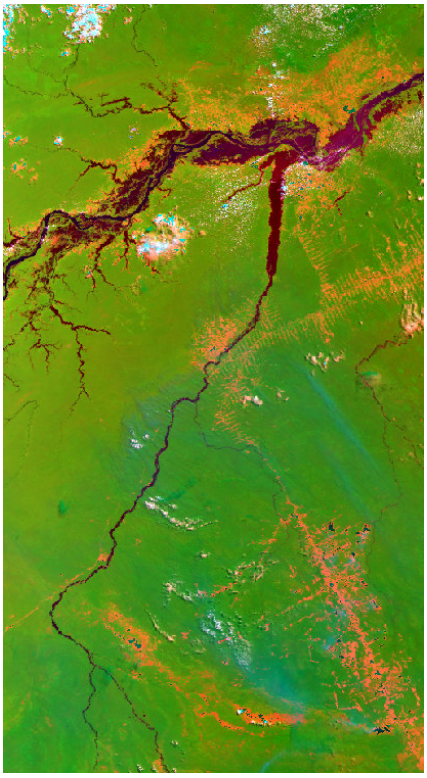
ENVISAT - AATSR

CYCLIC REPORT #71

	START	END
DATE	04 AUG 2008	08 SEPT 2008
TIME	21:59:29	21:59:29
ORBIT #	33622	34122



Brazil, 15th August 2008 – RGB composite of the 3.7 µm, 870nm and 670nm respectively bands, showing the Amazon River.

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A P P R O V A L

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

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AATSR CYCLIC REPORT # 71

1 INTRODUCTION

The AATSR Cyclic Report is distributed by the AATSR DPQC team to keep the AATSR community informed of any modification regarding instrument performances, the data production chain and the results of calibration and validation campaigns at the end of each Envisat cycle, which consists of 501 complete orbits over the course of 35 days.

This document is available online at: http://earth.esa.int/pcs/envisat/aatsr/reports/cyclic/

1.1 Acronyms and Abbreviations

AATSR	Advanced Along Track Scanning Radiometer
APC	Antenna Pointing Controller
CR	Cyclic Report
DDS	Data Dissemination System
DMOP	Detailed Mission Operation Plan
DMS	Data Management System
DPQC	Data Product Quality Control
EN-UNA-YYYY/#	Envisat Unavailability (plus year and number)
ESOC	European Space Operation Centre
HSM	High Speed Multiplexer
IECF	Instrument Engineering and Calibration Facilities
IPF	Instrument Processing Facilities
LUT	Look Up Table
MPS	Mission Planning Schedule
NRT	Near Real Time
OCM	Orbit Control Manoeuvre
OBDH	On-board Data Handling
PDS	Payload Data Segment
PMC	Payload Management Computer
RAL	Rutherford Appleton Laboratory
SPR	Software Problem Reporting
SSR	Solid State Recorder
SW	Software
VISCAL	Visible Calibration

The AATSR list of acronyms and abbreviations is in the following site:
http://envisat.esa.int/dataproducts/aatsr/CNTR5.htm#eph.aatsr.glossary

2 SUMMARY

Cyclic Report: 71

Cycle Start: 04 Aug 2008, 21:59:29 Orbit #: 33622

Cycle End: 08 Sept 2008, 21:59:29 Orbit #: 34122

The main activities during the cycle have been as follows:

- **L0 Processor and IPF Version:**

  L0 Processor – no change (5.22)

  Level 1b & Level 2 processor – no change (6.01)

- **Visible channel calibration:**

  The visible calibration data supplied as an aux file (ATS_VC1_AX) continued to be regularly updated throughout the cycle.

- **NRT production problem at Kiruna**

  NRT dissemination was disrupted on the 8th of September. The cause of disruption was resolved and the backlog recovery began on the 9th of September.

- **Switch of antenna at Kiruna**

  On the 25th of August, the reception of Envisat data at Kiruna was transferred to an alternate antenna. This is the suspected cause for an increase in CRC errors and NRT product segmentation of products received at Kiruna since this date. This is currently under investigation. Observed CRC errors have been within nominal quality thresholds for all but the following orbits: 33992, 34006, 34019, 34020, 34032, 34062 and 34077.

