

IASI L0 and L1 Weekly Monitoring Report

IASI monitoring team

15/08/2011 00:00:00 - 22/08/2011 00:00:00 (Week 33)

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 15/08/2011 00:00:00 - 22/08/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 15/08/2011 00:00:00 - 22/08/2011 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	3361	-
L0 IASI PDUs	3157	-
L1 ENG PDUs	3156	-
L1 ENG distinct GEPSGranule	3157	-
L1 DPX PDUs (RM: IASI-HIRS)	2940	-
L1 DPS Files (RM: OBS-CAL NWP based)	3156	-

Table 1: Data quantity

APID	Packet type	Packets lost
130	PX1	4175
135	PX2	4174
140	PX3	4176
145	PX4	4177
150	IMG	7808
160	VER	8631
180	AUX	5005

Table 2: L0 packet losses

3 Instrument modes

Time	Transition from	Transition to
15/08/2011 00:00:07	-	Normal operation
18/08/2011 05:00:22	Normal operation	Auxiliary ASE synchronised
18/08/2011 05:02:30	Auxiliary ASE synchronised	External calibration
18/08/2011 05:27:50	External calibration	Auxiliary ASE synchronised
18/08/2011 05:29:58	Auxiliary ASE synchronised	Normal operation
18/08/2011 06:41:10	Normal operation	Auxiliary ASE synchronised
18/08/2011 06:43:18	Auxiliary ASE synchronised	External calibration
18/08/2011 07:13:26	External calibration	Auxiliary ASE synchronised
18/08/2011 07:15:18	Auxiliary ASE synchronised	Normal operation
18/08/2011 08:21:58	Normal operation	Standby refuse
18/08/2011 10:04:54	Standby refuse	Standby
18/08/2011 10:06:46	Standby	Heater 1 warm up
18/08/2011 11:41:42	Heater 1 warm up	Heater 2
18/08/2011 15:05:58	Heater 2	Auxiliary ASE synchronised
18/08/2011 18:46:46	Normal operation	Auxiliary ASE synchronised
18/08/2011 18:48:54	Auxiliary ASE synchronised	External calibration
18/08/2011 19:42:46	External calibration	Auxiliary ASE synchronised
18/08/2011 19:44:54	Auxiliary ASE synchronised	Normal operation
18/08/2011 20:31:02	Normal operation	Auxiliary ASE synchronised
18/08/2011 20:32:54	Auxiliary ASE synchronised	External calibration
18/08/2011 21:27:50	External calibration	Auxiliary ASE synchronised
18/08/2011 21:29:42	Auxiliary ASE synchronised	Normal operation
18/08/2011 22:14:14	Normal operation	Auxiliary ASE synchronised
18/08/2011 22:16:22	Auxiliary ASE synchronised	External calibration
18/08/2011 23:12:38	External calibration	Auxiliary ASE synchronised
18/08/2011 23:14:30	Auxiliary ASE synchronised	Normal operation
18/08/2011 23:57:10	Normal operation	Auxiliary ASE synchronised
18/08/2011 23:59:18	Auxiliary ASE synchronised	External calibration
19/08/2011 00:56:54	External calibration	Auxiliary ASE synchronised
19/08/2011 00:58:46	Auxiliary ASE synchronised	Normal operation
19/08/2011 01:55:18	Normal operation	Auxiliary ASE synchronised
19/08/2011 01:57:26	Auxiliary ASE synchronised	External calibration
19/08/2011 04:24:06	External calibration	Auxiliary ASE synchronised
19/08/2011 04:26:14	Auxiliary ASE synchronised	Normal operation
19/08/2011 05:32:06	Normal operation	Auxiliary ASE synchronised
19/08/2011 05:33:58	Auxiliary ASE synchronised	External calibration
19/08/2011 06:04:22	External calibration	Auxiliary ASE synchronised
19/08/2011 06:06:14	Auxiliary ASE synchronised	Normal operation
19/08/2011 07:17:10	Normal operation	Auxiliary ASE synchronised
19/08/2011 07:19:02	Auxiliary ASE synchronised	External calibration
19/08/2011 07:44:22	External calibration	Auxiliary ASE synchronised
19/08/2011 07:46:30	Auxiliary ASE synchronised	Normal operation
19/08/2011 09:01:10	Normal operation	Auxiliary ASE synchronised
19/08/2011 09:03:02	Auxiliary ASE synchronised	External calibration
19/08/2011 09:24:54	External calibration	Auxiliary ASE synchronised
19/08/2011 09:26:46	Auxiliary ASE synchronised	Normal operation
20/08/2011 05:11:01	Normal operation	Auxiliary ASE synchronised
20/08/2011 05:12:53	Auxiliary ASE synchronised	External calibration
20/08/2011 09:07:01	External calibration	Auxiliary ASE synchronised
20/08/2011 09:08:53	Auxiliary ASE synchronised	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Day	L0 quality	L1 quality	L0 PDUs	L1 PDUs
15/08/2011	99.24 %	99.22 %	480	480
16/08/2011	99.16 %	99.15 %	480	480
17/08/2011	99.26 %	99.24 %	480	480
18/08/2011	97.71 %	96.67 %	276	276
19/08/2011	98.78 %	98.19 %	480	480
20/08/2011	99.22 %	99.21 %	480	480
21/08/2011	99.23 %	99.22 %	480	480

