IASI L0 and L1 Weekly Monitoring Report

IASI monitoring team

04/11/2013 00:00:00 - 11/11/2013 00:00:00 (Week 45)

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 04/11/2013 00:00:00 - 11/11/2013 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 04/11/2013 00:00:00 - 11/11/2013 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	3361	-
L0 IASI PDUs	1888	-
L1 ENG PDUs	1887	-
L1 ENG distinct GEPSGranule	1887	-
L1 DPX PDUs (RM: IASI-HIRS)	1807	-
L1 DPS Files (RM: OBS-CAL NWP based)	1886	-

Table 1: Data quantity

APID	Packet type	Packets lost
-	-	-

Table 2: L0 packet losses

Copyright 2010 ©EUMETSAT. All rights reserved.
European Organisation for the Exploitation of Meteorological Satellites

3 Instrument modes

Time	Transition from	Transition to
04/11/2013 00:00:10	-	Normal operation
05/11/2013 07:14:17	Normal operation	Auxiliary ASE synchronised
05/11/2013 07:14:49	Auxiliary ASE synchronised	Heater 2
05/11/2013 07:15:21	Heater 2	Heater 1 warm up
05/11/2013 07:15:53	Heater 1 warm up	Standby
05/11/2013 17:29:13	Standby	Heater 1 warm up
06/11/2013 08:43:21	Heater 1 warm up	Heater 2
08/11/2013 08:23:21	Heater 2	Auxiliary ASE synchronised
08/11/2013 08:54:17	Auxiliary ASE synchronised	Normal operation
09/11/2013 05:12:08	Normal operation	Auxiliary ASE synchronised
09/11/2013 05:14:00	Auxiliary ASE synchronised	External calibration
09/11/2013 09:08:08	External calibration	Auxiliary ASE synchronised
09/11/2013 09:10:00	Auxiliary ASE synchronised	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Day	L0 quality	L1 quality	L0 PDUs	L1 PDUs
04/11/2013	99.49 %	99.49 %	480	480
05/11/2013	99.38 %	99.37 %	145	144
08/11/2013	99.48 %	99.47 %	302	303
09/11/2013	99.48 %	99.47 %	480	480
10/11/2013	99.46 %	99.45 %	480	480

Table 4: Quality overview

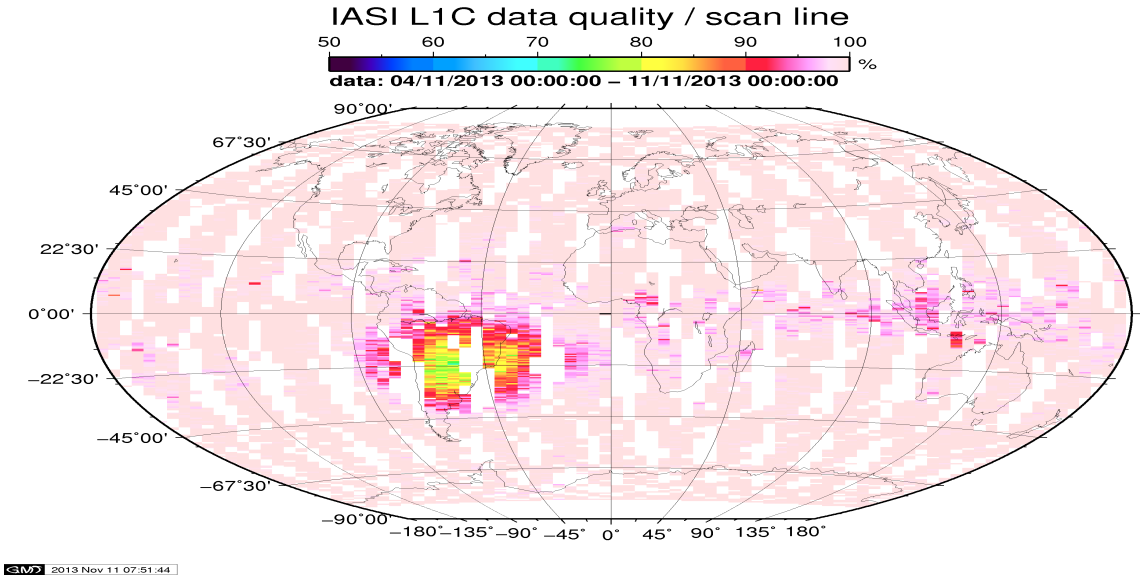

Figure 1: L1C data quality

Copyright 2010 ©EUMETSAT. All rights reserved.
European Organisation for the Exploitation of Meteorological Satellites

