IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

18/03/2018 00:00:00 - 19/03/2018 00:00:00

1 Introduction

This report provides summary monitoring plots and figures from IASI instrument on the MetOp-B satellite retrieved from the IASI L0 and L1 ENG product (3 minute data packet) for 18/03/2018 00:00:00 - 19/03/2018 00:00:00 .

The monitoring data are extracted on PDU basis.

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

2 Data quantity 18/03/2018 00:00:00 - 19/03/2018 00:00:00

Product Type	Number	Action
L0 HKTM PDUs	481	-
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	481	-
L1 DPX PDUs (RM: IASI-HIRS)	480	-
L1 DPS Files (RM: OBS-CAL NWP based)	0	e

Table 1: Data quantity

APID	Seq from	Seq to	Time from	Time to
PX1 (130)	4083	4124	20180318023422.822	20180318023434.712
PX1 (130)	4131	4195	20180318023436.228	20180318023453.091
PX1 (130)	4212	4274	20180318023456.767	20180318023514.712
PX1 (130)	2045	2102	20180318060347.334	20180318060402.686
PX1 (130)	2105	2173	20180318060403.334	20180318060421.064
PX1 (130)	2181	2252	20180318060422.791	20180318060442.682
PX1 (130)	332	338	20180318142552.722	20180318142555.534
PX1 (130)	342	417	20180318142556.398	20180318142615.640
PX1 (130)	419	488	20180318142616.073	20180318142635.530
PX1 (130)	490	567	20180318142635.964	20180318142655.640
PX1 (130)	12132	12290	20180318174358.079	20180318174439.810
PX1 (130)	2221	2239	20180318192533.441	20180318192538.847
PX1 (130)	2245	2317	20180318192540.144	20180318192558.738
PX1 (130)	2321	2389	20180318192559.605	20180318192618.847
PX2 (135)	4083	4124	20180318023422.822	20180318023434.712
PX2 (135)	4130	4195	20180318023436.009	20180318023453.091
PX2 (135)	4212	4274	20180318023456.767	20180318023514.712
PX2 (135)	2045	2102	20180318060347.334	20180318060402.686

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
PX2 (135)	2104	2173	20180318060403.119	20180318060421.064
PX2 (135)	2181	2252	20180318060422.791	20180318060442.682
PX2 (135)	331	338	20180318142552.507	20180318142555.534
PX2 (135)	342	416	20180318142556.398	20180318142615.425
PX2 (135)	419	488	20180318142616.073	20180318142635.530
PX2 (135)	490	566	20180318142635.964	20180318142655.421
PX2 (135)	12132	12290	20180318174358.079	20180318174439.810
PX2 (135)	2221	2238	20180318192533.441	20180318192538.632
PX2 (135)	2245	2317	20180318192540.144	20180318192558.738
PX2 (135)	2321	2388	20180318192559.605	20180318192618.629
PX3 (140)	4082	4123	20180318023422.607	20180318023432.986
PX3 (140)	4130	4195	20180318023436.009	20180318023453.091
PX3 (140)	4212	4274	20180318023456.767	20180318023514.712
PX3 (140)	2045	2101	20180318060347.334	20180318060400.955
PX3 (140)	2104	2173	20180318060403.119	20180318060421.064
PX3 (140)	2180	2251	20180318060422.576	20180318060440.955
PX3 (140)	331	338	20180318142552.507	20180318142555.534
PX3 (140)	342	416	20180318142556.398	20180318142615.425
PX3 (140)	419	488	20180318142616.073	20180318142635.530
PX3 (140)	490	566	20180318142635.964	20180318142655.421
PX3 (140)	12131	12290	20180318174357.864	20180318174439.810
PX3 (140)	2221	2238	20180318192533.441	20180318192538.632
PX3 (140)	2245	2317	20180318192540.144	20180318192558.738
PX3 (140)	2320	2388	20180318192559.386	20180318192618.629
PX4 (145)	4082	4123	20180318023422.607	20180318023432.986
PX4 (145)	4130	4195	20180318023436.009	20180318023453.091
PX4 (145)	4212	4273	20180318023456.767	20180318023512.986
PX4 (145)	2045	2101	20180318060347.334	20180318060400.955
PX4 (145)	2104	2173	20180318060403.119	20180318060421.064
PX4 (145)	2180	2251	20180318060422.576	20180318060440.955
PX4 (145)	331	338	20180318142552.507	20180318142555.534
PX4 (145)	342	416	20180318142556.398	20180318142615.425
PX4 (145)	419	488	20180318142616.073	20180318142635.530
PX4 (145)	490	566	20180318142635.964	20180318142655.421
PX4 (145)	12131	12290	20180318174357.864	20180318174439.810
PX4 (145)	2221	2238	20180318192533.441	20180318192538.632
PX4 (145)	2245	2317	20180318192540.144	20180318192558.738
PX4 (145)	2320	2388	20180318192559.386	20180318192618.629
IMG (150)	7778	7823	20180318023422.607	20180318023432.986
IMG (150)	7834	7907	20180318023436.009	20180318023453.091
IMG (150)	7923	7993	20180318023456.552	20180318023512.986
IMG (150)	12024	12085	20180318060347.119	20180318060400.955
IMG (150)	12092	12169	20180318060403.119	20180318060421.064
IMG (150)	12176	12255	20180318060422.576	20180318060440.955
IMG (150)	8987	8997	20180318142552.507	20180318142555.316
IMG (150)	9002	9084	20180318142556.398	20180318142615.425
IMG (150)	9086	9167	20180318142615.859	20180318142635.316
IMG (150)	9169	9254	20180318142635.749	20180318142655.421
IMG (150)	10347	10526	20180318174357.864	20180318174439.810
IMG (150)	3484	3506	20180318192533.226	20180318192538.632
IMG (150)	3512	3593	20180318192539.929	20180318192558.738
IMG (150)	3596	3676	20180318192559.386	20180318192618.629
VER (160)	605	611	20180318023416.986	20180318023432.986

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	615	636	20180318023432.986	20180318023512.986
VER (160)	8460	8466	20180318060344.955	20180318060400.955
VER (160)	8470	8491	20180318060400.955	20180318060440.955
VER (160)	10902	10907	20180318142656.073	20180318142656.073
VER (160)	10907	10912	20180318142656.073	20180318142656.073
VER (160)	10912	10917	20180318142656.073	20180318142656.073
VER (160)	10917	10922	20180318142656.073	20180318142656.073
VER (160)	10922	10927	20180318142656.073	20180318142656.073
VER (160)	10927	10932	20180318142656.073	20180318142656.073
VER (160)	10932	10937	20180318142656.073	20180318142656.073
VER (160)	10937	10903	20180318142656.073	20180318142656.073
VER (160)	10903	10908	20180318142656.073	20180318142656.073
VER (160)	10908	10913	20180318142656.073	20180318142656.073
VER (160)	10913	10918	20180318142656.073	20180318142656.073
VER (160)	10918	10923	20180318142656.073	20180318142656.073
VER (160)	10923	10928	20180318142656.073	20180318142656.073
VER (160)	10928	10933	20180318142656.073	20180318142656.073
VER (160)	10933	10938	20180318142656.073	20180318142656.073
VER (160)	10938	10904	20180318142656.073	20180318142656.073
VER (160)	10904	10909	20180318142656.073	20180318142656.073
VER (160)	10909	10914	20180318142656.073	20180318142656.073
VER (160)	10914	10919	20180318142656.073	20180318142656.073
VER (160)	10919	10924	20180318142656.073	20180318142656.073
VER (160)	10924	10929	20180318142656.073	20180318142656.073
VER (160)	10929	10934	20180318142656.073	20180318142656.073
VER (160)	10934	10939	20180318142656.073	20180318142656.073
VER (160)	10939	10905	20180318142656.073	20180318142656.073
VER (160)	10905	10910	20180318142656.073	20180318142656.073
VER (160)	10910	10915	20180318142656.073	20180318142656.073
VER (160)	10915	10920	20180318142656.073	20180318142656.073
VER (160)	10920	10925	20180318142656.073	20180318142656.073
VER (160)	10925	10930	20180318142656.073	20180318142656.073
VER (160)	10930	10935	20180318142656.073	20180318142656.073
VER (160)	10935	10940	20180318142656.073	20180318142656.073
VER (160)	10940	10906	20180318142656.073	20180318142656.073
VER (160)	10906	10911	20180318142656.073	20180318142656.073
VER (160)	10911	10916	20180318142656.073	20180318142656.073
VER (160)	10916	10921	20180318142656.073	20180318142656.073
VER (160)	10921	10926	20180318142656.073	20180318142656.073
VER (160)	10926	10931	20180318142656.073	20180318142656.073
VER (160)	10931	10936	20180318142656.073	20180318142656.073
VER (160)	10936	10941	20180318142656.073	20180318142656.073
VER (160)	1948	1953	20180318174440.892	20180318174440.892
VER (160)	1953	1958	20180318174440.892	20180318174440.892
VER (160)	1958	1963	20180318174440.892	20180318174440.892
VER (160)	1963	1968	20180318174440.892	20180318174440.892
VER (160)	1968	1973	20180318174440.892	20180318174440.892
VER (160)	1973	1949	20180318174440.892	20180318174440.892
VER (160)	1949	1954	20180318174440.892	20180318174440.892
VER (160)	1954	1959	20180318174440.892	20180318174440.892
VER (160)	1959	1964	20180318174440.892	20180318174440.892
VER (160)	1964	1969	20180318174440.892	20180318174440.892
VER (160)	1969	1974	20180318174440.892	20180318174440.892

