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

IASI monitoring team

16/01/2021 00:00:00 - 17/01/2021 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 16/01/2021 00:00:00 - 17/01/2021 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 16/01/2021 00:00:00 - 17/01/2021 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	479	-
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)	3663	3665	20210116110918.509	20210116110918.942
PX2 (135)	3663	3665	20210116110918.509	20210116110918.942
PX3 (140)	6673	6675	20210116002719.424	20210116002719.854
PX4 (145)	-	-	-	-
IMG (150)	15486	15488	20210116000438.774	20210116000439.207
IMG (150)	15675	15677	20210116010937.987	20210116010938.421
IMG (150)	1258	1260	20210116032551.183	20210116032551.617
IMG (150)	9300	9302	20210116035723.063	20210116035723.712
VER (160)	9944	9946	20210116021219.298	20210116021227.298
VER (160)	16379	0	20210116050355.284	20210116050403.284
VER (160)	0	16380	20210116050403.284	20210116050403.284
VER (160)	-1	1	20210116050403.284	20210116050411.284
VER (160)	16380	0	20210116122051.265	20210116122059.265
VER (160)	1	16381	20210116122059.265	20210116122059.265
VER (160)	-1	2	20210116122059.265	20210116122107.265
VER (160)	16381	0	20210116193747.206	20210116193755.206
VER (160)	2	16382	20210116193755.206	20210116193755.206
VER (160)	-1	3	20210116193755.206	20210116193803.206
AUX (180)	-	-	-	-

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
16/01/2021 00:00:06	-	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 GEPSGranule	479	-
GQisFlagQual set (PX1)	99.50 %	-
GQisFlagQual set (PX2)	99.52 %	-
GQisFlagQual set (PX3)	99.55 %	-
GQisFlagQual set (PX4)	99.47 %	-
GQisFlagQual set (all)	99.51 %	-

