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

IASI monitoring team

22/10/2019 00:00:00 - 23/10/2019 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 22/10/2019 00:00:00 - 23/10/2019 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 22/10/2019 00:00:00 - 23/10/2019 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	447	e
L0 IASI PDUs	447	e
L1 ENG PDUs	446	e
L1 ENG distinct GEPSGranule	447	a
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	446	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	4295	11486	20191022134513.309	20191022153000.210
PX2 (135)	4295	11486	20191022134513.309	20191022153000.210
PX3 (140)	4295	11486	20191022134513.309	20191022153000.210
PX4 (145)	4295	11486	20191022134513.309	20191022153000.210
IMG (150)	8835	2786	20191022134513.309	20191022153000.210
VER (160)	16382	0	20191022020731.314	20191022020739.314
VER (160)	3	16383	20191022020739.314	20191022020739.314
VER (160)	-1	4	20191022020739.314	20191022020747.314
VER (160)	9774	13705	20191022134507.254	20191022153003.237
VER (160)	16379	0	20191022164115.235	20191022164123.235
VER (160)	0	16380	20191022164123.235	20191022164123.235
VER (160)	-1	1	20191022164123.235	20191022164131.235
VER (160)	16380	0	20191022235811.213	20191022235819.213
VER (160)	1	16381	20191022235819.213	20191022235819.213
VER (160)	-1	2	20191022235819.213	20191022235827.213
AUX (180)	5230	6017	20191022134507.688	20191022153003.671

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
22/10/2019 00:00:14	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	447	e
L1 ENG PDUs	446	e
L1 ENG distinct GEPSGranule	447	a
GQisFlagQual set (PX1)	99.54 %	-
GQisFlagQual set (PX2)	99.60 %	-
GQisFlagQual set (PX3)	99.61 %	-
GQisFlagQual set (PX4)	99.52 %	-
GQisFlagQual set (all)	99.57 %	-

