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

IASI monitoring team

03/09/2020 00:00:00 - 04/09/2020 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 03/09/2020 00:00:00 - 04/09/2020 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 03/09/2020 00:00:00 - 04/09/2020 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	474	-
L0 IASI PDUs	473	-
L1 ENG PDUs	472	-
L1 ENG distinct GEPSGranule	472	-
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	472	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	15422	3754	20200903155406.307	20200903161503.606
PX1 (130)	642	2557	20200903171402.222	20200903172233.127
PX2 (135)	15422	3754	20200903155406.307	20200903161503.606
PX2 (135)	642	2557	20200903171402.222	20200903172233.127
PX3 (140)	15422	3754	20200903155406.307	20200903161503.606
PX3 (140)	642	2557	20200903171402.222	20200903172233.127
PX4 (145)	15422	3754	20200903155406.307	20200903161503.606
PX4 (145)	642	2557	20200903171402.222	20200903172233.127
IMG (150)	15985	4945	20200903155406.088	20200903161503.391
IMG (150)	3602	5773	20200903171402.222	20200903172233.127
VER (160)	16379	0	20200903043507.781	20200903043515.781
VER (160)	0	16380	20200903043515.781	20200903043515.781
VER (160)	-1	1	20200903043515.781	20200903043523.781
VER (160)	16379	0	20200903115635.754	20200903115643.754
VER (160)	0	16380	20200903115643.754	20200903115643.754
VER (160)	-1	1	20200903115643.754	20200903115651.754
VER (160)	8900	9686	20200903155403.713	20200903161507.715
VER (160)	11895	12216	20200903171355.726	20200903172235.721
VER (160)	16380	0	20200903191331.692	20200903191339.692
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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	1	16381	20200903191339.692	20200903191339.692
VER (160)	-1	2	20200903191339.692	20200903191347.691
AUX (180)	8332	8490	20200903155404.143	20200903161508.149
AUX (180)	8931	8996	20200903171356.159	20200903172236.151

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
03/09/2020 00:00:07	-	Normal operation
03/09/2020 08:55:51	External calibration	Auxiliary ASE synchronised
03/09/2020 08:57:59	Auxiliary ASE synchronised	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	473	-
L1 ENG PDUs	472	-
L1 ENG distinct GEPSGranule	472	-
GQisFlagQual set (PX1)	99.44 %	-
GQisFlagQual set (PX2)	99.48 %	-
GQisFlagQual set (PX3)	99.49 %	-
GQisFlagQual set (PX4)	99.38 %	-
GQisFlagQual set (all)	99.45 %	-

