

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

IASI monitoring team

01/02/2021 00:00:00 - 02/02/2021 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 01/02/2021 00:00:00 - 02/02/2021 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 01/02/2021 00:00:00 - 02/02/2021 00:00:00

Product Type	Number	Action
L0 HKTU PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSSGranule	475	-
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	480	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	-	-	-	-
PX2 (135)	-	-	-	-
PX3 (140)	-	-	-	-
PX4 (145)	-	-	-	-
IMG (150)	-	-	-	-
VER (160)	16381	0	20210201000601.447	20210201000609.447
VER (160)	2	16382	20210201000609.447	20210201000609.447
VER (160)	-1	3	20210201000609.447	20210201000617.447
VER (160)	16379	0	20210201073649.402	20210201073657.402
VER (160)	0	16380	20210201073657.402	20210201073657.402
VER (160)	-1	1	20210201073657.402	20210201073705.402
VER (160)	16381	0	20210201151201.349	20210201151209.349
VER (160)	2	16382	20210201151209.349	20210201151209.349
VER (160)	-1	3	20210201151209.349	20210201151217.349
VER (160)	16379	0	20210201224249.344	20210201224257.340
VER (160)	0	16380	20210201224257.340	20210201224257.340
VER (160)	-1	1	20210201224257.340	20210201224305.340
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

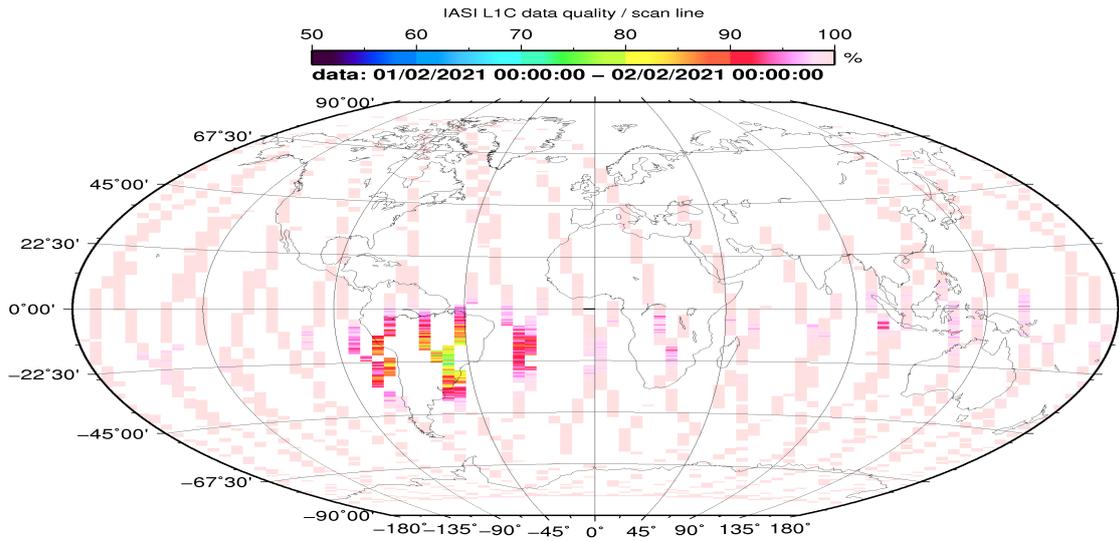
Time	Transition from	Transition to
01/02/2021 00:00:04	-	Normal operation
01/02/2021 05:17:40	Normal operation	Auxiliary ASE synchronised
01/02/2021 05:19:48	Auxiliary ASE synchronised	External calibration
01/02/2021 05:44:04	External calibration	Auxiliary ASE synchronised
01/02/2021 05:46:12	Auxiliary ASE synchronised	Normal operation
01/02/2021 06:57:24	Normal operation	Auxiliary ASE synchronised
01/02/2021 06:59:16	Auxiliary ASE synchronised	External calibration
01/02/2021 07:26:44	External calibration	Auxiliary ASE synchronised
01/02/2021 07:28:52	Auxiliary ASE synchronised	Normal operation
01/02/2021 08:36:52	Normal operation	Auxiliary ASE synchronised
01/02/2021 08:39:00	Auxiliary ASE synchronised	External calibration
01/02/2021 09:06:28	External calibration	Auxiliary ASE synchronised
01/02/2021 09:08:20	Auxiliary ASE synchronised	Normal operation
01/02/2021 10:16:36	Normal operation	Auxiliary ASE synchronised
01/02/2021 10:18:28	Auxiliary ASE synchronised	External calibration
01/02/2021 10:48:04	Auxiliary ASE synchronised	Normal operation
01/02/2021 11:56:20	Normal operation	Auxiliary ASE synchronised
01/02/2021 11:58:12	Auxiliary ASE synchronised	External calibration
01/02/2021 12:27:32	Auxiliary ASE synchronised	Normal operation
01/02/2021 13:36:04	Normal operation	Auxiliary ASE synchronised
01/02/2021 13:37:56	Auxiliary ASE synchronised	External calibration
01/02/2021 14:07:16	Auxiliary ASE synchronised	Normal operation
01/02/2021 15:16:04	Normal operation	Auxiliary ASE synchronised
01/02/2021 15:17:56	Auxiliary ASE synchronised	External calibration
01/02/2021 15:47:00	Auxiliary ASE synchronised	Normal operation
01/02/2021 16:56:04	Normal operation	Auxiliary ASE synchronised
01/02/2021 16:57:56	Auxiliary ASE synchronised	External calibration
01/02/2021 18:41:24	Normal operation	Auxiliary ASE synchronised
01/02/2021 18:43:16	Auxiliary ASE synchronised	External calibration

