IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

17/08/2015 00:00:00 - 18/08/2015 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 17/08/2015 00:00:00 - 18/08/2015 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 17/08/2015 00:00:00 - 18/08/2015 00:00:00

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

Table 1: Data quantity

APID	**Seq from**	**Seq to**	**Time from**	**Time to**
PX1 (130)	-	-	-	-
PX2 (135)	-	-	-	-
PX3 (140)	-	-	-	-
PX4 (145)	771	773	20150817010713.521	20150817010713.954
PX4 (145)	10252	10254	20150817234004.124	20150817234004.558
IMG (150)	11215	11217	20150817214841.754	20150817214842.188
VER (160)	15777	15782	20150817085413.989	20150817085421.989
VER (160)	1355	1818	20150817094629.973	20150817095925.987
VER (160)	1818	1823	20150817095925.987	20150817095925.987
VER (160)	1823	1828	20150817095925.987	20150817095925.987
VER (160)	1828	1833	20150817095925.987	20150817095925.987
VER (160)	1833	1838	20150817095925.987	20150817095925.987
VER (160)	1838	1819	20150817095925.987	20150817095925.987
VER (160)	1819	1824	20150817095925.987	20150817095925.987
VER (160)	1824	1829	20150817095925.987	20150817095925.987
VER (160)	1829	1834	20150817095925.987	20150817095925.987
VER (160)	1834	1839	20150817095925.987	20150817095925.987
VER (160)	1839	1820	20150817095925.987	20150817095925.987

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	1820	1825	20150817095925.987	20150817095925.987
VER (160)	1825	1830	20150817095925.987	20150817095925.987
VER (160)	1830	1835	20150817095925.987	20150817095925.987
VER (160)	1835	1840	20150817095925.987	20150817095925.987
VER (160)	1840	1821	20150817095925.987	20150817095925.987
VER (160)	1821	1826	20150817095925.987	20150817095925.987
VER (160)	1826	1831	20150817095925.987	20150817095925.987
VER (160)	1831	1836	20150817095925.987	20150817095925.987
VER (160)	1836	1841	20150817095925.987	20150817095925.987
VER (160)	1841	1822	20150817095925.987	20150817095925.987
VER (160)	1822	1827	20150817095925.987	20150817095925.987
VER (160)	1827	1832	20150817095925.987	20150817095925.987
VER (160)	1832	1837	20150817095925.987	20150817095925.987
VER (160)	1837	1842	20150817095925.987	20150817095925.987
AUX (180)	-	-	-	-

Table 2: L0 data gaps

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3 Instrument modes

Time	Transition from	Transition to
17/08/2015 00:00:45	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	481	-
L1 ENG PDUs	478	-
L1 ENG distinct GEPSGranule	479	-
GQisFlagQual set (PX1)	99.53 %	-
GQisFlagQual set (PX2)	99.47 %	-
GQisFlagQual set (PX3)	99.47 %	-
GQisFlagQual set (PX4)	99.50 %	-
GQisFlagQual set (all)	99.49 %	-

Table 4: Quality flags

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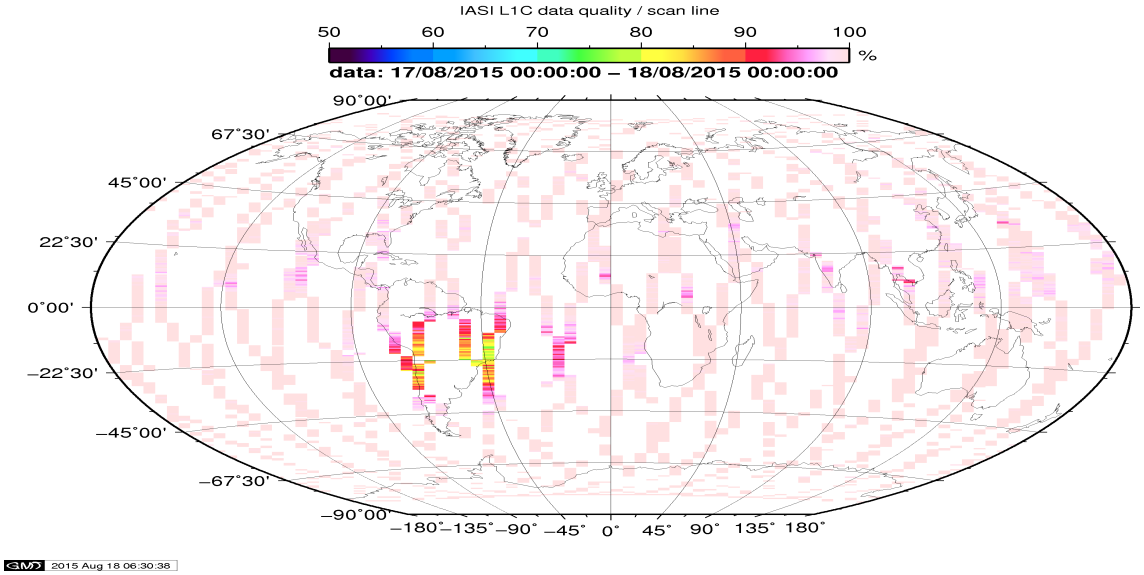

