
ENVISAT - AATSR

CYCLIC REPORT #97

	START	END
<i>DATE</i>	<i>26TH NOVEMBER 2010</i>	<i>26TH DECEMBER 2010</i>
<i>TIME</i>	<i>21:58:25</i>	<i>21:59:10</i>
<i>ORBIT #</i>	<i>45705</i>	<i>46136</i>



This subset from a Level 1 product acquired on 23rd December 2010 shows a summer day in the Falkland Islands. Geological evidence suggests these islands were once attached to the east coast of southern Africa, before breaking away during the rotation of Antarctica. This RGB image is composed of data from the 1.6, 0.87 and 0.55 micron channels for the nadir view.

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T A B L E O F C O N T E N T S

AATSR CYCLIC REPORT # 97	1
1 INTRODUCTION	1
1.1 Acronyms and Abbreviations	1
2 SUMMARY	2
3 SOFTWARE & AUX FILE VERSION CONFIGURATION	4
3.1 Software Version.....	4
3.2 Auxiliary Files.....	4
3.2.1 Status of Daily Visible Calibration Files	5
3.2.1.1 VC1 File Availability.....	5
3.2.2 Status of other Auxiliary Files.....	5
4 PDS STATUS	6
4.1 Instrument Unavailability	6
4.2 L0 Data Acquisition and L1b Processing Status.....	6
4.2.1 Orbits Affected by Poor Data Quality	7
4.3 L0 and L1b Backlog Processing Status	7
5 DATA QUALITY CONTROL	8
5.1 Monitoring of Instrument Parameters	8
5.1.1 Jitter	8
5.1.2 Sensor Temperature	8
5.1.3 Viscal	8
5.1.4 NEAT	9
5.2 User Rejections	9
5.3 Software Problem Reporting.....	9
5.3.1 Existing SPRs that are still open	9
5.3.2 New SPRs since the last cyclic report	10
5.3.3 Closed SPRs	10
5.4 Monthly Level 3 Product.....	11
6 CALIBRATION/VALIDATION ACTIVITIES & RESULTS	15
6.1 Calibration	15
6.2 Validation.....	15
7 DISCLAIMERS	16

AATSR CYCLIC REPORT # 97

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 2010+ cycle, which consists of 431 complete orbits over the course of 30 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: 97

Cycle Start: 26th November 2010, 21:58:25 Orbit #: 45705

Cycle End: 26th December 2010, 21:59:10 Orbit #: 46136

The main activities during the cycle have been as follows:

- **ESRIN downtimes and delays**

During the reporting period there were two planned network downtimes at ESRIN: on 30 November 2010 from 10:00 to 18:00 CET for network migration; and on 13 December from 10:00 to 16:00 CET (affecting web and ftp services) for maintenance.

EOPortal and EOHelp were unavailable on 22 December 2010 from 09:00 to 14:00 CET due to urgent maintenance.

- **Kiruna downtimes and delays**

There were no downtimes or delays during this cycle.

- **Availability of Envisat catalogue data**

EOLI-SA is nominal again after the orbit manoeuvre.

- **Visible calibration long-term drift correction**

A technical note has been produced explaining how to apply the most accurate visible calibration long-term drift correction to AATSR L1B data. This is available from <http://www.aatsrops.rl.ac.uk/EDSX/OtherInfo/>

- **BPZ dissemination via the DDS**

From 23 December 2010, BPZ products from ESRIN ceased to be disseminated on the DDS, and BPZ products from Kiruna will be switched off in early 2011. Details of an alternative method of accessing BPZ browse products are still pending.

- **Visible Calibration (VC1) auxiliary files**

There is still some disruption to the production of VC1 auxiliary files with many missing during this cycle, see Section 3.2.1.1.

- **L2P wind speed data issue**

Some L2P data have been affected by delayed availability of ECMWF wind speed data at the time of processing, resulting in several blank fields in the L2P products, including the Proximity Confidence Flag. Ways to avoid recurrences of this problem are under discussion.

