

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

25/05/2010 00:00:00 - 26/05/2010 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 25/05/2010 00:00:00 - 26/05/2010 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 25/05/2010 00:00:00 - 26/05/2010 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	472	-
L1 ENG PDUs	472	-
L1 ENG distinct GEPSGranule	473	-
L1 DPX PDUs (RM: IASI-HIRS)	394	e
L1 DPS Files (RM: OBS-CAL NWP based)	399	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	11347	12026	20100525211459.970	20100525211801.587
PX1 (130)	13375	14048	20100525212359.848	20100525212700.168
PX1 (130)	5091	7114	20100525215959.862	20100525220900.173
PX1 (130)	7791	8464	20100525221159.841	20100525221500.161
PX1 (130)	6257	6930	20100525231759.846	20100525232100.162
PX1 (130)	8279	8958	20100525232659.939	20100525233001.556
PX1 (130)	10307	10980	20100525233559.852	20100525233900.171
PX2 (135)	11347	12026	20100525211459.970	20100525211801.587
PX2 (135)	13375	14048	20100525212359.848	20100525212700.168
PX2 (135)	5091	7114	20100525215959.862	20100525220900.173
PX2 (135)	7791	8464	20100525221159.841	20100525221500.161
PX2 (135)	6257	6930	20100525231759.846	20100525232100.162
PX2 (135)	8279	8958	20100525232659.939	20100525233001.556
PX2 (135)	10307	10980	20100525233559.852	20100525233900.171
PX3 (140)	11347	12026	20100525211459.970	20100525211801.587
PX3 (140)	13375	14048	20100525212359.848	20100525212700.168
PX3 (140)	5091	7114	20100525215959.862	20100525220900.173
PX3 (140)	7791	8464	20100525221159.841	20100525221500.161

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	6257	6930	20100525231759.846	20100525232100.162
PX3 (140)	8279	8958	20100525232659.939	20100525233001.556
PX3 (140)	10307	10980	20100525233559.852	20100525233900.171
PX4 (145)	11347	12026	20100525211459.970	20100525211801.587
PX4 (145)	13375	14048	20100525212359.848	20100525212700.168
PX4 (145)	5091	7114	20100525215959.862	20100525220900.173
PX4 (145)	7791	8464	20100525221159.841	20100525221500.161
PX4 (145)	6257	6930	20100525231759.846	20100525232100.162
PX4 (145)	8279	8958	20100525232659.939	20100525233001.556
PX4 (145)	10307	10980	20100525233559.852	20100525233900.171
IMG (150)	13309	14076	20100525211459.970	20100525211800.290
IMG (150)	15605	16370	20100525212359.848	20100525212700.168
IMG (150)	8401	10696	20100525215959.862	20100525220900.173
IMG (150)	11461	12226	20100525221159.841	20100525221500.161
IMG (150)	11907	12672	20100525231759.846	20100525232100.162
IMG (150)	14201	14968	20100525232659.939	20100525233000.259
IMG (150)	113	878	20100525233559.852	20100525233900.171
VER (160)	14821	14937	20100525211455.861	20100525211807.857
VER (160)	15161	15272	20100525212359.848	20100525212703.843
VER (160)	127	463	20100525215959.862	20100525220903.849
VER (160)	577	688	20100525221159.841	20100525221503.836
VER (160)	3052	3163	20100525231759.846	20100525232103.838
VER (160)	3387	3503	20100525232655.829	20100525233007.825
VER (160)	3727	3838	20100525233559.852	20100525233903.847
AUX (180)	12777	12800	20100525211456.294	20100525211800.290
AUX (180)	12844	12868	20100525212352.281	20100525212704.277
AUX (180)	13114	13183	20100525215952.296	20100525220904.279
AUX (180)	13204	13228	20100525221152.274	20100525221504.270
AUX (180)	13699	13723	20100525231752.276	20100525232104.272
AUX (180)	13767	13790	20100525232656.263	20100525233000.259
AUX (180)	13834	13858	20100525233552.285	20100525233904.281

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
25/05/2010 00:01:07	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	472	-
L1 ENG PDUs	472	-
L1 ENG distinct GEPSGranule	473	-
GQisFlagQual set (PX1)	99.35 %	-
GQisFlagQual set (PX2)	99.21 %	-
GQisFlagQual set (PX3)	99.29 %	-
GQisFlagQual set (PX4)	99.35 %	-
GQisFlagQual set (all)	99.30 %	-

