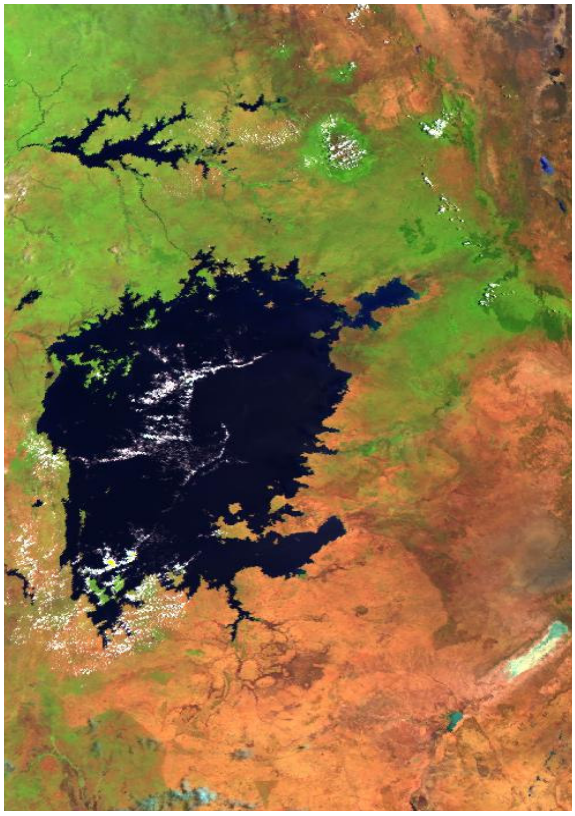
ENVISAT - AATSR

CYCLIC REPORT #82

	START	END
DATE	24 AUGUST 2009	28 SEPTEMBER 2009
TIME	21:59:29	21:59:29
ORBIT #	39133	39633



22nd September 2009 – RGB combination of 0.87, 0.67 and 0.55 micron channels from orbit 39648 showing Lake Victoria, Africa's largest lake and the largest tropical lake in the world.

prepared by/*préparé par* AATSR IDEAS and QWG team
reference/*réference*
issue/*édition* 1
revision/*révision* 0

date of issue/*date d'édition* 09 October 2009
status/*état*
Document type/*type de document* Technical Note
Distribution/*distribution*

A P P R O V A L

Title *titre*	AATSR Cyclic Report – Cycle 82	issue 1 *issue*	revision 0 *revision*

author *auteur*	Sophie Cowie	date *date*	09 October 2009

approved by *approuvé par*	date *date*

C H A N G E L O G

reason for change /*raison du changement*	issue/*issue*	revision/*revision*	date/*date*
		0	

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

ISSUE: 1 REVISION: 0

reason for change/*raison du changement*	page(s)/*page(s)*	paragraph(s)/ *paragraph(s)*

TABLE OF CONTENTS

AATSR CYCLIC REPORT # 82

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: 82

Cycle Start: 24 August 2009, 21:59:29 Orbit #: 39133

Cycle End: 28 September 2009, 21:59:29 Orbit #: 39633

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 – (6.02L02)
  L2P processor – no change (1.5)

- **ENVISAT Orbit Control Manoeuvre (OCM)**

  Notification was received of an OCM which was scheduled for the 28th–29th September 2009. The precise unavailability periods will be reported in the next cyclic report.

- **Maintenance at PDHS-K (KIRUNA)**

  - Due to required interventions at PDHS-K, the Kiruna Rolling Archive and Envisat Web File Server were unavailable from Wednesday 2nd September to Thursday 3rd September 2009. Envisat acquisitions and L0 data productions were not impacted during the intervention.
  - Maintenance at Kiruna during the 25-27th August 2009 has led to some Envisat passes being acquired at the Esrange Station (KSE). Due to the horizon profile of the KSE antenna, a number of orbits have been acquired during this cycle with increased CRC errors.

- **New version of the AATSR operational processor**

  A new version of the AATSR processor is used to generate NRT products, starting from the 28th September. This is a switch of processing platform (from AIX to Linux) and not a change of algorithm.

  The change is expected to be transparent to the users as an extensive validation process has been completed. Following this switch to the Linux processing platform, all AATSR products are of expected quality.

