IASI L0 and L1 Weekly Monitoring Report

IASI monitoring team

12/12/2011 00:00:00 - 19/12/2011 00:00:00 (Week 50)

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 12/12/2011 00:00:00 - 19/12/2011 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 12/12/2011 00:00:00 - 19/12/2011 00:00:00

Product Type	**Number**	**Action**
L0 HKTM PDUs	3361	-
L0 IASI PDUs	3361	-
L1 ENG PDUs	3360	-
L1 ENG distinct GEPSGranule	3357	-
L1 DPX PDUs (RM: IASI-HIRS)	3089	-
L1 DPS Files (RM: OBS-CAL NWP based)	3360	-

Table 1: Data quantity

APID	**Packet type**	**Packets lost**
130	PX1	67
135	PX2	69
140	PX3	67
145	PX4	67
150	IMG	79
160	VER	16
180	AUX	5

Table 2: L0 packet losses

3 Instrument modes

Time	Transition from	Transition to
12/12/2011 00:07:43	-	Normal operation
14/12/2011 05:11:27	Normal operation	Auxiliary ASE synchronised
14/12/2011 05:13:35	Auxiliary ASE synchronised	External calibration
14/12/2011 09:07:27	External calibration	Auxiliary ASE synchronised
14/12/2011 09:09:35	Auxiliary ASE synchronised	Normal operation
14/12/2011 13:19:43	External calibration	Auxiliary ASE synchronised
14/12/2011 13:21:51	Auxiliary ASE synchronised	Normal operation
14/12/2011 15:04:30	External calibration	Auxiliary ASE synchronised
14/12/2011 15:06:38	Auxiliary ASE synchronised	Normal operation
14/12/2011 16:52:30	External calibration	Auxiliary ASE synchronised
14/12/2011 16:54:22	Auxiliary ASE synchronised	Normal operation
14/12/2011 18:37:02	External calibration	Auxiliary ASE synchronised
14/12/2011 18:38:54	Auxiliary ASE synchronised	Normal operation
14/12/2011 19:42:54	Auxiliary ASE synchronised	External calibration
14/12/2011 20:39:58	External calibration	Auxiliary ASE synchronised
14/12/2011 20:42:06	Auxiliary ASE synchronised	Normal operation
14/12/2011 21:25:34	Normal operation	Auxiliary ASE synchronised
14/12/2011 21:27:42	Auxiliary ASE synchronised	External calibration
14/12/2011 22:22:54	External calibration	Auxiliary ASE synchronised
14/12/2011 22:24:46	Auxiliary ASE synchronised	Normal operation
14/12/2011 23:11:26	Normal operation	Auxiliary ASE synchronised
14/12/2011 23:13:34	Auxiliary ASE synchronised	External calibration
15/12/2011 00:06:22	External calibration	Auxiliary ASE synchronised
15/12/2011 00:08:30	Auxiliary ASE synchronised	Normal operation
15/12/2011 00:57:50	Normal operation	Auxiliary ASE synchronised
15/12/2011 01:51:10	External calibration	Auxiliary ASE synchronised
15/12/2011 01:53:02	Auxiliary ASE synchronised	Normal operation
15/12/2011 02:44:14	Normal operation	Auxiliary ASE synchronised
15/12/2011 02:46:06	Auxiliary ASE synchronised	External calibration
15/12/2011 05:23:26	External calibration	Auxiliary ASE synchronised
15/12/2011 05:25:34	Auxiliary ASE synchronised	Normal operation
15/12/2011 06:39:26	Normal operation	Auxiliary ASE synchronised
15/12/2011 06:41:18	Auxiliary ASE synchronised	External calibration
15/12/2011 07:09:34	External calibration	Auxiliary ASE synchronised
15/12/2011 07:11:42	Auxiliary ASE synchronised	Normal operation
15/12/2011 08:22:06	Normal operation	Auxiliary ASE synchronised
15/12/2011 08:24:14	Auxiliary ASE synchronised	External calibration
15/12/2011 08:54:54	External calibration	Auxiliary ASE synchronised
15/12/2011 10:04:30	Normal operation	Auxiliary ASE synchronised
15/12/2011 10:06:38	Auxiliary ASE synchronised	External calibration
15/12/2011 10:40:30	Auxiliary ASE synchronised	Normal operation
15/12/2011 11:46:38	Normal operation	Auxiliary ASE synchronised
15/12/2011 11:48:30	Auxiliary ASE synchronised	External calibration
15/12/2011 12:20:46	Auxiliary ASE synchronised	Normal operation
15/12/2011 13:30:38	Normal operation	Auxiliary ASE synchronised
15/12/2011 13:32:46	Auxiliary ASE synchronised	External calibration
15/12/2011 14:01:18	Auxiliary ASE synchronised	Normal operation
15/12/2011 15:16:14	Normal operation	Auxiliary ASE synchronised
15/12/2011 15:18:06	Auxiliary ASE synchronised	External calibration
15/12/2011 15:39:58	External calibration	Auxiliary ASE synchronised
15/12/2011 15:42:06	Auxiliary ASE synchronised	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Day	L0 quality	L1 quality	L0 PDUs	L1 PDUs
12/12/2011	99.30 %	99.28 %	480	480
13/12/2011	99.31 %	99.30 %	480	480
14/12/2011	98.36 %	97.77 %	480	480
15/12/2011	98.82 %	98.26 %	480	480
16/12/2011	99.31 %	99.30 %	480	480
17/12/2011	99.31 %	99.29 %	480	480
18/12/2011	99.29 %	99.28 %	480	479

