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

IASI monitoring team

21/01/2020 00:00:00 - 22/01/2020 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 21/01/2020 00:00:00 - 22/01/2020 00:00:00 .

The monitoring data are extracted on PDU basis.

2   Data quantity 21/01/2020 00:00:00 - 22/01/2020 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	479	-
L1 ENG distinct GEPSGranule	472	-
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	479	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	6373	7015	20200121153309.532	20200121153601.634
PX2 (135)	6373	7015	20200121153309.532	20200121153601.634
PX3 (140)	6373	7015	20200121153309.532	20200121153601.634
PX4 (145)	6373	7015	20200121153309.532	20200121153601.634
IMG (150)	3832	4559	20200121153309.314	20200121153600.337
VER (160)	16381	0	20200121041119.985	20200121041127.985
VER (160)	2	16382	20200121041127.985	20200121041127.985
VER (160)	-1	3	20200121041127.985	20200121041135.985
VER (160)	16382	0	20200121112815.924	20200121112823.924
VER (160)	3	16383	20200121112823.924	20200121112823.924
VER (160)	-1	4	20200121112823.924	20200121112831.924
VER (160)	9178	9289	20200121153303.911	20200121153607.907
AUX (180)	11652	11674	20200121153304.341	20200121153600.337

Table 2: L0 data gaps

3   Instrument modes

Time	Transition from	Transition to
21/01/2020 00:00:03	-	Normal operation

Table 3: Instrument modes

4   L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	481	-
L1 ENG PDUs	479	-
L1 ENG distinct GEPSGranule	472	-
GQisFlagQual set (PX1)	99.55 %	-
GQisFlagQual set (PX2)	99.59 %	-
GQisFlagQual set (PX3)	99.59 %	-
GQisFlagQual set (PX4)	99.54 %	-
GQisFlagQual set (all)	99.57 %	-

