

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

IASI monitoring team

12/01/2021 00:00:00 - 13/01/2021 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 12/01/2021 00:00:00 - 13/01/2021 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 12/01/2021 00:00:00 - 13/01/2021 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	358	e
L0 IASI PDUs	360	e
L1 ENG PDUs	333	e
L1 ENG distinct GEPSGranule	323	a
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	333	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	5837	7721	20210112003059.763	20210112041750.549
PX1 (130)	1120	456	20210112050119.206	20210112072400.065
PX2 (135)	5837	7721	20210112003059.763	20210112041750.549
PX2 (135)	1120	456	20210112050119.206	20210112072400.065
PX3 (140)	5837	7720	20210112003059.763	20210112041750.334
PX3 (140)	1120	456	20210112050119.206	20210112072400.065
PX4 (145)	5837	7720	20210112003059.763	20210112041750.334
PX4 (145)	1120	456	20210112050119.206	20210112072400.065
IMG (150)	11581	3888	20210112003059.763	20210112041750.334
IMG (150)	14976	2208	20210112050119.206	20210112072400.065
VER (160)	3131	11642	20210112003051.763	20210112041755.740
VER (160)	13271	2238	20210112050115.745	20210112072403.741
VER (160)	16382	0	20210112134107.702	20210112134115.702
VER (160)	3	16383	20210112134115.702	20210112134115.702
VER (160)	-1	4	20210112134115.702	20210112134123.702
AUX (180)	13723	15426	20210112003052.196	20210112041756.170
AUX (180)	15751	438	20210112050116.178	20210112072404.174

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
12/01/2021 00:00:07	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	360	e
L1 ENG PDUs	333	e
L1 ENG distinct GEPSGranule	323	a
GQisFlagQual set (PX1)	99.49 %	-
GQisFlagQual set (PX2)	99.50 %	-
GQisFlagQual set (PX3)	99.51 %	-
GQisFlagQual set (PX4)	99.44 %	-
GQisFlagQual set (all)	99.49 %	-

