

IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

14/01/2012 00:00:00 - 15/01/2012 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 14/01/2012 00:00:00 - 15/01/2012 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 14/01/2012 00:00:00 - 15/01/2012 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)	479	-
L1 DPS Files (RM: OBS-CAL NWP based)	480	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	6086	6186	20120114070331.644	20120114070357.808
PX1 (130)	14694	14809	20120114161129.207	20120114161200.125
PX1 (130)	14934	14956	20120114161233.203	20120114161239.473
PX2 (135)	6086	6186	20120114070331.644	20120114070357.808
PX2 (135)	14694	14809	20120114161129.207	20120114161200.125
PX2 (135)	14934	14956	20120114161233.203	20120114161239.473
PX3 (140)	6086	6186	20120114070331.644	20120114070357.808
PX3 (140)	14694	14809	20120114161129.207	20120114161200.125
PX3 (140)	14934	14956	20120114161233.203	20120114161239.473
PX3 (140)	15477	15479	20120114233152.493	20120114233152.923
PX4 (145)	6085	6185	20120114070331.429	20120114070357.589
PX4 (145)	14693	14809	20120114161128.989	20120114161200.125
PX4 (145)	14934	14956	20120114161233.203	20120114161239.473
IMG (150)	8897	9009	20120114070331.429	20120114070357.589
IMG (150)	1173	1305	20120114161128.989	20120114161200.125
IMG (150)	1446	1471	20120114161233.203	20120114161239.258
VER (160)	15876	15892	20120114070329.269	20120114070401.265
VER (160)	3653	3674	20120114161121.207	20120114161201.207

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	3695	3699	20120114161233.203	20120114161241.203
AUX (180)	12990	12994	20120114070329.699	20120114070401.699
AUX (180)	715	720	20120114161121.637	20120114161201.637
AUX (180)	723	725	20120114161225.637	20120114161241.637

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
14/01/2012 00:00:08	-	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)	99.33 %	-
GQisFlagQual set (PX2)	99.18 %	-
GQisFlagQual set (PX3)	99.28 %	-
GQisFlagQual set (PX4)	99.39 %	-
GQisFlagQual set (all)	99.29 %	-

