

# IASI L0 and L1 Weekly Monitoring Report Metop-A

IASI monitoring team

06/09/2021 00:00:00 - 13/09/2021 00:00:00 (Week 36 )

## 1 Introduction

This report provides summary monitoring plots and figures from IASI instrument on the MetOp-A satellite retrieved from the IASI L0 and L1 ENG product (3 minute data packet) for 06/09/2021 00:00:00 - 13/09/2021 00:00:00 .

The monitoring data are extracted on PDU basis.

Data extraction, calibration, processing and statistics are performed at EUMETSAT.

## 2 Data quantity 06/09/2021 00:00:00 - 13/09/2021 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	3358	-
L0 IASI PDUs	928	-
L1 ENG PDUs	927	-
L1 ENG distinct GEPSGranule	927	-
L1 DPX PDUs (RM: IASI-HIRS)	0	e
L1 DPS Files (RM: OBS-CAL NWP based)	927	-

Table 1: Data quantity

APID	Packet type	Packets lost
-	-	-

Table 2: L0 packet losses

### 3 Instrument modes

Time	Transition from	Transition to
06/09/2021 00:00:05	-	Normal operation
06/09/2021 08:26:29	Normal operation	Auxiliary ASE synchronised
06/09/2021 08:27:01	Auxiliary ASE synchronised	Heater 2
06/09/2021 08:28:05	Heater 2	Heater 1 warm up
06/09/2021 11:47:17	Heater 1 warm up	Heater 2
06/09/2021 15:31:17	Heater 2	Auxiliary ASE synchronised
06/09/2021 15:52:21	Auxiliary ASE synchronised	Normal operation
07/09/2021 10:10:13	Normal operation	Auxiliary ASE synchronised
07/09/2021 10:11:17	Auxiliary ASE synchronised	Heater 2
07/09/2021 10:18:45	Heater 2	Auxiliary ASE synchronised
07/09/2021 10:39:33	Auxiliary ASE synchronised	Normal operation
07/09/2021 11:53:09	Normal operation	Auxiliary ASE synchronised
07/09/2021 11:54:13	Auxiliary ASE synchronised	Heater 2
07/09/2021 12:01:41	Heater 2	Auxiliary ASE synchronised
07/09/2021 12:22:45	Auxiliary ASE synchronised	Normal operation
07/09/2021 13:40:21	Normal operation	Auxiliary ASE synchronised
07/09/2021 13:41:09	Auxiliary ASE synchronised	Heater 2
07/09/2021 13:48:37	Heater 2	Auxiliary ASE synchronised
07/09/2021 14:09:41	Auxiliary ASE synchronised	Normal operation
07/09/2021 15:20:21	Normal operation	Auxiliary ASE synchronised
07/09/2021 15:21:09	Auxiliary ASE synchronised	Heater 2
07/09/2021 15:28:37	Heater 2	Auxiliary ASE synchronised
07/09/2021 15:49:41	Auxiliary ASE synchronised	Normal operation
08/09/2021 07:44:53	Normal operation	Standby
08/09/2021 16:40:37	Standby	Heater 1 warm up
09/09/2021 07:23:49	Heater 1 warm up	Heater 2
11/09/2021 08:47:16	Heater 2	Auxiliary ASE synchronised
11/09/2021 08:58:28	Auxiliary ASE synchronised	Heater refuse
11/09/2021 11:48:04	Heater refuse	Heater 2
11/09/2021 12:32:20	Heater 2	Auxiliary ASE synchronised
11/09/2021 12:43:48	Auxiliary ASE synchronised	Heater refuse
11/09/2021 15:03:16	Heater refuse	Heater 2
11/09/2021 15:53:08	Heater 2	Auxiliary ASE synchronised
11/09/2021 16:44:20	Auxiliary ASE synchronised	Normal operation
12/09/2021 10:10:12	Normal operation	Auxiliary ASE synchronised
12/09/2021 10:11:16	Auxiliary ASE synchronised	Heater 2
12/09/2021 10:18:44	Heater 2	Auxiliary ASE synchronised
12/09/2021 10:39:32	Auxiliary ASE synchronised	Normal operation
12/09/2021 11:50:12	Normal operation	Auxiliary ASE synchronised
12/09/2021 11:51:16	Auxiliary ASE synchronised	Heater 2
12/09/2021 11:58:44	Heater 2	Auxiliary ASE synchronised
12/09/2021 12:19:32	Auxiliary ASE synchronised	Normal operation
12/09/2021 13:35:16	Normal operation	Auxiliary ASE synchronised
12/09/2021 13:36:20	Auxiliary ASE synchronised	Heater 2
12/09/2021 13:43:32	Heater 2	Auxiliary ASE synchronised
12/09/2021 14:04:36	Auxiliary ASE synchronised	Normal operation
12/09/2021 15:17:08	Normal operation	Auxiliary ASE synchronised
12/09/2021 15:18:12	Auxiliary ASE synchronised	Heater 2
12/09/2021 15:25:40	Heater 2	Auxiliary ASE synchronised
12/09/2021 15:46:44	Auxiliary ASE synchronised	Normal operation
12/09/2021 16:50:12	Normal operation	Auxiliary ASE synchronised
12/09/2021 16:51:16	Auxiliary ASE synchronised	Heater 2
12/09/2021 16:58:44	Heater 2	Auxiliary ASE synchronised

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Table 3 – continued from previous page

Time	Transition from	Transition to
12/09/2021 17:19:32	Auxiliary ASE synchronised	Normal operation

