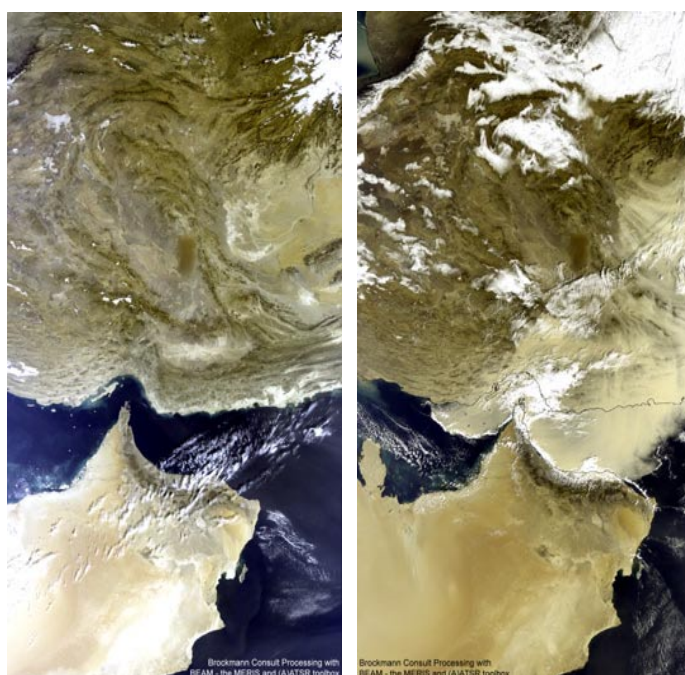document title/ titre du document

MERIS CYCLIC REPORT 22ND

NOVEMBER 24TH - DECEMBER 29TH 2003

MERIS image acquired on 09 Dec (left) and 12 Dec (right) 2003 – Persian sand storm

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European Space Agency
Agence spatiale européenne

A P P R O V A L

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

1 INTRODUCTION

The MERIS Cyclic Report is distributed by ESRIN-PCF (Product Control Facility) to keep the MERIS Community informed of any modification regarding the processor, updates of auxiliary products, anomalies of the instrument behavior, data acquisition and processing, and finally the status of the calibration, validation, and quality control activities.
The Cyclic Report collects the inputs coming from different groups involved in MERIS data exploitation:

- ESRIN- Product Control Facility (PCF)
- Quality Working Group (QWG)
- MERIS/AATSR validation team (MAVT)
- Brockmann Consult (BC)
- ACRI-st
- Laboratoire d'Océanographie de Villefranche (LOV)
- Centre National d'Études Spatiales (CNES)
- Frei Universitat Berlin (FUB)
- Laboratoire Interdisciplinaire en Sciences de l'Environnement (LISE)

The main objective of the Cyclic Report is to provide the users community with useful information regarding the instrument performances, the data production chain, the results of calibration activities and validation campaigns, at the end of each ENVISAT cycle, which represents 501 orbits, about 35 days.

1.1 Acronyms and abbreviations

ADS	Auxiliary Data Server
ARF	Archiving Facility (PDS)
CNES	Centre National d'Études Spatiales
CTI	Configuration Table Interface
CR	Cyclic Report
DMOP	Detailed Mission Operation Plan
DS	Data Server
DSD	Data Set Descriptor
FUB	Freie Universitat Berlin
GS	Ground Segment
IAT	Interactive Analysis Tool
IDL	Interactive Data Language
IECF	Instrument Engineering and Calibration Facilities
IPF	Instrument Processing Facilities (PDS)
INV	Inventory Facilities (PDS)

JRC	Joint Research Centre
LAN	Local Area Network
LISE	Laboratoire Interdisciplinaire en Sciences de l'Environnement
LOV	Laboratoire d'Océanographie de Villefranche-sur-mer
MERIS	Medium Resolution Image Spectrometer
MPH	Main Product Header
OP	Operational Phase of ENVISAT
PAC	Processing and Archiving Centre (PDS)
PDCC	Payload Data Control Centre (PDS)
PDHS	Payload Data Handling Station (PDS)
PDS	Payload Data Segment
QC	Quality Control
QWG	Quality Control Working Group
QUARC	Quality Analysis and Reporting Computer
SPH	Specific Product Header
SQADS	Summary Quality ADS

2   SUMMARY

Cycle #22 starts on November 24th and ends on December 29th, 2003.
A new processor upgrade took place on the 25th of November at stations and PACs to fix an identified anomaly in FR L1 products. The actual status of MERIS IPF4.07 products quality is reported in details in par. 6.1 and 6.2.
No auxiliary files were disseminated during the cycle.
Two radiometric calibrations have been successfully executed.
Information about the start and stop of the cycle can be found in the table below.

