IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

03/01/2012 00:00:00 - 04/01/2012 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 03/01/2012 00:00:00 - 04/01/2012 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 03/01/2012 00:00:00 - 04/01/2012 00:00:00

Product Type	**Number**	**Action**
L0 HKTM PDUs	481	-
L0 IASI PDUs	479	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	481	-
L1 DPX PDUs (RM: IASI-HIRS)	478	-
L1 DPS Files (RM: OBS-CAL NWP based)	480	-

Table 1: Data quantity

APID	**Seq from**	**Seq to**	**Time from**	**Time to**
PX1 (130)	3203	3881	20120103043559.868	20120103043901.270
PX1 (130)	9382	9420	20120103072905.352	20120103072915.082
PX1 (130)	1812	1835	20120103125931.445	20120103125937.934
PX1 (130)	1835	1850	20120103125937.934	20120103125942.691
PX1 (130)	1852	1861	20120103125943.121	20120103125945.066
PX1 (130)	1906	1911	20120103125957.824	20120103125958.906
PX1 (130)	1916	2593	20120103125959.988	20120103130301.171
PX2 (135)	3203	3881	20120103043559.868	20120103043901.270
PX2 (135)	9382	9420	20120103072905.352	20120103072915.082
PX2 (135)	1812	1850	20120103125931.445	20120103125942.691
PX2 (135)	1852	1861	20120103125943.121	20120103125945.066
PX2 (135)	1906	1911	20120103125957.824	20120103125958.906
PX2 (135)	1916	2593	20120103125959.988	20120103130301.171
PX3 (140)	3203	3881	20120103043559.868	20120103043901.270
PX3 (140)	9382	9420	20120103072905.352	20120103072915.082
PX3 (140)	1812	1850	20120103125931.445	20120103125942.691
PX3 (140)	1852	1860	20120103125943.121	20120103125944.852
PX3 (140)	1905	1911	20120103125957.606	20120103125958.906

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX3 (140)	1916	2593	20120103125959.988	20120103130301.171
PX4 (145)	3203	3881	20120103043559.868	20120103043901.270
PX4 (145)	9382	9420	20120103072905.352	20120103072915.082
PX4 (145)	1812	1849	20120103125931.445	20120103125942.473
PX4 (145)	1852	1860	20120103125943.121	20120103125944.852
PX4 (145)	1905	1911	20120103125957.606	20120103125958.906
PX4 (145)	1916	2593	20120103125959.988	20120103130301.171
IMG (150)	1659	2426	20120103043559.868	20120103043900.188
IMG (150)	13029	13071	20120103072905.137	20120103072914.867
IMG (150)	15372	15417	20120103125931.445	20120103125942.473
IMG (150)	15419	15428	20120103125942.906	20120103125944.852
IMG (150)	15481	15486	20120103125957.606	20120103125958.691
IMG (150)	15492	16258	20120103125959.988	20120103130300.089
VER (160)	6331	6447	20120103043555.544	20120103043907.540
VER (160)	12821	12827	20120103072859.516	20120103072915.516
VER (160)	8829	8838	20120103125931.445	20120103125947.445
VER (160)	8842	8846	20120103125947.445	20120103125955.445
VER (160)	8847	8963	20120103125955.445	20120103130307.441
AUX (180)	7805	7829	20120103043555.978	20120103043907.969
AUX (180)	9103	9105	20120103072859.945	20120103072915.945
AUX (180)	11581	11584	20120103125923.879	20120103125947.879
AUX (180)	11585	11609	20120103125955.879	20120103130307.871

Table 2: L0 data gaps

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3 Instrument modes

Time	Transition from	Transition to
03/01/2012 00:00:11	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	479	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	481	-
GQisFlagQual set (PX1)	99.24 %	-
GQisFlagQual set (PX2)	99.11 %	-
GQisFlagQual set (PX3)	99.23 %	-
GQisFlagQual set (PX4)	99.28 %	-
GQisFlagQual set (all)	99.22 %	-

Table 4: Quality flags

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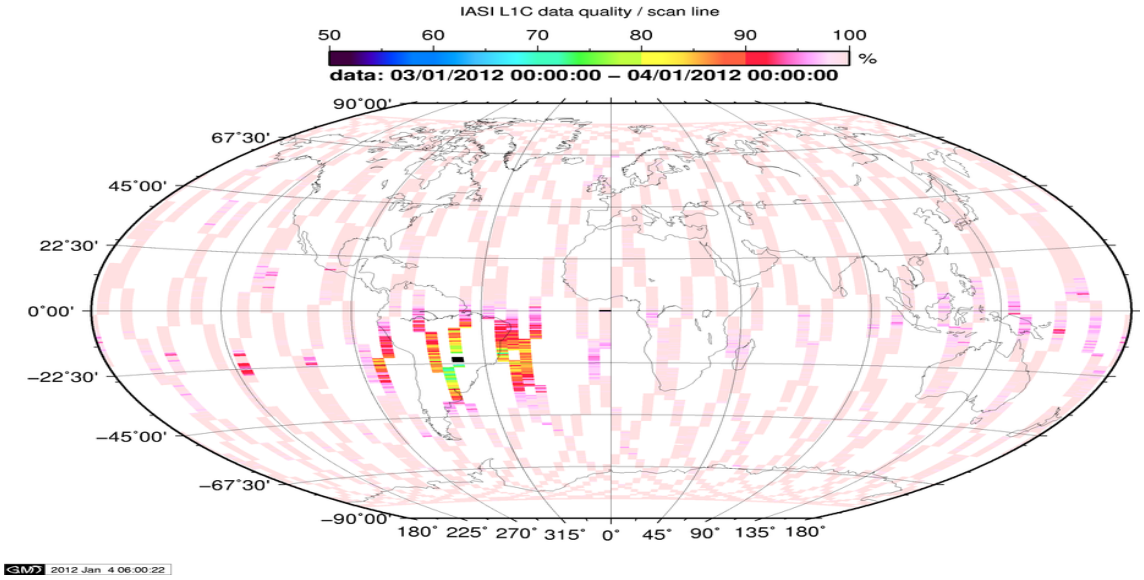

