

MERIS CYCLIC REPORT 20TH

SEPTEMBER 15TH - OCTOBER 20TH 2003



MERIS image acquired on the 17th of September 2003

prepared by/*préparé par* L. D'Alba, P. Colagrande

reference/*référence*

issue/*édition* 1

revision/*révision* 0

date of issue/*date d'édition* January 2004

status/*état*

Document type/*type de* MERIS Cyclic Report

document

Distribution/*distribution*

A P P R O V A L

Title <i>titre</i>	MERIS Cyclic Report – Cycle 20 th	iss ue iss ue	revision <i>revision</i>
-----------------------	--	----------------------------	---------------------------------

author <i>auteur</i>	L. D'Alba, P.Colagrande,	dat e <i>date</i>
-------------------------	--------------------------	-----------------------------

approved by <i>approuvé by</i>	P. Goryl	dat e <i>date</i>
-----------------------------------	----------	-----------------------------

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>

C H A N G E R E C O R D

Issue:1 Revision:0

reason for change/ <i>raison du changement</i>	page(s)/ <i>page(s)</i>	paragraph(s)/ <i>parag raph(s)</i>

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

1	INTRODUCTION	1
1.1	Acronyms and abbreviations.....	1
2	SUMMARY	3
3	SOFTWARE VERSION AND PROCESSING CONFIGURATION.....	3
3.1	Software version.....	3
3.2	Auxiliary data files.....	3
3.2.1	level 1/level 2 configuration (SciHio2).....	4
3.3	Configuration Table Interface (CTI).....	5
3.4	Level 1/ Level 2 RR or FR products	5
4	PDS STATUS AND INSTRUMENT UNAVAILABILITY	6
4.1	MERIS RR/FR Level 0 products	6
4.2	MER_CA__OP products	7
4.3	Instrument Unavailability.....	8
5	CALIBRATION AND INSTRUMENT CHARACTERIZATION	8
5.1	Calibration.....	8
5.1.1	Radiometric calibration.....	8
5.1.2	Spectral calibration.....	8
5.1.3	VEU Temperature Analysis	9
5.1.4	Vicarious calibration results.....	9
5.2	Instrument Characterization.....	10
5.2.1	Instrument degradation.....	10
5.2.2	Diffuser ageing.....	10
5.2.3	Smile Effect.....	11
6	DATA QUALITY CONTROL.....	11
6.1	Status of the Level 1 products quality.....	11
6.2	Status of the Level 2 products quality.....	11
6.3	Anomalies	21
6.4	Software Problem Reporting (SPR).....	22
7	VALIDATION ACTIVITIES AND RESULTS	22
7.1	Water Vapour and Browse maps.....	22



8	GENERAL INFORMATION	22
---	---------------------------	----

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 #20 starts on September 15th and ends on October 20th, 2003.

No auxiliary files were disseminated during the cycle. Three radiometric calibrations have been successfully executed.

The actual status of MERIS IPF4.06 products quality is reported in details in par. 6.1 and 6.2.

Information about the start and stop of the cycle can be found in the table below.

Cycle number	20
Start time	15 September 2003, 21:59:29
Stop time	20 October 2003, 21:59:29
Start orbit	8071
Stop orbit	8571

3 SOFTWARE VERSION AND PROCESSING CONFIGURATION

3.1 Software version

The list of documents applied to the current release, IPF4.06, is given in the following.

MERIS IPF: 04.06

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 consist 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 cycle #20.

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_AXVIEC20030905_131635_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_120000_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 the cycle.

3.4 Level 1/ Level 2 RR or FR products

During cycle #20 no changes regarding format or algorithms for L1b/ L2 products were applied.