- **Power failure at Kiruna**

  On the 13th of August a public power failure caused a brief loss of tracking at Kiruna. Backup generators were brought online and tracking resumed shortly after.

3 SOFTWARE & AUX FILE VERSION CONFIGURATION

3.1 Software Version

AATSR IPF for Level 1 and Level 2: Version 6.01

3.2 Auxiliary Files

AATSR processing uses the following auxiliary files:

- Browse Product Lookup Data (ATS_BRW_AX)
- L1b Characterisation Data (ATS_CH1_AX)
- Cloud Lookup Table Data (ATS_CL1_AX)
- General Calibration Data (ATS_GC1_AX)
- AATSR Instrument Data (ATS_INS_AX)
- Visible Calibration Coefficients Data (ATS_VC1_AX)
- L1b Processing Configuration Data (ATS_PC1_AX)
- L2 Processing Configuration Data (ATS_PC2_AX)
- SST Retrieval Coefficients Data (ATS_SST_AX)
- LST Land Surface Temperature Coefficients Data (ATS_LST_AX)

The latest filename for each auxiliary file in use in the PDS is as follows:

Product name
ATS_BRW_AXVIEC20020123_072338_20020101_000000_20200101_000000
ATS_CH1_AXVIEC20070720_093530_20020301_000000_20200101_000000
ATS_CL1_AXNIEC20070223_102348_20010308_120446_20120801_235959
ATS_GC1_AXVIEC20070720_093834_20020301_000000_20200101_000000
ATS_INS_AXVIEC20070720_094014_20020301_000000_20200101_000000
See below for VC1 files
ATS_LST_AXVIEC20070720_094144_20020301_000001_20200101_000000
ATS_PC1_AXVIEC20070720_094312_20020301_000000_20200101_000000
ATS_PC2_AXVIEC20020123_074151_20020101_000000_20200101_000000
ATS_SST_AXVIEC20051205_102103_20020101_000000_20200101_000000

Table 3-1 Latest auxiliary files currently in use by the PDS

3.2.1 STATUS OF DAILY VISIBILE CALIBRATION FILES

3.2.1.1 VC1 File Availability

The daily reflectance channel calibration files were available for all dates, except for the following:

- 07 August 2008,
- 24 August 2008.

The orbital VC1 files continued to be generated from the available L0 data.

3.2.2 STATUS OF OTHER AUXILIARY FILES

No auxiliary files changed during this cycle.

4 PDS STATUS

4.1 Instrument Unavailability

There were no periods of instrument unavailability during the cycle.

4.2 L0 Data Acquisition and L1b Processing Status

Week		Orbit		Availability (s)			Availability (%)		
#	Dates	Start	Stop	Inst Unav	L0 gaps	L1 gaps	Instrument	L0	L1
1	August 4, 2008	33622	33721	0	0	0	100.00%	100.00%	100.00%
2	August 11, 2008	33722	33821	0	464	0	100.00%	99.92%	99.92%
3	August 18, 2008	33822	33922	0	0	0	100.00%	100.00%	100.00%
4	August 25, 2008	33923	34022	0	0	0	100.00%	100.00%	100.00%
5	September 1, 2008	34023	34122	0	0	0	100.00%	100.00%	100.00%

Table 4-1 Instrument and data unavailability weekly summary for cycle 71

The instrument was available for 100% of the time during the cycle.
The L0 data were available for 99.98% of the time during the cycle.
The L1b data were available for 99.98% of the time during the cycle.

The following L0 data was missing from this cycle:

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
13/08/2008 11:18	13/08/2008 11:26	464	33744	33744

Table 4-2 ATS_NL__0P missing data during cycle 71

There were no data missing at L1b that were not associated with missing L0 data.

4.2.1 ORBITS AFFECTED BY POOR DATA QUALITY

The information reported in Section 4.2 does not consider the quality of data, only whether or not it is available.