Table 4: Quality flags

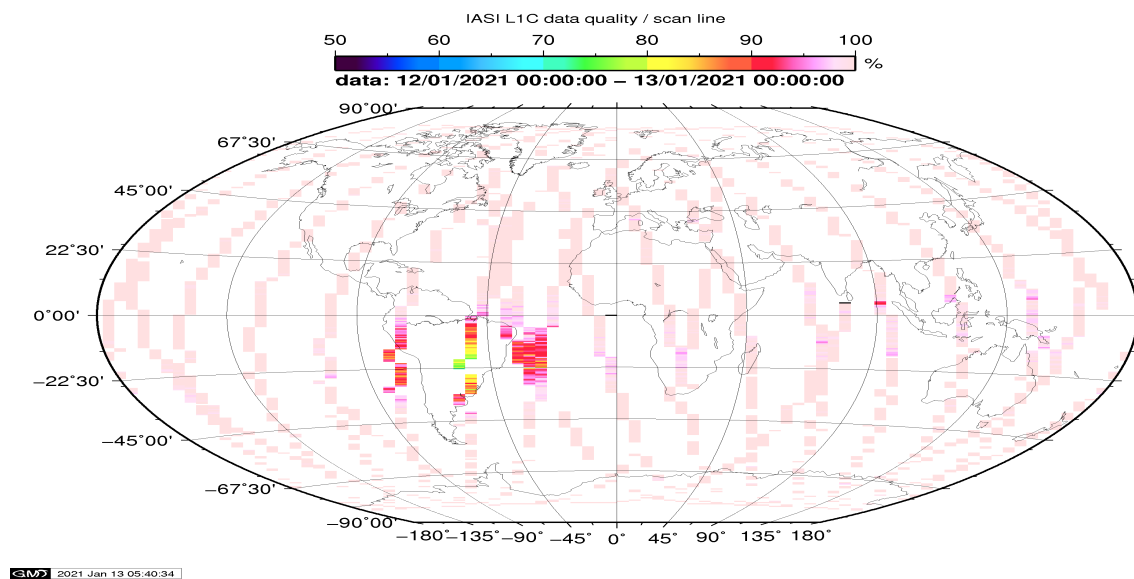


Figure 1: L1C data quality

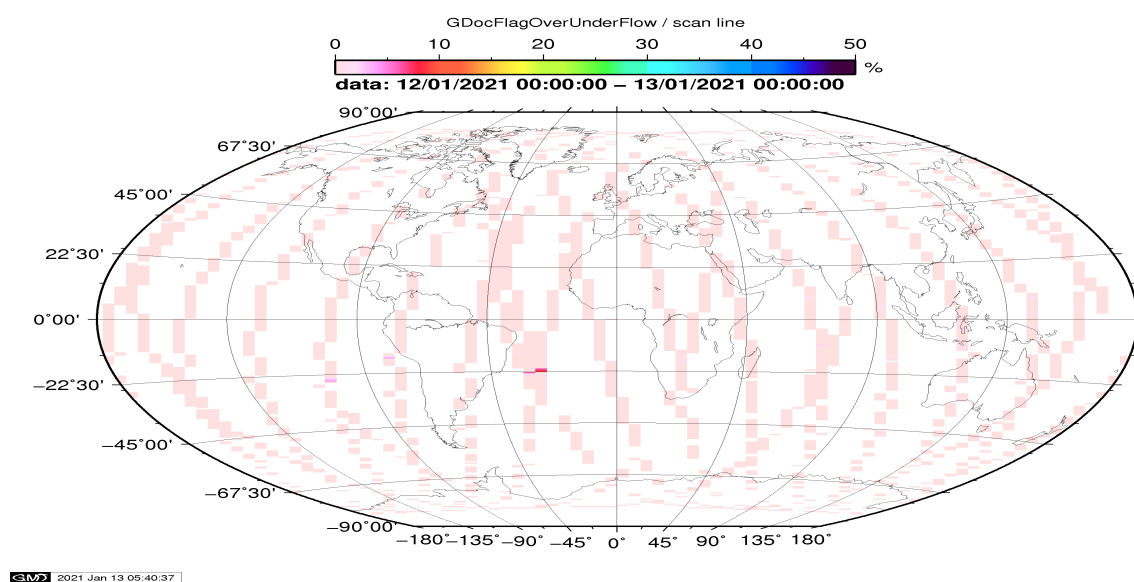


Figure 2: Flag of Over and Under Flows

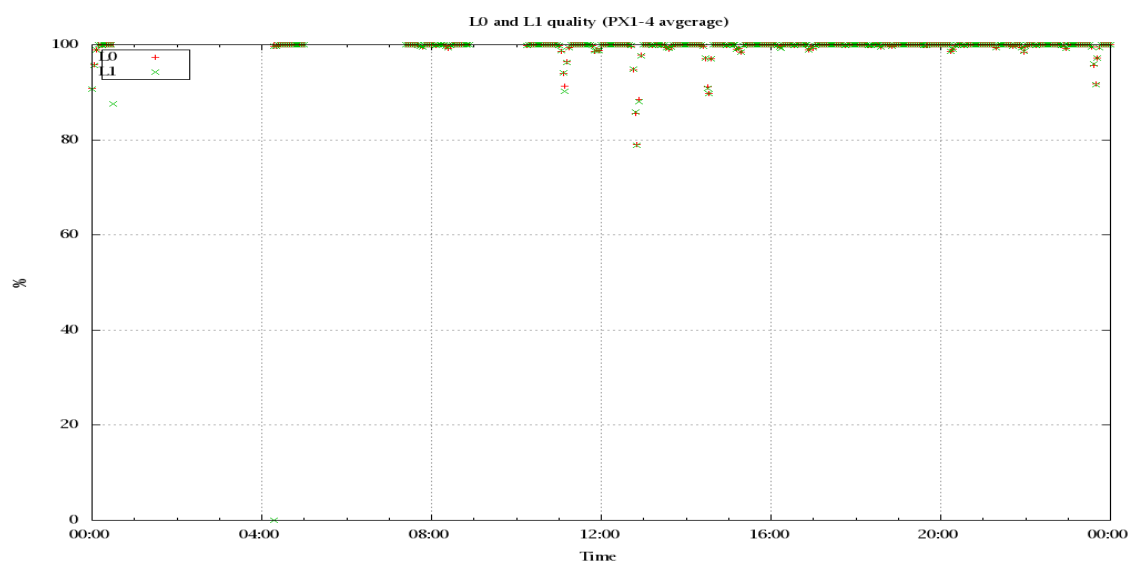


Figure 3: Level 0 and 1C overall quality