Table 3: Instrument modes

## 4 L0 and L1 Data Quality

Day	L0 quality	L1 quality	L0 PDUs	L1 PDUs
06/09/2021	99.61 %	99.58 %	332	332
07/09/2021	99.53 %	49.82 %	441	441
08/09/2021	99.58 %	00.00 %	155	154

Table 4: Quality overview

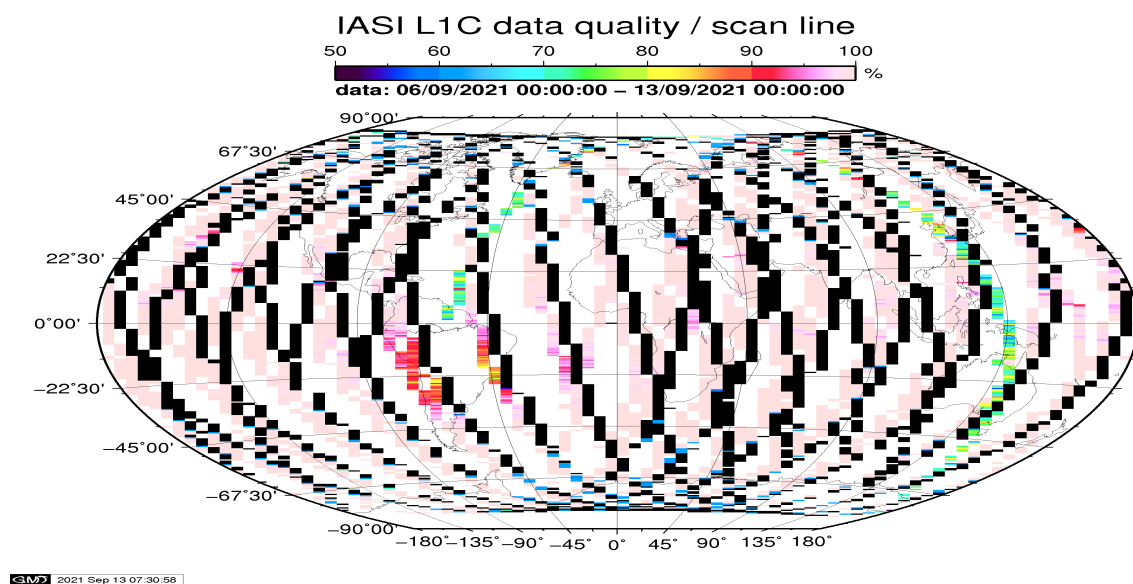


Figure 1: L1C data quality

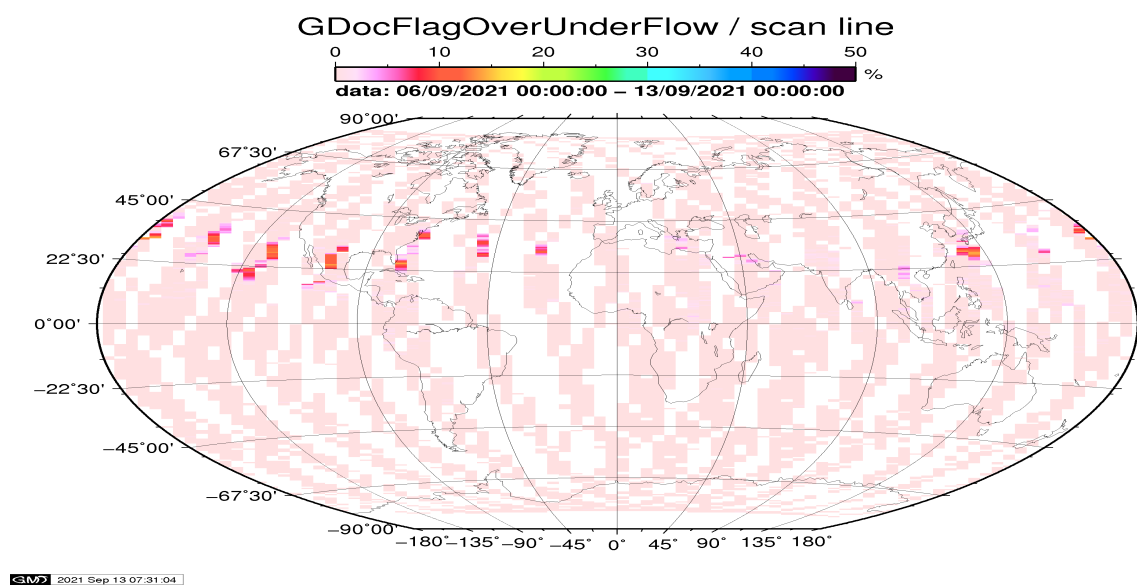


Figure 2: Flag of Over and Under Flows

