ENVISAT - AATSR

CYCLIC REPORT #70

	START	END
DATE	30 JUN 2008	04 AUG 2008
TIME	21:59:29	21:59:29
ORBIT #	33121	33621
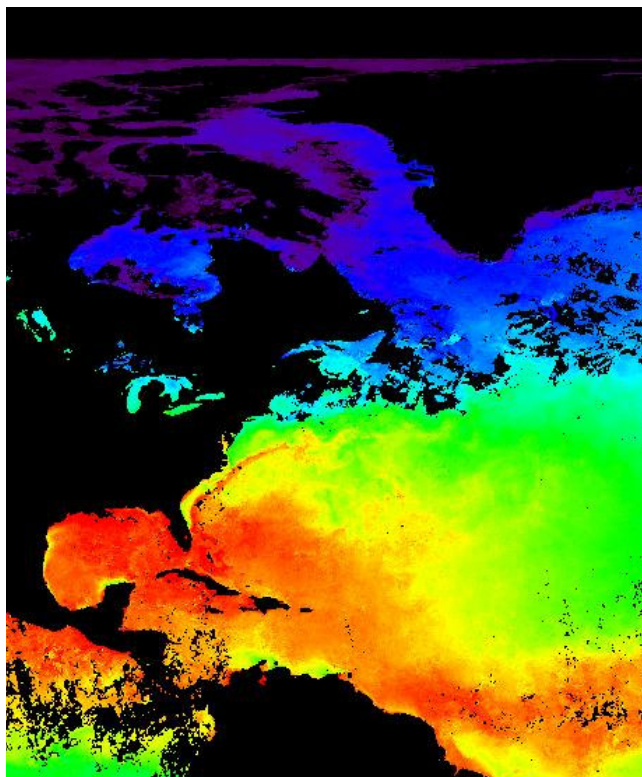
Western Atlantic, 01-31 July 2008 – Extract from the Level 3 monthly average of Dual View SST showing a clear Gulf Stream effect. Further details are available in section 5.4.

A P P R O V A L

Title *titre*	AATSR Cyclic Report – Cycle 70	issue *issue*	1	revision *revision*	0
author *auteur*	Gordon Mack	date *date*	18 August 2008		
approved by *approuvé par*		date *date*			

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

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

AATSR CYCLIC REPORT # 70

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: 70

Cycle Start: 30 Jun 2008, 21:59:29   Orbit #: 33121

Cycle End: 04 Aug 2008, 21:59:29   Orbit #: 33621

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.

- **Envisat OCM & SSR2 maintenance**

  An Envisat orbital control manoeuvre and maintenance of the Solid State Recorder 2 were performed on 29th of June to 1st of July, AATSR data was unavailable between 30/06/08 22:05:00 and 01/07/2008 07:00:00.

- **NRT Production problem at ESRIN**

  NRT Dissemination was disrupted on the 17th of July. Disruption was resolved and data recovery begun on the same day.

- **Envisat NRT dissemination delay**

  Due to an anomaly related to the product dissemination server, the distribution of Envisat NRT data was interrupted at 01:00 on 1 August 2008. The anomaly was resolved and all products available the same day.

- **Missing AUX File**

  A missing AUX file caused level 0 products from orbits 33130 to 33133 to be generated with no Phase and Cycle information in the headers or file names. This was corrected and the anomalous data replaced.

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:

- 01 July 2008,
- 03 July 2008,
- 06 July 2008,
- 09 July 2008,
- 17 July 2008,
- 21 July 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

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

UTC Start	UTC Stop	Reason	Reference	Planned
30-Jun-2008 22:05:00	01-Jul-2008 07:00:00	OCM	EN-UNA-2008-0104	Yes

Table 4-1 Instrument unavailability during cycle 70

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	June 30, 2008	33121	33220	32100	0	1387	94.69%	94.69%	94.46%
2	July 7, 2008	33221	33320	0	0	0	100.00%	100.00%	100.00%
3	July 14, 2008	33321	33421	0	0	0	100.00%	100.00%	100.00%
4	July 21, 2008	33422	33521	0	0	0	100.00%	100.00%	100.00%
5	July 28, 2008	33522	33621	0	4164	0	100.00%	99.31%	99.31%

Table 4-2 Instrument and data unavailability weekly summary for cycle 70

The instrument was available for 98.94% of the time during the cycle.
The L0 data were available for 98.80% of the time during the cycle.
The L1b data were available for 98.75% 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
03-Aug-2008 21:08	03-Aug-2008 22:17	4164	33607	33607

Table 4-3 ATS_NL__0P missing data during cycle 70

The following L1 data was missing from this cycle:

NB Missing L0 data are automatically also missing at L1b. Therefore the missing L1b data specifically reported in Table 4-4 represents additional data gaps.