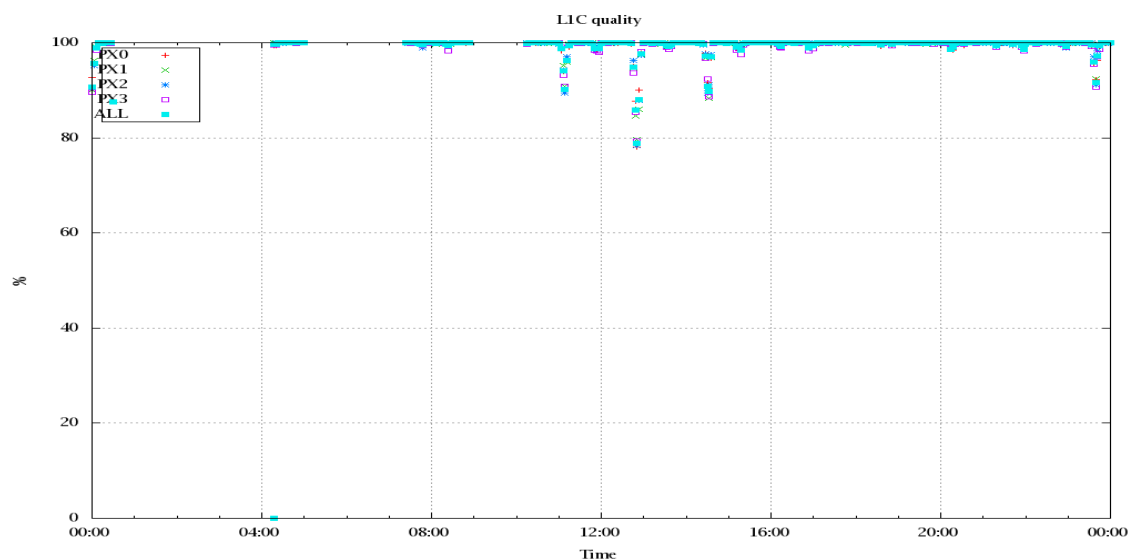


Figure 4: Level 1C quality

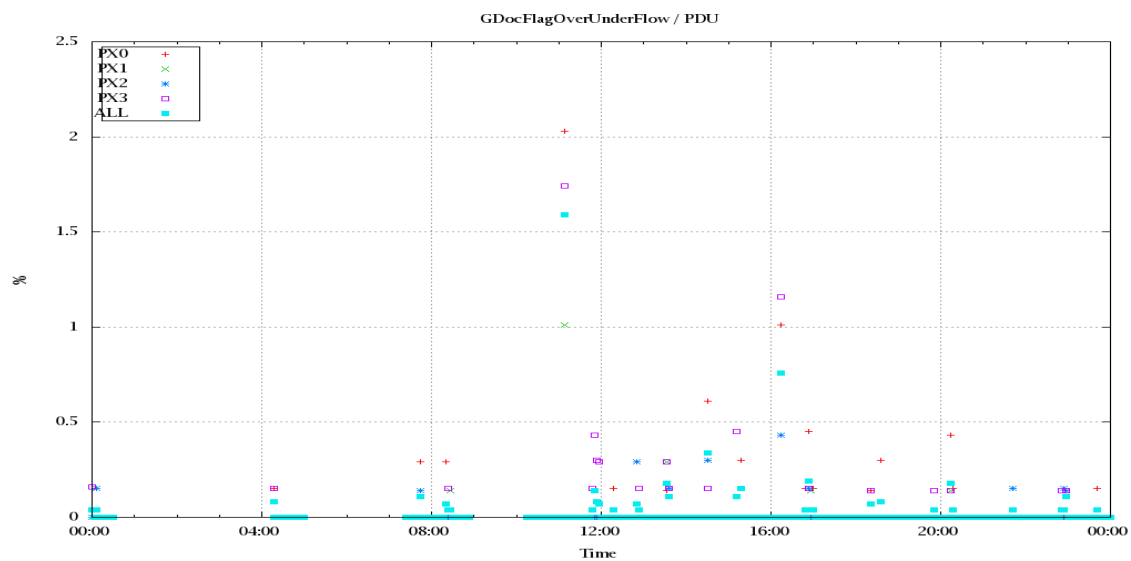


Figure 5: Timeseries of flag of Over and Under Flows

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.