- **AEB website available**

The ATSR Exploitation Board has produced a website accessible to the public at: www.ATSRsensors.org

- **Mini-commissioning after the Envisat 2010+ change of orbit**

Following the orbit manoeuvres, a mini-commissioning is ongoing to ensure the quality of the AATSR data in the new orbit configuration. This includes the routine quality control activities, as well as some more in depth checks of selected data products. Particular emphasis will be placed on assessing the geolocation performance of AATSR data. The Cal/Val and ESL teams are also conducting specific investigations, all of which will contribute to a final report.

In-depth checks are being conducted to verify that there has been no degradation of the AATSR geolocation accuracy.

An updated status on product quality was published on 7 December 2010:

Level 1 Products

Monitoring of the Level 1B products reveals no major problems with the data, and no quality anomalies have been detected. Previously reported increased margins to the edges of the swath have been attributed to an increase in the number of absent pixels resulting from the reduced instrument swath (as a result of the orbit lowering) combined with the fixed product swath of 512km. Initial assessment of the geolocation shows performance remains comparable to before the orbit lowering; work is ongoing to verify this assessment. No change has been identified in the collocation of the views. Preliminary results of the instrument calibration monitoring show no cause for concern - this will be verified as longer time-series of data becomes available.

Level 2 Products

Monitoring of the Level 2 products (including the L2P product) show no major issues, and no quality anomalies have been found in the data. Preliminary validation of the SSTs to *in situ* data show no major problems; again, this will be verified as a longer time-series of data becomes available for analysis.

3 SOFTWARE & AUX FILE VERSION CONFIGURATION

3.1 Software Version

AATSR IPF for Level 1 and Level 2: Version 6.03

AATSR L2P Processor: Version 1.5.

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)

Because the PC1 file contains the orbit period, two versions now need to be maintained after the mission extension orbit manoeuvre.

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_AXVIEC20101015_104659_20020301_000000_20200101_000000
ATS_GC1_AXVIEC20070720_093834_20020301_000000_20200101_000000
ATS_INS_AXVIEC20070720_094014_20020301_000000_20200101_000000
See below for VC1 files
ATS_LST_AXVIEC20101018_094830_20020301_000001_20200101_000000
ATS_PC1_AXVIEC20101015_101827_20020301_000000_20101021_235959
ATS_PC1_AXVIEC20101015_100604_20101022_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 following daily reflectance channel calibration files were not available during this cycle:

Date	Validity range		Comments
	From	To	
28/11/2010	27/11/2010	04/12/2010	An extended validity range file (29/11/10-31/12/10) was provided
02/12/2010	01/12/2010	08/12/2010	
03/12/2010	02/12/2010	09/12/2010	
04/12/2010	03/12/2010	10/12/2010	
05/12/2010	04/12/2010	11/12/2010	
06/12/2010	05/12/2010	12/12/2010	
08/12/2010	07/12/2010	14/12/2010	
09/12/2010	08/12/2010	15/12/2010	
11/12/2010	10/12/2010	17/12/2010	
13/12/2010	12/12/2010	19/12/2010	
19/12/2010	18/12/2010	25/12/2010	An extended validity range file (20/12/10-20/01/11) was provided
23/12/2010	22/12/2010	29/12/2010	
24/12/2010	23/12/2010	30/12/2010	
25/12/2010	24/12/2010	31/12/2010	
27/12/2010	26/12/2010	02/01/2011	

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

There were no instrument unavailabilities during this cycle.

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	Nov 26, 2010	45705	45791	0	16461	9743	100.00%	97.28%	95.67%
2	Dec 2, 2010	45791	45877	0	4146	12370	100.00%	99.31%	97.27%
3	Dec 8, 2010	45877	45964	0	9293	0	100.00%	98.46%	98.46%
4	Dec 14, 2010	45964	46050	0	0	0	100.00%	100.00%	100.00%
5	Dec 20, 2010	46050	46136	0	0	0	100.00%	100.00%	100.00%

Table 4-1 Instrument and data unavailability weekly summary for cycle 97

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

The L0 data were available for 99.01% of the time during the cycle.