Table 3: Instrument modes

4 L0 and L1 Data Quality

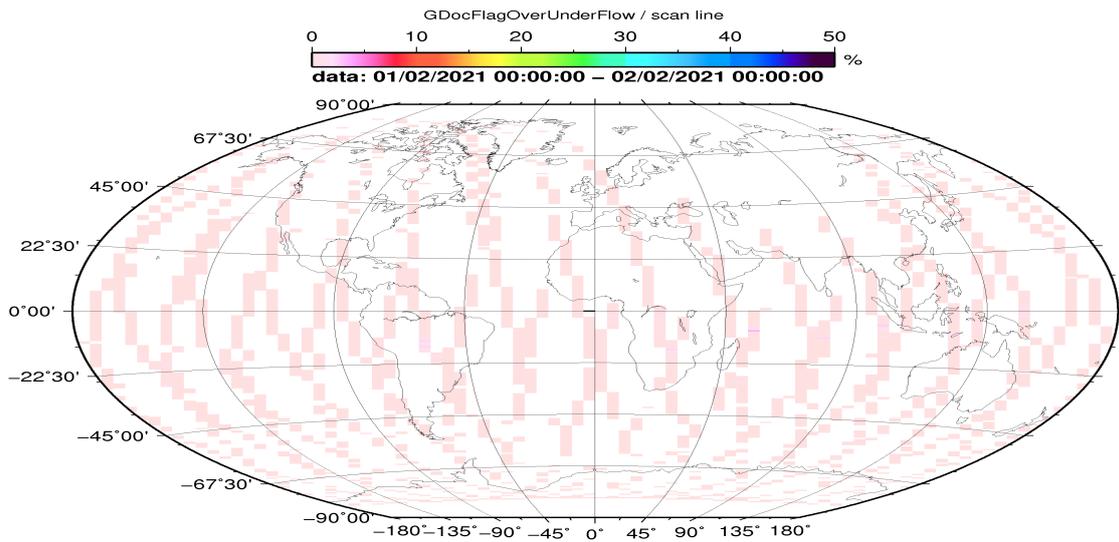
Flag	Value	Action
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSSGranule	475	-
GQisFlagQual set (PX1)	81.19 %	-
GQisFlagQual set (PX2)	81.21 %	-
GQisFlagQual set (PX3)	81.21 %	-
GQisFlagQual set (PX4)	81.14 %	-
GQisFlagQual set (all)	81.19 %	-

Table 4: Quality flags



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Figure 1: L1C data quality



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Figure 2: Flag of Over and Under Flows