Figure 1: L1C data quality

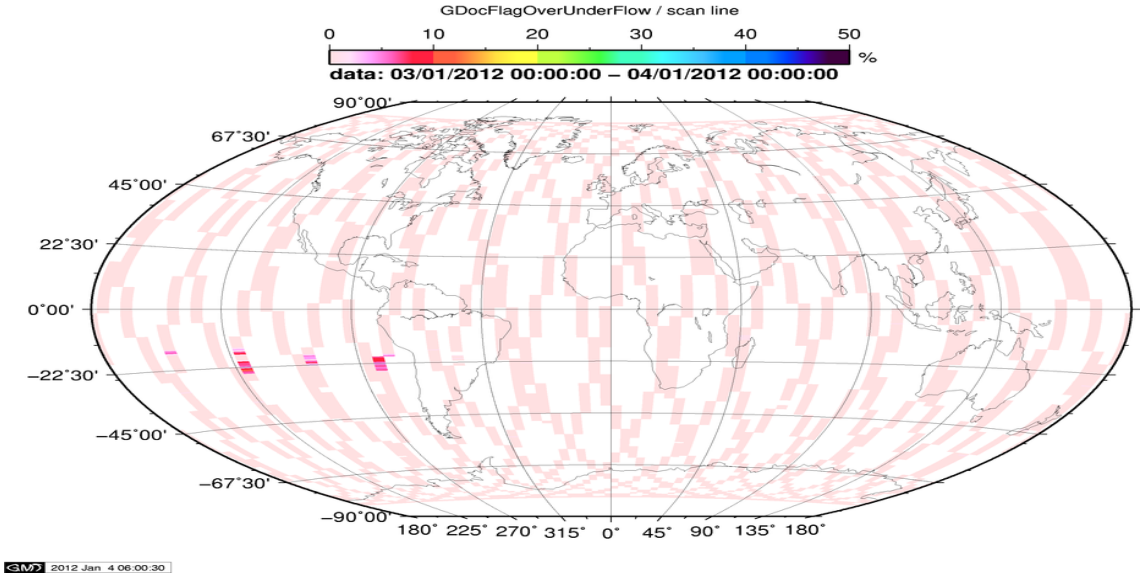

Figure 2: Flag of Over and Under Flows

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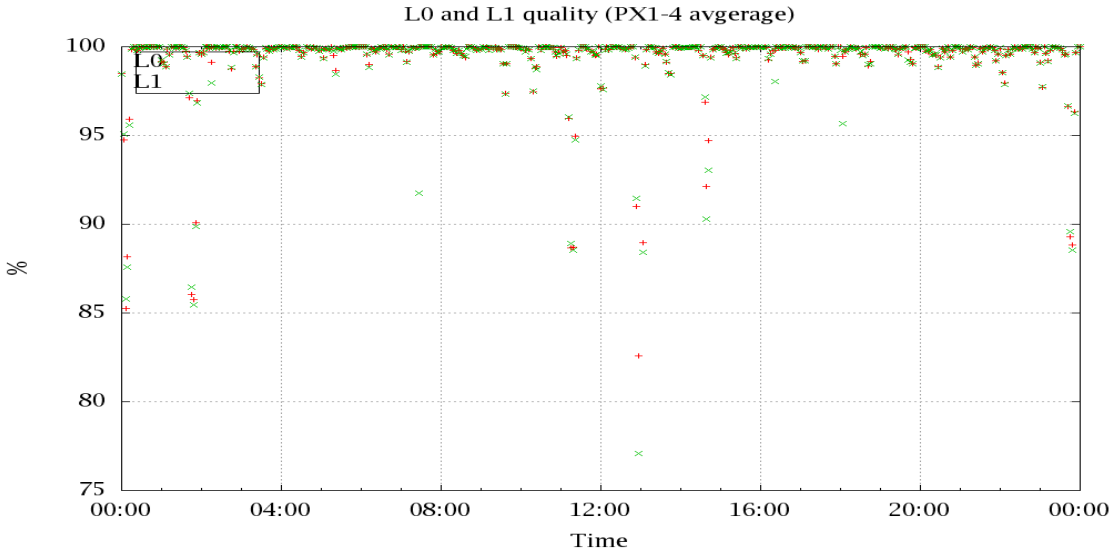

