

# *AATSR Cycle Report*

## *Cycle # 25*

08 March 2004, 21:59:29 orbit 10576  
12 April 2004, 21:59:29 orbit 11076



*This image covers large part of West Africa, from north - Morocco and Canary Islands - to south - Guinea Bissau. The most significant feature is the contrast between the desert areas of Morocco, Mauritania and Senegal, to the north, and the vegetated coastal plains of southern Senegal and Guinea-Bissau, to the south.*

*The image was processed from data acquired by AATSR on March 17th, 2004 during the orbit 10698.*

*It is a daytime image obtained as colour composite from the 3 channels 1.6um, 0.87um, and 0.67um.*

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# 1 THE CYCLIC REPORT #25

## 1.1 *Acronyms and abbreviations*

AATSR	Advanced Along Track Scanning Radiometer
CR	Cyclic Report
DMOP	Detailed Mission Operation Plan
DMS	Data Management System
EN-UNA-YYYY/#	Envisat Unavailability (plus year and number)
ESOC	European Space Operation Center
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/CNTR5-1.htm#eph.aatsr.glossary.acronabbr:nrt>

## 1.2 *Summary*

*Cyclic number: 25*

*Cycle Start Time: 08-MAR-2004, 21:59:29 orbit stop: 10576*

*Cycle Stop Time: 12-APR-2004, 21:59:29 orbit stop: 11076*

The main activities during the cycle have been the following:

- **Processor L0 and IPF Version:** No changing in the version of AATSR processor for Level0.  
The new IPF version for the Level1 and Level2 – IPF 5.58 – is operational since 10<sup>th</sup> of March 2004 to improve the Land Surface Temperature (LST) products.
- **Visible calibration data:** The visible calibration coefficients data (ATS\_VC1\_AX) are changed regularly during the cycle. These VC1 files are being used within the time criteria set for NRT processing. Off-line data processing is expected to take place within 2 weeks of acquisition. When this is the case the VC1 file used should be +/- 1 day from the date of acquisition (i.e. within specification). If off-line data are generated before 2 weeks from acquisition, this may not be achieved.

- **Land surface temperature:** The land surface temperature calibration file has been disseminated in early March in corresponding to the new IPF version – IPF 5.58 –
- **Data Acquisition:** The data acquisition for the Level0 has been of 99.80% of the whole period, for the Level1 of the 99.40% of the whole period.
- **Calibration activities:** No further information is reported with respect to the previous cycle.
- **Validation activities:** A comparison with data collected from a network of buoy SST values has been done. In March 2004, there were 1024 match-ups in total, with a mean (ESA operational dual-view skin SST minus buoy SST) of 0.033 K, standard deviation 0.451 K, and a mean (dual-view bulk SST minus buoy SST) of 0.192 K, standard deviation 0.473 K.

### ***1.3 Software version and Auxiliary files version***

#### ***1.3.1 Software version***

***AATSR processor*** for Level0; version: PFHS/5.22

***AATSR IPF*** for Level1 and Level2; version: AATSR/05.58 – since 10<sup>th</sup> March 2004

***DOCUMENTATION Applicable:*** PO-RS-MDA-GS-2009 Is. 3 Rev. H

#### ***1.3.2 Auxiliary file version***

This is the list of AATSR auxiliary files.

- ***Browse Product Look-up Data (ATS\_BRW\_AX)***
- ***L1b Characterization Data (ATS\_CH1\_AX)***
- ***Cloud Look-up Table Data (ATS\_CL1\_AX)***
- ***General Calibration Data (ATS\_GC1\_AX)***
- ***AATSR Instrument Data (ATS\_INS\_AX)***
- ***Visible Calibration Coefficients Data (ATS\_VC1\_AX)***
- ***Level1B Processing Configuration Data (ATS\_PC1\_AX)***
- ***Level2 Processing Configuration Data (ATS\_PC2\_AX)***
- ***SST Retrieval Coefficients Data (ATS\_SST\_AX)***
- ***LST Land Surface Temperature Coefficients Data (ATS\_LST\_AX)***

In this section will be reported the list of the auxiliary files changed in the cycle and for each file will be specified the date and the reason of the changing.

Will be also reported the list of the latest filename for every auxiliary file currently in use by the PDS.