Figure 1: L1C data quality

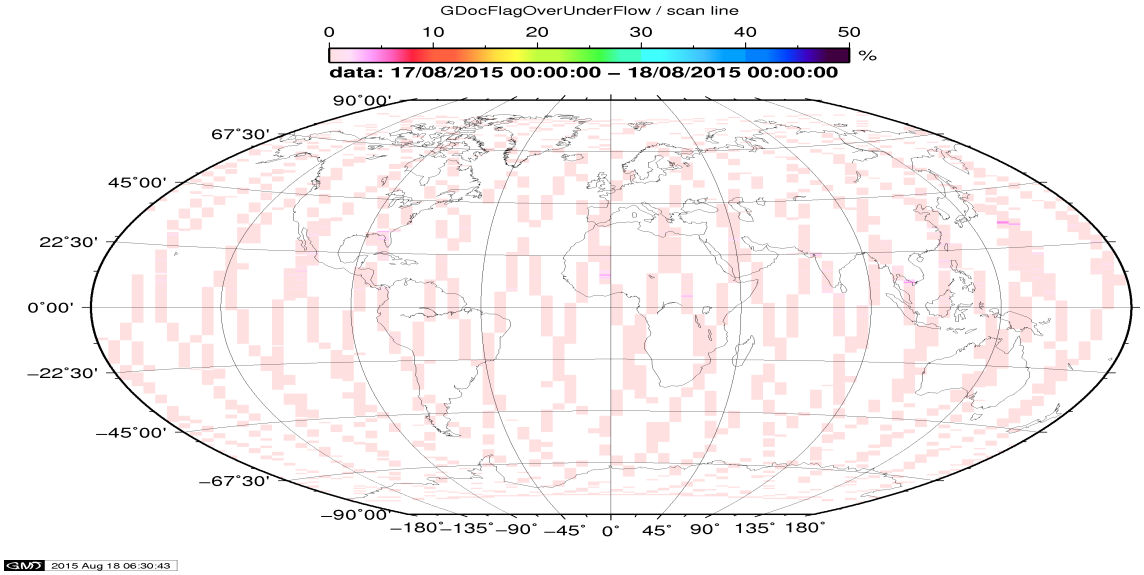

Figure 2: Flag of Over and Under Flows

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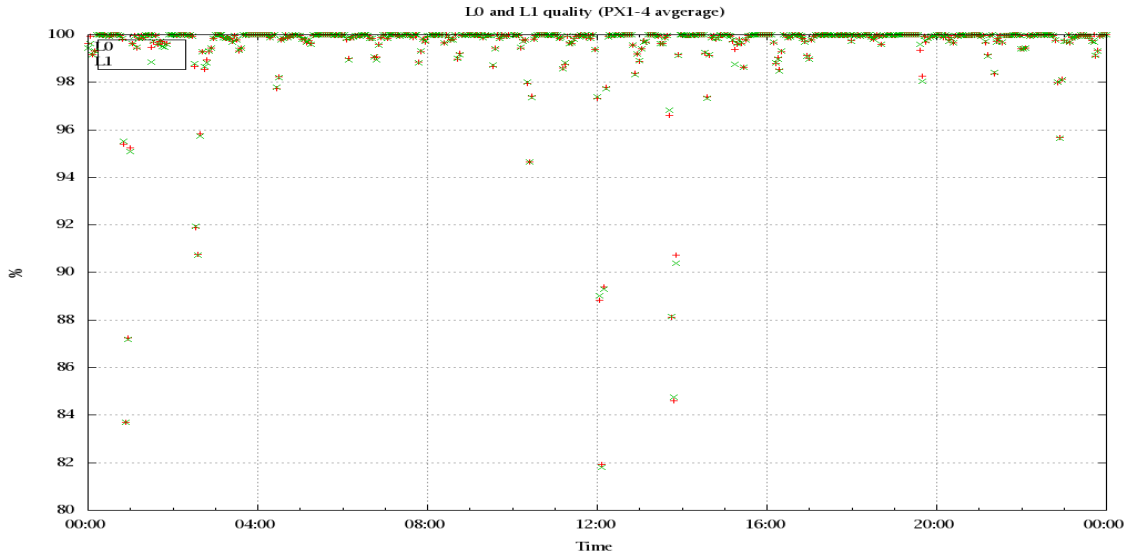

Figure 3: Level 0 and 1C overall quality

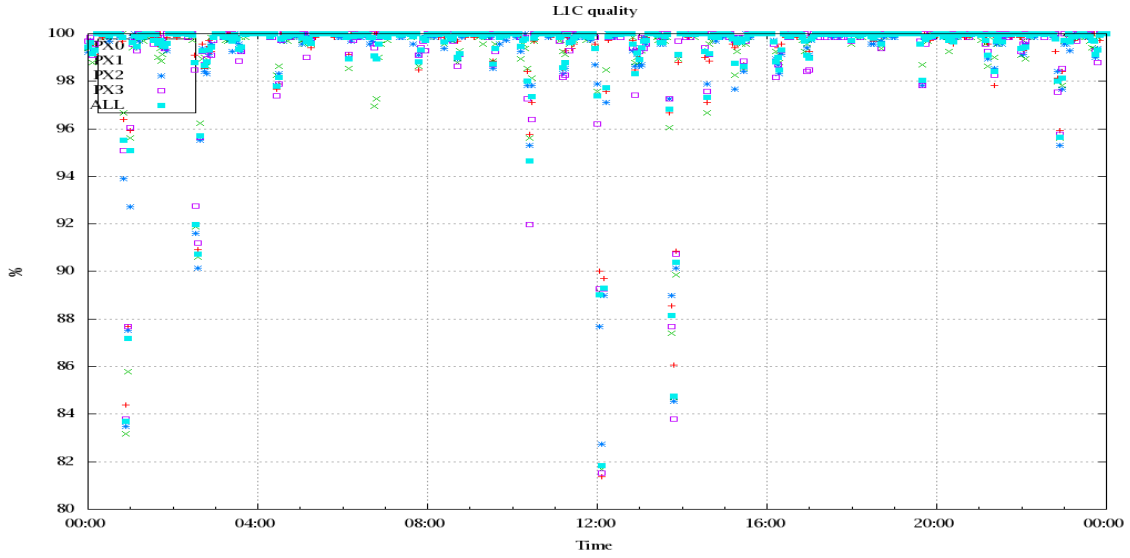

Figure 4: Level 1C quality

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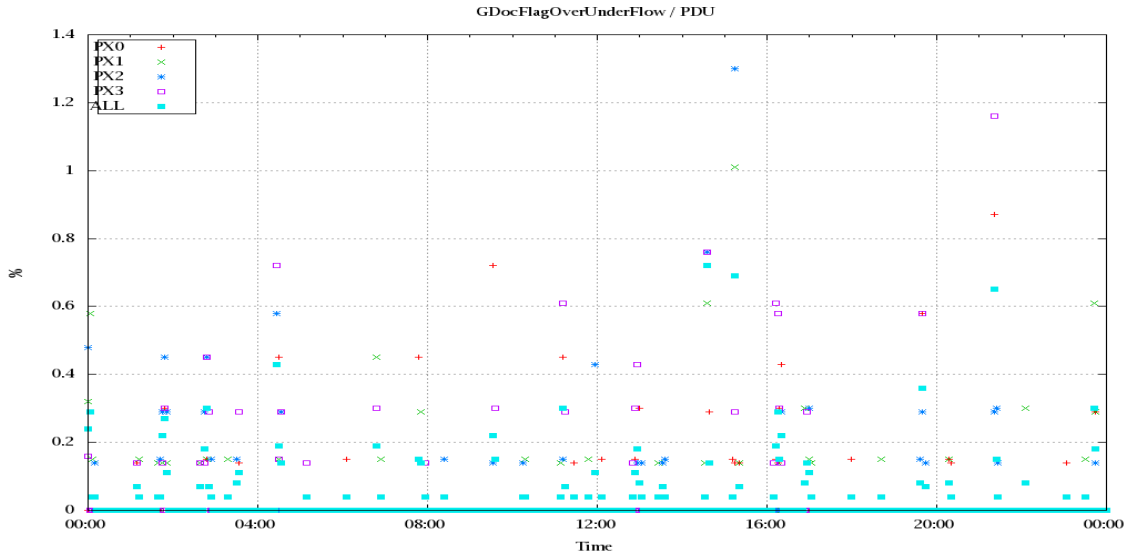

Figure 5: OverUnderFlowFlag timeseries

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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.

