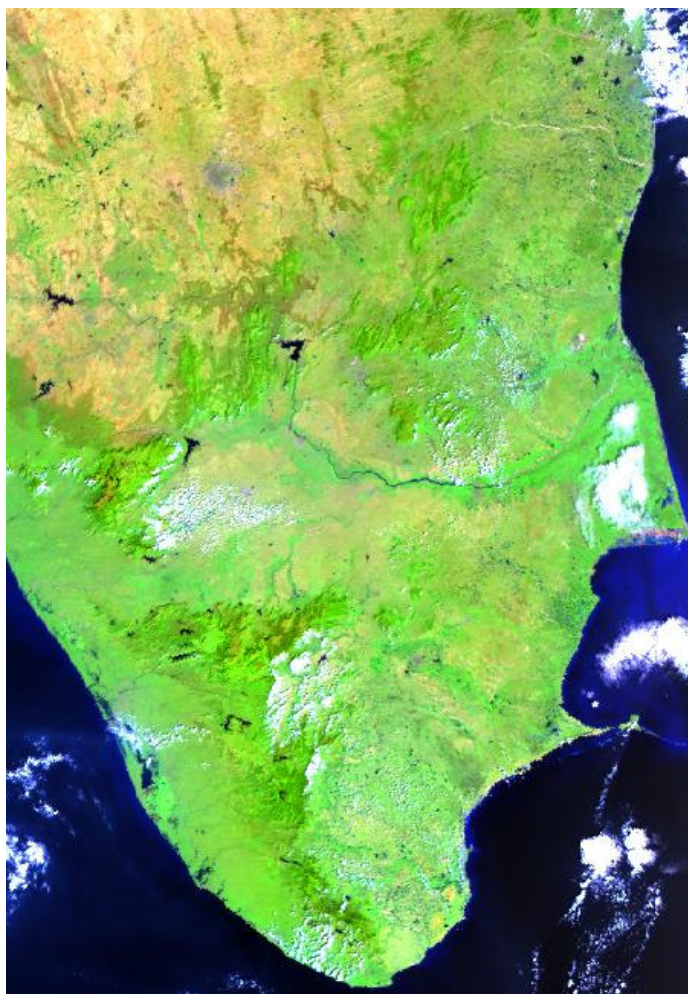


# ***ENVISAT - AATSR***

## ***CYCLIC REPORT #55***

	START	END
<i>DATE</i>	<i>22 JANUARY 2007</i>	<i>26 FEBRUARY 2007</i>
<i>TIME</i>	<i>21:59:29</i>	<i>21:59:29</i>
<i>ORBIT #</i>	<i>25606</i>	<i>26106</i>



Southern India, Jan 2007 – The grey area to the top left is Bangalore, the third largest city in India.

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prepared by/préparé par	AATSR DPQC and QWG team
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author <i>auteur</i>	Siân Procter	date <i>date</i>	06 July 2007
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approved by <i>approuvé par</i>		date <i>date</i>	
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## C H A N G E L O G

reason for change / <i>raison du changement</i>	issue/ <i>issue</i>	revision/ <i>revision</i>	date/ <i>date</i>
Inclusion of missing data periods	1	1	06/07/07

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

Issue: 1 Revision: 1

reason for change/ <i>raison du changement</i>	page(s)/ <i>page(s)</i>	paragraph(s)/ <i>paragraph(s)</i>
Information on missing data available	5	4.2

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# AATSR CYCLIC REPORT # 55

## 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
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
SPR	Software Problem Reporting
SW	Software
VISCAL	Visible Calibration

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

## 2 SUMMARY

**Cyclic Report:** 55  
**Cycle Start:** 22 January 2007, 21:59:29, Orbit #: 25606  
**Cycle End:** 26 February 2007, 21:59:29 Orbit #: 26106

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 (5.60)

- **Visible channel calibration:**

The visible calibration data supplied as an aux file (ATS\_VC1\_AX) continued to be regularly updated throughout the cycle.

- **Orbital VC1 files**

The creation and delivery of orbital VC1 files from the available Level 0 products began on 01 February 2007. These are being regularly disseminated and should lead to improved performance in the visible calibration of consolidated data.

- **Envisat OCM**

The manoeuvre began on 22 January 2007 23:51:59 and ended on 23 Jan 2007 12:05:00; AATSR was in Heater mode for the duration of the OCM and data are unavailable for this period.

- **USV Launch**

Due to the successful launch of the USV on 24 February 2007, Envisat on-request services were cancelled between 05:00:00 and 10:07:00. AATSR data are not available for orbits 26067 and 26068.