- **Acquisition Problem at PDHS-E (ESRIN)**

  Due to bad weather there were problems with the acquisition of data at PDHS-E (ESRIN) on the 15th September 2009. This caused a gap in the L0 data from 21:22:00 to 22:48:01 15-September-2009.

- **NRT Dissemination Disruptions**

  NRT dissemination was disrupted on the following occasions during the cycle:

  - 23rd - 24th August 2009 at ESRIN
  - 23rd - 24th September 2009 at ESRIN due to HW problems

  All data backlogs were processed during the next few days.

- **AATSR Quicklooks in EOLISA**

  AATSR quicklooks are currently not visible when searching in EOLISA if no geographic criteria are applied.

  An "error loading preview" message is shown by EOLISA for almost all thumbnails retrieved. The same error message is reported when attempting to access the detail window. A single full AATSR metadata covers more than one orbit. The quicklook is visible if a geographic filter is applied, and the area is not too large.

  A new Problem Report has been opened to deal with this issue.

3 SOFTWARE & AUX FILE VERSION CONFIGURATION

3.1 Software Version

AATSR IPF for Level 1 and Level 2: Version 6.02L02

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 27th of August 2009, during this cycle.

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

AATSR data were unavailable due to instrument unavailability at the following times during the cycle:

UTC Start	UTC Stop	Reason	Reference	Planned
None				

Table 4-1 Instrument unavailability during cycle 82

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 24, 2009	39133	39232	0	0	0	100.00%	100.00%	100.00%
2	August 31, 2009	39233	39332	0	0	0	100.00%	100.00%	100.00%
3	September 7, 2009	39333	39433	0	0	0	100.00%	100.00%	100.00%
4	September 14, 2009	39434	39533	0	5161	0	100.00%	99.15%	99.15%
5	September 21, 2009	39534	39633	0	0	0	100.00%	100.00%	100.00%

Table 4-2 Instrument and data unavailability weekly summary for cycle 82

The instrument was available for 100.00% of the time during the cycle.
The L0 data were available for 99.83% of the time during the cycle.
The L1b data were available for 99.83% 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
15-Sep-2009 21:22:00	15-Sep-2009 22:48:01	5161	39447	39447

Table 4-3 ATS_NL__0P missing data during cycle 82

The following L1 data was missing from this cycle:

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
None				

Table 4-4 ATS_TOA_1P missing data during cycle 82

4.2.1 ORBITS AFFECTED BY POOR DATA QUALITY

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

- 39141 (24th August 2009)
- 39157 (26th August 2009)
- 39171 (27th of August, 2009)

- 39180 (28th of August, 2009)
- 39198, 39200 (29th of August, 2009)
- 39123 (30th of August, 2009)
- 39241-42, 39238 (1st September, 2009)
- 39257 (2nd September,2009)
- 39267 (3rd September, 2009)
- 39281 (4th September, 2009)
- 39295 (5th September, 2009)
- 39313 (6th September, 2009)
- 39356 (9th September, 2009)
- 39438 (15th September, 2009)
- 39447, 39453 (16th September, 2009)
- 39545 (22nd September, 2009)
- 39559 (23rd September, 2009)

