IASI L0 and L1 Daily Monitoring Report **Metop-C**

IASI monitoring team

04/03/2025 00:00:00 - 05/03/2025 00:00:00

1 Introduction

This report provides summary monitoring plots and figures from IASI instrument on the Metop-C satellite retrieved from the IASI L0 and L1 ENG product (3 minutes data packet) for 04/03/2025 00:00:00 - 05/03/2025 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 04/03/2025 00:00:00 - 05/03/2025 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	471	-
L0 IASI PDUs	471	-
L1 ENG PDUs	470	-
L1 ENG distinct GEPSGranule	469	-
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	470	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	3315	6560	20250304195253.788	20250304200720.357
PX1 (130)	12451	1156	20250304203330.734	20250304205608.357
PX1 (130)	3084	3982	20250304210442.071	20250304210841.672
PX2 (135)	3315	6560	20250304195253.788	20250304200720.357
PX2 (135)	12451	1156	20250304203330.734	20250304205608.357
PX2 (135)	3084	3982	20250304210442.071	20250304210841.672
PX3 (140)	3315	6560	20250304195253.788	20250304200720.357
PX3 (140)	12451	1156	20250304203330.734	20250304205608.357
PX3 (140)	3084	3982	20250304210442.071	20250304210841.672
PX4 (145)	3314	6560	20250304195253.569	20250304200720.357
PX4 (145)	12450	1156	20250304203330.519	20250304205608.357
PX4 (145)	3083	3982	20250304210441.856	20250304210841.672
IMG (150)	7818	11496	20250304195253.569	20250304200719.060
IMG (150)	1790	7556	20250304203330.519	20250304205607.060
IMG (150)	9743	10761	20250304210441.856	20250304210841.453
VER (160)	16379	0	20250304062518.705	20250304062526.705
VER (160)	0	16380	20250304062526.705	20250304062526.705
VER (160)	-1	1	20250304062526.705	20250304062534.705
VER (160)	16380	0	20250304134214.681	20250304134222.681

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	1	16381	20250304134222.681	20250304134222.681
VER (160)	-1	2	20250304134222.681	20250304134230.681
VER (160)	13891	14433	20250304195246.651	20250304195253.788
VER (160)	15416	16264	20250304203326.624	20250304203330.734
VER (160)	16381	0	20250304205910.622	20250304205918.622
VER (160)	2	16382	20250304205918.622	20250304205918.622
VER (160)	-1	3	20250304205918.622	20250304205926.622
VER (160)	202	353	20250304210438.614	20250304210846.644
AUX (180)	9317	9426	20250304195247.085	20250304200719.060
AUX (180)	9622	9792	20250304203327.058	20250304205607.060
AUX (180)	9856	9887	20250304210439.047	20250304210847.074

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
04/03/2025 00:00:12	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	471	-
L1 ENG PDUs	470	-
L1 ENG distinct GEPSGranule	469	-
GQisFlagQual set (PX1)	99.56 %	-
GQisFlagQual set (PX2)	99.58 %	-
GQisFlagQual set (PX3)	99.56 %	-
GQisFlagQual set (PX4)	99.53 %	-
GQisFlagQual set (all)	99.56 %	-

