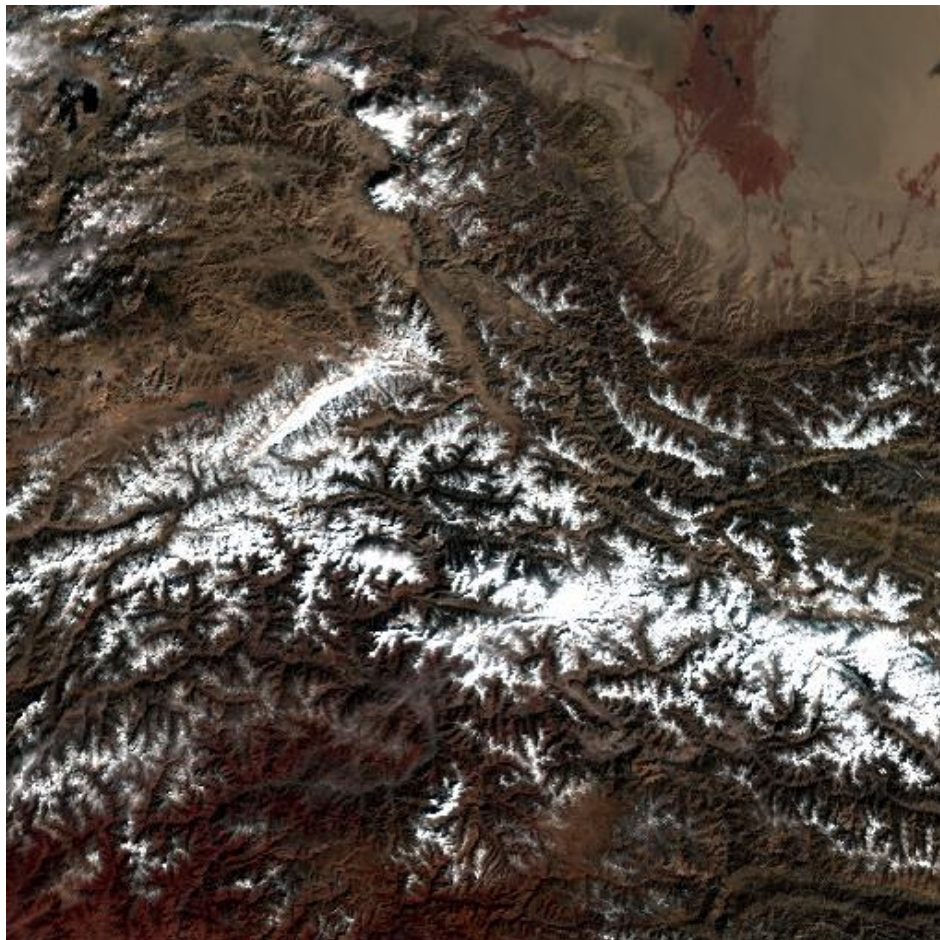


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## **ENVISAT - AATSR**

### **CYCLIC REPORT #63**

	START	END
<i>DATE</i>	<i>29 OCT 2007</i>	<i>03 DEC 2007</i>
<i>TIME</i>	<i>21:59:29</i>	<i>21:59:29</i>
<i>ORBIT #</i>	<i>29614</i>	<i>30114</i>



Himalayas, 18 November 2007 – Daytime visible image showing snow on the Western Himalayas.

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## AATSR CYCLIC REPORT # 63

### 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
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:** 63  
**Cycle Start:** 29 Oct 2007, 21:59:29 Orbit #: 29614  
**Cycle End:** 03 Dec 2007, 21:59:29 Orbit #: 30114

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.

- **Blackbody Crossover Test:**

An AATSR blackbody crossover test was initiated on 13<sup>th</sup> November 2007 07:50 and was completed on 15<sup>th</sup> November 2007 08:40. Scientific data for orbits 29820-29849 will not be optimally calibrated as a result.

### 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_AXVIEC20021114_113144_20020301_000000_20200101_000000
ATS_CL1_AXNIEC20070223_102348_20010308_120446_20120801_235959
ATS_GC1_AXVIEC20041214_154941_20020301_000000_20200101_000000
ATS_INS_AXVIEC20030731_092706_20020301_000000_20200101_000000
See below for VC1 files
ATS_LST_AXVIEC20040311_095537_20020301_000001_20200101_000000
ATS_PC1_AXVIEC20040812_063722_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 VC1 File Availability*

The daily reflectance channel calibration files were available for all dates, except for the following:

- 10<sup>th</sup> November 2007

The orbital reflectance channel calibration files VC1 files were created from the available L0 files for all dates during this cycle.