## 3 SOFTWARE & AUX FILE VERSION CONFIGURATION

### 3.1 Software Version

AATSR IPF for Level 1 and Level 2: Version 5.60

### 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_AXVIEC20021114_113144_20020301_000000_20070801_235959
ATS_CL1_AXVIEC20020123_073044_20020101_000000_20200101_000000
ATS_GC1_AXVIEC20041214_154941_20020301_000000_20070801_235959
ATS_INS_AXVIEC20030731_092706_20020301_000000_20070801_235959
See below for VC1 files
ATS_LST_AXVIEC20040311_095537_20020301_000001_20070801_235959
ATS_PC1_AXVIEC20040812_063722_20020301_000000_20070801_235959
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 daily reflectance channel calibration files were available for all dates, except for the following:

- 24<sup>th</sup> January 2007
- 28<sup>th</sup> January 2007
- 17<sup>th</sup> February 2007

The delivery of orbital reflectance channel calibration files began on 1<sup>st</sup> February 2007; VC1 files were created from the available L0 files for all subsequent dates, except for the following:

- 17<sup>th</sup> February 2007

### 3.2.2 STATUS OF OTHER AUXILIARY FILES

The following list highlights any of the other auxiliary files changed during this cycle.

Product name	Date Introduced	Validity Range	Reason for Change
No changes 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
22/01/2007 23:52	23/01/2007 12:05	Envisat OCM	EN-UNA-2007/0015	YES
24/02/2007 03:55	24/02/2007 07:20	USV Launch	NONE	YES

Table 4-1 Instrument unavailability during cycle 55

### 4.2 L0 Data Acquisition and L1b Processing Status

The L0 data were available for 98.07% of the time during the cycle.

The following L0 data were missing from this cycle; there were no additional missing L1b data during this cycle.

NB Missing L0 data are automatically also missing at L1b.

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
22-Jan-2007 23:23	22-Jan-2007 23:26	167	25606	25606
23-Jan-2007 12:05	23-Jan-2007 13:27	4969	25614	25615
31-Jan-2007 03:09	31-Jan-2007 06:32	12185	25723	25725
31-Jan-2007 07:40	31-Jan-2007 08:59	4730	25726	25727
09-Feb-2007 19:29	09-Feb-2007 21:10	6101	25862	25863
15-Feb-2007 03:38	15-Feb-2007 07:00	12140	25938	25940
23-Feb-2007 12:16	23-Feb-2007 13:54	5905	26058	26059
24-Feb-2007 03:55	24-Feb-2007 07:18	12143	26067	26069

Table 4-2 ATS\_NL\_\_OP missing data during cycle 55

Missing L0 data automatically missing at L1; no extra missing L1 data where L0 data was present

#### 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.

In the following orbits, a few frames suffered from bad/missing telemetry:

- 25615 (23<sup>rd</sup> January 2007)
- 25629 (24<sup>th</sup> January 2007)
- 25693 (29<sup>th</sup> January 2007)



- 25777 (3<sup>rd</sup> February 2007)
- 25804 (5<sup>th</sup> February 2007)
- 25958 (16<sup>th</sup> February 2007)

### 4.3 L0 and L1b Backlog Processing Status

The following data, reported missing from previous cycles, have been retrieved via backlog processing:

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
24/12/2006 18:18	24/12/2006 19:02	2611	25188	25189
24/12/2006 19:44	24/12/2006 20:43	3581	25189	25190
25/12/2006 06:34	25/12/2006 07:00	1581	25196	25196
25/12/2006 11:51	25/12/2006 12:00	552	25199	25199
25/12/2006 13:11	25/12/2006 13:41	1800	25199	25200

