

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

IASI monitoring team

03/11/2020 00:00:00 - 04/11/2020 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 03/11/2020 00:00:00 - 04/11/2020 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 03/11/2020 00:00:00 - 04/11/2020 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	447	e
L0 IASI PDUs	448	e
L1 ENG PDUs	447	e
L1 ENG distinct GEPSGranule	443	a
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	447	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	7142	13630	20201103131220.056	20201103145400.153
PX2 (135)	14881	14883	20201103013833.733	20201103013834.167
PX2 (135)	7142	13630	20201103131220.056	20201103145400.153
PX3 (140)	16056	16058	20201103003057.946	20201103003058.376
PX3 (140)	14881	14883	20201103013833.733	20201103013834.167
PX3 (140)	7142	13630	20201103131220.056	20201103145400.153
PX4 (145)	9744	9746	20201103000255.359	20201103000255.788
PX4 (145)	7142	13630	20201103131220.056	20201103145400.153
IMG (150)	735	10275	20201103131220.056	20201103145400.153
VER (160)	3588	3590	20201103000900.104	20201103000900.104
VER (160)	4272	4274	20201103002716.115	20201103002716.115
VER (160)	4619	4621	20201103003628.098	20201103003628.098
VER (160)	16381	0	20201103055004.087	20201103055012.087
VER (160)	2	16382	20201103055012.087	20201103055012.087
VER (160)	-1	3	20201103055012.087	20201103055020.087
VER (160)	16382	0	20201103130700.057	20201103130708.065
VER (160)	3	16383	20201103130708.065	20201103130708.065

Continued on next page

Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	-1	4	20201103130708.065	20201103130716.065
VER (160)	195	4009	20201103131220.056	20201103145404.044
AUX (180)	6589	7353	20201103131212.490	20201103145404.477

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
03/11/2020 00:00:15	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	448	e
L1 ENG PDUs	447	e
L1 ENG distinct GEPSGranule	443	a
GQisFlagQual set (PX1)	99.62 %	-
GQisFlagQual set (PX2)	99.65 %	-
GQisFlagQual set (PX3)	99.64 %	-
GQisFlagQual set (PX4)	99.60 %	-
GQisFlagQual set (all)	99.63 %	-