Only the ATS\_VC1\_AX file is expected to change regularly. These VC1 files are being used within the time criteria set for NRT processing. Off-line data processing is expected to take place within 2 weeks of acquisition. When this is the case the VC1 file used should be +/- 1 day from the date of acquisition (i.e. within specification). If off-line data are generated before 2 weeks from acquisition, this may not be achieved. (1)

Product name	Start validity	Reason of changing
ATS_VC1_AXVIEC2003	March, 9, 11, 12, 16, 17, 18, 22, 23, 24, 25, 26, 28, 29, 30, 31 April, 1, 2, 3, 5, 6, 7, 8, 9, 10, 12	(1)

*Tab 1.3.2.1: Auxiliary files list changed during the period*

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
ATS_VC1_AXVIEC20040412_212722_20040411_103318_20040418_103318
ATS_LST_AXVIEC20040311_095537_20020301_000001_20070801_235959
ATS_PC1_AXVIEC20030430_211727_20020301_000000_20070801_235959
ATS_PC2_AXVIEC20020123_074151_20020101_000000_20200101_000000
ATS_SST_AXVIEC20020123_074408_20020101_000000_20200101_000000

*Tab 1.3.2.2: Latest auxiliary files currently in use by the PDS*

## 1.4 PDS status

### 1.4.1 Instrument Unavailability

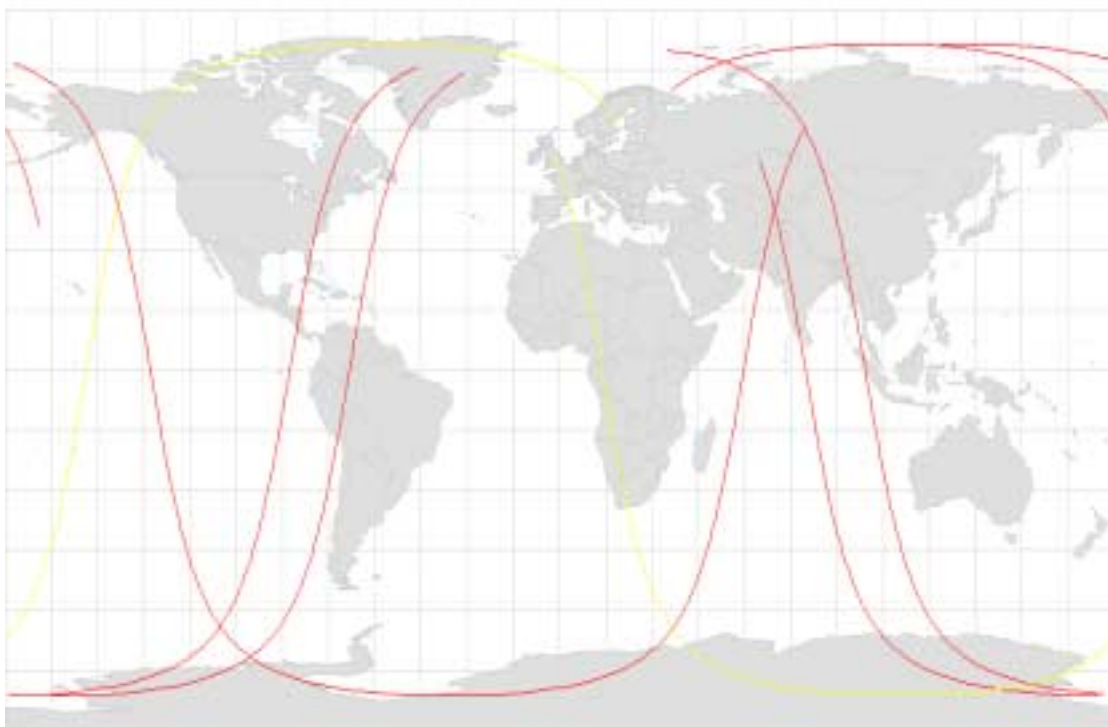
No instrument unavailability during this period.

### ***1.4.2 Level0 data acquisition and Level1b processing status***

In this chapter will be reported the Level0 missing and the data unavailability not planned in the period.

Only the Level1b data not processed starting from the corresponding Level0 will be reported.

The figure below shows the Level0 data missing measurements (yellow line) and the Level1 data not processed starting from the corresponding Level0 (red line) and the unavailability not planned (green line).



***Figure 1.4.2.1: Missing measurements during cycle 25.  
Yellow line: Level0 missing (PDS failure)  
Red lines: Level1 missing***

The total number of missing data is equivalent to 1 orbit on 501 (0.2%).  
The Level0 data was available the 99.80% of the time during the cycle.  
The Level1b data was available the 99.40% of the time during the cycle.  
The following tables show the list of Level0 and Level1 lack of data.



UTC Start: start time of the missing acquisition.  
 UTC Stop: stop time of the missing acquisition.  
 Duration: duration of the missing acquisition.  
 Orbit Start: absolute orbit start of the missing acquisition.  
 Orbit Stop: absolute orbit stop of the missing acquisition.

