

# IASI L0 and L1 Daily Monitoring Report

IASI monitoring team

*23/04/2010 00:00:00 - 24/04/2010 00:00:00*

## 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 23/04/2010 00:00:00 - 24/04/2010 00:00:00 .

The monitoring data are extracted on PDU basis.

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

## 2 Data quantity 23/04/2010 00:00:00 - 24/04/2010 00:00:00

| Product Type                         | Number | Action |
|--------------------------------------|--------|--------|
| L0 HKTM PDUs                         | 481    | -      |
| L0 IASI PDUs                         | 481    | -      |
| L1 ENG PDUs                          | 480    | -      |
| L1 ENG distinct GEPSGranule          | 480    | -      |
| L1 DPX PDUs (RM: IASI-HIRS)          | 480    | -      |
| L1 DPS Files (RM: OBS-CAL NWP based) | 6      | -      |

Table 1: Data quantity

| APID      | Seq from | Seq to | Time from | Time to |
|-----------|----------|--------|-----------|---------|
| PX1 (130) | -        | -      | -         | -       |
| PX2 (135) | -        | -      | -         | -       |
| PX3 (140) | -        | -      | -         | -       |
| PX4 (145) | -        | -      | -         | -       |
| IMG (150) | -        | -      | -         | -       |
| VER (160) | -        | -      | -         | -       |
| AUX (180) | -        | -      | -         | -       |

Table 2: L0 data gaps

### 3 Instrument modes

| Time                | Transition from | Transition to    |
|---------------------|-----------------|------------------|
| 23/04/2010 00:00:10 | -               | 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 | 480     | -      |
| GQisFlagQual set (PX1)      | 99.38 % | -      |
| GQisFlagQual set (PX2)      | 99.23 % | -      |
| GQisFlagQual set (PX3)      | 99.28 % | -      |
| GQisFlagQual set (PX4)      | 99.38 % | -      |
| GQisFlagQual set (all)      | 99.31 % | -      |

