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

IASI monitoring team

07/08/2022 00:00:00 - 08/08/2022 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 07/08/2022 00:00:00 - 08/08/2022 00:00:00 .

The monitoring data are extracted on PDU basis.

2 Data quantity 07/08/2022 00:00:00 - 08/08/2022 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	404	e
L0 IASI PDUs	404	e
L1 ENG PDUs	404	e
L1 ENG distinct GEPSGranule	403	a
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	403	-

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	5945	6713	20220807040107.090	20220807040432.492
PX1 (130)	6823	6916	20220807040500.812	20220807040526.976
PX1 (130)	6933	6935	20220807040530.652	20220807040531.082
PX1 (130)	6940	6942	20220807040532.164	20220807040532.598
PX1 (130)	6949	6951	20220807040535.625	20220807040536.055
PX1 (130)	6956	6958	20220807040537.137	20220807040537.570
PX1 (130)	6995	6997	20220807040547.082	20220807040547.515
PX1 (130)	7011	7013	20220807040552.055	20220807040552.488
PX1 (130)	7018	7020	20220807040553.570	20220807040554.000
PX1 (130)	14481	15028	20220807043904.079	20220807044129.586
PX1 (130)	15028	15030	20220807044129.586	20220807044130.020
PX1 (130)	15039	15795	20220807044131.965	20220807044453.258
PX1 (130)	15918	16018	20220807044527.418	20220807044553.582
PX1 (130)	16056	16058	20220807044603.309	20220807044603.742
PX1 (130)	16063	16065	20220807044604.824	20220807044605.254
PX1 (130)	16072	16074	20220807044608.281	20220807044608.715
PX1 (130)	16079	16081	20220807044609.797	20220807044610.231

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	16095	16097	20220807044613.254	20220807044615.203
PX1 (130)	16118	16120	20220807044619.742	20220807044620.176
PX2 (135)	5945	6713	20220807040107.090	20220807040432.492
PX2 (135)	6823	6916	20220807040500.812	20220807040526.976
PX2 (135)	6919	6921	20220807040527.625	20220807040528.055
PX2 (135)	6988	6990	20220807040545.570	20220807040546.000
PX2 (135)	7004	7006	20220807040549.027	20220807040550.976
PX2 (135)	7020	7022	20220807040554.000	20220807040554.433
PX2 (135)	14481	15028	20220807043904.079	20220807044129.586
PX2 (135)	15028	15030	20220807044129.586	20220807044130.020
PX2 (135)	15038	15794	20220807044131.751	20220807044453.043
PX2 (135)	15918	16018	20220807044527.418	20220807044553.582
PX2 (135)	16049	16051	20220807044601.797	20220807044602.231
PX2 (135)	16056	16058	20220807044603.309	20220807044603.742
PX2 (135)	16072	16074	20220807044608.281	20220807044608.715
PX2 (135)	16088	16090	20220807044611.742	20220807044612.176
PX2 (135)	16104	16106	20220807044616.715	20220807044617.149
PX2 (135)	16111	16113	20220807044618.227	20220807044618.660
PX3 (140)	5945	6713	20220807040107.090	20220807040432.492
PX3 (140)	6822	6916	20220807040500.598	20220807040526.976
PX3 (140)	6935	6937	20220807040531.082	20220807040531.515
PX3 (140)	6951	6953	20220807040536.055	20220807040536.488
PX3 (140)	6997	6999	20220807040547.515	20220807040547.949
PX3 (140)	7013	7015	20220807040552.488	20220807040552.922
PX3 (140)	7020	7022	20220807040554.000	20220807040554.433
PX3 (140)	14481	15028	20220807043904.079	20220807044129.586
PX3 (140)	15028	15030	20220807044129.586	20220807044130.020
PX3 (140)	15038	15794	20220807044131.751	20220807044453.043
PX3 (140)	15918	16018	20220807044527.418	20220807044553.582
PX3 (140)	16058	16060	20220807044603.742	20220807044604.176
PX3 (140)	16088	16090	20220807044611.742	20220807044612.176
PX3 (140)	16097	16099	20220807044615.203	20220807044615.633
PX3 (140)	16104	16106	20220807044616.715	20220807044617.149
PX3 (140)	16120	16122	20220807044620.176	20220807044620.606
PX4 (145)	5944	6712	20220807040106.875	20220807040432.273
PX4 (145)	6822	6916	20220807040500.598	20220807040526.976
PX4 (145)	6921	6923	20220807040528.055	20220807040528.488
PX4 (145)	6974	6976	20220807040541.027	20220807040542.976
PX4 (145)	6983	6985	20220807040544.488	20220807040544.922
PX4 (145)	6990	6992	20220807040546.000	20220807040546.433
PX4 (145)	7006	7008	20220807040550.976	20220807040551.406
PX4 (145)	7020	7022	20220807040554.000	20220807040554.433
PX4 (145)	14480	15028	20220807043903.860	20220807044129.586
PX4 (145)	15028	15030	20220807044129.586	20220807044130.020
PX4 (145)	15038	15794	20220807044131.751	20220807044453.043
PX4 (145)	15918	16018	20220807044527.418	20220807044553.582
PX4 (145)	16051	16053	20220807044602.231	20220807044602.660
PX4 (145)	16074	16076	20220807044608.715	20220807044609.149
PX4 (145)	16106	16108	20220807044617.149	20220807044617.578
PX4 (145)	16113	16115	20220807044618.660	20220807044619.094
IMG (150)	11693	12565	20220807040106.875	20220807040432.273
IMG (150)	12687	12797	20220807040500.598	20220807040526.976
IMG (150)	12802	12804	20220807040528.055	20220807040528.488