During this cycle, the following orbits contained frames suffering from bad/missing telemetry:

- 33633 (5th August 2008)
- 33900 (23rd August 2008)
- 33978, 33984 (29th August 2008)
- 33986 (30th August 2008)
- 34005, 34006 (31st August 2008)
- 34027, 34035 (2nd September 2008)
- 34042 (3rd September 2008)

4.3 L0 and L1b Backlog Processing Status

There is no update available for report on the status of backlog processing.

5 DATA QUALITY CONTROL

5.1 Monitoring of Instrument Parameters

5.1.1 JITTER

No update is available for this information for this cycle; this jitter trend plot contains information up to the end of cycle 70.

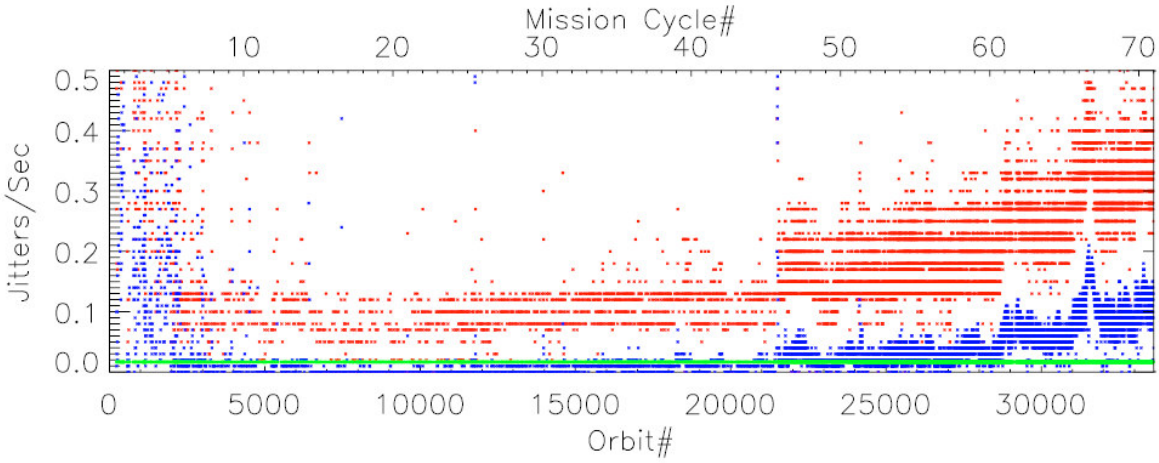

Figure 5.1 Jitter trend from mission start

The plot shows the jitter-trend since the start of the mission, against both orbit-number and cycle-number. The mean jitter-rate (per-orbit) is shown in blue and the maximum rate per orbit in red. The green horizontal line shows the nominal mean jitter-level achieved for much of the mission.

5.1.2 SENSOR TEMPERATURE

No update is available for this section at this time.

5.1.3 VISCAL

NRT calibration quality for AATSR reflectance channels has been maintained throughout this cycle.

5.1.4 NE∆T

This information will be included in the next Cyclic Report.

5.2 User Rejections

There were no user rejections during this cycle.

5.3 Software Problem Reporting

This section describes the open SPRs, their potential impact on the data quality, and SPRs that have been closed.

5.3.1 EXISTING SPRS THAT ARE STILL OPEN

The following SPRs are still open:

Inconsistent values in AST Confidence word, 17 and 50km cells
NA-PR-07-02946
The AST confidence word may be incorrectly set for records where the nadir or dual view SST retrieval was invalid, indicating that the 3.7 micron channel was used (although this has no meaning in this instance). Although the wrongly set flags may be ignored as far as the 17km cell is concerned, they present a problem since they may propagate into the confidence word for the 50km cell. The problem does not occur for daytime (descending) arcs where the retrievals are valid for both views.

