

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

IASI monitoring team

23/02/2021 00:00:00 - 24/02/2021 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 23/02/2021 00:00:00 - 24/02/2021 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 23/02/2021 00:00:00 - 24/02/2021 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	478	-
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)	131	133	20210223012124.652	20210223012125.086
PX1 (130)	2300	2302	20210223013102.620	20210223013104.566
PX1 (130)	11517	11519	20210223032450.482	20210223032450.912
PX2 (135)	131	133	20210223012124.652	20210223012125.086
PX3 (140)	4297	4299	20210223013955.795	20210223013956.229
PX4 (145)	4297	4299	20210223013955.795	20210223013956.229
IMG (150)	3503	3505	20210223013102.406	20210223013102.835
IMG (150)	9358	9360	20210223015400.568	20210223015401.001
IMG (150)	16136	16138	20210223032450.263	20210223032450.697
VER (160)	16379	0	20210223042614.821	20210223042622.821
VER (160)	0	16380	20210223042622.821	20210223042622.821
VER (160)	-1	1	20210223042622.821	20210223042630.821
VER (160)	16380	0	20210223114310.761	20210223114318.761
VER (160)	1	16381	20210223114318.761	20210223114318.761
VER (160)	-1	2	20210223114318.761	20210223114326.761
VER (160)	16379	0	20210223190910.724	20210223190918.724
VER (160)	0	16380	20210223190918.724	20210223190918.724
VER (160)	-1	1	20210223190918.724	20210223190926.724
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
23/02/2021 00:00:02	-	Normal operation
23/02/2021 15:52:50	Normal operation	Auxiliary ASE synchronised
23/02/2021 15:54:42	Auxiliary ASE synchronised	External calibration
23/02/2021 15:58:42	External calibration	Auxiliary ASE synchronised
23/02/2021 16:00:50	Auxiliary ASE synchronised	Normal operation
23/02/2021 17:33:54	Normal operation	Auxiliary ASE synchronised
23/02/2021 17:36:02	Auxiliary ASE synchronised	External calibration
23/02/2021 17:40:02	External calibration	Auxiliary ASE synchronised
23/02/2021 17:41:54	Auxiliary ASE synchronised	Normal operation
23/02/2021 19:15:14	Normal operation	Auxiliary ASE synchronised
23/02/2021 19:17:22	Auxiliary ASE synchronised	External calibration
23/02/2021 19:21:22	External calibration	Auxiliary ASE synchronised
23/02/2021 19:23:14	Auxiliary ASE synchronised	Normal operation
23/02/2021 20:56:34	Normal operation	Auxiliary ASE synchronised
23/02/2021 20:58:42	Auxiliary ASE synchronised	External calibration
23/02/2021 21:02:42	External calibration	Auxiliary ASE synchronised
23/02/2021 21:04:34	Auxiliary ASE synchronised	Normal operation
23/02/2021 22:37:54	Normal operation	Auxiliary ASE synchronised
23/02/2021 22:39:46	Auxiliary ASE synchronised	External calibration
23/02/2021 22:43:46	External calibration	Auxiliary ASE synchronised
23/02/2021 22:45:54	Auxiliary ASE synchronised	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 GEPSSGranule	478	-
GQisFlagQual set (PX1)	98.19 %	-
GQisFlagQual set (PX2)	98.23 %	-
GQisFlagQual set (PX3)	98.24 %	-
GQisFlagQual set (PX4)	98.16 %	-
GQisFlagQual set (all)	98.20 %	-