## 3.2.2 STATUS OF OTHER AUXILIARY FILES

No other auxiliary files changed during this cycle.

## 4 PDS STATUS

### 4.1 Instrument Unavailability

AATSR operations continued nominally throughout the reporting period.

### 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	October 29, 2007	29614	29713	0	6245	0	100.00%	98.97%	98.97%
2	November 5, 2007	29714	29813	0	0	0	100.00%	100.00%	100.00%
3	November 12, 2007	29814	29914	0	5990	0	100.00%	99.01%	99.01%
4	November 19, 2007	29915	30014	0	0	0	100.00%	100.00%	100.00%
5	November 26, 2007	30015	30114	0	5730	0	100.00%	99.05%	99.05%

**Table 4-1 Instrument and data unavailability weekly summary for cycle 63**

The instrument was available for 100.00% of the time during the cycle.

The L0 data were available for 99.41% of the time during the cycle.

The L1b data were available for 99.41% 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; there were no additional missing L1b data during this cycle.

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
29-Oct-2007 23:23	29-Oct-2007 23:25	101	29614	29614
29-Oct-2007 23:25	30-Oct-2007 01:07	6144	29614	29615
18-Nov-2007 22:59	19-Nov-2007 00:38	5990	29900	29901
28-Nov-2007 14:59	28-Nov-2007 16:34	5730	30039	30040
29-Oct-2007 23:23	29-Oct-2007 23:25	101	29614	29614

**Table 4-2 ATS\_NL\_\_0P missing data during cycle 63**

#### 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:

- 29821 (13<sup>th</sup> November 2007)
- 29823 (13<sup>th</sup> November 2007)
- 29837 (14<sup>th</sup> November 2007)



- 29838 (14<sup>th</sup> November 2007)
- 29892 (18<sup>th</sup> November 2007)
- 30035 (28<sup>th</sup> November 2007)
- 30089 (2<sup>nd</sup> December 2007)
- 30112 (3<sup>rd</sup> December 2007)

### 4.3 L0 and L1b Backlog Processing Status

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

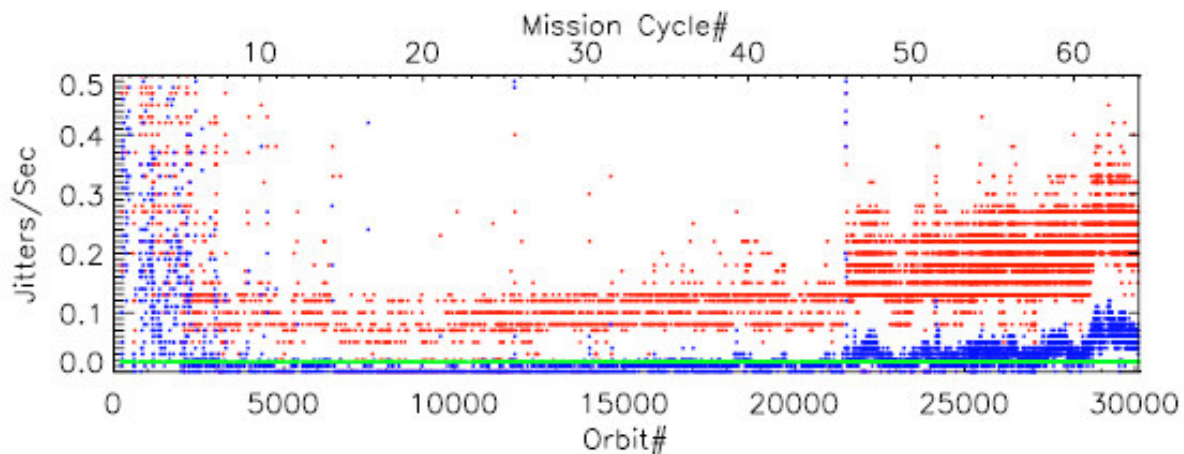
UTC Start	UTC Stop	Orbit Start	Orbit End	Duration (s)
24-Sep-2007 12:23	24-Sep-2007 12:27	29107	29107	187
24-Sep-2007 12:27	24-Sep-2007 21:48	29107	29112	33711
24-Sep-2007 21:52	24-Sep-2007 22:00	29112	29113	463