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
IMG (150)	12818	12820	20220807040531.515	20220807040531.949
IMG (150)	12829	12831	20220807040534.328	20220807040534.976
IMG (150)	12831	12833	20220807040534.976	20220807040535.406
IMG (150)	12838	12840	20220807040536.488	20220807040536.922
IMG (150)	12863	12865	20220807040542.328	20220807040542.976
IMG (150)	12865	12867	20220807040542.976	20220807040543.406
IMG (150)	12867	12869	20220807040543.406	20220807040543.840
IMG (150)	12874	12876	20220807040544.922	20220807040545.351
IMG (150)	12881	12883	20220807040546.433	20220807040546.867
IMG (150)	12888	12890	20220807040547.949	20220807040548.379
IMG (150)	12890	12892	20220807040548.379	20220807040548.812
IMG (150)	12895	12897	20220807040549.676	20220807040550.324
IMG (150)	12901	12903	20220807040551.406	20220807040551.840
IMG (150)	12908	12910	20220807040552.922	20220807040553.351
IMG (150)	12910	12912	20220807040553.351	20220807040553.785
IMG (150)	4985	5606	20220807043903.860	20220807044129.805
IMG (150)	5615	6471	20220807044131.751	20220807044453.043
IMG (150)	6614	6727	20220807044527.203	20220807044553.582
IMG (150)	6757	6759	20220807044600.715	20220807044601.149
IMG (150)	6759	6761	20220807044601.149	20220807044601.582
IMG (150)	6766	6768	20220807044602.660	20220807044603.094
IMG (150)	6773	6775	20220807044604.176	20220807044604.606
IMG (150)	6786	6788	20220807044607.633	20220807044608.067
IMG (150)	6793	6795	20220807044609.149	20220807044609.578
IMG (150)	6802	6804	20220807044611.094	20220807044611.527
IMG (150)	6807	6809	20220807044612.176	20220807044612.606
IMG (150)	6809	6811	20220807044612.606	20220807044613.039
IMG (150)	6820	6822	20220807044615.633	20220807044616.067
IMG (150)	6822	6824	20220807044616.067	20220807044616.500
IMG (150)	6829	6831	20220807044617.578	20220807044618.012
IMG (150)	6836	6838	20220807044619.094	20220807044619.527
IMG (150)	6843	6845	20220807044620.606	20220807044621.039
VER (160)	15392	15523	20220807040101.254	20220807040437.246
VER (160)	15532	15539	20220807040445.246	20220807040530.652
VER (160)	15542	15558	20220807040530.652	20220807040533.246
VER (160)	15559	15573	20220807040533.246	20220807040557.246
VER (160)	16382	0	20220807042725.248	20220807042733.248
VER (160)	3	16383	20220807042733.248	20220807042733.248
VER (160)	-1	4	20220807042733.248	20220807042741.248
VER (160)	433	649	20220807043901.266	20220807044453.258
VER (160)	673	691	20220807044525.258	20220807044530.879
VER (160)	691	704	20220807044530.879	20220807044621.254
VER (160)	16379	0	20220807190109.170	20220807190117.170
VER (160)	0	16380	20220807190117.170	20220807190117.170
VER (160)	-1	1	20220807190117.170	20220807190125.170
AUX (180)	9628	9655	20220807040101.684	20220807040437.680
AUX (180)	9658	9662	20220807040530.652	20220807040533.680
AUX (180)	9913	9957	20220807043901.700	20220807044453.692
AUX (180)	9961	9965	20220807044525.688	20220807044557.688

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
07/08/2022 03:52:50	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	404	e
L1 ENG PDUs	404	e
L1 ENG distinct GEPSGranule	403	a
GQisFlagQual set (PX1)	99.52 %	-
GQisFlagQual set (PX2)	99.54 %	-
GQisFlagQual set (PX3)	99.57 %	-
GQisFlagQual set (PX4)	99.51 %	-
GQisFlagQual set (all)	99.53 %	-