Cycle number	22
Start time	24 November 2003, 21:59:29
Stop time	29 December 2003, 21:59:29
Start orbit	9073
Stop orbit	9573

3   SOFTWARE VERSION AND PROCESSING CONFIGURATION

3.1   Software version

On the 25th of November a new processor upgrade took place in order to fix an error discovered in the code of IPF4.06 which causes an anomalous behavior in MERIS FR L1 products: all radiometric bands set to 0 and wrong geolocalization.
The list of documents applied to the current release, IPF4.07, is the same as IPF4.06 and is given in the following.

MERIS IPF: 04.07
Prototype Version: MEGS V6.2p3
Applicable and Reference Documents:

1. ENVISAT Product Specification   Iss_3_Rev_J   PO-RS-MDA-GS-2009
2. MERIS Input/Output Data Definition   Iss_6_Rev_1a_010914 PO-TN-MEL-Gs-0003
3. MERIS Level 1b Detailed Processing Model Iss_6_Rev_1a_010914 PO-TN-MEL-GS-0002
4. MERIS Level 1b Detailed Processing Model Iss_6_Rev_1a_010914 PO-TN-MEL-GS-0006

Issues 6.1a consists in issue 6.1 augmented/corrected by change pages issued as 6.1a

3.2   Auxiliary data files

No new auxiliary products were disseminated during the cycle.

Product description	Product name	Comment
Level 1 aux files		
Instrument characterization data	MER_INS	No changes
Processing Level 1 control parameters data	MER_CP1	No changes
Radiometric calibration data	MER_RAC	No changes
Digital Roughness Model	MER_DRM	No changes
Digital Elevation Model	AUX_DEM	No changes
Land Surface Map	AUX_LSM	No changes
Attitude data file	AUX_ATT	No changes
Level 2 aux files		
Aerosol Climatology data	MER_AER	No changes
Atmosphere Parameter data	MER_ATP	No changes
Cloud measurement parameters data	MER_CMP	No changes
Processing Level-2 control parameters data	MER_CP2	No changes
Land aerosols parameters data	MER_LAP	No changes
Land vegetation index parameters data	MER_LVI	No changes
Ocean aerosols parameters data	MER_OAP	No changes
Ocean I parameters data	MER_OC1	No changes
Ocean II parameters data	MER_OC2	No changes
Water Vapour Parameters	MER_WVP	No changes

Note: The other files not listed change every time (ECMWF).

3.2.1 LEVEL 1/LEVEL 2 CONFIGURATION (SCIHIO2)

The configuration used to process MERIS data from Level 0 to Level 1/Level 2 is the following:

- Level 1 Configuration

Product name	Start Validity
MER_INS_AXVIEC20030620_120000_20020321_193100_20121008_190821	21/03/02
MER_CP1_AXVIEC20030620_120000_20020429_040000_20120920_173421	29/04/02
MER_RAC_AXVIEC20030620_120000_20021224_121445_20121224_121445	24/12/03
MER_DRM_AXVIEC20020122_083343_20020101_000000_20200101_000000	01/03/02
AUX_DEM_AXVIEC20020123_121901_20020101_000000_20200101_000000	01/03/02
AUX_LSM_AXVIEC20020123_141228_20020101_000000_20200101_000000	01/03/02
AUX_ATT_AXVIEC20020924_131534_20020703_120000_20781231_235959	03/07/02

- Level 2 Configuration

Product name	Start Validity
MER_AER_AXVIEC20030620_120000_20020321_193100_20200101_000000	21/03/02
MER_ATP_AXVIEC20030620_120000_20021224_121445_20121224_121445	24/12/02
MER_CMP_AXVIEC20030620_120000_20021224_121445_20120321_193100	24/12/02
MER_CP2_AXVIEC20031120_104149_20021224_121445_20121224_121445	24/12/02
MER_LAP_AXVIEC20030715_151450_20020321_193100_20120321_193100	21/03/02
MER_LVI_AXVIEC20030620_120000_20020321_193100_20130224_164916	21/03/02
MER_OAP_AXVIEC20030620_120001_20020321_193100_20120321_193100	21/03/02
MER_OC1_AXVIEC20030620_120000_20020321_193100_20120321_193100	21/03/02
MER_OC2_AXVIEC20030620_120000_20020321_193100_20120624_174339	21/03/02
MER_WVP_AXVIEC20030620_120000_20020321_193100_20120321_193100	21/03/02

3.3 Configuration Table Interface (CTI)

No Configuration Tables were disseminated during cycle #22.

3.4 Level 1/ Level 2 RR or FR products

During cycle #22 no changes regarding format or algorithms for L1b/ L2 products were applied.

4 PDS STATUS AND INSTRUMENT UNAVAILABILITY

The statistics resulting from the query to the PDS inventory facility (INV) for the MERIS products availability are presented in the following.

4.1 MERIS RR/FR Level 0 products

Table below shows the statistics regarding the RR L0 availability (compared with the planned production).