Figure 3: Level 0 and 1C overall quality

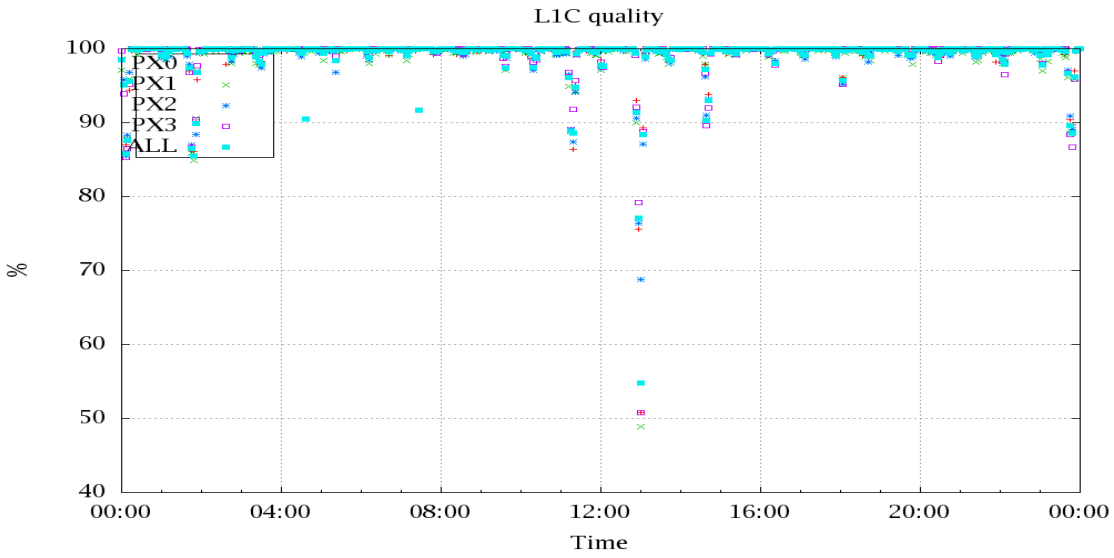

Figure 4: Level 1C quality

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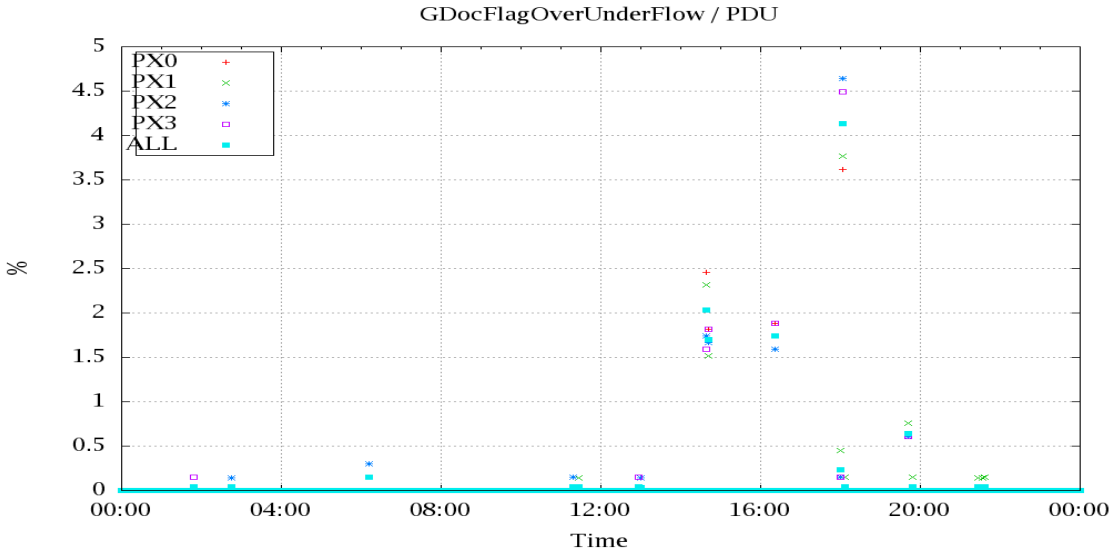

Figure 5: OverUnderFlowFlag timeseries

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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.

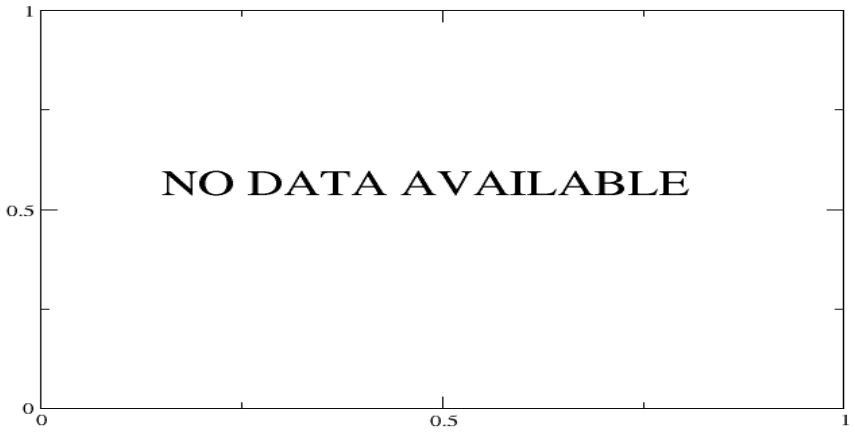

Figure 6: Average Radiance differences: OBS-CAL

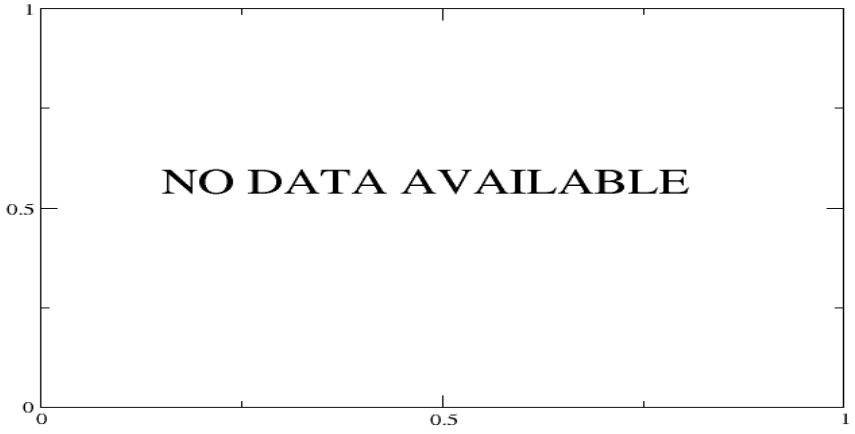

Figure 7: Standard Deviation of Radiance differences

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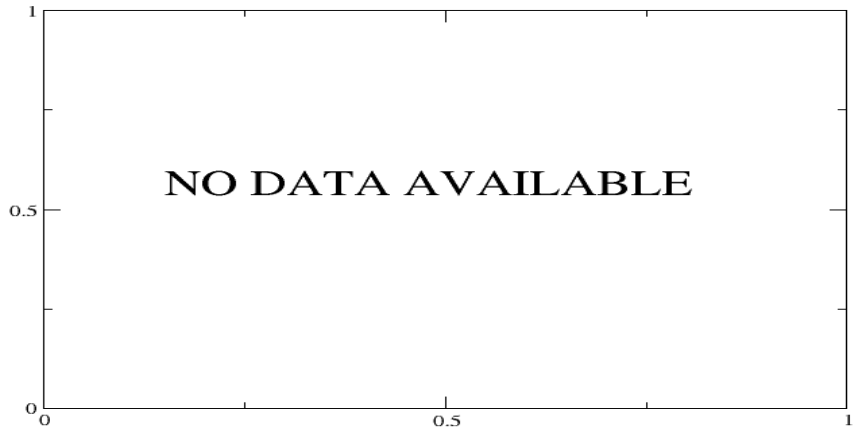