Table 4: Quality flags

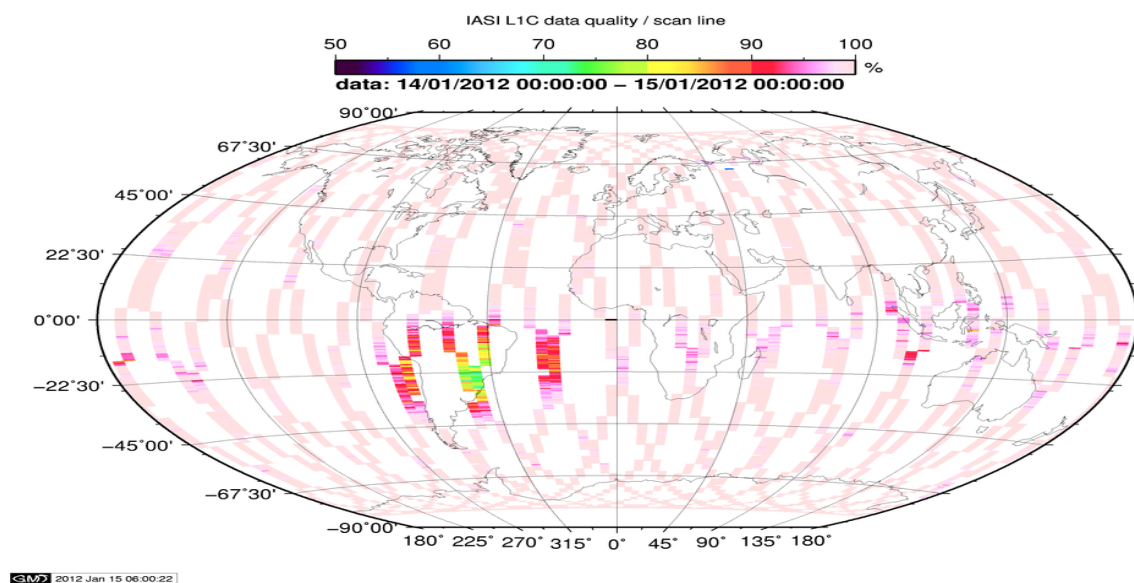


Figure 1: L1C data quality

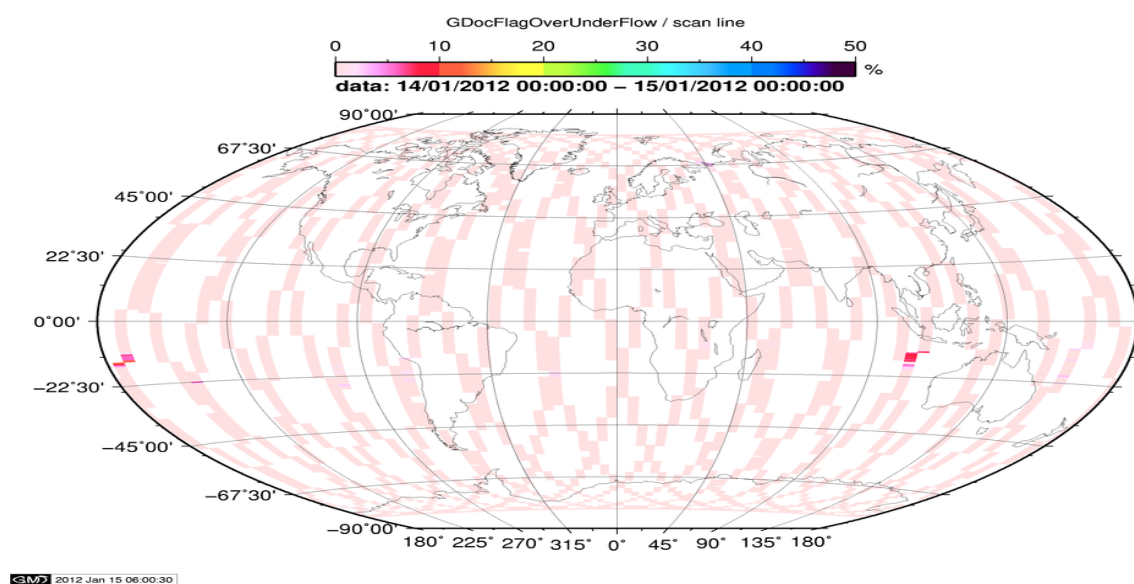


Figure 2: Flag of Over and Under Flows

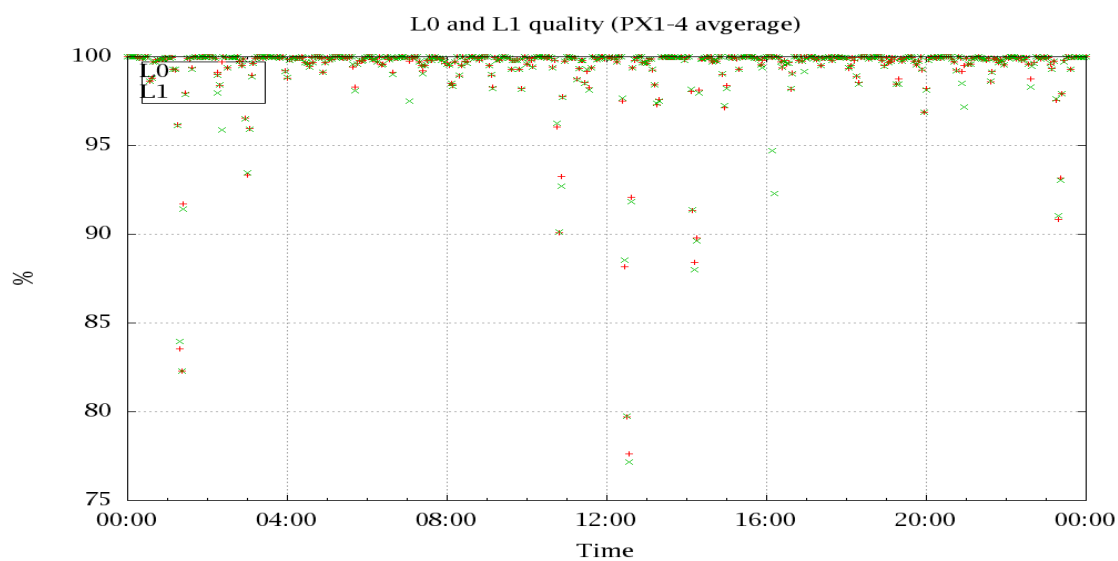