Table 4-3 Backlog processing status during cycle 55

## 5 DATA QUALITY CONTROL

### 5.1 Monitoring of Instrument Parameters

#### 5.1.1 JITTER

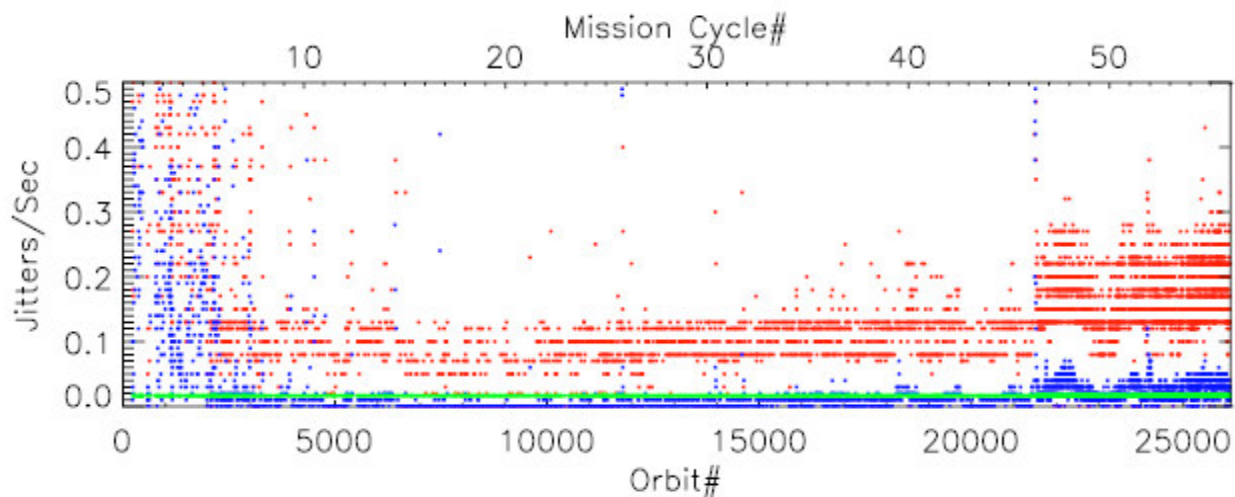


Figure 5-1 Jitter trend from mission start

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 mean jitter-rate over the last cycle continues to be well above the nominal level. There is no significant deterioration in image quality associated, but this is continually monitored.

## 5.1.2 SENSOR TEMPERATURE

While in measurement mode, all sensors maintained their nominal orbital and seasonal ranges in these cycles.

## 5.1.3 VISCAL

Reflectance channel calibration files are available for most days in these cycles, except:

- January 24 and 28
- February 17

## 5.1.4 NE $\Delta$ T

Hot BB T = 299.95K			Cold BB T = 260.72K	
	Count	NE $\Delta$ T (mK)	Count	NE $\Delta$ T (mK)
12 $\mu$ m	1.49	31.5	1.15	34.1
11 $\mu$ m	1.50	30.8	1.10	33.8
3.7 $\mu$ m	2.39	30.1	1.17	75.9

Table 5-1 NE $\Delta$ T data for Cycle 55

Hot BB T = 301.13K			Cold BB T = 262.48K	
	Count	NE $\Delta$ T (mK)	Count	NE $\Delta$ T (mK)
12 $\mu$ m	1.69	35.5	1.24	36.0
11 $\mu$ m	1.67	34.1	1.17	35.3
3.7 $\mu$ m	2.58	32.5	1.21	75.1