UTC Start	UTC Stop	Duration (sec)	Orbit Start	Orbit Stop
01-APR-04 19:41:26	01-APR-04 21:19:53	5907	10918	10919

*Tab 1.4.2.1: ATS\_NL\_\_OP missing data during cycle 25*

UTC Start	UTC Stop	Duration (sec)	Orbit Start	Orbit Stop
11-MAR-04 08:50:30	11-MAR-04 09:10:31	1201	10611	10611
11-MAR-04 14:11:01	11-MAR-04 15:46:20	5719	10614	10615
24-MAR-04 05:43:36	24-MAR-04 07:16:29	5573	10795	10796
03-APR-04 15:28:03	03-APR-04 16:55:15	5232	10944	10945

*Tab 1.4.2.2: ATS\_TOA\_1P missing data during cycle 25*

### ***1.4.3 Level0 and Level1b backlog processing status***

In this chapter a check with respect to the previous cycle is done to verify if the status of the missing data has changed after a backlog processing. In the following tables (showed only if a change with respect to the previous cycle has been detected) will be point out three kinds of missing products modified:

- Data gap cancelled: it refers to data gap that was identified in the previous report but hasn't now been detected as a result of backlog processing (red line).
- Duration change of data gap: it refers to data gap/s still exists but that it has got longer or shorter since the last report (green line).
- New data gap: it refers to data gap now filled as a result of a backlog processing (blue line).

The list of data missing during the previous cycle has not changed (see the list in the Cyclic Report #24).

## ***1.5 Quality Control***

### ***1.5.1 Monitoring of parameters***

#### ***JITTER:***

The average scan-mirror jitter rate during this cycle was 0.01 jitters/sec or better. Note that occasional, short duration jitter periods do occur. During this cycle no periods of excessive jitter were detected. Nevertheless, users can check the jitter rate during the period covered by their products by checking the Scan Quality Annotation Data Sets (using EnviView, for example).

#### ***SENSOR TEMPERATURE:***

All sensors maintained their nominal orbital and seasonal ranges.

#### ***VISCAL:***

Reflectance channel calibration files are available for all days except: March 10 and 13, April 04.

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

#### ***TOTAL NOISE:***

Total noise in the thermal infrared channels, as represented by the standard deviation of the black-body signal in each channel, was nominal throughout the cycle.

Total noise in the reflectance channels was nominal throughout the cycle.

#### ***NE $\Delta$ T:***

Nominal throughout the cycle.

### ***1.5.2 Users Rejection***

No user complaints during this cycle.

### ***1.5.3 Software Problem Reporting. Potential impact***

In this section will be described the SPR open with the potential impact on the data quality, and the SPR closed.

#### ***1.5.3.1 SPR open***

In this section will be reported the list of SPRs.

##### ***1.5.3.1.1 Existing SPRS that are still open***

No SPRs still opened.

##### ***1.5.3.1.2 New SPRs since the last Cyclic Report***

None

#### ***1.5.3.2 SPR closed***

The old SPRs have been resolved after the new IPF version installation – IPF 5.58 – operational since 10<sup>th</sup> March 2004.

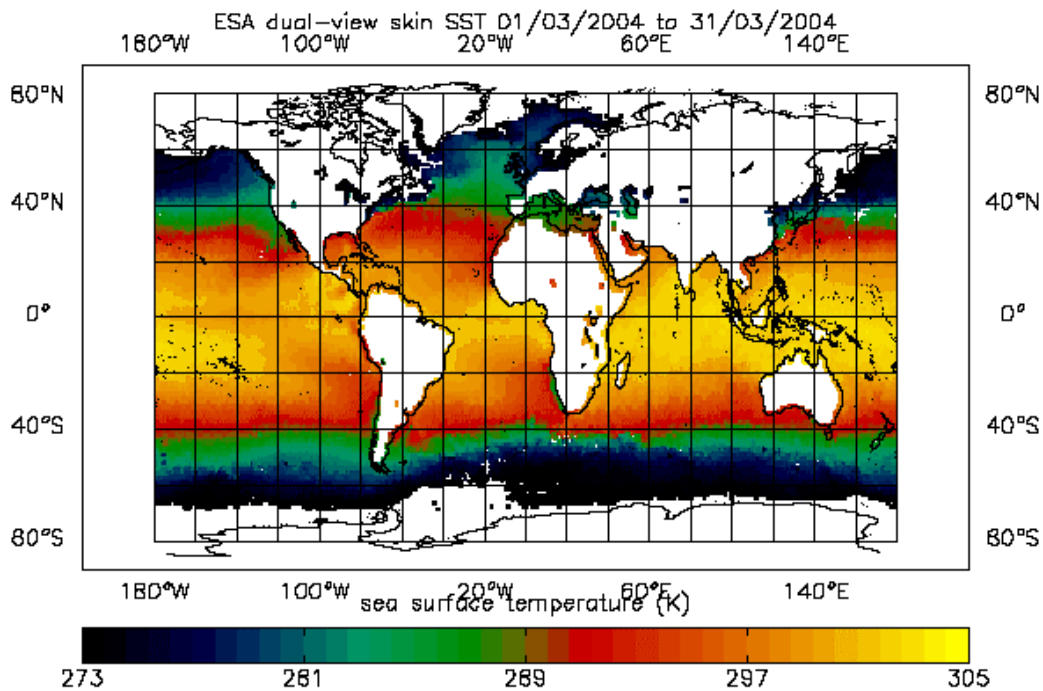
## ***1.6 Calibration/Validation activities and results***