Table 4: Quality flags

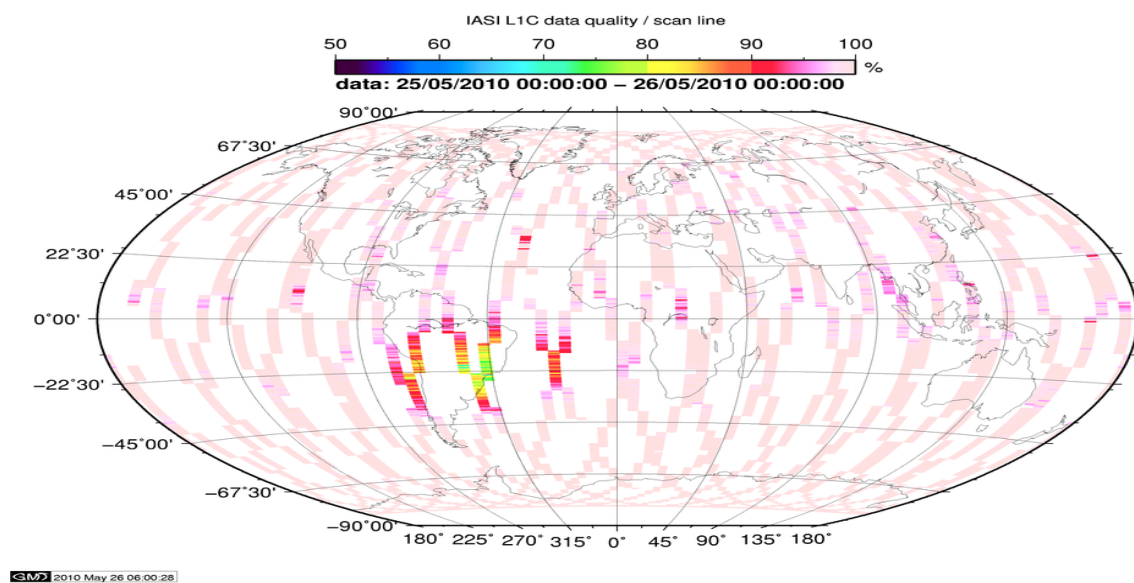


Figure 1: L1C data quality

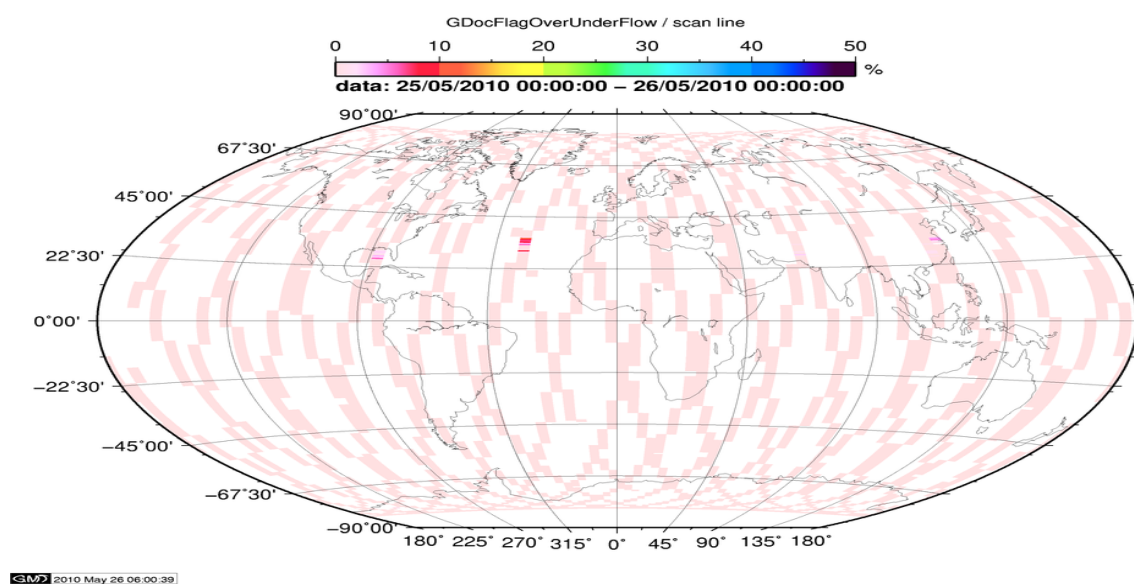


Figure 2: Flag of Over and Under Flows

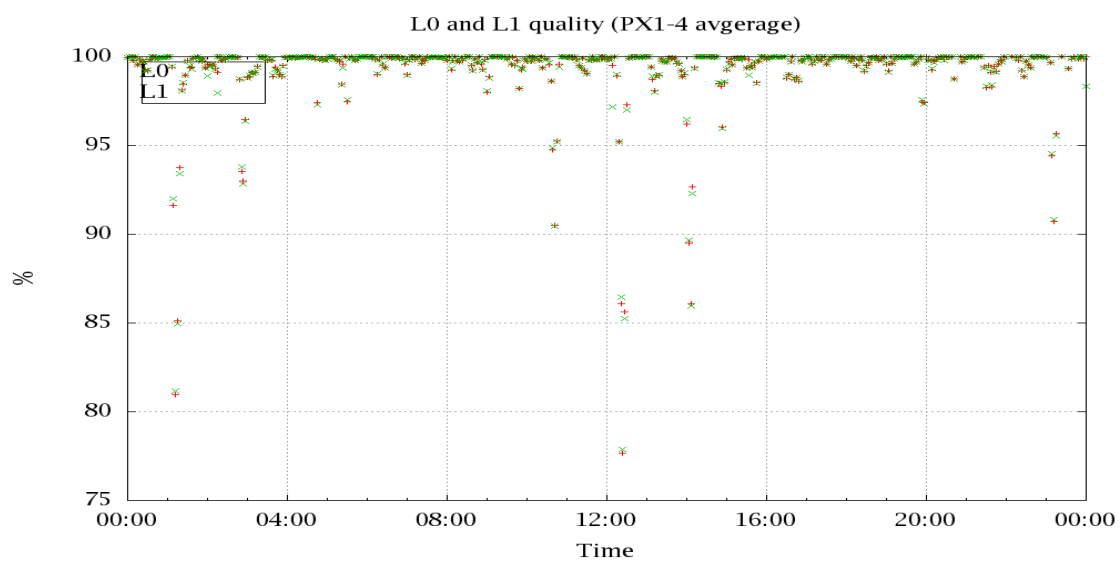


Figure 3: Level 0 and 1C overall quality

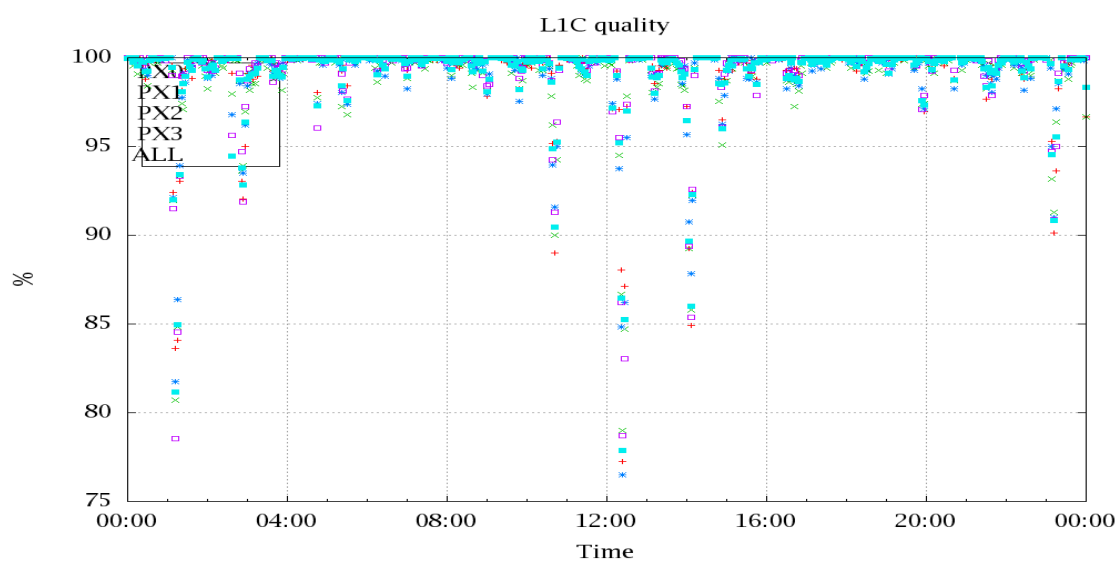


Figure 4: Level 1C quality

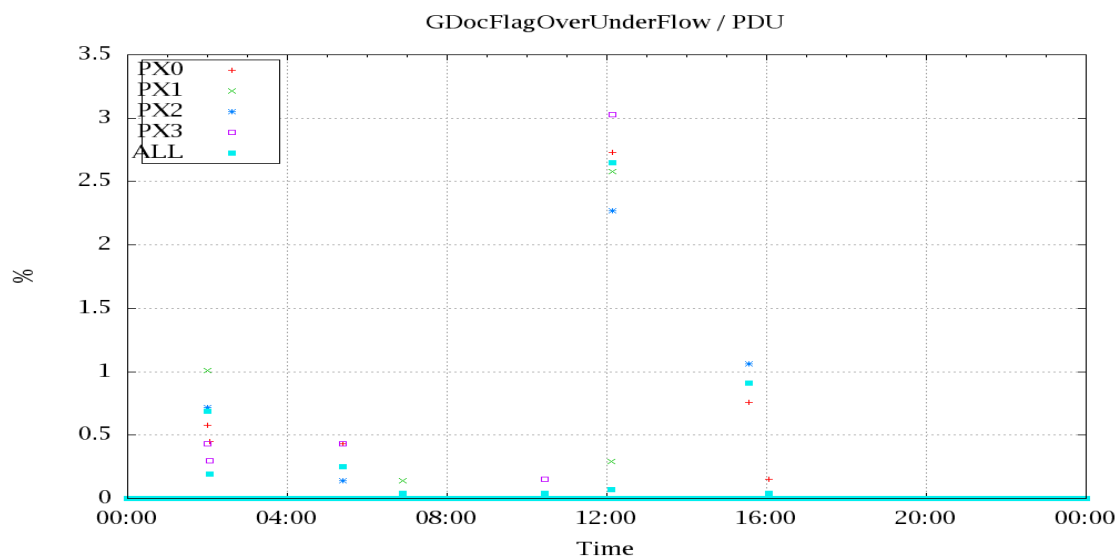


Figure 5: OverUnderFlowFlag timeseries

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.