Table 4: Quality overview

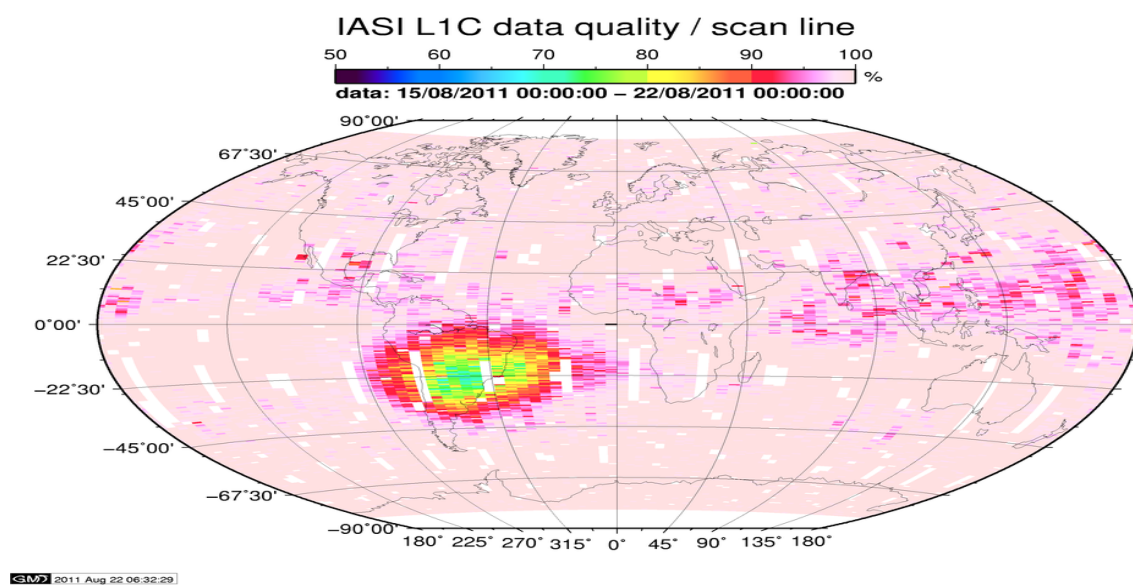


Figure 1: L1C data quality

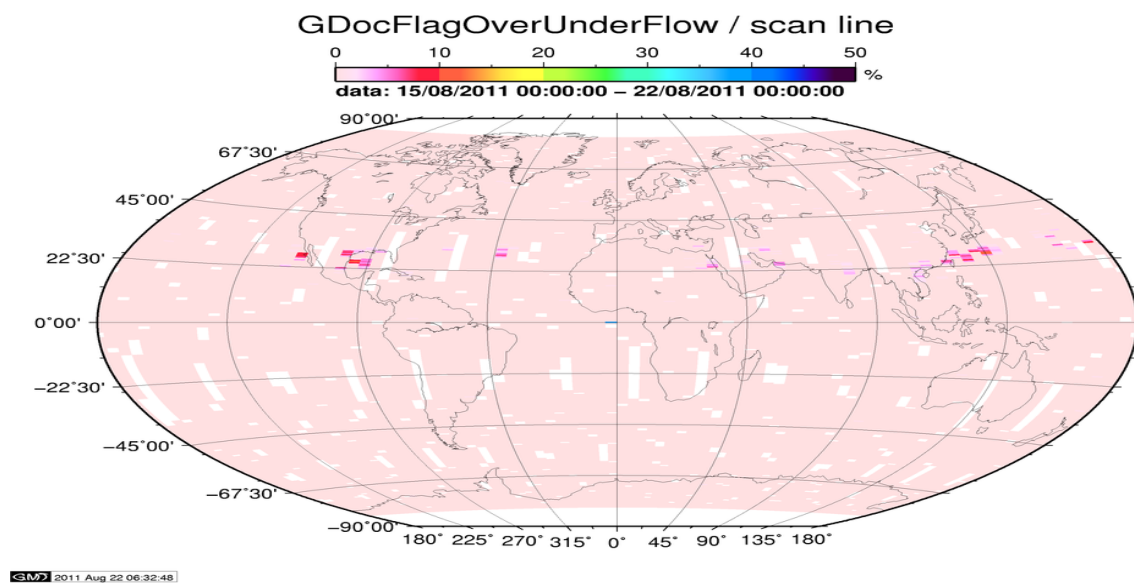


Figure 2: Flag of Over and Under Flows

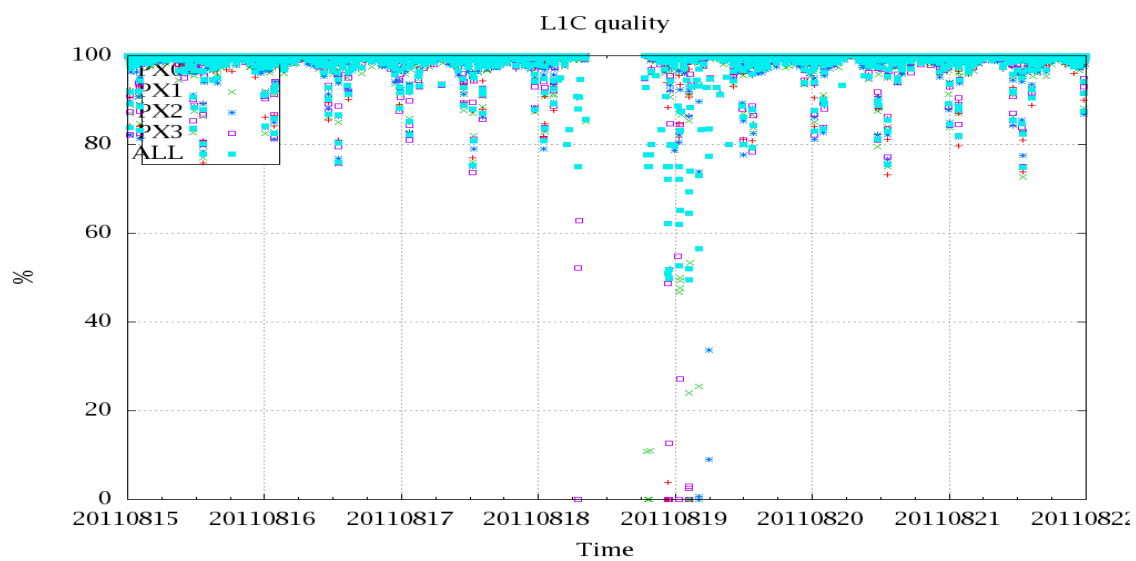


Figure 3: Level 1C quality

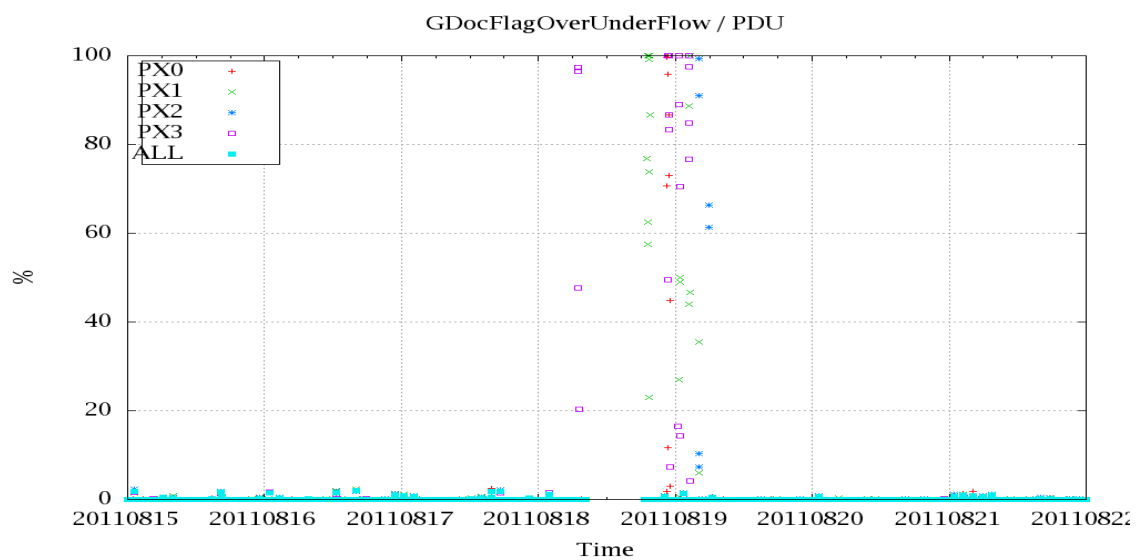


Figure 4: OverUnderFlowFlag timeseries

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).