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
01-Jul-2008 07:00	01-Jul-2008 07:23	1387	33212	33212

Table 4-4 ATS_TOA_1P missing data during cycle 70

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

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

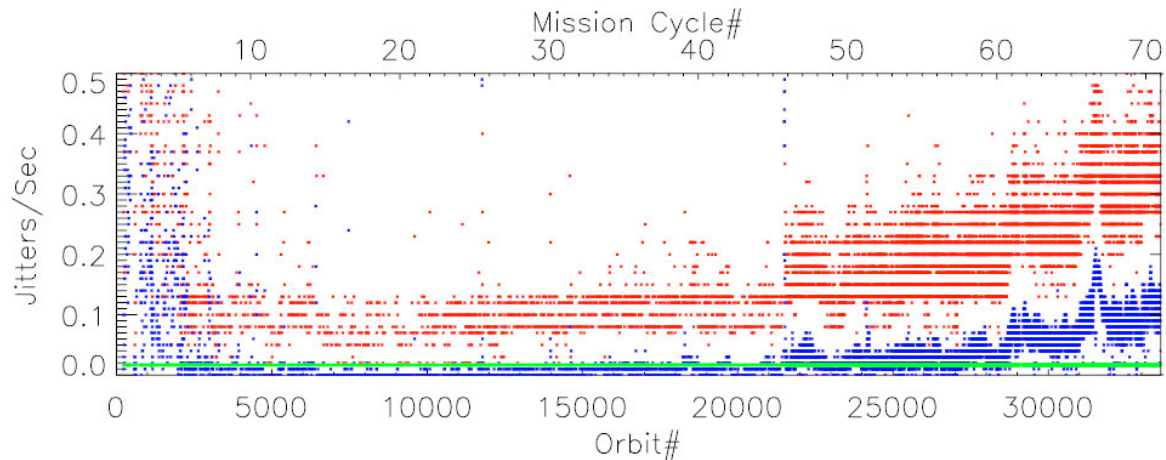## 5.1 Monitoring of Instrument Parameters

5.1.1 JITTER

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 that the mean-rate has increased slightly with respect to that seen towards the end of the previous cycle.

5.1.2 SENSOR TEMPERATURE

While in measurement mode, all sensors maintained their nominal orbital and seasonal ranges in this cycle.

5.1.3 VISCAL

"Daily" VC1 files were delivered for most days except:

- July 01, 03, 06, 09, 17, 21

In addition, the following set of "orbital" VC1 files was delivered:
http://aatsr2.ag.rl.ac.uk/data2/aatsr2/EDS-X/CyclePlots/VC1-70.txt

5.1.4 NEΔT

	Hot BB T = 301.09K		**Cold BB** T = 261.91K	
	Count	**NEΔT (mK)**	**Count**	**NEΔT (mK)**
12µm	1.71	35.8	1.24	36.4
11µm	1.59	32.6	1.14	34.6
3.7µm	2.52	31.6	1.21	76.5