Table 4: Quality flags

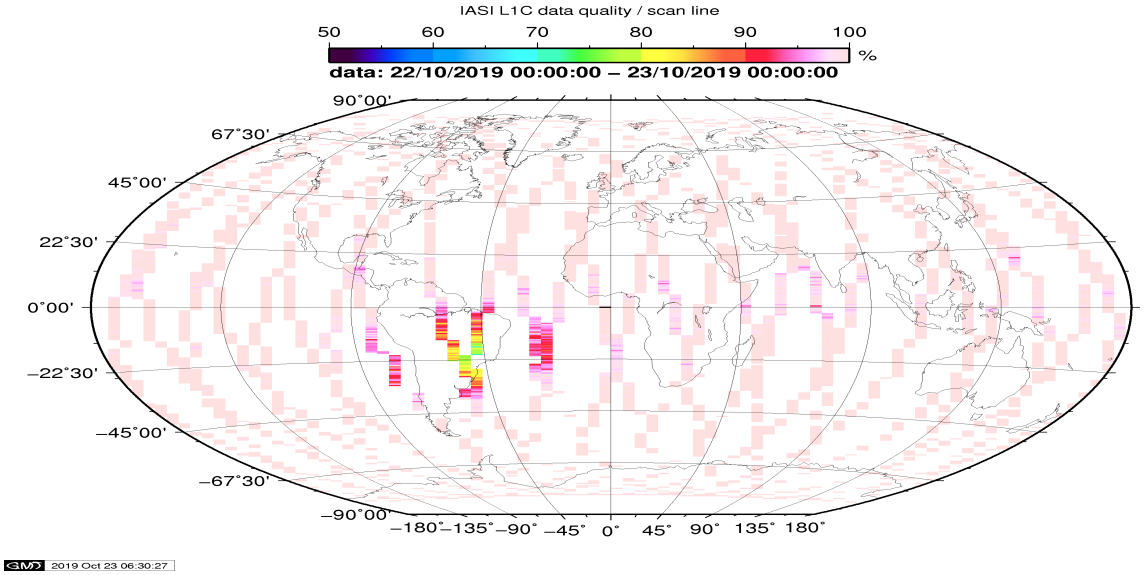

Figure 1: L1C data quality

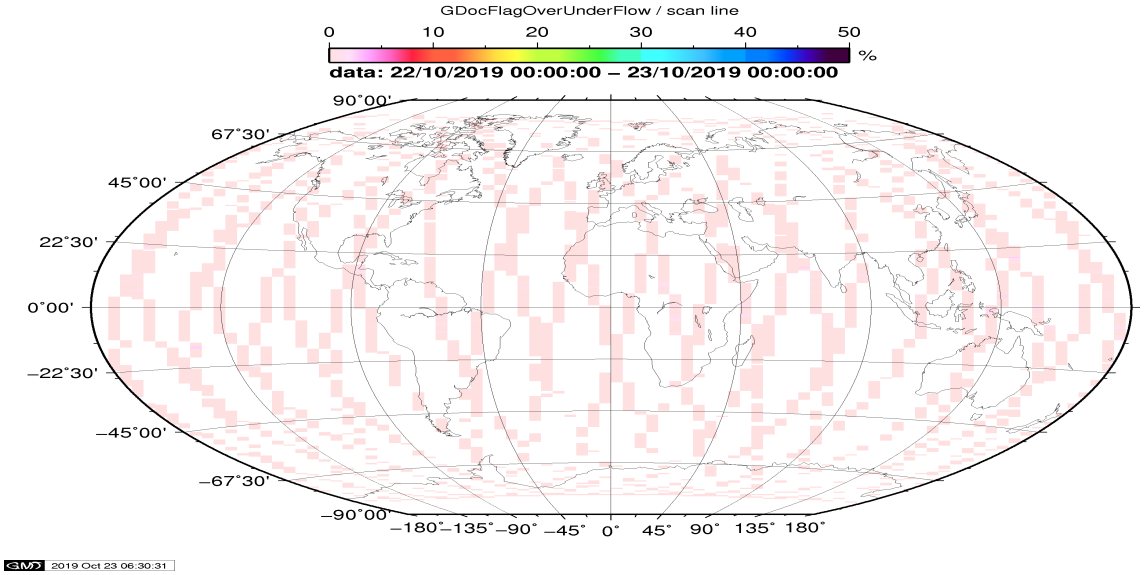

Figure 2: Flag of Over and Under Flows

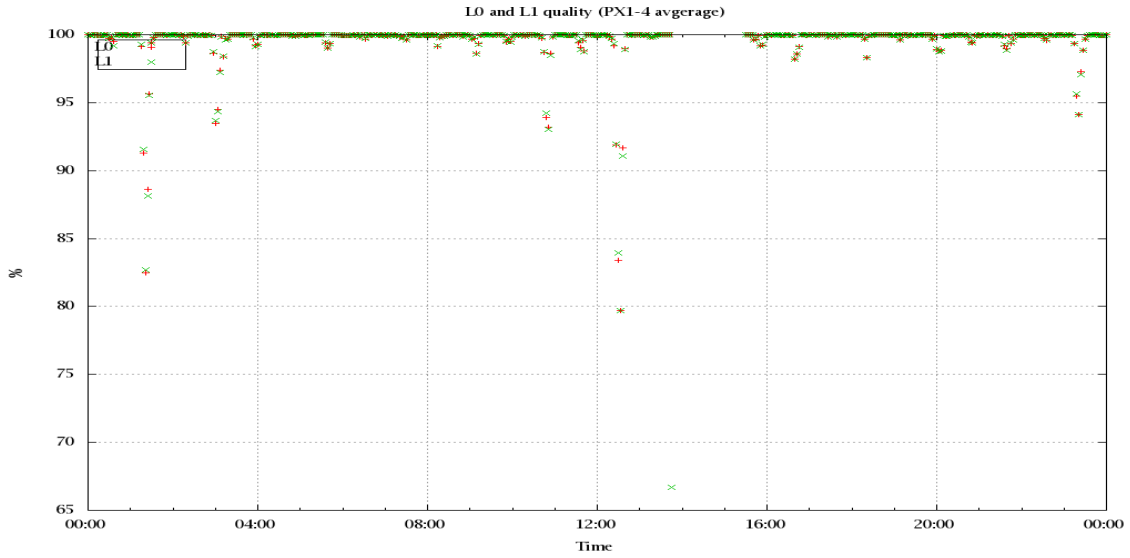

Figure 3: Level 0 and 1C overall quality