Figure 3: Level 0 and 1C overall quality

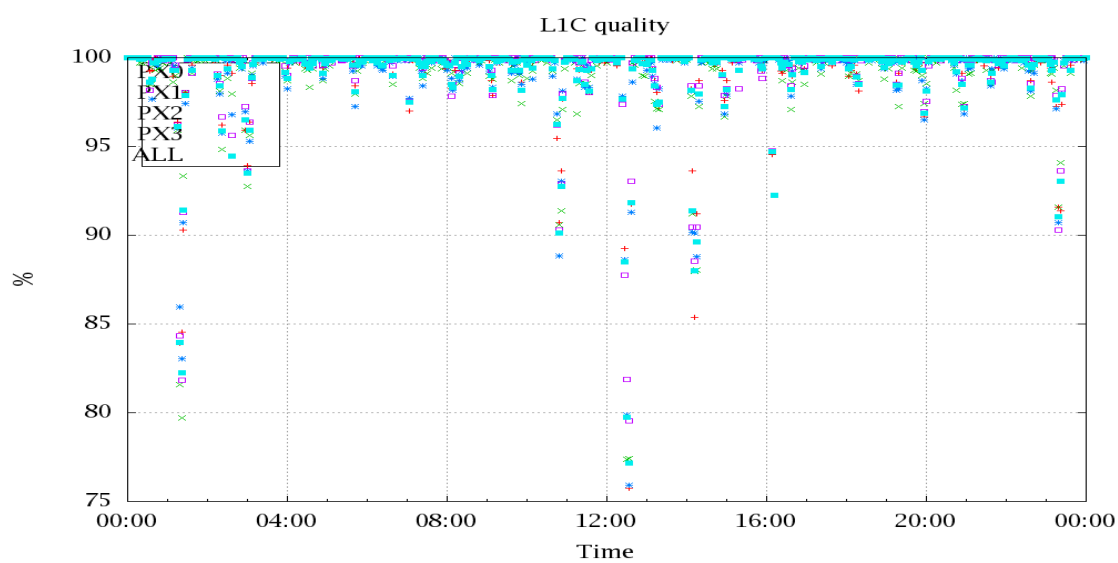


Figure 4: Level 1C quality

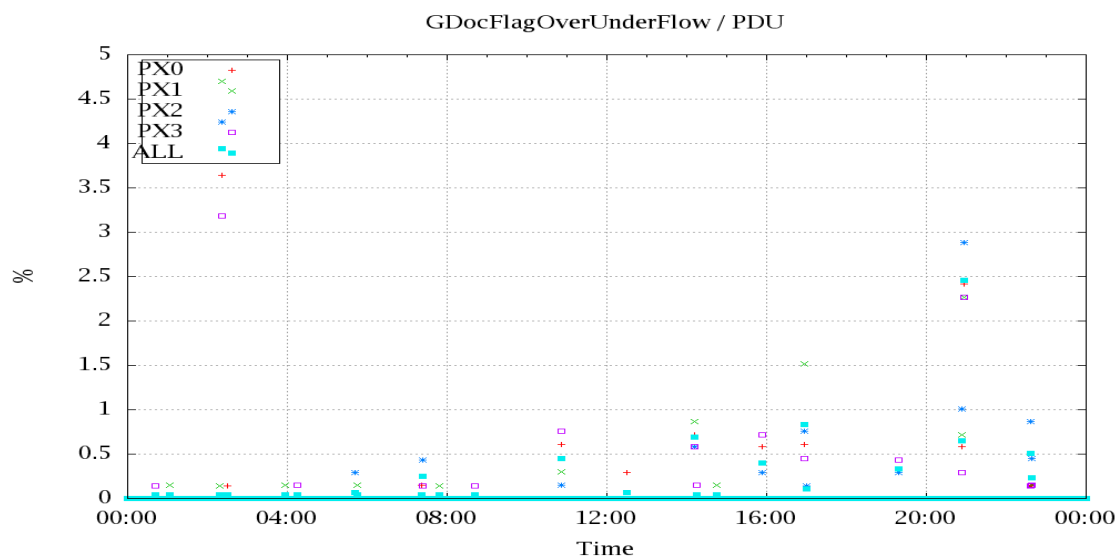


Figure 5: OverUnderFlowFlag timeseries

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.