Table 4: Quality flags

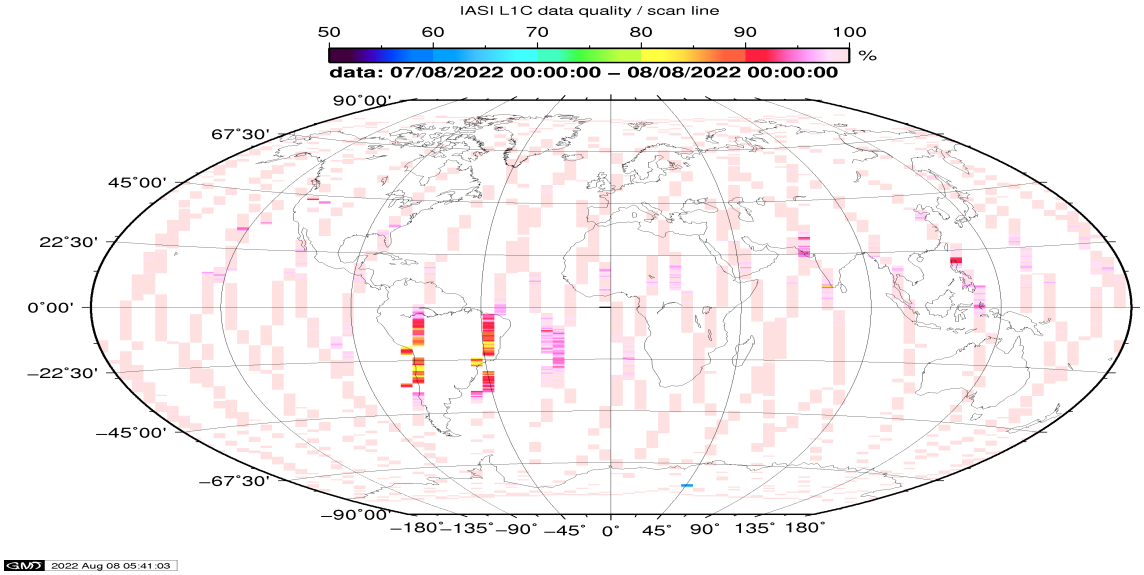

Figure 1: L1C data quality

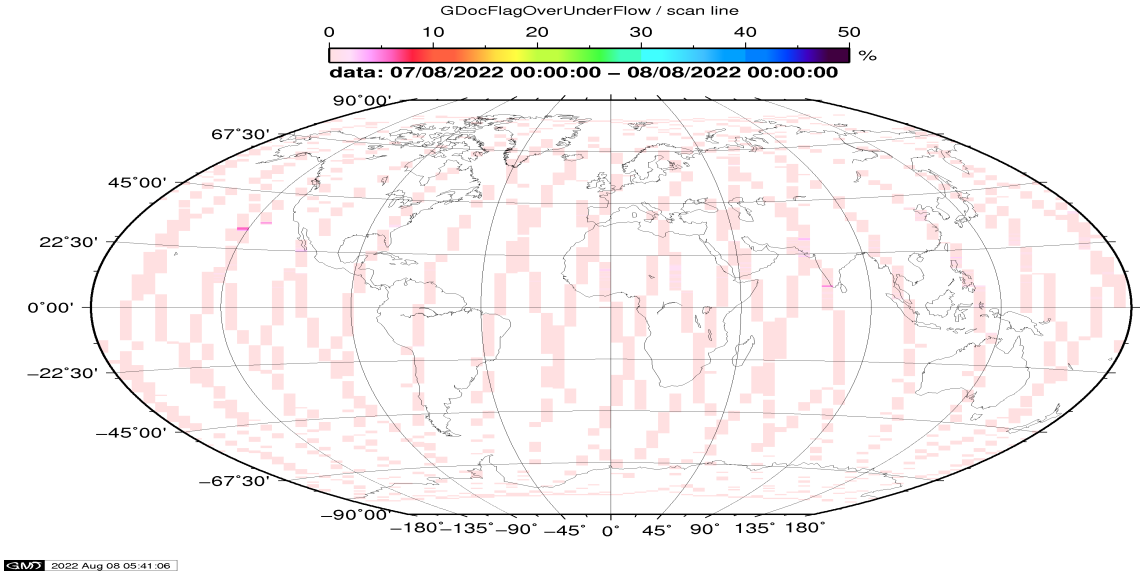

Figure 2: Flag of Over and Under Flows

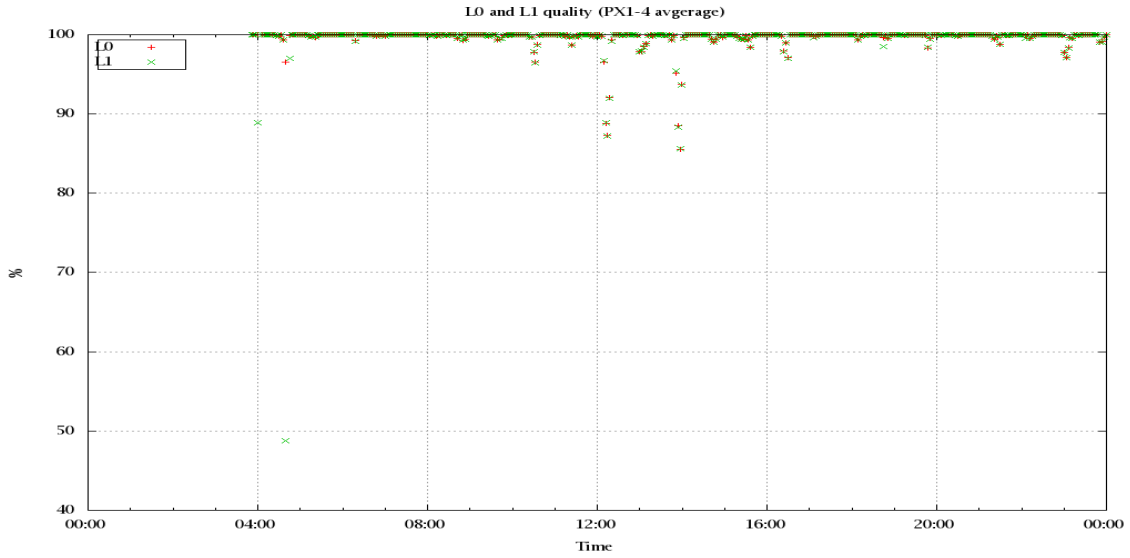

Figure 3: Level 0 and 1C overall quality