Table 5-2 NE $\Delta$ T data for Cycle 53

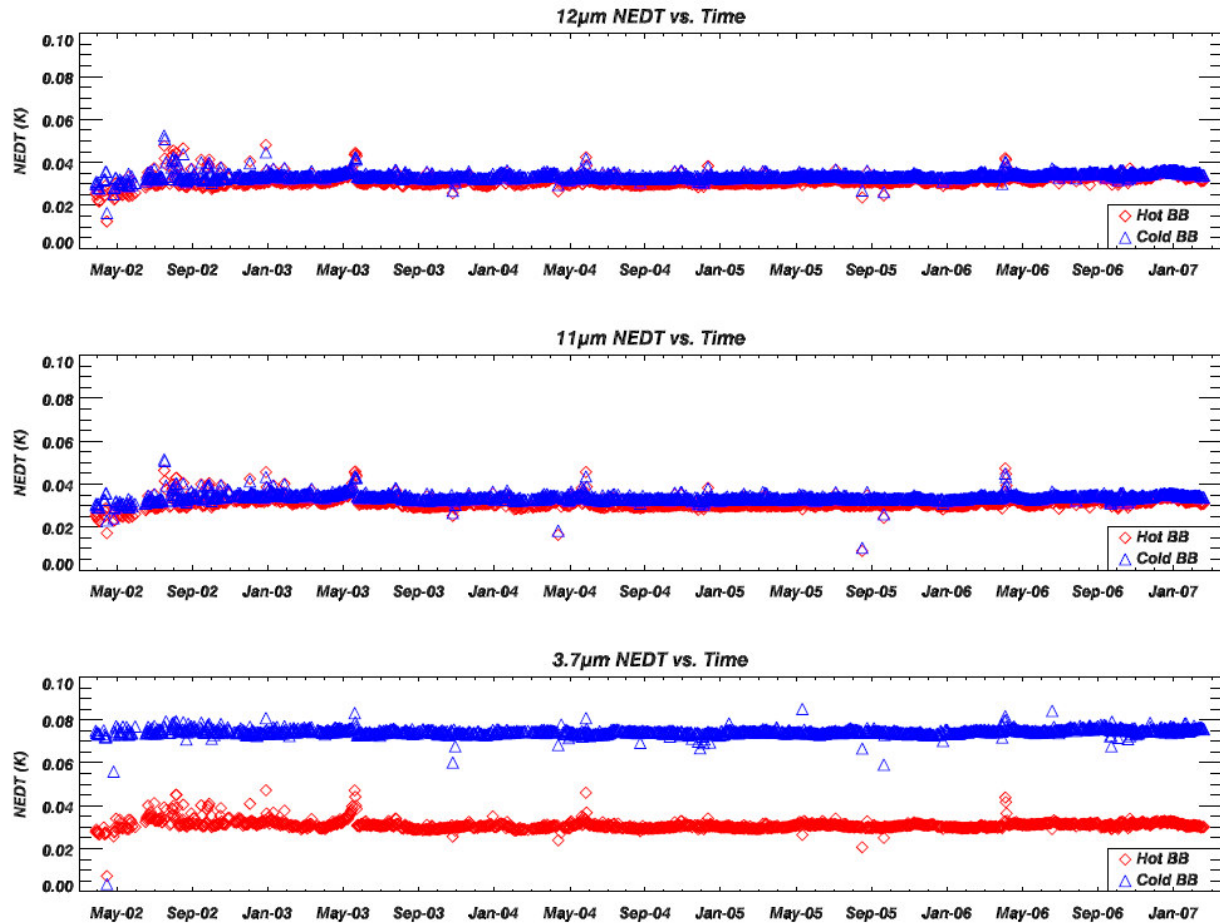


Figure 5-2 Long-term trend plot for NEAT

## 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

#### **Unphysical sea surface temperature values in Level 2 AATSR products from PDHS-E at intervals of 480 rows:**

Open – The investigation shows that the problem does not happen using the IPF 5.59 with respect to the IPF 5.52 on which the problem was detected. No further instances of the problem have been reported. Original OAR (OAR-193) closed. Investigation will continue as a background task and a new OAR opened if necessary.

### 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 existing SPRs have been closed since the last Cyclic Report.

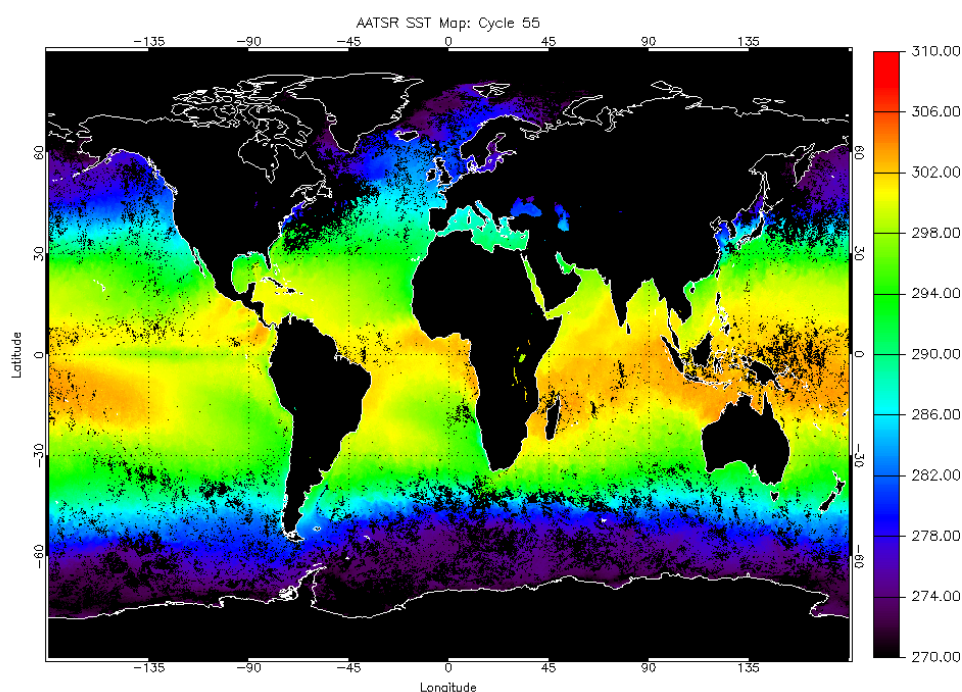
## 6 CALIBRATION/VALIDATION ACTIVITIES & RESULTS

### 6.1 Calibration

No additional calibration results were reported during this cycle.