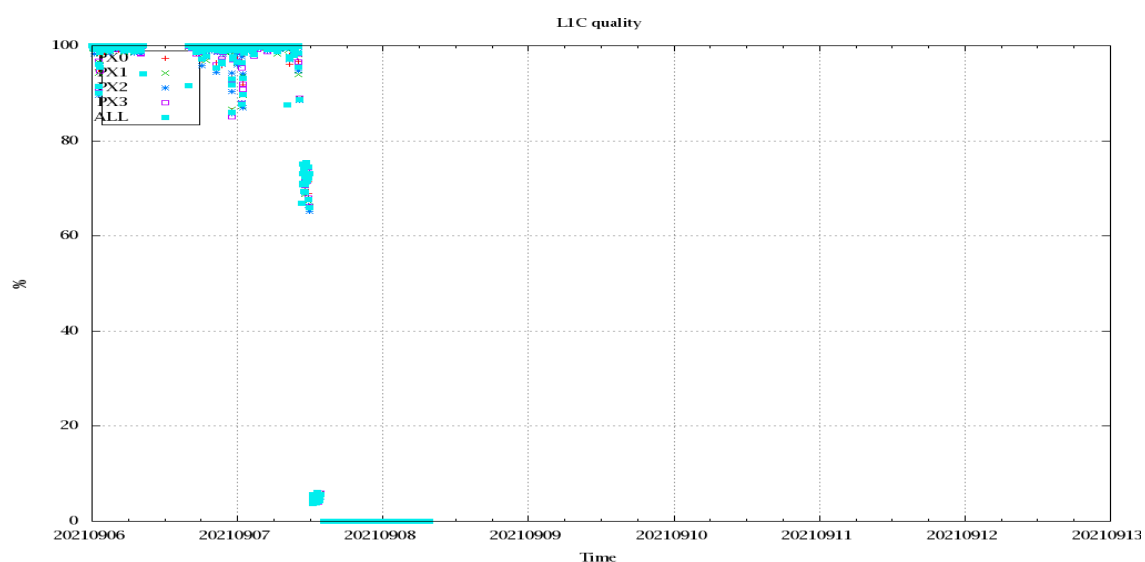


Figure 3: Level 1C quality

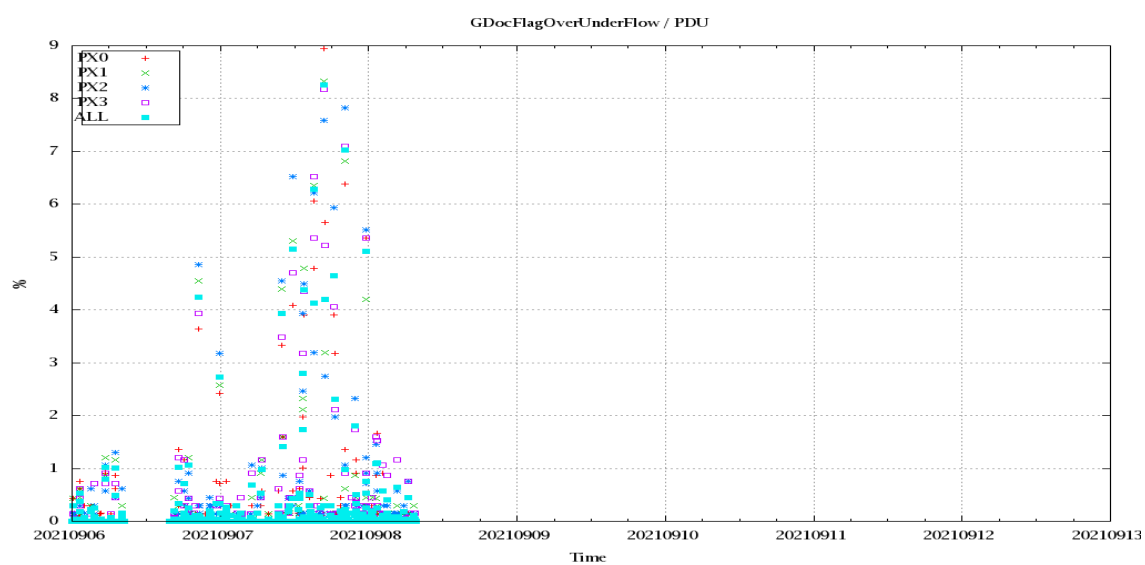


Figure 4: OverUnderFlowFlag timeseries

## 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,WV, and Ozon. Between March 2007 and the 18th of May 2010 RTIASI in Version 4.0 is used. After the 18th of May 2010 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).