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

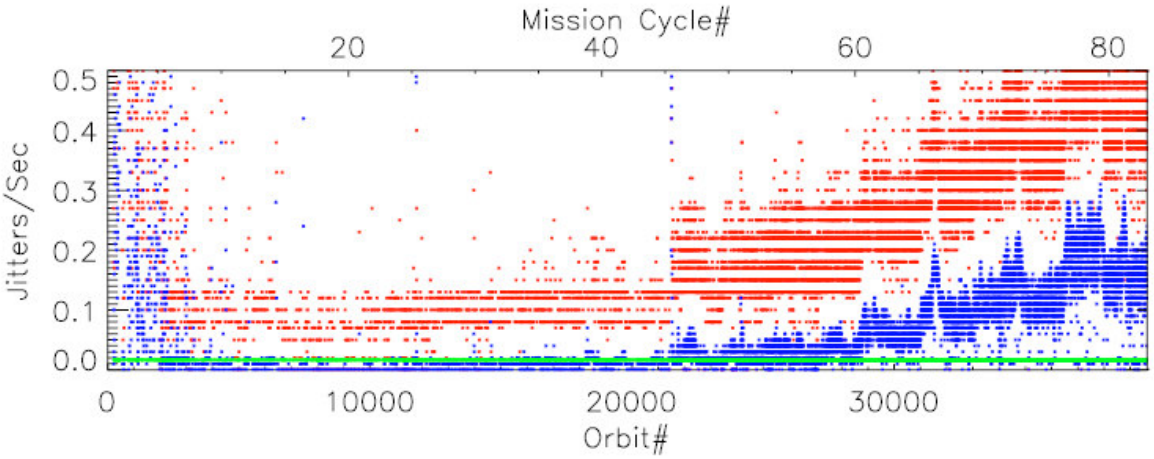


Figure 5-1 Jitter trend from mission start

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 no significant rate-change with respect to the previous cycle.

5.1.2 SENSOR TEMPERATURE

The detector temperature plots for cycle 82 can be found at:
http://aatsr2.ag.rl.ac.uk/data2/aatsr2/EDS-X/CyclePlots/DetTemps82.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://aatsr2.ag.rl.ac.uk/data2/aatsr2/EDS-X/CyclePlots/VC1-82.txt

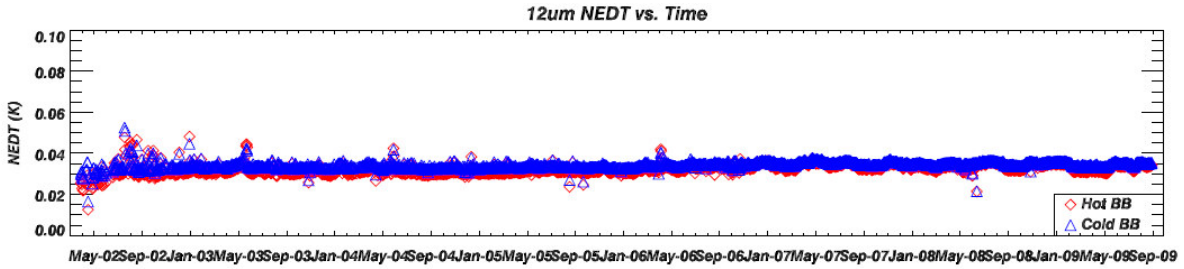
5.1.4 NEΔT

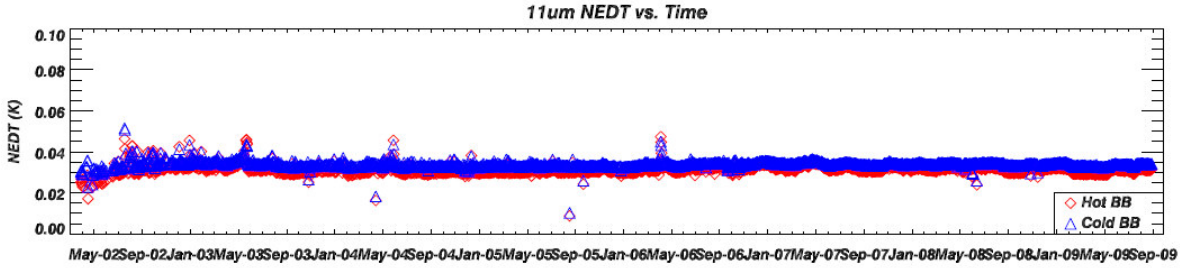
	Hot BB T = 300.68K		Cold BB T = 261.33K	
	Count	**NEDT (mK)**	**Count**	**NEDT (mK)**
12µm	1.60	33.7	1.20	35.2
11µm	1.53	31.3	1.12	34.1
3.7µm	2.45	30.8	1.18	75.8