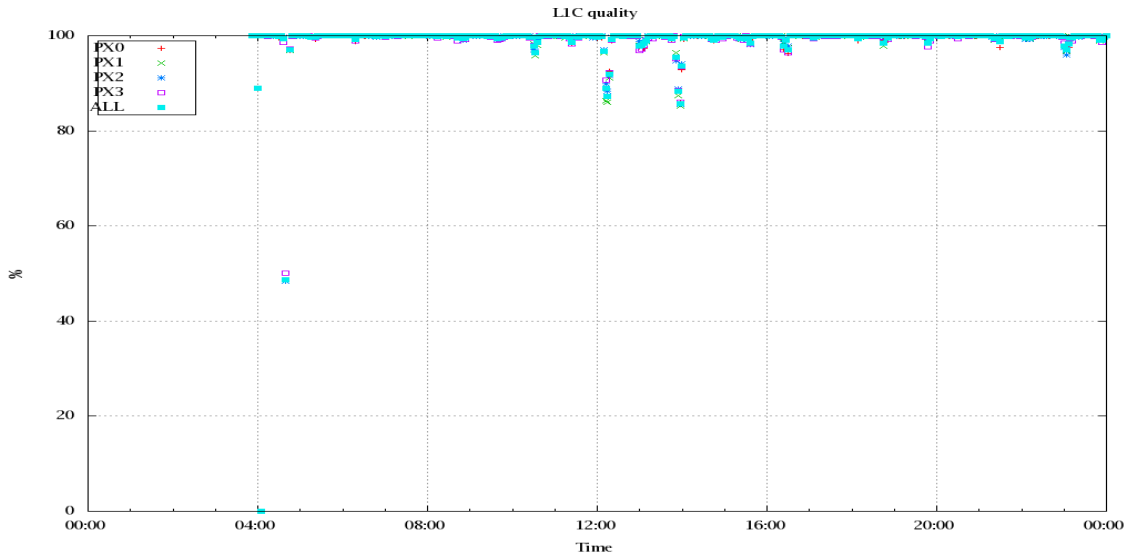

Figure 4: Level 1C quality

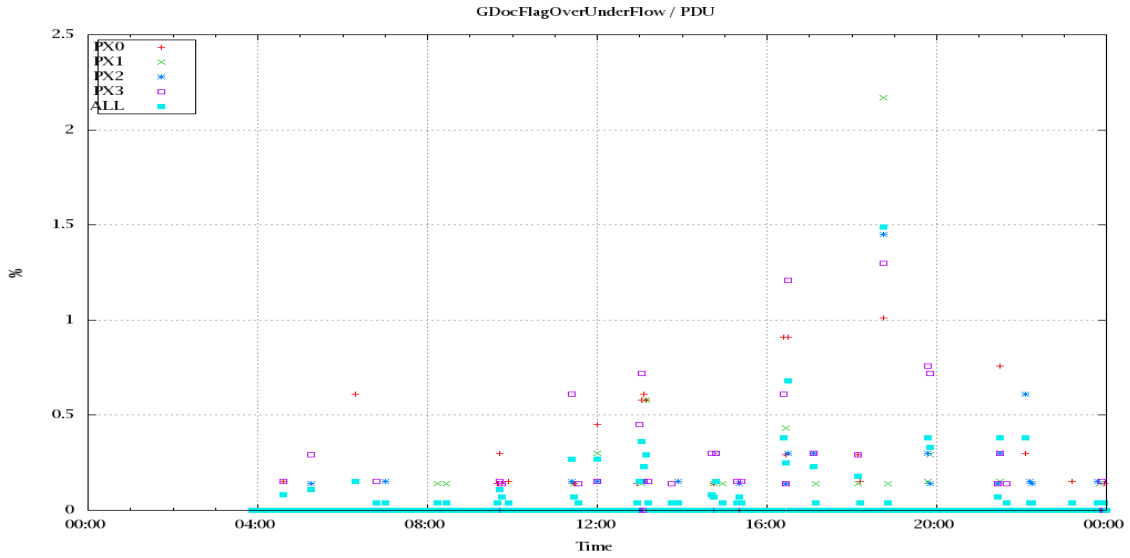

Figure 5: Timeseries of flag of Over and Under Flows

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.

