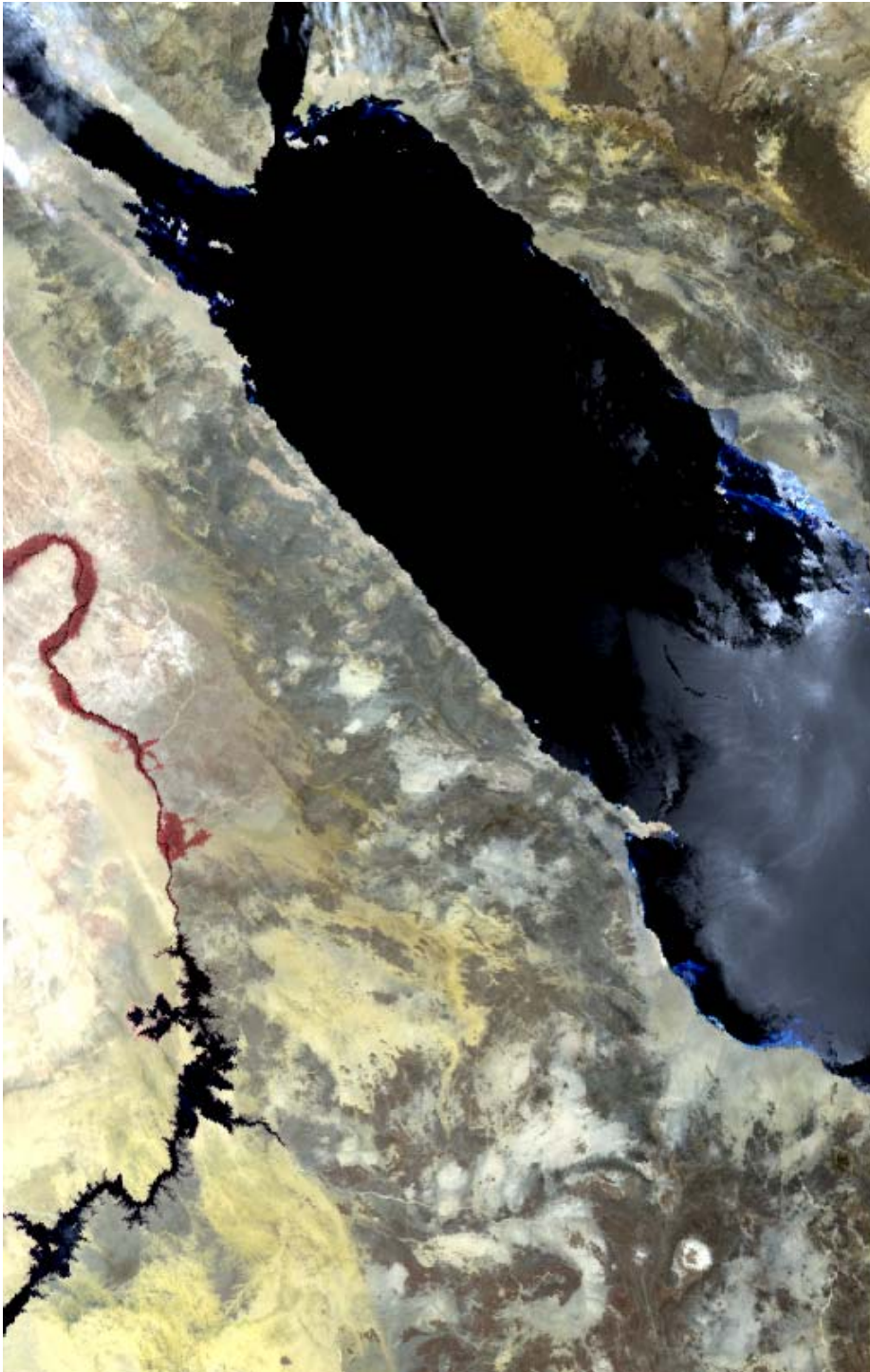# AATSR Cycle Report
Cycle # 26

12 April 2004, 21:59:29 orbit 11077
17 May 2004, 21:59:29 orbit 11577

Scene acquired over Red Sea on 10 May 2004, absolute orbit 11469 (relative orbit 393).
This image, from northeast to southwest, covers Arabian Peninsula, Sinai Peninsula and a large part of Egypt.
All the covered area is deserted, except vegetated zones along Nile River (vegetation is red in the image). In the bottom of image – to the left – it is well visible the Lake Nasser.