5.3.2 NEW SPRS SINCE THE LAST CYCLIC REPORT

The following SPR has been opened since the last cyclic report:

AATSR Child Products contain insufficient number of ADS records.
NA-PR-08-03912
The number of ADS records present in AATSR child products is insufficient for processing of the entire product. Users are currently advised to order products of at least 1 granule longer to obtain all required ADS records. Excluding the SQADS and the scan pixel x and y ADS, the DPM requires that for AATSR full resolution products, the number of records in the ADS shall be one greater than the number of MDS granules in the product. Child products are currently produced with a number of ADS records equal to the number of MDS granules in the product.

5.3.3 CLOSED SPRS

No SPRs have been closed since the last Cyclic Report.

5.4 Monthly Level 3 Product

The following plots have been generated from the available meteo products acquired in August. This consists of 439 orbits from 33566 to 34008. Figures Figure 5.3, Figure 5.4, Figure 5.5, Figure 5.6 show the SST average in dual and nadir views, the standard deviation and the number of contributory orbits.

Please note we are not able to provide absolute colour scales at this time, however the colouring scheme used is given in Figure 5.2 and the data ranges of each diagram are also given.

Figure 5.2 – This is the colouring scheme used for the following plots, running from left to right with increasing magnitude.

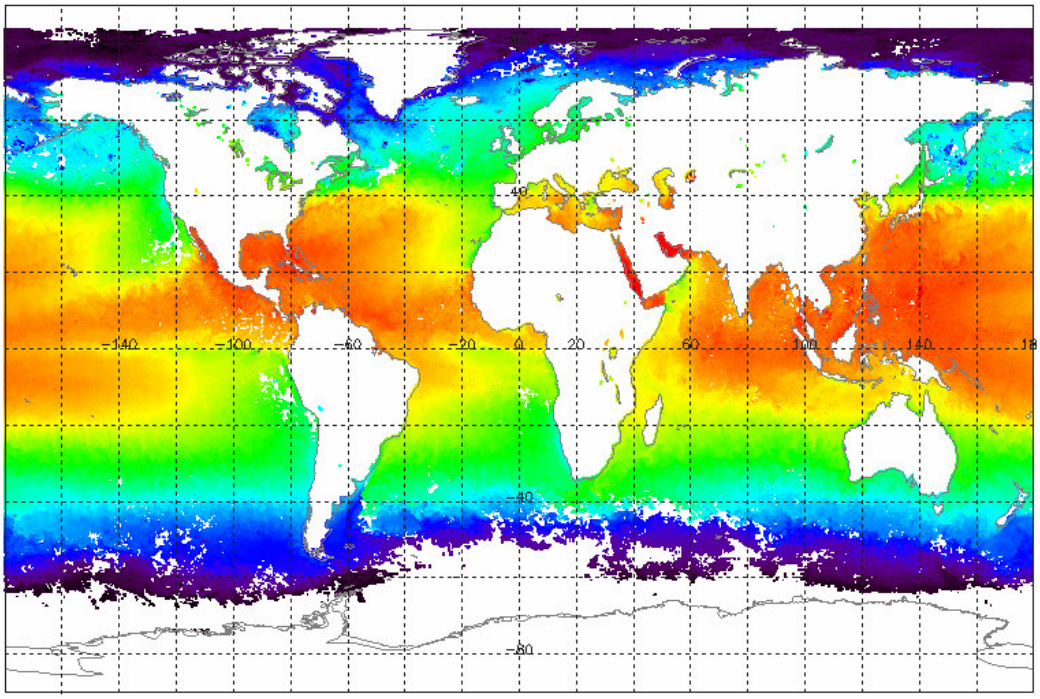

Figure 5.3 - This figure gives the monthly average Dual View SST, with a range of 270 - 305 Kelvin