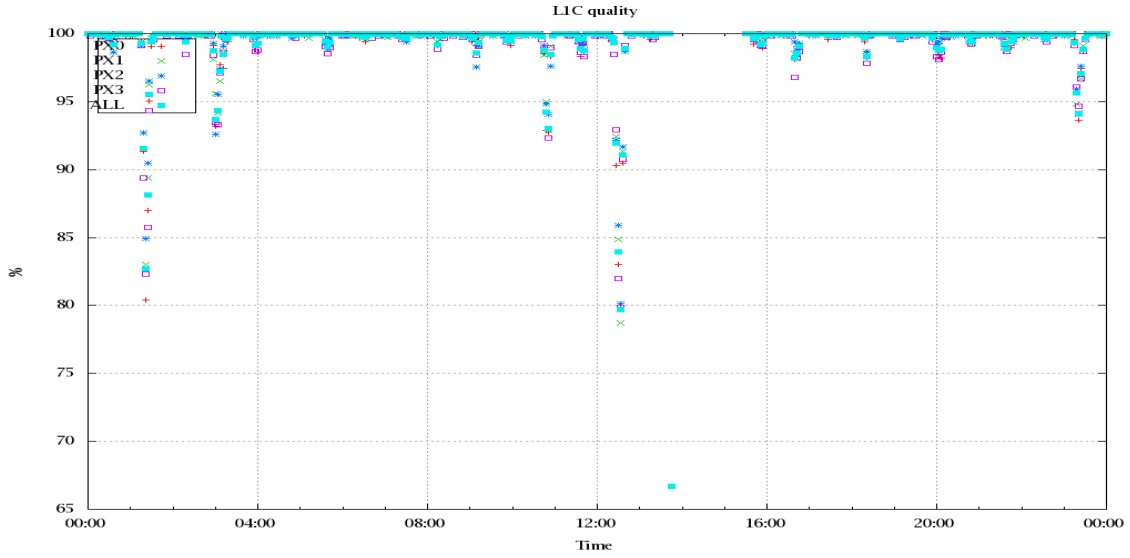

Figure 4: Level 1C quality

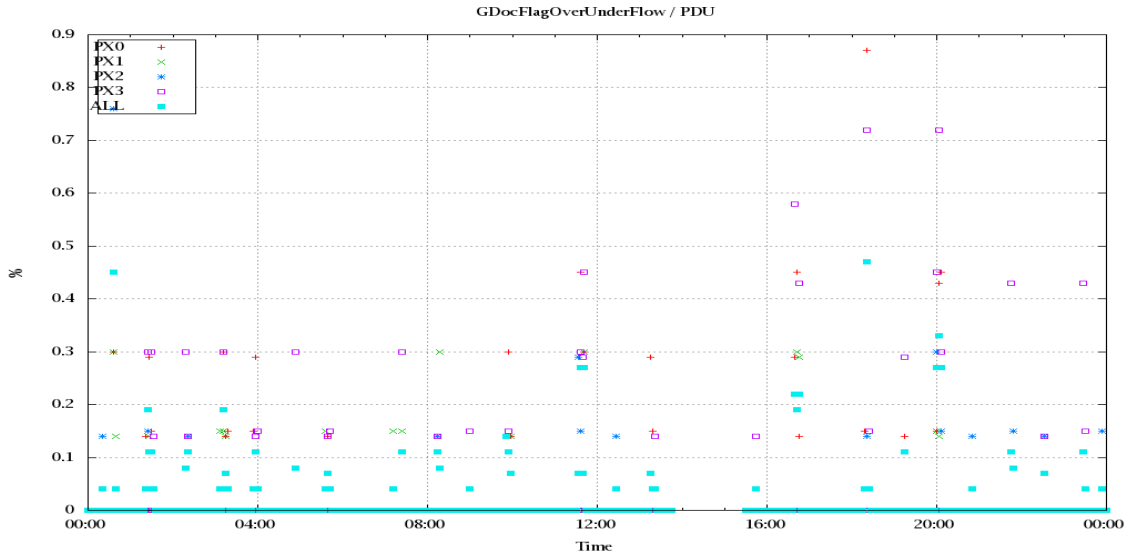

Figure 5: Timeseries of flag of Over and Under Flows

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.

