

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

IASI monitoring team

10/11/2020 00:00:00 - 11/11/2020 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 10/11/2020 00:00:00 - 11/11/2020 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 10/11/2020 00:00:00 - 11/11/2020 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	453	e
L0 IASI PDUs	453	e
L1 ENG PDUs	451	e
L1 ENG distinct GEPSGranule	451	a
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	451	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	2135	2148	20201110155722.535	20201110155726.860
PX1 (130)	2201	2203	20201110155741.344	20201110155741.777
PX1 (130)	2204	5787	20201110155741.996	20201110172625.641
PX2 (135)	2134	2147	20201110155722.320	20201110155726.645
PX2 (135)	2201	2203	20201110155741.344	20201110155741.777
PX2 (135)	2203	5787	20201110155741.777	20201110172625.641
PX3 (140)	2134	2148	20201110155722.320	20201110155726.860
PX3 (140)	2202	5787	20201110155741.563	20201110172625.641
PX4 (145)	2134	2149	20201110155722.320	20201110155727.074
PX4 (145)	2201	5787	20201110155741.344	20201110172625.641
IMG (150)	8167	8185	20201110155722.320	20201110155726.860
IMG (150)	8247	14492	20201110155741.563	20201110172625.641
VER (160)	16379	0	20201110051851.226	20201110051859.226
VER (160)	0	16380	20201110051859.226	20201110051859.226
VER (160)	-1	1	20201110051859.226	20201110051907.226
VER (160)	16380	0	20201110123547.205	20201110123555.205
VER (160)	1	16381	20201110123555.205	20201110123555.205

Continued on next page

Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	-1	2	20201110123555.205	20201110123603.205
VER (160)	7551	7557	20201110155715.184	20201110155731.184
VER (160)	7566	10892	20201110155739.184	20201110172627.157
VER (160)	16381	0	20201110195243.148	20201110195251.145
VER (160)	2	16382	20201110195251.145	20201110195251.145
VER (160)	-1	3	20201110195251.145	20201110195259.144
AUX (180)	1507	1509	20201110155715.617	20201110155731.617
AUX (180)	1510	2176	20201110155739.617	20201110172627.587

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
10/11/2020 00:00:14	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	453	e
L1 ENG PDUs	451	e
L1 ENG distinct GEPSGranule	451	a
GQisFlagQual set (PX1)	99.43 %	-
GQisFlagQual set (PX2)	99.46 %	-
GQisFlagQual set (PX3)	99.46 %	-
GQisFlagQual set (PX4)	99.37 %	-
GQisFlagQual set (all)	99.43 %	-