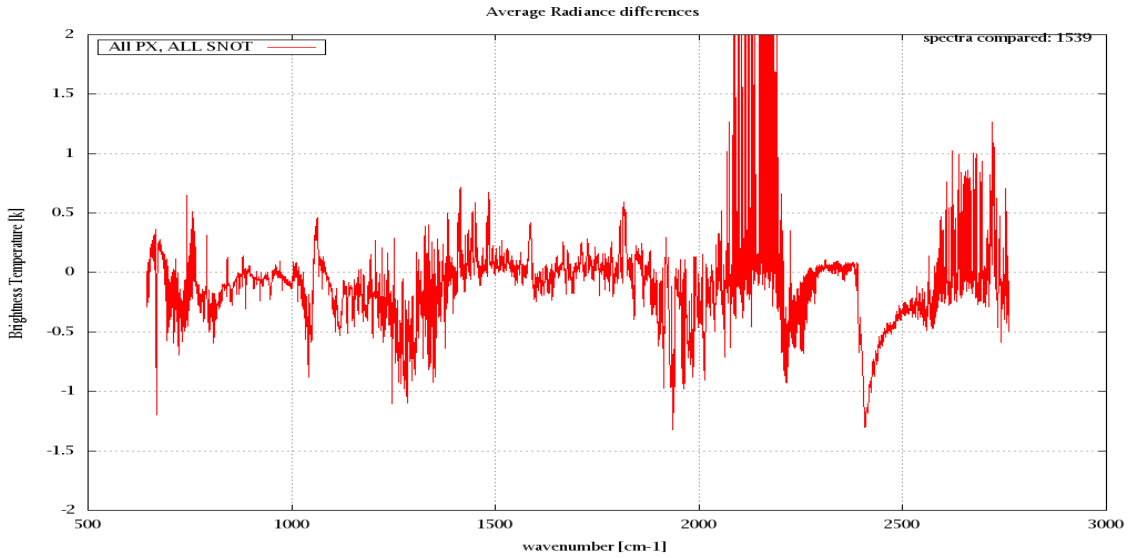

Figure 6: Average Radiance differences: OBS-CAL

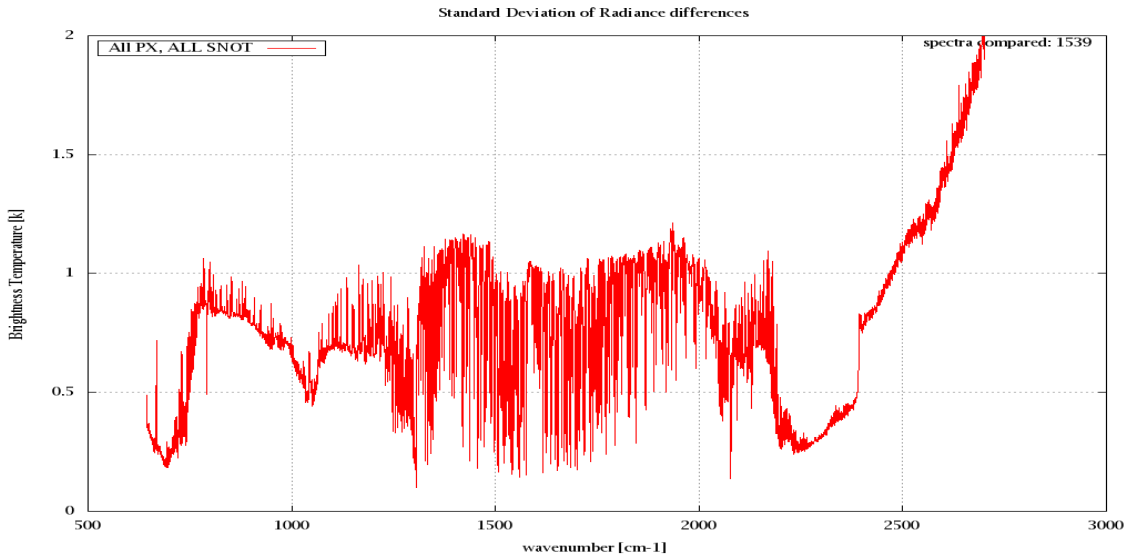

Figure 7: Standard Deviation of Radiance differences

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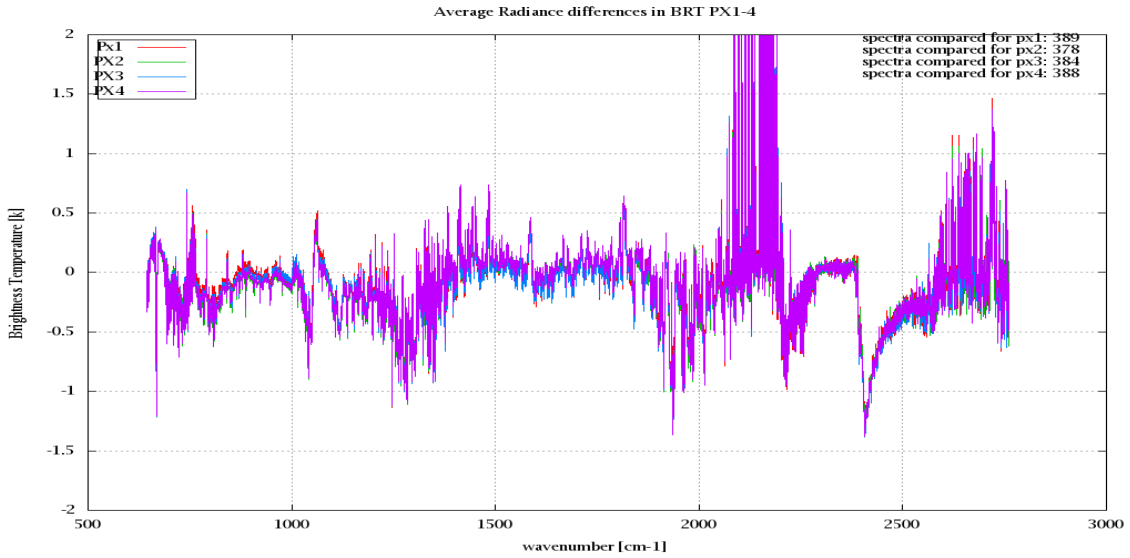