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Table 2 – continued from previous page

APID	Seq from	Seq to	Time from	Time to
VER (160)	1974	1950	20180318174440.892	20180318174440.892
VER (160)	1950	1955	20180318174440.892	20180318174440.892
VER (160)	1955	1960	20180318174440.892	20180318174440.892
VER (160)	1960	1965	20180318174440.892	20180318174440.892
VER (160)	1965	1970	20180318174440.892	20180318174440.892
VER (160)	1970	1975	20180318174440.892	20180318174440.892
VER (160)	1975	1951	20180318174440.892	20180318174440.892
VER (160)	1951	1956	20180318174440.892	20180318174440.892
VER (160)	1956	1961	20180318174440.892	20180318174440.892
VER (160)	1961	1966	20180318174440.892	20180318174440.892
VER (160)	1966	1971	20180318174440.892	20180318174440.892
VER (160)	1971	1976	20180318174440.892	20180318174440.892
VER (160)	1976	1952	20180318174440.892	20180318174440.892
VER (160)	1952	1957	20180318174440.892	20180318174440.892
VER (160)	1957	1962	20180318174440.892	20180318174440.892
VER (160)	1962	1967	20180318174440.892	20180318174440.892
VER (160)	1967	1972	20180318174440.892	20180318174440.892
VER (160)	1972	1977	20180318174440.892	20180318174440.892
VER (160)	5758	5763	20180318192619.062	20180318192619.062
VER (160)	5763	5768	20180318192619.062	20180318192619.062
VER (160)	5768	5773	20180318192619.062	20180318192619.062
VER (160)	5773	5778	20180318192619.062	20180318192619.062
VER (160)	5778	5783	20180318192619.062	20180318192619.062
VER (160)	5783	5759	20180318192619.062	20180318192619.062
VER (160)	5759	5764	20180318192619.062	20180318192619.062
VER (160)	5764	5769	20180318192619.062	20180318192619.062
VER (160)	5769	5774	20180318192619.062	20180318192619.062
VER (160)	5774	5779	20180318192619.062	20180318192619.062
VER (160)	5779	5784	20180318192619.062	20180318192619.062
VER (160)	5784	5760	20180318192619.062	20180318192619.062
VER (160)	5760	5765	20180318192619.062	20180318192619.062
VER (160)	5765	5770	20180318192619.062	20180318192619.062
VER (160)	5770	5775	20180318192619.062	20180318192619.062
VER (160)	5775	5780	20180318192619.062	20180318192619.062
VER (160)	5780	5785	20180318192619.062	20180318192619.062
VER (160)	5785	5761	20180318192619.062	20180318192619.062
VER (160)	5761	5766	20180318192619.062	20180318192619.062
VER (160)	5766	5771	20180318192619.062	20180318192619.062
VER (160)	5771	5776	20180318192619.062	20180318192619.062
VER (160)	5776	5781	20180318192619.062	20180318192619.062
VER (160)	5781	5786	20180318192619.062	20180318192619.062
VER (160)	5786	5762	20180318192619.062	20180318192619.062
VER (160)	5762	5767	20180318192619.062	20180318192619.062
VER (160)	5767	5772	20180318192619.062	20180318192619.062
VER (160)	5772	5777	20180318192619.062	20180318192619.062
VER (160)	5777	5782	20180318192619.062	20180318192619.062
VER (160)	5782	5787	20180318192619.062	20180318192619.062
AUX (180)	13211	13213	20180318023417.415	20180318023433.415
AUX (180)	13213	13218	20180318023433.415	20180318023513.415
AUX (180)	14782	14784	20180318060345.389	20180318060401.389
AUX (180)	14784	14789	20180318060401.389	20180318060441.385

Table 2: L0 data gaps

3 Instrument modes

Time	Transition from	Transition to
18/03/2018 00:00:14	-	Normal operation

Table 3: Instrument modes

4 L0 and L1 Data Quality

Flag	Value	Action
L0 IASI PDUs	481	-
L1 ENG PDUs	480	-
L1 ENG distinct GEPSGranule	481	-
GQisFlagQual set (PX1)	99.47 %	-
GQisFlagQual set (PX2)	99.55 %	-
GQisFlagQual set (PX3)	99.53 %	-
GQisFlagQual set (PX4)	99.48 %	-
GQisFlagQual set (all)	99.51 %	-

