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

IASI monitoring team

27/07/2021 00:00:00 - 28/07/2021 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 27/07/2021 00:00:00 - 28/07/2021 00:00:00 .

The monitoring data are extracted on PDU basis.

2   Data quantity 27/07/2021 00:00:00 - 28/07/2021 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	199	e
L1 ENG PDUs	198	e
L1 ENG distinct GEPSGranule	199	a
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	198	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	6051	0	20210727080056.574	20210727221117.065
PX2 (135)	6051	0	20210727080056.574	20210727221117.065
PX3 (140)	6051	0	20210727080056.574	20210727221117.065
PX4 (145)	6051	0	20210727080056.574	20210727221117.065
IMG (150)	15789	0	20210727080056.574	20210727221117.065
VER (160)	16382	0	20210727023019.424	20210727023027.423
VER (160)	3	16383	20210727023027.423	20210727023027.423
VER (160)	-1	4	20210727023027.423	20210727023035.423
VER (160)	12393	0	20210727080051.386	20210727221123.334
AUX (180)	2433	0	20210727080051.816	20210727221123.764

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
27/07/2021 00:00:14	-	Normal operation
27/07/2021 08:01:18	Normal operation	Standby
27/07/2021 11:27:26	Standby	Heater 1 warm up
27/07/2021 13:02:38	Heater 1 warm up	Heater 2
27/07/2021 21:50:06	Heater 2	Auxiliary ASE synchronised
27/07/2021 22:11:10	Auxiliary ASE synchronised	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	199	e
L1 ENG PDUs	198	e
L1 ENG distinct GEPSGranule	199	a
GQisFlagQual set (PX1)	99.41 %	-
GQisFlagQual set (PX2)	99.44 %	-
GQisFlagQual set (PX3)	99.48 %	-
GQisFlagQual set (PX4)	99.40 %	-
GQisFlagQual set (all)	99.43 %	-