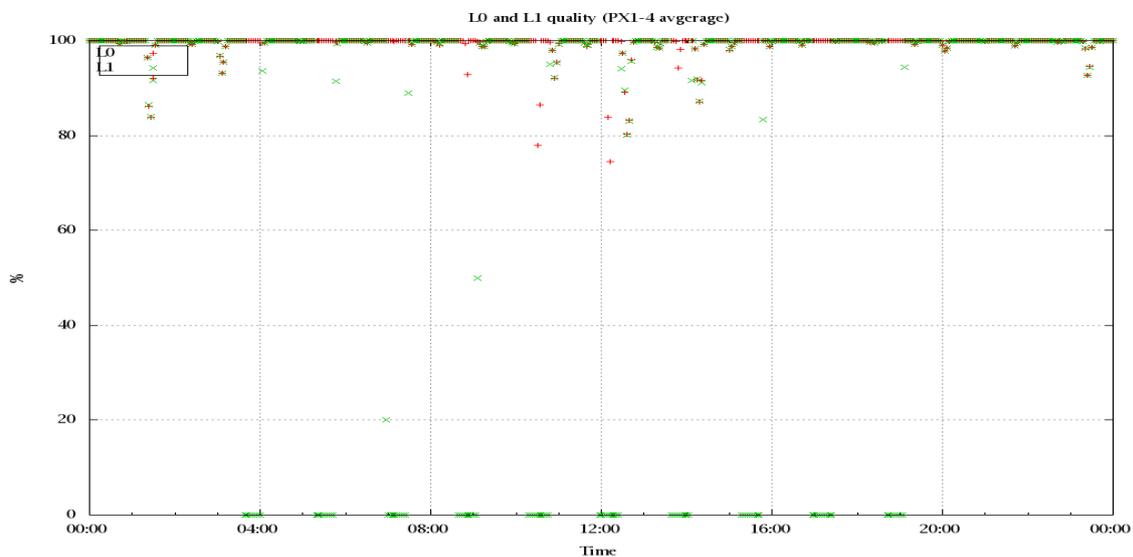


Figure 3: Level 0 and 1C overall quality

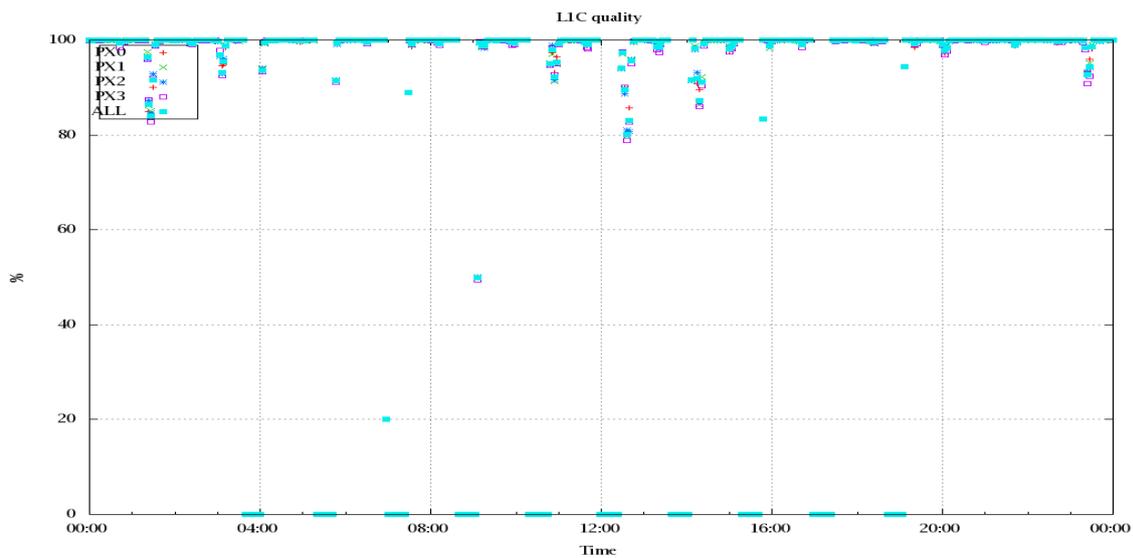


Figure 4: Level 1C quality

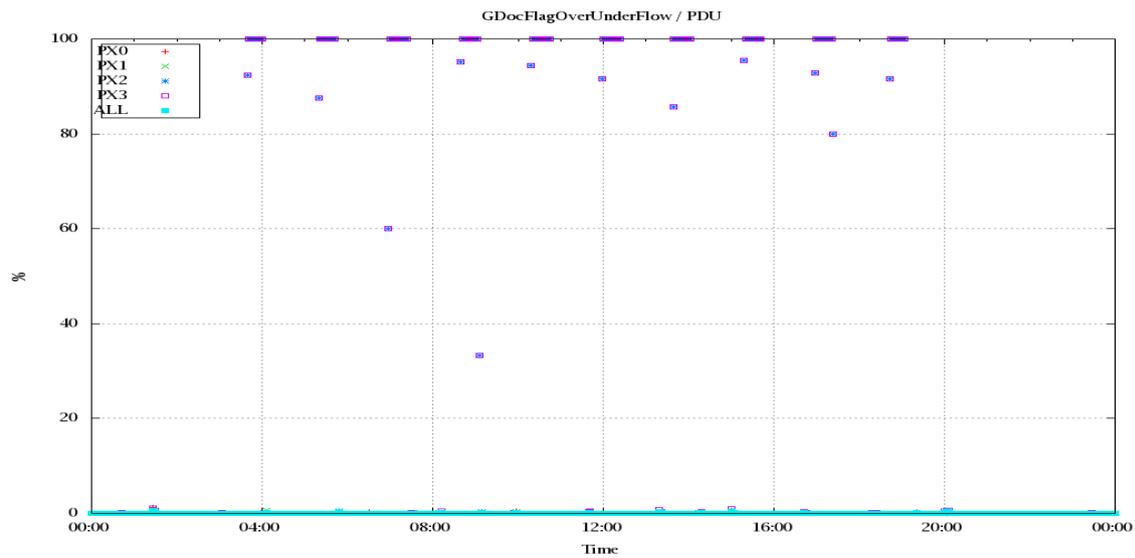


Figure 5: Timeseries of flag of Over and Under Flows

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 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, 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.