Figure 8: Average Radiance differences: OBS-CAL

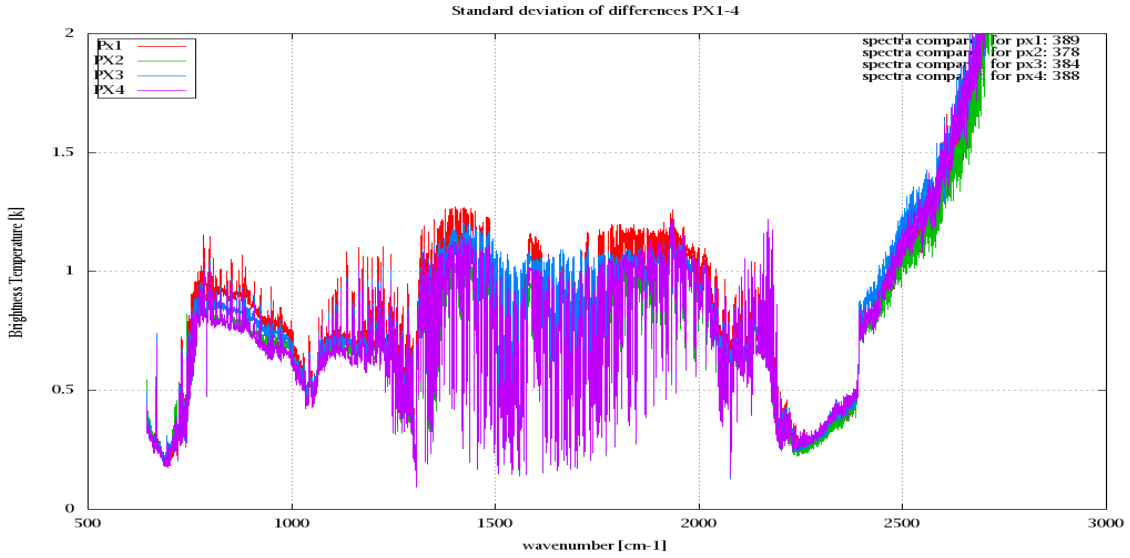

Figure 9: Standard Deviation of Radiance differences

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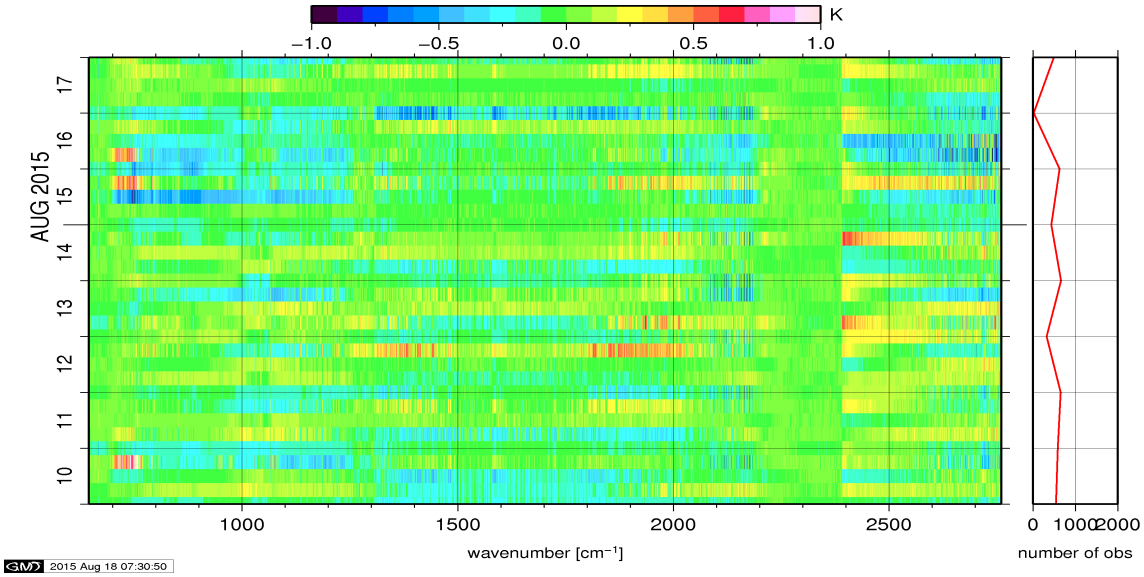

Figure 10: Radiance Anomaly in BRT: All Channels

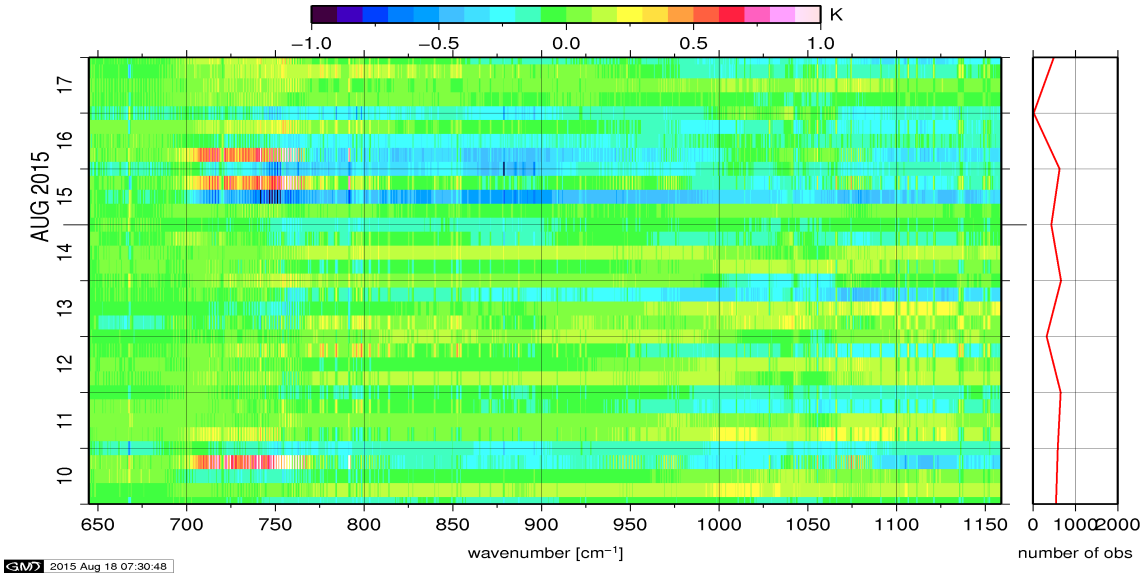

Figure 11: Radiance Anomaly in BRT: IASI Band 1

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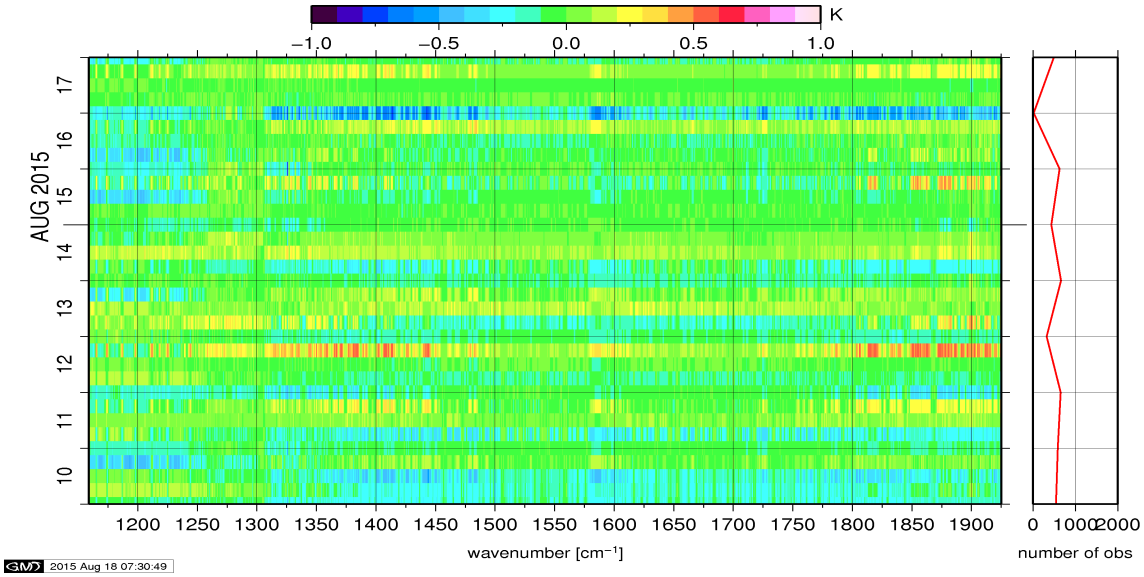