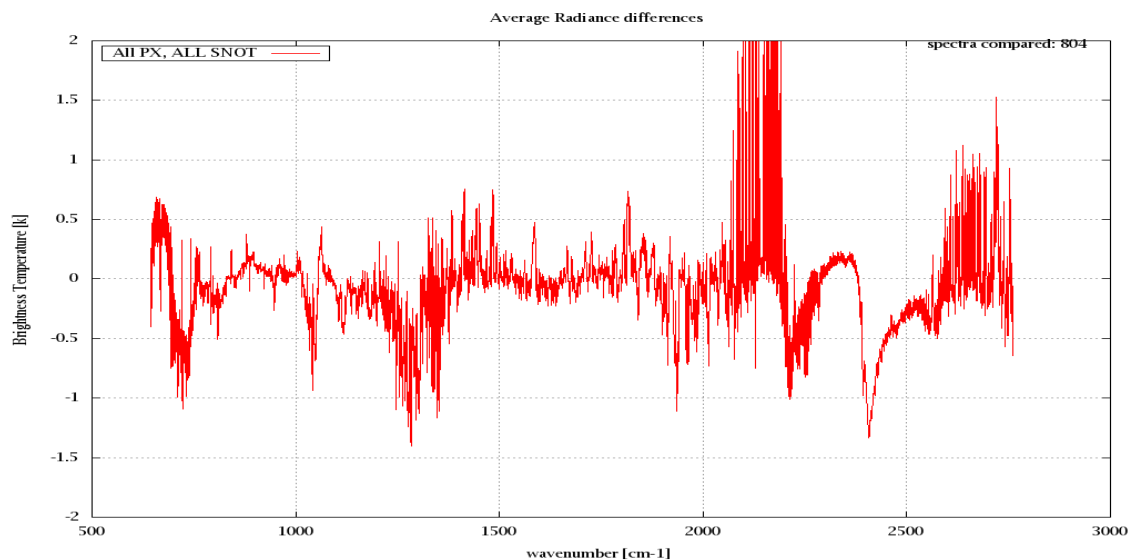


Figure 5: Average radiance differences: OBS-CAL

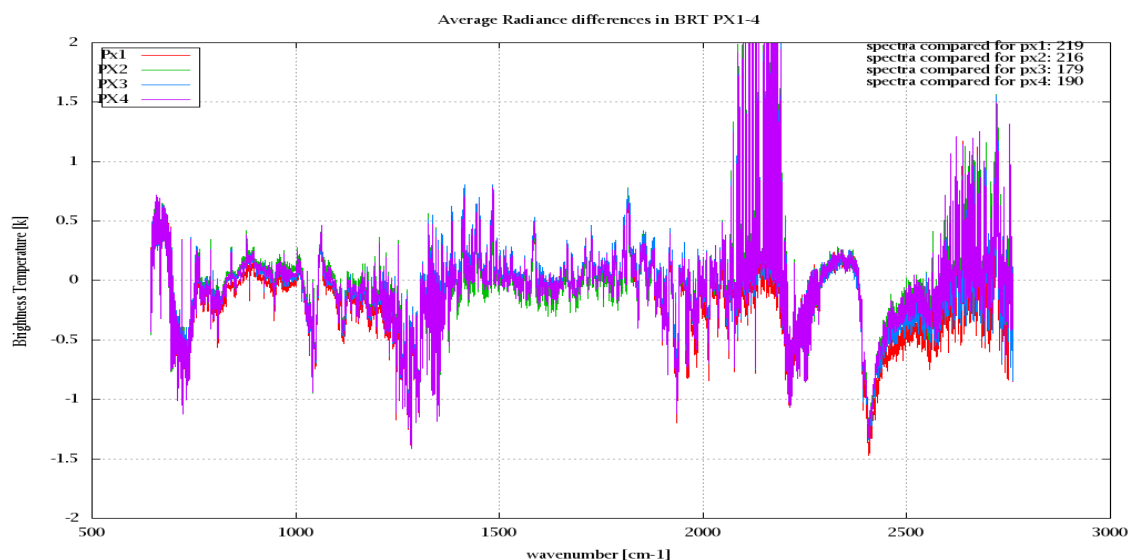


Figure 6: Average radiance differences: OBS-CAL

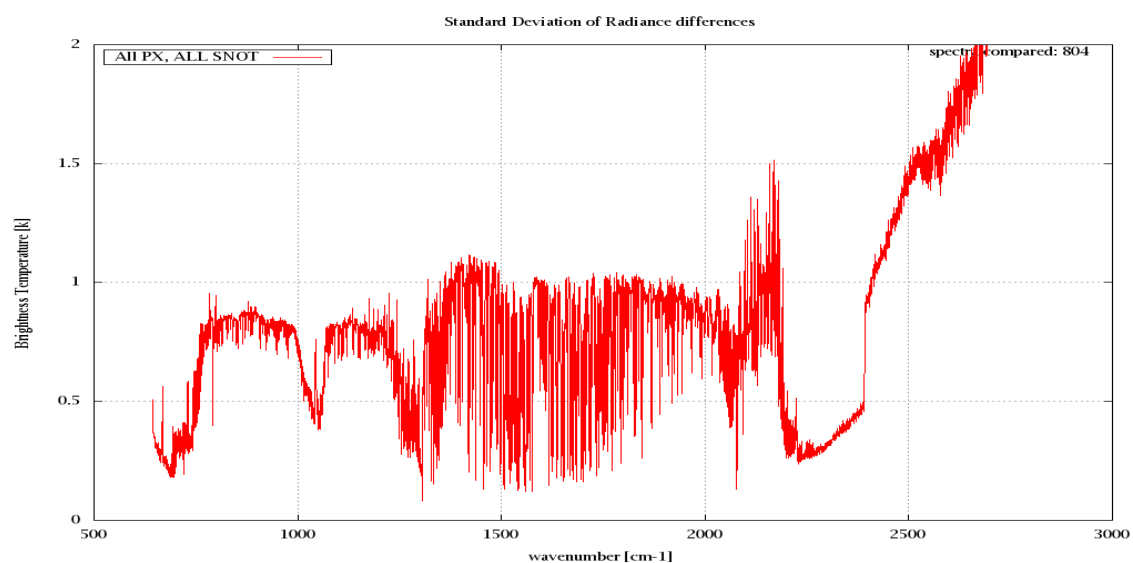


Figure 7: Standard deviation of radiance differences

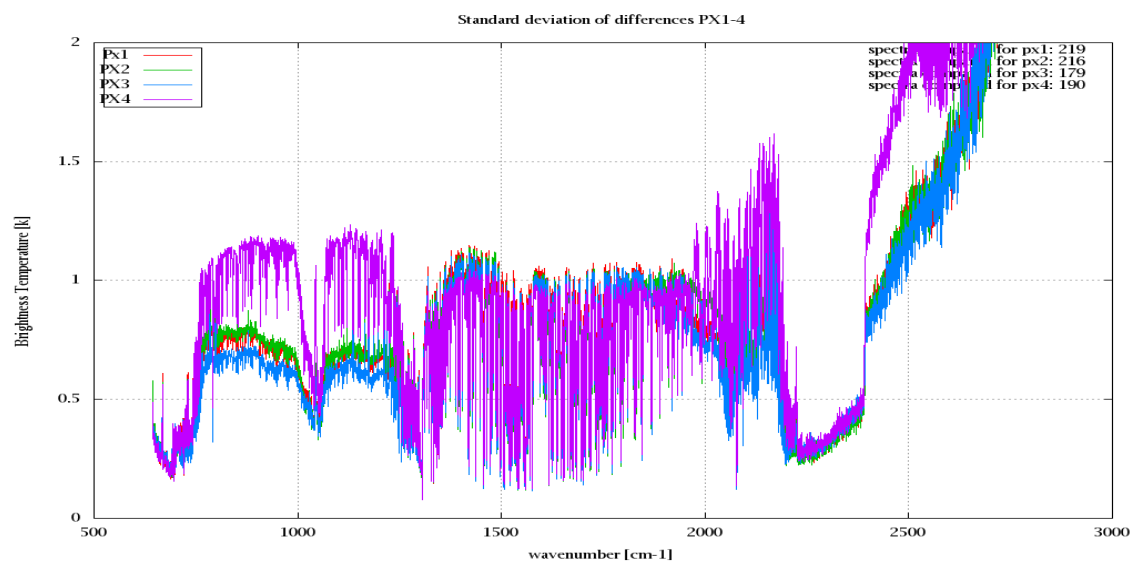


