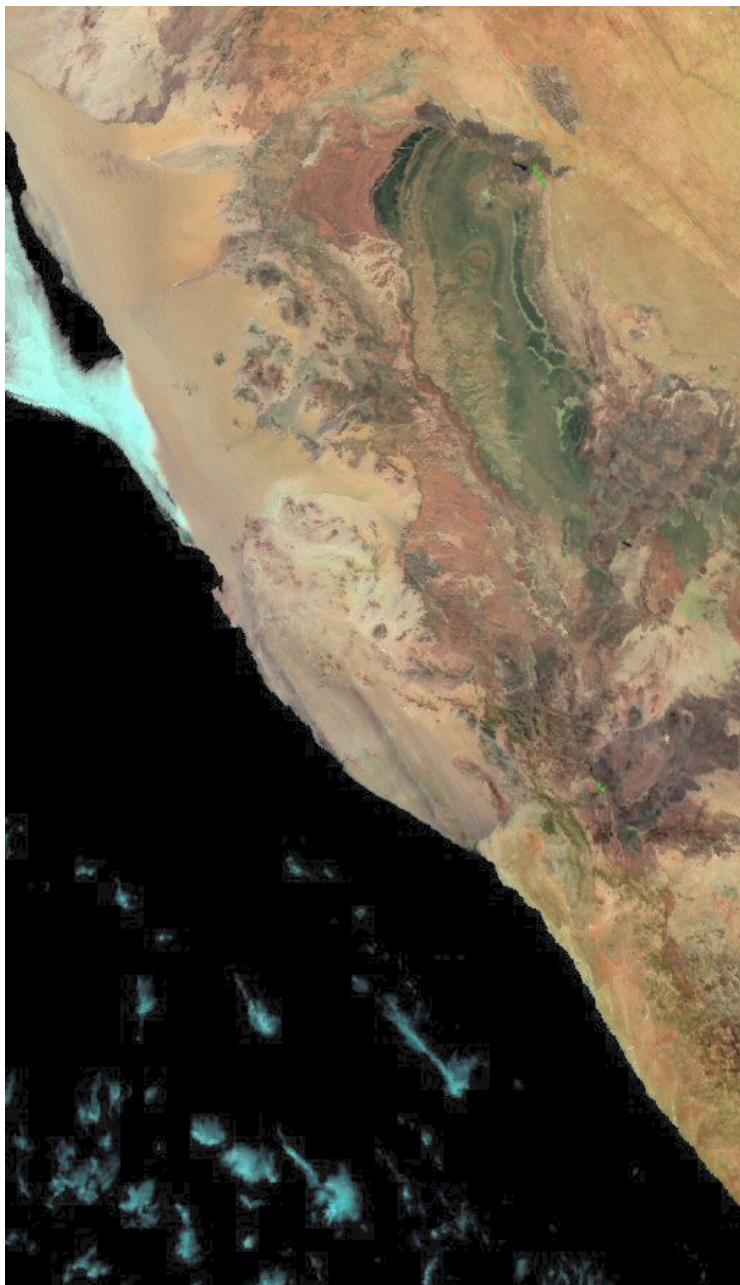


AATSR Cycle Report

Cycle # 31

04 October 2004, 21:59:29 orbit 13582

08 November 2004, 21:59:29 orbit 14082



This scene, acquired over the southwest of Africa on 28 October 2004 - absolute orbit 13916 (relative orbit 335) - shows the border between Namibia and South Africa. On the top left is well visible the Kalahari desert, mostly within the Namibian country. Visible are the huge sand dunes that rise near the coast of the Atlantic Ocean and extend inland for up to 160 kilometers, ending at the steep slopes of the Great Escarpment (centre right). The Desert is temperate; it is kept cool and dry by the Benguela Current offshore.