Table 4: Quality flags
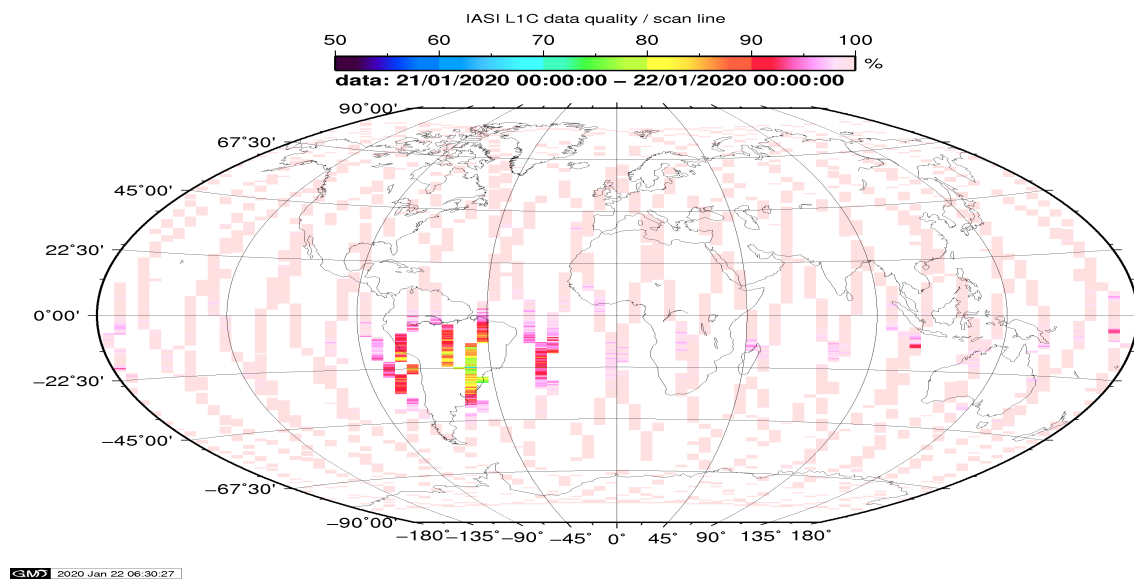
Figure 1: L1C data quality
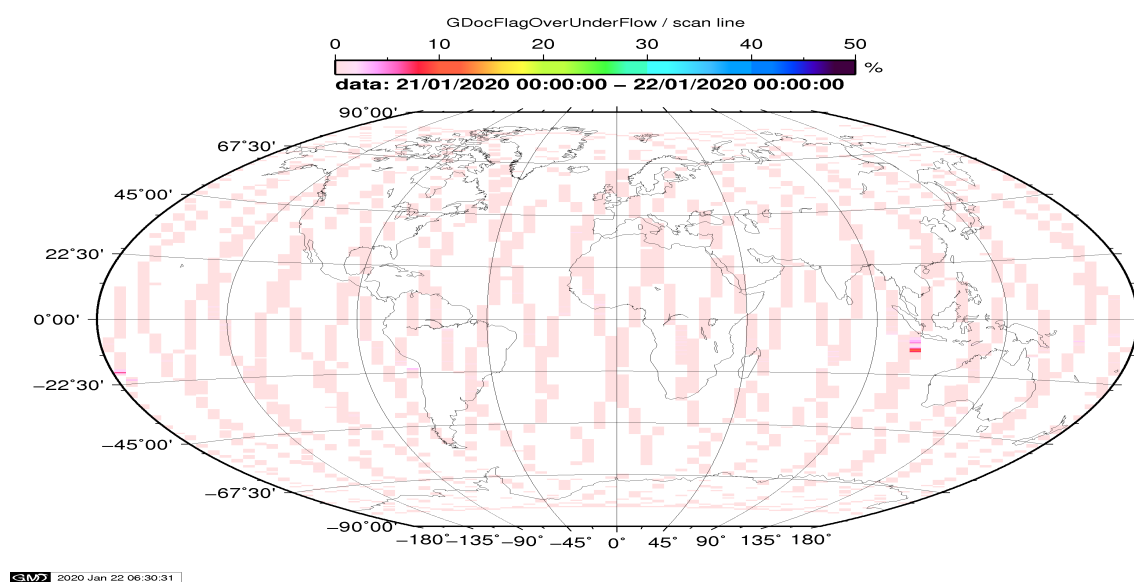
Figure 2: Flag of Over and Under Flows
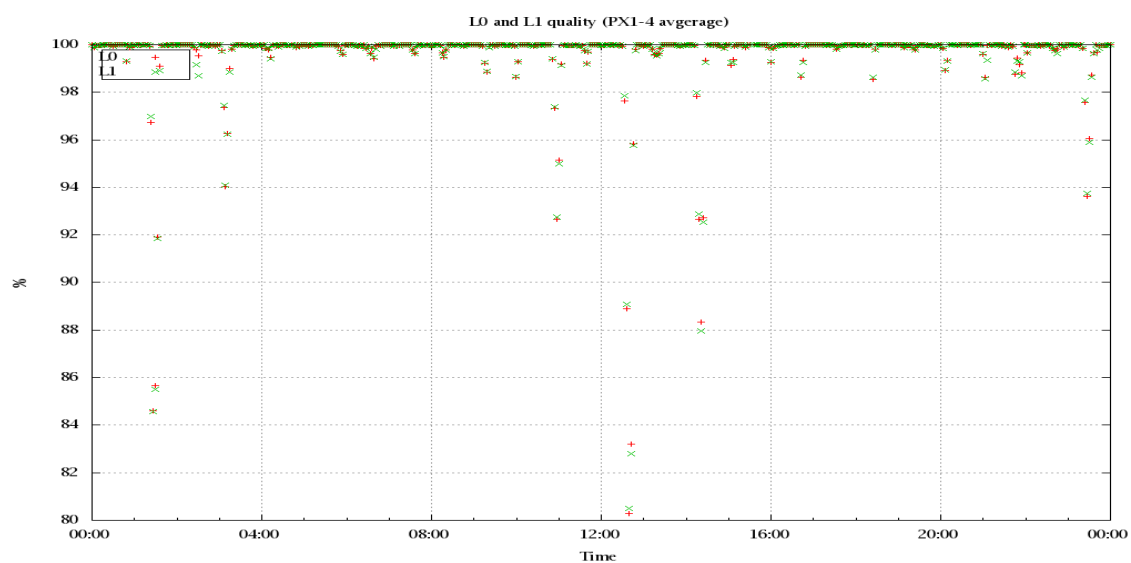
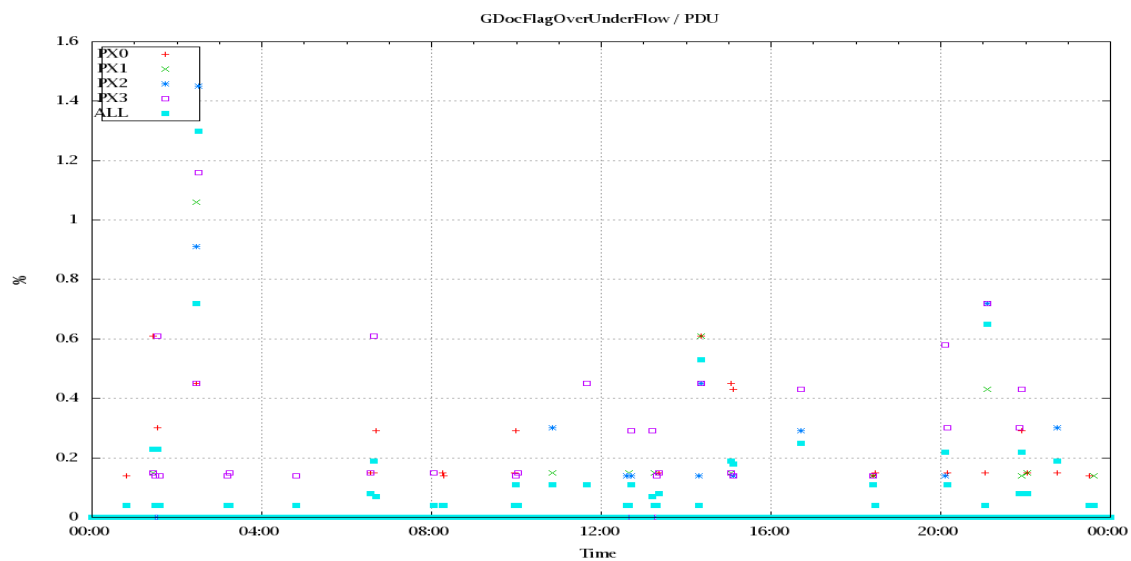Figure 3: Level 0 and 1C overall quality
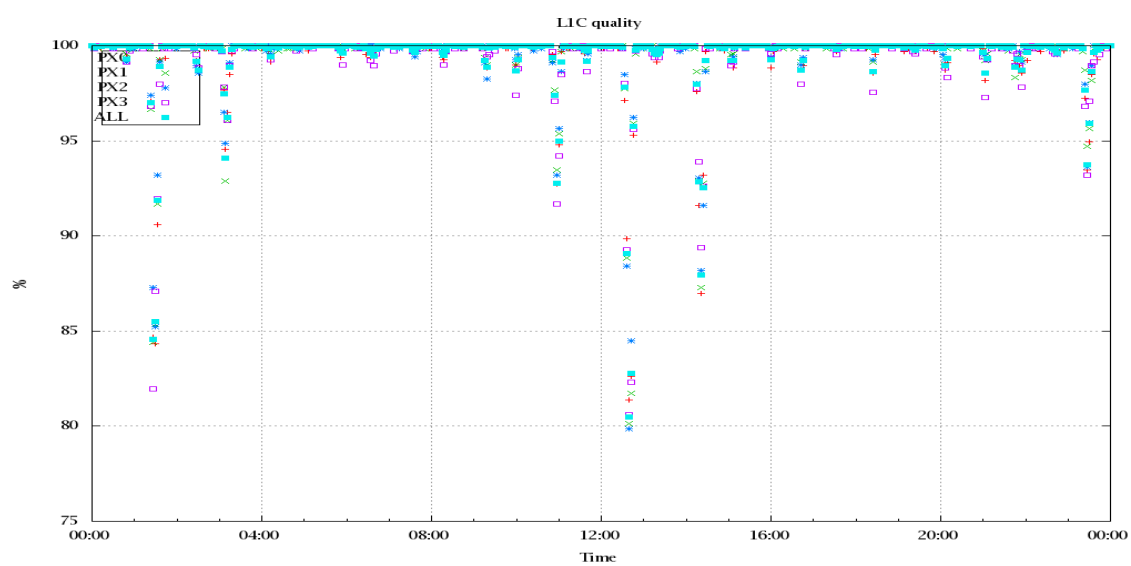
Figure 4: Level 1C quality