Table 4: Quality overview

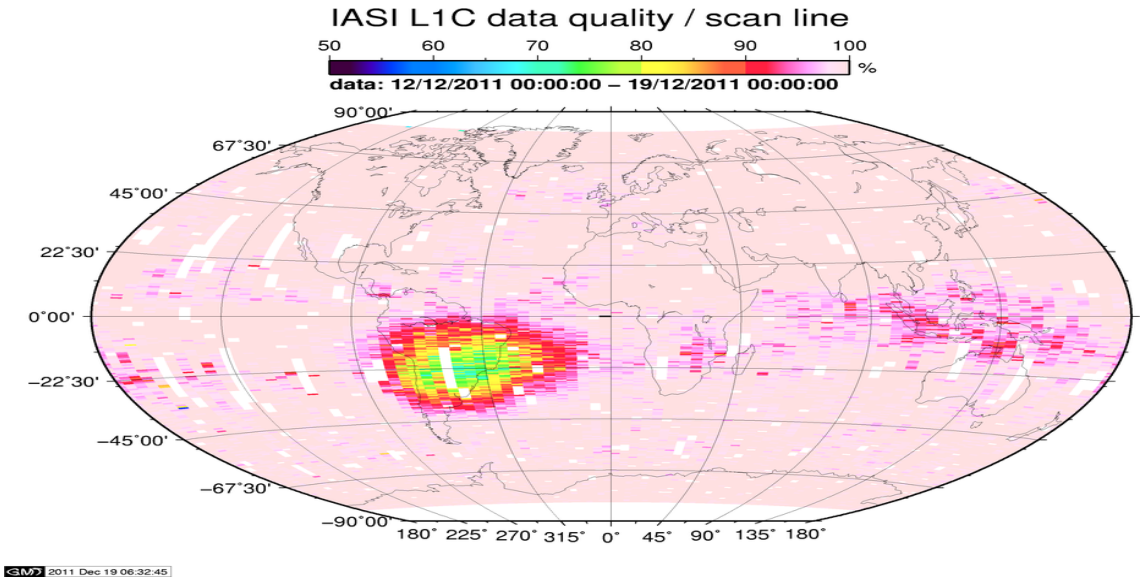

Figure 1: L1C data quality

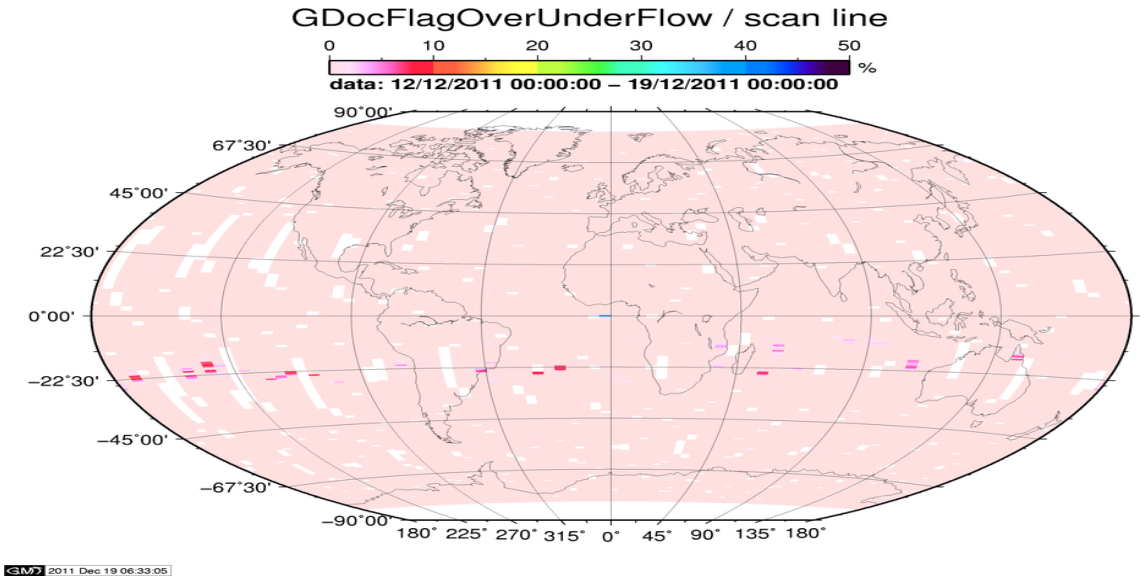

Figure 2: Flag of Over and Under Flows

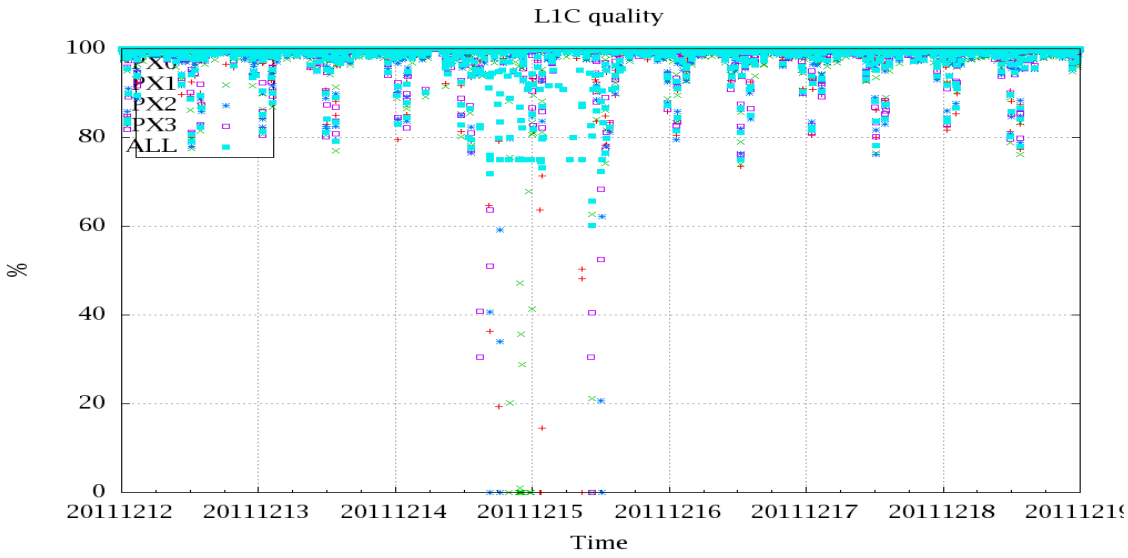

Figure 3: Level 1C quality

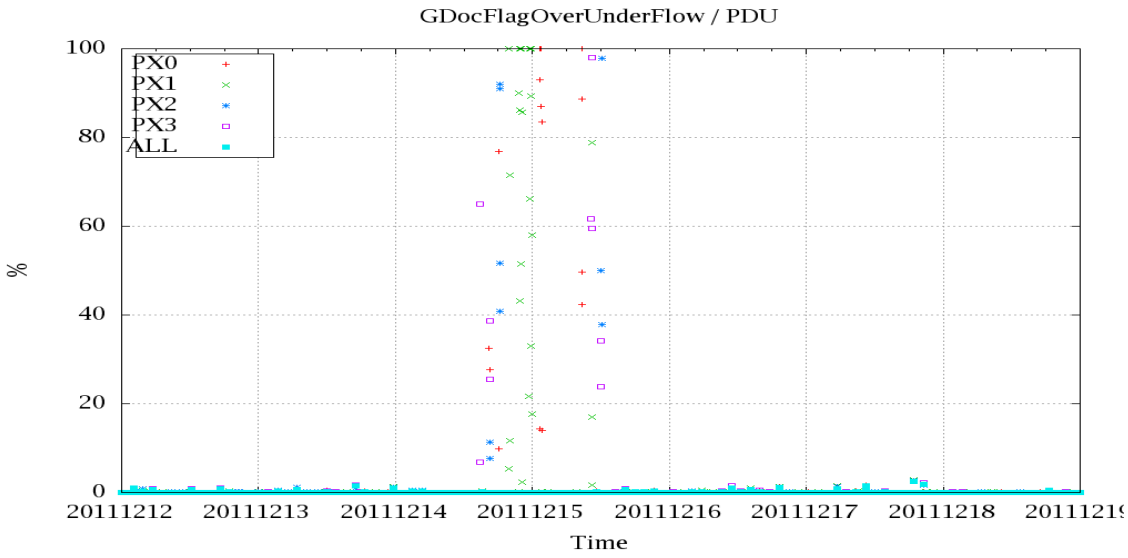

Figure 4: OverUnderFlowFlag timeseries

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 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 ratiative 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).