Table 4: Quality flags

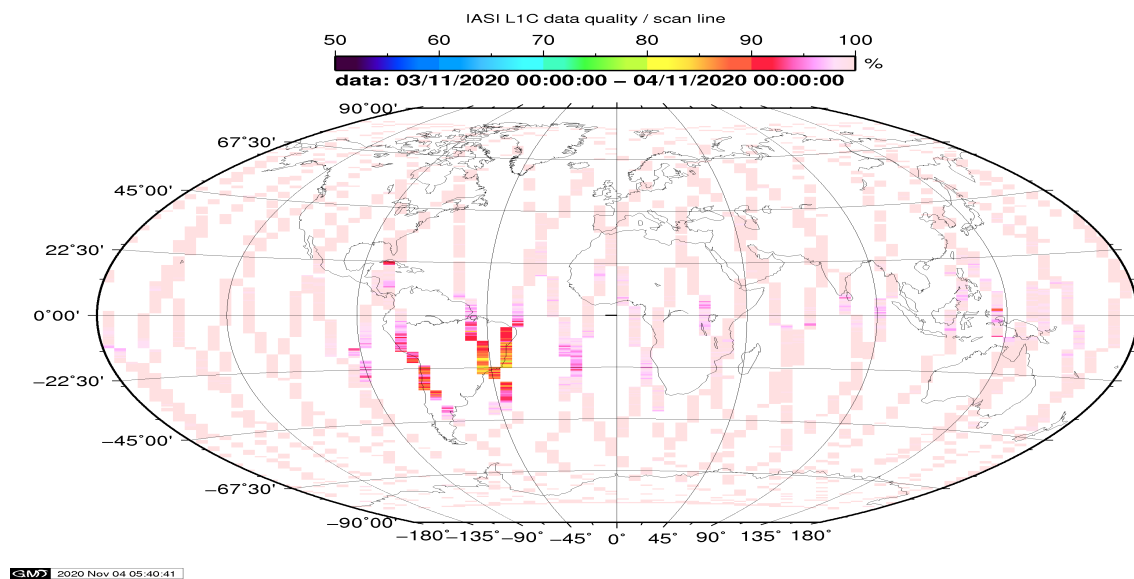


Figure 1: L1C data quality

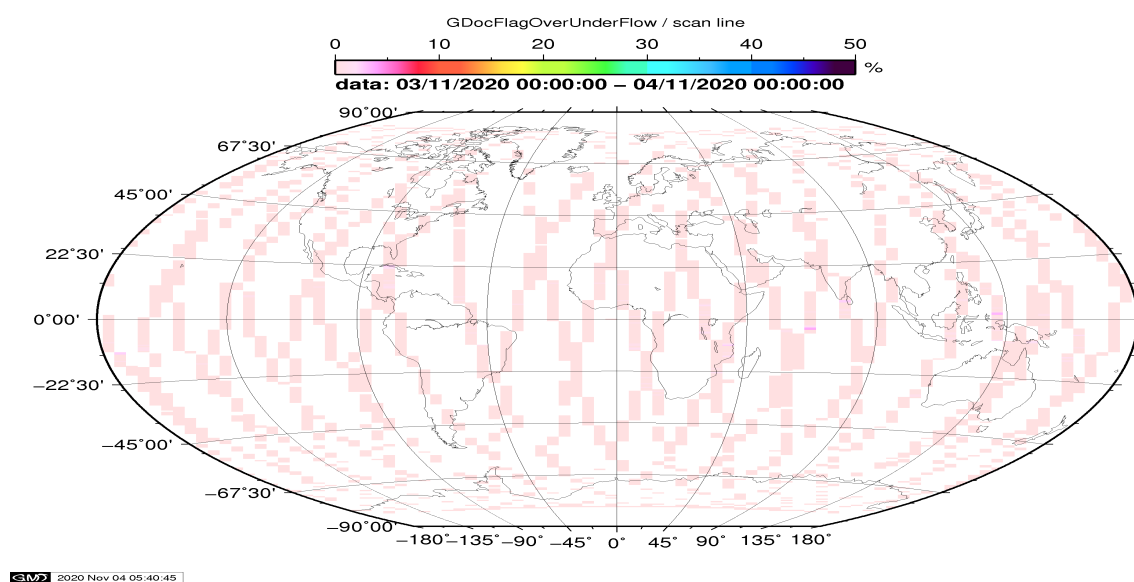


Figure 2: Flag of Over and Under Flows

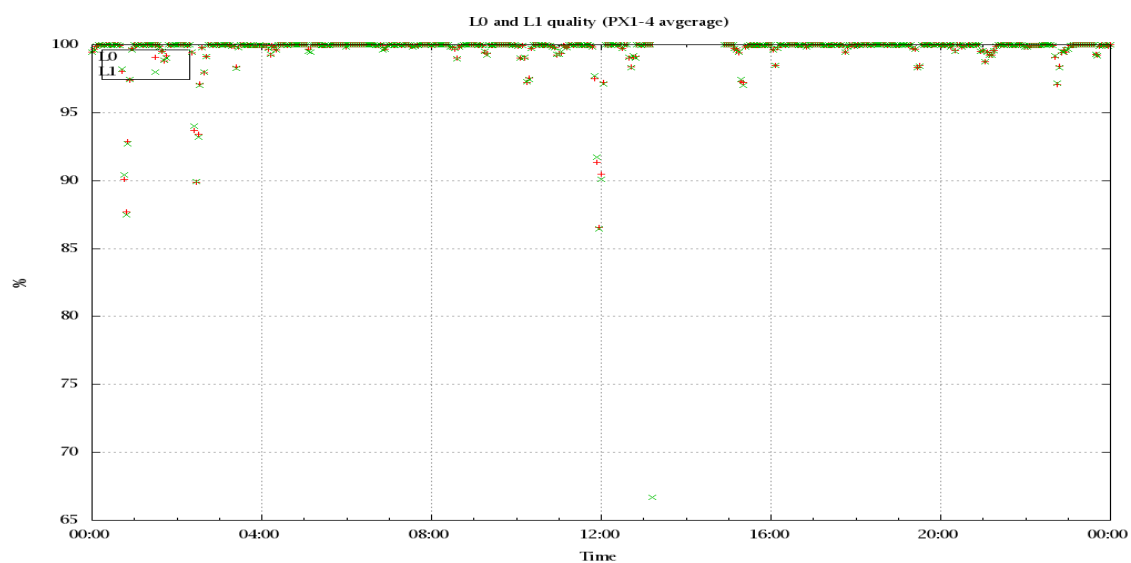


Figure 3: Level 0 and 1C overall quality