Table 4: Quality flags

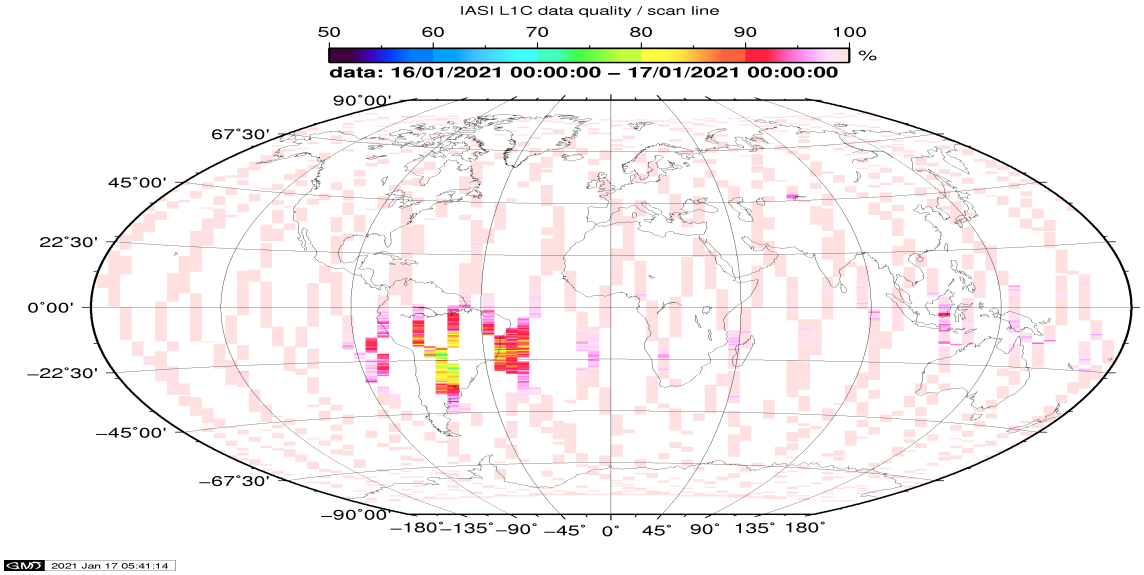

Figure 1: L1C data quality

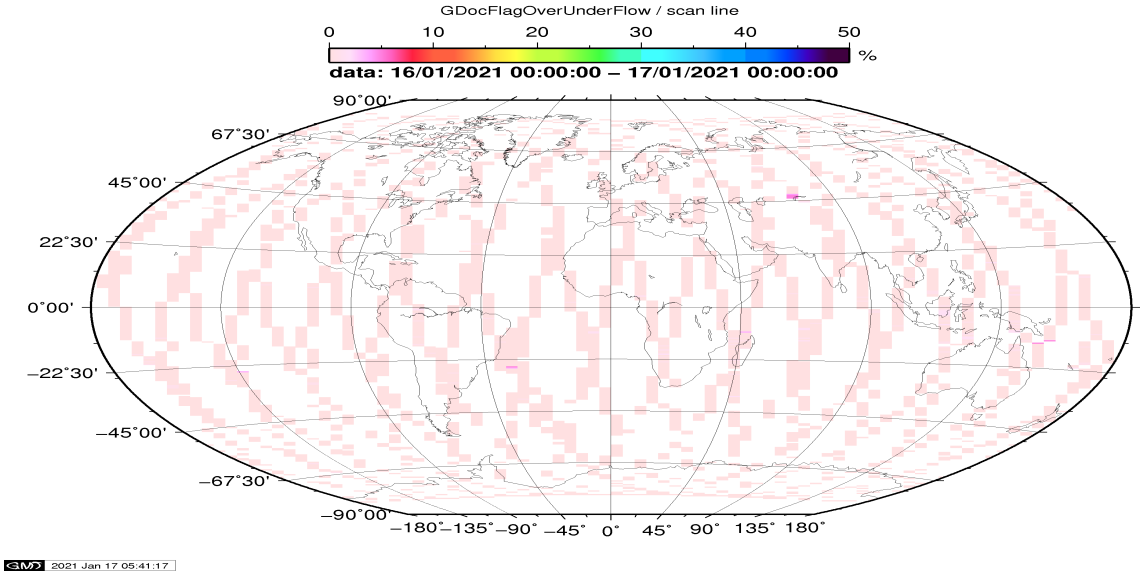

Figure 2: Flag of Over and Under Flows

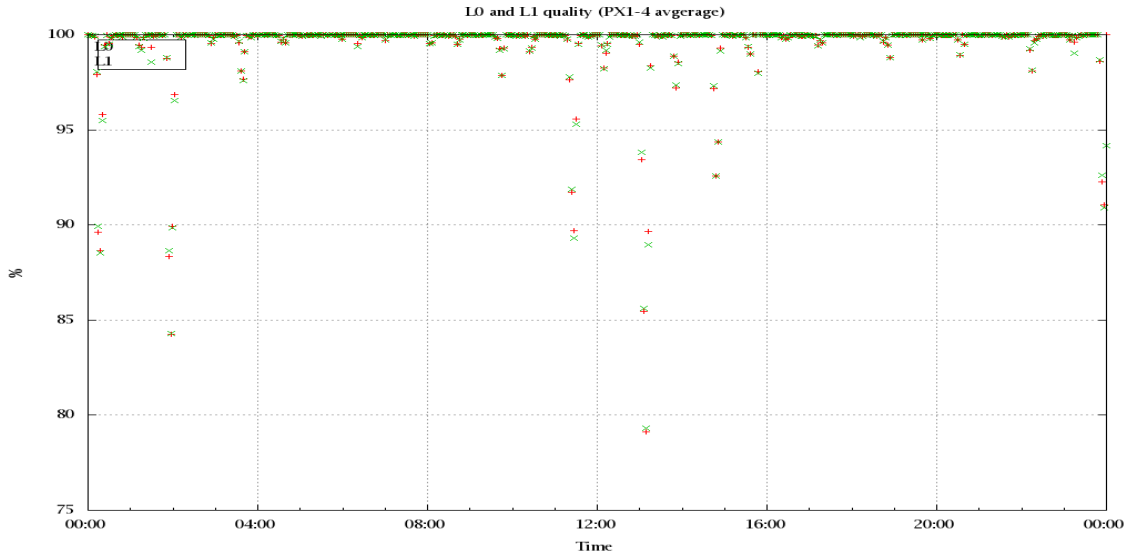

Figure 3: Level 0 and 1C overall quality