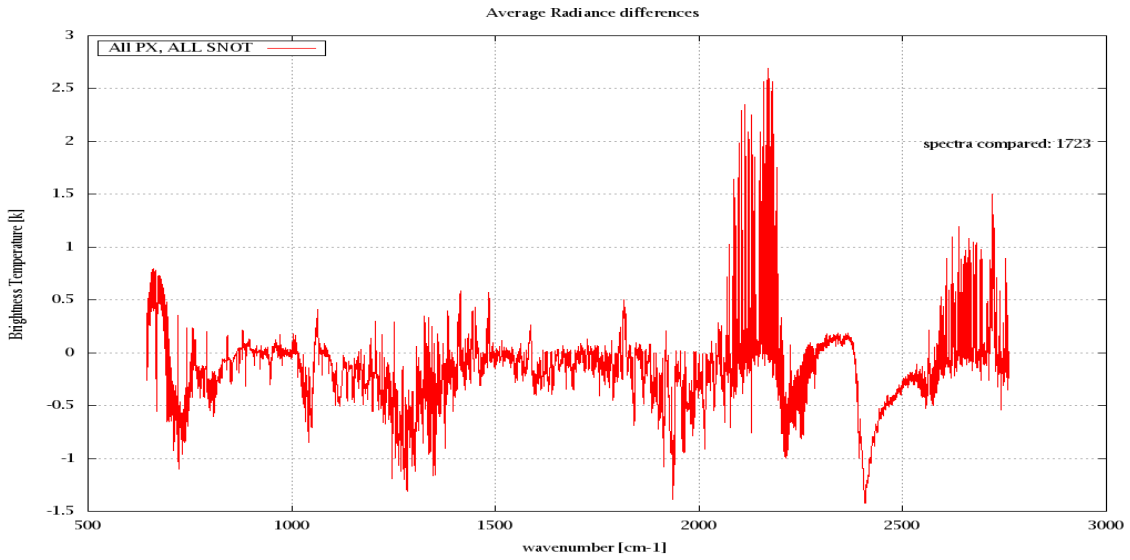

Figure 6: Average Radiance differences: OBS-CAL

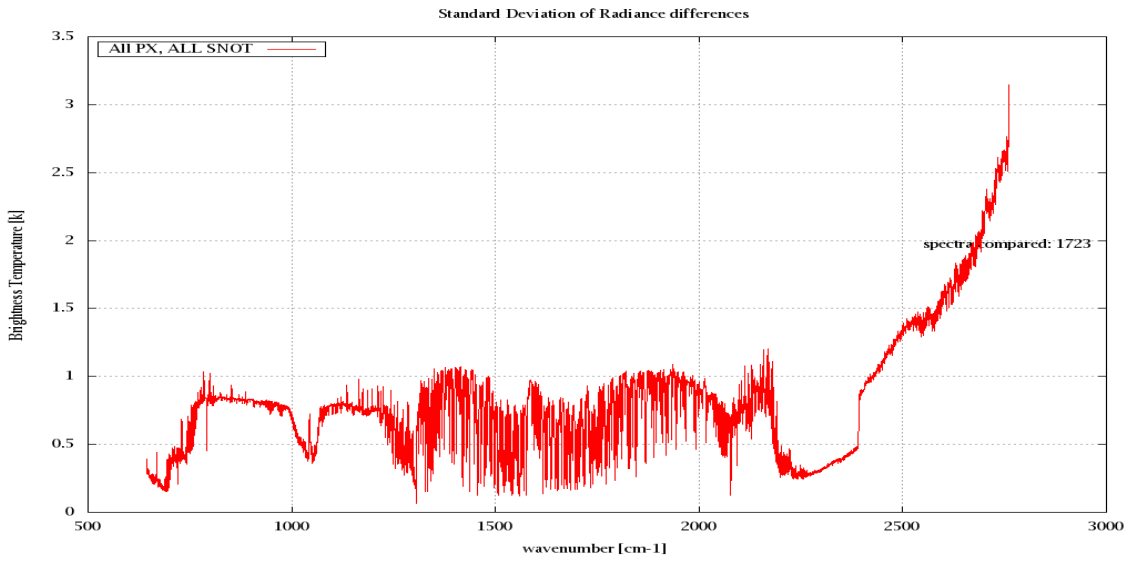

Figure 7: Standard Deviation of Radiance differences