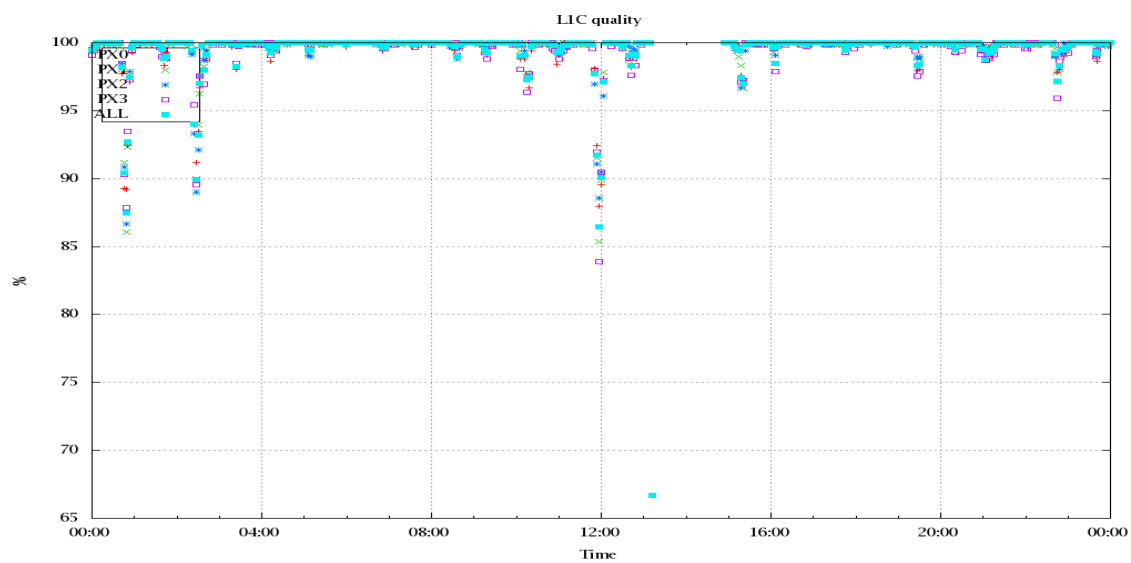


Figure 4: Level 1C quality

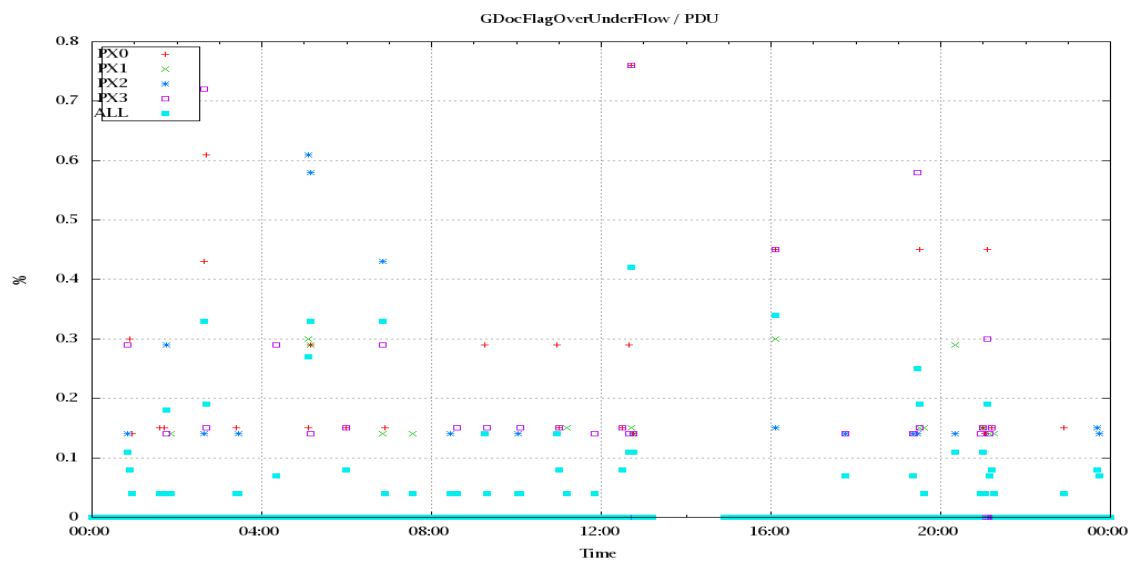


Figure 5: Timeseries of flag of Over and Under Flows

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.