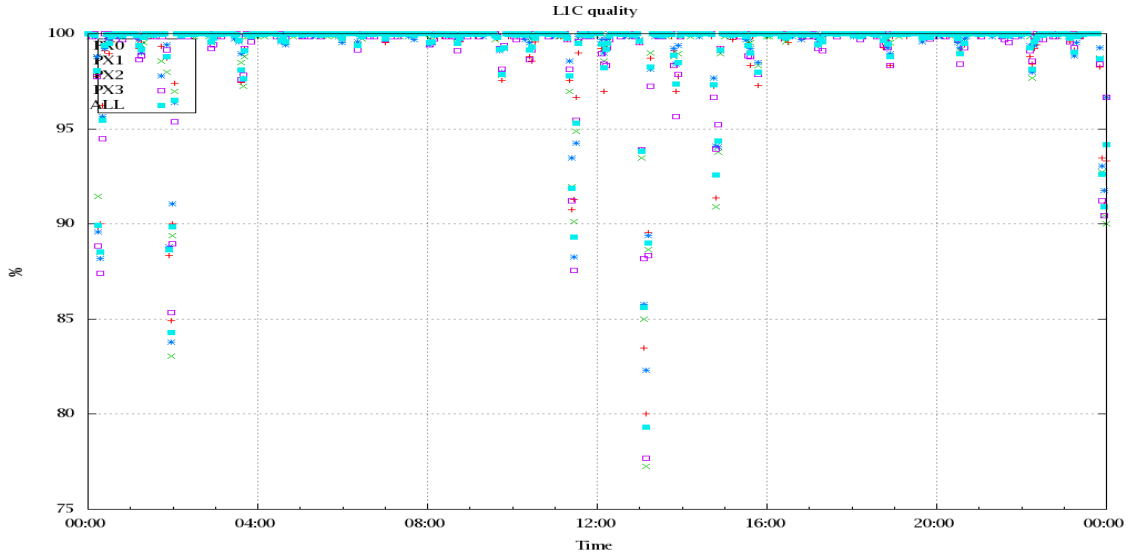

Figure 4: Level 1C quality

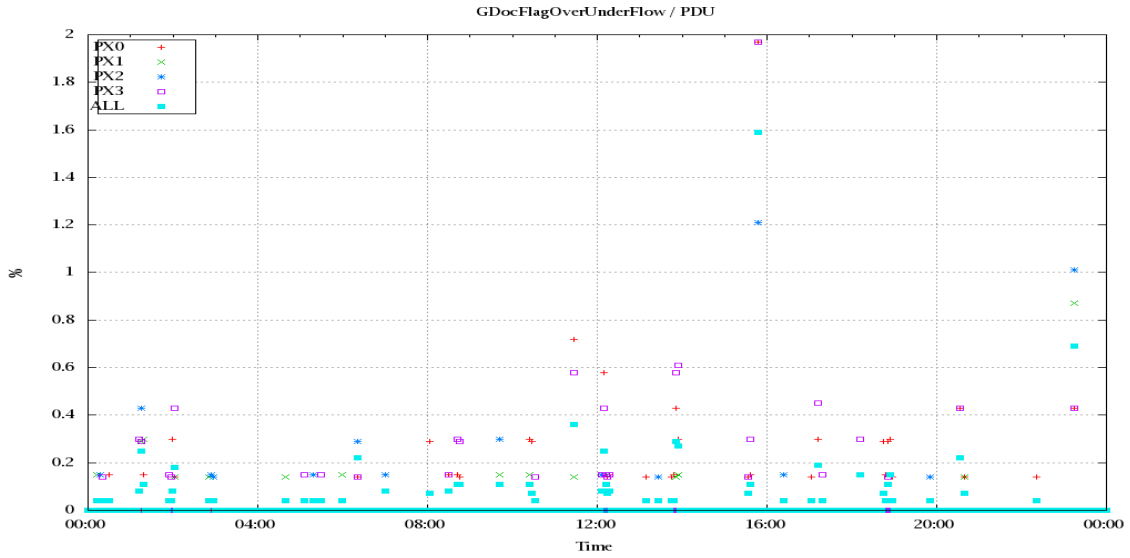

Figure 5: Timeseries of flag of Over and Under Flows

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.

