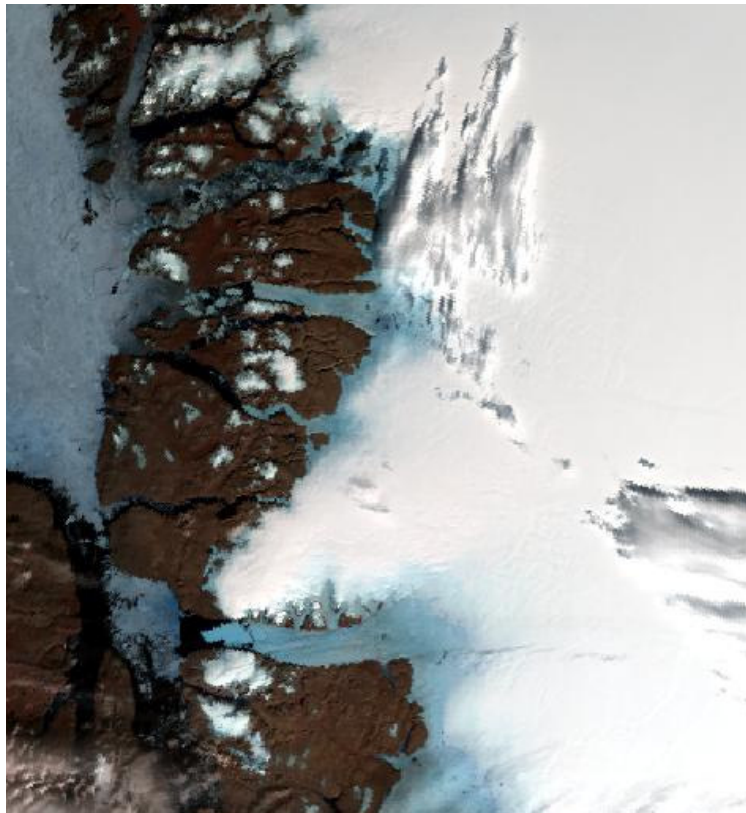


# **ENVISAT - AATSR**

## **CYCLIC REPORT #91**

	START	END
<i>DATE</i>	<i>5TH JULY 2010</i>	<i>9TH AUGUST 2010</i>
<i>TIME</i>	<i>21:59:29</i>	<i>21:59:29</i>
<i>ORBIT #</i>	<i>43642</i>	<i>44142</i>



This subset from a Level 1 product acquired on the 5<sup>th</sup> August 2010 shows the North-East coast of Greenland. Towards the bottom, the newly created ice island separated from the Petermann Glacier can be observed. This RGB image is composed of the 0.87, 0.67 and 0.55 micron channels for the nadir view.

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prepared by/*préparé par* AATSR IDEAS and QWG team  
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# AATSR CYCLIC REPORT # 91

## 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:** 91

**Cycle Start:** 5th July 2010, 21:59:29 Orbit #: 43642

**Cycle End:** 9th August 2010, 21:59:29 Orbit #: 44142

The main activities during the cycle have been as follows:

- **AATSR NRT Dissemination Delay**

Kiruna – 9<sup>th</sup> to 10<sup>th</sup> August due to system problems at the PDHS-K facility. Orbit 44102 has not yet been recovered.

- **AATSR NRT BUFR Dissemination Delay**

ESRIN – 29<sup>th</sup> July due to a network anomaly affecting the Envisat NRT BUFR processing. The complete backlog was recovered.

- **Envisat Orbit Control Manoeuvre**

An Envisat Orbit Control Manoeuvre (OCM) took place from 5<sup>th</sup> – 6<sup>th</sup> July 2010 and the following precise instrument unavailability period has been registered for AATSR: 5<sup>th</sup> July 2010, 23:53:50 to 6<sup>th</sup> July 2010, 06:59:50 UTC.

- **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, as such there was a direct effect on the quality of the reflectance channel calibration of all L1B products generated using these VC1 files. There will also be a knock-on effect on L2 products and reflectance-channel-related cloud flagging. A corrected set of VC1 files for this period is being prepared; once available the offline data will be reprocessed with the corrected VC1 files.

