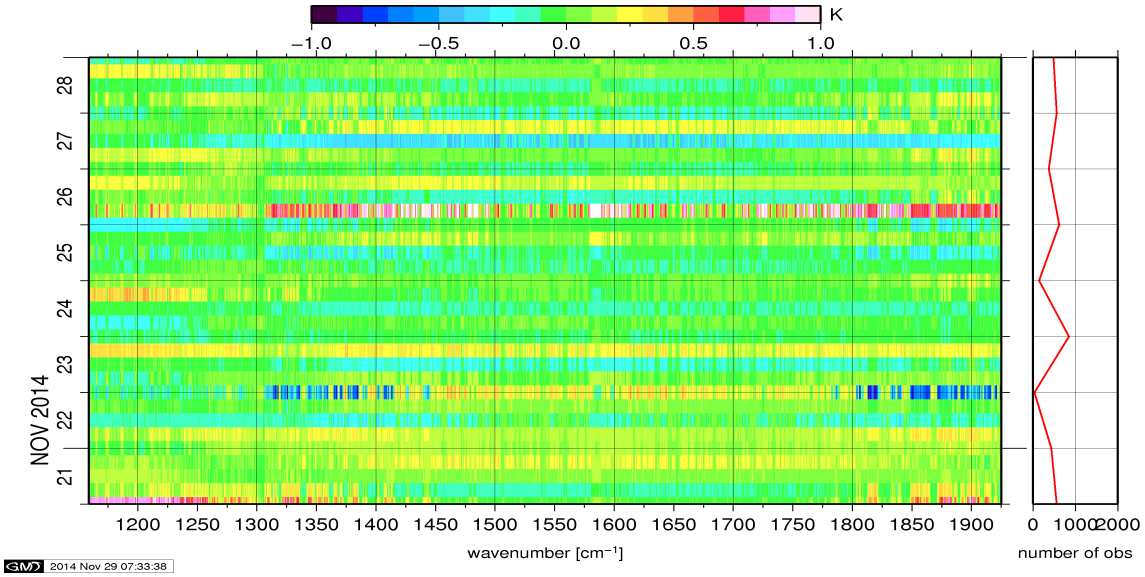

Figure 12: Radiance Anomaly in BRT: IASI Band 2

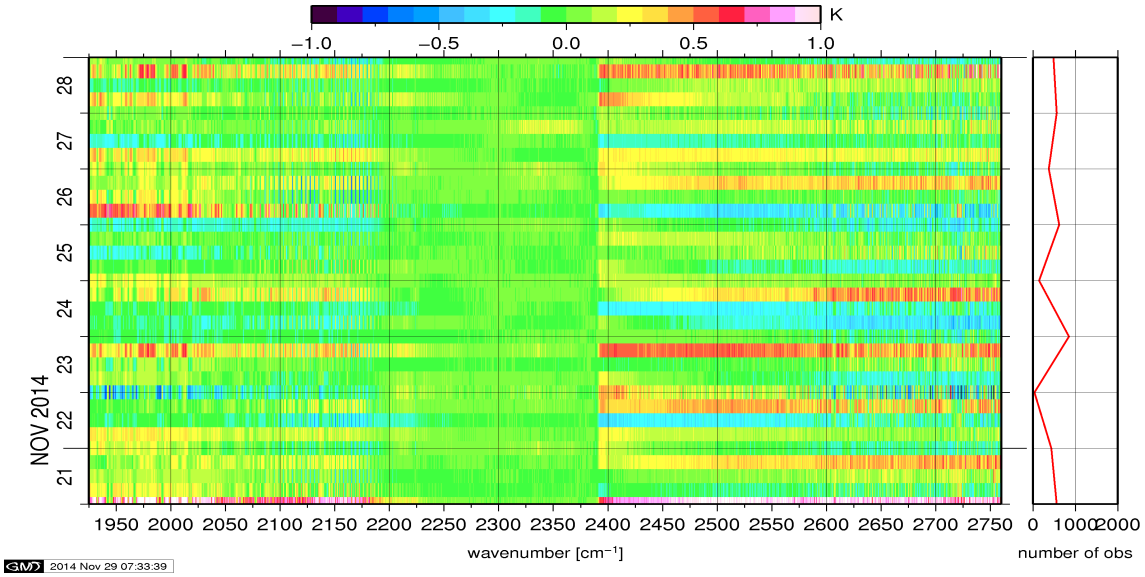

Figure 13: Radiance Anomaly in BRT: IASI Band 3

