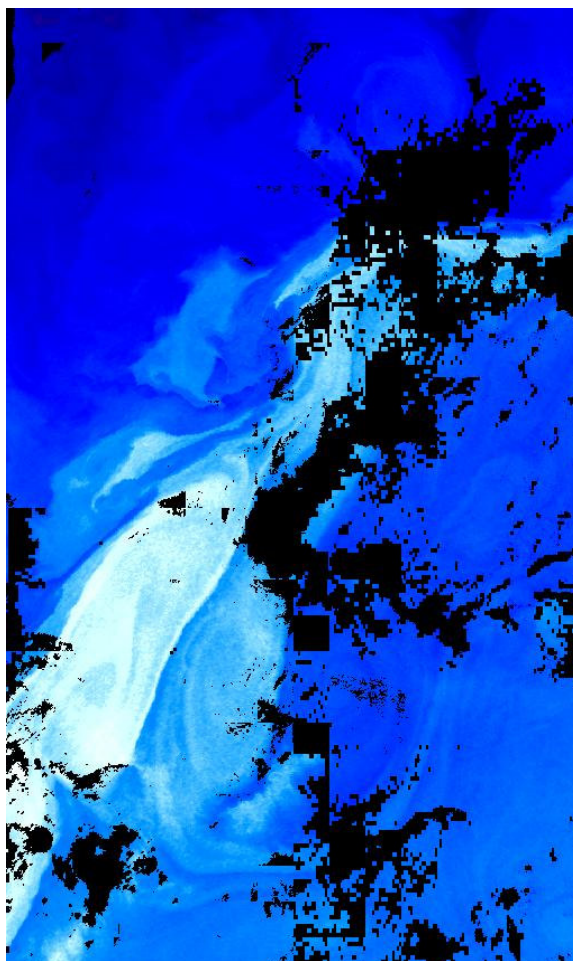


# **ENVISAT - AATSR**

## **CYCLIC REPORT #60**

	START	END
<i>DATE</i>	<i>16 JUL 2007</i>	<i>20 AUG 2007</i>
<i>TIME</i>	<i>21:59:29</i>	<i>21:59:29</i>
<i>ORBIT #</i>	<i>28111</i>	<i>28611</i>



Gulf Stream, 30 June 2007 – SST image of the Gulf Stream off the coast of the US state of Connecticut.  
 Pale blue is warmer sea at ~30°C, the surrounding sea is at ~26°C.

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prepared by/ <i>préparé par</i>	AATSR DPQC and QWG team
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approved by <i>approuvé par</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>
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Issue: 1 Revision: 0

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# AATSR CYCLIC REPORT # 60

## 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
LUT	Look Up Table
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 abbreviations is in the following site:  
<http://envisat.esa.int/dataproducts/aatsr/CNTR5.htm#eph.aatsr.glossary>

## 2 SUMMARY

**Cyclic Report:** 60  
**Cycle Start:** 16 Jul 2007, 21:59:29, Orbit #: 28111  
**Cycle End:** 20 Aug 2007, 21:59:29 Orbit #: 28611

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 – patch implemented 02 July 2007 (6.01)

AATSR IPF v6.01 was implemented on 02 July 2007, to correct for the absence of Viscal GADS in consolidated products. The quality of the consolidated data has been verified. (See section 5.3.1.)

- **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 6.01

#### 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_20200101_000000*
ATS_CL1_AXNIEC20070223_102348_20010308_120446_20120801_235959
ATS_GC1_AXVIEC20041214_154941_20020301_000000_20200101_000000*
ATS_INS_AXVIEC20030731_092706_20020301_000000_20200101_000000*
See below for VC1 files
ATS_LST_AXVIEC20040311_095537_20020301_000001_20200101_000000*
ATS_PC1_AXVIEC20040812_063722_20020301_000000_20200101_000000*
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**

\* These filenames have changed since the last cycle, see Section 3.2.1 for further details.

## 3.2.1 STATUS OF DAILY VISIBLE CALIBRATION FILES

### *3.2.1.1 VC1 File Availability*

The daily reflectance channel calibration files were available for all dates, except for the following:

- 17<sup>th</sup> July 2007
- 17<sup>th</sup> August 2007

The orbital reflectance channel calibration files VC1 files were created from the available L0 files for all dates during this cycle.

## 3.2.2 STATUS OF OTHER AUXILIARY FILES

The auxiliary files `ATS_CH1_AX`, `ATS_GC1_AX`, `ATS_INS_AX`, `ATS_LST_AX` and `ATS_PC1_AX` were due to expire on 01 August 2007. There are no changes to be made to these files, and so they have had their validity ranges extended. They now have expiry dates of 01 August 2020, in line with other auxiliary files. Note that this update affected the filenames only; the contents of the auxiliary files remain unchanged.