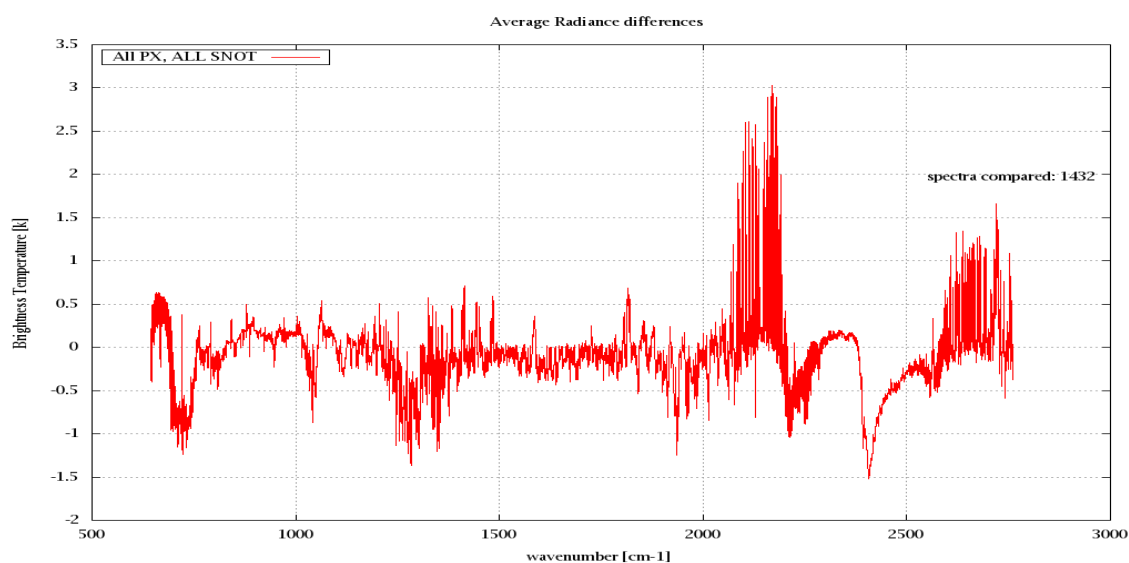


Figure 6: Average Radiance differences: OBS-CAL

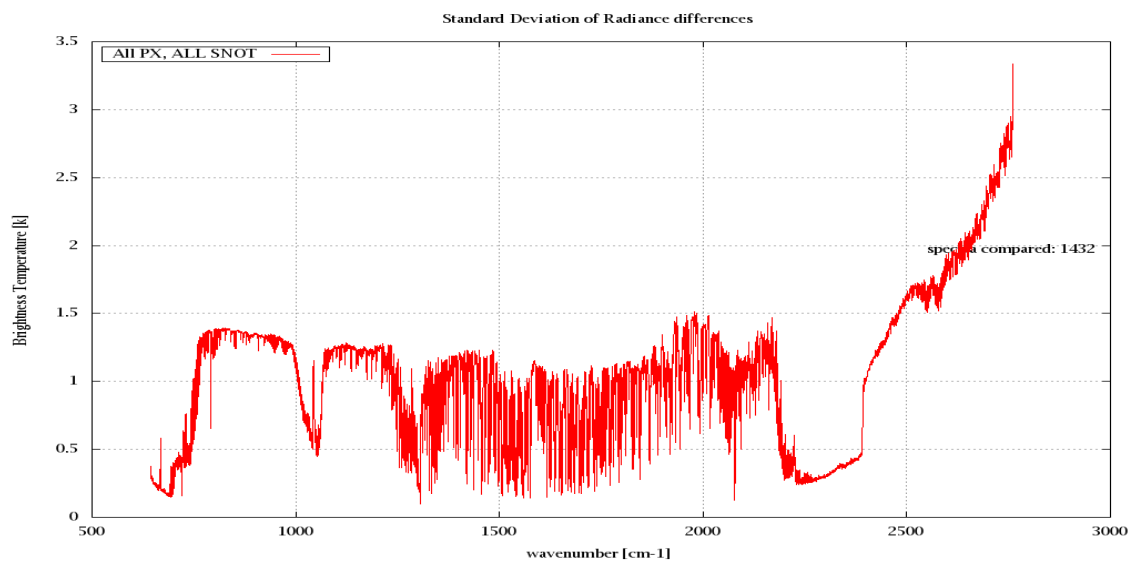


Figure 7: Standard Deviation of Radiance differences