Table 4: Quality flags
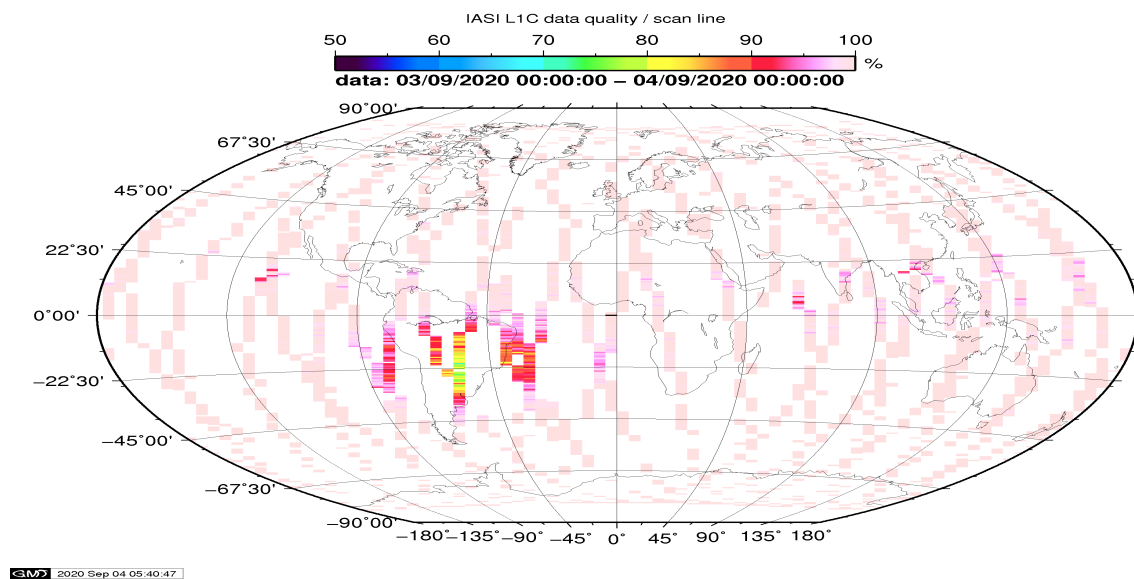
Figure 1: L1C data quality
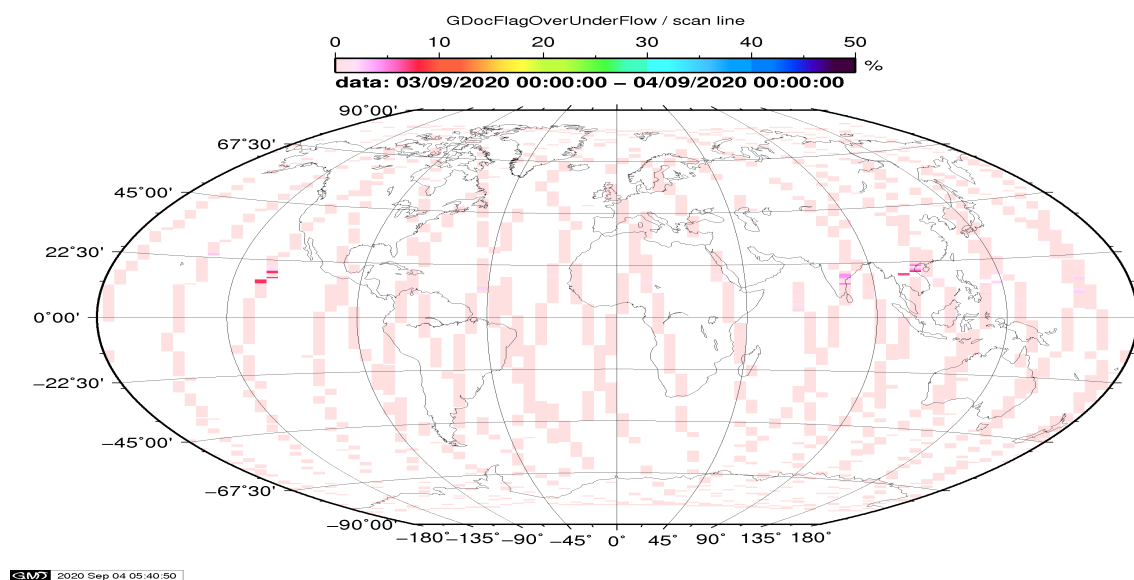
Figure 2: Flag of Over and Under Flows
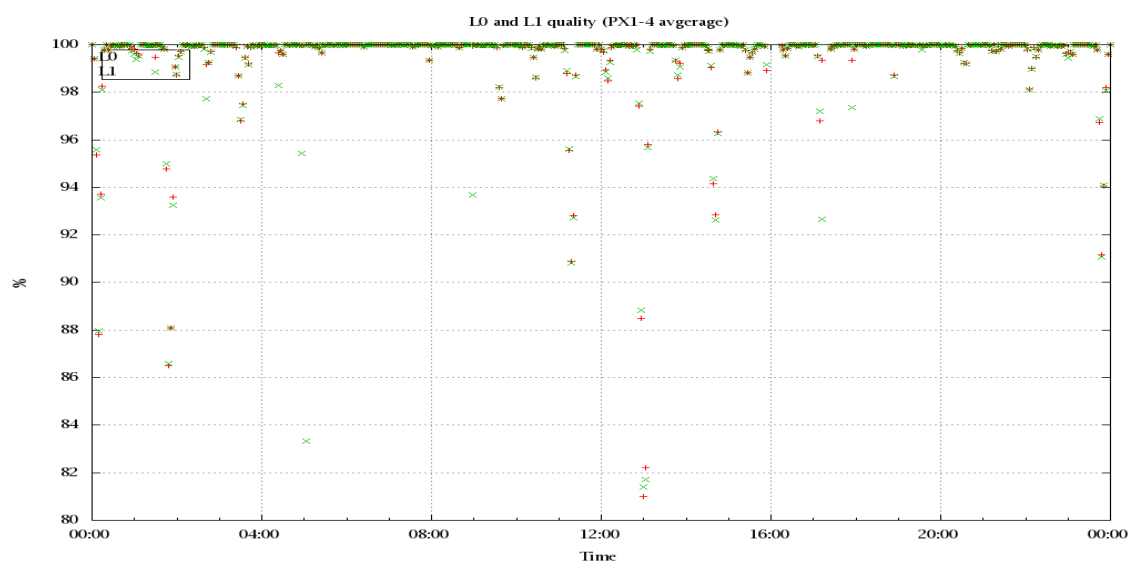
Figure 3: Level 0 and 1C overall quality
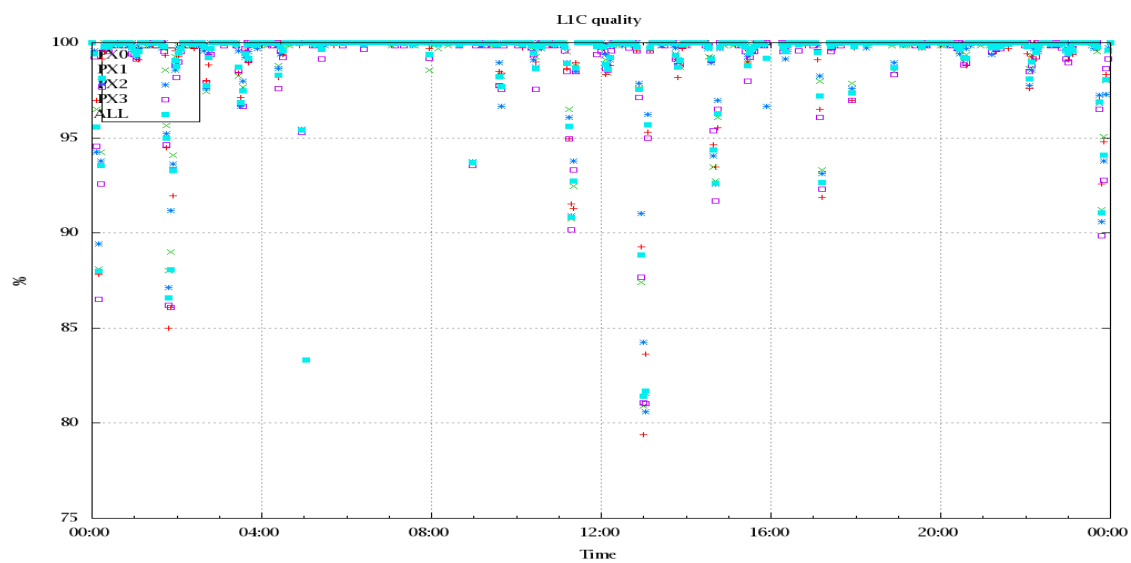
Figure 4: Level 1C quality
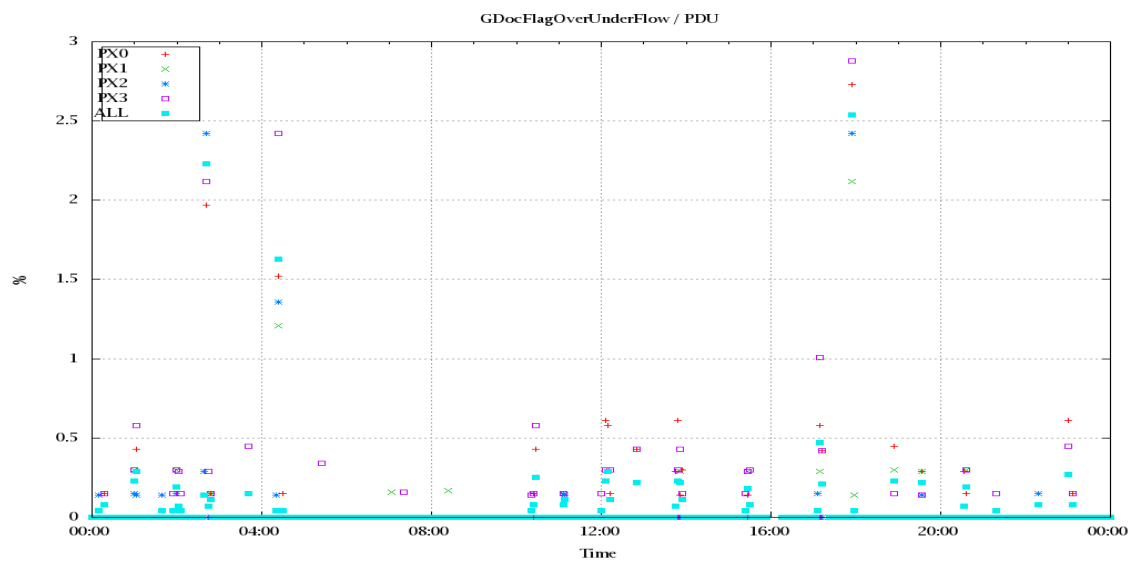
Figure 5: Timeseries of flag of Over and Under Flows

