

# ENVISAT - AATSR

## CYCLIC REPORT #92

	START	END
DATE	9TH AUGUST 2010	13TH SEPTEMBER 2010
TIME	21:59:29	21:59:29
ORBIT #	44143	44643



This subset from a Level 1 product acquired on the 28<sup>th</sup> August 2010 shows the River Amazon (bottom) and two of its tributaries, Negro (top) and Japurá (centre) in Brazil. This RGB image is composed of the 1.6, 0.87 and 0.55 micron channels for the nadir view.

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T A B L E O F C O N T E N T S

**AATSR CYCLIC REPORT # 92..... 1**

**1 INTRODUCTION ..... 1**

1.1 Acronyms and Abbreviations ..... 1

**2 SUMMARY ..... 2**

**3 SOFTWARE & AUX FILE VERSION CONFIGURATION ..... 3**

3.1 Software Version..... 3

3.2 Auxiliary Files..... 3

3.2.1 Status of Daily Visible Calibration Files ..... 4

3.2.1.1 VC1 File Availability..... 4

3.2.2 Status of other Auxiliary Files..... 4

**4 PDS STATUS ..... 5**

4.1 Instrument Unavailability ..... 5

4.2 L0 Data Acquisition and L1b Processing Status..... 5

4.2.1 Orbits Affected by Poor Data Quality ..... 5

4.3 L0 and L1b Backlog Processing Status ..... 5

**5 DATA QUALITY CONTROL..... 6**

5.1 Monitoring of Instrument Parameters ..... 6

5.1.1 Jitter ..... 6

5.1.2 Sensor Temperature ..... 6

5.1.3 Viscal ..... 6

5.1.4 NEAT ..... 6

5.2 User Rejections ..... 7

5.3 Software Problem Reporting..... 7

5.3.1 Existing SPRs that are still open ..... 7

5.3.2 New SPRs since the last cyclic report ..... 8

5.3.3 Closed SPRs ..... 8

5.4 Monthly Level 3 Product..... 9

**6 CALIBRATION/VALIDATION ACTIVITIES & RESULTS ..... 12**

6.1 Calibration ..... 12

6.2 Validation..... 12

**7 DISCLAIMERS ..... 14**

## AATSR CYCLIC REPORT # 92

### 1 INTRODUCTION

The AATSR Cyclic Report is distributed by the AATSR IDEAS 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
EN-UNA-YYYY/#	Envisat Unavailability (plus year and number)
ESOC	European Space Operation Centre
HSM	High Speed Multiplexer
IDEAS	Instrument Data quality Evaluation and Analysis Service
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 available at the following site:  
<http://envisat.esa.int/dataproducts/aatsr/CNTR5.htm#eph.aatsr.glossary>

## 2 SUMMARY

**Cyclic Report:** 92

**Cycle Start:** 9th August 2010, 21:59:29 Orbit #: 44143

**Cycle End:** 13th September 2010, 21:59:29 Orbit #: 44643

The main activities during the cycle have been as follows:

- **Kiruna AATSR NRT Dissemination Delays**

9<sup>th</sup> to 10<sup>th</sup> August due to system problems at the PDHS-K facility.

On the 22<sup>nd</sup> August a system problem caused delays in the NRT level 1 and level 2 production,

9<sup>th</sup> to 10<sup>th</sup> September due to system problems at the PDHS-K facility.

- **Esrin AATSR NRT Dissemination Delay**

Network downtime at PDHS-E on 6<sup>th</sup> September for approximately 4 hours impacted the distribution of NRT data as well as access to online archives. The processing centre is now is back to nominal operations.

- **UK-PAC/PAF unavailability**

On 24<sup>th</sup> August 2010 from 10:00 to 18:00 CET, server access to Matera and UK-PAC/PAF were unavailable due to network maintenance affecting the production facility centres.