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.
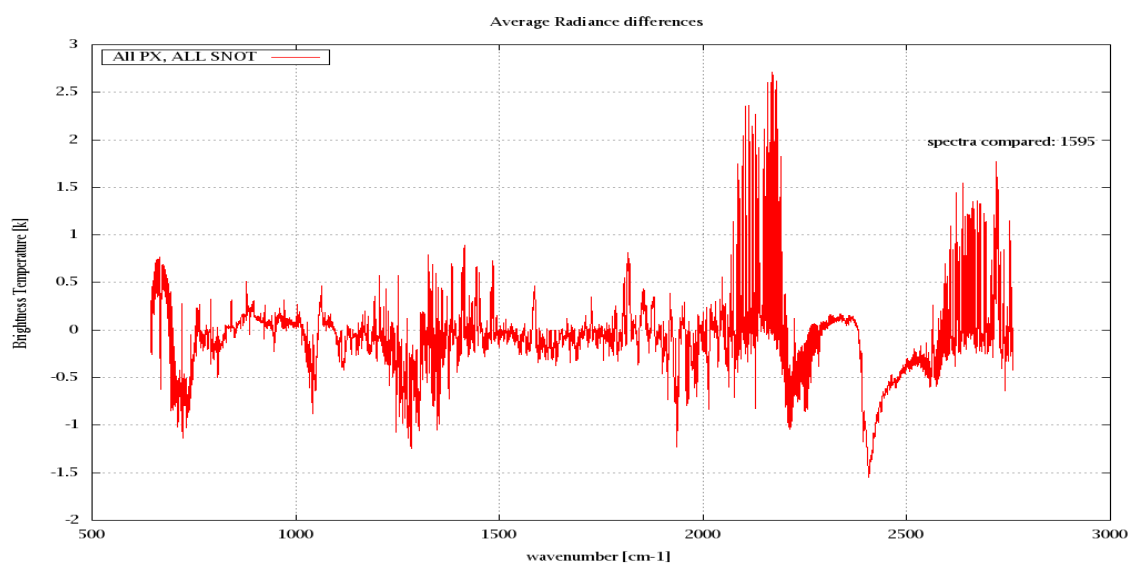

