
document title/ titre du document

SCIAMACHY BI-MONTHLY REPORT: JANUARY - FEBRUARY 2006

prepared by/ <i>préparé par</i>	Angelika Dehn
Checked by	Kevin Halsall, VEGA
reference/ <i>référence</i>	ENVI-SPPA-EOPG-TN-06-0010
issue/ <i>édition</i>	1
revision/ <i>révision</i>	0
date of issue/ <i>date d'édition</i>	31 Mar 2006
status/ <i>état</i>	
Document type/ <i>type de document</i>	Technical Note
Distribution/ <i>distribution</i>	

APPROVAL

Title <i>titre</i>	SCIAMACHY Bi-Monthly Report: January - February 2006	issue 1 <i>issue</i>	revision 0 <i>revision</i>
------------------------------	--	--------------------------------	--------------------------------------

author <i>auteur</i>	A. Dehn, SERCO, Manfred Gottwald, SOST-DLR, Stefan Noël, SOST-IFE	date 30/03/2006 <i>date</i>
--------------------------------	--	---------------------------------------

approved by <i>approuvé by</i>	S. Slijkhuis, DLR (DPQC), Albrecht von Bargaen, DLR (DPQC)	date 30/03/2006 <i>date</i>
--	---	---------------------------------------

CHANGE LOG

<i>reason for change /raison du changement</i>	<i>issue/issue</i>	<i>revision/revision</i>	<i>date/date</i>

CHANGE RECORD

Issue: 1 Revision: 0

<i>reason for change/raison du changement</i>	<i>page(s)/page(s)</i>	<i>paragraph(s)/paragraph(s)</i>

TABLE OF CONTENTS

1	INTRODUCTION	5
1.1	Scope	5
1.2	References	5
1.3	Acronyms and Abbreviations	6
2	SUMMARY	8
3	INSTRUMENT CONFIGURATION AND PERFORMANCE	10
3.1	In-Flight Status and Performance	10
3.1.1	Planned Operations and Measurements (SOST-DLR)	10
3.1.2	Instrument Measurement Status (SOST-DLR)	10
3.1.3	Executed Operations and Measurements (SOST-DLR)	11
3.1.4	Performance Monitoring - System (SOST-DLR)	13
3.1.5	Performance Monitoring - Light Path (SOST-IFE)	20
3.1.5.1	Science Channel Averages	20
3.1.5.2	Spectral light path monitoring results	22
3.1.5.3	PMD monitoring results	28
3.1.6	Problem Report Status (DLR-BO)	31
4	DATA AVAILABILITY STATISTICS	32
4.1	Downlink/Acquisition Performance	32
4.2	Statistics on unconsolidated data (SCI_NL__0P, SCI_NL__1P)	33
4.3	Statistics on consolidated data	33
4.3.1	Anomalies on L0 consolidated data products	34
4.4	Statistics on reprocessed data	35
5	LEVEL 1 PRODUCT QUALITY MONITORING	36
5.1	Processor Configuration	36
5.1.1	Version	36
5.1.2	Auxiliary Data Files	37
5.1.3	Spectral Performance	38
5.1.4	Radiometric Performance	39
5.1.5	Other Calibration Results	39
5.1.5.1	SMR analysis	39
5.1.5.2	LK1 analysis	44
5.1.5.3	PE1 analysis	47
5.1.6	Pointing Performance	48

6	LEVEL 2 NRT PRODUCT QUALITY MONITORING	49
6.1	Processor Configuration.....	49
6.1.1	Version.....	49
6.1.2	Auxiliary Data Files	50
6.2	O ₃ consistency checking	50
6.3	NO ₂ consistency checking	51
6.3.1	NO ₂ VCD map January 2006.....	51
6.3.2	NO ₂ VCD map February 2006.....	51
7	LEVEL 2 OFFLINE PRODUCT QUALITY MONITORING	52
7.1	Processor Configuration.....	52
7.1.1	Version.....	52
7.1.2	Auxiliary Data Files	52
7.1.3	Monitoring results	52
8	VALIDATION ACTIVITIES AND RESULTS.....	53
8.1	SCIAMACHY-ECMWF Comparisons using SCI_RV__2P.....	53
8.1.1	Summary of the ECMWF SCIAMACHY monthly report for January 2006	53
8.1.2	Summary of the ECMWF SCIAMACHY monthly report for February 2006	54
8.2	Statistics from Inter comparison with External Data	54

SCIAMACHY BI-MONTHLY REPORT JANUARY - FEBRUARY 2006

1 INTRODUCTION

The SCIAMACHY Bi-Monthly report documents the current status and recent changes to the SCIAMACHY instrument, its data processing chain, and its data products.

The Bi-Monthly Report (hereafter BMR) is composed of analysis results obtained by the Product Control Facility, combined with inputs received from the different groups working on SCIAMACHY operation, calibration, product validation and data quality.

The first part of the report is dedicated to Instrument Configuration and Performance. It is composed of contributions from SOST-DLR and SOST-IFE.

The remainder of the report is dedicated to Level 1 and Level 2 performance assessment and is generated by ESA/ESRIN DPQC with contributions from ESA/ESTEC PLSO and DLR-IMF.

The structure of the report will be in constant evolution through the ENVISAT mission, as experience with SCIAMACHY data and quality control grows.

1.1 *Scope*

The main objective of the BMR is to give on a regular basis, the status of SCIAMACHY instrument performance, data acquisition, results of anomaly investigations, calibration activities and validation campaigns. The BMR is composed of the following six sections:

- Summary
- Instrument Configuration and Performance
- Data Availability Statistics
- Level 1 Product Quality Monitoring
- Level 2 Product Quality Monitoring
- Validation Activities and Results

1.2 *References*

- [1] 'Instrument Operation Manual', MA-SCIA-0000DO/01, Issue F R2, 16 Dec. 2004
- [2] 'ENVISAT-1 Products Specifications Volume 15: SCIAMACHY Products Specifications', PO-RS-MDA-GS-2009, Issue 3, Rev: J, Alberto Pellegrini
- [3] 'SCIAMACHY cL0 Statistics, PO-TN-DLR-SH-0012, Issue 1, Rev. 1 14 April 2005'
- [4] SCIAMACHY cL0 Statistics 2003, PO-TN-DLR-SH-0013, Issue 1, Rev. 0 14 April 2005

1.3 *Acronyms and Abbreviations*

ADC	Analogue to Digital Converter
ADF	Auxiliary Data File
ANX	Ascending Node Crossing
AOCS	Attitude and Orbit Control System
APSM	Aperture Stop Mechanism
ASM	Azimuth Scan Mechanism
ATC	Active Thermal Control
BMR	Bi-Monthly Report
CA	Corrective Action
CCA	Communication Area
CTI	Configurable Transfer Item
DAC	Digital Analogue Converter
DLR-IMF	Deutsches Zentrum fuer Luft- und Raumfahrt
DPQC	Data Processing Quality Control
ESM	Elevation Scan Mechanism
FPN	Fixed Pattern Noise
HK	Housekeeping
ICE	Instrument Control Electronics
ICU	Instrument Control Unit
IECF	Instrument Engineering and Calibration Facilities
IOM	Instrument Operation Manual
LK1	Leakage Current Auxiliary File (SCI_LK1_AX)
LOS	Line of Sight
MCMD	Macro Command
MR	Monthly Report
NCWM	Nadir Calibration Window Mechanism
NDFM	Neutral Density Filter Mechanism
NNDEC	Non-nominal Decontamination
NRT	Near Real Time
OBM	Optical Bench Module
OCR	Operations Change Request
OSDF	Orbit Sequence Definition File
PCF	Product Control Facility
PDHS	Payload Data Handling Station (PDS)
PDHS-E	Payload Data Handling Station – ESRIN
PDHS-K	Payload Data Handling Station – Kiruna
PDS	Payload Data Segment
PE1	Pixel to Pixel/ Etalon Auxiliary File (SCI_PE1_AX)
PLSO	Payload Switch OFF
PMD	Polarization Measurement Device
QUADAS	Quality Analysis of Data from Atmospheric Sounders
SAA	South Atlantic Anomaly
SCIAMACHY	Scanning Imaging Absorption Spectrometer for Atmospheric Chartography

SEU	Single Event Upset
SLS	Spectral Line Source
SMR	Sun Mean Reference
SOST	SCIAMACHY Operations Support Team
SP1	Spectral Calibration Auxiliary File (SCI_SP1_AX)
SU1	Sun Reference Auxiliary File (SCI_SU1_AX)
SZA	Sun Zenith Angle
TC	Thermal Control
TCFoV	Total Clear Field of View
TOA	Top of Atmosphere
TRUE	Tangent height Retrieval by UV-B Exploitation
VCD	Vertical Column Density
WLS	White Light Source

2 SUMMARY

- During the reported period SCIAMACHY measurements were nominal with respect to planning, except for two anomalies and one out-of-plane orbit manoeuvre (OCM). The unavailabilities occurred during following orbits:
 - 20196-20204 (10-Jan-2006) OCM
 - 20570-20588 (05-Jan-2006 – 06-Jan-2006) instrument anomaly
 - 20590-20606 (06-Jan-2006 – 07-Jan-2006) instrument anomaly
- Monthly Calibration was executed during orbits:
 - 20236-20240 (12-Jan-2006)
 - 20665-20669 (11-Feb-2006)
- Occultations with the moon rising on the night side were executed between orbits:
 - 20208-20261 (10-Jan-2006 until 14-Jan-2006)
 - 20596-20683 (06-Feb-2006 until 12-Feb-2006)
- No OCR has been implemented during January - February 2006.
- One TC adjustment was required in order to increase the temperatures for detectors 4 & 5 during orbit:
 - 20143 (06-Jan-2006)
- Light Path monitoring:
 - Small degradation in UV continues (channel 1 – 1%, channel 2 – 0.5%); sun over ESM diffuser degradation smaller than for other light paths – indication that ESM diffuser degrades less than ESM mirror
 - Channels 3-6 radiometrically stable besides slight throughput loss in channel 3 (about 2%)
 - Channel 7 throughput decreases, but this is almost negligible. Variations in the channel 7 calibration light path throughput are visible for the first time, probably due to seasonal effects
 - Channel 8 throughput is reduced by about 20%, the transmission is stable at this level.
- PMD monitoring:
 - UV degradation visible in science channels is also visible in PMD 1 to 3

- PMD 4 and 7 show a large decrease in throughput which is currently unexplained.
- PMD 6 results still under investigation

3 INSTRUMENT CONFIGURATION AND PERFORMANCE

3.1 In-Flight Status and Performance

Detailed operations, planning and instrument status information can be found on the website of the *SCIAMACHY Operations Support (SOST)* under <http://atmos.caf.dlr.de/projects/scops/>. These pages are maintained on a daily basis and show the history and actual progress of the SCIAMACHY mission.

3.1.1 Planned Operations and Measurements (SOST-DLR)

The reporting period covers the orbits 20068 (ANX = 01-Jan-2006, 01:29:18.453) to 20912 (ANX = 28-Feb-2006, 23:31:27.795). One OSDF specified the planning baseline.

Orbit		ANX		OSDF
Start	Stop	Start	Stop	
20068	20912	01-Jan-2006 01:29:18.453	28-Feb-2006 23:31:27.795	MPL_OSD_SHVSH_20051125_010101_00000000_33140001_20060101_004321_20060301_012916

Table 3-1 SCIAMACHY OSDF planning file from January – February 2006

All measurements were nominal, i.e. timelines executed on the dayside of the orbit limb/nadir sequences with wide swath settings. In-flight calibration and monitoring measurements occurred on daily, weekly and monthly timescales according to the mission scenarios. Monthly calibration was scheduled between orbits:

- 20236-20240 (12-Jan-2006)
- 20665-20669 (11-Feb-2006)

The moon was in the limb TCFoV between orbits:

- 20173-20263 (08-Jan-2006 until 14-Jan-2006)
- 20588-20690 (06-Feb-2006 until 13-Feb-2006)

Occultations with the moon rising on the night side were executed between orbits:

- 20208-20261 (10-Jan-2006 until 14-Jan-2006)
- 20596-20683 (06-Feb-2006 until 12-Feb-2006)

No OCR has been implemented between January and February.

3.1.2 Instrument Measurement Status (SOST-DLR)

Final flight status for mission scenarios, states and timelines remained unchanged throughout the reporting period.

3.1.3 Executed Operations and Measurements (SOST-DLR)

Measurements

The OSDF planning file has been scheduled as requested except for two anomalies (see below) and one Out-of-Plane orbit control manoeuvre (OCM, see below).

Detector thermal adjustment

One TC adjustment was required in order to increase temperatures for detectors 4 & 5. This occurred in orbit 20143 (06-Jan-2006, 07:59:25 UTC). The TC settings were (before/after adjustment)

- DAC1 = 0.53/0.53 W
- DAC2 = 0.70/0.70 W
- DAC3 = 0.00/0.03 W

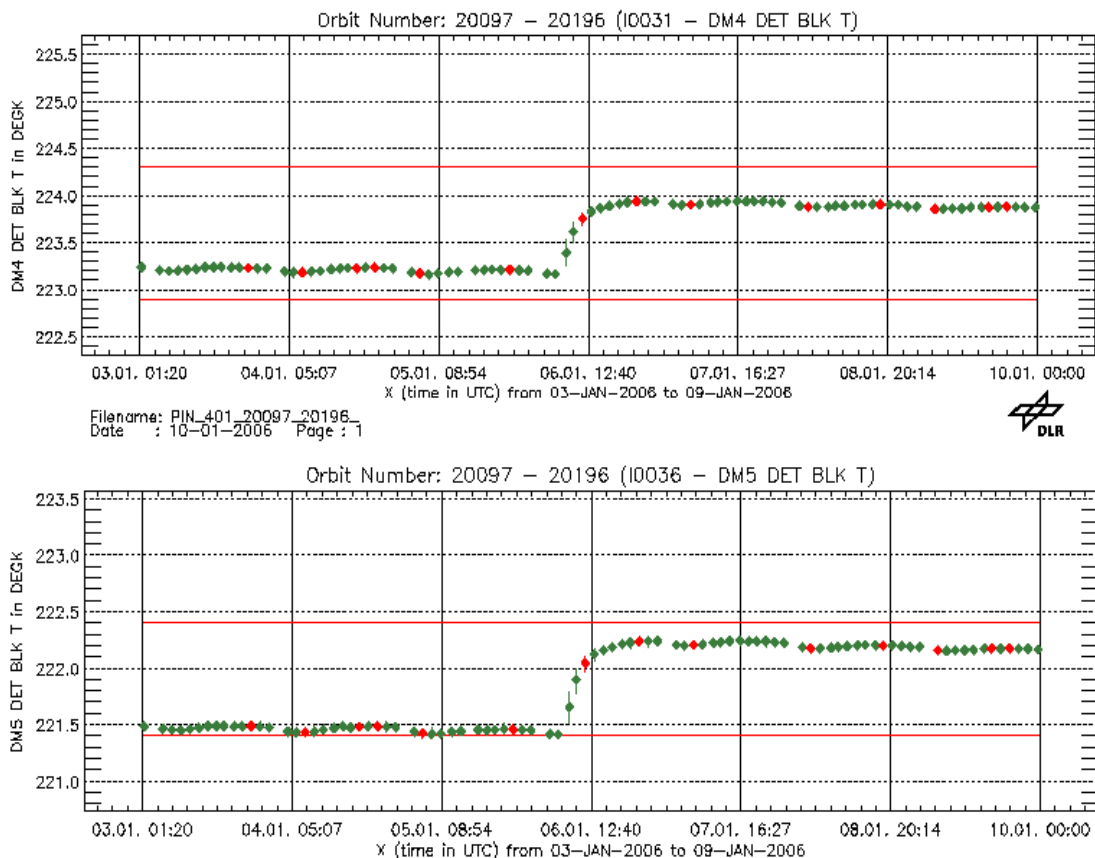


Figure 3-1 Response of detectors 4 & 5 to TC adjustment

APSM/NDFM health checks & PMD ADC cal

In the reporting period 1 APSM/NDFM health check and 2 PMD ADC calibrations were executed. All showed nominal results.

APSM/NDFM			PMD ADC	
Orbit	ANX	Result	Orbit	ANX
20429	26-JAN-2006 07:33:47	ok	20430	26-JAN-2006 09:10:16
n.a.	n.a.	n.a.	20902	28-FEB-2006 08:29:15

Table 3-2 APSM/NDFM health check and PMD ADC calibration

Anomalies

Two anomalies had occurred:

- In orbit 20570 (05-Feb-2006, 02:39:11 UTC) the MCMD Check Error triggered a transfer to R/W WAIT. This was the first error of this kind since October 2004, i.e. the error rate is well within estimate of 2-3/year. Recovery had started immediately since the error is classified as ‘known’. In orbit 20588 (06-Feb-2006, 09:05:20 UTC) the MPS schedule was resumed.
- In orbit 20590 (06-Feb-2006, 12:56:28 UTC) a Single Event Upset (SEU) triggered a transfer to HTR/RF. Recovery ended in orbit 20606 (07-Feb-2006, 16:02:37 UTC) when the MPS scheduled was resumed.

Orbit	Date	Entry - UTC	Level	Entry Type	ID Content/Transition	Mode	Remark
20570	05-FEB-2006	2006.036.09.38.52.715	Instrument	AUTONOMOUS SWITCHING	goto R/W-WAIT	R/W-WAIT	MCMD CCA check error
20590	06-FEB-2006	2006.037.12.56.34.870	Instrument	AUTONOMOUS SWITCHING	goto HTR/RF	HTR/RF	Single Event Upset (SEU)
20590	06-FEB-2006	2006.037.13.27.26.312	Instrument	MACROCOMMAND EXECUTION ENTRY	START TIMELINE	HTR/RF	Complementary failure
20590	06-FEB-2006	2006.037.13.27.26.319	Instrument	COMPLEMENTARY FAILURES	---	HTR/RF	Complementary failure
20590	06-FEB-2006	2006.037.13.27.26.323	Instrument	MACROCOMMAND EXECUTION ENTRY	START TIMELINE	HTR/RF	Complementary failure
continuous Complementary Failures until 2006.037.13.57.38.714 (4 entries)							
20591	06-FEB-2006	2006.037.13.57.38.714	Instrument	MACROCOMMAND EXECUTION ENTRY	START TIMELINE	HTR/RF	Complementary failure
20591	06-FEB-2006	2006.037.13.57.38.726	Instrument	COMPLEMENTARY FAILURES	---	HTR/RF	Complementary failure
20591	06-FEB-2006	2006.037.13.57.38.726	Instrument	MACROCOMMAND EXECUTION ENTRY	START TIMELINE	HTR/RF	Complementary failure

Table 3-3 Instrument anomalies between January and February 2006

Orbit Control Manoeuvre

Between orbits 20196 (10-Jan-2006, 00:54:09 UTC) and 20204 (10-Jan-2006, 13:02:10 UTC) SCIAMACHY was in MEASUREMENT IDLE mode during an out-of-plane OCM. This OCM was the first where one of the required two slews around the z-axis occurred partially outside eclipse (note: all previous OCM were executed completely in eclipse). One of the z-slews may turn the SRC and RAD A into the direction of the sun depending on the rotation direction. Instrument thermal experts have stated that the performance of the SRC and RAD A is not reduced when being potentially exposed to direct sunlight under the conditions applicable in the OCM.

This OCM was executed such that the z-slews did not rotate the SRC and RAD A into sun direction. The first z-slew started and ended outside eclipse and the second slew occurred during eclipse. During the first slew the S/C turned anticlockwise, i.e. the SRC

was in the shadow of the S/C Bus. The rest of the OCM was be performed during the eclipse.

Instrument unavailability

The instrument was unavailable during an OCM and two instrument anomalies.

Unavailability					
Orbit		UTC		Event	Remark
Start	Stop	Start	Stop		
20196	20204	10-Jan-2006 00:54:09	10-Jan-2006 13:02:10	transfer to MEASUREMENT/IDLE	OCM
20570	20588	05-Feb-2006 02:39:11	06-Feb-2006 09:05:20	transfer to R/W WAIT	CCA MCMD Check Error
20590	20606	06-Feb-2006 12:56:28	07-Feb-2006 16:02:37	transfer to HTR/RF	PMTC_Tx buffer overflow (SEU)

Table 3-4 Instrument unavailabilities between January and February

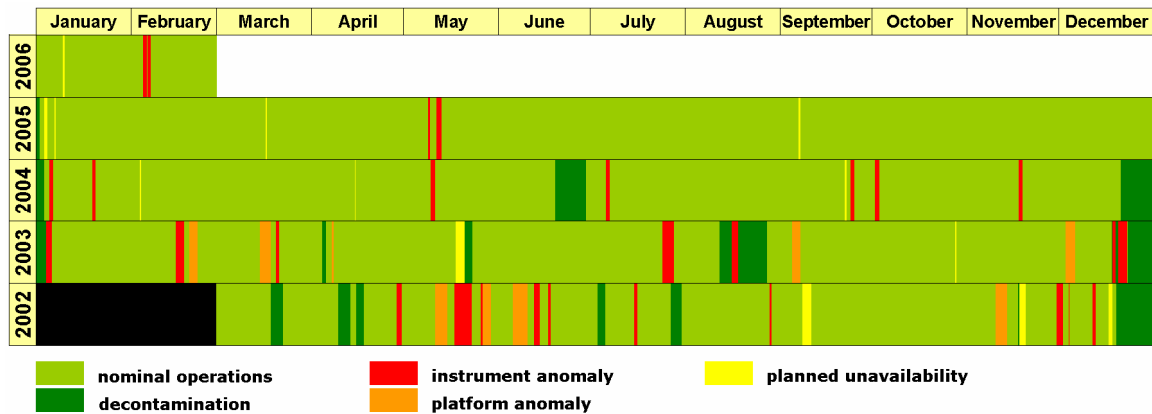


Figure 3-2 Current instrument availability status including the reporting period

3.1.4 Performance Monitoring - System (SOST-DLR)

Detector temperatures

Detector temperatures are monitored according to the requirements of the IOM [1]. It requests to ensure that the average temperature per orbit remains within the specified limits. For each detector the average temperatures per orbit are determined from HK telemetry parameters. Figure 3-3 displays the temperatures of all 8 detectors. Colour coding is as on the operational monitoring website, i.e. data from orbits with HK telemetry coverage > 90% are shown in red, for < 90% in green. Minimum/maximum values per orbit are indicated as vertical bars. The temperature limits of each detector are shown as horizontal lines.

Temperature violations (cooling below the lower limits) occurred only as a result of the two instrument anomalies (see above). One TC adjustment was required (see above).

OBM temperatures

OBM temperatures are monitored according to the requirements of the IOM [1]. It requests to ensure that the average temperature per orbit remains within the specified limits. The average OBM temperature per orbit is determined from specific HK telemetry parameters. In addition power readings for the ATC heaters are monitored. Temperatures and ATC heater powers are given in Figure 3-4 and Figure 3-5. Colour coding is as in Figure 3-3.

OBM temperatures and ATC heater powers remained within limits except for the time when the two instrument anomalies occurred (see above).

PMD ADC status

The status of the PMD ADC is monitored according to the requirements of the IOM [1]. It requests to ensure that no glitches occur caused by an SEU.

No PMD ADC glitches have been detected.



esa



ife

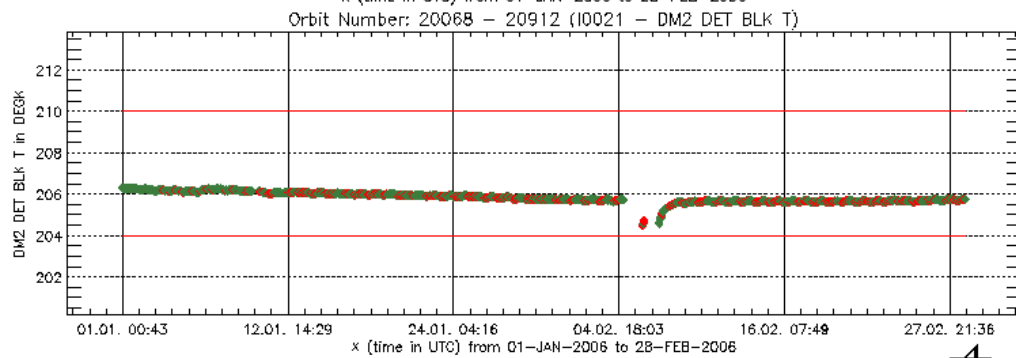
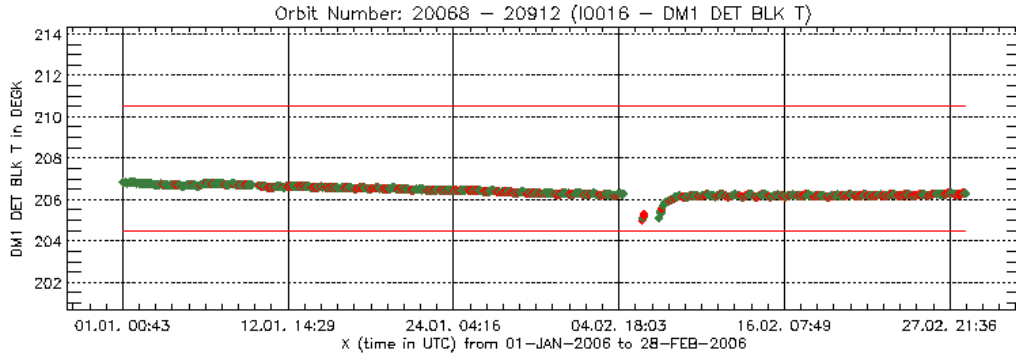


SCIAMACHY Bi-I

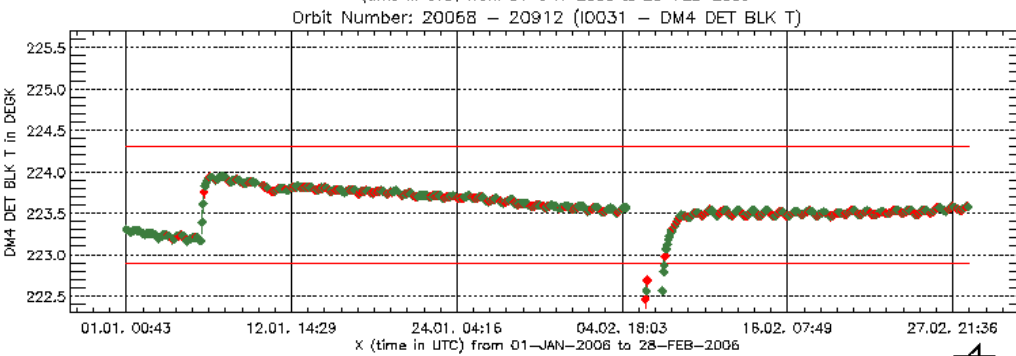
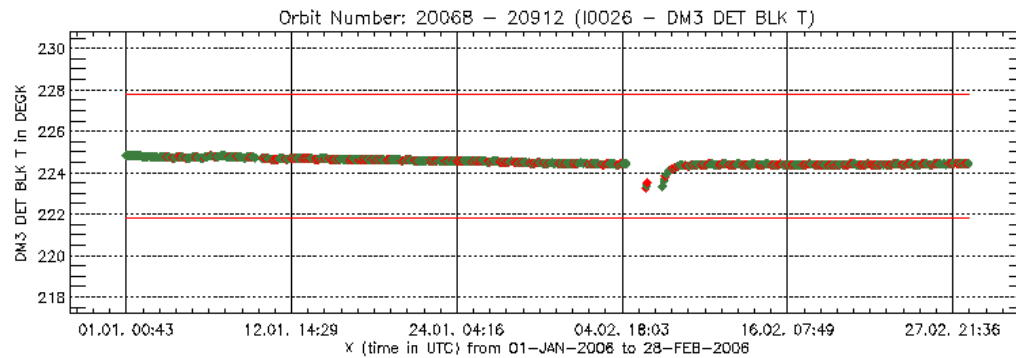