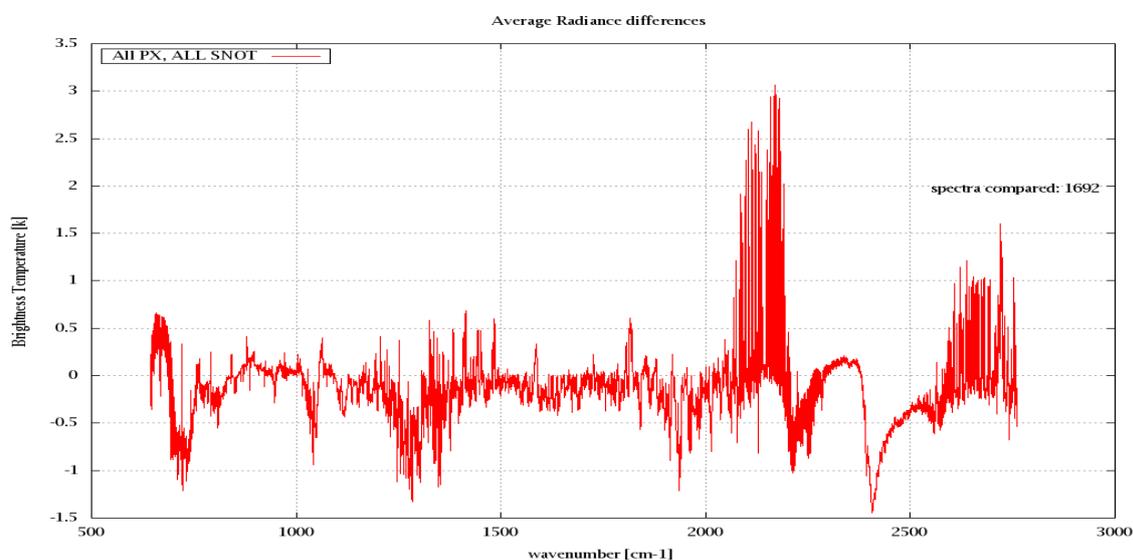


Figure 6: Average Radiance differences: OBS-CAL

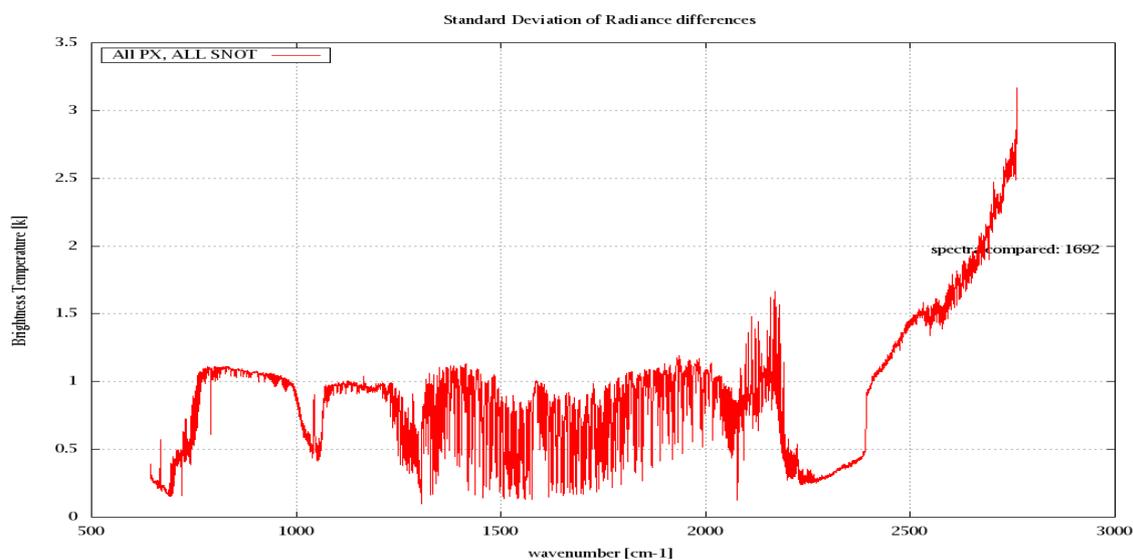


Figure 7: Standard Deviation of Radiance differences