- **Error in Visible Calibration (VC1) auxiliary files**

It was detected that all VC1 files generated from 4<sup>th</sup> April until 12<sup>th</sup> July (inclusive) did not contain the long-term drift correction. The work to regenerate and disseminate the incorrect VC1 files is ongoing. The first set of reprocessed products has been analysed and has passed the QC checks successfully.

### 3 SOFTWARE & AUX FILE VERSION CONFIGURATION

#### 3.1 Software Version

AATSR IPF for Level 1 and Level 2: Version 6.03

#### 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 VISIBLE CALIBRATION FILES

#### 3.2.1.1 VC1 File Availability

The following daily reflectance channel calibration files were not available during this cycle:

Date	Validity range		Comments
	From	To	
24/08/2010	23/08/2010	30/08/2010	None
29/08/2010	28/08/2010	04/09/2010	None
30/08/2010	29/08/2010	05/09/2010	None
03/09/2010	02/09/2010	09/09/2010	None
07/09/2010	06/09/2010	13/09/2010	None
08/09/2010	07/09/2010	14/09/2010	None

**Table 3-2 Unavailable VC1 files**

### 3.2.2 STATUS OF OTHER AUXILIARY FILES

No auxiliary files changed during this cycle.

## 4 PDS STATUS

### 4.1 Instrument Unavailability

No AATSR data were unavailable due to 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	Aug 9, 2010	44143	44242	0	0	0	100.00%	100.00%	100.00%
2	Aug 16, 2010	44243	44342	0	0	0	100.00%	100.00%	100.00%
3	Aug 23, 2010	44343	44443	0	11592	0	100.00%	98.08%	98.08%
4	Aug 30, 2010	44444	44543	0	0	0	100.00%	100.00%	100.00%
5	Sep 6, 2010	44544	44643	0	0	0	100.00%	100.00%	100.00%

**Table 4-1 Instrument and data unavailability weekly summary for cycle 92**

The instrument was available for 100.00% of the time during the cycle.

The L0 data were available for 99.62% of the time during the cycle.

The L1b data were available for 99.62% 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
24/08/2010 14:30	24/08/2010 16:04	5659	44353	44354
30/08/2010 17:55	30/08/2010 19:34	5933	44441	44442

**Table 4-2 ATS\_NL\_\_0P missing data during cycle 92**

No L1 data was missing from this cycle that was not associated with the missing L0 data reported above.

#### 4.2.1 ORBITS AFFECTED BY POOR DATA QUALITY

During this cycle, no orbits contained frames suffering from bad/missing telemetry.

### 4.3 L0 and L1b Backlog Processing Status

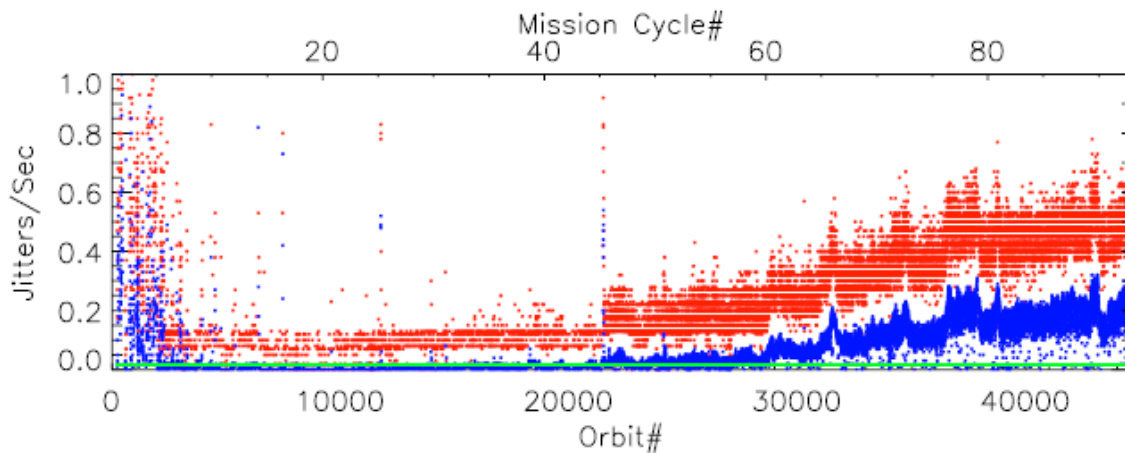
There is no update available on the status of backlog processing.