Table 4: Quality flags
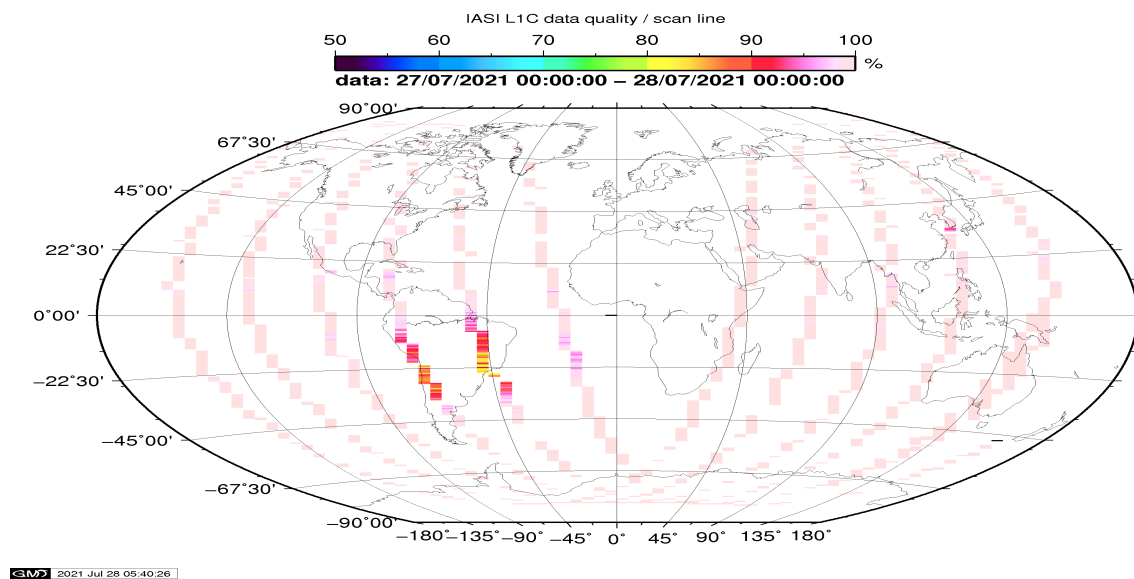
Figure 1: L1C data quality
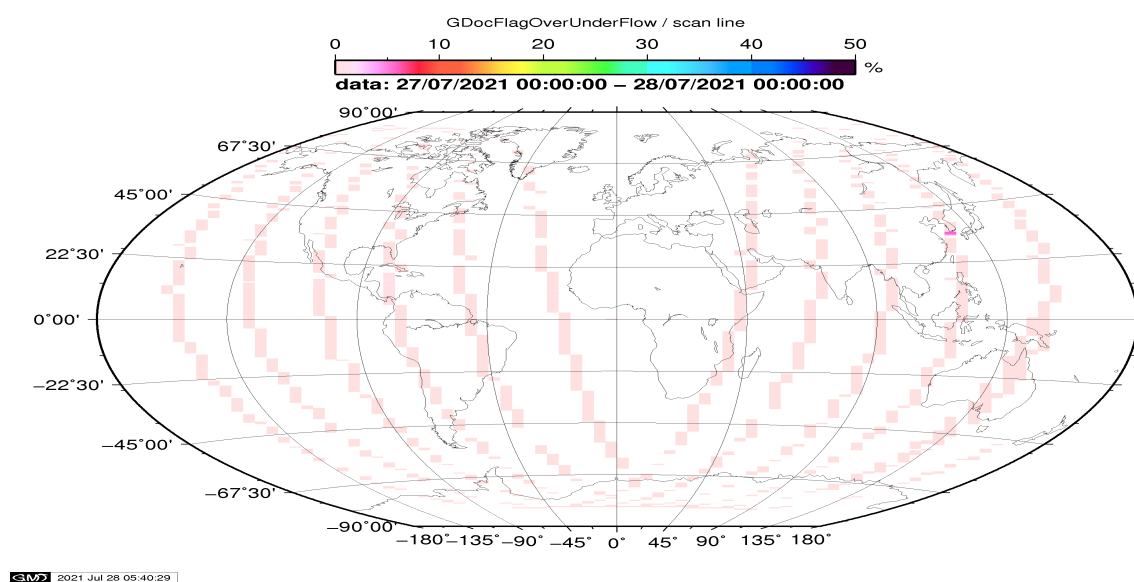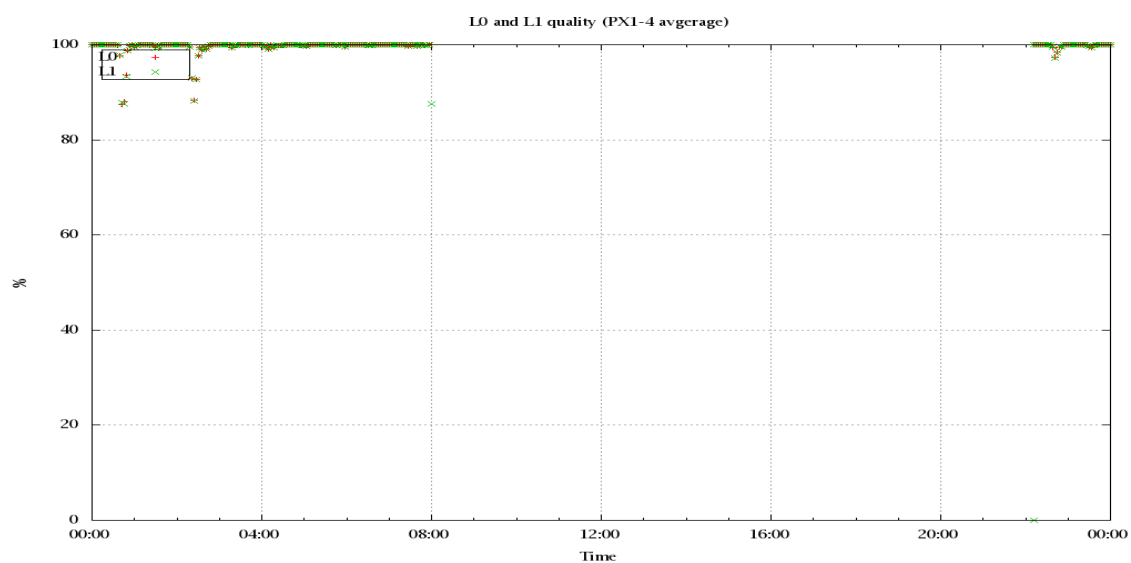