Table 4: Quality flags

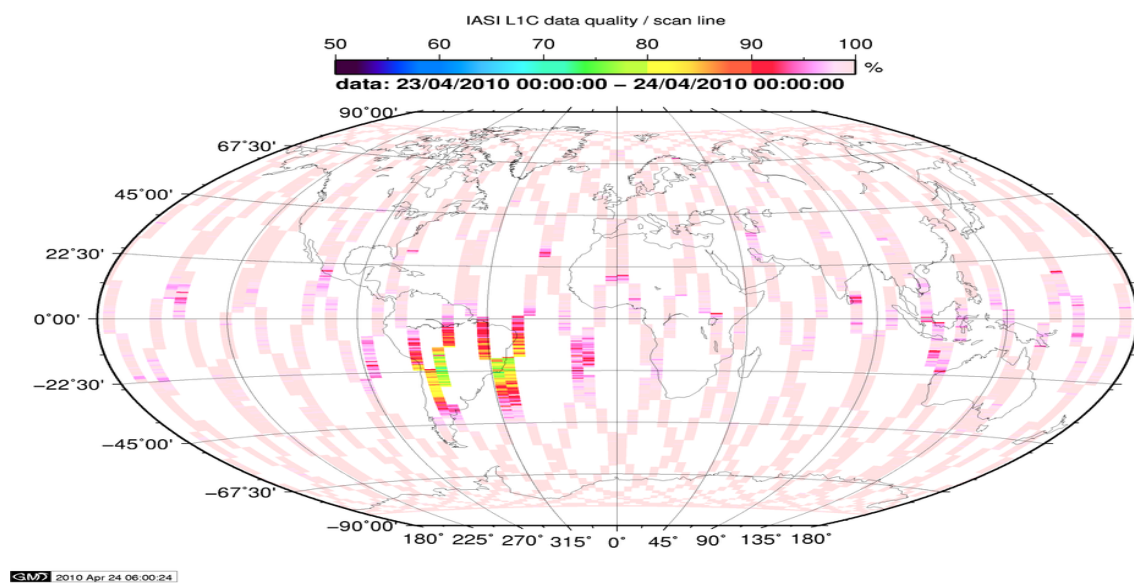


Figure 1: L1C data quality

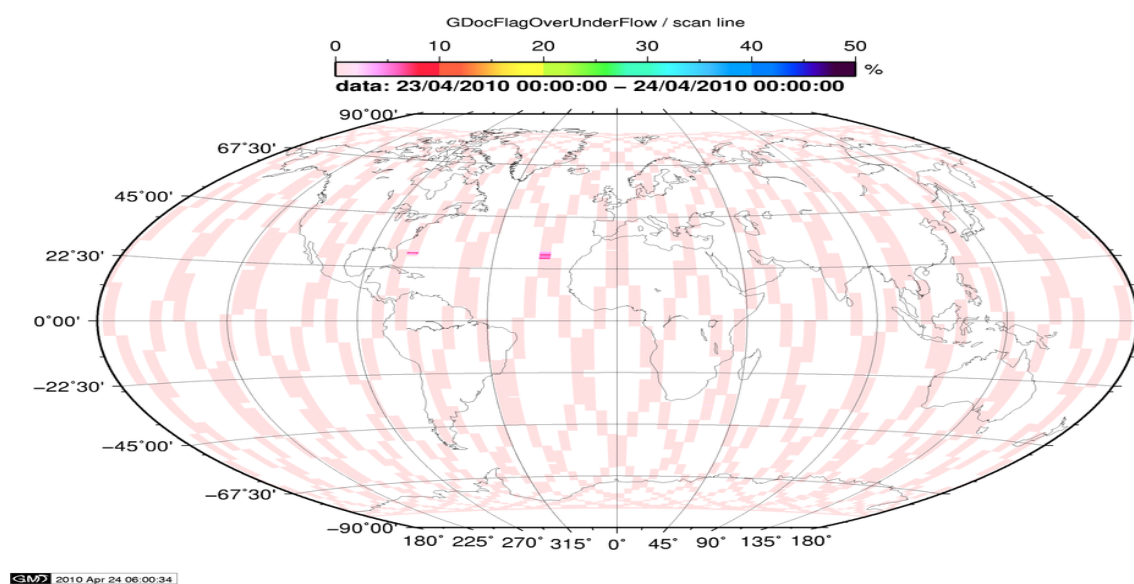


Figure 2: Flag of Over and Under Flows

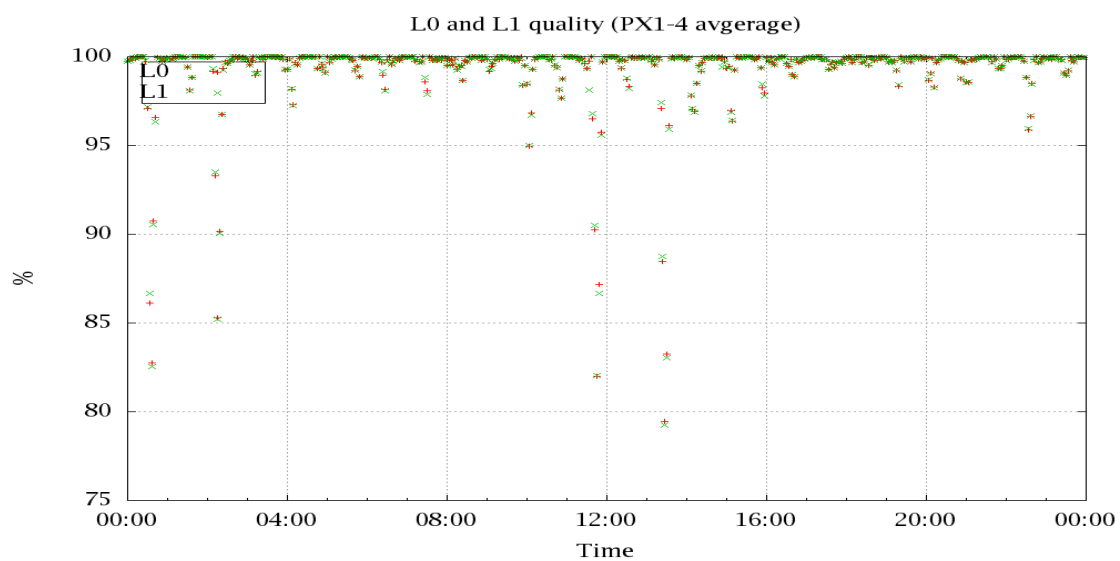


Figure 3: Level 0 and 1C overall quality

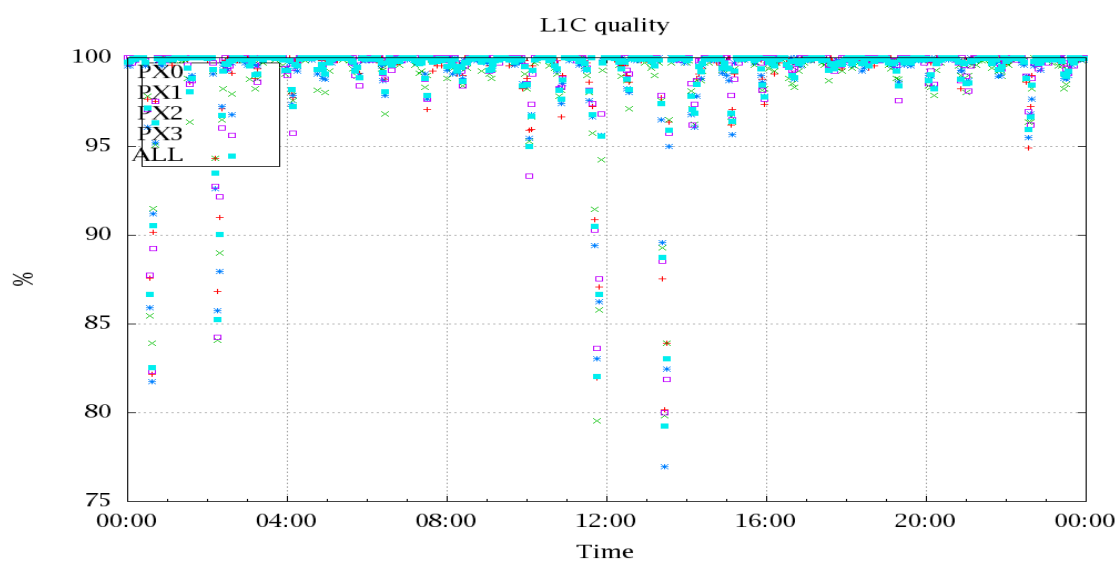


Figure 4: Level 1C quality

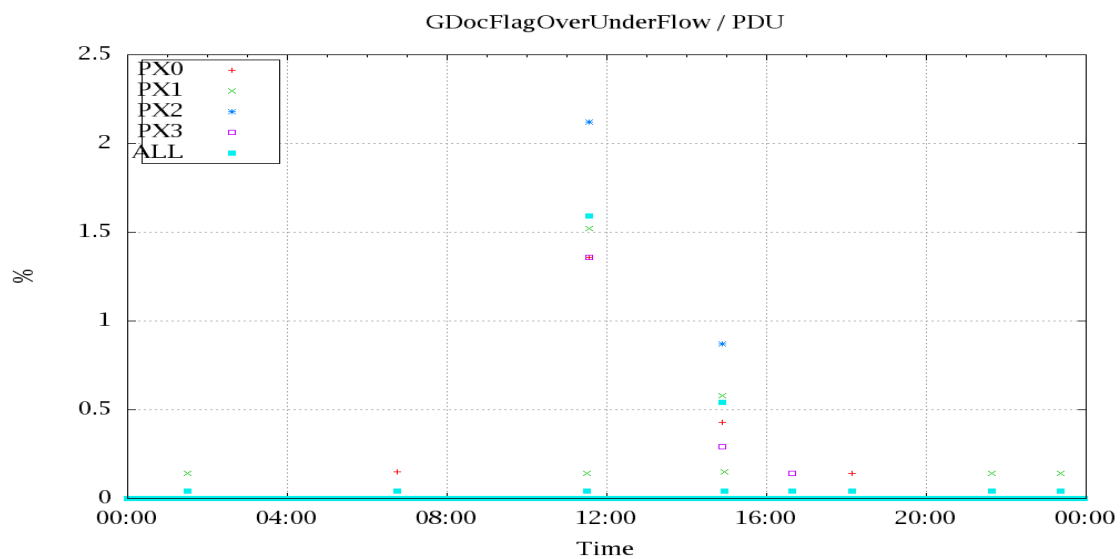


Figure 5: OverUnderFlowFlag timeseries

## 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 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). The RTIASI radiative transfer model is feed with co-located ECMWF profiles of T,WV, and Ozon. Information about the SST is obtained from the AVHRR L1B or taken from AVHRR scenes analysis (CGS only).