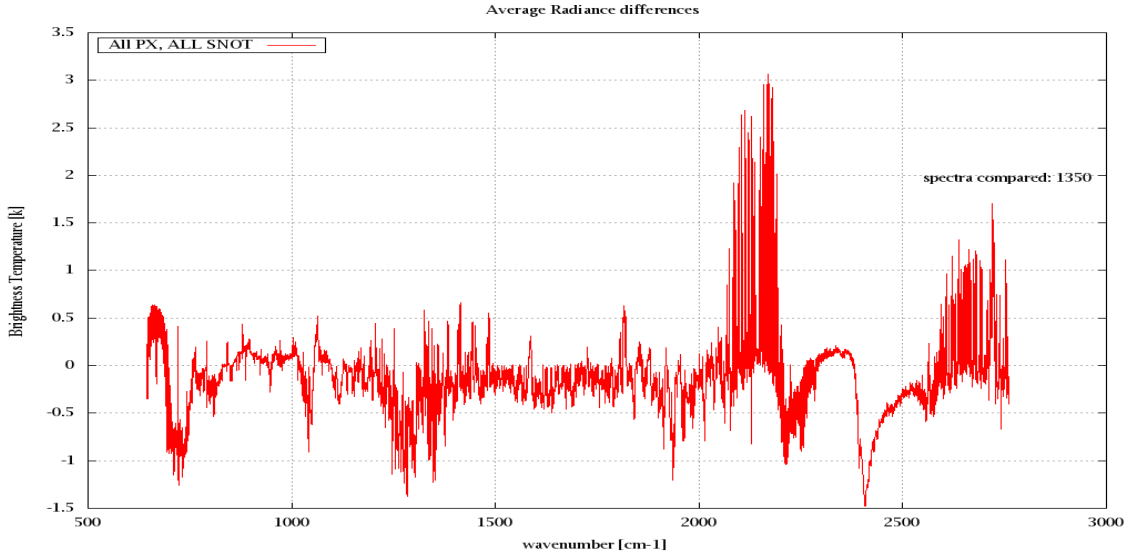

Figure 6: Average Radiance differences: OBS-CAL

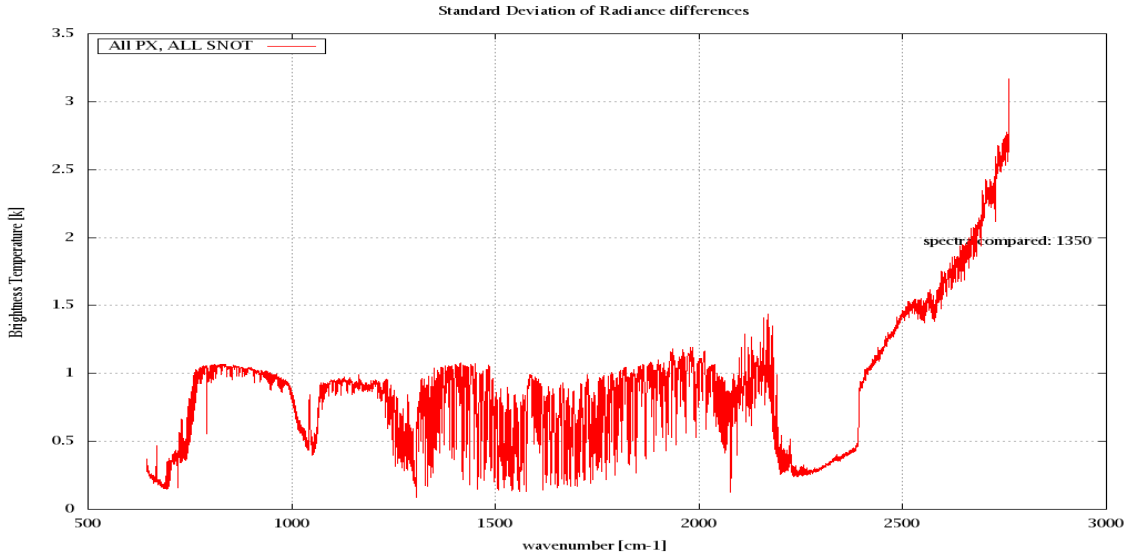

Figure 7: Standard Deviation of Radiance differences