Figure 2: Flag of Over and Under Flows
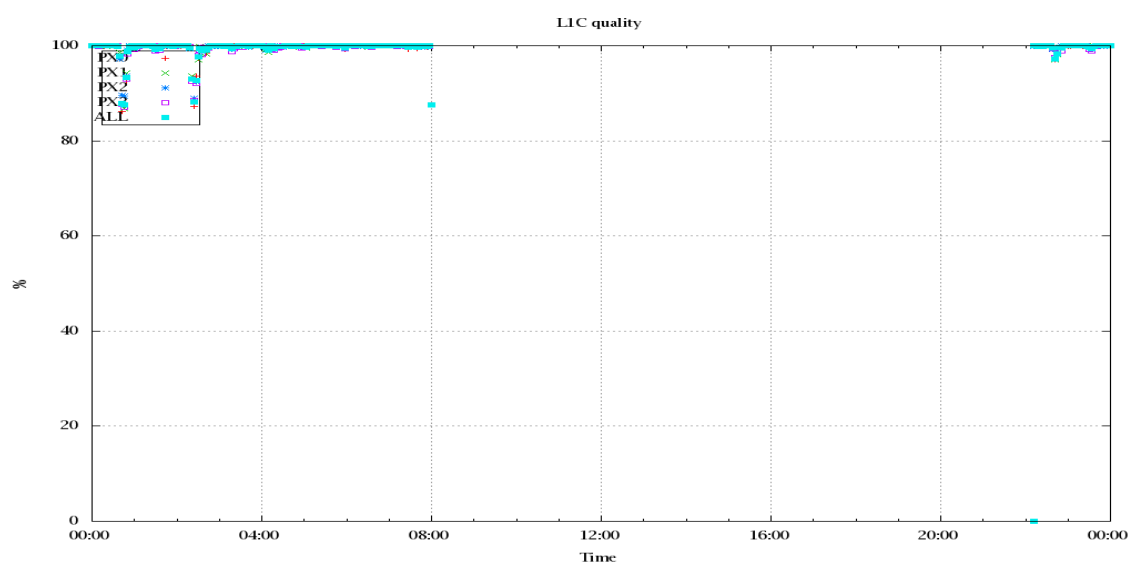
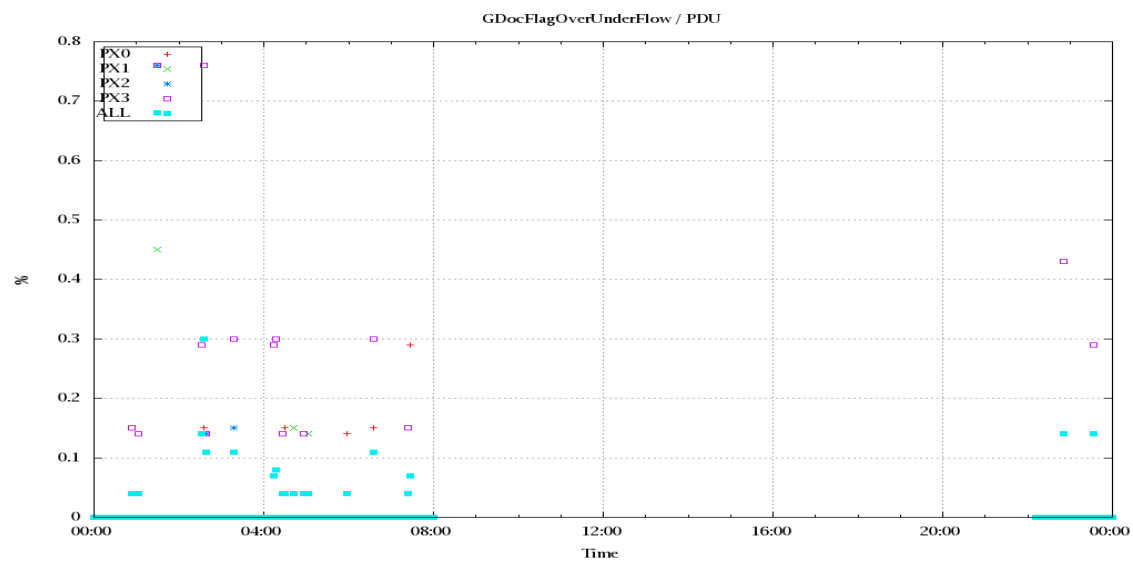Figure 3: Level 0 and 1C overall quality

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.
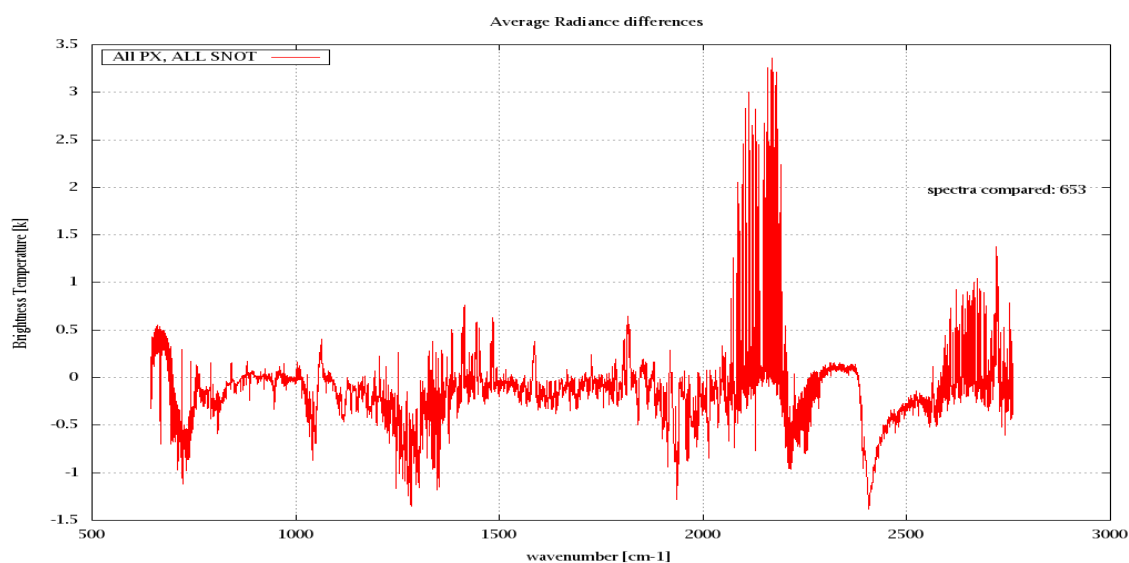