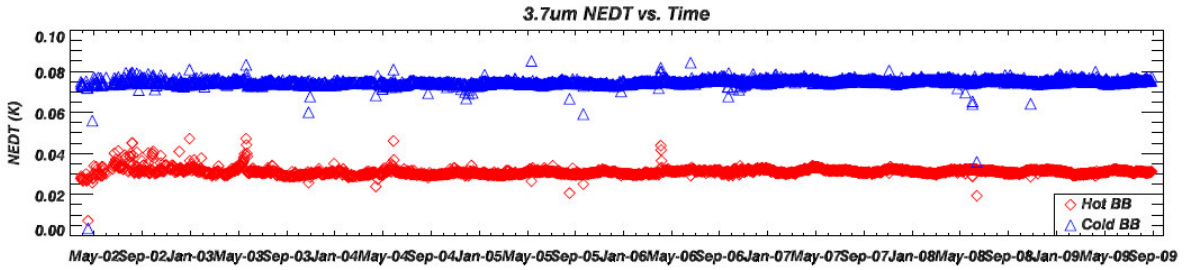
Table 5-1 NEΔT data for 24th August, cycle 81

	Hot BB T = 301.41K		Cold BB T = 262.29K	
	Count	**NEDT (mK)**	**Count**	**NEDT (mK)**
12µm	1.59	33.3	1.19	34.8
11µm	1.51	30.7	1.12	33.9
3.7µm	2.48	31.1	1.20	75.3

Table 5-2 NEΔT data for 20th July 2009, cycle 80







NEΔT results for Cycle 82 will be reported 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.

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

No new SPRs have been opened since the last Cyclic Report

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 2009. This consists of 546 products taken from orbits 38790 to 39233. 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 2009. Please note we are not able to provide individual 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 colour scheme used for the following plots, running linearly from left to right with increasing magnitude.