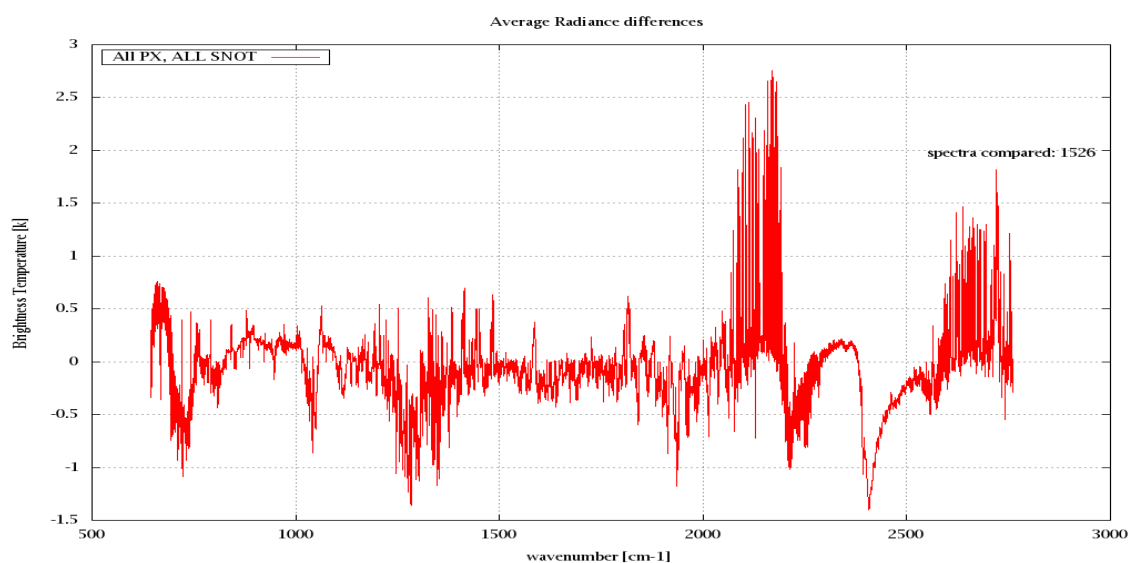


Figure 6: Average Radiance differences: OBS-CAL

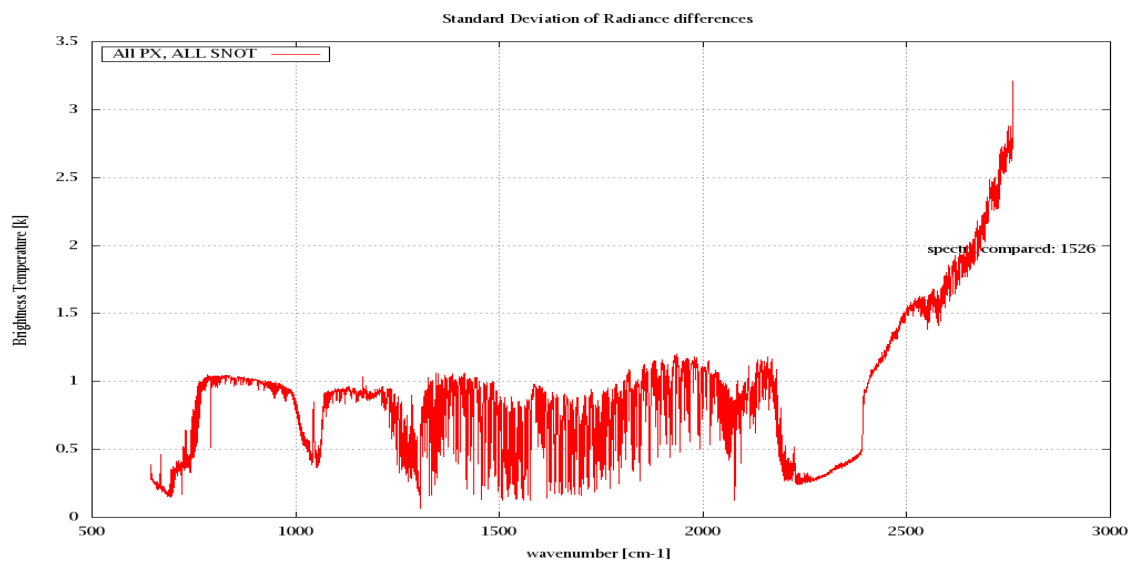


Figure 7: Standard Deviation of Radiance differences