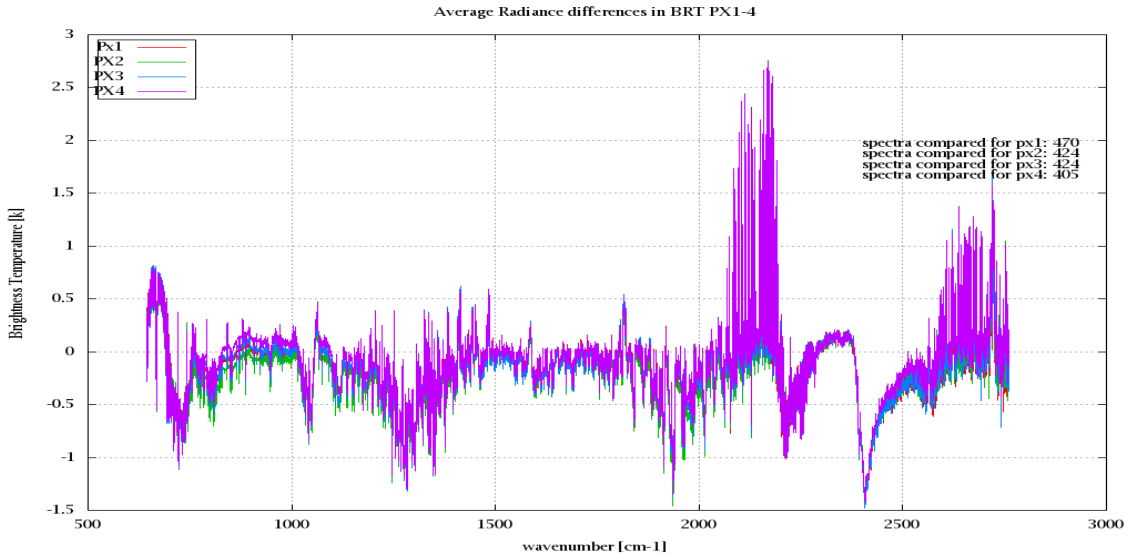

Figure 8: Average Radiance differences: OBS-CAL

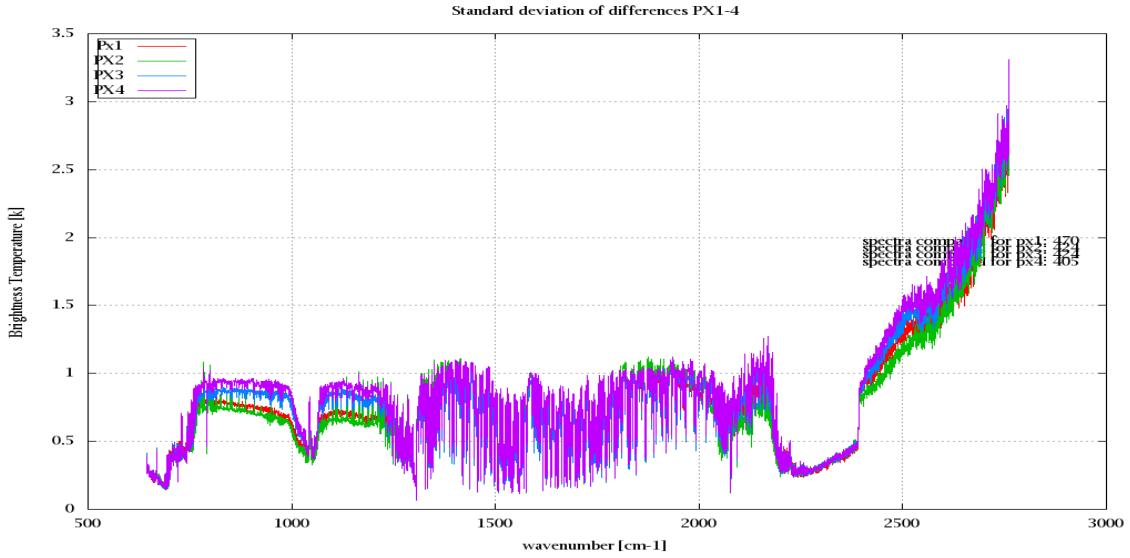

Figure 9: Standard Deviation of Radiance differences