Table 4: Quality flags

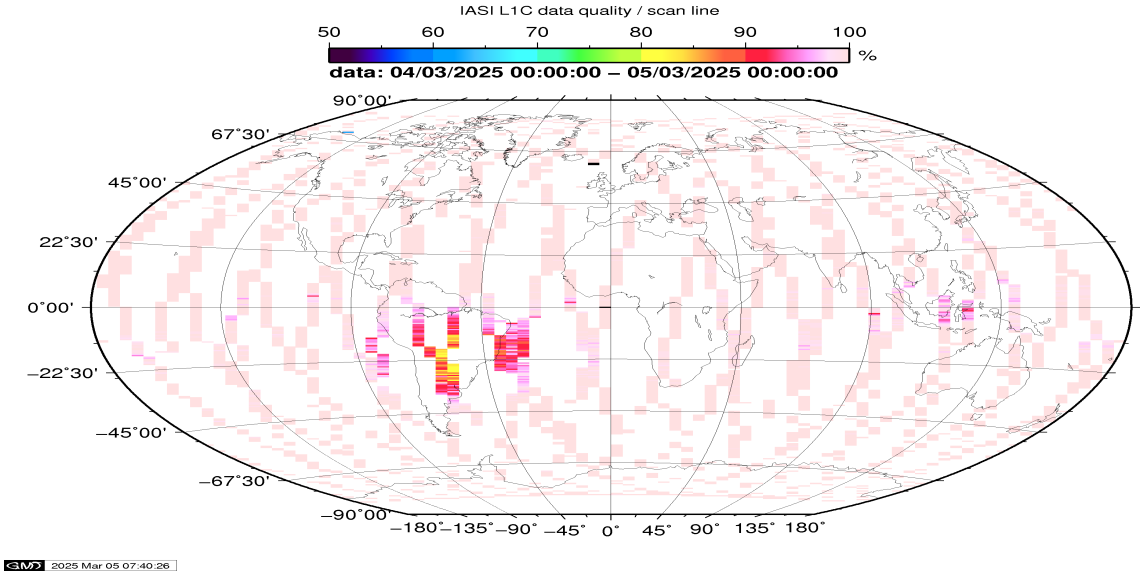

Figure 1: L1C data quality

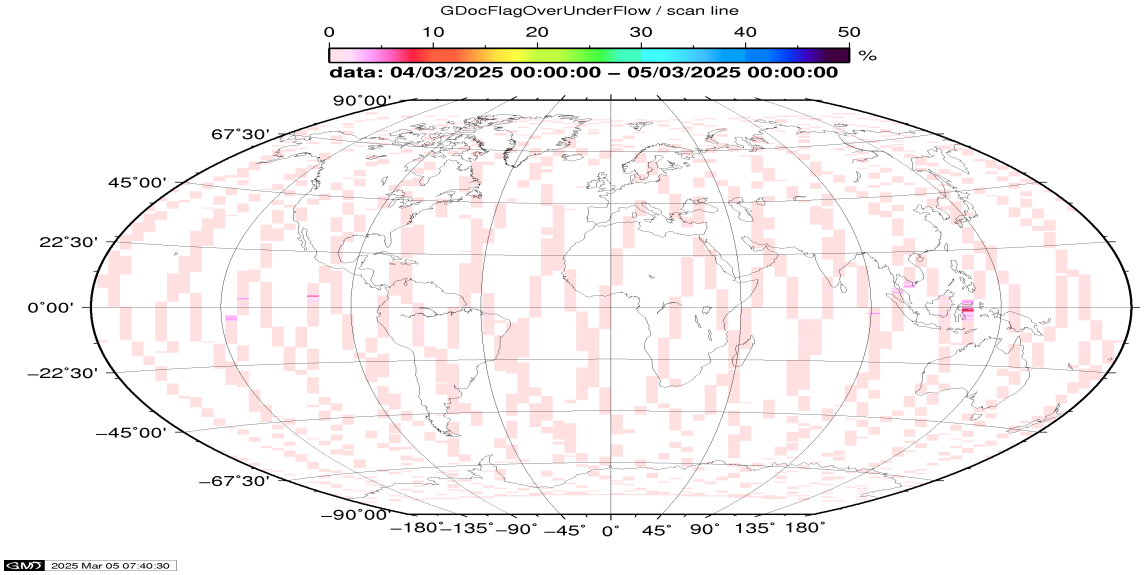

Figure 2: Flag of Over and Under Flows

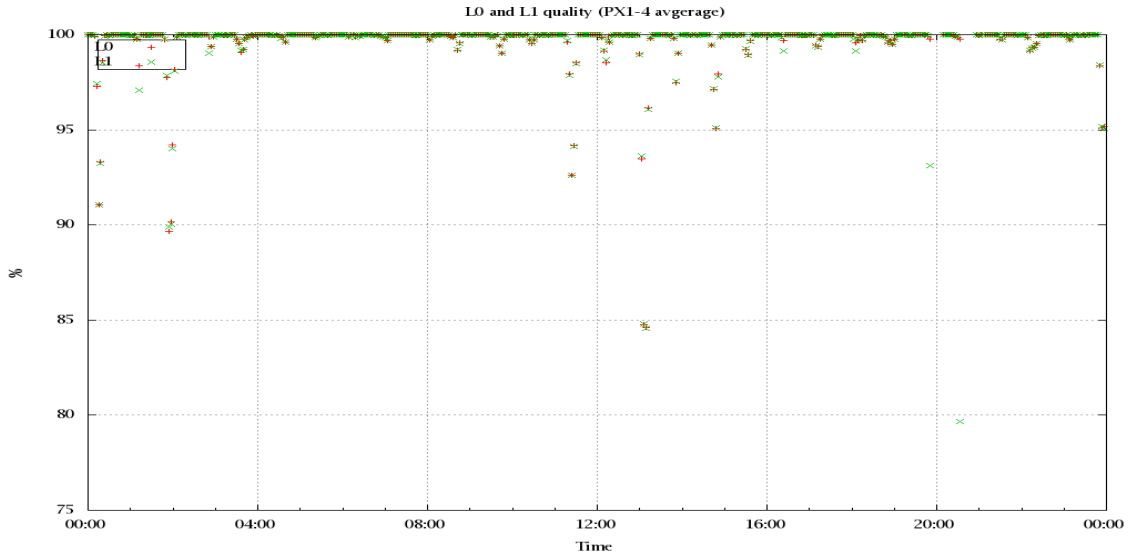

Figure 3: Level 0 and 1C overall quality

