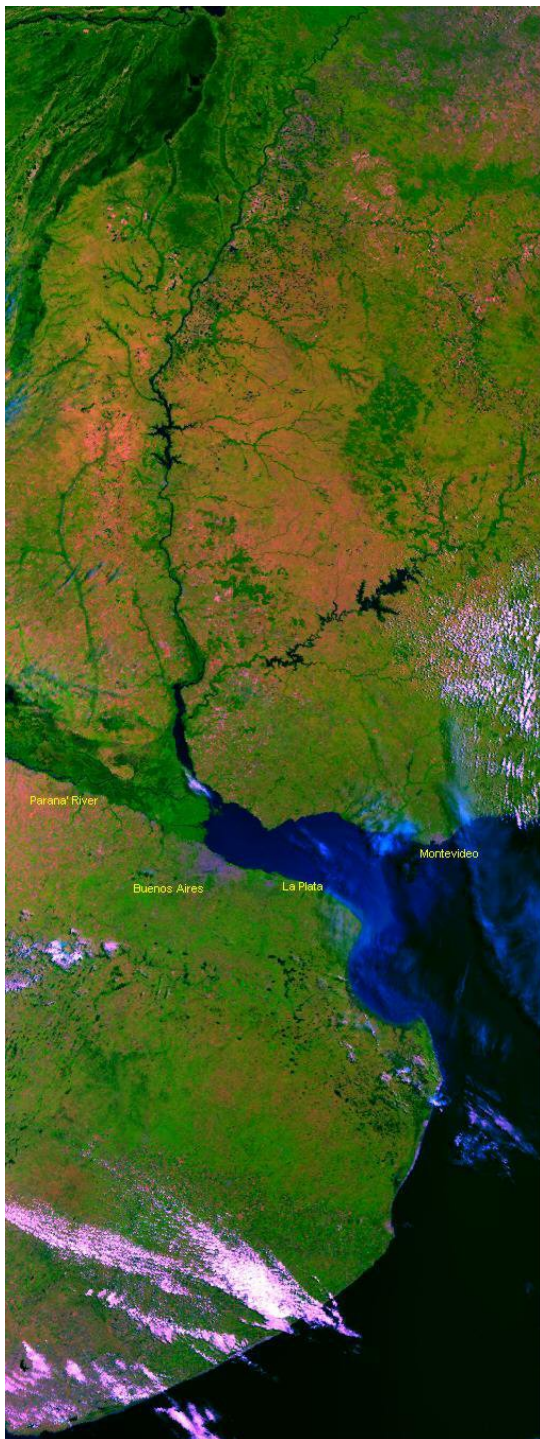


AATSR Cycle Report

Cycle # 32

08 November 2004, 21:59:29 orbit 14083
13 December 2004, 21:59:29 orbit 14583



This scene, acquired over the southeast of South America on 12 December 2004 - absolute orbit 14563 (relative orbit 481) - shows the border between Argentina, Paraguay and Uruguay. In the center of image are well visible the Paraná River (from west) flowing into Mar del Plata. On the coast are visible (light purple) the cities of Buenos Aires, La Plata and Montevideo.

<i>prepared by/préparé par</i>	AATSR PCF team and QWG team
<i>reference/référence</i>	
<i>issue/édition</i>	1
<i>Revision/révision</i>	0
<i>date of issue/date d'édition</i>	
<i>status/état</i>	Draft
<i>Document type/type de document</i>	Technical Note
<i>Distribution/distribution</i>	

A P P R O V A L

Title <i>Titre</i>	AATSR Cyclic Report – Cycle 32 nd	issue <i>issue</i>	1	revision <i>revision</i>	0
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author <i>auteur</i>	Luigi Accica	date <i>date</i>	14 April 2005
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approved by <i>approuvé by</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>

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

Issue: 1 Revision: 0

reason for change/ <i>raison du changement</i>	page(s)/ <i>page(s)</i>	Paragraph(s)/ <i>paragraph(s)</i>