**Table 4-3 Backlog processing status during cycle 63**

## 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 some marginal improvement with respect to the previous cycle in both the mean and maximum jitter-rate. 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

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

- November 10

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

<http://aatsr2.ag.rl.ac.uk/data2/aatsr2/EDS-X/CyclePlots/VC1-63.txt>

## 5.1.4 NE $\Delta$ T

	Hot BB T = 301.63K		Cold BB T = 262.81K	
	Count	NE $\Delta$ T (mK)	Count	NE $\Delta$ T (mK)
12 $\mu$ m	1.67	34.8	1.24	35.6
11 $\mu$ m	1.59	32.3	1.15	34.3
3.7 $\mu$ m	2.57	32.3	1.23	75.1

Table 5-1 NE $\Delta$ T data for Cycle 63

	Hot BB T = 301.63K		Cold BB T = 262.81K	
	Count	NE $\Delta$ T (mK)	Count	NE $\Delta$ T (mK)
12 $\mu$ m	1.60	33.3	1.20	34.8
11 $\mu$ m	1.53	31.2	1.13	33.7
3.7 $\mu$ m	2.52	31.7	1.21	74.9

Table 5-2 NE $\Delta$ T data for Cycle 62

	Hot BB T = 301.10K		Cold BB T = 262.01K	
	Count	NE $\Delta$ T (mK)	Count	NE $\Delta$ T (mK)
12 $\mu$ m	1.58	33.1	1.19	34.9
11 $\mu$ m	1.52	31.0	1.13	34.1
3.7 $\mu$ m	2.47	31.0	1.21	76.3

Table 5-3 NE $\Delta$ T data for Cycle 61

## 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.

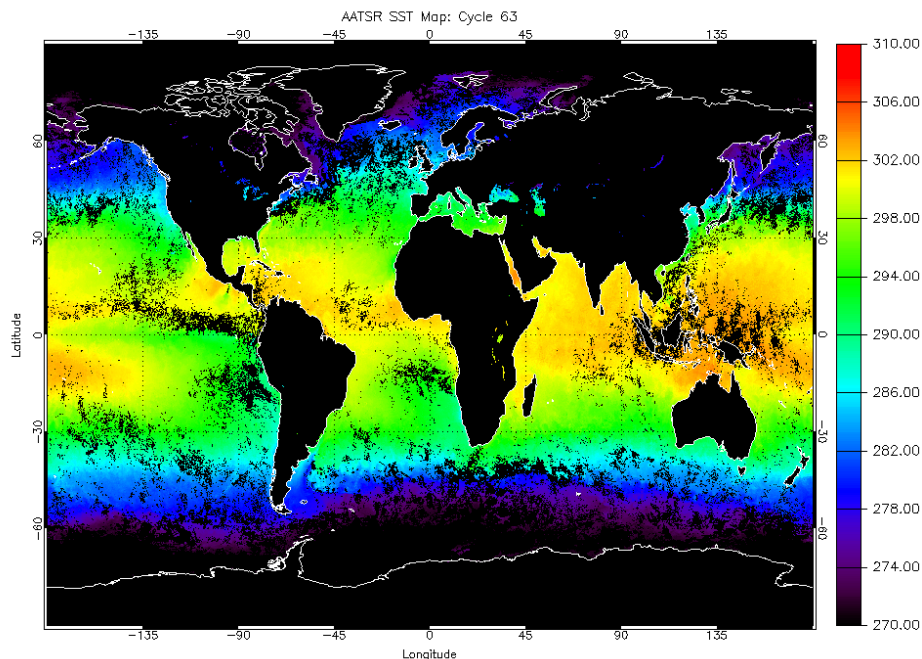
## 6 CALIBRATION/VALIDATION ACTIVITIES & RESULTS

### 6.1 Calibration

No additional calibration results were reported during this cycle.