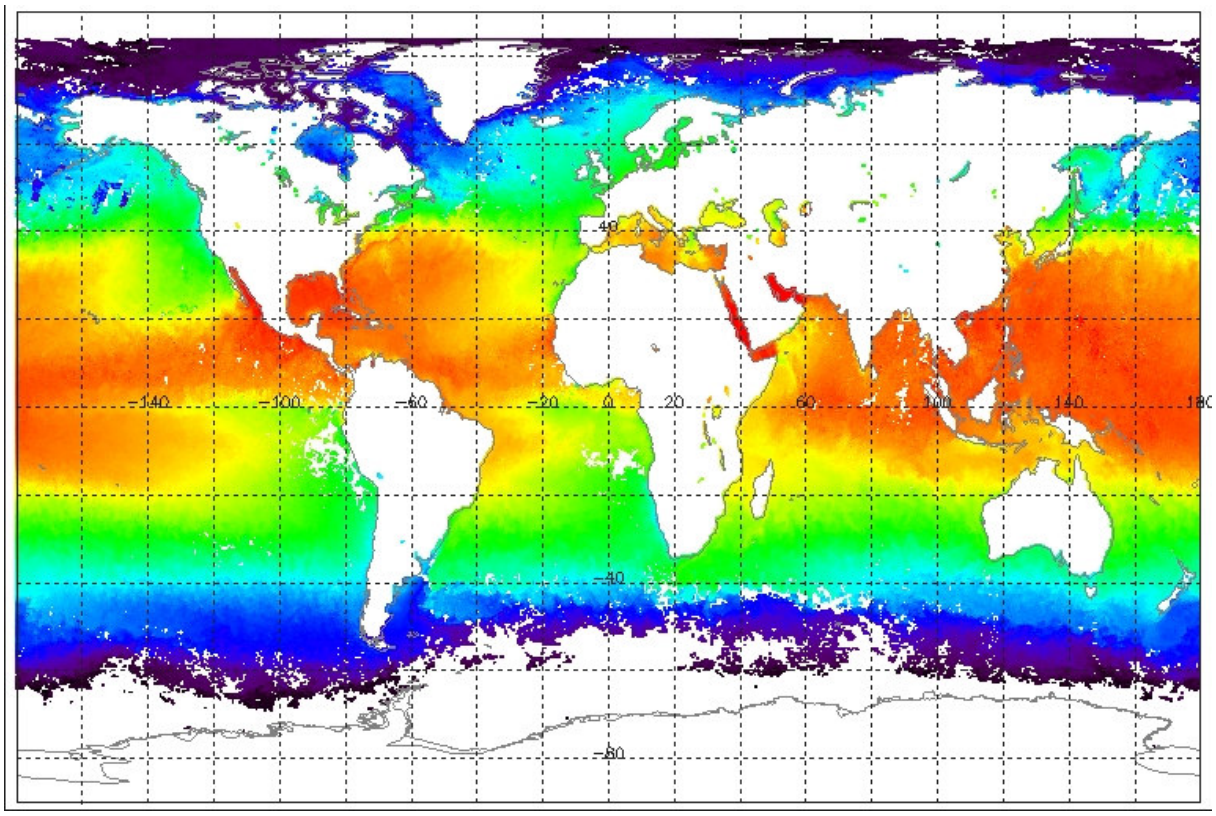


Figure 5-3 - This figure gives the monthly average Dual View SST, with a range of 270 - 305 Kelvin for August 2009.

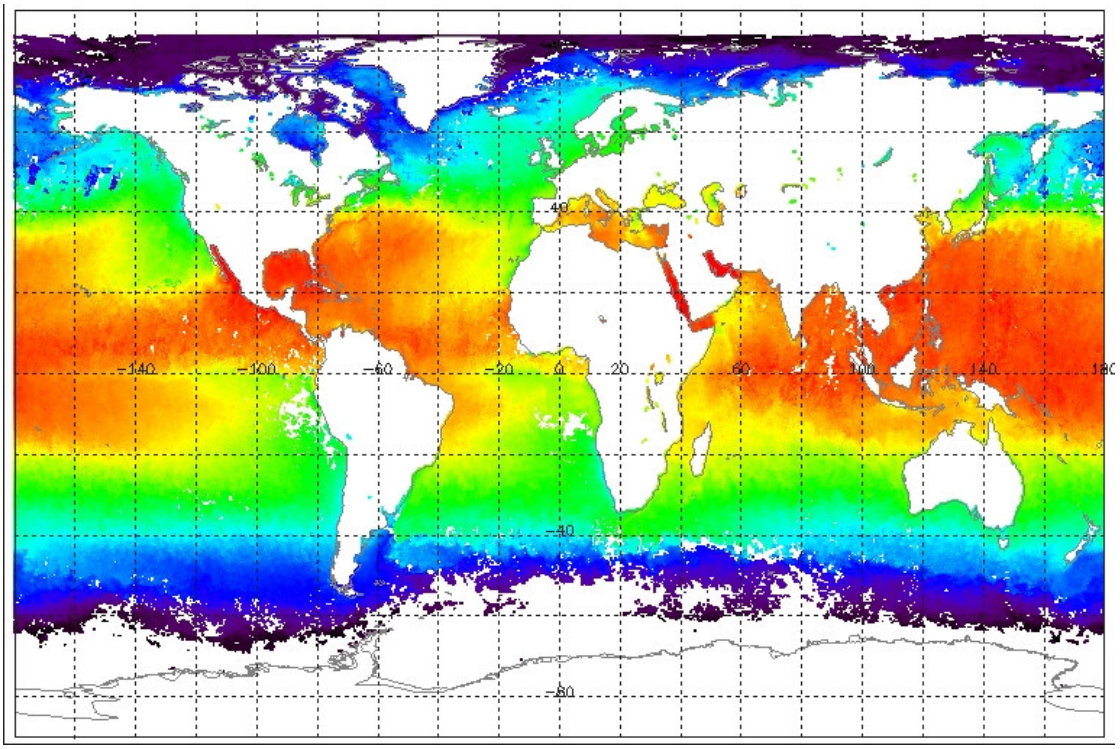


Figure 5-4 - This figure gives the monthly average Nadir SST, with a data range of 270 - 305 Kelvin for August 2009.