## 5 DATA QUALITY CONTROL

### 5.1 *Monitoring of Instrument Parameters*

#### 5.1.1 JITTER



**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. The Jitter plot shows a fairly steady net increase over recent weeks.

#### 5.1.2 SENSOR TEMPERATURE

The detector temperature plots for Cycle 92 can be found at:  
<http://zenith.ag.rl.ac.uk/data/zenith/EDS-X/CyclePlots/DetTemps92.pdf>

While in measurement mode, all sensors maintained their nominal orbital and seasonal ranges in this cycle. The detector temperatures have remained nominal

#### 5.1.3 VISCAL

NRT calibration quality for AATSR reflectance channels has been maintained throughout this cycle. In addition, the following set of "orbital" VC1 files was delivered:  
<http://zenith.ag.rl.ac.uk/data/zenith/EDS-X/CyclePlots/VC1-92.txt>

#### 5.1.4 NEΔT

Information on the NEDT for Cycle 92 was not available at the time of publishing; the 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:

#### **Wrong REF\_DOC in MPH of AATSR products**

NA-PR-10-05334

As a result of the AMALFI-2 pilot project, it has been discovered that the REF\_DOC field in the MPH of AATSR products is different from the product specification name.

1) The REF\_DOC should follow "AA-BB-CCC-DD-EEEE\_V/I", 23 characters where AA-BB-CCC-DD-EEEE is the ESA standard document number and V/I is the volume/issue.

2) The referenced product spec is still 3/K. whilst the one applicable, and also referenced in the SRN of 6.03 is 4/A.

#### **AATSR Consolidated Products**

NA-PR-08-03952

The AATSR Flight Operations and Data Plan (FODP), PO-PL-ESA-AT-0152, Issue 2 Revision 5 dated 22 November 2001 defines the meaning of "consolidated" in Appendix B.1 as follows: "... time-ordered, no overlap nor data gap except when the instrument is not operated ...", and for Level 0 there should be sufficient overlap only so that the higher level products can be chopped "... ANX to ANX ...". The FODP is part of the high level agreement between ESA and Defra and so can be taken as the definitive requirement for AATSR products.

#### **Update to AATSR Child product generation requirements**

NA-PR-08-04015

The 'Child Product Generation Requirements' on pages 520-521 of the document 'PDS Technical Specification for Maintenance and Evolution' (PO-RF-CSF-GS-20437) currently reads:

"For time extraction, for each data set in the parent product, the time stamp of the DSRs shall be compared to that of the requested start time (t0) segment. The first DSR extracted from each data set to form the new child data set is the one with a time stamp immediately preceding or equal to t0. The last DSR extracted from each DS is the one immediately preceding t1."

To ensure that a sufficient number of Auxiliary Data Set Records are present in AATSR child products, the requirement should be changed to read as follows:

"For time extraction, for each data set in the parent product, the time stamp of the DSRs shall be compared to that of the requested start time (t0) segment. The first DSR extracted from each data set to form the new child data set is the one with a

time stamp immediately preceding or equal to t0. The last DSR extracted from each DS is the one immediately preceding t1.

For AATSR data, the last ADS DSR extracted from each DS is the one whose time label is equal to or greater than t1 provided such a DSR exists, otherwise the last ADS DSR in the product."

### 5.3.2 NEW SPRS SINCE THE LAST CYCLIC REPORT

One new SPR has been opened since the last Cyclic Report:

**Processing of L1/L2 fails with product:**

**ATS\_NL\_\_OPNPDE20100515\_214836\_000061722089\_00272\_42911\_1524.N1**  
IDEAS-PR-10-05411

The problem does not occur in prototype, but in PDGS operational chain and in Gamme validation platform. Processing the following L0 product to L1 and L2 fails  
ATS\_NL\_\_OPNPDE20100515\_214836\_000061722089\_00272\_42911\_1524.N1  
Please consider that same error occurs also IN GAMME test environment.