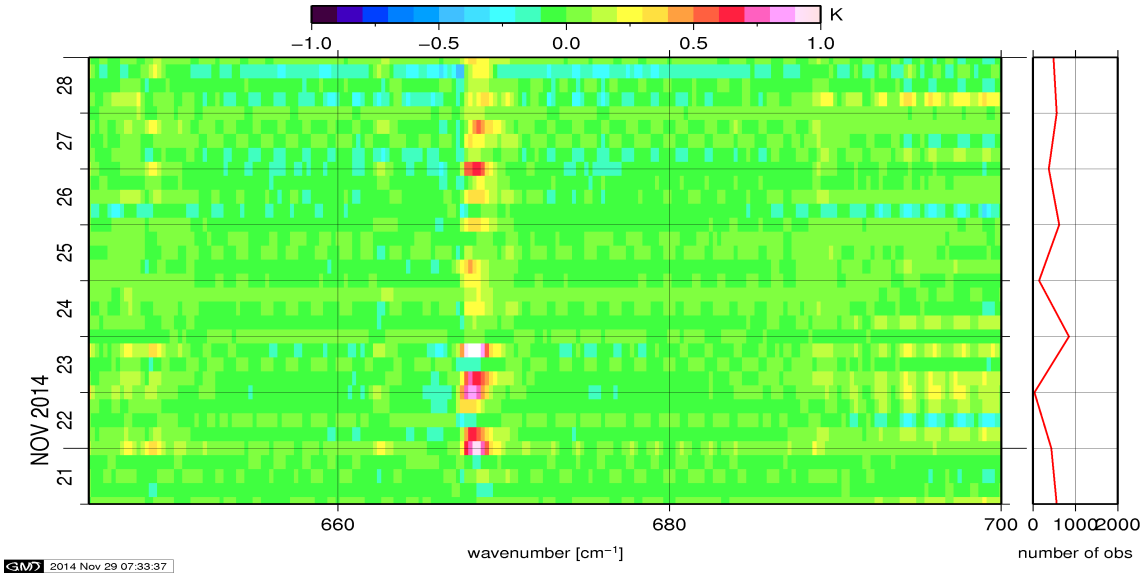

Figure 14: Radiance Anomaly in BRT: CO2 14

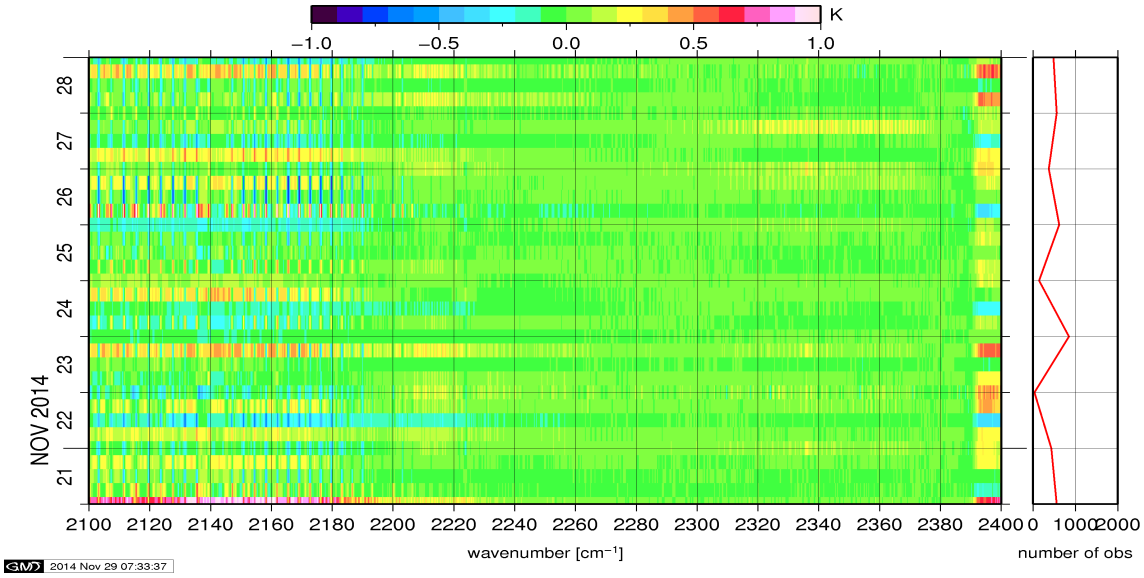

Figure 15: Radiance Anomaly in BRT: CO2 4.3

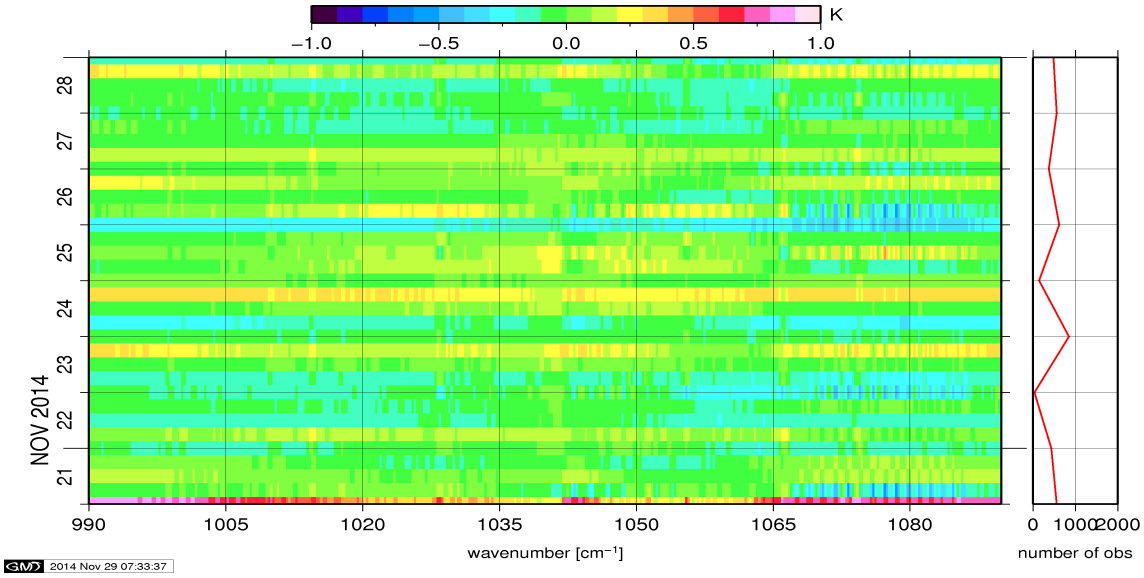

Figure 16: Radiance Anomaly in BRT: O3

6 IASI-HIRS radiance comparision Channel 1-19

The radiance comparision 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.