Figure 8: Average Radiance differences: OBS-CAL

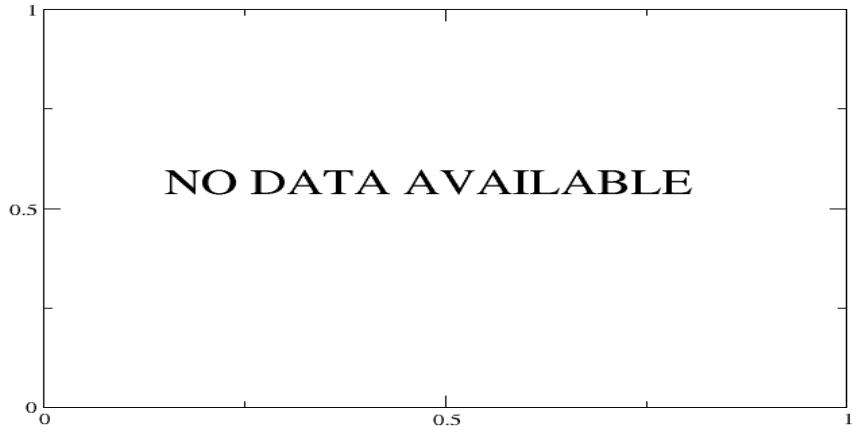

Figure 9: Standard Deviation of Radiance differences

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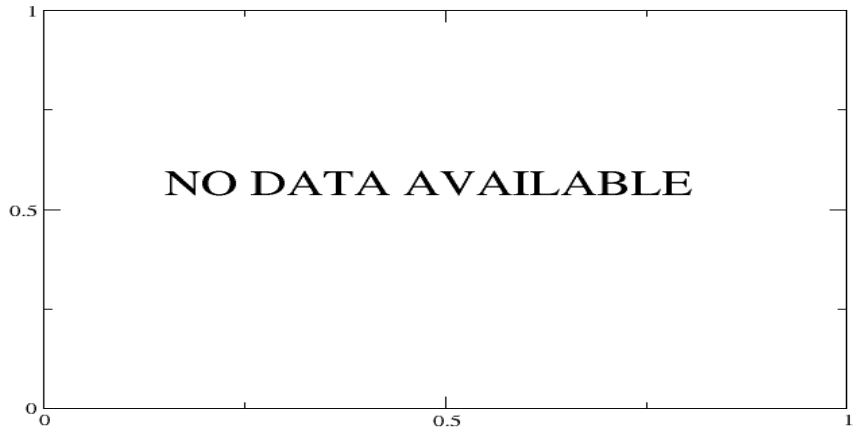

Figure 10: Radiance Anomaly in BRT: All Channels

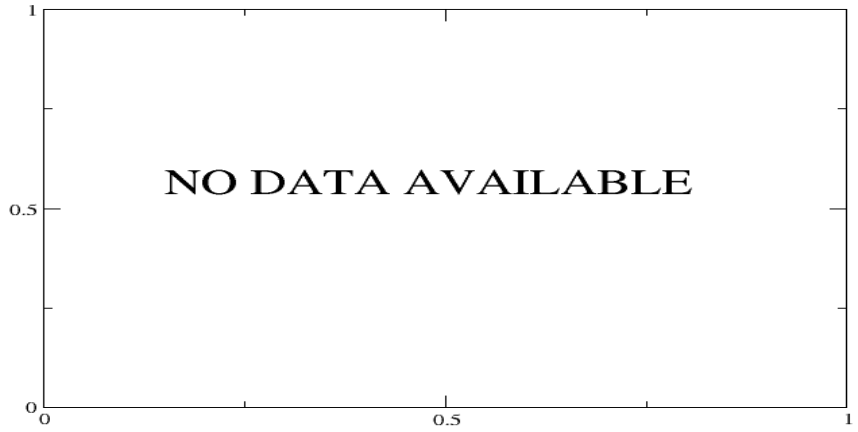

Figure 11: Radiance Anomaly in BRT: IASI Band 1

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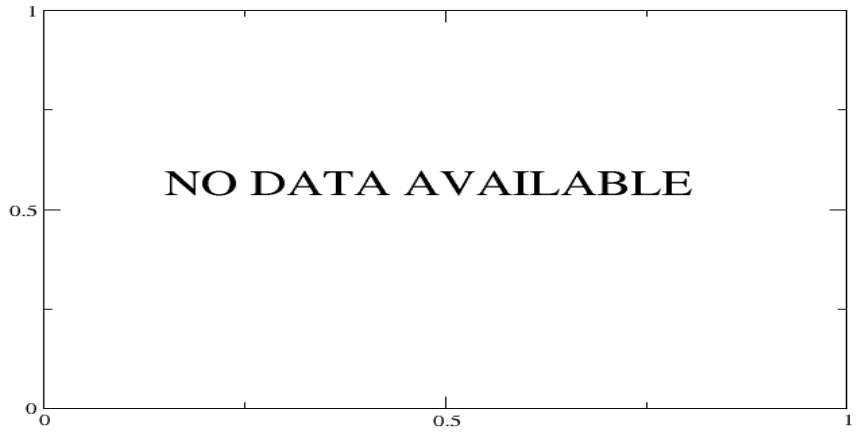