### 5.3.3 CLOSED SPRS

No new 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 2010. This consists of 488 products taken from orbits 44015 to 44458. Figure 5-3, Figure 5-4, Figure 5-5 and Figure 5-6 show the SST average in dual and nadir views, the standard deviation and the number of contributory orbits for August 2010. Please note we are not able to provide individual colour scales at this time, however the scheme used is given in Figure 5-2, and the data ranges of each plot are specified in the accompanying caption.



Figure 5-2 This is the colour scheme used for the following plots, running linearly from left to right with increasing magnitude.

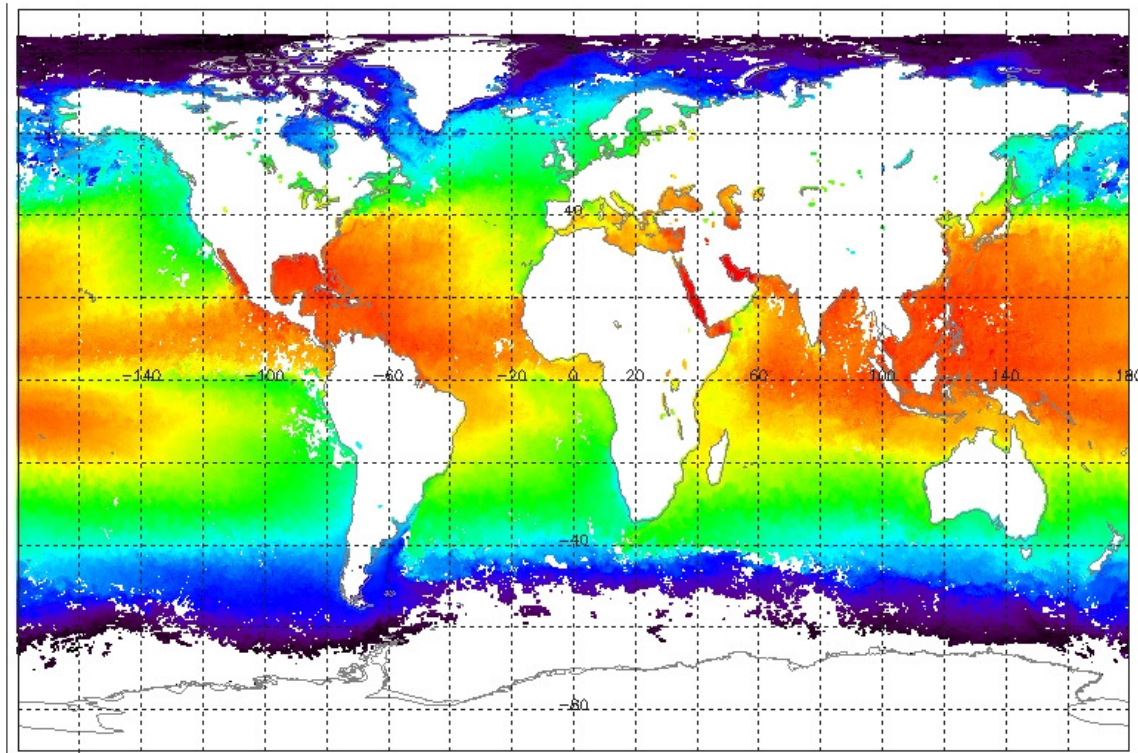


Figure 5-3 Monthly average Dual View SST, with a range of 270 - 305 Kelvin for August 2010