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1 THE CYCLIC REPORT #32

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: 32

Cycle Start Time: 08-NOVEMBER-2004, 21:59:29 orbit stop: 14083

Cycle Stop Time: 13-DECEMBER-2004, 21:59:29 orbit stop: 14583

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 99.70% of the whole period, for the Level1 of the 98.30% of the whole period. One unavailability (planned) for the instrument:
 - Out-gassing from 19 November 2004 to 22 November 2004
- **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 November 2004, there were 1491 match-ups in total, with a mean (ESA operational dual-view skin SST minus buoy SST) of -0.015 K, standard deviation 0.36 K, and a mean (dual-view bulk SST minus buoy SST) of 0.168 K, standard deviation 0.36 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	November, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 23, 24, 25, 26, 27, 28, 29, 30 December, 1, 2, 3, 4, 5, 6, 7	(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_AXVIEC20041207_182730_20041205_192511_20041212_192511 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

An Out-gassing occurred on AATSR from 19 Nov 2004 09:55:06.000 (day of year 324, orbit 14233, anx offset= 1542.167) to 22 Nov 2004 18:16:31.000 (day of year 327, orbit 14281, anx orbit = 1102.623). Infrared channels were unavailable.

Start	Stop	Reason	Reference	Planned
19 Nov 2004 09:55:06	22 Nov 2004 18:16:31	Out-gassing	EN_UNA-04/295	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).

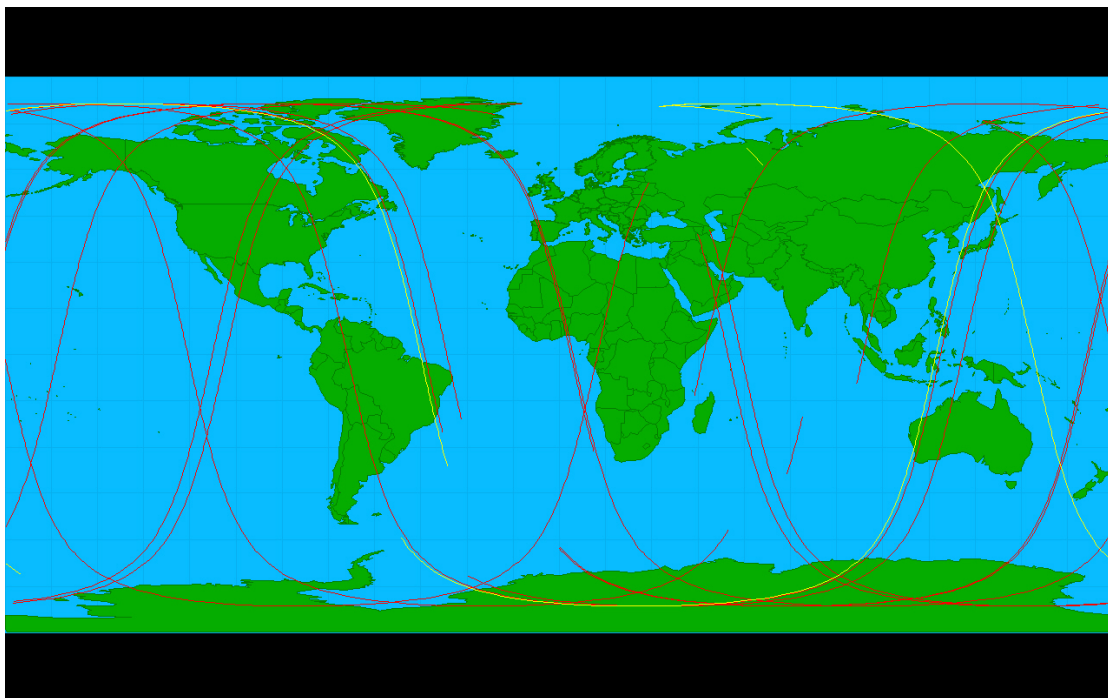


Figure 1.4.2.1: Missing measurements during cycle 32.
Yellow line: Level0 missing (PDS failure)
Red lines: Level1 missing