Figure 12: Radiance Anomaly in BRT: IASI Band 2

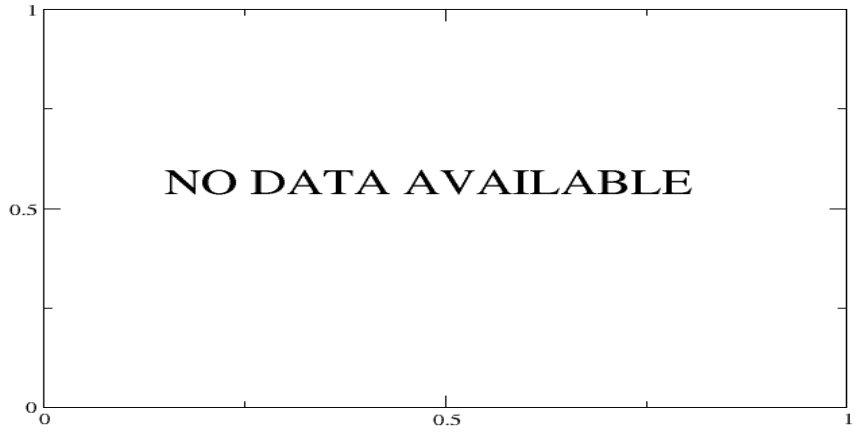

Figure 13: Radiance Anomaly in BRT: IASI Band 3

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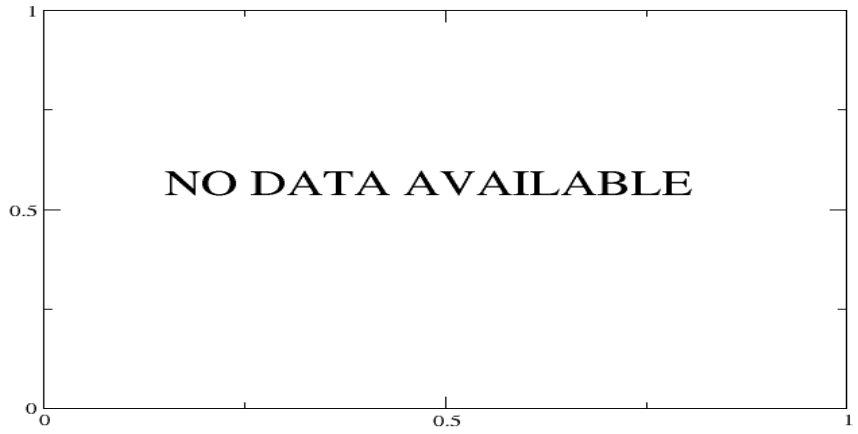

Figure 14: Radiance Anomaly in BRT: CO2 14

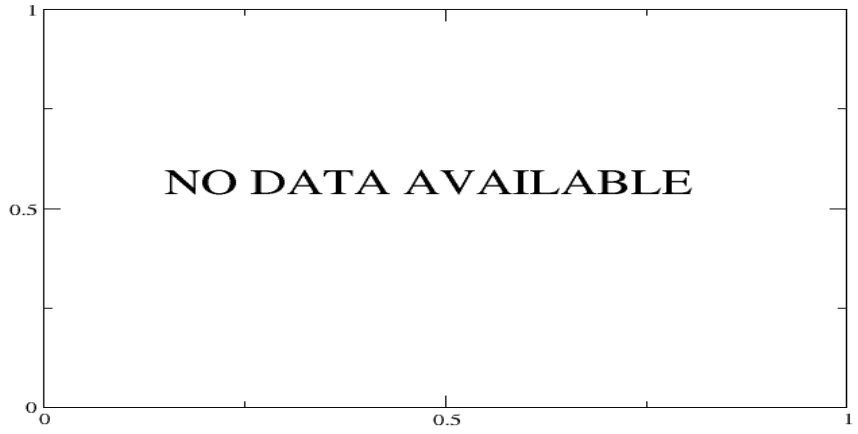

Figure 15: Radiance Anomaly in BRT: CO2 4.3

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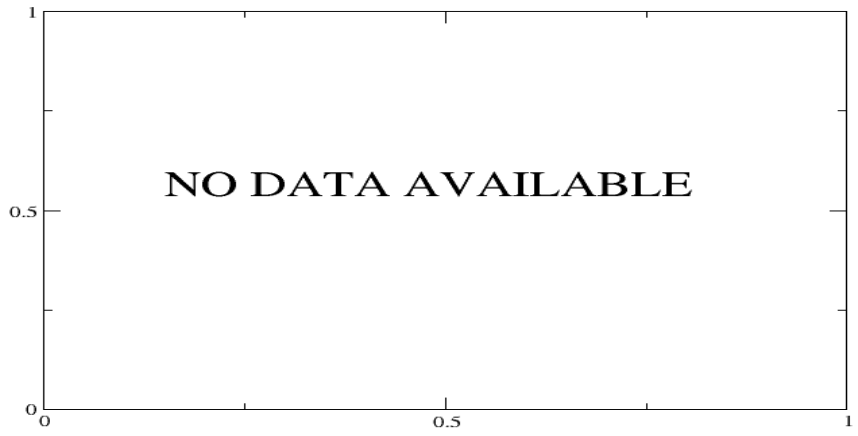

Figure 16: Radiance Anomaly in BRT: O3

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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.