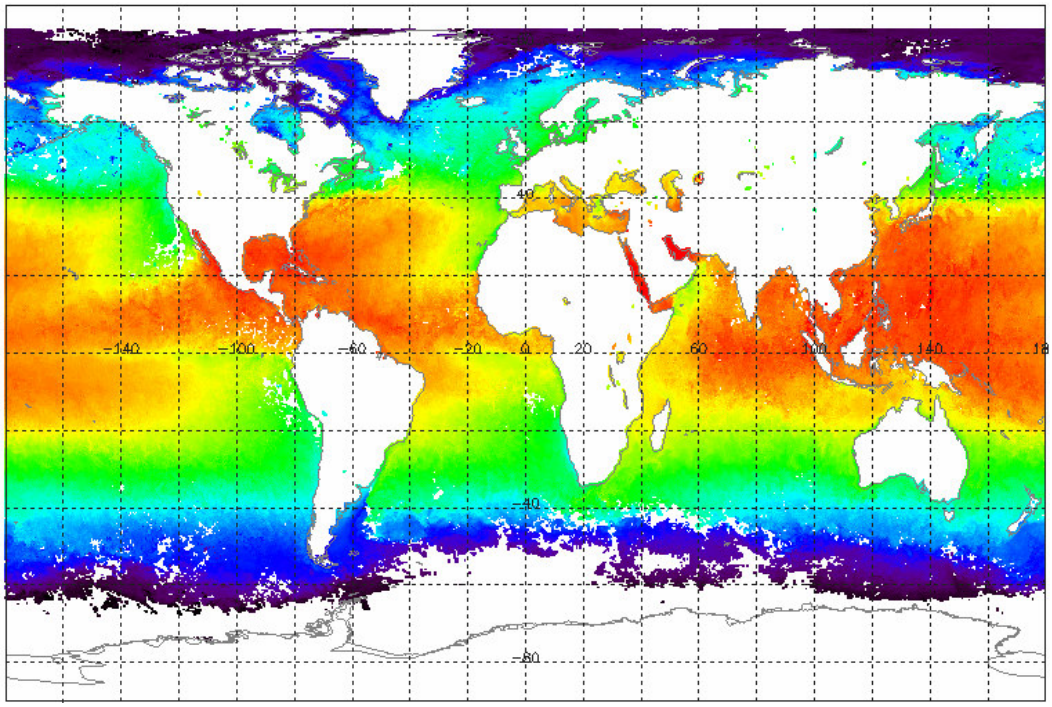

Figure 5.4 - This figure gives the monthly average Nadir SST, with a data range of 270 - 305 Kelvin