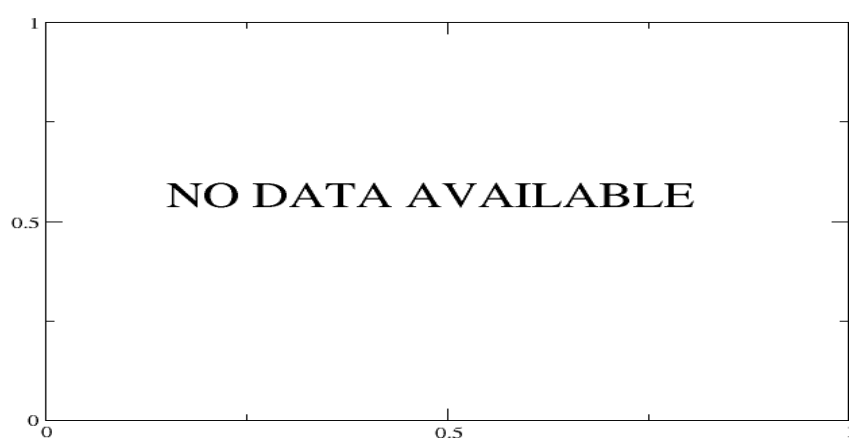


Figure 6: Average Radiance differences: OBS-CAL

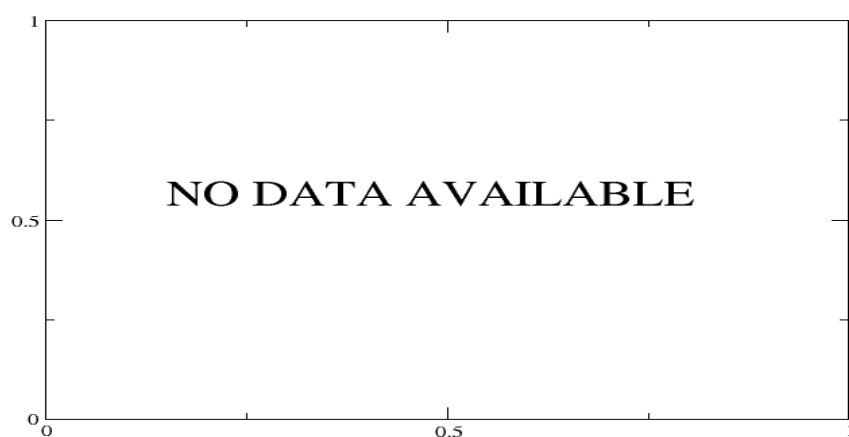


Figure 7: Standard Deviation of Radiance differences

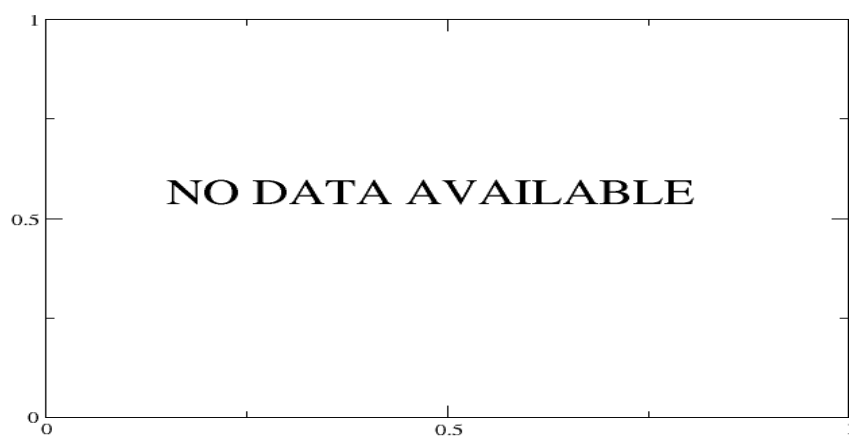


Figure 8: Average Radiance differences: OBS-CAL



Figure 9: Standard Deviation of Radiance differences

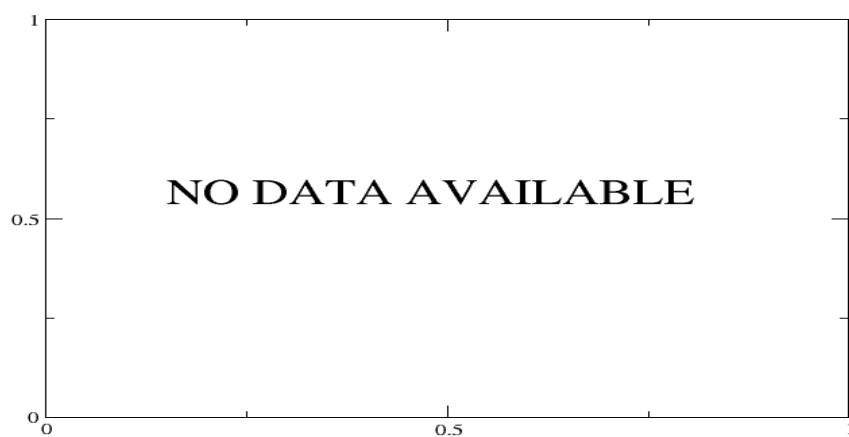


Figure 10: Radiance Anomaly in BRT: All Channels