Table 4: Quality flags

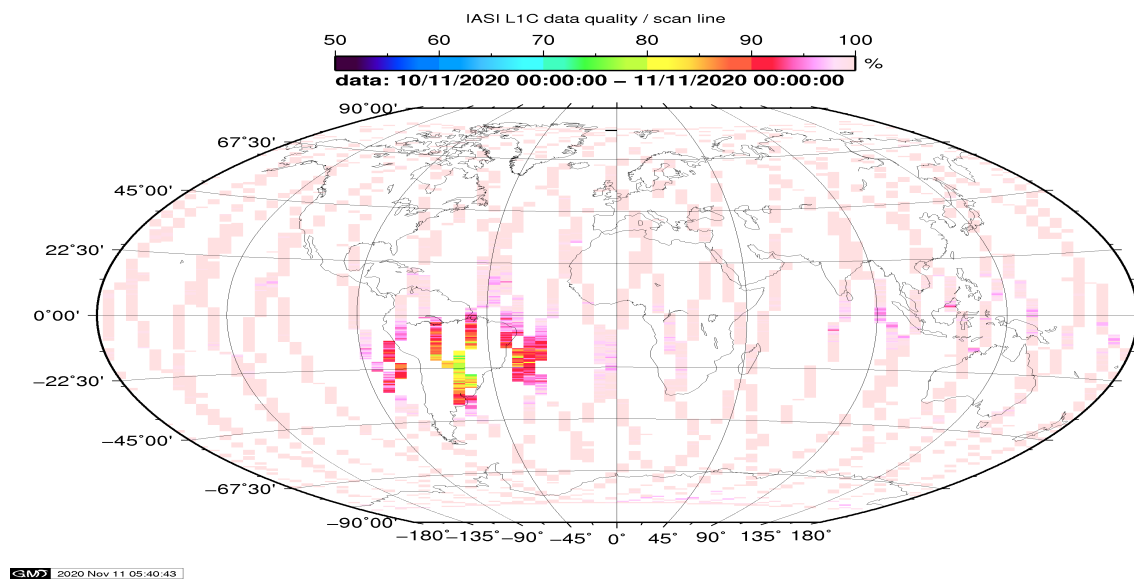


Figure 1: L1C data quality

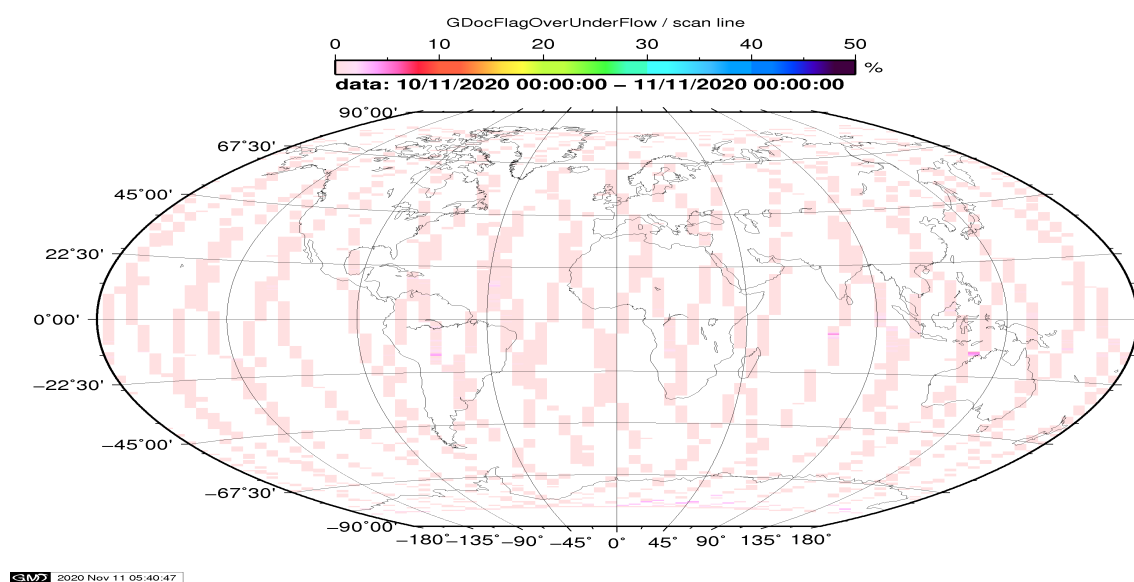


Figure 2: Flag of Over and Under Flows

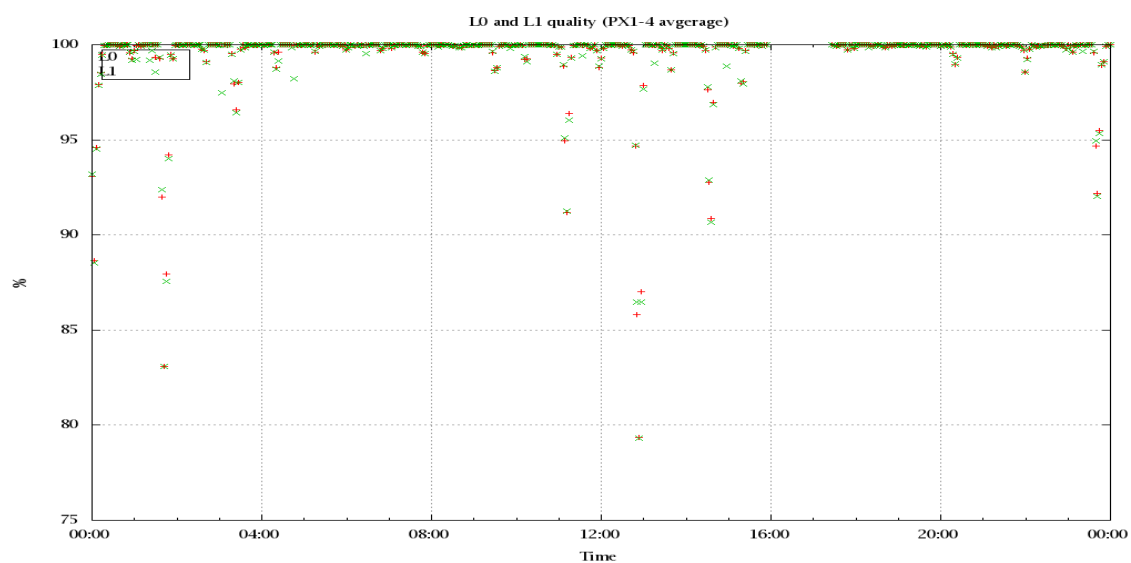


Figure 3: Level 0 and 1C overall quality

