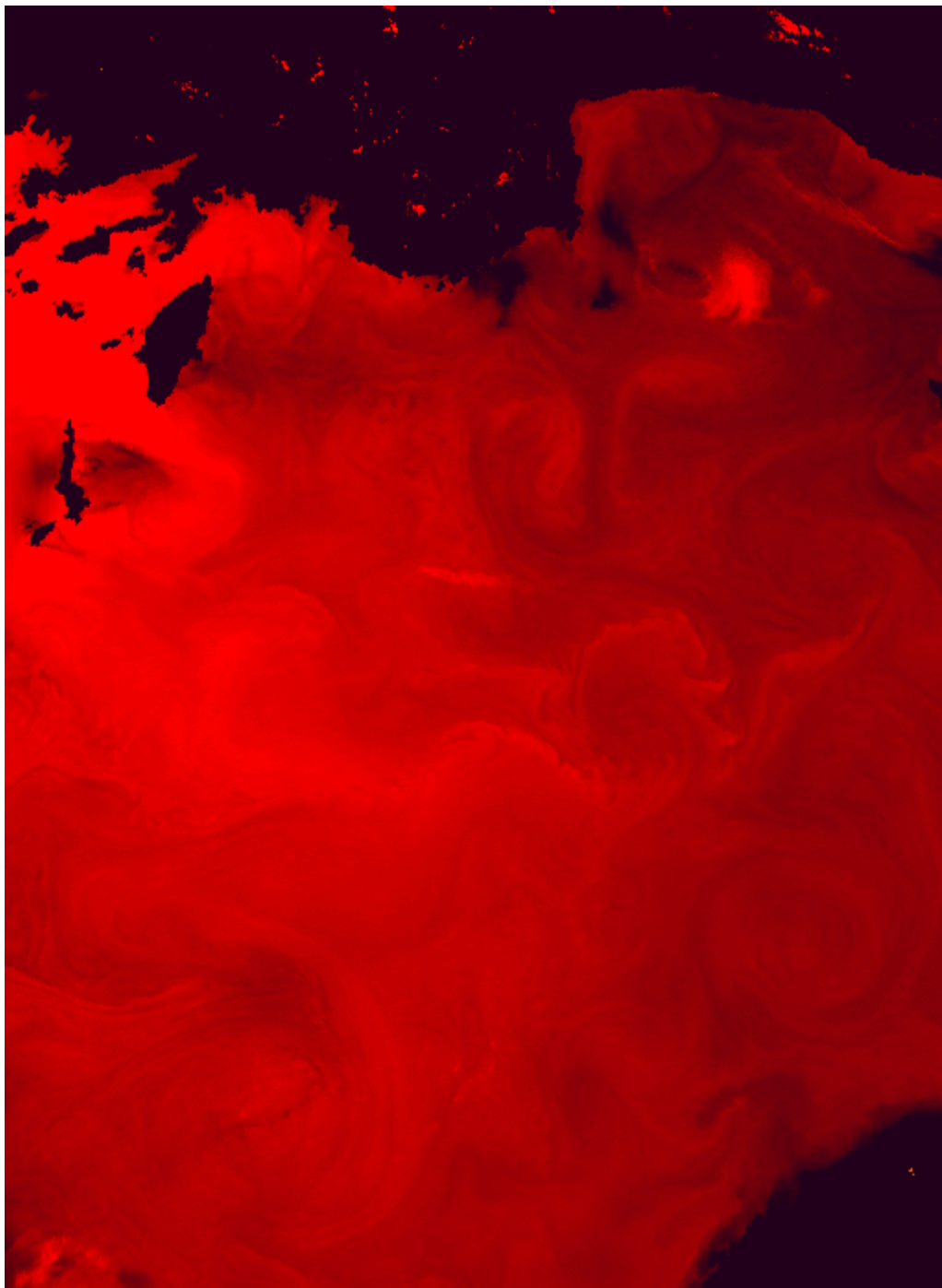


AATSR Cycle Report Cycle # 27

17 May 2004, 21:59:29 orbit 11578
21 June 2004, 21:59:29 orbit 12078



This image shows sea surface temperature patterns in the east Mediterranean Sea off the south coast of the Turkey on June 13, 2004 during Envisat Orbit #11965. The sea surface temperature ranges from approximately 291 K to 295 K. The coolest water is light red in colour, the warmest is red/black, with increasing temperature represented by increasingly bright shades of red. The land, to the top, is masked out and appears black.

