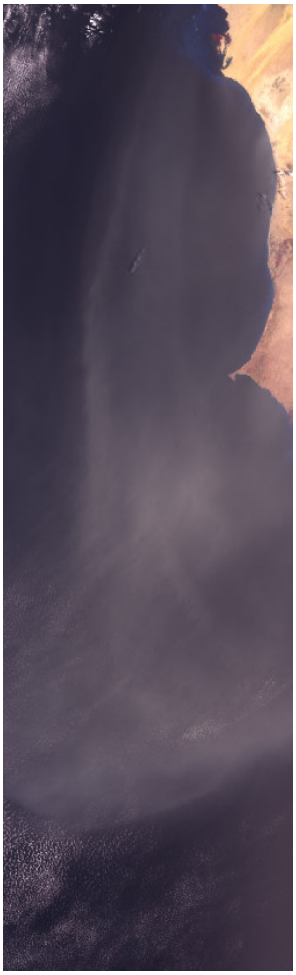
ENVISAT - AATSR

CYCLIC REPORT #67

	START	END
DATE	17 MAR 2008	21 APR 2008
TIME	21:59:29	21:59:29
ORBIT #	31618	32118



Western Africa, 29 March 2008 - RGB Composite image showing large clouds of sand off the coast of Senegal.

prepared by/*préparé par* AATSR DPQC and QWG team
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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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TABLE OF CONTENTS

AATSR CYCLIC REPORT # 67

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
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: 67

Cycle Start: 17 Mar 2008, 21:59:29 Orbit #: 31618

Cycle End: 21 Apr 2008, 21:59:29 Orbit #: 32118

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.

- **ESRIN NRT Disruption**

  The dissemination of Near Real Time data from ESRIN was disrupted from the 19th of March until the 25th of March. The backlog of data was recovered by the 26th of March.

- **Svalbard Anomaly**

  Due to an anomaly at the Svalbard station, orbits 31766 and 31776 were not acquired. Additionally, data transfer problems from the 28th to the 30th of March at Svalbard, meant that NRT data from ESRIN was disrupted.

- **Return to ARTEMIS Scenario**

  As anticipated, following the docking of the ATV, ARTEMIS returned to service over the 7th and 8th of April. With this return to service the 'extra packets' problem associated with the Svalbard acquisition method was resolved.

- **Data reception problems at ESRIN**

  Due to a severe storm on the night of the 18th of April, data acquisition at ESRIN was disrupted. One orbit acquired and disseminated (orbit 32064) during this period was affected by extreme CRC errors resulting in orbit fragmentation.

- **Missing ATS AUX data**
  No L1 data was available on the 19th and 20th of April due to missing auxiliary data. This problem was resolved and the backlog recovered.

- **Auxiliary File Versions**

  The list of auxiliary files found at http://earth.esa.int/services/auxiliary_data/aatsr/ was reviewed and corrections were made. Section 3.2 of this report has also been updated to reflect these corrections.

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:

- 20 March 2008,
- 26 March 2008,
- 30 March 2008,
- 02 April 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 AATSR unavailabilities during this 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	March 17, 2008	31618	31717	0	0	0	100.00%	100.00%	100.00%
2	March 24, 2008	31718	31817	0	12373	0	100.00%	97.95%	97.95%
3	March 31, 2008	31818	31917	0	6191	0	100.00%	98.98%	98.98%
4	April 07, 2008	31918	32017	0	10469	0	100.00%	98.27%	98.27%
5	April 14, 2008	32018	32117	0	14389	5908	100.00%	97.62%	96.64%

Table 4-1 Instrument and data unavailability weekly summary for cycle 67

The instrument was available for 100.00% of the time during the cycle.
The L0 data were available for 98.56% of the time during the cycle.
The L1b data were available for 98.37% of the time during the cycle.

The following L0 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 4-3 represent additional data gaps where the start time does not coincide with L0 data already known to be missing.