Week	MER_RR__0P	%
From 24/11 to 30/11	Inventoried	100.0
	Missing	0.0
From 01/12 to 07/12	Inventoried	100.0
	Missing	0.0
From 08/12 to 14/12	Inventoried	99.96
	Missing	0.04
From 15/12 to 21/12	Inventoried	98.73
	Missing	1.27
From 22/12 to 29/12	Inventoried	98.12
	Missing	1.88
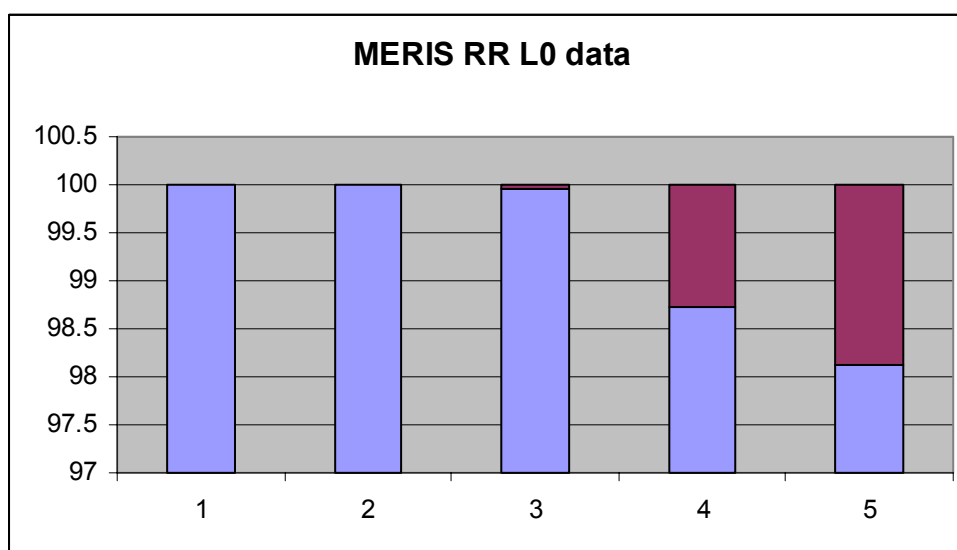
The number of RR Level 0 products acquired during the cycle is about 99.4% of the planned ones.

Table below shows the statistics regarding the FR L0 availability (compared with the planned production).

Week	MER_FR__0P	%
From 24/11 to 30/11	Inventoried	84.93
	Missing	15.07
From 01/12 to 07/12	Inventoried	99.20
	Missing	0.80
From 08/12 to 14/12	Inventoried	89.12
	Missing	10.88
From 15/12 to 21/12	Inventoried	97.10
	Missing	2.90
From 22/12 to 29/12	Inventoried	90.07
	Missing	9.93
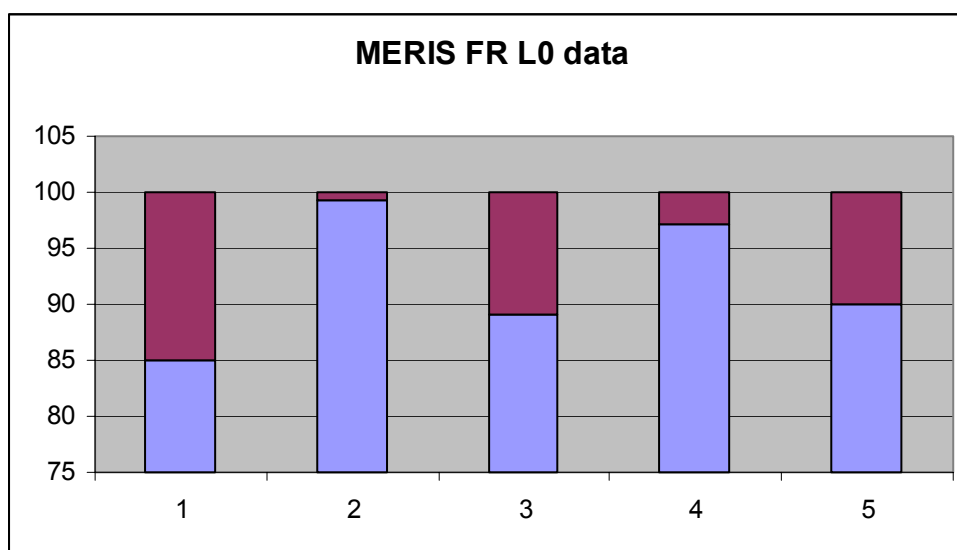
The number of FR Level 0 products acquired during the cycle is about 92.1% of the planned ones.

4.2   MER_CA__0P products

During cycle #22 two routine radiometric calibrations, RGC Diffuser 1 (1 orbit), were planned. The following calibrations:

```
MER_CA__0PNPDE20031208_005050_000001792022_00188_09260_0010.N1        RGC
MER_CA__0PNPDE20031222_001052_000001792022_00388_09460_0013.N1        RGC
```

were successfully executed on the 8th of December in orbit 9260, on the 22nd of December in orbit 9460.