The L1b data were available for 98.28% of the time during the cycle.

The following L0 data were missing from this cycle:

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
27/11/2010 14:57	27/11/2010 15:04	390	45714	45714
30/11/2010 00:57	30/11/2010 03:46	10125	45748	45750
02/12/2010 21:27	02/12/2010 23:06	5946	45790	45790
05/12/2010 01:13	05/12/2010 01:14	73	45820	45820
05/12/2010 01:18	05/12/2010 01:18	48	45821	45821
05/12/2010 01:21	05/12/2010 02:16	3284	45821	45821
05/12/2010 04:04	05/12/2010 04:05	37	45822	45822
05/12/2010 04:05	05/12/2010 04:06	53	45822	45823
05/12/2010 04:06	05/12/2010 04:07	32	45823	45823
05/12/2010 04:07	05/12/2010 04:08	67	45823	45823
05/12/2010 05:38	05/12/2010 05:47	552	45823	45823
14/12/2010 16:57	14/12/2010 19:31	9293	45960	45961

Table 4-2 ATS_NL__0P missing data during cycle 97

The following L1b data were missing from this cycle:

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
02/12/2010 01:27	02/12/2010 04:09	9743	45778	45779
05/12/2010 02:16	05/12/2010 04:03	6452	45822	45822
07/12/2010 07:23	07/12/2010 09:01	5918	45854	45854

Table 4-3 ATS_TOA_1P missing data during cycle 97

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

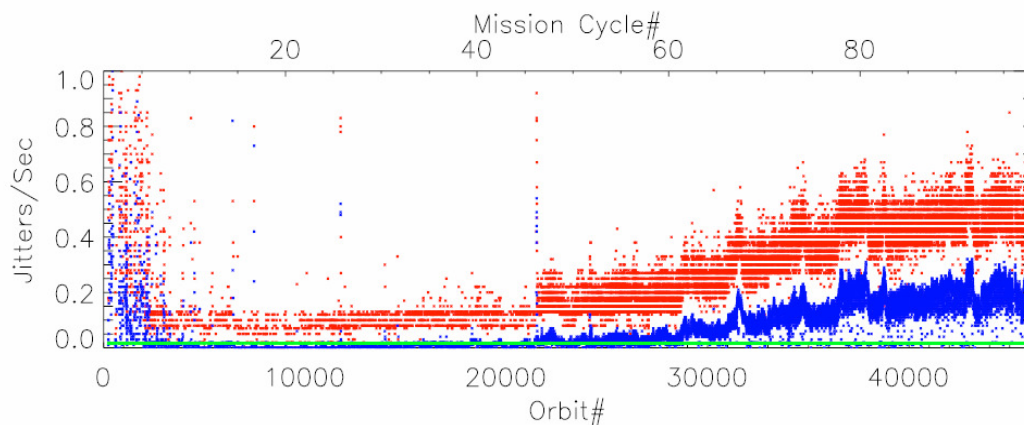


Figure 5-1 Jitter trend from mission start

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 an improving mean jitter-rate during this cycle.

5.1.2 SENSOR TEMPERATURE

The detector temperature plots for Cycle 97 can be found at:
<http://www.aatsrops.rl.ac.uk/EDSX/CyclePlots/DetTemps97.pdf>

Detector temperatures have remained nominal during routine operations.

5.1.3 VISCAL

NRT calibration quality for the AATSR reflectance channels has been maintained throughout the cycle. The list of "orbital" VC1 files delivered for this cycle can be found at:
<http://www.aatsrops.rl.ac.uk/EDSX/CyclePlots/VC1-97.txt>

5.1.4 NE Δ T

Information on the NE Δ T for Cycle 97 was not available at the time of publishing; when available, the information will be included in a subsequent report.

5.2 *User Rejections*

There were no user rejections during this cycle.