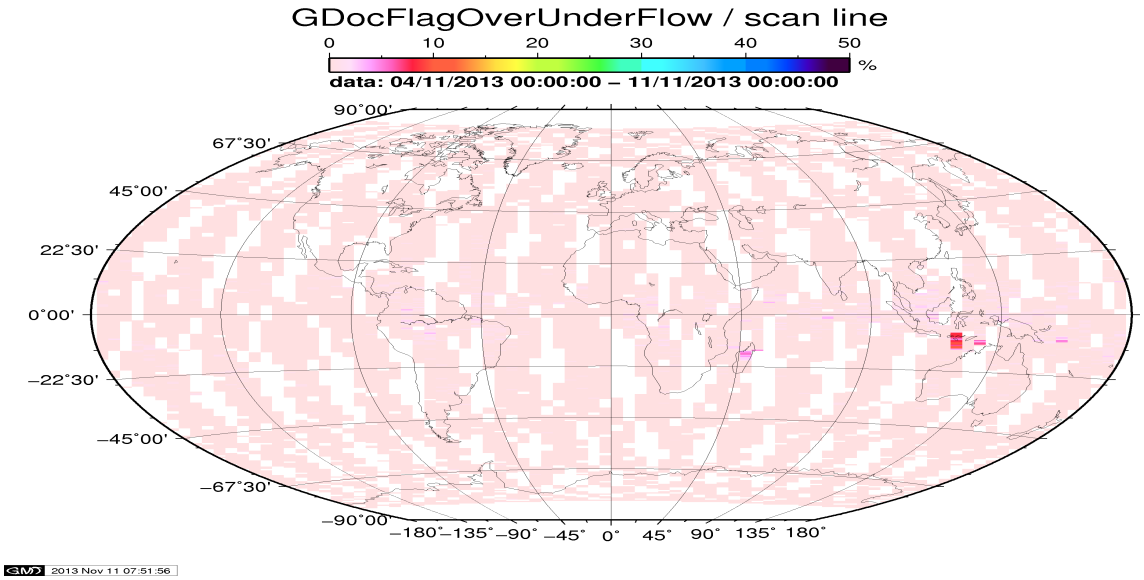

Figure 2: Flag of Over and Under Flows

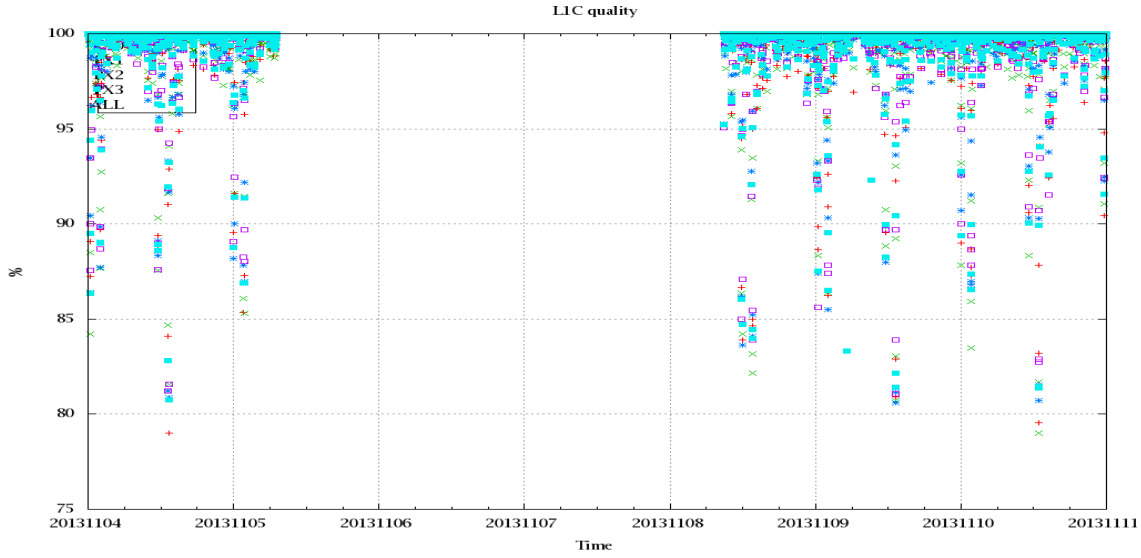

Figure 3: Level 1C quality

Copyright 2010 ©EUMETSAT. All rights reserved.
European Organisation for the Exploitation of Meteorological Satellites

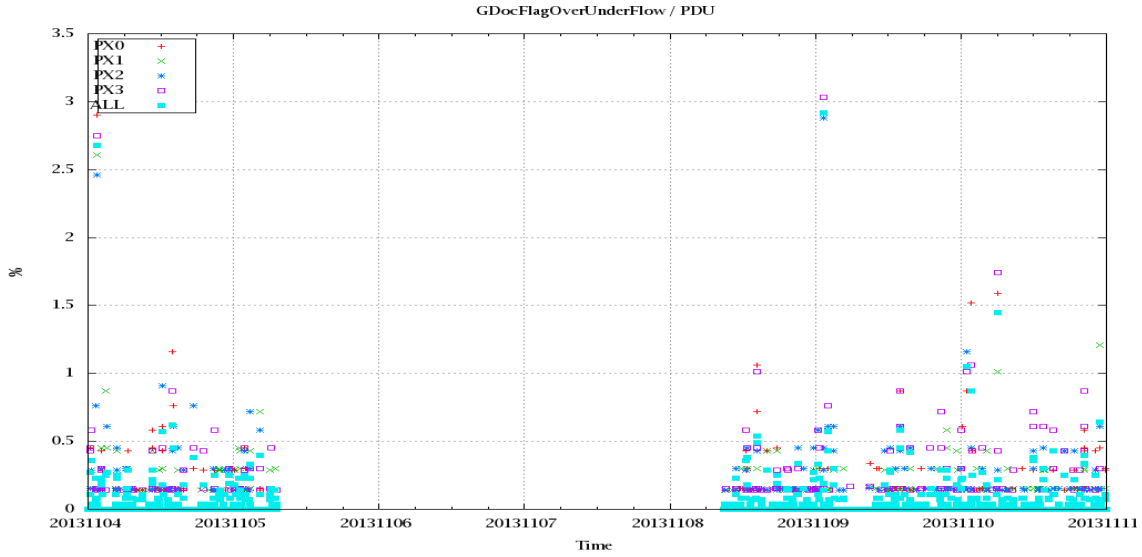

Figure 4: OverUnderFlowFlag timeseries

Copyright 2010 ©EUMETSAT. All rights reserved.
European Organisation for the Exploitation of Meteorological Satellites

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).