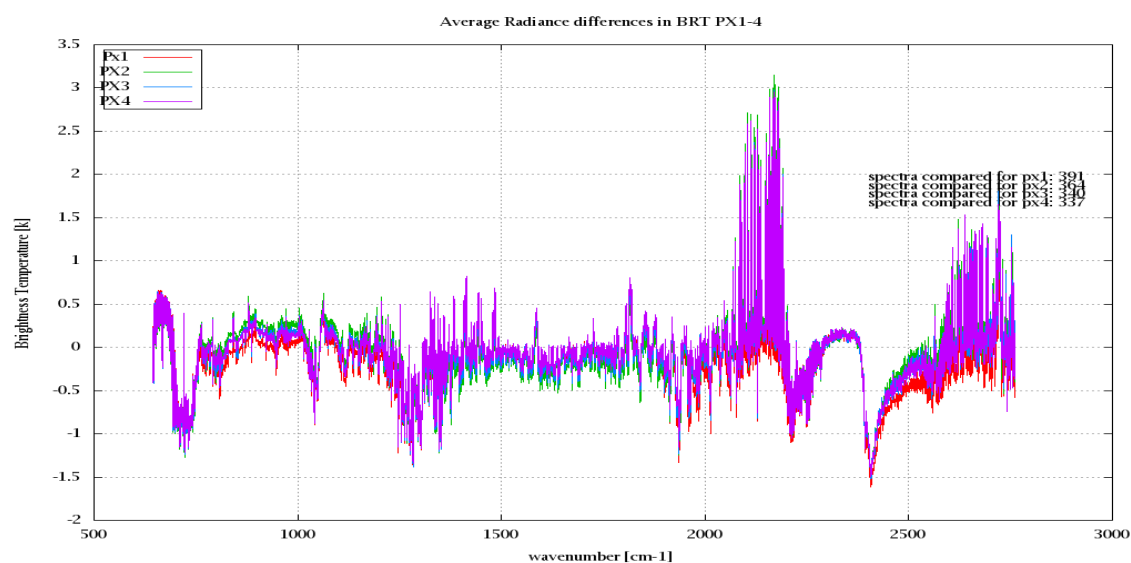


Figure 8: Average Radiance differences: OBS-CAL

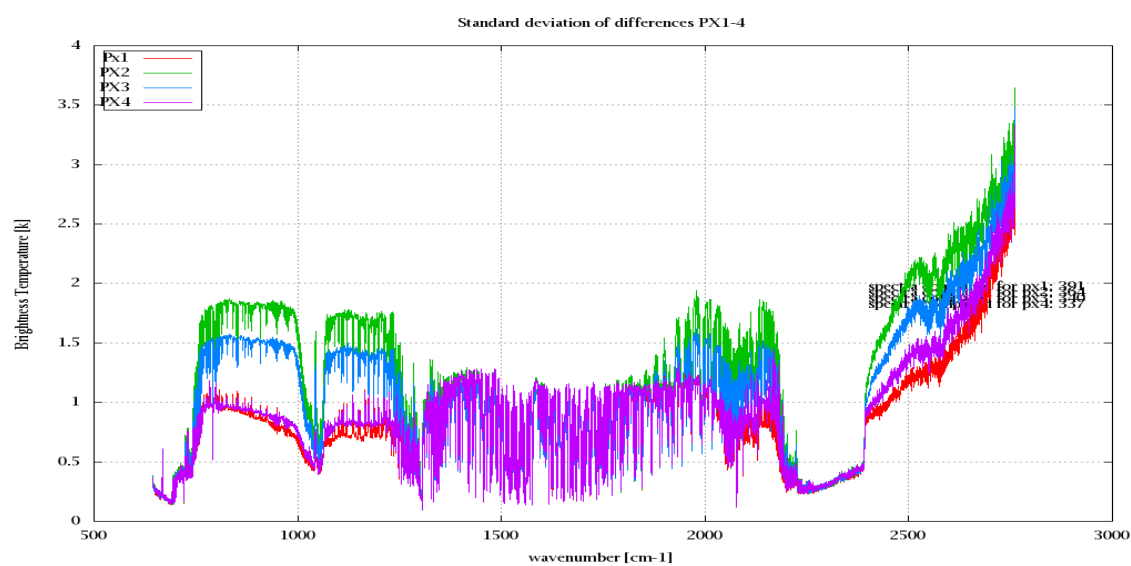


Figure 9: Standard Deviation of Radiance differences