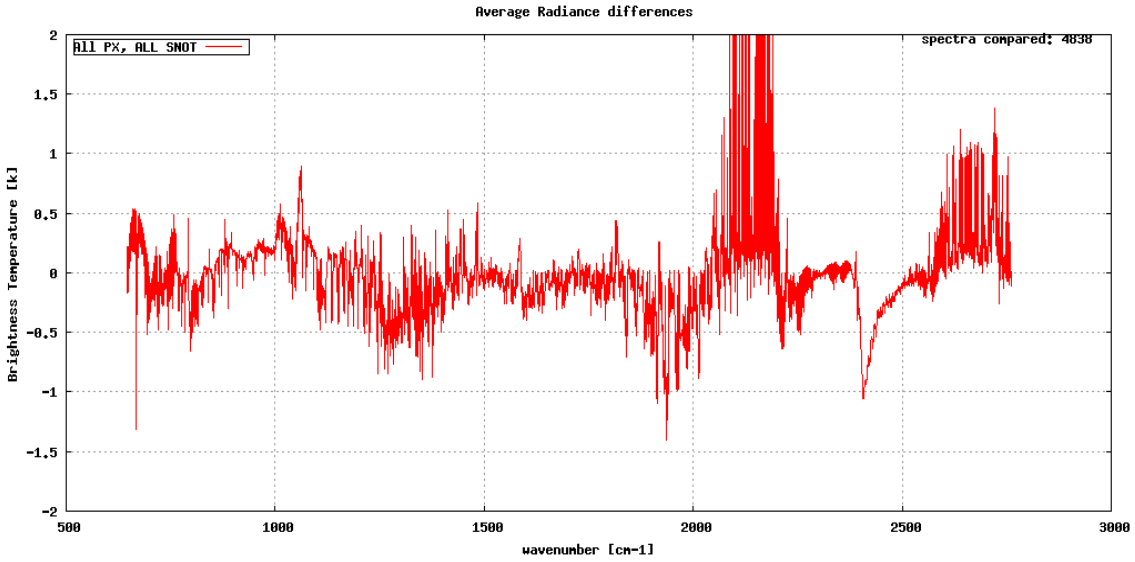

Figure 5: Average radiance differences: OBS-CAL

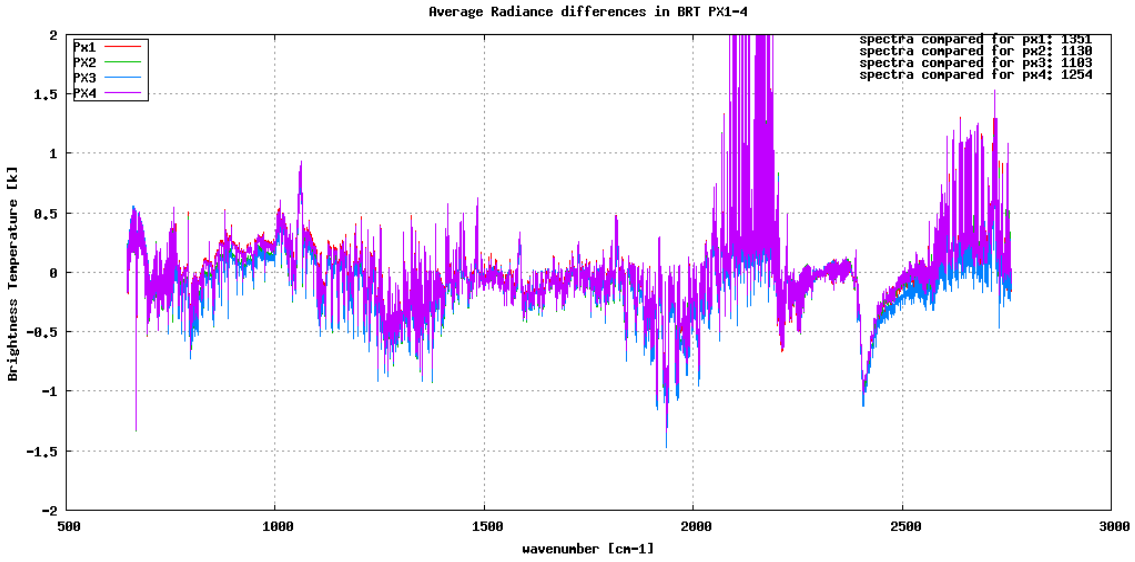

Figure 6: Average radiance differences: OBS-CAL

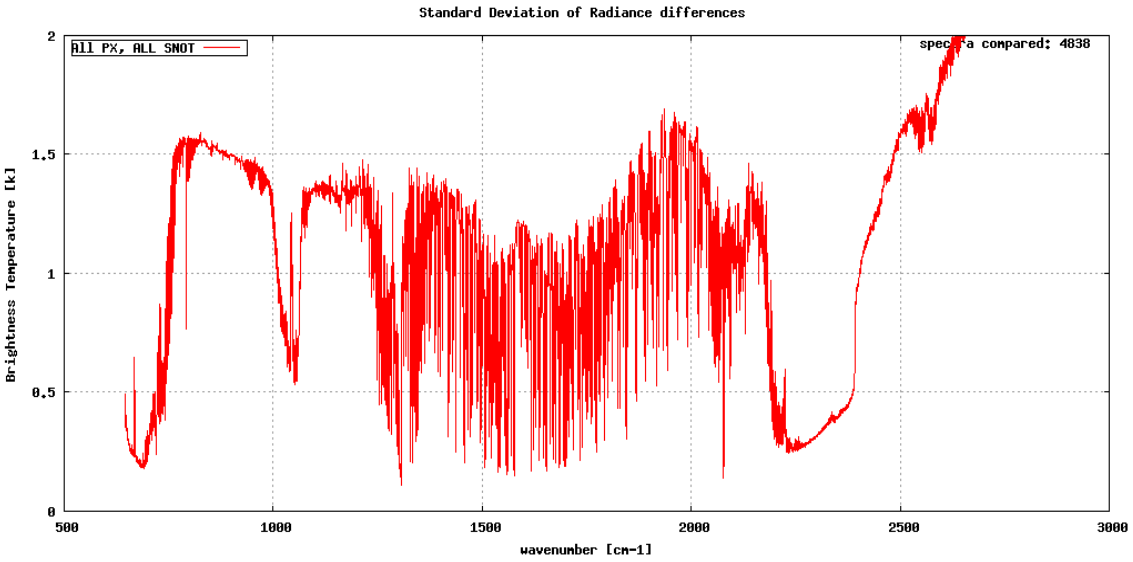

Figure 7: Standard deviation of radiance differences