Table 4: Quality flags

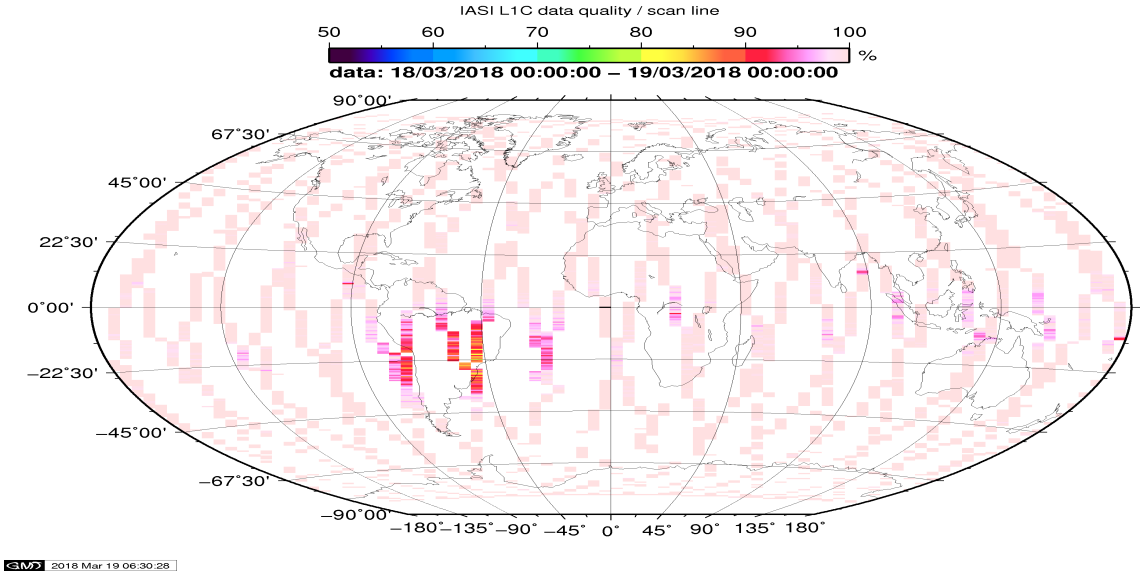

Figure 1: L1C data quality

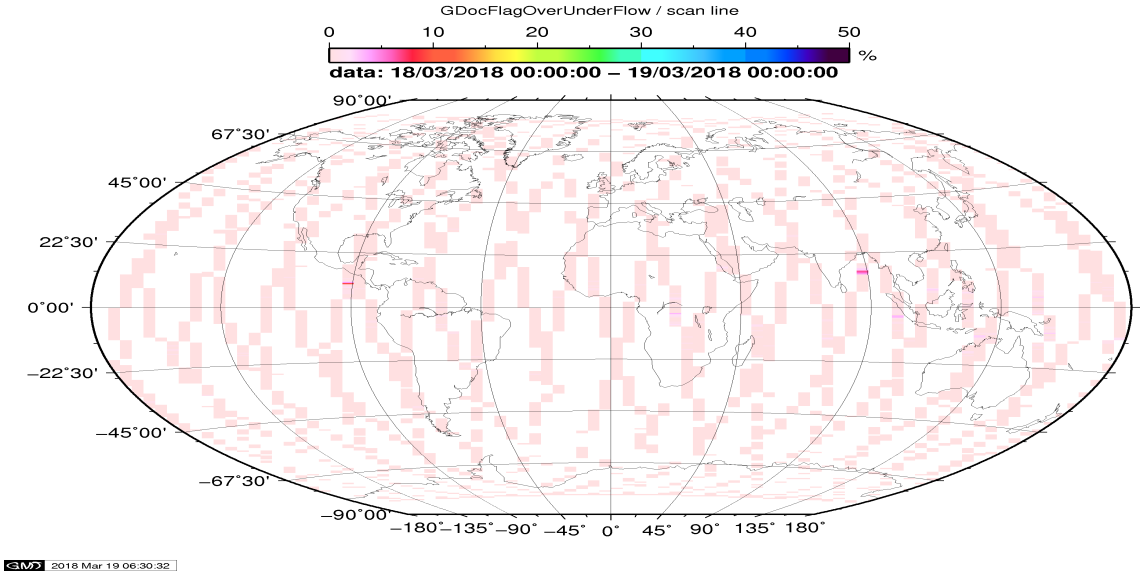

Figure 2: Flag of Over and Under Flows

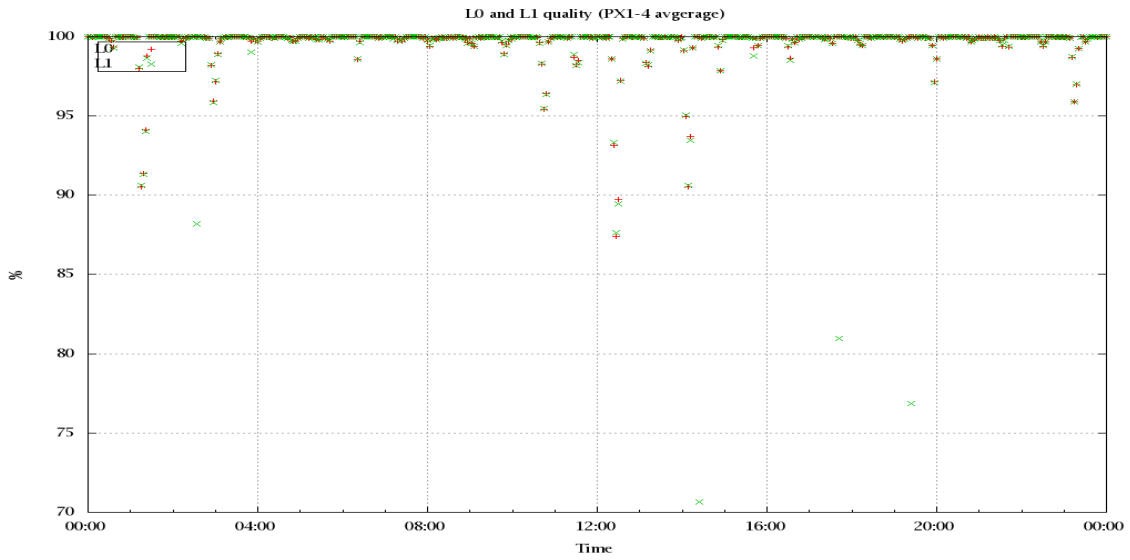

Figure 3: Level 0 and 1C overall quality

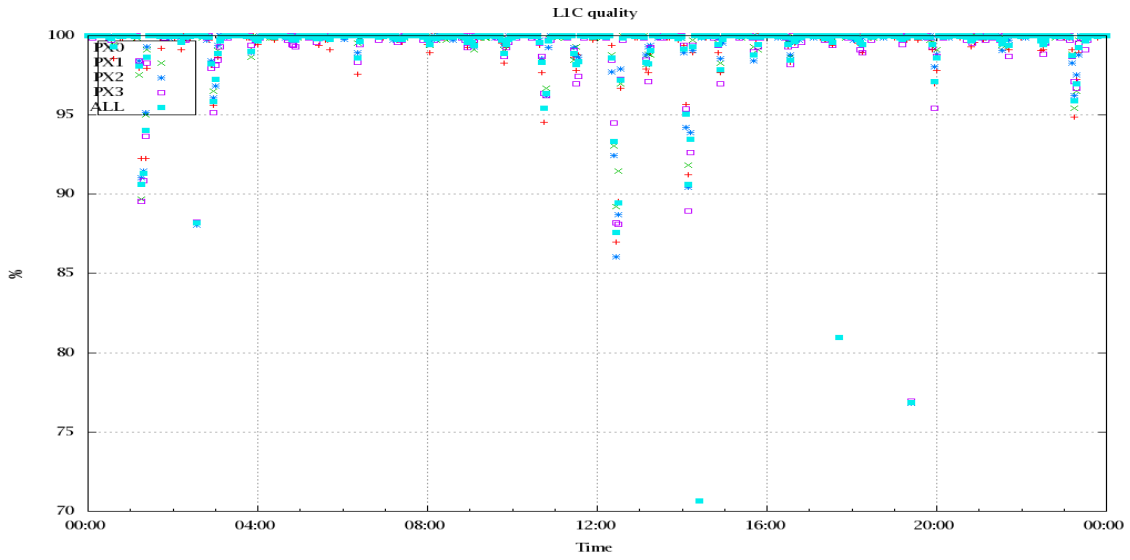

Figure 4: Level 1C quality

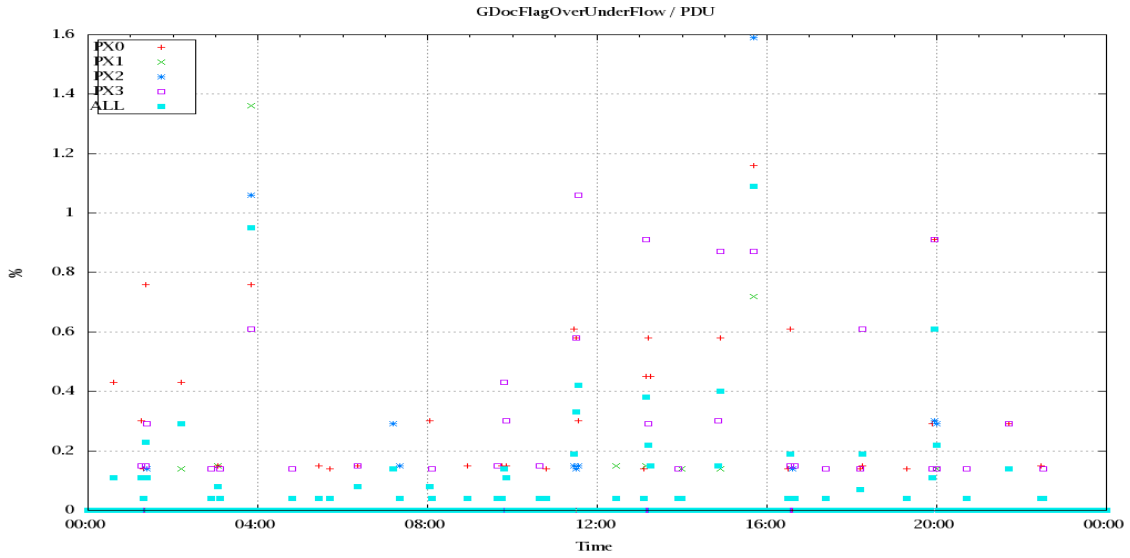

Figure 5: OverUnderFlowFlag timeseries

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 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 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 10 to 16 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 pixel and scan position 10 to 20) and the average bias OBS-CAL (over all pixel and scan position 10 to 20) of the last 30 days.

