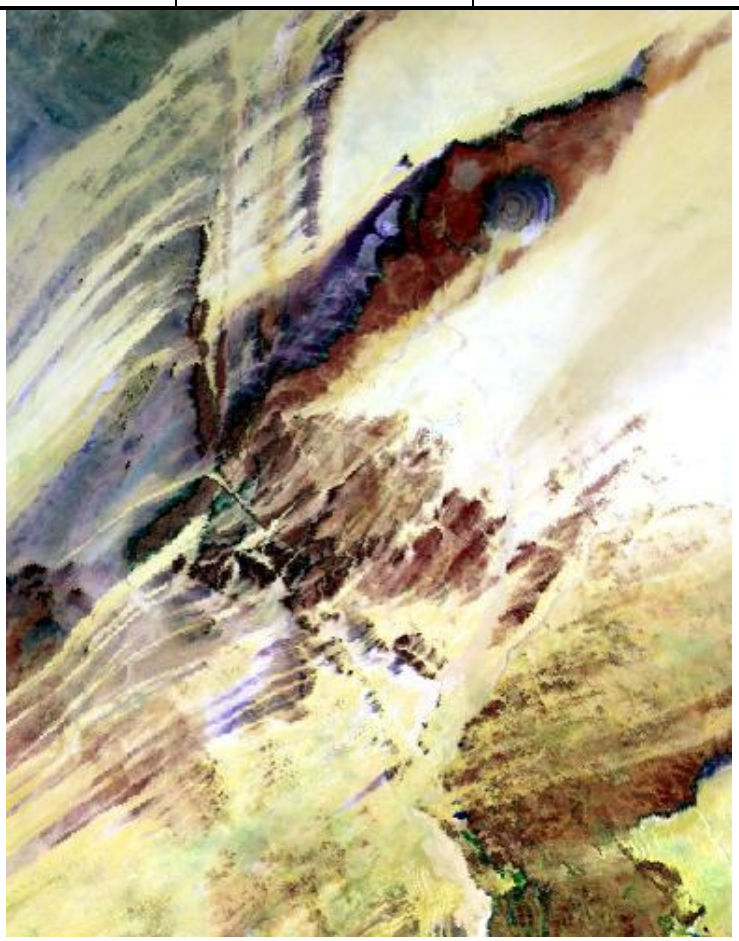
ENVISAT - AATSR

CYCLIC REPORT #52

	START	END
DATE	09 OCTOBER 2006	13 NOVEMBER 2006
TIME	21:59:29	21:59:29
ORBIT #	24103	24603



Richat Structure, Mauritania 05 October 2006 – This rock formation is often used as a navigational aid.

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A P P R O V A L

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C H A N G E R E C O R D

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AATSR CYCLIC REPORT # 52

1 INTRODUCTION

The AATSR Cyclic Report is distributed by the AATSR DPQC team to keep the AATSR community informed of any modification regarding instrument performances, the data production chain and the results of calibration and validation campaigns at the end of each Envisat cycle, which consists of 501 complete orbits over the course of 35 days.

This document is available online at: http://earth.esa.int/pcs/envisat/aatsr/reports/cyclic/

1.1 Acronyms and Abbreviations

AATSR	Advanced Along Track Scanning Radiometer
APC	Antenna Pointing Controller
CR	Cyclic Report
DDS	Data Dissemination System
DMOP	Detailed Mission Operation Plan
DMS	Data Management System
DPQC	Data Product Quality Control
EN-UNA-YYYY/#	Envisat Unavailability (plus year and number)
ESOC	European Space Operation Centre
HSM	High Speed Multiplexer
IECF	Instrument Engineering and Calibration Facilities
IPF	Instrument Processing Facilities
MPS	Mission Planning Schedule
NRT	Near Real Time
OCM	Orbit Control Manoeuvre
OBDH	On-board Data Handling
PDS	Payload Data Segment
PMC	Payload Management Computer
SPR	Software Problem Reporting
SW	Software
VISCAL	Visible Calibration

The AATSR list of acronyms and abbreviation is in the following site:
http://envisat.esa.int/dataproducts/aatsr/CNTR5.htm#eph.aatsr.glossary

2 SUMMARY

Cyclic Report: 52
Cycle Start: 09 October 2006, 21:59:29, Orbit #: 24103
Cycle End: 13 November 2006, 21:59:29 Orbit #: 24603

The main activities during the cycle have been as follows:

- **L0 Processor and IPF Version:**

  L0 Processor – no change (5.22)

  Level 1b & Level 2 processor – no change (5.59)

- **Visible channel calibration:**

  The visible calibration data supplied as an aux file (ATS_VC1_AX) continued to be regularly updated throughout the cycle.