Table 4: Quality flags

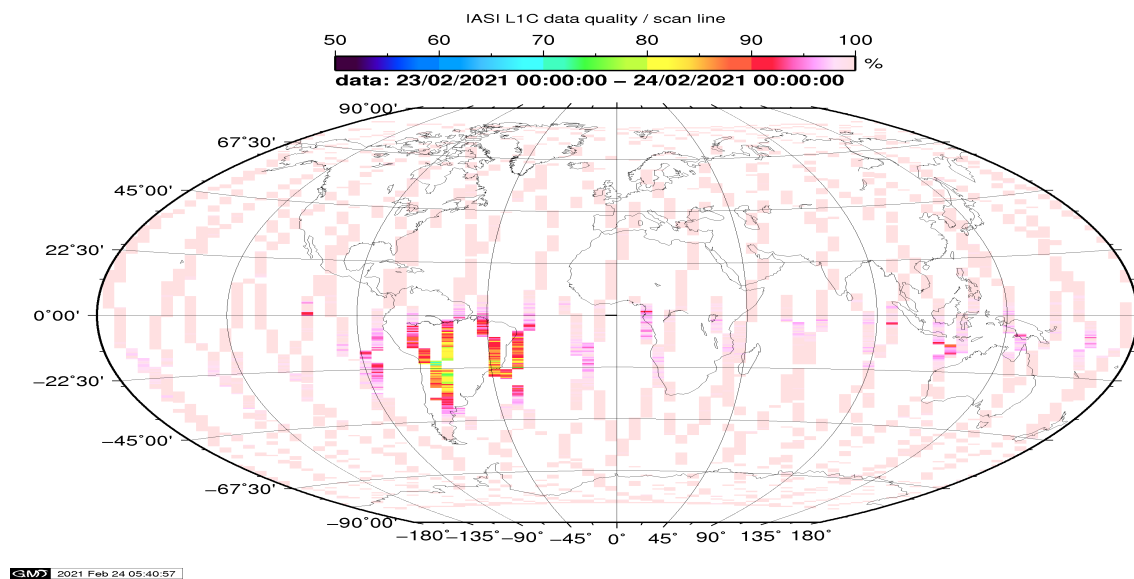


Figure 1: L1C data quality

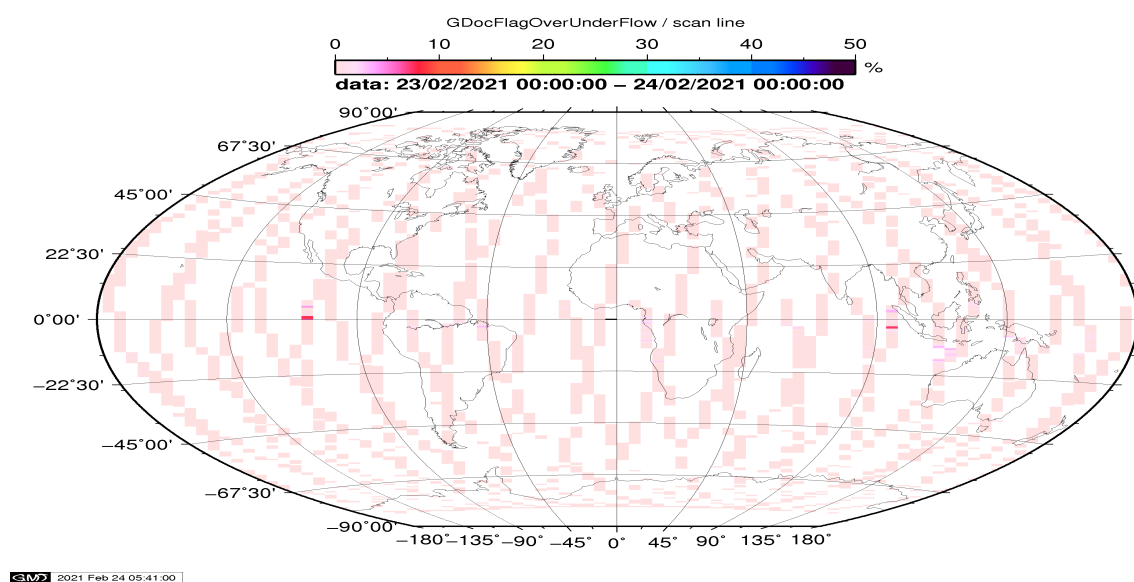


Figure 2: Flag of Over and Under Flows

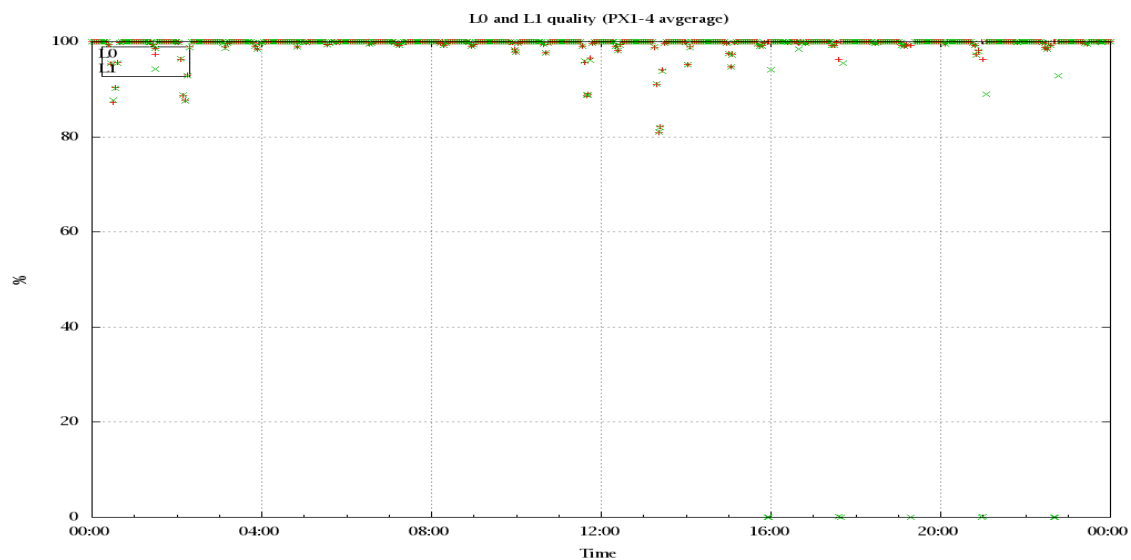


Figure 3: Level 0 and 1C overall quality