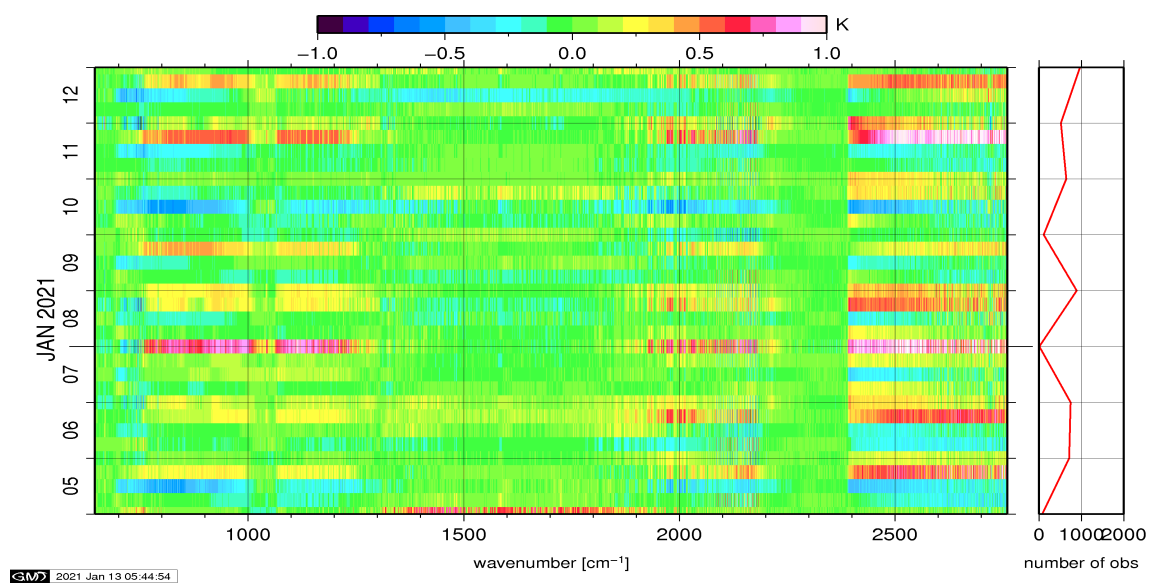


Figure 10: Radiance Anomaly in BT: All Channels

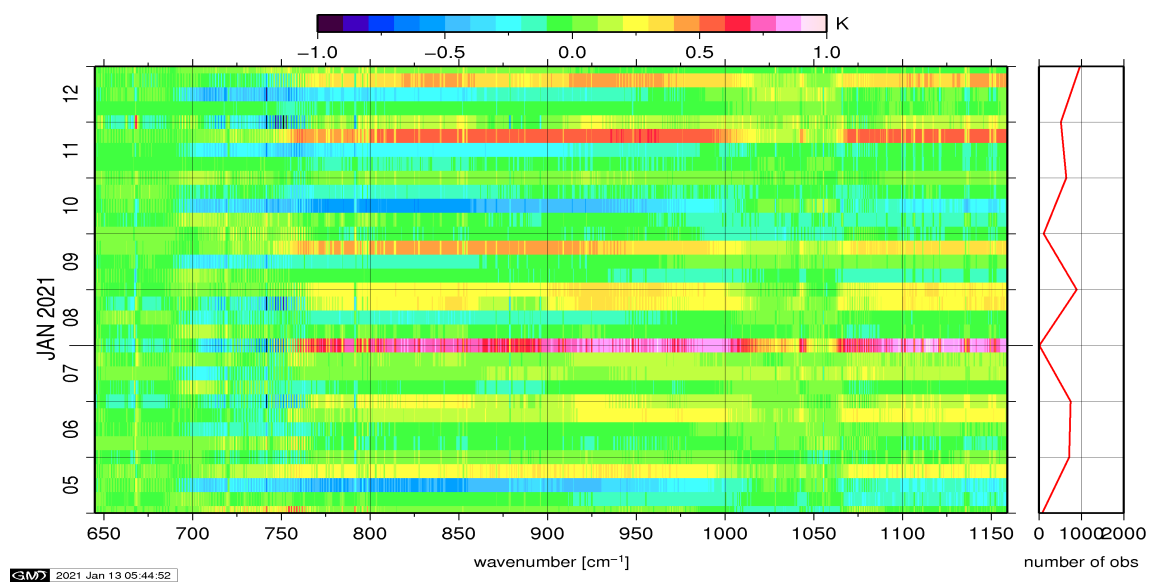


Figure 11: Radiance Anomaly in BT: IASI Band 1

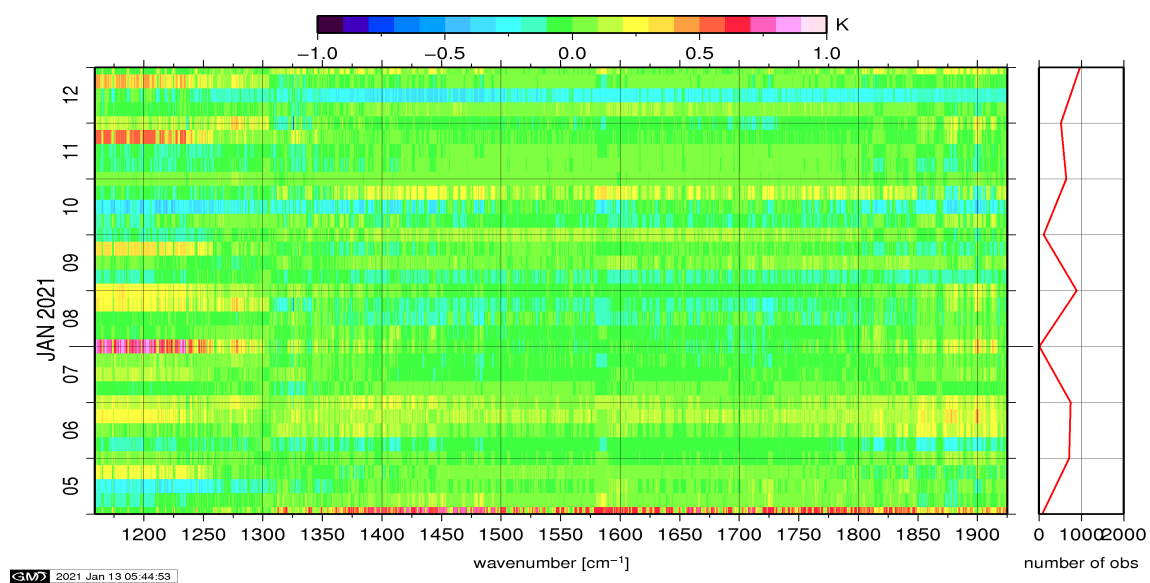