Table 5-1 NEΔT data for cycle 70

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

No 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 July. This consists of 437 orbits from 33126 to 33565. 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.
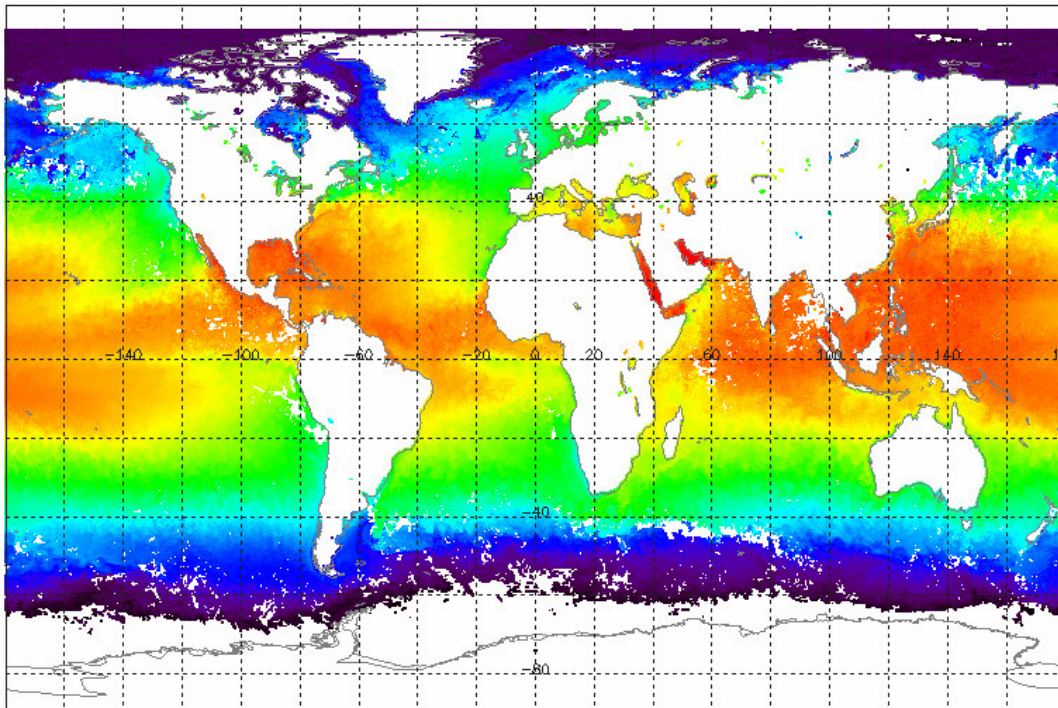