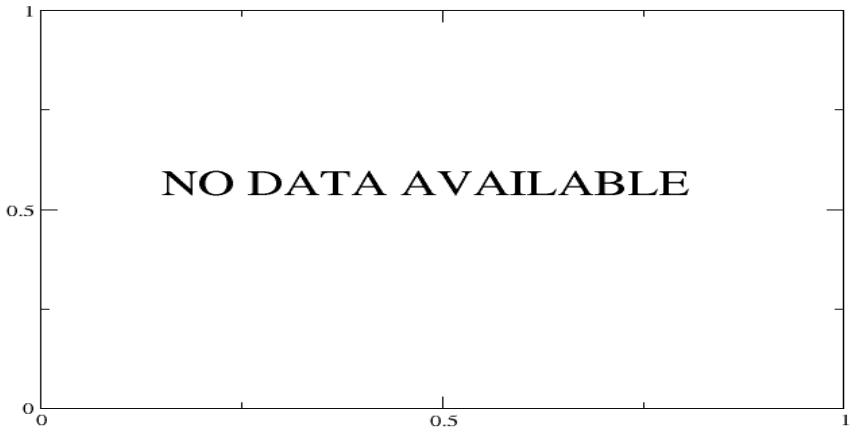

Figure 6: Average Radiance differences: OBS-CAL

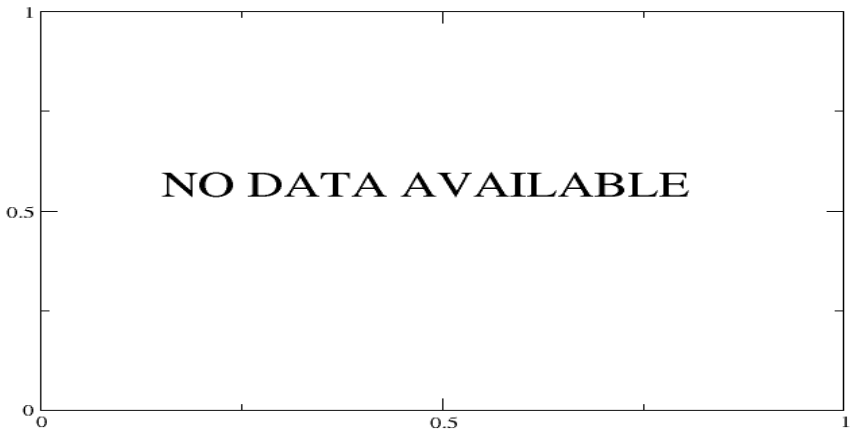

Figure 7: Standard Deviation of Radiance differences

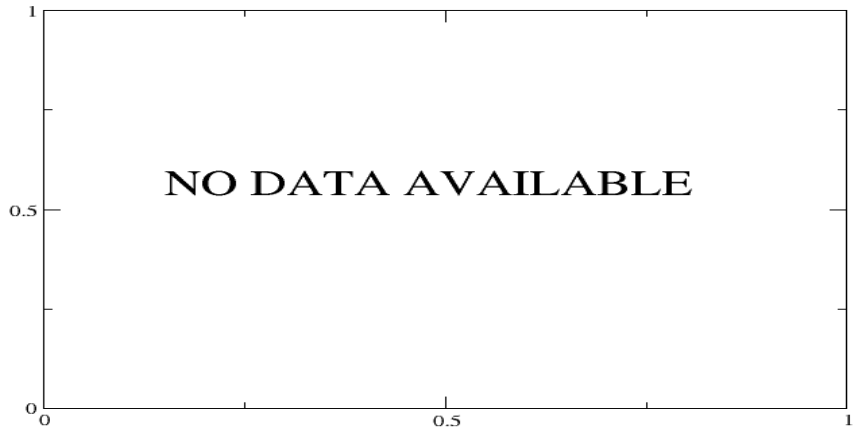

Figure 8: Average Radiance differences: OBS-CAL

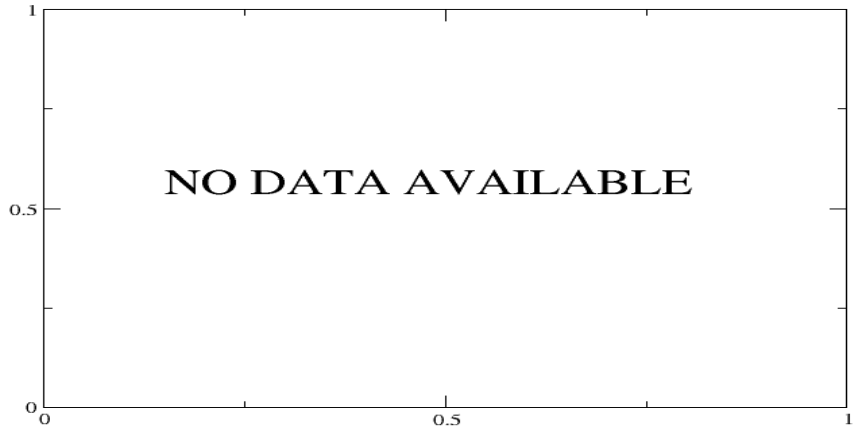

Figure 9: Standard Deviation of Radiance differences

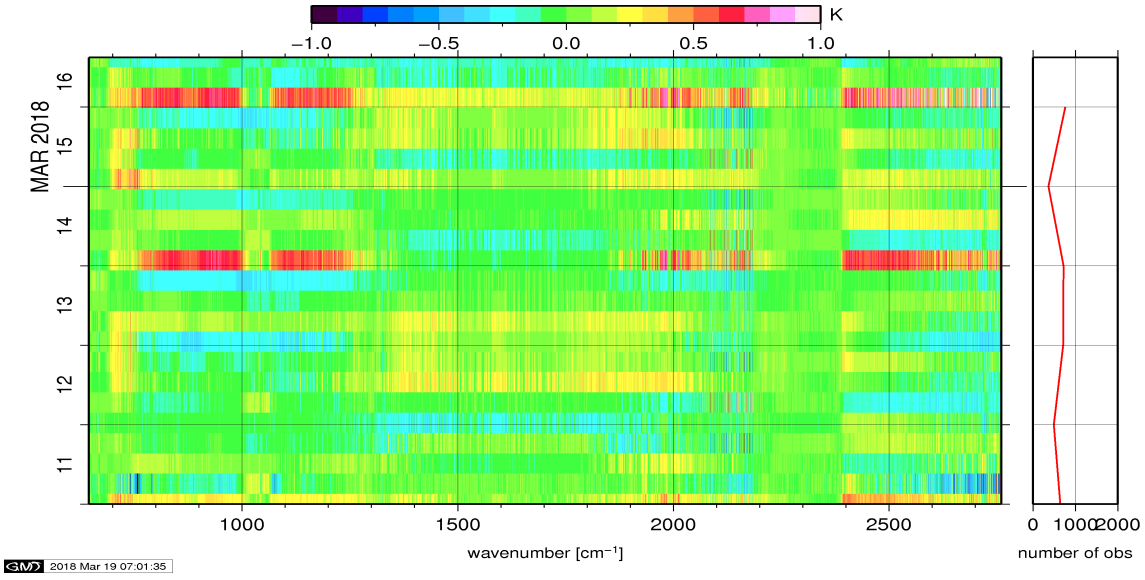

Figure 10: Radiance Anomaly in BRT: All Channels