ZUVB
issue 1 revision 0 -

page 15 of 72



Filename: PIN_401_20068_20912
Date : 15-03-2006 Page : 1



Filename: PIN_401_20068_20912
Date : 15-03-2006 Page : 1





esa



SCIAMACHY Bi-I



ZUUB
Issue 1 revision 0 -

page 16 of 72

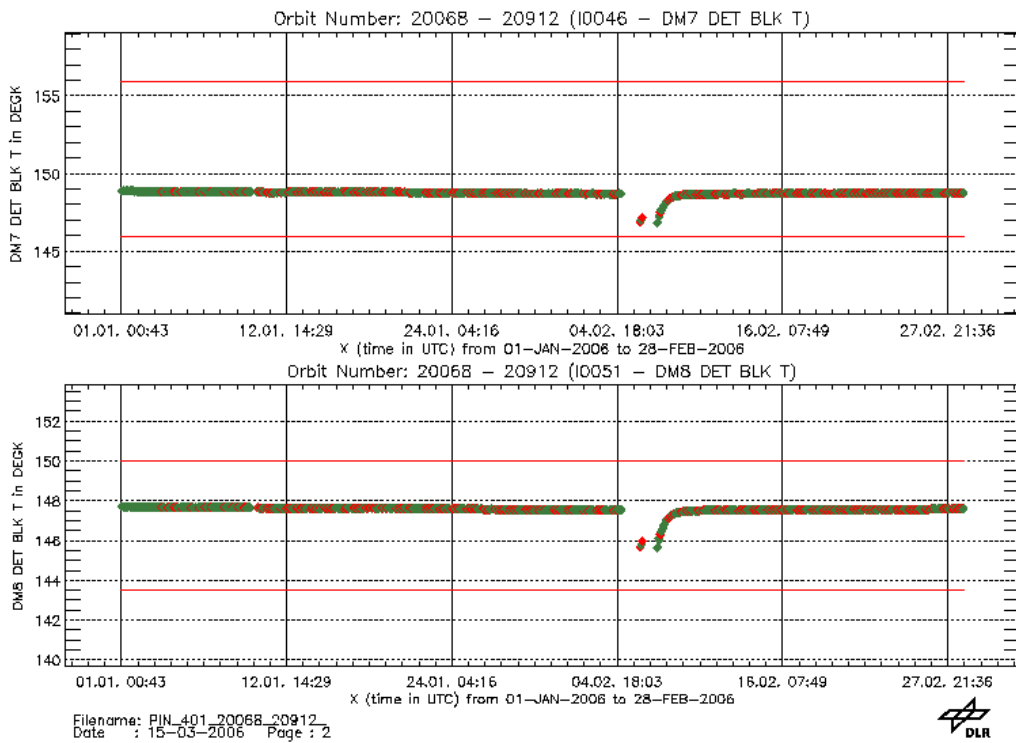
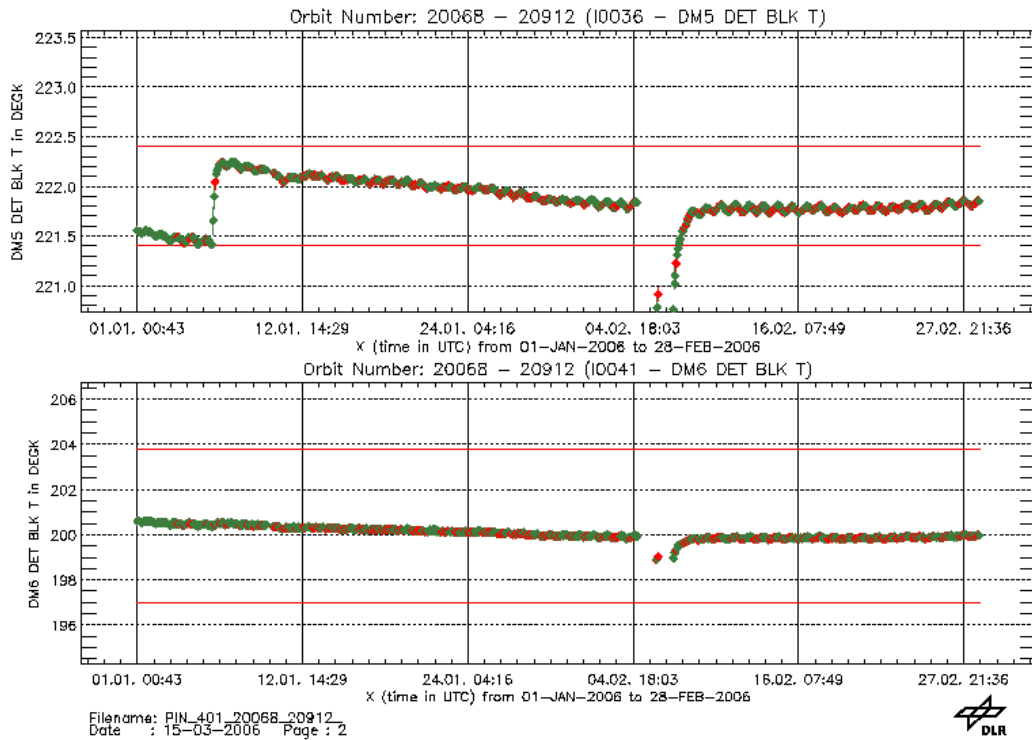


Figure 3-3 Detector temperatures

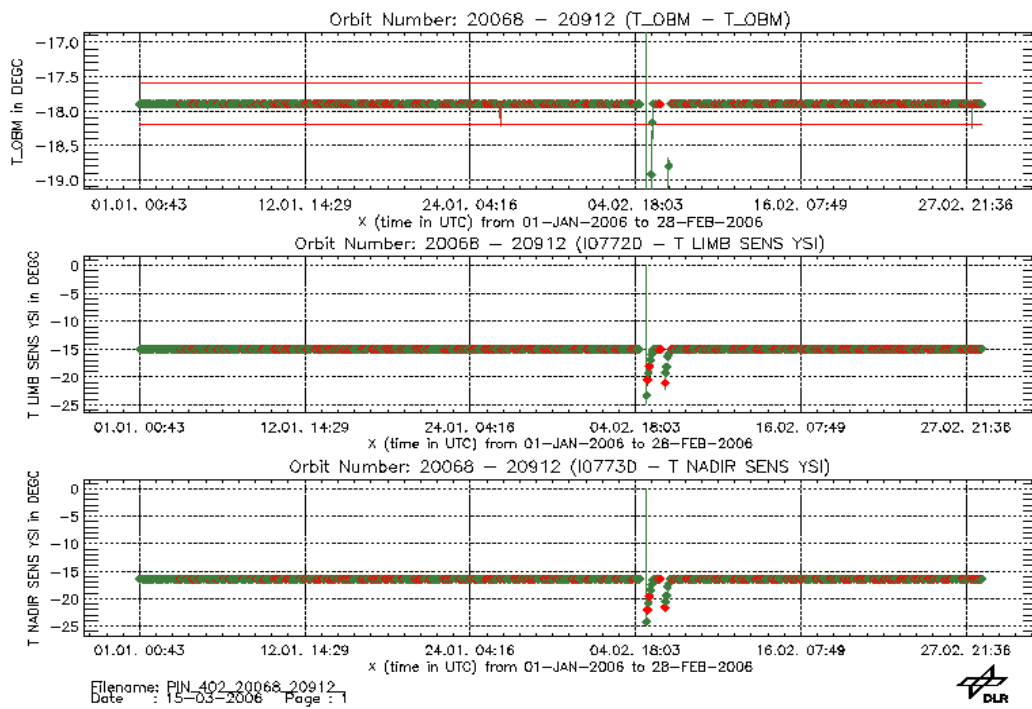


Figure 3-4 OBM temperatures (top: derived OBM, middle: limb sensor, bottom: nadir sensor)

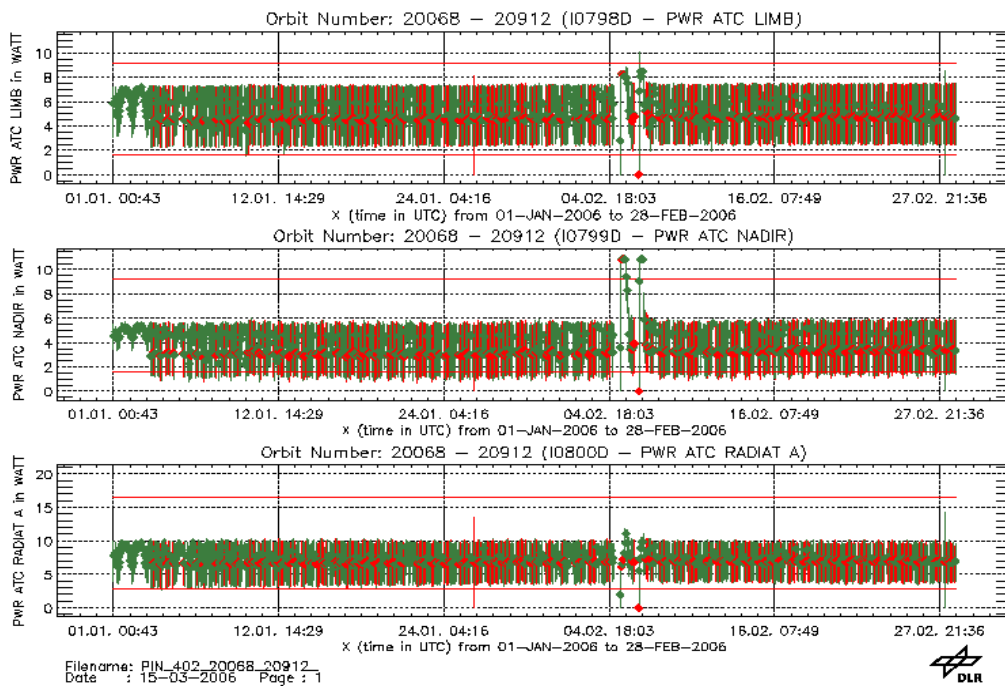


Figure 3-5 ATC heater power (top: ATC limb, middle: ATC nadir, bottom: ATC Rad A)

LLI status

Life Limited Items are monitored based on analysis of the:

- OSDF: This yields a predicted LLI usage.
- Report format: This counts the actual LLI switches or used LLI cycles. No WLS/SLS burning times can be derived thereof.

In addition, the in-flight usage of the cryogenic heat pipe is recorded. This subsystem has a limited number of cycles. Each decontamination increases the accumulated number of cycles by 1.

At the end of the reporting period the fractional usage of the LLI relative to the allowed in-flight budget was

- NDFM: 0.55
- APSM: 0.50
- NCWM (sub-solar port): 0.58
- WLS (switches): 0.11
- WLS (burning time): 0.22
- SLS (switches): 0.04
- SLS (burning time): 0.01

How the relative LLI usage has accumulated since launch can be seen in Figure 3-6. 'EOL' assumes a total mission lifetime of 0.5 years of Commissioning Phase and 4.5 years of routine operations (note that discussions have started to adapt the LLI usage to the envisaged mission extension).

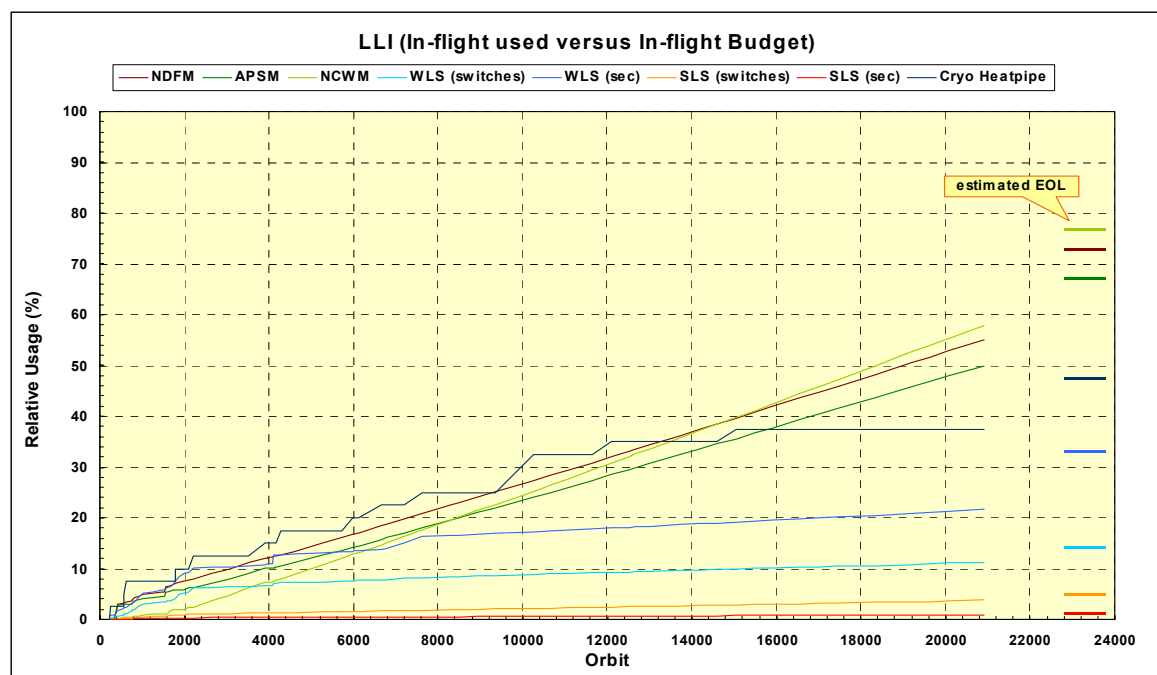


Figure 3-6 Relative usage of LLIs 'EOL' is derived for the currently specified mission lifetime.

The number of cryogenic heatpipe cycles did not increase (no decontamination). The budget used remained at 38% of the allowed in-flight budget.

Time reference

The times quoted in all planning files refer to the reference orbit. Since the actual orbit differs from the reference orbit (e.g. orbit drift), the times given with respect to the reference orbit also do not reflect exactly the actual absolute times of events along the orbit (e.g. ANX, sunrise, sub-solar, moonrise, eclipse). The requirements for orbit maintenance may result in time differences of usually $< \pm 10$ sec. In some cases this value may even reach ± 1 min, however.

SOST monitors how the reference time deviates from the actual time. This is done by using the predicted time which comes very close to the actual = restituted time. If the predicted times are delayed with respect to the reference orbit, then the difference *predicted* – *reference time* is > 0 sec; in the other case it is < 0 sec.

Figure 3-7 displays the time difference *predicted* – *reference*. Orbit manoeuvres cause distinct discontinuities.

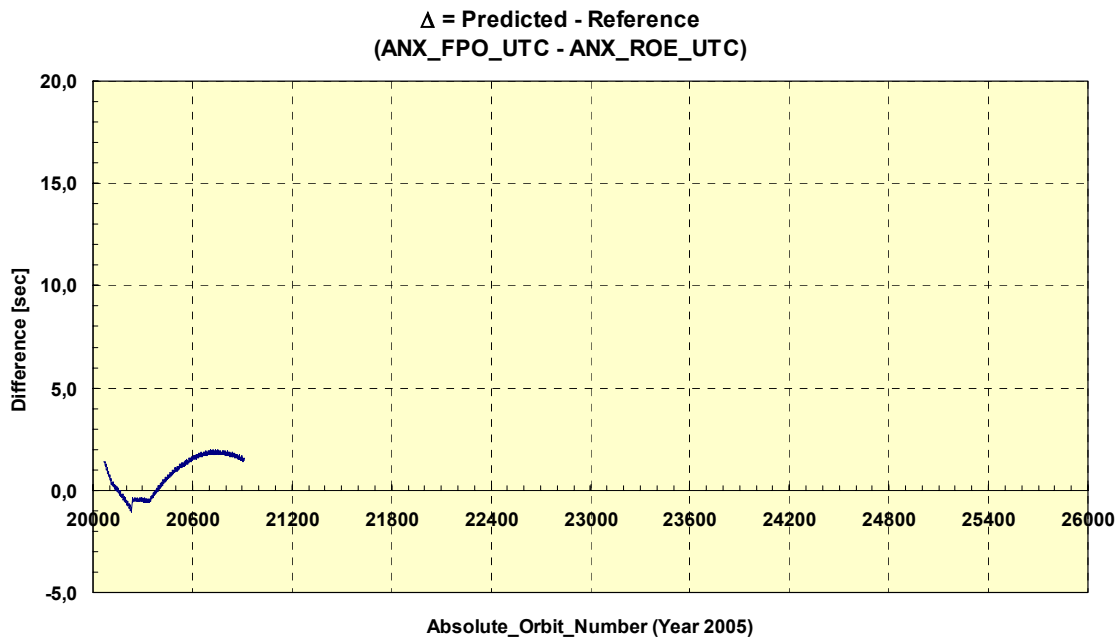


Figure 3-7 Time difference between predicted and reference time

3.1.5 Performance Monitoring - Light Path (SOST-IFE)

3.1.5.1 Science Channel Averages

One part of the SOST long-term monitoring activities is the trend analysis of measurements with the internal White Light Source (WLS) and of observations of the unobscured Sun above the atmosphere. In order to monitor the different SCIAMACHY light paths solar measurements are taken in various viewing geometries: In limb/occultation geometry (via ASM and ESM mirrors), in nadir geometry (via the ESM mirror through the subsolar port), and via the so-called calibration light path involving the ASM mirror and the ESM diffuser.

SCIAMACHY long-term monitoring comprises a regular analysis of these measurements.

The plots displayed in Figure 3-8 show results of these monitoring activities for the time interval January to February 2006.

All measured signals have been averaged over the entire channel and then divided by the corresponding measurement at a reference time (currently 2 August 2002, at about orbit 2200), yielding an effective instrument throughput for the different light paths.

The timing of subsolar measurements before 30 November 2002 (about orbit 3922) did not consider the known yaw misalignment of SCIAMACHY on ENVISAT. Therefore all subsolar measurements after 30 November 2002 have been referred to orbit 4519 (10 January 2003, just after a long decontamination phase).

Note that measurements performed during times of reduced instrument performance (e.g. switch-offs or decontamination periods) have been omitted.

The results presented in Figure 3-8 are based on the analysis of Level 0 data, which have been corrected for dead/bad pixels, dark current (fixed value from August 2002), scan angle dependencies, quantum efficiency changes, and the seasonally varying distance to the Sun. Additional calibration steps have not been performed, like for example a straylight correction. Therefore, variations smaller than about 1% require careful interpretation.

Furthermore, there exists a systematic offset between the throughput results for the subsolar light path and those for the other viewing geometries. This offset is most prominent in the IR and most likely caused by the specific subsolar scan mode (fast sweep) analysed.

The light path monitoring results presented in this section may be regarded as a first step towards spectrally resolved monitoring factors (m-factors) which will be produced based on Level 1b data.

Daily updated light path monitoring results can be found on the SOST or IUP web site (<http://www.iup.physik.uni-bremen.de/sciamachy/LTM/LTM.html>).



esa



ife



SCIAMACHY Bi-I



ZUUB
Issue 1 revision 0 -

page 21 of 72

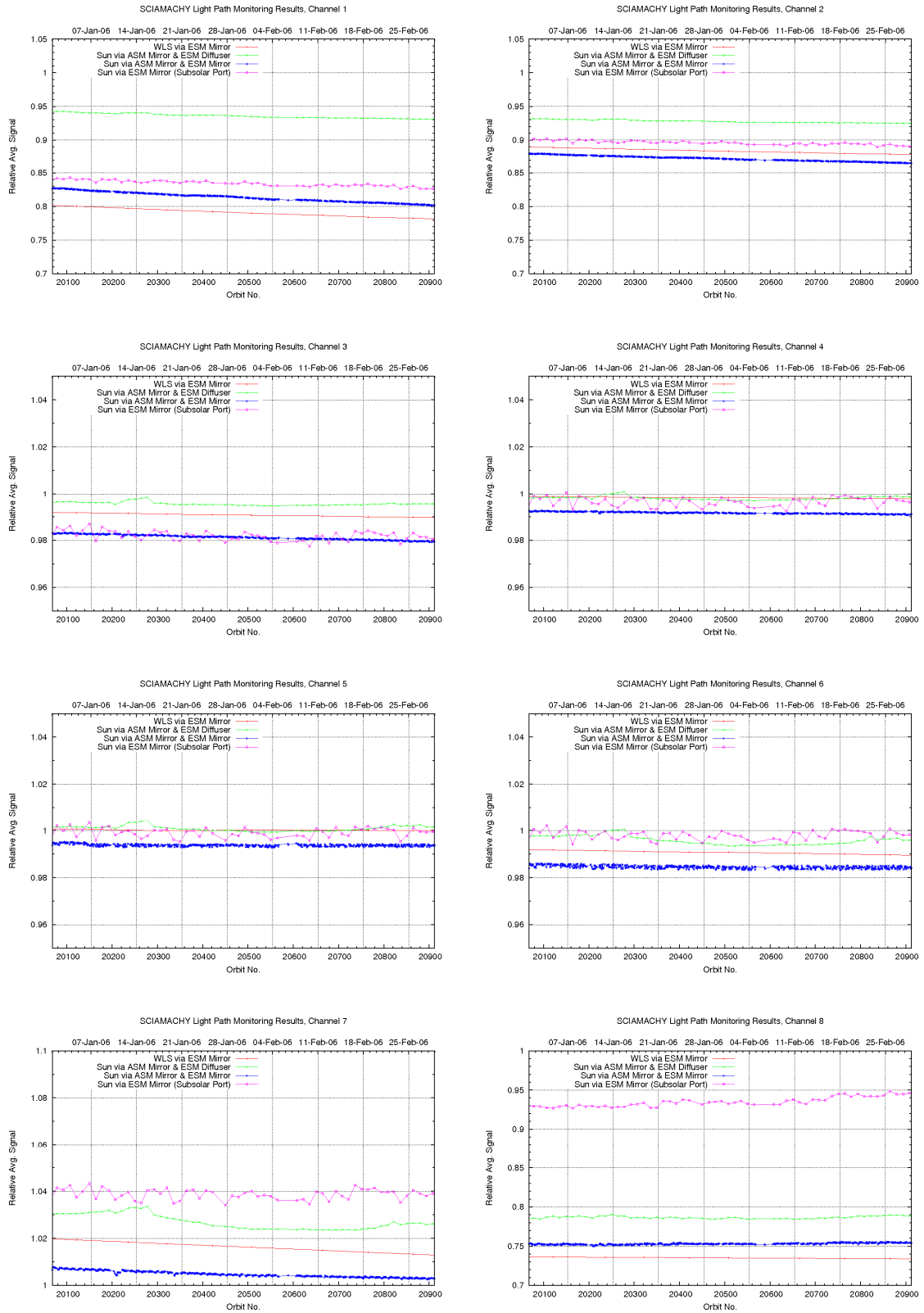


Figure 3-8 Light path monitoring results January to February 2006

The following specific features can be identified from the light path monitoring results during the time interval of this report:

- The degradation in the UV (channels 1 & 2) increases with the same rate as observed during the previous time intervals (about 1% per month in channel 1). Currently, the throughput loss in channel 1 reaches about 20%. The degradation of the calibration light path which involves the ESM diffuser instead of the ESM mirror is still smaller than for the other light paths, indicating that the ESM diffuser degrades less than the ESM mirror.
- The overall degradation of channel 3 is still very small (about 2%) compared to channels 1 and 2, but is slowly increasing.
- Channels 4 and 5 remain stable.
- The throughput in channel 6 is still slightly decreasing. This may be partly attributed to degradation/icing, but a quantitative statement is difficult because of the overlaid seasonal component mentioned already in previous reports.
- The throughput of channel 7 still decreases, but this is almost negligible compared to the formerly observed throughput losses. Some variations in the channel 7 calibration light path throughput are visible for the first time. These variations are probably due to seasonal effects (similar as for channel 6) which had been masked by the influence of icing during previous years.
- Channel 8 transmission remains quite stable at about 75-80% (depending on light path; note that the subsolar results are not reliable here). The slight downward trend observed for the limb light path during the time interval of the previous report is no longer visible. Instead, the calibration light paths show a small increase in throughput.

3.1.5.2 Spectral light path monitoring results

Figure 3-9, Figure 3-10, Figure 3-11 and Figure 3-12 show results of spectral throughput monitoring performed by SOST-IFE for the different light paths (nadir, limb, calibration, and WLS).

These results have been derived from Level 0 data analysed in a similar way as for the channel averaged throughput data (but of course without spectral averaging).

Because the variation in spectral direction is very small within two month, Figure 3-9, Figure 3-10, Figure 3-11 and Figure 3-12 show the complete time series from 2 August 2002 to the end of February 2006.

Notes:

- Dates in the graphs refer to UTC noon (12:00).
- The data have been interpolated over dead/bad pixels (using the on-ground list).
- Data from times of reduced instrument performance (like decontaminations or instrument switch-offs) have not been considered. These times are masked out by grey vertical bars.
- All data have been transformed to a daily grid, involving averaging and interpolation.

- Ratios have been performed on a pixel axis without any spectral interpolations. The wavelength axis is just for illustration and gives only approximate values, assuming a linear relation between pixel number and wavelength.
- Depending on the availability of measurement data, features close to large data gaps (especially before and after decontamination) may be caused by interpolation.
- WLS data have not been corrected for a potential degradation of the lamp. Only the intensity jump after the extended WLS usage in June 2003 has been removed.
- As mentioned before, the timing of subsolar measurements before 30 November 2002 did not consider the known yaw misalignment of SCIAMACHY on ENVISAT. The timing has been corrected in the final flight settings. To take this change into account, all subsolar measurements have been referred to orbit 4519 (10 January 2003).

Therefore, subsolar results before 30 November 2002 are not reliable.