### 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 VCI File Availability

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

Date	Validity range		Comments
	From	To	
12/07/2010	11/07/2010	18/07/2010	Problem detected with the quality
27/07/2010	26/07/2010	02/08/2010	Connection problems
28/08/2010	27/07/2010	03/08/2010	Connection problems
29/07/2010	28/07/2010	04/08/2010	Connection problems
30/07/2010	29/07/2010	05/08/2010	Connection problems
31/07/2010	30/07/2010	06/08/2010	Connection problems
03/08/2010	02/08/2010	09/08/2010	None

**Table 3-2 Unavailable VCI files**

### 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
12/07/2010 01:26	12/07/2010 01:33	Autonomous transition to Pre-op mode due to a telemetry error on parameter B1380	EN-UNA-2010/0112	No

Table 4-1 Instrument unavailability during cycle 91.

### 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	July 5, 2010	43642	43741	405	11961	31160	99.93%	97.96%	92.80%
2	July 12, 2010	43742	43841	0	0	0	100.00%	100.00%	100.00%
3	July 19, 2010	43842	43942	0	6093	9432	100.00%	98.99%	97.43%
4	July 26, 2010	43943	44042	0	0	5829	100.00%	100.00%	99.04%
5	August 2, 2010	44043	44142	0	0	8736	100.00%	100.00%	98.56%

Table 4-2 Instrument and data unavailability weekly summary for cycle 91

The instrument was available for 99.99% of the time during the cycle.  
The L0 data were available for 99.39% of the time during the cycle.  
The L1b data were available for 97.57% 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
08/07/2010 12:29	08/07/2010 14:07	5875	43678	43679
09/07/2010 06:57	09/07/2010 08:38	6086	43689	43690
25/07/2010 05:47	25/07/2010 07:28	6093	43917	43918

Table 4-3 ATS\_NL\_0P missing data during cycle 91

The following L1 data was missing from this cycle:

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
05/07/2010 23:57	06/07/2010 06:59	25360	43643	43647
11/07/2010 09:18	11/07/2010 10:55	5800	43720	43721
25/07/2010 01:14	25/07/2010 03:52	9432	43915	43917
01/08/2010 22:41	02/08/2010 00:19	5829	44028	44029
04/08/2010 01:01	04/08/2010 01:49	2901	44058	44059
08/08/2010 17:49	08/08/2010 19:26	5835	44126	44127

Table 4-4 ATS\_TOA\_1P missing data during cycle 91



#### 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

Jitter information is not available at the time of issuing this report. This information will be included in the next cyclic report.

#### 5.1.2 SENSOR TEMPERATURE

Sensor temperature information is not available at the time of issuing this report. This information will be included in the next cyclic report.

#### 5.1.3 VISCAL

The list of "orbital" VC1 files delivered is not available at the time of issuing this report. This information will be included in the next cyclic report.

#### 5.1.4 NE $\Delta$ T

	Hot BB T = 301.25K		Cold BB T = 262.09K	
	Count	NE $\Delta$ T (mK)	Count	NE $\Delta$ T (mK)
12 $\mu$ m	1.66	37.7	1.22	35.7
11 $\mu$ m	1.56	31.9	1.13	34.2
3.7 $\mu$ m	2.50	31.4	1.20	75.7

Table 5-1 NE $\Delta$ T data for 10<sup>th</sup> August, end of Cycle 91

### 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:

#### **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:

**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.

### 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 July 2010. This consists of 469 products taken from orbits 43571 to 44014. Figure 5-2, Figure 5-3, Figure 5-4 and Figure 5-5 show the SST average in dual and nadir views, the standard deviation and the number of contributory orbits for July 2010. Please note we are not able to provide individual colour scales at this time, however the colouring scheme used is given in Figure 5-1 and the data ranges of each diagram are also given



Figure 5-1 This is the colour scheme used for the following plots, running linearly from left to right with increasing magnitude.