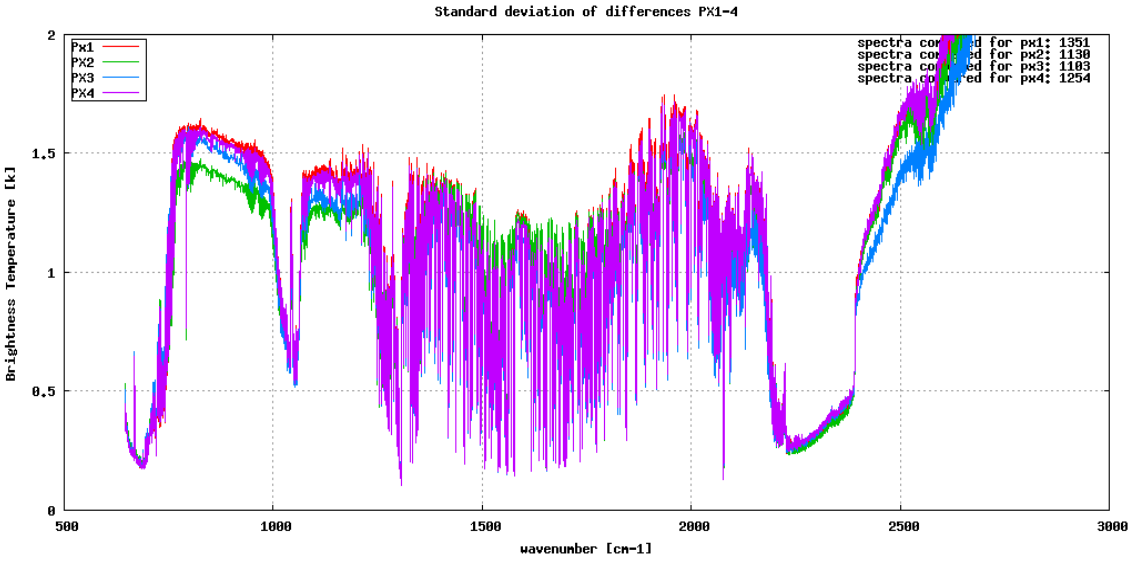

Figure 8: Standard deviation of radiance differences per pixel

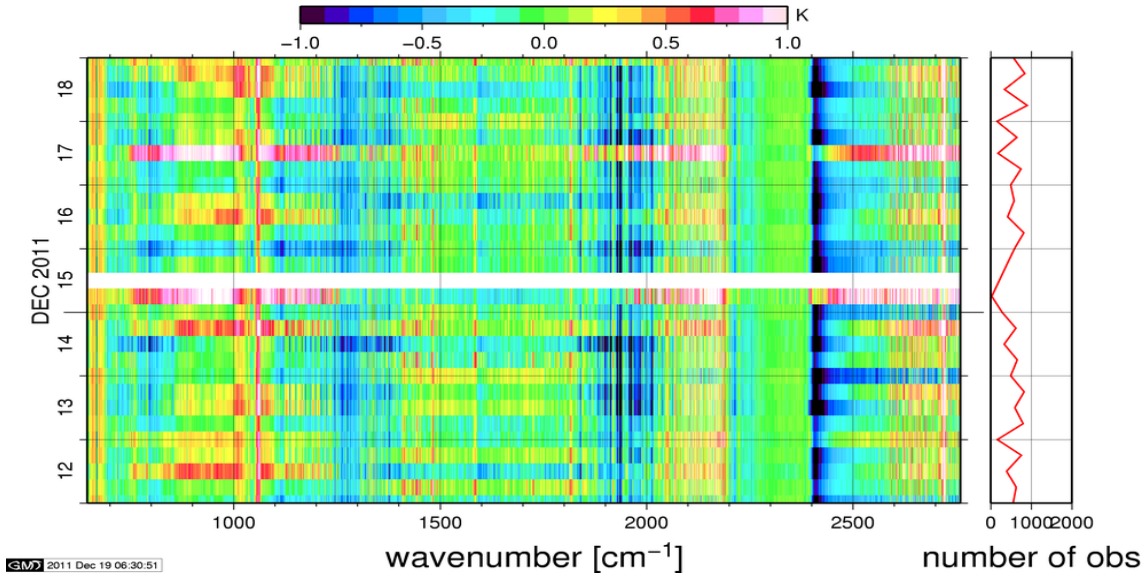

Figure 9: Radiance bias in BRT: All Channels

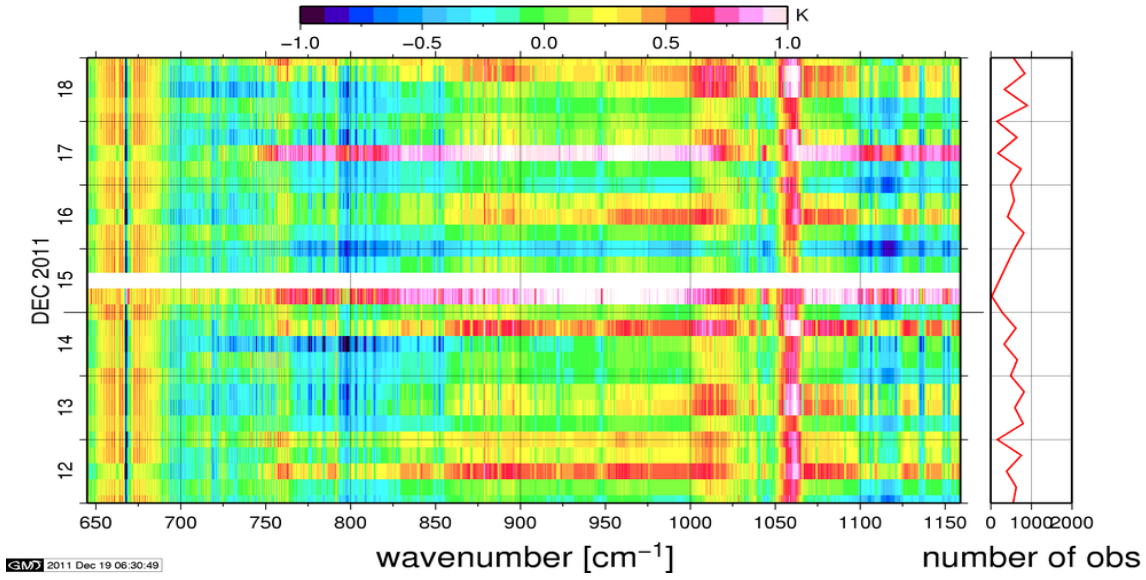

Figure 10: Radiance bias in BRT: IASI Band 1