## 4 PDS STATUS

### 4.1 Instrument Unavailability

AATSR data were unavailable due to instrument unavailability at the following times during the cycle:

UTC Start	UTC Stop	Reason	Reference	Planned
16-Jul-2007 22:05:08	17-Jul-2007 07:10:47	Envisat OCM	EN-UNA-2007/0178	Yes

Table 4-1 Instrument unavailability during cycle 60

### 4.2 L0 Data Acquisition and L1b Processing Status

Week		Orbit		Availability (s)			Availability (%)		
#	Dates	Start	Stop	Inst Unav	L0 gaps	L1 gaps	Instrument	L0	L1
1	July 16, 2007	28111	28210	32739	804	0	94.59%	94.45%	94.45%
2	July 23, 2007	28211	28310	0	0	0	100.00%	100.00%	100.00%
3	July 30, 2007	28311	28411	0	0	0	100.00%	100.00%	100.00%
4	August 6, 2007	28412	28511	0	0	0	100.00%	100.00%	100.00%
5	August 13, 2007	28512	28611	0	0	0	100.00%	100.00%	100.00%

Table 4-2 Instrument and data unavailability weekly summary for cycle 60

The L0 data were available for 98.89% of the time during the cycle.

The L1b data were available for 98.89% 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; there were no additional missing L1b data during this cycle.

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
17-Jul-2007 07:10	17-Jul-2007 07:24	803	28116	28116
16-Jul-2007 22:05	16-Jul-2007 22:05	1	28111	28111

Table 4-3 ATS\_NL\_OP missing data during cycle 60

#### 4.2.1 ORBITS AFFECTED BY POOR DATA QUALITY

The information reported in Section 4.2 does not consider the quality of data, only whether or not it is available.

The following orbits contained frames suffering from bad/missing telemetry:

- 28266 (27th July 2007)



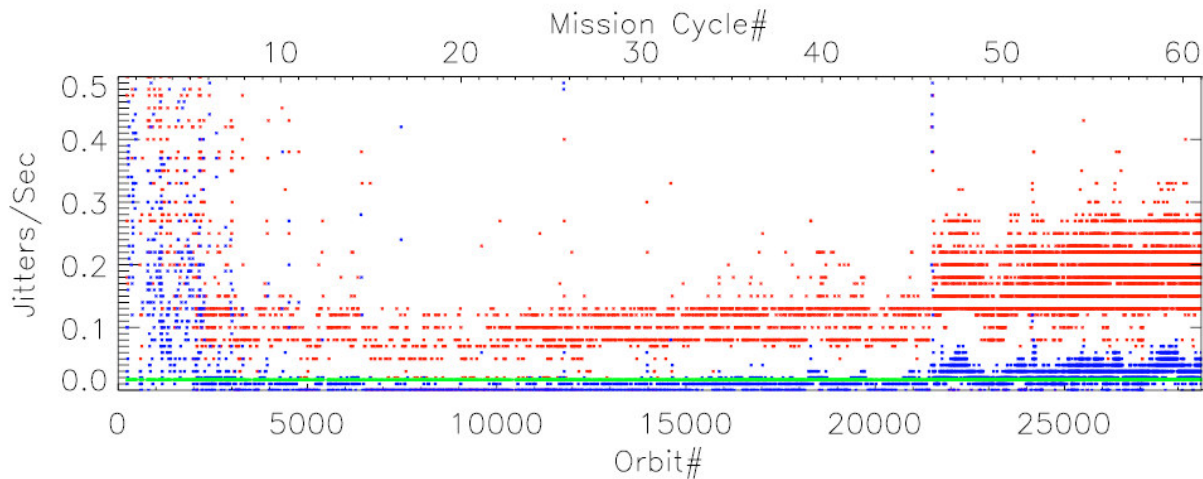
### 4.3 L0 and L1b Backlog Processing Status

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

## 5 DATA QUALITY CONTROL

### 5.1 Monitoring of Instrument Parameters

#### 5.1.1 JITTER



**Figure 5-1 Jitter trend from mission start**

The plot shows the jitter-trend since the start of the mission, against both orbit-number and cycle-number. The mean jitter-rate (per-orbit) is shown in blue and the maximum rate per orbit in red. The green horizontal line shows the nominal mean jitter-level achieved for much of the mission.

The mean jitter-rate over the last cycle shows some deterioration compared to the previous cycle. There is no significant deterioration in image quality associated with these jitter levels, but this is continually monitored.