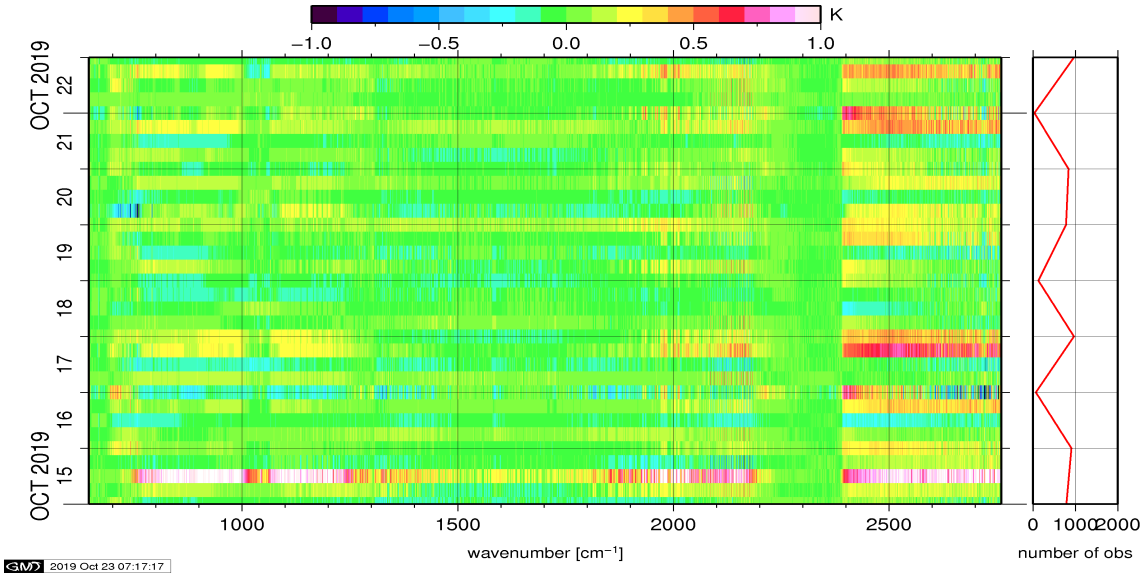

Figure 10: Radiance Anomaly in BT: All Channels

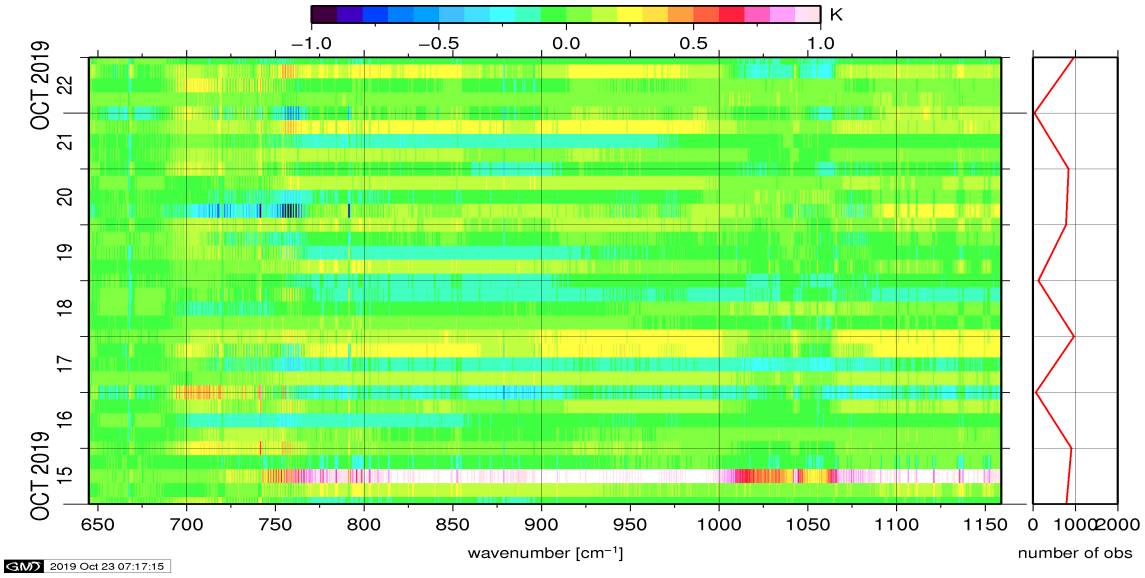

Figure 11: Radiance Anomaly in BT: IASI Band 1

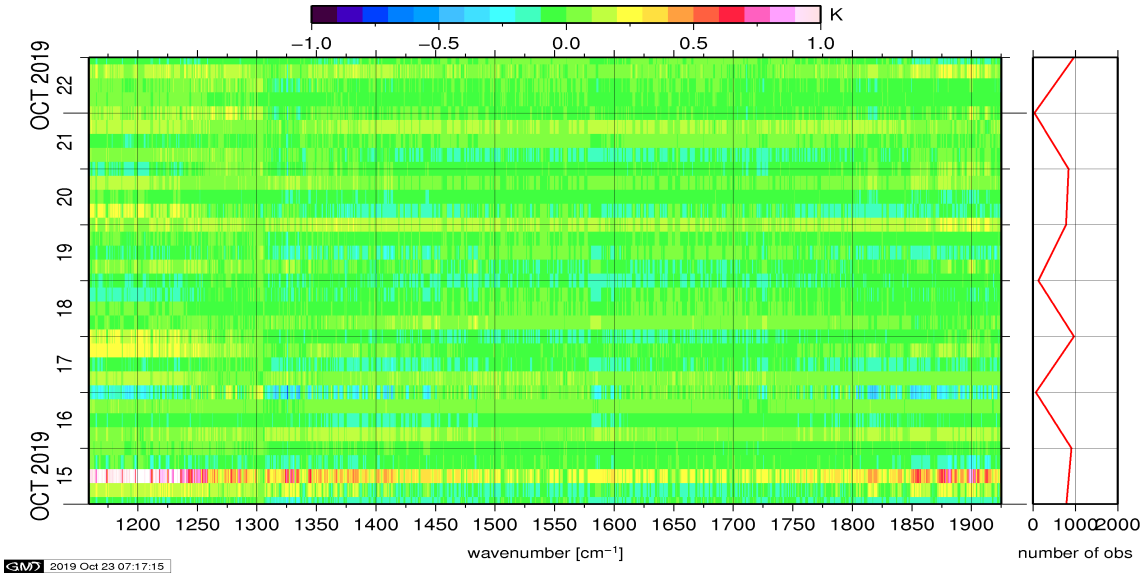