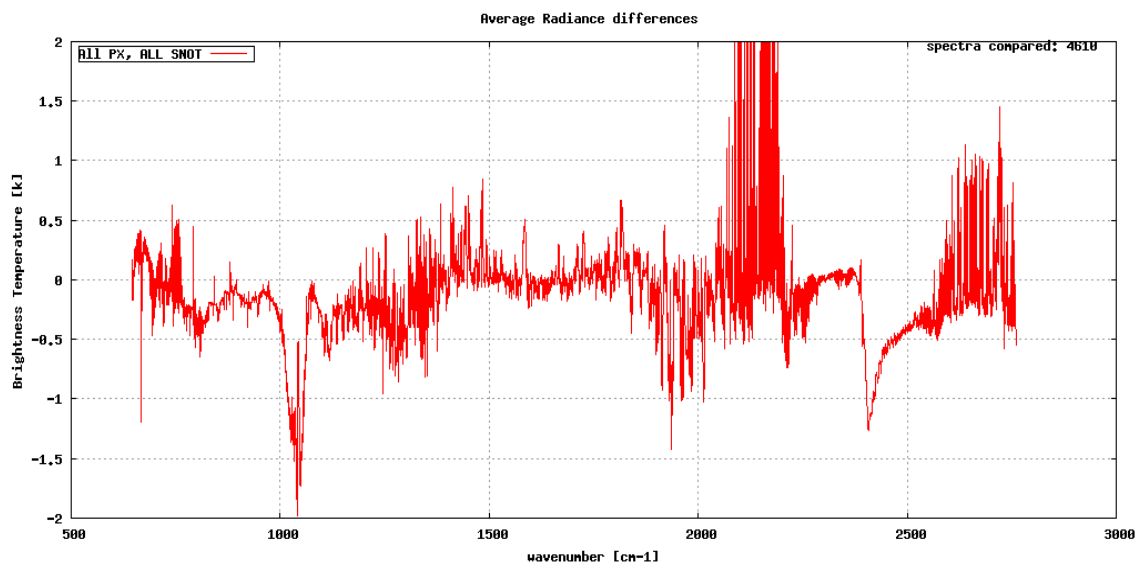


Figure 5: Average radiance differences: OBS-CAL

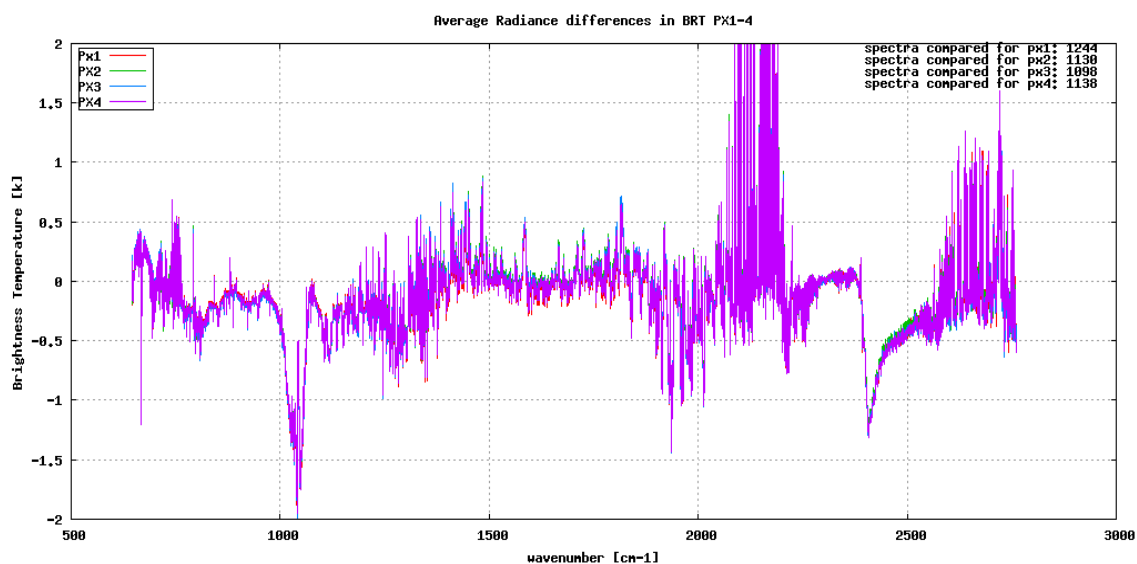


Figure 6: Average radiance differences: OBS-CAL

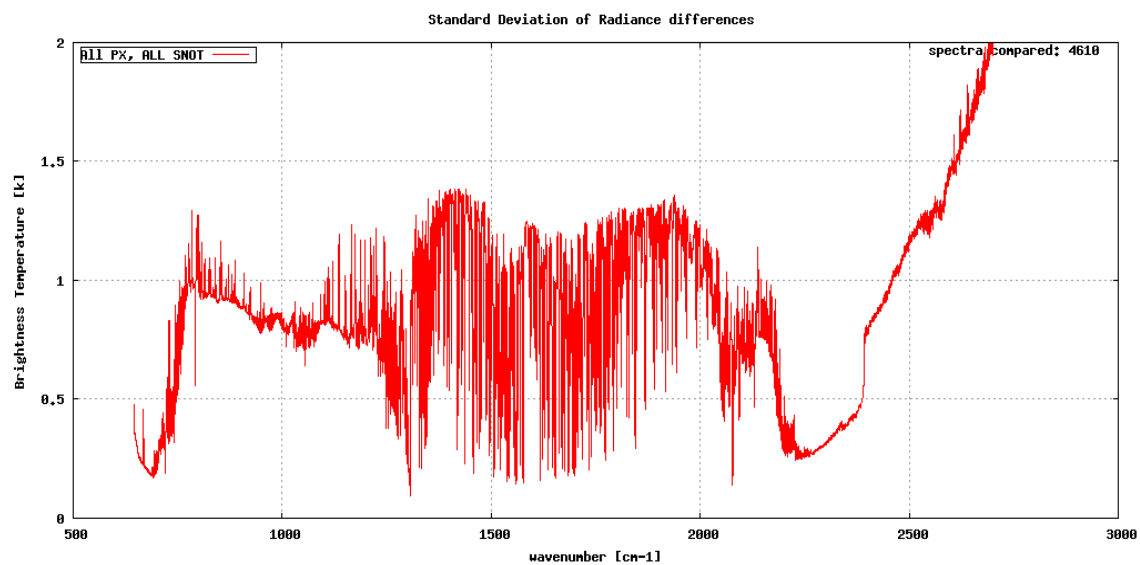


Figure 7: Standard deviation of radiance differences