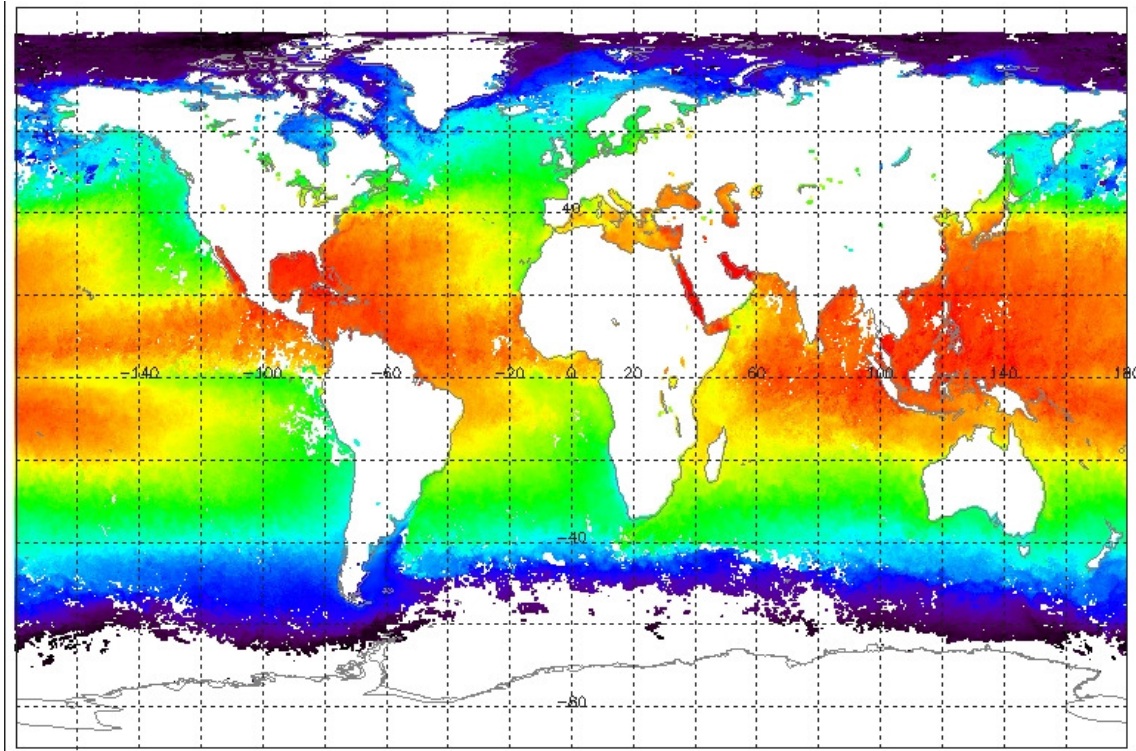


Figure 5-4 Monthly average Nadir SST, with a data range of 270 - 305 Kelvin for August 2010