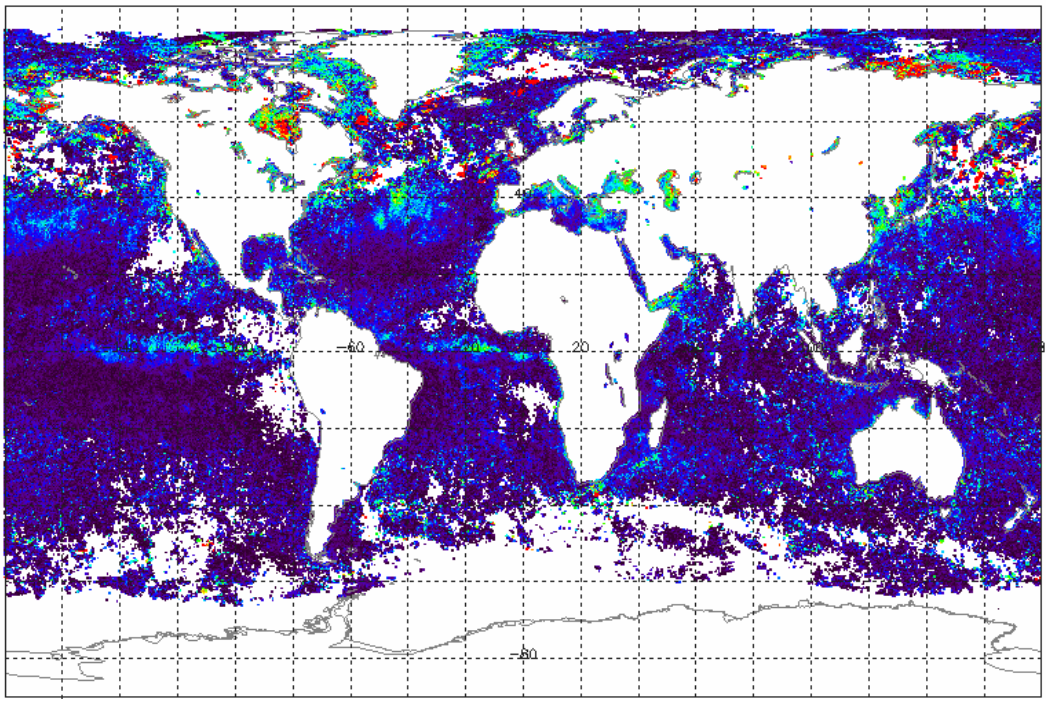

Figure 5.5 - The standard deviation of the monthly average in SST with a data range of 0 to 2 Kelvin

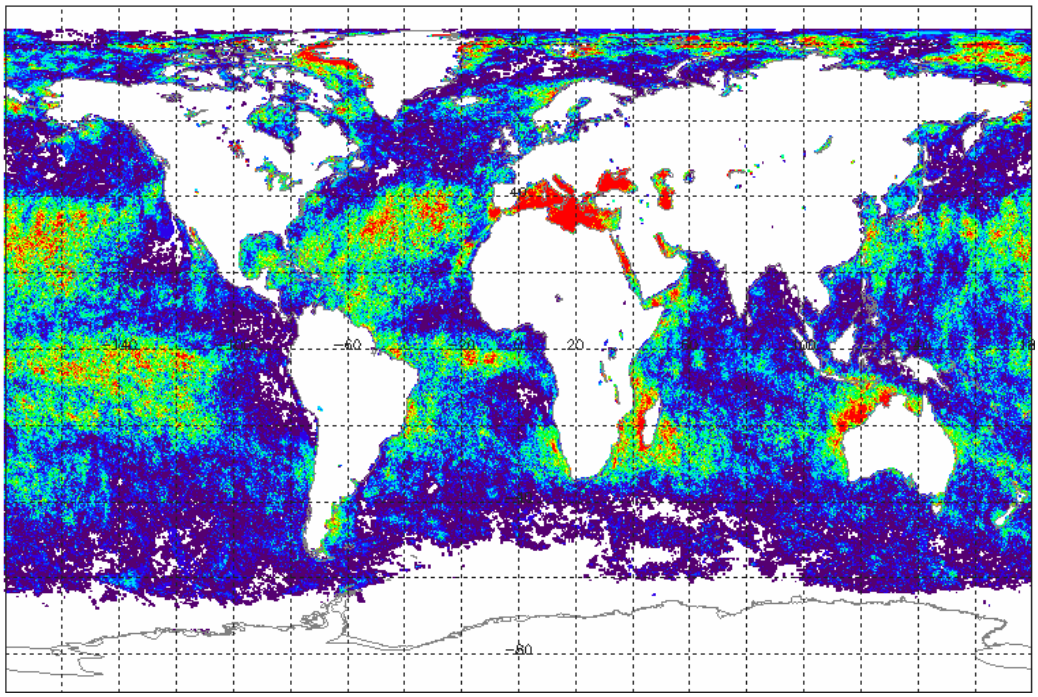

Figure 5.6 – The number of contributory orbits to the calculation of the SST, with a range of 0 to 10

6 CALIBRATION/VALIDATION ACTIVITIES & RESULTS

6.1 Calibration

No additional calibration results were reported during this cycle.

6.2 Validation

A monthly mean global dual-view SST plot for Cycle 71 composed from ATS_AR__2P 10' data is shown below in Figure 6.1. The monthly mean contains day time and night time data.