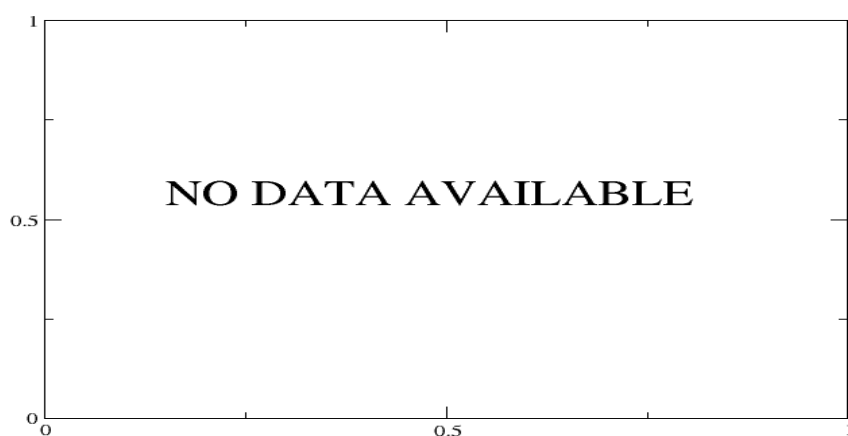


Figure 6: Average Radiance differences: OBS-CAL

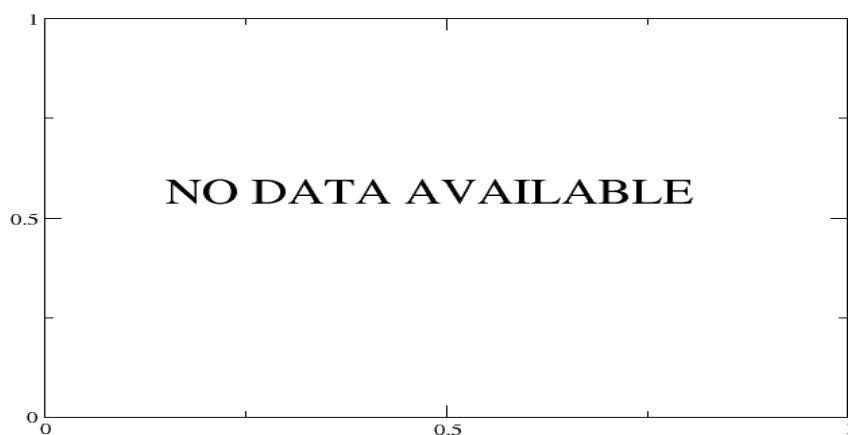


Figure 7: Standard Deviation of Radiance differences

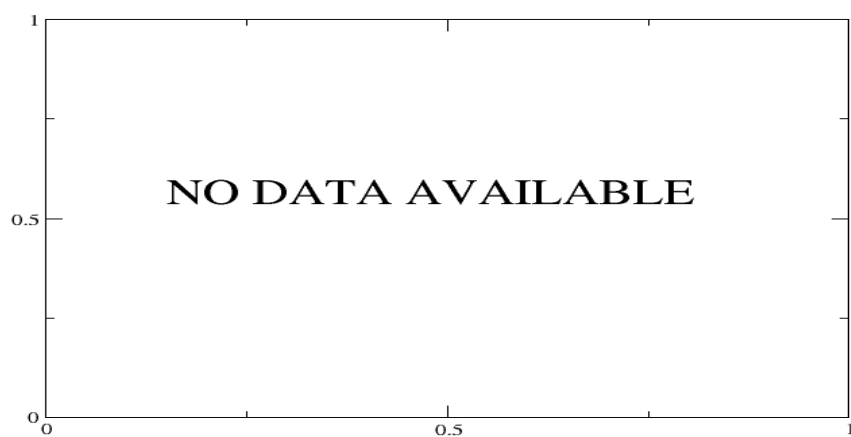


Figure 8: Average Radiance differences: OBS-CAL

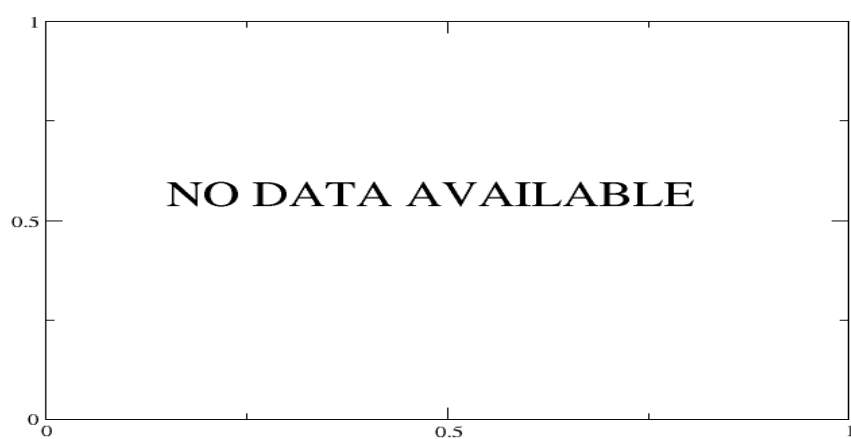


Figure 9: Standard Deviation of Radiance differences