Figure 12: Radiance Anomaly in BRT: IASI Band 2

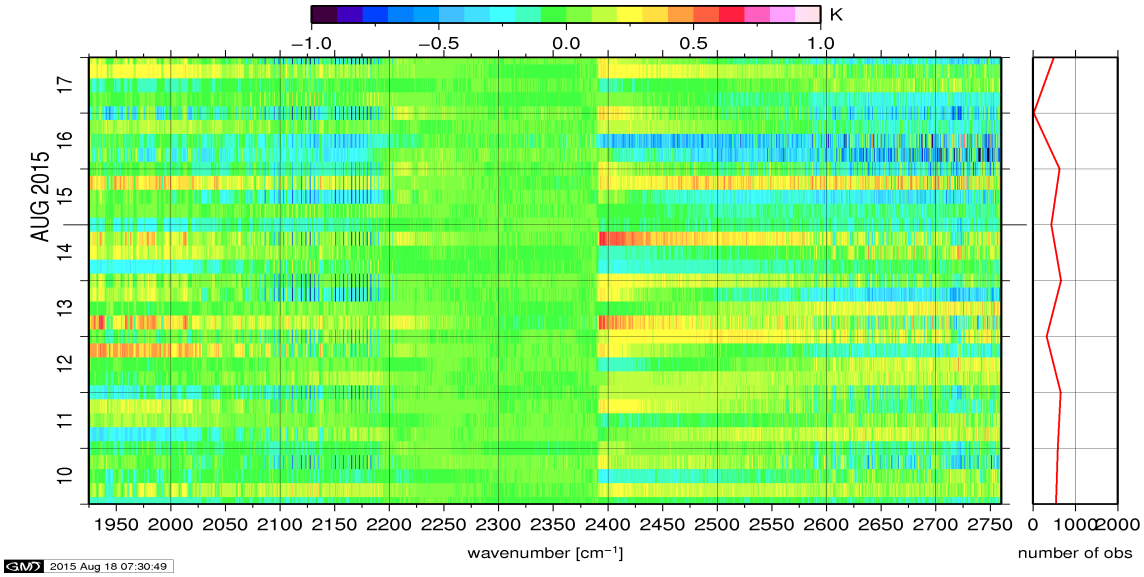

Figure 13: Radiance Anomaly in BRT: IASI Band 3

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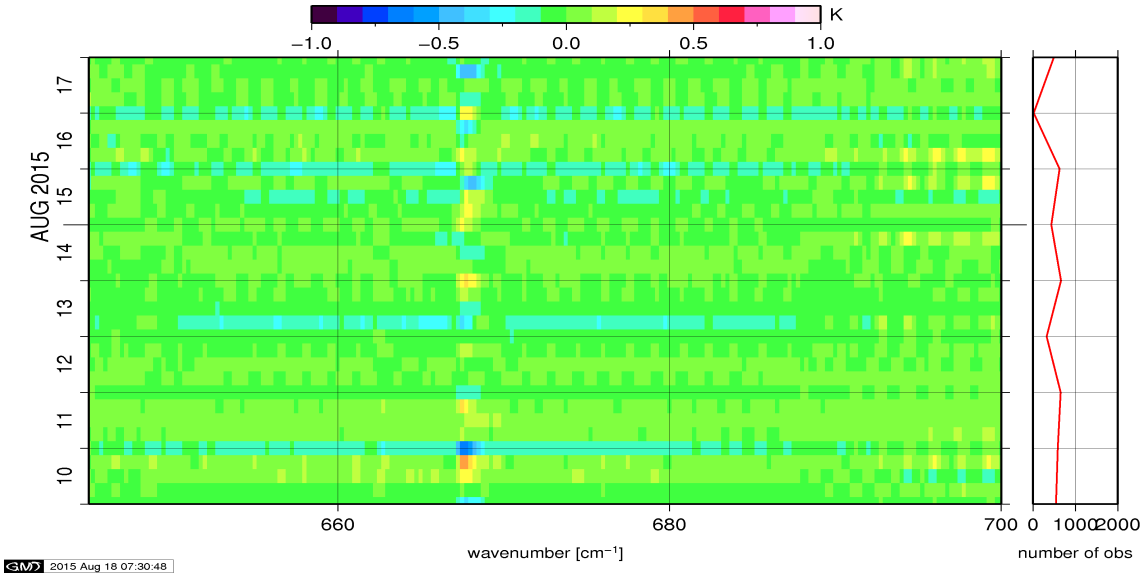