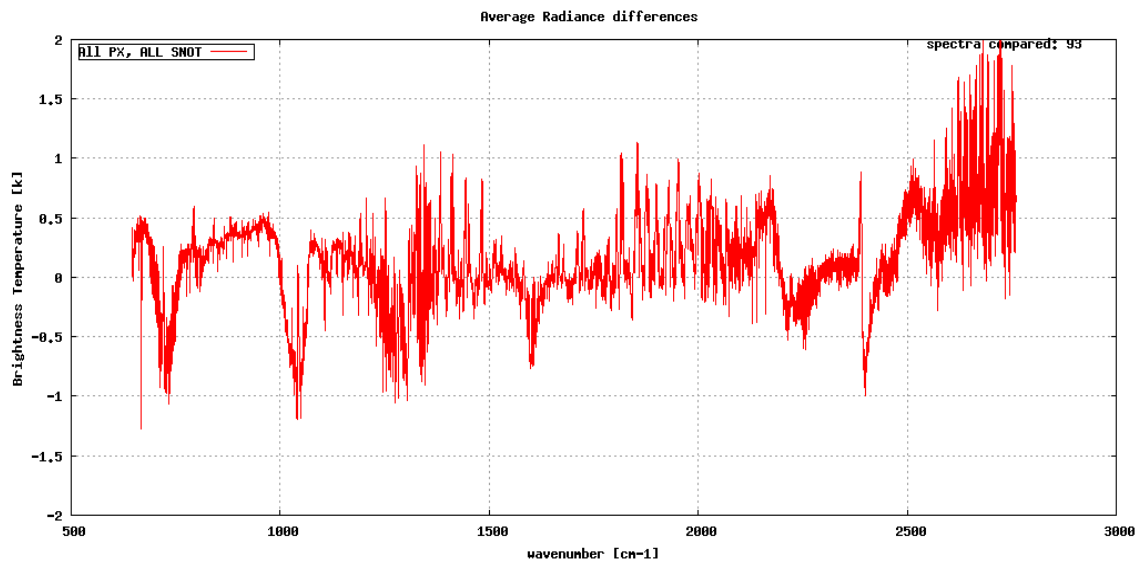


Figure 6: Average Radiance differences: IASI-RTIASI

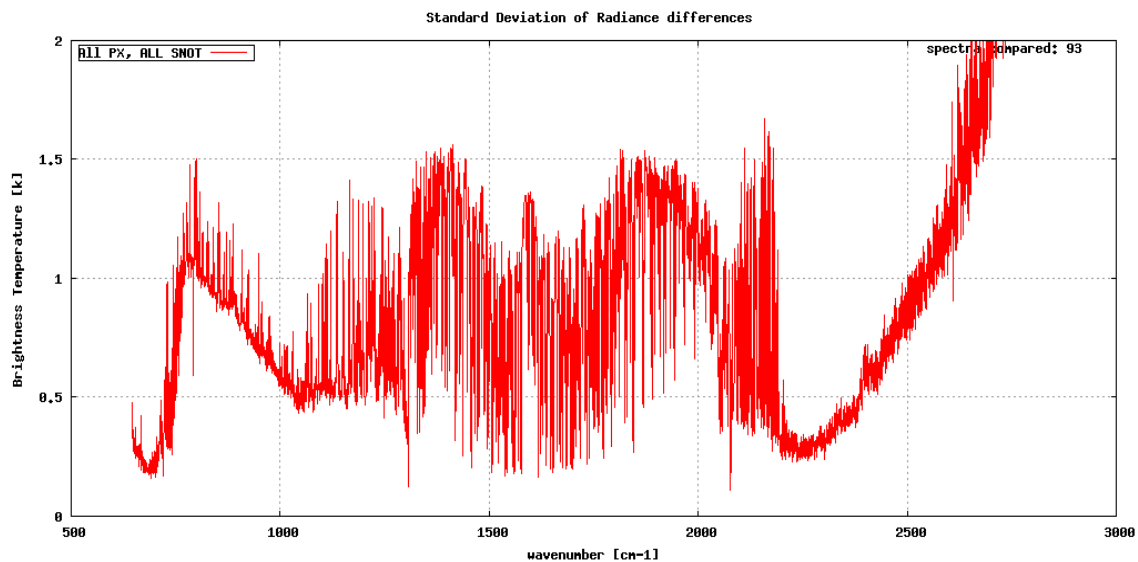


Figure 7: Standard Deviation of Radiance differences

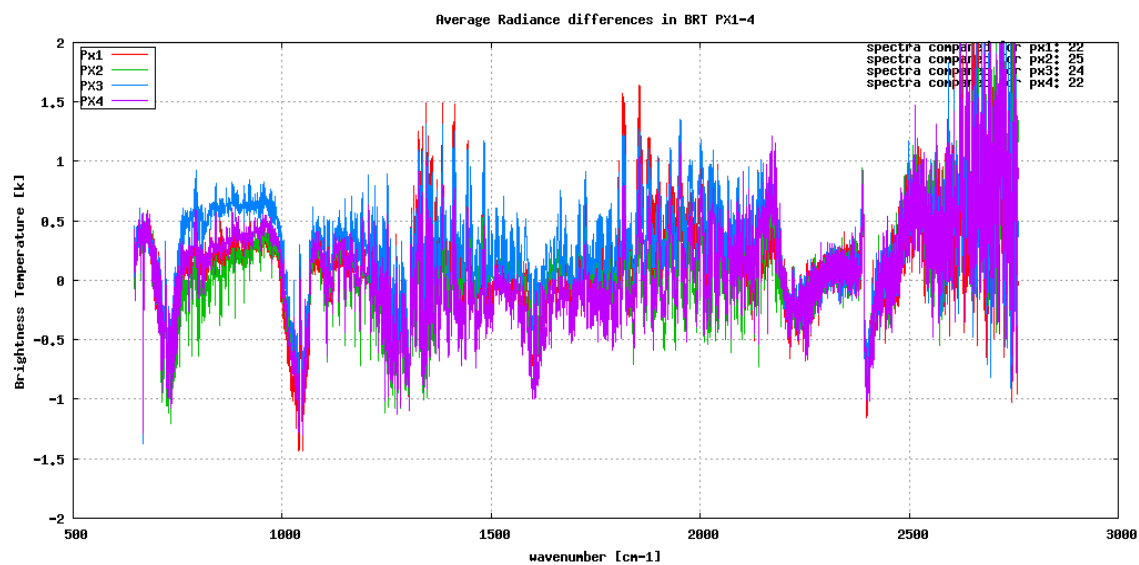