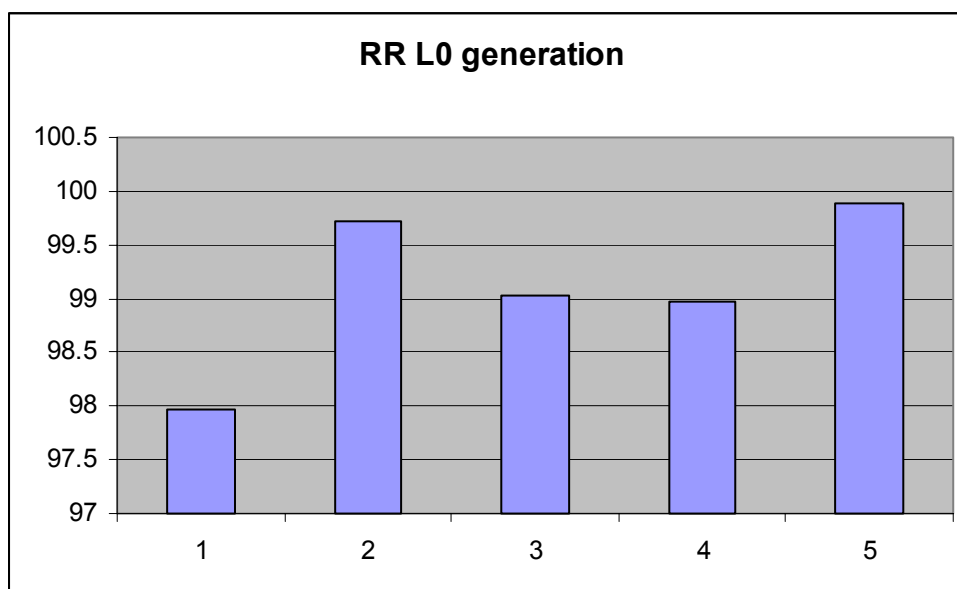
4 PDS STATUS AND INSTRUMENT UNAVAILABILITY

The query for MERIS products availability performed with GANTT to the PDS inventory facility (INV) provided the results presented in the following.

4.1 MERIS RR/FR Level 0 products

Table below shows the statistics regarding the RR L0 generation (compared with the planned ones) and missing data.

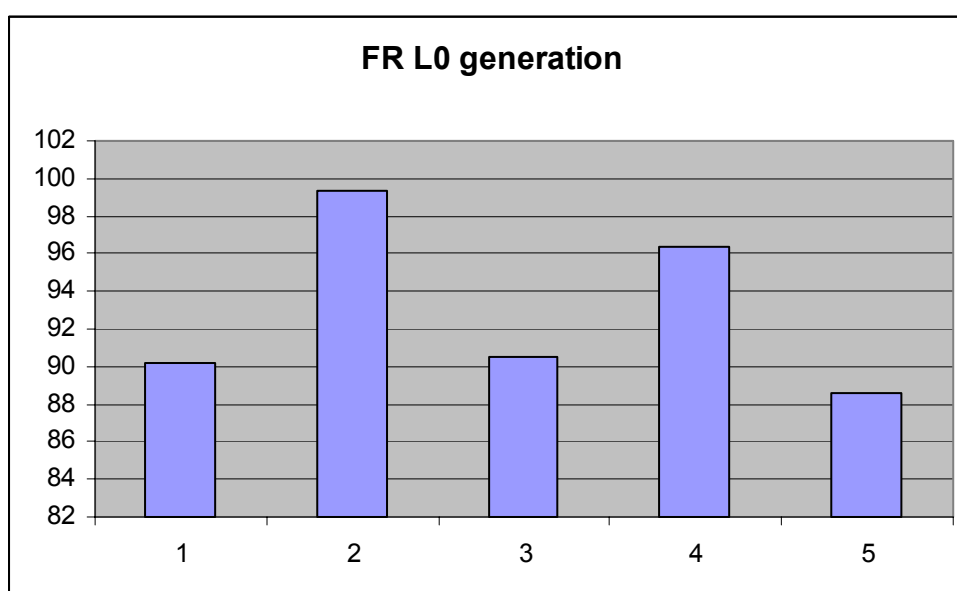
Week	MER RR_0P	%
From 15/09 to 21/09	Inventoried	97.97
	Missing	2.03
From 22/09 to 28/09	Inventoried	99.71
	Missing	0.29
From 29/09 to 05/10	Inventoried	99.03
	Missing	0.97
From 06/10 to 12/10	Inventoried	98.98
	Missing	1.02
From 13/10 to 19/10	Inventoried	99.89
	Missing	0.11



The number of RR Level 0 products acquired during the cycle is about 99.1% of the planned ones.

Table below shows the statistics regarding the RR L0 generation (compared with the planned ones) and missing data.