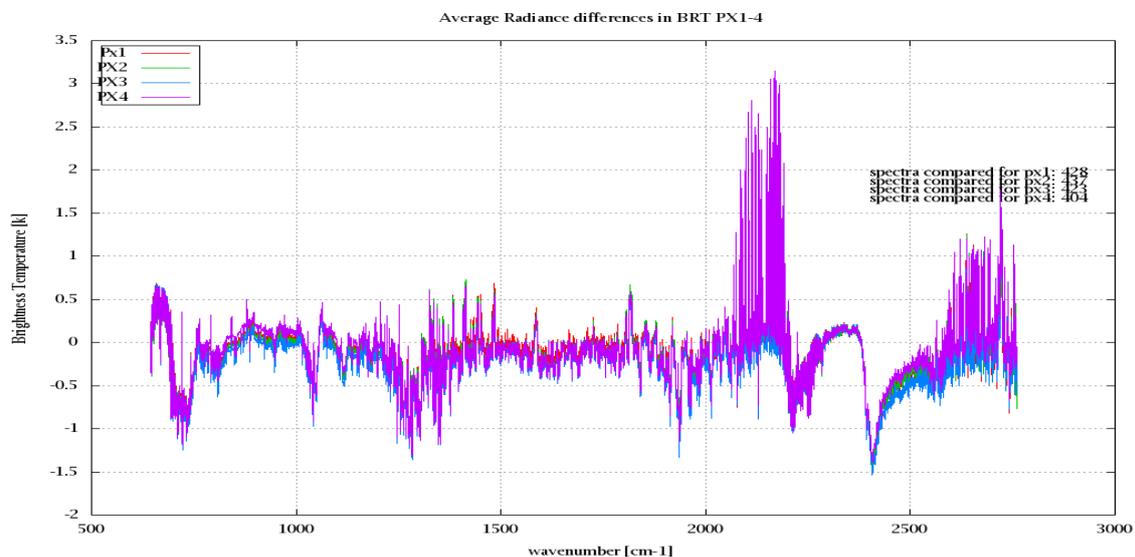


Figure 8: Average Radiance differences: OBS-CAL

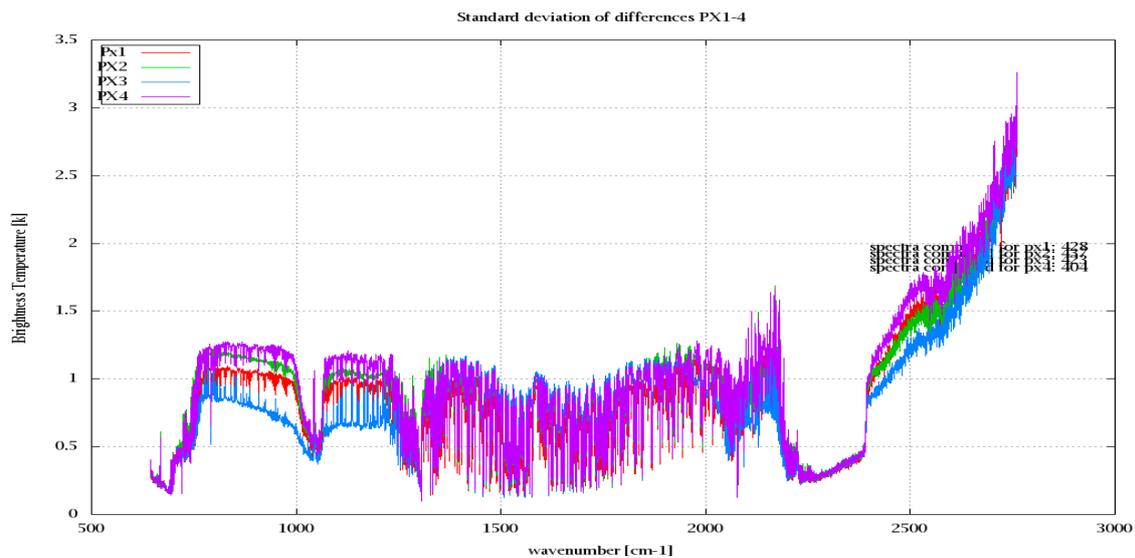


Figure 9: Standard Deviation of Radiance differences