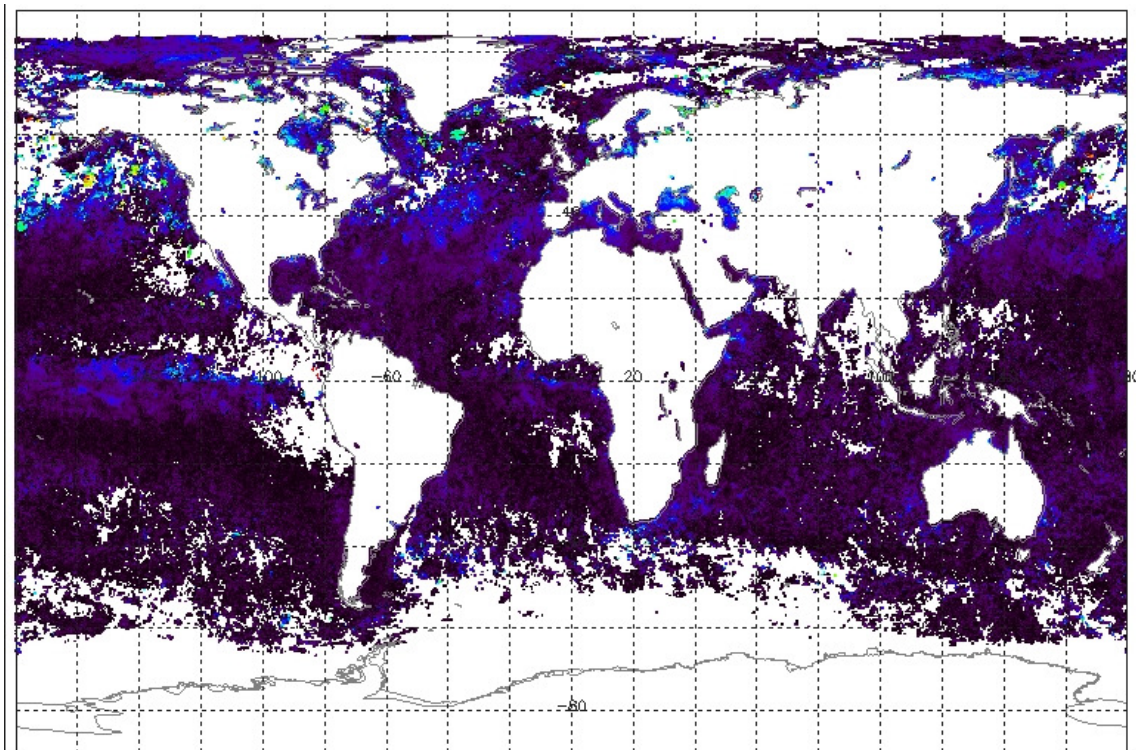
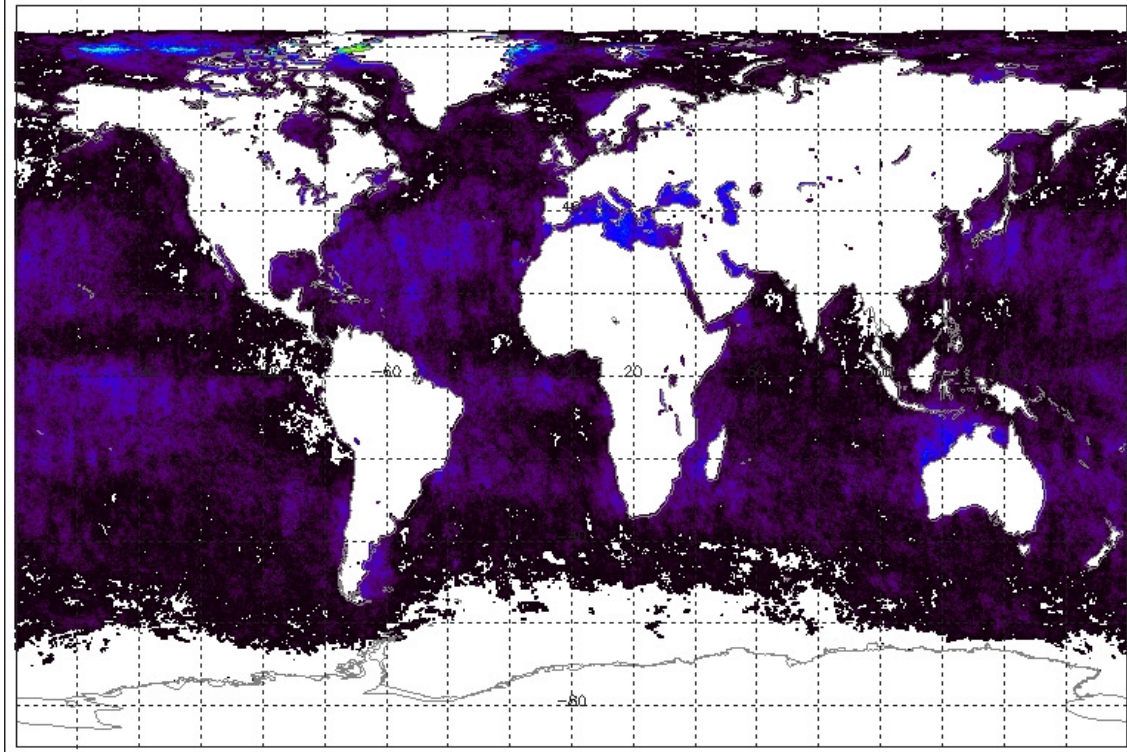