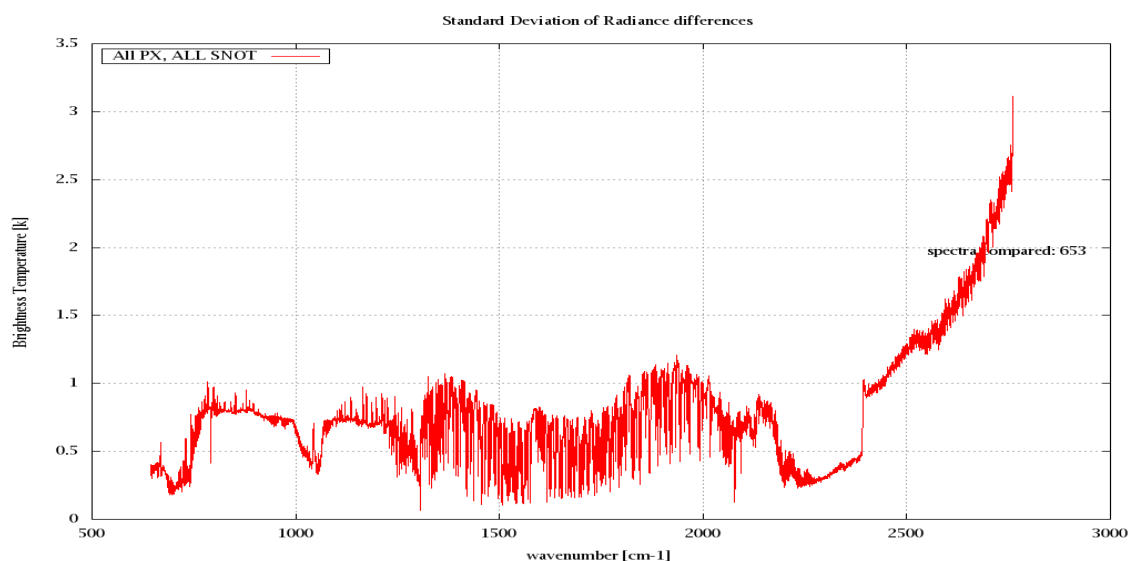Figure 6: Average Radiance differences: OBS-CAL

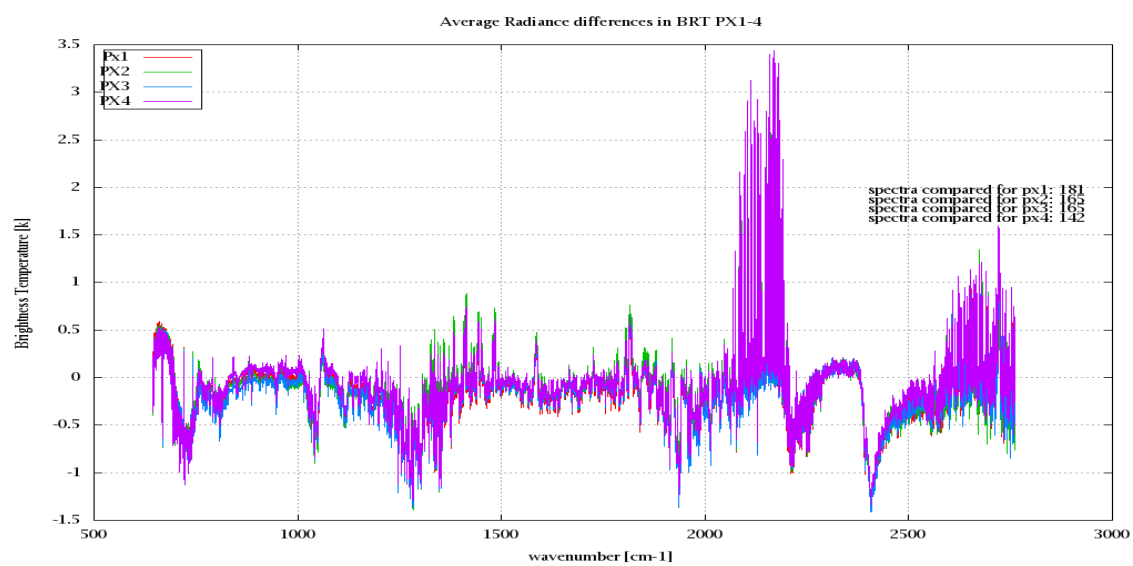Figure 7: Standard Deviation of Radiance differences

