

ENVISAT - AATSR

CYCLIC REPORT #48

	START	END
<i>DATE</i>	<i>22 MAY 2006</i>	<i>26 JUNE 2006</i>
<i>TIME</i>	<i>21:59:29</i>	<i>21:59:29</i>
<i>ORBIT #</i>	<i>22099</i>	<i>22599</i>

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AATSR CYCLIC REPORT # 48

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
OBDAH	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: 48
Cycle Start: 22 May 2006, 21:59:29, Orbit #: 22099
Cycle End: 26 June 2006, 21:59:29 Orbit #: 22599

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.
- **Jitter:**
Throughout the reporting period the jitter rates have been consistently high. See section 5.1.1 for further details.
- **CRC errors:**
Throughout the reporting period there have been an increasing number of CRC errors, an investigation is under way to determine the cause of this trend. A significant increase in the number of orbits affected per day was noticed from 16 June, a full list of the affected orbits is given in section 4.2.1.
- **Collision Avoidance Manoeuvre:**
On Monday 19 June 2006 an avoidance manoeuvre was executed in order to negate the possibility of a collision with the Scout G-1 Stage 4. This had no significant impact upon the data quality.
- **Blackbody Crossover Test:**
A blackbody crossover test was initiated on Monday 26 June 2006 at 07:32 UTC; scientific data from the last 8 orbits of the cycle (22591 - 22599) will not be optimally calibrated as a result. The test is expected to be completed on Wednesday 28 June; further details will be included in the next cyclic report (#49).

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_AXVIEC20020123_073430_20020101_000000_20200101_000000
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 VISIBLE CALIBRATION FILES

3.2.1.1 VC1 File Availability

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

- 15th June 2006
- 18th June 2006
- 20th June 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 planned or unplanned instrument unavailabilities during the cycle.

4.2 L0 Data Acquisition and L1b Processing Status

The L0 data were available for 97.63% of the time during the cycle.
The L1b data were available for 97.46% of the time during the cycle.

The following L0 and L1b data were missing from this cycle:

NB Missing L0 data are automatically also missing at L1b. Therefore the missing L1b data specifically reported in Table 4-2 represent additional data gaps where the start time does not coincide with L0 data already known to be missing.

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
29-May-2006 20:15	30-May-2006 05:22	32851	22198	22203
23-Jun-2006 20:28	23-Jun-2006 20:32	247	22556	22556
23-Jun-2006 20:32	24-Jun-2006 07:17	38706	22556	22562

Table 4-1 ATS_NL_0P missing data during cycle 48

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
27-May-2006 00:47	27-May-2006 02:12	5117	22157	22158

Table 4-2 ATS_TOA_1P missing data during cycle 48

4.2.1 ORBITS AFFECTED BY POOR DATA QUALITY

The information reported in Table 4-1 & Table 4-2 does not consider the quality of data, only whether or not it is available.

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

- 22089 (22nd May 2006)
- 22091 (22nd May 2006)
- 22097 (22nd May 2006)
- 22122 (24th May 2006)
- 22165 - 66 (27th May 2006)
- 22195 (29th May 2006)
- 22205 - 09 (30th May 2006)

- 22211 (30th May 2006)
- 22338 (8th June 2006)
- 22408 (13th June 2006)
- 22447 - 49 (16th June 2006)
- 22461 (17th June 2006)
- 22466 - 68 (17th June 2006)
- 22479 (18th June 2006)
- 22481 (18th June 2006)
- 22491 - 93 (19th June 2006)
- 22496 (19th June 2006)
- 22498 (19th June 2006)
- 22504 - 12 (20th June 2006)
- 22519 - 25 (21st June 2006)
- 22533 - 40 (22nd June 2006)
- 22547 - 48 (23rd June 2006)
- 22550 - 54 (23rd June 2006)
- 22562 - 67 (24th June 2006)
- 22569 (24th June 2006)
- 22576 - 84 (25th June 2006)
- 22590 - 99 (26th June 2006)

As stated in section 2, the large number of orbits with telemetry issues is due to higher than usual CRC errors, which is currently under investigation.

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 mean and maximum jitter-rates in this cycle continue to be well above nominal, as reported last time. The average jitter rate has varied between 0.02 and 0.04/sec, but has been worse occasionally. The maximum jitter rate has been fluctuating quite rapidly, and reaching up to as much as 0.3/sec. Users should check the jitter rate during the period covered by their products by checking the Summary Quality Annotation Data Set (using EnviView, 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:

- June 15
- June 18
- June 20

5.1.4 NE Δ T

	Hot BB T = 301.80K		Cold BB T = 263.01 K	
	Count	NE Δ T (mK)	Count	NE Δ T (mK)
12 μ m	1.58	33.0	1.29	37.2
11 μ m	1.54	31.2	1.22	36.5
3.7 μ m	2.32	29.1	1.37	84.2

Table 5-1 NE Δ T data for Cycle 48

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). To be corrected in IPF V6.0 to be released Summer 2006.