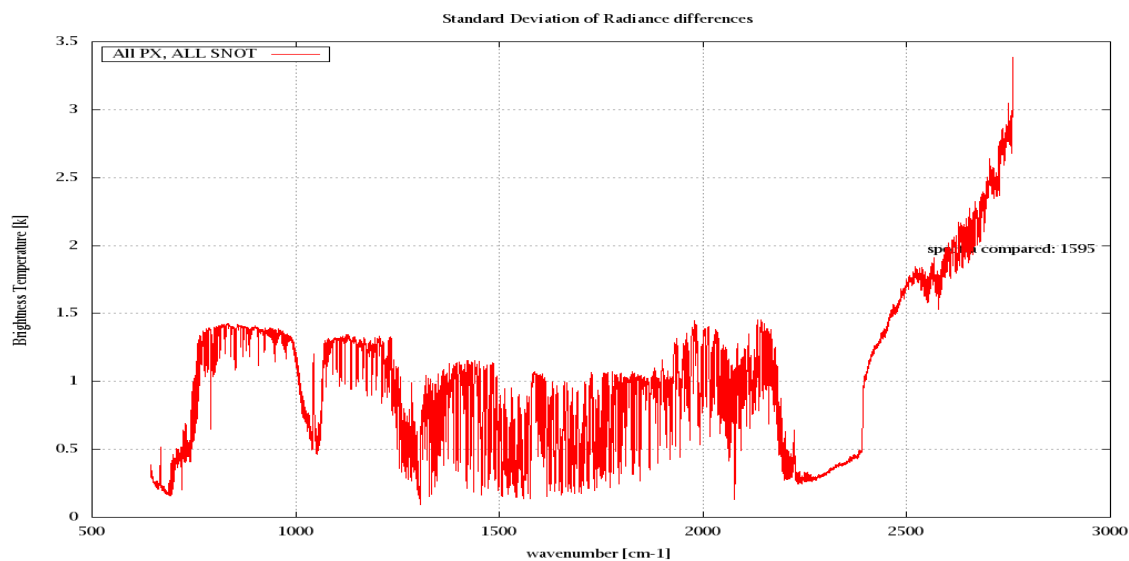Figure 6: Average Radiance differences: OBS-CAL

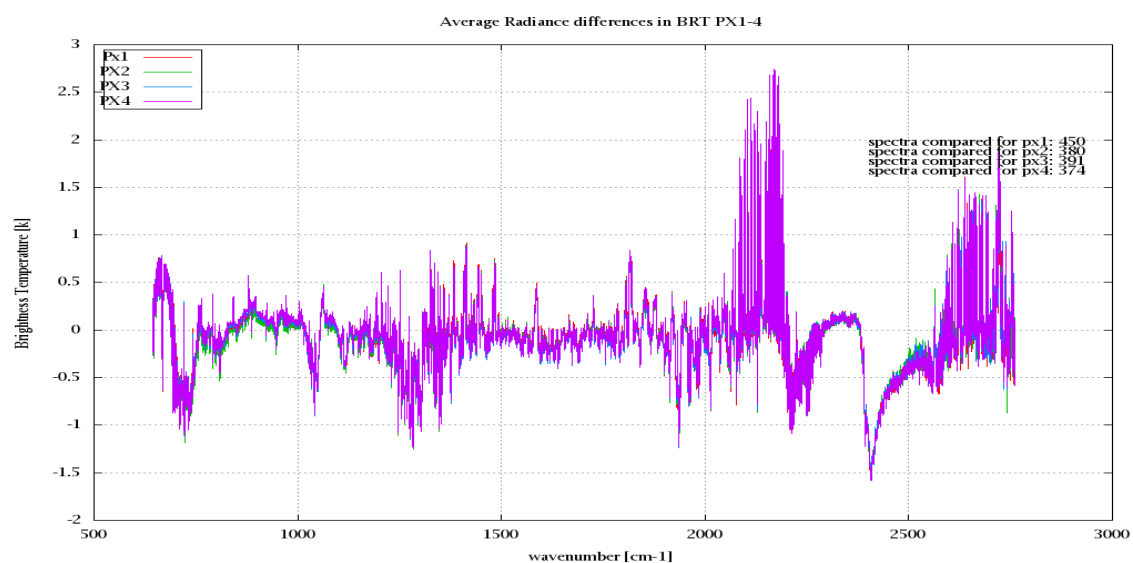Figure 7: Standard Deviation of Radiance differences