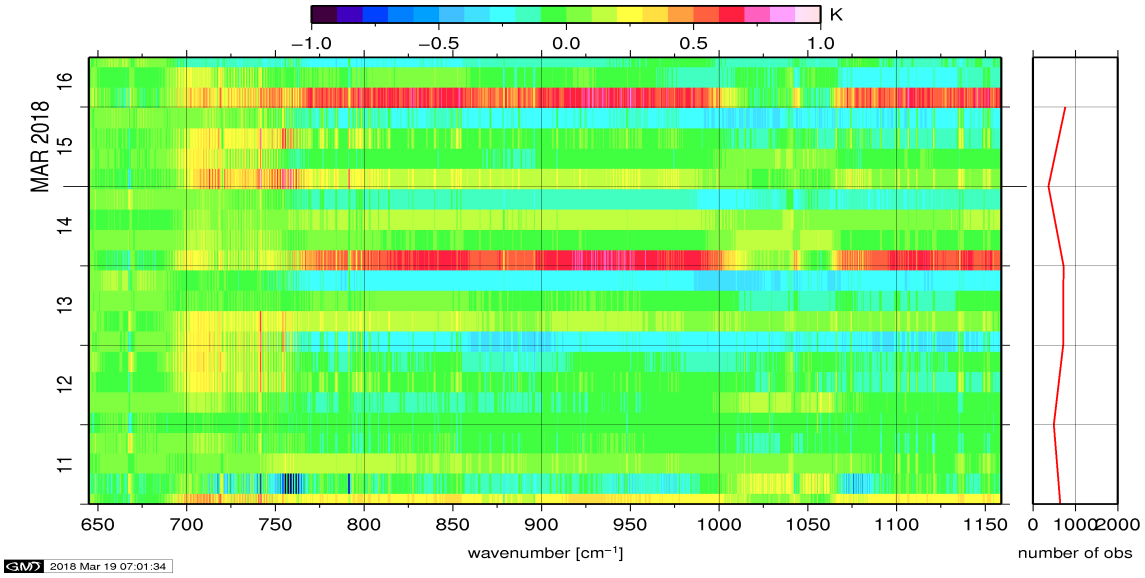

Figure 11: Radiance Anomaly in BRT: IASI Band 1

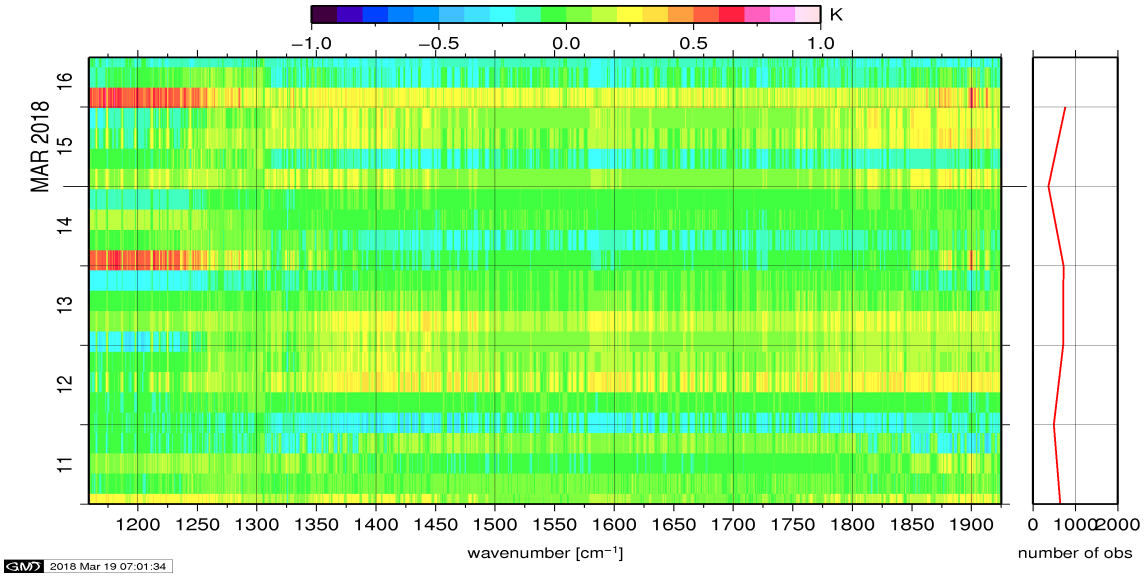

Figure 12: Radiance Anomaly in BRT: IASI Band 2

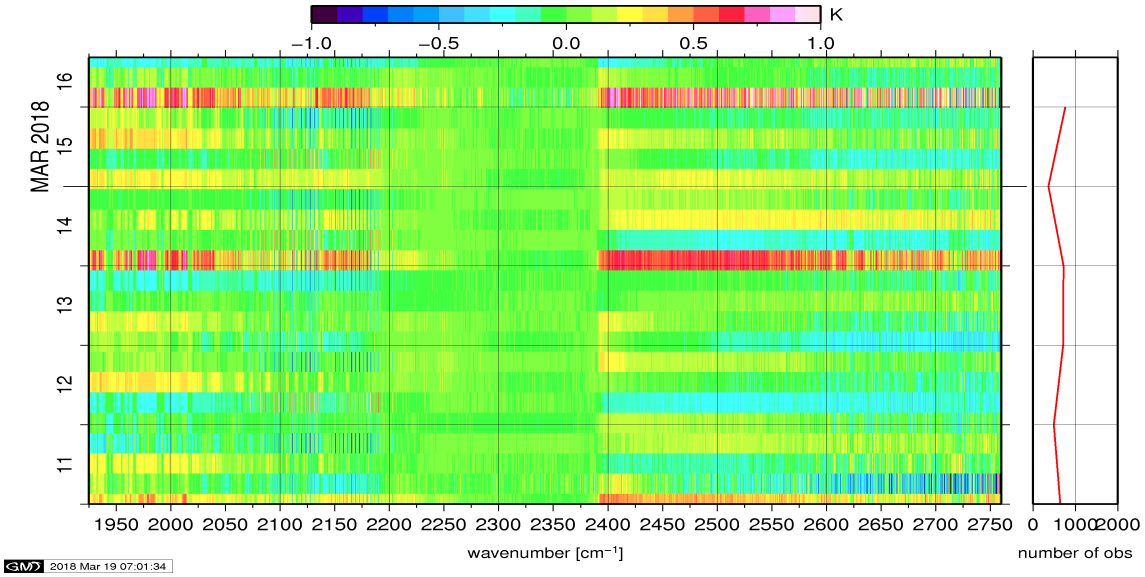

Figure 13: Radiance Anomaly in BRT: IASI Band 3

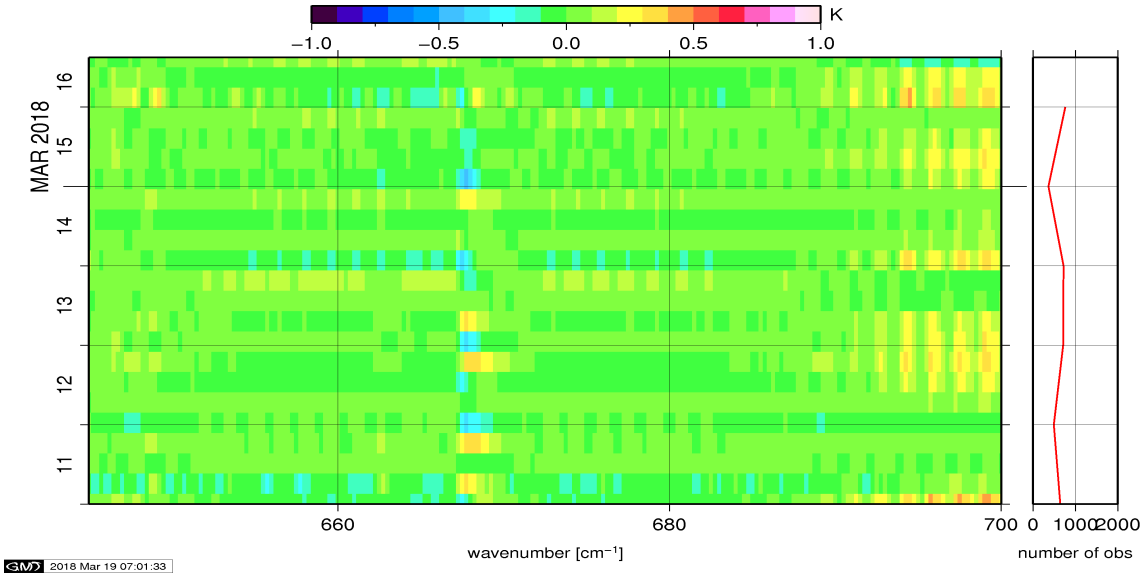

Figure 14: Radiance Anomaly in BRT: CO2 14

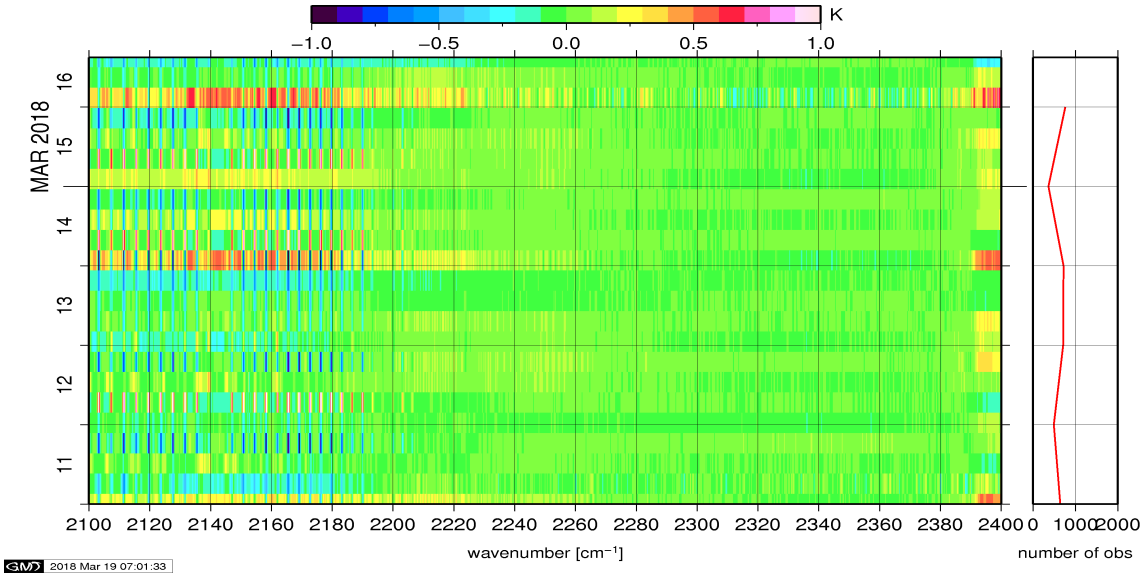

Figure 15: Radiance Anomaly in BRT: CO2 4.3