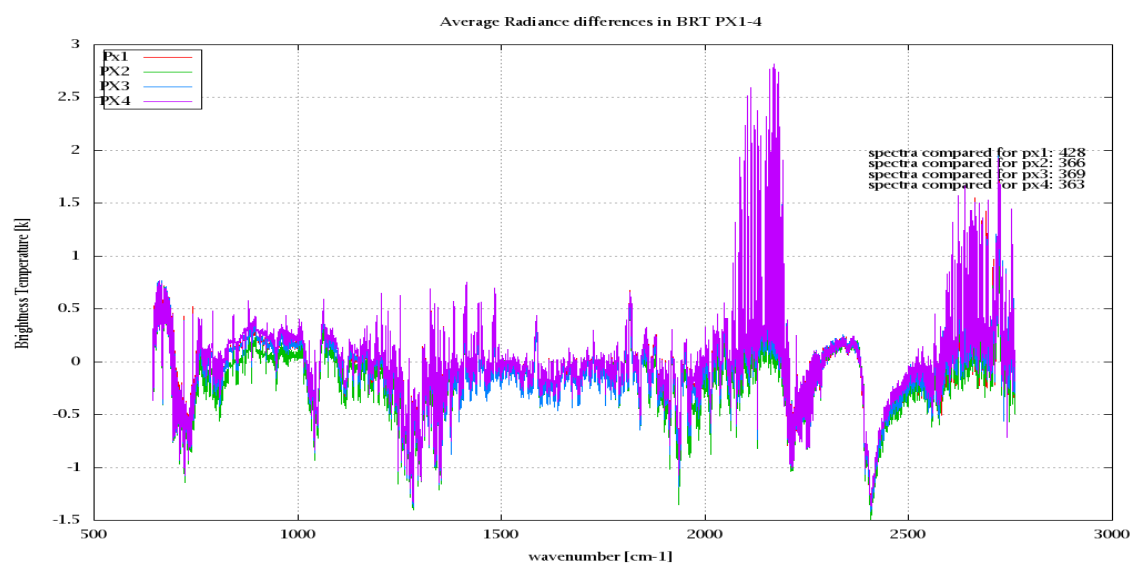


Figure 8: Average Radiance differences: OBS-CAL

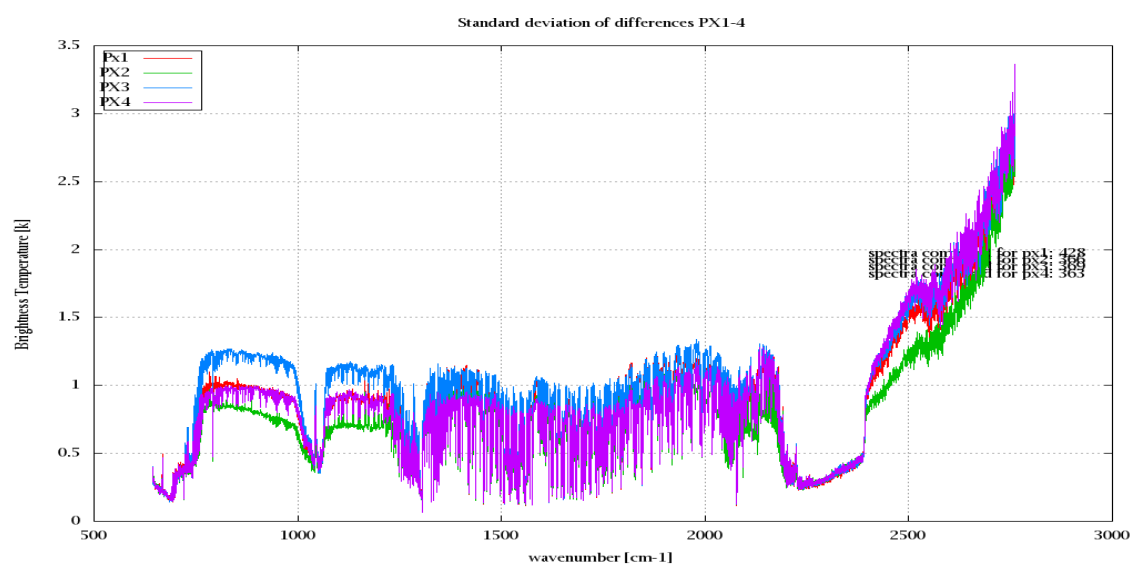


Figure 9: Standard Deviation of Radiance differences