Figure 8: Average Radiance differences: OBS-CAL
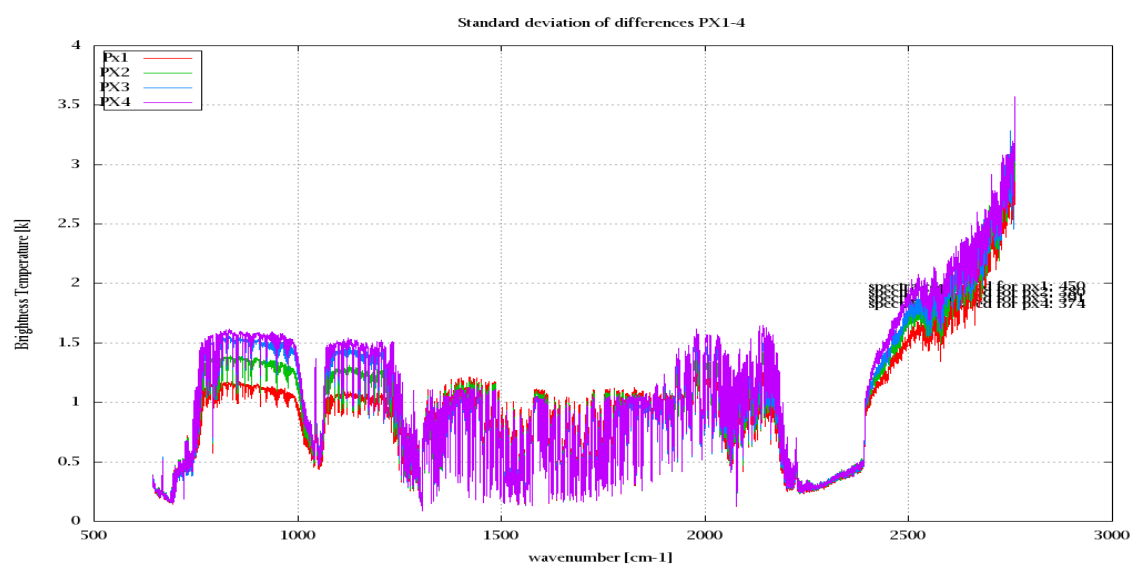

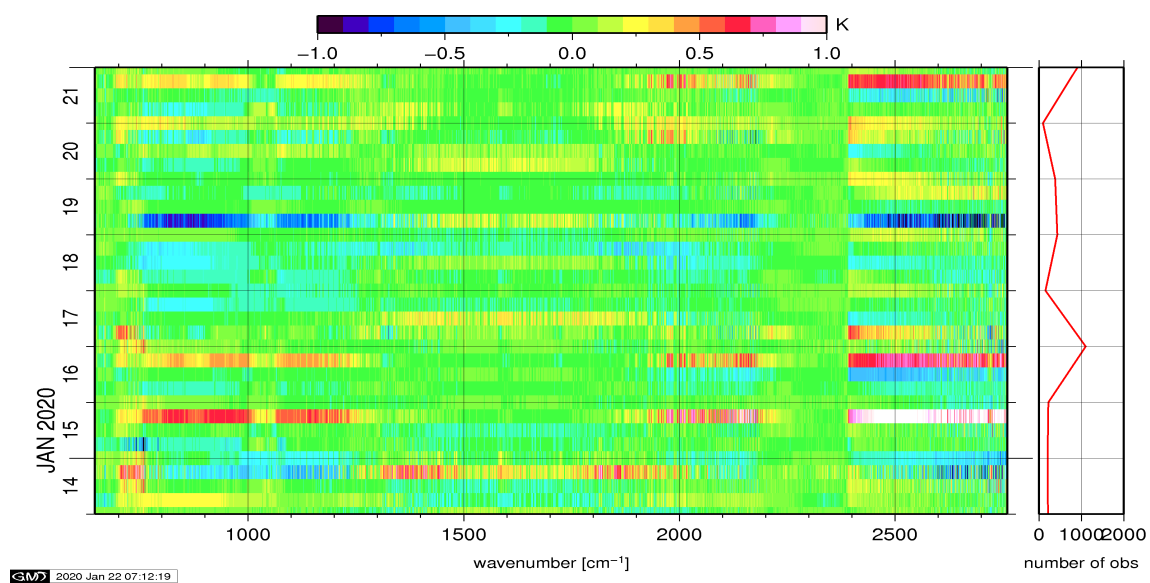Figure 9: Standard Deviation of Radiance differences