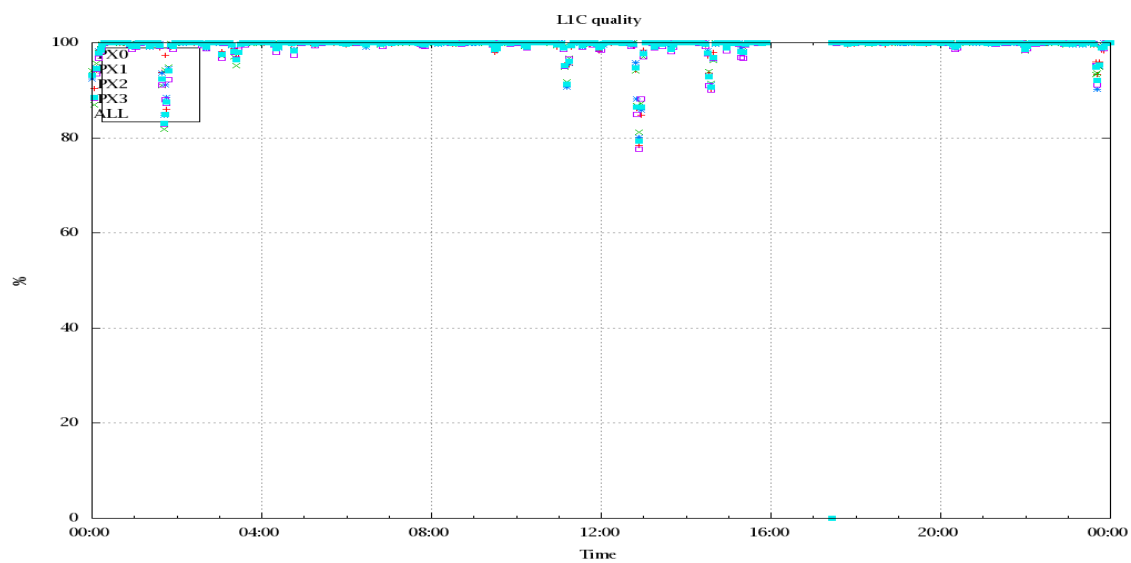


Figure 4: Level 1C quality

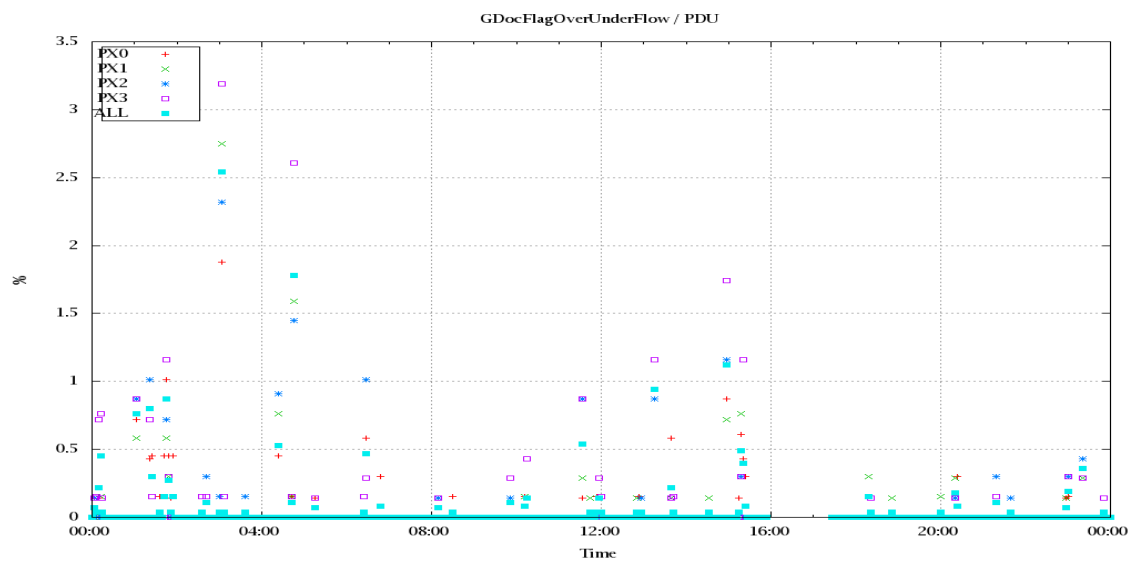


Figure 5: Timeseries of flag of Over and Under Flows

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 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.