5.3 *Software Problem Reporting*

This section describes the new and open SPRs, their potential impact on the data quality, and any SPRs that have been closed.

5.3.1 EXISTING SPRS THAT ARE STILL OPEN

The following SPRs are still open:

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.

AATSR Child Products contain insufficient number of ADS records

NA-PR-08-03912

The number of ADS records present in AATSR child products is insufficient for processing of the entire product. Users are currently advised to order products of at least 1 granule longer to obtain all required ADS records. Excluding the SQADS and the scan pixel x and y ADS, the DPM requires that for AATSR full resolution products, the number of records in the ADS shall be one greater than the number of MDS granules in the product. Child products are currently produced with a number of ADS records equal to the number of MDS granules in the product. In the case of the SQADS, this is sampled only every 512 rows, rather than every 32, so in order to provide coverage for every granule in a child product, the number of SQADS records strictly required depends on the length of the child product and where the child product starts in relation to the 512 record boundaries. Parent products by definition start on a 512 record boundary, but child products need not. If we define a product segment of 512 consecutive rows (=16 granules) as a frame, then the number of SQADS records required in the child product is equal to the number of frames overlapped by the child product. For the case of the Scan Pixel x and y ADS, the records represent instrument scans, not image rows. There is no simple

algorithm to define the number of records from the parent product that should be included in the child product.

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. We would like to enquire as to the current definition applied to consolidated products and ask that a change be proposed and the impact of such a change evaluated.

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

No new SPRs have been opened since the last Cyclic Report.

5.3.3 CLOSED SPRS

No 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 November 2010. This consists of 426 products taken from orbits 45388 to 45760. Figure 5-3, Figure 5-4, Figure 5-5 and Figure 5-6 show the SST average in dual and nadir views, the standard deviation and the number of contributory orbits for November 2010. Please note we are not able to provide individual colour scales at this time, however the scheme used is given in Figure 5-2, and the data ranges of each plot are specified in the accompanying caption.



Figure 5-2 This is the colour scheme used for the following plots, running linearly from left to right with increasing magnitude.