4.3 Instrument Unavailability

The MERIS instrument unavailability communicated by ESOC during the cycle is reported below:

Start	Stop	Reason	Reference	Planned
3 Dec 2003 07:18:43 Orbit #9193	4 Dec 2003 22:07:12 Orbit #9216	Recovered from PLSOL in Stabilisation Mode. Ref AR ENV-738.	EN-UNA-2003/0355	No

5 CALIBRATION AND INSTRUMENT CHARACTERIZATION

5.1 Calibration

5.1.1 RADIOMETRIC CALIBRATION

During cycle #22 two Radiometric Gain Calibrations, were successfully executed on the 8th and 22nd of December 2003. For more details see par. 4.2.

5.1.2 SPECTRAL CALIBRATION

No spectrometric calibrations were performed during cycle #22.

5.1.3 VEU TEMPERATURE ANALYSIS

During one of the operation modes of MERIS, Stabilization mode, a thermal regulation of VEU (Video Electronic Unit) unit is performed in order to stabilize its temperature to reach full performances and insure a safe transition towards Observation and Calibration modes.
During observation, the VEU Temperature has to remain in the operational acceptance temperature range -10°/+50° in order to meet the image quality requirements. The VEU temperature should be maximum +/- 10°C different from the last radiometric calibration for optimum performance.
During cycle #22 the VEU temperature does not show any anomalous behavior, being into the nominal operating temperature range apart from the switch down of the instrument. The MERIS status has been nominal over the period, until it was switched off upon the PLSOL, which occurred on Wed 03 Dec at 07:18:43. MERIS was switched-on and recovered back into measurement operations on Thu 04 Dec as of orbit 9216.
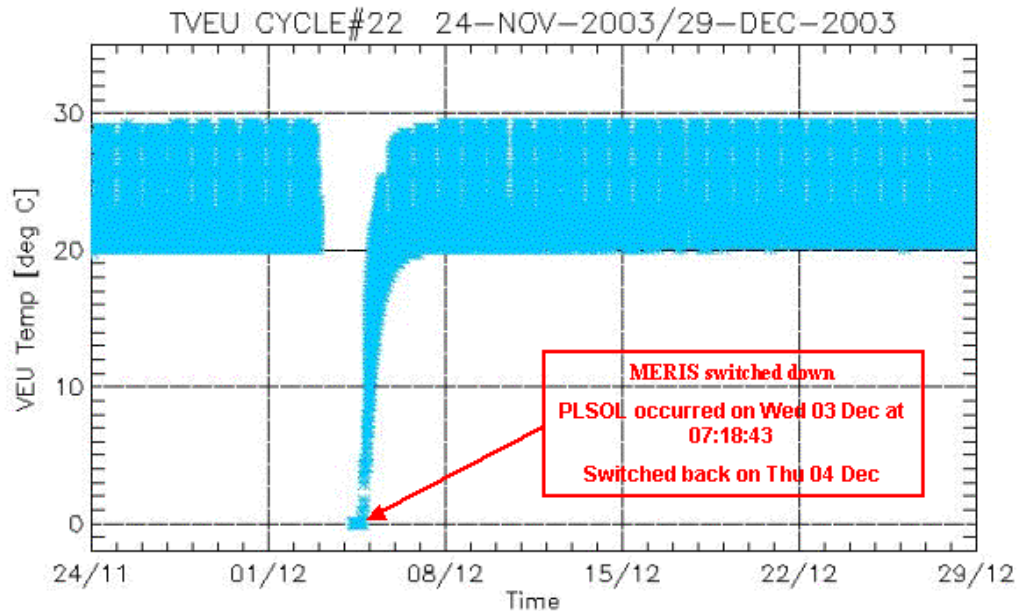
5.1.4 VICARIOUS CALIBRATION RESULTS

For absolute calibration of MERIS by vicarious methods, METRIC2.0 tools is used to perform data extraction and spatial compression from MERIS Level1b products over specified sites following site type specific radiometric and geographic criteria. The child L1b products are ordered systematically on the basis of sites definition and mission analysis. Because the list of sites can be over dimensioned and vary with season, it has a validity period of 3 months. Each L1b child product is submitted to METRIC with the correct version of auxiliary files MER_INS_AX and MER_CP1_AX used during its generation and a dedicated resource file where are stored all parameters necessary for data filtering (cloud and aerosol screening, distance from coast…). Metric generates one file for each selected site pertaining to the following categories, according to the potential use of the data in the calibration processing: Rayleigh, Glitter, Desert, Snow, and Buoy. Output files have HDF format.