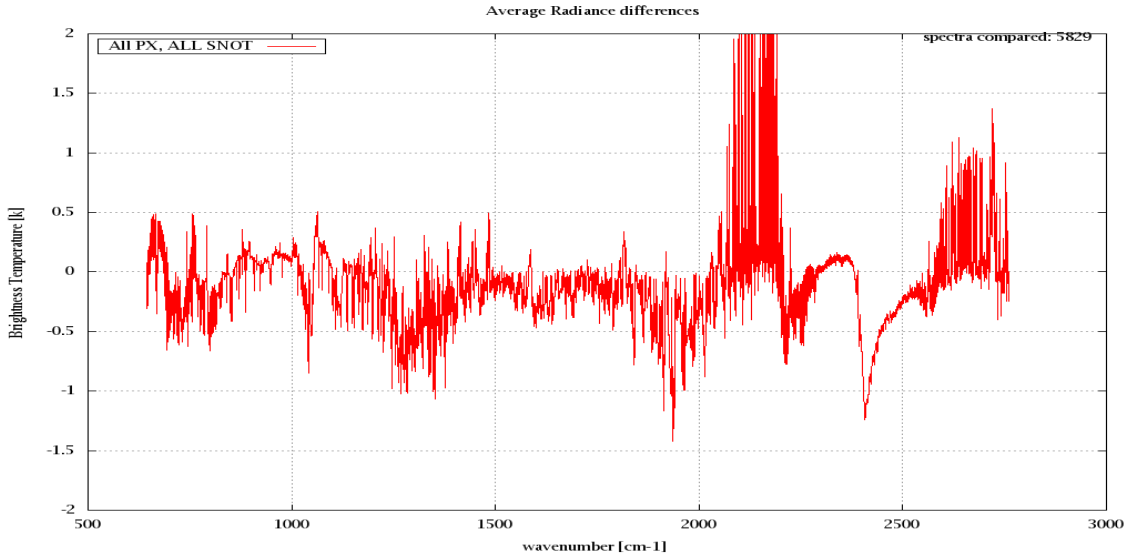

Figure 5: Average radiance differences: OBS-CAL

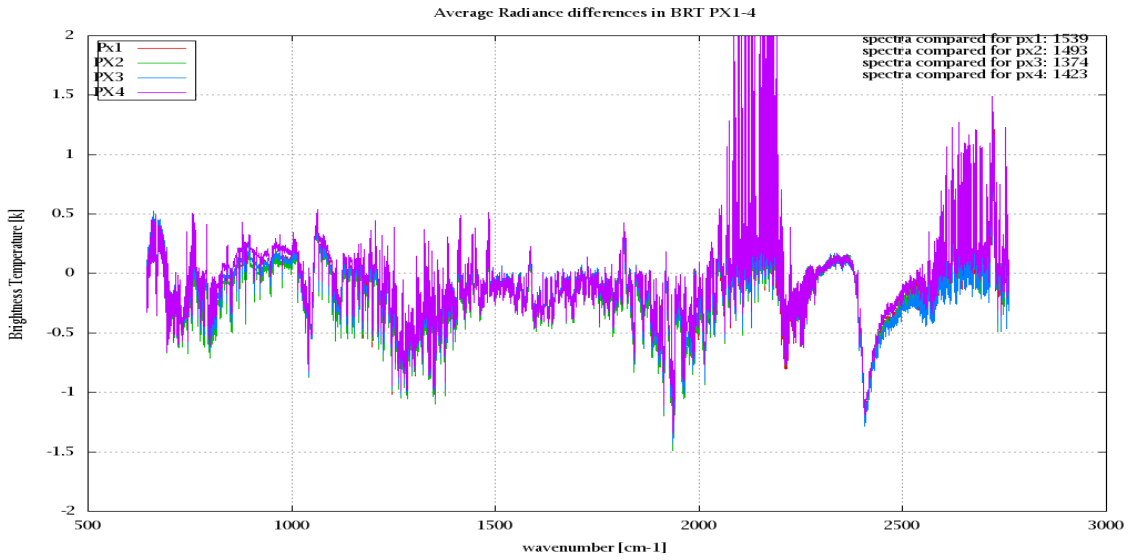

Figure 6: Average radiance differences: OBS-CAL

Copyright 2010 ©EUMETSAT. All rights reserved.
European Organisation for the Exploitation of Meteorological Satellites