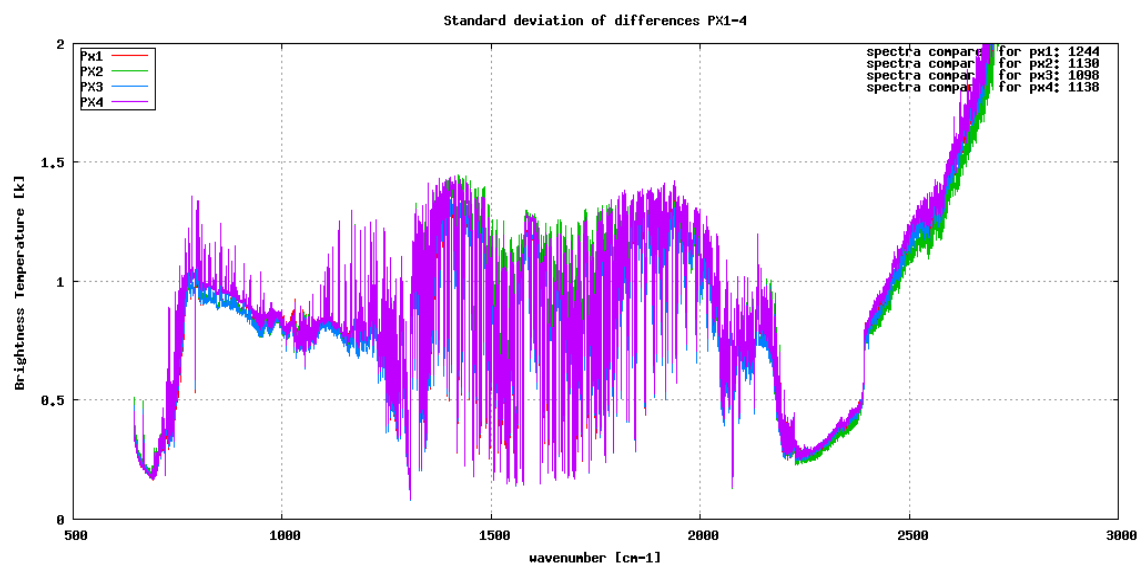


Figure 8: Standard deviation of radiance differences per pixel

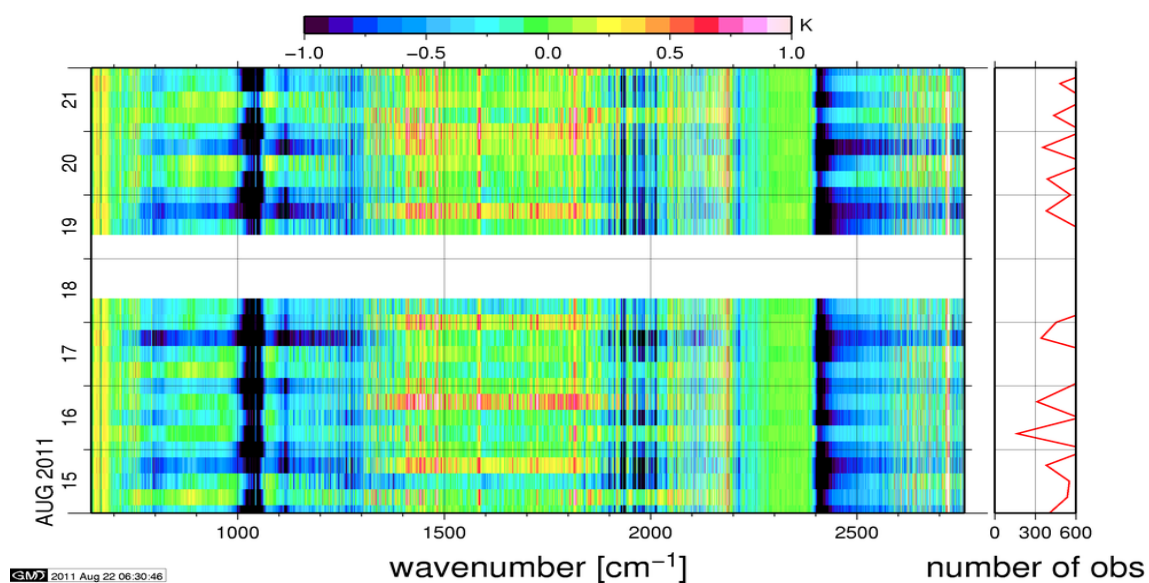


Figure 9: Radiance bias in BRT: All Channels

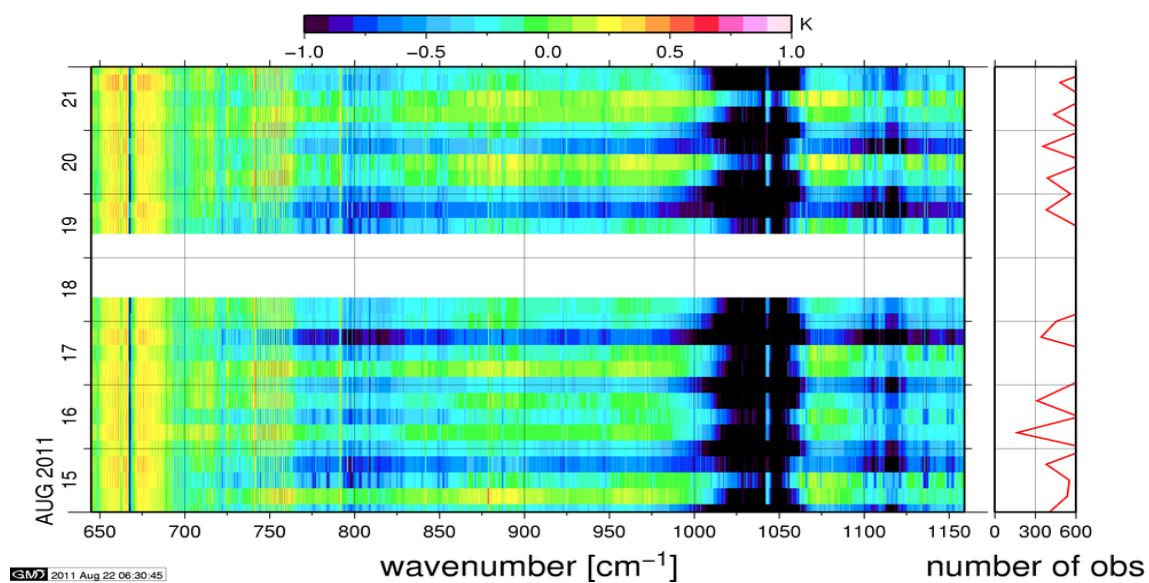