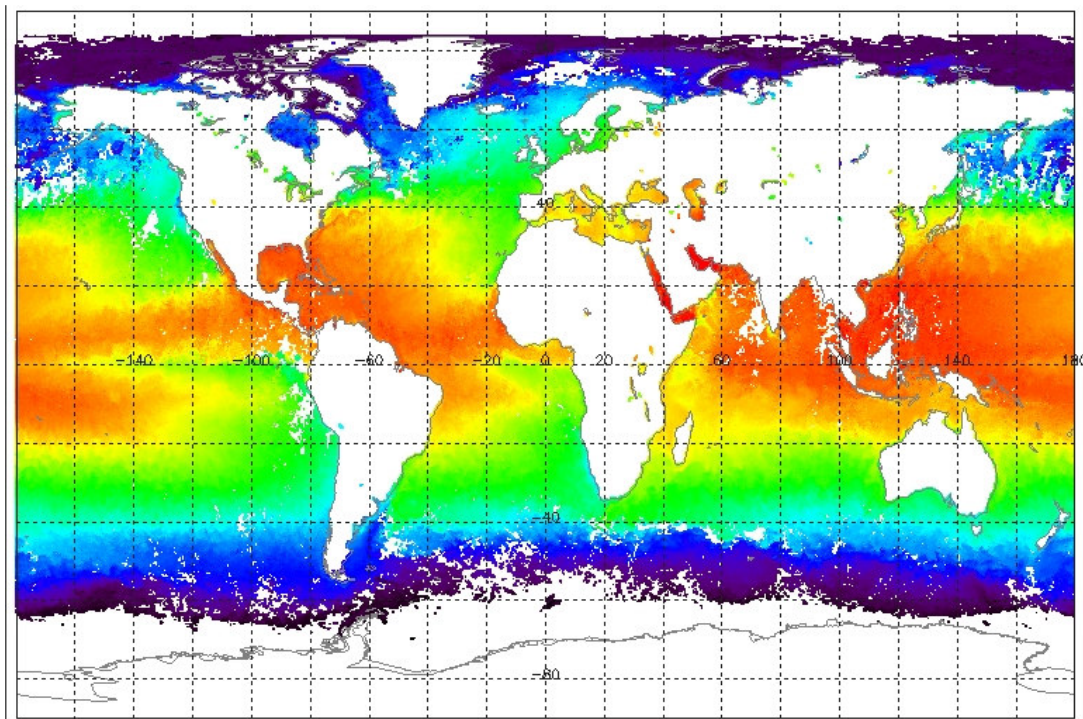
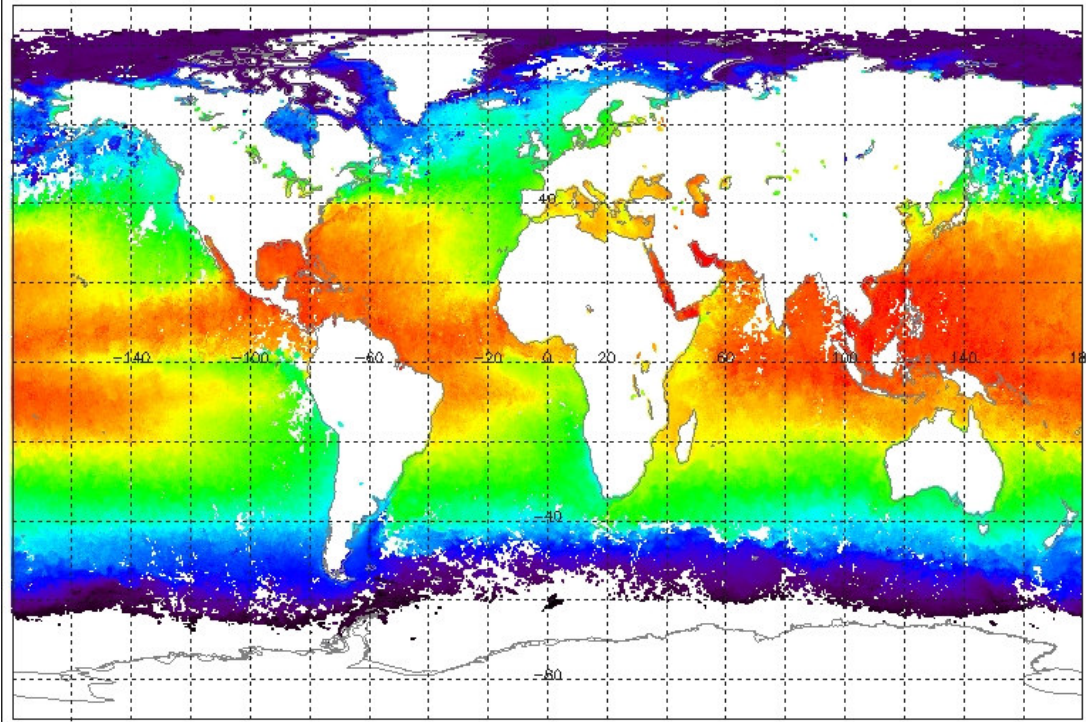