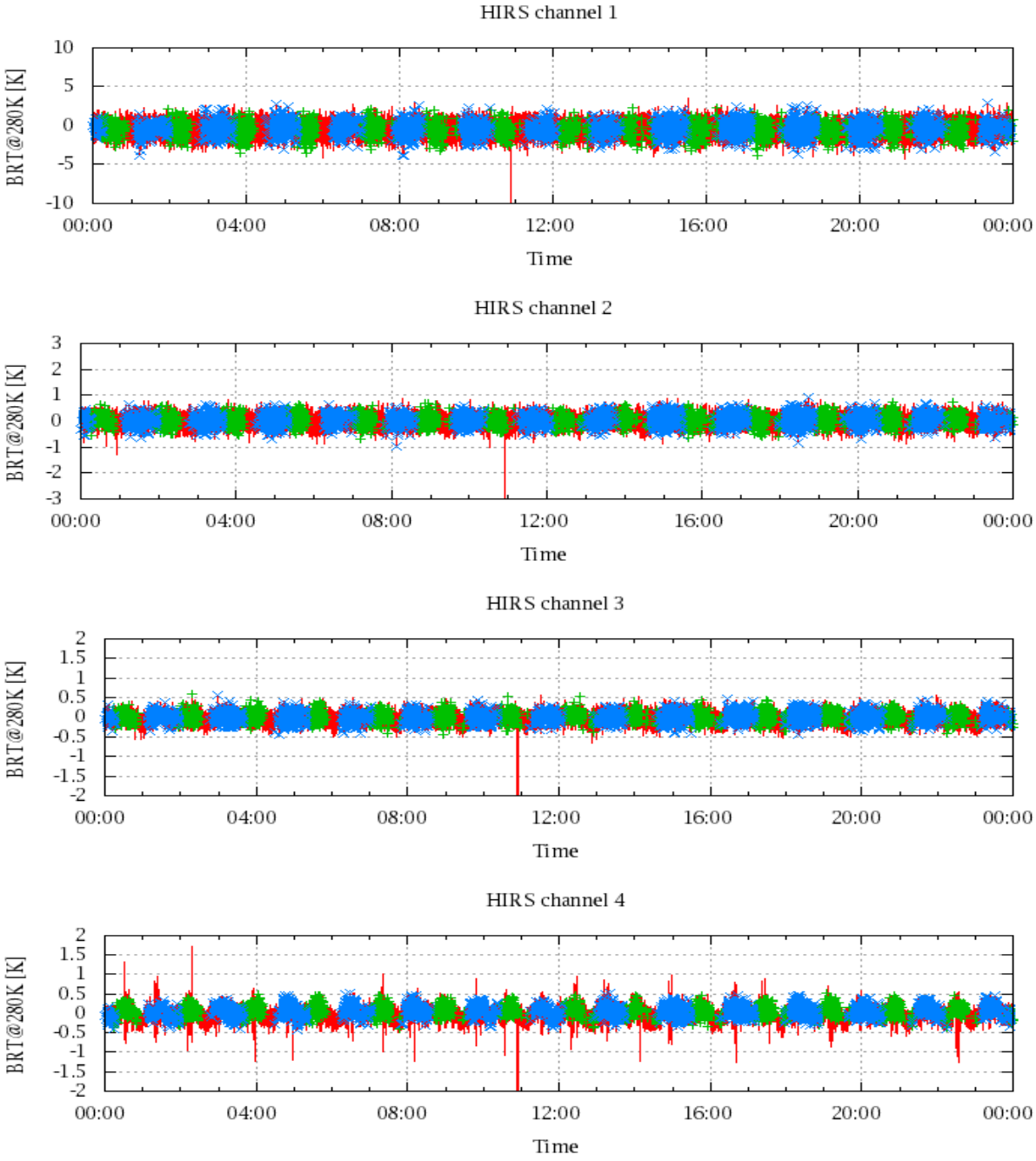

Figure 17: Radiance Differences in BRT