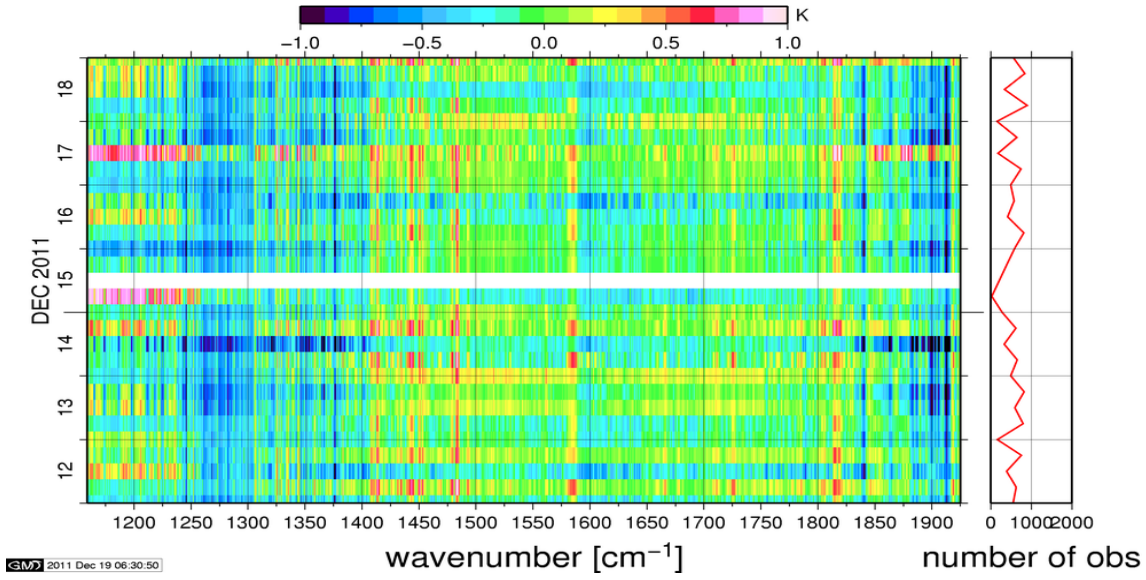

Figure 11: Radiance bias in BRT: IASI Band 2

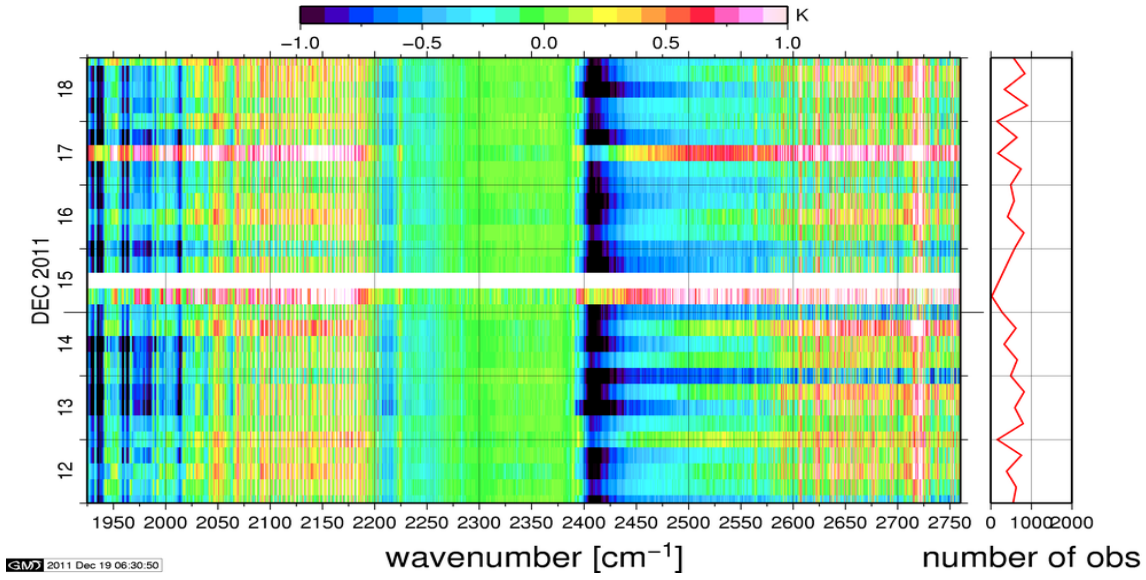

Figure 12: Radiance bias in BRT: IASI Band 3

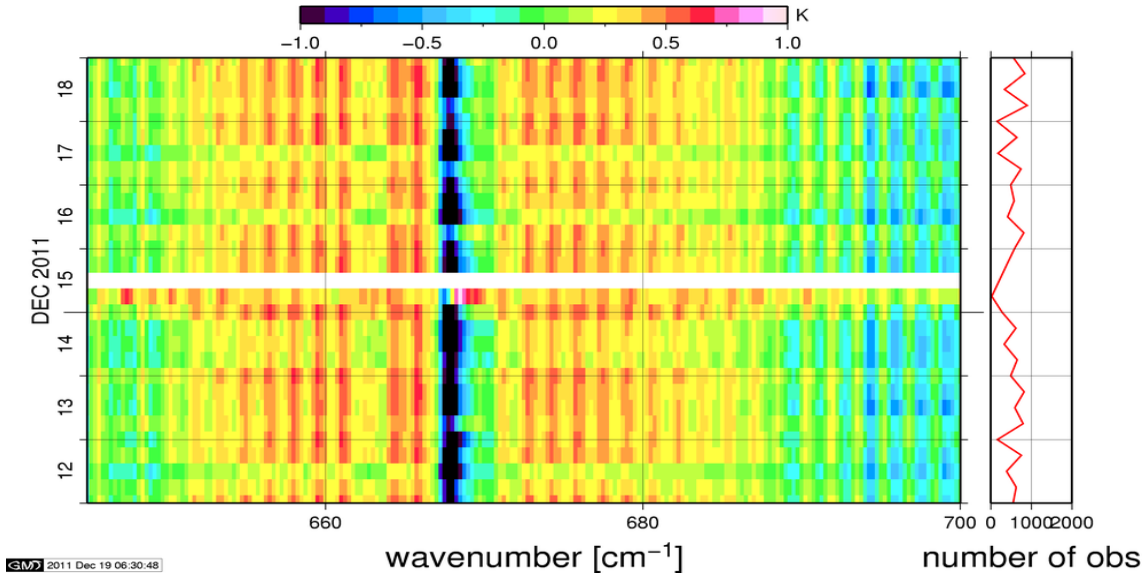

Figure 13: Radiance bias in BRT: CO2 14