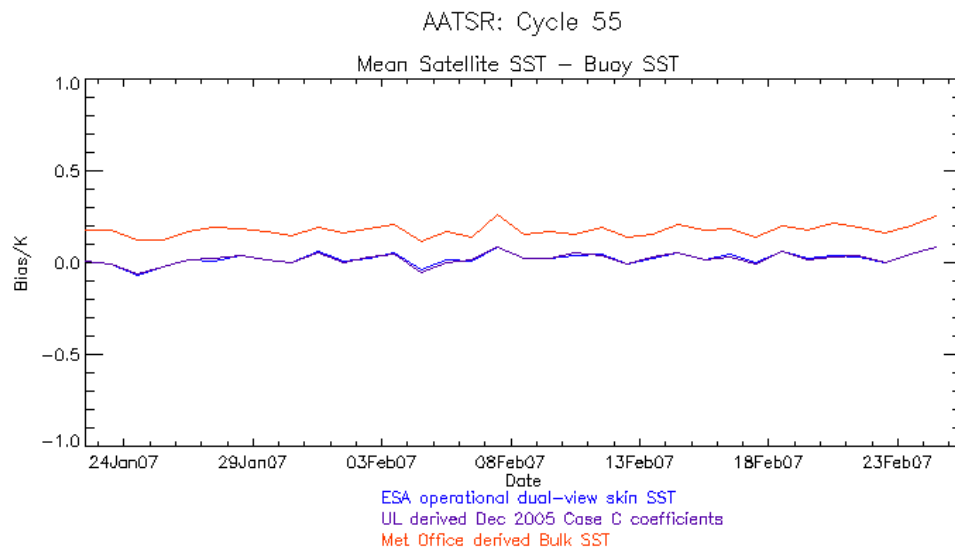
### 6.2 Validation

A monthly mean global dual-view SST plot for Cycle 55 composed from ATS\_AR\_\_2P 10' data is shown below in Figure 6-1. The monthly mean contains day time and night time data.



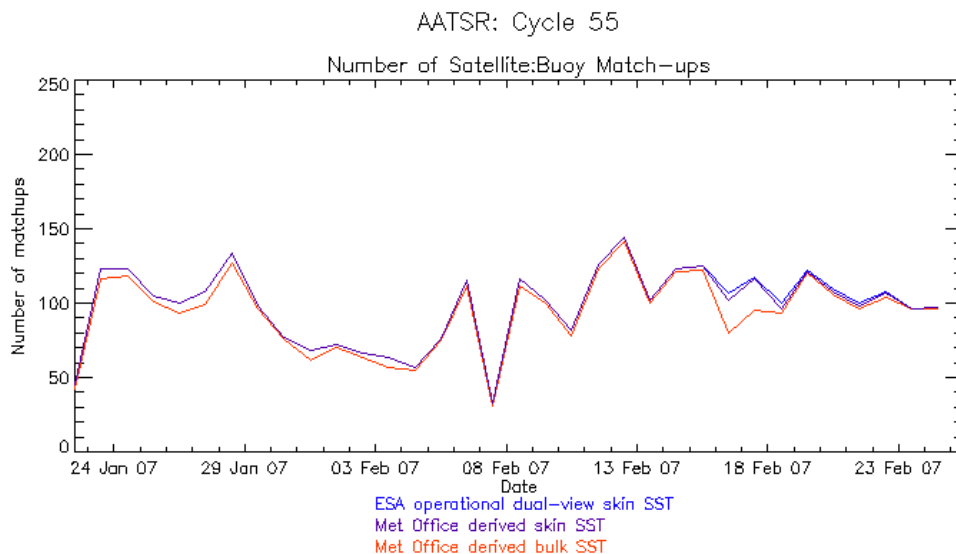
**Figure 6-1 Monthly Global Average dual-view SST for Cycle 55.**

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 55 being shown in Figure 6-2. The updated SST coefficients released in December 2005 were used in the AATSR SST retrievals.

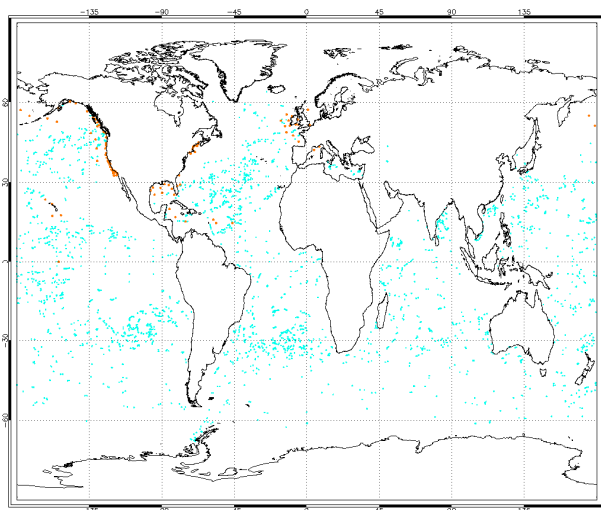


**Figure 6-2: Comparison of daily mean difference between 10' AATSR SST values and in situ buoy SST for Cycle 55. Data provided by the Met Office.**

During cycle 55, there were 1723 night time match-ups, with a mean (UL derived dual-view skin SST minus buoy SST) of -0.010 K, standard deviation 0.26 K, and a mean (dual-view bulk SST minus buoy SST) of +0.139 K, standard deviation 0.24 K. A total of 1564 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.055 K, standard deviation 0.31 K, and a mean (dual-view bulk SST minus buoy SST) of +0.213 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 55. Data provided by the Met Office.**