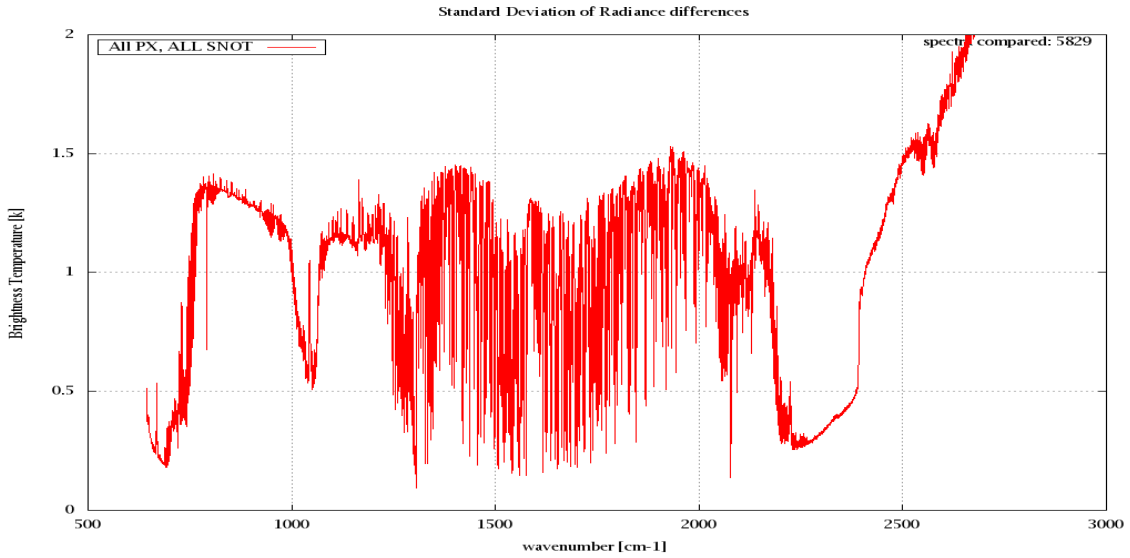

Figure 7: Standard deviation of radiance differences

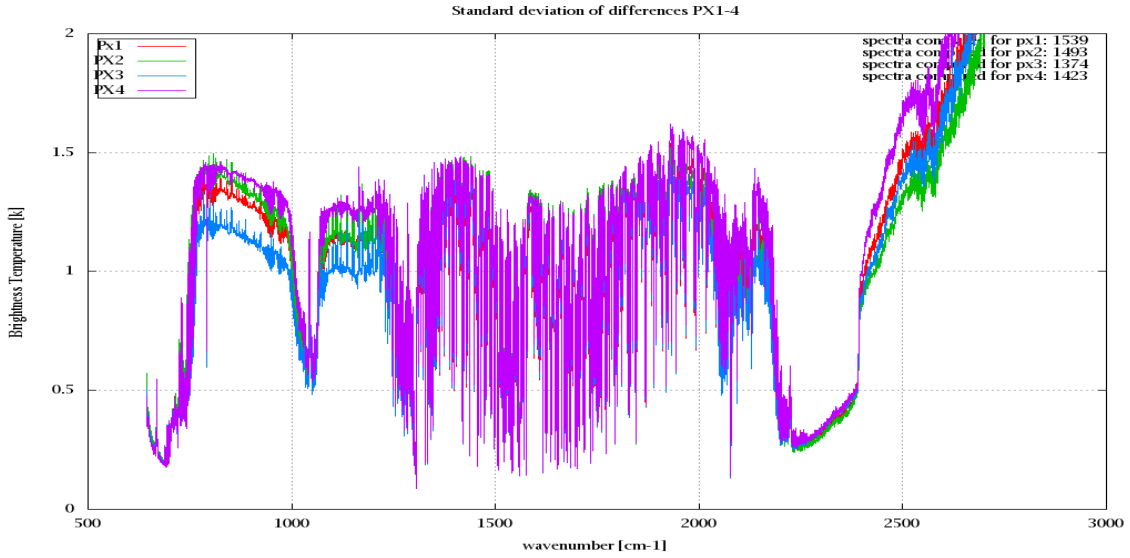

Figure 8: Standard deviation of radiance differences per pixel

Copyright 2010 ©EUMETSAT. All rights reserved.
European Organisation for the Exploitation of Meteorological Satellites