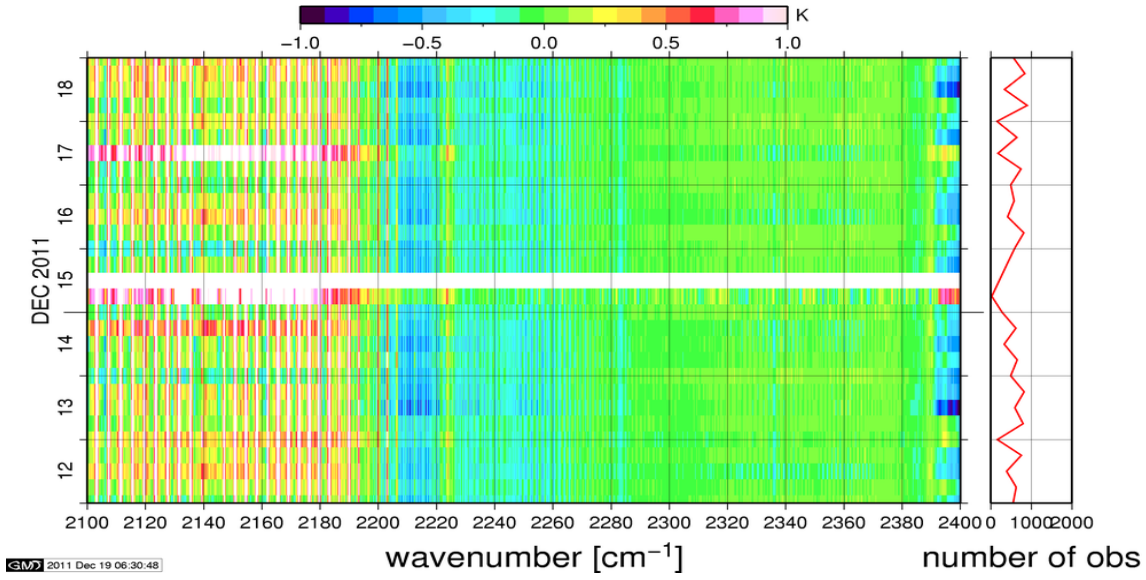

Figure 14: Radiance bias in BRT: CO2 4.3

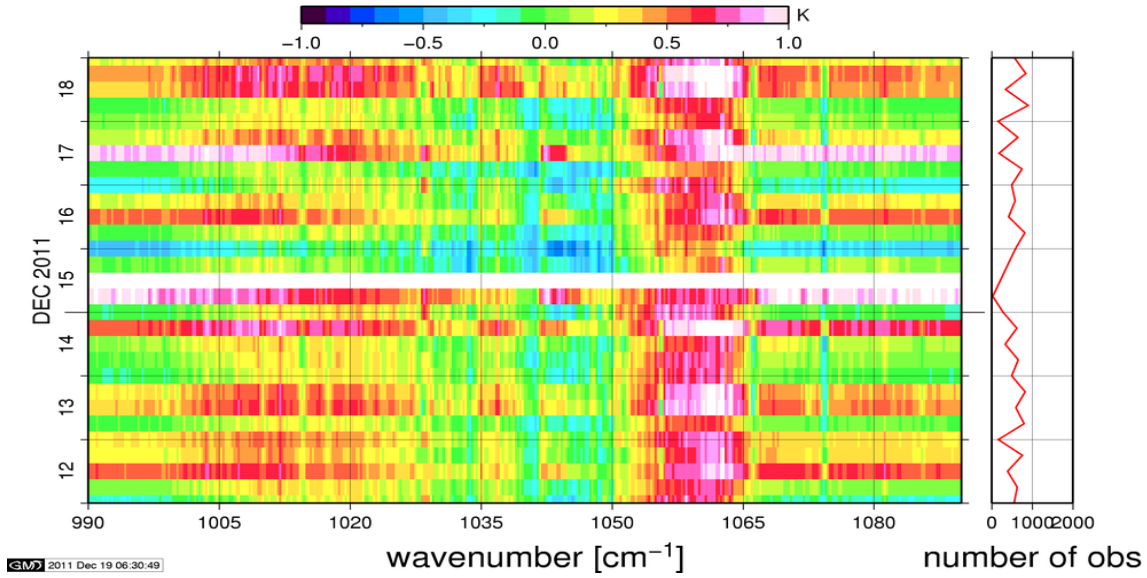

Figure 15: Radiance bias in BRT: O3

6 IASI-HIRS radiance comparision Channel 1-19

The radiance comparision 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.