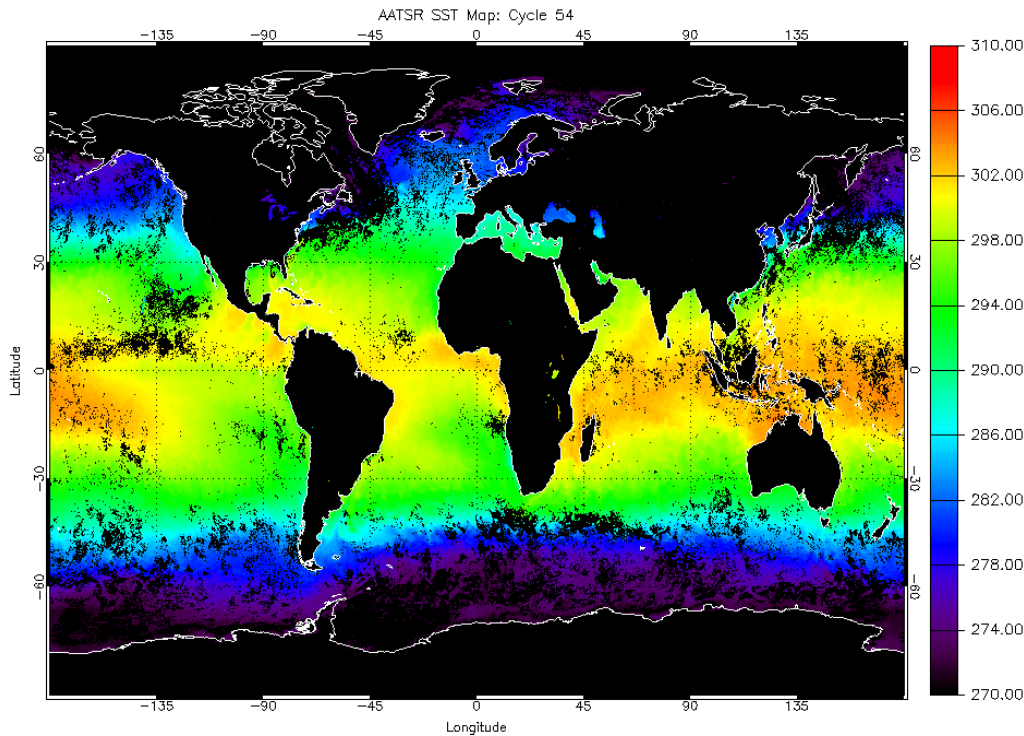


**Figure 6-4 Map showing global distribution of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 55. The red dots indicate a match-ups to a moored buoy; the cyan dots indicate a match-up to a drifting buoy. Data provided by the Met Office.**

### 6.2.1 VALIDATION DATA FROM CYCLE 54

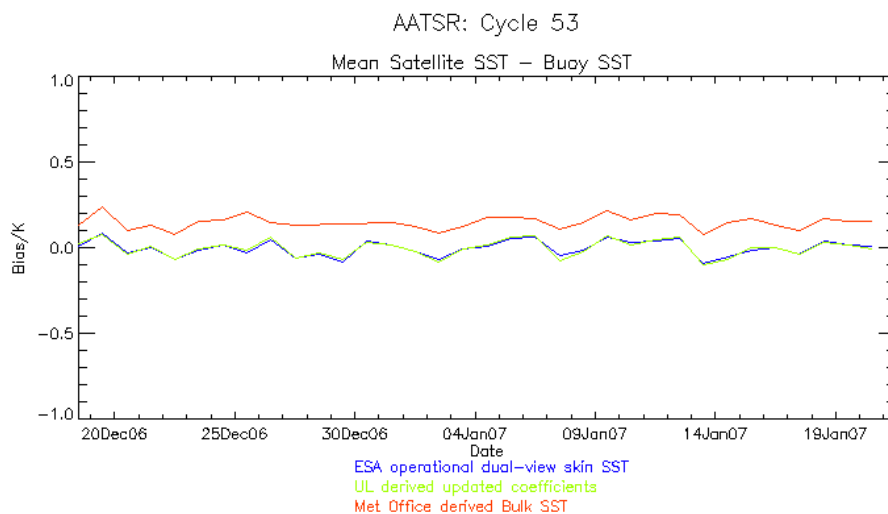
A monthly mean global dual-view SST plot for Cycle 54 composed from ATS\_AR\_\_2P 10' data is shown below in Figure 6-5. The monthly mean contains day time and night time data.





**Figure 6-5 Monthly Global Average dual-view SST for Cycle 54.**

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 54 being shown in Figure 6-2. The updated SST coefficients released in December 2005 were used in the AATSR SST retrievals.