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A P P R O V A L

Title *Titre*	AATSR Cyclic Report – Cycle 26th	issue *issue*	1	revision *revision*	0
author *auteur*	Luigi Accica	date *date*	14 July 2004		
approved by *approuvé by*		date *date*			

C H A N G E   L O G

reason for change /*raison du changement*	issue/*issue*	revision/*revision*	date/*date*

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

Issue: 1 Revision: 0

reason for change/*raison du changement*	page(s)/*page(s)*	Paragraph(s)/*paragraph(s)*

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1 THE CYCLIC REPORT #26

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: 26
Cycle Start Time: 12-APR-2004, 21:59:29 orbit stop: 11077
Cycle Stop Time: 17-MAY-2004, 21:59:29 orbit stop: 11577

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 (5.22) and IPF version for Level1 and Level2 (5.58).
- **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.

- **Data Acquisition**: The data acquisition for the Level0 has been of 99.38% of the whole period, for the Level1 of the 99.02% of the whole period. Two unavailability for the instrument:

    - ***Out-gassing***: planned (16 April – 20 April). The NRT products during an outgassing   contain only 0.86, 0.67 and 0.56um channel data and even these data will be [relatively] poorly calibrated. NRT L1B and Browse products immediately after an outgassing may be poorly calibrated as a post-outgassing ATS_VC1_AX file may not have been incorporated into the NRT processing.
    - ***Orbit Control Manoeuvre***: planned (14 April).

- **Calibration activities**: No further information is reported with respect to the previous cycle.
- **Validation activities**: A comparison with data collected from a network of *in situ* buoy SST values has been done. In April 2004, there were 798 match-ups in total, with a mean (ESA operational dual-view skin SST minus buoy SST) of 0.093 K, standard deviation 0.51 K, and a mean (dual-view bulk SST minus buoy SST) of 0.266 K, standard deviation 0.50 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.

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 10th 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	April, 13, 16, 21, 23, 24, 25, 26, 27, 28, 30 May, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 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_AXVIEC20040512_212721_20040511_112810_20040518_112810
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

The AATSR has been switch-down since 14 Apr 2004 02:45:00.000 (day of year 105, orbit 11094, anx offset=0914.159) to 14 Apr 2004 13:30:00.000 (day of year 105, orbit 11100, anx orbit =3398.591), due to an Orbit Control Manoeuvre (OCM) and from 16 Apr 2004 08:36:00.000 (day of year 107, orbit 11126, anx offset=1624.463) to 20 Apr 2004 08:11:00.000 (day of year 111, orbit 11183, anx orbit =1676.567), due to an Out-gassing.

Start	Stop	Reason	Reference	Planned
14 Apr 2004 02:45:00 16 Apr 2004 08:16:00	14 Apr 2004 13:30:00 20 Apr 2004 08:11:00	OCM+Mipas Out-gassing	EN-UNA-04/0111 RAL Ops Req. AATSR-IOR-21	YES YES