Figure 8: Standard deviation of radiance differences per pixel

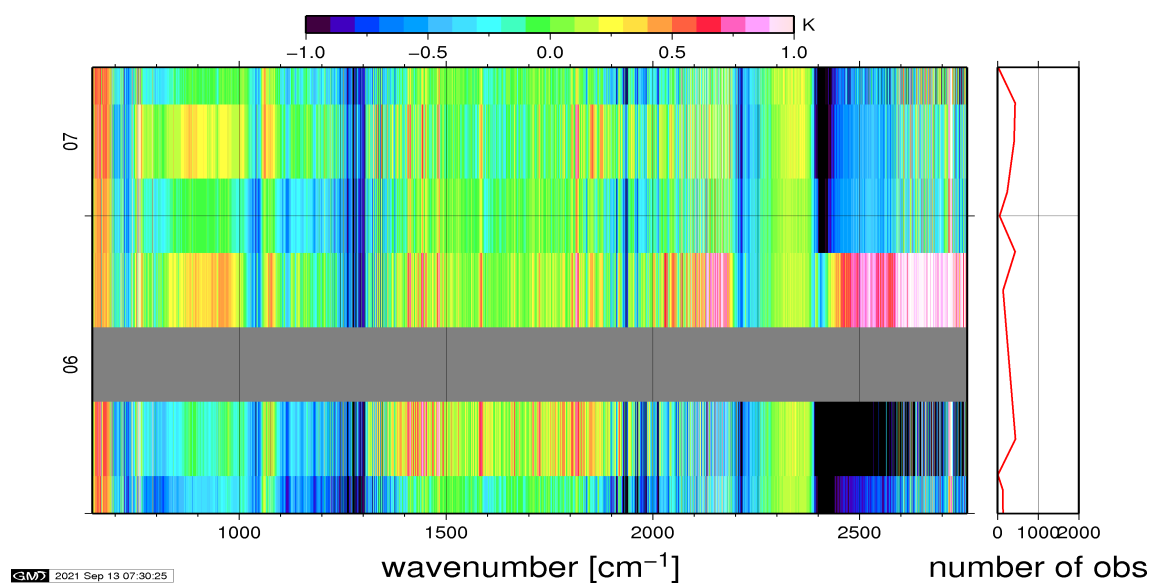


Figure 9: Radiance bias in BRT: All Channels

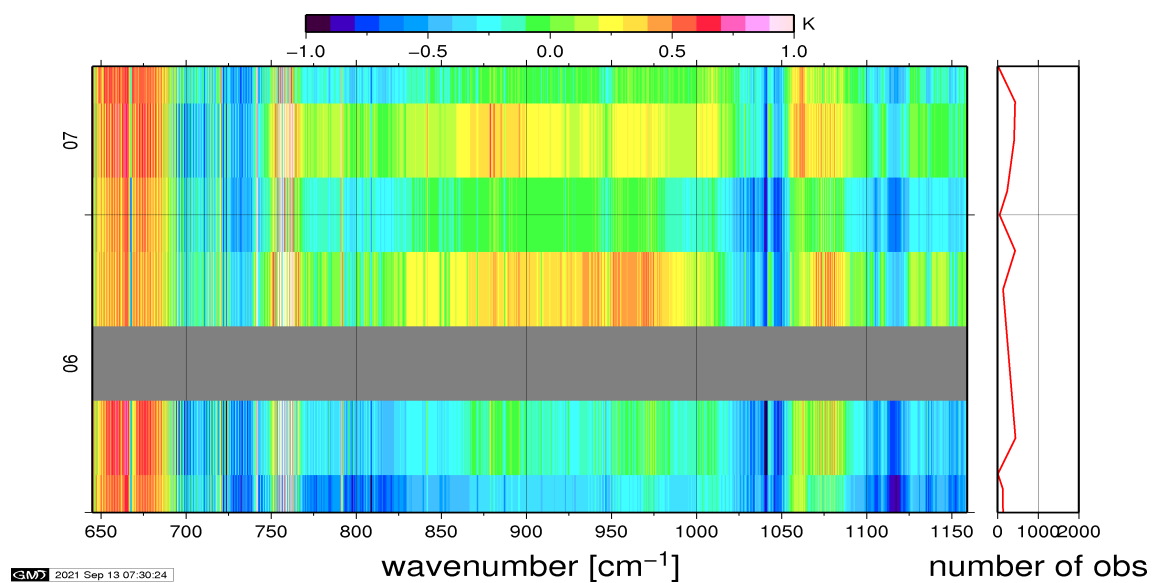


Figure 10: Radiance bias in BRT: IASI Band 1

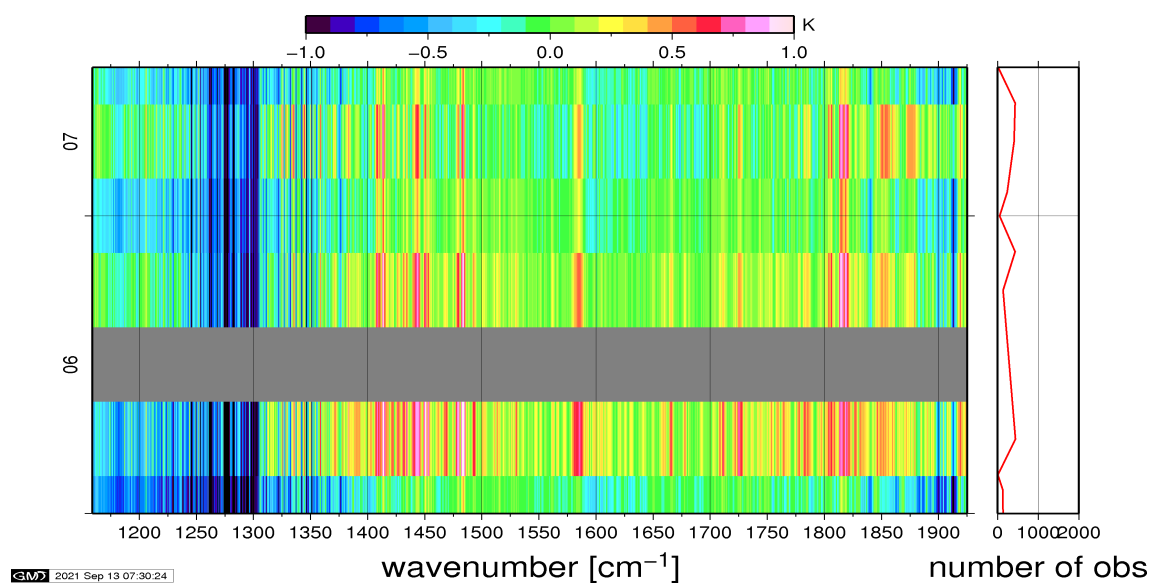


Figure 11: Radiance bias in BRT: IASI Band 2