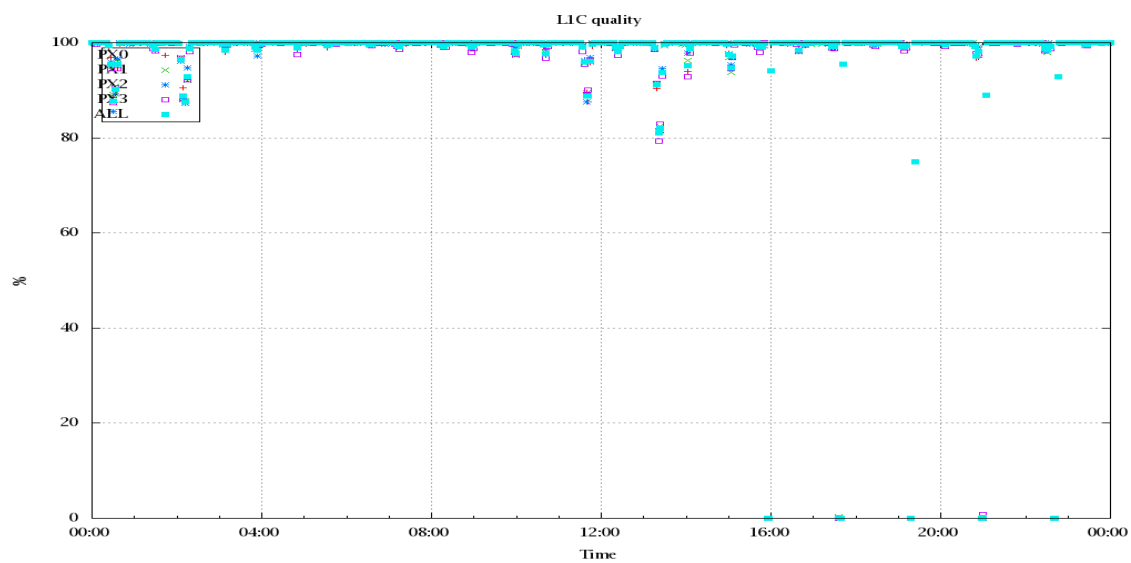


Figure 4: Level 1C quality

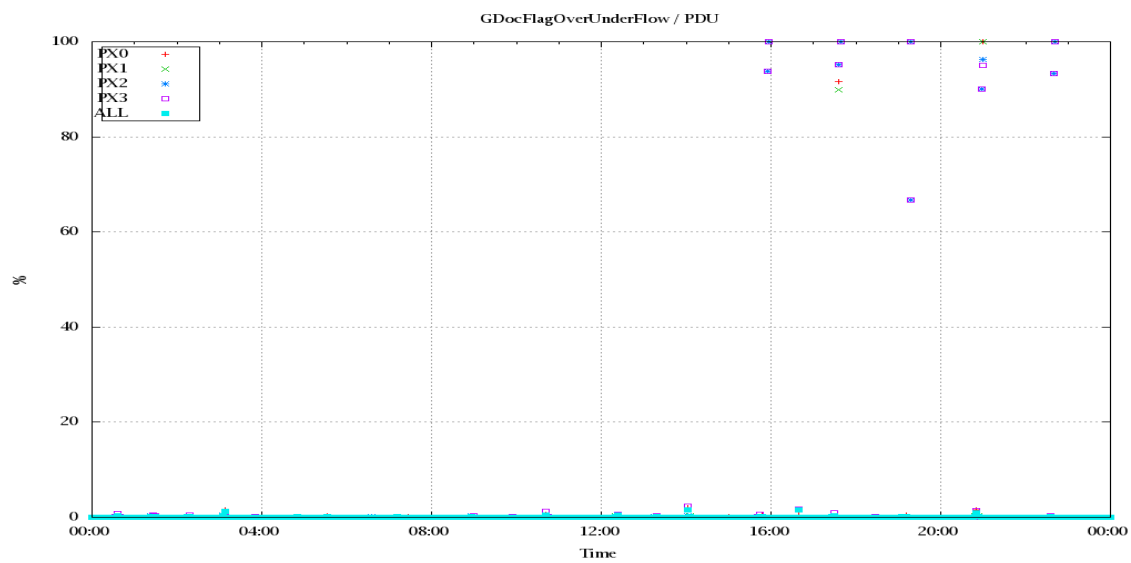


Figure 5: Timeseries of flag of Over and Under Flows

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 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.