Figure 8: Average Radiance differences: OBS-CAL
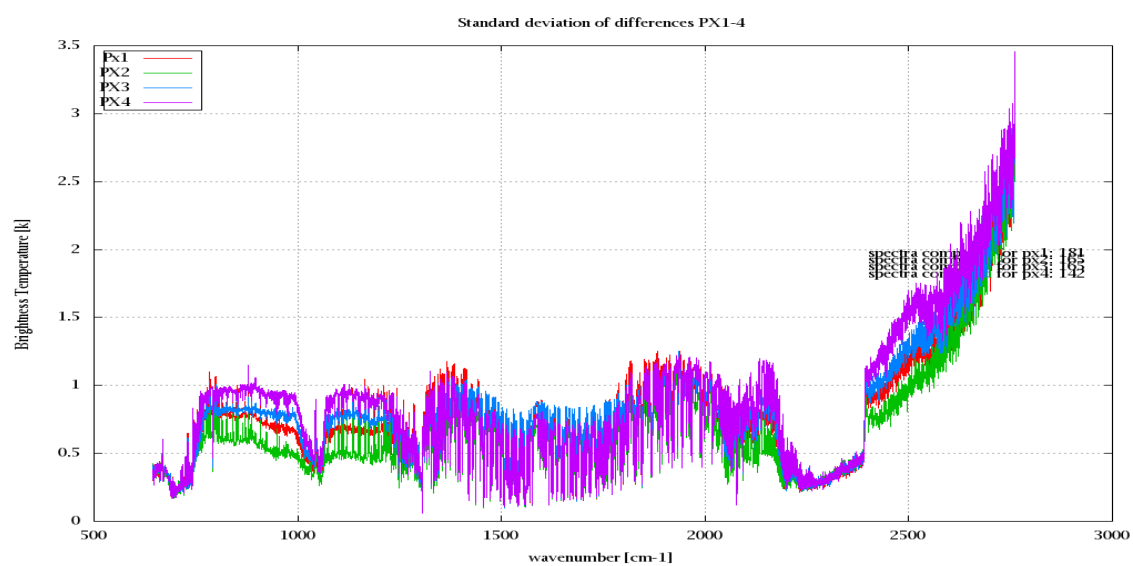

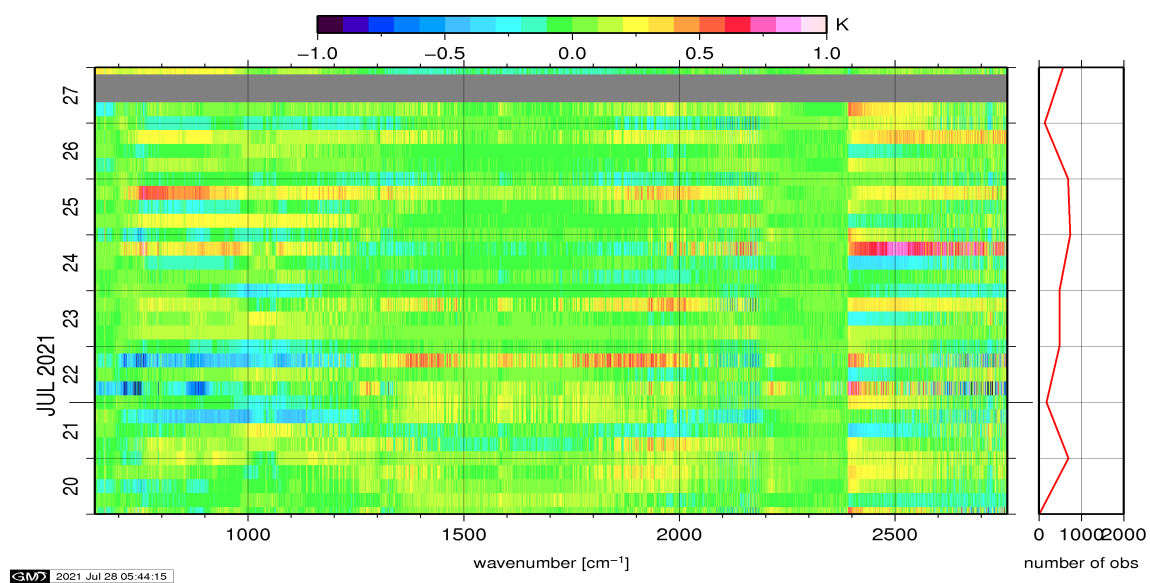Figure 9: Standard Deviation of Radiance differences