Figure 5.3 - This figure gives the monthly average SST (Dual View), with a data range of 270 - 305 Kelvin
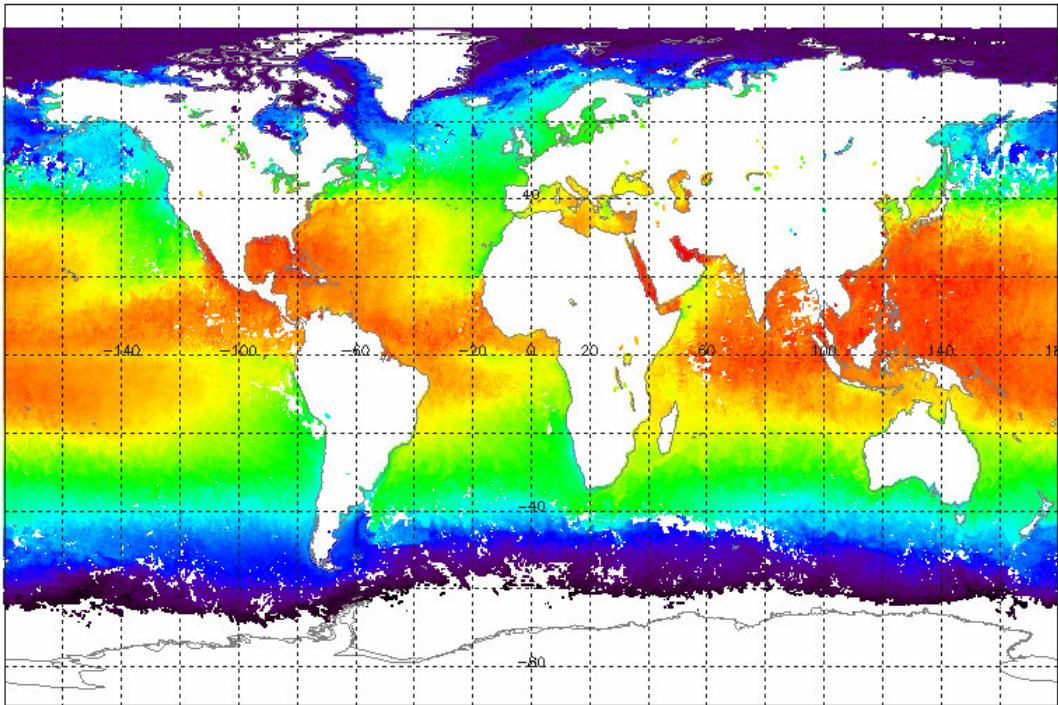
Figure 5.4 - This figure gives the monthly average SST (Nadir View), with a data range of 270 - 305 Kelvin
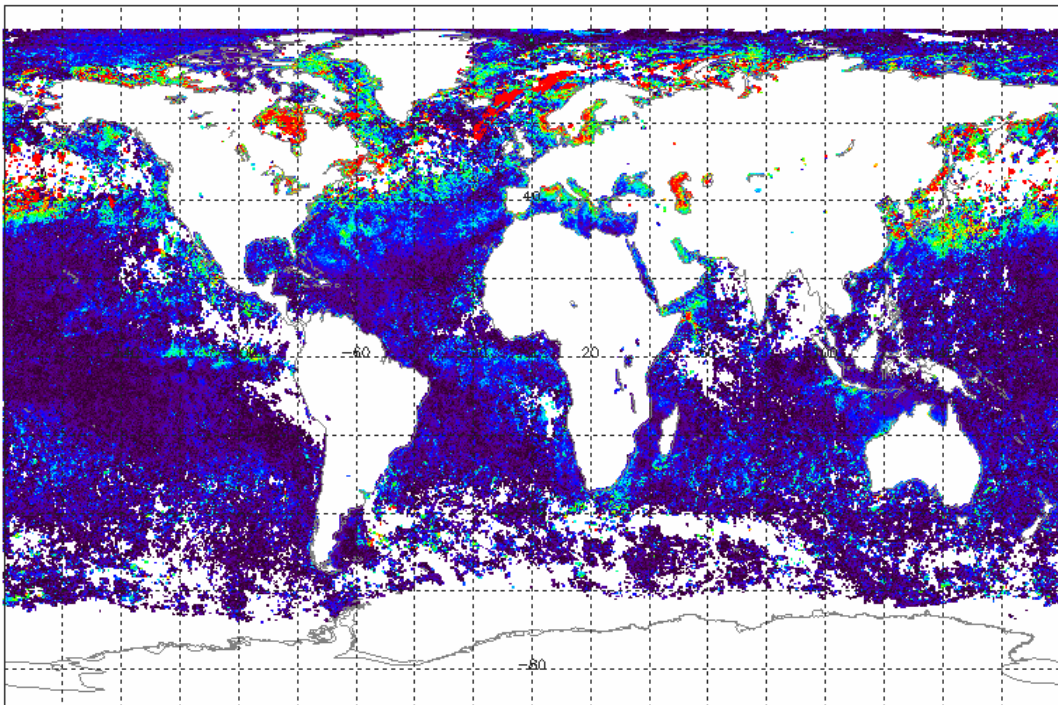
Figure 5.5 - The standard deviation of the monthly average in SST with a data range of 0 to 2 Kelvin
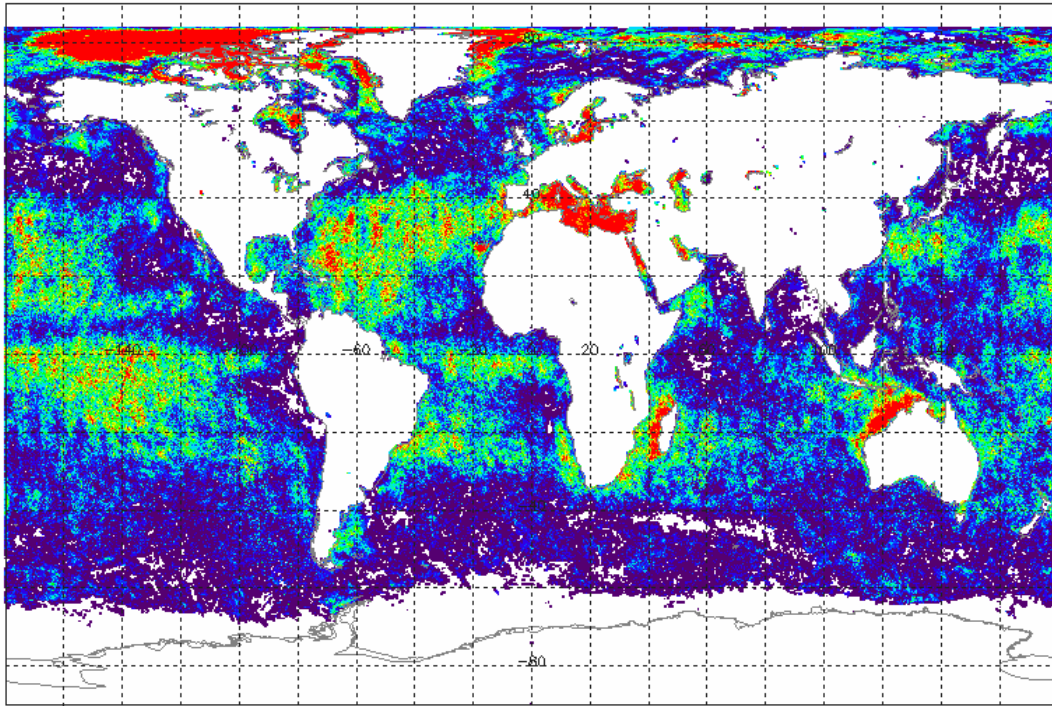
Figure 5.6 – The number of contributory orbits to the calculation of the SST, with a data range of 0 to 10.