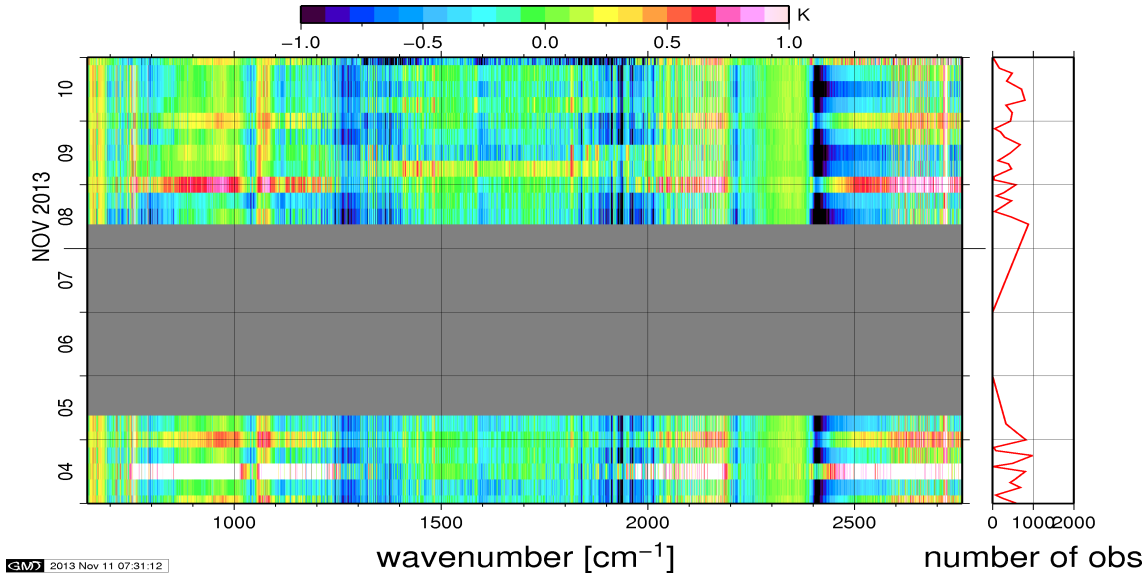

Figure 9: Radiance bias in BRT: All Channels

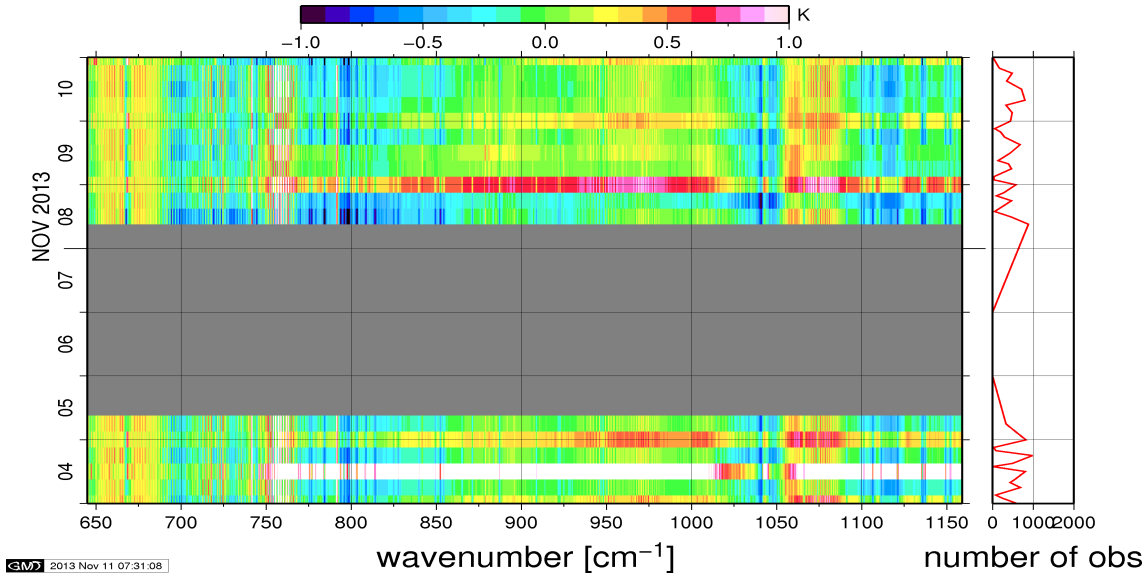

Figure 10: Radiance bias in BRT: IASI Band 1

Copyright 2010 ©EUMETSAT. All rights reserved.
European Organisation for the Exploitation of Meteorological Satellites

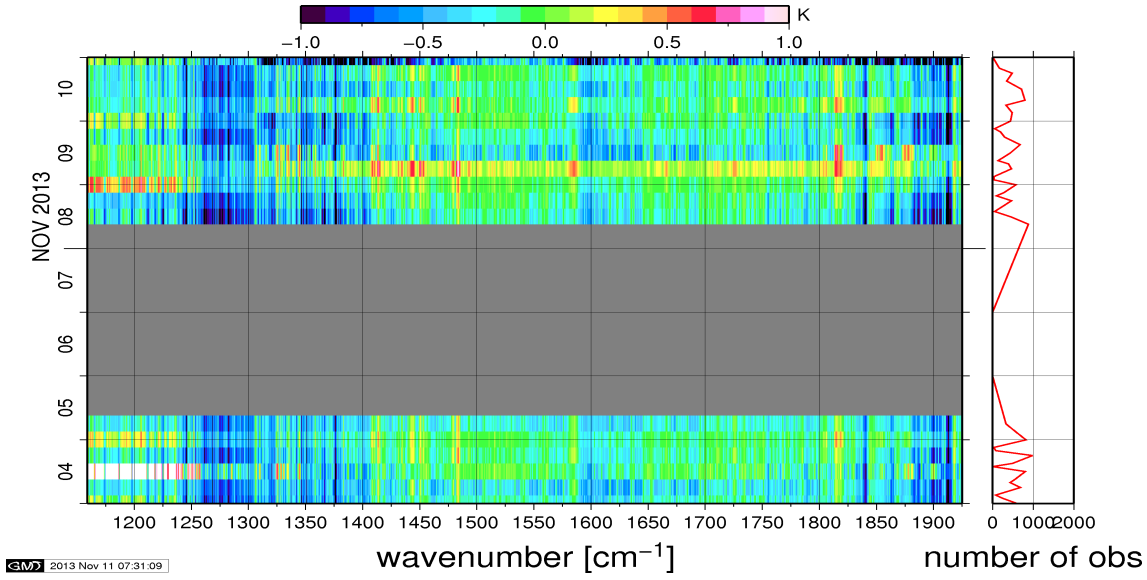

Figure 11: Radiance bias in BRT: IASI Band 2

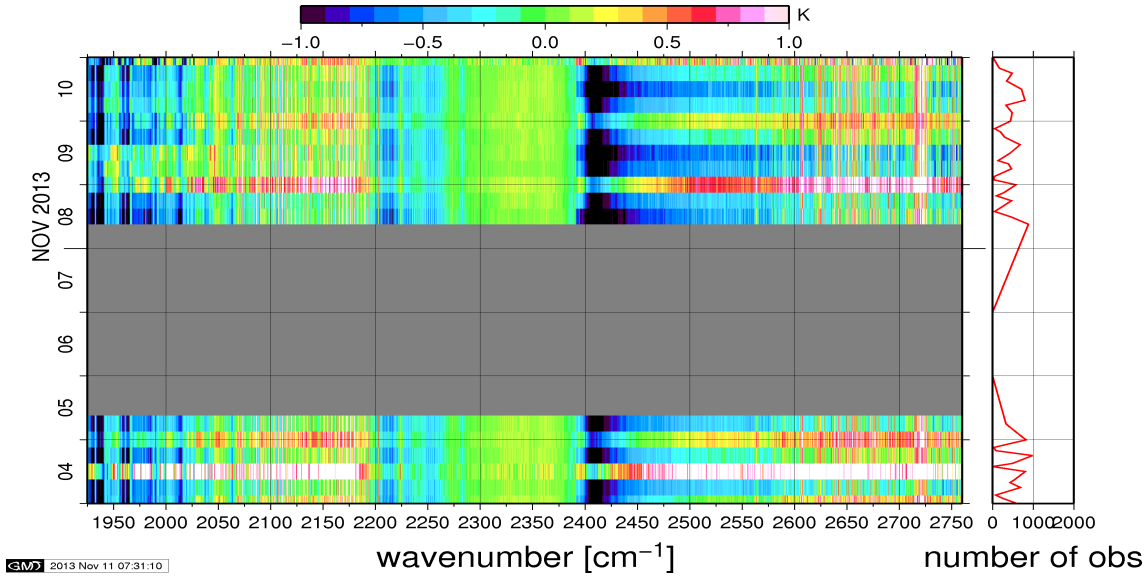

Figure 12: Radiance bias in BRT: IASI Band 3

Copyright 2010 ©EUMETSAT. All rights reserved.
European Organisation for the Exploitation of Meteorological Satellites