22221322

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

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1 THE CYCLIC REPORT #27

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: 27

Cycle Start Time: 17-MAY-2004, 21:59:29 orbit stop: 11578

Cycle Stop Time: 21-JUNE-2004, 21:59:29 orbit stop: 12078

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 92.60% of the whole period, for the Level1 of the 99.66% of the whole period. One unavailability for the instrument:
 - High Speed Multiplexer (HSM) reset: planned
- **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 May 2004, there were 1341 match-ups in total, with a mean (ESA operational dual-view skin SST minus buoy SST) of 0.021 K, standard deviation 0.57 K, and a mean (dual-view bulk SST minus buoy SST) of 0.188 K, standard deviation 0.55 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_AXVIEC2004	May, 12, 13, 14, 15, 16, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31 June, 1, 2, 3, 4, 5, 6, 7, 10, 11, 12, 13, 14, 15, 16, 17	(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_AXVIEC20040616_212814_20040615_080536_20040622_080536
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 10 June 2004 16:21:44.000 (day of year 162, orbit 11918, anx offset=1113.487) to 10 June 2004 16:24:13.000

(day of year 162, orbit 11918, anx orbit =1262.487), due to High Speed Multiplexer (HSM) reset.

Start	Stop	Reason	Reference	Planned
10 Jun 2004 16:21:44.000	10 Jun 2004 16:24:13.000	HSM reset	EN-UNA- 2004/0157	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).