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.
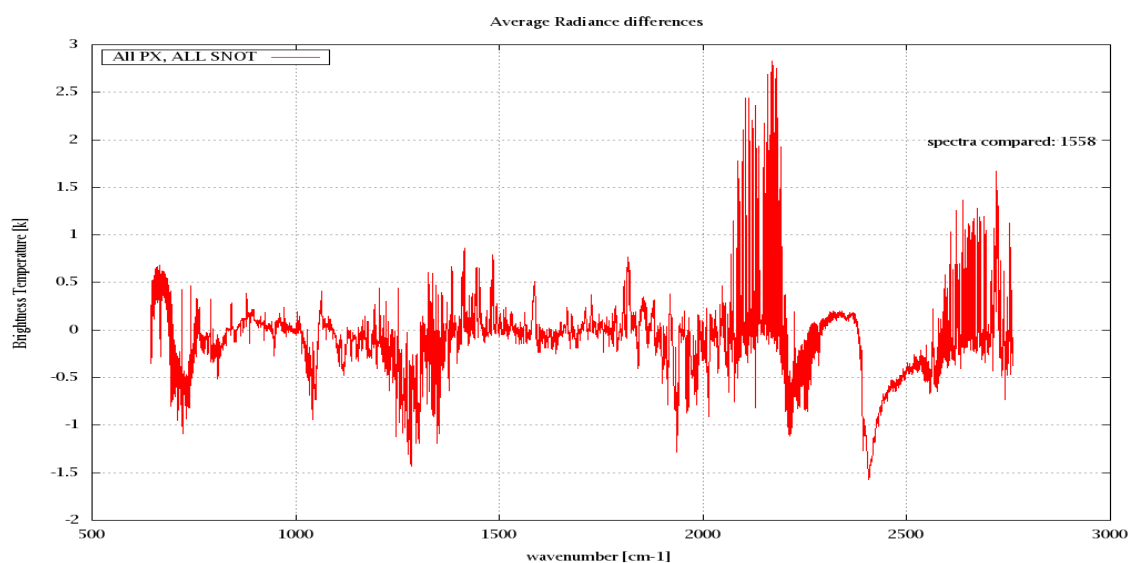
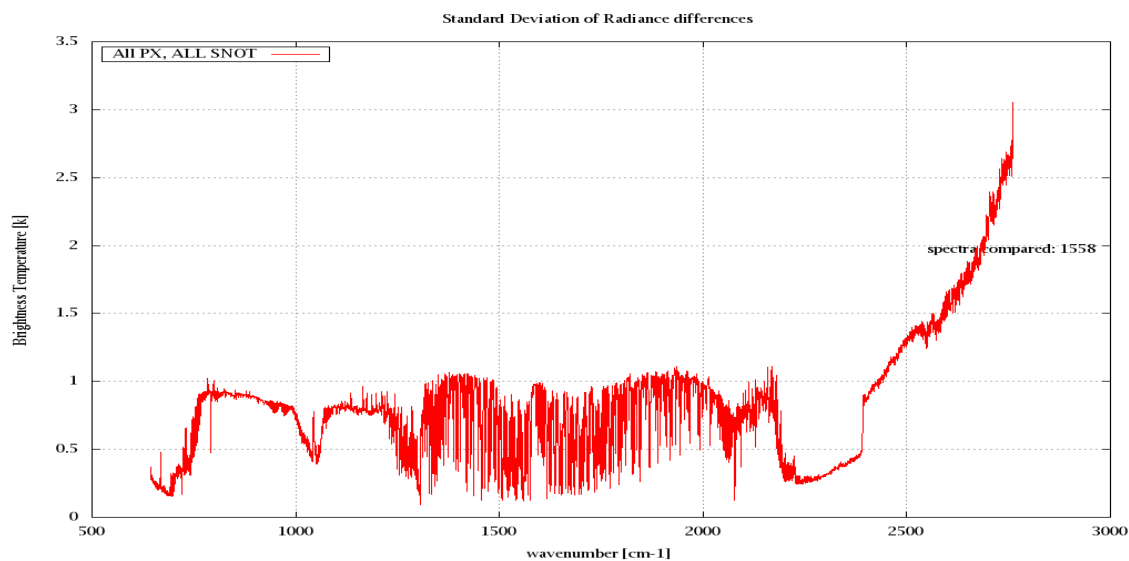Figure 6: Average Radiance differences: OBS-CAL