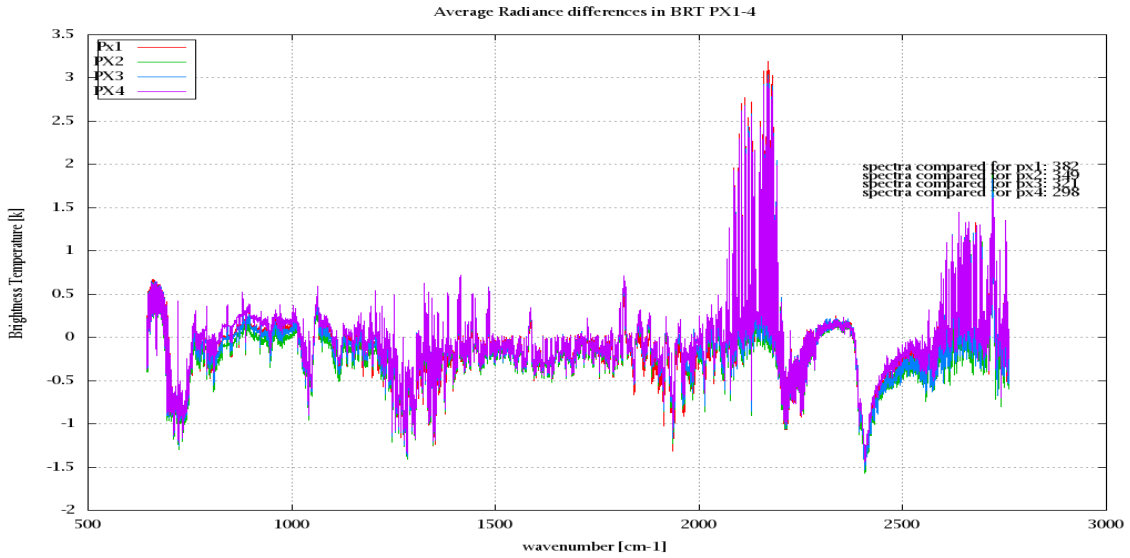

Figure 8: Average Radiance differences: OBS-CAL

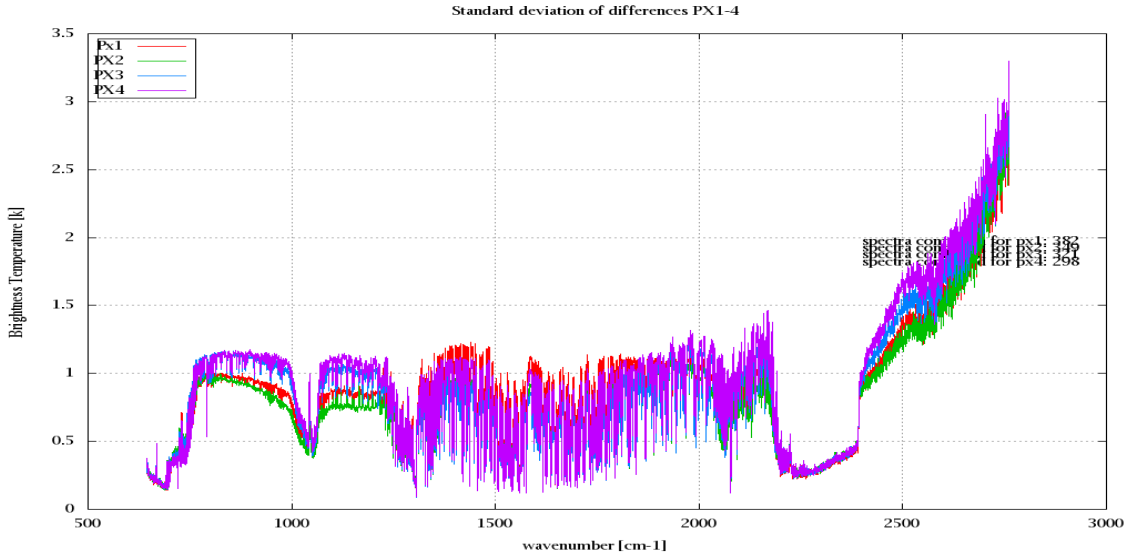

Figure 9: Standard Deviation of Radiance differences