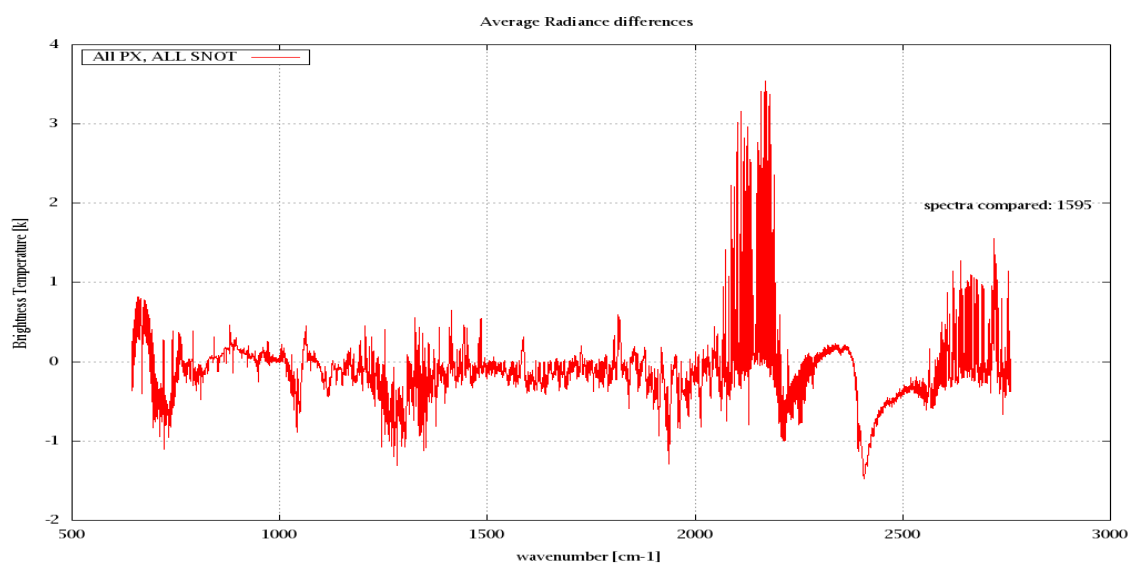


Figure 6: Average Radiance differences: OBS-CAL

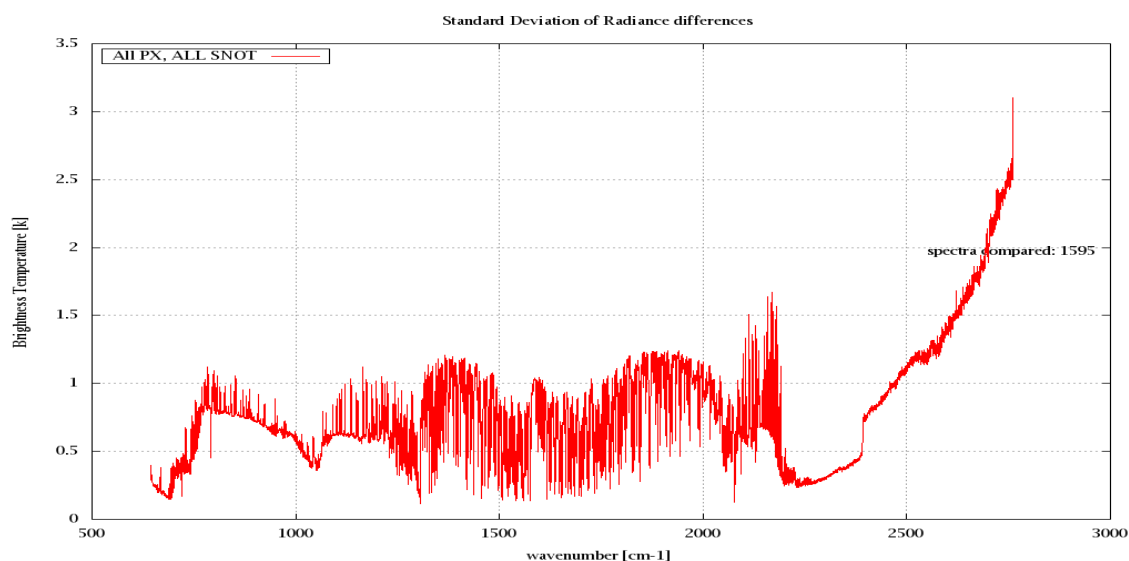


Figure 7: Standard Deviation of Radiance differences

