

ENVISAT - AATSR

CYCLIC REPORT #42

	START	END
<i>DATE</i>	<i>24 OCTOBER 2005</i>	<i>28 NOVEMBER 2005</i>
<i>TIME</i>	<i>21:59:29</i>	<i>21:59:29</i>
<i>ORBIT #</i>	<i>19092</i>	<i>19592</i>

prepared by/*préparé par* AATSR DPQC and QWG team

reference/*référence*

issue/*édition* 1

revision/*révision* 0

date of issue/*date d'édition* 20 December 2005

status/*état*

Document type/*type de* Technical Note

document

Distribution/*distribution*

A P P R O V A L

Title <i>titre</i>	AATSR Cyclic Report – Cycle 42	issue 1 <i>issue</i>	revision 0 <i>revision</i>
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author <i>auteur</i>	Kevin Halsall	date <i>date</i>	20 December 2005
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approved by <i>approuvé by</i>		date <i>date</i>	
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C H A N G E L O G

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

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

Issue: 1 Revision: 0

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

TABLE OF CONTENTS

THE CYCLIC REPORT # 42	1
1 INTRODUCTION	1
1.1 Acronyms and Abbreviations.....	1
2 SUMMARY	2
3 SOFTWARE & AUX FILE VERSION CONFIGURATION	3
3.1 Software Version	3
3.2 Auxiliary Files	3
3.2.1 Status of Daily Visible Calibration Files	4
3.2.2 Status of other auxiliary Files.....	4
4 PDS STATUS	5
4.1 Instrument Unavailability.....	5
4.2 L0 Data Acquisition and L1b Processing Status.....	5
4.2.1 Orbits Affected by Poor Data Quality	5
4.3 L0 and L1b Backlog Processing Status.....	6
5 DATA QUALITY CONTROL	7
5.1 Monitoring of Instrument Parameters	7
5.1.1 Jitter.....	7
5.1.2 Sensor Temperature.....	7
5.1.3 Viscal.....	7
5.1.4 NE Δ T	7
5.2 User Rejections.....	8
5.3 Software Problem Reporting	8
5.3.1 Existing SPRs that are still open	8
5.3.2 New SPRs since the last cyclic report	8
5.3.3 Closed SPRs	8
6 CALIBRATION/VALIDATION ACTIVITIES & RESULTS	9
6.1 Calibration	9
6.2 Validation.....	9
7 DISCLAIMERS	12

THE CYCLIC REPORT # 42

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
CR	Cyclic Report
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
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: 42
Cycle Start: 24 October 2005, 21:59:29, Orbit #: 19092
Cycle End: 28 November 2005, 21:59:29 Orbit #: 19592

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.

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_AXVIEC20020123_074408_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

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

- 28 October 2005
- 08 November 2005
- 14 November 2005
- 22 November 2005

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 Changing
No changes during this cycle			

4 PDS STATUS

4.1 Instrument Unavailability

There was no planned or unplanned instrument unavailability.

4.2 L0 Data Acquisition and L1b Processing Status

The L0 data were available for 98.85% of the time during the cycle.

The L1b data were available for 98.67% 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
29/10/2005 08:03	29/10/2005 08:03	4	19156	19156
03/11/2005 20:18	03/11/2005 21:30	4334	19235	19235
06/11/2005 21:37	06/11/2005 21:44	424	19278	19278
07/11/2005 19:56	07/11/2005 19:59	194	19292	19292
10/11/2005 22:54	10/11/2005 22:56	119	19336	19336
13/11/2005 22:58	14/11/2005 06:54	28544	19379	19384
21/11/2005 17:36	21/11/2005 17:57	1257	19491	19491

Table 4-1 ATS_NL__0P missing data during cycle 42

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
06/11/2005 10:39	06/11/2005 12:07	5306	19272	19273
13/11/2005 23:04	14/11/2005 06:47	27790	19379	19384

Table 4-2 ATS_TOA_1P missing data during cycle 42

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, significant amounts of the orbit suffered from bad/missing telemetry:

- 19564 (26th November 2005)

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

- 19564 (14th November 2005)

4.3 L0 and L1b Backlog Processing Status

The following data, reported missing from previous cycles, have been retrieved via backlog processing:

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 average scan-mirror jitter rate during most of this cycle was 0.02 jitters/sec or better.

Note that occasional, short duration periods of higher jitter-rate do occur.

During this period, short bursts of relatively high jitter were detected between orbits 19448 and 19520 between November 18 and November 23.

During this period the jitter rate occasionally reached 0.2 jitters/sec.

Users should check the jitter rate during the period covered by their products by checking the Summary Quality Annotation Data Sets (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 all days except:

- October 28
- November 08, 14 and 22

Nominal viscal characteristics were observed throughout the cycle where data were available.

Note that from the end of this cycle onwards, 28th November 2005, all reflectance channel calibration files have had their slope parameters corrected for the long-term drift effect.