#### 5.1.2 SENSOR TEMPERATURE

While in measurement mode, 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 these cycles, except:

- July 17
- August 17

In addition, the following set of “orbit-by-orbit” VC1 files was delivered:

<http://aatsr2.ag.rl.ac.uk/data2/aatsr2/EDS-X/CyclePlots/VC1-60.txt>

#### 5.1.4 NE $\Delta$ T

	Hot BB T = 301.04K		Cold BB T = 261.88K	
	Count	NE $\Delta$ T (mK)	Count	NE $\Delta$ T (mK)
12 $\mu$ m	1.63	34.2	1.21	35.5
11 $\mu$ m	1.56	31.8	1.13	34.3
3.7 $\mu$ m	2.49	31.2	1.19	75.4

Table 5-1 NE $\Delta$ T data for Cycle 60

Included below is the NE $\Delta$ T information for Cycle 59, which had been unavailable at the time of publishing the relevant cyclic report.

	Hot BB T = 301.44K		Cold BB T = 262.38K	
	Count	NE $\Delta$ T (mK)	Count	NE $\Delta$ T (mK)
12 $\mu$ m	1.63	34.2	1.22	35.6
11 $\mu$ m	1.55	31.7	1.14	34.3
3.7 $\mu$ m	2.51	31.5	1.21	75.7

Table 5-2 NE $\Delta$ T data for Cycle 59

## 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

There are no existing SPRs that are still open.

### 5.3.2 NEW SPRS SINCE THE LAST CYCLIC REPORT

No SPRs have been opened since the last Cyclic Report.

### 5.3.3 CLOSED SPRS

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

**Missing Viscal GADS in AATSR Consolidated L1B products (OAR-2831):**

Closed – Inspection has revealed that Viscal GADS are absent in all consolidated L1B products, regardless of whether or not they are present in the corresponding NRT data. IPF v6.01 has been supplied to correct this issue; verification of closure is confirmed, following examination of NRT and consolidated data.

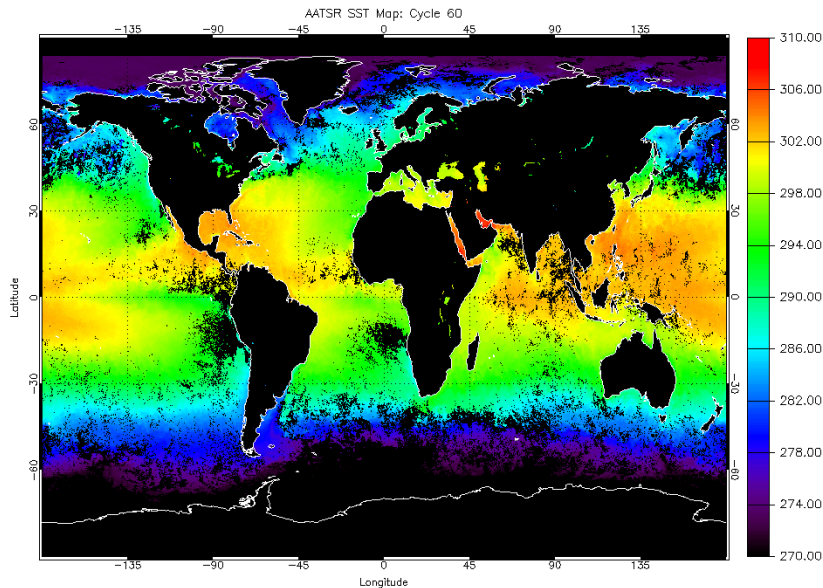
## 6 CALIBRATION/VALIDATION ACTIVITIES & RESULTS

### 6.1 Calibration

No additional calibration results were reported during this cycle.

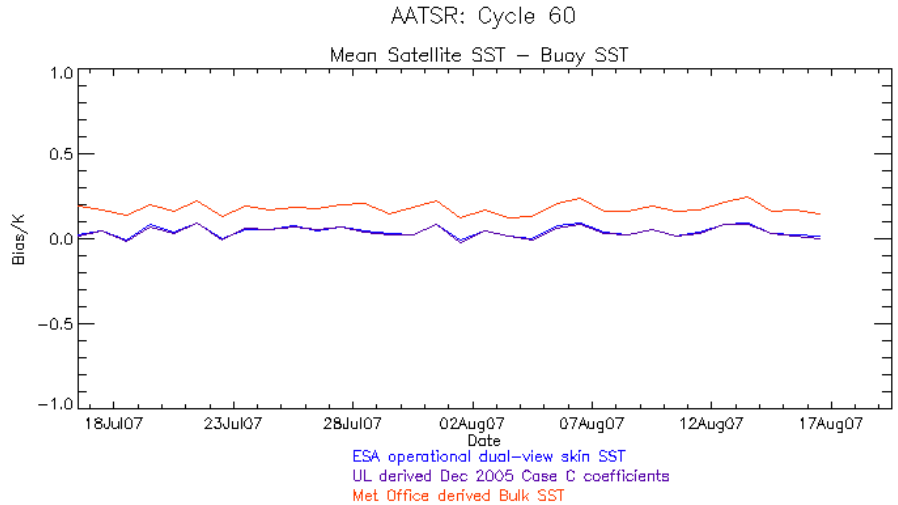
### 6.2 Validation

A monthly mean global dual-view SST plot for Cycle 60 composed from ATS\_AR\_\_2P 10' data is shown below in Figure 6-1. The monthly mean contains day time and night time data.