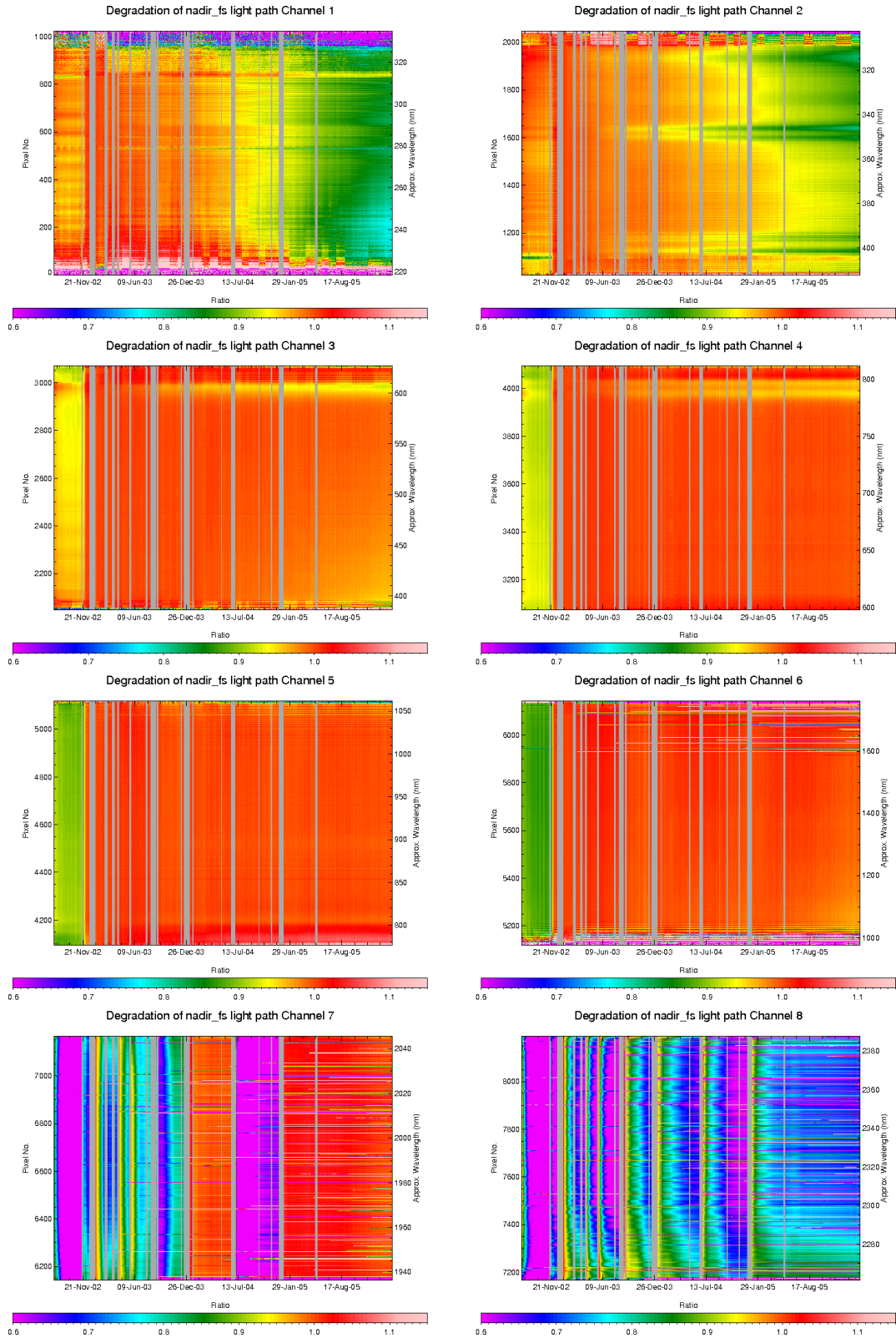


Figure 3-9 Spectral light path monitoring results August 2002 to February 2006 (nadir light path)

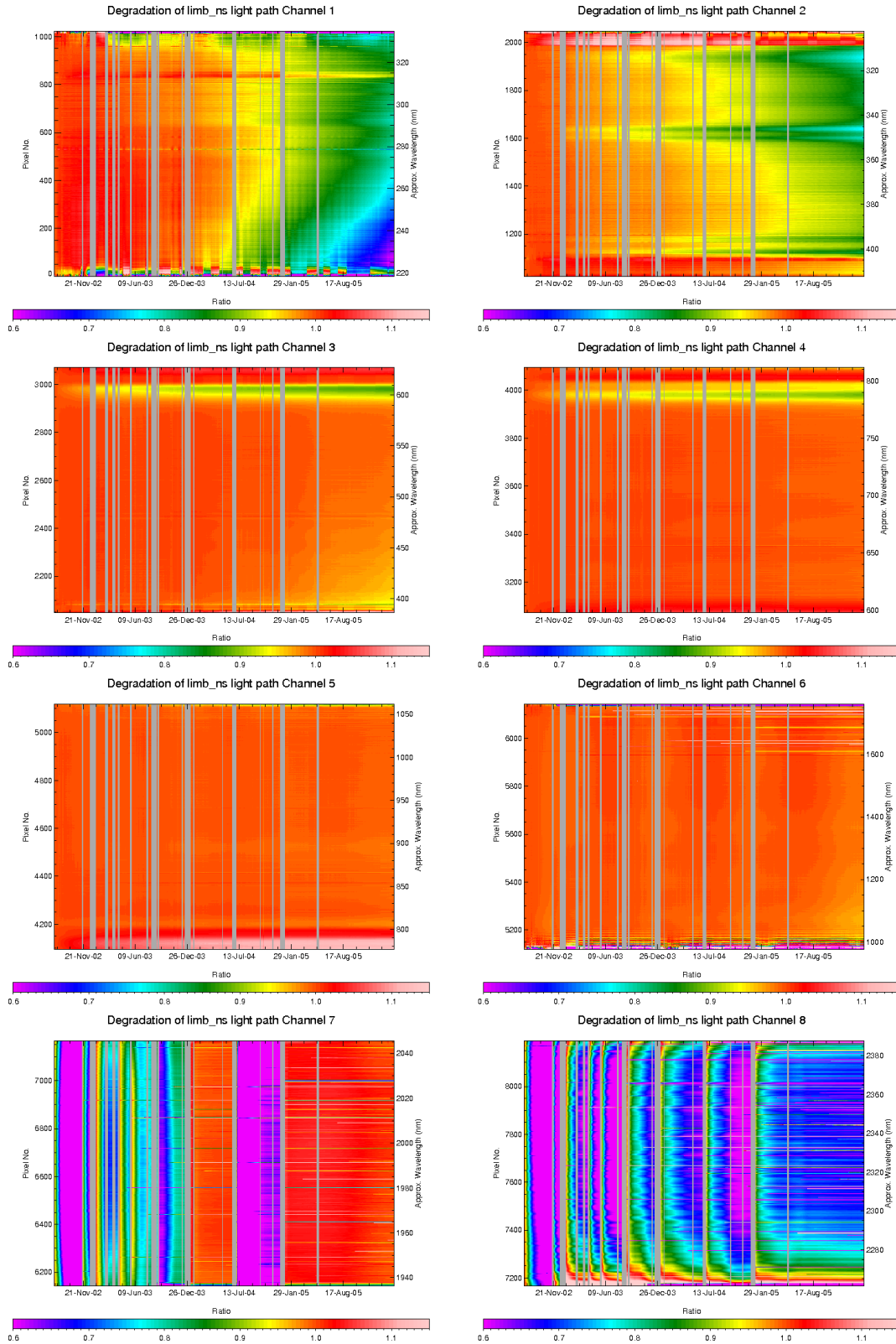


Figure 3-10 Spectral light path monitoring results August 2002 to February 2006 (limb light path)

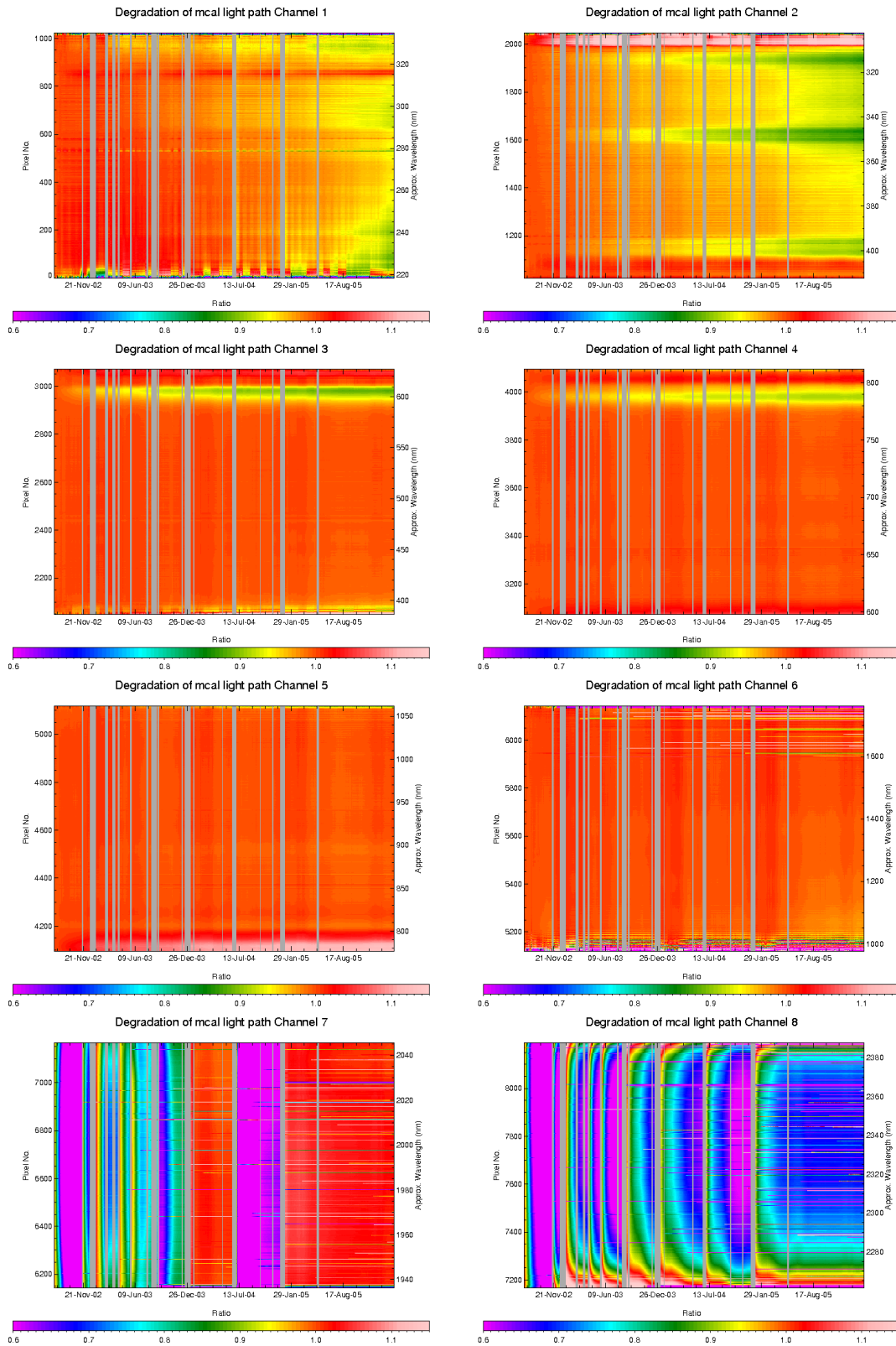


Figure 3-11 Spectral light path monitoring results August 2002 to February 2006 (calibration light path)



esa



ife



SCIAMACHY Bi-I



ZUVB
Issue 1 revision 0 -

page 27 of 72

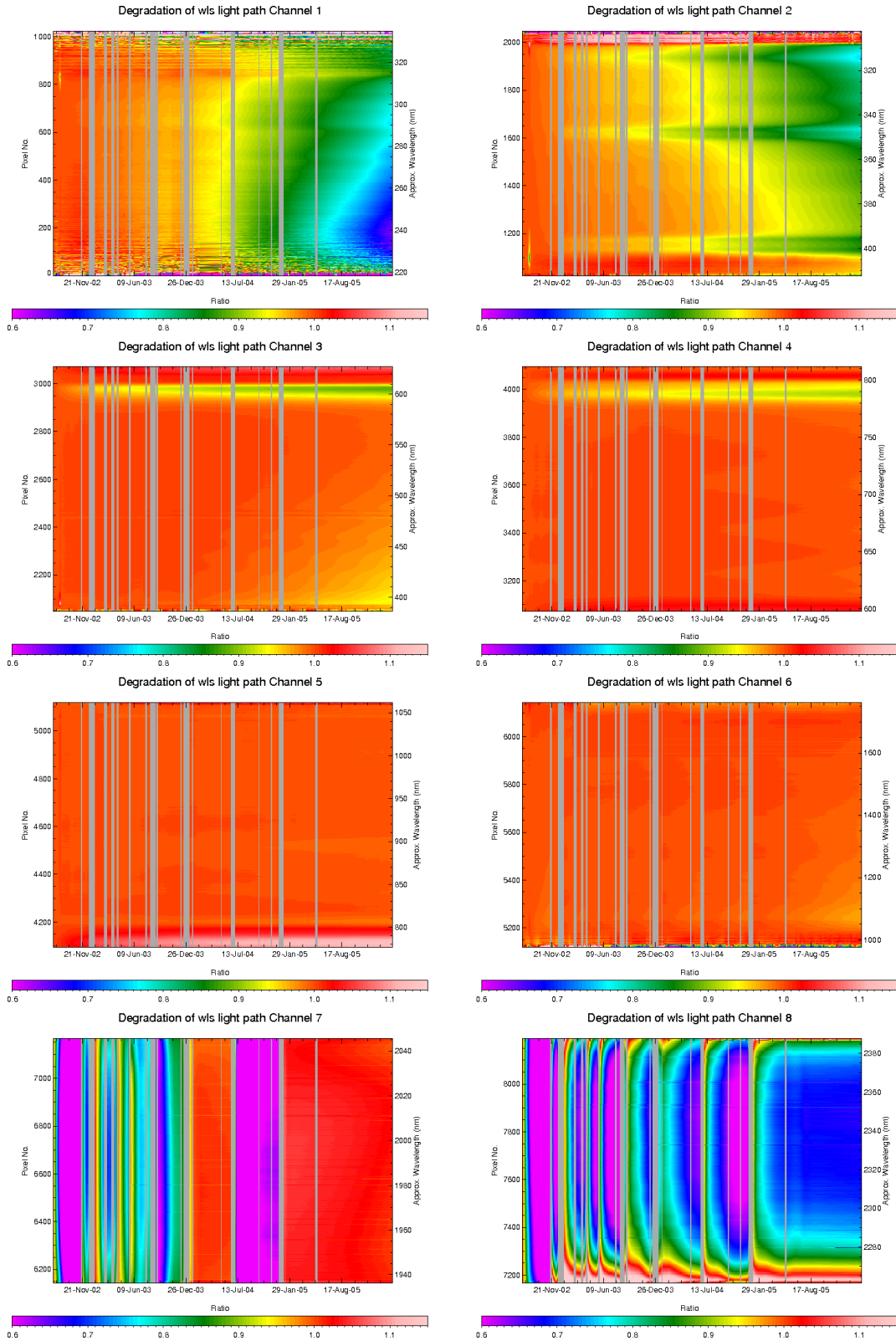


Figure 3-12 Spectral light path monitoring results August 2002 to February 2006 (WLS light path)

The following main features can be identified in the spectral monitoring plots:

- As expected, the UV degradation generally decreases with increasing wavelength.
- The SCIAMACHY degradation strongly depends on wavelength and is largest at the channel edges and at spectral regions of high polarisation sensitivity (especially visible in channel 2, e.g. the peak around 350 nm).
- The minimum throughput reaches about 60% for the limb and WLS (nadir) light paths at the short wavelength edge of channel 1.
- Also solar activity variation can be seen in the plots, e.g. the intensity change of the solar Mg II Fraunhofer line at about 280 nm.
- The degradation in channel 3 which was already indicated by the channel integrated results is much better visible in the spectrally resolved plots, where the propagation of this effect in time to higher wavelengths can be clearly identified.
- The difference in degradation between the diffuser light path and the other light paths is also visible in the plots; however, the spectral regions where degradation is strongest coincide quite well.
- The spectral plots also show that the stability for channels 4 and 5 observed in the integrated data is not present over the whole spectral range; also these channels show variations, but these are restricted to the overlap regions close to the channel edges.
- Channel 6 spectral results confirm the assumption of a slight degradation in this channel which is concentrated at the lower wavelength edge and independent of the overlaid remaining seasonal cycle.
- For channels 7 and 8 the spectral behaviour of the throughput loss is consistent with (broadband) ice absorption features. The effect of the decontaminations is of course also clearly visible in these channels.
- Especially channel 8 shows a large pixel dependence of the throughput variation caused by the different sensitivity of the pixels. This variation is much higher for light paths where the small aperture is involved (i.e. nadir (subsolar) and limb), indicating that the small aperture causes additional effects which need to be considered when applying these results to Earthshine data.
- In general, the WLS data are much smoother than the solar data.

3.1.5.3 PMD monitoring results

The SCIAMACHY PMDs are monitored in a similar way as the science channels, but of course no channel averaging is performed. However, the results presented here are based on the same measurements as the science channel results (but using the PMD low gain signal), and they have been normalized to the same reference times.

For the nadir light path it is not possible to use subsolar fast sweep measurements for PMD monitoring, because these show a too large scatter. This is probably caused by a combination of the very time-sensitive measurement type and scan mode and the fact that the PMDs measure a sampled signal, not an integrated one. Therefore, subsolar pointing measurements are used for monitoring of the PMD nadir light path, because the pointing signal is much more stable. Unfortunately, subsolar pointing measurements are only

performed once per month, therefore the temporal sampling is much less than for the other light paths.

This reduced temporal sampling is also the reason that Figure 3-13 shows the PMD throughput variation for the whole time period between 2 August 2002 and 28 February 2006 (instead of only the two month time interval of this report). Note that a constant dark signal for each of the PMDs has been assumed. To verify this assumption, Figure 3-13 also shows the variation of the PMD dark signal over time, which is usually quite low.

Note that PMD 7 results are most likely dominated by straylight and not reliable. They are only shown for completeness. Furthermore, WLS data are only available for PMD 1 to 3 because of saturation in the other PMD channels.

Considering the broadband character of the PMDs, the observed PMD throughput changes are (except for PMD 4 and 7) very similar to those of the science channels with the following features:

- The UV degradation apparent in the science channels is also visible in PMD 1 to 3.
- PMD 4 and 7 (which cover the same wavelength interval) show a considerably large decrease in throughput which is still unexplained (but may be related to the specific detector material).
- There are remaining seasonal variations in the data which could up to now not be corrected out. The amplitude of these seasonal variations increases with the wavelength range covered by the PMD. This issue is still unresolved.
- The PMD 6 dark signal shows a strange variation over time which is still under investigation.

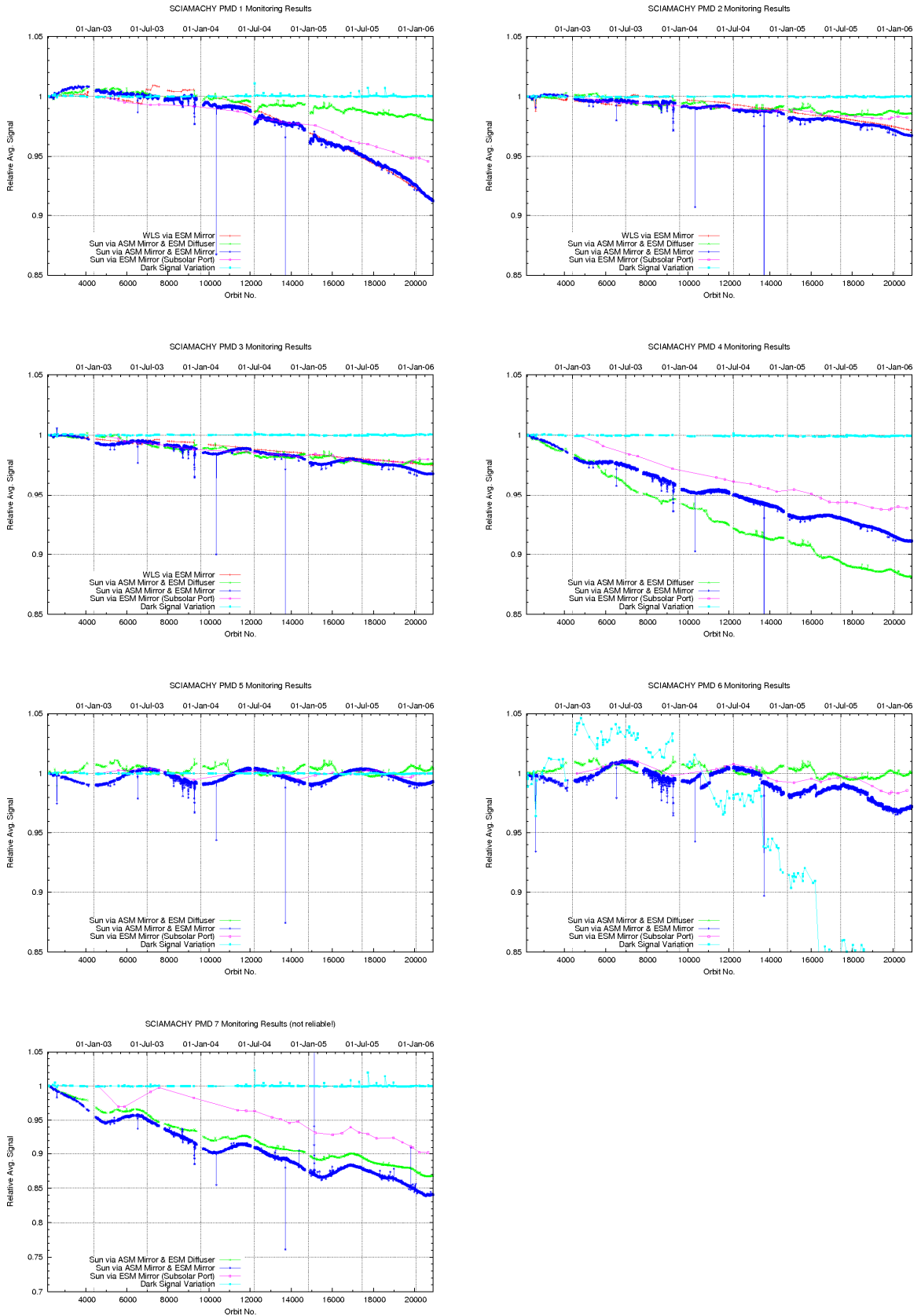


Figure 3-13 PMD monitoring results August 2002 to February 2006

3.1.6 Problem Report Status (DLR-BO)

The problem report statistics is as follows (same status as during period July-August 2005):

- Total number of problem reports: 43
- Open problem reports: 5
- New problem reports during the reporting period: 0

4 DATA AVAILABILITY STATISTICS

4.1 Downlink/Acquisition Performance

The occurrences of data corruptions listed in Table 4-1 are currently under investigation.

Product	Day	Filename	description
SCI_NL__0P	12-Jan-2006	SCI_NL__0PNPDK20060112_134627_000058412044_00139_20233_0024.N1 SCI_NL__0PNPDK20060112_170232_000057362044_00141_20235_0026.N1	products have a high number of ISP Errors; the data format is not correct
SCI_NL__0P	14-Jan-2006	SCI_NL__0PNPDK20060114_110517_000058672044_00166_20260_0048.N1	products have a high number of ISP Errors; the data format is not correct
SCI_NL__0P	15-Jan-2006	SCI_NL__0PNPDK20060115_085300_000060482044_00179_20273_0059.N1	products have a high number of ISP Errors; the data format is not correct
SCI_NL__0P	16-Jan-2006	SCI_NL__0PNPDK20060116_145740_000060352044_00197_20291_0071.N1	products have a high number of ISP Errors; the data format is not correct
SCI_NL__0P	18-Jan-2006	SCI_NL__0PNPDK20060118_103812_000059792044_00223_20317_0088.N1 SCI_NL__0PNPDK20060118_135417_000060352044_00225_20319_0090.N1	products have a high number of ISP Errors; the data format is not correct
SCI_NL__0P	20-Jan-2006	SCI_NL__0PNPDK20060120_143348_000058972044_00254_20348_0109.N1	products have a high number of ISP Errors; the data format is not correct
SCI_NL__0P	30-Jan-2006	SCI_NL__0PNPDK20060130_110009_000061592044_00395_20489_0197.N1 SCI_NL__0PNPDK20060130_141929_000058412044_00397_20491_0199.N1	products have a high number of ISP Errors; the data format is not correct
SCI_NL__0P	31-Jan-2006	SCI_NL__0PNPDK20060131_134938_000058672044_00411_20505_0208.N1	products have a high number of ISP Errors; the data format is not correct
SCI_NL__0P	12-Feb-2006	SCI_NL__0PNPDK20060212_105215_000060912045_00080_20675_0333.N1 SCI_NL__0PNPDK20060212_141121_000059232045_00082_20677_0335.N1 SCI_NL__0PNPDK20060212_190418_000061472045_00085_20680_0338.N1	products have a high number of ISP Errors; the data format is not correct
SCI_NL__0P	14-Feb-2006	SCI_NL__0PNPDE20060214_224117_000054252045_00115_20710_0388.N1	products have a high number of ISP Errors; the data format is not correct
SCI_NL__0P	14-Feb-2006	SCI_NL__0PNPDK20060214_130754_000060912045_00110_20705_0352.N1	incorrect ds_size for "SCIAMACHY_SOURCE_PACKETS " (ds_size: 232216798, calculated: 232012702) incorrect value for MPH_tot_size (MPH: 232220001, calculated: 3203)
SCI_NL__0P	21-Feb-2006	SCI_NL__0PNPDK20060221_110924_000059792045_00209_20804_0417.N1	products have a high number of ISP Errors; the data format is not correct

Table 4-1 SCIAMACHY Products with anomalies

4.2 *Statistics on unconsolidated data (SCI_NL__0P, SCI_NL__1P)*

This paragraph reports the availability of NRT data on a monthly basis. The statistics are based on Level 0 data and Level 1 data inventoried in the ground segment. Unavailability periods due to instrument anomalies or Satellite switch-offs are excluded. The gaps considered are only interfile gaps.

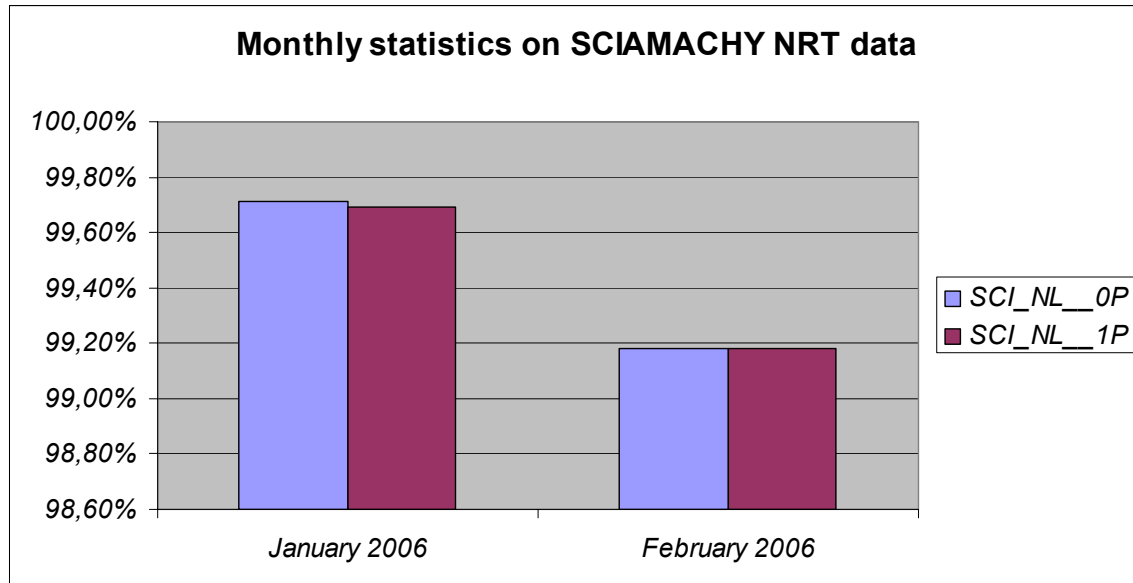


Figure 4-1 Statistics on available unconsolidated Level 0 and Level 1 products

4.3 *Statistics on consolidated data*

In Figure 4-2 statistics on consolidated data products L0 and L1 are presented. The percentage for SCI_NL__1P products are calculated with respect to the available L0 consolidated products of a cycle, which explains that the percent numbers for Level1b can be higher than for L0. The day given next to the cycle number indicates the start day of each cycle.

Figure 4-2 is still showing the status from previous BMR, as the statistic values for the following cycles were not yet made available.