Figure 10: Radiance bias in BRT: IASI Band 1

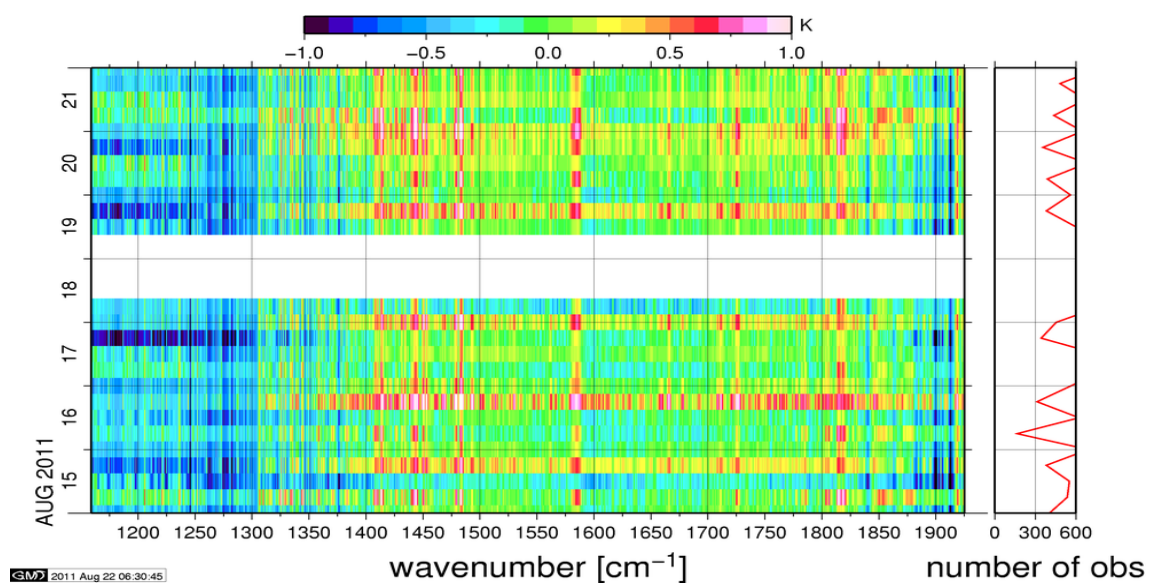


Figure 11: Radiance bias in BRT: IASI Band 2

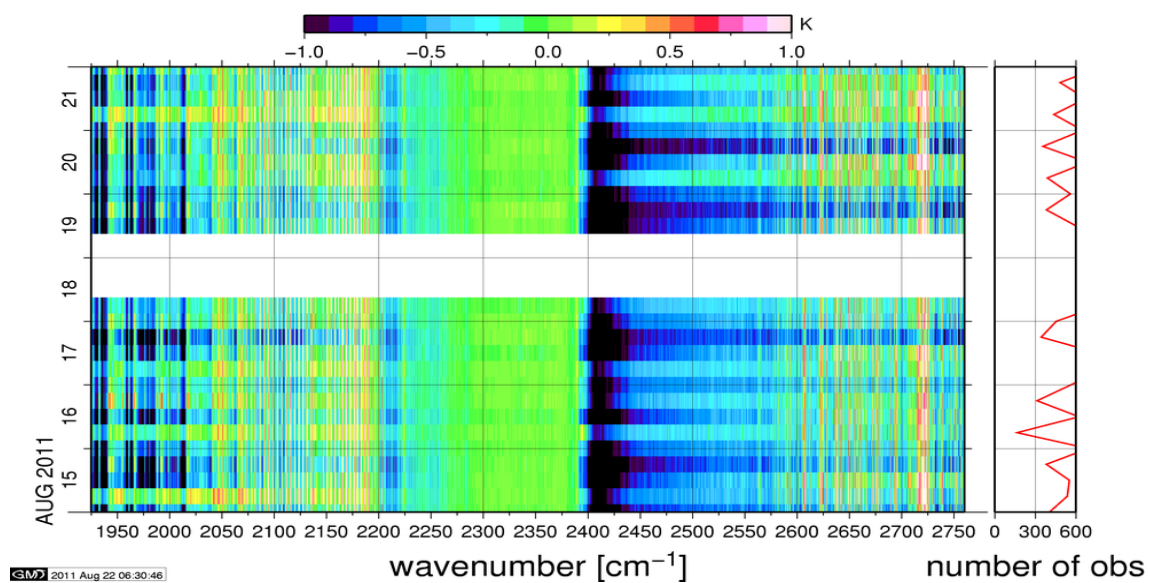


Figure 12: Radiance bias in BRT: IASI Band 3

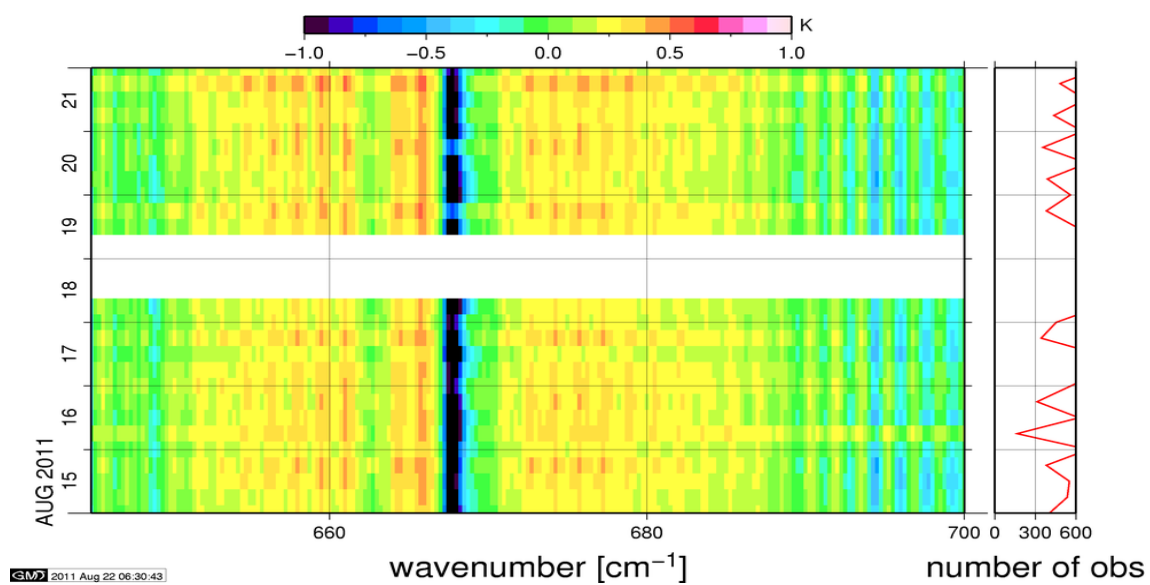