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1 THE CYCLIC REPORT #31

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
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/CNTR5-1.htm#eph.aatsr.glossary.acronabbr:nrt>

1.2 *Summary*

Cyclic number: 31

Cycle Start Time: 04-OCTOBER-2004, 21:59:29 orbit start: 13582

Cycle Stop Time: 08-NOVEMBER-2004, 21:59:29 orbit stop: 14082

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). No changing in the IPF version for Level1 and Level2 (5.59).
- **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 99.71% of the whole period, for the Level1 of the 99.85% 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 *in situ* buoy SST values has been done. In October 2004, there were 2270 match-ups in total, with a mean (ESA operational dual-view skin SST minus buoy SST) of 0.013 K, standard deviation 0.37 K, and a mean (dual-view bulk SST minus buoy SST) of 0.129 K, standard deviation 0.37 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/05.59 – delivered on 19th July 2004.

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

1.3.1.1 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	October, 5, 6, 8, 11, 13, 14, 15, 16, 19, 20, 21, 22, 23, 24, 27, 28, 30, 31 November, 1, 2, 3, 4, 5, 6, 7, 8	(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_AXVIEC20041108_182722_20041106_193459_20041113_193459 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

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).

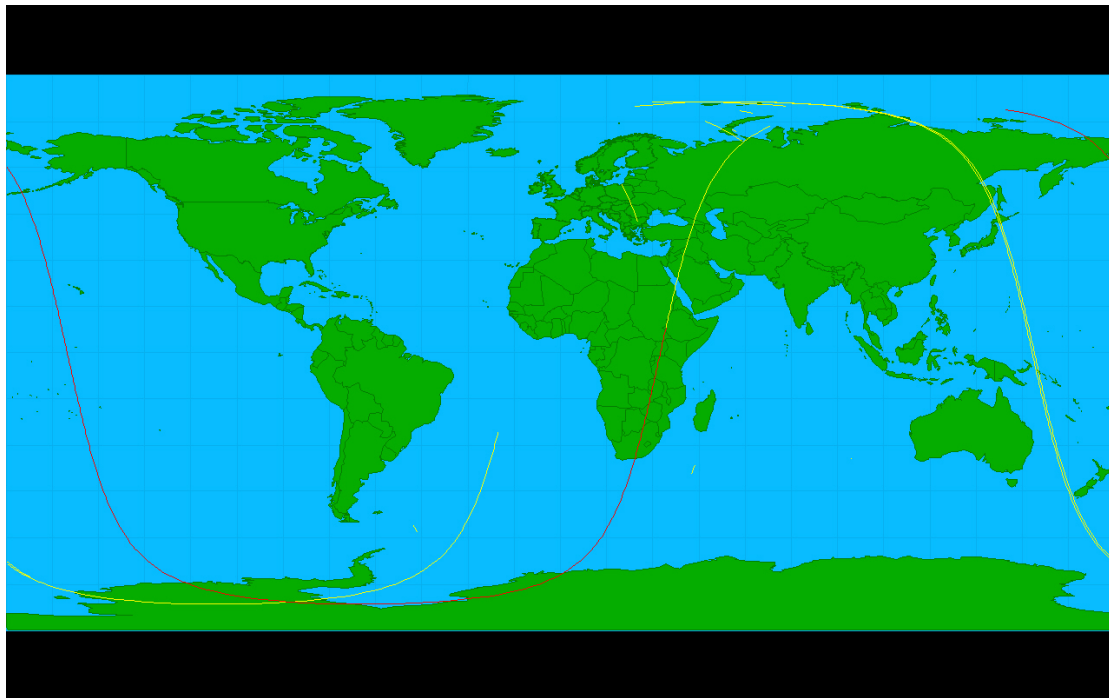


Figure 1.4.2.1: Missing measurements during cycle 31.
Yellow line: Level0 missing (PDS failure)
Red lines: Level1 missing

The Level0 data was available the 99.71% of the time during the cycle.
The Level1b data was available the 99.85% 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
07-OCT-04 07:28:52	07-OCT-04 07:47:44	1132	13616	13616
17-OCT-04 11:04:09	17-OCT-04 12:13:10	4141	13761	13762
28-OCT-04 16:23:33	28-OCT-04 16:23:48	15	13922	13922
02-NOV-04 11:23:19	02-NOV-04 12:10:58	2859	13990	13991
03-NOV-04 13:16:54	03-NOV-04 13:18:51	117	14006	14006