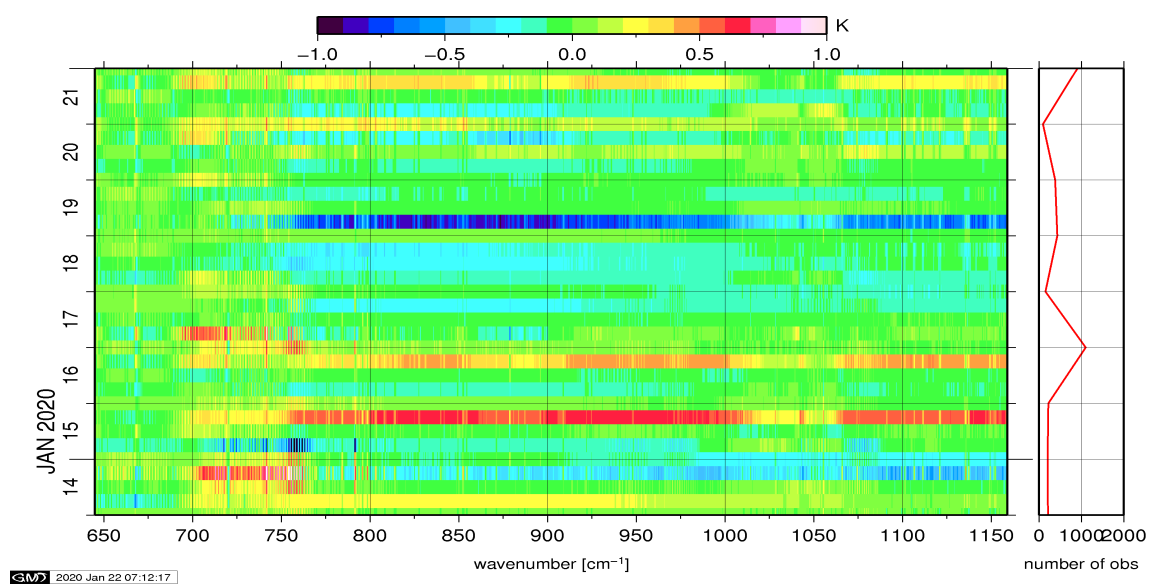Figure 10: Radiance Anomaly in BT: All Channels

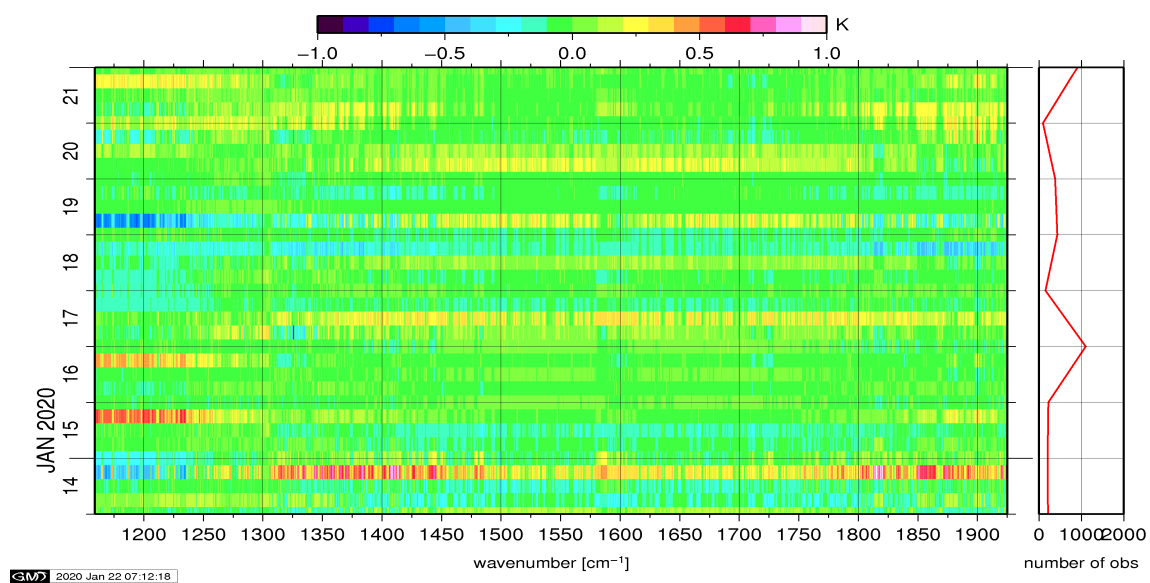Figure 11: Radiance Anomaly in BT: IASI Band 1