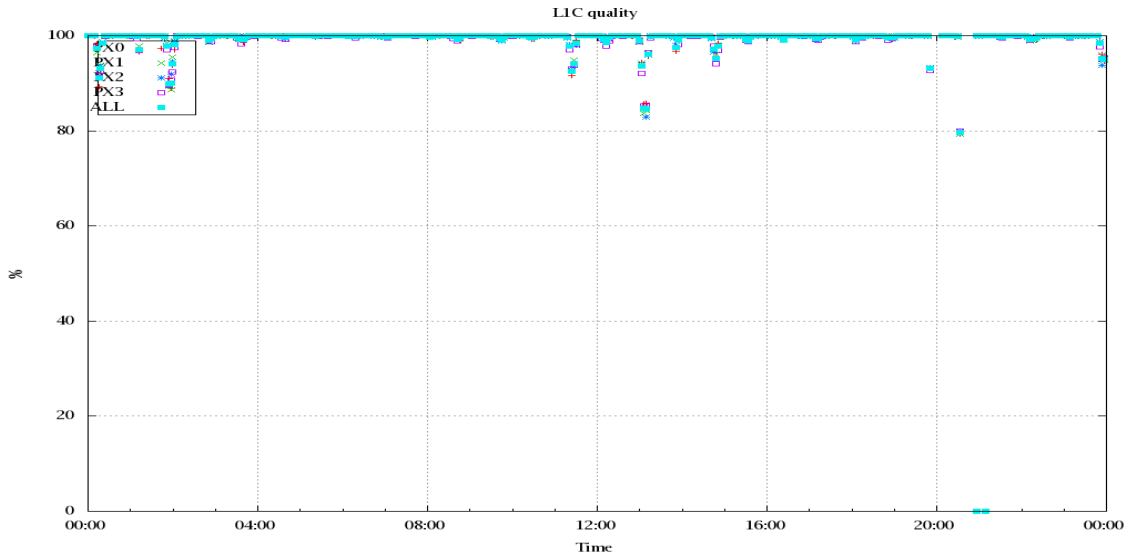

Figure 4: Level 1C quality

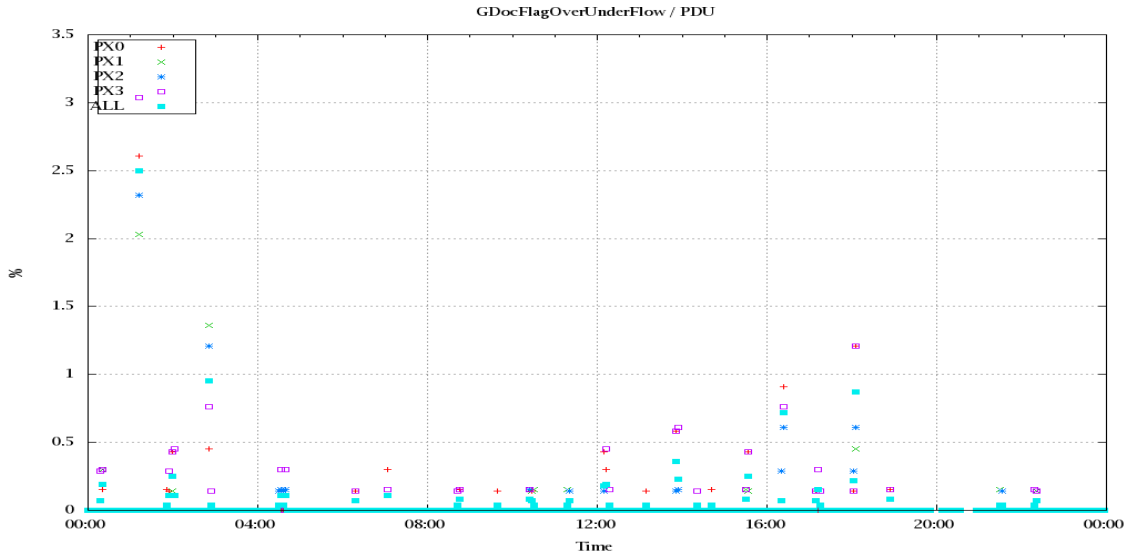

Figure 5: Timeseries of flag of Over and Under Flows

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, water vapor and Ozone. 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 28 to 34, 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 pixels and scan positions 10 to 20) and the average bias OBS-CAL (over all pixels and scan positions 10 to 20) of the last 30 days.