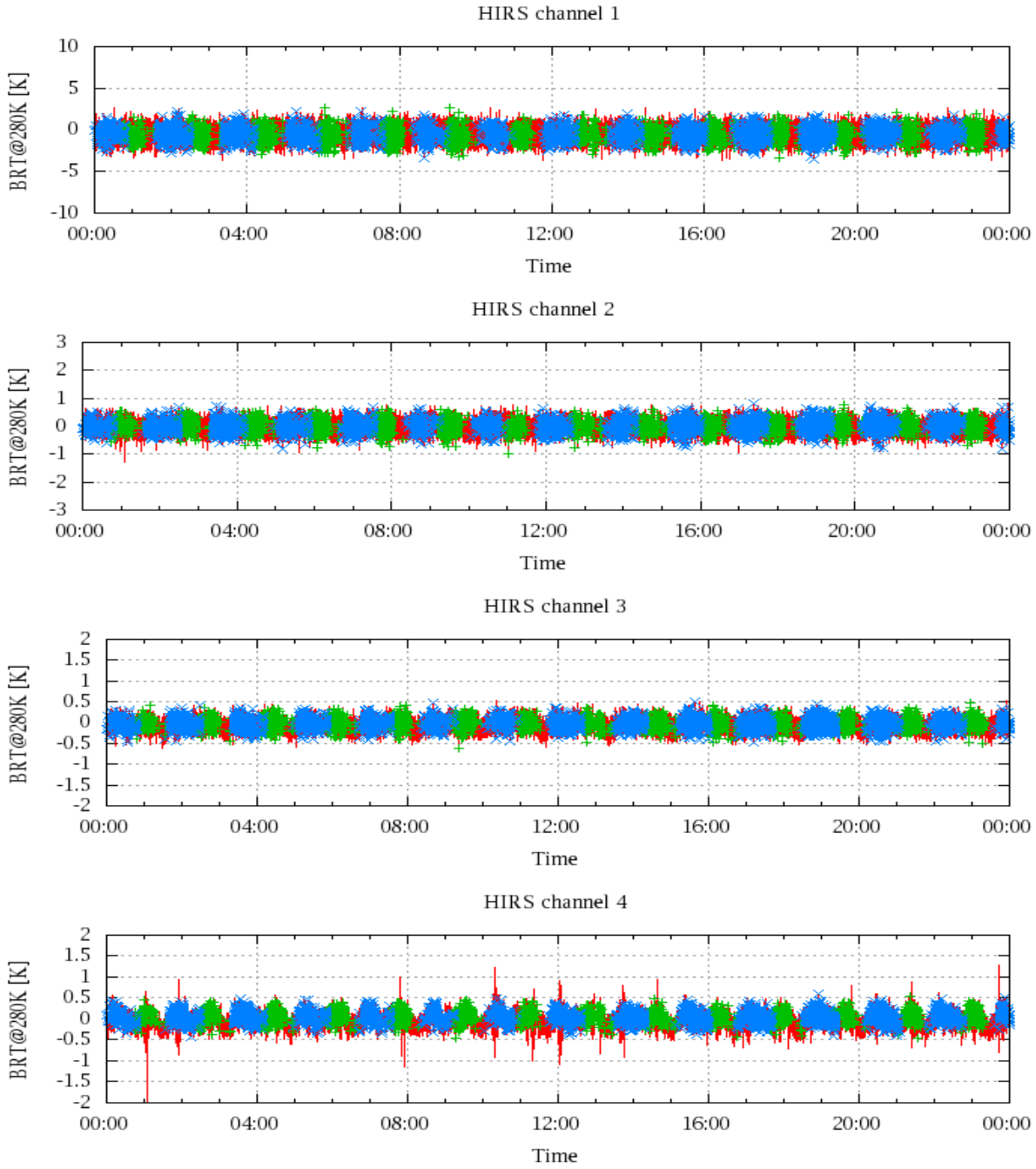

Figure 17: Radiance Differences in BRT

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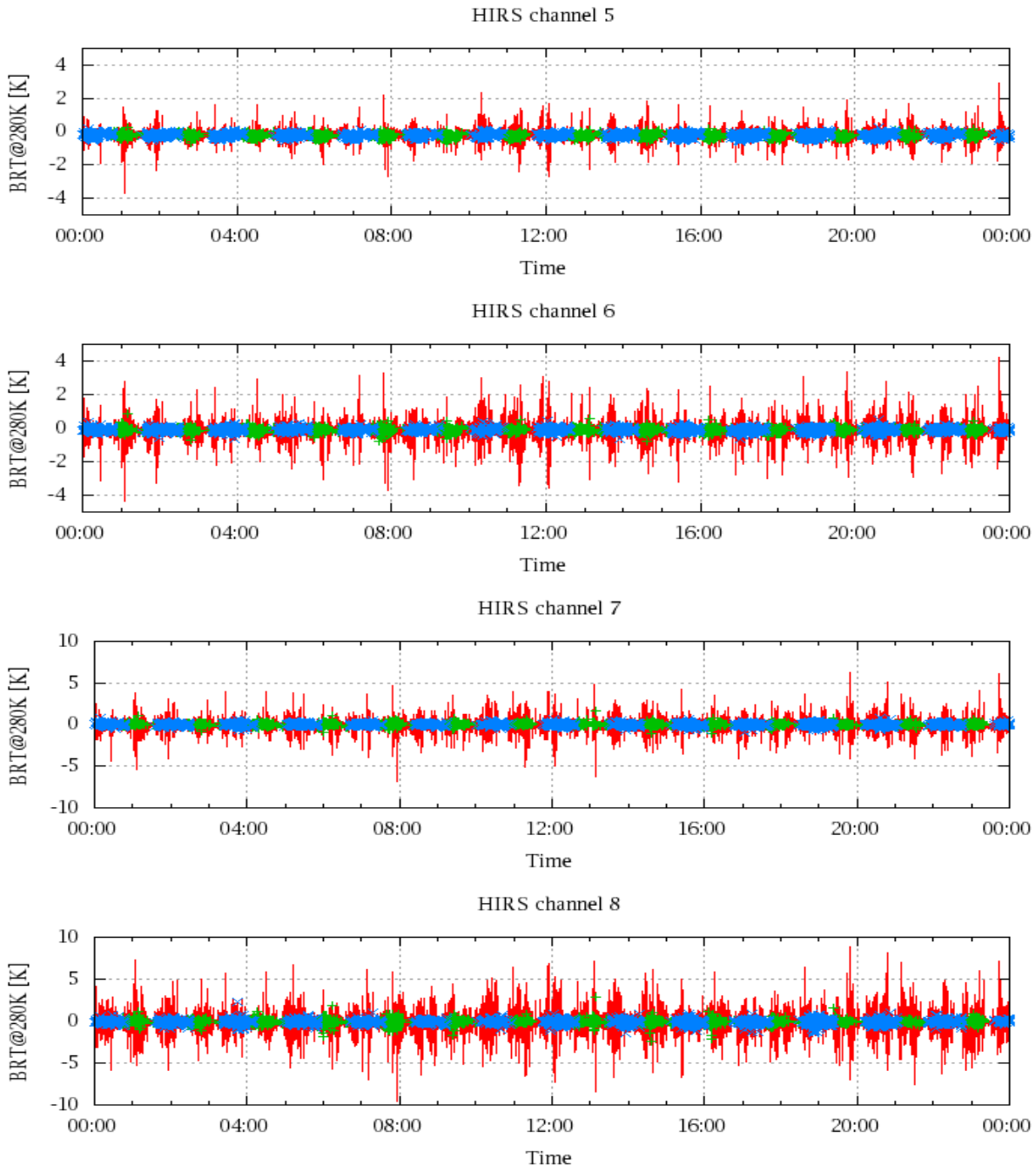