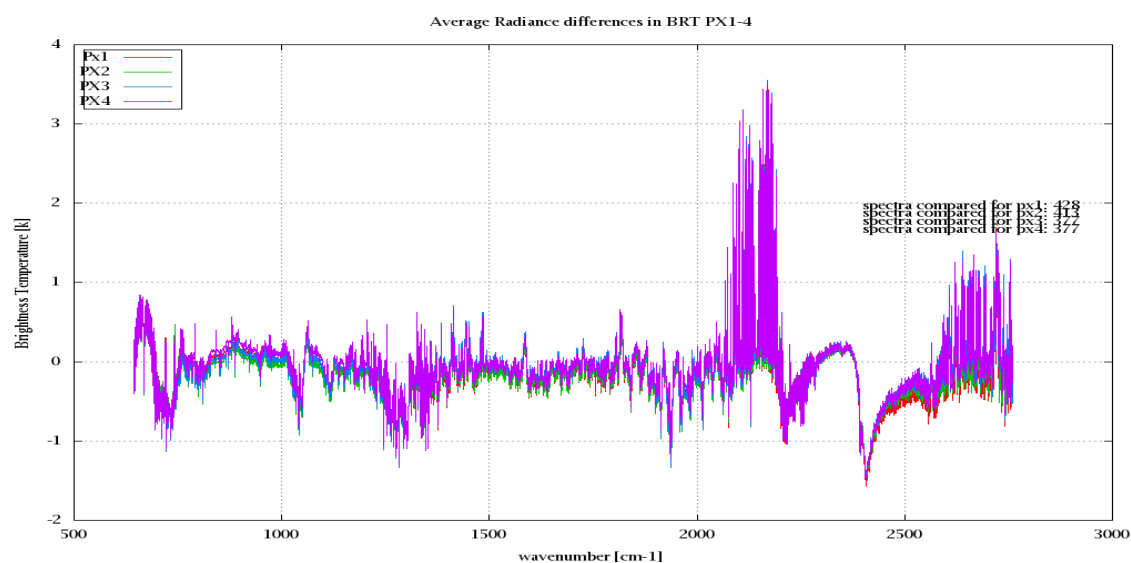


Figure 8: Average Radiance differences: OBS-CAL

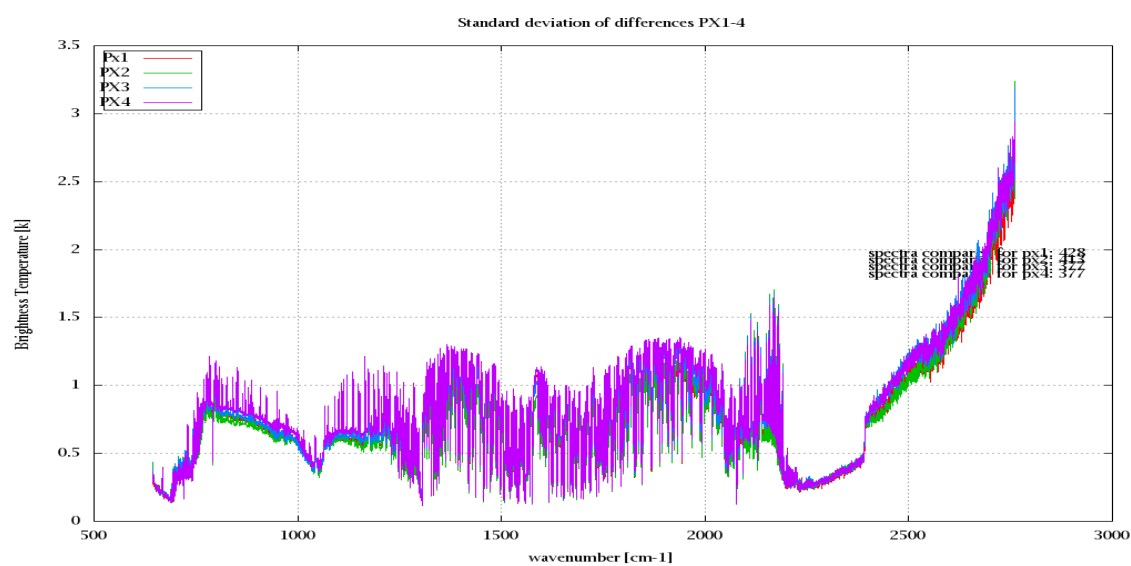


Figure 9: Standard Deviation of Radiance differences