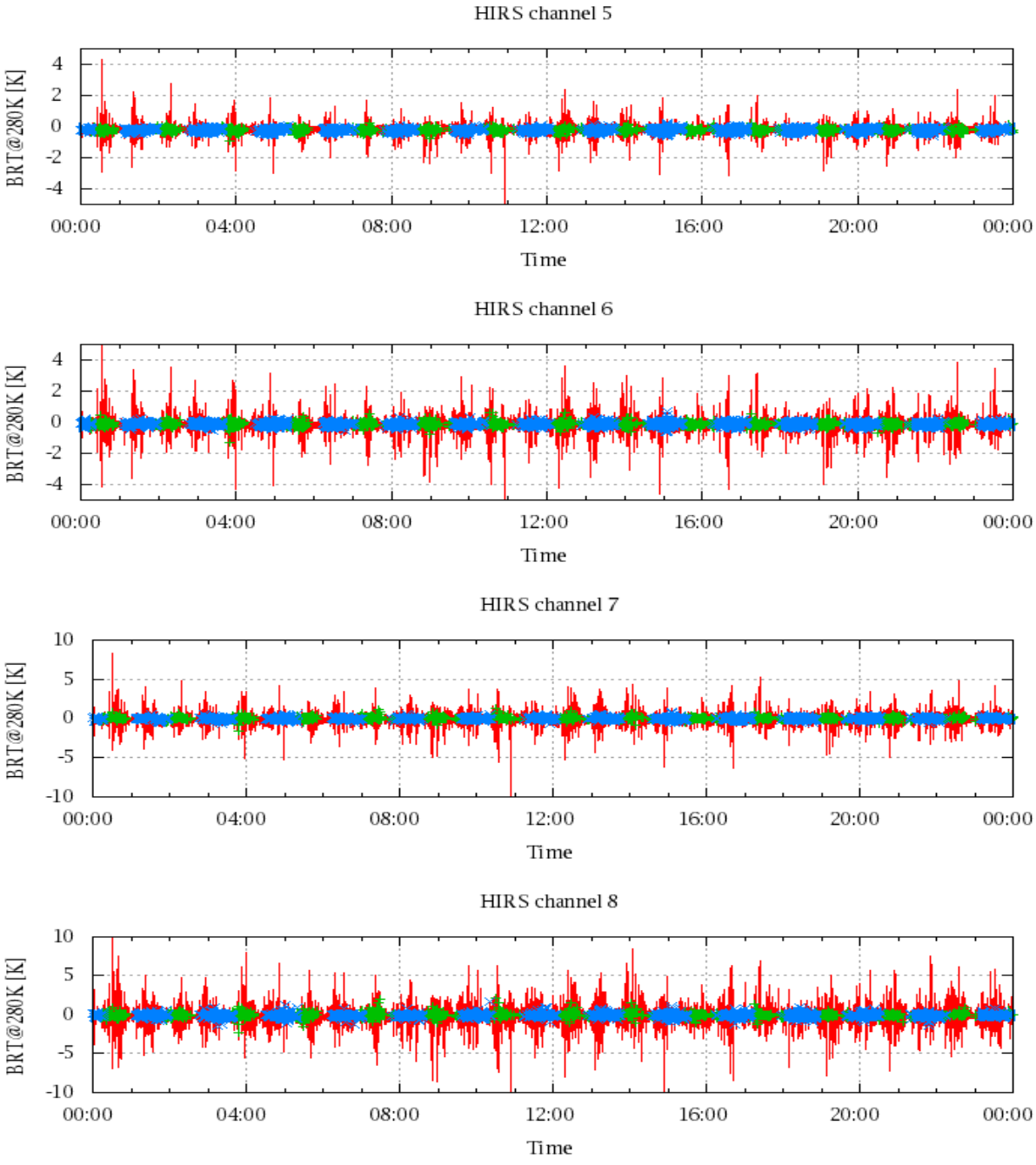

Figure 18: Radiance Differences in BRT