5.3.2 NEW SPRS SINCE THE LAST CYCLIC REPORT

There are no new SPRs since the last Cyclic Report.

5.3.3 CLOSED SPRS

The following SPRs have been closed since the last Cyclic Report:

50 / 17 km Cell Size Anomaly in AST product:

Closed - The configuration parameter in the operational environment which overrides the contents of ATS_PC2_AX has now been set to FALSE in all operational nodes.

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 48 composed from ATS_AR__2P 10' data is shown below in Figure 6-1.

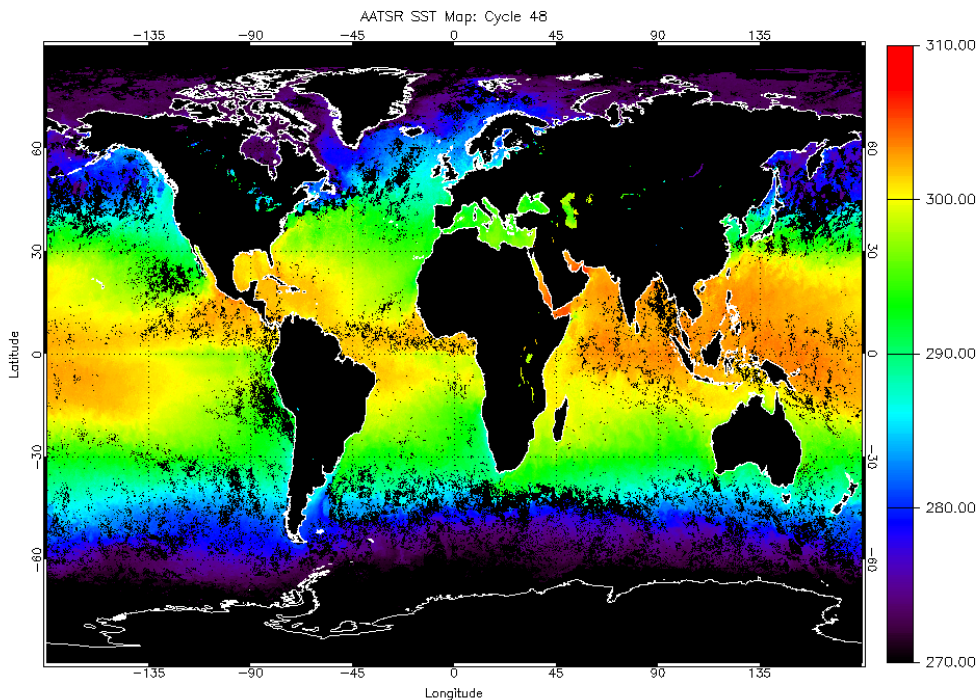


Figure 6-1: Monthly Global Average dual-view SST for Cycle 48.

The Met Office has performed a comparison between AATSR dual view SST data and data collected from a network of in situ buoy SST values, the results for Cycle 48 being shown in Figure 6-2. The updated SST coefficients introduced in December 2005 were used in the retrievals.