Figure 12: Radiance Anomaly in BT: IASI Band 2

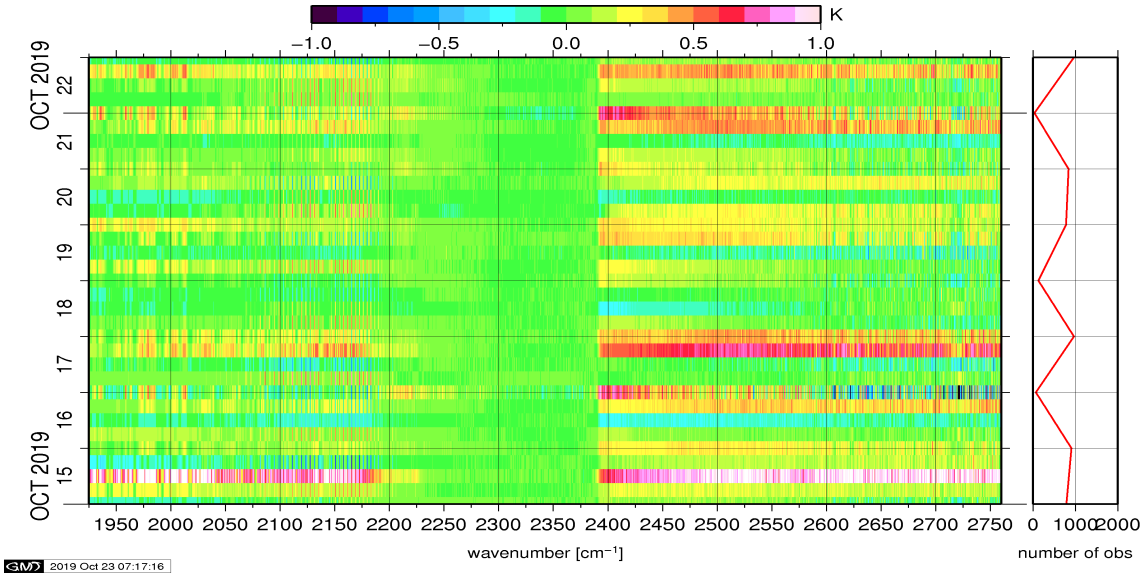

Figure 13: Radiance Anomaly in BT: IASI Band 3

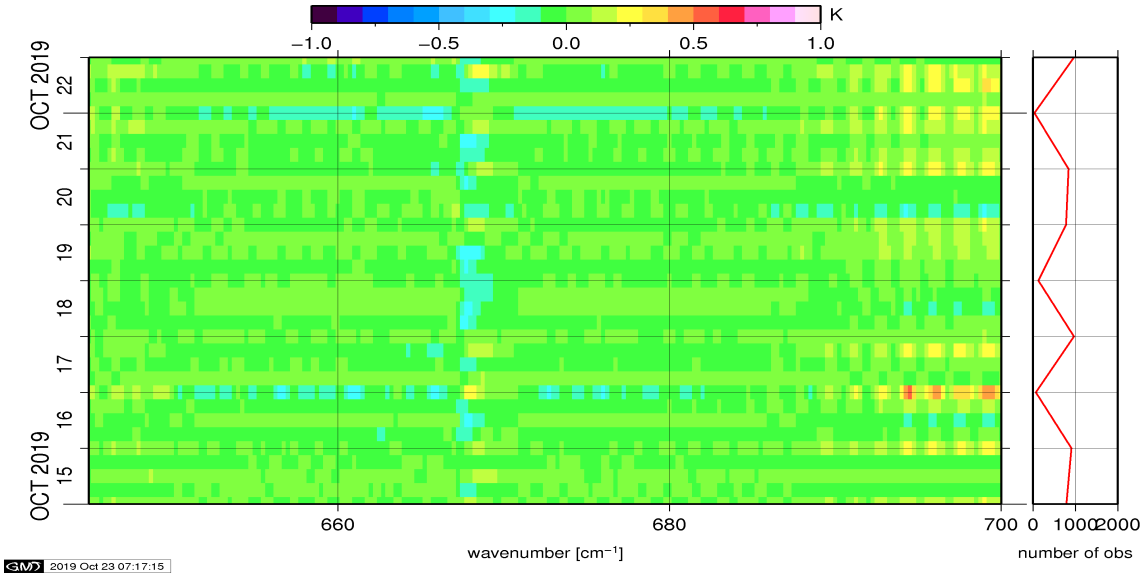