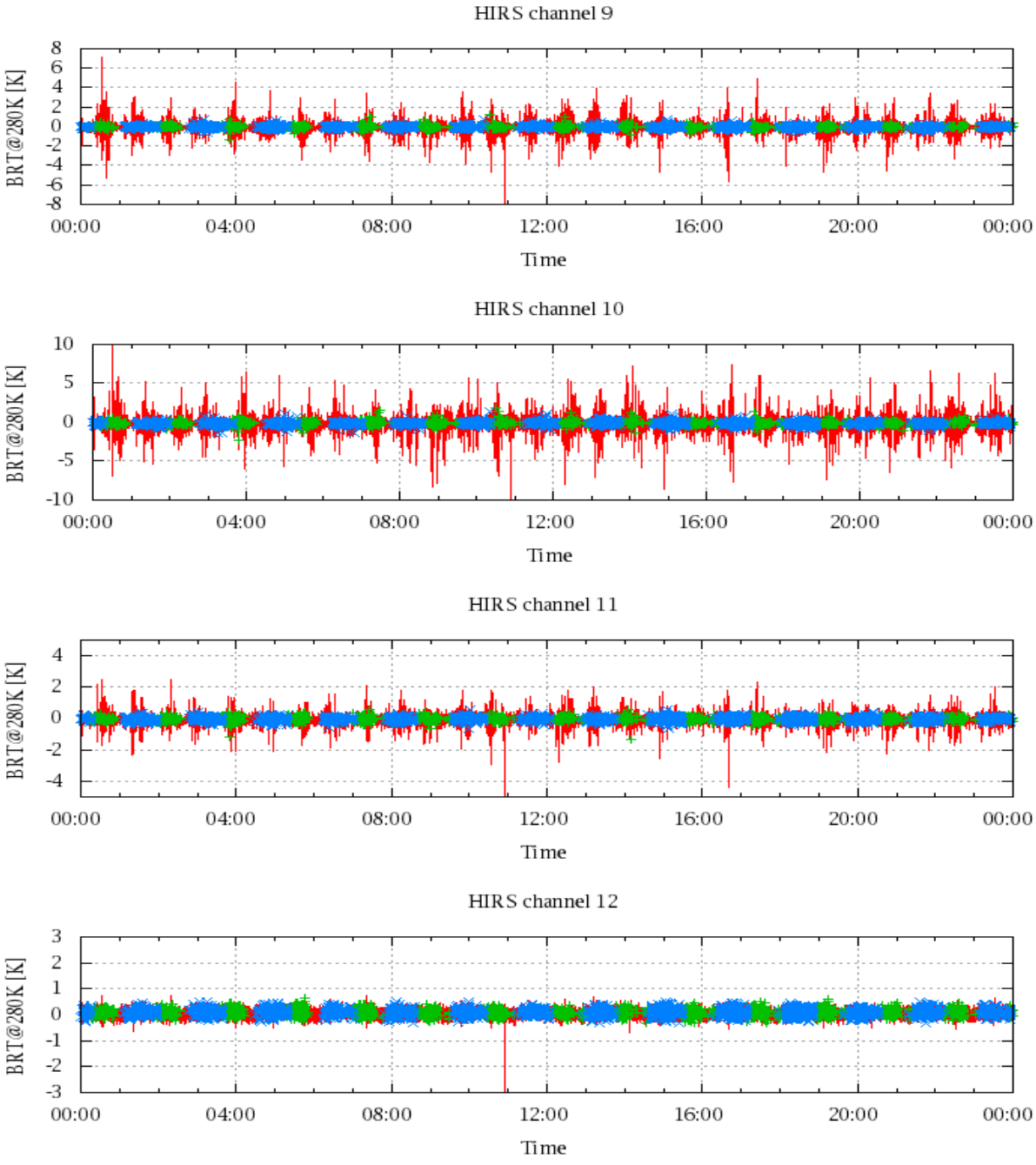

Figure 19: Radiance Differences in BRT