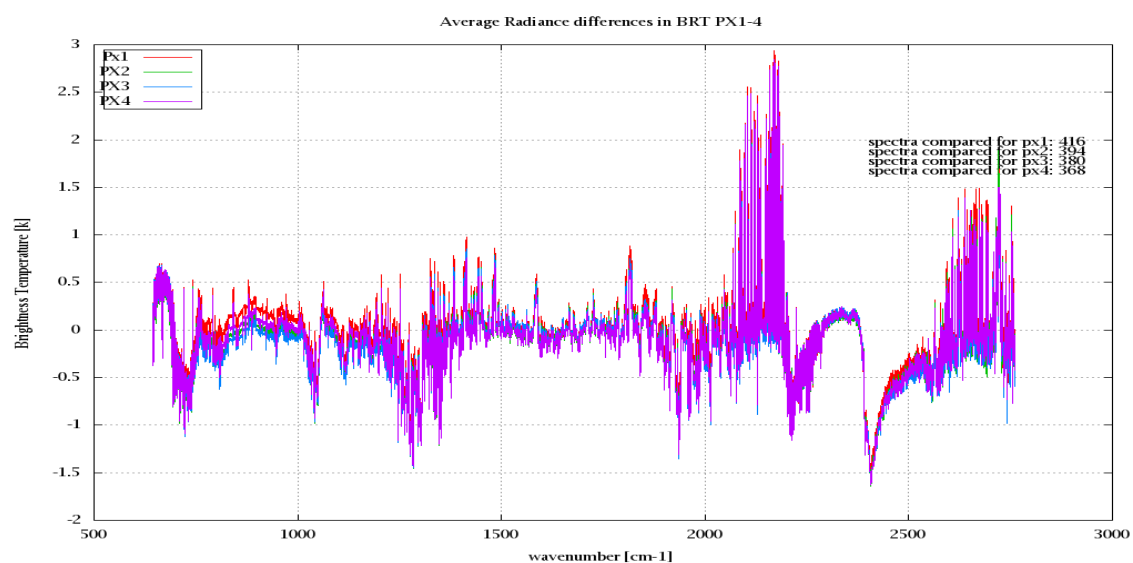Figure 7: Standard Deviation of Radiance differences