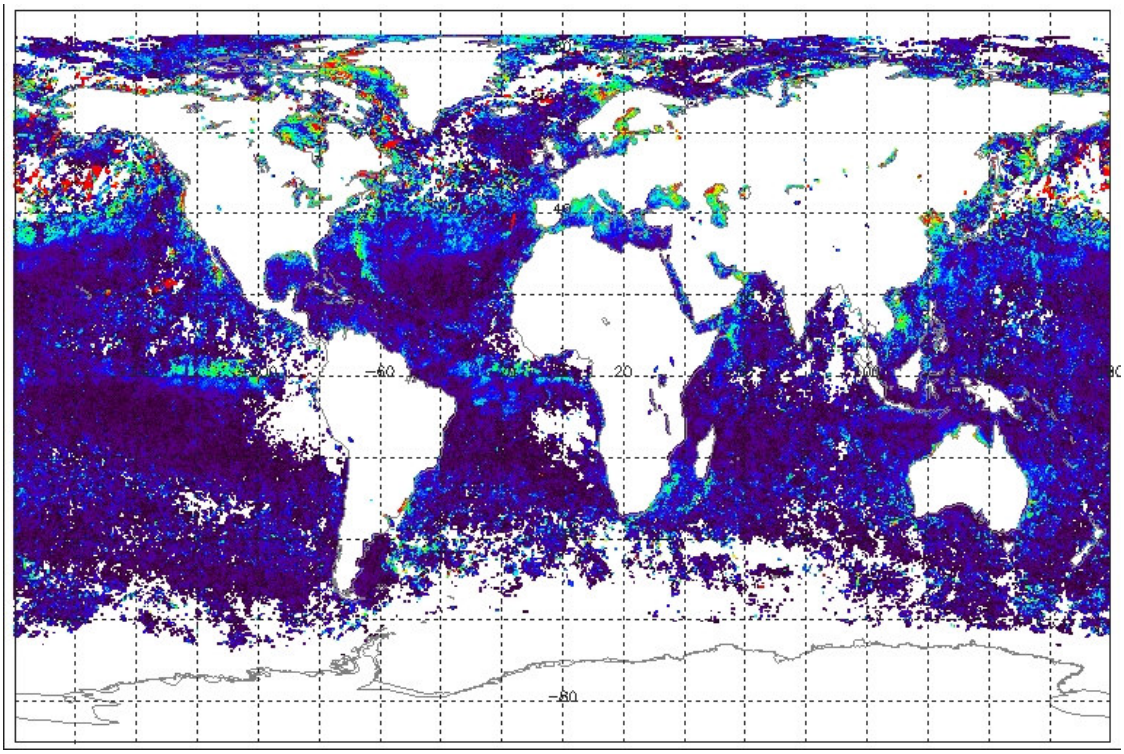


Figure 5-5 - The standard deviation of the monthly average in SST with a data range of 0 to 2 Kelvin for August 2009.