- **ESRIN switch to FEOMI:**

  On 30 October 2006 at 10:30, the PDHS-S centre was moved to a new multi-mission infrastructure. Envisat systematic disseminations can now be found on the following server: oa-es.eo.envisat.esa.int; any problems should be reported to eohelp@esa.int.

- **ESRIN "missing packets" processing problem:**

  Since switching to the new infrastructure, orbits processed at ESRIN display missing packets at the end of the orbit. (Post Cycle note: this issue was resolved following the return to the Kiruna/Artemis scenario; the original issue is still under investigation.)

- **Kiruna/Svalbard scenario:**

  On 01 October the Kiruna/Svalbard scenario was temporarily employed following an anomaly with the Ka band antenna. The return to the Kiruna/Artemis scenario is scheduled for 14 November.

3 SOFTWARE & AUX FILE VERSION CONFIGURATION

3.1 Software Version

AATSR IPF for Level 1 and Level 2: Version 5.59

3.2 Auxiliary Files

AATSR processing uses the following auxiliary files:

- Browse Product Lookup Data (ATS_BRW_AX)
- L1b Characterisation Data (ATS_CH1_AX)
- Cloud Lookup Table Data (ATS_CL1_AX)
- General Calibration Data (ATS_GC1_AX)
- AATSR Instrument Data (ATS_INS_AX)
- Visible Calibration Coefficients Data (ATS_VC1_AX)
- L1b Processing Configuration Data (ATS_PC1_AX)
- L2 Processing Configuration Data (ATS_PC2_AX)
- SST Retrieval Coefficients Data (ATS_SST_AX)
- LST Land Surface Temperature Coefficients Data (ATS_LST_AX)

The latest filename for each auxiliary file in use in the PDS is as follows:

Product name
ATS_BRW_AXVIEC20020123_072338_20020101_000000_20200101_000000
ATS_CH1_AXVIEC20021114_113144_20020301_000000_20070801_235959
ATS_CL1_AXVIEC20020123_073044_20020101_000000_20200101_000000
ATS_GC1_AXVIEC20041214_154941_20020301_000000_20070801_235959
ATS_INS_AXVIEC20030731_092706_20020301_000000_20070801_235959
See below for VC1 files
ATS_LST_AXVIEC20040311_095537_20020301_000001_20070801_235959
ATS_PC1_AXVIEC20040812_063722_20020301_000000_20070801_235959
ATS_PC2_AXVIEC20020123_074151_20020101_000000_20200101_000000
ATS_SST_AXVIEC20051205_102103_20020101_000000_20200101_000000

Table 3-1 Latest auxiliary files currently in use by the PDS

3.2.1 STATUS OF DAILY VISIBILE CALIBRATION FILES

3.2.1.1 VC1 File Availability

Reflectance channel calibration files were available for all dates, except for the following dates:

- 17th October 2006
- 22nd October 2006
- 24th October 2006
- 26th October 2006
- 30th October 2006
- 1st November 2006
- 3rd November 2006
- 6th November 2006
- 9th November 2006

3.2.2 STATUS OF OTHER AUXILIARY FILES

The following list highlights any of the other auxiliary files changed during this cycle.

Product name	**Date Introduced**	**Validity Range**	**Reason for Change**
No changes during this cycle			

4 PDS STATUS

4.1 Instrument Unavailability

There were no periods of instrument unavailability during the cycle

4.2 L0 Data Acquisition and L1b Processing Status

The L0 data were available for 98.90% of the time during the cycle.

The following L0 data were missing from this cycle; there were no additional missing L1b data for cycle 52:

NB Missing L0 data are automatically also missing at L1b.

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
23-Oct-2006 21:34	23-Oct-2006 23:20	6337	24303	24304
26-Oct-2006 23:28	27-Oct-2006 00:20	3131	24347	24347
29-Oct-2006 21:48	30-Oct-2006 01:14	12399	24389	24391
30-Oct-2006 04:44	30-Oct-2006 06:19	5726	24393	24394
05-Nov-2006 23:19	06-Nov-2006 00:54	5723	24490	24491

Table 4-1 ATS_NL__0P missing data during cycle 52

4.2.1 ORBITS AFFECTED BY POOR DATA QUALITY

The information reported in Table 4-1 does not consider the quality of data, only whether or not it is available.