Figure 8: Average Radiance differences: OBS-CAL
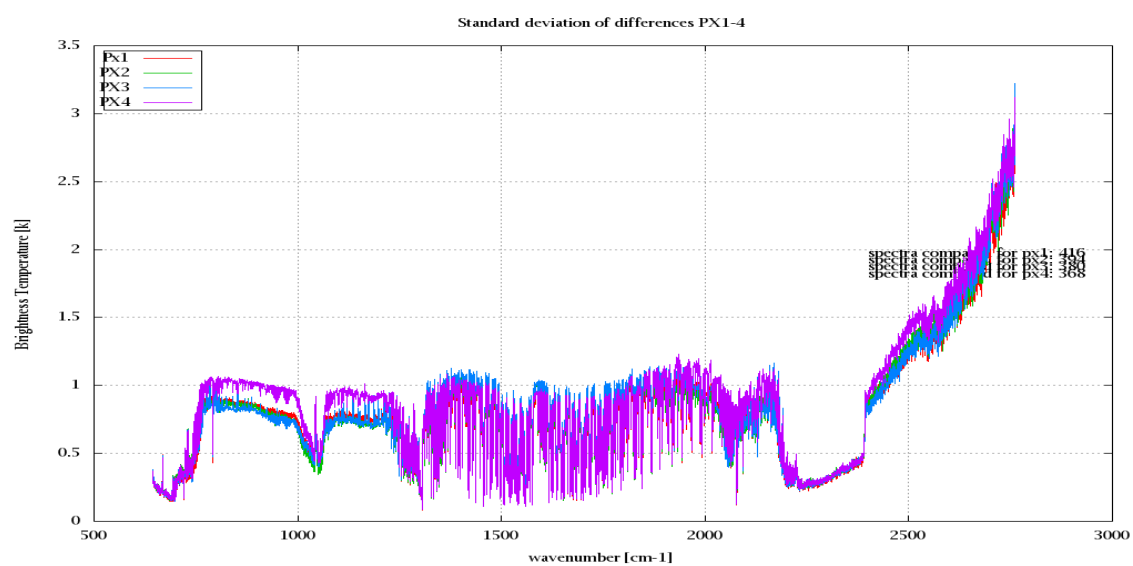

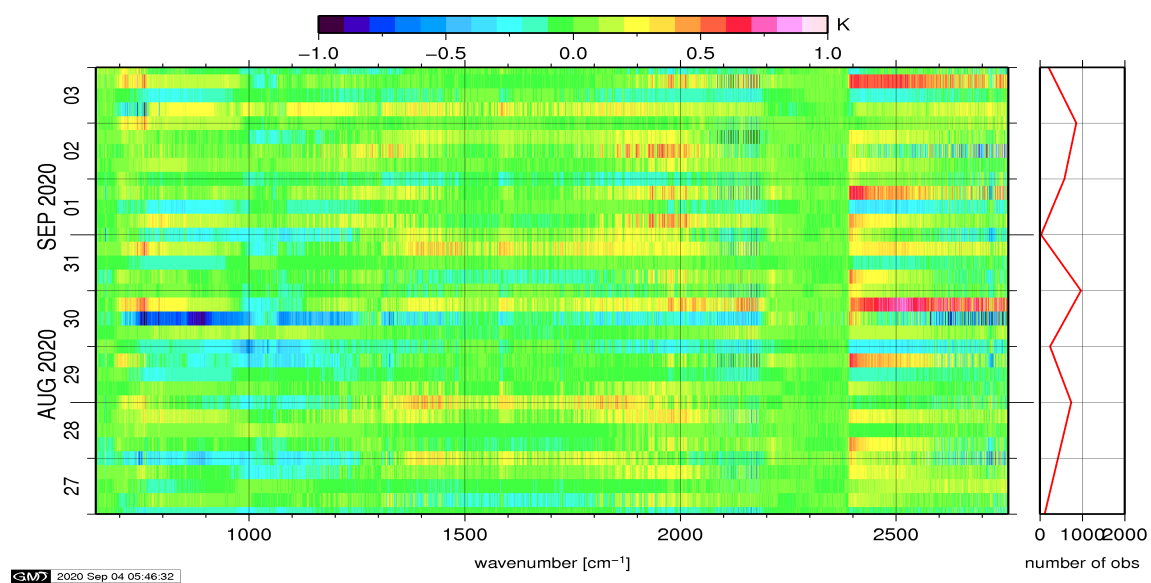Figure 9: Standard Deviation of Radiance differences