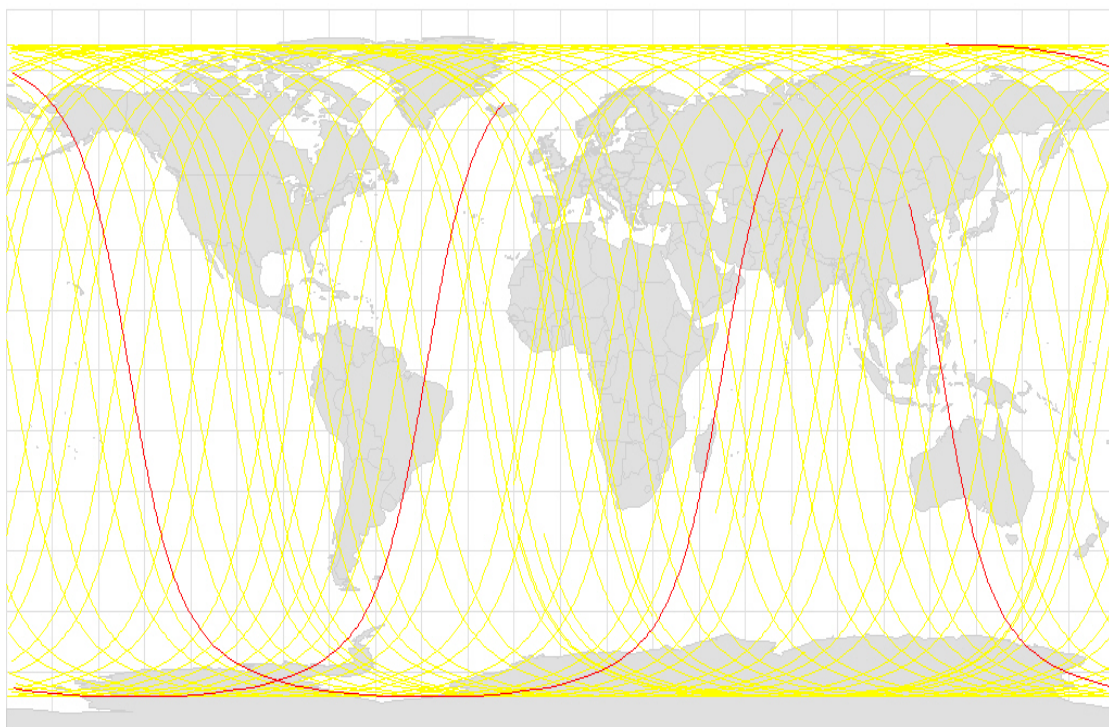


Figure 1.4.2.1: ***Missing measurements during cycle 27.***
Yellow line: Level0 missing (PDS failure)
Red lines: Level1 missing

The total number of missing data is equivalent to 37 orbits on 501 (7.4%).
 The Level0 data was available the 92.60% of the time during the cycle.
 The Level1b data was available the 99.66% 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
18-MAY-04 10:12:05	18-MAY-04 10:41:53	1788	11585	11585
02-JUN-04 22:16:35	03-JUN-04 00:21:29	7494	11807	11808
08-JUN-04 13:56:44	10-JUN-04 16:21:44	181500	11888	11918
16-JUN-04 19:52:19	16-JUN-04 21:31:17	5938	12006	12007
18-JUN-04 21:56:53	18-JUN-04 23:22:25	5132	12036	12036
19-JUN-04 04:12:12	19-JUN-04 05:36:37	5065	12039	12040
19-JUN-04 21:04:27	19-JUN-04 22:51:01	6394	12049	12050
21-JUN-04 03:02:34	21-JUN-04 04:33:52	5478	12067	12068
21-JUN-04 04:48:08	21-JUN-04 06:13:42	5134	12068	12069

Tab 1.4.2.1: ATS_NL__OP missing data during cycle 27

UTC Start	UTC Stop	Duration (sec)	Orbit Start	Orbit Stop
08-JUN-04 12:35:31	08-JUN-04 13:56:44	4873	11887	11888
17-JUN-04 06:12:22	17-JUN-04 07:44:50	5548	12012	12013

Tab 1.4.2.2: ATS_TOA_1P missing data during cycle 27

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 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 #26).

1.5 Quality Control

1.5.1 Monitoring of parameters

JITTER:

For most of this cycle, the average scan-mirror jitter rate was 0.01 jitters/sec or better. A short period of high jitter occurred between May 30 and June 01, peaking on May 31 around orbit #11768 when the mean rate hit 0.52 jitters/sec. No other non-nominal periods were seen. 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. Note that a seasonal peak occurs at the end of May.

VISCAL:

Reflectance channel calibration files are available for all days except:

May 18 and 19
June 09 and 10

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 most of the cycle but increased towards the end of May, reaching a seasonal peak on May 31. It dropped back to nominal by June 02.

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

NEΔT:

As with total noise, NEDT reached a seasonal peak on May 31 but quickly dropped back to nominal.

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 27, is shown in Figure 1.6.2-1.