Figure 18: Radiance Differences in BRT

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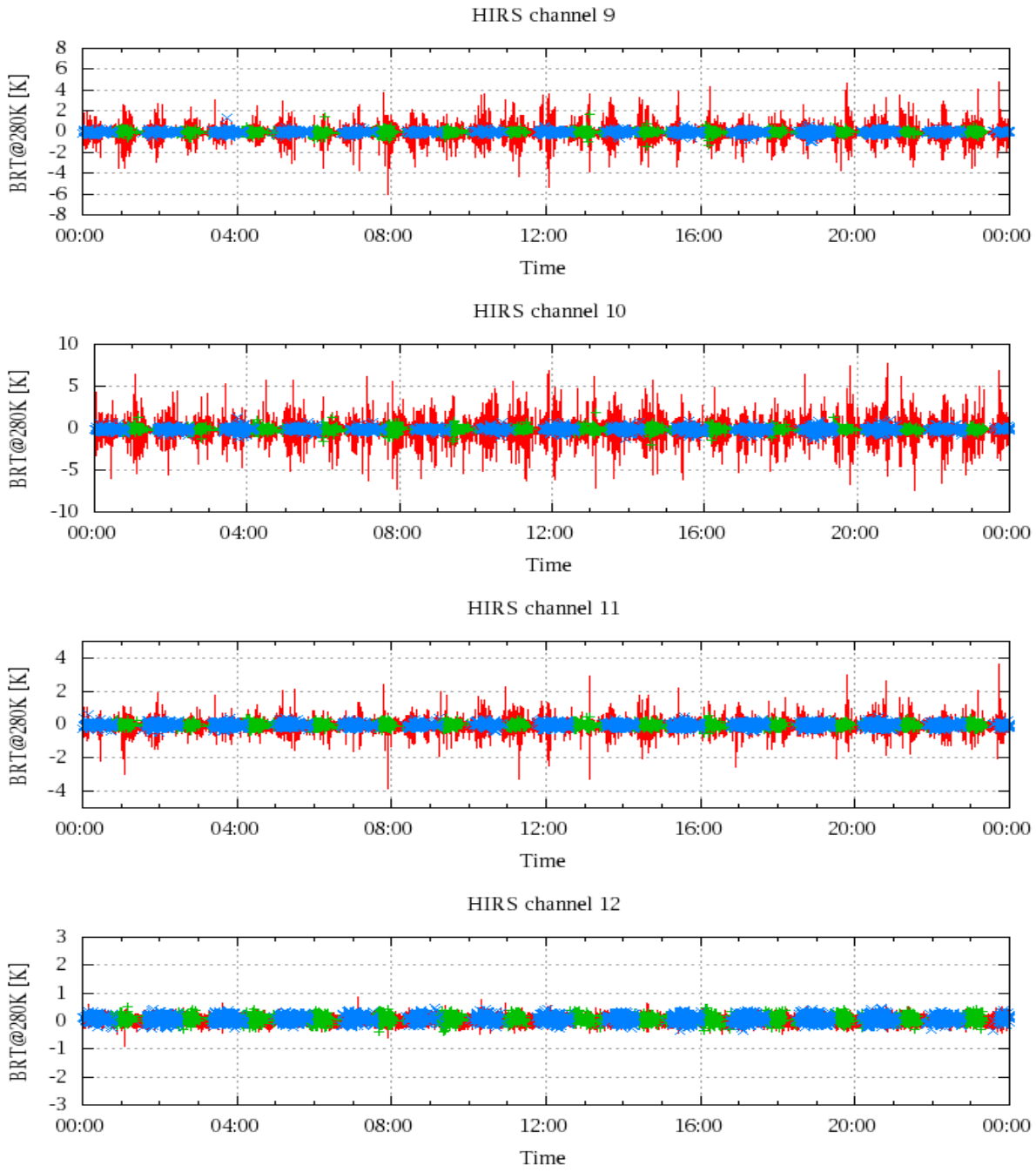