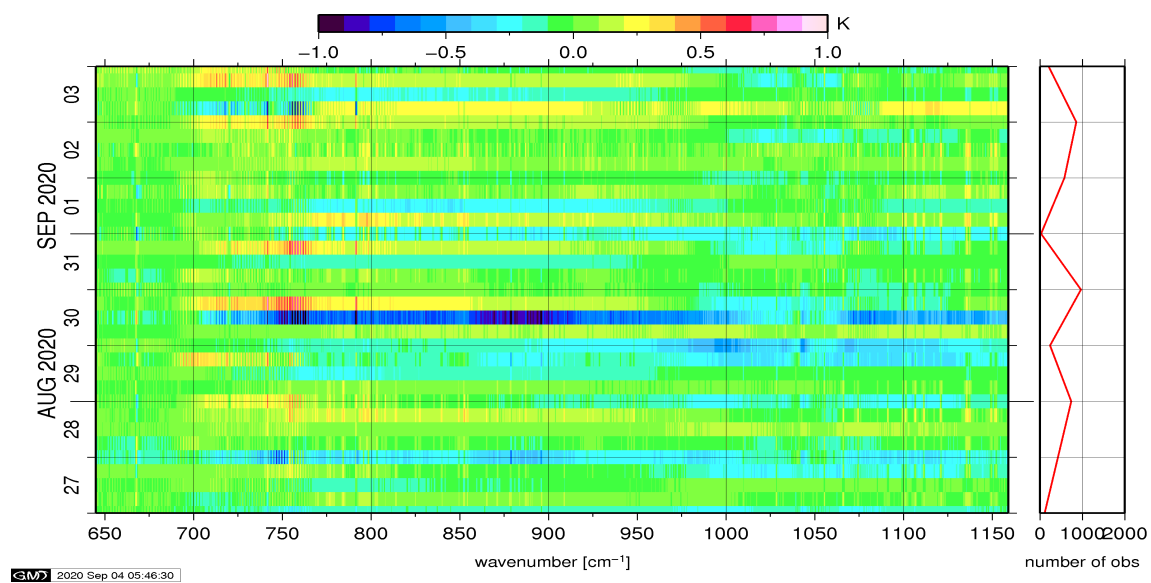Figure 10: Radiance Anomaly in BT: All Channels

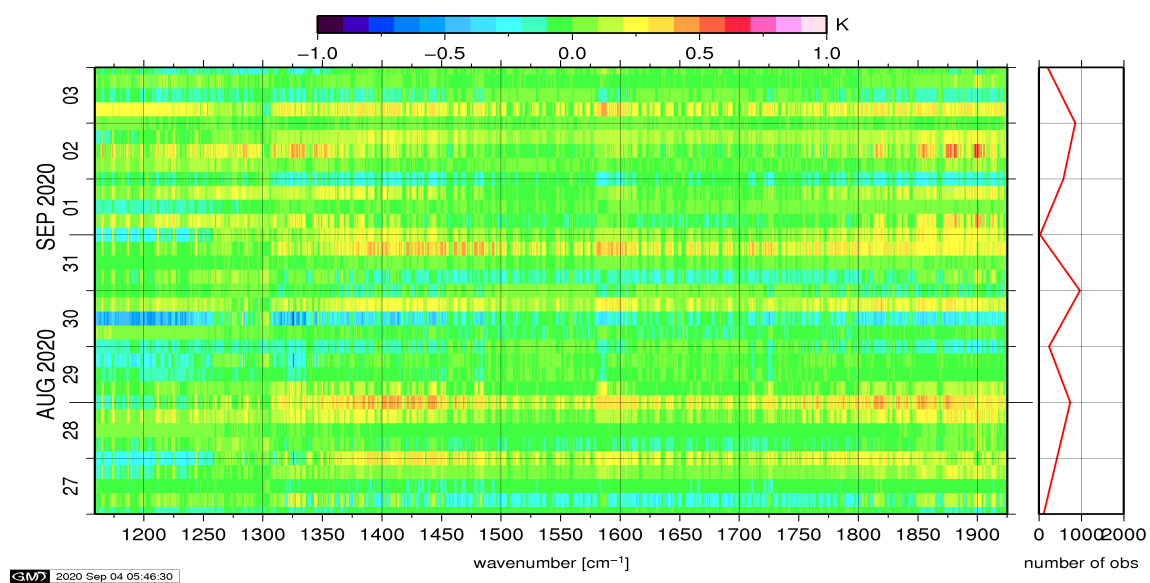Figure 11: Radiance Anomaly in BT: IASI Band 1