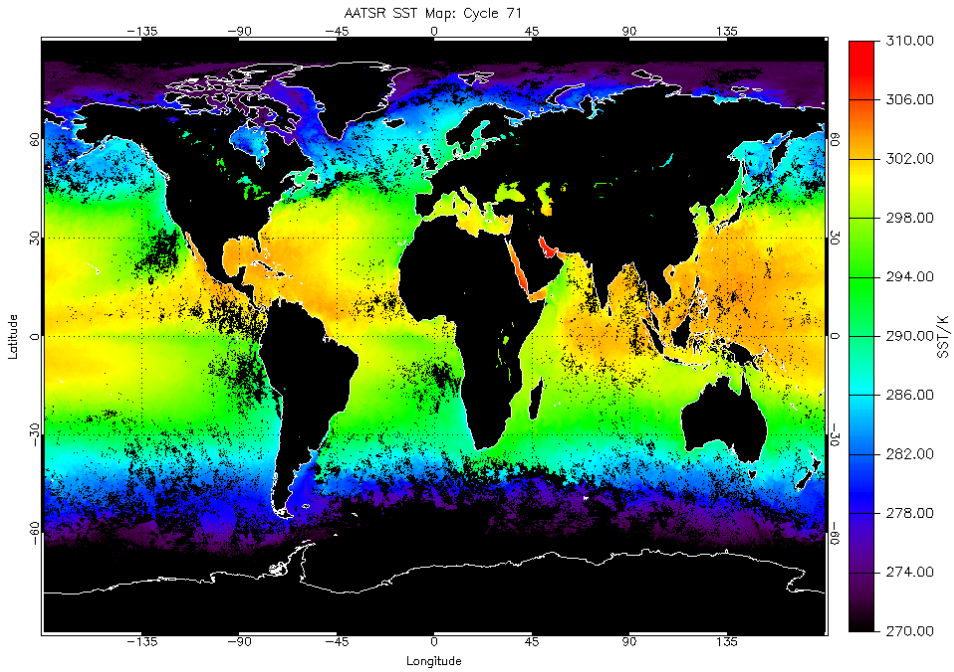

Figure 6.1: Monthly Global Average dual-view SST for Cycle 71.

The Met Office has validated the AATSR dual-view SST data using the global network of *in situ* buoy SST data, the results for Cycle 71 being shown in Figure 6.2. The updated SST coefficients released in December 2005 were used in the AATSR SST retrievals.

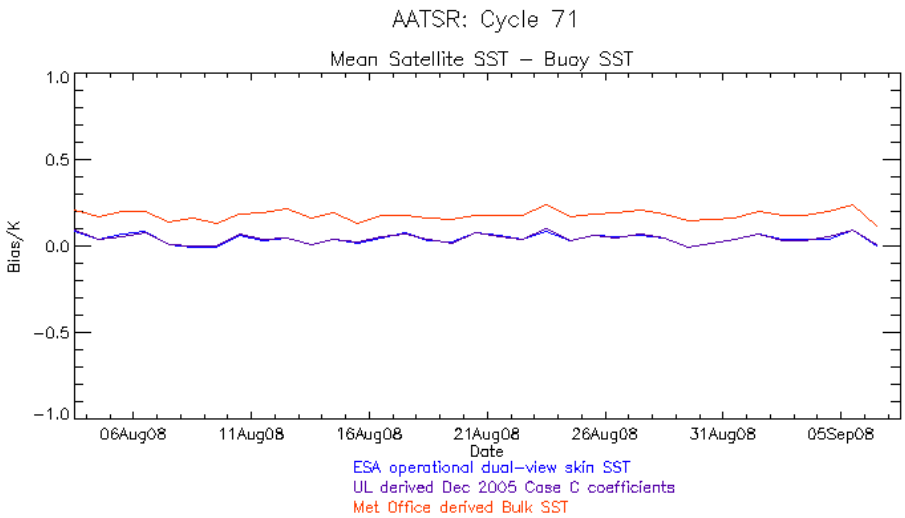

Figure 6.2: Comparison of daily mean difference between 10´ AATSR SST values and in situ buoy SST for Cycle 71. Data provided by the Met Office.