Figure 8: Average Radiance differences: IASI-RTIASI

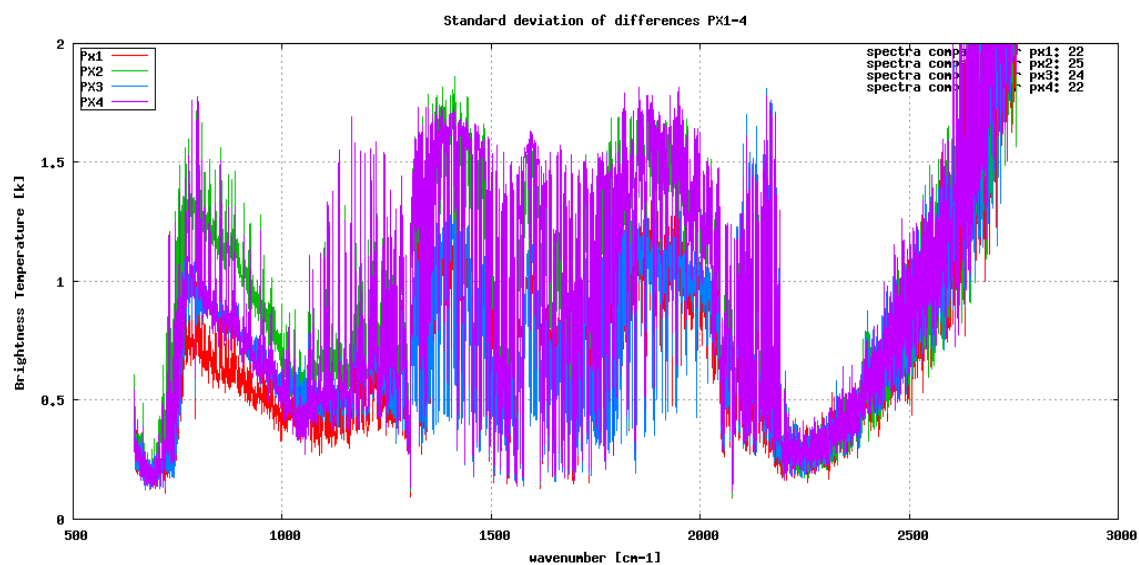


Figure 9: Standard Deviation of Radiance differences

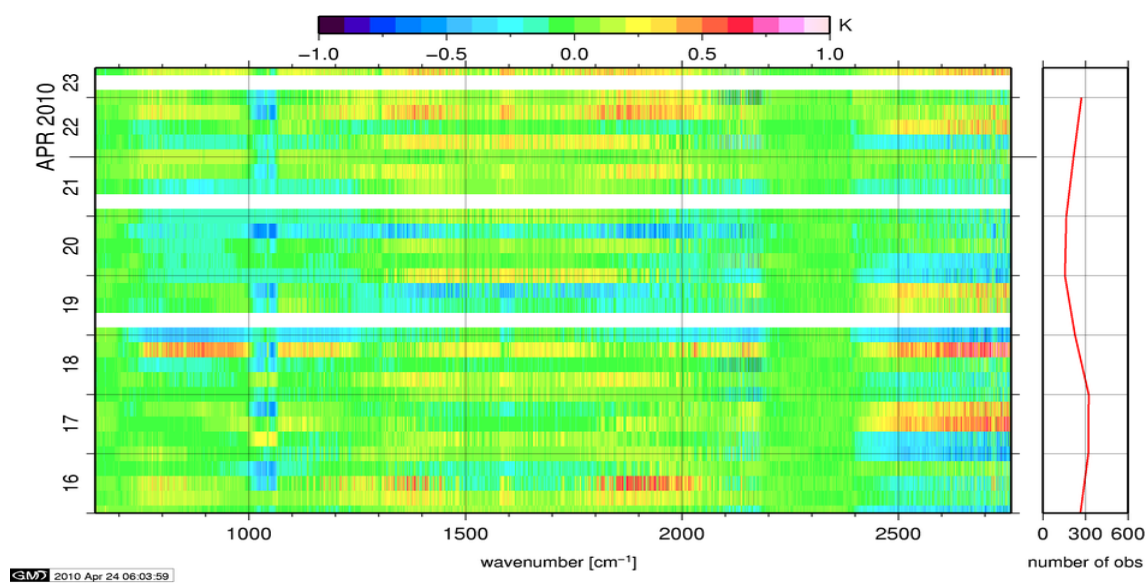


Figure 10: All Channels

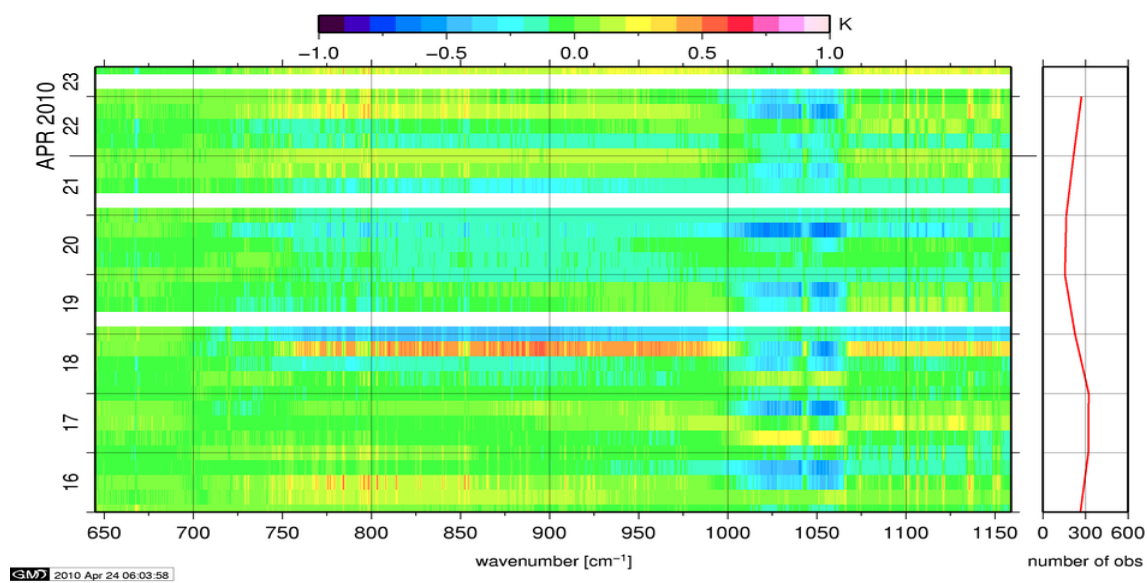


Figure 11: B1