The site map is shown in the following picture:

METRIC Vicarious Calibration Sites
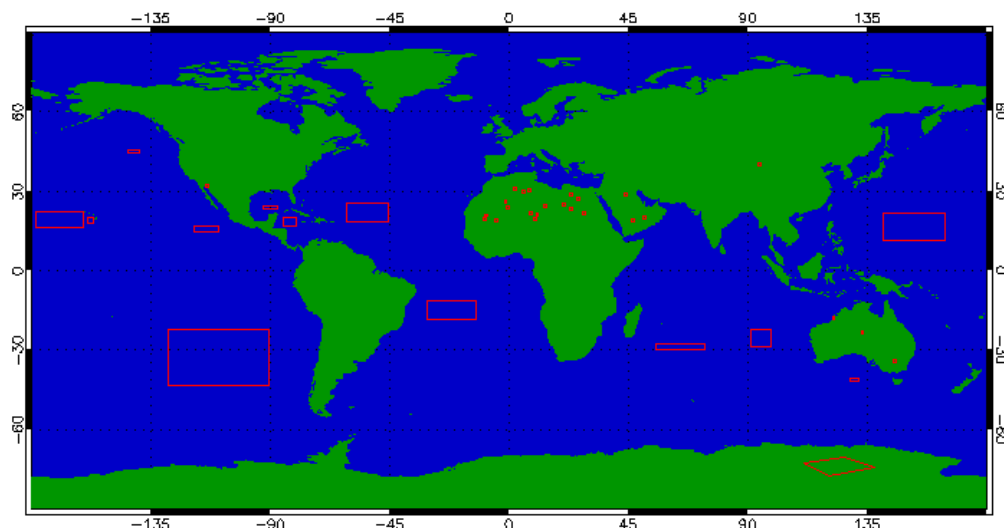
During the cycle Metric has generated for specific sites the following results:

Sites	#Products
DESERT	295
GLITTER	64
RAYLEIGH	103
SNOW	14
BUOY	17

For a comparison between MERIS data and in situ measurements of natural targets, performed by CNES, refer to Cyclic Report #17. The report can be found on the ESA website:
http://earth.esa.int/pcs/envisat/meris/reports/cyclic/

5.2   Instrument Characterization

5.2.1 INSTRUMENT DEGRADATION

No new results to be shown for the cycle.

5.2.2 DIFFUSER AGEING

No new results to be shown for the cycle.

5.2.3 SMILE EFFECT

No new results to be shown for the cycle.

6 DATA QUALITY CONTROL

6.1 Status of the Level 1 products quality

The quality of the IPF4.07 Level 1products is described in the following.

Radiometric quality:
4% accuracy except for some desert sites.
According to Product Handbook[1]: Radiometric accuracy from 400 to 900 nm < 2%
from 900 to 1050 nm < 5%

Spectral calibration quality:
The spectral band's central wavelengths vary within the cameras field of view (< 1nm). This so-called smile effect is present in the Level 1b product where all bands are calibrated with the exact spectral characteristics of each pixel. All processing needed to minimise its impact on the geophysical products is performed in the Level 2 processing.

In order to achieve a better accuracy for the pressure retrieval, band 11, centered on the Oxygen absorption feature (761 nm), has been shifted by one pixel towards the NIR on 24-Dec-2002.

Geolocation quality:
Within the specification of 2km.

The Glint risk flag is showing the centre of the specular reflection within a block of 1.6°x1.6°.

6.2 Status of the Level 2 products quality

The quality of the IPF4.07 Level 2 products is reported in the following table.

Parameter	Quality	Comment

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[1] http://envisat.esa.int/dataproducts/meris/CNTR2-7-1.htm

	Goal[2]	Source[3]	Status[4]	Date[5]	
Pixel Classification					
land flag	reclassification of uncharted inland waters and islands, tidal flats and correction of map inaccuracies	ATBD 2.17 Iss. 4 Dec. 1997	All reclassifications are well, except uncharted, dark land surfaces (e.g. Fjords, intertidal areas)	08.12.04	Today band 7 is used as recommended in the ATBD. Band 13 could allow improvement with a DPM change.
water flag	as land flag		as land flag	08.12.04	
cloud flag (over ocean)	detection of clouds		Thin clouds are hardly detected.	08.12.04	Separation of ice from clouds works well when slope test is included
cloud flag (over land)			Thin clouds are hardly detected.	08.12.04	Separation of bright sand, ice, snow from clouds works well when slope tests are included.
Pixel classification science flags					
Pressure confidence			Not used	08.12.04	Will probably be exchanged with a new flag
Low pressure			Not used	08.12.04	Will probably be exchanged with a new flag
Cloud parameters					
Surface reflectance 1-13	See L1b radiometry	QWG 25.9.03	over clouds simple conversion	08.12.03	An analysis of the statistics of saturatead pixels based on

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[2] The accuracy that shall be achieved.
[3] The origin of the quality goal.
[4] Present status of quality
[5] Date of the present status