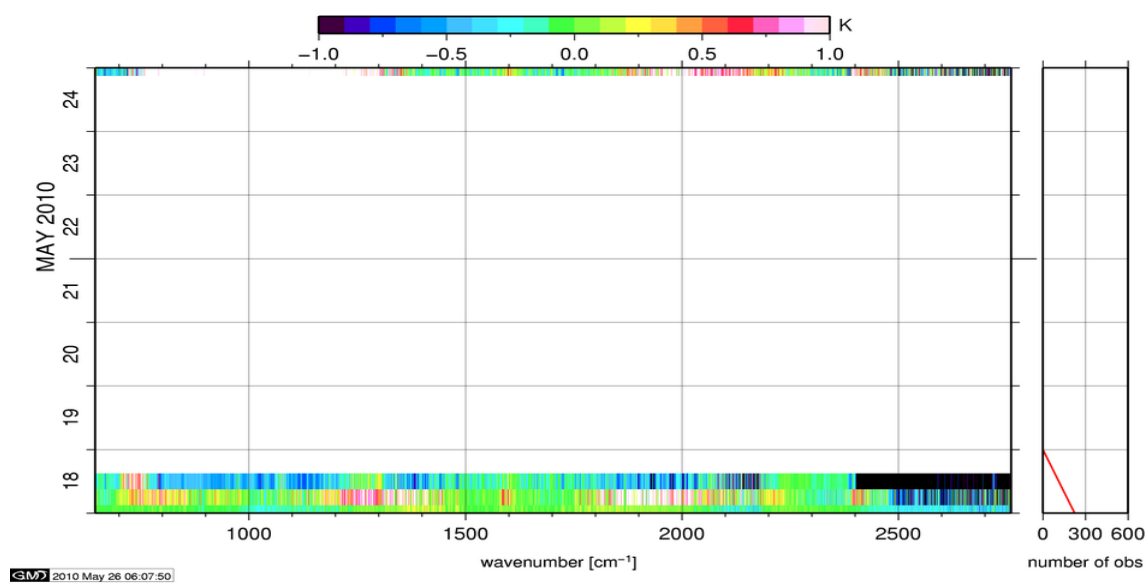


Figure 10: Radiance Anomaly in BRT: All Channels

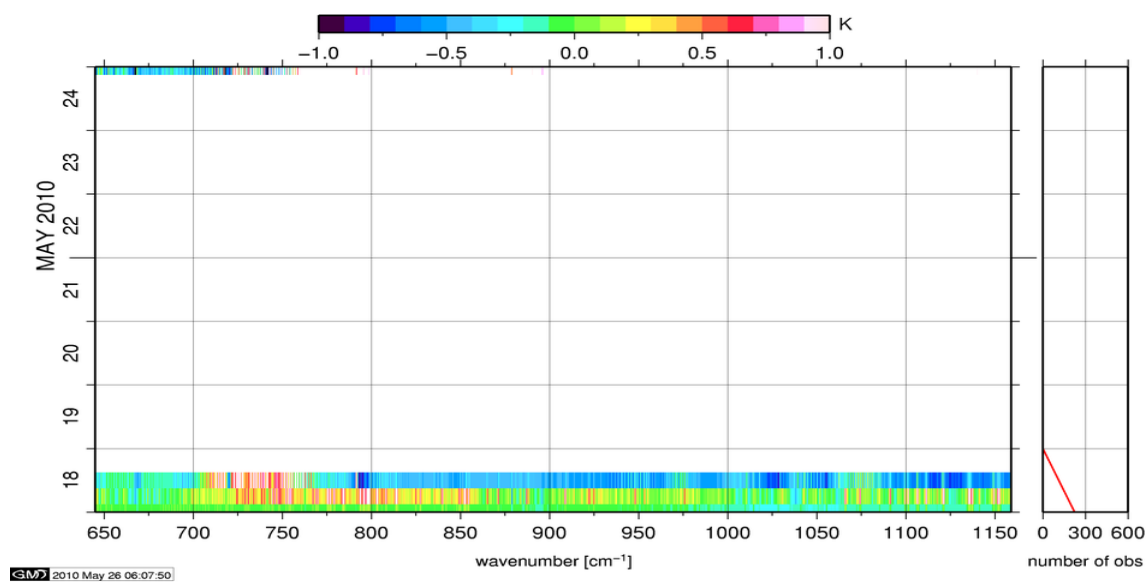


Figure 11: Radiance Anomaly in BRT: IASI Band 1

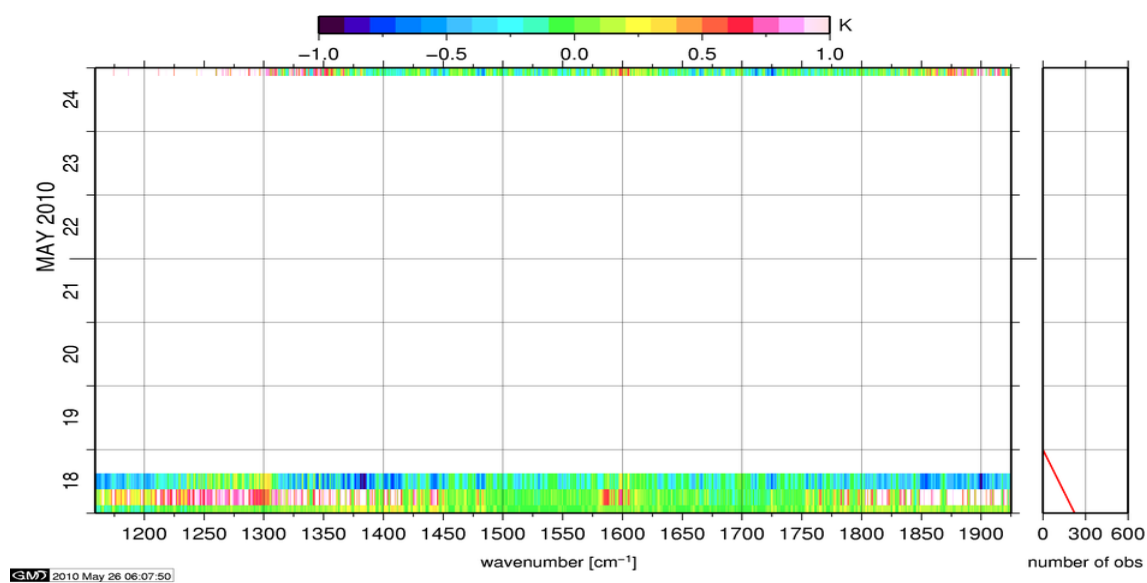


Figure 12: Radiance Anomaly in BRT: IASI Band 2

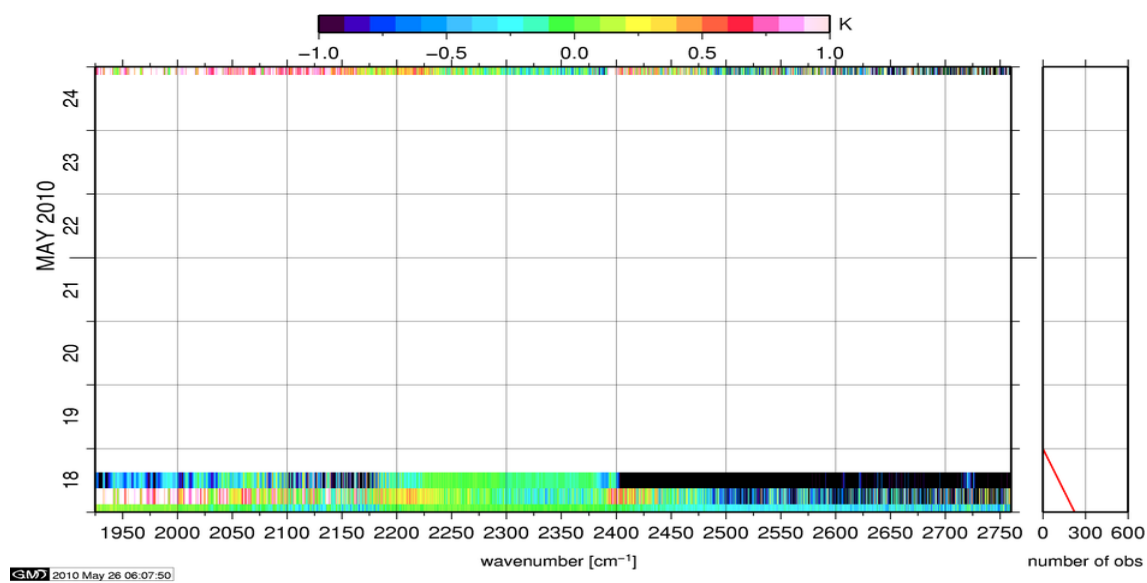