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
28/03/2008 04:59	28/03/2008 06:34	5739	31765	31766
28/03/2008 06:30	28/03/2008 06:31	62	31766	31766
28/03/2008 06:31	28/03/2008 06:34	216	31766	31766
28/03/2008 21:31	28/03/2008 23:15	6221	31775	31776
28/03/2008 21:31	28/03/2008 21:33	135	31775	31775
01/04/2008 04:32	01/04/2008 06:09	5848	31822	31823
01/04/2008 06:04	01/04/2008 06:05	87	31823	31823
01/04/2008 06:05	01/04/2008 06:09	256	31823	31823
08/04/2008 11:42	08/04/2008 11:42	1	31926	31926
09/04/2008 01:16	09/04/2008 01:19	179	31934	31934
09/04/2008 01:19	09/04/2008 02:36	4602	31934	31935
09/04/2008 02:36	09/04/2008 04:10	5687	31935	31936
16/04/2008 22:45	16/04/2008 22:48	154	32047	32047
16/04/2008 22:48	17/04/2008 00:24	5811	32047	32048
18/04/2008 02:02	18/04/2008 02:02	1	32064	32064
18/04/2008 02:03	18/04/2008 02:03	2	32064	32064
18/04/2008 02:03	18/04/2008 02:03	1	32064	32064
18/04/2008 02:03	18/04/2008 02:03	1	32064	32064
18/04/2008 02:03	18/04/2008 02:03	1	32064	32064
18/04/2008 02:03	18/04/2008 02:03	1	32064	32064

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
18/04/2008 02:04	18/04/2008 02:04	1	32064	32064
18/04/2008 02:04	18/04/2008 02:04	1	32064	32064
18/04/2008 02:04	18/04/2008 02:04	4	32064	32064
18/04/2008 02:05	18/04/2008 02:05	1	32064	32064
18/04/2008 02:05	18/04/2008 02:05	3	32064	32064
18/04/2008 02:05	18/04/2008 02:05	1	32064	32064
18/04/2008 02:05	18/04/2008 02:05	1	32064	32064
18/04/2008 02:05	18/04/2008 02:05	2	32064	32064
18/04/2008 02:05	18/04/2008 02:05	1	32064	32064
18/04/2008 02:05	18/04/2008 02:05	2	32064	32064
18/04/2008 02:05	18/04/2008 02:05	1	32064	32064
18/04/2008 02:05	18/04/2008 02:05	1	32064	32064
18/04/2008 02:05	18/04/2008 02:05	1	32064	32064
18/04/2008 02:05	18/04/2008 02:05	1	32064	32064
18/04/2008 02:05	18/04/2008 02:05	2	32064	32064
18/04/2008 02:06	18/04/2008 02:06	11	32064	32064
18/04/2008 02:06	18/04/2008 02:06	1	32064	32064
18/04/2008 02:06	18/04/2008 02:06	1	32064	32064
18/04/2008 02:06	18/04/2008 02:06	2	32064	32064
18/04/2008 02:06	18/04/2008 02:07	43	32064	32064
18/04/2008 02:07	18/04/2008 02:07	8	32064	32064
18/04/2008 02:07	18/04/2008 02:51	2643	32064	32064
20/04/2008 14:33	20/04/2008 14:34	67	32100	32100
20/04/2008 14:34	20/04/2008 16:08	5617	32100	32101
21/04/2008 10:36	21/04/2008 10:36	1	32111	32111

Table 4-2 ATS_NL__0P missing data during cycle 67

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
18/04/2008 04:31	18/04/2008 04:31	15	32065	32065
18/04/2008 04:31	18/04/2008 05:31	3600	32065	32066
18/04/2008 05:31	18/04/2008 06:09	2293	32066	32066

Table 4-3 ATS_TOA_1P missing data during cycle 67

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:

- 31578,31579 (15th March 2008)
- 31820 (1st April 2008)
- 31924 (8th April 2008)
- 31925 (8th April 2008)
- 31969 (11th April 2008)
- 31982 (12th April 2008)
- 32025 (15th April 2008)
- 32063 (18th April 2008)

Data from orbits received at Svalbard and processed at ESRIN continued to exhibit extra packets at the end of the product. This was resolved with the transition back to the ARTEMIS scenario on the 7th/8th of April.