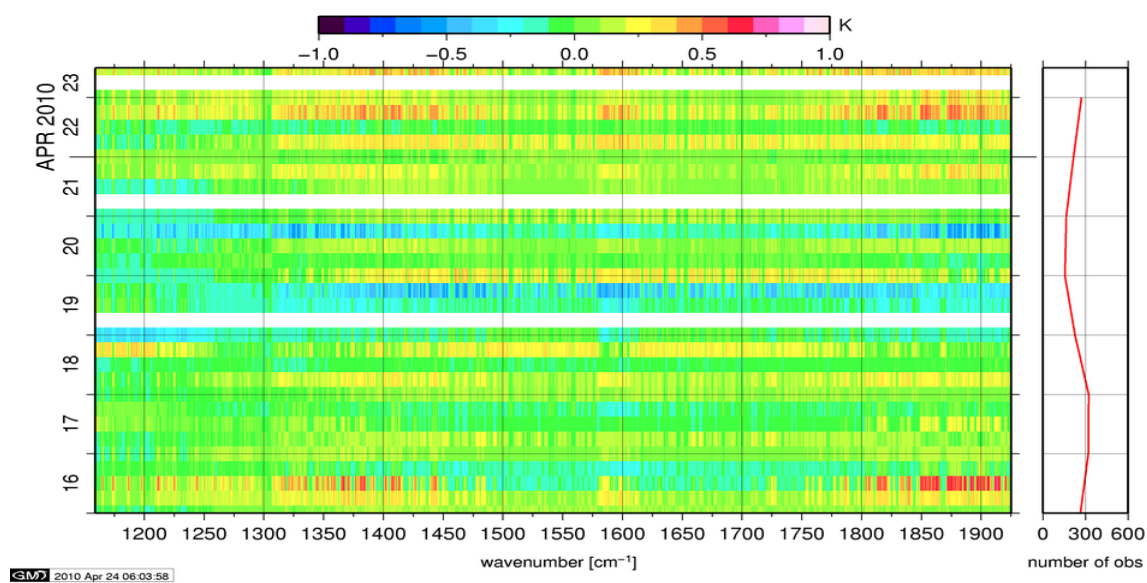


Figure 12: B2

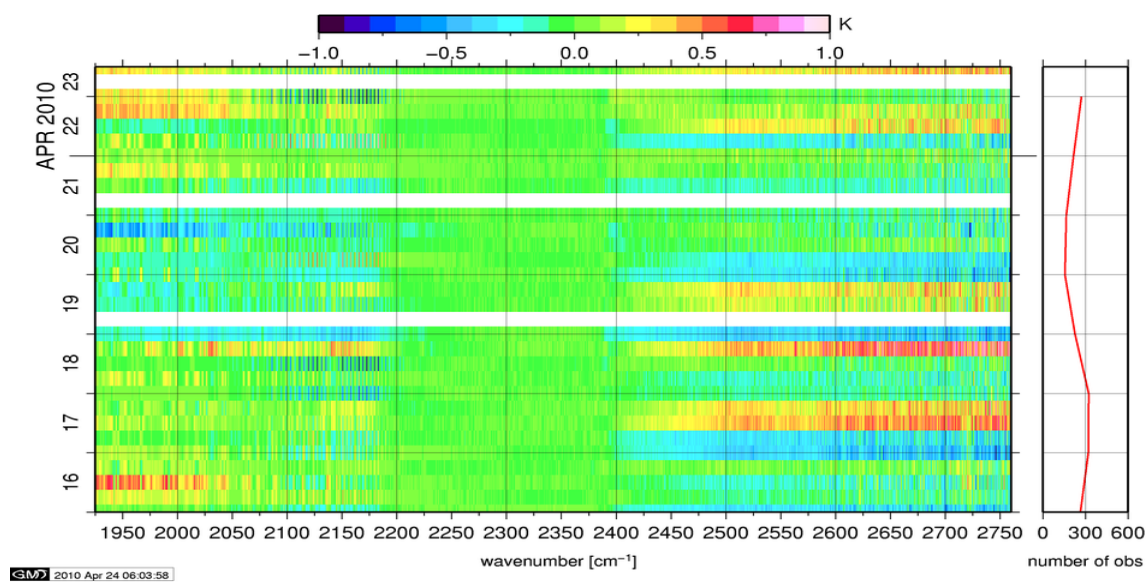


Figure 13: B3

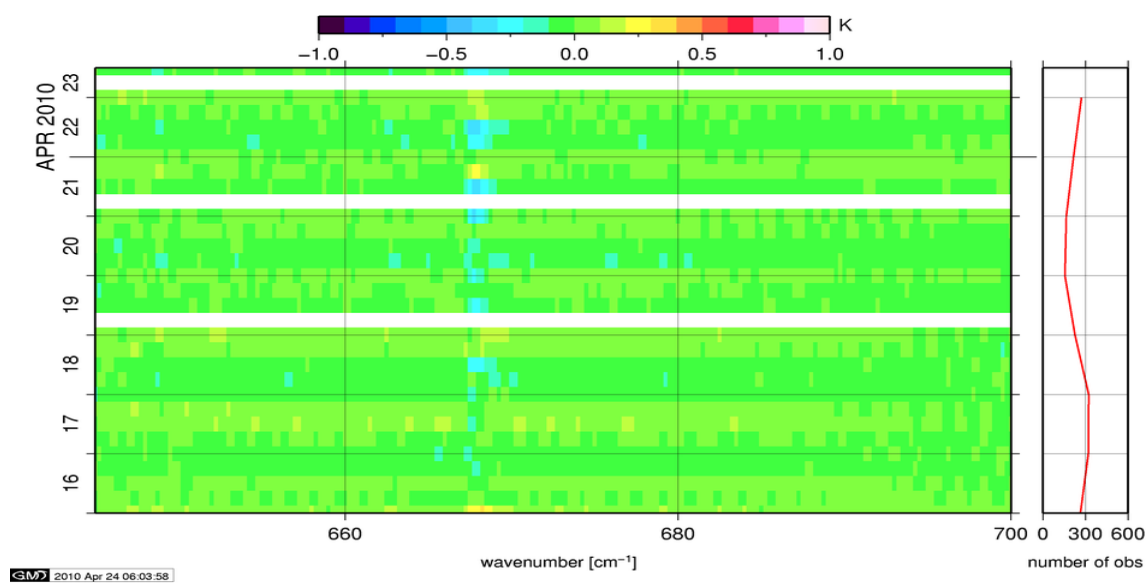


Figure 14: CO2

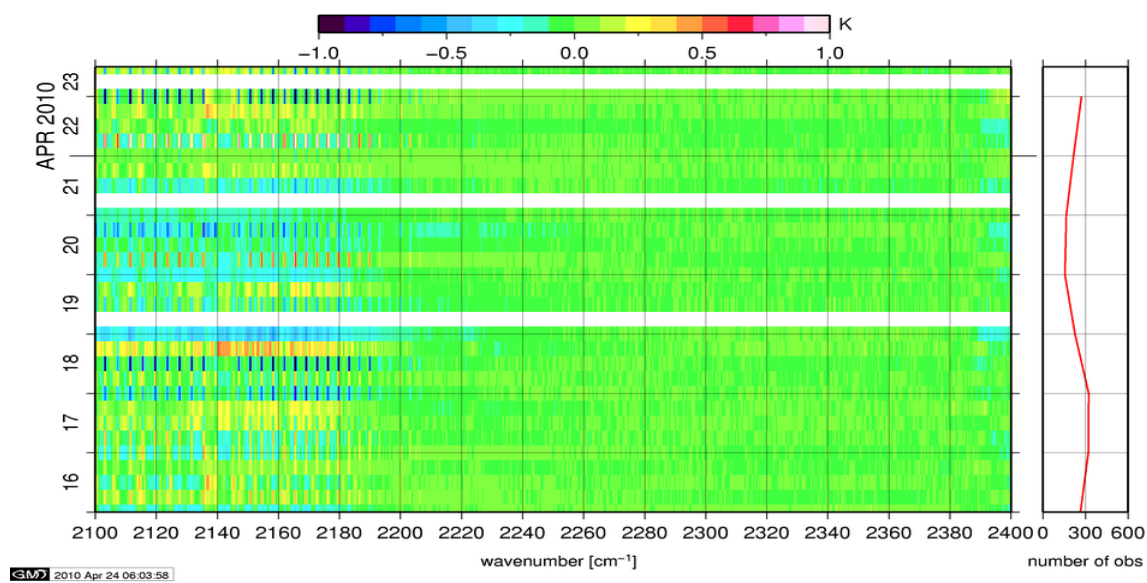
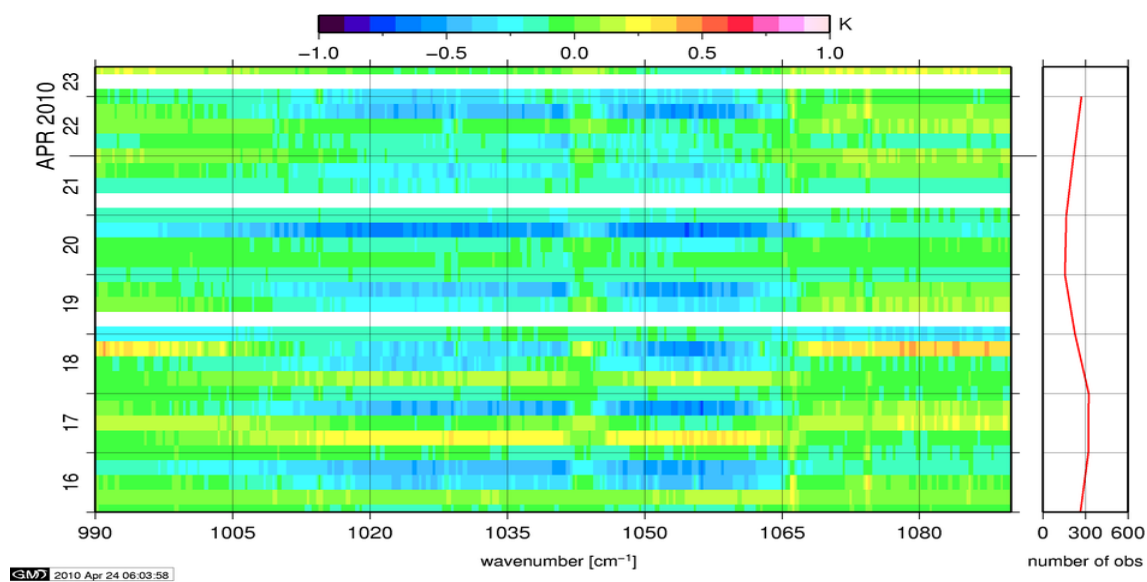