Figure 19: Radiance Differences in BRT

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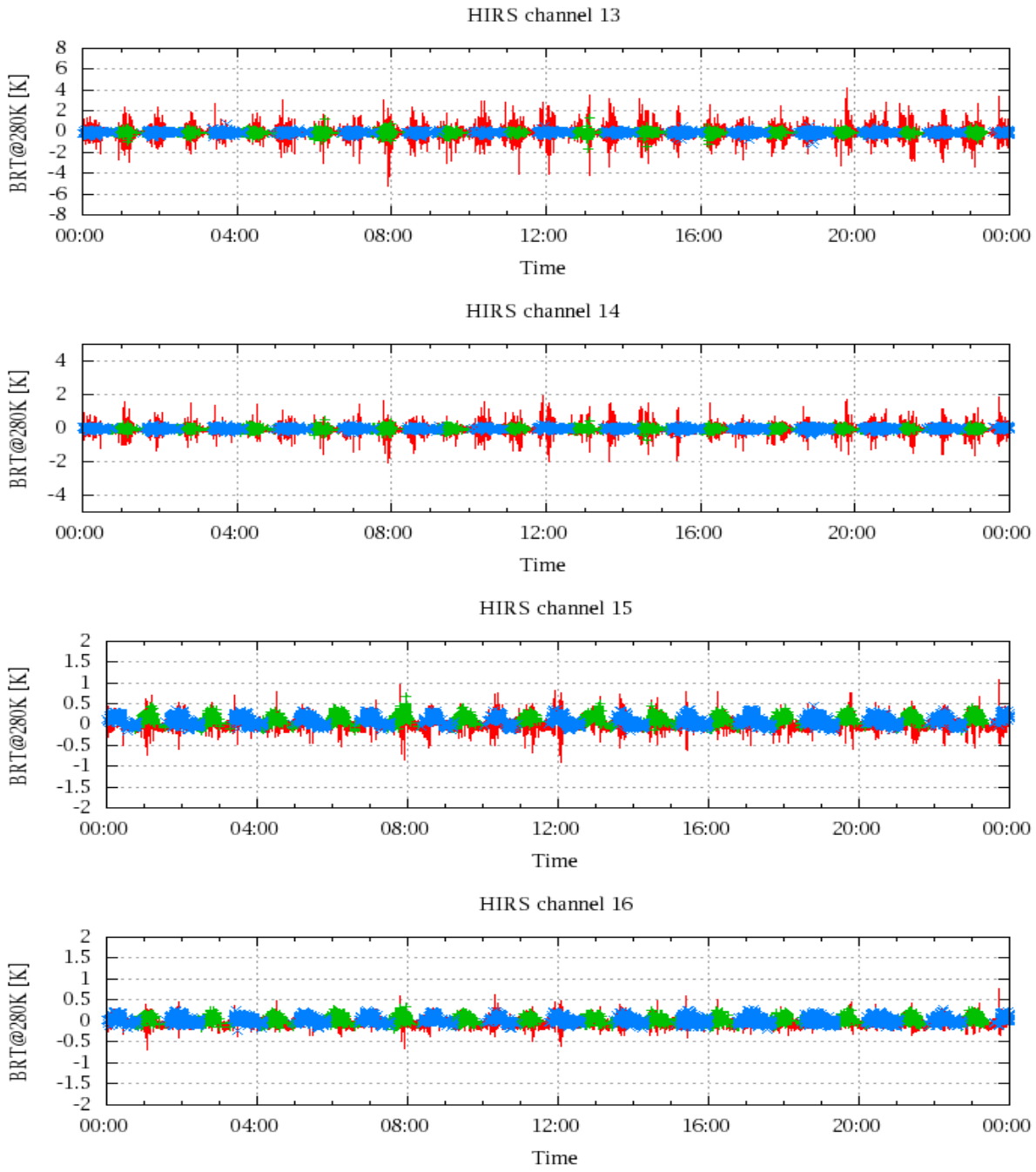

Figure 20: Radiance Differences in BRT

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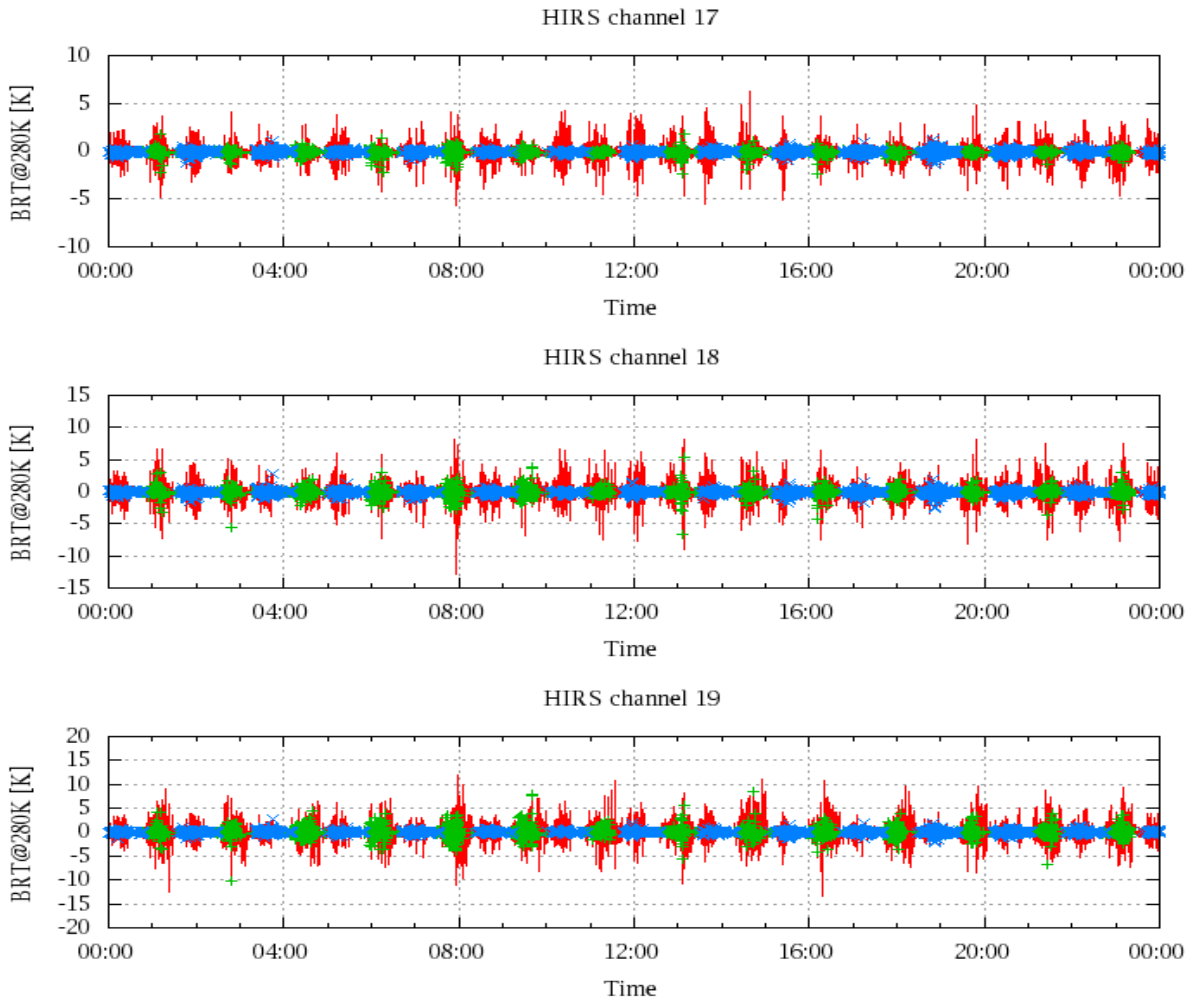

Figure 21: Radinace Differences in BRT

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