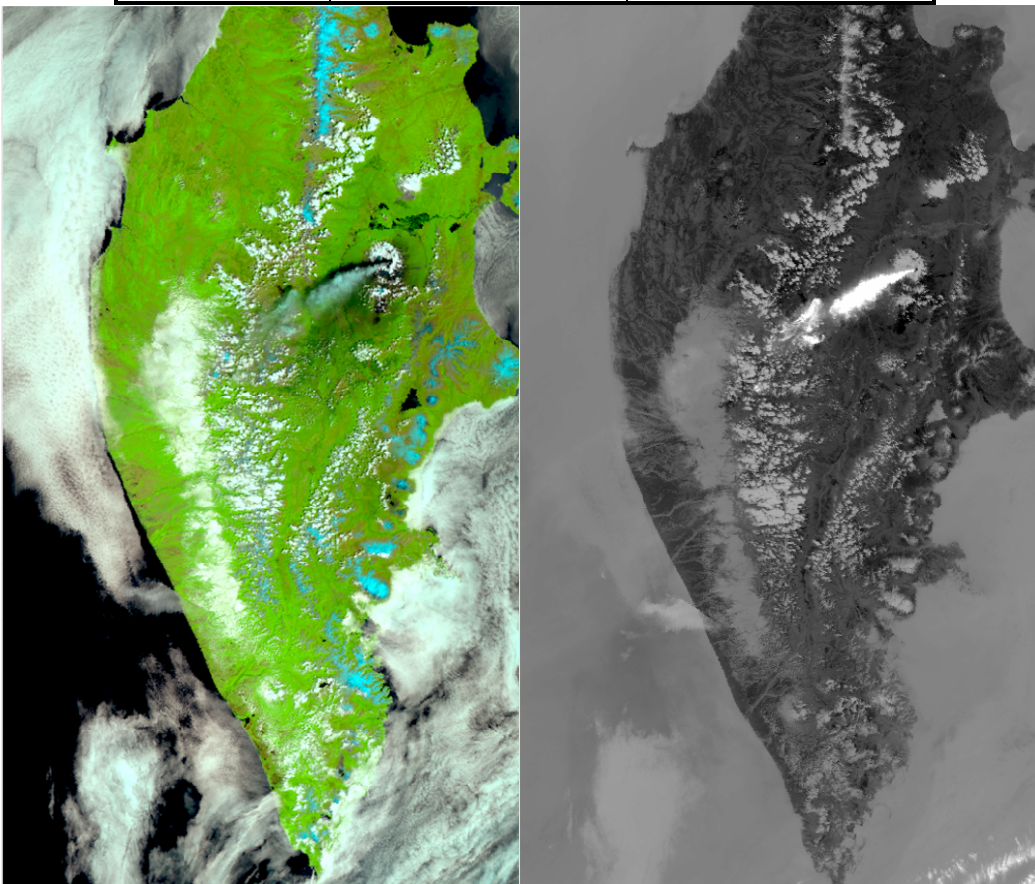


# ENVISAT - AATSR

## CYCLIC REPORT #59

	START	END
<i>DATE</i>	<i>11 JUN 2007</i>	<i>16 JUL 2007</i>
<i>TIME</i>	<i>21:59:29</i>	<i>21:59:29</i>
<i>ORBIT #</i>	<i>27610</i>	<i>28110</i>



**Left: RGB composite, red: 1.6µm, green: 0.86µm, blue: 0.67µm; Right: inverted 11µm**

Kamchatka, 30 June 2007 – AATSR captures the eruption of the Klyuchevskoy volcano in Kamchatka, Russia. The event started on 28 June 2007.

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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>

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## AATSR CYCLIC REPORT # 59

### 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
OBDAH	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:** 59  
**Cycle Start:** 11 Jun 2007, 21:59:29, Orbit #: 27610  
**Cycle End:** 16 Jul 2007, 21:59:29 Orbit #: 28110

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 – patch implemented 02 July 2007 (6.01)

AATSR IPF v6.01 was implemented on 02 July 2007, to correct for the absence of Viscal GADS in consolidated products. (See section 5.3.1.) The quality of NRT products has been verified; the consolidated data will be examined once it is available.

- **Visible channel calibration:**

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

## 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_20070801_235959
ATS_CL1_AXNIEC20070223_102348_20010308_120446_20120801_235959
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:

- 13<sup>th</sup>, 15<sup>th\*</sup> June 2007
- 1<sup>st\*</sup>, 4<sup>th\*</sup> July 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.

---

\* Note, for these marked dates, a daily VC1 file has been delivered to the IECF, but hadn't yet been disseminated

## 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
None this period				

Table 4-1 Instrument unavailability during cycle 59

### 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 11, 2007	27610	27709	0	5421	5075	100.00%	99.10%	98.26%
2	June 18, 2007	27710	27809	0	0	0	100.00%	100.00%	100.00%
3	June 25, 2007	27810	27910	0	0	0	100.00%	100.00%	100.00%
4	July 2, 2007	27911	28010	0	5949	5759	100.00%	99.02%	98.06%
5	July 9, 2007	28011	28110	0	0	0	100.00%	100.00%	100.00%

Table 4-2 Instrument and data unavailability weekly summary for cycle 59

The L0 data were available for 98.12% of the time during the cycle.  
The L1b data were available for 98.21% of the time during the cycle.