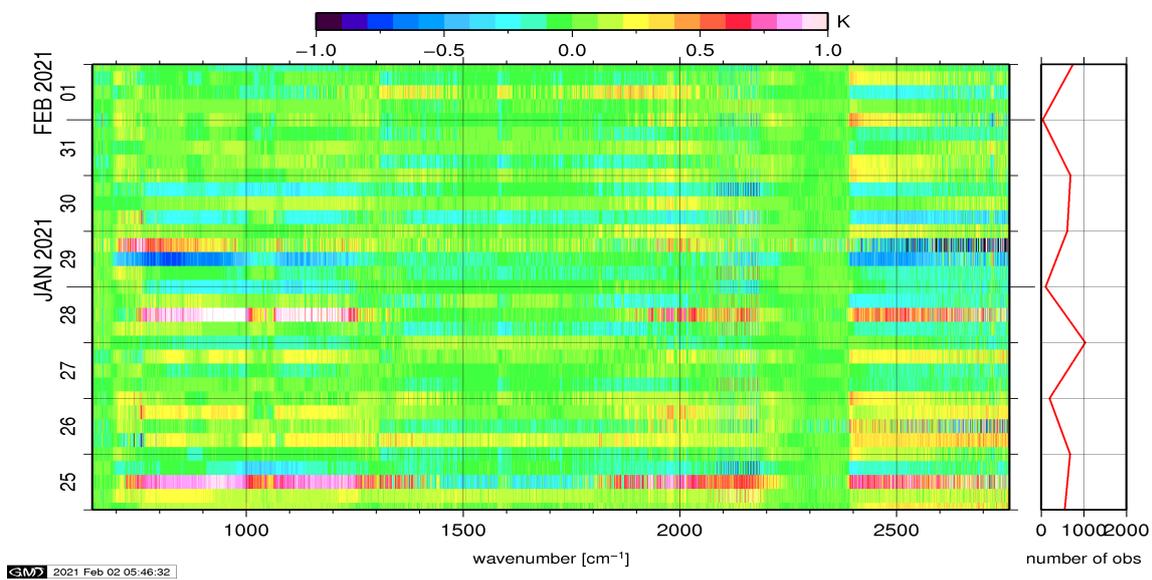


Figure 10: Radiance Anomaly in BT: All Channels

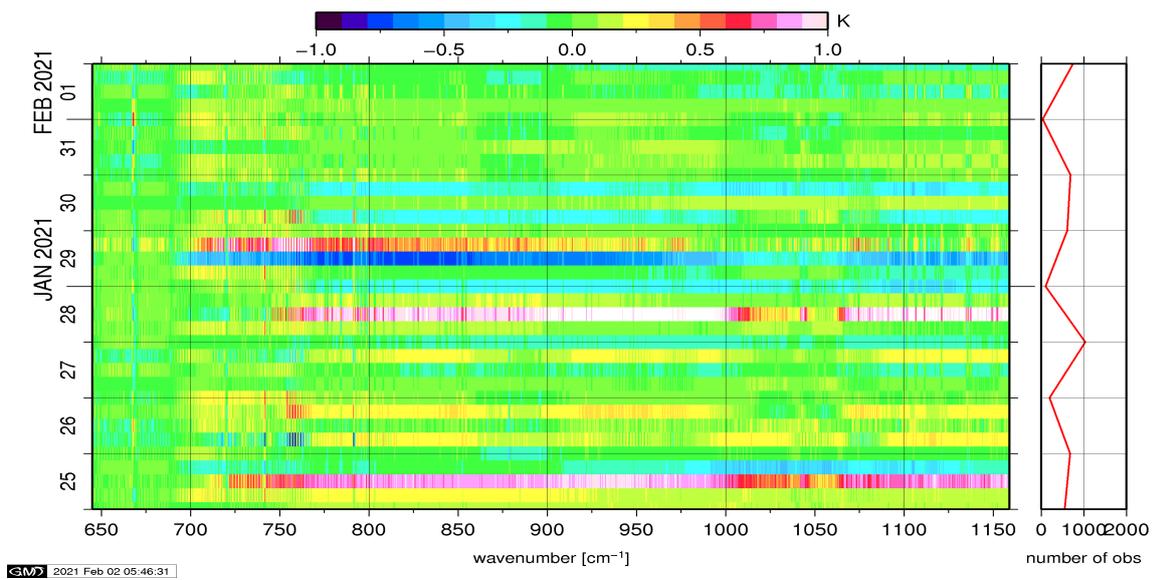


Figure 11: Radiance Anomaly in BT: IASI Band 1

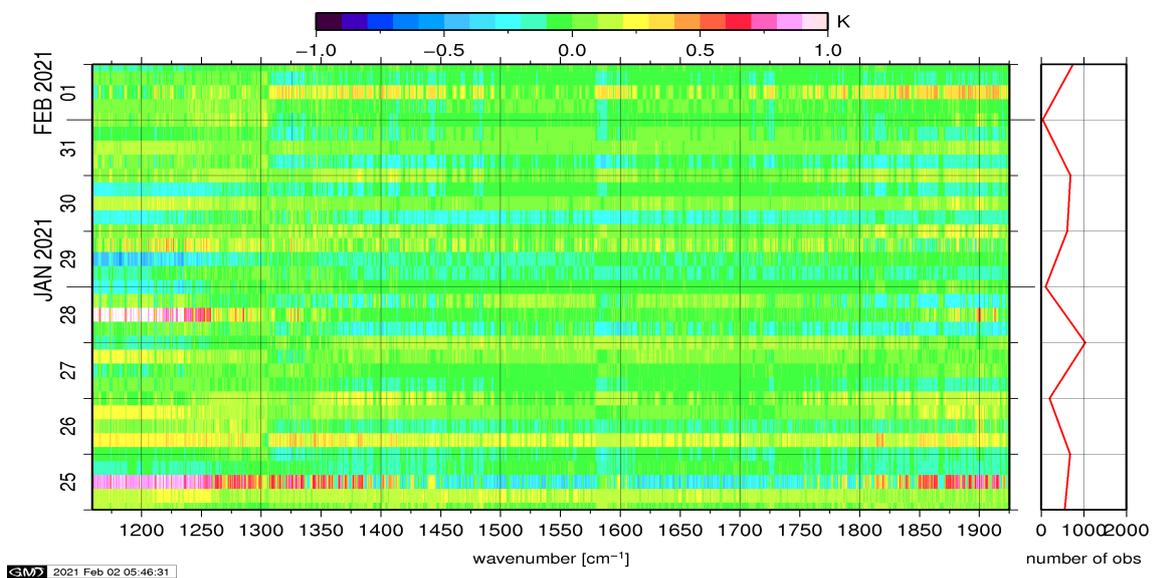