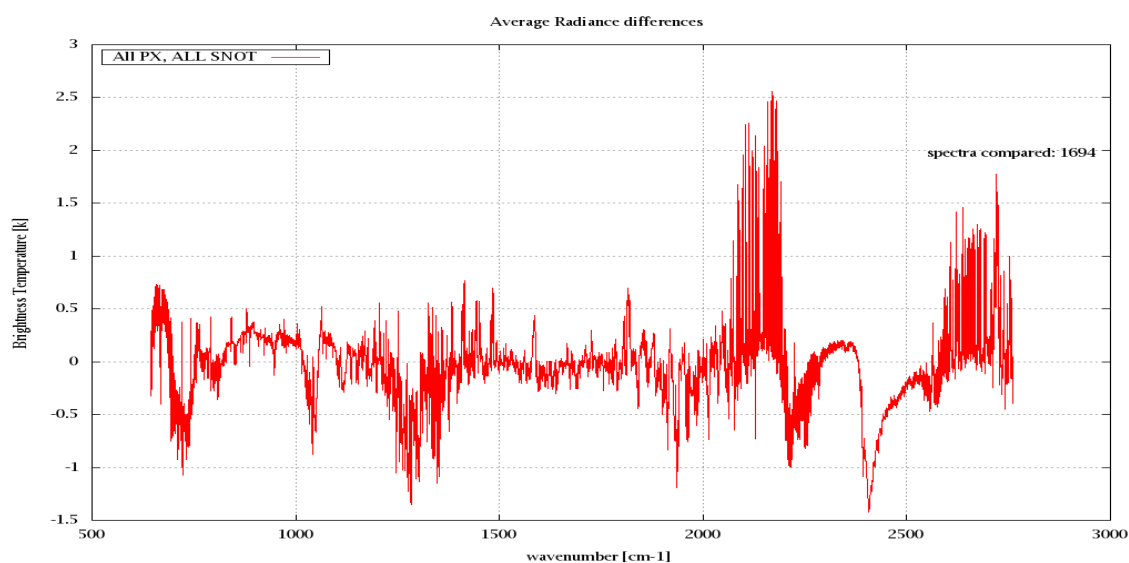


Figure 6: Average Radiance differences: OBS-CAL

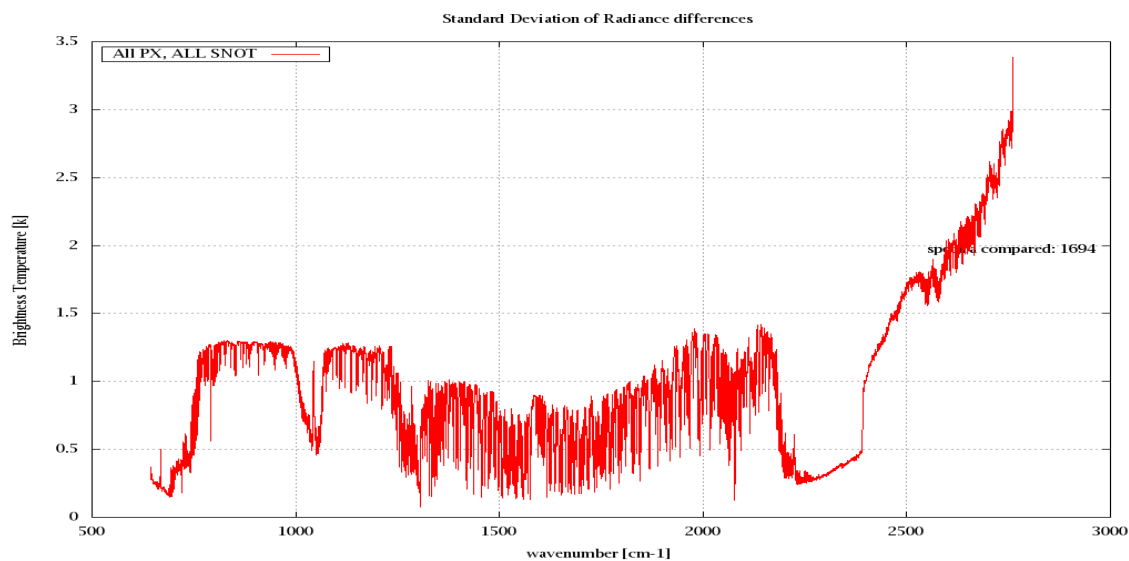


Figure 7: Standard Deviation of Radiance differences