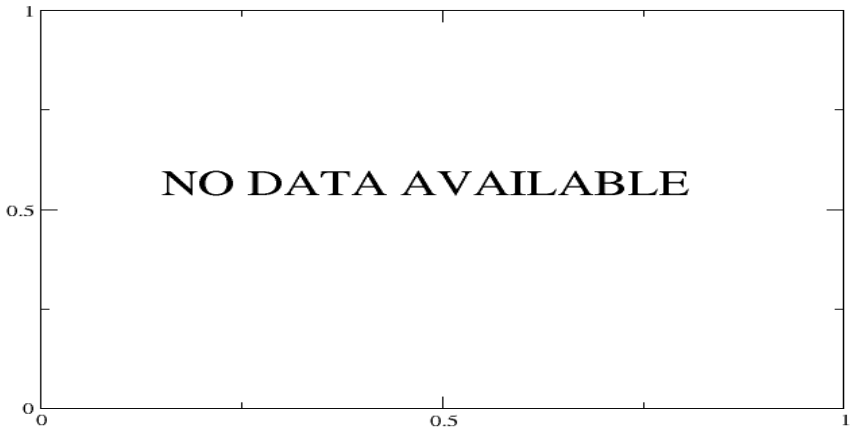

Figure 6: Average Radiance differences: OBS-CAL

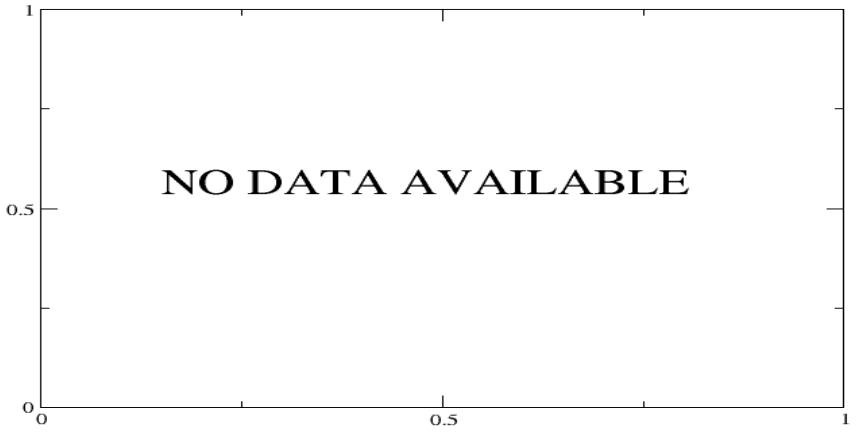

Figure 7: Standard Deviation of Radiance differences

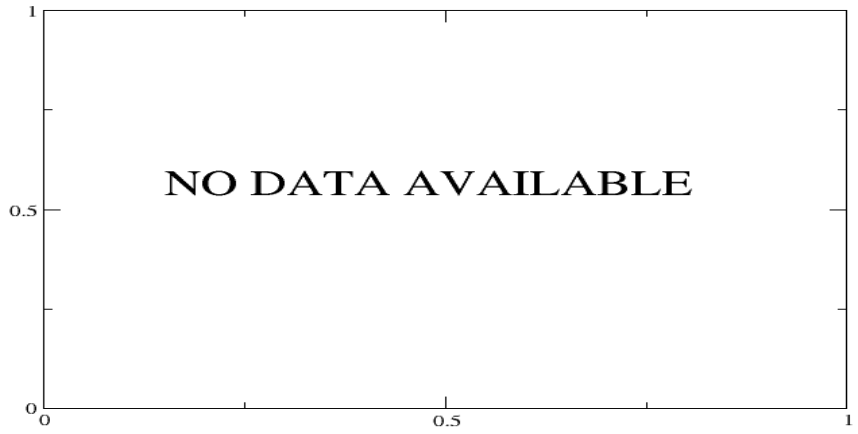

Figure 8: Average Radiance differences: OBS-CAL

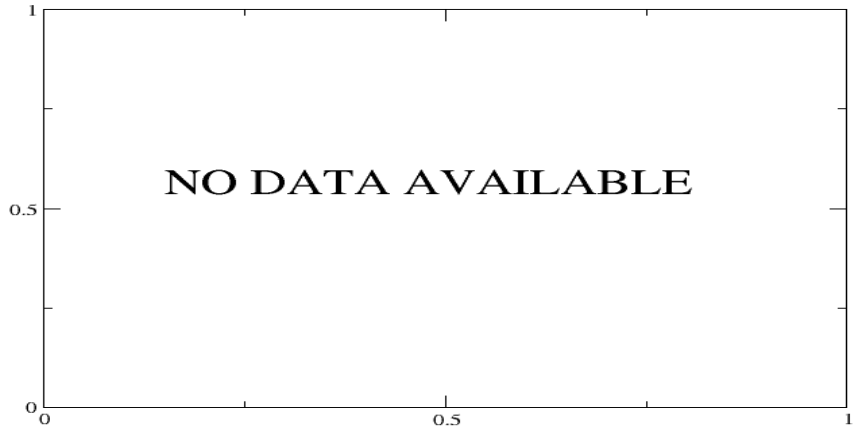