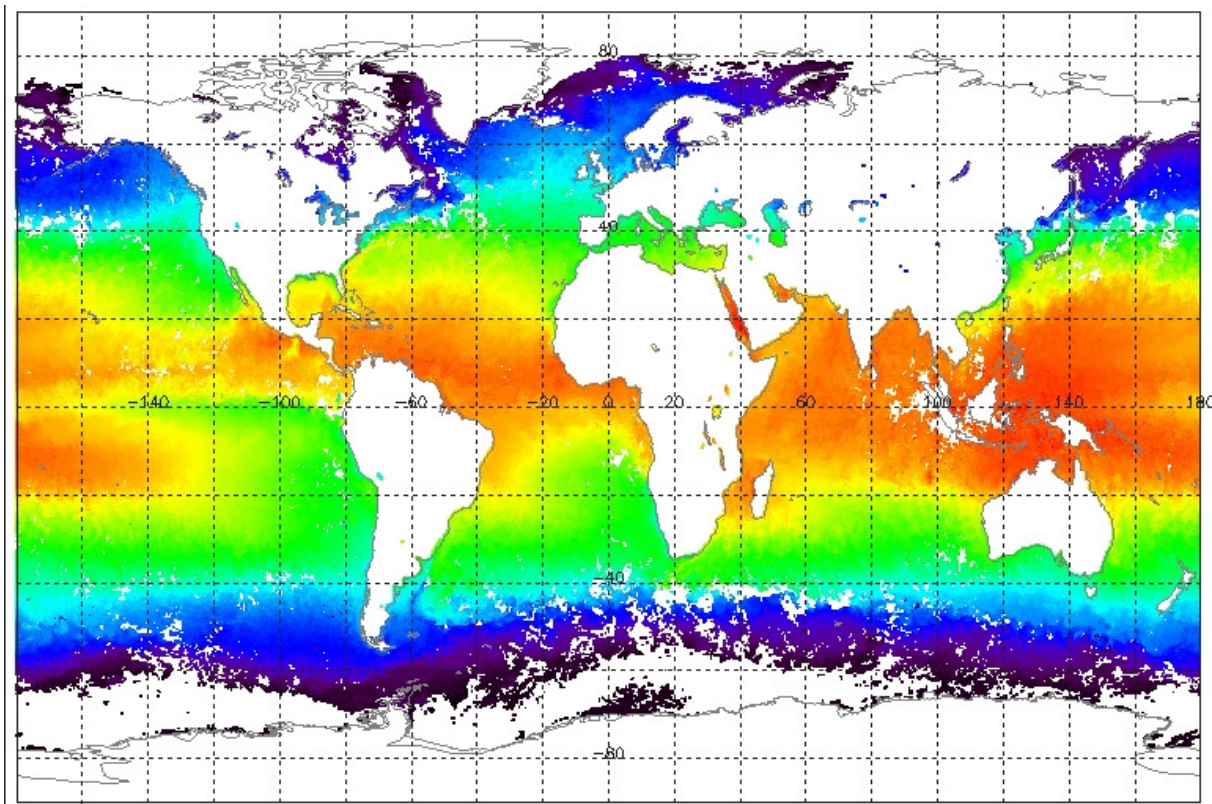


Figure 5-3 Monthly average Dual View SST, with a range of 270 - 305 Kelvin for November 2010