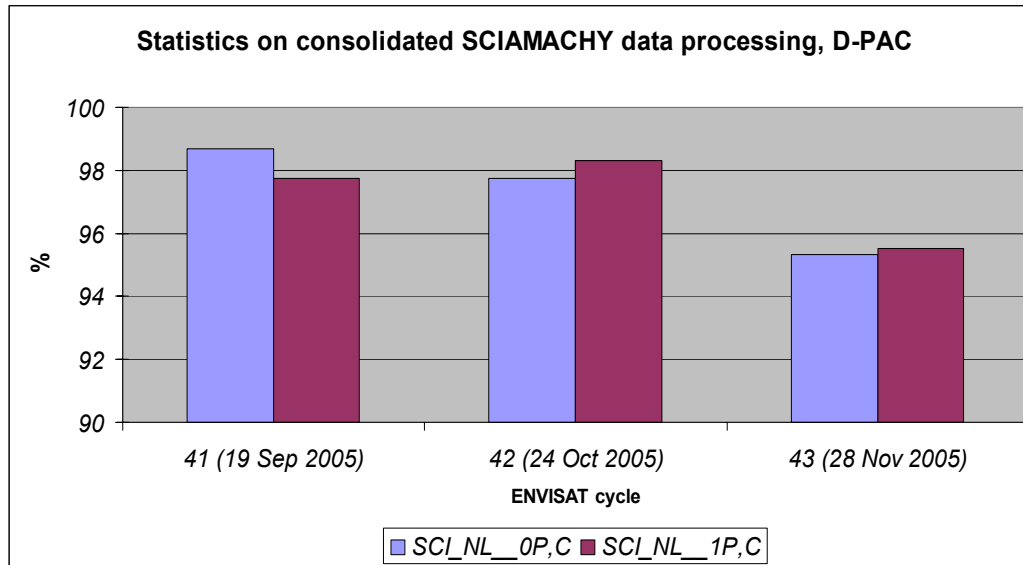


Figure 4-2 Statistics on consolidated Level 0 and Level 1 products

4.3.1 Anomalies on L0 consolidated data products

In the past it had been reported by SOST-DLR, that the SCIAMACHY consolidated L0 data contain errors and are not complete. Following specific problems have been identified and are reported in detail in the technical notes [3] and [4]:

- For one orbit there can be more than one cL0 product. These products may be identical or different in content (disregarding the product type file counter).
- Some orbits are not covered by cL0 products although SCIAMACHY was operational.
- Some orbits are covered by cL0 products but the product duration does not comply with the actually planned and executed instrument operations in that particular orbit.
- Some cL0 products exceed the Reed Solomon correction threshold and are flagged accordingly. The occurrence of Reed Solomon errors is non-uniform.
- Until late October / early November 2003 cL0 data are hampered by an incorrect orbit number.

More details on cL0 anomalies can be found on the SOST web page, which contains a catalogue of available L0 consolidated data and description of errors.

http://atmos.caf.dlr.de/projects/scops/data_availability/availability.html

The errors contained in the consolidated L0 data have been formally transferred into Observation Anomaly Reports (OARs) towards the PDS.

As a consequence in the beginning of December 2005 a dedicated meeting was held at ESA to implement a strategy to improve the product quality of cL0 data and to reprocess erroneous products in the historic data set.

A recovery plan is currently being executed and reprocessing of erroneous data has already been started. The completion of the recovery is estimated by the end of April 2006.

4.4 *Statistics on reprocessed data*

The reprocessing of products from the time interval July 2002 to May 2004 (corresponding to cycles 7 -26, each cycle consisting of 501 orbits) with IPF 5.04 has been completed. See BMR September-October 2005 for details.

5 LEVEL 1 PRODUCT QUALITY MONITORING

5.1 Processor Configuration

5.1.1 Version

The current IPF version used for processing (and re-processing) of SCIAMACHY level 1 data is 5.04. The corresponding product specification is [2]. The disclaimer at http://envisat.esa.int/dataproducts/availability/disclaimers/SCI_NL_1P_Disclaimers.pdf describes known artefacts.

Table 5-1 gives an overview of changes implemented with processor versions IPF 5.04 and 5.01.

In addition here is a summary on the definition of the SZA for Limb/Occultation measurements used in previous and actual IPFs.

For IPF versions 4.02, 5.00, 5.01, 5.04 the SZA is defined with respect to Top of Atmosphere (TOA).

Instead for IPF versions 4.03, 4.01 and earlier versions the SZA is defined with respect to Tangent Point. IPF versions 4.02 and 5.00 however were not used operationally but to generate the validation dataset for the ACVT workshop in 2004.

A new upgrade on the IPF to version 6.00 is currently in progress the FAT for the new IPF took place on day 15 December 2005. The implementation into the PDS is currently being validated and the start of operations with IPF 6.00 is scheduled for mid April 2006.

IPF Version	Description	Proc Centre	Date	Start Orbit
5.04	No algorithm specification changes were implemented, but two algorithm	PDHS-K	21-AUG-2004	12942
		LRAC	20-AUG-2004	12750
		PDHS-E	16-AUG-2004	12823

	<p>implementation errors have been corrected. In addition, code adaptations have been performed to resolve performance problems encountered during reprocessing. The list of modifications is as follows:</p> <ul style="list-style-type: none"> • An incorrect polarisation-ratio calculation has been corrected, to remove radiance discrepancies up to 1% between prototype and operational processor. • Memory leaks have been detected and eliminated • Two modifications have been performed to avoid level 1B processing crashes 	DPAC	12-AUG-2004	12879
5.01		DPAC	31-MAR-2004	
		PDHS-E PDHS-K LRAC	24-MAR-2004	

Table 5-1 Processor Version and main changes

5.1.2 Auxiliary Data Files

For operation of the SCIAMACHY level 1 processor a set of Auxiliary files as input is required.

One subset of these auxiliary files usually changes only in correspondence with a new IPF version, namely the Initialisation file (SCI_LI1_AX), the Key Data File (SCI_KD1_AX).

In addition there is the m-factor file (SCI_MF1_AX), which shall describe the degradation of the instrument during its stay in orbit (note that the m-factor file has not been changed so far).

Another subset of Auxiliary Files are the In-flight calibration Data files which are generated when calibration measurements are included in the set of level 0 data to be processed. Four types of In-flight calibration Auxiliary files exist:

- Leakage Current Calibration (SCI_LK1_AX - updated on orbital basis)
- Solar Reference Spectrum (SCI_SU1_AX - updated on daily basis)
- Spectral Calibration Parameters (SCI_SP1_AX - updated on a monthly basis)
- Pixel-to-Pixel Gain and Etalon Parameters (SCI_PE1_AX - updated on a monthly basis)

Since 04 May 2004 LK1 Auxiliary Files (Leakage Current Calibration) were processed operationally by the IECF. A SCI_LK1_AX is generated about every orbit (if measurements do not lie in the SAA area or orbit phase constraints occur).

SU1 Auxiliary Files were operationally processed starting from day 08 May 2004, a new SCI_SU1_AX file is generated every day with a validity duration time of two weeks.

PE1 and SP1 Auxiliary files are generated once per month with measurements of the monthly calibration orbits.

The table in Appendix A gives an overview about the Auxiliary files for the reporting period January - February 2006.

Figure 5-1 shows statistics of the SU1 and LK1 ADFs generated operationally with the IECF. It has to be noted that unavailability periods are excluded from statistics. Generation of SU1 ADFs for January was 100%. In February 2006 96% of the expected ADFs were generated. Due to missing L1b products (with respect to data availability towards the IECF) the SU1 ADF for day 16 February was not generated.

The LK1 ADF statistic is calculated by dividing the number of all LK1 ADFs by number of all available (to IECF) level 1 orbits. The statistics on available LK1 ADFs during January (70.8%) and February 2006 (66.1%) represent a nominal level of ADFs generated. The statistic does not take into account SAA and orbit phase constraints. Special analysis showed that only 6-8 orbits per day can be used for LK1 ADF processing, and therefore the performance is at 80-100%.

During the first week of January 2006 in flight SU1 ADFs were generated with a delay of about one week, due to hardware failure ADFs were generated manually. The last week of February a data transfer problem towards the IECF caused a delay of the generation of SU1 and LK1 ADFs up to two weeks. This had an impact for processing L1b Near Real Time products being processed with SU1 ADFs older than 1 week.

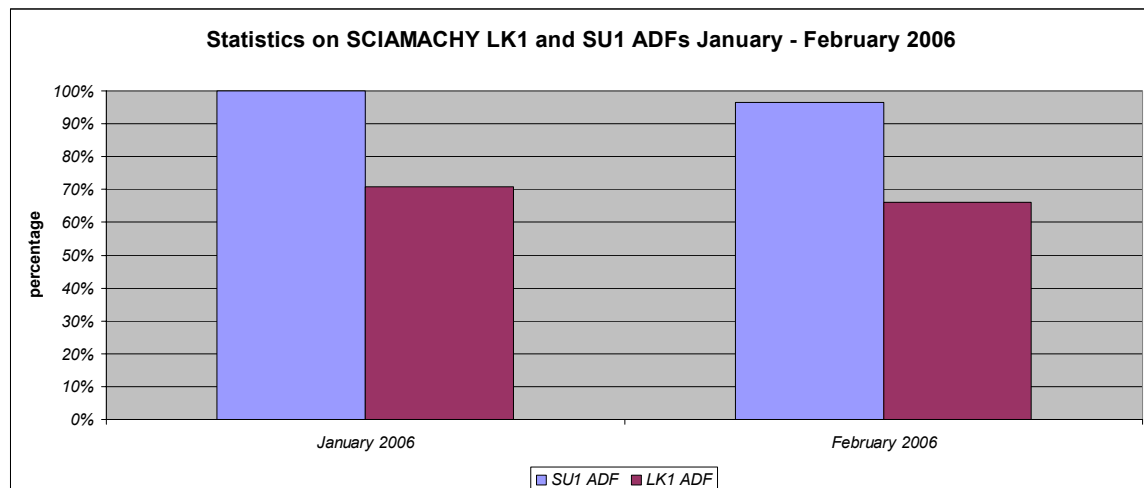


Figure 5-1 Statistics on LK1 and SU1 processing

5.1.3 Spectral Performance

Future reports will contain analyses of spectral performance.

5.1.4 Radiometric Performance

Future reports will contain analyses of spectral performance.

5.1.5 Other Calibration Results

5.1.5.1 SMR analysis

The IECF generates daily SU1 Auxiliary Files, that contain new sun mean reference spectra for the different possible modes (e.g., subsolar, ESM diffuser, occultation).

Figure 5-2, Figure 5-3, Figure 5-4 and Figure 5-5 show the ratios of SMR spectra derived from calibrated SMR/ESM during the months January – February 2006. The ratios were determined by dividing the spectra of the beginning of each month to a set of days during each month. All ratios are not corrected for variation of distance earth/sun.

In detail the spectra used for the ratios of each month are the following:

- **January 2006**
 Reference SMR - 01 January 2006
 SMR used for ratios: 02, 03, 04, 05, 06, 07, 14, 21, 28 January 2006
- **February 2006**
 Reference SMR - 01 February 2006
 SMR used for ratios: 02, 03, 04, 05, 06, 07, 14, 21, 28 February 2006

The overall changes lie between 1 - 2 % during one month. In channel 1 around pixel 550 (at 282 nm) some strong features can be noticed, as well as in channel 2 near pixel 840 (near 393 nm). These strong features coincide with the Mg II and Ca Fraunhofer lines respectively. These lines are partially formed in the solar chromosphere and are known to change with solar variability.

The weaker spectral features in channel 2 (e.g. near pixels 550, 650,750), on the other hand, correlate with strong Fraunhofer lines, which are not chromospheric. These features probably arise from small wavelength shifts (order of 1/100 of a pixel).

Generally a spectral feature could have significant impact on the product quality, especially when the affected spectral parts are used for DOAS retrieval.

Etalon like patterns occur in the SMR ratio plot for channels 1 and 4 after 3 weeks in January. These patterns can be explained with the update of the SCI_PE1_AX ADF on day 16 January. No Etalon like patterns are visible for February, which is consistent with the fact that no SCI_PE1_AX ADF was generated in that month. Investigation by DLR-SOST confirms that the Level 0 based light path monitoring is not impacted by etalon-like features. Further investigation on the applied Etalon algorithms need to be performed and eventually a PCR needs to be opened.

The large features in the end of channel 6 (channel 6+) and channels 7 and 8 are due to bad pixels (no bad pixel correction applied).

Note that the bad pixel mask used is still from the on ground calibration.

A regular update of the bad pixel mask will be foreseen starting with IPF 6.0. However a bad pixel correction will not be applied to the SMR spectra, but only to PMD out-of-band

factors, in order to enable the user to apply a different mask from the one provided by the ADF.

Figure 5-6 and Figure 5-7 show SMR ratios on a long term trend dividing the ESM spectra from days 30-Jan-2003 and 30-Jan-2006, respectively 28-Feb-2003 and 28-Feb-2006. The first spectrum available exists for 18-Jul-2002. However to consider sun/earth distance, the ratio was performed with spectra from same calendar days.

What can be concluded is that for channels 1-2 an average degradation of about 5% is observed, channels 3-6 degrade by less than 1%. The signal in channels 7 and 8 has increased with respect to the SMR of year 2003 and increased further from January 2006 to February 2006. This is consistent with the Light Path monitoring at SOST-IFE. The effect is due to ice contamination for the last two channels.

ratio of smrs as a function of pixel, January 2006

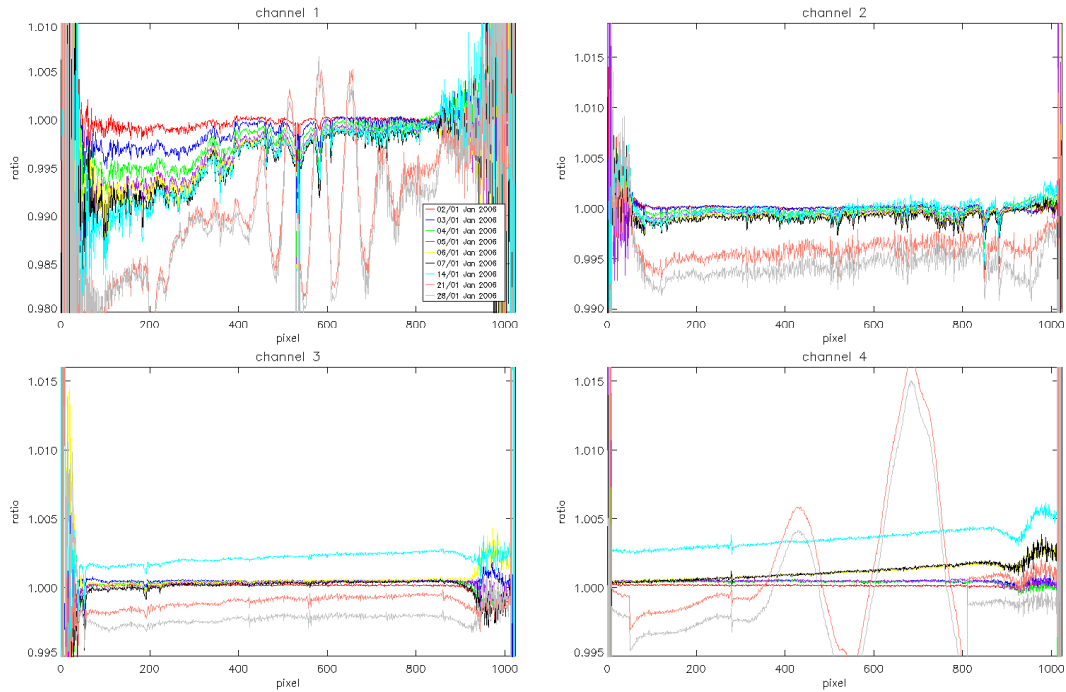


Figure 5-2 SMR ratios per detector channel 1-4 (changes during January 2006)

ratio of smrs as a function of pixel, January 2006

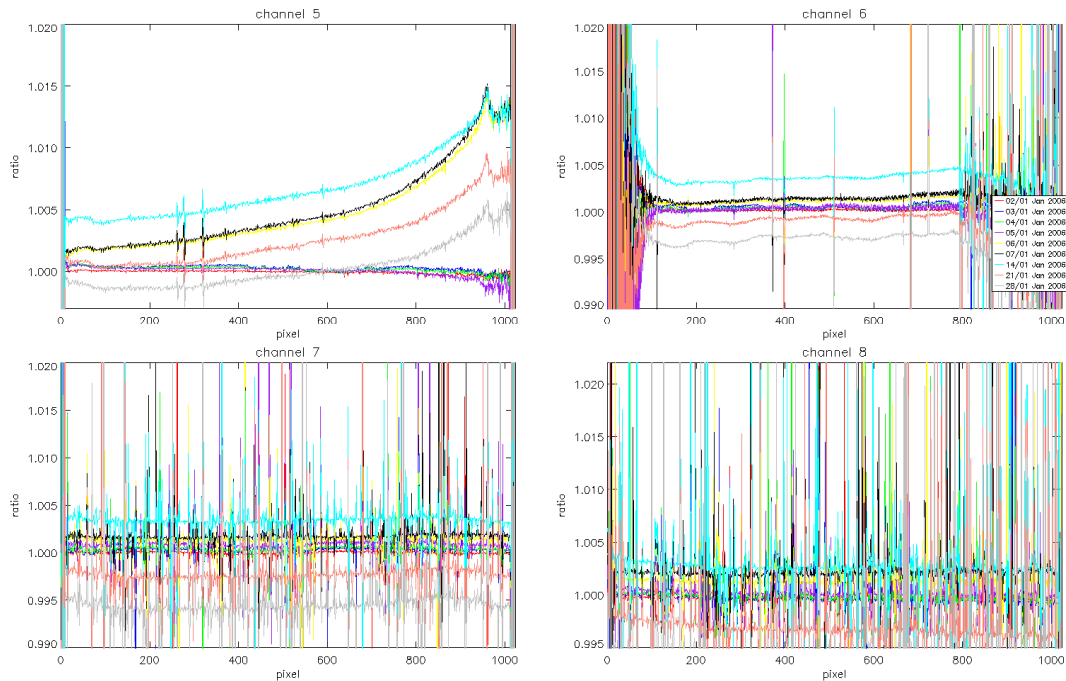


Figure 5-3 SMR ratios per detector channel 5-8 (changes during January 2006)

ratio of smrs as a function of pixel, February 2006

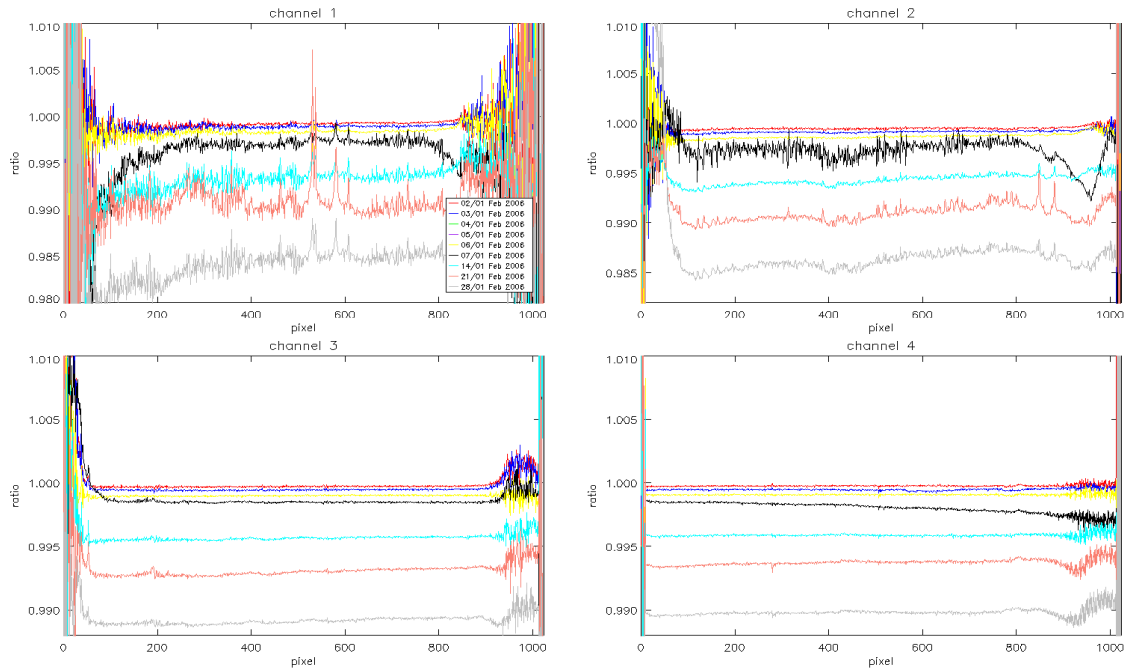


Figure 5-4 SMR ratios per detector channel 1-4 (changes during February 2006)

ratio of smrs as a function of pixel, February 2006

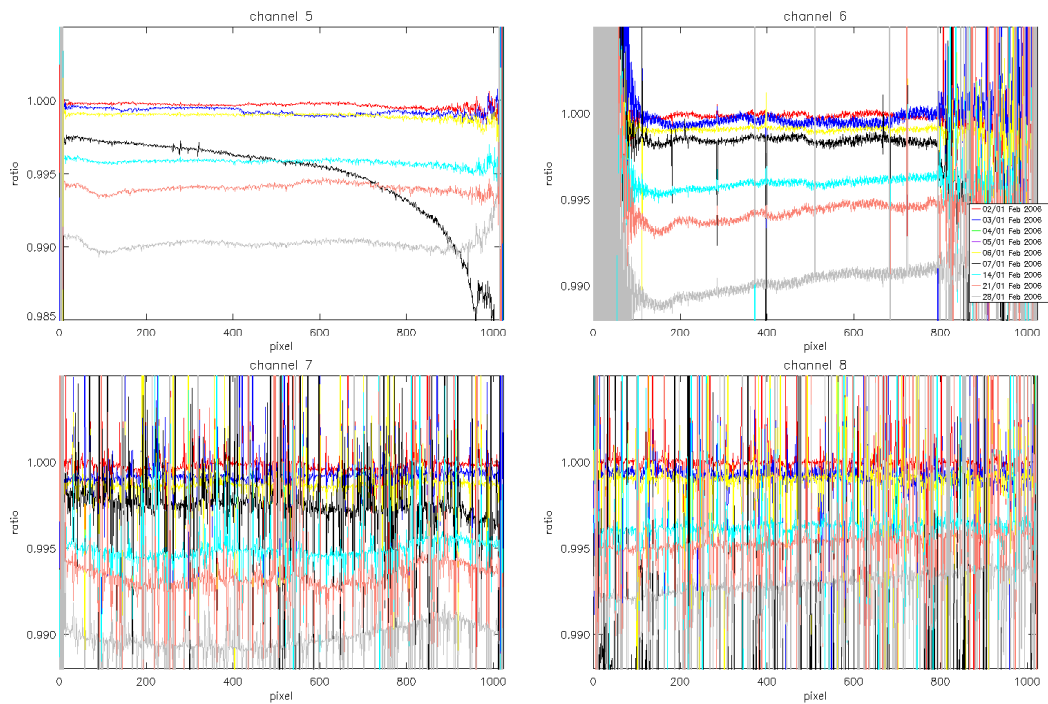


Figure 5-5 SMR ratios per detector channel 5-8 (changes during February 2006)

smr ratio, D0 30/01/2006 divided by 30/01/2003

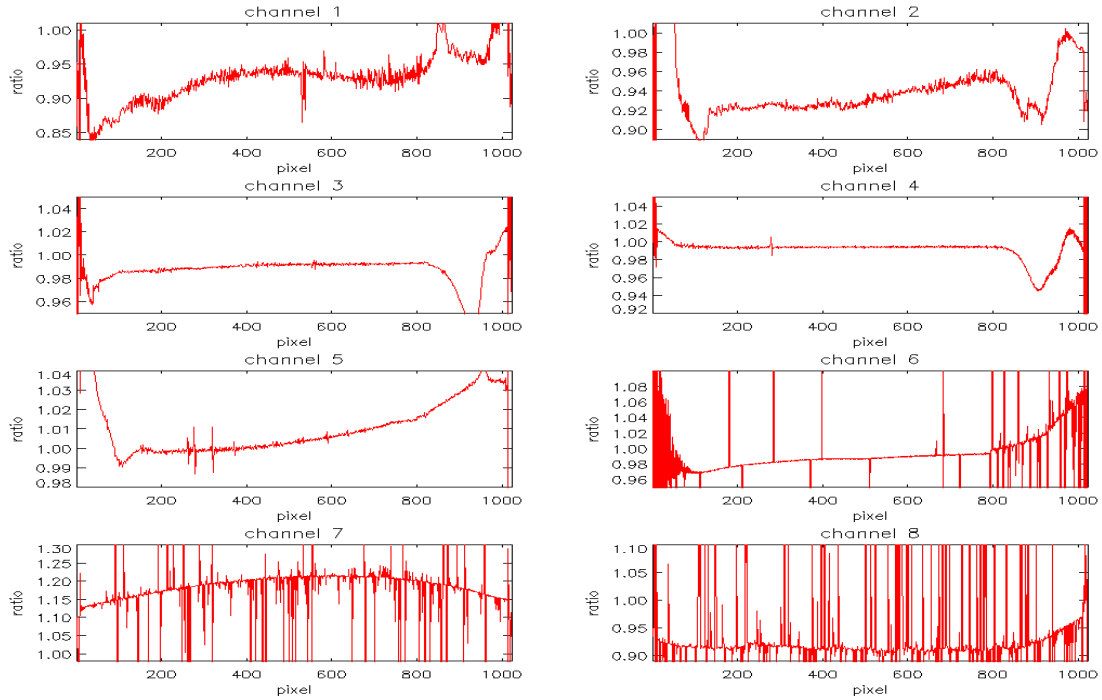


Figure 5-6 SMR ratios per detector channel on Long Term Trend

smr ratio, D0 28/02/2006 divided by 28/02/2003

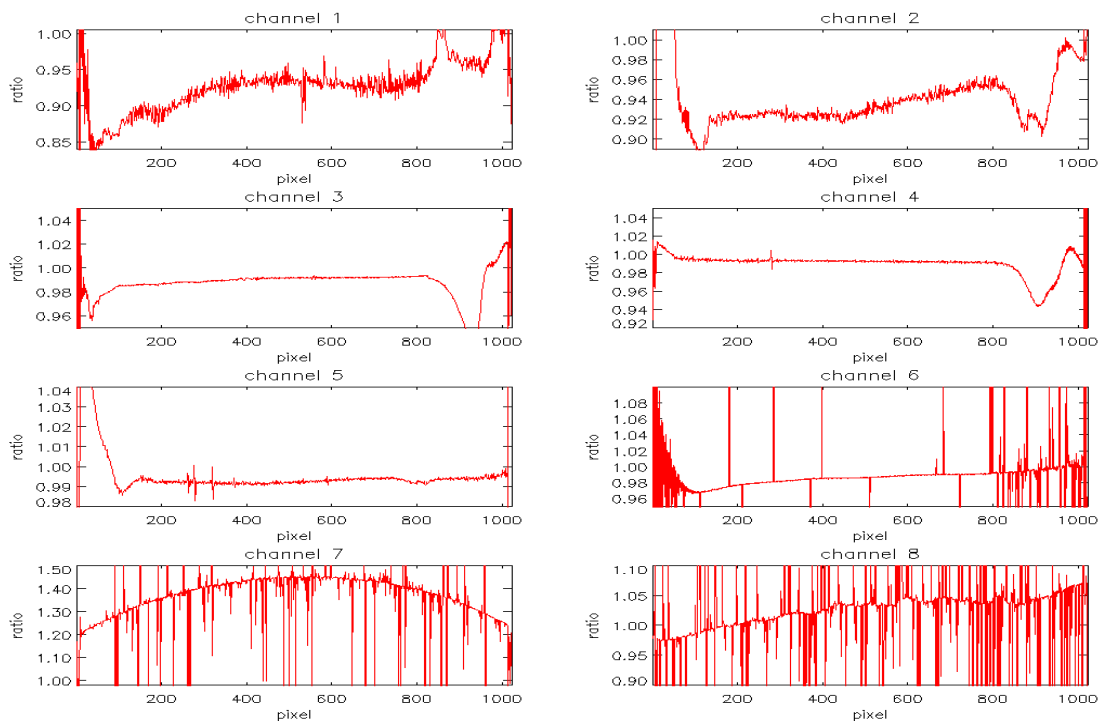


Figure 5-7 SMR ratios per detector channel on Long Term Trend

5.1.5.2 LK1 analysis

On an orbital basis a leakage current calibration is performed, if measurement data do not lie in the South Atlantic Anomaly region.

In Figure 5-9, Figure 5-10, Figure 5-11 and Figure 5-12 the leakage constant part FPN (fixed pattern noise) of the LK1 ADFs are analysed by determining the ratios of the FPN of each month with a time distance of one orbit, one day, one week, two weeks, three weeks and a month.