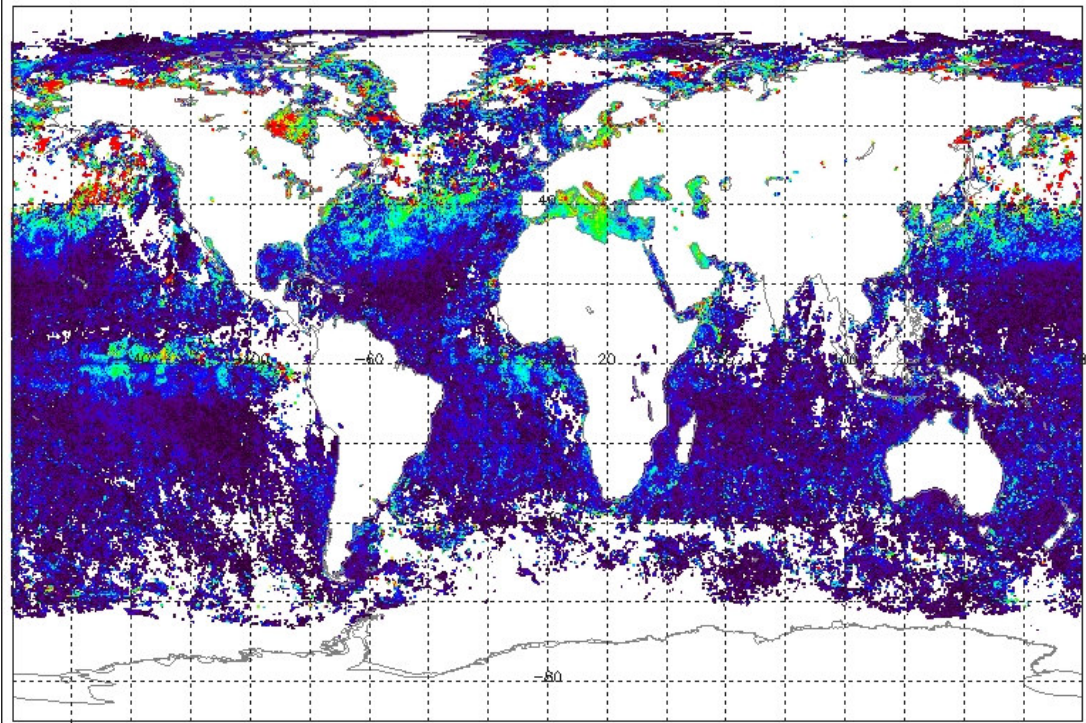