Figure 14: Radiance Anomaly in BRT: CO2 14

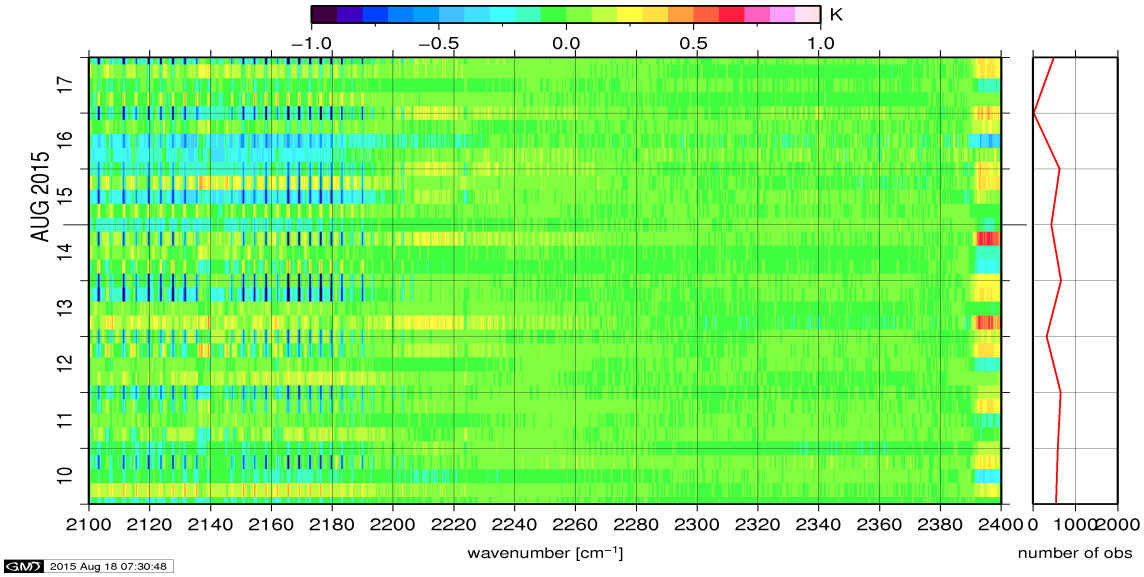

Figure 15: Radiance Anomaly in BRT: CO2 4.3

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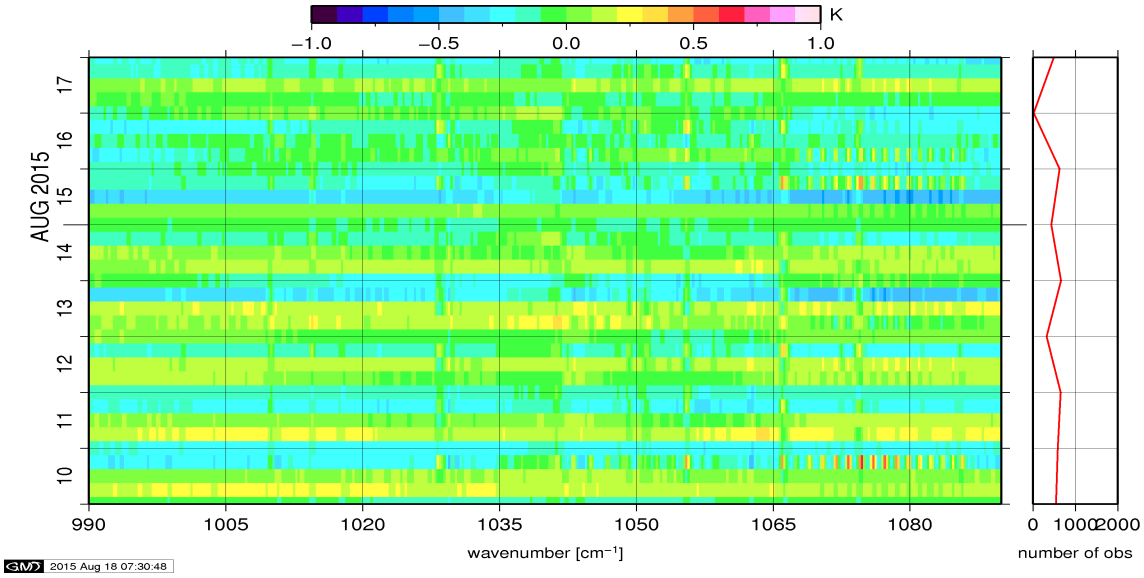

Figure 16: Radiance Anomaly in BRT: O3

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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.