For channels 1-5 and the first part of channel 6, during up to three weeks nearly no changes can be noticed. Sudden jumps however between the different dark current ratios can be seen for channels 1, 2, 4 and 5 between 2 and 3 weeks. They are very small but above the noise level.

The IR channels show a lot of noise. Here an improvement is foreseen with the new processor version IPF 6.00, where the time dependent part of the leakage current will be considered.

LK1 ADF analysis, ratios of fpn const, January 2006

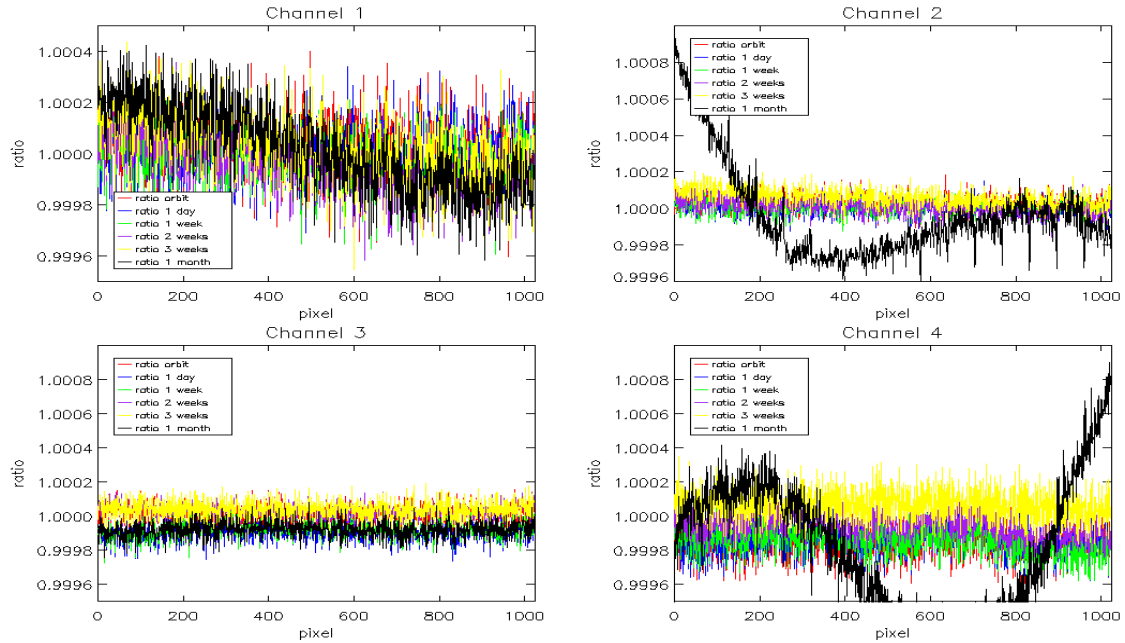


Figure 5-8 dark current ratios (constant part) channel 1-4 during January 2006, Reference Spectrum used: Orbit 20072, 01-January-2006

LK1 ADF analysis, ratios of fpn const, January 2006

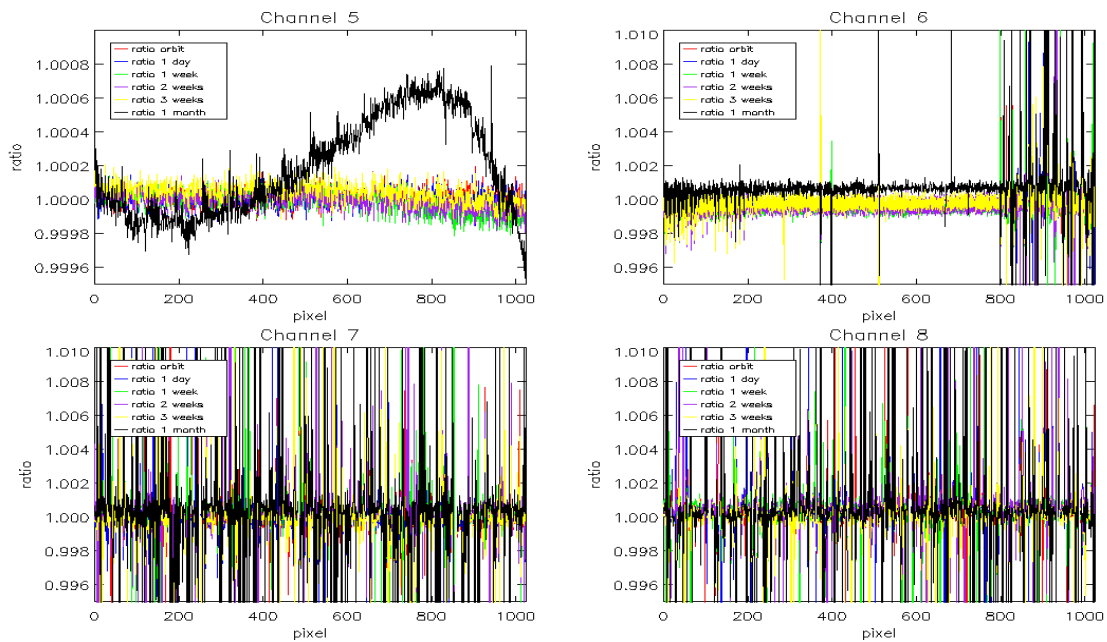


Figure 5-9 dark current ratios (constant part) channel 5-8 during January 2006, Reference Spectrum used: Orbit 20072, 01-January-2006

LK1 ADF analysis, ratios of fpn const, February 2006

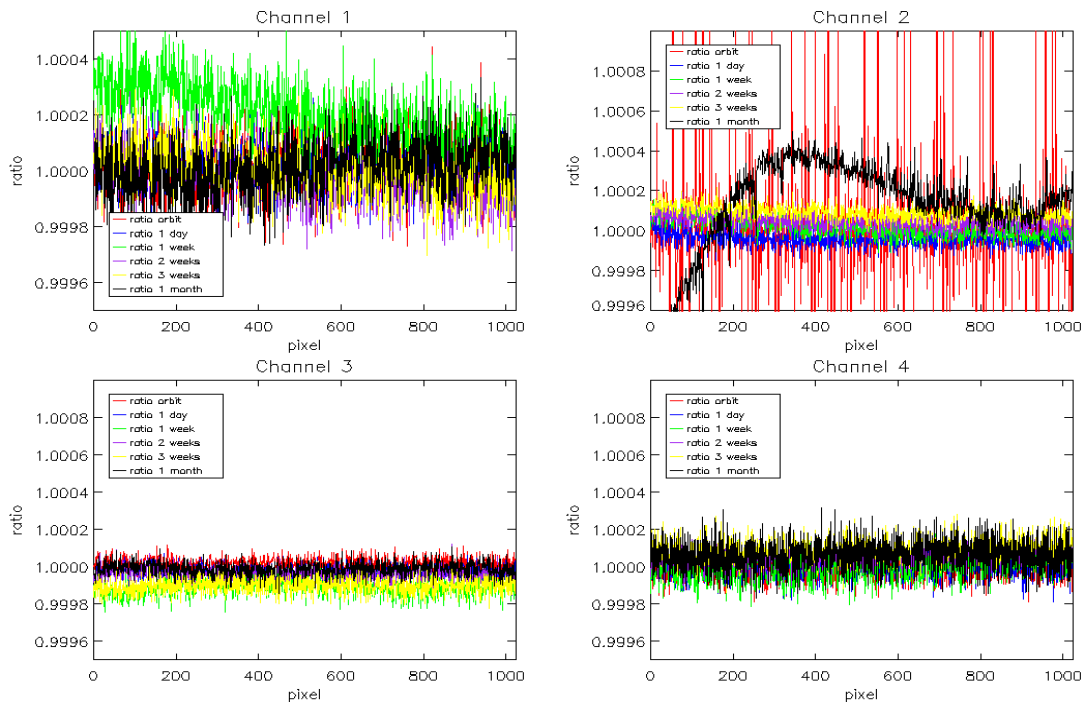


Figure 5-10 dark current ratios (constant part) channel 1-4 during February 2006, Reference Spectrum used: Orbit 20516, 01-Feb-2006

LK1 ADF analysis, ratios of fpn const, February 2006

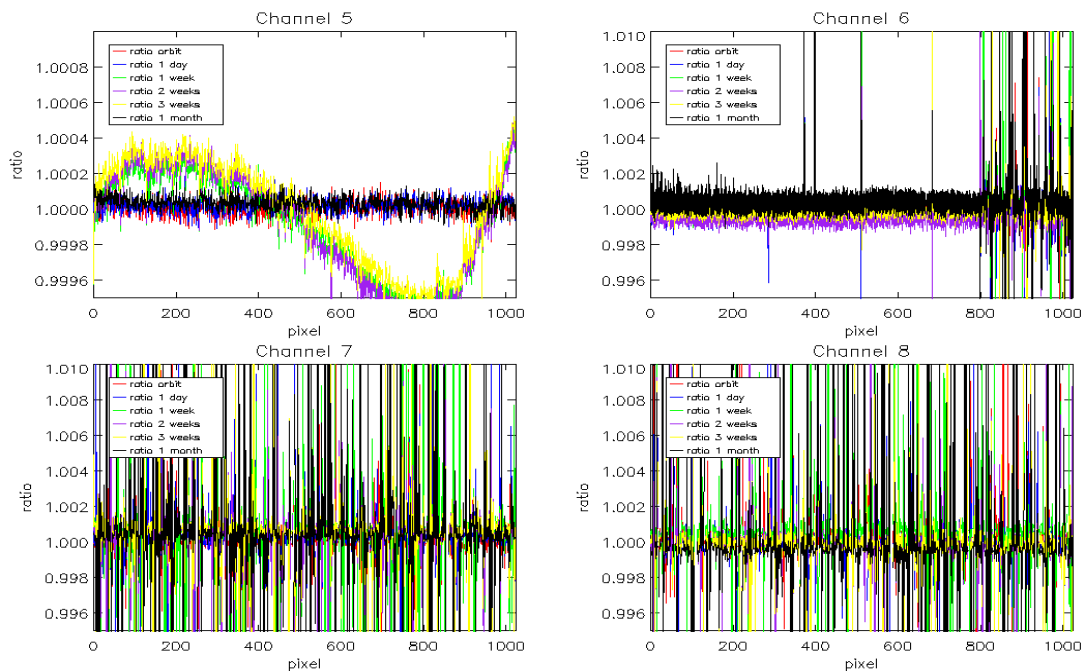


Figure 5-11 dark current ratios (constant part) channel 5-8 during February 2006, Reference Spectrum used: Orbit 20516, 01-Feb-2006

5.1.5.3 PE1 analysis

During the reporting period monthly calibration measurements were available which were used to generate one new SCI_PE1_AX files. This auxiliary file impacts directly the SMR spectra (see also 5.1.5.1) as can be seen from Figure 5-12. Figure 5-13 shows the analysis results for channel 2 and 3. Further investigation is required to identify if the algorithm generating the etalon correction factor should be adjusted. In that case a PCR might be opened.

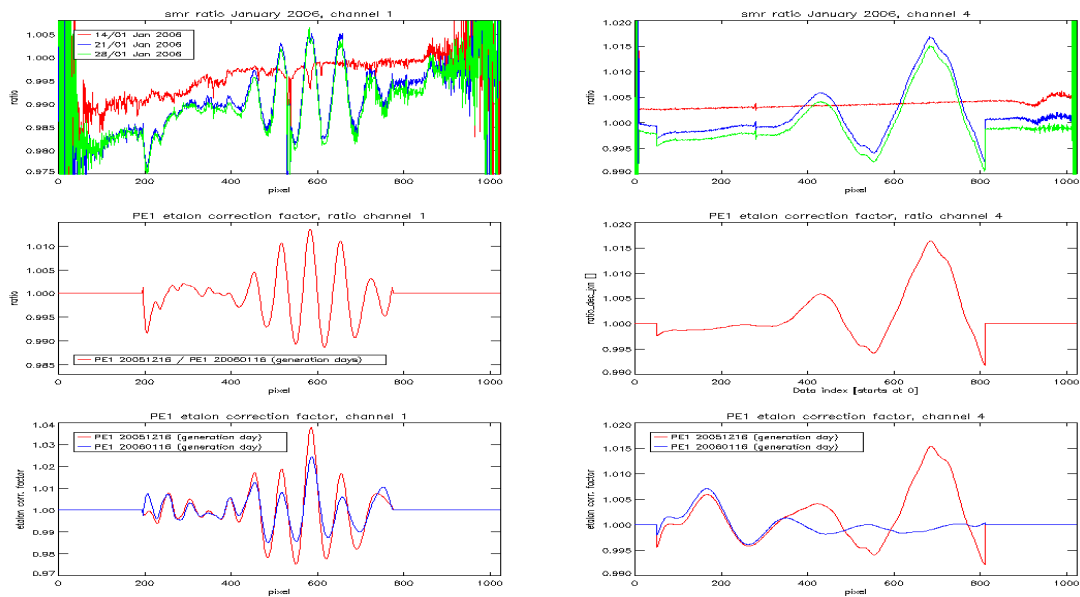


Figure 5-12 Etalon correction factor – impact on detector data channel 1 and 4

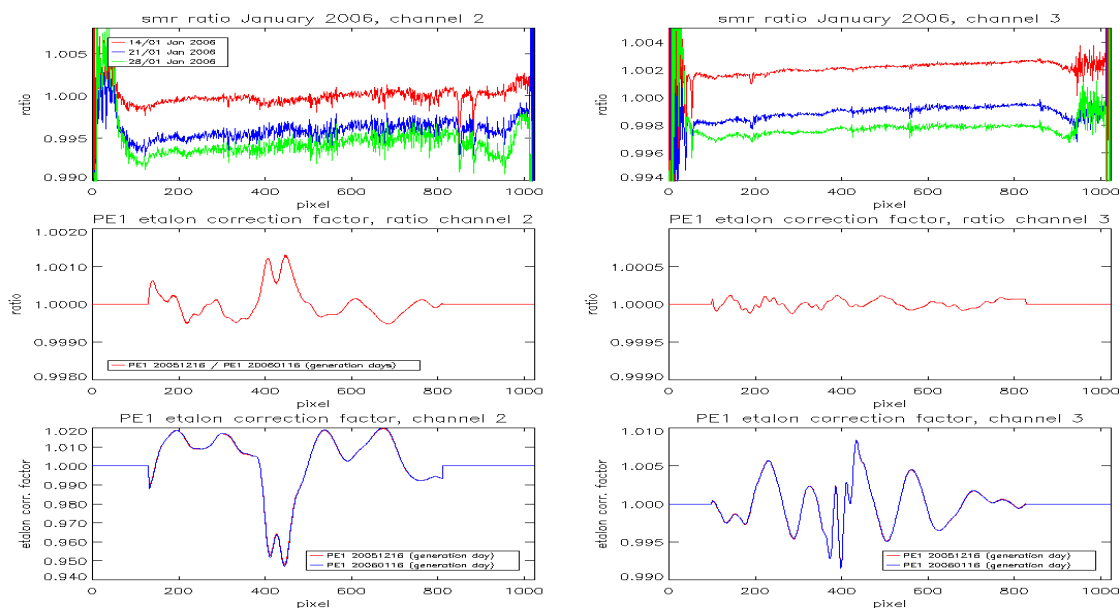


Figure 5-13 Etalon correction factor – impact on detector data channel 2 and 3

5.1.6 Pointing Performance

The results on the analysis with respect to the Pointing Performance were presented in BMR July - August 2005.

The findings of this study are being implemented in the new SCIAMACHY processor IPF 6.0.

6 LEVEL 2 NRT PRODUCT QUALITY MONITORING

6.1 Processor Configuration

6.1.1 Version

The current IPF version used for processing (and re-processing) of SCIAMACHY level 2 data is 5.04. The according product specification is [2]. The disclaimer at http://envisat.esa.int/dataproducts/availability/disclaimers/SCI_NL_2P_Disclaimers.pdf describes known artefacts.

Table 6-1 shows the implementation dates of the IPF at the different PDS processing centres and the main modifications implemented.

IPF Version	Description	Proc Centre	Date	Start Orbit
5.04	No algorithm specification changes were implemented, but two algorithm implementation errors have been corrected. In addition, code adaptations have been performed to resolve performance problems encountered during reprocessing. The list of modifications is as follows: <ul style="list-style-type: none"> • The incorrect handling of the season index 4 has been corrected. • An incorrect polarisation-ratio calculation has been corrected, to remove radiance discrepancies up to 1% between prototype and operational processor. • Memory leaks have been detected and eliminated • An adaptation has been implemented to allow co-existence with the initialisation file used by the Off-Line processor 	PDHS-K	21-AUG-2004	12942
		LRAC	20-AUG-2004	12750
		PDHS-E	16-AUG-2004	12823
		DPAC	12-AUG-2004	12879
5.01	<ul style="list-style-type: none"> • description for cloud MDS updated 	DPAC	31-MAR-2004	
		PDHS-E	24-MAR-2004	

	<ul style="list-style-type: none"> • minor changes in MPI and USA climatology description • latitude grids fixed • list of surface types fixed, note about vegetation index added • O₃ FM formula fixed sizes of SCIA FM spectra fixed latitude zones fixed • solar zenith angle grid fixed 	<p>PDHS-K LRAC</p>		
--	---	------------------------	--	--

Table 6-1 Level 2 Processor Configuration

6.1.2 Auxiliary Data Files

Auxiliary Files being used as input for SCI_NL__2P products are listed in Table 6-2. These ADF files are generally not changed.

SCI FM2	AXVIEC20040309	092553	19990101	000000	20991231	235959
SCI BL2	AXVIEC20020220	093709	20020101	000000	20200101	000000
SCI CC2	AXVIEC20020220	094004	20020101	000000	20200101	000000
SCI CL2	AXVIEC20020220	094214	20020101	000000	20200101	000000
SCI CS2	AXVIEC20020220	094417	20020101	000000	20200101	000000
SCI MF2	AXVIEC20040309	093236	19990101	000000	20991231	235959
SCI PF2	AXVIEC20020220	100450	20020101	000000	20200101	000000
SCI PR2	AXVIEC20020220	100642	20020101	000000	20200101	000000
SCI RC2	AXVIEC20020220	100912	20020101	000000	20200101	000000
SCI UC2	AXVIEC20040309	092027	19990101	000000	20991231	235959
SCI SF2	AXVIEC20020220	101039	20020101	000000	20200101	000000
SCI LI2	AXVIEC20040308	170000	20020101	000000	20200101	000000

Table 6-2 Level 2 Auxiliary Files

6.2 O₃ consistency checking

Future reports will contain information on this issue.

6.3 *NO₂ consistency checking*

NO₂ vertical column density (VCD) values of one month were averaged using QUADAS, filtering those data where the VCD flags are 0. Diurnal variations have not been corrected (no model applied). Figure 6-1 and Figure 6-2 are aimed at processing consistency checking and are not intended for geophysical interpretation.

Generally, high concentration of NO₂ is expected over industrial regions, as over North America, especially the East coast, over central Europe, China and South Africa.

6.3.1 *NO₂ VCD map January 2006*

High NO₂ VCD values can be seen over industrial regions.

En enhancement of NO₂ over Antarctica is observed probably due to an algorithm retrieval artefact and will be subject for investigation.

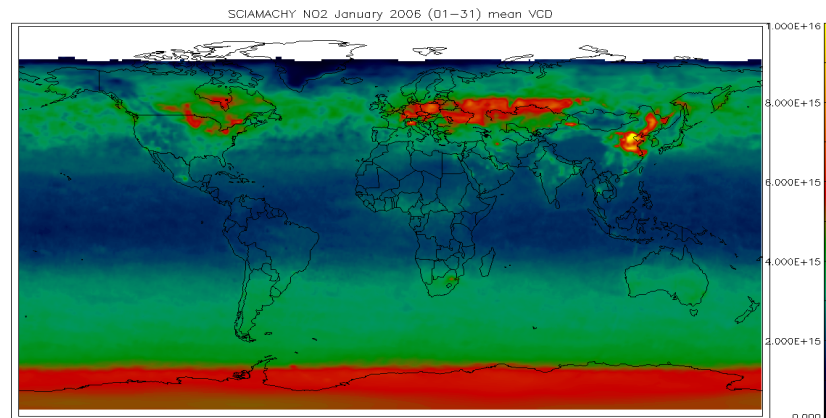


Figure 6-1 NO₂ VCD world map 01-31 January 2006 – monthly average

6.3.2 *NO₂ VCD map February 2006*

The world map in Figure 6-2 shows the distribution of mean values of NO₂ VCD values.

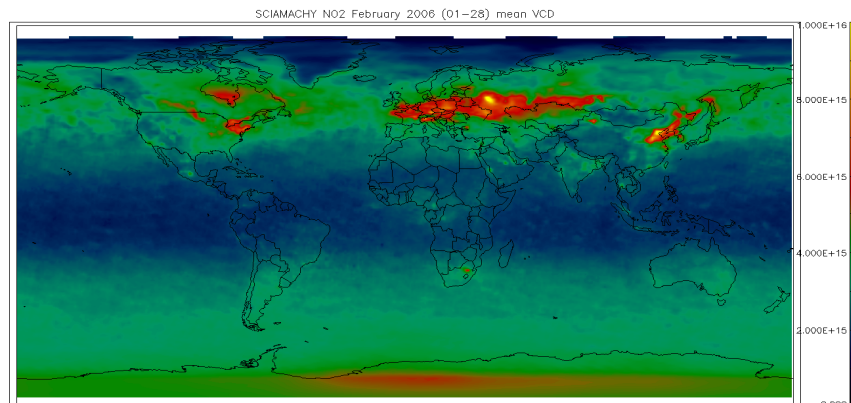


Figure 6-2 NO₂ VCD world map 01-28 February 2006 – monthly average

7 LEVEL 2 OFFLINE PRODUCT QUALITY MONITORING

7.1 *Processor Configuration*

7.1.1 *Version*

In January 2005 the SCIAMACHY Level 2 Offline product SCI_OL__2P was released, data are generated with processor version 2.5.

The according product specification is PO-RS-MDA-GS-2009_15_3H. The disclaimer at http://envisat.esa.int/dataproducts/availability/disclaimers/SCI_OL_2P_Disclaimers.pdf describes known artefacts.

SCI_OL__2P products contain geo-located vertical column amounts of O₃, NO₂ Nadir measurements, as well as stratospheric Limb profiles of O₃, NO₂. Additionally the fractional cloud coverage is derived and provided as product to the user.

A major upgrade of the L1b-L2 Offline processor to version 3.0 is currently in progress. The FAT is scheduled for 10-11 April 2006 with this up-coming version.

7.1.2 *Auxiliary Data Files*

Input for Level 2 Offline processing is the Initialization File SCI_IN_AXNPDE20041221_112322_000000000000_000000_000000_0000.N1, which usually is changed only in case of a processor upgrade.

7.1.3 *Monitoring results*

In future reports results on Limb and Nadir products will be presented here.

8 VALIDATION ACTIVITIES AND RESULTS

8.1 *SCIAMACHY-ECMWF Comparisons using SCI_RV__2P*

8.1.1 *Summary of the ECMWF SCIAMACHY monthly report for January 2006*

- SCIAMACHY data quality stable.
- Improvement on the agreement between SCIAMACHY and ECMWF ozone values
- SCIAMACHY data about 10 DU lower than ECMWF values in the global mean
- Large departures in the northern hemisphere extratropics
- Still few relatively large ozone values in the latitude band 62.5_ -67.5_ S
- The operational ECMWF model version used was CY29R2.

The full report is available at http://earth.esa.int/pcs/envisat/tmp_calval_res/

Below see the ECMWF plot on SCIAMACHY mean observation in DU.

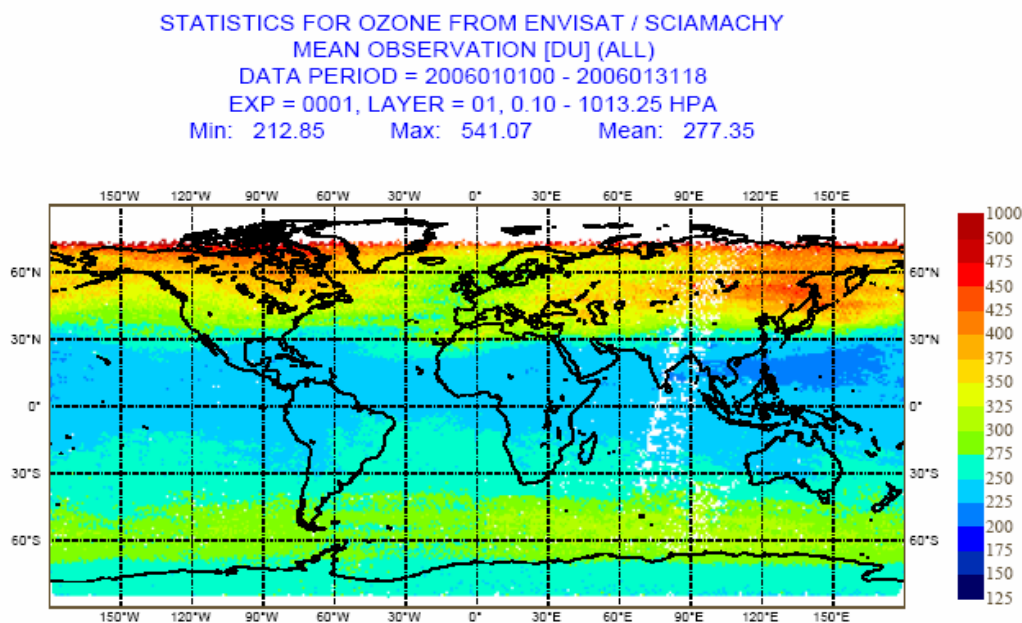


Figure 8-1 Ozone Mean ECMWF January 2006

8.1.2 Summary of the ECMWF SCIAMACHY monthly report for February 2006

- SCIAMACHY data quality stable.
- SCIAMACHY data about 10 DU lower than ECMWF values in the global mean
- On 1 February the ECMWF operational model changed from version CY29R2 to CY30R1

The full report is available at http://earth.esa.int/pcs/envisat/tmp_calval_res/

Below see the ECMWF plot on SCIAMACHY mean observation in DU.

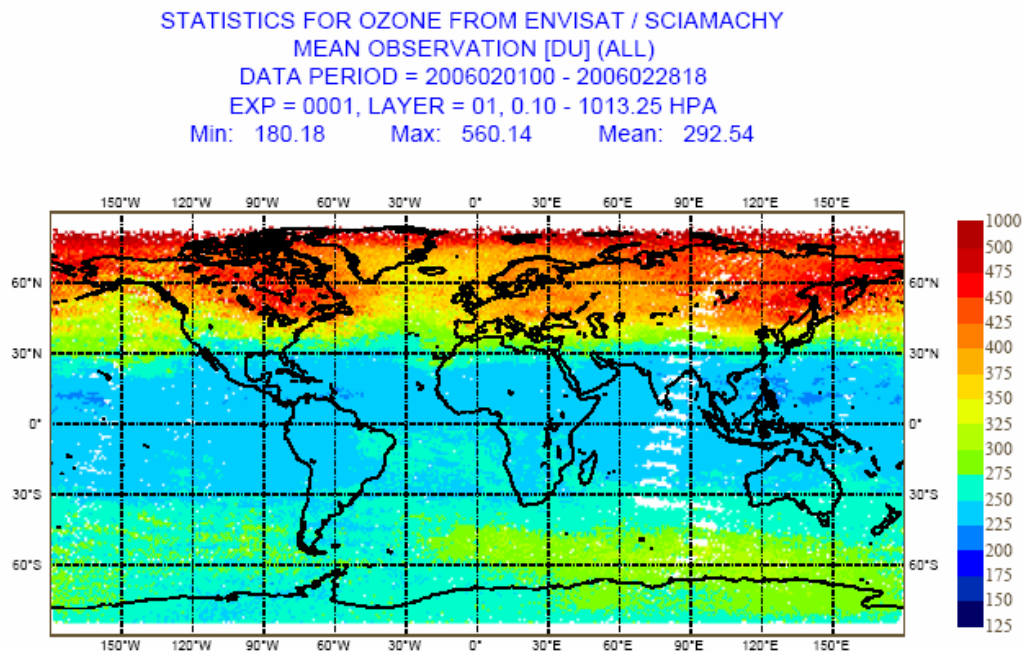


Figure 8-2 Ozone Mean ECMWF October 2005

8.2 Statistics from Inter comparison with External Data

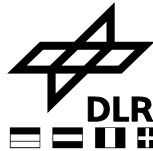
Future reports will contain information on this issue.

