

ENVISAT - AATSR

CYCLIC REPORT #61

	START	END
<i>DATE</i>	<i>20 AUG 2007</i>	<i>24 SEP 2007</i>
<i>TIME</i>	<i>21:59:29</i>	<i>21:59:29</i>
<i>ORBIT #</i>	<i>28612</i>	<i>29112</i>



Hurricane Felix, 03 September 2007 – AATSR captures this image as Hurricane Felix heads across the Caribbean, later making landfall in Nicaragua. Image composed of 3.7 micron data with inverted greyscale.

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AATSR CYCLIC REPORT # 61

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: 61
Cycle Start: 20 Aug 2007, 21:59:29, Orbit #: 28612
Cycle End: 24 Sep 2007, 21:59:29 Orbit #: 29112

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.
- **Envisat Anomaly**
An anomaly occurred in the Envisat Service Module on 24 September 2007 at 12:27:00, resulting in a switch off of the payload. Note: the period of unavailability continued into the next cycle. AATSR was successfully recovered; further details will be available in the next Cyclic Report.

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:

- 29th August 2007
- 6th September 2007
- 16th September 2007*
- 23rd September 2007
- 24th September 2007

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

* The 16th September is a discrepancy between this list and the one given in Section 5.1.3; suspected cause is differences in methods for monitoring and tracking VC1 files.

3.2.2 STATUS OF OTHER AUXILIARY FILES

No other 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
24-Sep-2007 12:27:00	28-Sep-2007 13:39:25	Envisat Service Module Anomaly	EN-UNA-2007/0226	No

Table 4-1 Instrument unavailability during cycle 61

Note: the end of the above unavailability period falls within cycle 62; the instrument was successfully recovered. Further details will be available in the next Cyclic Report.

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	August 20, 2007	28612	28711	0	0	17519	100.00%	100.00%	97.10%
2	August 27, 2007	28712	28811	0	0	0	100.00%	100.00%	100.00%
3	September 3, 2007	28812	28912	0	0	0	100.00%	100.00%	100.00%
4	September 10, 2007	28913	29012	0	0	0	100.00%	100.00%	100.00%
5	September 17, 2007	29013	29112	349945	34361	0	42.14%	36.46%	36.46%

Table 4-2 Instrument and data unavailability weekly summary for cycle 61

The instrument was available for 88.43% of the time during the cycle.

The L0 data were available for 87.29% of the time during the cycle.

The L1b data were available for 86.71% 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	Duration (s)	Orbit Start	Orbit End
24-Sep-2007 12:23	24-Sep-2007 12:27	187	29107	29107
24-Sep-2007 12:27	24-Sep-2007 21:48	33711	29107	29112
24-Sep-2007 21:52	24-Sep-2007 22:00	463	29112	29113

Table 4-3 ATS_NL__0P missing data during cycle 61

UTC Start	UTC Stop	Orbit Start	Orbit End	Duration (s)
26-Aug-2007 15:54	26-Aug-2007 20:46	17519	28694	28697

Table 4-4 ATS_TOA_1P missing data during cycle 61

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 list of data reported missing during the previous cycle has not changed.