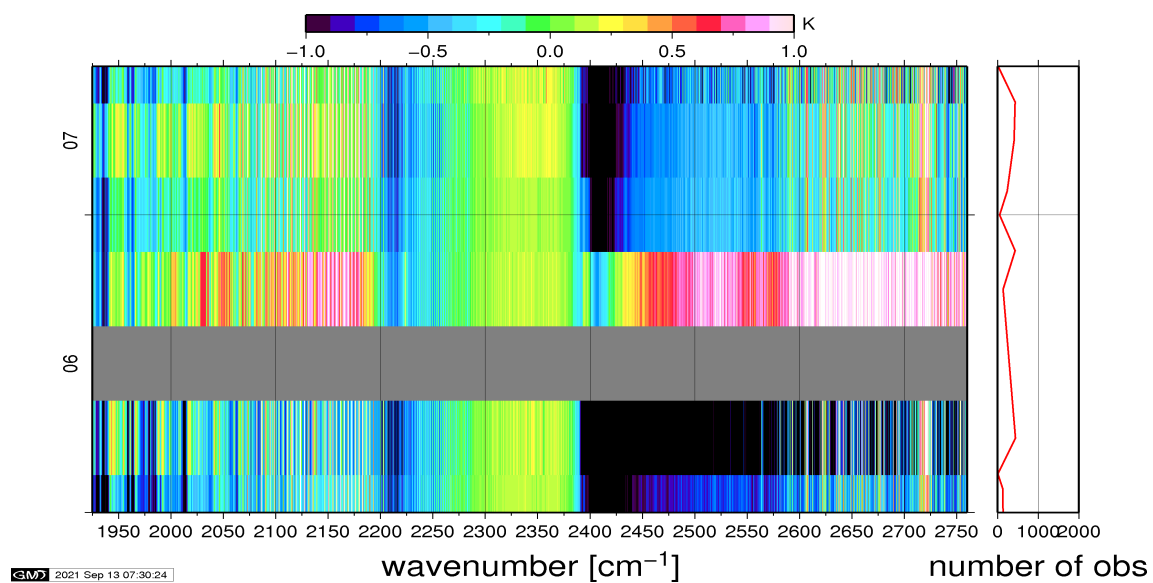


Figure 12: Radiance bias in BRT: IASI Band 3

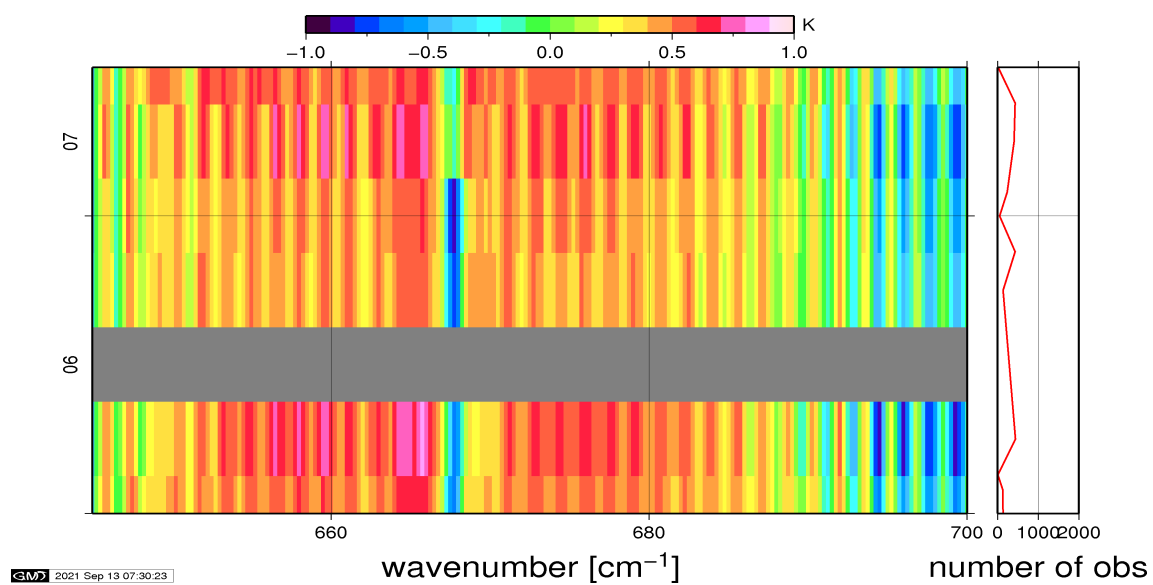


Figure 13: Radiance bias in BRT: CO2 14

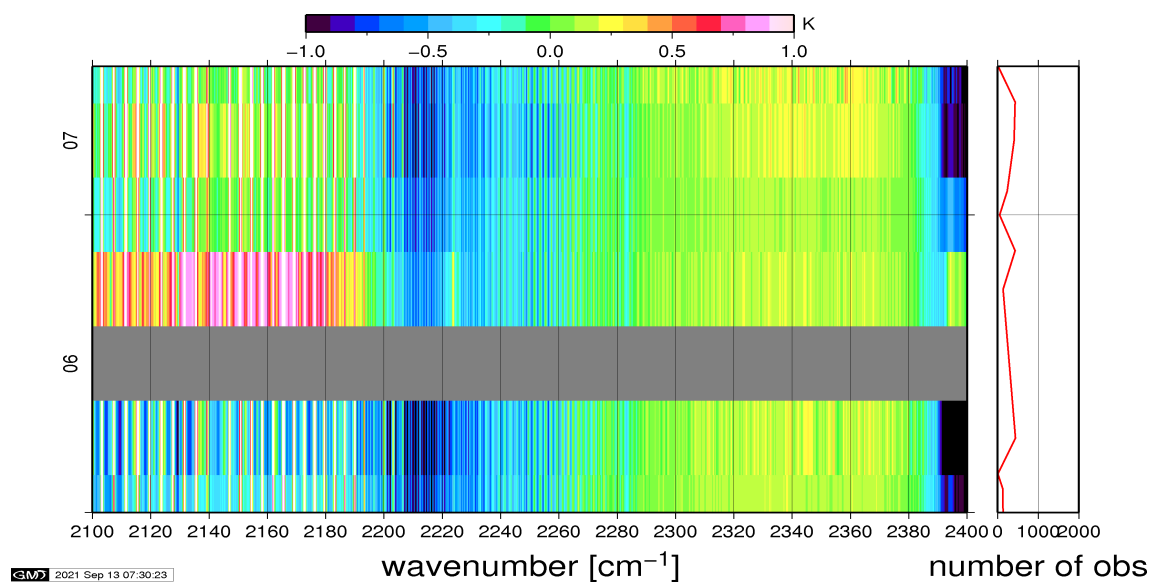


Figure 14: Radiance bias in BRT: CO2 4.3

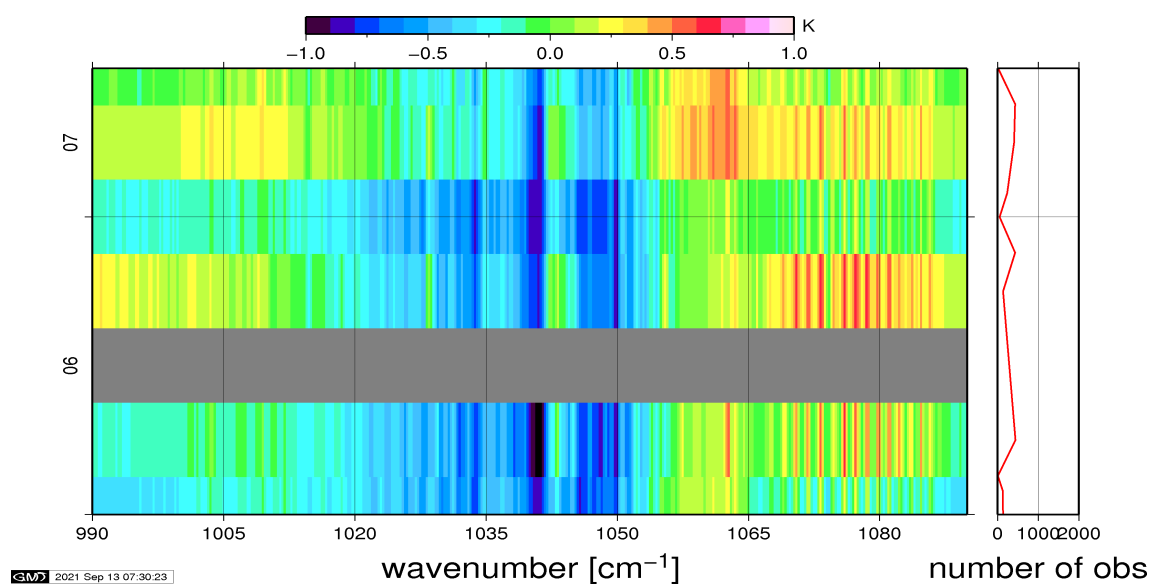


Figure 15: Radiance bias in BRT: O3

## 6 IASI-HIRS radiance comparison Channel 1-19

The radiance comparison of IASI and HIRS/4 on-board MetOp is performed on all pixel with distances smaller than 3 km between IASI and HIRS. The radiance differences IASI - HIRS are given in brightness temperatures at 280K reference temperature.