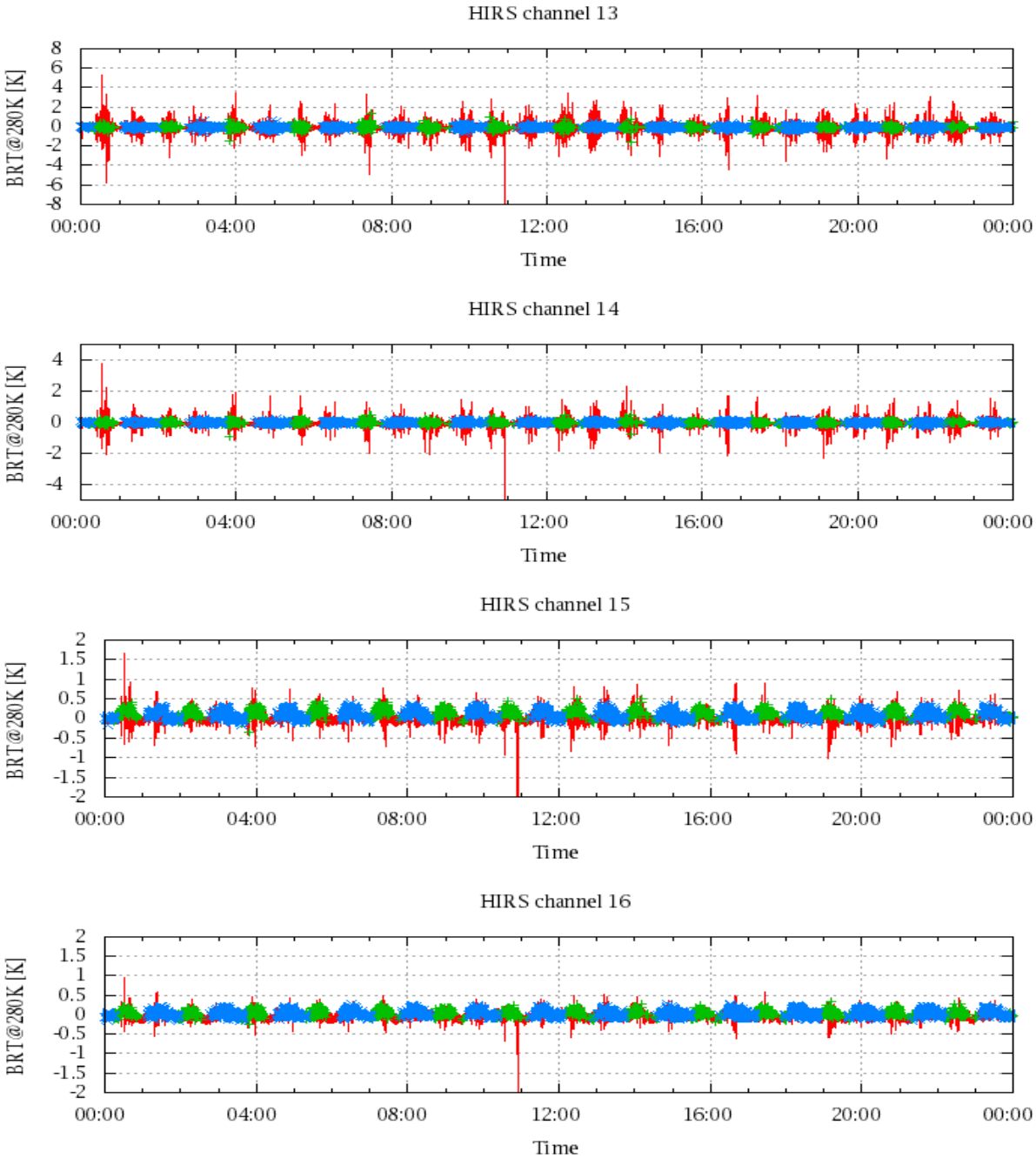

Figure 20: Radiance Differences in BRT