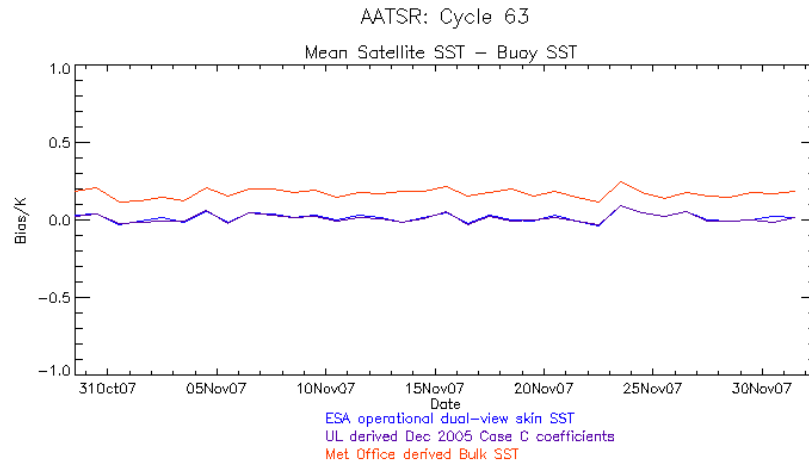
### 6.2 Validation

A monthly mean global dual-view SST plot for Cycle 63 composed from ATS\_AR\_2P 10' data is shown below in Figure 6-1. The monthly mean contains day time and night time data.



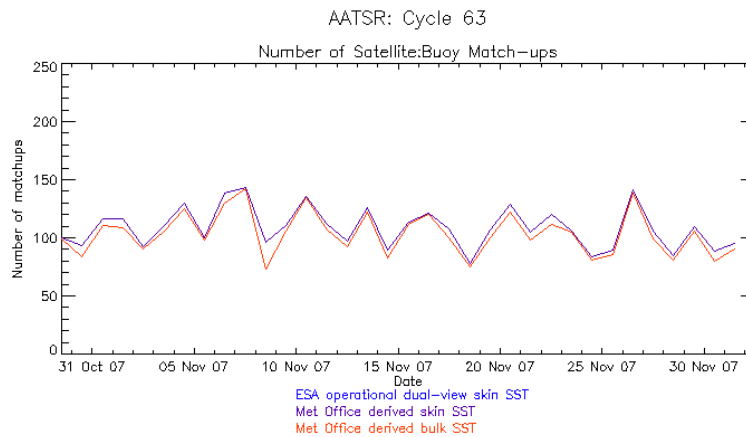
**Figure 6-1: Monthly Global Average dual-view SST for Cycle 63.**

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

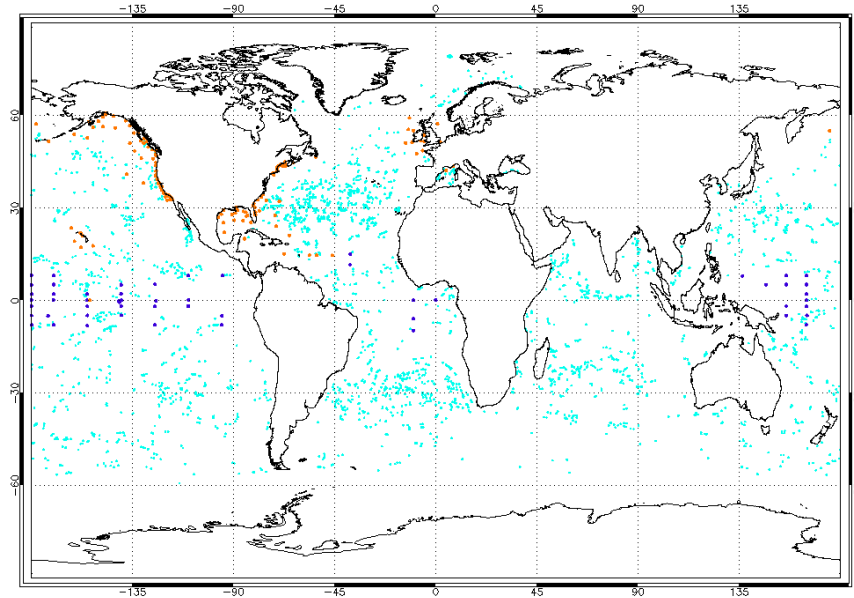


**Figure 6-2: Comparison of daily mean difference between 10' AATSR SST values and in situ buoy SST for Cycle 63. Data provided by the Met Office.**

During cycle 63, there were 1886 night time match-ups, with a mean (UL derived dual-view skin SST minus buoy SST) of -0.012 K, standard deviation 0.26 K, and a mean (dual-view bulk SST minus buoy SST) of +0.139 K, standard deviation 0.25 K. A total of 1746 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.046 K, standard deviation 0.33 K, and a mean (dual-view bulk SST minus buoy SST) of +0.211 K, standard deviation 0.33 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 63. 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 63. 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.