Figure 5-2 Monthly average Dual View SST, with a range of 270 - 305 Kelvin for July 2010



**Figure 5-3 Monthly average Nadir SST, with a data range of 270 - 305 Kelvin for July 2010**



**Figure 5-4 Standard deviation of the monthly average SST with a data range of 0 to 2 Kelvin for July 2010**

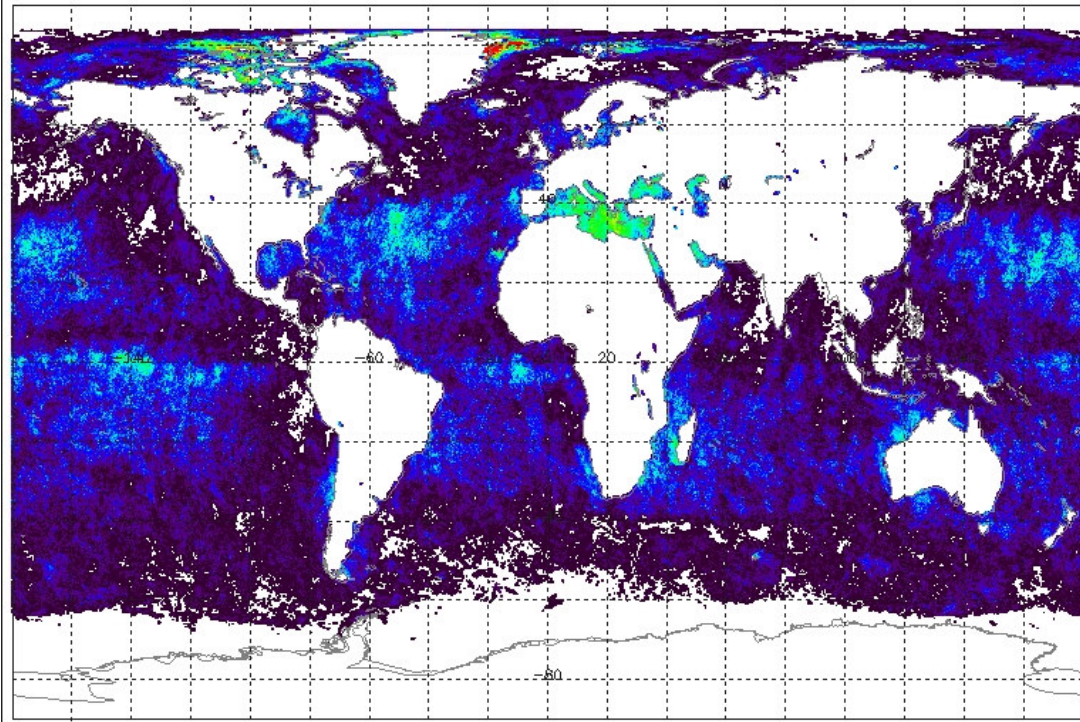


Figure 5-5 Number of contributory orbits to the calculation of the SST, with a range of 0 to 20 for July 2010

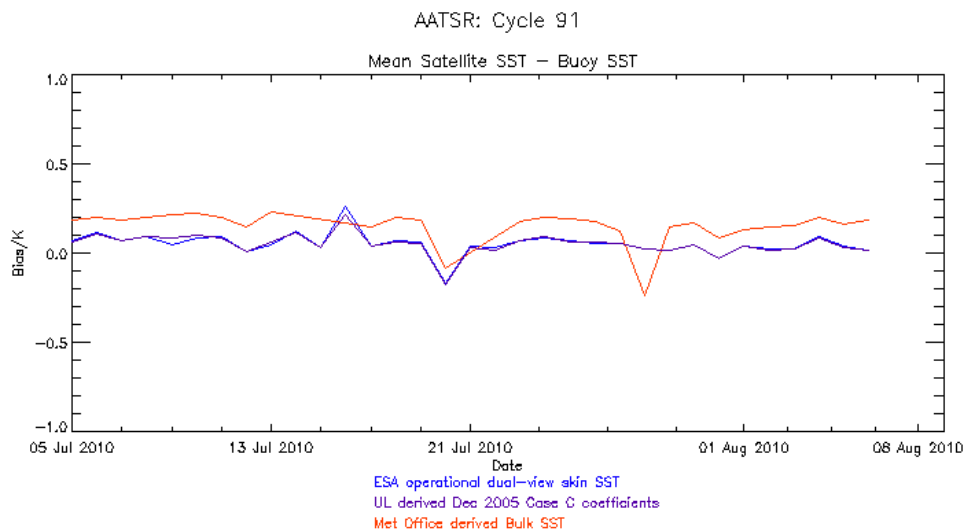
## 6 CALIBRATION/VALIDATION ACTIVITIES & RESULTS

### 6.1 Calibration

No calibration results were reported during this cycle.