Figure 15: CO2

Figure 16: O<sub>3</sub>

## 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. 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.

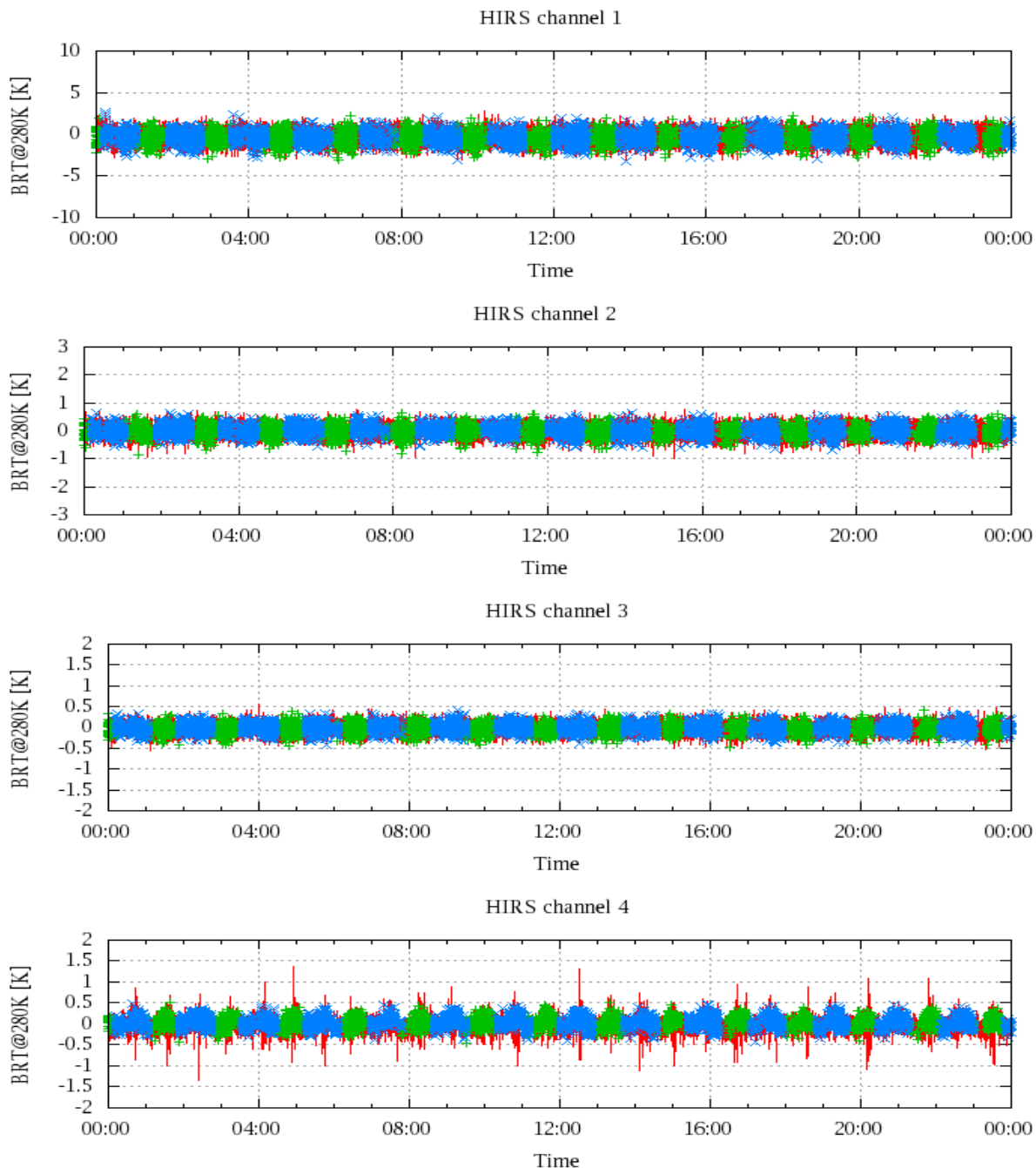