The Level0 data was available the 99.70% of the time during the cycle.
 The Level1b data was available the 98.30% 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
16-NOV-04 00:50:16	16-NOV-04 02:24:10	5634	14184	14185
18-NOV-04 12:05:03	18-NOV-04 12:07:41	158	14220	14220
07-DEC-04 11:23:52	07-DEC-04 12:10:30	2798	14491	14492

08-DEC-04 14:56:13	08-DEC-04 14:58:02	109	14508	14508
08-DEC-04 16:31:58	08-DEC-04 16:33:38	100	14509	14509
08-DEC-04 18:09:35	08-DEC-04 18:13:08	213	14510	14510
08-DEC-04 19:49:14	08-DEC-04 19:52:13	179	14511	14511

Tab 1.4.2.1: ATS_NL__OP missing data during cycle 32

UTC Start	UTC Stop	Duration (sec)	Orbit Start	Orbit Stop
13-NOV-04 00:47:38	13-NOV-04 03:28:15	9637	14141	14143
16-NOV-04 05:28:05	16-NOV-04 06:56:17	5292	14187	14188
18-NOV-04 08:54:38	18-NOV-04 10:22:48	5290	14218	14219
18-NOV-04 21:36:11	18-NOV-04 23:07:47	5496	14225	14226
25-NOV-04 16:48:18	25-NOV-04 18:15:12	5214	14323	14324
27-NOV-04 04:31:38	27-NOV-04 04:36:57	319	14344	14344
03-DEC-04 00:20:03	03-DEC-04 01:45:59	5156	14427	14428
04-DEC-04 17:05:17	04-DEC-04 18:32:03	5206	14452	14453
04-DEC-04 20:24:17	04-DEC-04 23:04:59	9642	14454	14455

Tab 1.4.2.2: ATS_TOA_1P missing data during cycle 32

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 (bad/missing telemetry):

Orbit number	Date	Reason
14118	11 November	Unknown
14128,14129, 14139, 14140	12 November	Esrin demodulator problems
14143, 14144, 14153	13 November	Esrin demodulator problems
14167, 14168	14 November	Esrin demodulator problems
14172, 14177	15 November	Esrin demodulator problems
14175, 14180, 14189	16 November	Esrin demodulator problems
14204	17 November	Unknown
14223	18 November	Unknown
14347	27 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 #31).

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 very high jitter were detected, but there were 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 EnviView, for example).

SENSOR TEMPERATURE:

All sensors maintained their nominal orbital and seasonal ranges in this cycle, except during the outgassing when the thermal channels were off.

VISCAL:

Reflectance channel calibration files are available for all days except:
November 19, 20 & 12 (Outgassing)
November 29

Outside of the outgassing period, nominal viscal characteristics were observed throughout the cycle where data was available. Remember that visible calibration accuracy is likely to be somewhat reduced for up to 3 weeks after an outgassing.

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 to nominal throughout the cycle.

NEAT:

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

- Unphysical sea surface temperature values in Level 2 AATSR products from PDHS-E at intervals of 480 rows:
Open – IPF maintainer unable to reproduce the problem. More investigation required.
- 50 / 17 km Cell Size Anomaly in AST product:
Open – IPF maintainer say that there is an extra configuration parameter which could be used to override AST_cell_dimension in the PC2 file, but that when using the default configuration file delivered with the IPF this override function should not be activated. More investigation required.

1.5.3.1.1 New SPRs since the last Cyclic Report

None

1.5.3.2 SPR closed

- Inconsistent values in AST confidence word, 17 km cell:
Investigation completed - to be corrected with a patch at next appropriate opportunity.

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 November 2004 composed from the spatially averaged 10' product, provided by the UK Met Office, corresponding to part of Cycle 32, is shown in Figure 1.6.2-1.