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).
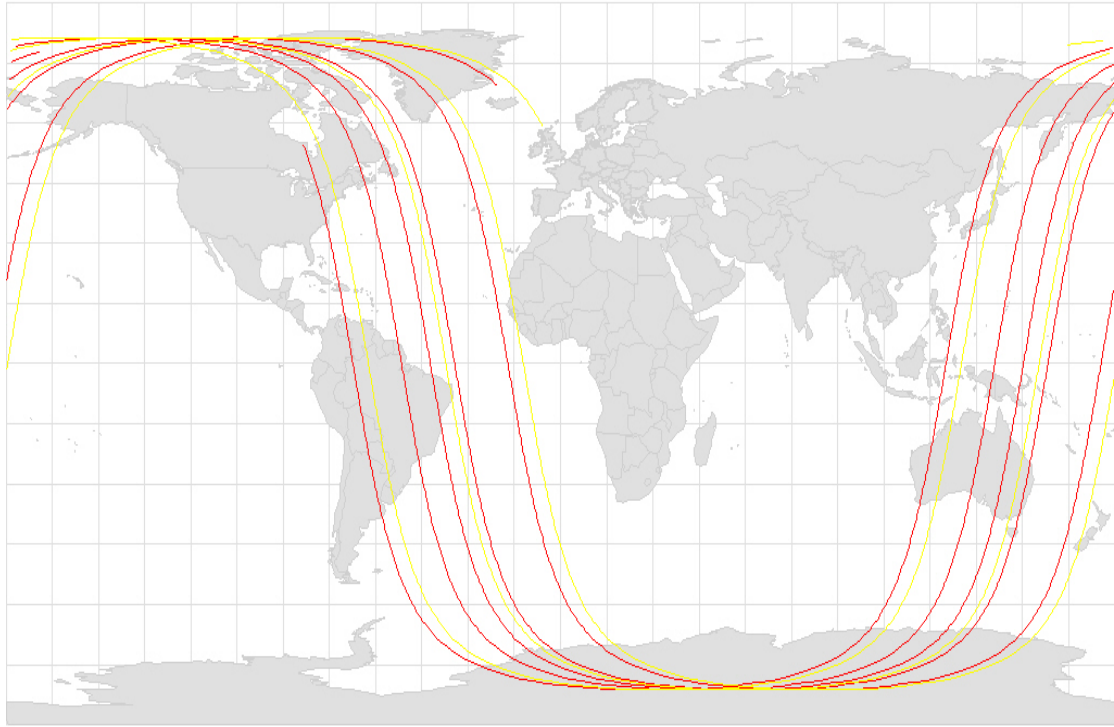
Figure 1.4.2.1: Missing measurements during cycle 26.
Yellow line: Level0 missing (PDS failure)
Red lines: Level1 missing

The total number of missing data is equivalent to 3 orbits on 501 (0.6%).
The Level0 data was available the 99.38% of the time during the cycle.
The Level1b data was available the 99.02% 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
20-APR-04 21:24:25	21-APR-04 02:36:14	18709	11191	11194

Tab 1.4.2.1: ATS_NL__0P missing data during cycle 26

UTC Start	UTC Stop	Duration (sec)	Orbit Start	Orbit Stop
13-APR-04 21:47:38	14-APR-04 02:45:00	17842	11091	11094
14-APR-04 23:01:45	15-APR-04 00:41:10	5965	11106	11107
16-APR-04 00:13:13	16-APR-04 01:50:54	5861	11121	11122

Tab 1.4.2.2: ATS_TOA_1P missing data during cycle 26

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 whit respect 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 #25).

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 except during the out-gassing period between April 16 and April 19

VISCAL:

Reflectance channel calibration files are available for all days except:

    April 14
    April 17-19 (out-gassing)

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 close to nominal throughout the cycle.

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

NEΔT:

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 10th 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 April 2004 composed from the spatially averaged 10´ product, provided by the UK Met Office, corresponding to part of Cycle 26, is shown in Figure 1.6.2-1.
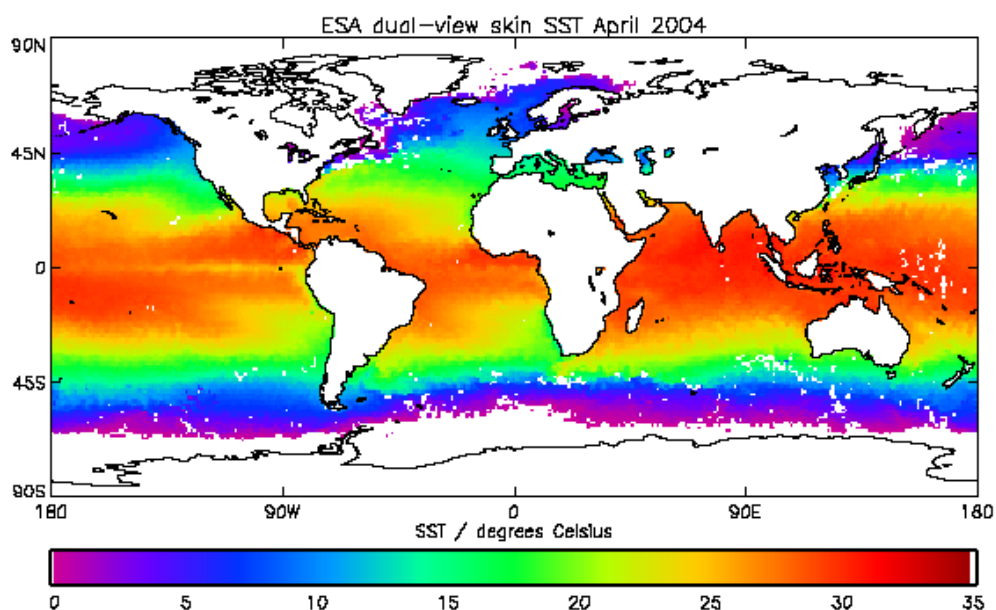

Figure 1.6.2-1: Monthly Global Average SST for April 2004. Image provided by the UK Met Office

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 April 2004 being shown in Figure 1.6.2-2. In April 2004, there were 798 match-ups in total, with a mean (ESA operational dual-view skin SST minus buoy SST) of 0.093 K, standard deviation 0.51 K, and a mean (dual-view bulk SST minus buoy SST) of 0.266 K, standard deviation 0.50 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.
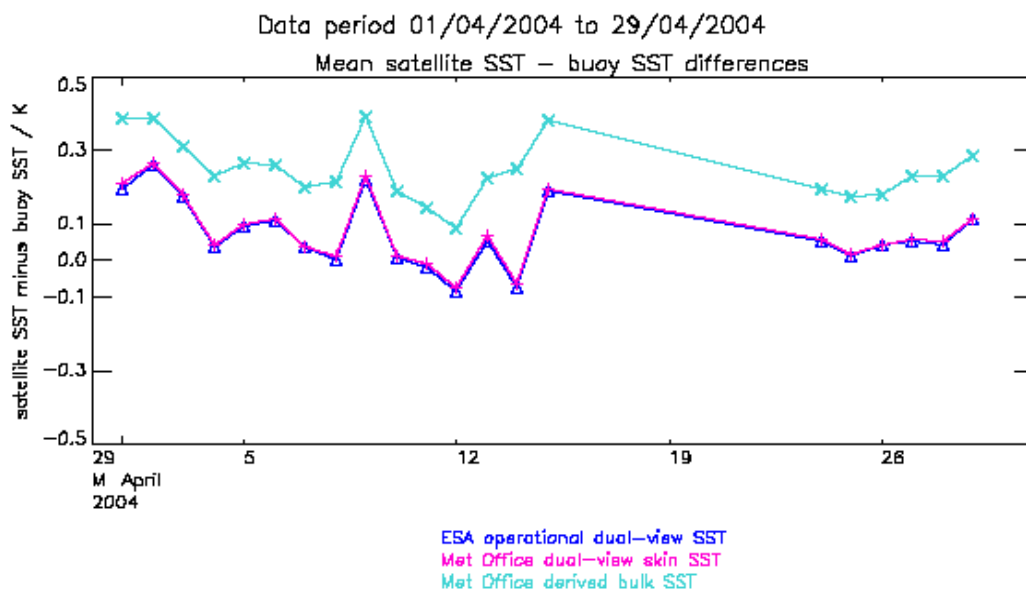

Data period 01/04/2004 to 29/04/2004
Mean satellite SST — buoy SST differences

ESA operational dual-view SST
Met Office dual-view skin SST
Met Office derived bulk SST

Figure 1.6.2-2: Comparison of daily mean difference between 10´ AATSR SST values and in situ buoy SST for April 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 24th, 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.