Figure 13: Radiance Anomaly in BRT: IASI Band 3

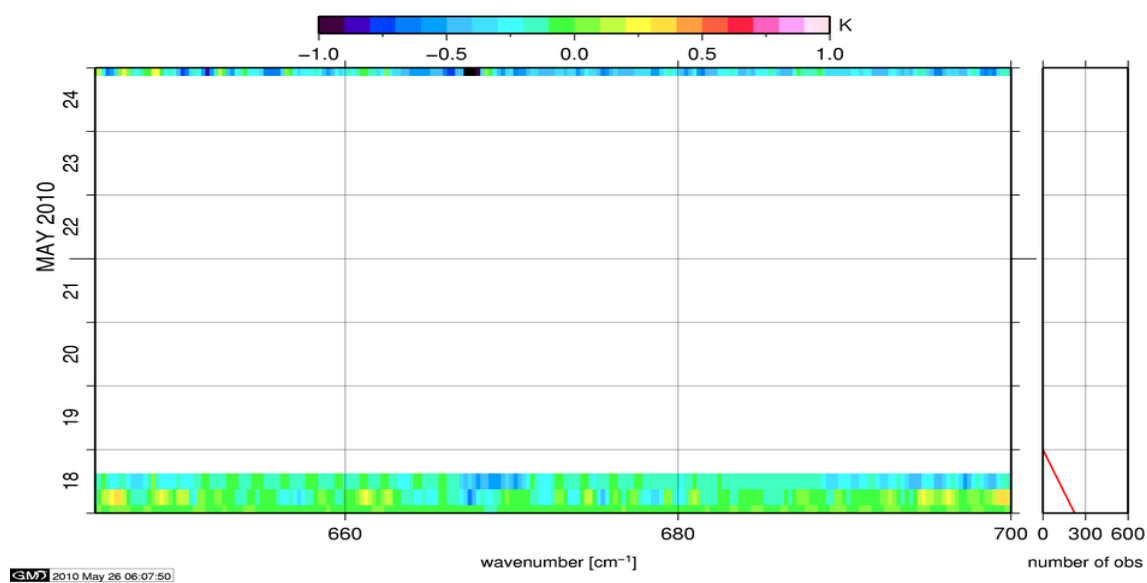


Figure 14: Radiance Anomaly in BRT: CO2 14

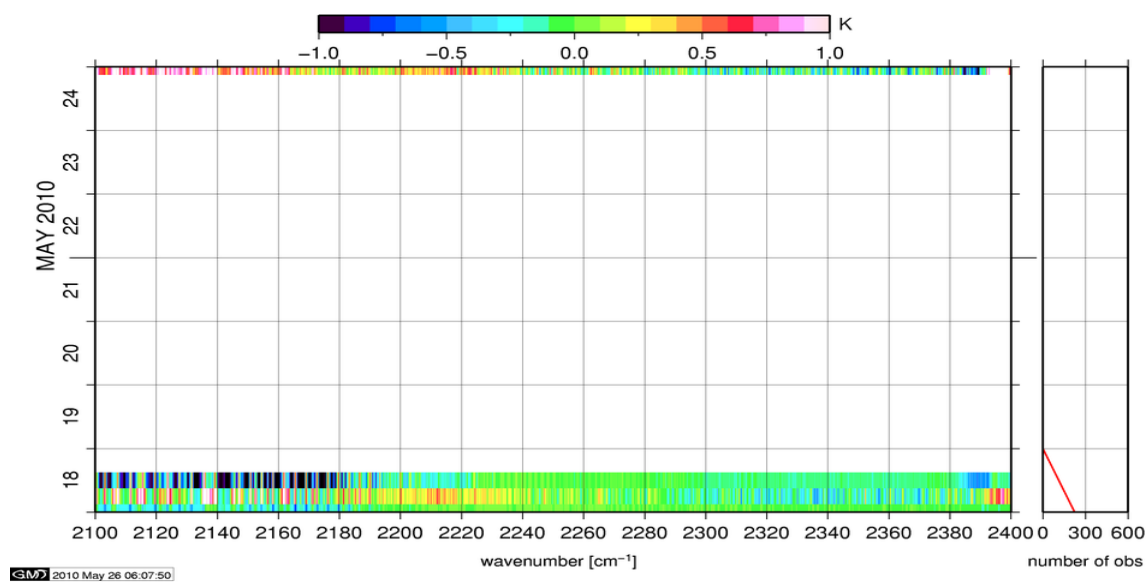


Figure 15: Radiance Anomaly in BRT: CO2 4.3

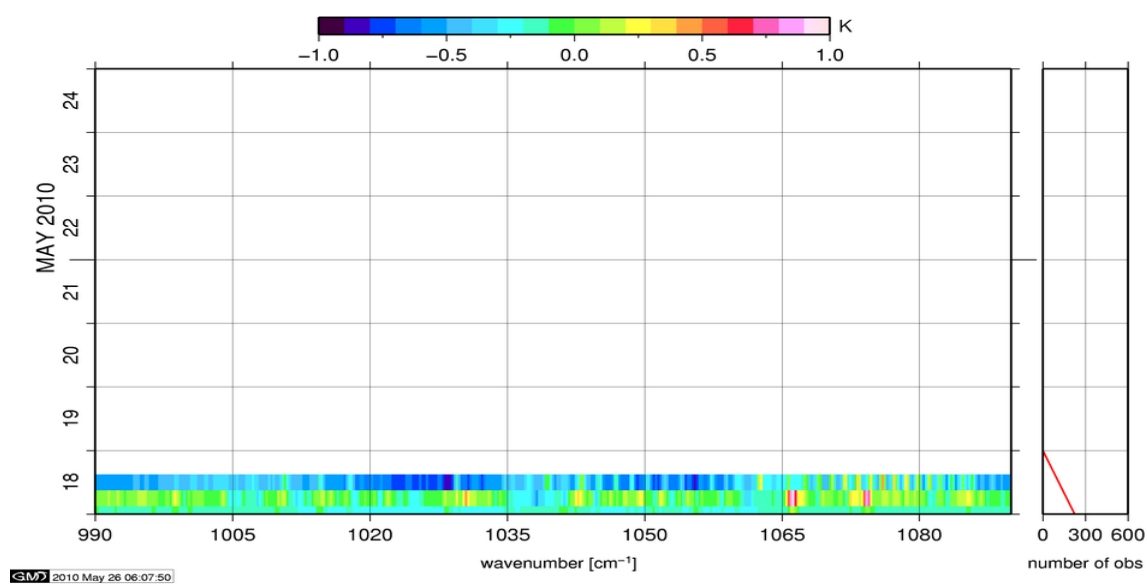


Figure 16: Radiance Anomaly in BRT: O3

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.