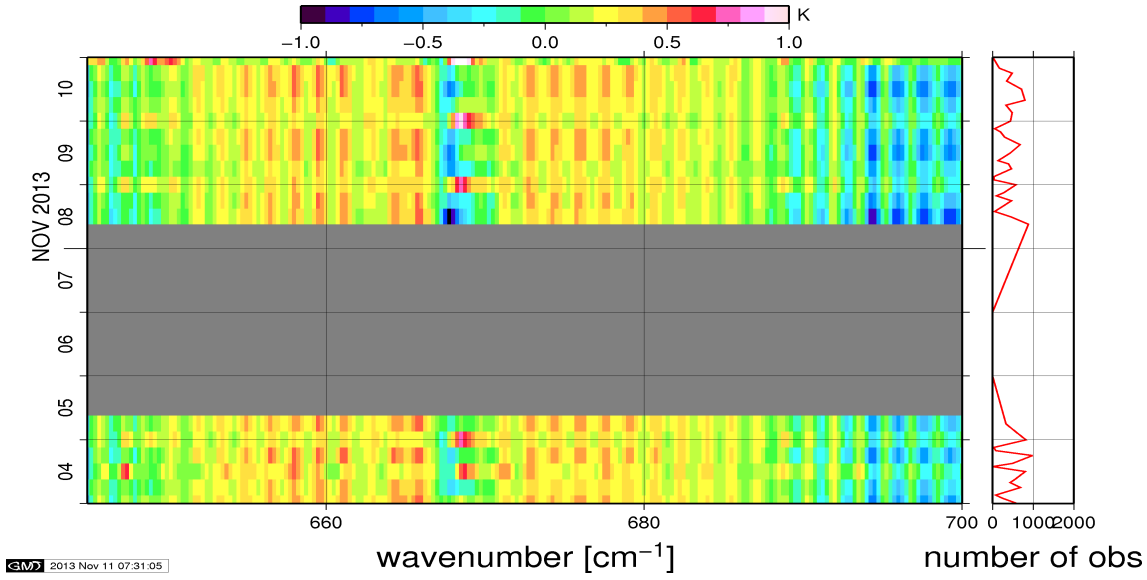

Figure 13: Radiance bias in BRT: CO2 14

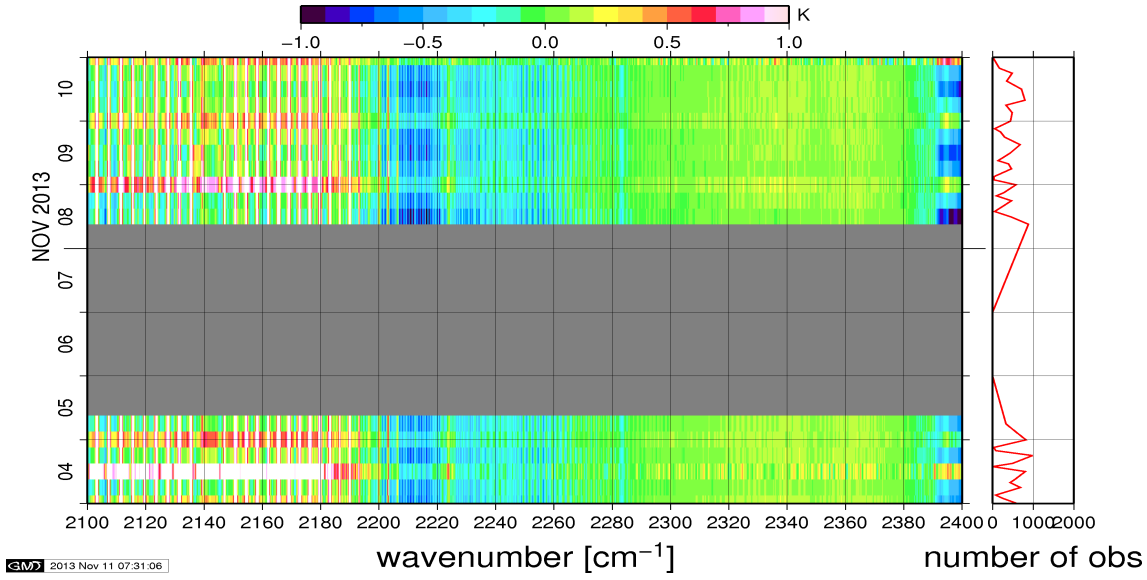

Figure 14: Radiance bias in BRT: CO2 4.3

Copyright 2010 ©EUMETSAT. All rights reserved.
European Organisation for the Exploitation of Meteorological Satellites