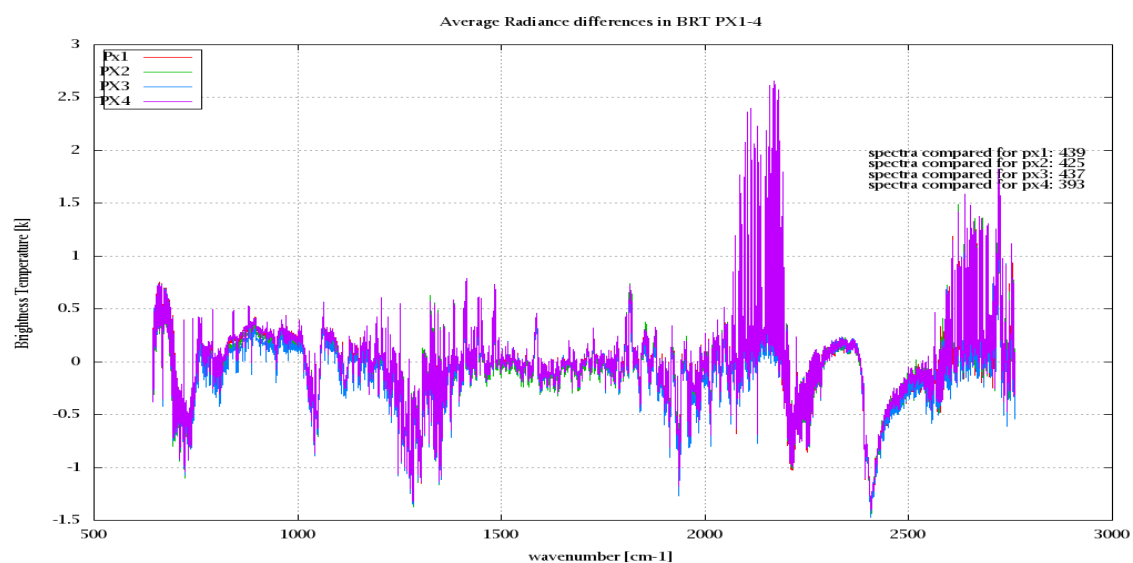


Figure 8: Average Radiance differences: OBS-CAL

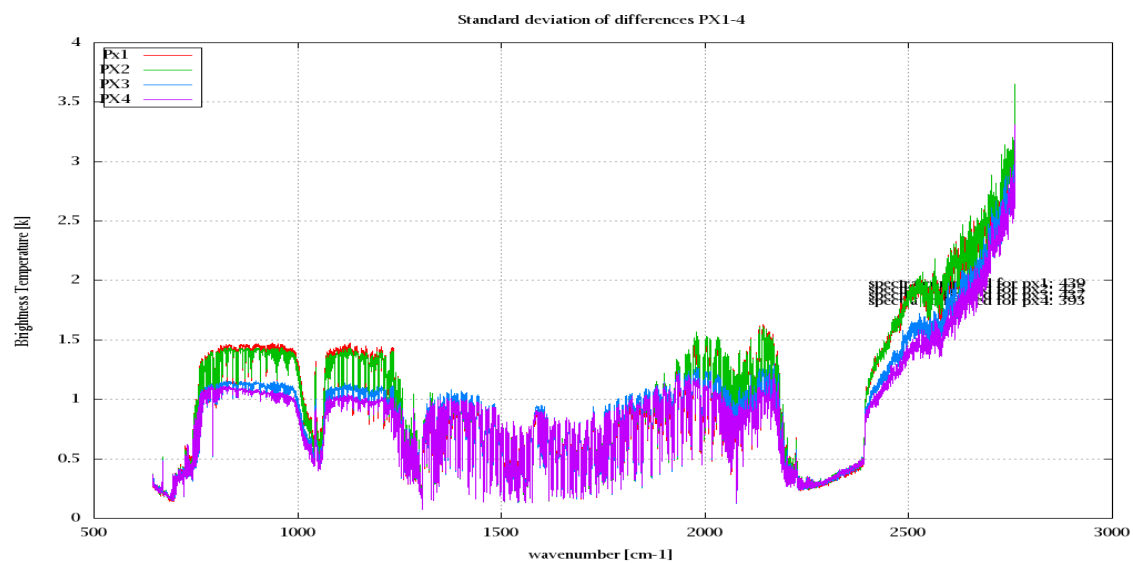


Figure 9: Standard Deviation of Radiance differences