The following L0 and L1b data were 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 represent additional data gaps where the start time does not coincide with L0 data already known to be missing.

UTC Start	UTC Stop	Orbit Start	Orbit End	Duration (s)
11/06/2007 23:22	11/06/2007 23:25	27610	27610	157
12/06/2007 18:34	12/06/2007 20:01	27622	27623	5264
04/07/2007 21:24	04/07/2007 23:04	27938	27939	5949

Table 4-3 ATS\_NL\_\_0P missing data during cycle 59

UTC Start	UTC Stop	Orbit Start	Orbit End	Duration (s)
12/06/2007 18:37	12/06/2007 20:01	27622	27623	5075
04/07/2007 21:28	04/07/2007 23:04	27938	27939	5759

Table 4-4 ATS\_TOA\_1P missing data during cycle 59



#### 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 any frames suffering from bad/missing telemetry.

### 4.3 L0 and L1b Backlog Processing Status

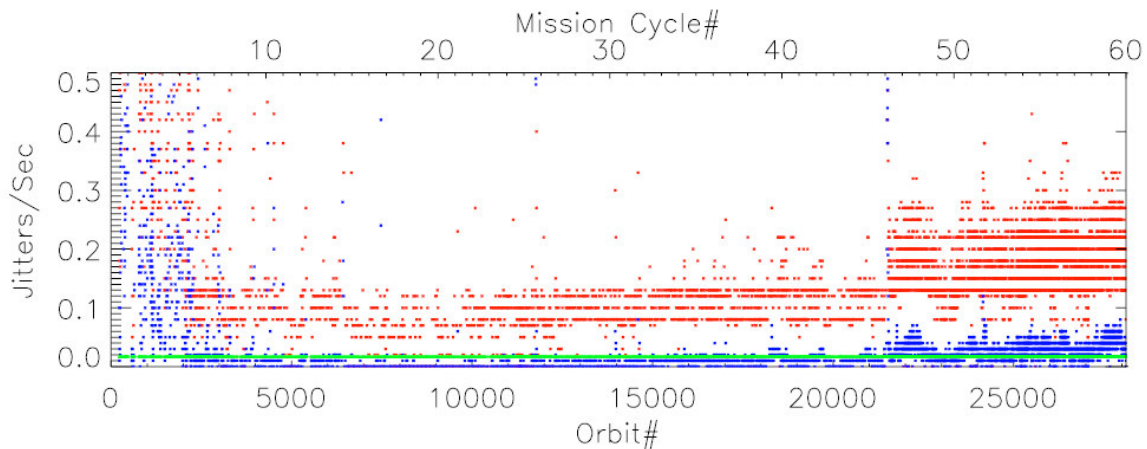
The following list of data reported missing during the previous cycle is now available:

UTC Start	UTC Stop	Orbit Start	Orbit End	Duration (s)
18 May 2007 08:17	18 May 2007 08:19	27258	27258	107
18 May 2007 08:19	18 May 2007 09:58	27258	27259	5977

## 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 shows some improvement compared to the previous cycle. 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:

- June 15

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

<http://aatsr2.ag.rl.ac.uk/data2/aatsr2/EDS-X/CyclePlots/VC1-59.txt>

### 5.1.4 NE $\Delta$ T

The information for this section is not available for this cycle, and will be published in the next cyclic report (#60) .

## 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 existing SPRs are still open:

**Missing Viscal GADS in AATSR Consolidated L1B products (OAR-2831):**

Open – Inspection has revealed that Viscal GADS are absent in all consolidated L1B products, regardless of whether or not they are present in the corresponding NRT data. IPF v6.01 has been supplied to correct this issue; verification of closure is ongoing pending consolidated data availability.

### 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 59 composed from ATS\_AR\_\_2P 10' data is shown below in Figure 5.3.3-1. The monthly mean contains day time and night time data.