In the following orbit, a few frames suffered from bad/missing telemetry:

- 24108 (10th October 2006)
- 24182 (15th October 2006)
- 24268 (21st October 2006)
- 24419-22,32,33 (1st November 2006)*
- 24434,36,46,47 (2nd November 2006)*
- 24448-50 (3rd November 2006)*
- 24462,3 (4th November 2006)*
- 24477-9,89 (5th November 2006)*
- 24491-3 (6th November 2006)*
- 24505,6 (7th November 2006)*
- 24520-2 (8th November 2006)*

- 24534-6 (9th November 2006)*
- 24542 (9th November 2006)
- 24548-50,61,62 (10th November 2006)*
- 24551 (10th November 2006)
- 24563,64 (11th November 2006)*
- 24577-79 (12th November 2006)*

* These orbits show the missing packets behaviour displayed in some orbits acquired at Svalbard and processed at ESRIN.

4.3 L0 and L1b Backlog Processing Status

The list of data missing during the previous cycle has not changed.

5 DATA QUALITY CONTROL

5.1 Monitoring of Instrument Parameters

5.1.1 JITTER

The plot below shows the mean and maximum jitter rate as measured over the cycle. This has been another cycle in which the jitter rate has been significantly worse than that expected nominally, particularly during the period October 13-22, orbits #24150 to #24290. (The nominal mean jitter rate should be better than ~0.01jitter/sec when averaged over the orbit, with occasional short-duration peaks ~ 0.1jitter /sec.)

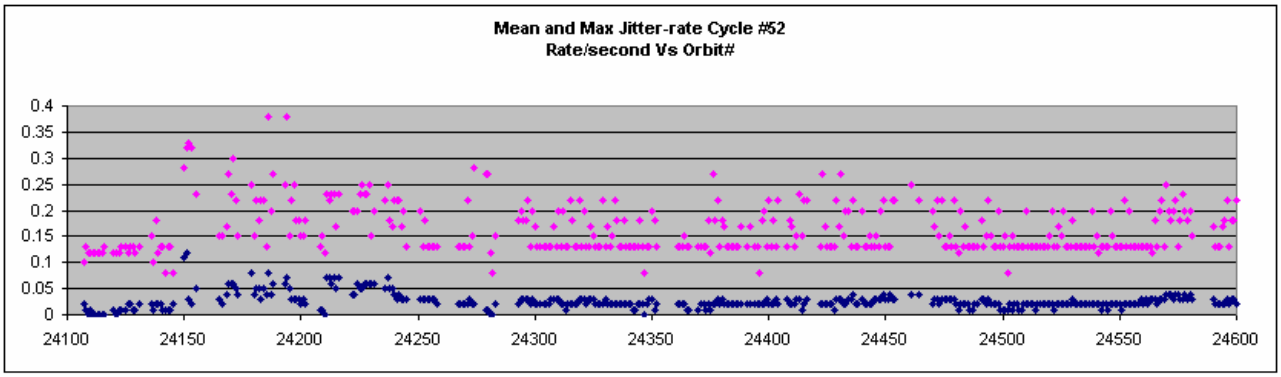

Figure 5-1 Jitter rates for Cycle 52

Users should check the jitter rate during the period covered by their products by checking the Summary Quality Annotation Data Set (using EnviView or BEAM, for example).

5.1.2 SENSOR TEMPERATURE

All sensors maintained their nominal orbital and seasonal ranges in this cycle.

5.1.3 VISCAL

Reflectance channel calibration files are available for most days in this cycle, except:

October 17, 22, 24, 26 and 30

November 01, 03, 06 and 09

At this time of year the viscal peak signal is usually truncated within the near-real-time Level_0 data acquired at Kiruna and Svalbard, from which the peak is extracted. This

leads to a failure of the extraction algorithm to find the peak - hence no calibration file. The return to the Artemis downlink in the next cycle will improve this situation significantly.

5.1.4 NEΔT

	Hot BB T = 301.57K		Cold BB T = 262.90 K	
	Count	**NEΔT (mK)**	**Count**	**NEΔT (mK)**
12µm	1.57	32.8	1.18	34.2
11µm	1.54	31.4	1.12	33.6
3.7µm	2.50	31.5	1.20	73.7

Table 5-1 NEΔT data for Cycle 52

The NEΔT data for Cycle 51 was absent from Cyclic Report #51; this data is provided in the following table.