Figure 14: Radiance Anomaly in BT: CO2 14

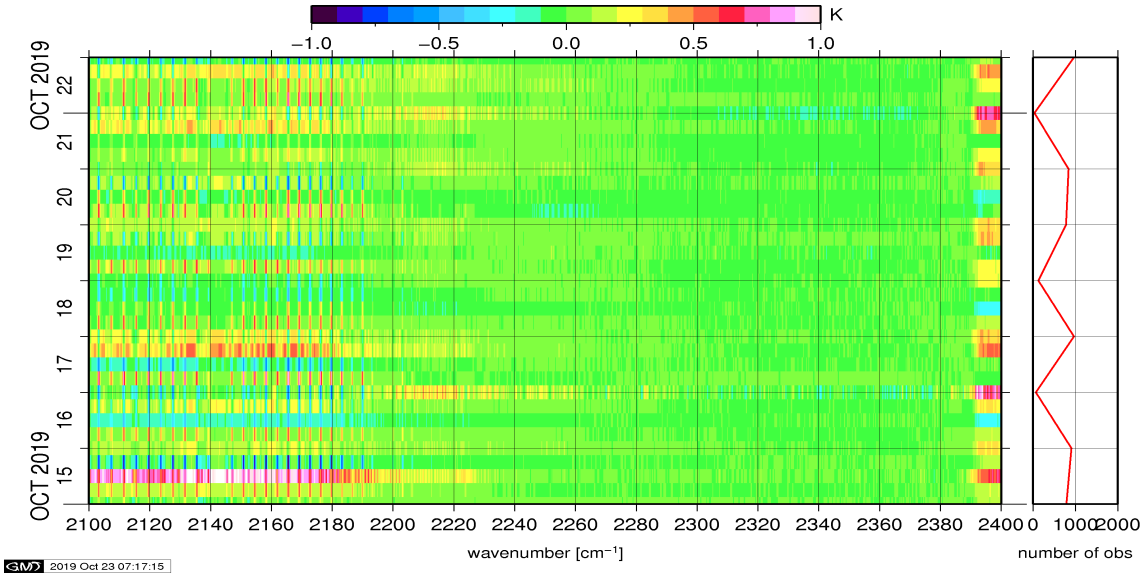

Figure 15: Radiance Anomaly in BT: CO2 4.3

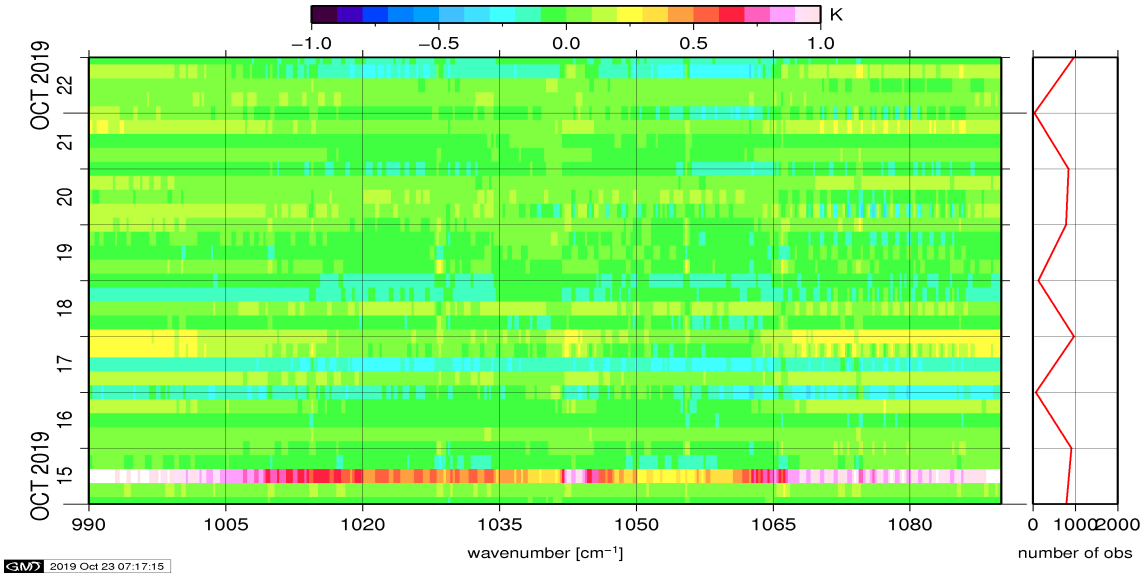

Figure 16: Radiance Anomaly in BT: O3