5 DATA QUALITY CONTROL

5.1 *Monitoring of Instrument Parameters*

5.1.1 JITTER

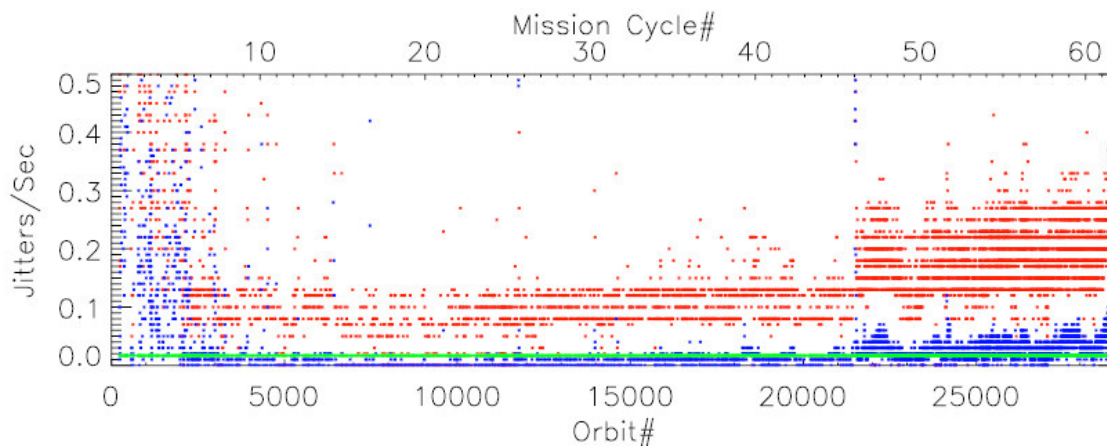


Figure 5-1 Jitter trend from mission start

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 clear deterioration in both the mean and maximum jitter-rate 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:

- August 29
- September 06
- September 23

- September 24

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

<http://aatsr2.ag.rl.ac.uk/data2/aatsr2/EDS-X/CyclePlots/VC1-61.txt>

5.1.4 NE Δ T

The information for this section is not available for this cycle, and will be published in the next cyclic report (#62).

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

There are no existing SPRs that are still open.

5.3.2 NEW SPRS SINCE THE LAST CYCLIC REPORT

The following SPRs have been opened since the last Cyclic Report:

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.

5.3.3 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 61 composed from ATS_AR_2P 10' data is shown below in Figure 6-1. The monthly mean contains day time and night time data.

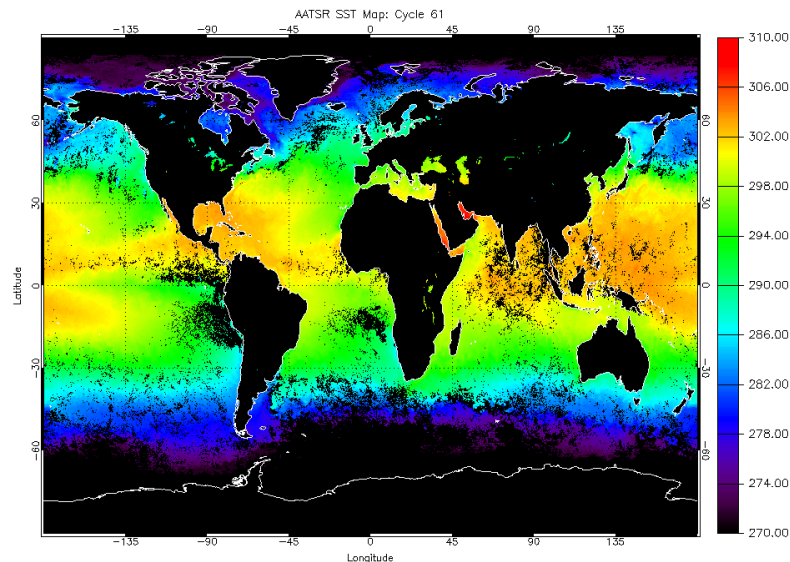


Figure 6-1: Monthly Global Average dual-view SST for Cycle 61.