Figure 12: Radiance Anomaly in BT: IASI Band 2

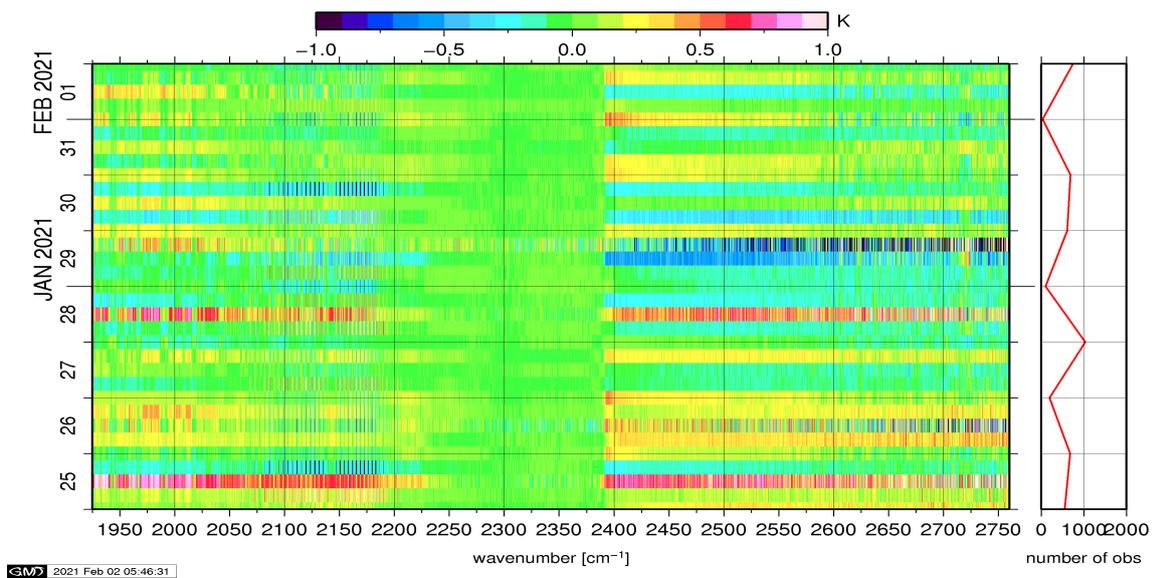


Figure 13: Radiance Anomaly in BT: IASI Band 3

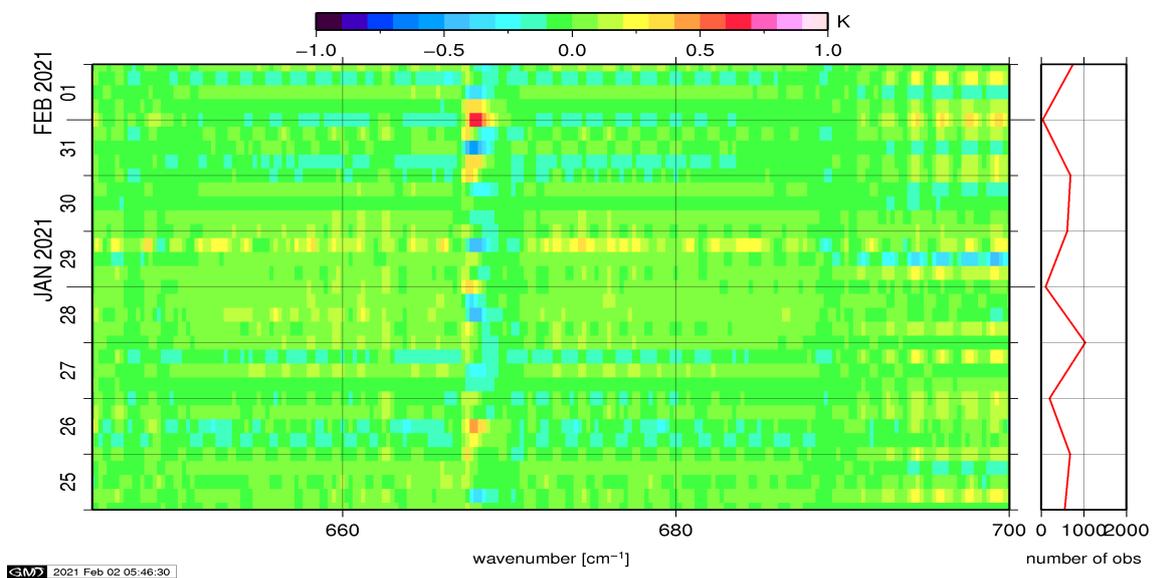