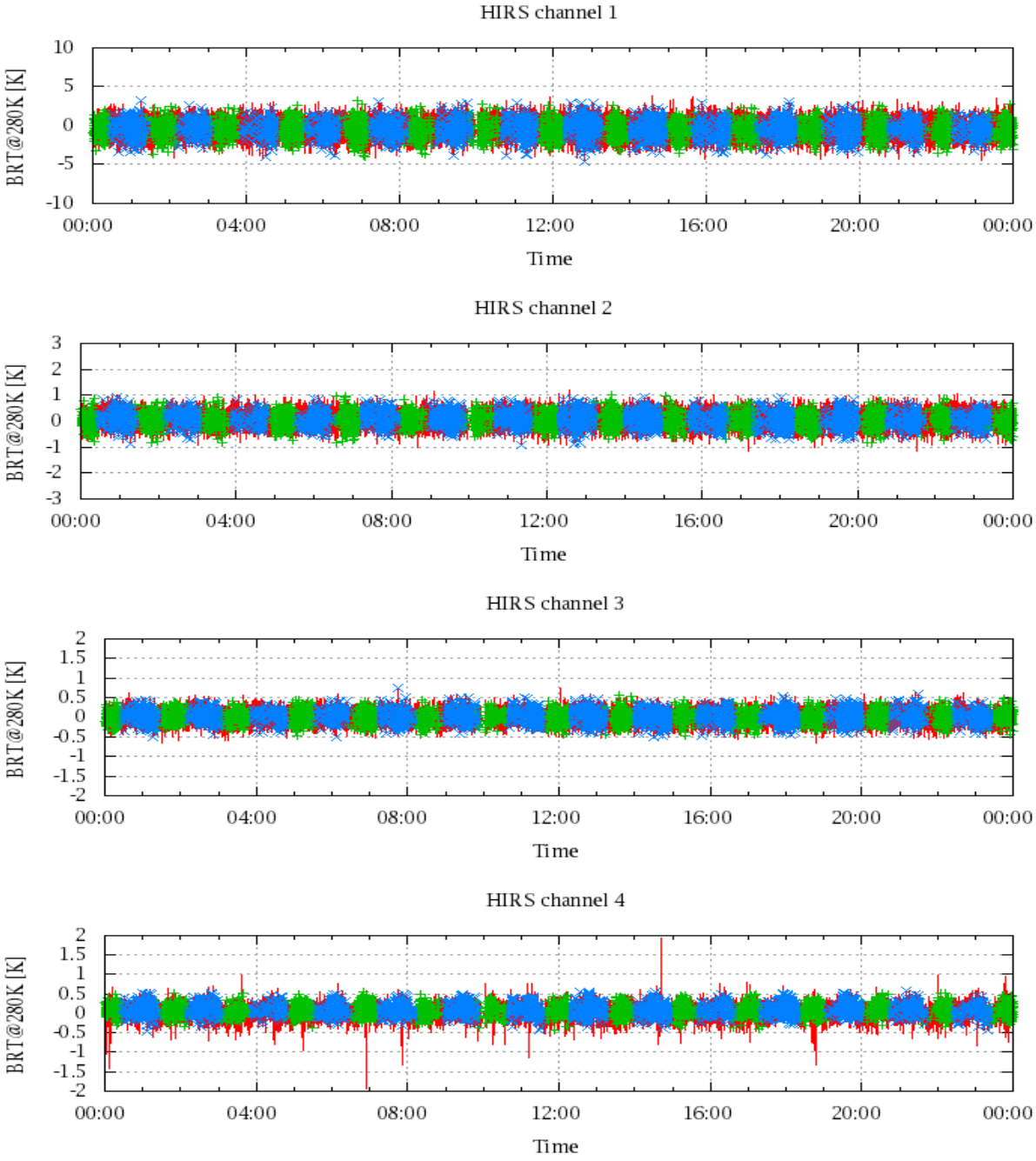

Figure 17: Radiance Differences in BRT

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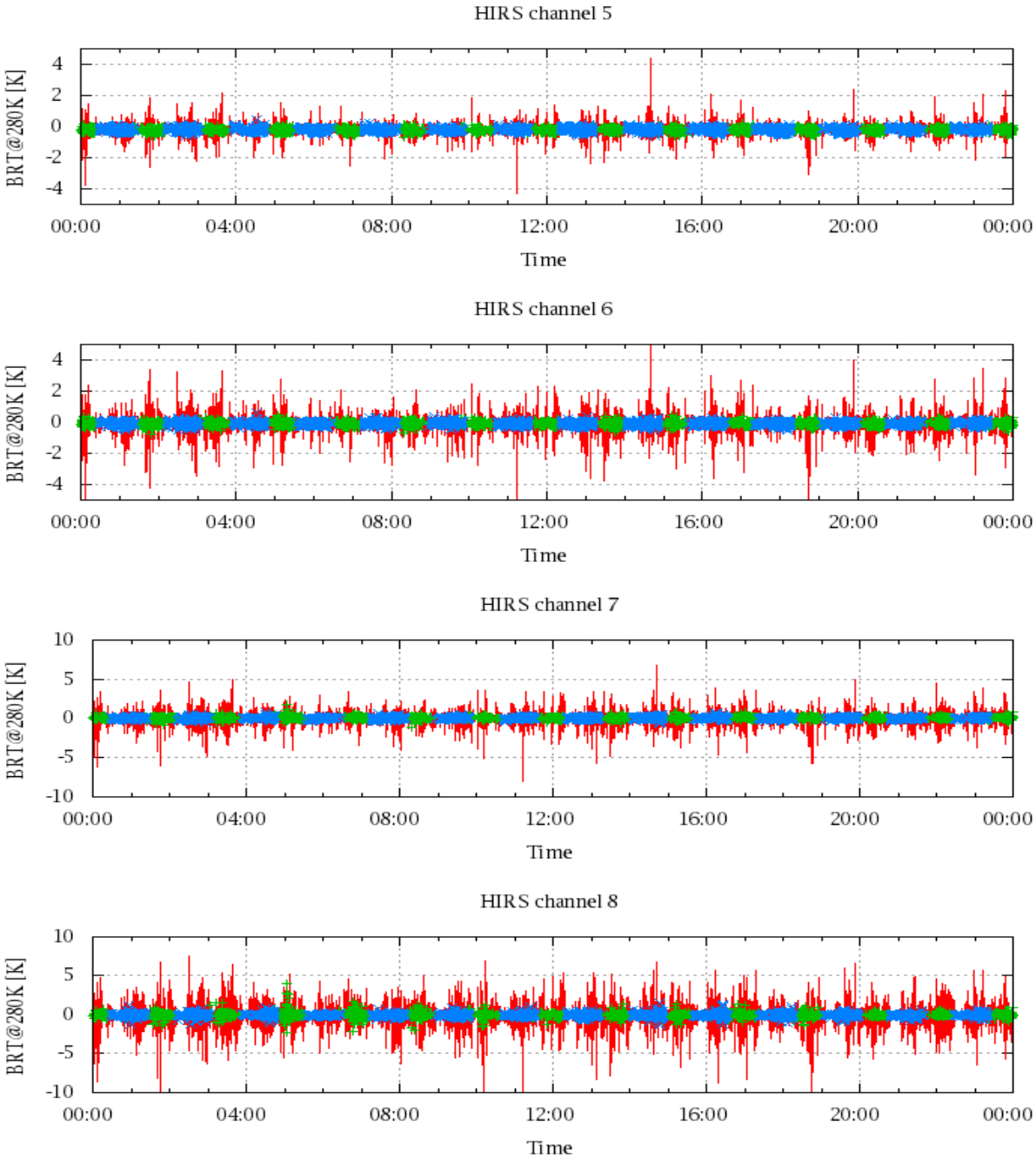

Figure 18: Radiance Differences in BRT

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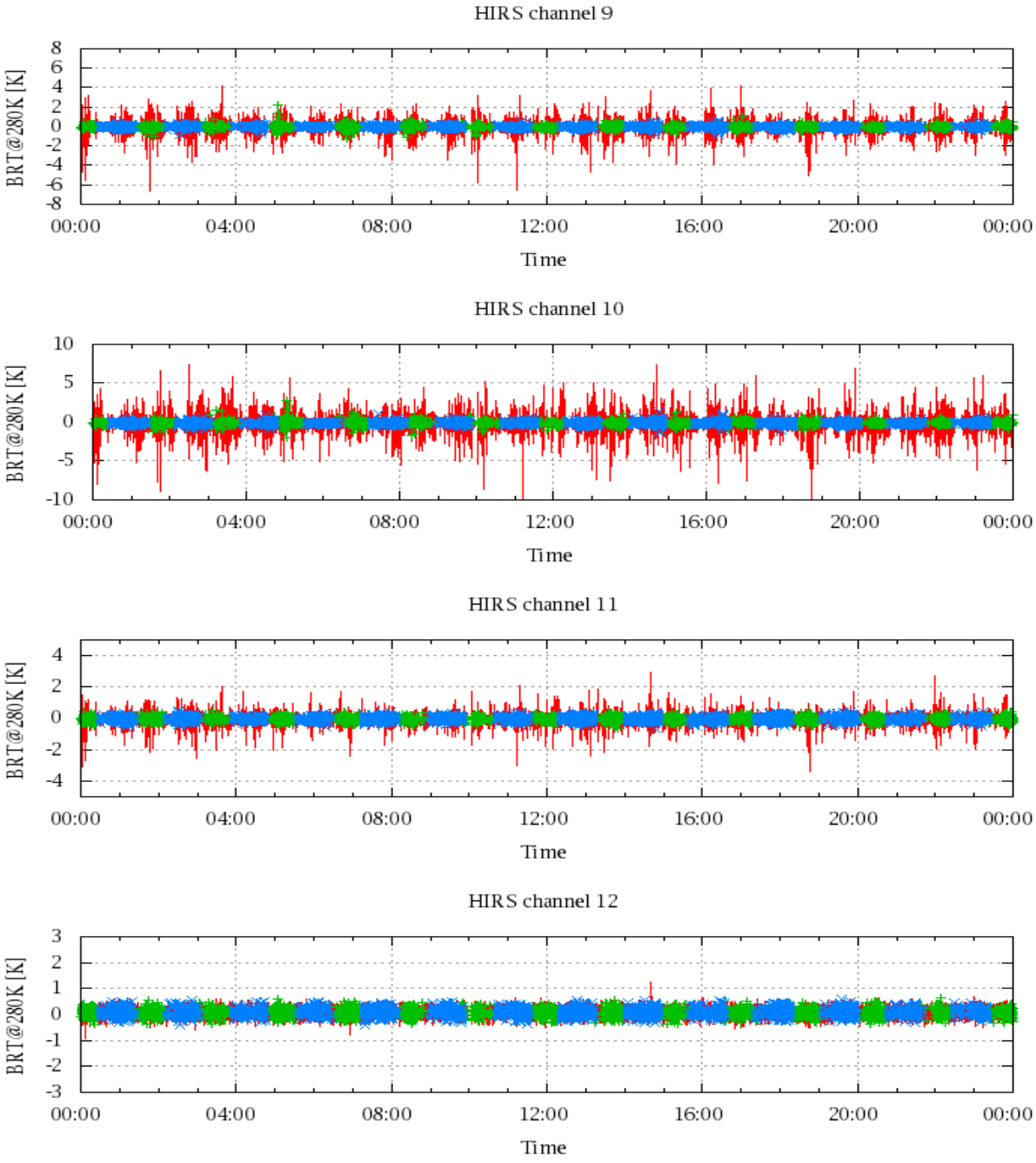