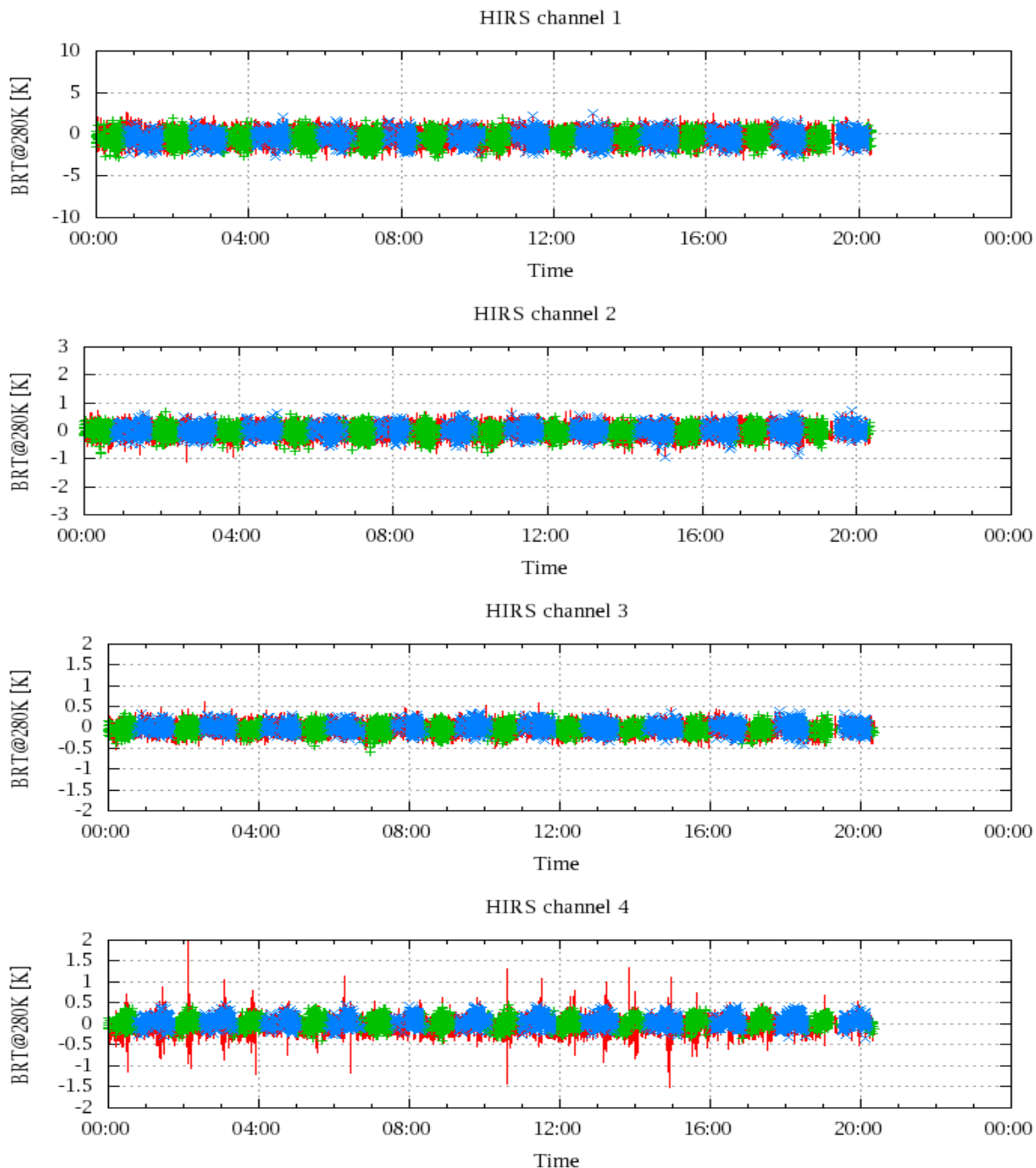


Figure 17: Radiance Differences in BRT

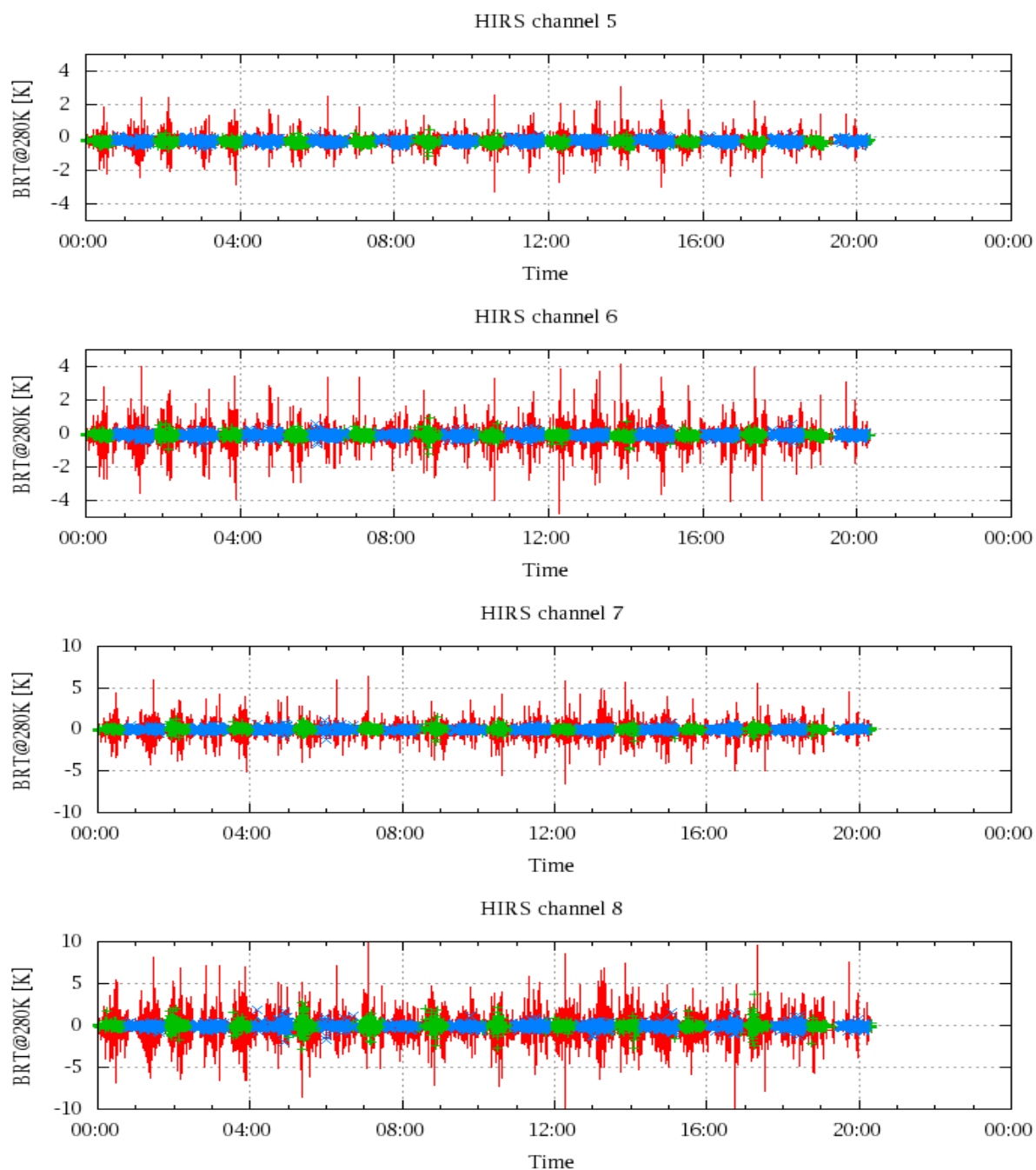