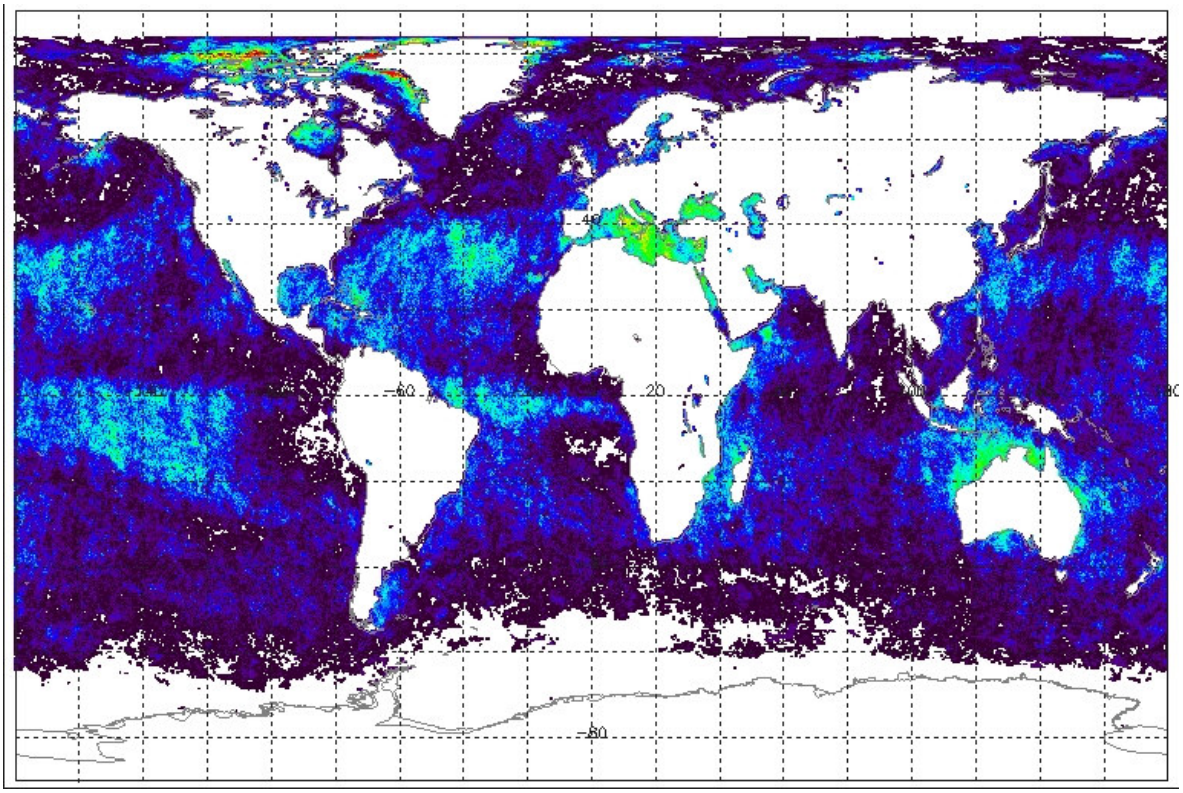


Figure 5-6 – The number of contributory orbits to the calculation of the SST, with a range of 0 to 20 for August 2009

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 82 being shown in Figure 6.2-1. The updated SST coefficients released in December 2005 were used in the AATSR SST retrievals.

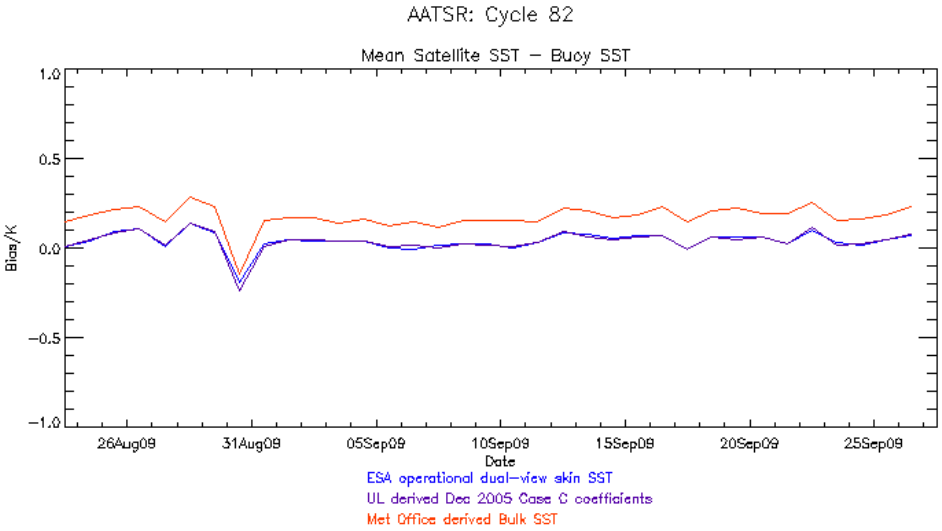


Figure 6.2-1: Comparison of daily mean difference between 10´ AATSR SST values and in situ drifting buoy SST for Cycle 82. Data provided by the Met Office.

During cycle 82, there were 2153 night time match-ups, with a mean (UL derived dual-view skin SST minus buoy SST) of -0.004 K, standard deviation 0.24 K, and a mean (dual-view bulk SST minus buoy SST) of +0.131 K, standard deviation 0.23 K. A total of 1911 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.106 K, standard deviation 0.29 K, and a mean (dual-view bulk SST minus buoy SST) of +0.249 K, standard deviation 0.30 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