### 6.2 Validation

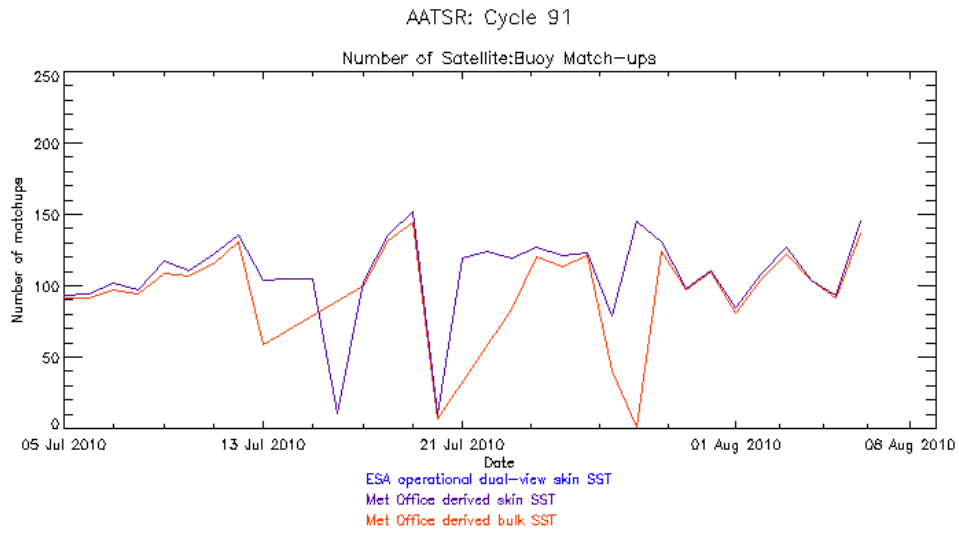
The Met Office has validated the AATSR dual-view SST data using the global network of *in situ* drifting buoy SST data, the results for Cycle 91 being shown in **Error! Reference source not found.** The updated SST coefficients released in December 2005 were used in the AATSR SST retrievals.



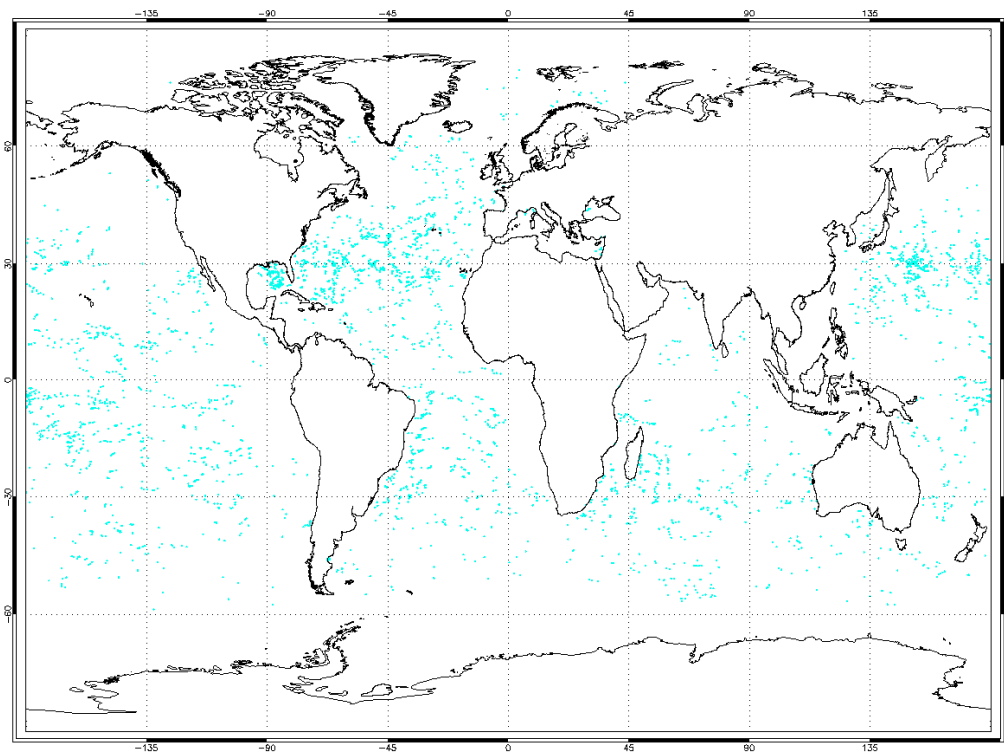
**Figure 6-1 Comparison of daily mean difference between 10' AATSR SST values and in situ drifting buoy SST for Cycle 91. Data provided by the Met Office**

During cycle 91, there were 1849 night time match-ups, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.013 K, standard deviation 0.25 K, and a mean (dual-view depth SST minus buoy SST) of +0.140 K, standard deviation 0.23 K. A total of 1679 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.089 K, standard deviation 0.32 K, and a mean (dual-view depth SST minus buoy SST) of +0.224 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 6-2** Plot of daily number of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 91. 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 91. 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.