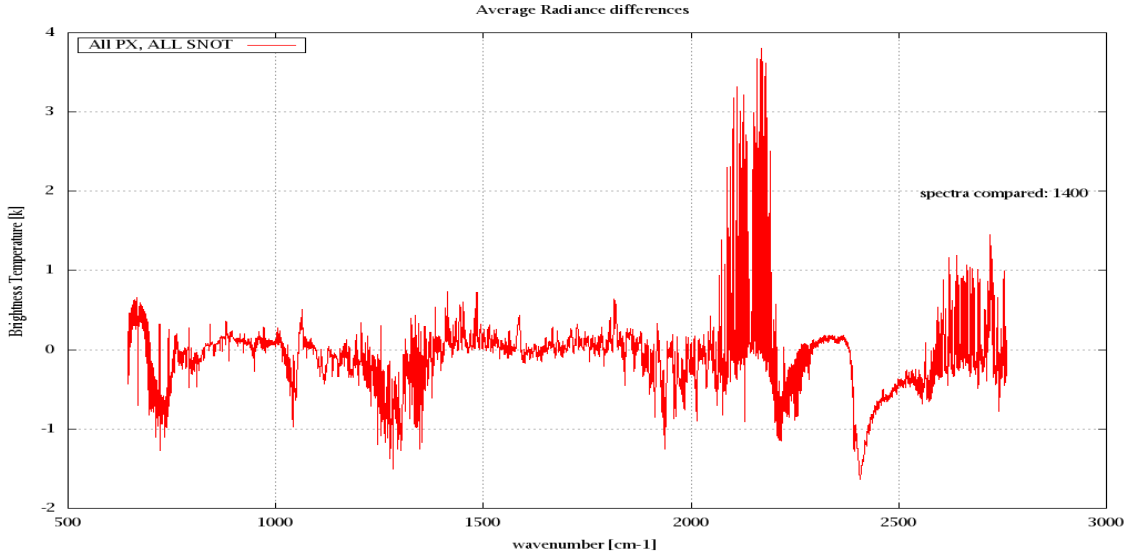

Figure 6: Average Radiance differences: OBS-CAL

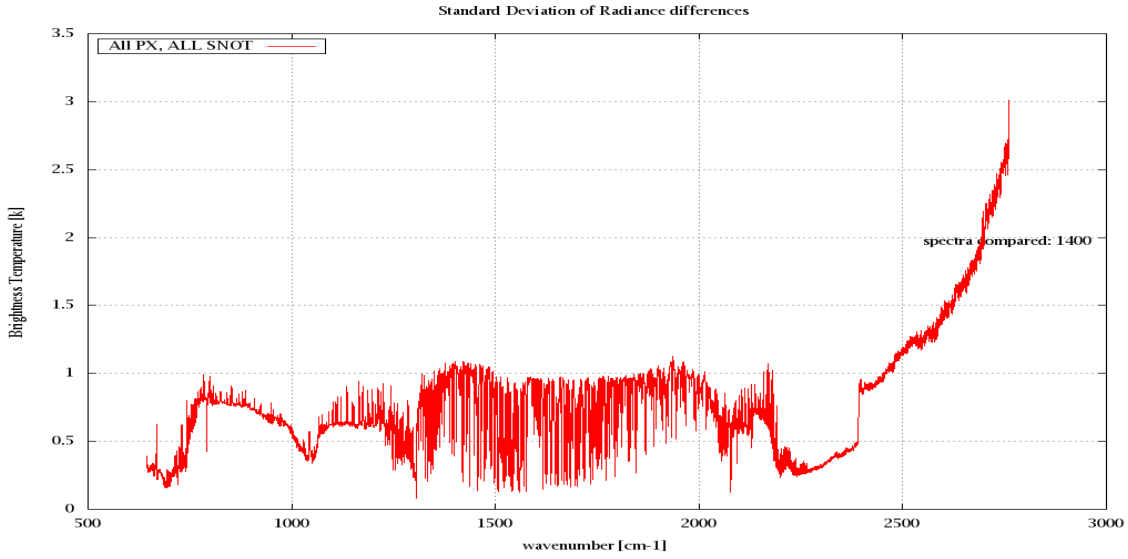

Figure 7: Standard Deviation of Radiance differences

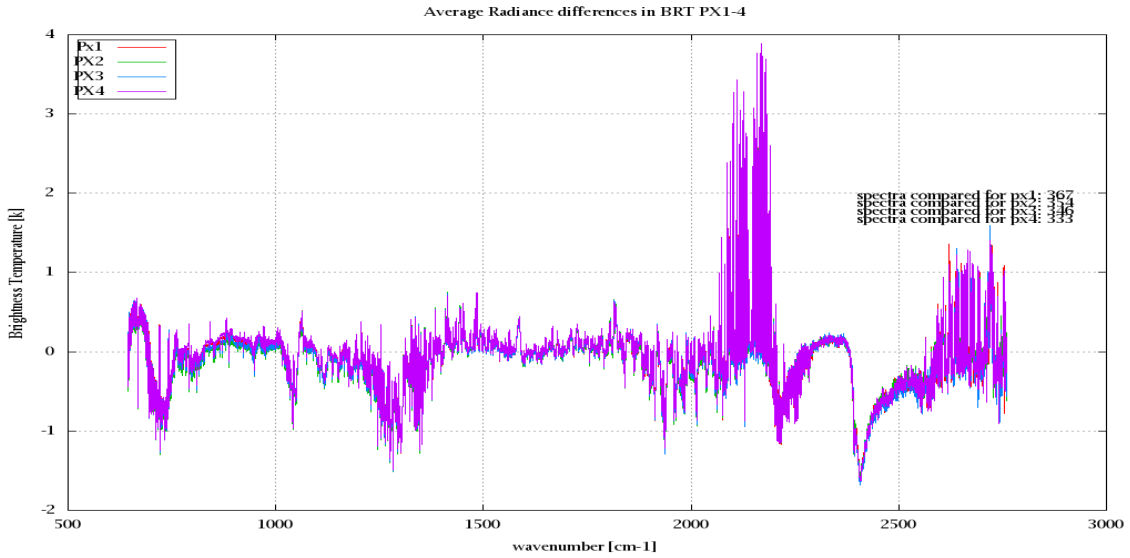