Figure 17: Radiance Differences in BRT

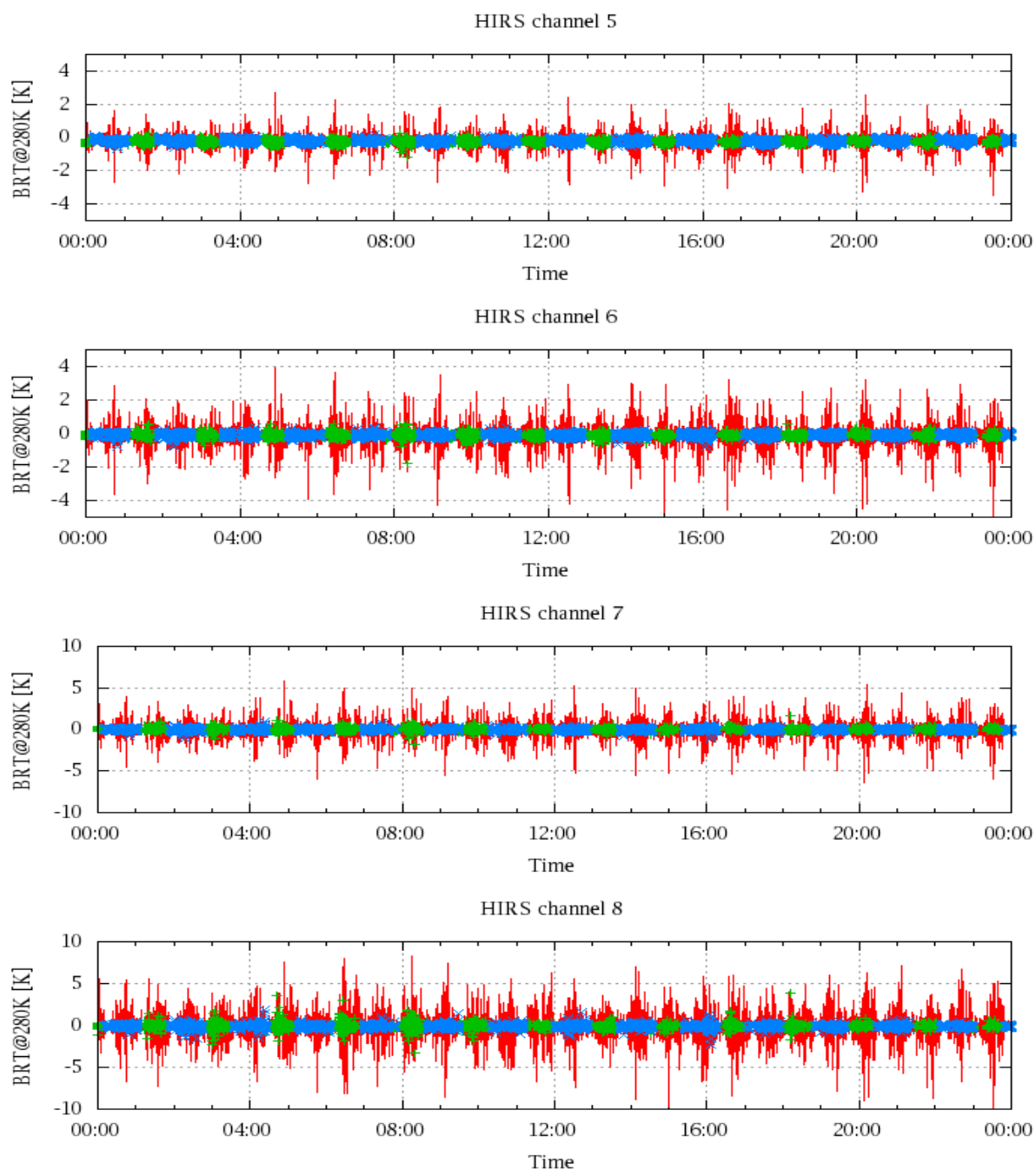


Figure 18: Radiance Differences in BRT

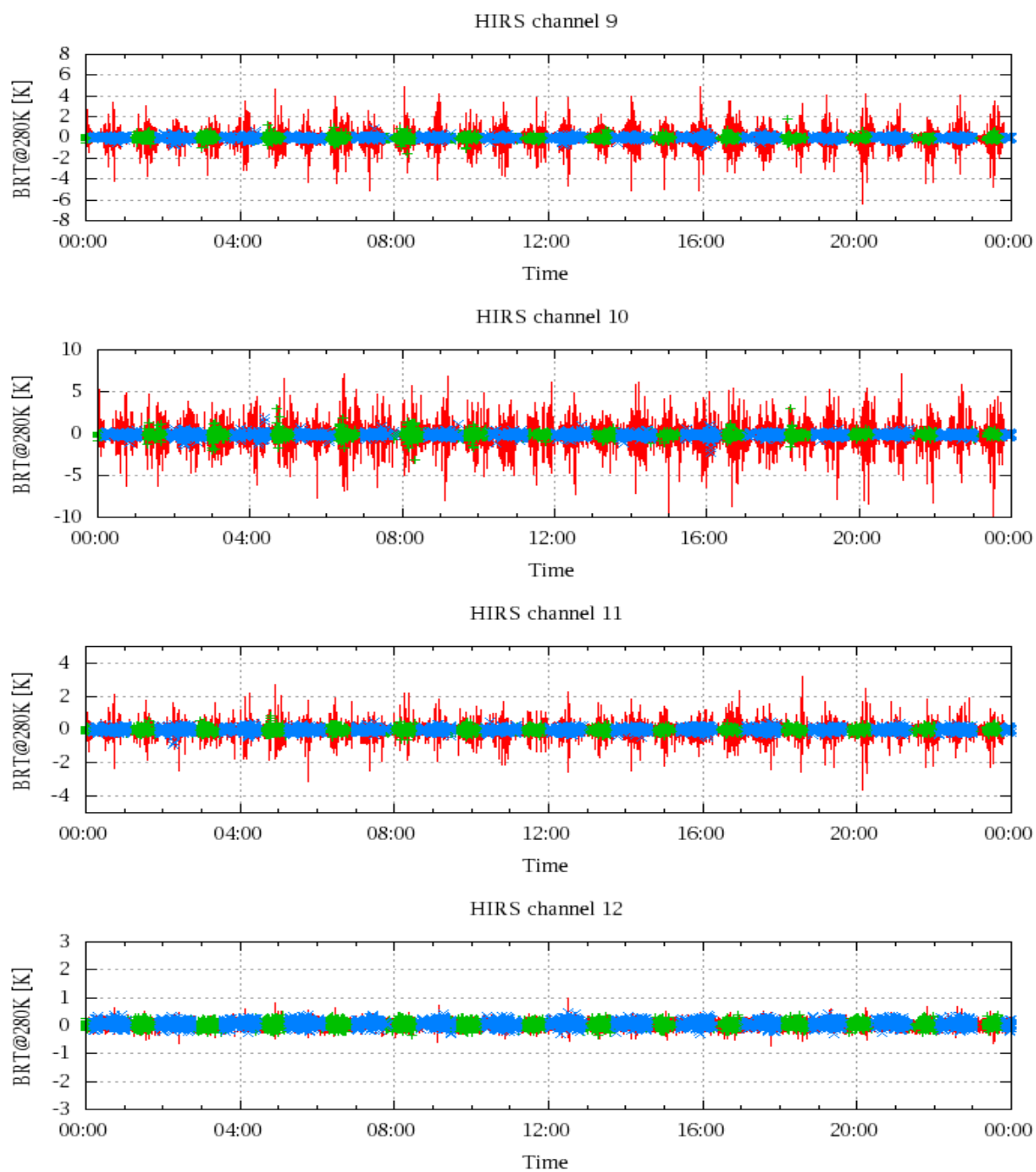