03-NOV-04 14:56:30	03-NOV-04 14:56:51	21	14007	14007
03-NOV-04 16:34:06	03-NOV-04 16:36:08	122	14008	14008
03-NOV-04 19:47:43	03-NOV-04 19:51:12	209	14010	14010
04-NOV-04 02:01:33	04-NOV-04 02:02:12	39	14013	14013
04-NOV-04 03:18:02	04-NOV-04 03:18:09	7	14014	14014
04-NOV-04 06:39:50	04-NOV-04 06:40:41	51	14016	14016
05-NOV-04 13:54:23	05-NOV-04 13:55:06	43	14035	14035

Tab 1.4.2.1: ATS_NL__OP missing data during cycle 31

UTC Start	UTC Stop	Duration (sec)	Orbit Start	Orbit Stop
07-OCT-04 07:47:44	07-OCT-04 09:03:28	4544	13616	13617

Tab 1.4.2.2: ATS_TOA_1P missing data during cycle 31

1.4.2.1 Compromised orbits owing to major bad data quality

The information reported in the tables 1.4.2.1 and 1.4.2.2 does not consider the quality of the data, only whether or not it is available. The orbits listed below have been processed but the quality is bad on the whole orbit or only on some few frames:

Orbit number	Date	Reason
13674	11 October	Unknown
13717	14 October	Unknown
13760, 13761, 13762	17 October	Unknown
13822	21 October	Unknown
13932	29 October	Unknown
13946, 13951	30 October	Unknown
13965	31 October	Unknown
13989, 13990	02 November	Unknown
14051	06 November	Unknown

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 #30).

1.5 Quality Control

1.5.1 Monitoring of parameters

JITTER:

The average scan-mirror jitter rate during most of this cycle was 0.01 jitters/sec or better. Note that occasional, short duration jitter periods do occur. During this cycle a period of relatively high jitter was detected between orbits 13965 and 13980 on October 31 and November 01. In orbit 13965 the peak-rate reached 0.3 jitter/sec. There were other occasional, short periods where the maximum jitter rate reached 0.13 jitters/sec. Users should check the jitter rate during the period covered by their products by checking the Scan Quality Annotation Data Sets (using EnvView, for example).

SENSOR TEMPERATURE:

All sensors maintained their nominal orbital and seasonal ranges in this cycle.

VISCAL:

Reflectance channel calibration files are available for all days except:
October 17, 18, 25 and 28

Nominal visceral 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 except on October 31 and November 01 when it increased by up to 25% on some orbits.

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

NE Δ 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

Two official SPR opened against the IPF:

- "New AATSR Software Problem Report" concerning unphysical sea surface temperature values in Level 2 AATSR products from PDHS-E at intervals of 480 rows.
- "New AATSR Software Problem Report" concerning inconsistent values in AST confidence word, 17 km cell.

IPF maintainer is just being asked to comment on this at this stage:

- "50 / 17 km Cell Size Anomaly in AST product".

1.5.3.1.1 New SPRs since the last Cyclic Report

None

1.5.3.2 SPR closed

None

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 October 2004 composed from the spatially averaged 10' product, provided by the UK Met Office, corresponding to part of Cycle 31, is shown in Figure 1.6.2-1.