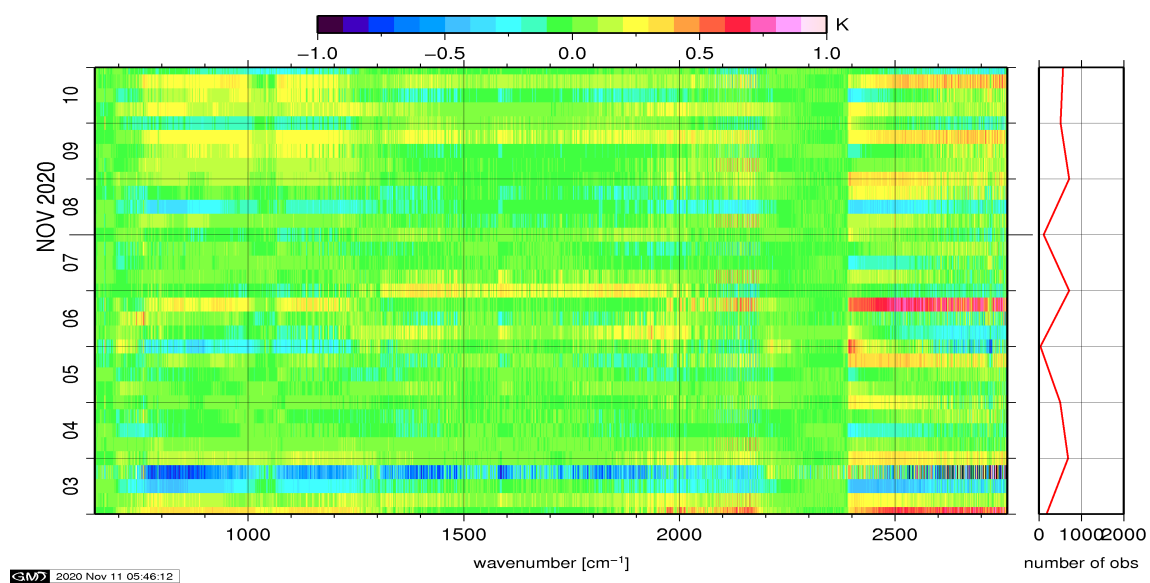


Figure 10: Radiance Anomaly in BT: All Channels

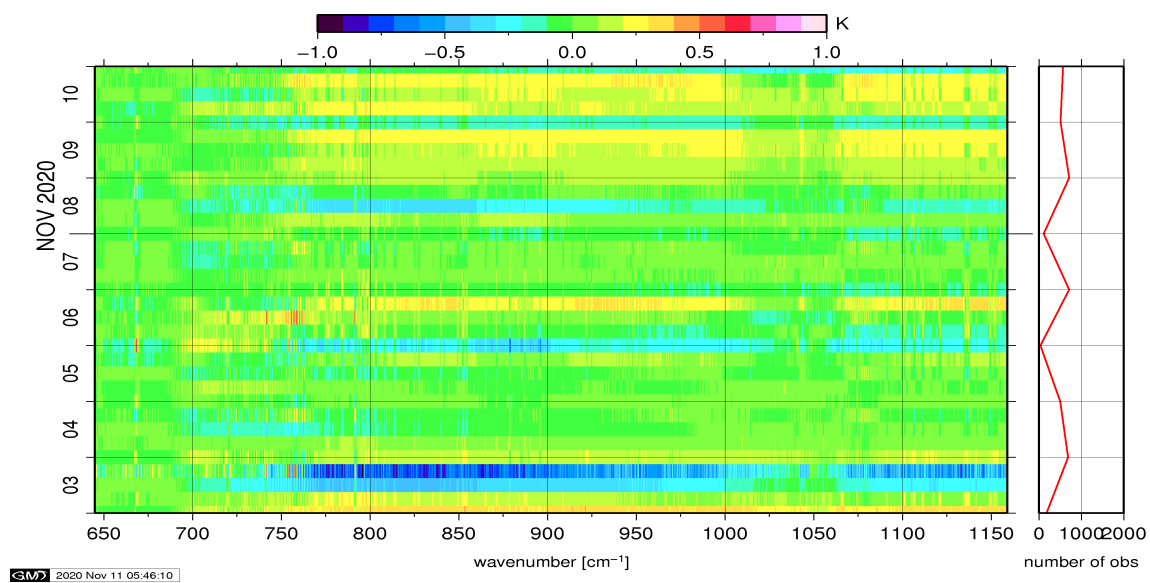


Figure 11: Radiance Anomaly in BT: IASI Band 1

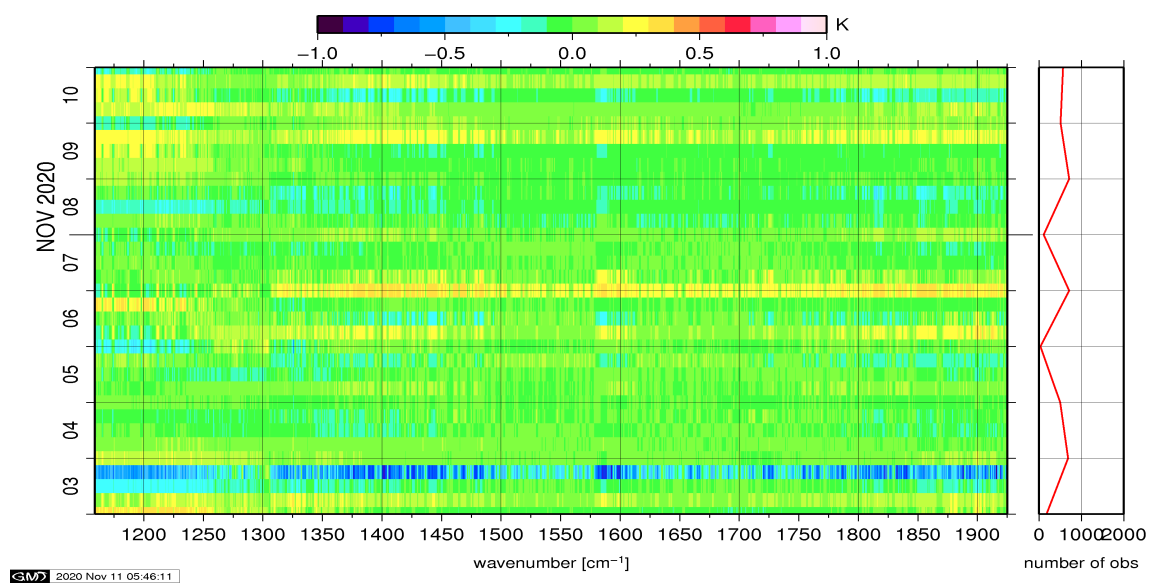