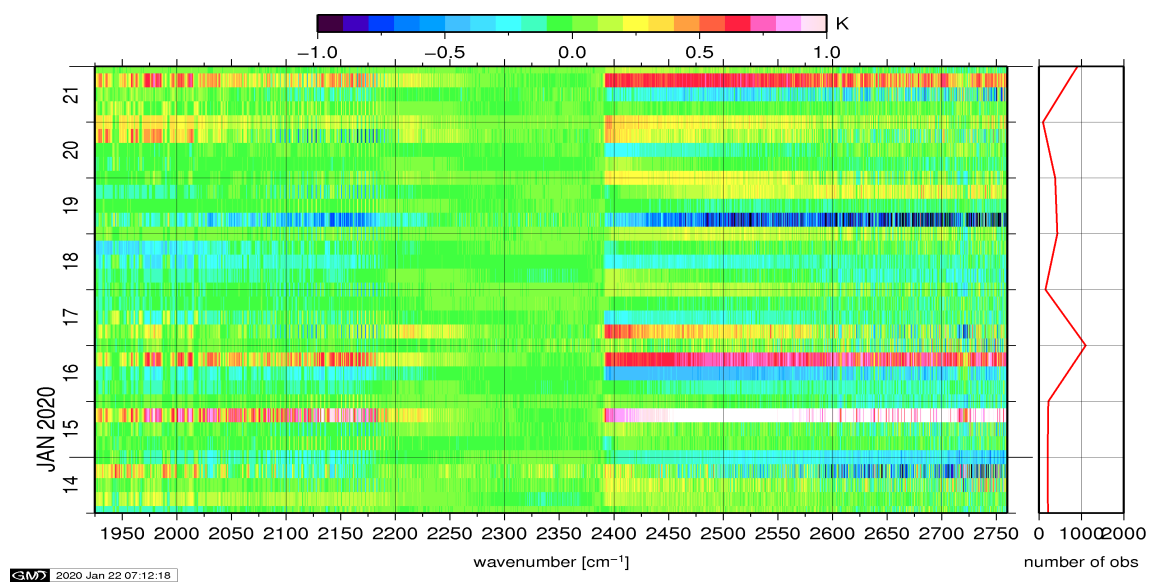Figure 12: Radiance Anomaly in BT: IASI Band 2

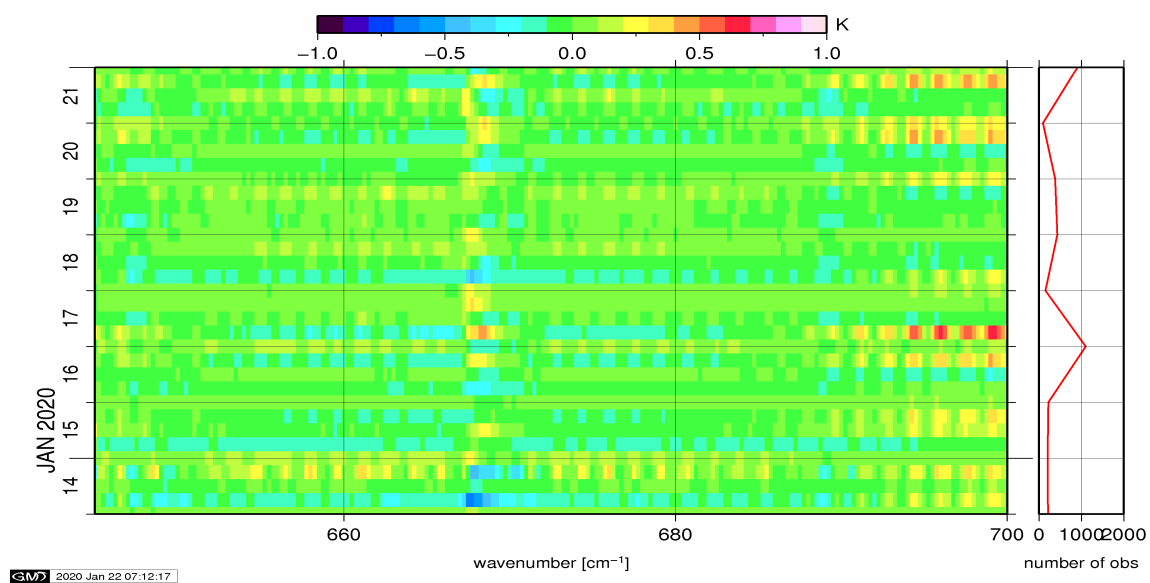Figure 13: Radiance Anomaly in BT: IASI Band 3