Week	MER_FR_0P	%
From 15/09 to 21/09	Inventoried	90.23
	Missing	9.77
From 22/09 to 28/09	Inventoried	99.37
	Missing	0.63
From 29/09 to 05/10	Inventoried	90.49
	Missing	9.51
From 06/10 to 12/10	Inventoried	96.41
	Missing	3.59
From 13/10 to 19/10	Inventoried	88.60
	Missing	11.40



The number of FR Level 0 products acquired during the cycle is about 93% of the planned ones.

4.2 MER_CA__0P products

During cycle #20 three routine radiometric calibrations, one RGC Diffuser 1 (1 orbit), one Diffuser Ageing (2 orbits) and one Wavelength Type 1 (2 orbits) were planned. The following calibrations

MER_CA__0PNPDE20030929_040532_000001782020_00190_08260_0012.N1	RGC
MER_CA__0PNPDE20031013_000549_000001782020_00388_08458_0015.N1	DAC
MER_CA__0PNPDE20031013_014625_000001782020_00389_08459_0016.N1	DAC

MER_CA__0PNPDE20031013_032701_000001782020_00390_08460_0017.N1 WV1
MER_CA__0PNPDE20031013_050738_000001782020_00391_08461_0018.N1 WV1

were successfully executed on the 29th of September in orbit 8260, on the 12th of October in orbits 8458, 8459, on the 13th of October in orbits 8460, 8461.

4.3 Instrument Unavailability

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

Start	Stop	Reason	Reference	Planned
15 Sep 2003 04:47:00	15 Sep 2003 04:47:03	MERIS Calibration failure.Expected anomaly already traced within AR#ENV-000670. See corresponding AR for details.	EN-UNA-2003/0275	No
19 Sep 2003 11:55:00	19 Sep 2003 13:43	MERIS was unavailable due to the uplink of a calibration corrective patch. (AR#ENV-670). Restart of measurements as from orbit #8124.	EN-UNA-2003/0280	Yes

5 CALIBRATION AND INSTRUMENT CHARACTERIZATION

5.1 Calibration

5.1.1 RADIOMETRIC CALIBRATION

During cycle #20 one Radiometric Gain Calibration, one Diffuser Ageing and one Wavelength type 1 Calibration were successfully executed on the 29th of September, 12th of October and 13th of October 2003. For more details see par. 4.2.

5.1.2 SPECTRAL CALIBRATION

No spectrometric calibrations were performed during cycle #20.

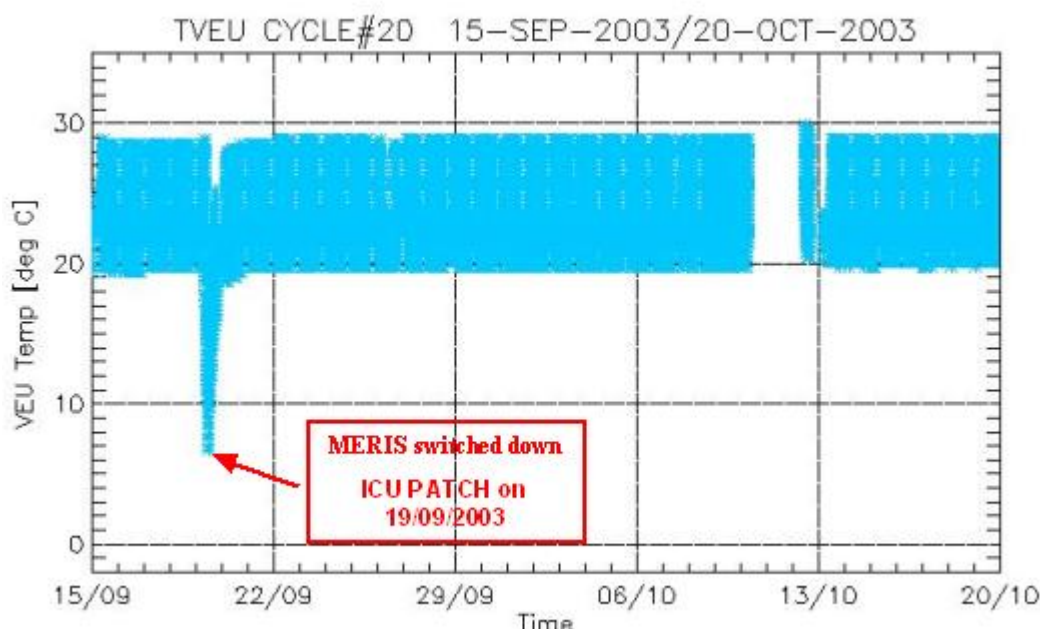
5.1.3 VEU TEMPERATURE ANALYSIS

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 $-10^{\circ}/+50^{\circ}$ in order to meet the image quality requirements. The VEU temperature should be maximum $\pm 10^{\circ}\text{C}$ different from the last radiometric calibration for optimum performance.