Parameter	Quality				Comment
	Goal[2]	Source[3]	Status[4]	Date[5]	
			into TOA reflectances works well. Saturation in bands 779 and 865 can be observed – correctly flagged.		SQADS should be performed
PCD_1_13			saturated pixel are correctly flagged	08.12.03	
Cloud top pressure (CTP)	20 hPa	ATBD 2.3, Iss 4.1 Feb 2000	Goal is reached over strato cumulus clouds in the Passat region (30°-40°N). Elsewhere needs further validation. At low clouds camera transitions, with a step ~40 hPa, are observed.	08.12.03	Validation campaign, e.g. with Lidar, is still required. The problem of camera interfaces is further investigated.
PCD_15			Ok	08.12.03	Maybe it needs to be "sharpened"
Cloud albedo	accuracy of 0.01 albedo	ATBD 2.1, Iss 4.1 Feb 2000	Ok		Limited by radiometric accuracy goal (4%). No validation foreseen at present.
PCD_18			ok	08.12.03	
Cloud optical thickness	accuracy of 0.1 – 5.0 (worse with increasing	ATBD 2.2, Iss. 4.2 Feb 2000	generally visually ok validation pending	08.12.03	

Parameter	Quality				Comment
	Goal[2]	Source[3]	Status[4]	Date[5]	
	OT)		saturation of band 779 causes invalid COT		
Cloud type				08.12.03	Verification ongoing. Needs stastistically significant number of products
PCD_19 (cloud opt. th. and type)			ok	08.12.03	
Water Vapour parameter					
Water vapour content (ocean)	less than 20% rel. to WV over glint: 10%	ATBD 2.4, Iss 4.0 Dec. 1997	Ok. Quantitative error assessment not completed	08.12.03	No plan for validation for time being
PCD_14 (ocean)			Ok but strange setting on the transition to glint	08.12.03	
Water vapour content (land)	10% rel. to WV amount		Ok. Quantitative error assessment not completed	08.12.03	The water vapour products show a good agreement when comparing with GPS, radio sounding data, Microwave radiometers or MODIS data. [JF: please provide a quantitative evaluation]
PCD_14 (land)			Ok	08.12.03	
Water vapour content (cloud)	not specified in ATBD		ok. Quantitative error assessment not completed	08.12.03	
PCD_14 (cloud)			Ok	08.12.03	
PCD_19 (cloud opt. th.			ok	08.12	

Parameter	Quality				Comment
	Goal[2]	Source[3]	Status[4]	Date[5]	
and type)				.03	
Ocean parameter					
Surface reflectance 1-13	Case1: accuracy 0.002 marine reflectance in the blue. Case2: accuracy 5%	ATBD 2.7 Iss 4.1 Feb 2000 ATBD 2.6 Iss 4.1 Feb 2000	Clear water works well at most of the validation sites. Reflectance at 681 is not corrected for smile and may be affected diversely depending on the fluorescence activity. Reflectance at 709 is corrected for smile, however gaseous absorption correction does not account for smile, which may lead to erroneous values at low reflectance levels. Case2 exhibits partly doubtful spectra, occasionally	08.12.03	Dust aerosol selections may still occur where they should not (with an effect on the surface reflectance), because the tuning of the tests performed at the 510 nm band has not yet been performed (these tests are precisely dedicated to dust identification). This adjustment will require examination of numerous MERIS scenes, and may need as well some algorithmic changes. Some validation samples in coastal waters have indicated an overestimation of the surface reflectances in the blue wavelengths (bands 1 – 3, from 412 to 490 nm) leading to degraded quality of the derived water constituents and aerosol products. The problem has been traced to the fact that families of aerosols generally used for the atmospheric correction over the open ocean are often not representative of coastal aerosols.

Parameter	Quality				Comment
	Goal[2]	Source[3]	Status[4]	Date[5]	
			strong border between Case2 and Case1.		Addition of new aerosols families in the processing of coastal waters may improve the quality. This is presently under test and validation. As a result neither marine reflectances, total suspended matter, chlorophyll 1 and 2 or yellow substance should be considered reliable products in coastal zones for the time being. The quality of the ozone values used for correction will be studied.
PCD_1_13			too often raised	08.12 .03	Improvement (PCD not raised under high wind conditions) implemented in match-up processing[6]. PCD1_13 is raised if any of the 13 water leaving reflectances is negative.
Aerosol optical thickness	accuracy 15% or 0.02 for moderate values (~0.1 – 0.2)	ATBD 2.7 Iss 4.1 Feb 2000	in the expected range but overestimated by 15-20%	08.12 .03	Artificial limits may be observed in the reflectances or pigment fields, that are due to discontinuities in the

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[6] Match-up processing is a special configuration of the MERIS prototype processor, which is used to test improvements of the actual configuration. A limited number of historic MERIS products are processed and made available to the MERIS CalVal team for evaluation

Parameter	Quality				Comment
	Goal[2]	Source[3]	Status[4]	Date[5]	
Aerosol epsilon	not specified in ATBD	ATBD 2.6 and 2.7 Iss 4.1 Feb 2000	constantly 1.0 in Case2 over open ocean close to 1, but not constant	08.12 .03	optical properties of the different aerosol types used in the atmospheric correction, when this correction shifts from one aerosol family to another one, which would be significantly different one each other. This is as well under improvement. Non identified clouds will cause artificially large optical thickness.
PCD_19 (aer. opt. th. and epsilon)			raised very often over open ocean	08.12 .03	Will be reviewed on the basis of the validation activities
Algal pigment index 1	accuracy 10 classes per decade (~13%), covered range: 0.01 – 30 mg/m³ over Case1 waters	ATBD 2.9 Iss 4.2 Feb 2000	works well. Quantitative error assessment not completed.	08.12 .03	Algorithm is presently being optimized for high chlorophyll concentrations (> 5mg/m³).
PCD_15			ok	08.12 .03	PCD15 is raised (among other reasons) if any of the reflectances used in the chlorophyll 1 retrieval is out of range (e.g. negative), which makes it less restrictive than PCD1_13.