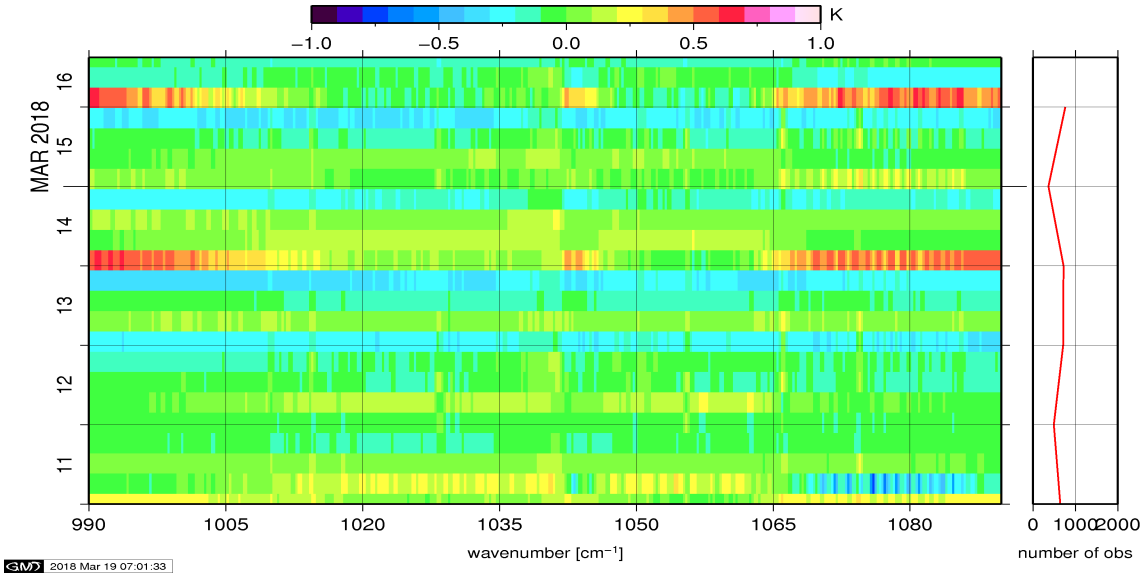

Figure 16: Radiance Anomaly in BRT: O3

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. All sky conditions are covered. The radiance differences IASI - HIRS are given in brightness temperatures at 280K reference temperature. All conditions (clear, cloudy, day and night) are given in red in the following figures. The clear sky conditions at night are given in green and the clear sky cases during daylight are displayed in blue.