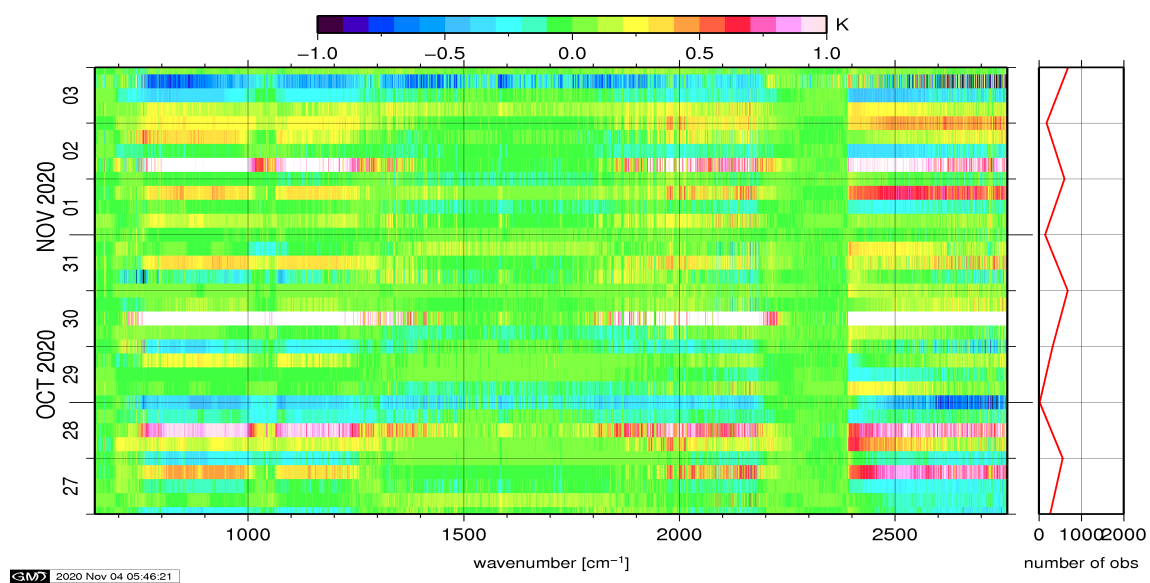


Figure 10: Radiance Anomaly in BT: All Channels

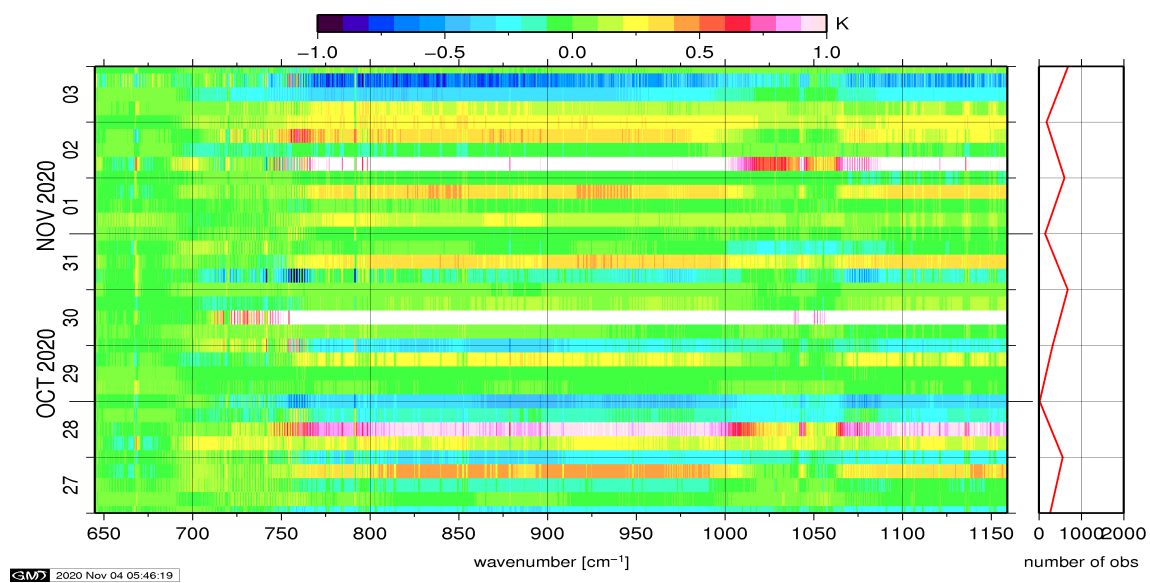


Figure 11: Radiance Anomaly in BT: IASI Band 1

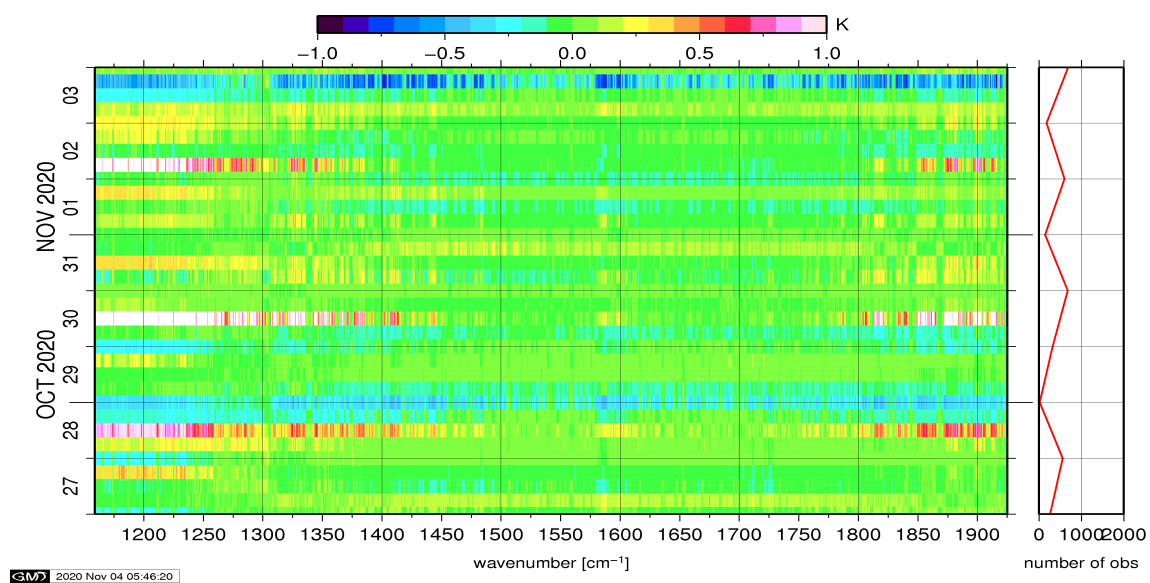