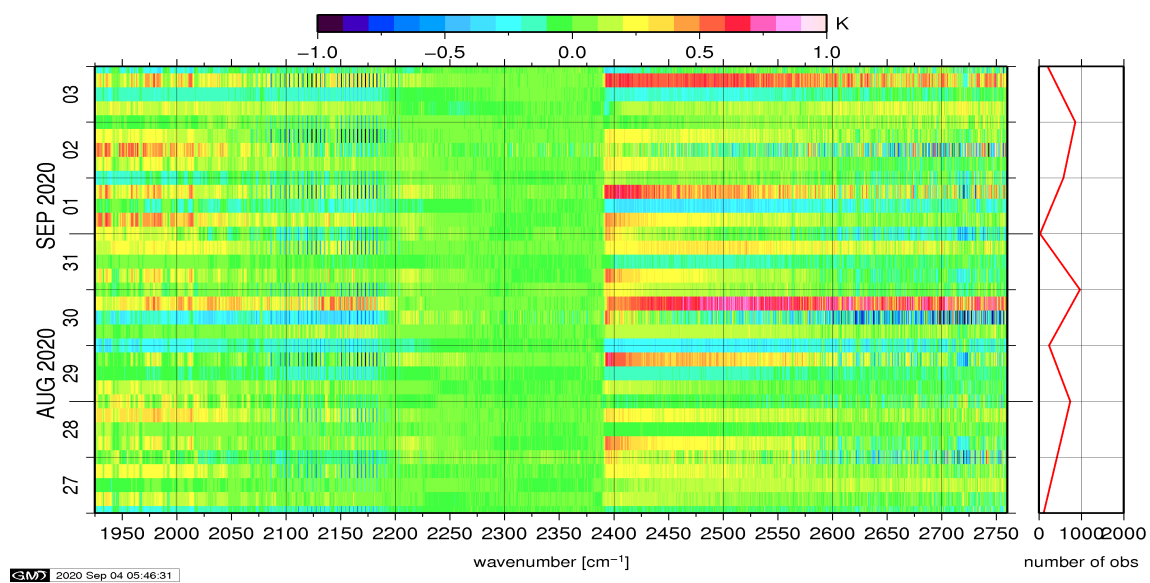Figure 12: Radiance Anomaly in BT: IASI Band 2

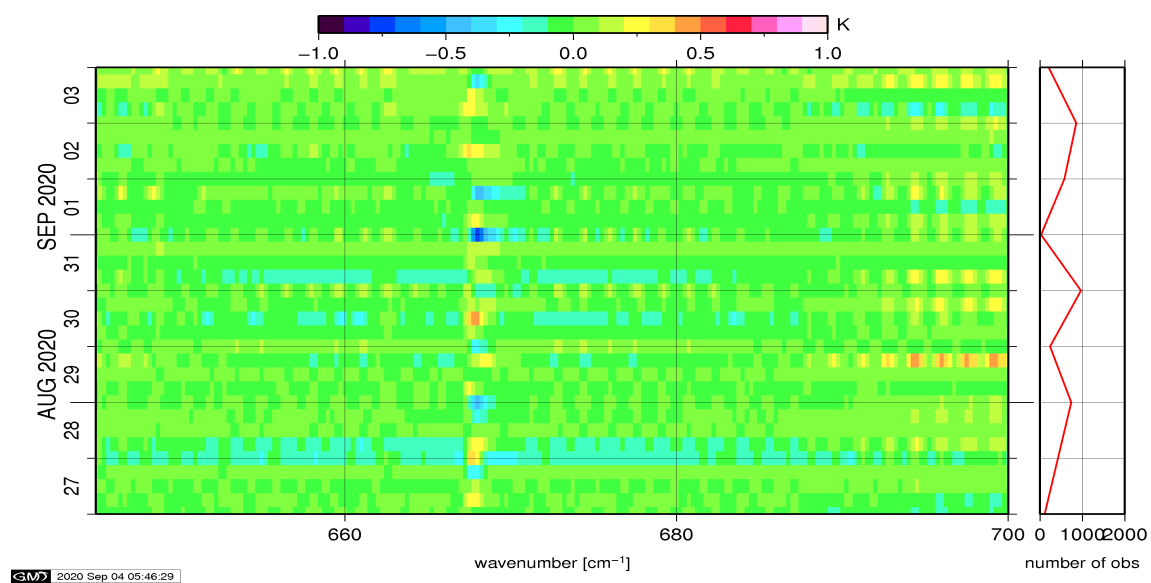Figure 13: Radiance Anomaly in BT: IASI Band 3