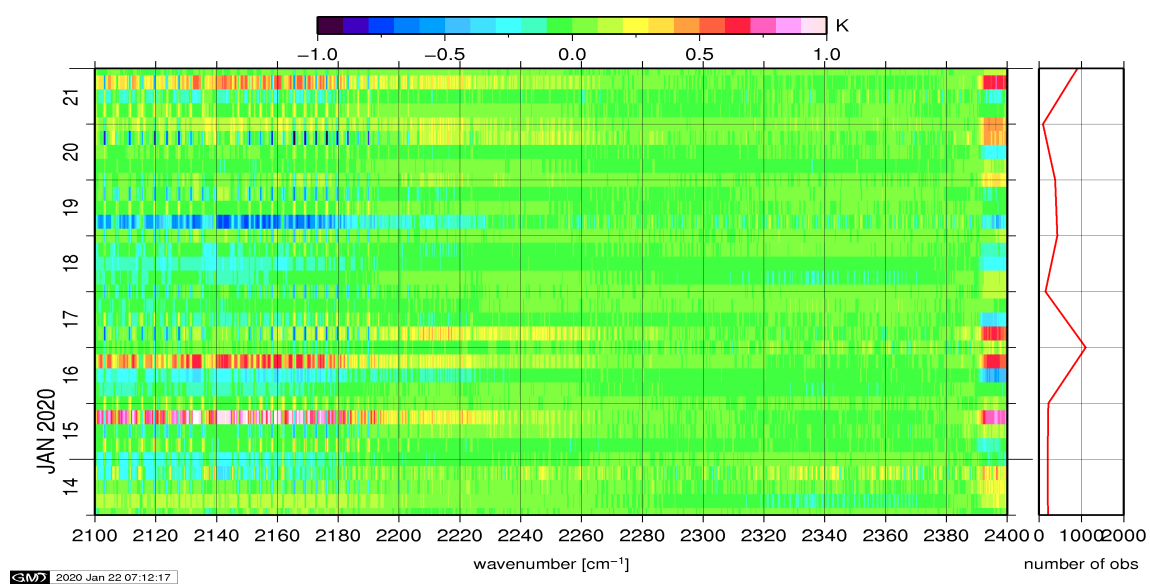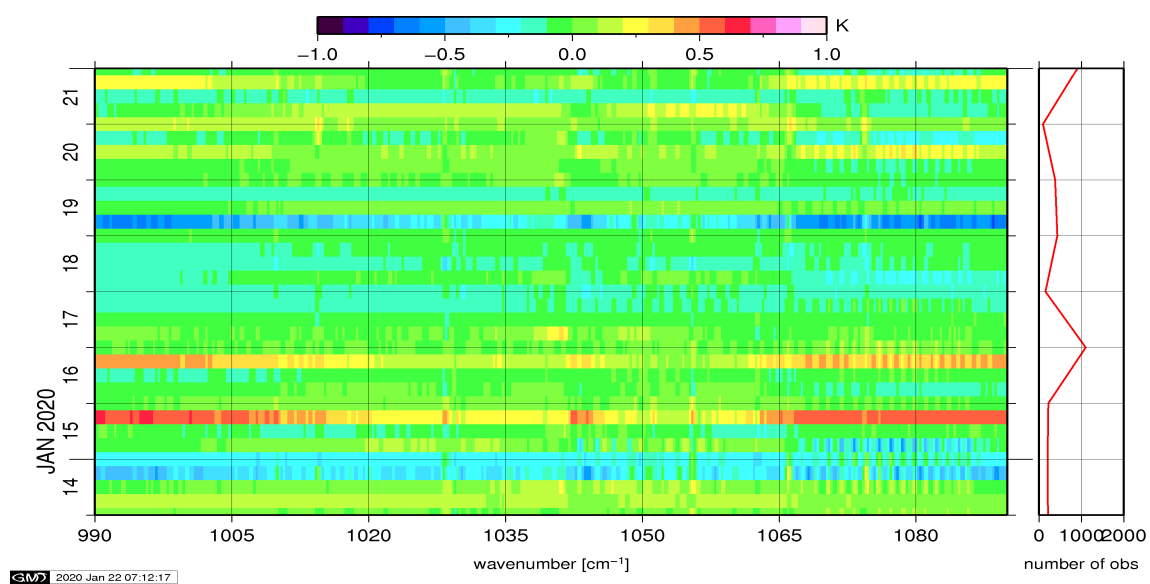Figure 14: Radiance Anomaly in BT: CO2 14

Figure 15: Radiance Anomaly in BT: CO2 4.3

Figure 16: Radiance Anomaly in BT: O3