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 70 composed from ATS_AR__2P 10' data is shown below in Figure 6.1. The monthly mean contains day time and night time data.
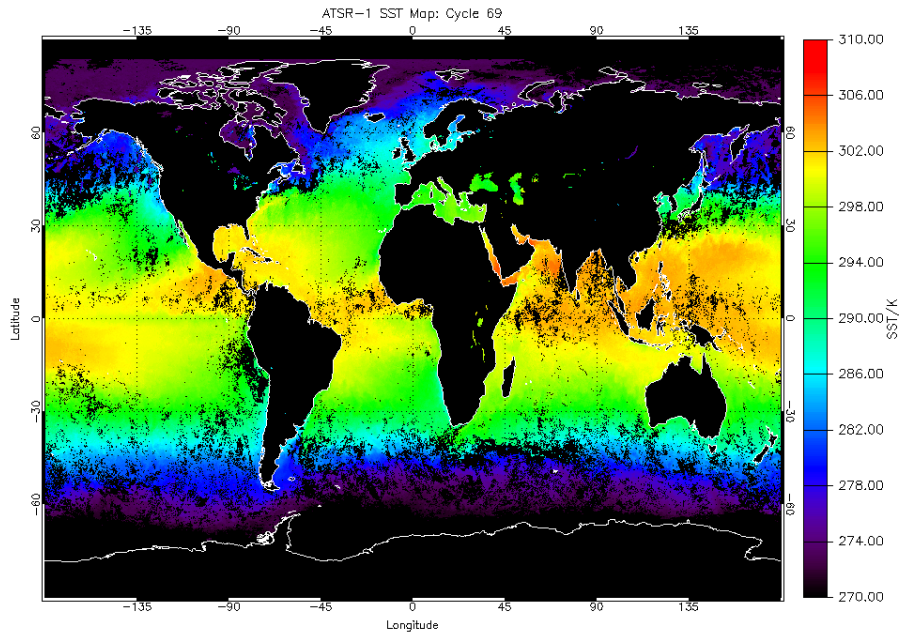

Figure 6.1: Monthly Global Average dual-view SST for Cycle 70.

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 70 being shown in Figure 6.2. The updated SST coefficients released in December 2005 were used in the AATSR SST retrievals.
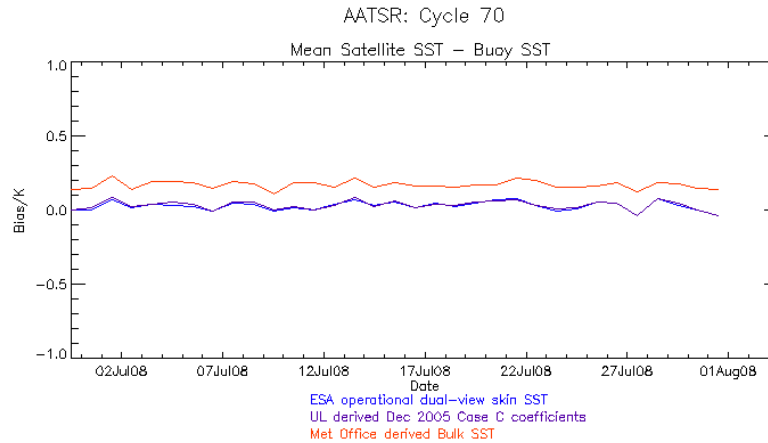
Figure 6.2: Comparison of daily mean difference between 10´ AATSR SST values and in situ buoy SST for Cycle 70. Data provided by the Met Office.