Figure 11: Radiance Anomaly in BRT: IASI Band 1

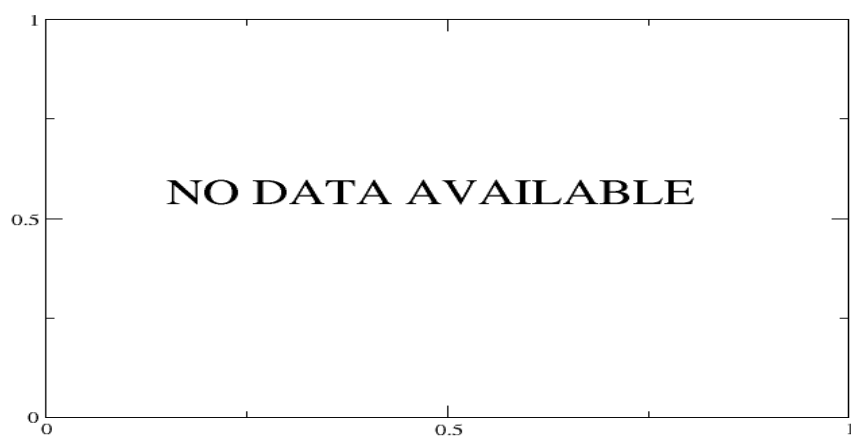


Figure 12: Radiance Anomaly in BRT: IASI Band 2

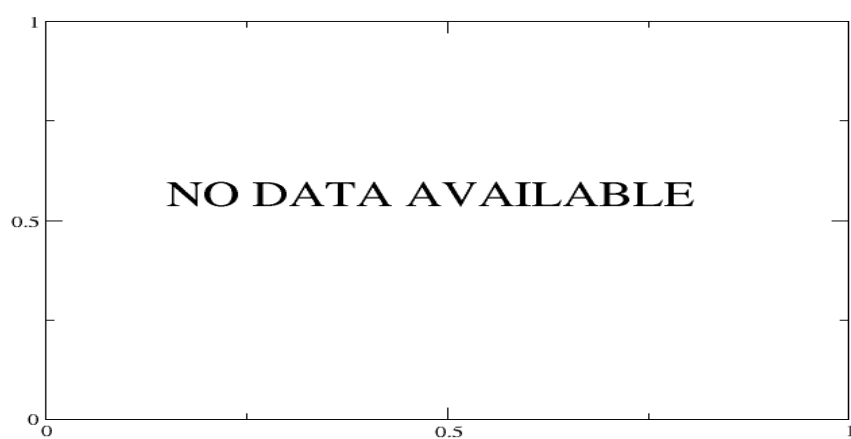


Figure 13: Radiance Anomaly in BRT: IASI Band 3

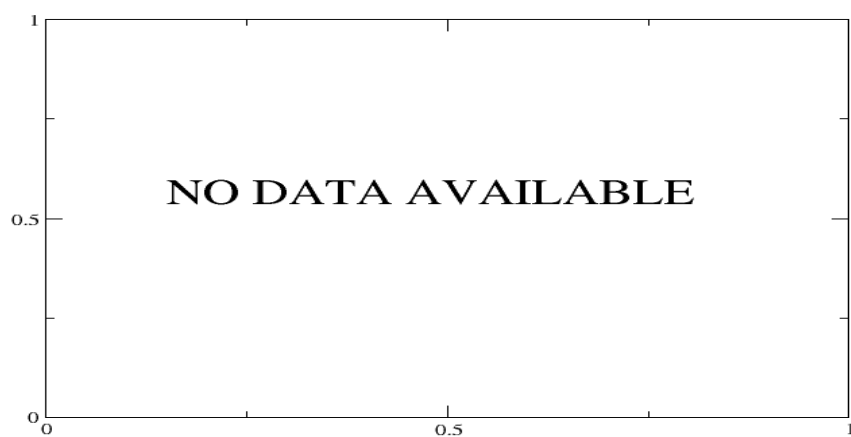


Figure 14: Radiance Anomaly in BRT: CO2 14

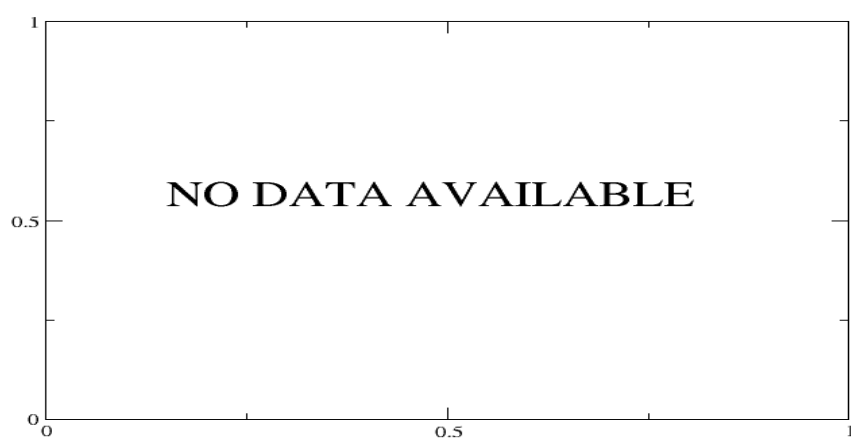


Figure 15: Radiance Anomaly in BRT: CO2 4.3



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.