	Hot BB T = 300.43K		Cold BB T = 261.31 K	
	Count	**NEΔT (mK)**	**Count**	**NEΔT (mK)**
12µm	1.62	31.8	1.62	34.9
11µm	1.60	30.8	1.60	34.9
3.7µm	2.53	31.8	2.53	76.0

Table 5-2 NEΔT data for Cycle 51

5.2 User Rejections

There were no user rejections during this cycle.

5.3 Software Problem Reporting

This section describes the open SPRs, their potential impact on the data quality, and SPRs that have been closed.

5.3.1 EXISTING SPRS THAT ARE STILL OPEN

Unphysical sea surface temperature values in Level 2 AATSR products from PDHS-E at intervals of 480 rows:
Open – The investigation shows that the problem does not happen using the IPF 5.59 with respect to the IPF 5.52 on which the problem was detected. No further instances of the problem have been reported. Original OAR (OAR-193) closed. Investigation will continue as a background task and a new OAR opened if necessary.

Inconsistent values in AST confidence word, 17 km cell:
Open - Investigation completed (an error has been found in the setting of the flag indicating the use of ir37 channel). The problem has been corrected and a patch will be provided for the IPF within the next few weeks.

Cloud Flagging Errors leading to Missing Zones in Consolidated AATSR Data:
Open – Systematic bands of missing data were observed in monthly mean SST maps for December products from all years. The problem has been traced to a problem with the loading of the "12 micron gross cloud test" LUT from the relevant auxiliary file. The problem has been corrected and a patch will be provided for the IPF within the next few weeks.

5.3.2 NEW SPRS SINCE THE LAST CYCLIC REPORT

No new SPRs have been opened since the last Cyclic Report.

5.3.3 CLOSED SPRS

No new SPRs have been closed since the last Cyclic Report.

6 CALIBRATION/VALIDATION ACTIVITIES & RESULTS

6.1 Calibration

No additional calibration results were reported during this cycle.

6.2 Validation

A monthly mean global dual-view SST plot for Cycle 52 composed from ATS_AR__2P 10' data is shown below in Figure 6-1. The monthly mean contains day time and night time data.

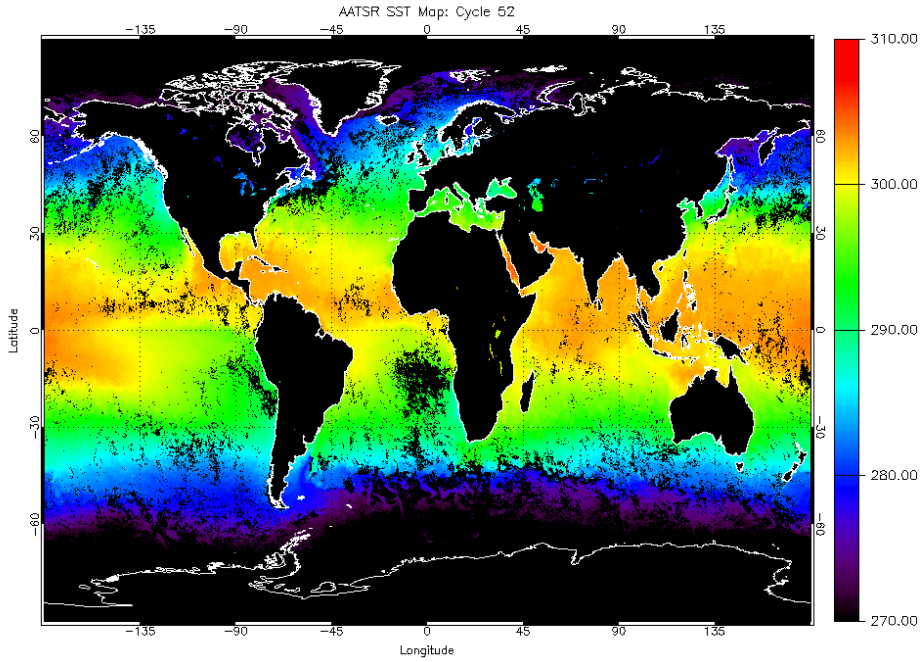

Figure 6-1: Monthly Global Average dual-view SST for Cycle 52.