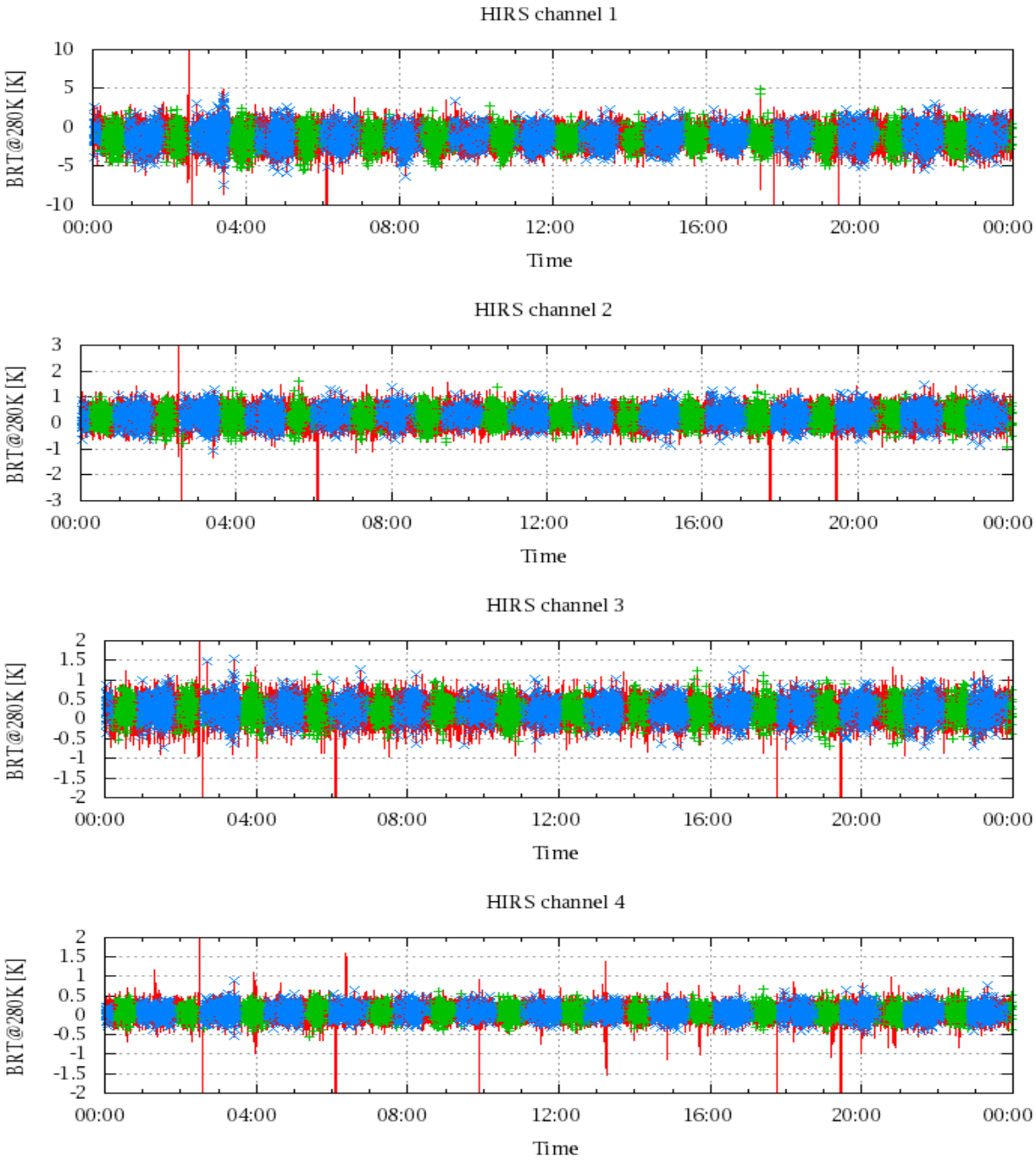

Figure 17: Radiance Differences in BRT

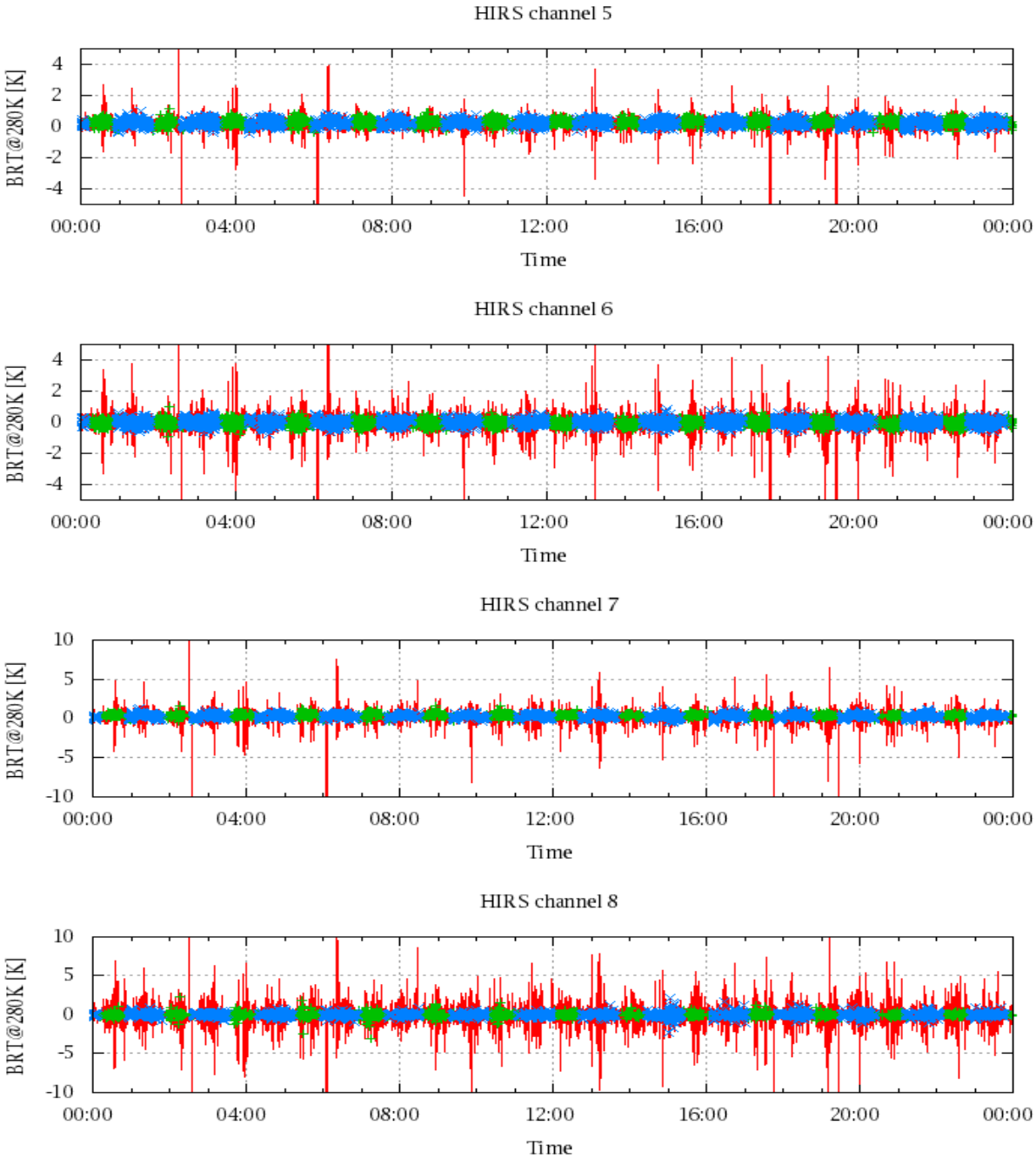

Figure 18: Radiance Differences in BRT

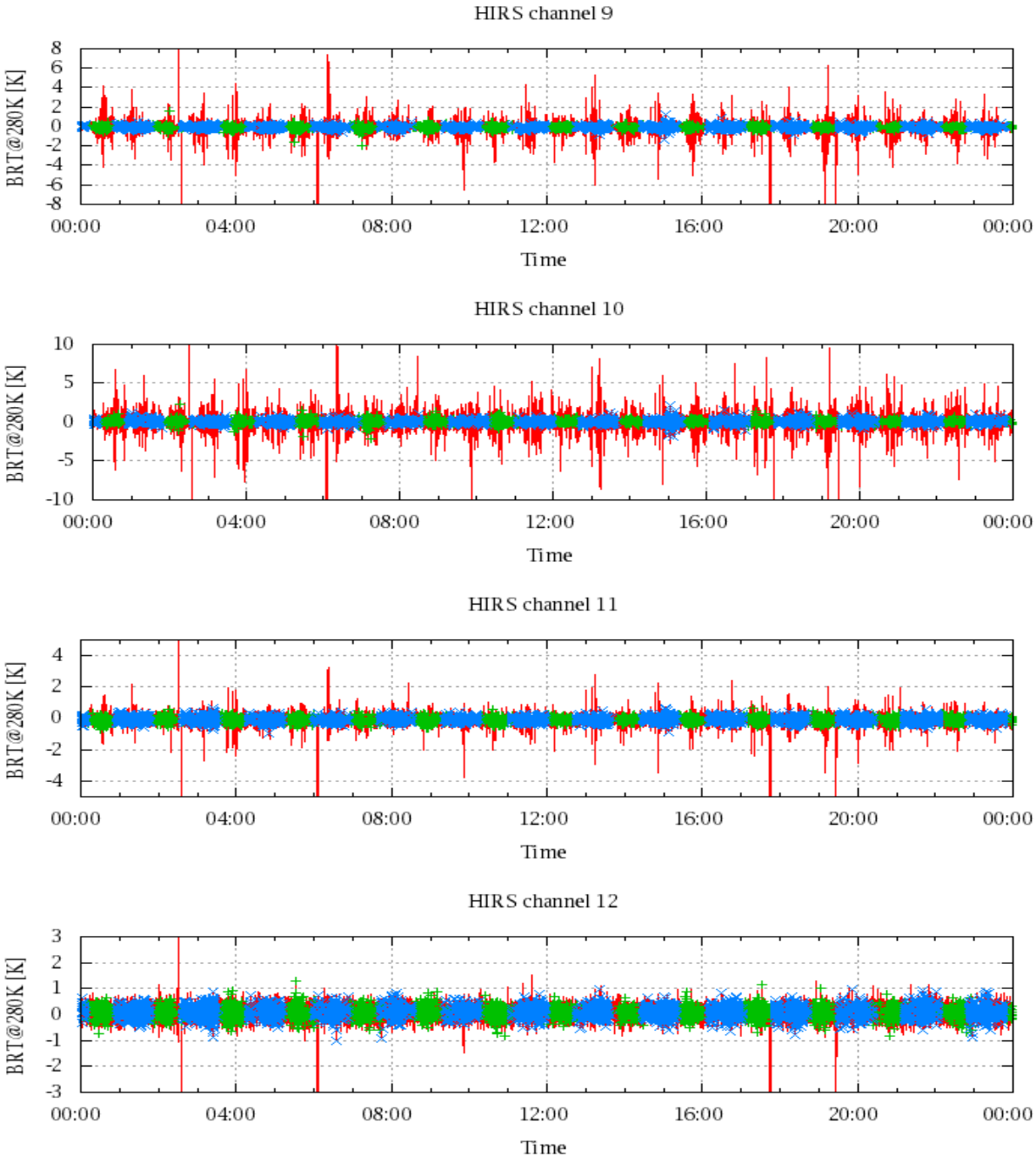