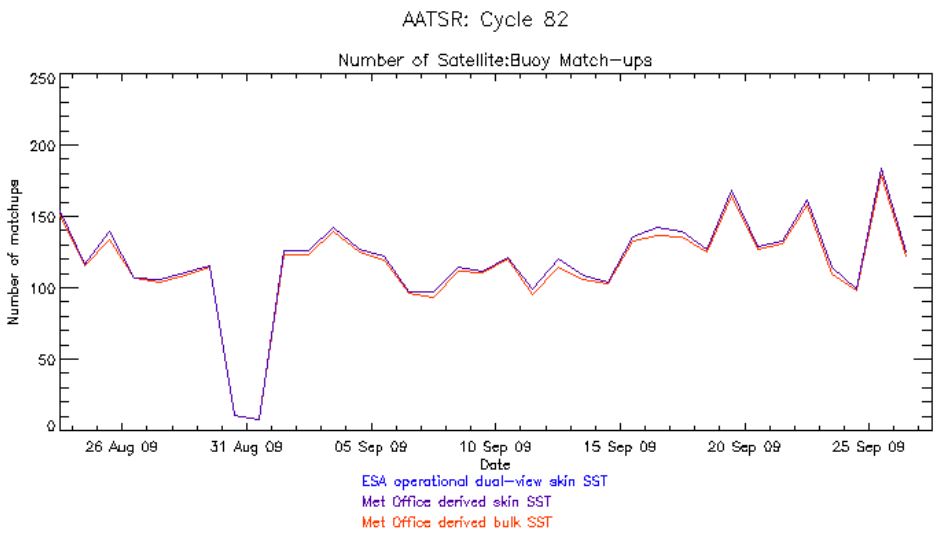


Figure 6.2-2: Plot of daily number of match-ups between 10´ AATSR SST values and in situ buoy SST for Cycle 82. Data provided by the Met Office.

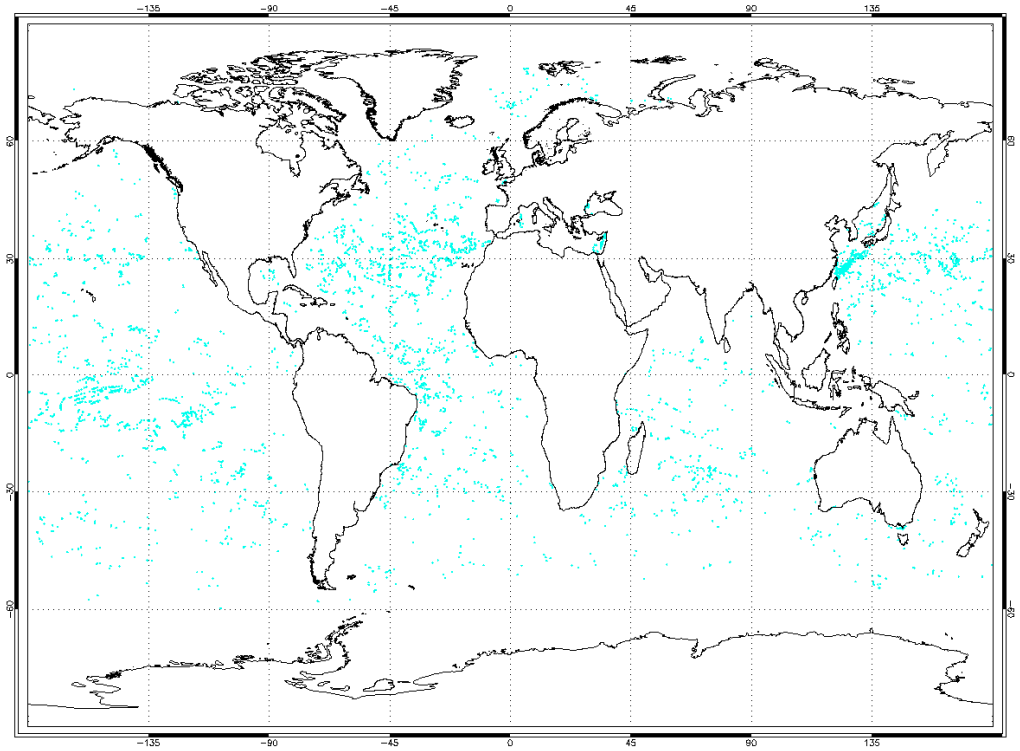


Figure 6.2-3: Map showing global distribution of match-ups between 10´ AATSR SST values and in situ buoy SST for Cycle 82. The cyan dots indicate a match-up to a drifting buoy. Data provided by the Met Office.

7 DISCLAIMERS

No new disclaimers have been issued during this cycle.