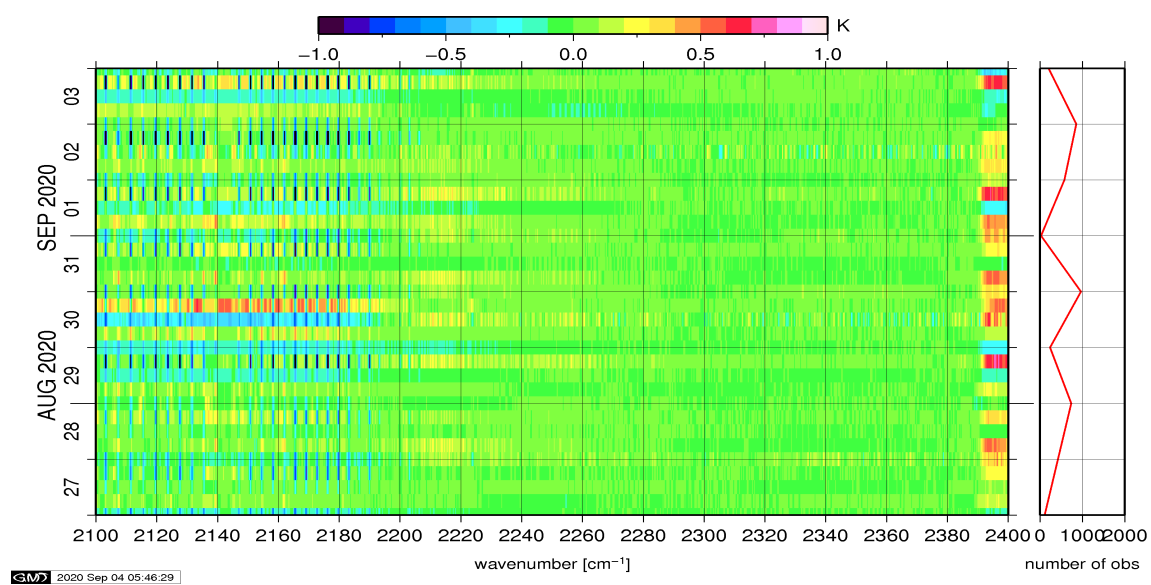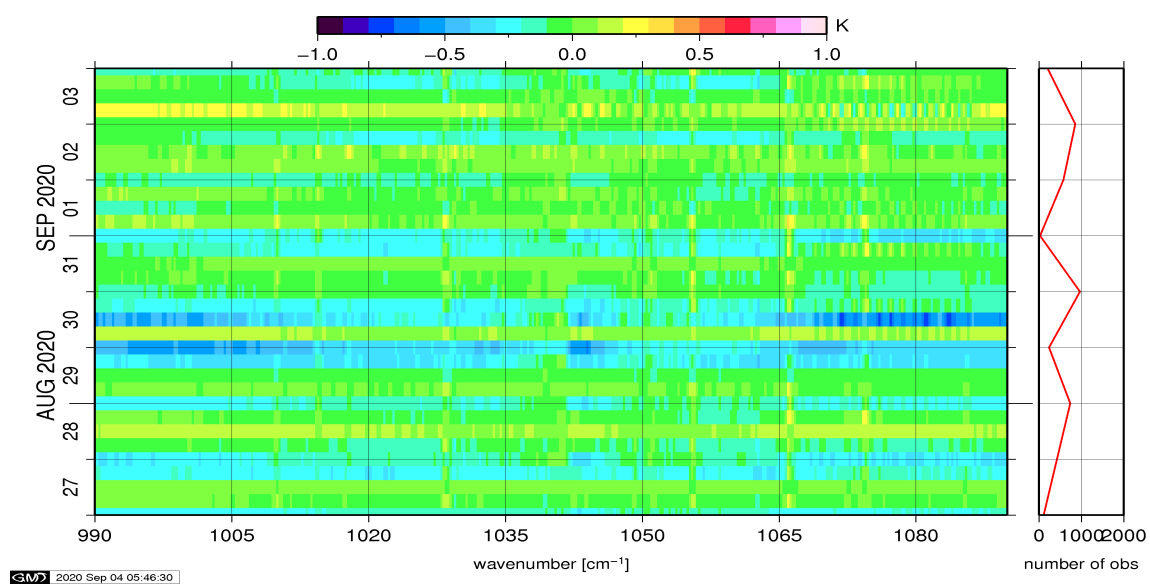Figure 14: Radiance Anomaly in BT: CO2 14

Figure 15: Radiance Anomaly in BT: CO2 4.3

Figure 16: Radiance Anomaly in BT: O3