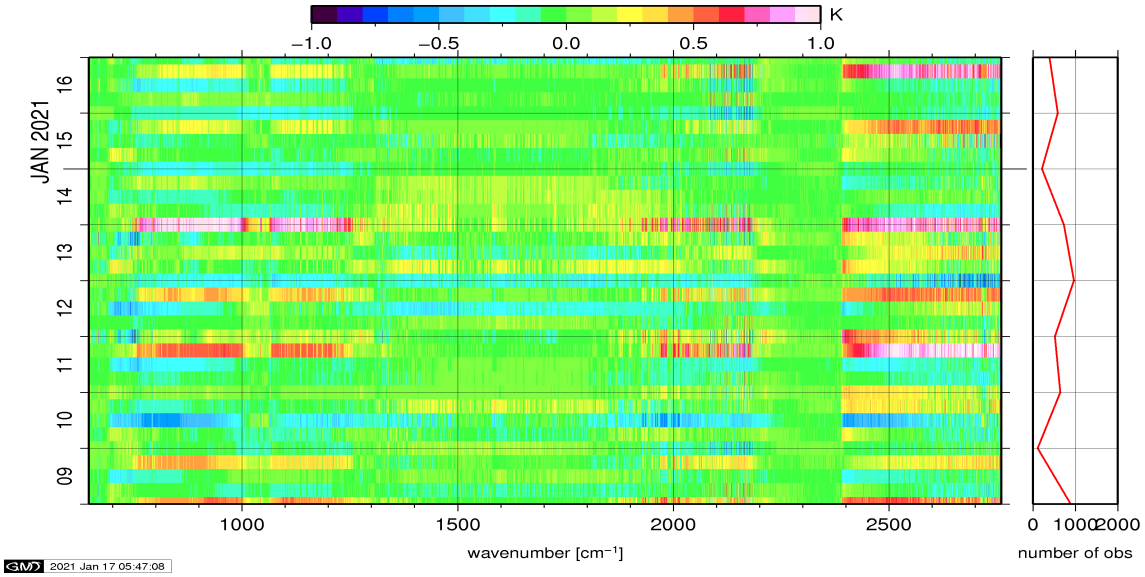

Figure 10: Radiance Anomaly in BT: All Channels

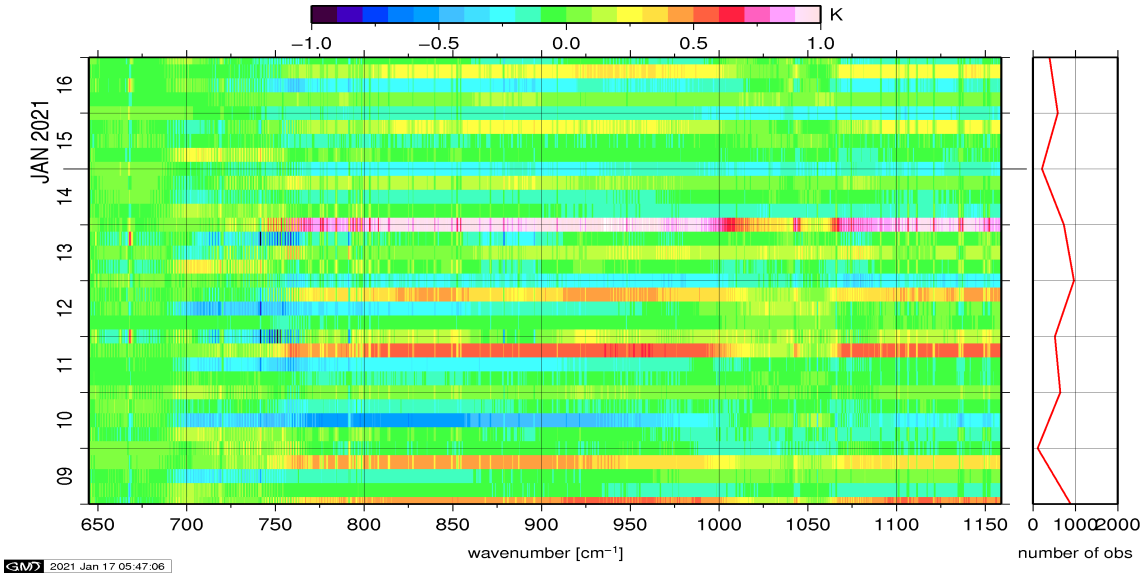

Figure 11: Radiance Anomaly in BT: IASI Band 1

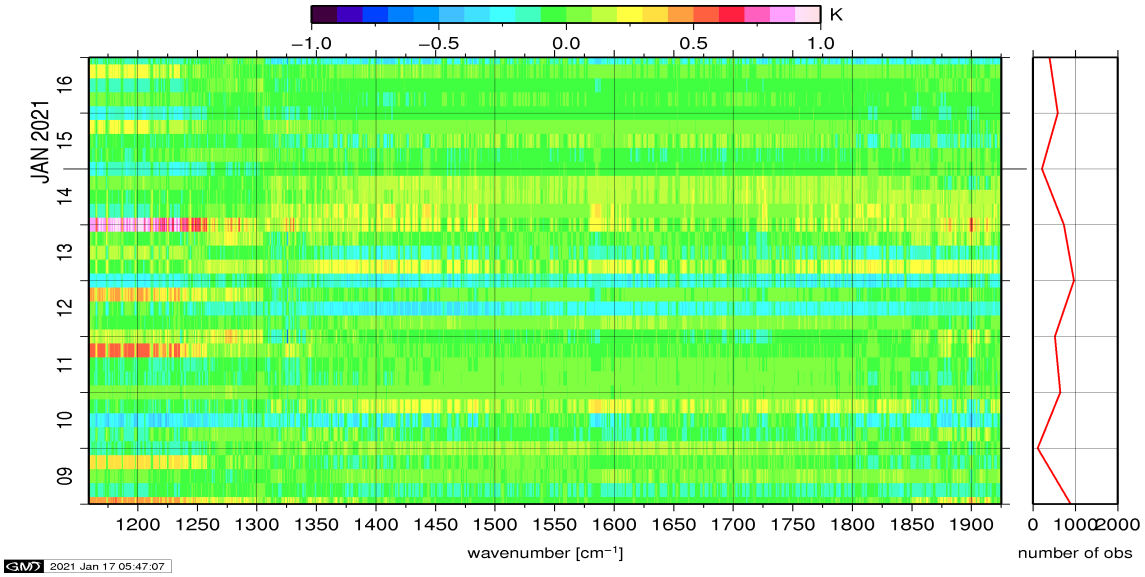