Figure 19: Radiance Differences in BRT

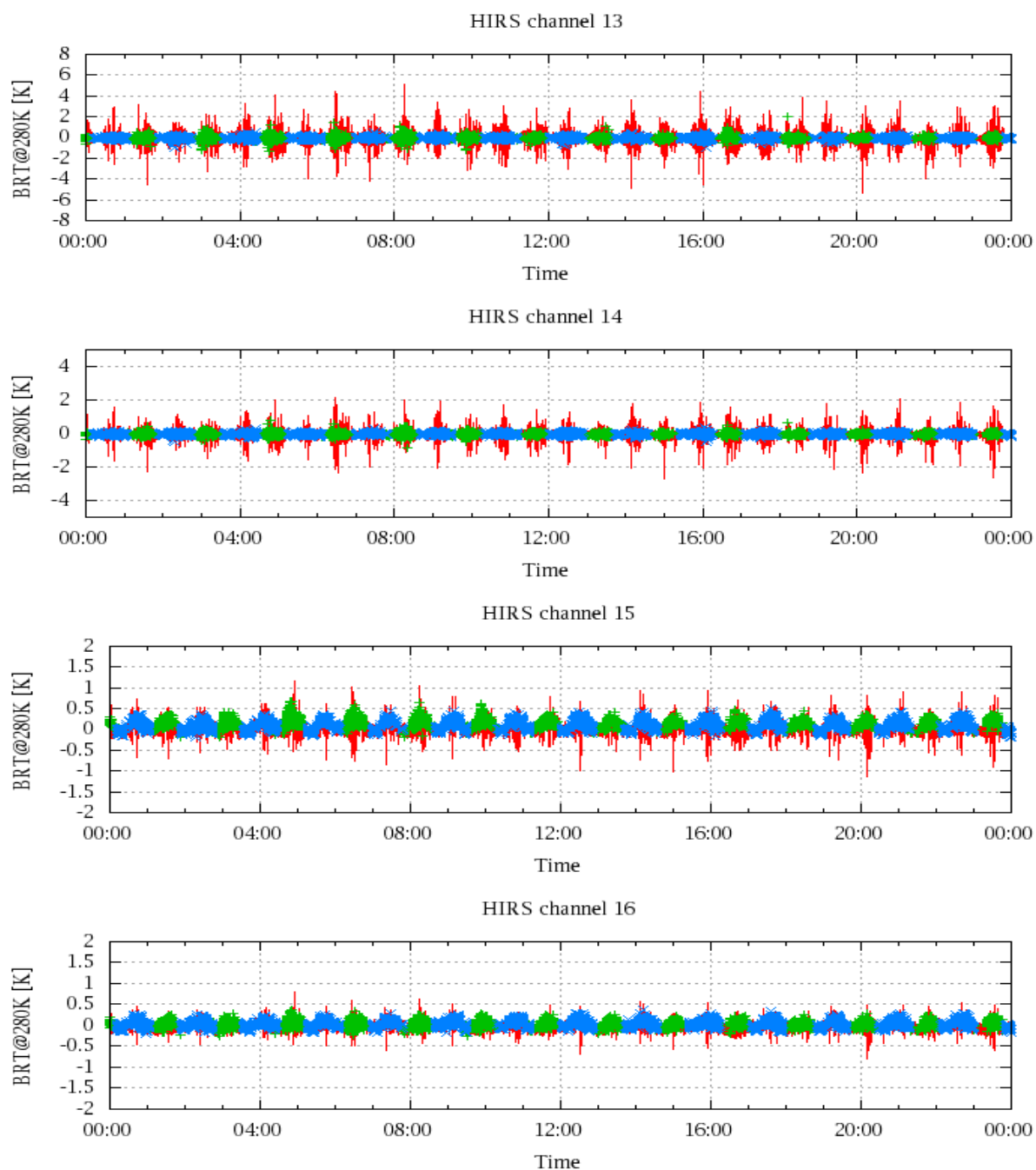


Figure 20: Radiance Differences in BRT

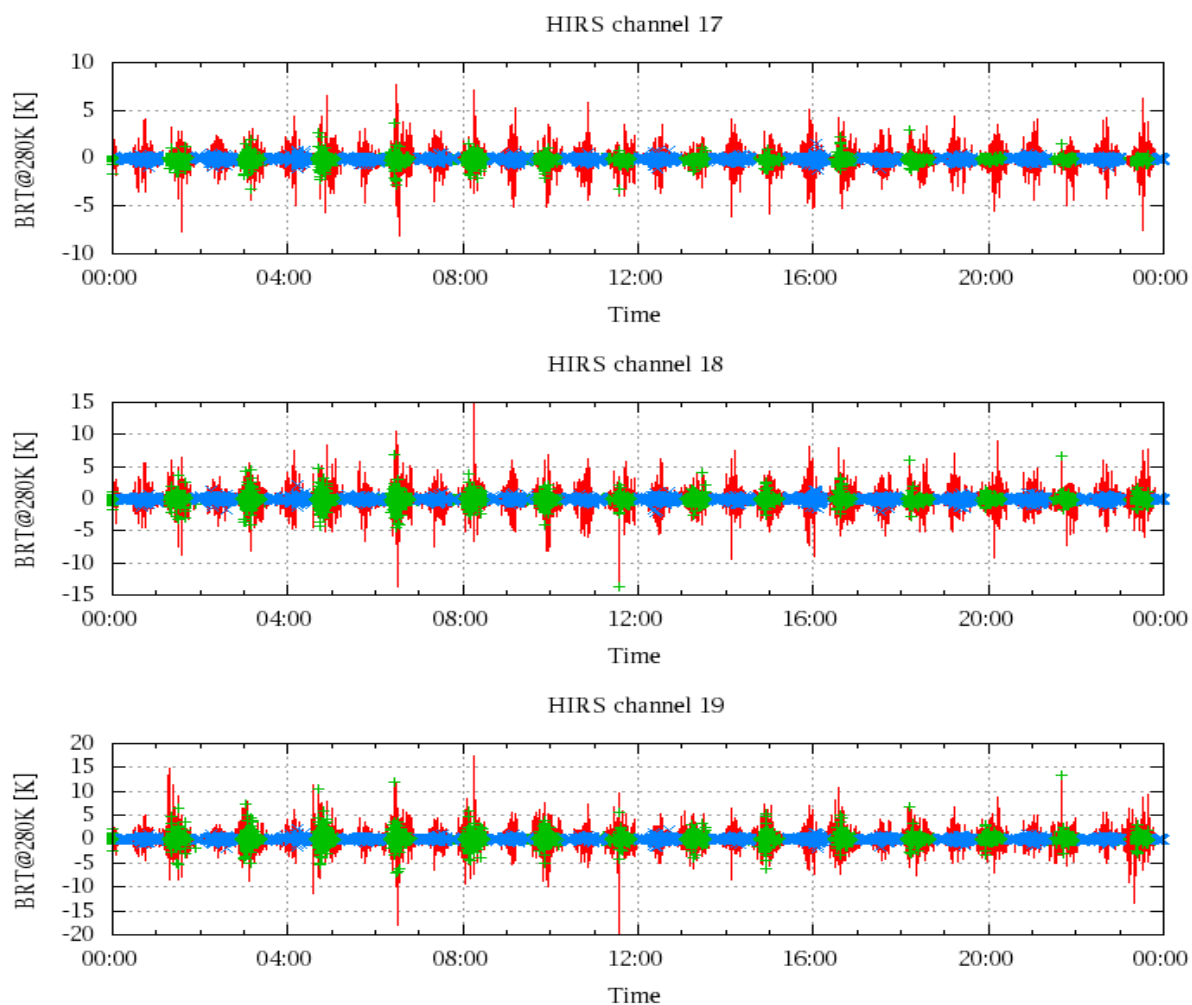


Figure 21: Radinace Differences in BRT