APPENDIX A

Type	ADF Name
PE1_AX	SCI_PE1_AXVIEC20051216_171614_20051214_000000_20900101_000000
	SCI_PE1_AXVIEC20060116_105439_20060112_000000_20900101_000000
SP1_AX	SCI_SP1_AXVIEC20051216_172605_20051214_000000_20060601_000000
	SCI_SP1_AXVIEC20060116_110817_20060112_000000_20060701_000000
	SCI_SP1_AXVIEC20060213_090208_20060211_000000_20060701_000000
SU1_AX	SCI_SU1_AXVIEC20060109_004319_20060106_011929_20060120_212121
	SCI_SU1_AXVIEC20060109_102012_20060101_003630_20060115_020733
	SCI_SU1_AXVIEC20060109_104011_20060102_000450_20060116_001947
	SCI_SU1_AXVIEC20060109_105653_20060103_200102_20060117_211358
	SCI_SU1_AXVIEC20060109_111202_20060104_003512_20060118_021429
	SCI_SU1_AXVIEC20060109_112734_20060105_001032_20060119_014421
	SCI_SU1_AXVIEC20060110_111247_20060107_004101_20060121_021902
	SCI_SU1_AXVIEC20060111_090130_20060108_000920_20060122_015009
	SCI_SU1_AXVIEC20060112_163743_20060109_201306_20060123_212643
	SCI_SU1_AXVIEC20060113_144133_20060110_004622_20060124_005350
	SCI_SU1_AXVIEC20060114_060652_20060111_001537_20060125_015623
	SCI_SU1_AXVIEC20060116_060738_20060113_005908_20060127_224233
	SCI_SU1_AXVIEC20060116_085042_20060112_202151_20060126_213230
	SCI_SU1_AXVIEC20060117_060808_20060114_002050_20060128_020008
	SCI_SU1_AXVIEC20060118_061848_20060115_012923_20060129_213735
	SCI_SU1_AXVIEC20060119_061110_20060116_005742_20060130_114237
	SCI_SU1_AXVIEC20060120_071521_20060117_031911_20060131_125032
	SCI_SU1_AXVIEC20060121_060819_20060118_013333_20060201_214145
	SCI_SU1_AXVIEC20060122_060859_20060119_011020_20060202_114955
	SCI_SU1_AXVIEC20060123_060606_20060120_003119_20060203_021005
	SCI_SU1_AXVIEC20060124_060552_20060121_000659_20060204_014032
	SCI_SU1_AXVIEC20060125_060853_20060122_010844_20060205_211724
	SCI_SU1_AXVIEC20060126_061458_20060123_004413_20060206_021622
	SCI_SU1_AXVIEC20060127_061437_20060124_001233_20060207_014647
	SCI_SU1_AXVIEC20060128_150657_20060125_083804_20060208_212241
	SCI_SU1_AXVIEC20060201_061209_20060129_004800_20060212_020227
	SCI_SU1_AXVIEC20060201_082944_20060126_204736_20060209_223118
	SCI_SU1_AXVIEC20060201_084123_20060127_001804_20060210_015141
	SCI_SU1_AXVIEC20060201_090348_20060128_201742_20060211_212822
	SCI_SU1_AXVIEC20060202_164009_20060130_002335_20060213_015713
	SCI_SU1_AXVIEC20060203_065759_20060131_004839_20060214_213337
	SCI_SU1_AXVIEC20060204_061143_20060201_010047_20060215_224214
	SCI_SU1_AXVIEC20060206_061123_20060203_013757_20060217_213848
	SCI_SU1_AXVIEC20060206_090107_20060202_002904_20060216_020324
	SCI_SU1_AXVIEC20060207_184240_20060204_100415_20060218_114637
	SCI_SU1_AXVIEC20060208_061032_20060205_003432_20060219_020813
	SCI_SU1_AXVIEC20060209_060654_20060206_090527_20060220_104305
	SCI_SU1_AXVIEC20060210_063041_20060207_160242_20060221_211438
	SCI_SU1_AXVIEC20060211_061454_20060208_003551_20060222_021410
	SCI_SU1_AXVIEC20060212_061455_20060209_000343_20060223_014354



esa



ife



SCIAMACHY Bi-I



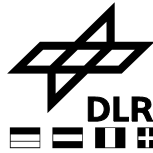
ZUVB
issue 1 revision 0 -

page 56 of 72

	SCI_SU1_AXVIEC20060213_060616_20060210_011257_20060224_212015 SCI_SU1_AXVIEC20060214_061514_20060211_004119_20060225_021852 SCI_SU1_AXVIEC20060215_061625_20060212_001341_20060226_014642 SCI_SU1_AXVIEC20060216_061221_20060213_011702_20060227_212350 SCI_SU1_AXVIEC20060220_060358_20060217_005612_20060303_020503 SCI_SU1_AXVIEC20060220_101422_20060214_005048_20060228_022406 SCI_SU1_AXVIEC20060220_103402_20060215_001905_20060301_015311 SCI_SU1_AXVIEC20060221_060701_20060218_014944_20060304_015848 SCI_SU1_AXVIEC20060224_060508_20060221_031842_20060307_221105 SCI_SU1_AXVIEC20060224_101350_20060219_214024_20060305_231432 SCI_SU1_AXVIEC20060224_103303_20060220_100250_20060306_114205 SCI_SU1_AXVIEC20060226_060757_20060223_010656_20060309_210806 SCI_SU1_AXVIEC20060227_060829_20060224_003556_20060310_020828 SCI_SU1_AXVIEC20060228_060720_20060225_000327_20060311_013752 SCI_SU1_AXVIEC20060306_120742_20060226_200551_20060312_211342 SCI_SU1_AXVIEC20060306_130001_20060227_004032_20060313_021447 SCI_SU1_AXVIEC20060307_095805_20060222_203115_20060308_213921 SCI_SU1_AXVIEC20060307_102625_20060228_000847_20060314_014304
LK1_AX	SCI_NL_1PNPDE20060101_003631_000054622043_00474_20067_6851.N1 SCI_NL_1PNPDE20060101_020538_000046552043_00475_20068_6856.N1 SCI_NL_1PNPDE20060101_032354_000052152043_00476_20069_6926.N1 SCI_NL_1PNPDE20060101_050525_000060322043_00477_20070_6927.N1 SCI_NL_1PNPDK20060101_064615_000039712043_00478_20071_0050.N1 SCI_NL_1PNPDK20060101_075231_000061142043_00479_20072_9258.N1 SCI_NL_1PNPDK20060101_093511_000058512043_00480_20073_0039.N1 SCI_NL_1PNPDK20060101_111342_000059762043_00481_20074_0013.N1 SCI_NL_1PNPDK20060101_125418_000057252043_00482_20075_0049.N1 SCI_NL_1PNPDK20060101_142948_000058632043_00483_20076_9324.N1 SCI_NL_1PNPDK20060101_160735_000058162043_00484_20077_9282.N1 SCI_NL_1PNPDK20060101_174715_000058722043_00485_20078_9331.N1 SCI_NL_1PNPDK20060101_192348_000060722043_00486_20079_9337.N1 SCI_NL_1PNPDE20060101_210827_000041292043_00487_20080_7143.N1 SCI_NL_1PNPDE20060101_221720_000061132043_00487_20080_6943.N1 SCI_NL_1PNPDE20060101_222616_000055772043_00487_20080_7022.N1 SCI_NL_1PNPDE20060102_000451_000008522043_00488_20081_7005.N1 SCI_NL_1PNPDE20060102_000451_000056302043_00488_20081_6942.N1 SCI_NL_1PNPDE20060102_013723_000012082043_00489_20082_7006.N1 SCI_NL_1PNPDE20060102_015735_000031522043_00490_20083_7147.N1 SCI_NL_1PNPDE20060102_025011_000061842043_00490_20083_7008.N1 SCI_NL_1PNPDE20060102_043142_000061492043_00491_20084_7007.N1 SCI_NL_1PNPDK20060102_061327_000040512043_00492_20085_9342.N1 SCI_NL_1PNPDK20060102_072147_000061942043_00493_20086_9312.N1 SCI_NL_1PNPDK20060102_090236_000059562043_00494_20087_9300.N1 SCI_NL_1PNPDK20060102_104011_000061772043_00495_20088_9294.N1 SCI_NL_1PNPDK20060102_122143_000059542043_00496_20089_9323.N1 SCI_NL_1PNPDK20060102_135809_000060112043_00497_20090_9353.N1 SCI_NL_1PNPDK20060102_153652_000057612043_00498_20091_9359.N1 SCI_NL_1PNPDK20060102_171632_000057582043_00499_20092_9389.N1 SCI_NL_1PNPDK20060102_185210_000060712043_00500_20093_9576.N1 SCI_NL_1PNPDE20060102_203325_000044002043_00501_20094_7023.N1 SCI_NL_1PNPDK20060102_215237_000012712043_00501_20094_9575.N1



esa



ife



SCIAMACHY Bi-I



ZUUB
issue 1 revision 0 -

page 57 of 72

SCI_NL_1PNPDE20060102_221723_000012172044_00001_20095_7024.N1
 SCI_NL_1PNPDE20060102_223840_000028652044_00001_20095_7150.N1
 SCI_NL_1PNPDE20060102_232629_000012552044_00001_20095_7075.N1
 SCI_NL_1PNPDE20060102_234813_000046462044_00002_20096_7139.N1
 SCI_NL_1PNPDE20060103_010544_000026202044_00002_20096_7082.N1
 SCI_NL_1PNPDE20060103_015037_000017392044_00003_20097_7151.N1
 SCI_NL_1PNPDE20060103_021939_000061572044_00003_20097_7080.N1
 SCI_NL_1PNPDE20060103_040111_000059762044_00004_20098_7081.N1
 SCI_NL_1PNPDE20060103_054051_000062592044_00005_20099_6869.N1
 SCI_NL_1PNPDK20060103_072523_000038732044_00006_20100_0090.N1
 SCI_NL_1PNPDK20060103_082947_000060322044_00007_20101_0102.N1
 SCI_NL_1PNPDK20060103_101023_000059712044_00008_20102_9105.N1
 SCI_NL_1PNPDK20060103_114907_000060282044_00009_20103_9099.N1
 SCI_NL_1PNPDK20060103_132943_000059472044_00010_20104_9225.N1
 SCI_NL_1PNPDK20060103_143835_000010722044_00010_20104_9219.N1
 SCI_NL_1PNPDK20060103_145631_000007392044_00011_20105_9223.N1
 SCI_NL_1PNPDK20060103_150705_000058832044_00011_20105_9219.N1
 SCI_NL_1PNPDK20060103_164452_000058192044_00012_20106_9231.N1
 SCI_NL_1PNPDK20060103_182432_000058752044_00013_20107_9093.N1
 SCI_NL_1PNPDE20060103_200103_000043742044_00014_20108_6879.N1
 SCI_NL_1PNPDE20060103_211210_000062242044_00014_20108_6885.N1
 SCI_NL_1PNPDE20060103_225449_000060872044_00015_20109_6891.N1
 SCI_NL_1PNPDE20060104_003512_000059572044_00016_20110_6897.N1
 SCI_NL_1PNPDE20060104_021235_000046132044_00017_20111_6902.N1
 SCI_NL_1PNPDE20060104_032823_000061842044_00018_20112_6909.N1
 SCI_NL_1PNPDE20060104_051007_000061232044_00019_20113_6915.N1
 SCI_NL_1PNPDK20060104_065139_000041442044_00020_20114_9116.N1
 SCI_NL_1PNPDK20060104_075916_000060352044_00021_20115_9147.N1
 SCI_NL_1PNPDK20060104_093843_000060492044_00022_20116_9171.N1
 SCI_NL_1PNPDK20060104_111727_000061182044_00023_20117_9183.N1
 SCI_NL_1PNPDK20060104_125803_000059722044_00024_20118_9189.N1
 SCI_NL_1PNPDK20060104_143525_000060192044_00025_20119_9195.N1
 SCI_NL_1PNPDK20060104_161312_000060392044_00026_20120_9201.N1
 SCI_NL_1PNPDK20060104_175252_000060642044_00027_20121_9207.N1
 SCI_NL_1PNPDK20060104_193328_000058762044_00028_20122_9213.N1
 SCI_NL_1PNPDE20060104_211005_000044382044_00029_20123_6950.N1
 SCI_NL_1PNPDE20060104_222310_000060872044_00029_20123_6956.N1
 SCI_NL_1PNPDE20060105_001032_000056292044_00030_20124_6962.N1
 SCI_NL_1PNPDE20060105_014312_000044952044_00031_20125_6967.N1
 SCI_NL_1PNPDE20060105_025643_000061952044_00032_20126_6974.N1
 SCI_NL_1PNPDE20060105_043827_000061562044_00033_20127_6980.N1
 SCI_NL_1PNPDK20060105_061959_000041062044_00034_20128_9239.N1
 SCI_NL_1PNPDK20060105_072628_000062572044_00035_20129_9246.N1
 SCI_NL_1PNPDK20060105_091112_000057272044_00036_20130_9377.N1
 SCI_NL_1PNPDK20060105_104643_000060932044_00037_20131_9252.N1
 SCI_NL_1PNPDK20060105_122719_000060582044_00038_20132_9264.N1
 SCI_NL_1PNPDK20060105_140659_000059632044_00039_20133_9270.N1
 SCI_NL_1PNPDK20060105_154421_000058372044_00040_20134_9276.N1
 SCI_NL_1PNPDK20060105_172112_000060372044_00041_20135_9288.N1
 SCI_NL_1PNPDK20060105_190148_000060702044_00042_20136_9306.N1
 SCI_NL_1PNPDE20060105_204224_000041792044_00043_20137_7029.N1



esa



ife



SCIAMACHY Bi-I



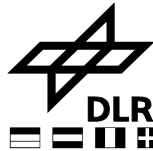
ZUVB
issue 1 revision 0 -

page 58 of 72

SCI_NL_1PNPDE20060105_215021_000061562044_00043_20137_7035.N1
 SCI_NL_1PNPDE20060105_233854_000056922044_00044_20138_7041.N1
 SCI_NL_1PNPDE20060106_011929_000039832044_00045_20139_7046.N1
 SCI_NL_1PNPDE20060106_022503_000062072044_00046_20140_7053.N1
 SCI_NL_1PNPDE20060106_040756_000060412044_00047_20141_7059.N1
 SCI_NL_1PNPDK20060106_054723_000042332044_00048_20142_9347.N1
 SCI_NL_1PNPDK20060106_065801_000058952044_00049_20143_9413.N1
 SCI_NL_1PNPDK20060106_083619_000060082044_00050_20144_9365.N1
 SCI_NL_1PNPDK20060106_101503_000060962044_00051_20145_9371.N1
 SCI_NL_1PNPDK20060106_115539_000060152044_00052_20146_9383.N1
 SCI_NL_1PNPDK20060106_133423_000060532044_00053_20147_9395.N1
 SCI_NL_1PNPDK20060106_151241_000060182044_00054_20148_9401.N1
 SCI_NL_1PNPDK20060106_165317_000056552044_00055_20149_9466.N1
 SCI_NL_1PNPDK20060106_183008_000058792044_00056_20150_9407.N1
 SCI_NL_1PNPDE20060106_200648_000044732044_00057_20151_7089.N1
 SCI_NL_1PNPDE20060106_212016_000060612044_00057_20151_7095.N1
 SCI_NL_1PNPDE20060106_230715_000056912044_00058_20152_7101.N1
 SCI_NL_1PNPDE20060107_004101_000058812044_00059_20153_7107.N1
 SCI_NL_1PNPDE20060107_021650_000046492044_00060_20154_7112.N1
 SCI_NL_1PNPDE20060107_033303_000062312044_00061_20155_7119.N1
 SCI_NL_1PNPDE20060107_051543_000060962044_00062_20156_7125.N1
 SCI_NL_1PNPDK20060107_065619_000041732044_00063_20157_9418.N1
 SCI_NL_1PNPDK20060107_080439_000060872044_00064_20158_9424.N1
 SCI_NL_1PNPDK20060107_094624_000057952044_00065_20159_9465.N1
 SCI_NL_1PNPDK20060107_112303_000060392044_00066_20160_9430.N1
 SCI_NL_1PNPDK20060107_130243_000060202044_00067_20161_9436.N1
 SCI_NL_1PNPDK20060107_144101_000059092044_00068_20162_9442.N1
 SCI_NL_1PNPDK20060107_144414_000056692044_00068_20162_9474.N1
 SCI_NL_1PNPDK20060107_161752_000058812044_00069_20163_9448.N1
 SCI_NL_1PNPDK20060107_175828_000058812044_00070_20164_9454.N1
 SCI_NL_1PNPDE20060107_193509_000042902044_00071_20165_7157.N1
 SCI_NL_1PNPDE20060107_204510_000062672044_00071_20165_7164.N1
 SCI_NL_1PNPDE20060107_222832_000061132044_00072_20166_7170.N1
 SCI_NL_1PNPDE20060108_000921_000060482044_00073_20167_7176.N1
 SCI_NL_1PNPDE20060108_014835_000044792044_00074_20168_7181.N1
 SCI_NL_1PNPDE20060108_030231_000061902044_00075_20169_7188.N1
 SCI_NL_1PNPDE20060108_044458_000060372044_00076_20170_7194.N1
 SCI_NL_1PNPDK20060108_062438_000040952044_00077_20171_9479.N1
 SCI_NL_1PNPDK20060108_073259_000059762044_00078_20172_9522.N1
 SCI_NL_1PNPDK20060108_091239_000060172044_00079_20173_9485.N1
 SCI_NL_1PNPDK20060108_105123_000060982044_00080_20174_9491.N1
 SCI_NL_1PNPDK20060108_123102_000060962044_00081_20175_9497.N1
 SCI_NL_1PNPDK20060108_141138_000059372044_00082_20176_9503.N1
 SCI_NL_1PNPDK20060108_155214_000055202044_00083_20177_0089.N1
 SCI_NL_1PNPDK20060108_172647_000058672044_00084_20178_9509.N1
 SCI_NL_1PNPDK20060108_190330_000060692044_00085_20179_9515.N1
 SCI_NL_1PNPDE20060108_204318_000044712044_00086_20180_7199.N1
 SCI_NL_1PNPDE20060108_215544_000061812044_00086_20180_7205.N1
 SCI_NL_1PNPDE20060108_233740_000060872044_00087_20181_7211.N1
 SCI_NL_1PNPDE20060109_011803_000043562044_00088_20182_7216.N1
 SCI_NL_1PNPDE20060109_022942_000062472044_00089_20183_7223.N1



esa



ife



SCIAMACHY Bi-I



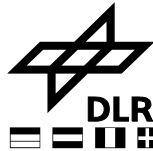
ZUUB
issue 1 revision 0 -

page 59 of 72

SCI_NL_1PNPDE20060109_041222_000060872044_00090_20184_7229.N1
 SCI_NL_1PNPDK20060109_055258_000041492044_00091_20185_9530.N1
 SCI_NL_1PNPDK20060109_070023_000059662044_00092_20186_9537.N1
 SCI_NL_1PNPDK20060109_083811_000062352044_00093_20187_9543.N1
 SCI_NL_1PNPDK20060109_102038_000060952044_00094_20188_9549.N1
 SCI_NL_1PNPDK20060109_120018_000061292044_00095_20189_9555.N1
 SCI_NL_1PNPDK20060109_134054_000058852044_00096_20190_9561.N1
 SCI_NL_1PNPDK20060109_151719_000059302044_00097_20191_9567.N1
 SCI_NL_1PNPDK20060109_165507_000060632044_00098_20192_9584.N1
 SCI_NL_1PNPDK20060109_183542_000058852044_00099_20193_9590.N1
 SCI_NL_1PNPDE20060109_201307_000044162044_00100_20194_7234.N1
 SCI_NL_1PNPDE20060109_212538_000060862044_00100_20194_7240.N1
 SCI_NL_1PNPDE20060109_231338_000055612044_00101_20195_7249.N1
 SCI_NL_1PNPDE20060110_004623_000004472044_00102_20196_7242.N1
 SCI_NL_1PNPDK20060110_130311_000003212044_00110_20204_0000.N1
 SCI_NL_1PNPDK20060110_130559_000061222044_00110_20204_0007.N1
 SCI_NL_1PNPDK20060110_144635_000059122044_00111_20205_0019.N1
 SCI_NL_1PNPDK20060110_162326_000060622044_00112_20206_0027.N1
 SCI_NL_1PNPDK20060110_180402_000058342044_00113_20207_0033.N1
 SCI_NL_1PNPDE20060110_193959_000042032044_00114_20208_7254.N1
 SCI_NL_1PNPDE20060110_204733_000065622044_00114_20208_7261.N1
 SCI_NL_1PNPDE20060110_223501_000061012044_00115_20209_7267.N1
 SCI_NL_1PNPDE20060111_001537_000060452044_00116_20210_7273.N1
 SCI_NL_1PNPDE20060111_015505_000044322044_00117_20211_7278.N1
 SCI_NL_1PNPDE20060111_030752_000062142044_00118_20212_7285.N1
 SCI_NL_1PNPDE20060111_045032_000060852044_00119_20213_7291.N1
 SCI_NL_1PNPDK20060111_063108_000041652044_00120_20214_0055.N1
 SCI_NL_1PNPDK20060111_073833_000061492044_00121_20215_0061.N1
 SCI_NL_1PNPDK20060111_091909_000061092044_00122_20216_0067.N1
 SCI_NL_1PNPDK20060111_105944_000060632044_00123_20217_0073.N1
 SCI_NL_1PNPDK20060111_124128_000057962044_00124_20218_0121.N1
 SCI_NL_1PNPDK20060111_141808_000059512044_00125_20219_0079.N1
 SCI_NL_1PNPDK20060111_155530_000058352044_00126_20220_0096.N1
 SCI_NL_1PNPDK20060111_173221_000060782044_00127_20221_0108.N1
 SCI_NL_1PNPDK20060111_191257_000058872044_00128_20222_0114.N1
 SCI_NL_1PNPDE20060111_205332_000042932044_00129_20223_0005.N1
 SCI_NL_1PNPDE20060111_220318_000062362044_00129_20223_0011.N1
 SCI_NL_1PNPDE20060111_234610_000059822044_00130_20224_0017.N1
 SCI_NL_1PNPDE20060112_012427_000043732044_00131_20225_0022.N1
 SCI_NL_1PNPDE20060112_023611_000062322044_00132_20226_0029.N1
 SCI_NL_1PNPDE20060112_041852_000060832044_00133_20227_0035.N1
 SCI_NL_1PNPDK20060112_055928_000041502044_00134_20228_0126.N1
 SCI_NL_1PNPDK20060112_070652_000061392044_00135_20229_0132.N1
 SCI_NL_1PNPDK20060112_084932_000060412044_00136_20230_0169.N1
 SCI_NL_1PNPDK20060112_102912_000059082044_00137_20231_0176.N1
 SCI_NL_1PNPDK20060112_120743_000060032044_00138_20232_0138.N1
 SCI_NL_1PNPDK20060112_134627_000059712044_00139_20233_0144.N1
 SCI_NL_1PNPDK20060112_152349_000060232044_00140_20234_0150.N1
 SCI_NL_1PNPDK20060112_170232_000057772044_00141_20235_0156.N1
 SCI_NL_1PNPDK20060112_184116_000058342044_00142_20236_0162.N1
 SCI_NL_1PNPDE20060112_202152_000042382044_00143_20237_0041.N1



esa



ife



SCIAMACHY Bi-I



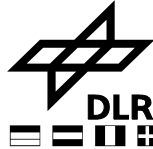
ZUVB
issue 1 revision 0 -

page 60 of 72

SCI_NL_1PNPDE20060112_213147_000059882044_00143_20237_0047.N1
SCI_NL_1PNPDE20060112_231832_000056332044_00144_20238_0053.N1
SCI_NL_1PNPDE20060113_005908_000040292044_00145_20239_0058.N1
SCI_NL_1PNPDE20060113_020512_000062242044_00146_20240_0065.N1
SCI_NL_1PNPDE20060113_034820_000060532044_00147_20241_0071.N1
SCI_NL_1PNPDE20060113_052747_000060832044_00148_20242_0077.N1
SCI_NL_1PNPDK20060113_070823_000040722044_00149_20243_0182.N1
SCI_NL_1PNPDK20060113_081451_000061702044_00150_20244_0189.N1
SCI_NL_1PNPDK20060113_095623_000061232044_00151_20245_0195.N1
SCI_NL_1PNPDK20060113_113658_000059482044_00152_20246_0201.N1
SCI_NL_1PNPDK20060113_131446_000060322044_00153_20247_0207.N1
SCI_NL_1PNPDK20060113_145426_000059112044_00154_20248_0213.N1
SCI_NL_1PNPDK20060113_163051_000060172044_00155_20249_0219.N1
SCI_NL_1PNPDK20060113_180935_000060652044_00156_20250_0225.N1
SCI_NL_1PNPDE20060113_195107_000038442044_00157_20251_0212.N1
SCI_NL_1PNPDE20060113_205515_000064382044_00157_20251_0088.N1
SCI_NL_1PNPDE20060113_224129_000060802044_00158_20252_0094.N1
SCI_NL_1PNPDE20060114_002050_000059582044_00159_20253_0100.N1
SCI_NL_1PNPDE20060114_015903_000045272044_00160_20254_0105.N1
SCI_NL_1PNPDE20060114_031326_000061972044_00161_20255_0112.N1
SCI_NL_1PNPDE20060114_045606_000060702044_00162_20256_0118.N1
SCI_NL_1PNPDK20060114_063642_000041762044_00163_20257_0234.N1
SCI_NL_1PNPDK20060114_074406_000061432044_00164_20258_0240.N1
SCI_NL_1PNPDK20060114_092346_000061792044_00165_20259_0246.N1
SCI_NL_1PNPDK20060114_110518_000059122044_00166_20260_0252.N1
SCI_NL_1PNPDK20060114_124210_000061252044_00167_20261_0258.N1
SCI_NL_1PNPDK20060114_142027_000060762044_00168_20262_0264.N1
SCI_NL_1PNPDK20060114_160006_000058962044_00169_20263_0270.N1
SCI_NL_1PNPDK20060114_173754_000058922044_00170_20264_0276.N1
SCI_NL_1PNPDK20060114_191526_000062592044_00171_20265_0282.N1
SCI_NL_1PNPDE20060114_205906_000041892044_00172_20266_0123.N1
SCI_NL_1PNPDE20060114_220703_000061562044_00172_20266_0129.N1
SCI_NL_1PNPDE20060114_234835_000061132044_00173_20267_0135.N1
SCI_NL_1PNPDE20060115_012923_000044432044_00174_20268_0140.N1
SCI_NL_1PNPDE20060115_024253_000061252044_00175_20269_0147.N1
SCI_NL_1PNPDE20060115_042329_000061552044_00176_20270_0153.N1
SCI_NL_1PNPDK20060115_060501_000041632044_00177_20271_0290.N1
SCI_NL_1PNPDK20060115_071238_000060952044_00178_20272_0296.N1
SCI_NL_1PNPDK20060115_085301_000060812044_00179_20273_0302.N1
SCI_NL_1PNPDK20060115_103241_000059832044_00180_20274_0308.N1
SCI_NL_1PNPDK20060115_121029_000061502044_00181_20275_0314.N1
SCI_NL_1PNPDK20060115_135104_000059952044_00182_20276_0320.N1
SCI_NL_1PNPDK20060115_152922_000058312044_00183_20277_0326.N1
SCI_NL_1PNPDK20060115_170231_000061152044_00184_20278_0332.N1
SCI_NL_1PNPDK20060115_184346_000060572044_00185_20279_0338.N1
SCI_NL_1PNPDE20060115_202342_000044342044_00186_20280_0158.N1
SCI_NL_1PNPDE20060115_213631_000060872044_00186_20280_0164.N1
SCI_NL_1PNPDE20060115_231653_000061142044_00187_20281_0170.N1
SCI_NL_1PNPDE20060116_005742_000043912044_00188_20282_0175.N1
SCI_NL_1PNPDE20060116_021004_000061832044_00189_20283_0182.N1
SCI_NL_1PNPDE20060116_035148_000061722044_00190_20284_0188.N1