5.1.4 NE Δ T

Remained nominal throughout the cycle

	Hot BB T = 301.57K		Cold BB T = 262.92K	
	Count	NE Δ T (mK)	Count	NE Δ T (mK)
12 μ m	1.49	31.2	1.15	33.3
11 μ m	1.50	30.5	1.11	33.1
3.7 μ m	2.45	30.8	1.20	73.8

Figure 5-1: NEDT data for Cycle 42

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. Further information on the changes introduced in V5.59 has been requested.

50 / 17 km Cell Size Anomaly in AST product:

Open – The reason for this effect is understood, but it is proposed that the cell size should stay as-is until further consultation with AATSR users has taken place.

Inconsistent values in AST confidence word, 17 km cell:

Investigation completed - to be corrected with a patch at the next appropriate opportunity.

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

No 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 SST plot for Cycle 42 composed from the spatially averaged 10' product is shown on Figure 6-1.

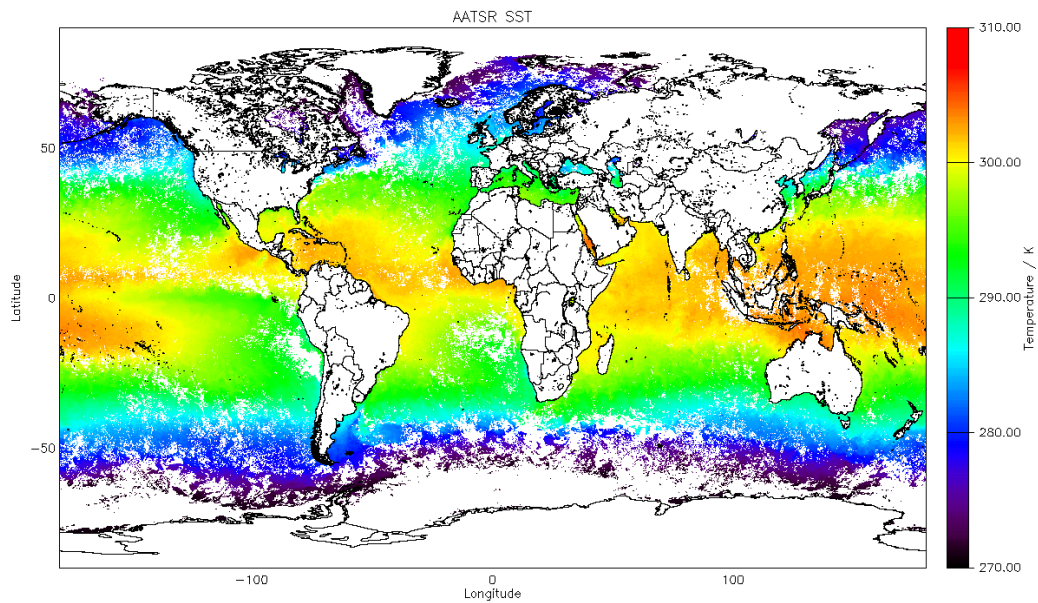


Figure 6-1: Monthly Global Average SST for Cycle 42

Using the above data, the Met Office has done a comparison with data collected from a network of *in situ* buoy SST values, the results for Cycle 42 being shown in Figure 6-2.

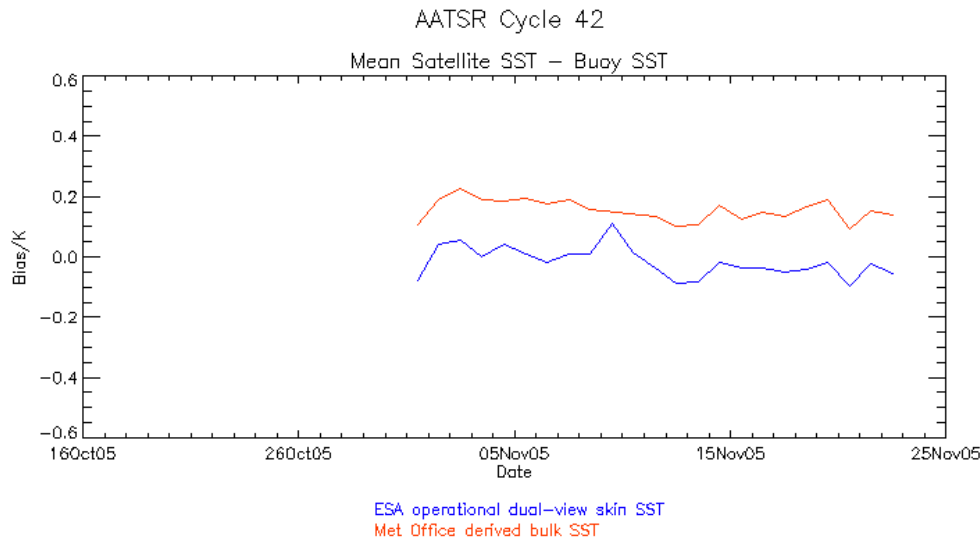


Figure 6-2: Comparison of daily mean difference between 10' AATSR SST values and in situ buoy SST for Cycle 42. Data provided by the Met Office.