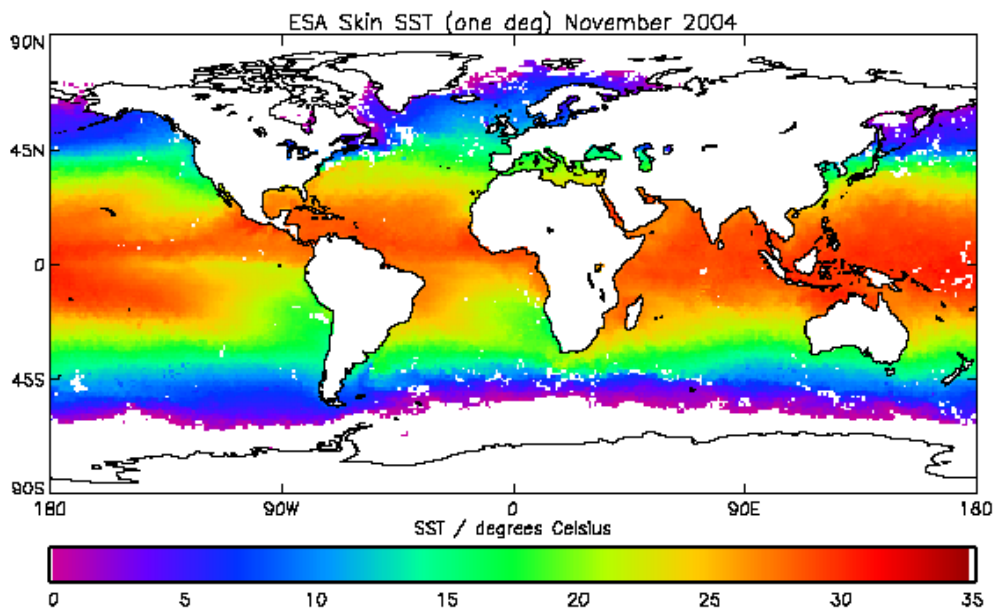


Figure 1.6.2-1: Monthly Global Average SST for November 2004. Image provided by the UK Met Office

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 November 2004 being shown in Figure 1.6.2-2. In November 2004, there were 1491 match-ups in total, with a mean (ESA operational dual-view skin SST minus buoy SST) of -0.015 K, standard deviation 0.36 K, and a mean (dual-view bulk SST minus buoy SST) of 0.168 K, standard deviation 0.36 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.

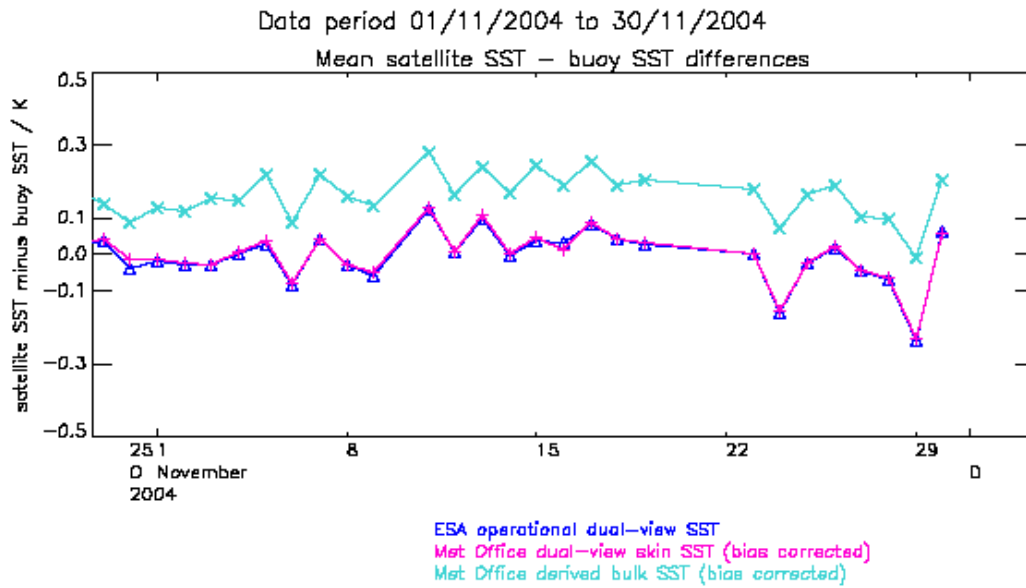


Figure 1.6.2-2: Comparison of daily mean difference between 10' AATSR SST values and in situ buoy SST for November 2004. image provided by the UK Met Office.

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