Figure 12: Radiance Anomaly in BT: IASI Band 2

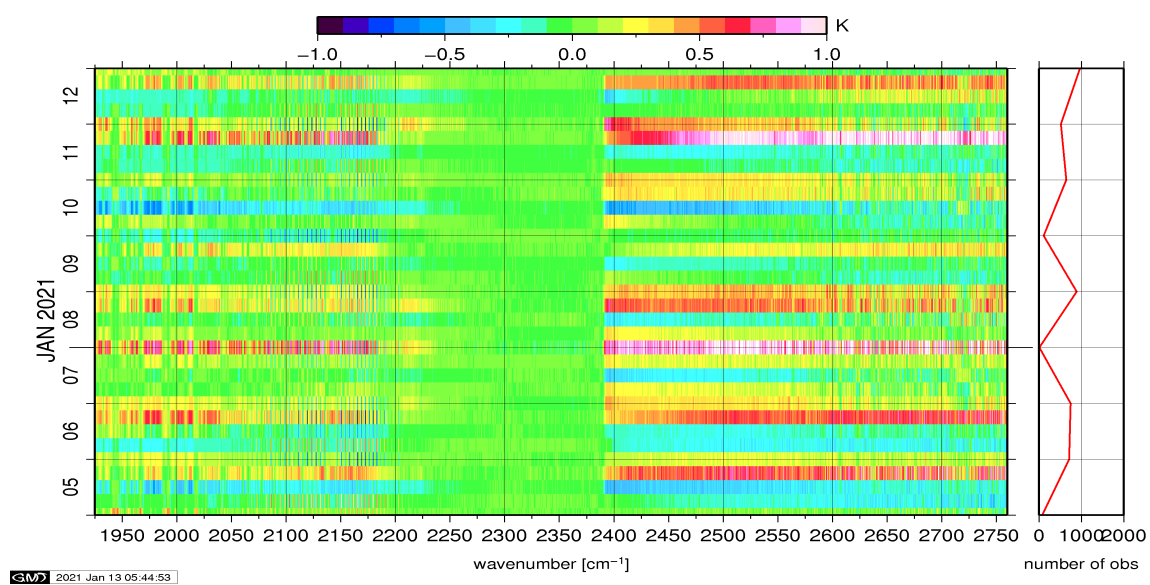


Figure 13: Radiance Anomaly in BT: IASI Band 3

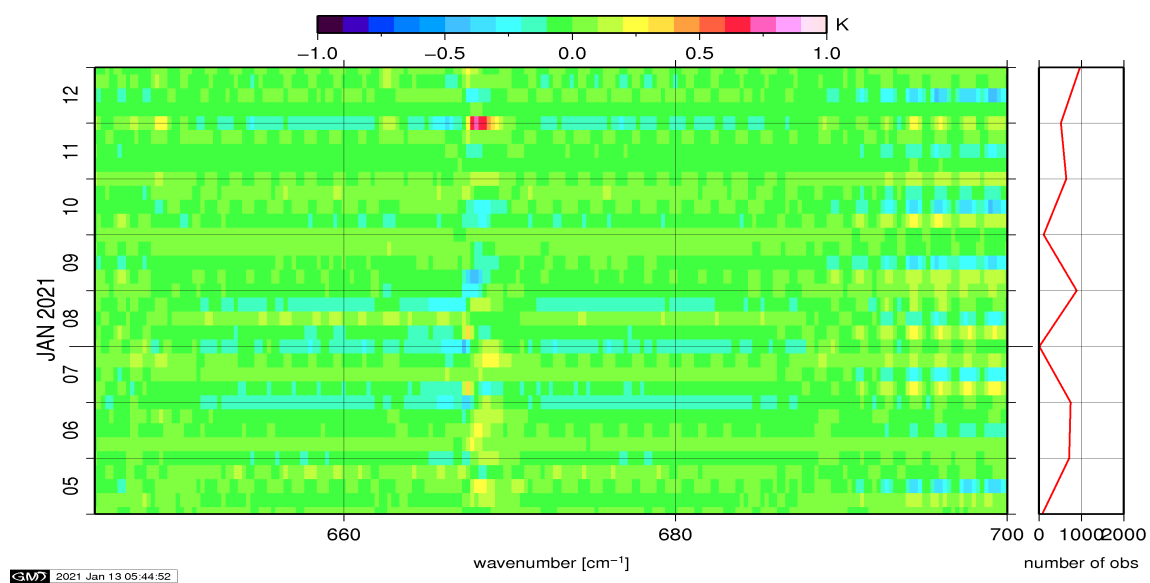