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

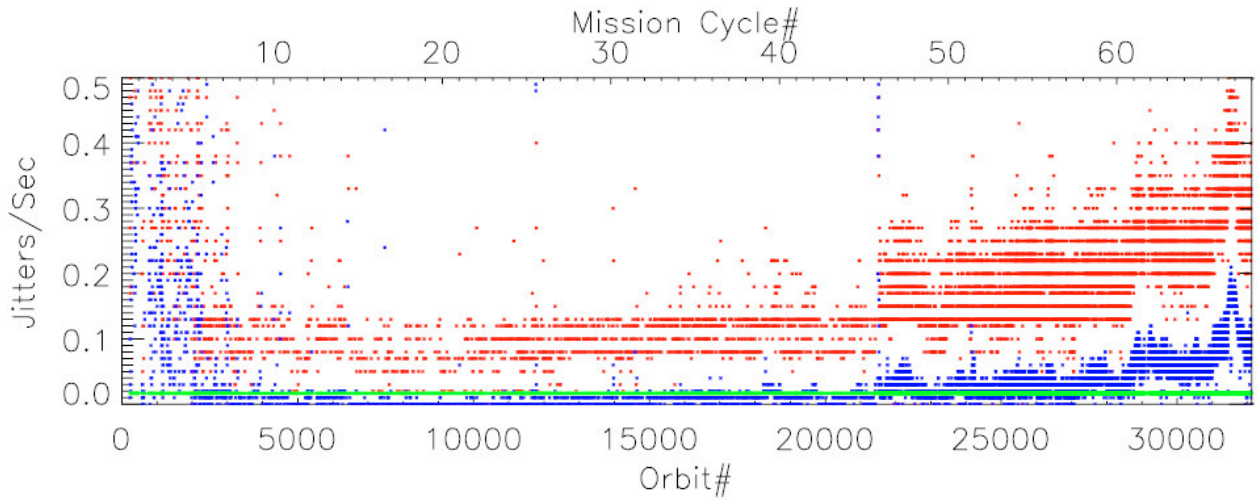

Figure 5.1 Jitter trend from mission start

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 an improvement with respect to previous cycles. There is no significant deterioration in image quality associated with these jitter levels, but this is continually monitored.

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:

- 26th of March
- 30th of March
- 2nd of April

In addition, the following set of “orbit-by-orbit” VC1 files was delivered:

http://aatsr2.ag.rl.ac.uk/data2/aatsr2/EDS-X/CyclePlots/VC1-67.txt

5.1.4 NEΔT

	Hot BB T = 300.17K		Cold BB T = 260.92K	
	Count	NEΔT (mK)	Count	NEΔT (mK)
12µm	1.54	32.5	1.17	34.4
11µm	1.53	31.5	1.12	34.2
3.7µm	2.41	30.4	1.18	75.5

Table 5-1 NEΔT data for cycle 66

	Hot BB T = 301.49K		Cold BB T = 262.49K	
	Count	NEΔT (mK)	Count	NEΔT (mK)
12µm	1.64	34.3	1.22	35.5
11µm	1.59	32.5	1.15	34.7
3.7µm	2.53	31.8	1.20	75.1

Table 5-2 NEΔT data for cycle 67

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 all available Meteo products acquired in April. This consists of 418 orbits from 31820 to 32248. Figures Figure 5.3, Figure 5.4, Figure 5.5, Figure 5.6 show the SST average in dual and nadir views, the number of contributory orbits and the standard deviation.

Please note we are not able to provide absolute colour scales at this time, however the colouring scheme used is given in 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,