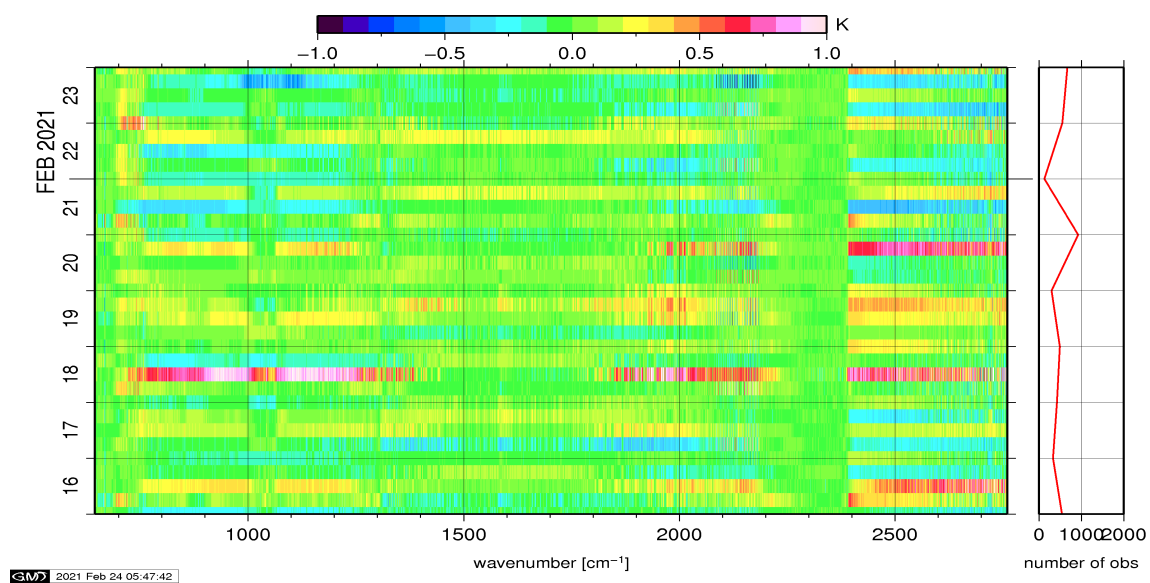


Figure 10: Radiance Anomaly in BT: All Channels

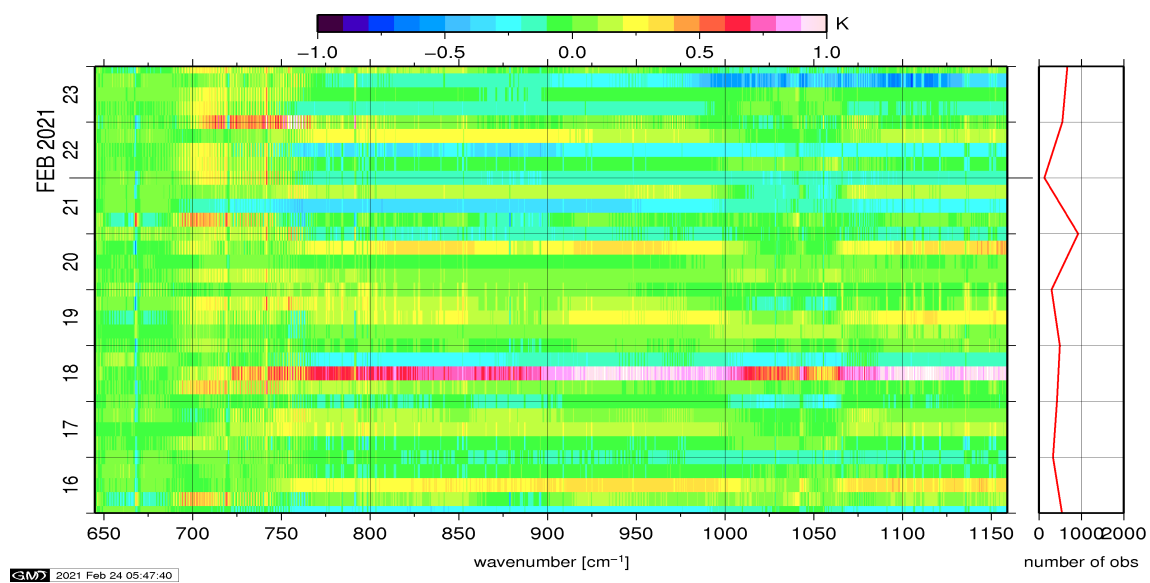


Figure 11: Radiance Anomaly in BT: IASI Band 1

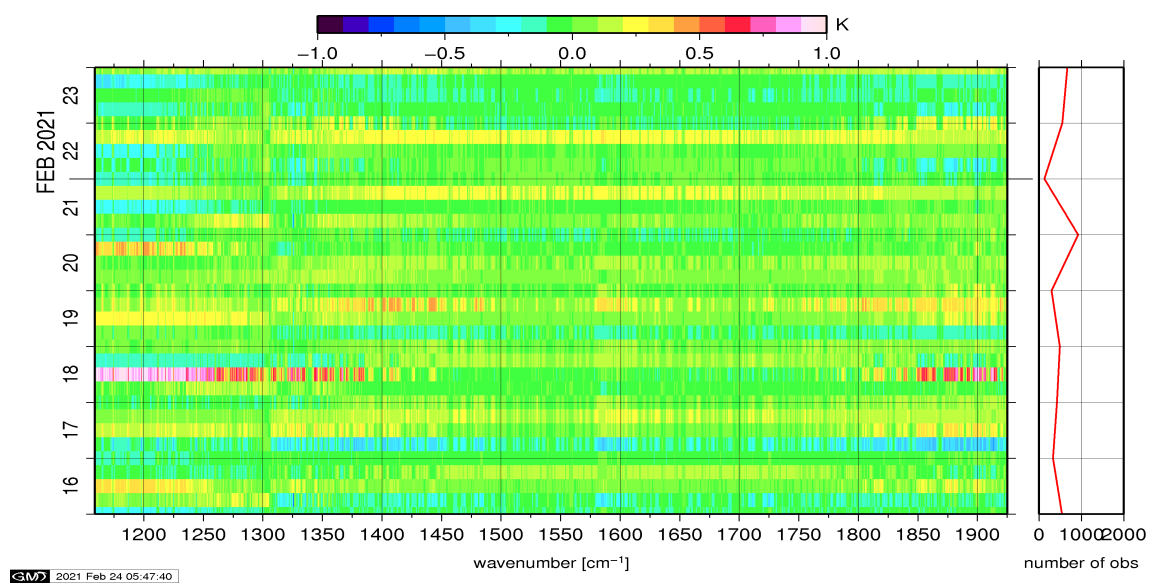