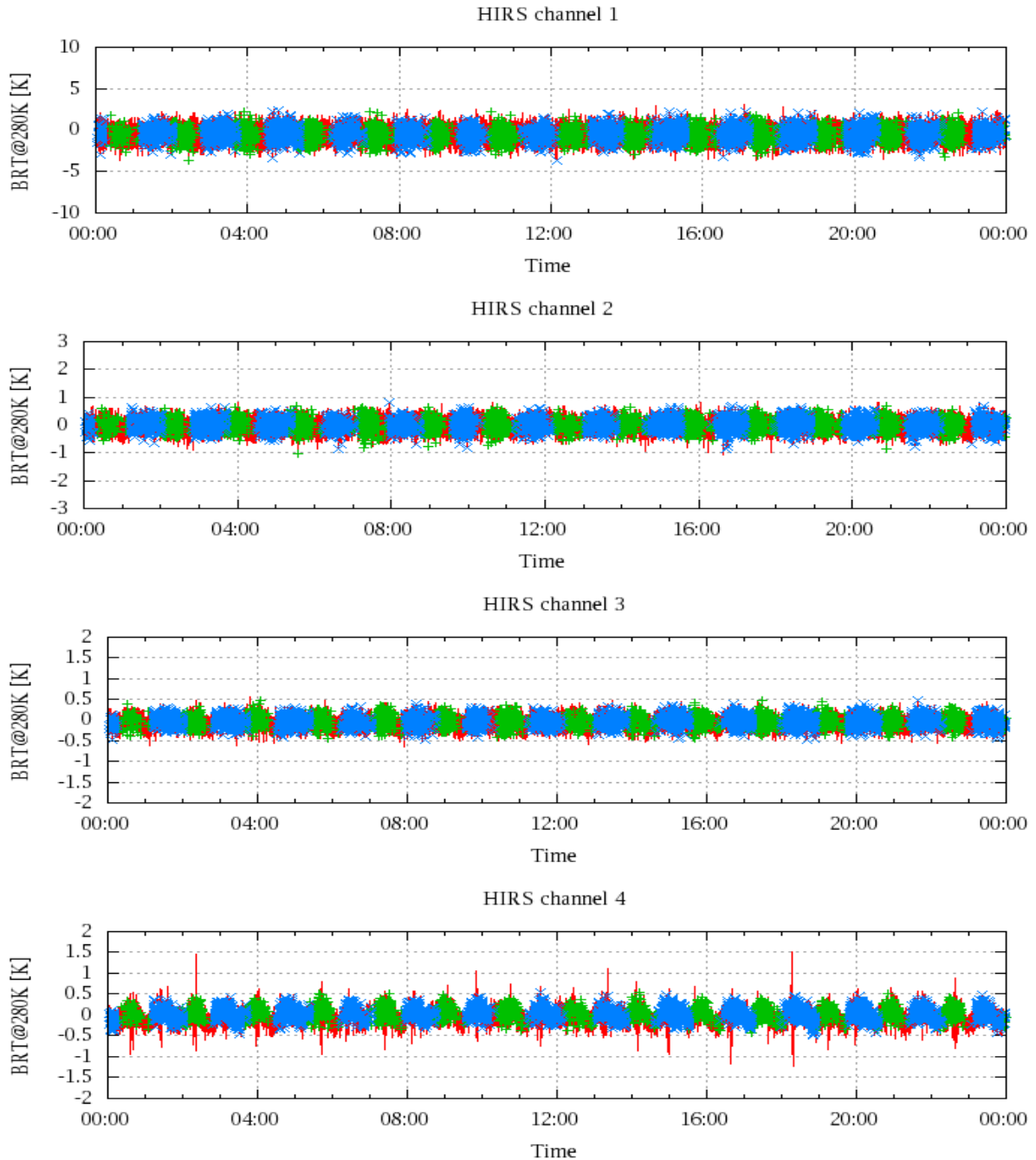


Figure 17: Radiance Differences in BRT

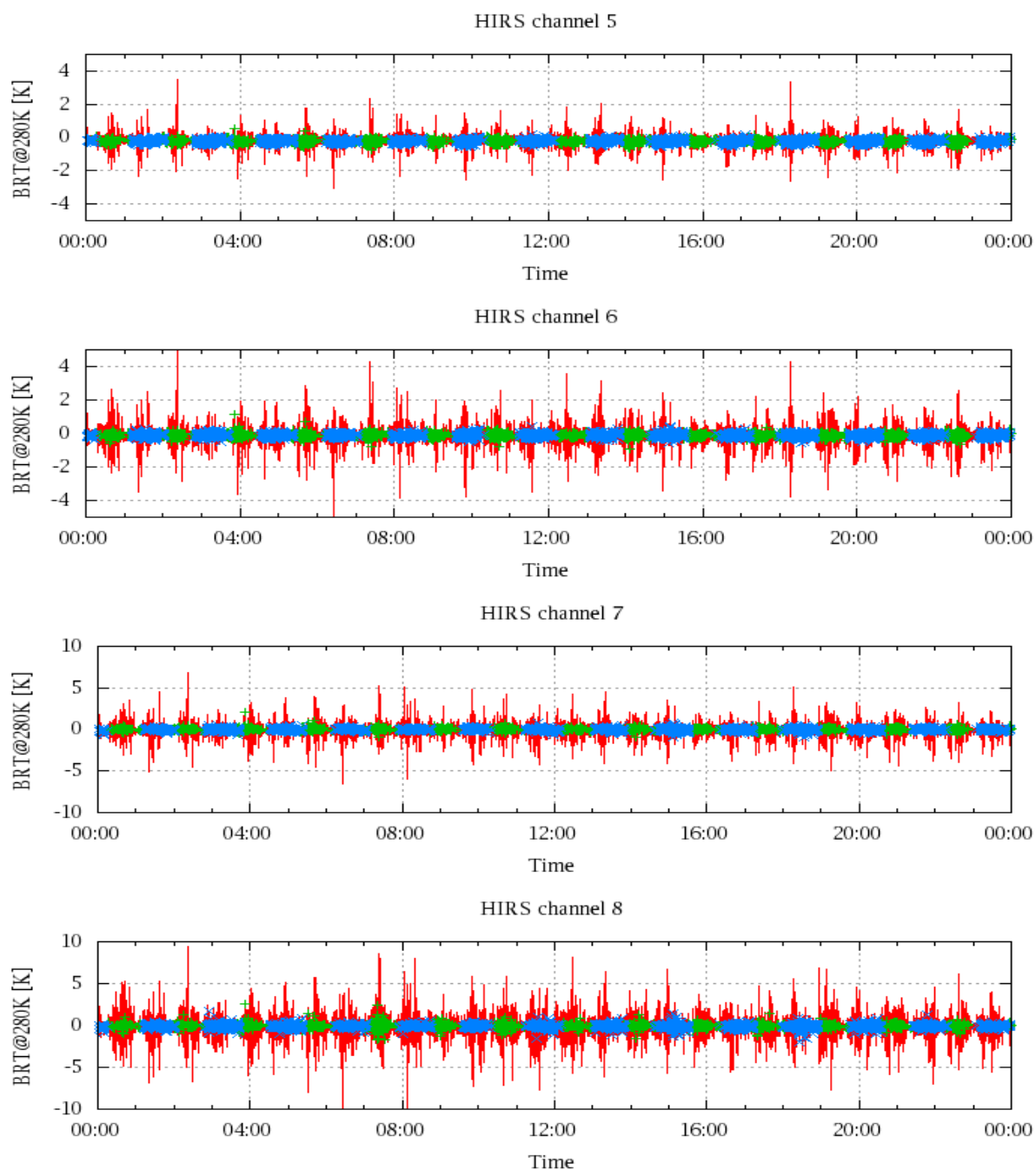