Figure 12: Radiance Anomaly in BT: IASI Band 2

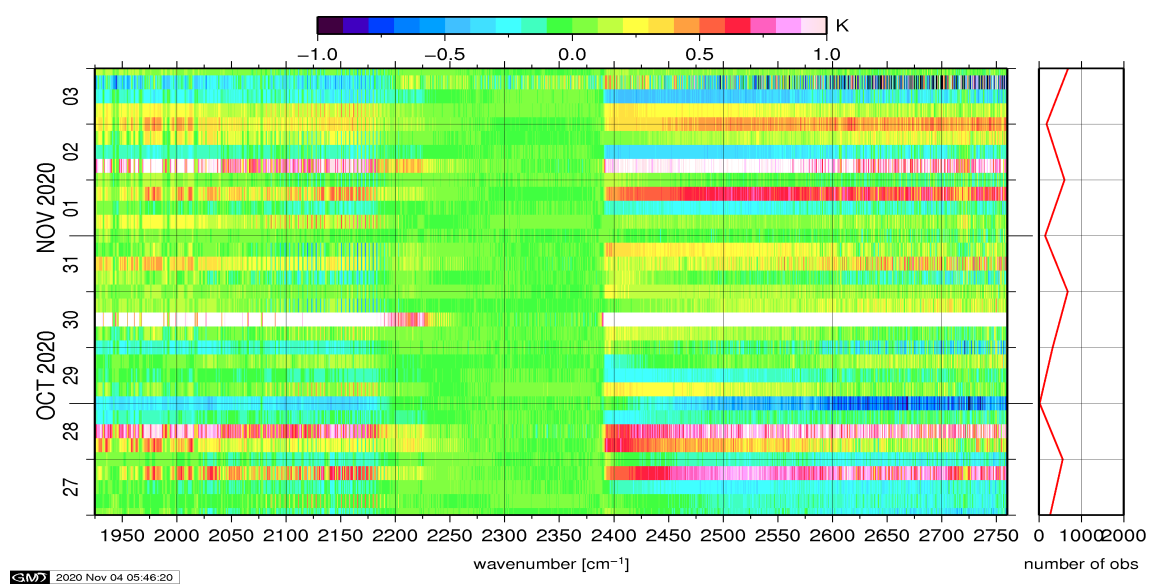


Figure 13: Radiance Anomaly in BT: IASI Band 3

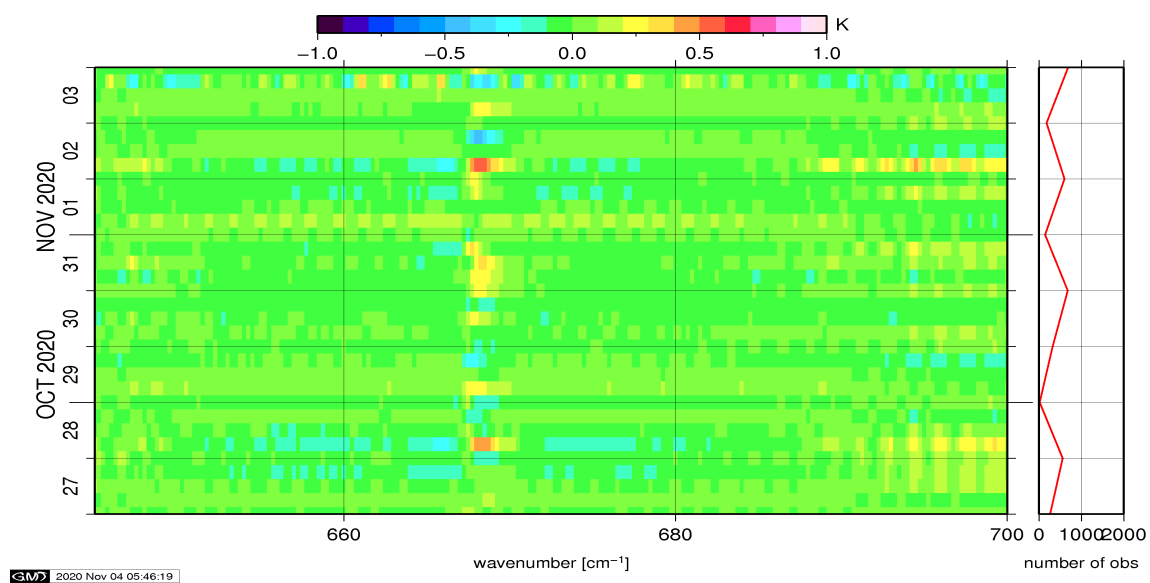