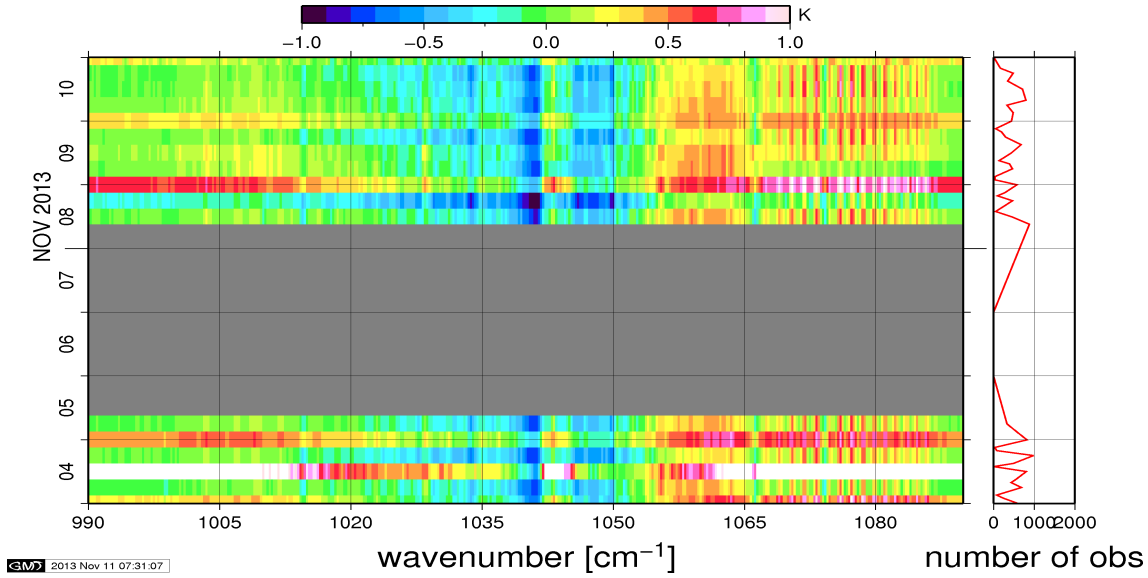

Figure 15: Radiance bias in BRT: O3

Copyright 2010 ©EUMETSAT. All rights reserved.
European Organisation for the Exploitation of Meteorological Satellites

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.