Figure 19: Radiance Differences in BRT

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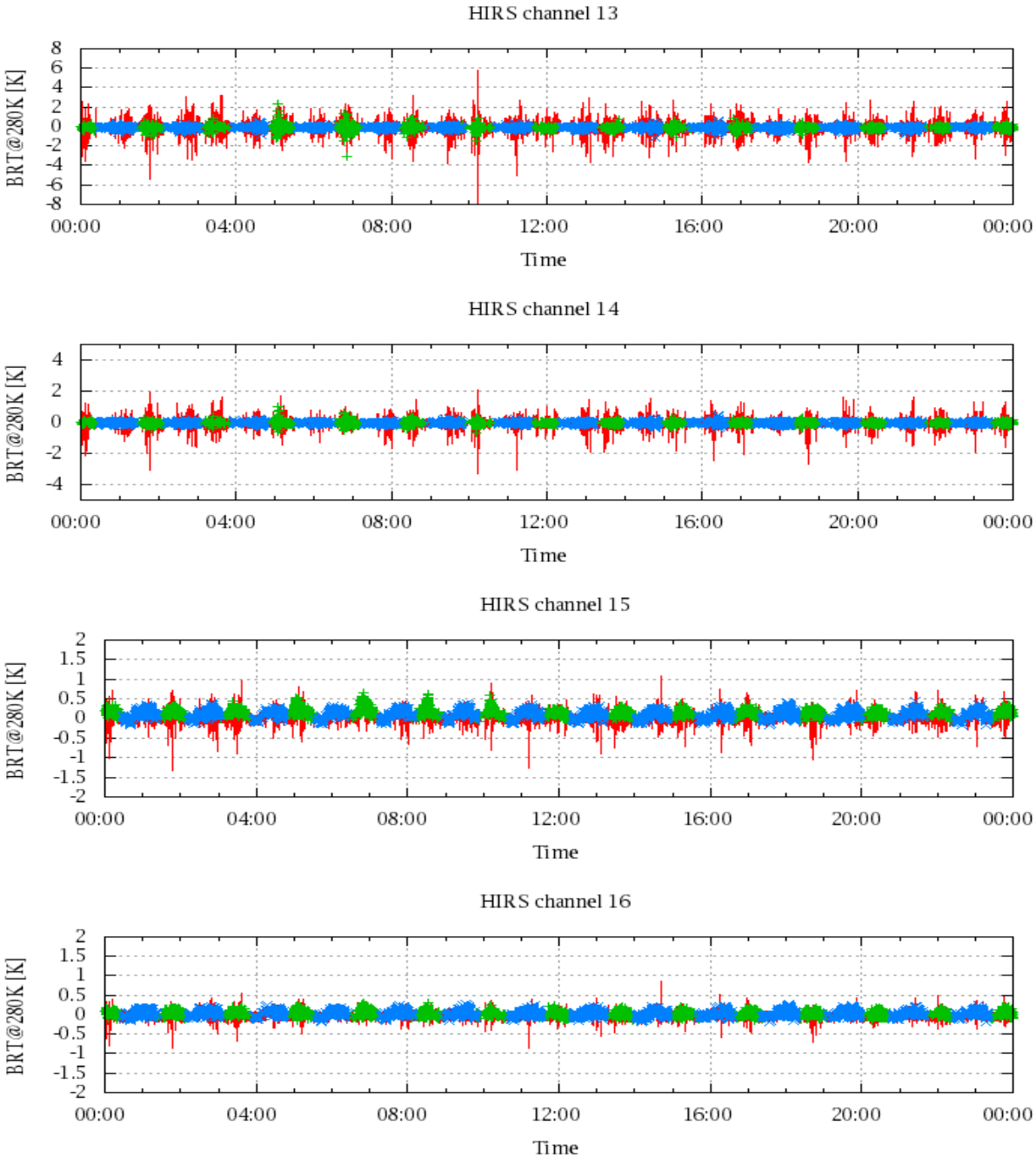

Figure 20: Radiance Differences in BRT

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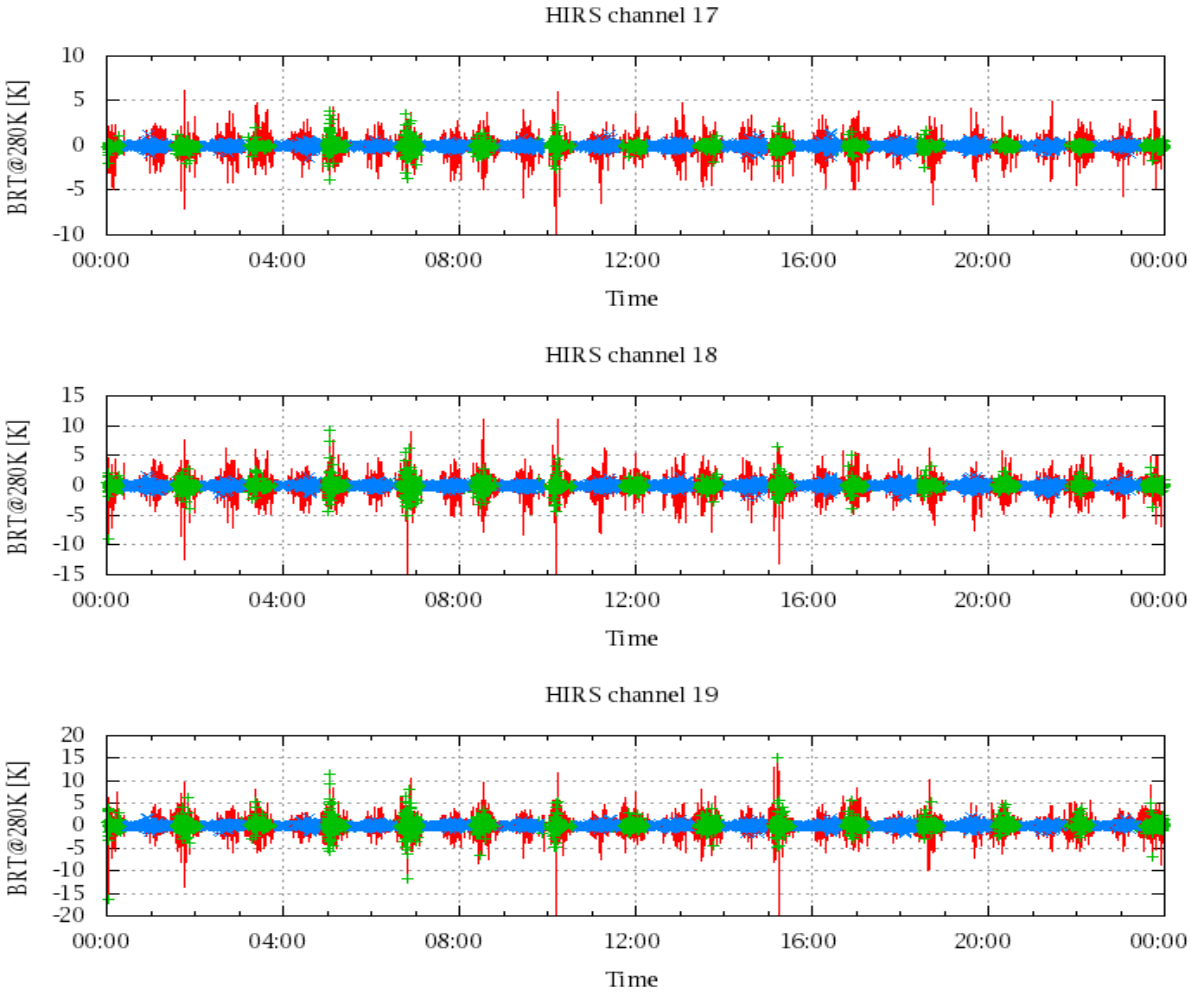

Figure 21: Radinace Differences in BRT

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