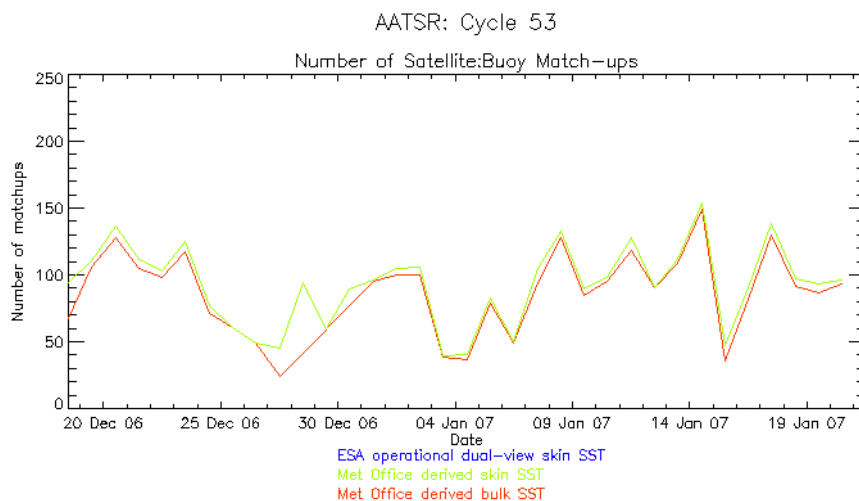


**Figure 6-6 Comparison of daily mean difference between 10' AATSR SST values and in situ buoy SST for Cycle 54. Data provided by the Met Office.**

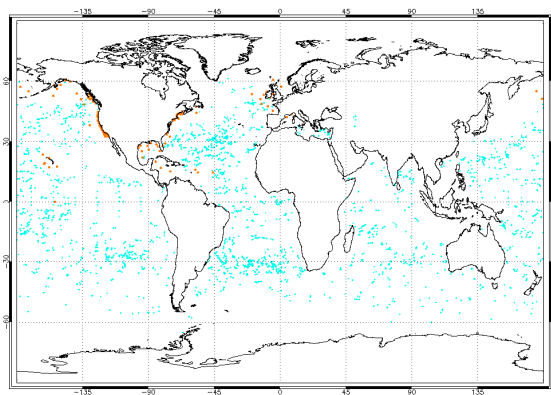
During cycle 54, there were 1730 night time match-ups, with a mean (UL derived dual-view skin SST minus buoy SST) of -0.029 K, standard deviation 0.28 K, and a mean (dual-



view bulk SST minus buoy SST) of +0.121 K, standard deviation 0.25 K. A total of 1378 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of -0.061 K, standard deviation 0.33 K, and a mean (dual-view bulk SST minus buoy SST) of +0.176 K, standard deviation 0.32 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.



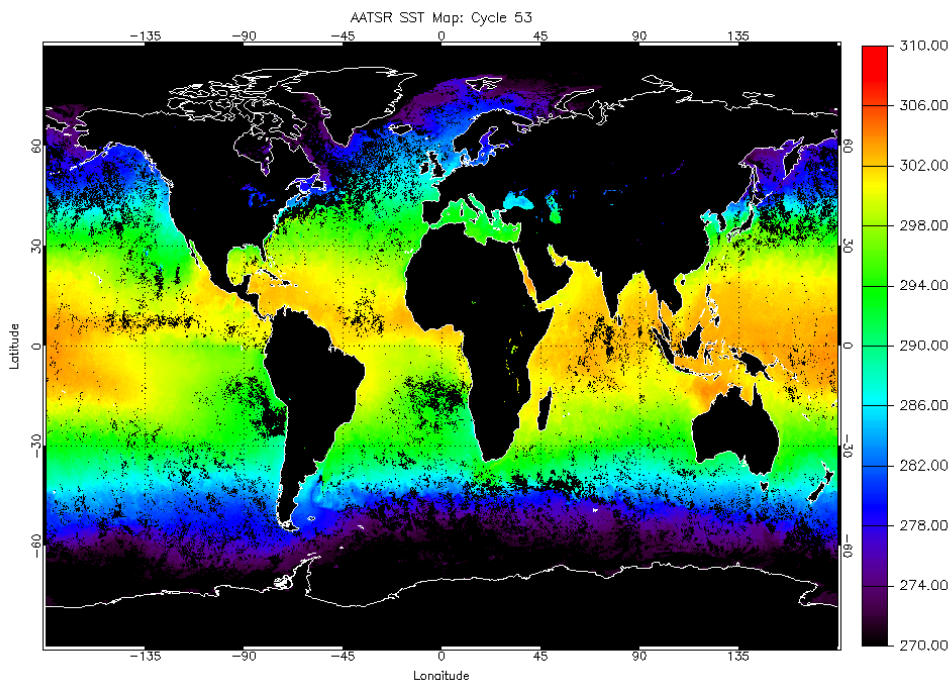
**Figure 6-7** Plot of daily number of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 54. Data provided by the Met Office.



**Figure 6-8** Map showing global distribution of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 54. 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.