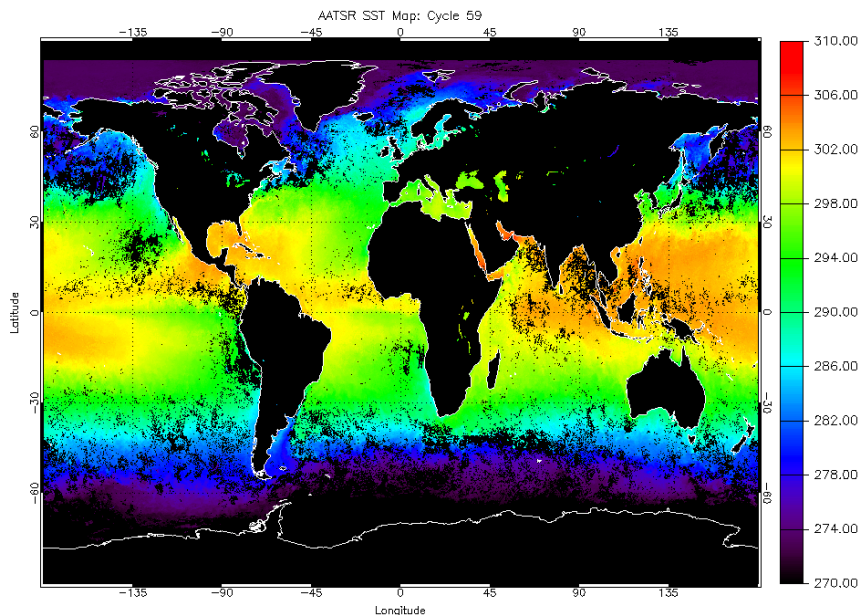
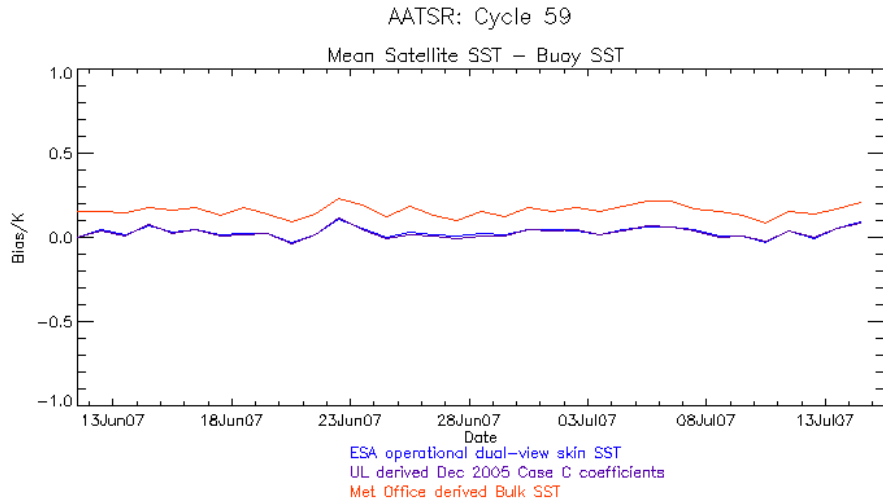


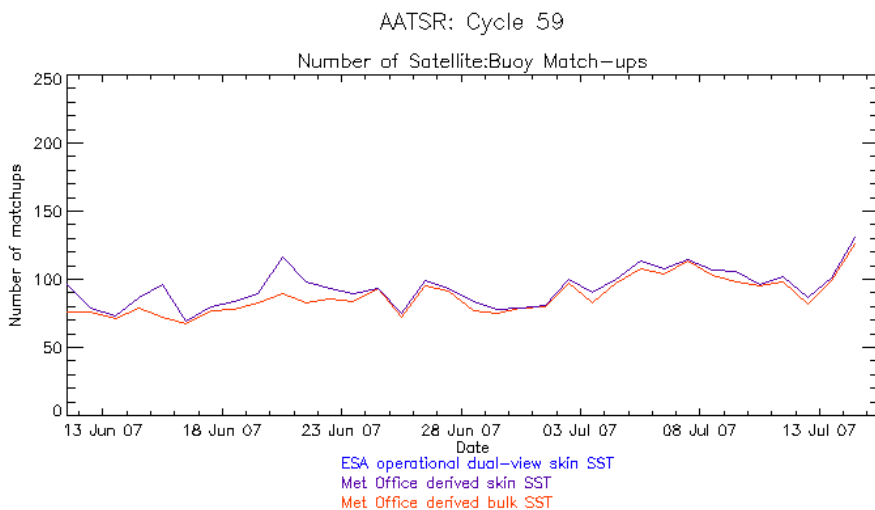
Figure 5.3.3-1: Monthly Global Average dual-view SST for Cycle 59.

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 59 being shown in Figure 5.3.3-2. The updated SST coefficients released in December 2005 were used in the AATSR SST retrievals.

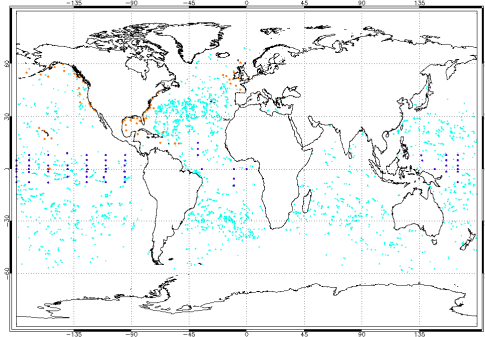


**Figure 5.3.3-2: Comparison of daily mean difference between 10' AATSR SST values and in situ buoy SST for Cycle 59. Data provided by the Met Office.**

During cycle 59, there were 1624 night time match-ups, with a mean (UL derived dual-view skin SST minus buoy SST) of -0.001 K, standard deviation 0.26 K, and a mean (dual-view bulk SST minus buoy SST) of +0.120 K, standard deviation 0.25 K. A total of 1535 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.062 K, standard deviation 0.34 K, and a mean (dual-view bulk SST minus buoy SST) of +0.200 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 1.1.1-3: Plot of daily number of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 59. Data provided by the Met Office.**



**Figure 1.1.1-3: Map showing global distribution of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 59. 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.