esa



ife



SCIAMACHY Bi-I



ZUUB

issue 1 revision 0 -

page 61 of 72

SCI_NL_1PNPDE20060116_053319_000060882044_00191_20285_0194.N1
SCI_NL_1PNPDK20060116_071408_000041022044_00192_20286_0343.N1
SCI_NL_1PNPDK20060116_082120_000061492044_00193_20287_0349.N1
SCI_NL_1PNPDK20060116_100208_000060302044_00194_20288_0355.N1
SCI_NL_1PNPDK20060116_114039_000061212044_00195_20289_0361.N1
SCI_NL_1PNPDK20060116_132115_000058872044_00196_20290_0367.N1
SCI_NL_1PNPDK20060116_145741_000060592044_00197_20291_0373.N1
SCI_NL_1PNPDK20060116_163720_000057262044_00198_20292_0379.N1
SCI_NL_1PNPDK20060116_181508_000058942044_00199_20293_0385.N1
SCI_NL_1PNPDE20060116_195202_000041982044_00200_20294_0208.N1
SCI_NL_1PNPDE20060116_210043_000063342044_00200_20294_0219.N1
SCI_NL_1PNPDE20060116_225229_000056752044_00201_20295_0225.N1
SCI_NL_1PNPDE20060117_003305_000055922044_00202_20296_0231.N1
SCI_NL_1PNPDE20060117_021340_000039272044_00203_20297_0251.N1
SCI_NL_1PNPDE20060117_031911_000062252044_00204_20298_0238.N1
SCI_NL_1PNPDE20060117_050138_000060562044_00205_20299_0244.N1
SCI_NL_1PNPDK20060117_064118_000042312044_00206_20300_0390.N1
SCI_NL_1PNPDK20060117_074938_000061532044_00207_20301_0396.N1
SCI_NL_1PNPDK20060117_093027_000059902044_00208_20302_0402.N1
SCI_NL_1PNPDK20060117_110858_000060942044_00209_20303_0408.N1
SCI_NL_1PNPDK20060117_124838_000059792044_00210_20304_0414.N1
SCI_NL_1PNPDK20060117_142559_000060682044_00211_20305_0420.N1
SCI_NL_1PNPDK20060117_160538_000059202044_00212_20306_0426.N1
SCI_NL_1PNPDK20060117_174326_000060632044_00213_20307_0432.N1
SCI_NL_1PNPDK20060117_192402_000060512044_00214_20308_0440.N1
SCI_NL_1PNPDE20060117_210137_000043782044_00215_20309_0256.N1
SCI_NL_1PNPDE20060117_221331_000061122044_00215_20309_0262.N1
SCI_NL_1PNPDE20060117_235419_000060742044_00216_20310_0268.N1
SCI_NL_1PNPDE20060118_013333_000045392044_00217_20311_0273.N1
SCI_NL_1PNPDE20060118_024825_000061722044_00218_20312_0280.N1
SCI_NL_1PNPDE20060118_042957_000060852044_00219_20313_0286.N1
SCI_NL_1PNPDK20060118_061045_000041012044_00220_20314_0445.N1
SCI_NL_1PNPDK20060118_071757_000061412044_00221_20315_0451.N1
SCI_NL_1PNPDK20060118_085845_000060692044_00222_20316_0457.N1
SCI_NL_1PNPDK20060118_103812_000060142044_00223_20317_0463.N1
SCI_NL_1PNPDK20060118_121656_000060202044_00224_20318_0469.N1
SCI_NL_1PNPDK20060118_135418_000061052044_00225_20319_0475.N1
SCI_NL_1PNPDK20060118_153453_000059962044_00226_20320_0481.N1
SCI_NL_1PNPDK20060118_171241_000060552044_00227_20321_0487.N1
SCI_NL_1PNPDK20060118_185220_000058972044_00228_20322_0493.N1
SCI_NL_1PNPDE20060118_203256_000041302044_00229_20323_0331.N1
SCI_NL_1PNPDE20060118_214909_000056742044_00229_20323_0292.N1
SCI_NL_1PNPDE20060118_232944_000056612044_00230_20324_0298.N1
SCI_NL_1PNPDE20060119_011020_000039762044_00231_20325_0303.N1
SCI_NL_1PNPDE20060119_021548_000061902044_00232_20326_0310.N1
SCI_NL_1PNPDE20060119_035815_000060752044_00233_20327_0316.N1
SCI_NL_1PNPDE20060119_053755_000062032044_00234_20328_0323.N1
SCI_NL_1PNPDK20060119_072035_000040482044_00235_20329_0500.N1
SCI_NL_1PNPDK20060119_082704_000061692044_00236_20330_0507.N1
SCI_NL_1PNPDK20060119_100835_000060802044_00237_20331_0513.N1
SCI_NL_1PNPDK20060119_114815_000059322044_00238_20332_0519.N1



esa



ife



SCIAMACHY Bi-I



ZUUB
issue 1 revision 0 -

page 62 of 72

SCI_NL_1PNPDK20060119_132550_000059972044_00239_20333_0525.N1
SCI_NL_1PNPDK20060119_150312_000060872044_00240_20334_0531.N1
SCI_NL_1PNPDK20060119_164348_000058372044_00241_20335_0537.N1
SCI_NL_1PNPDK20060119_182039_000060792044_00242_20336_0543.N1
SCI_NL_1PNPDE20060119_200114_000040512044_00243_20337_0336.N1
SCI_NL_1PNPDE20060119_210710_000062912044_00243_20337_0343.N1
SCI_NL_1PNPDE20060119_225804_000056592044_00244_20338_0349.N1
SCI_NL_1PNPDE20060120_003119_000059262044_00245_20339_0356.N1
SCI_NL_1PNPDE20060120_020841_000046102044_00246_20340_0361.N1
SCI_NL_1PNPDE20060120_032429_000062352044_00247_20341_0368.N1
SCI_NL_1PNPDE20060120_050722_000061082044_00248_20342_0374.N1
SCI_NL_1PNPDK20060120_064745_000041712044_00249_20343_0548.N1
SCI_NL_1PNPDK20060120_075522_000061752044_00250_20344_0555.N1
SCI_NL_1PNPDK20060120_093545_000060592044_00251_20345_0561.N1
SCI_NL_1PNPDK20060120_111525_000060922044_00252_20346_0567.N1
SCI_NL_1PNPDK20060120_125504_000060392044_00253_20347_0573.N1
SCI_NL_1PNPDK20060120_143348_000059692044_00254_20348_0579.N1
SCI_NL_1PNPDK20060120_161206_000058622044_00255_20349_0585.N1
SCI_NL_1PNPDK20060120_174857_000061382044_00256_20350_0591.N1
SCI_NL_1PNPDK20060120_192933_000061022044_00257_20351_0597.N1
SCI_NL_1PNPDE20060120_211104_000040182044_00258_20352_0543.N1
SCI_NL_1PNPDE20060120_221806_000061552044_00258_20352_0384.N1
SCI_NL_1PNPDE20060121_000659_000056132044_00259_20353_0390.N1
SCI_NL_1PNPDE20060121_013917_000044752044_00260_20354_0395.N1
SCI_NL_1PNPDE20060121_025247_000062502044_00261_20355_0402.N1
SCI_NL_1PNPDE20060121_043540_000060572044_00262_20356_0408.N1
SCI_NL_1PNPDK20060121_061603_000042242044_00263_20357_0602.N1
SCI_NL_1PNPDK20060121_072436_000061672044_00264_20358_0608.N1
SCI_NL_1PNPDK20060121_090608_000059742044_00265_20359_0614.N1
SCI_NL_1PNPDK20060121_104343_000061012044_00266_20360_0620.N1
SCI_NL_1PNPDK20060121_122418_000059862044_00267_20361_0626.N1
SCI_NL_1PNPDK20060121_140302_000059862044_00268_20362_0632.N1
SCI_NL_1PNPDK20060121_154024_000059302044_00269_20363_0638.N1
SCI_NL_1PNPDK20060121_171715_000060562044_00270_20364_0644.N1
SCI_NL_1PNPDK20060121_185751_000060672044_00271_20365_0650.N1
SCI_NL_1PNPDE20060121_203827_000042102044_00272_20366_0416.N1
SCI_NL_1PNPDE20060121_215443_000056572044_00272_20366_0422.N1
SCI_NL_1PNPDE20060121_233519_000056702044_00273_20367_0428.N1
SCI_NL_1PNPDE20060122_010844_000044062044_00274_20368_0433.N1
SCI_NL_1PNPDE20060122_022106_000062112044_00275_20369_0440.N1
SCI_NL_1PNPDE20060122_040358_000060922044_00276_20370_0446.N1
SCI_NL_1PNPDE20060122_054421_000062742044_00277_20371_0453.N1
SCI_NL_1PNPDK20060122_072810_000039582044_00278_20372_0655.N1
SCI_NL_1PNPDK20060122_083222_000061922044_00279_20373_0662.N1
SCI_NL_1PNPDK20060122_101310_000060162044_00280_20374_0668.N1
SCI_NL_1PNPDK20060122_115141_000060972044_00281_20375_0674.N1
SCI_NL_1PNPDK20060122_133121_000060662044_00282_20376_0680.N1
SCI_NL_1PNPDK20060122_151100_000059232044_00283_20377_0686.N1
SCI_NL_1PNPDK20060122_164725_000060482044_00284_20378_0692.N1
SCI_NL_1PNPDK20060122_182705_000058452044_00285_20379_0698.N1
SCI_NL_1PNPDE20060122_200311_000044532044_00286_20380_0461.N1



esa



ife



SCIAMACHY Bi-I



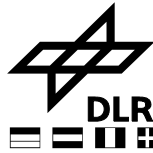
ZUUB
issue 1 revision 0 -

page 63 of 72

SCI_NL_1PNPDE20060122_211619_000060592044_00286_20380_0467.N1
 SCI_NL_1PNPDE20060122_230338_000056682044_00287_20381_0473.N1
 SCI_NL_1PNPDE20060123_004413_000055292044_00288_20382_0479.N1
 SCI_NL_1PNPDE20060123_021508_000045882044_00289_20383_0484.N1
 SCI_NL_1PNPDE20060123_033012_000062232044_00290_20384_0491.N1
 SCI_NL_1PNPDE20060123_051239_000060782044_00291_20385_0497.N1
 SCI_NL_1PNPDK20060123_065219_000042312044_00292_20386_0703.N1
 SCI_NL_1PNPDK20060123_080040_000061682044_00293_20387_0710.N1
 SCI_NL_1PNPDK20060123_094224_000059942044_00294_20388_0716.N1
 SCI_NL_1PNPDK20060123_112055_000060642044_00295_20389_0722.N1
 SCI_NL_1PNPDK20060123_130035_000060052044_00296_20390_0728.N1
 SCI_NL_1PNPDK20060123_143918_000059162044_00297_20391_0734.N1
 SCI_NL_1PNPDK20060123_161543_000060162044_00298_20392_0740.N1
 SCI_NL_1PNPDK20060123_175427_000059032044_00299_20393_0746.N1
 SCI_NL_1PNPDE20060123_193503_000042352044_00300_20394_0502.N1
 SCI_NL_1PNPDE20060123_204437_000060592044_00300_20394_0508.N1
 SCI_NL_1PNPDE20060123_223157_000056682044_00301_20395_0514.N1
 SCI_NL_1PNPDE20060124_001233_000056542044_00302_20396_0520.N1
 SCI_NL_1PNPDE20060124_014543_000044472044_00303_20397_0525.N1
 SCI_NL_1PNPDE20060124_025830_000062452044_00304_20398_0532.N1
 SCI_NL_1PNPDE20060124_044057_000061112044_00305_20399_0538.N1
 SCI_NL_1PNPDK20060124_062146_000041322044_00306_20400_0751.N1
 SCI_NL_1PNPDK20060124_072858_000062682044_00307_20401_0758.N1
 SCI_NL_1PNPDK20060124_091150_000059802044_00308_20402_0764.N1
 SCI_NL_1PNPDK20060124_105009_000061402044_00309_20403_0770.N1
 SCI_NL_1PNPDK20060124_122948_000060282044_00310_20404_0776.N1
 SCI_NL_1PNPDK20060124_140832_000060112044_00311_20405_0782.N1
 SCI_NL_1PNPDK20060124_154554_000060252044_00312_20406_0788.N1
 SCI_NL_1PNPDK20060124_172437_000059302044_00313_20407_0794.N1
 SCI_NL_1PNPDK20060124_190321_000061422044_00314_20408_0801.N1
 SCI_NL_1PNPDE20060124_204356_000041982044_00315_20409_0550.N1
 SCI_NL_1PNPDE20060124_234052_000056532044_00316_20410_0556.N1
 SCI_NL_1PNPDE20060125_012127_000039902044_00317_20411_0561.N1
 SCI_NL_1PNPDE20060125_022648_000062302044_00318_20412_0568.N1
 SCI_NL_1PNPDE20060125_040915_000061152044_00319_20413_0574.N1
 SCI_NL_1PNPDE20060125_055004_000062742044_00320_20414_0581.N1
 SCI_NL_1PNPDK20060125_073339_000039632044_00321_20415_0806.N1
 SCI_NL_1PNPDK20060125_073544_000038392044_00321_20415_0861.N1
 SCI_NL_1PNPDK20060125_083804_000061852044_00322_20416_0813.N1
 SCI_NL_1PNPDK20060125_083804_000061852044_00322_20416_0860.N1
 SCI_NL_1PNPDK20060125_101935_000060412044_00323_20417_0819.N1
 SCI_NL_1PNPDK20060125_115806_000060382044_00324_20418_0825.N1
 SCI_NL_1PNPDK20060125_133650_000060582044_00325_20419_0831.N1
 SCI_NL_1PNPDK20060125_151630_000059272044_00326_20420_0837.N1
 SCI_NL_1PNPDK20060125_165351_000059202044_00327_20421_0843.N1
 SCI_NL_1PNPDK20060125_183139_000060382044_00328_20422_0849.N1
 SCI_NL_1PNPDE20060125_201214_000042272044_00329_20423_0586.N1
 SCI_NL_1PNPDE20060125_212835_000056662044_00329_20423_0592.N1
 SCI_NL_1PNPDE20060125_230910_000056532044_00330_20424_0598.N1
 SCI_NL_1PNPDE20060126_004946_000055412044_00331_20425_0604.N1
 SCI_NL_1PNPDE20060126_022050_000045852044_00332_20426_0609.N1



esa



ife



SCIAMACHY Bi-I



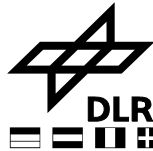
ZUVB
issue 1 revision 0 -

page 64 of 72

SCI_NL_1PNPDE20060126_033637_000061962044_00333_20427_0616.N1
 SCI_NL_1PNPDE20060126_051917_000060292044_00334_20428_0622.N1
 SCI_NL_1PNPDK20060126_065844_000021022044_00335_20429_0866.N1
 SCI_NL_1PNPDK20060126_075623_000006972044_00336_20430_0867.N1
 SCI_NL_1PNPDK20060126_080622_000062302044_00336_20430_0874.N1
 SCI_NL_1PNPDK20060126_094849_000060202044_00337_20431_0880.N1
 SCI_NL_1PNPDK20060126_112733_000060642044_00338_20432_0886.N1
 SCI_NL_1PNPDK20060126_130700_000059092044_00339_20433_0892.N1
 SCI_NL_1PNPDK20060126_144230_000061452044_00340_20434_0898.N1
 SCI_NL_1PNPDK20060126_162305_000059612044_00341_20435_0904.N1
 SCI_NL_1PNPDK20060126_180052_000060772044_00342_20436_0910.N1
 SCI_NL_1PNPDE20060126_194416_000039112044_00343_20437_0627.N1
 SCI_NL_1PNPDE20060126_204737_000062212044_00343_20437_0633.N1
 SCI_NL_1PNPDE20060126_223729_000056522044_00344_20438_0639.N1
 SCI_NL_1PNPDE20060127_001805_000056162044_00345_20439_0645.N1
 SCI_NL_1PNPDE20060127_015016_000045582044_00346_20440_0650.N1
 SCI_NL_1PNPDE20060127_030455_000062312044_00347_20441_0657.N1
 SCI_NL_1PNPDE20060127_044735_000060782044_00348_20442_0663.N1
 SCI_NL_1PNPDK20060127_062811_000040522044_00349_20443_0916.N1
 SCI_NL_1PNPDK20060127_073439_000062062044_00350_20444_0923.N1
 SCI_NL_1PNPDK20060127_091707_000061042044_00351_20445_0929.N1
 SCI_NL_1PNPDK20060127_105755_000059962044_00352_20446_0935.N1
 SCI_NL_1PNPDK20060127_123613_000060182044_00353_20447_0941.N1
 SCI_NL_1PNPDK20060127_141457_000059082044_00354_20448_0947.N1
 SCI_NL_1PNPDK20060127_155123_000059922044_00355_20449_0953.N1
 SCI_NL_1PNPDK20060127_173006_000059412044_00356_20450_0959.N1
 SCI_NL_1PNPDK20060127_190850_000061362044_00357_20451_0966.N1
 SCI_NL_1PNPDE20060127_220548_000056512044_00358_20452_0819.N1
 SCI_NL_1PNPDE20060127_220548_000056512044_00358_20452_0830.N1
 SCI_NL_1PNPDE20060128_012659_000040412044_00360_20454_0683.N1
 SCI_NL_1PNPDE20060128_023313_000061792044_00361_20455_0690.N1
 SCI_NL_1PNPDE20060128_041457_000061412044_00362_20456_0696.N1
 SCI_NL_1PNPDK20060128_055628_000041012044_00363_20457_0972.N1
 SCI_NL_1PNPDK20060128_070257_000062052044_00364_20458_0979.N1
 SCI_NL_1PNPDK20060128_084524_000060992044_00365_20459_0985.N1
 SCI_NL_1PNPDK20060128_102504_000060182044_00366_20460_0991.N1
 SCI_NL_1PNPDK20060128_120335_000059692044_00367_20461_0997.N1
 SCI_NL_1PNPDK20060128_134123_000060742044_00368_20462_1003.N1
 SCI_NL_1PNPDK20060128_151940_000060432044_00369_20463_1009.N1
 SCI_NL_1PNPDK20060128_165823_000060092044_00370_20464_1015.N1
 SCI_NL_1PNPDK20060128_183707_000060832044_00371_20465_1021.N1
 SCI_NL_1PNPDE20060128_201743_000042392044_00372_20466_0701.N1
 SCI_NL_1PNPDE20060128_212718_000060582044_00372_20466_0707.N1
 SCI_NL_1PNPDE20060128_231441_000056632044_00373_20467_0713.N1
 SCI_NL_1PNPDE20060129_004800_000044672044_00374_20468_0718.N1
 SCI_NL_1PNPDE20060129_020130_000062342044_00375_20469_0725.N1
 SCI_NL_1PNPDE20060129_034410_000060762044_00376_20470_0731.N1
 SCI_NL_1PNPDE20060129_052446_000060722044_00377_20471_0737.N1
 SCI_NL_1PNPDK20060129_070521_000041072044_00378_20472_1026.N1
 SCI_NL_1PNPDK20060129_081246_000061382044_00379_20473_1033.N1
 SCI_NL_1PNPDK20060129_095321_000060582044_00380_20474_1039.N1



esa



ife



SCIAMACHY Bi-I



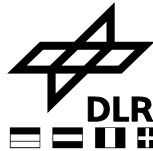
ZUUB
issue 1 revision 0 -

page 65 of 72

SCI_NL_1PNPDK20060129_113248_000060772044_00381_20475_1045.N1
 SCI_NL_1PNPDK20060129_131228_000060042044_00382_20476_1051.N1
 SCI_NL_1PNPDK20060129_145112_000059302044_00383_20477_1057.N1
 SCI_NL_1PNPDK20060129_162833_000058612044_00384_20478_1063.N1
 SCI_NL_1PNPDK20060129_180525_000059072044_00385_20479_1069.N1
 SCI_NL_1PNPDE20060129_194233_000043062044_00386_20480_0742.N1
 SCI_NL_1PNPDE20060129_205209_000062652044_00386_20480_0748.N1
 SCI_NL_1PNPDE20060129_224300_000056622044_00387_20481_0754.N1
 SCI_NL_1PNPDE20060130_002335_000056192044_00388_20482_0760.N1
 SCI_NL_1PNPDE20060130_015531_000045952044_00389_20483_0765.N1
 SCI_NL_1PNPDE20060130_031132_000061842044_00390_20484_0772.N1
 SCI_NL_1PNPDE20060130_045359_000060022044_00391_20485_0778.N1
 SCI_NL_1PNPDK20060130_063243_000041892044_00392_20486_1074.N1
 SCI_NL_1PNPDK20060130_074103_000061262044_00393_20487_1080.N1
 SCI_NL_1PNPDK20060130_092139_000060082044_00394_20488_1086.N1
 SCI_NL_1PNPDK20060130_110010_000061952044_00395_20489_1092.N1
 SCI_NL_1PNPDK20060130_124154_000059392044_00396_20490_1098.N1
 SCI_NL_1PNPDK20060130_141929_000059712044_00397_20491_1104.N1
 SCI_NL_1PNPDK20060130_155651_000060462044_00398_20492_1110.N1
 SCI_NL_1PNPDK20060130_173630_000059802044_00399_20493_1116.N1
 SCI_NL_1PNPDK20060130_191417_000059092044_00400_20494_1122.N1
 SCI_NL_1PNPDE20060130_205122_000044072044_00401_20495_0783.N1
 SCI_NL_1PNPDE20060130_221201_00006802044_00401_20495_0876.N1
 SCI_NL_1PNPDE20060130_222326_000049342044_00402_20496_0789.N1
 SCI_NL_1PNPDE20060130_235153_000033462044_00402_20496_0795.N1
 SCI_NL_1PNPDE20060131_004839_000012402044_00403_20497_0855.N1
 SCI_NL_1PNPDE20060131_010923_000009992044_00403_20497_0792.N1
 SCI_NL_1PNPDE20060131_012457_000045542044_00403_20497_0800.N1
 SCI_NL_1PNPDE20060131_023949_000036092044_00404_20498_0807.N1
 SCI_NL_1PNPDE20060131_034059_000012282044_00405_20499_0856.N1
 SCI_NL_1PNPDE20060131_040132_000012552044_00405_20499_0802.N1
 SCI_NL_1PNPDE20060131_042120_000060802044_00405_20499_0813.N1
 SCI_NL_1PNPDK20060131_060156_000041392044_00406_20500_1127.N1
 SCI_NL_1PNPDK20060131_070921_000061462044_00407_20501_1133.N1
 SCI_NL_1PNPDK20060131_084956_000060172044_00408_20502_1139.N1
 SCI_NL_1PNPDK20060131_102827_000061372044_00409_20503_1145.N1
 SCI_NL_1PNPDK20060131_120903_000061372044_00410_20504_1151.N1
 SCI_NL_1PNPDK20060131_134938_000059162044_00411_20505_1157.N1
 SCI_NL_1PNPDK20060131_152508_000061082044_00412_20506_1163.N1
 SCI_NL_1PNPDK20060131_170544_000058742044_00413_20507_1169.N1
 SCI_NL_1PNPDK20060131_184235_000060532044_00414_20508_1175.N1
 SCI_NL_1PNPDE20060131_202310_000042272044_00415_20509_0838.N1
 SCI_NL_1PNPDE20060131_213233_000060842044_00415_20509_0844.N1
 SCI_NL_1PNPDE20060131_232011_000056482044_00416_20510_0850.N1
 SCI_NL_1PNPDE20060201_010047_000040862044_00417_20511_0855.N1
 SCI_NL_1PNPDE20060201_020806_000060802044_00418_20512_0864.N1
 SCI_NL_1PNPDE20060201_034829_000061302044_00419_20513_0870.N1
 SCI_NL_1PNPDE20060201_052917_000061002044_00420_20514_0876.N1
 SCI_NL_1PNPDK20060201_081609_000063272044_00422_20516_1187.N1
 SCI_NL_1PNPDK20060201_095945_000059292044_00423_20517_1193.N1
 SCI_NL_1PNPDK20060201_113720_000061752044_00424_20518_1199.N1



esa



ife



SCIAMACHY Bi-I



ZUUB

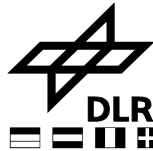
issue 1 revision 0 -

page 66 of 72

SCI_NL_1PNPDK20060201_131851_000059282044_00425_20519_1205.N1
 SCI_NL_1PNPDK20060201_145639_000059422044_00426_20520_1211.N1
 SCI_NL_1PNPDK20060201_163401_000058552044_00427_20521_1217.N1
 SCI_NL_1PNPDK20060201_181052_000060612044_00428_20522_1223.N1
 SCI_NL_1PNPDE20060201_195127_000041242044_00429_20523_0882.N1
 SCI_NL_1PNPDE20060201_205833_000062202044_00429_20523_0888.N1
 SCI_NL_1PNPDE20060201_224829_000056472044_00430_20524_0918.N1
 SCI_NL_1PNPDE20060202_002904_000056602044_00431_20525_0894.N1
 SCI_NL_1PNPDE20060202_020220_000045402044_00432_20526_0899.N1
 SCI_NL_1PNPDE20060202_031646_000062182044_00433_20527_0906.N1
 SCI_NL_1PNPDE20060202_045939_000060332044_00434_20528_0912.N1
 SCI_NL_1PNPDK20060202_063906_000041582044_00435_20529_1228.N1
 SCI_NL_1PNPDK20060202_074630_000061942044_00436_20530_1234.N1
 SCI_NL_1PNPDK20060202_092802_000059992044_00437_20531_1240.N1
 SCI_NL_1PNPDK20060202_110645_000061572044_00438_20532_1246.N1
 SCI_NL_1PNPDK20060202_124708_000059932044_00439_20533_1252.N1
 SCI_NL_1PNPDK20060202_142552_000059042044_00440_20534_1258.N1
 SCI_NL_1PNPDK20060202_160218_000059502044_00441_20535_1264.N1
 SCI_NL_1PNPDK20060202_173909_000059102044_00442_20536_1270.N1
 SCI_NL_1PNPDK20060202_191945_000059102044_00443_20537_1276.N1
 SCI_NL_1PNPDE20060202_205656_000043462044_00444_20538_1016.N1
 SCI_NL_1PNPDE20060202_221647_000056472044_00444_20538_0924.N1
 SCI_NL_1PNPDE20060202_235722_000056602044_00445_20539_0930.N1
 SCI_NL_1PNPDE20060203_013757_000041282044_00446_20540_0935.N1
 SCI_NL_1PNPDE20060203_024612_000061502044_00447_20541_0942.N1
 SCI_NL_1PNPDE20060203_042756_000060182044_00448_20542_0948.N1
 SCI_NL_1PNPDK20060203_060723_000041712044_00449_20543_1281.N1
 SCI_NL_1PNPDK20060203_071447_000061792044_00450_20544_1287.N1
 SCI_NL_1PNPDK20060203_085619_000060812044_00451_20545_1293.N1
 SCI_NL_1PNPDK20060203_103558_000059772044_00452_20546_1299.N1
 SCI_NL_1PNPDK20060203_121429_000061542044_00453_20547_1305.N1
 SCI_NL_1PNPDK20060203_135505_000059702044_00454_20548_1311.N1
 SCI_NL_1PNPDK20060203_153253_000058722044_00455_20549_1317.N1
 SCI_NL_1PNPDK20060203_170822_000060662044_00456_20550_1323.N1
 SCI_NL_1PNPDK20060203_184802_000061022044_00457_20551_1329.N1
 SCI_NL_1PNPDE20060203_202837_000042112044_00458_20552_0953.N1
 SCI_NL_1PNPDE20060203_214504_000056462044_00458_20552_0959.N1
 SCI_NL_1PNPDE20060203_232539_000056602044_00459_20553_0965.N1
 SCI_NL_1PNPDE20060204_010615_000041082044_00460_20554_0970.N1
 SCI_NL_1PNPDE20060204_021320_000061772044_00461_20555_0977.N1
 SCI_NL_1PNPDE20060204_035504_000061282044_00462_20556_0983.N1
 SCI_NL_1PNPDE20060204_053636_000061192044_00463_20557_0989.N1
 SCI_NL_1PNPDK20060204_071724_000040272044_00464_20558_1334.N1
 SCI_NL_1PNPDK20060204_082231_000061842044_00465_20559_1341.N1
 SCI_NL_1PNPDK20060204_100415_000061422044_00466_20560_1347.N1
 SCI_NL_1PNPDK20060204_114451_000059812044_00467_20561_1353.N1
 SCI_NL_1PNPDK20060204_132322_000060492044_00468_20562_1359.N1
 SCI_NL_1PNPDK20060204_150302_000058862044_00469_20563_1365.N1
 SCI_NL_1PNPDK20060204_163927_000060022044_00470_20564_1371.N1
 SCI_NL_1PNPDK20060204_181810_000058002044_00471_20565_1377.N1
 SCI_NL_1PNPDE20060204_195654_000041242044_00472_20566_0994.N1