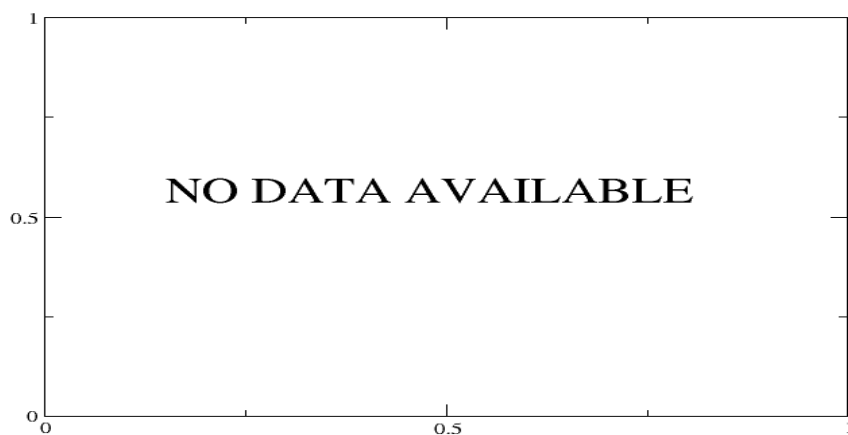


Figure 16: Radiance Differences in BRT 1h Average

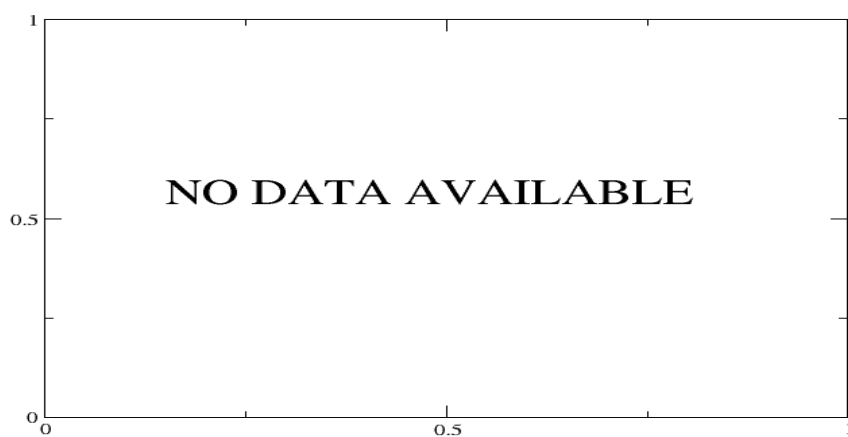


Figure 17: Standard Deviation of Radiance Differences 1h Average

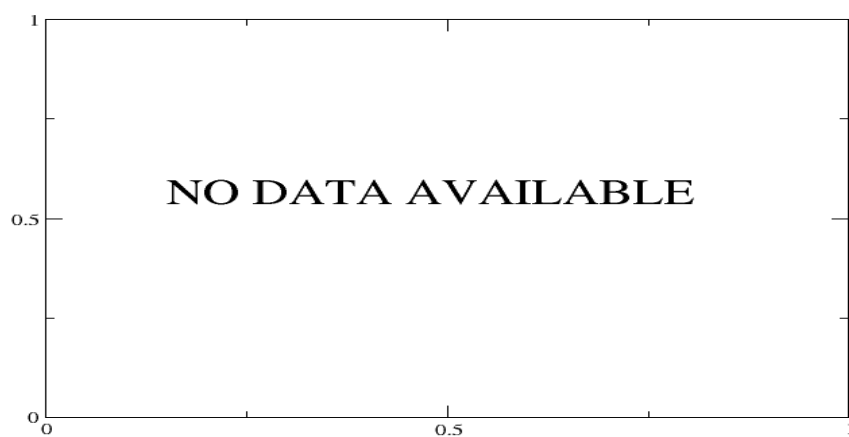


Figure 18: Radiance Differences in BRT 1h Average - Clear Sky

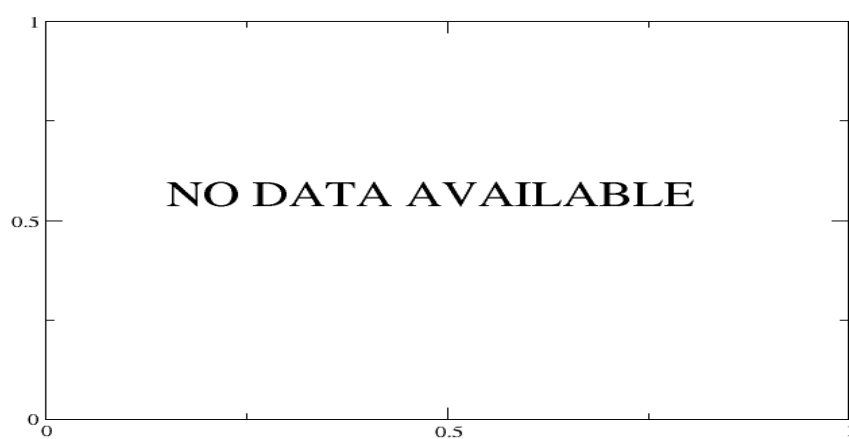


Figure 19: Standard Deviation of Radiance Differences 1h Average - Clear Sky