Figure 12: Radiance Anomaly in BT: IASI Band 2

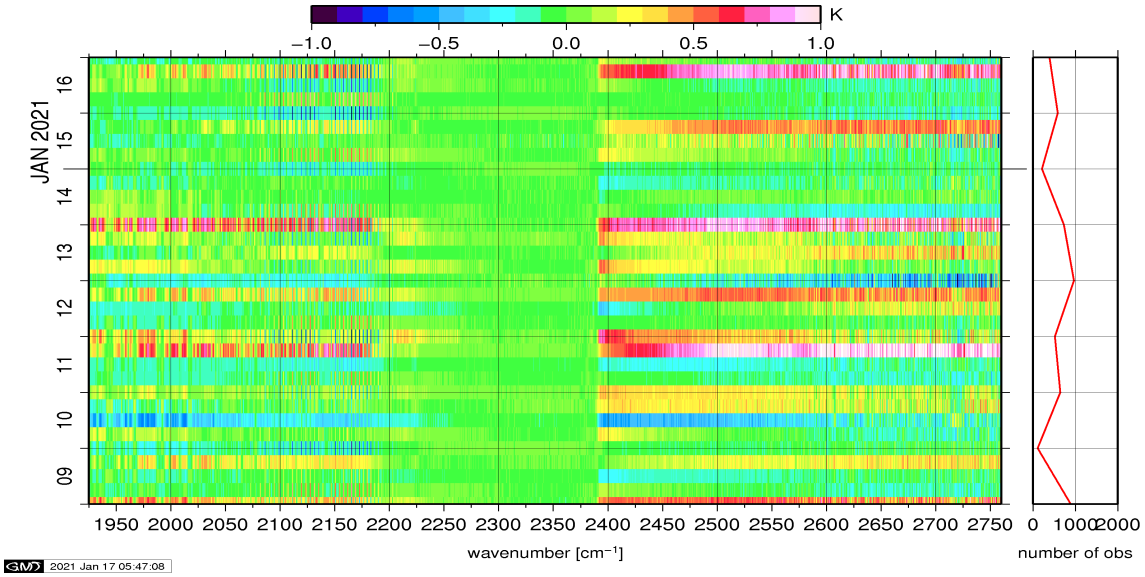

Figure 13: Radiance Anomaly in BT: IASI Band 3

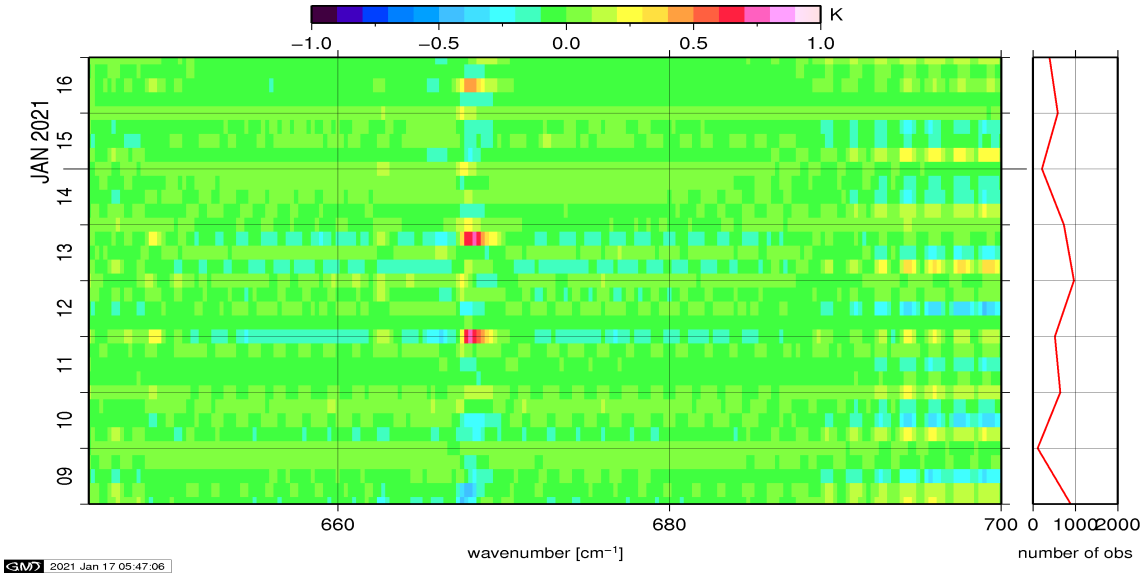