Figure 8: Average Radiance differences: OBS-CAL

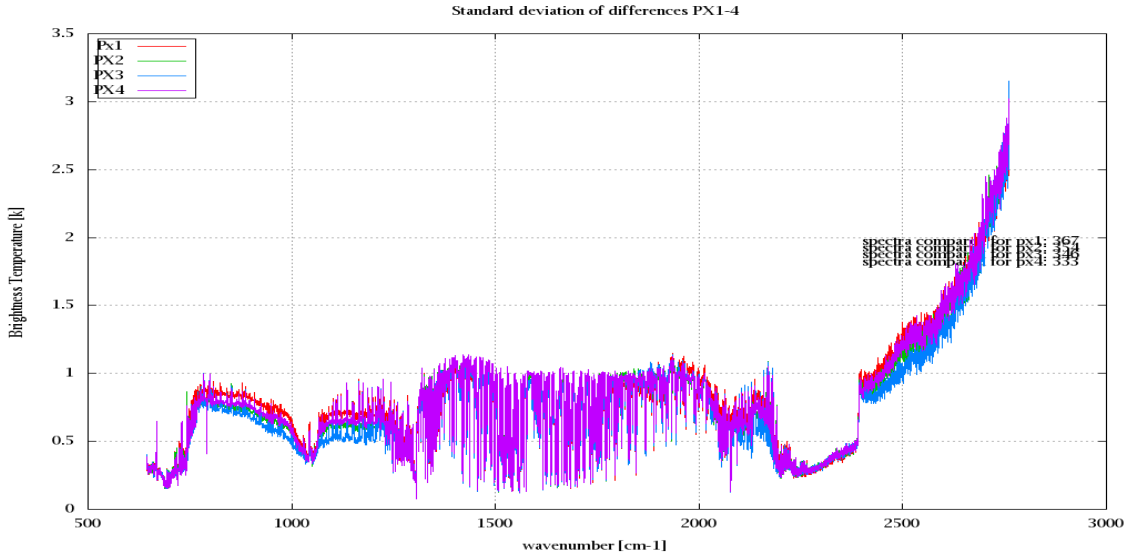

Figure 9: Standard Deviation of Radiance differences

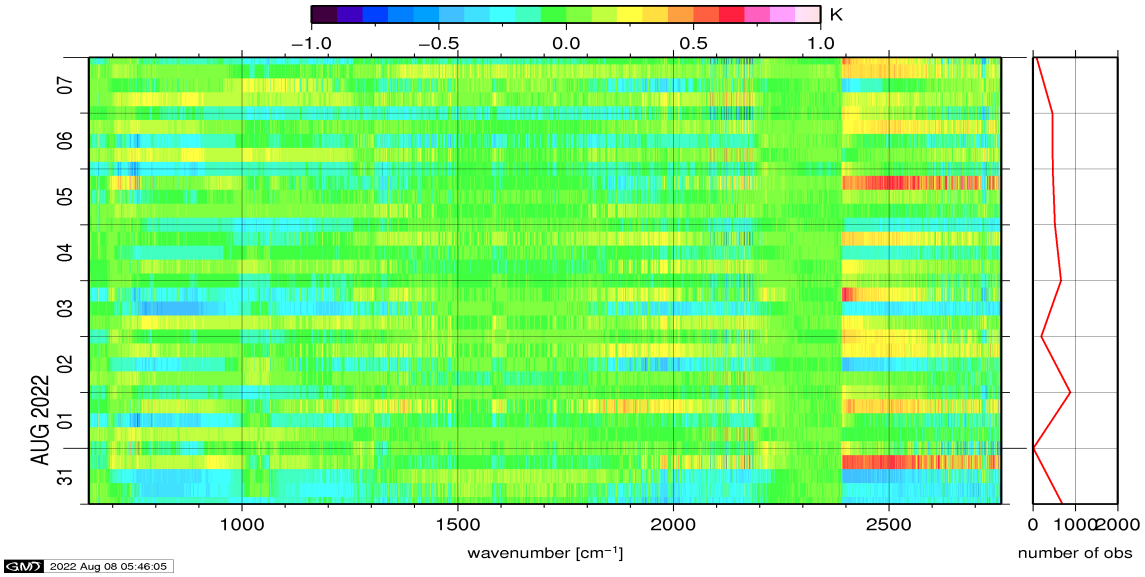

Figure 10: Radiance Anomaly in BT: All Channels

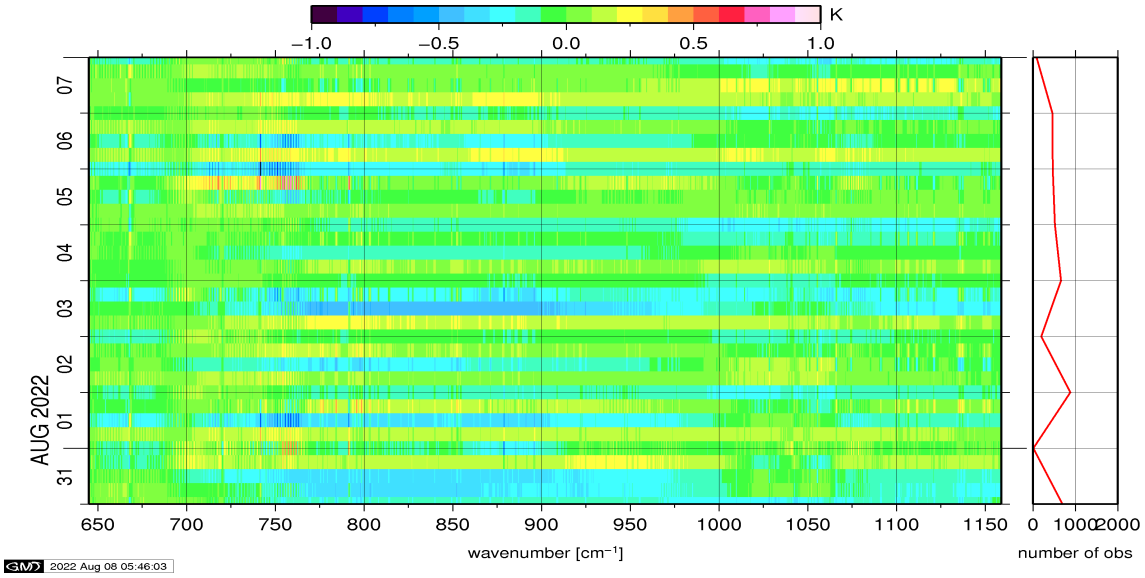