Figure 19: Radiance Differences in BRT

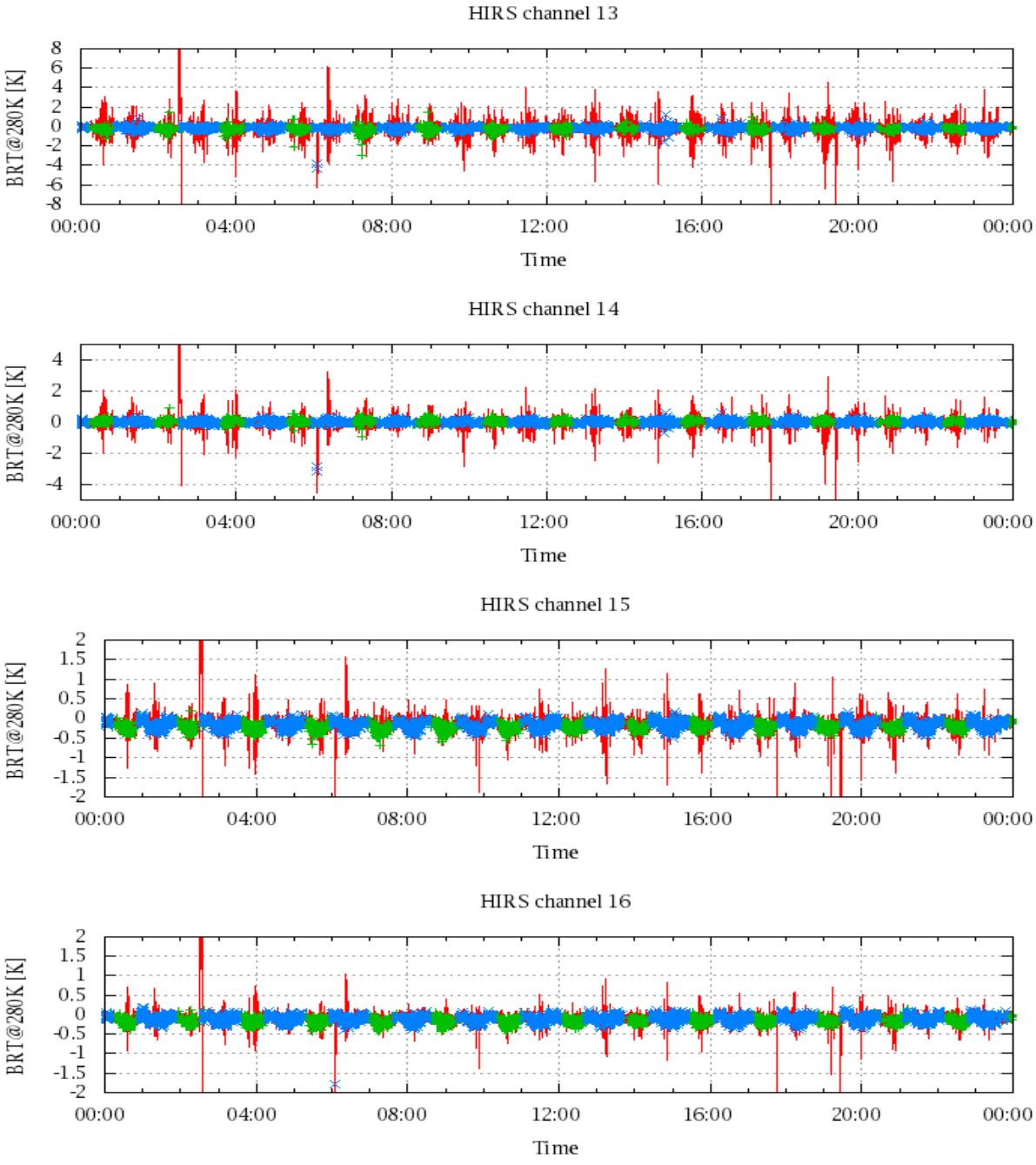

Figure 20: Radiance Differences in BRT

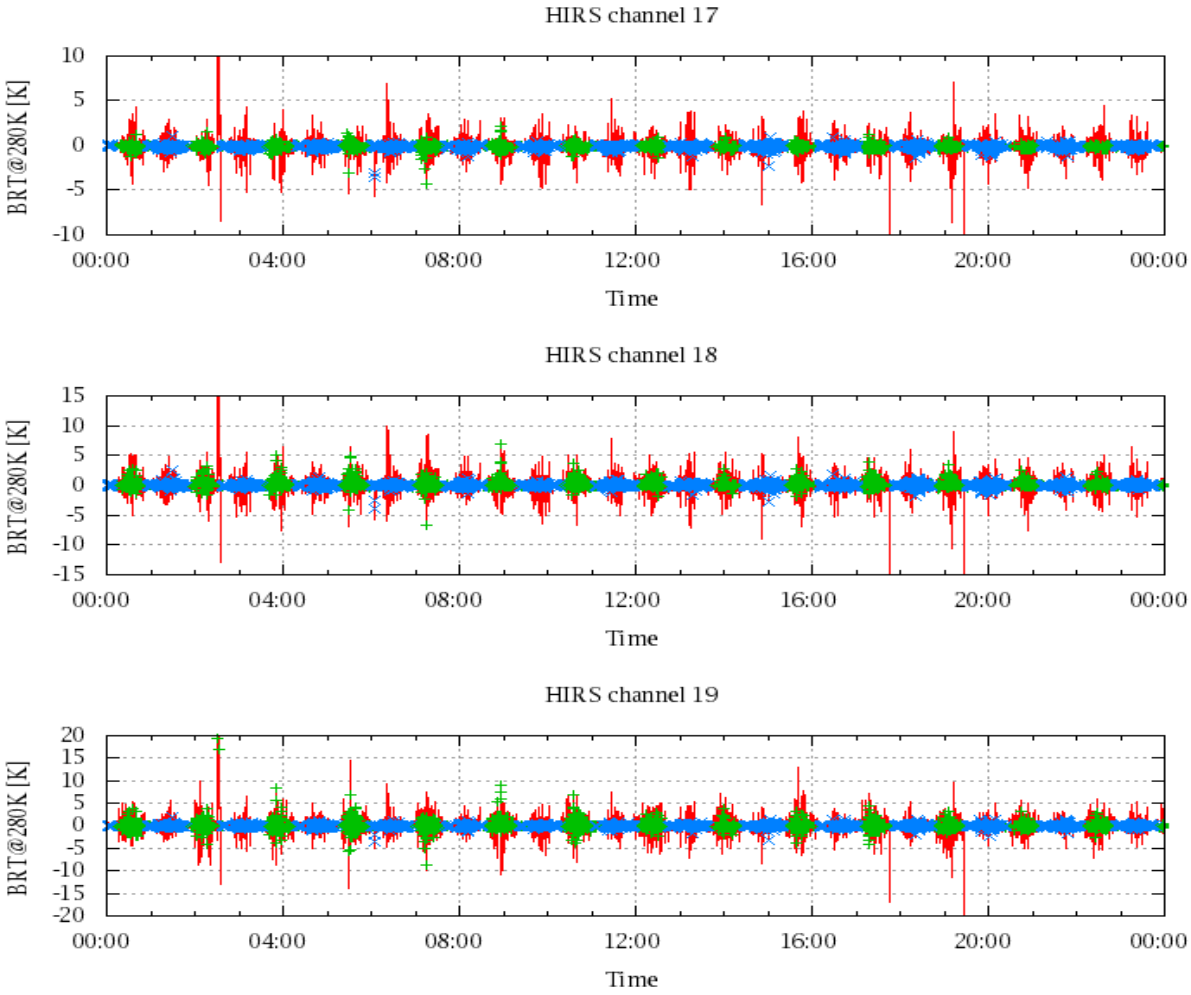

Figure 21: Radinace Differences in BRT