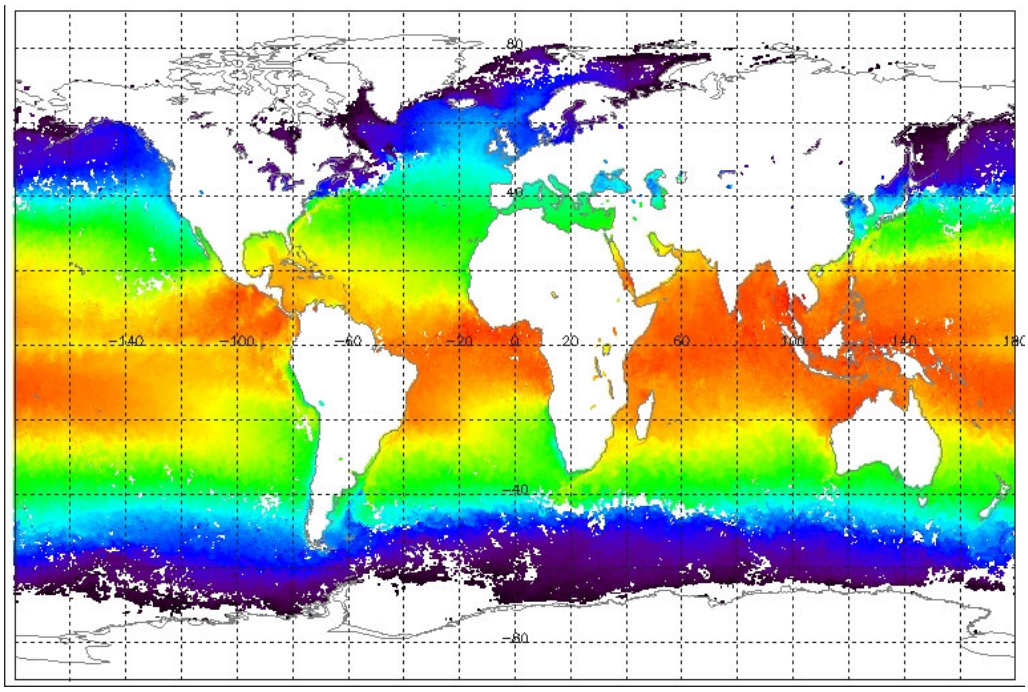

Figure 5.3 - This figure gives the monthly average SST (Dual View) , with a data range of 270 - 305 Kelvin

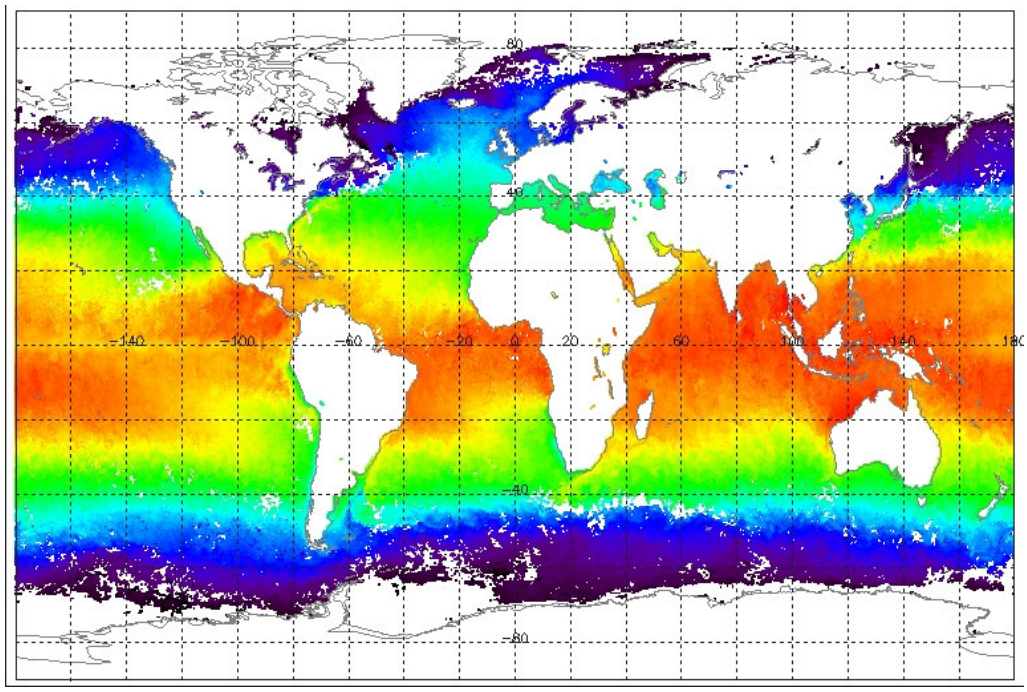

Figure 5.4 - This figure gives the monthly average SST (Nadir View), with a data range of 270 - 305 Kelvin