Figure 18: Radiance Differences in BRT

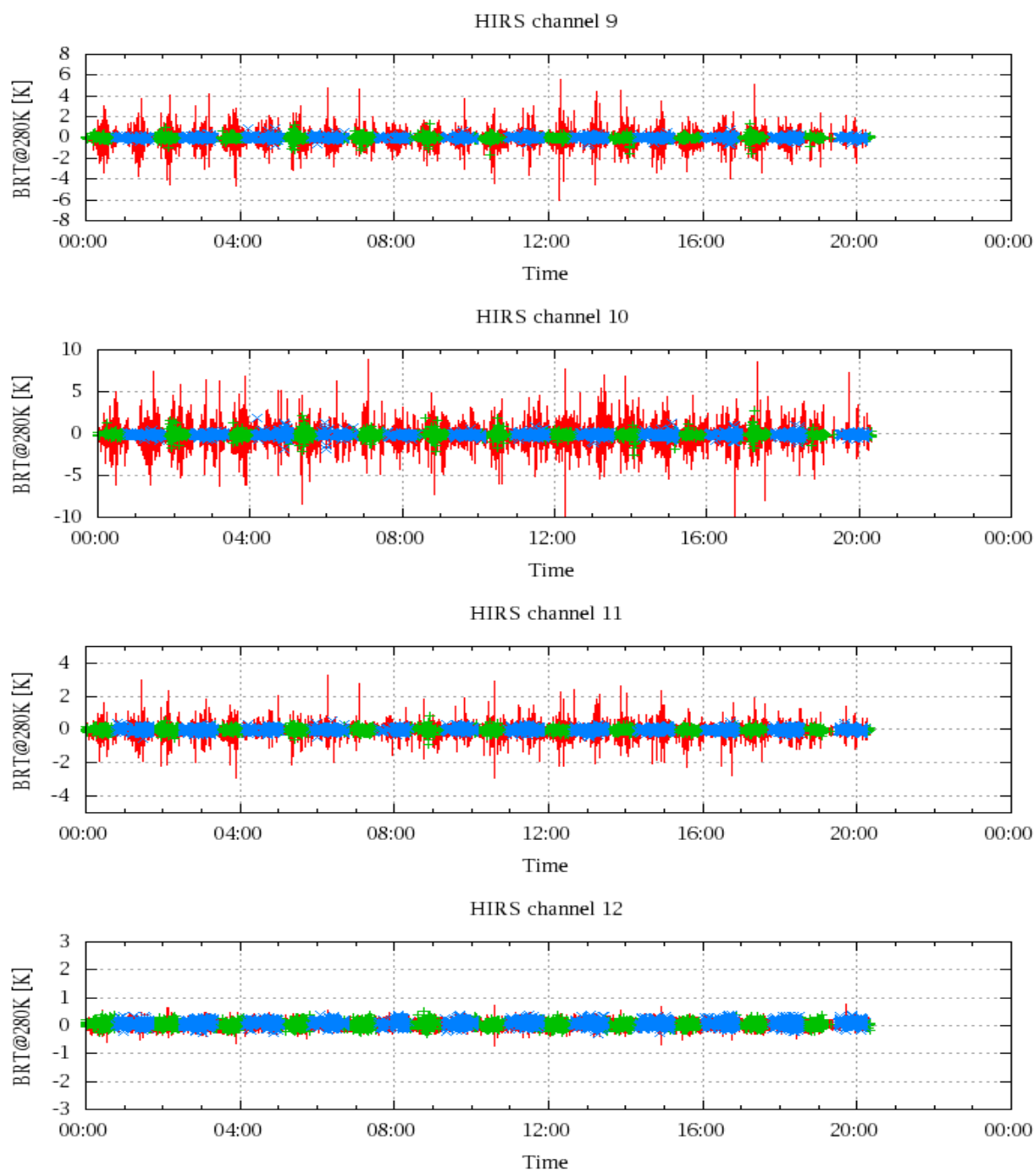


Figure 19: Radiance Differences in BRT

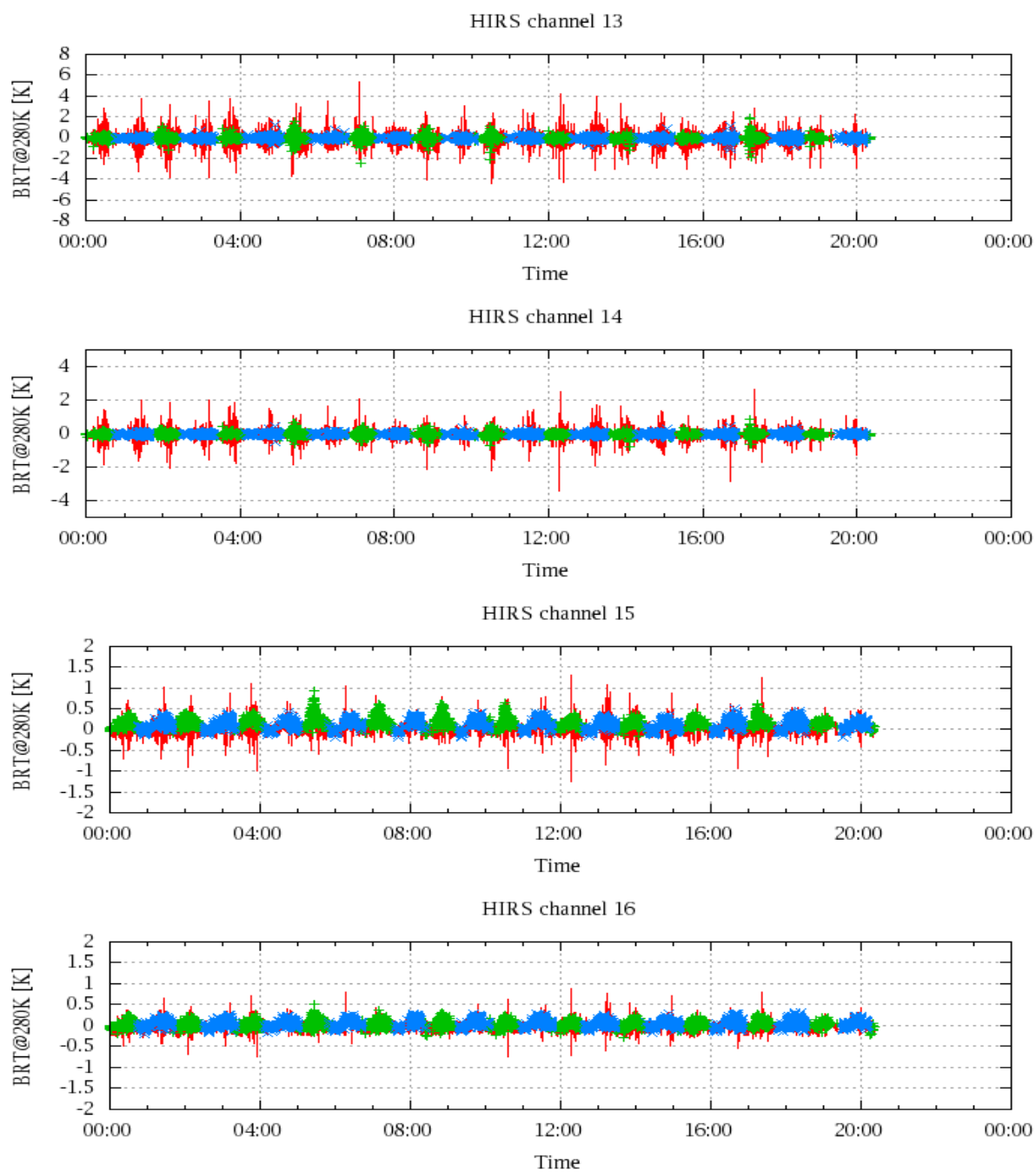