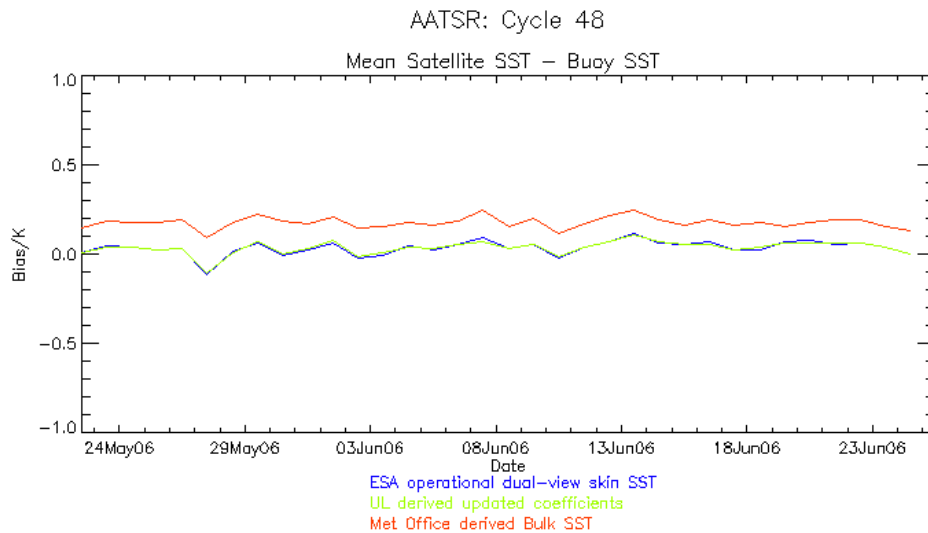


Figure 6-2: Comparison of daily mean difference between 10' AATSR SST values and in situ buoy SST for Cycle 48. Data provided by the Met Office.

During cycle 48, there were 1479 night time match-ups, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.019 K, standard deviation 0.26 K, and a mean (dual-view bulk SST minus buoy SST) of +0.155 K, standard deviation 0.24 K. A total of 1421 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.055 K, standard deviation 0.33 K, and a mean (dual-view bulk SST minus buoy SST) of +0.203 K, standard deviation 0.32 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.

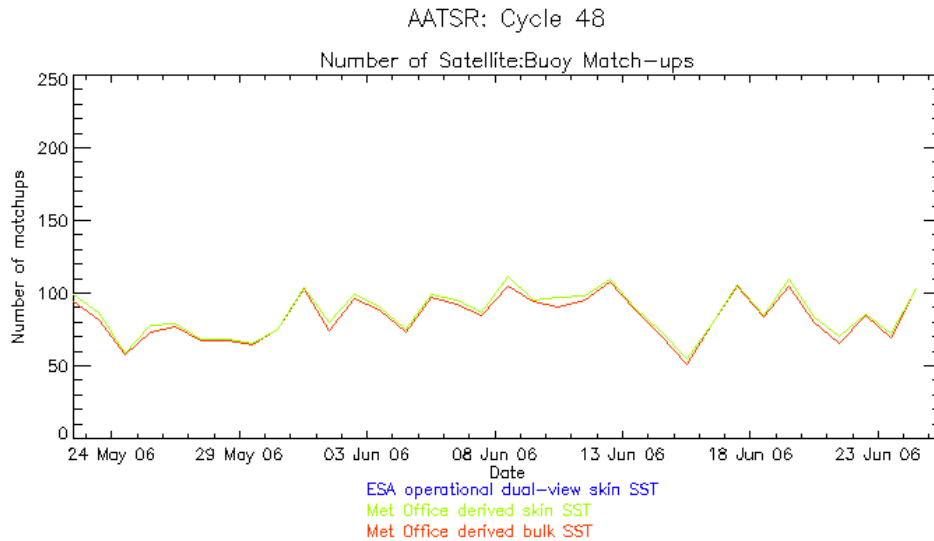


Figure 6-3: Plot of daily number of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 48. Data provided by the Met Office.

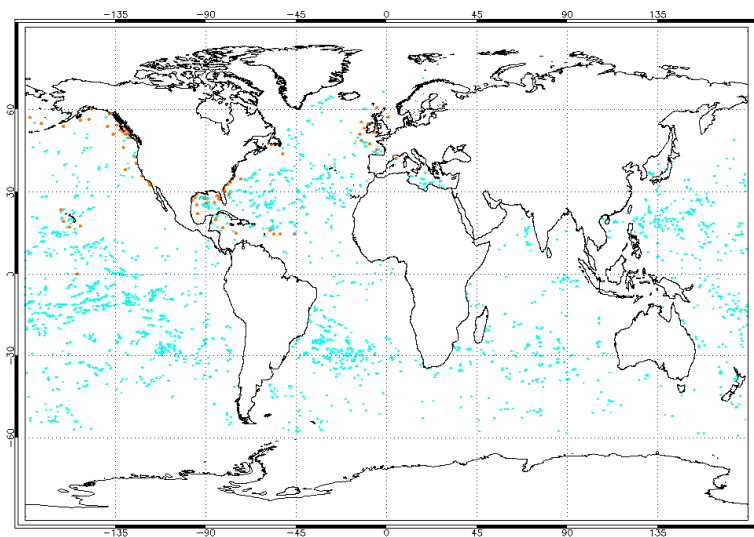


Figure 6-4: Map showing global distribution of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 48. The red dots indicate match-ups to a moored buoy; the cyan dots indicate a match-up to a drifting buoy. Data provided by the Met Office.

7 DISCLAIMERS

No new disclaimers have been issued during this cycle.