Figure 12: Radiance Anomaly in BT: IASI Band 2

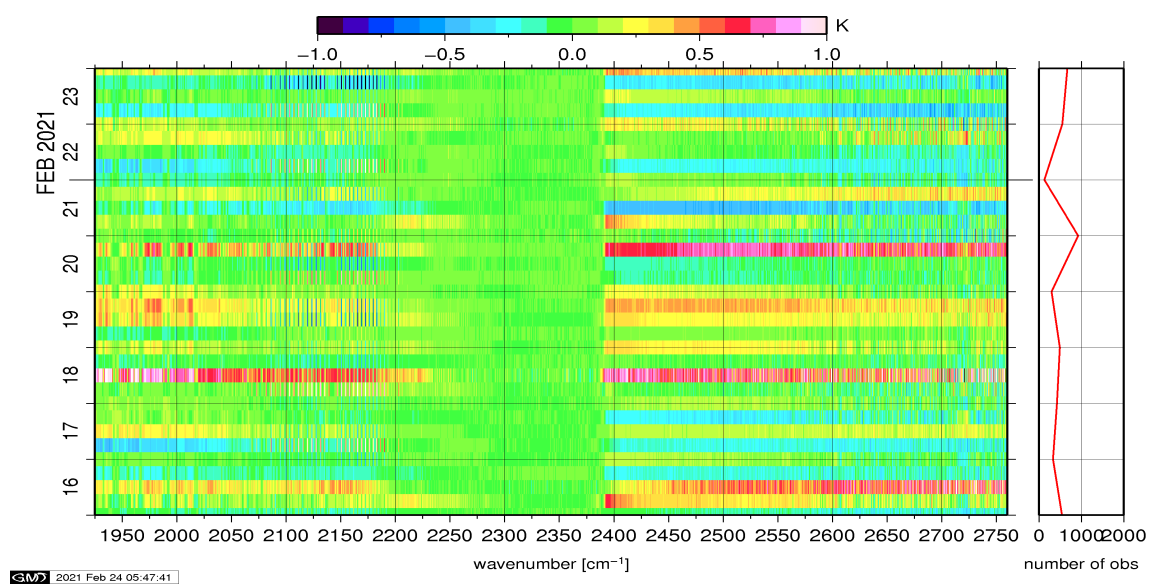


Figure 13: Radiance Anomaly in BT: IASI Band 3

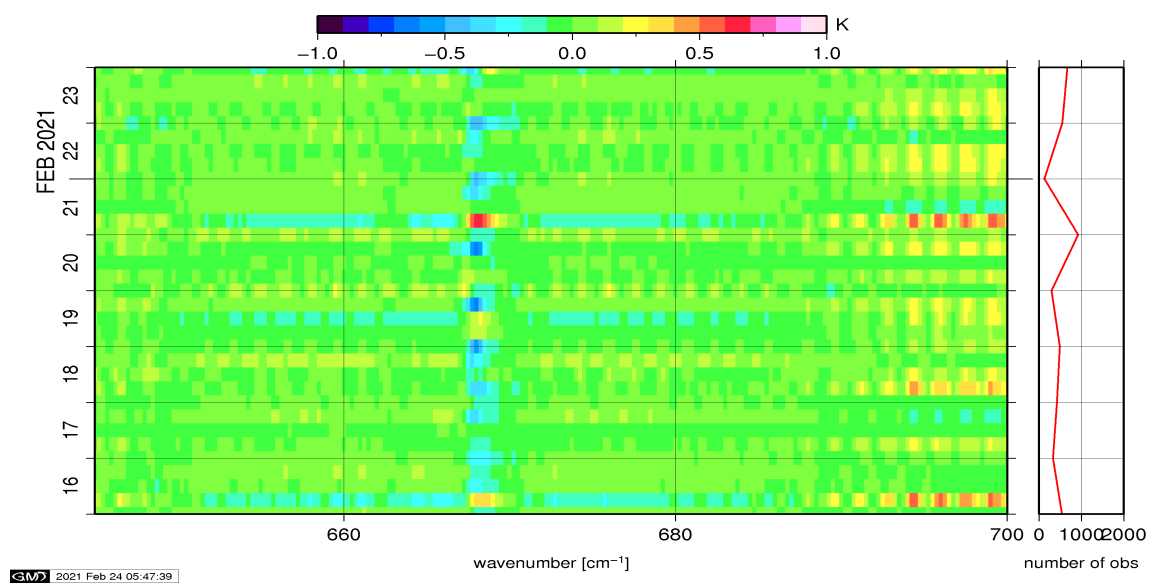