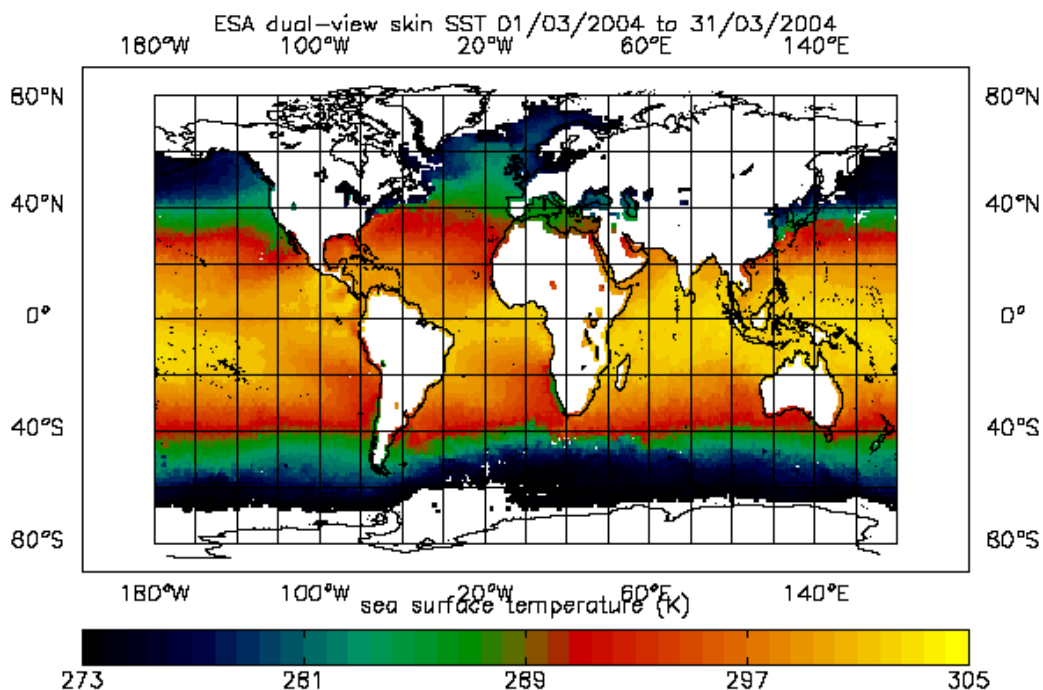


Figure 1.6.2-1: Monthly Global Average SST for May 2004. Image provided by the UK Met Office

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 May 2004 being shown in Figure 1.6.2-2. In May 2004, there were 1341 match-ups in total, with a mean (ESA operational dual-view skin SST minus buoy SST) of 0.021 K, standard deviation 0.57 K, and a mean (dual-view bulk SST minus buoy SST) of 0.188 K, standard deviation 0.55 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.

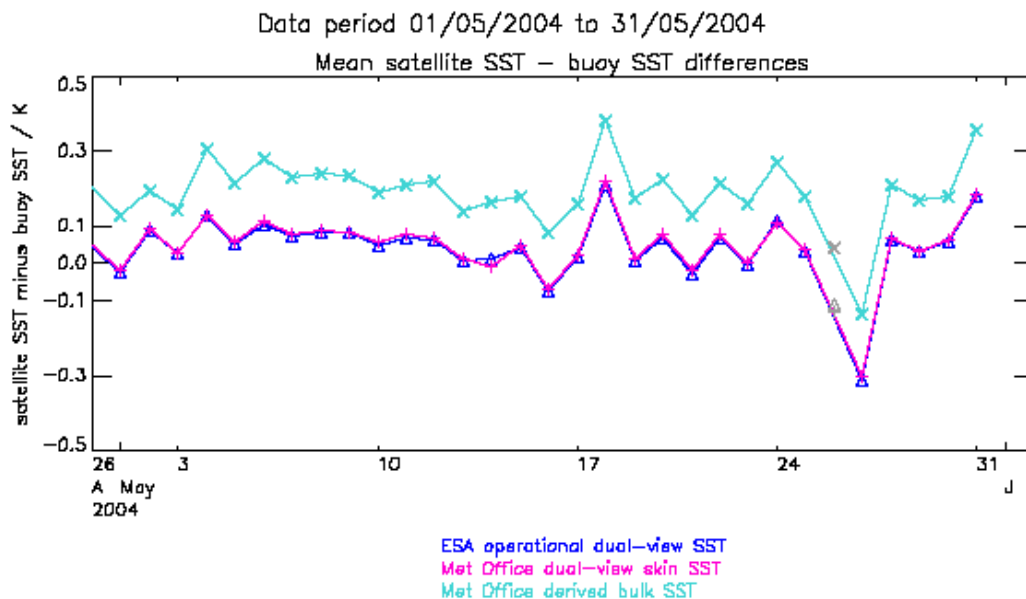


Figure 1.6.2-2: Comparison of daily mean difference between 10° AATSR SST values and in situ buoy SST for May 2004. image provided by the UK Met Office.

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.