Figure 5-5 Standard deviation of the monthly average SST with a data range of 0 to 5 Kelvin for August 2010



**Figure 5-6 Number of contributory orbits to the calculation of the SST, with a range of 0 to 57 for August 2010**

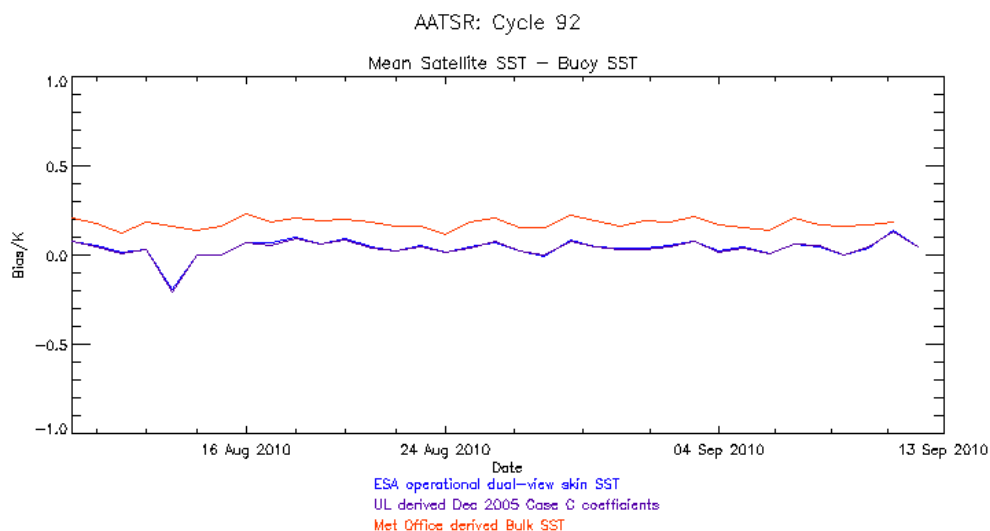
## 6 CALIBRATION/VALIDATION ACTIVITIES & RESULTS

### 6.1 Calibration

No calibration results were reported during this cycle.