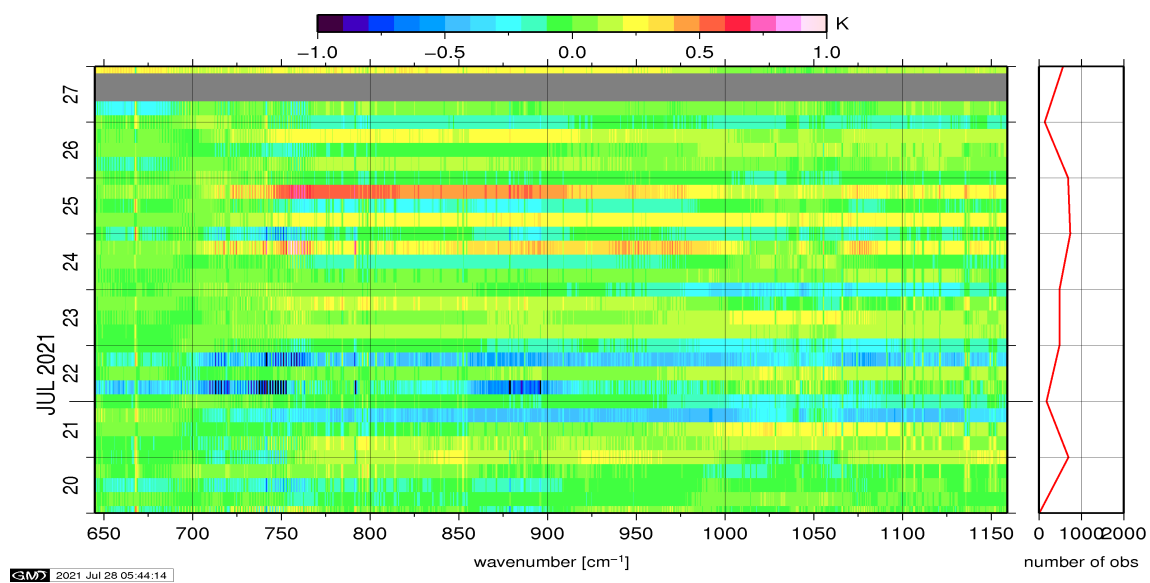Figure 10: Radiance Anomaly in BT: All Channels

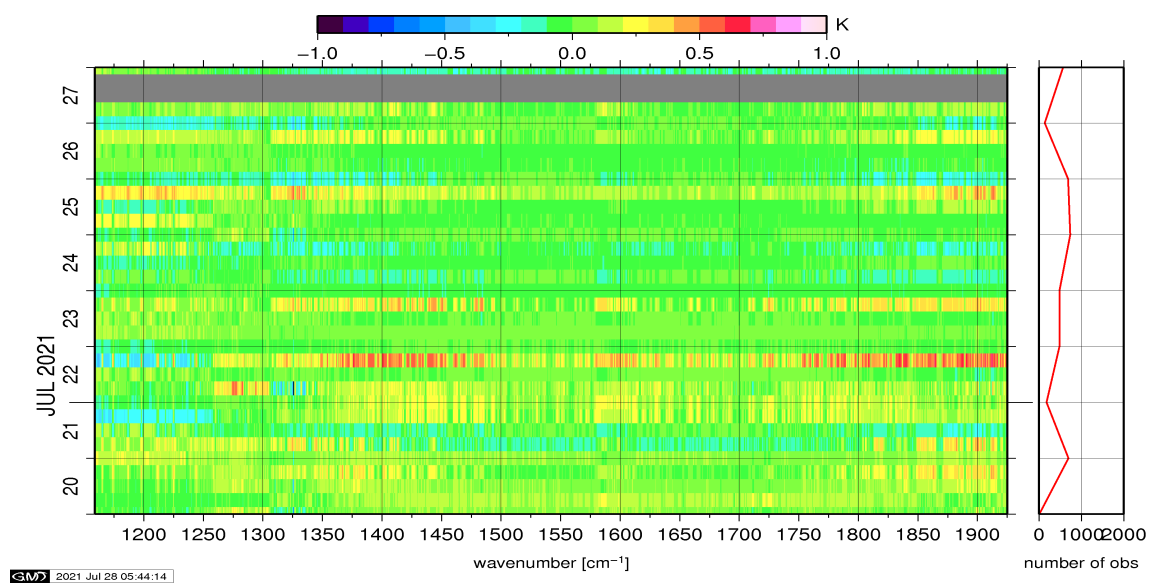Figure 11: Radiance Anomaly in BT: IASI Band 1