Figure 13: Radiance bias in BRT: CO2 14

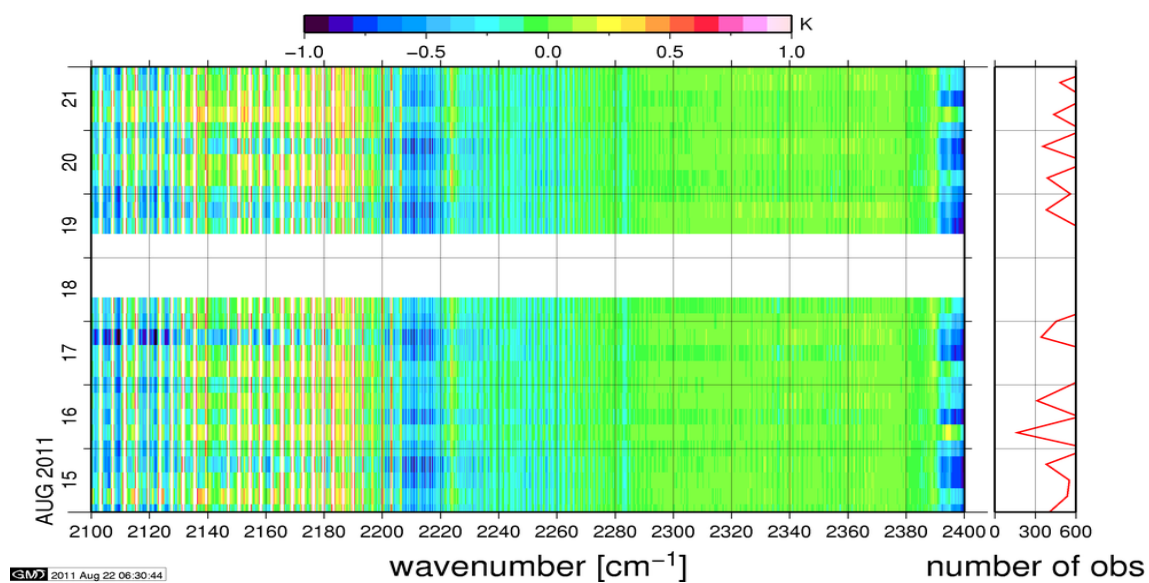


Figure 14: Radiance bias in BRT: CO2 4.3

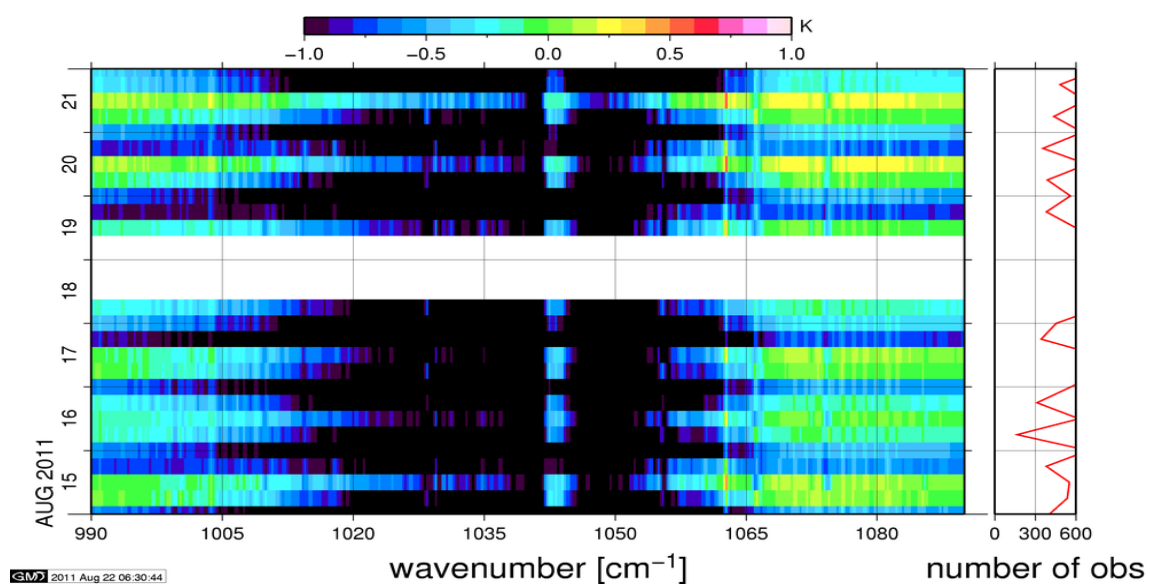


Figure 15: Radiance bias in BRT: O3

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.