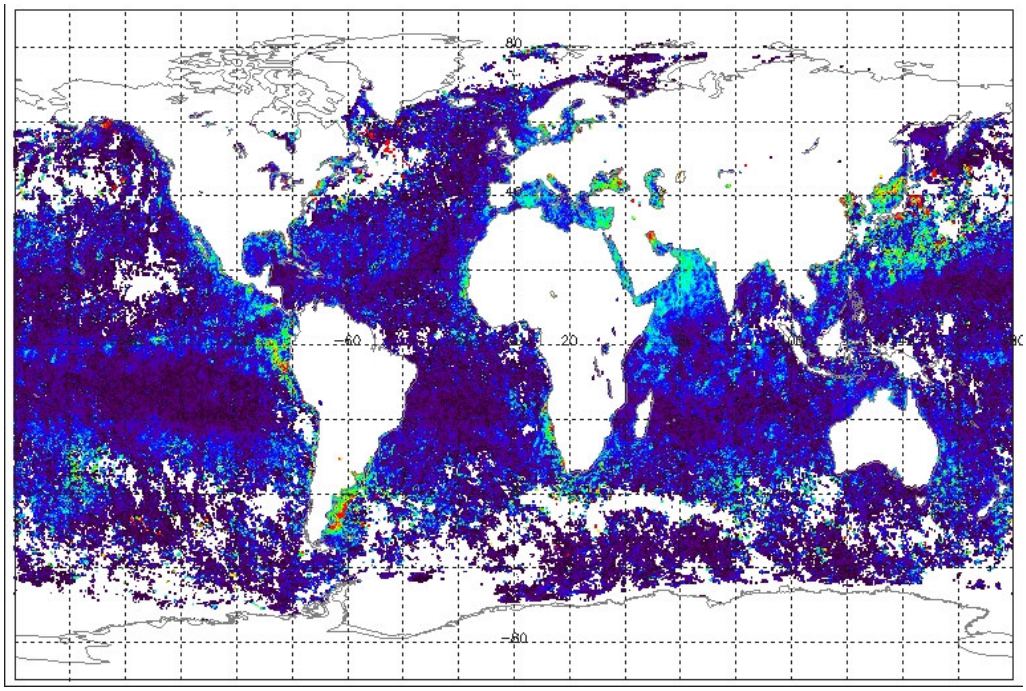

Figure 5.5 - The standard deviation of the monthly average in SST with a data range of 0 to 2 Kelvin

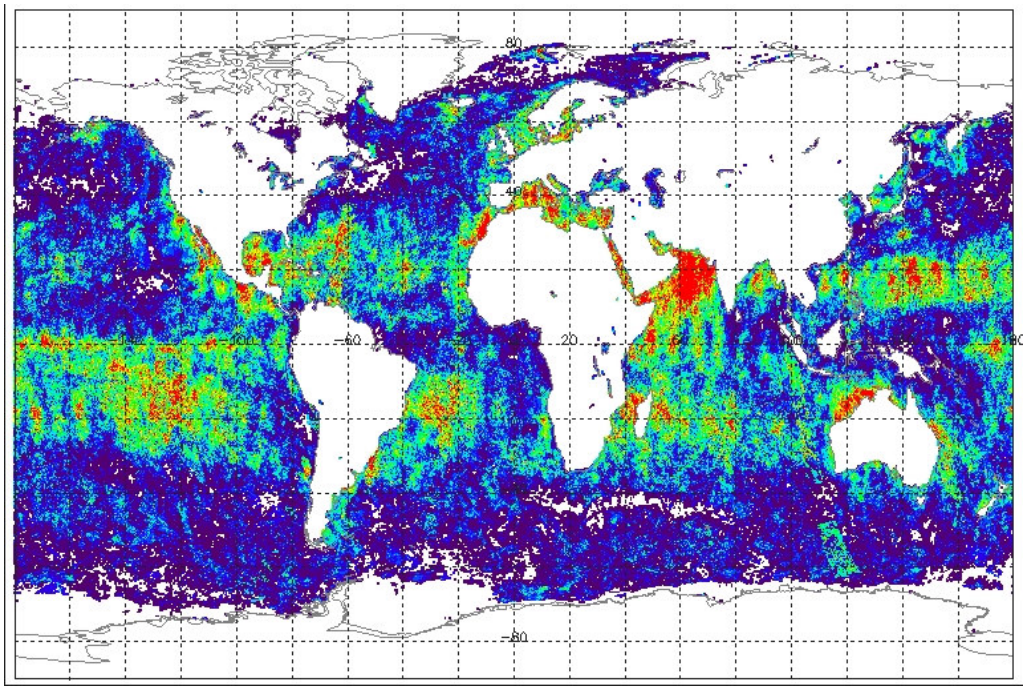

Figure 5.6 – The number of contributory orbits to the calculation of the SST, with a data range of 0 to 10.