Figure 9: Standard Deviation of Radiance differences

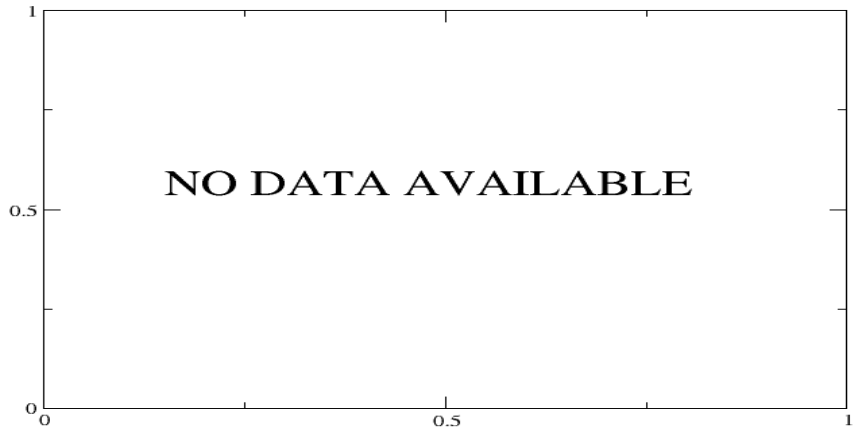

Figure 10: Radiance Anomaly in BT: All Channels

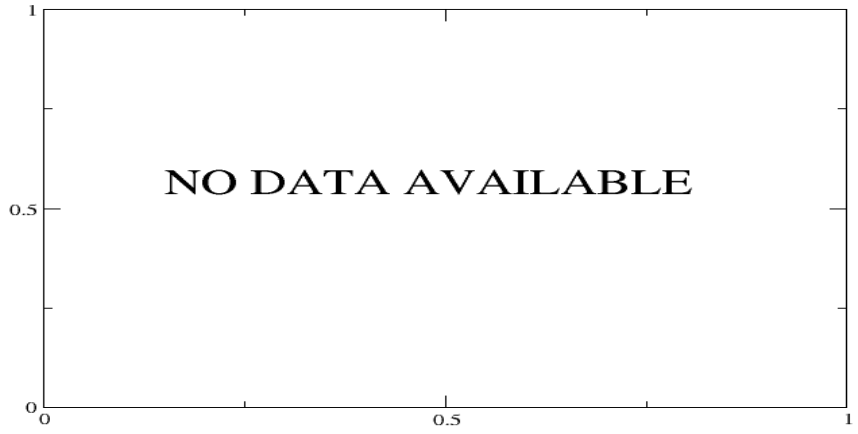

Figure 11: Radiance Anomaly in BT: IASI Band 1

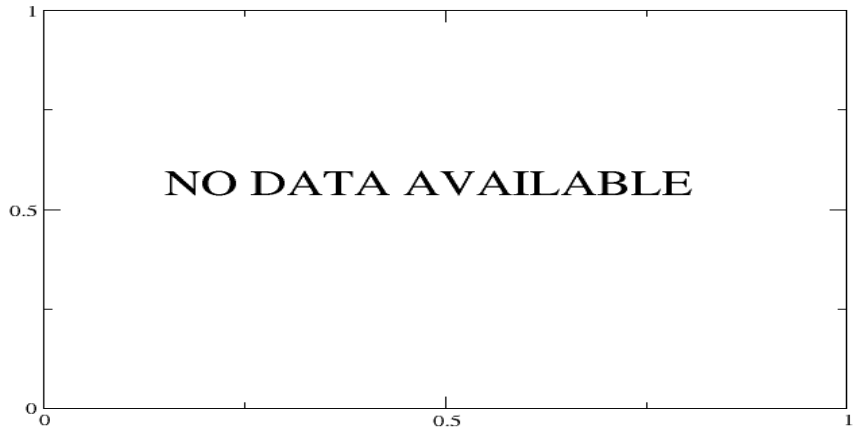

Figure 12: Radiance Anomaly in BT: IASI Band 2