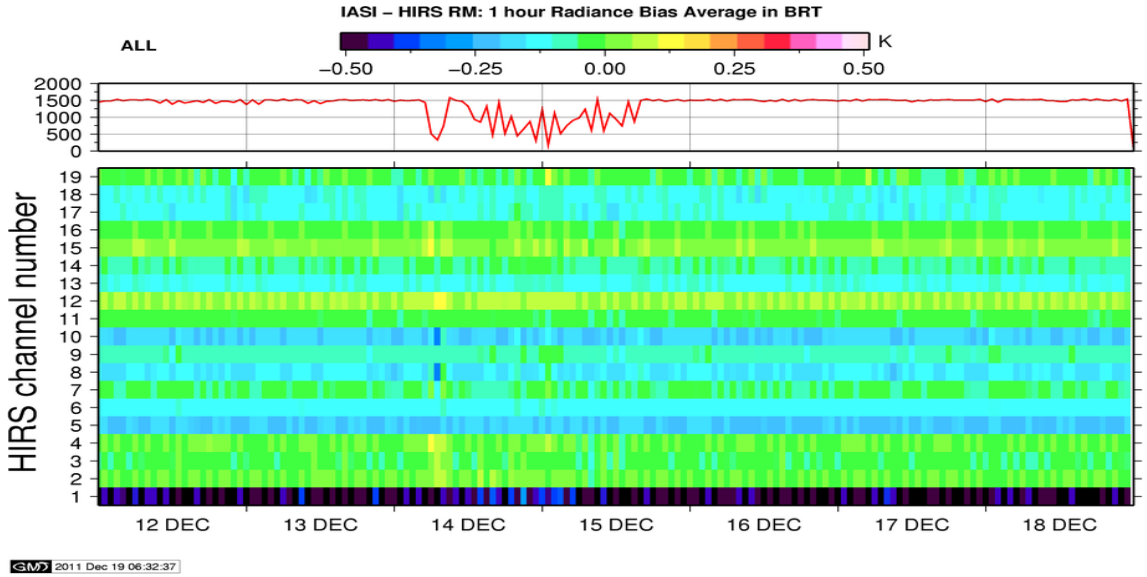

Figure 16: Radiance Differences in BRT 1h Average

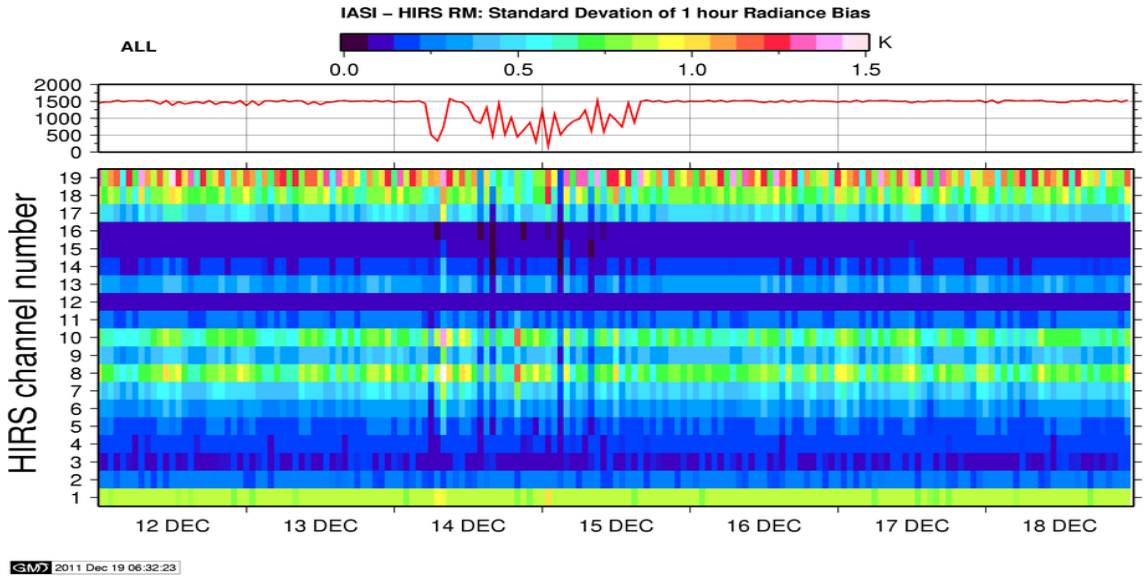

Figure 17: Standard Deviation of Radiance Differences 1h Average