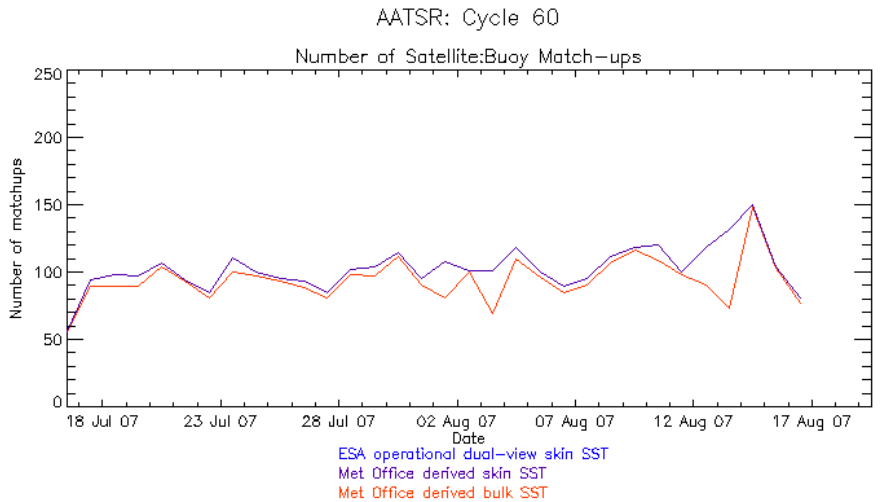
**Figure 6-1: Monthly Global Average dual-view SST for Cycle 60.**

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 60 being shown in Figure 6-2. The updated SST coefficients released in December 2005 were used in the AATSR SST retrievals.

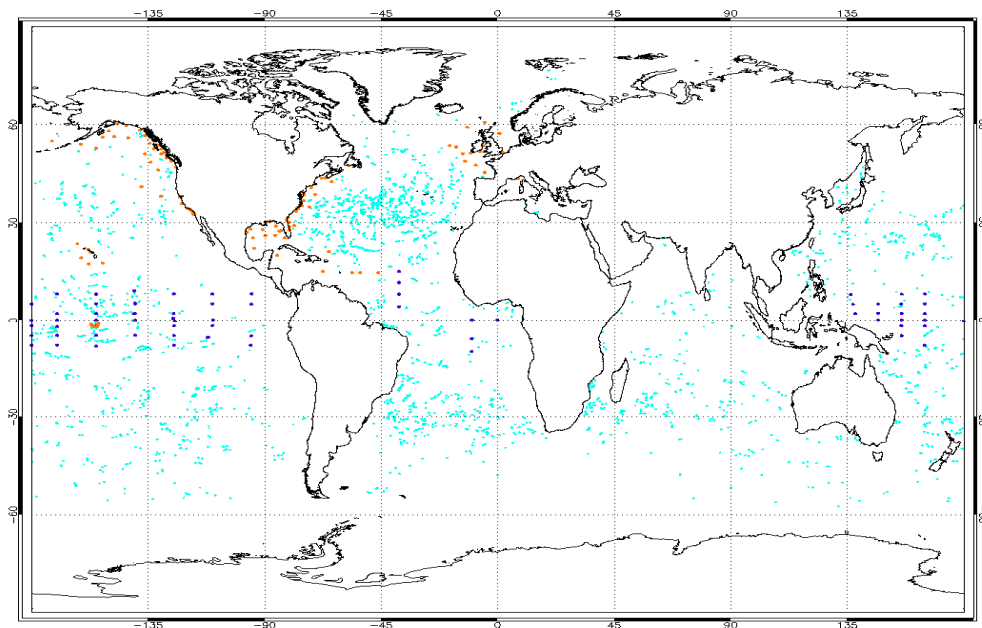


**Figure 6-2: Comparison of daily mean difference between 10' AATSR SST values and in situ buoy SST for Cycle 60. Data provided by the Met Office.**

During cycle 60, there were 1667 night time match-ups, with a mean (UL derived dual-view skin SST minus buoy SST) of -0.005 K, standard deviation 0.27 K, and a mean (dual-view bulk SST minus buoy SST) of +0.133 K, standard deviation 0.24 K. A total of 1578 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.088 K, standard deviation 0.30 K, and a mean (dual-view bulk SST minus buoy SST) of +0.227 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 60. 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 60. 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.**

A complete update on the status of the 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.