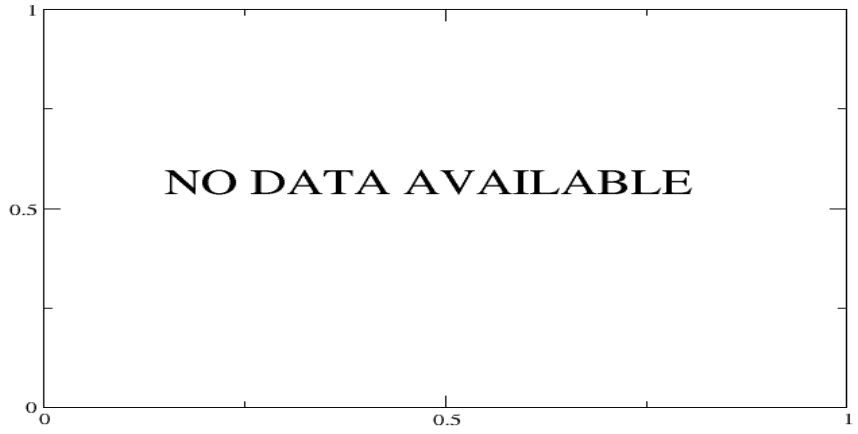

Figure 13: Radiance Anomaly in BT: IASI Band 3

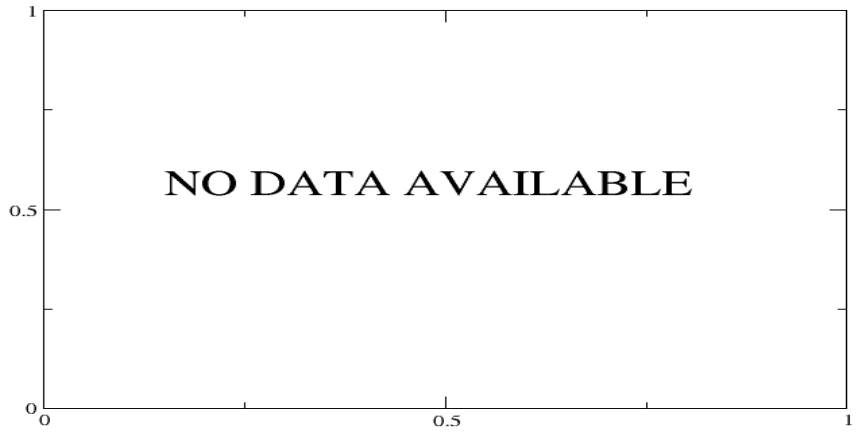

Figure 14: Radiance Anomaly in BT: CO2 14

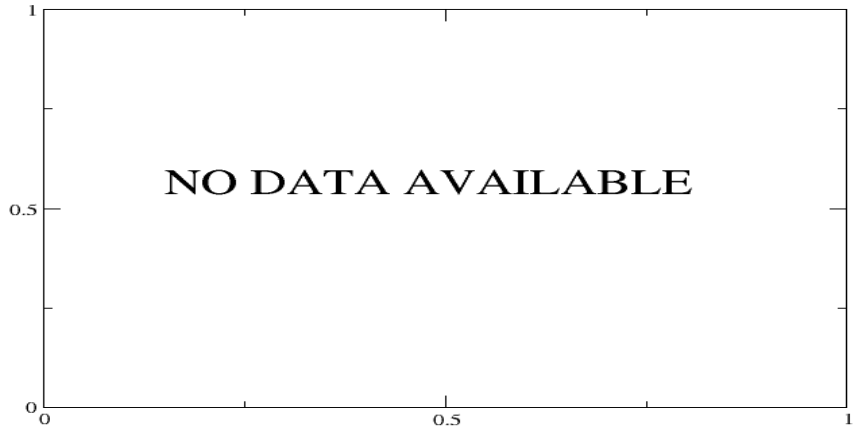

Figure 15: Radiance Anomaly in BT: CO2 4.3

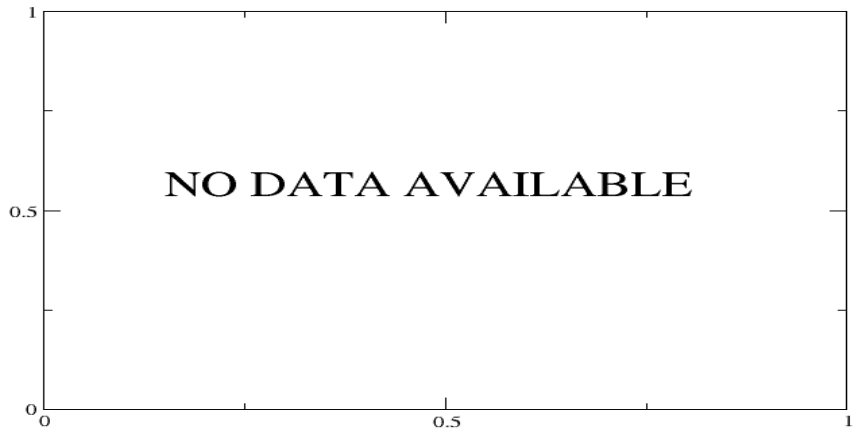

Figure 16: Radiance Anomaly in BT: O3