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

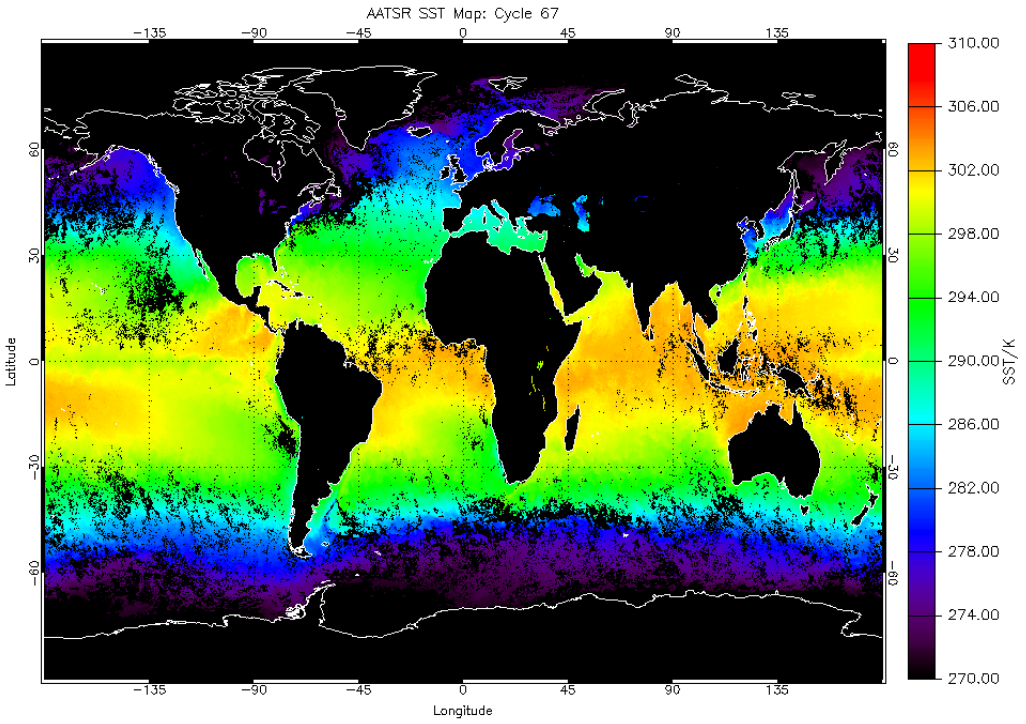

Figure 6.1: Monthly Global Average dual-view SST for Cycle 67.

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

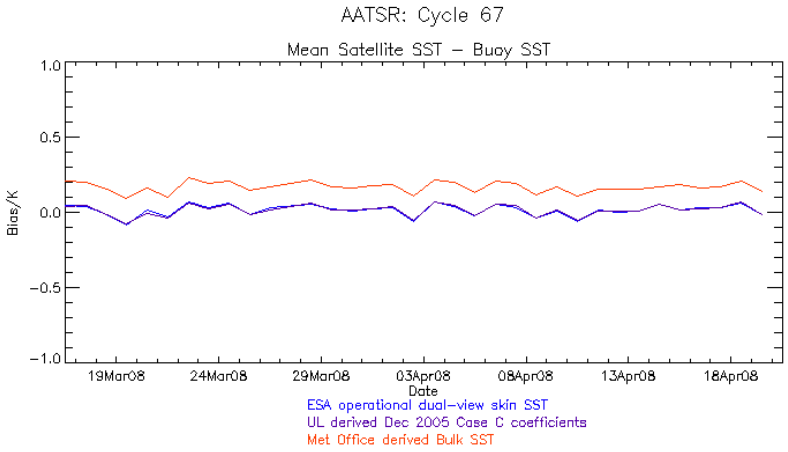

Figure 6.2: Comparison of daily mean difference between 10´ AATSR SST values and in situ buoy SST for Cycle 67. Data provided by the Met Office.