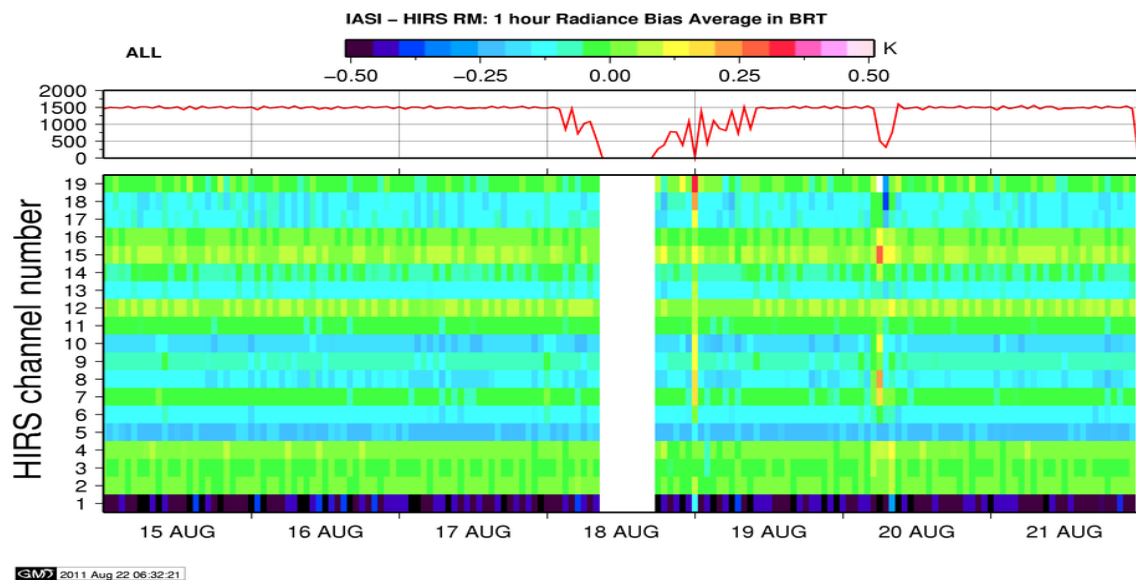


Figure 16: Radiance Differences in BRT 1h Average

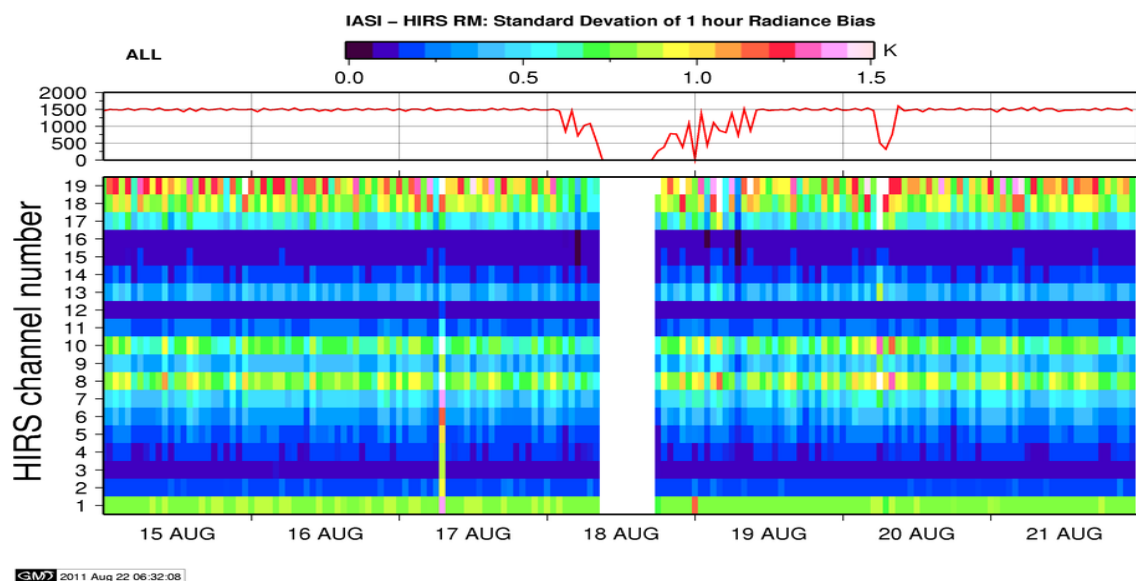


Figure 17: Standard Deviation of Radiance Differences 1h Average