Parameter	Quality				Comment
	Goal[2]	Source[3]	Status[4]	Date[5]	
Yellow substance	Depends on combination of YS, SPM and chlorophyll. See ATBD for details.	ATBD 2.12 Iss 4.0 Dec 1997	Values are in the expected range. Quantitative error assessment not completed	08.12 .03	Case2 algorithm uses band 1-7 and 9,which makes it more sensitive to PCD1_13. It is very important not to use the products when PCD16 or PCD17 are raised! PCDs 16 and 17 are raised almost everywhere in Case1 waters, which is in agreement with the definition range for the algorithm.
Total suspended matter			suffers from atmospheric correction over coastal zones	08.12 .03	
PCD_16 (YS and TSM)			Ok.		
Algal pigment index II			suffers from atmospheric correction over coastal zones	08.12 .03	
PCD_17			ok.	08.12 .03	
PAR	accuracy +/- 3%	ATBD 2.18 Iss 4.0 Dec 1997	Value range and tendency ok	01.9. 03	
PCD_18			ok	08.12 .03	
Ocean Science Flags					
Absorbing continental aerosol	Only relevant for Case1 water. Shall indicate the potential presence.		unknown	08.12 .03	Investigation in progress.
Absorbing dust aerosol	Only relevant for Case1 water. Shall indicate the potential presence.		unknown	08.12 .03	Investigation in progress.
Case2_S			Ok.	08.12 .03	Not severe enough. Threshold will be

Parameter	Quality				Comment
	Goal[2]	Source[3]	Status[4]	Date[5]	
					lowered.
Case2_anom			Suspect	08.12.03	Under investigation
Case2_Y			Not activated	08.12.03	
Ice and haze			Not activated	08.12.03	All bright pixel are presently identified as clouds. Will be changed.
Medium glint	Indicate atmospheric correction could still be possible.	QWG 25.9.03	Ok. Users should use the products with caution under medium glint conditions	08.12.03	Large portions of the images over water surfaces are affected by sun glint. Threshold for high glint is based on simulated data.
High glint	Indicate that atmpospheric correction cannot be performed with the claimed accuracy.	QWG 25.9.03	Ok. Users should not use Level 2 data when the high glint flag is raised	08.12.03	
Land Parameter					
Surface reflectance 1-13			Ok	08.12.03	Correction includes Rayleigh but not aerosol correction. Visually correct and in agreement with expectations.
PCD_1_13			Ok	08.12.03	Cloud shadows are not included in PCD1_13 but in TOAVI_WS
Aerosol optical thickness			Ok	08.12.03	In agreement with expectations. Tuning and validation with in-situ is ongoing. The need to include more aerosol models has been identified.
Aerosol epsilon			Ok	08.12.03	
PCD_19 (aer. opt. thk.			ok	08.12	

Parameter	Quality				Comment
	Goal[2]	**Source[3]**	**Status[4]**	**Date[5]**	
and eps)				.03	
TOAVI (MGVI)	not specified in ATBD	ATBD 2.10 Iss 4.1 Feb 2000	ok	08.12 .03	Validation is ongoing
PCD_15			ok	08.12 .03	Validation is ongoing
BOAVI	Not specified	No ATBD for BOAVI available	Ok	08.12 .03	The BOAVI is calculated from top of aerosol reflectances.
PCD_17			Ok	08.12 .03	
Rectified reflectances			Ok	08.12 .03	
PCD_16			Ok	08.12 .03	
Surface pressure			Generally ok, camera interfaces and striping visible	08.12 .03	The problem of camera interfaces is further investigated.
PCD_18			Ok	08.12 .03	could be more "sharp": only P_surf>1047 are flagged by the out-of-range criterion, but $1030 < P < 1047$ is also quite high and can be found not rarely in images
Land Science Flags					
DDV			Ok	08.12 .03	A study is presently undertaken to extend the concept of DDV in order to increase the temporal and spatial extend, so that aerosol properties will be retrieved over more pixel.
TOAVI_Bright			Ok	08.12 .03	

Parameter	Quality				Comment
	Goal[2]	Source[3]	Status[4]	Date[5]	
TOAVI_Bad			Ok	08.12.03	
TOAVI_CSI			Not activated	08.12.03	All bright pixel are presently identified as clouds. Will be changed.
TOAVI_WS			Ok	08.12.03	
TOAVI_Invalid_Rec			Ok	08.12.03	
Additional Flags					
Coastline			Ok	08.12.03	Coastline is taken from a static map and not reclassified using radiometry
Cosmetic			Ok	08.12.03	
Suspect			Ok	08.12.03	

6.3   Anomalies

- Some MERIS FR L1 products are affected by two different anomalies: null radiance values for all the 15 bands and the 1st Tie Point of the product with latitude and longitude values out of the actual product geolocalization. The problem has been investigated and fixed: a bad variable definition in the processor, IPF 4.06, causes the 1st record of the 1st Tie Point to have wrong latitude/longitude values depending on the center of the requested FR scene.
  A new processor upgrade took place during cycle #22 to fix the anomalous behaviour.