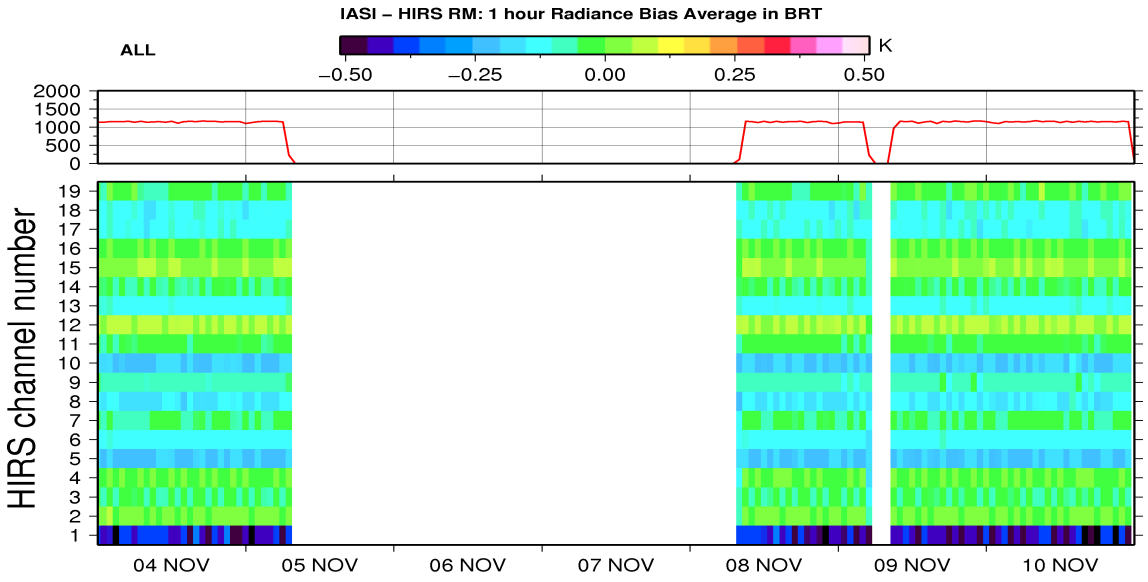

Figure 16: Radiance Differences in BRT 1h Average

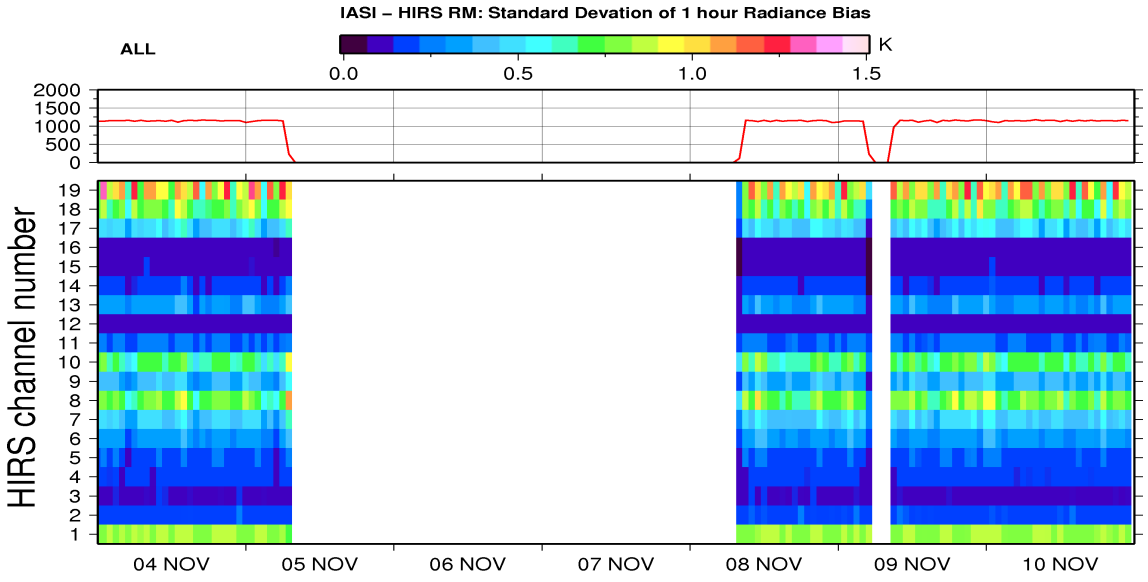

Figure 17: Standard Deviation of Radiance Differences 1h Average

Copyright 2010 ©EUMETSAT. All rights reserved.
European Organisation for the Exploitation of Meteorological Satellites

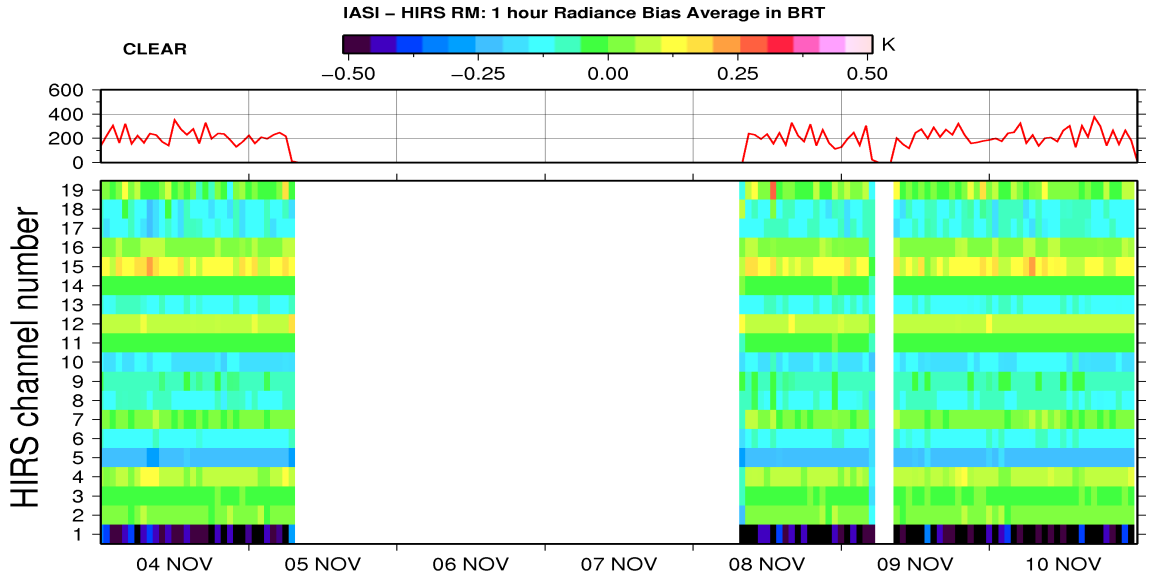

Figure 18: Radiance Differences in BRT 1h Average - Clear Sky

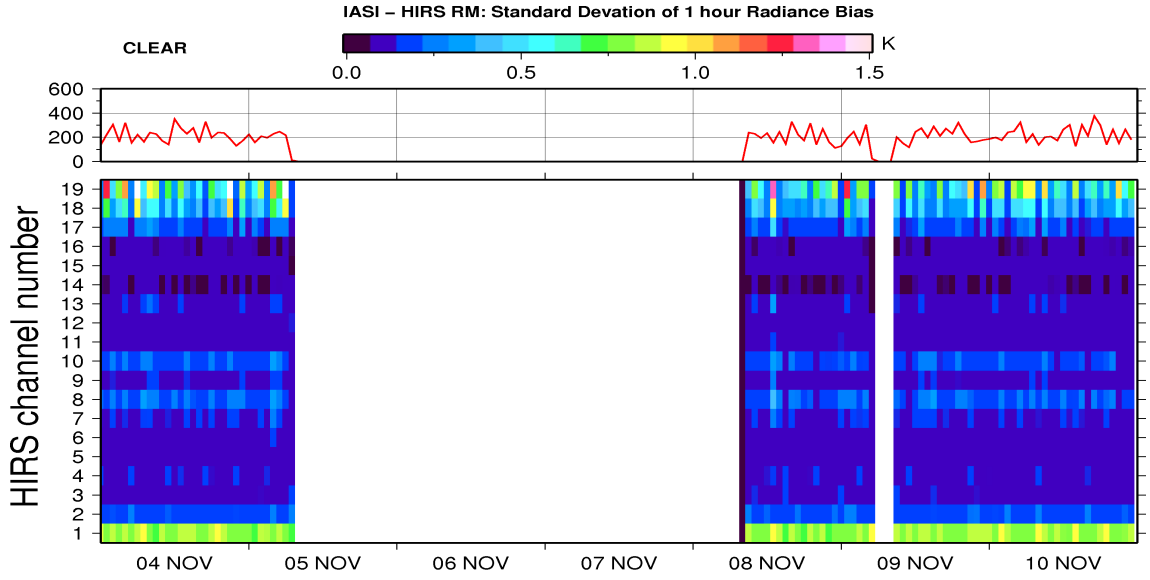

Figure 19: Standard Deviation of Radiance Differences 1h Average - Clear Sky

Copyright 2010 ©EUMETSAT. All rights reserved.
European Organisation for the Exploitation of Meteorological Satellites