Figure 20: Radiance Differences in BRT

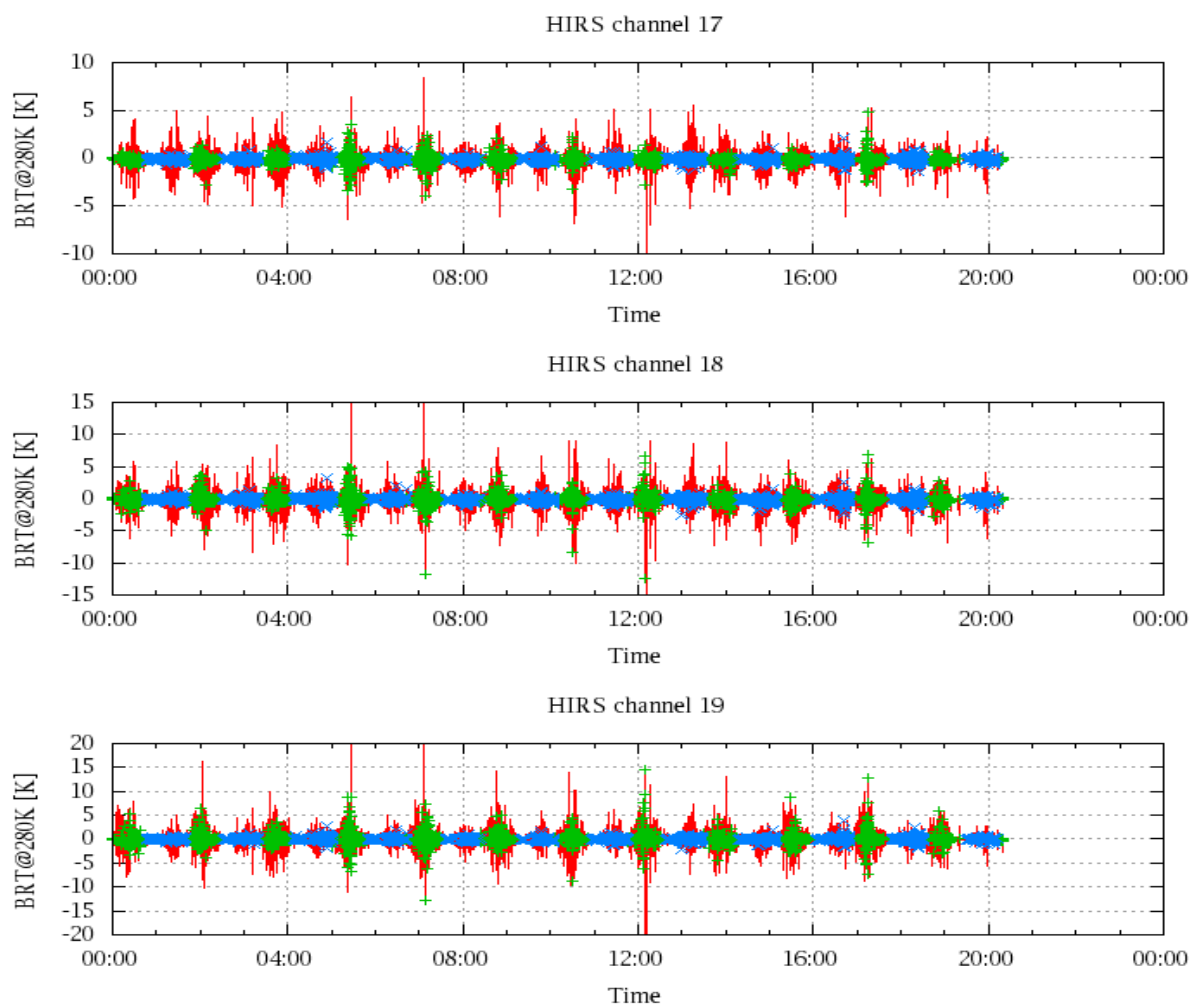


Figure 21: Radinace Differences in BRT