During cycle 70 there were 1920 night time match-ups, with a mean (UL derived dual-view skin SST minus buoy SST) of -0.008 K, standard deviation 0.25 K, and a mean (dual-view bulk SST minus buoy SST) of +0.126 K, standard deviation 0.23 K. A total of 1882 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.074 K, standard deviation 0.33 K, and a mean (dual-view bulk SST minus buoy SST) of +0.208 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.
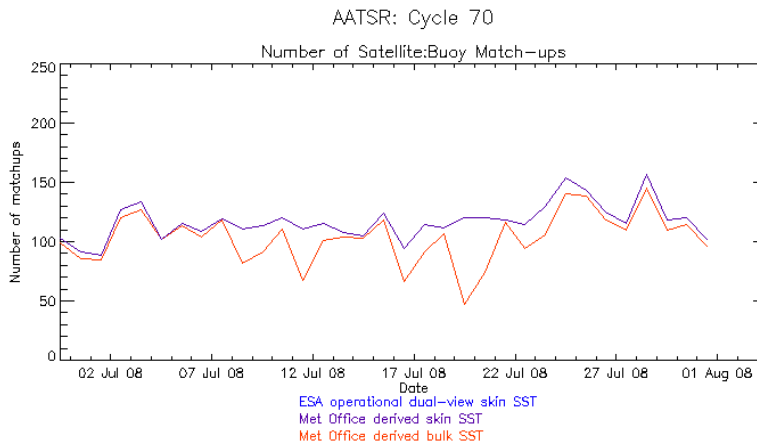

Figure 6.3: Plot of daily number of match-ups between 10´ AATSR SST values and in situ buoy SST for Cycle 70. Data provided by the Met Office.
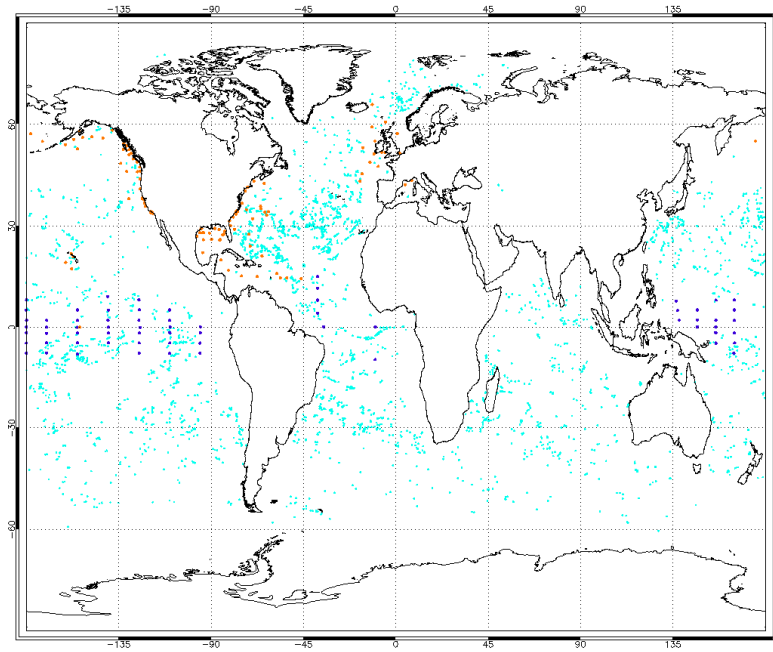
Figure 6.4: Map showing global distribution of match-ups between 10′ AATSR SST values and in situ buoy SST for Cycle 70. The red dots indicate a match-ups to a moored buoy; the cyan dots indicate a match-up to a drifting buoy. Data provided by the Met Office.

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.