Figure 11: Radiance Anomaly in BT: IASI Band 1

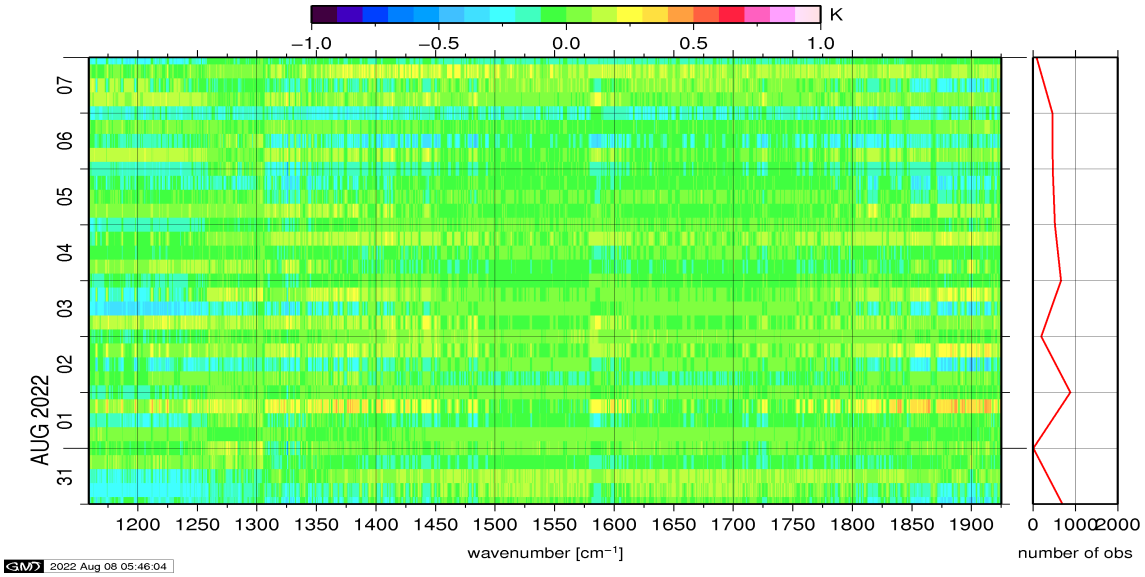

Figure 12: Radiance Anomaly in BT: IASI Band 2

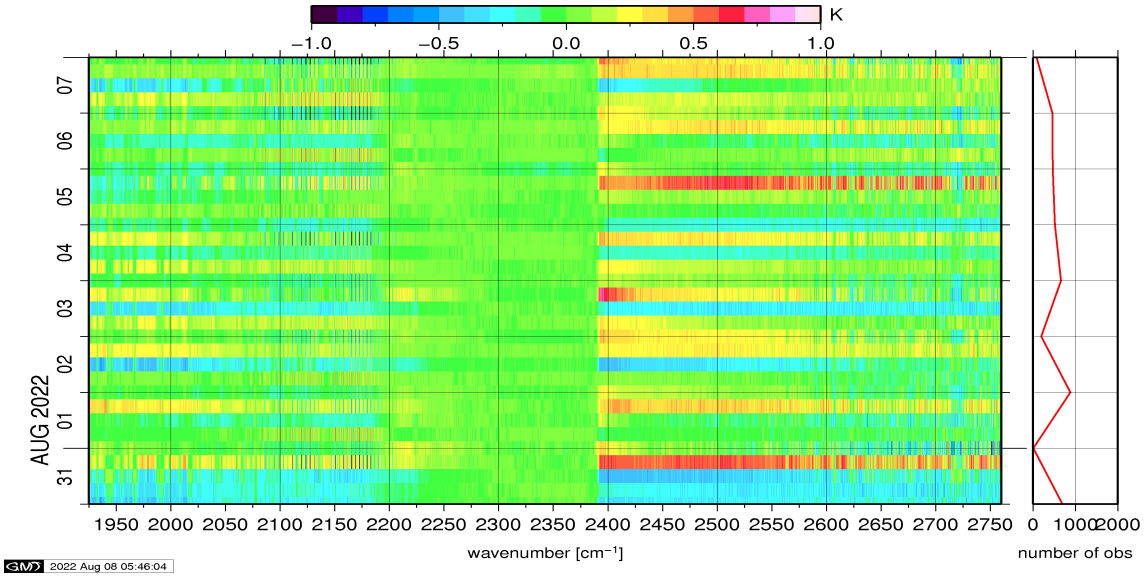

Figure 13: Radiance Anomaly in BT: IASI Band 3