Figure 12: Radiance Anomaly in BT: IASI Band 2

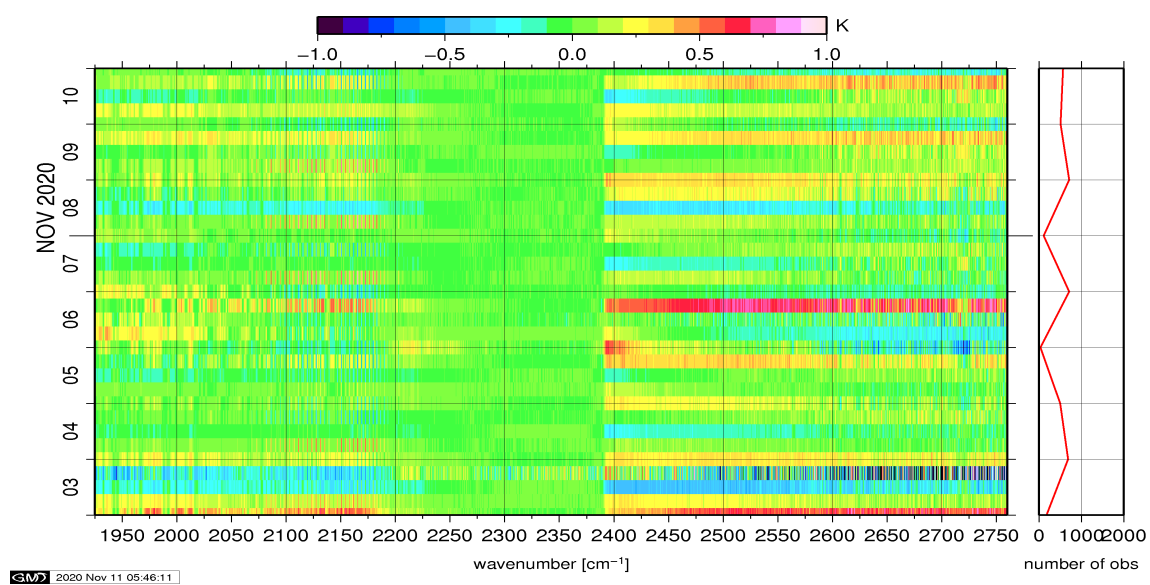


Figure 13: Radiance Anomaly in BT: IASI Band 3

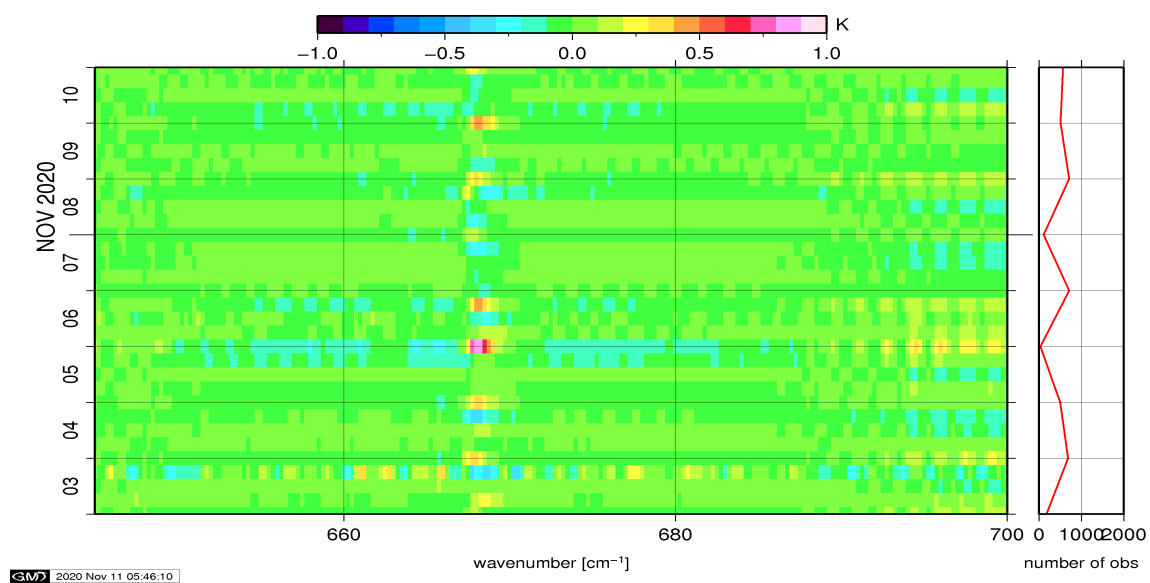