Figure 14: Radiance Anomaly in BT: CO2 14

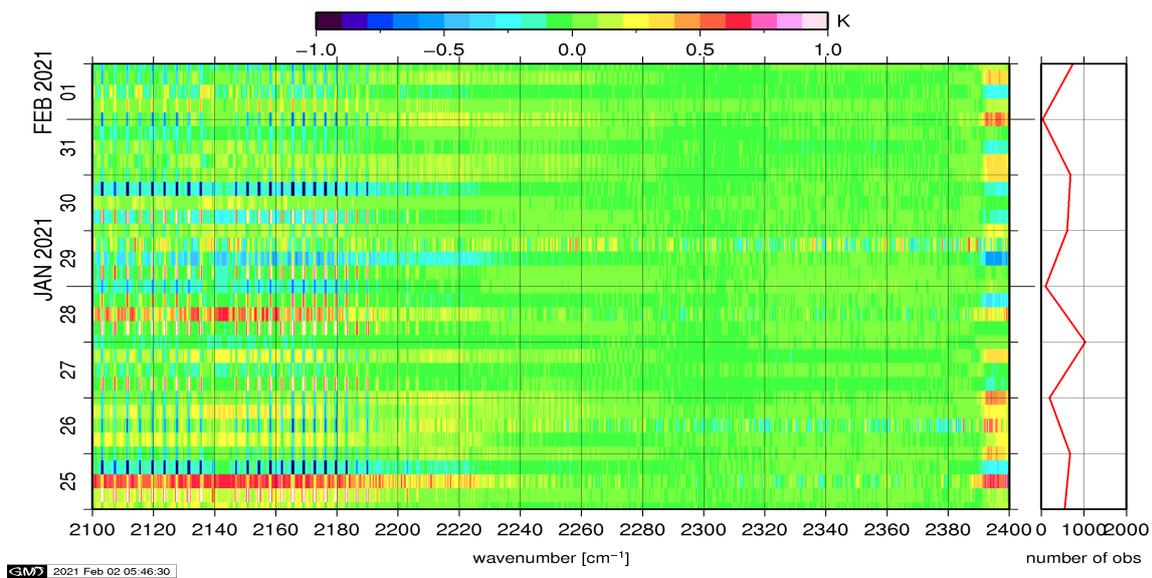


Figure 15: Radiance Anomaly in BT: CO2 4.3

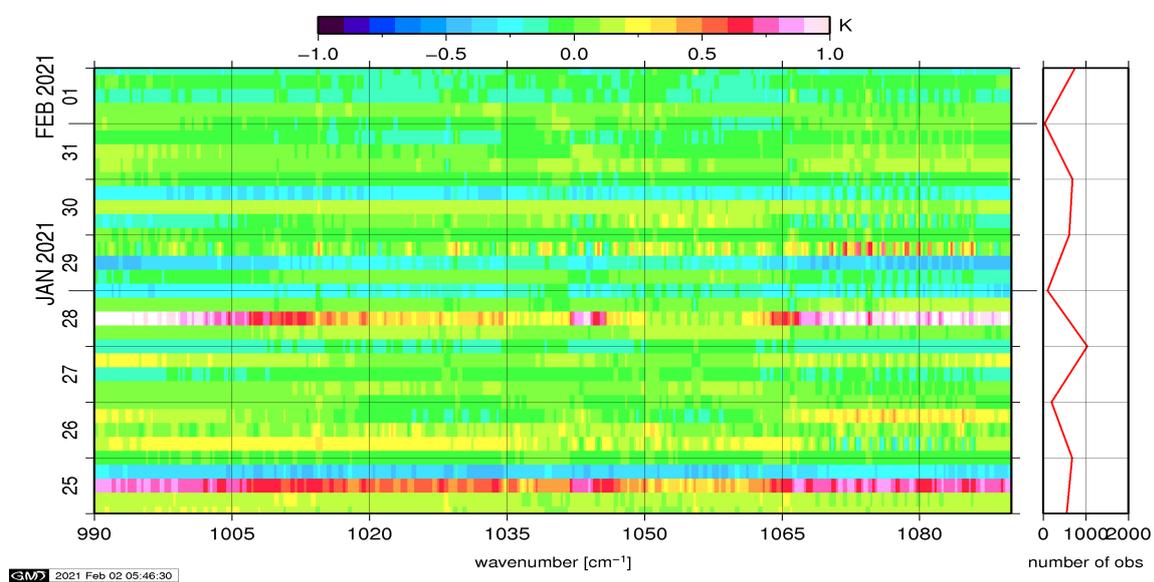


Figure 16: Radiance Anomaly in BT: O3