Figure 14: Radiance Anomaly in BT: CO2 14

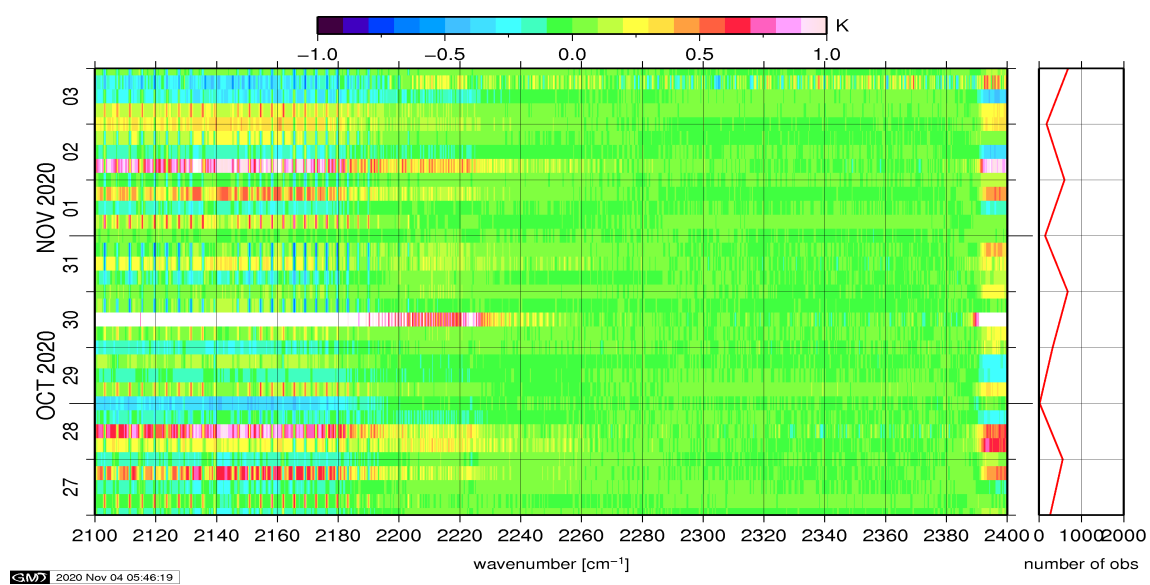


Figure 15: Radiance Anomaly in BT: CO2 4.3

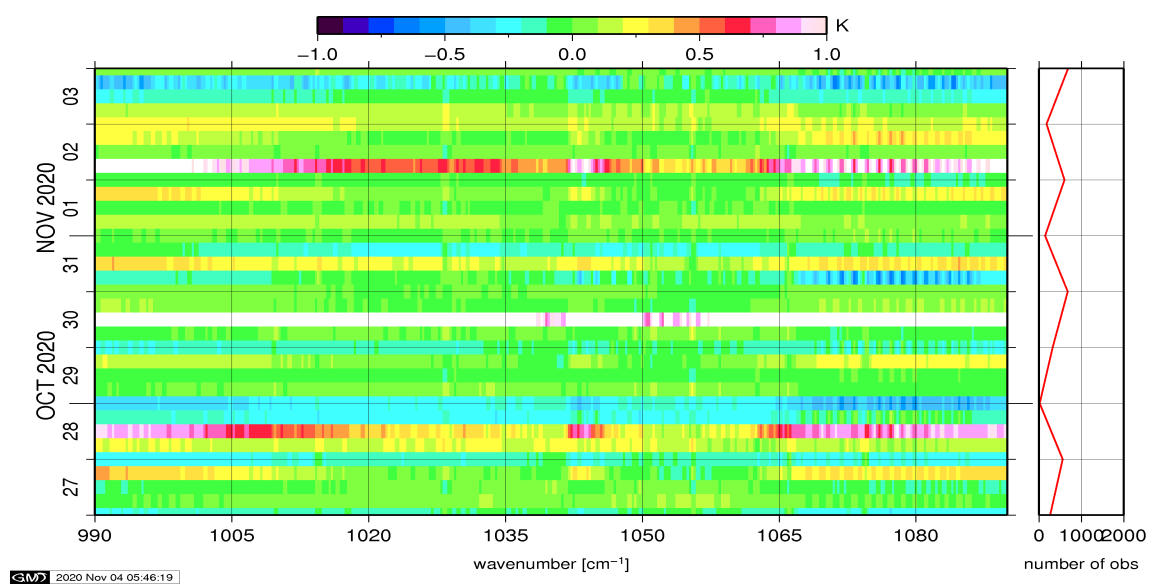


Figure 16: Radiance Anomaly in BT: O3