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

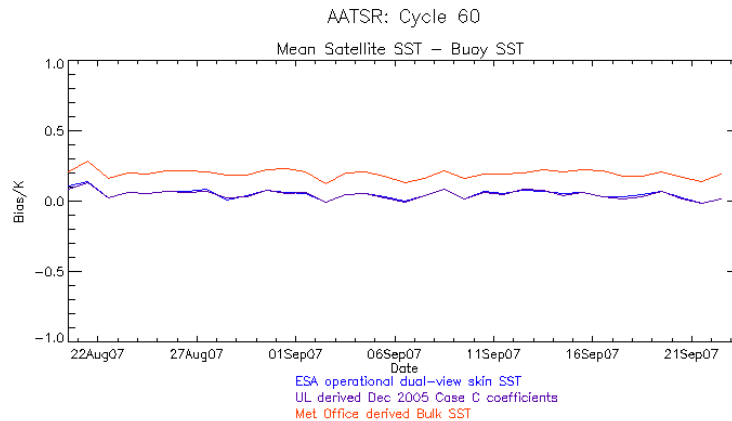


Figure 6-2: Comparison of daily mean difference between 10' AATSR SST values and in situ buoy SST for Cycle 61. Data provided by the Met Office.

During cycle 61, there were 1984 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 +0.148 K, standard deviation 0.25 K. A total of 1861 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.096 K, standard deviation 0.34 K, and a mean (dual-view bulk SST minus buoy SST) of +0.246 K, standard deviation 0.34 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.

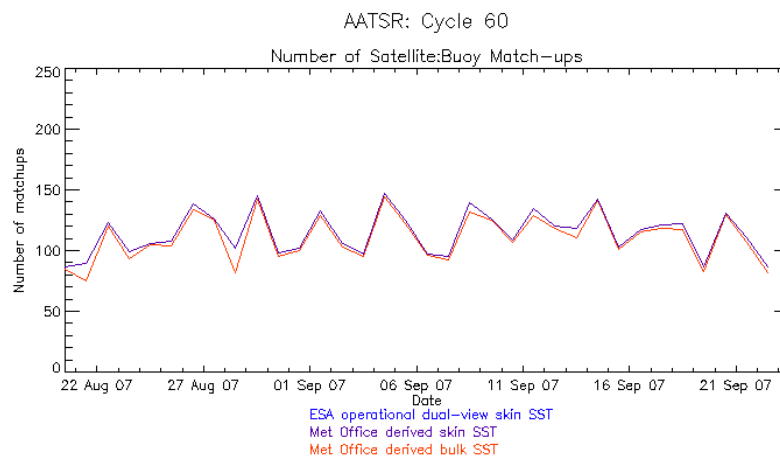


Figure 6-3: Plot of daily number of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 61. Data provided by the Met Office.

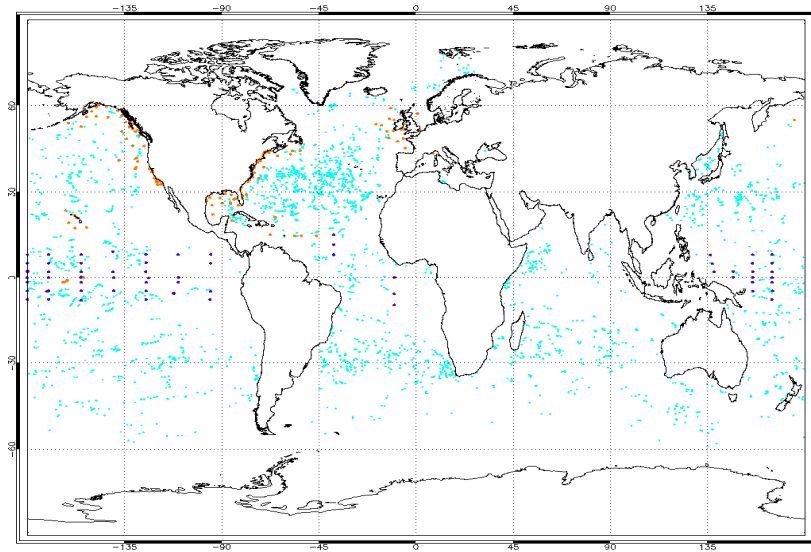


Figure 6-4: Map showing global distribution of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 61. The red dots indicate a match-ups to a moored buoy; the cyan dots indicate a match-up to a drifting buoy. Data provided by the Met Office.

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.