- Some MERIS FR L2 products show negative reflectance values above water pixels and corrupted marine geophysical parameters. It has been verified that the auxiliary products used for the L2 processing are good and that the quality of the corresponding L1 products is OK.

- In MERIS RR L2 products the Water Vapour field is characterized by a vertical feature, which lies quite in the center of the image and regards only water pixels. Above those pixels the water vapour content has negative value and both the HIGHGLINT and PCD_14 flags are raised. The L2 processing done with the prototype, megs6.2p3, does not reproduce the same anomaly, then the problem could be due to an implementation error in the processor, which is now under investigation.

6.4   Software Problem Reporting (SPR)

Open anomaly/observation reports:

1. MER_FR__L1 products: all radiometric data set to zero. See par. 6.3 for more details.

2. MER_FR__L2 products: bad reflectance values above water pixels and corrupted marine products. See par. 6.3 for more details.

3. MER_RR__2P products: vertical feature observed in Water Vapour. See par. 6.3 for more details.

7   VALIDATION ACTIVITIES AND RESULTS

No new validation results to be shown for the cycle.

7.1   Coastline shift in the land/sea mask

An offset of 6-10 Km has been identified in the land/sea mask database regarding several ENVISAT instruments. The resulting effect, that implies a coastline shift to the east respect with the acquired data, has low impact on MERIS L2 products because of the reclassification process. An example is shown in the image below.
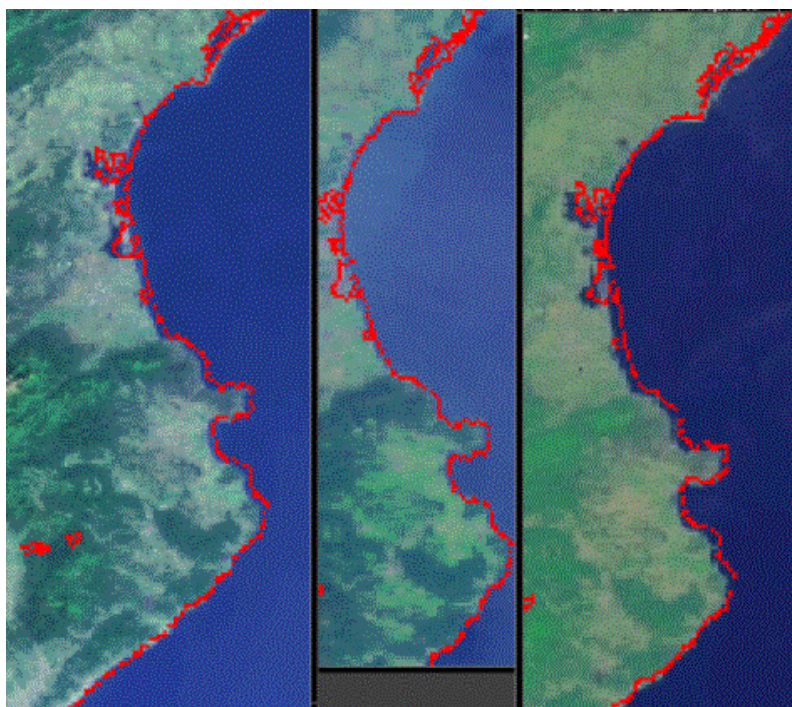
7.2   Water Vapour and Browse maps

Water Vapour data, retrieved from MER_LRC_2P products, have been used to generate global coverage maps for each day of the cycle. Maps are available on the ESA website:
http://earth.esa.int/pcs/envisat/meris/maps/watervapour/

MERIS tracks for each day of the cycle have been plotted using Browse products. Maps are available on the ESA website:
http://earth.esa.int/pcs/envisat/meris/maps/browse/

8   GENERAL INFORMATION

- A prototype upgrade is foreseen for mid March 2004, following indications coming from the MAVT and the QWG. The reprocessing of MERIS products is going to take place as soon as the new configuration is available.
- The 2004 ENVISAT Symposium follows the previous successful Symposia in Gothenburg (2000), Florence (1997), Hamburg (1993) and Cannes (1992). ESA would like to invite you to participate in the ENVISAT Symposium, to be held in Salzburg (Austria) from 6 to 10 September 2004. For detailed information see the ESA's official conference page: http://www.congrex.nl/04a06/.