Figure 14: Radiance Anomaly in BT: CO2 14

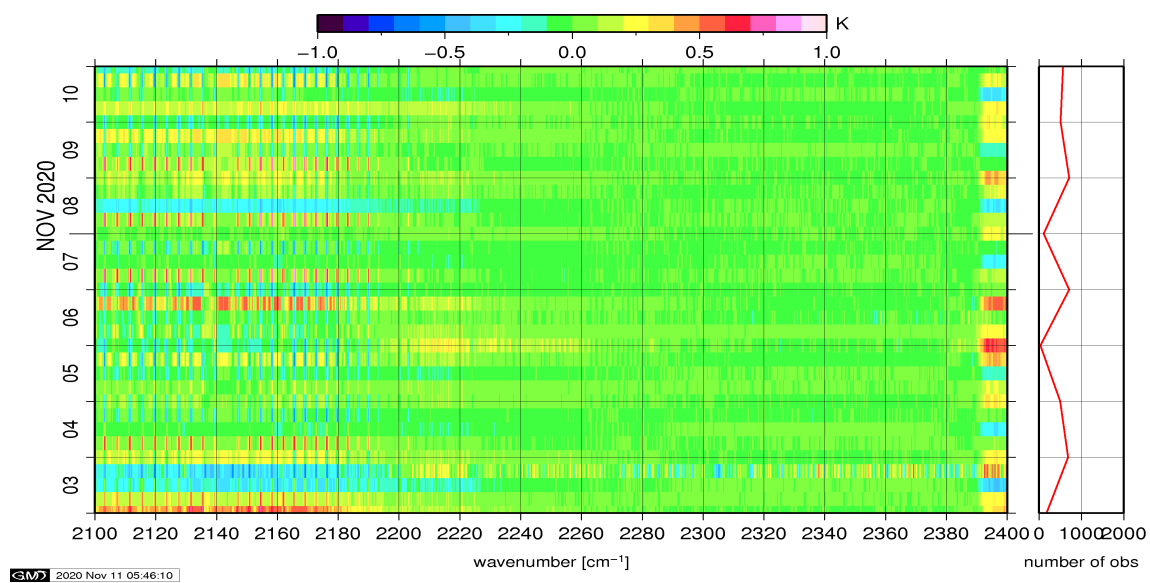


Figure 15: Radiance Anomaly in BT: CO2 4.3

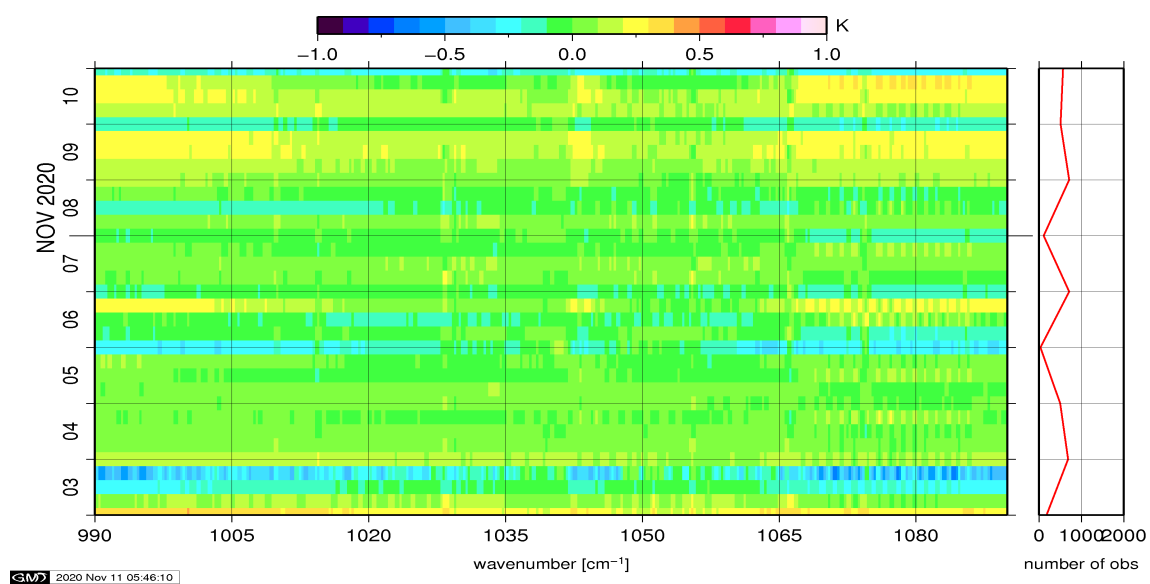


Figure 16: Radiance Anomaly in BT: O3