Figure 18: Radiance Differences in BRT

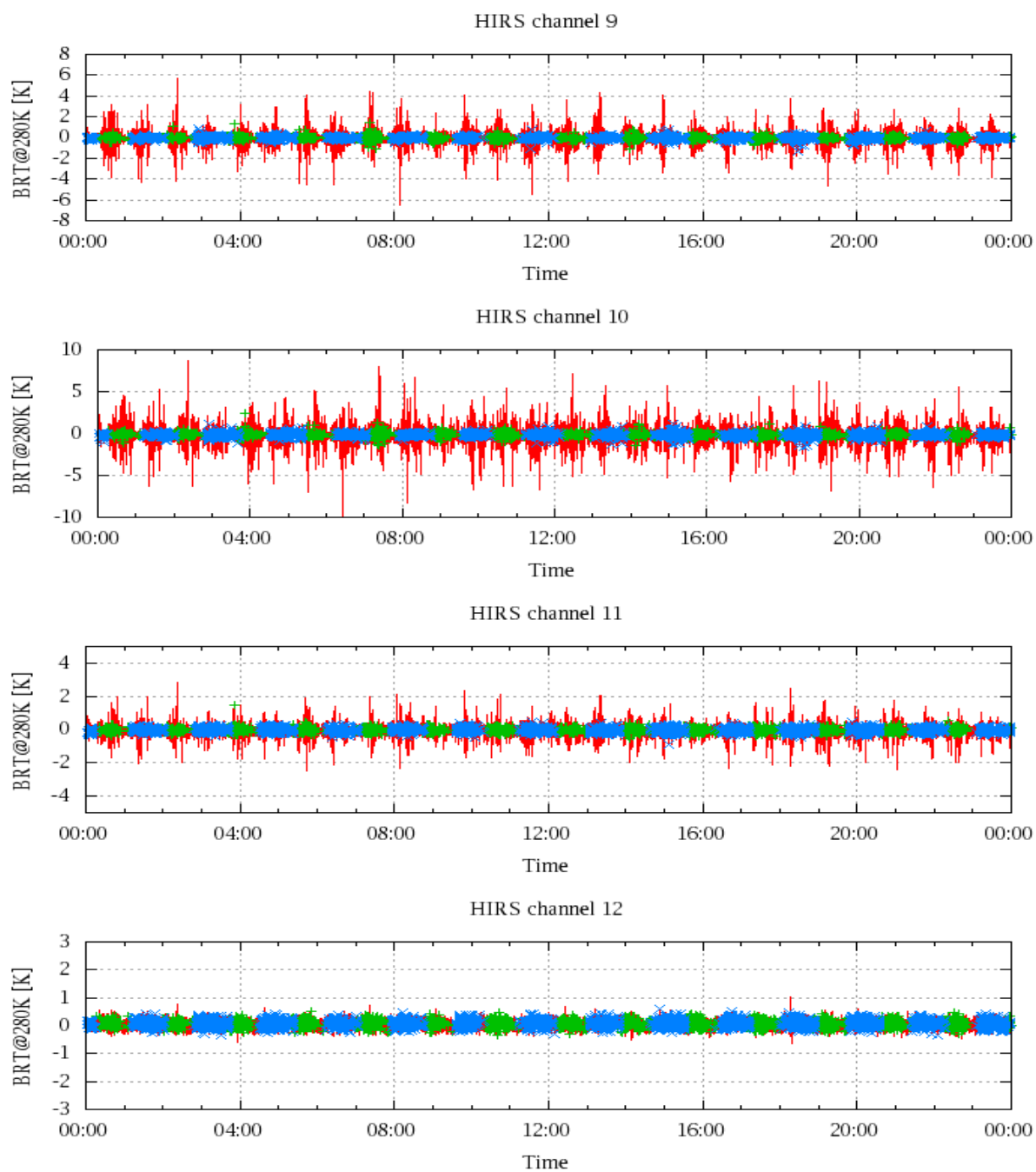


Figure 19: Radiance Differences in BRT

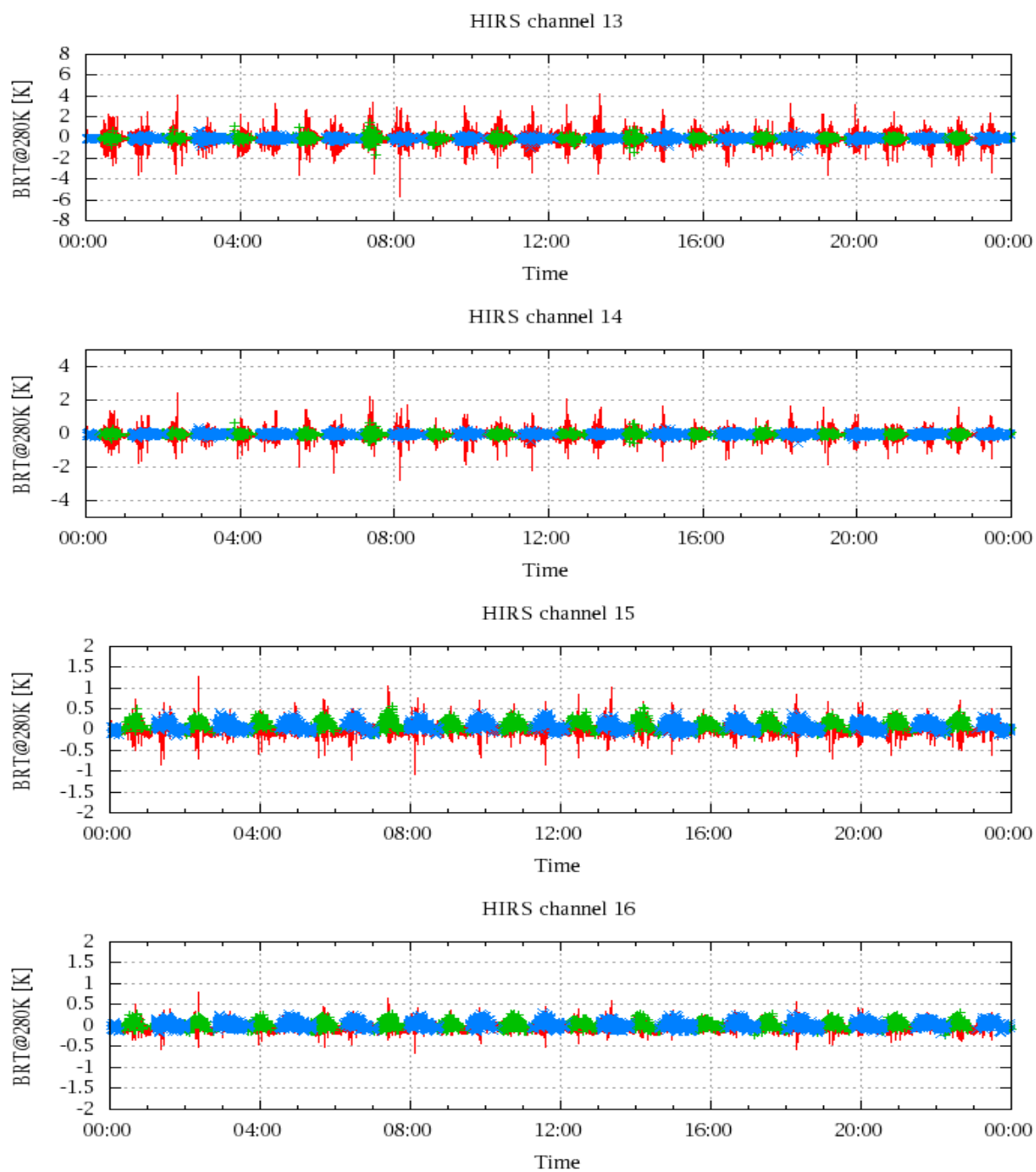