Figure 14: Radiance Anomaly in BT: CO2 14

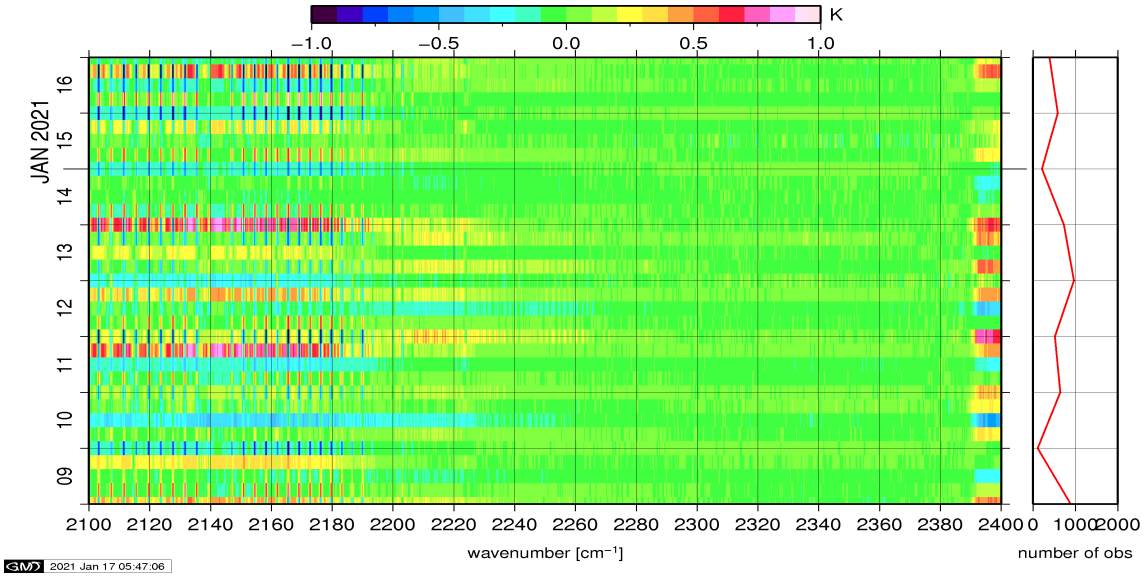

Figure 15: Radiance Anomaly in BT: CO2 4.3

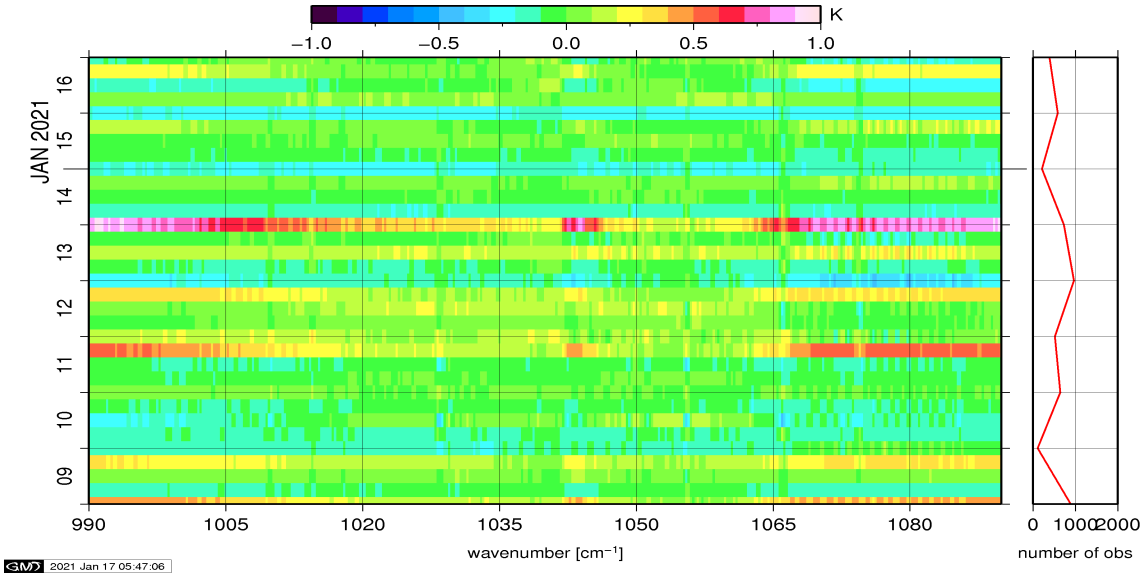

Figure 16: Radiance Anomaly in BT: O3