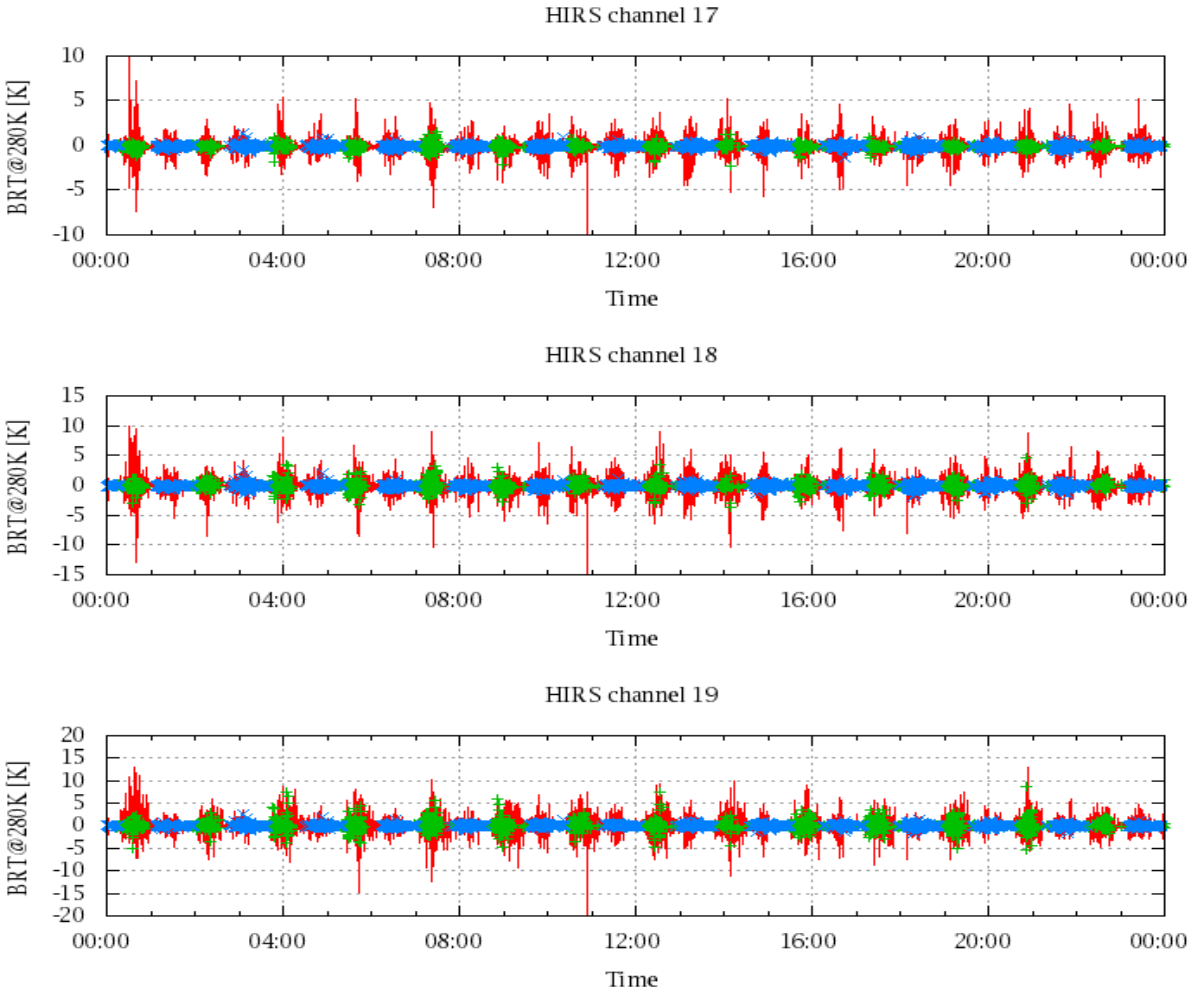

Figure 21: Radinace Differences in BRT