The Met Office has validated the AATSR dual-view SST data using the global network of in situ buoy SST data, the results for Cycle 52 being shown in Figure 6-2. The updated SST coefficients released in December 2005 were used in the AATSR SST retrievals.

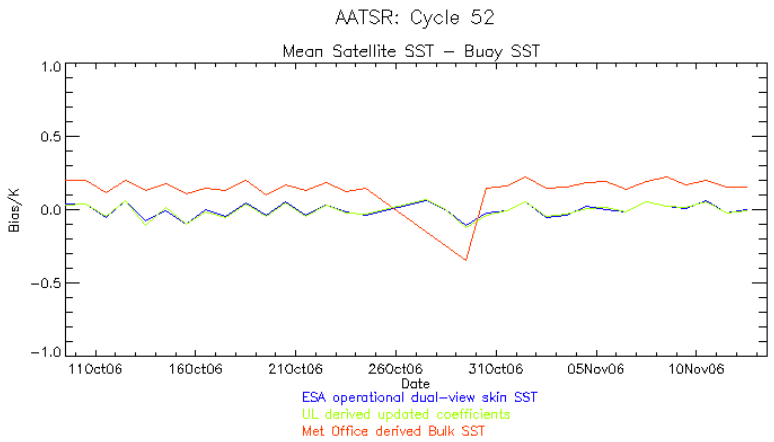

Figure 6-2: Comparison of daily mean difference between 10´ AATSR SST values and in situ buoy SST for Cycle 52. Data provided by the Met Office.

During cycle 52, there were 1630 night time match-ups, with a mean (UL derived dual-view skin SST minus buoy SST) of -0.003 K, standard deviation 0.25 K, and a mean (dual-view bulk SST minus buoy SST) of +0.131 K, standard deviation 0.24 K. A total of 1196 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.056 K, standard deviation 0.33 K, and a mean (dual-view bulk SST minus buoy SST) of +0.216 K, standard deviation 0.33 K. As these data are comparisons of a single point buoy measurement against a much larger spatially averaged value they are not a true indicator of AATSR's accuracy and are used to show consistency of data quality between cycles.

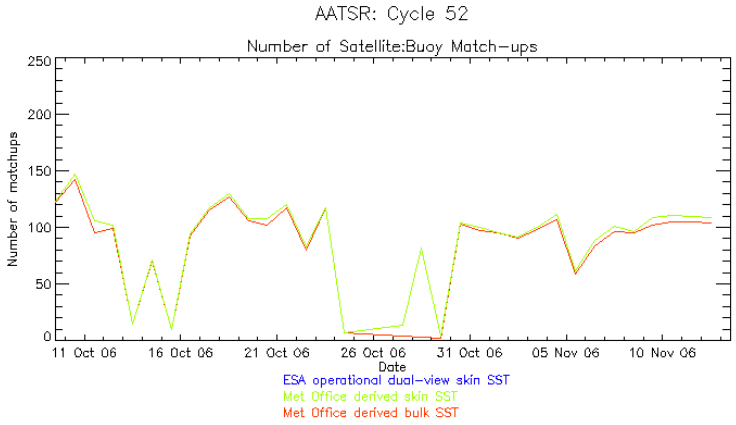

Figure 6-3: Plot of daily number of match-ups between 10´ AATSR SST values and in situ buoy SST for Cycle 52. Data provided by the Met Office.

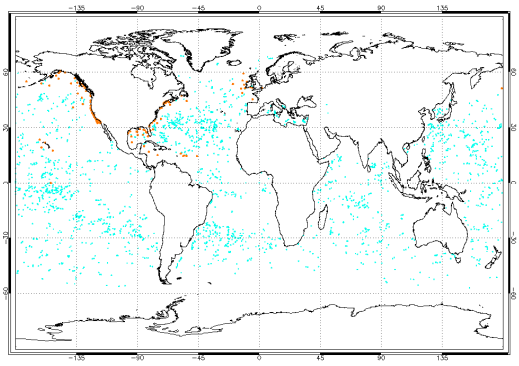

Figure 6-4: Map showing global distribution of match-ups between 10´ AATSR SST values and in situ buoy SST for Cycle 52. The red dots indicate a match-ups to a moored buoy; the cyan dots indicate a match-up to a drifting buoy. Data provided by the Met Office.

7 DISCLAIMERS

No new disclaimers have been issued during this cycle.