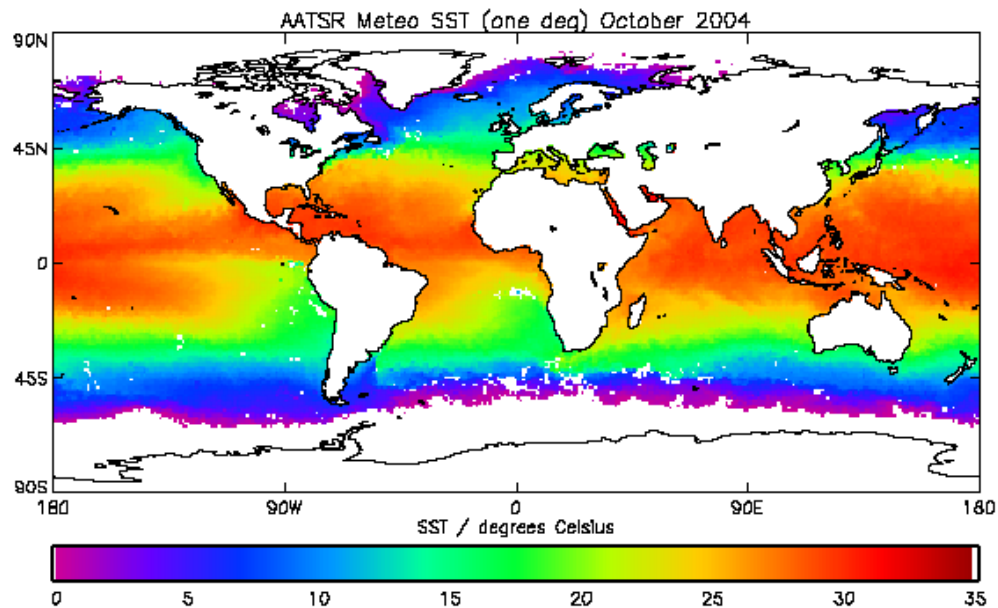


Figure 1.6.2-1: Monthly Global Average SST for October 2004. Image provided by the UK Met Office

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 October 2004 being shown in Figure 1.6.2-2. In October 2004, there were 2270 match-ups in total, with a mean (ESA operational dual-view skin SST minus buoy SST) of 0.013 K, standard deviation 0.37 K, and a mean (dual-view bulk SST minus buoy SST) of 0.129 K, standard deviation 0.37 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.

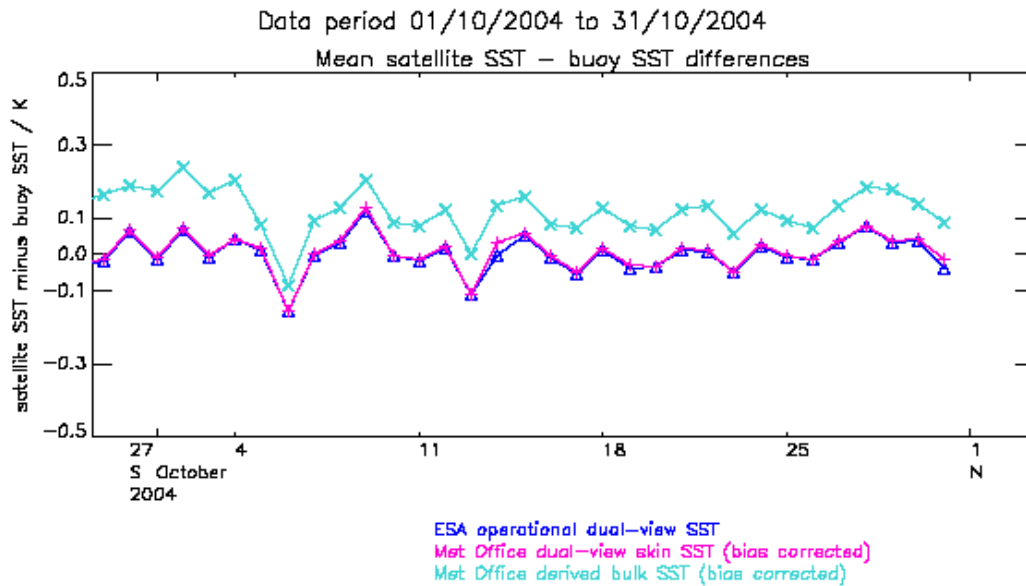


Figure 1.6.2-2: Comparison of daily mean difference between 10' AATSR SST values and in situ buoy SST for October 2004. image provided by the UK Met Office.

A complete update on the status of the instrument validation can be found in Section 1.6.2 of Cyclic Report 28.

1.7 General information

None