During cycle 42, there were 1054 night time match-ups, with a mean (ESA operational dual-view skin SST minus buoy SST) of +0.019 K, standard deviation 0.27 K, and a mean (dual-view bulk SST minus buoy SST) of +0.190 K, standard deviation 0.25 K. A total of 958 daytime match-ups were found, with a mean (ESA operational dual-view skin SST minus buoy SST) of -0.044 K, standard deviation 0.30 K, and a mean (dual-view bulk SST minus buoy SST) of 0.140 K, standard deviation 0.30 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.

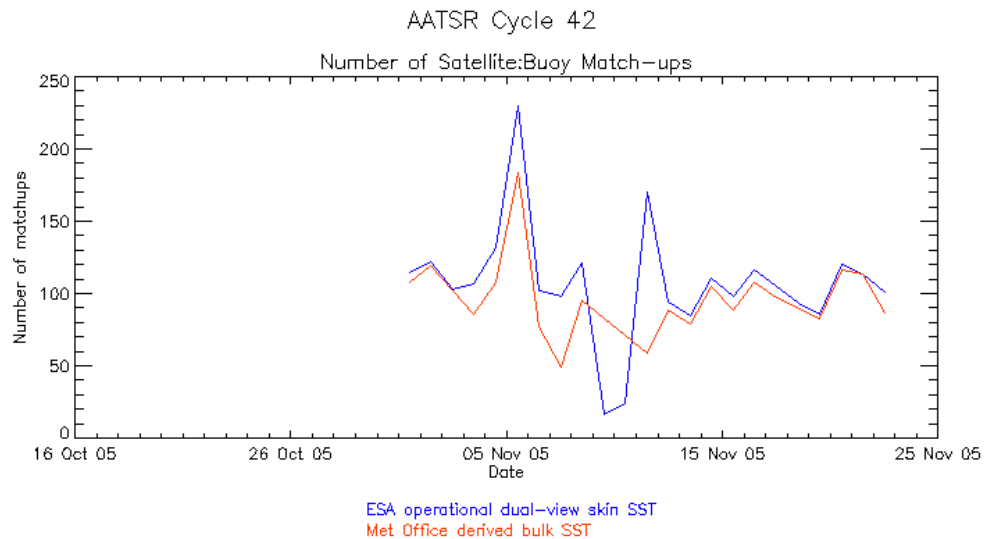


Figure 6-3: Plot of daily number of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 42. Data provided by the Met Office

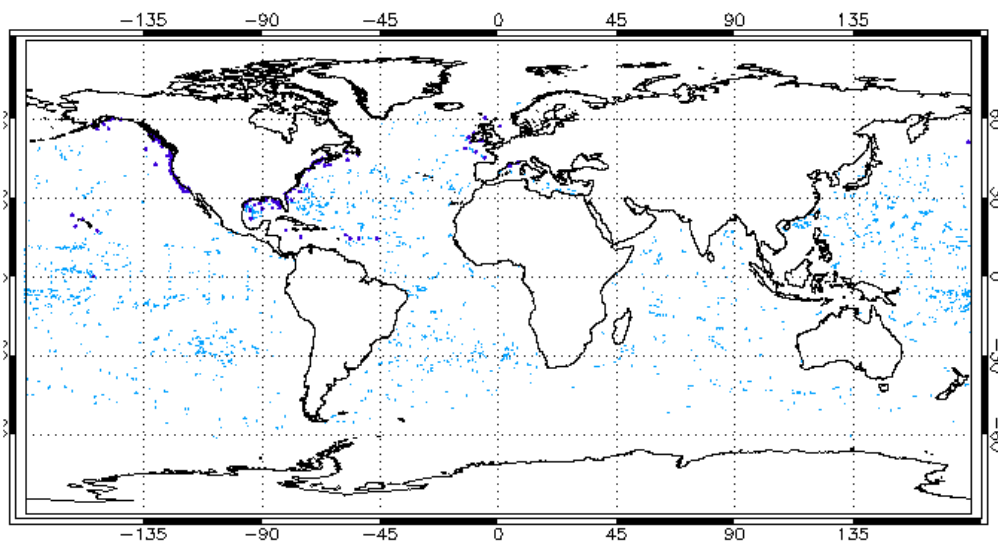


Figure 6-4: Map showing global distribution of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 42. Data provided by the Met Office

The last full status report on instrument validation can be found in Section 1.6.2 of Cyclic Report 28.

7 DISCLAIMERS

No new disclaimers have been issued during this cycle.