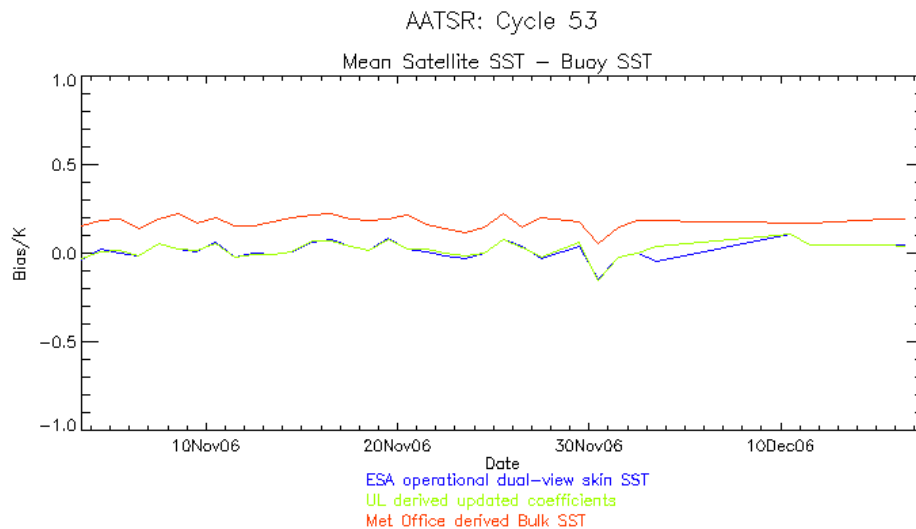
## 6.2.2 VALIDATION DATA FROM CYCLE 53

A monthly mean global dual-view SST plot for Cycle 53 composed from ATS\_AR\_\_2P 10' data is shown below in Figure 6-9. The monthly mean contains day time and night time data.



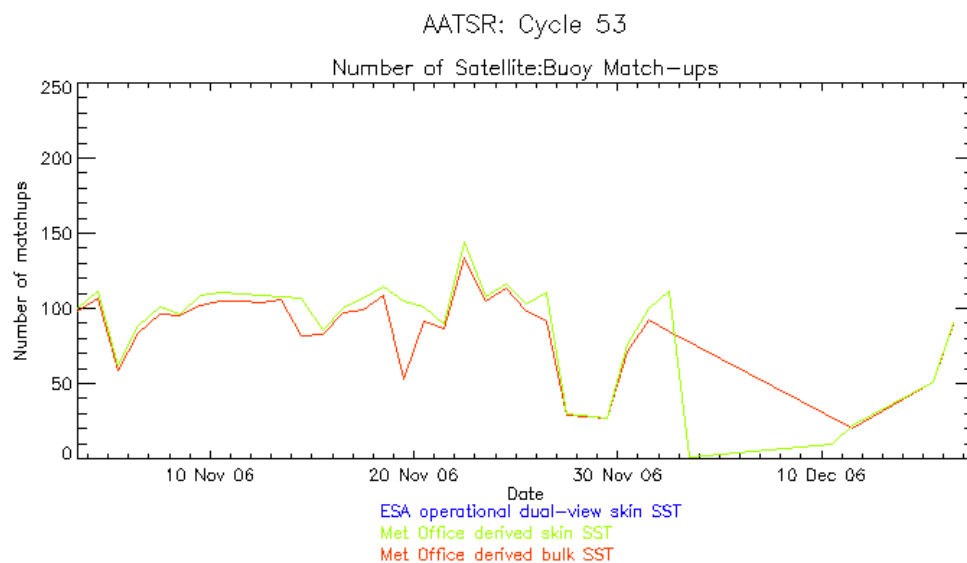
**Figure 6-9: Monthly Global Average dual-view SST for Cycle 53.**

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 53 being shown in Figure 6-2. The updated SST coefficients released in December 2005 were used in the AATSR SST retrievals.

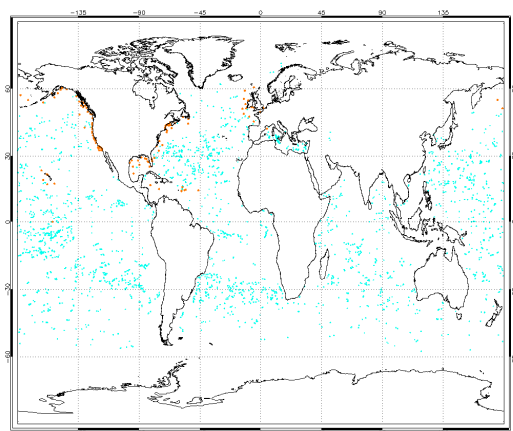


**Figure 6-10: Comparison of daily mean difference between 10' AATSR SST values and in situ buoy SST for Cycle 53. Data provided by the Met Office.**

During cycle 53, there were 1577 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 +0.144 K, standard deviation 0.23 K. A total of 1390 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.051 K, standard deviation 0.35 K, and a mean (dual-view bulk SST minus buoy SST) of +0.209 K, standard deviation 0.35 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 6-11** Plot of daily number of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 53. Data provided by the Met Office.



**Figure 6-12** Map showing global distribution of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 53. 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.

## **7      DISCLAIMERS**

No new disclaimers have been issued during this cycle.