Figure 20: Radiance Differences in BRT

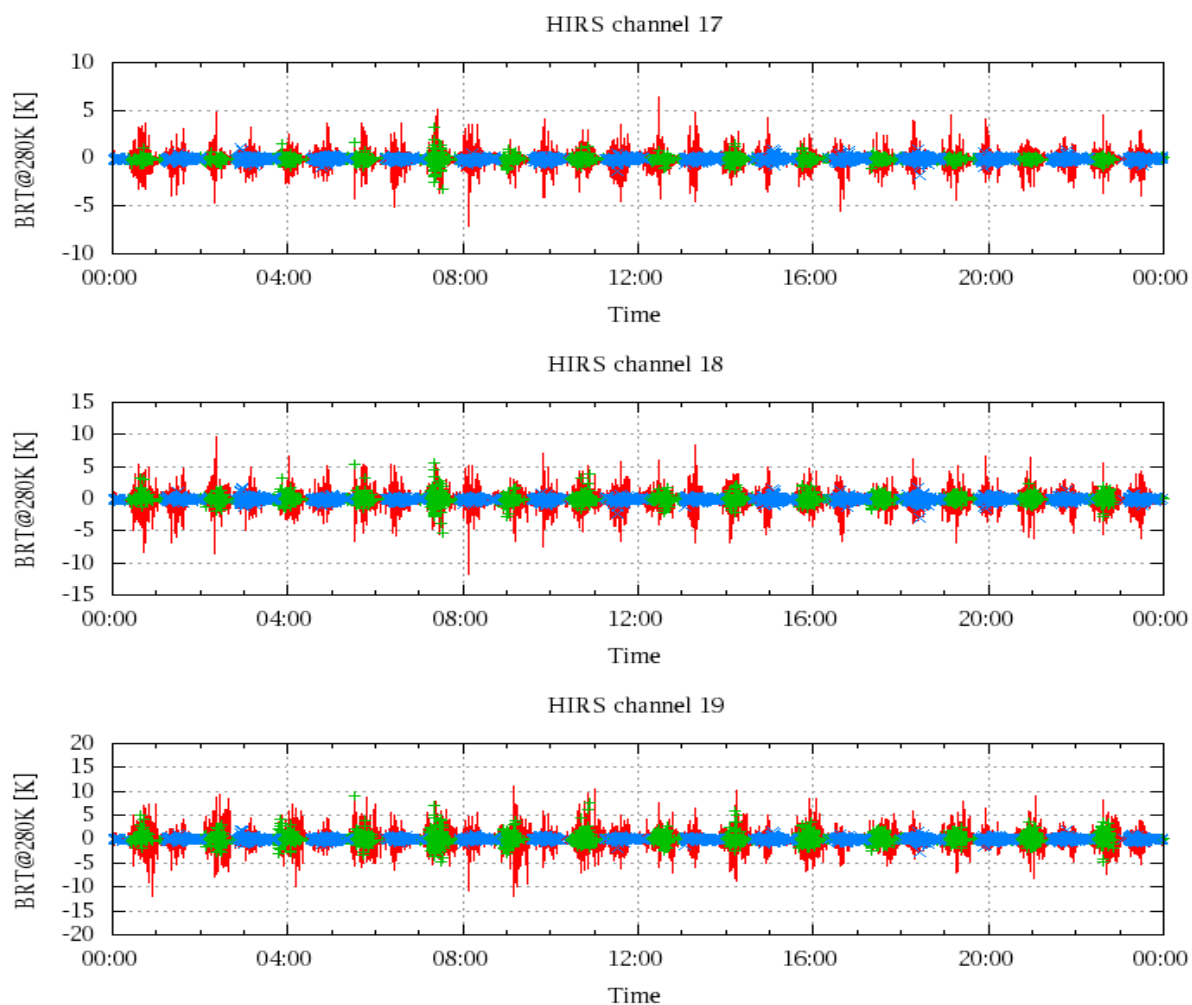


Figure 21: Radinace Differences in BRT