During cycle 71, there were 2043 night time match-ups, with a mean (UL derived dual-view skin SST minus buoy SST) of -0.007 K, standard deviation 0.25 K, and a mean (dual-view bulk SST minus buoy SST) of +0.131 K, standard deviation 0.24 K. A total of 1689 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.104 K, standard deviation 0.30 K, and a mean (dual-view bulk SST minus buoy SST) of +0.237 K, standard deviation 0.29 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.

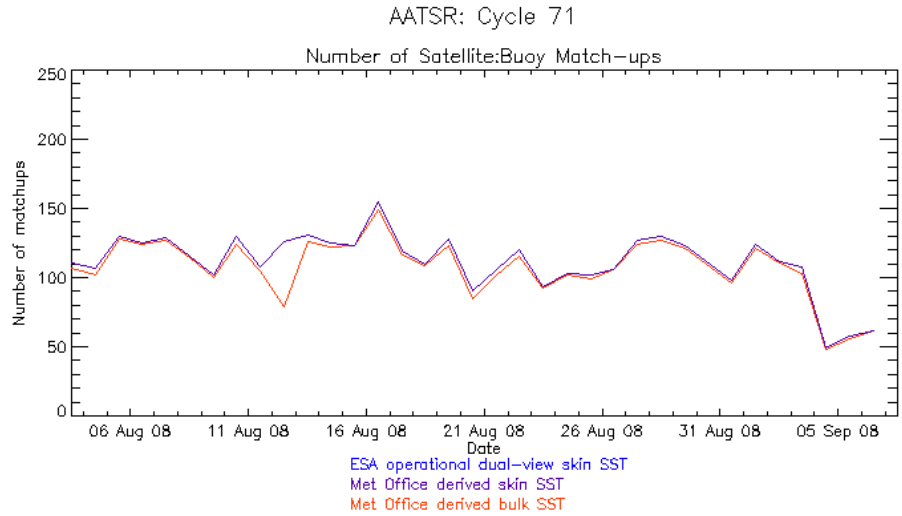

Figure 6.3: Plot of daily number of match-ups between 10´ AATSR SST values and in situ buoy SST for Cycle 71. Data provided by the Met Office.

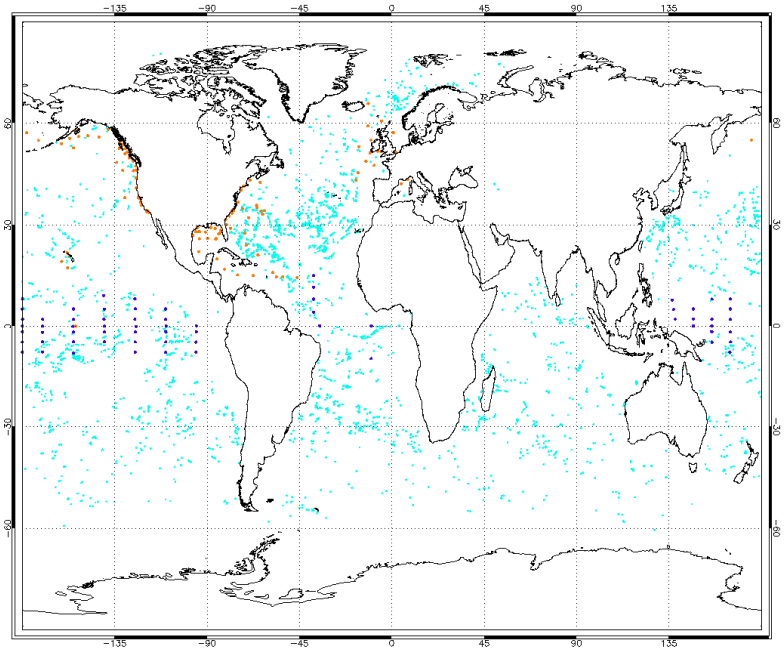

Figure 6.4: Map showing global distribution of match-ups between 10´ AATSR SST values and in situ buoy SST for Cycle 71. The red dots indicate a match-ups to a moored buoy; the cyan dots indicate a match-up to a drifting buoy. Data provided by the Met Office.

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

7 DISCLAIMERS

No new disclaimers have been issued during this cycle.