Figure 14: Radiance Anomaly in BT: CO2 14

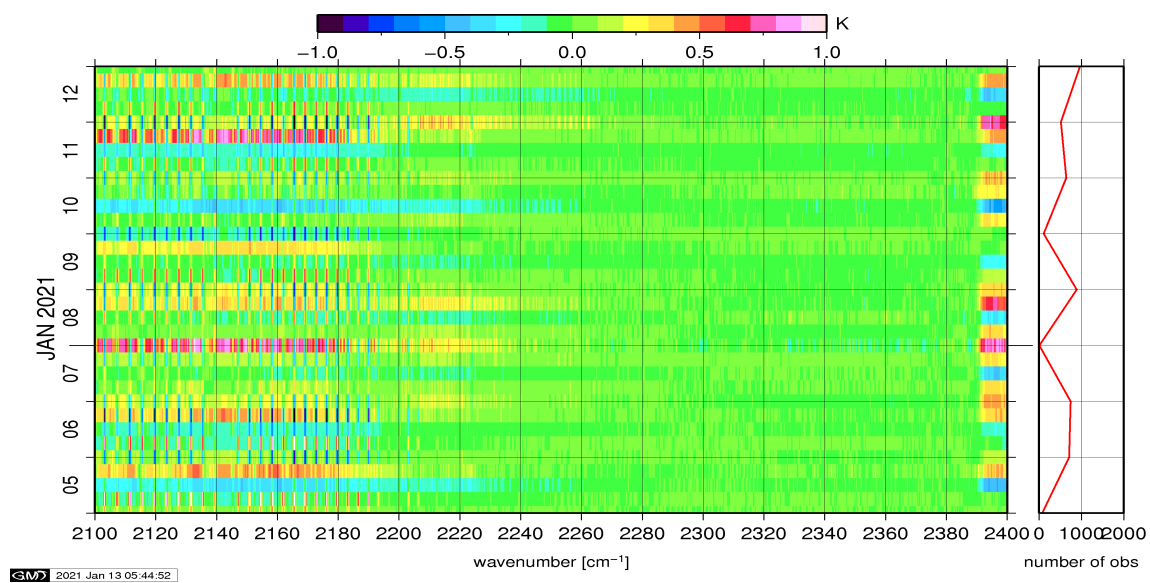


Figure 15: Radiance Anomaly in BT: CO2 4.3

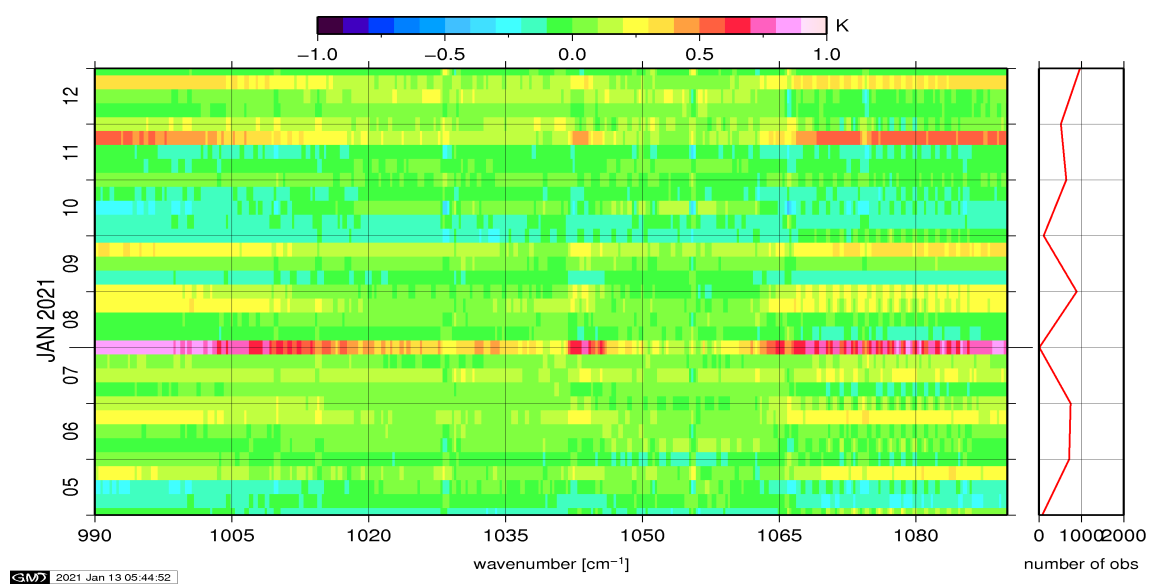


Figure 16: Radiance Anomaly in BT: O3