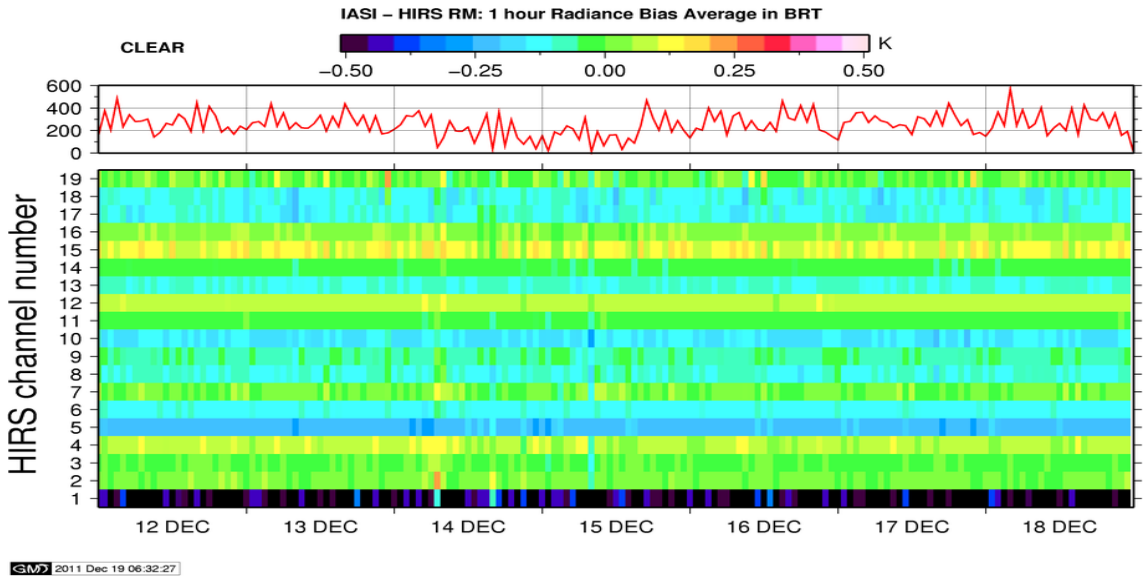

Figure 18: Radiance Differences in BRT 1h Average - Clear Sky

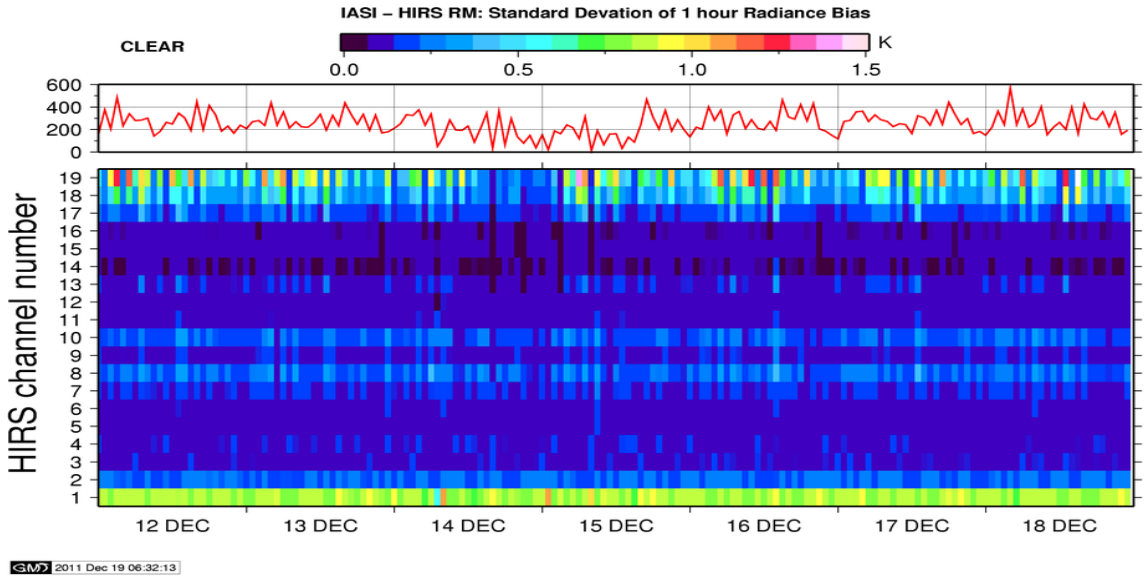

Figure 19: Standard Deviation of Radiance Differences 1h Average - Clear Sky