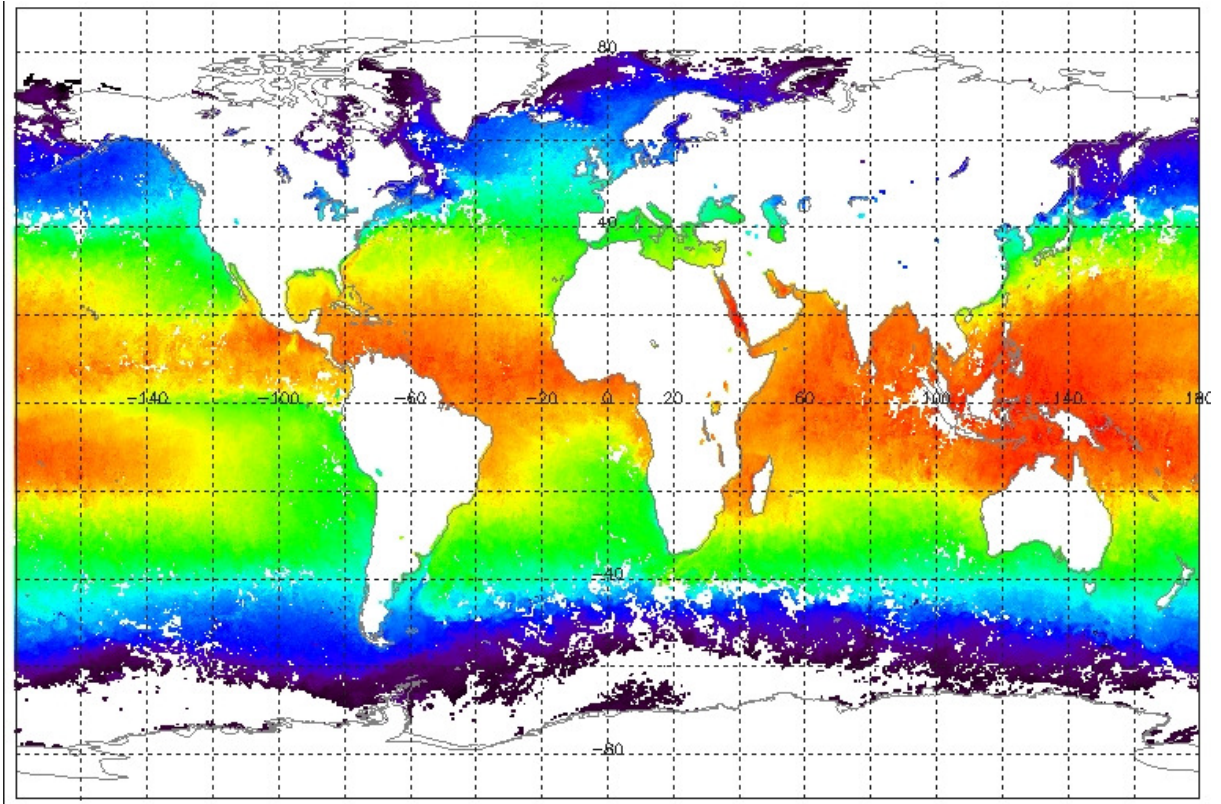


Figure 5-4 Monthly average Nadir SST, with a data range of 270 - 305 Kelvin for November 2010

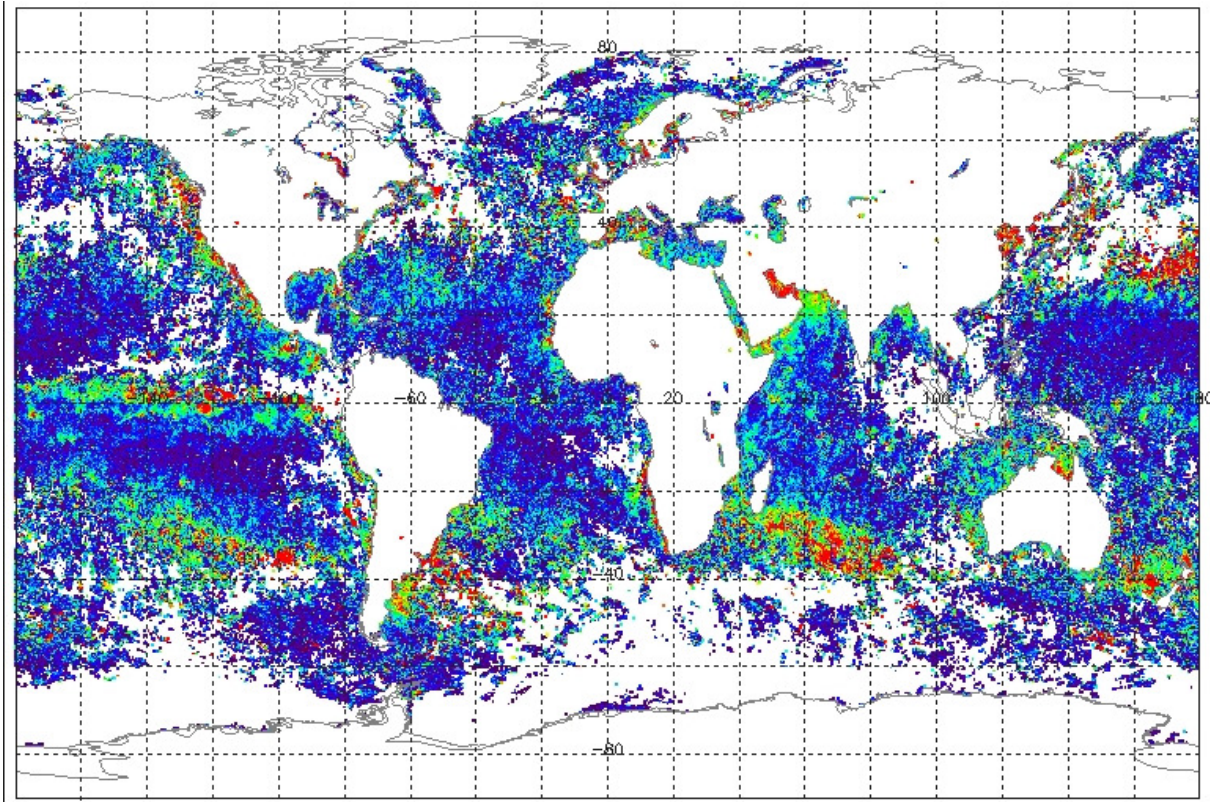


Figure 5-5 Standard deviation of the monthly average SST with a colour key range of 0 to 1.0 K, and a maximum value of 7.0 K for November 2010