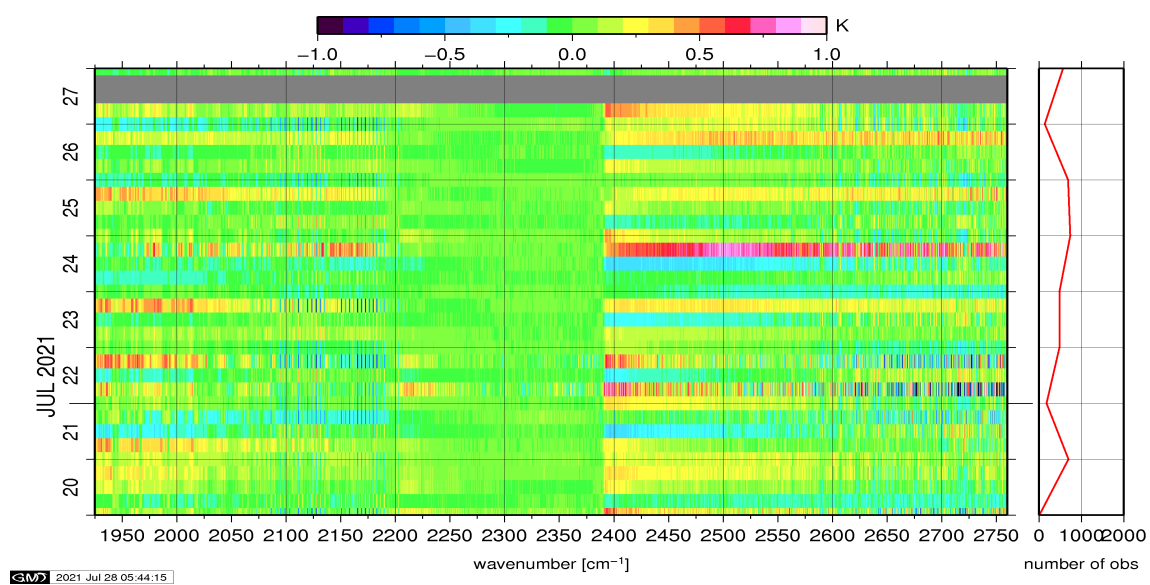Figure 12: Radiance Anomaly in BT: IASI Band 2

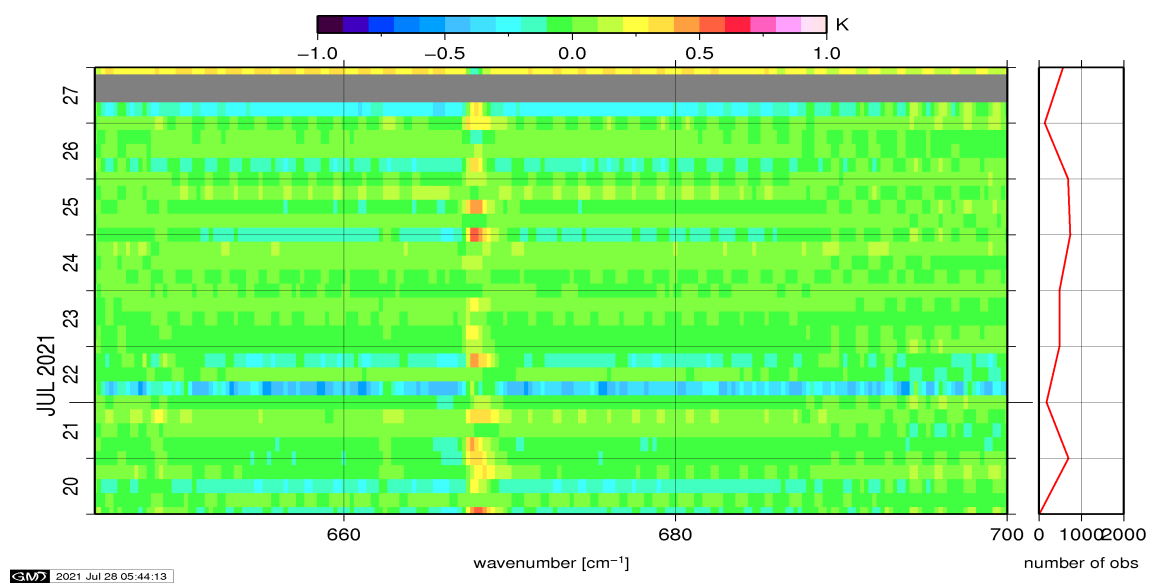Figure 13: Radiance Anomaly in BT: IASI Band 3