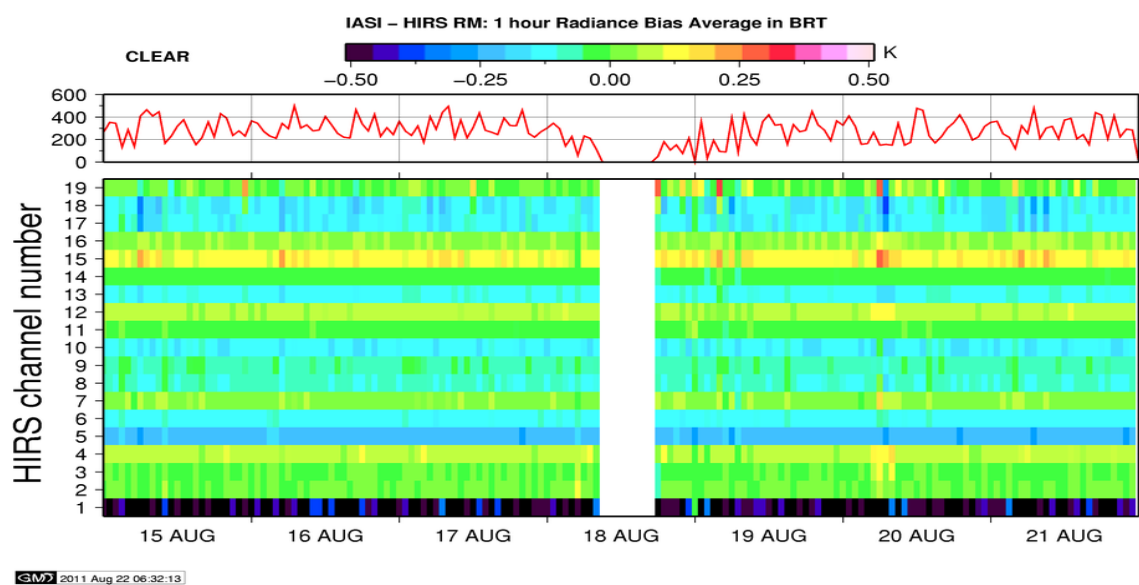


Figure 18: Radiance Differences in BRT 1h Average - Clear Sky

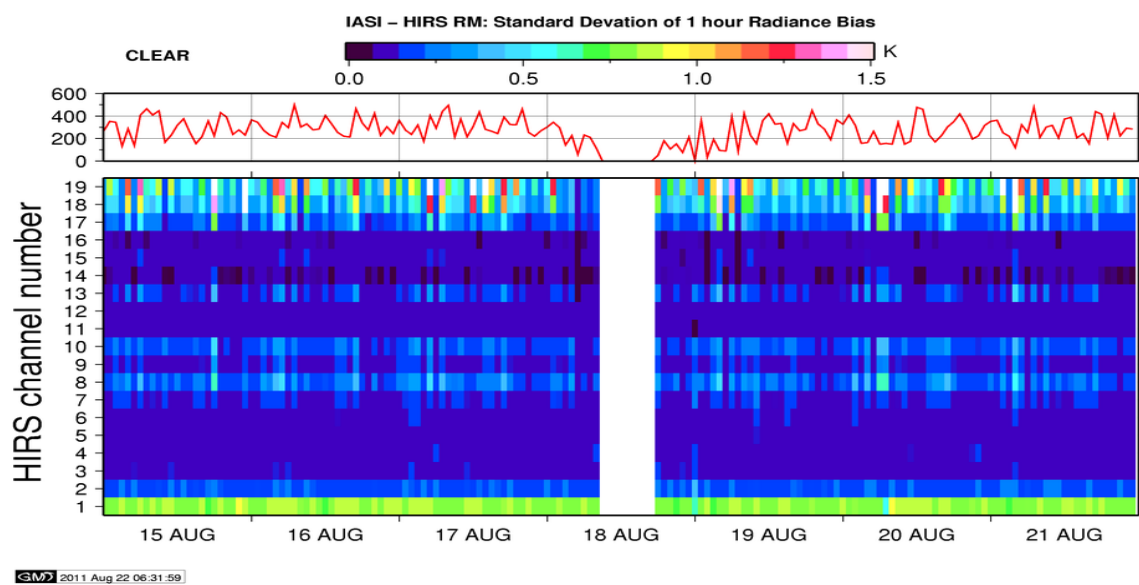


Figure 19: Standard Deviation of Radiance Differences 1h Average - Clear Sky