Figure 14: Radiance Anomaly in BT: CO2 14

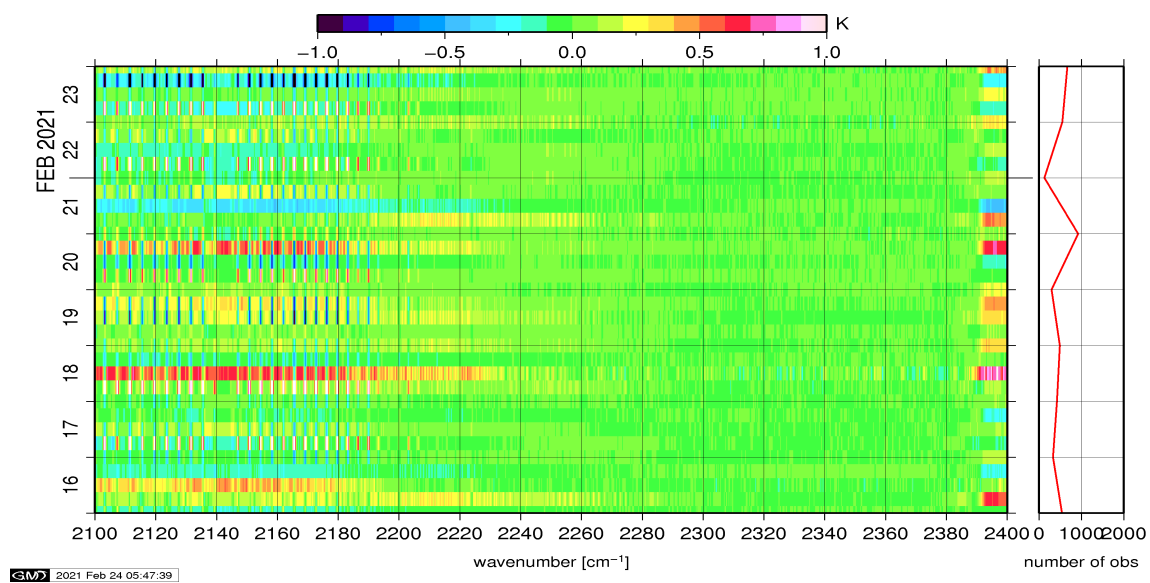


Figure 15: Radiance Anomaly in BT: CO2 4.3

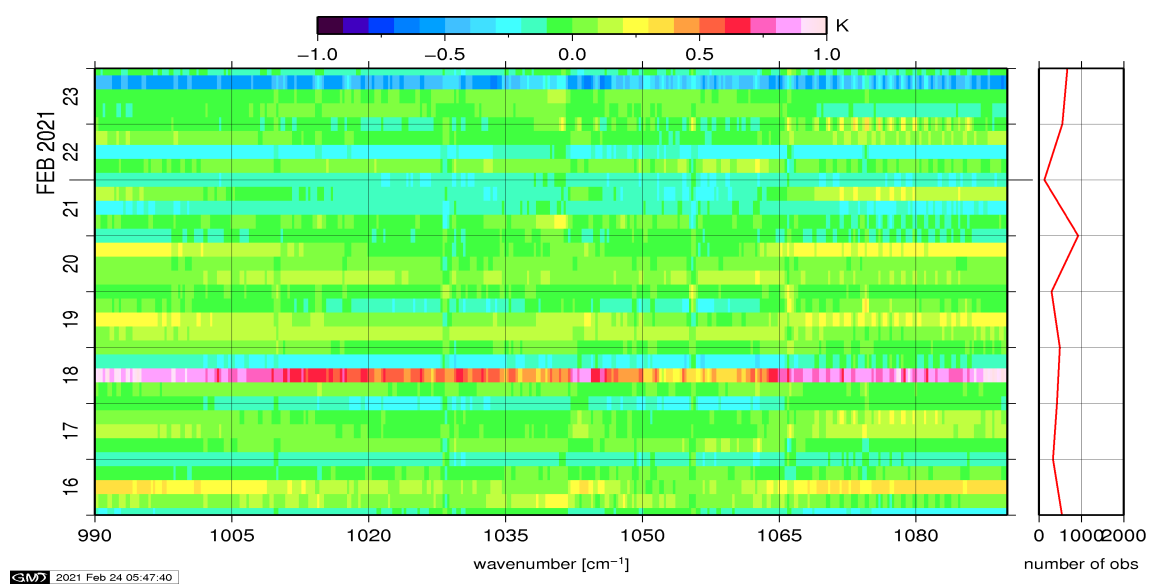


Figure 16: Radiance Anomaly in BT: O3