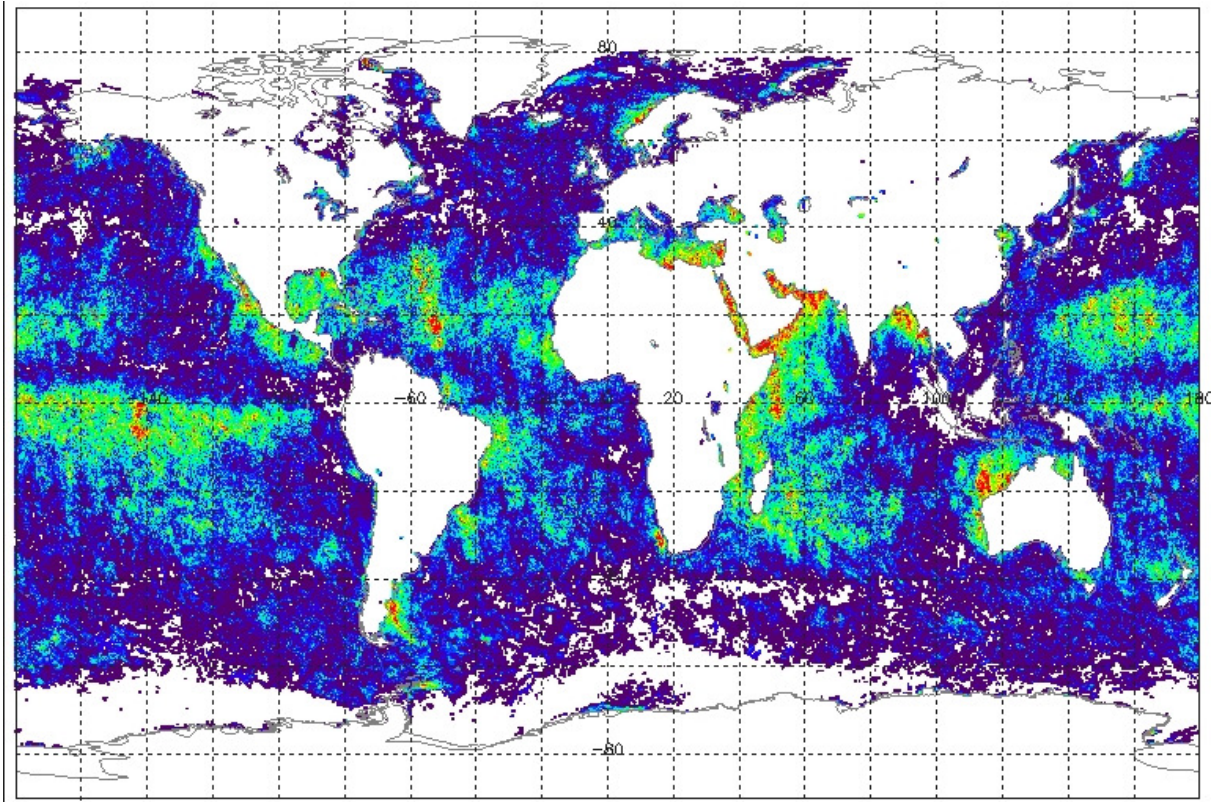


Figure 5-6 Number of contributory orbits to the calculation of the SST, with a colour key range of 0 to 10, and a maximum value of 19, for November 2010

6 CALIBRATION/VALIDATION ACTIVITIES & RESULTS

6.1 *Calibration*

No calibration results were reported during this cycle.

6.2 *Validation*

Due to the shorter cycles following the orbit manoeuvres for the Envisat 2010+ mission extension, there will be little or no validation data available for the cycle at the time of the report. Therefore, validation data for the current cycle will be issued in the following cyclic report.

7 DISCLAIMERS

No new disclaimers have been issued during this cycle.