esa



ife



SCIAMACHY Bi-I



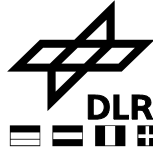
ZUUB
issue 1 revision 0 -

page 67 of 72

SCI_NL_1PNPDE20060204_210629_000059902044_00472_20566_1040.N1
 SCI_NL_1PNPDE20060204_225357_000056582044_00473_20567_1000.N1
 SCI_NL_1PNPDE20060205_003432_000056212044_00474_20568_1006.N1
 SCI_NL_1PNPDE20060205_020625_000018472044_00475_20569_1011.N1
 SCI_NL_1PNPDK20060206_090527_000000202044_00494_20588_1380.N1
 SCI_NL_1PNPDK20060206_100623_000022022044_00494_20588_1383.N1
 SCI_NL_1PNPDK20060206_104125_000060392044_00495_20589_1389.N1
 SCI_NL_1PNPDK20060206_122104_000021252044_00496_20590_1395.N1
 SCI_NL_1PNPDK20060207_160242_000026782045_00011_20606_1406.N1
 SCI_NL_1PNPDK20060207_164453_000059592045_00012_20607_1412.N1
 SCI_NL_1PNPDK20060207_182240_000060462045_00013_20608_1418.N1
 SCI_NL_1PNPDE20060207_200220_000043362045_00014_20609_1045.N1
 SCI_NL_1PNPDE20060207_211848_000057842045_00014_20609_1051.N1
 SCI_NL_1PNPDE20060207_225924_000058512045_00015_20610_1057.N1
 SCI_NL_1PNPDE20060208_003551_000058992045_00016_20611_1063.N1
 SCI_NL_1PNPDE20060208_021259_000045612045_00017_20612_1068.N1
 SCI_NL_1PNPDE20060208_032738_000062502045_00018_20613_1075.N1
 SCI_NL_1PNPDE20060208_051018_000060822045_00019_20614_1081.N1
 SCI_NL_1PNPDK20060208_065054_000041652045_00020_20615_1431.N1
 SCI_NL_1PNPDK20060208_075819_000061262045_00021_20616_1443.N1
 SCI_NL_1PNPDK20060208_093854_000060082045_00022_20617_1449.N1
 SCI_NL_1PNPDK20060208_111725_000061442045_00023_20618_1455.N1
 SCI_NL_1PNPDK20060208_125800_000060232045_00024_20619_1461.N1
 SCI_NL_1PNPDK20060208_143644_000059752045_00025_20620_1467.N1
 SCI_NL_1PNPDK20060208_161310_000060412045_00026_20621_1473.N1
 SCI_NL_1PNPDK20060208_175249_000058702045_00027_20622_1479.N1
 SCI_NL_1PNPDK20060208_192753_000060762045_00028_20623_1493.N1
 SCI_NL_1PNPDE20060208_210749_000045492045_00029_20624_1087.N1
 SCI_NL_1PNPDE20060208_222201_000061662045_00029_20624_1093.N1
 SCI_NL_1PNPDE20060209_000343_000060102045_00030_20625_1099.N1
 SCI_NL_1PNPDE20060209_014158_000045582045_00031_20626_1104.N1
 SCI_NL_1PNPDE20060209_025704_000061552045_00032_20627_1111.N1
 SCI_NL_1PNPDE20060209_043835_000060752045_00033_20628_1117.N1
 SCI_NL_1PNPDK20060209_061911_000041912045_00034_20629_1498.N1
 SCI_NL_1PNPDK20060209_072744_000060272045_00035_20630_1504.N1
 SCI_NL_1PNPDK20060209_090615_000061672045_00036_20631_1510.N1
 SCI_NL_1PNPDK20060209_104746_000059952045_00037_20632_1516.N1
 SCI_NL_1PNPDK20060209_122617_000060262045_00038_20633_1522.N1
 SCI_NL_1PNPDK20060209_140501_000060732045_00039_20634_1528.N1
 SCI_NL_1PNPDK20060209_154440_000059012045_00040_20635_1534.N1
 SCI_NL_1PNPDK20060209_172202_000058342045_00041_20636_1540.N1
 SCI_NL_1PNPDK20060209_185610_000062502045_00042_20637_1546.N1
 SCI_NL_1PNPDE20060209_203929_000043542045_00043_20638_1137.N1
 SCI_NL_1PNPDE20060209_215045_000061652045_00043_20638_1143.N1
 SCI_NL_1PNPDE20060209_233226_000060962045_00044_20639_1149.N1
 SCI_NL_1PNPDE20060210_011257_000044022045_00045_20640_1154.N1
 SCI_NL_1PNPDE20060210_040652_000061222045_00047_20642_1160.N1
 SCI_NL_1PNPDK20060210_054727_000041872045_00048_20643_1559.N1
 SCI_NL_1PNPDK20060210_065600_000060882045_00049_20644_1565.N1
 SCI_NL_1PNPDK20060210_083527_000060882045_00050_20645_1571.N1
 SCI_NL_1PNPDK20060210_101507_000060222045_00051_20646_1577.N1



esa



ife



SCIAMACHY Bi-I



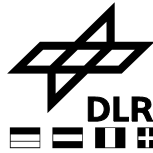
ZUUB
issue 1 revision 0 -

page 68 of 72

SCI_NL_1PNPDK20060210_115338_000061652045_00052_20647_1583.N1
SCI_NL_1PNPDK20060210_133413_000060742045_00053_20648_1589.N1
SCI_NL_1PNPDK20060210_151353_000059482045_00054_20649_1595.N1
SCI_NL_1PNPDK20060210_165019_000059662045_00055_20650_1601.N1
SCI_NL_1PNPDK20060210_182806_000060402045_00056_20651_1607.N1
SCI_NL_1PNPDE20060210_200745_000043502045_00057_20652_1166.N1
SCI_NL_1PNPDE20060210_212457_000056802045_00057_20652_1286.N1
SCI_NL_1PNPDE20060210_230449_000058552045_00058_20653_1172.N1
SCI_NL_1PNPDE20060211_004119_000058532045_00059_20654_1178.N1
SCI_NL_1PNPDE20060211_021715_000046502045_00060_20655_1183.N1
SCI_NL_1PNPDE20060211_033304_000062642045_00061_20656_1190.N1
SCI_NL_1PNPDE20060211_051652_000060812045_00062_20657_1196.N1
SCI_NL_1PNPDK20060211_065728_000040392045_00063_20658_1612.N1
SCI_NL_1PNPDK20060211_080248_000062092045_00064_20659_1619.N1
SCI_NL_1PNPDK20060211_094419_000060572045_00065_20660_1625.N1
SCI_NL_1PNPDK20060211_112359_000060732045_00066_20661_1631.N1
SCI_NL_1PNPDK20060211_130326_000060742045_00067_20662_1637.N1
SCI_NL_1PNPDK20060211_144305_000058392045_00068_20663_1643.N1
SCI_NL_1PNPDK20060211_161835_000060612045_00069_20664_1649.N1
SCI_NL_1PNPDK20060211_175814_000060102045_00070_20665_1655.N1
SCI_NL_1PNPDE20060211_193658_000041372045_00071_20666_1204.N1
SCI_NL_1PNPDE20060211_204358_000061142045_00071_20666_1211.N1
SCI_NL_1PNPDE20060211_223306_000056102045_00072_20667_1217.N1
SCI_NL_1PNPDE20060212_001341_000055822045_00073_20668_1223.N1
SCI_NL_1PNPDE20060212_015416_000041612045_00074_20669_1228.N1
SCI_NL_1PNPDE20060212_030229_000061882045_00075_20670_1235.N1
SCI_NL_1PNPDE20060212_044400_000061622045_00076_20671_1241.N1
SCI_NL_1PNPDK20060212_062544_000040692045_00077_20672_1660.N1
SCI_NL_1PNPDK20060212_073200_000061612045_00078_20673_1667.N1
SCI_NL_1PNPDK20060212_091344_000060132045_00079_20674_1673.N1
SCI_NL_1PNPDK20060212_105215_000061512045_00080_20675_1679.N1
SCI_NL_1PNPDK20060212_123251_000060132045_00081_20676_1685.N1
SCI_NL_1PNPDK20060212_141122_000059752045_00082_20677_1691.N1
SCI_NL_1PNPDK20060212_154910_000059842045_00083_20678_1697.N1
SCI_NL_1PNPDK20060212_172727_000059482045_00084_20679_1703.N1
SCI_NL_1PNPDK20060212_190418_000061702045_00085_20680_1709.N1
SCI_NL_1PNPDE20060212_204550_000042872045_00086_20681_1249.N1
SCI_NL_1PNPDE20060212_220122_000057122045_00086_20681_1285.N1
SCI_NL_1PNPDE20060212_234157_000057702045_00087_20682_1255.N1
SCI_NL_1PNPDE20060213_011702_000044542045_00088_20683_1260.N1
SCI_NL_1PNPDE20060213_022937_000062712045_00089_20684_1267.N1
SCI_NL_1PNPDE20060213_041325_000060092045_00090_20685_1273.N1
SCI_NL_1PNPDK20060213_055252_000041772045_00091_20686_1714.N1
SCI_NL_1PNPDK20060213_070125_000061142045_00092_20687_1721.N1
SCI_NL_1PNPDK20060213_084201_000061772045_00093_20688_1727.N1
SCI_NL_1PNPDK20060213_102345_000059562045_00094_20689_1733.N1
SCI_NL_1PNPDK20060213_120107_000059762045_00095_20690_1739.N1
SCI_NL_1PNPDK20060213_133938_000059742045_00096_20691_1745.N1
SCI_NL_1PNPDK20060213_151726_000059952045_00097_20692_1751.N1
SCI_NL_1PNPDK20060213_165544_000060442045_00098_20693_1757.N1
SCI_NL_1PNPDK20060213_183427_000059712045_00099_20694_1763.N1



esa



ife



SCIAMACHY Bi-I



ZUUB
issue 1 revision 0 -

page 69 of 72

SCI_NL_1PNPDE20060213_201310_000042402045_00100_20695_1291.N1
 SCI_NL_1PNPDE20060213_213106_000001612045_00100_20695_1378.N1
 SCI_NL_1PNPDE20060213_213351_000053922045_00100_20695_1297.N1
 SCI_NL_1PNPDE20060213_231014_000056582045_00101_20696_1303.N1
 SCI_NL_1PNPDE20060214_005049_000055972045_00102_20697_1309.N1
 SCI_NL_1PNPDE20060214_022241_000046942045_00103_20698_1314.N1
 SCI_NL_1PNPDE20060214_033937_000061972045_00104_20699_1321.N1
 SCI_NL_1PNPDE20060214_052217_000060442045_00105_20700_1327.N1
 SCI_NL_1PNPDK20060214_070157_000041922045_00106_20701_1768.N1
 SCI_NL_1PNPDK20060214_081017_000061112045_00107_20702_1775.N1
 SCI_NL_1PNPDK20060214_095053_000059762045_00108_20703_1781.N1
 SCI_NL_1PNPDK20060214_112924_000060252045_00109_20704_1787.N1
 SCI_NL_1PNPDK20060214_130755_000061332045_00110_20705_1793.N1
 SCI_NL_1PNPDK20060214_144830_000058962045_00111_20706_1799.N1
 SCI_NL_1PNPDK20060214_162400_000060542045_00112_20707_1805.N1
 SCI_NL_1PNPDK20060214_180339_000060742045_00113_20708_1811.N1
 SCI_NL_1PNPDE20060214_194318_000040852045_00114_20709_1336.N1
 SCI_NL_1PNPDE20060214_204953_000061272045_00114_20709_1343.N1
 SCI_NL_1PNPDE20060214_224030_000000432045_00115_20710_1375.N1
 SCI_NL_1PNPDE20060214_224118_000054912045_00115_20710_1349.N1
 SCI_NL_1PNPDE20060215_001905_000056462045_00116_20711_1355.N1
 SCI_NL_1PNPDE20060215_015206_000045822045_00117_20712_1360.N1
 SCI_NL_1PNPDE20060215_030754_000061662045_00118_20713_1367.N1
 SCI_NL_1PNPDE20060215_045129_000059762045_00119_20714_1378.N1
 SCI_NL_1PNPDK20060215_063109_000041652045_00120_20715_1816.N1
 SCI_NL_1PNPDK20060215_073930_000061642045_00121_20716_1823.N1
 SCI_NL_1PNPDK20060215_092018_000060262045_00122_20717_1829.N1
 SCI_NL_1PNPDK20060215_105836_000061002045_00123_20718_1835.N1
 SCI_NL_1PNPDK20060215_123816_000059682045_00124_20719_1841.N1
 SCI_NL_1PNPDK20060215_141551_000059852045_00125_20720_1847.N1
 SCI_NL_1PNPDK20060215_155217_000060522045_00126_20721_1853.N1
 SCI_NL_1PNPDK20060215_173059_000061512045_00127_20722_1859.N1
 SCI_NL_1PNPDK20060215_191135_000061852045_00128_20723_1865.N1
 SCI_NL_1PNPDE20060215_205306_000040302045_00129_20724_1385.N1
 SCI_NL_1PNPDE20060215_234721_000056472045_00130_20725_1391.N1
 SCI_NL_1PNPDE20060216_012756_000041922045_00131_20726_1396.N1
 SCI_NL_1PNPDE20060216_213502_000056592045_00143_20738_1424.N1
 SCI_NL_1PNPDE20060216_231537_000056472045_00144_20739_1430.N1
 SCI_NL_1PNPDE20060217_005612_000041302045_00145_20740_1435.N1
 SCI_NL_1PNPDE20060218_014944_000004762045_00160_20755_1504.N1
 SCI_NL_1PNPDE20060218_045558_000061152045_00162_20757_1498.N1
 SCI_NL_1PNPDK20060218_142115_000060702045_00168_20763_2009.N1
 SCI_NL_1PNPDK20060218_173720_000061062045_00170_20765_2021.N1
 SCI_NL_1PNPDE20060219_024230_000061622045_00175_20770_1537.N1
 SCI_NL_1PNPDK20060219_135027_000060832045_00182_20777_2070.N1
 SCI_NL_1PNPDK20060219_135232_000059582045_00182_20777_2094.N1
 SCI_NL_1PNPDK20060219_152911_000058632045_00183_20778_2076.N1
 SCI_NL_1PNPDK20060219_170440_000061682045_00184_20779_2082.N1
 SCI_NL_1PNPDK20060219_184515_000061582045_00185_20780_2088.N1
 SCI_NL_1PNPDE20060219_214024_000056492045_00186_20781_1557.N1
 SCI_NL_1PNPDE20060219_232059_000056622045_00187_20782_1563.N1



esa



ife



SCIAMACHY Bi-I



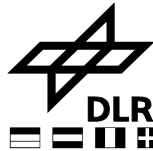
ZUUB
issue 1 revision 0 -

page 70 of 72

SCI_NL_1PNPDE20060220_010135_000042162045_00188_20783_1568.N1
SCI_NL_1PNPDE20060220_053510_000059772045_00191_20786_1720.N1
SCI_NL_1PNPDK20060220_071342_000041422045_00192_20787_2100.N1
SCI_NL_1PNPDK20060220_082106_000061612045_00193_20788_2107.N1
SCI_NL_1PNPDK20060220_100250_000059542045_00194_20789_2113.N1
SCI_NL_1PNPDE20060220_195503_000040712045_00200_20795_1586.N1
SCI_NL_1PNPDE20060220_210150_000060582045_00200_20795_1593.N1
SCI_NL_1PNPDE20060221_031842_000062372045_00204_20799_1617.N1
SCI_NL_1PNPDE20060221_050122_000060932045_00205_20800_1623.N1
SCI_NL_1PNPDK20060221_142735_000060202045_00211_20806_2179.N1
SCI_NL_1PNPDK20060221_160619_000058802045_00212_20807_2185.N1
SCI_NL_1PNPDK20060221_174244_000060782045_00213_20808_2191.N1
SCI_NL_1PNPDE20060221_210452_000039732045_00215_20810_1628.N1
SCI_NL_1PNPDE20060221_221730_000056632045_00215_20810_1634.N1
SCI_NL_1PNPDE20060221_235806_000056502045_00216_20811_1640.N1
SCI_NL_1PNPDE20060222_013841_000042332045_00217_20812_1645.N1
SCI_NL_1PNPDK20060222_121720_000061182045_00224_20819_2227.N1
SCI_NL_1PNPDK20060222_135756_000058912045_00225_20820_2233.N1
SCI_NL_1PNPDK20060222_153435_000058882045_00226_20821_2239.N1
SCI_NL_1PNPDK20060222_153627_000057752045_00226_20821_2258.N1
SCI_NL_1PNPDK20060222_171100_000061492045_00227_20822_2245.N1
SCI_NL_1PNPDK20060222_185232_000060402045_00228_20823_2251.N1
SCI_NL_1PNPDE20060222_203115_000040862045_00229_20824_1666.N1
SCI_NL_1PNPDE20060222_214546_000056642045_00229_20824_1672.N1
SCI_NL_1PNPDE20060222_232621_000056512045_00230_20825_1678.N1
SCI_NL_1PNPDE20060223_010656_000041882045_00231_20826_1683.N1
SCI_NL_1PNPDE20060223_021515_000062062045_00232_20827_1690.N1
SCI_NL_1PNPDE20060223_035755_000061432045_00233_20828_1696.N1
SCI_NL_1PNPDE20060223_053939_000060972045_00234_20829_1703.N1
SCI_NL_1PNPDK20060223_072001_000040192045_00235_20830_2263.N1
SCI_NL_1PNPDK20060223_082534_000061592045_00236_20831_2270.N1
SCI_NL_1PNPDK20060223_100706_000060522045_00237_20832_2276.N1
SCI_NL_1PNPDK20060223_114645_000061132045_00238_20833_2282.N1
SCI_NL_1PNPDK20060223_132708_000059202045_00239_20834_2288.N1
SCI_NL_1PNPDK20060223_150443_000058482045_00240_20835_2294.N1
SCI_NL_1PNPDK20060223_164013_000060402045_00241_20836_2300.N1
SCI_NL_1PNPDK20060223_181856_000061872045_00242_20837_2306.N1
SCI_NL_1PNPDE20060223_200027_000040582045_00243_20838_1714.N1
SCI_NL_1PNPDE20060223_210701_000060842045_00243_20838_1727.N1
SCI_NL_1PNPDE20060223_225436_000056522045_00244_20839_1733.N1
SCI_NL_1PNPDE20060224_003556_000055522045_00245_20840_1840.N1
SCI_NL_1PNPDE20060224_021547_000042322045_00246_20841_1738.N1
SCI_NL_1PNPDE20060224_032502_000062002045_00247_20842_1745.N1
SCI_NL_1PNPDE20060224_050646_000061612045_00248_20843_1751.N1
SCI_NL_1PNPDK20060224_064818_000041242045_00249_20844_2311.N1
SCI_NL_1PNPDK20060224_075555_000060872045_00250_20845_2318.N1
SCI_NL_1PNPDK20060224_093618_000059952045_00251_20846_2324.N1
SCI_NL_1PNPDK20060224_111501_000061232045_00252_20847_2330.N1
SCI_NL_1PNPDK20060224_125524_000059832045_00253_20848_2336.N1
SCI_NL_1PNPDK20060224_161047_000060392045_00255_20850_2348.N1
SCI_NL_1PNPDK20060224_174905_000060002045_00256_20851_2354.N1



esa



ife



SCIAMACHY Bi-I



ZUVB
issue 1 revision 0 -

page 71 of 72

SCI_NL_1PNPDK20060224_192651_000062442045_00257_20852_2360.N1
 SCI_NL_1PNPDE20060224_210919_000040422045_00258_20853_1756.N1
 SCI_NL_1PNPDE20060224_222252_000060552045_00258_20853_1762.N1
 SCI_NL_1PNPDE20060225_000327_000056662045_00259_20854_1768.N1
 SCI_NL_1PNPDE20060225_014402_000042392045_00260_20855_1773.N1
 SCI_NL_1PNPDE20060225_025318_000061942045_00261_20856_1780.N1
 SCI_NL_1PNPDE20060225_043502_000061712045_00262_20857_1786.N1
 SCI_NL_1PNPDK20060225_061634_000041392045_00263_20858_2365.N1
 SCI_NL_1PNPDK20060225_072411_000061582045_00264_20859_2372.N1
 SCI_NL_1PNPDK20060225_090542_000060722045_00265_20860_2378.N1
 SCI_NL_1PNPDK20060225_104522_000059942045_00266_20861_2384.N1
 SCI_NL_1PNPDK20060225_122340_000060272045_00267_20862_2390.N1
 SCI_NL_1PNPDK20060225_140224_000059282045_00268_20863_2396.N1
 SCI_NL_1PNPDK20060225_153903_000059842045_00269_20864_2402.N1
 SCI_NL_1PNPDK20060225_171721_000060132045_00270_20865_2408.N1
 SCI_NL_1PNPDK20060225_185508_000062772045_00271_20866_2414.N1
 SCI_NL_1PNPDE20060225_203832_000039862045_00272_20867_1793.N1
 SCI_NL_1PNPDE20060225_215107_000056532045_00272_20867_1799.N1
 SCI_NL_1PNPDE20060225_233226_000056222045_00273_20868_1805.N1
 SCI_NL_1PNPDE20060226_011217_000042342045_00274_20869_1810.N1
 SCI_NL_1PNPDE20060226_022135_000062392045_00275_20870_1817.N1
 SCI_NL_1PNPDE20060226_040427_000060422045_00276_20871_1823.N1
 SCI_NL_1PNPDE20060226_054354_000063082045_00277_20872_1830.N1
 SCI_NL_1PNPDK20060226_072743_000039372045_00278_20873_2419.N1
 SCI_NL_1PNPDK20060226_083154_000061552045_00279_20874_2426.N1
 SCI_NL_1PNPDK20060226_101230_000061452045_00280_20875_2432.N1
 SCI_NL_1PNPDK20060226_115305_000059542045_00281_20876_2438.N1
 SCI_NL_1PNPDK20060226_133040_000059772045_00282_20877_2444.N1
 SCI_NL_1PNPDK20060226_150815_000060182045_00283_20878_2450.N1
 SCI_NL_1PNPDK20060226_164537_000061192045_00284_20879_2456.N1
 SCI_NL_1PNPDK20060226_182612_000060732045_00285_20880_2462.N1
 SCI_NL_1PNPDE20060226_200551_000040712045_00286_20881_1845.N1
 SCI_NL_1PNPDE20060226_211922_000056552045_00286_20881_1851.N1
 SCI_NL_1PNPDE20060226_230041_000056232045_00287_20882_1888.N1
 SCI_NL_1PNPDE20060227_004033_000056542045_00288_20883_1857.N1
 SCI_NL_1PNPDE20060227_021343_000047202045_00289_20884_1862.N1
 SCI_NL_1PNPDE20060227_033135_000061562045_00290_20885_1869.N1
 SCI_NL_1PNPDE20060227_051306_000060882045_00291_20886_1875.N1
 SCI_NL_1PNPDK20060227_065354_000041482045_00292_20887_2467.N1
 SCI_NL_1PNPDK20060227_080106_000061812045_00293_20888_2474.N1
 SCI_NL_1PNPDK20060227_094250_000060132045_00294_20889_2480.N1
 SCI_NL_1PNPDK20060227_112121_000061052045_00295_20890_2486.N1
 SCI_NL_1PNPDK20060227_130156_000058902045_00296_20891_2492.N1
 SCI_NL_1PNPDK20060227_143823_000058522045_00297_20892_2498.N1
 SCI_NL_1PNPDK20060227_161353_000060992045_00298_20893_2504.N1
 SCI_NL_1PNPDK20060227_175428_000060862045_00299_20894_2510.N1
 SCI_NL_1PNPDE20060227_193504_000040142045_00300_20895_1882.N1
 SCI_NL_1PNPDE20060227_204737_000060552045_00300_20895_1895.N1
 SCI_NL_1PNPDE20060227_222856_000060002045_00301_20896_1901.N1
 SCI_NL_1PNPDE20060228_000848_000056562045_00302_20897_1907.N1
 SCI_NL_1PNPDE20060228_000848_000056562045_00302_20897_1907.N1



esa



DLR

ife



SCIAMACHY Bi-I



ZUUB
issue 1 revision 0 -

page 72 of 72

SCI_NL_1PNPDE20060228_014923_000042432045_00303_20898_1912.N1
SCI_NL_1PNPDE20060228_014923_000042432045_00303_20898_1912.N1
SCI_NL_1PNPDE20060228_025855_000061932045_00304_20899_1919.N1
SCI_NL_1PNPDE20060228_025855_000061932045_00304_20899_1919.N1
SCI_NL_1PNPDE20060228_044122_000061462045_00305_20900_1925.N1
SCI_NL_1PNPDE20060228_044122_000061462045_00305_20900_1925.N1
SCI_NL_1PNPDK20060228_062306_000040962045_00306_20901_2515.N1
SCI_NL_1PNPDK20060228_072922_000061742045_00307_20902_2522.N1
SCI_NL_1PNPDK20060228_091106_000060272045_00308_20903_2528.N1
SCI_NL_1PNPDK20060228_104937_000061312045_00309_20904_2534.N1
SCI_NL_1PNPDK20060228_122917_000060182045_00310_20905_2540.N1
SCI_NL_1PNPDK20060228_140735_000058732045_00311_20906_2546.N1
SCI_NL_1PNPDK20060228_154209_000060892045_00312_20907_2552.N1
SCI_NL_1PNPDK20060228_172245_000060462045_00313_20908_2558.N1
SCI_NL_1PNPDK20060228_190127_000061502045_00314_20909_2564.N1
SCI_NL_1PNPDE20060228_204203_000040862045_00315_20910_1930.N1
SCI_NL_1PNPDE20060228_204203_000040862045_00315_20910_1930.N1
SCI_NL_1PNPDE20060228_215627_000060562045_00315_20910_1936.N1
SCI_NL_1PNPDE20060228_215627_000060562045_00315_20910_1936.N1
SCI_NL_1PNPDE20060228_233703_000056572045_00316_20911_1942.N1
SCI_NL_1PNPDE20060228_233703_000056572045_00316_20911_1942.N1