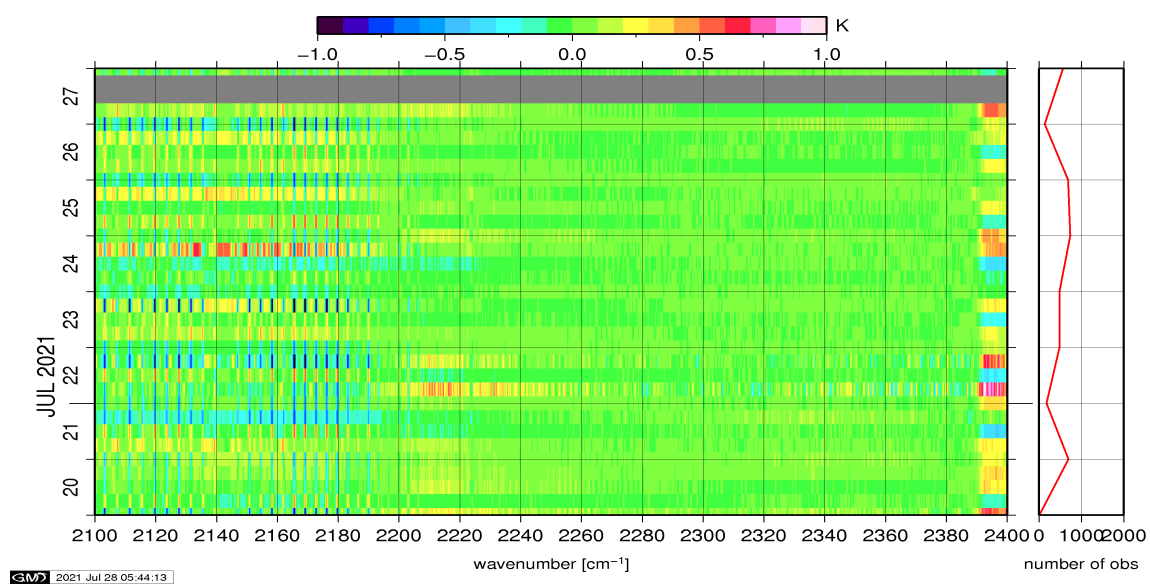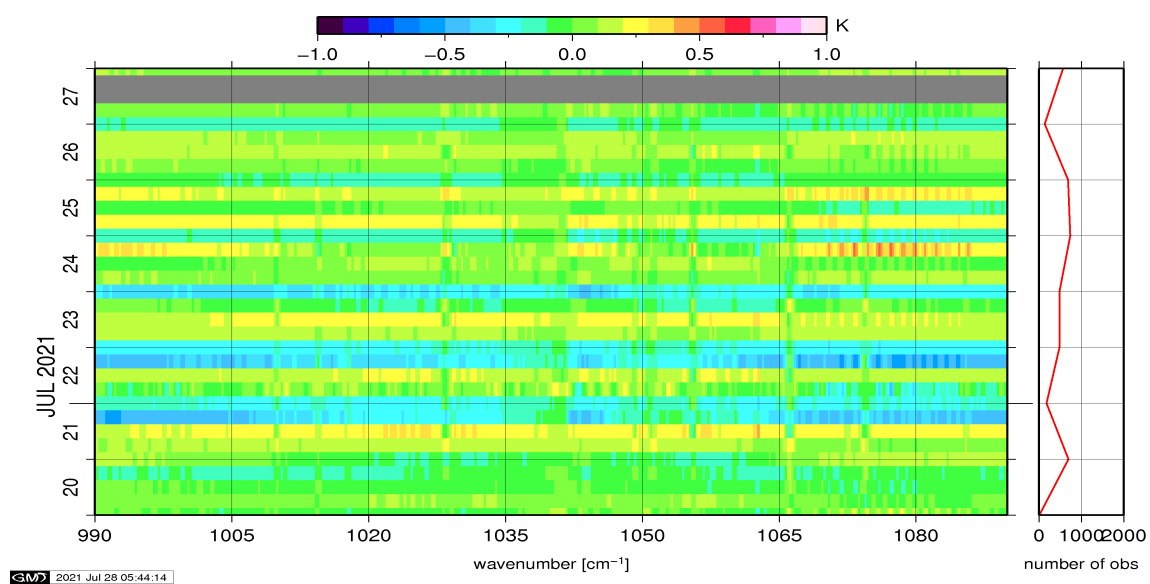Figure 14: Radiance Anomaly in BT: CO2 14

Figure 15: Radiance Anomaly in BT: CO2 4.3

Figure 16: Radiance Anomaly in BT: O3