During cycle 67, there were 1671 night time match-ups, with a mean (UL derived dual-view skin SST minus buoy SST) of -0.014 K, standard deviation 0.25 K, and a mean (dual-view bulk SST minus buoy SST) of +0.131 K, standard deviation 0.23 K. A total of 1629 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.052 K, standard deviation 0.32 K, and a mean (dual-view bulk SST minus buoy SST) of +0.213 K, standard deviation 0.31 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.

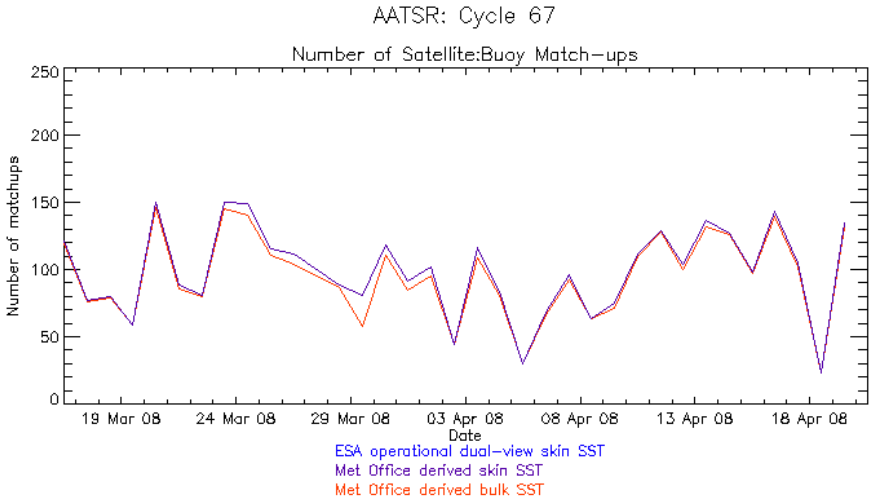

Figure 6.3: Plot of daily number of match-ups between 10´ AATSR SST values and in situ buoy SST for Cycle 67. Data provided by the Met Office.

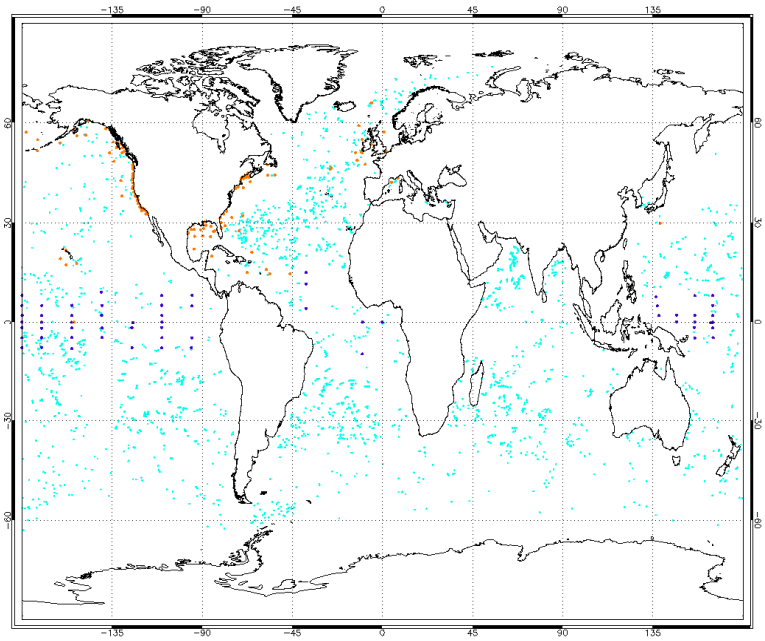

Figure 6.4: Map showing global distribution of match-ups between 10´ AATSR SST values and in situ buoy SST for Cycle 67. The red dots indicate a match-ups to a moored buoy; the cyan dots indicate a match-up to a drifting buoy. Data provided by the Met Office.

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.