### ***1.6.1 Calibration***

No further information on instrument calibration is reported. The current status of the instrument calibration can be found in Section 1.7.1 of Cyclic Report 20.

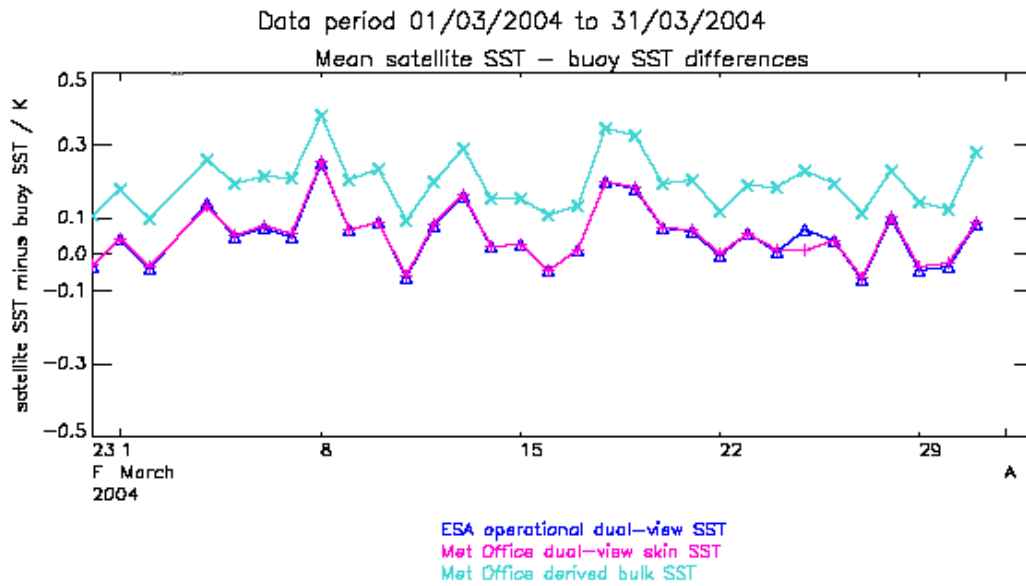
## 1.6.2 Validation

A monthly mean global SST plot for March 2004 composed from the spatially averaged 10' product, provided by the UK Met Office, corresponding to part of Cycle 25, is shown in Figure 1.6.2-1.



**Figure 1.6.2-1: Monthly Global Average SST for March 2004. Image provided by the UK Met Office**

Using the above data, the UK Met Office has done a comparison with data collected from a network of *in situ* buoy SST values, the results for March 2004 being shown in Figure 1.6.2-2. In March 2004, there were 1024 match-ups in total, with a mean (ESA operational dual-view skin SST minus buoy SST) of 0.033 K, standard deviation 0.451 K, and a mean (dual-view bulk SST minus buoy SST) of 0.192 K, standard deviation 0.473 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. A complete update on the status of the instrument validation can be found in Section 1.7.4 of Cyclic Report 20.



*Figure 1.6.2-2: Comparison of daily mean difference between 10° AATSR SST values and in situ buoy SST for March 2004. image provided by the UK Met Office.*

## 1.7 General information

- ENVISAT/ERS Symposium will be held on 6 to 10 September 2004 in Salzburg, Austria. The symposium will be open to all interested parties, from scientists to operational users, and will cover both ENVISAT and ERS missions. Any information will be published on the ESA's web site: <http://envisat.esa.int>, ENVISAT/ERS Symposium.
- Following the installation of the new IPF (middle of March 2004) a data reprocessing will be done since July 24<sup>th</sup>, 2002. The reprocessing will be done to include the new LST products (1 Km resolution) and to provide a better visible calibration status and a better nadir/forward collocation.