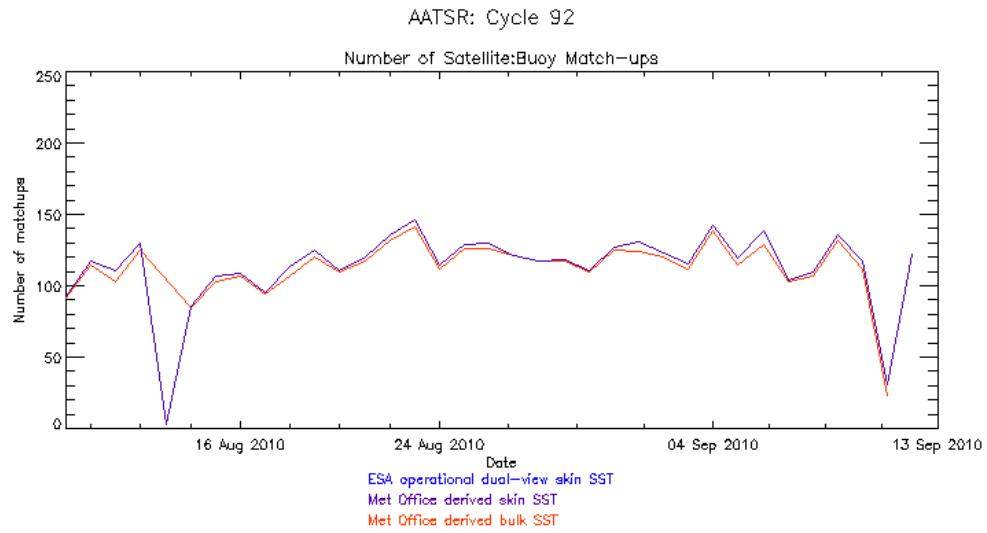
### 6.2 Validation

The Met Office has validated the AATSR dual-view SST data using the global network of in situ drifting buoy SST data, the results for Cycle 92 being shown in Figure 6-1. The updated SST coefficients released in December 2005 were used in the AATSR SST retrievals.

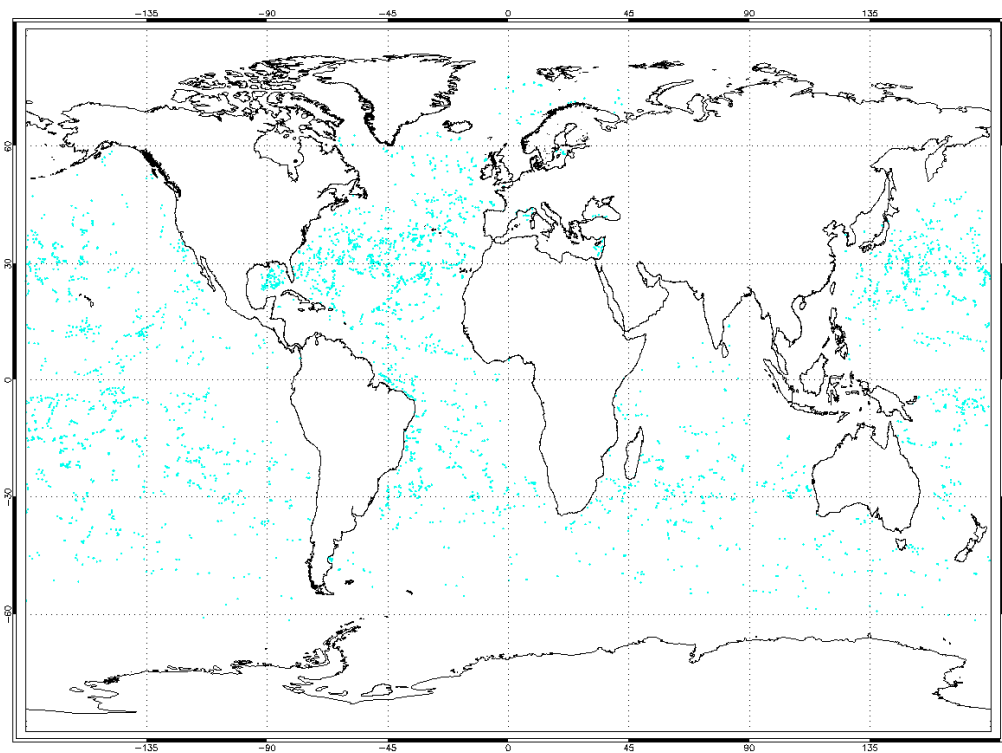


**Figure 6-1 Comparison of daily mean difference between 10' AATSR SST values and in situ drifting buoy SST for Cycle 92. Data provided by the Met Office**

During cycle 92, there were 2050 night time match-ups, with a mean (UL derived dual-view skin SST minus buoy SST) of -0.003 K, standard deviation 0.24 K, and a mean (dual-view depth SST minus buoy SST) of +0.135 K, standard deviation 0.22 K. A total of 1856 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.089 K, standard deviation 0.29 K, and a mean (dual-view depth SST minus buoy SST) of +0.229 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 6-2** Plot of daily number of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 92. Data provided by the Met Office.



**Figure 6-3** Map showing global distribution of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 92. The cyan dots indicate a match-up to a drifting buoy. Data provided by the Met Office.



## **7      DISCLAIMERS**

No new disclaimers have been issued during this cycle.