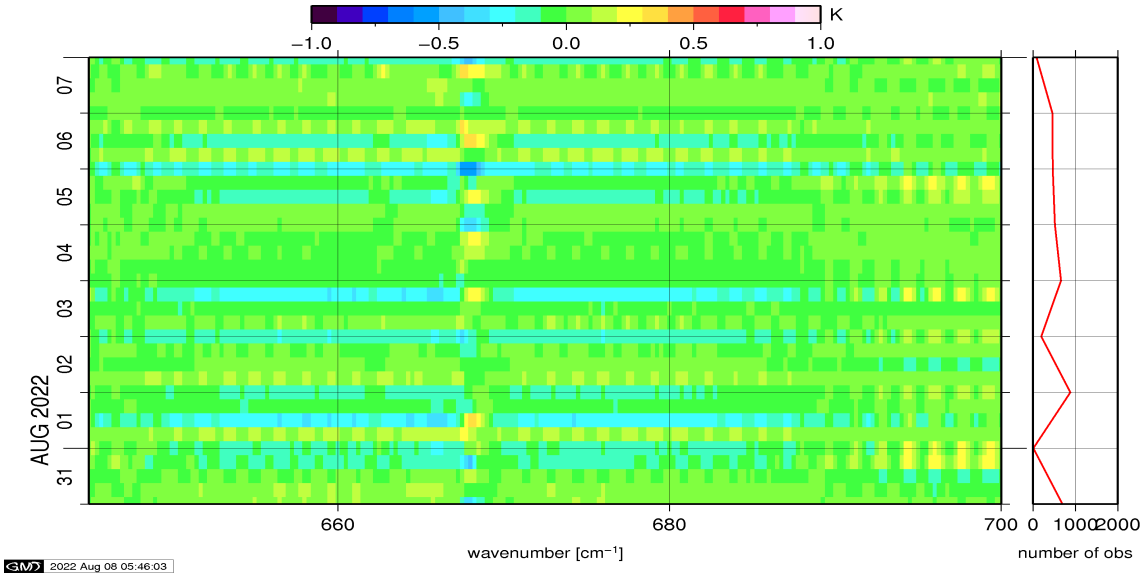

Figure 14: Radiance Anomaly in BT: CO2 14

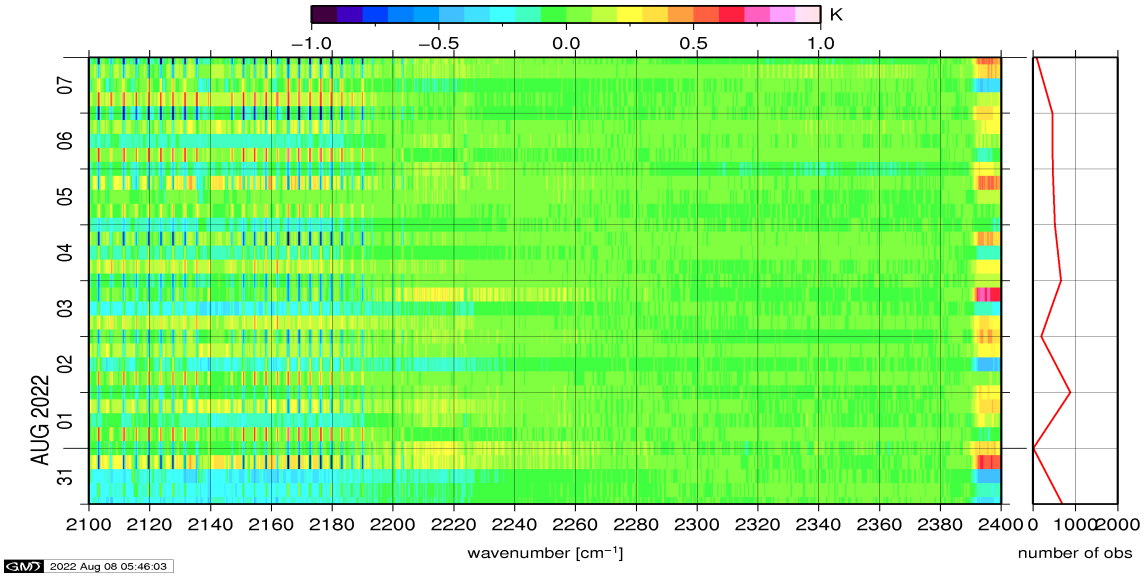

Figure 15: Radiance Anomaly in BT: CO2 4.3

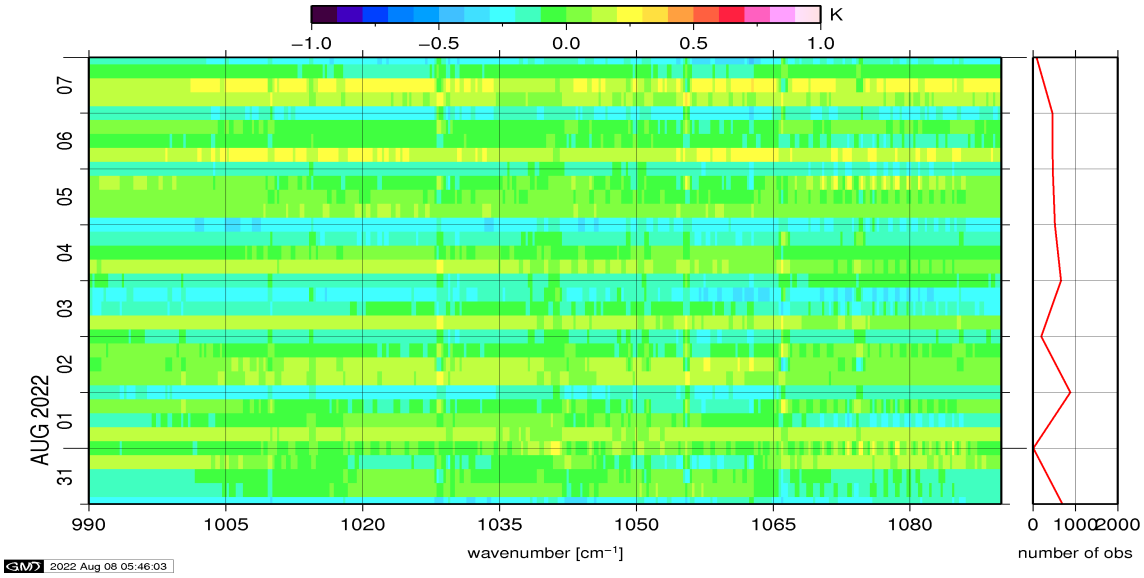

Figure 16: Radiance Anomaly in BT: O3