During cycle #20 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 ICU patch aimed at filtering the calibration anomalies was applied successfully on Friday 19 Sept. Therefore MERIS was switched down and made unavailable for two orbits (8122 & 8123).

Also a lack of telemetry data from FOS is shown for the period October 11th, 12th.

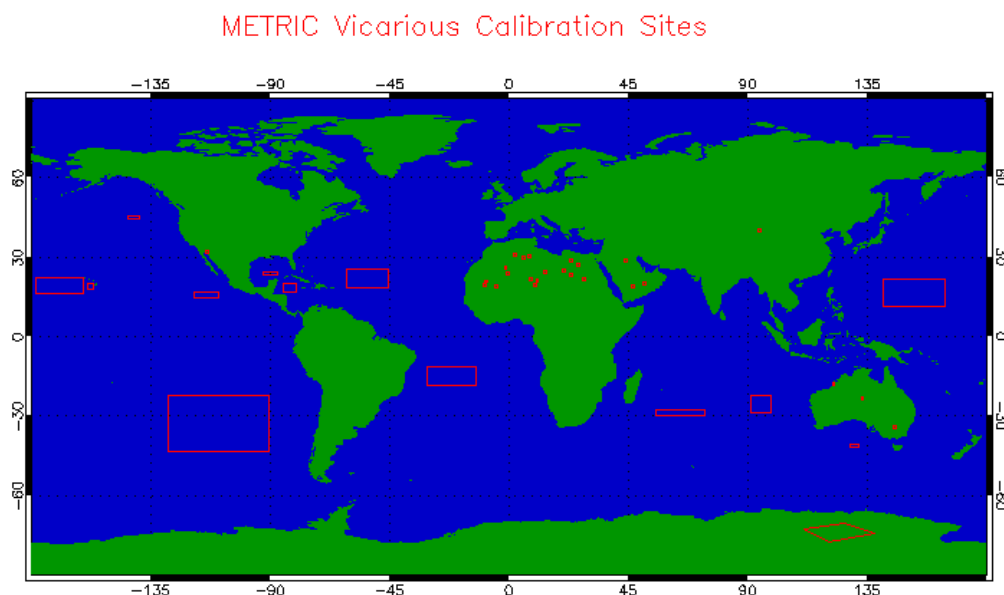


5.1.4 VICARIOUS CALIBRATION RESULTS

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:



During the cycle Metric has generated for specific sites the following results:

Sites	#Products
DESERT	126
GLITTER	9
RAYLEIGH	70
SNOW	19
BUOY	3

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 IPF4.06 Level 1 products is described in the following.

Radiometric quality:

4% accuracy except for some desert sites.

According to Product Handbook¹: 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 IPF4.06 Level 2 products is reported in the following table.

Parameter	Quality				Comment
	Goal ²	Source ³	Status ⁴	Date ⁵	

¹ <http://envisat.esa.int/dataproducts/meris/CNTR2-7-1.htm>

² The accuracy that shall be achieved.

³ The origin of the quality goal.

Parameter	Quality				Comment
	Goal ²	Source ³	Status ⁴	Date ⁵	
<i>Pixel Classification</i>					
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.
<i>Pixel classification science flags</i>					
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
<i>Cloud parameters</i>					
Surface reflectance 1-13	See L1b radiometry	QWG 25.9.03	over clouds simple conversion into TOA	08.12.03	An analysis of the statistics of saturated pixels based on SQADS should be

⁴ Present status of quality

⁵ Date of the present status

Parameter	Quality				Comment
	Goal ²	Source ³	Status ⁴	Date ⁵	
			reflectances works well. Saturation in bands 779 and 865 can be observed – correctly flagged.		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 OT)	ATBD 2.2, Iss. 4.2 Feb 2000	generally visually ok validation pending saturation of	08.12 .03	

Parameter	Quality				Comment
	Goal ²	Source ³	Status ⁴	Date ⁵	
			band 779 causes invalid COT		
Cloud type				08.12 .03	Verification ongoing. Needs statistically 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. and type)			ok	08.12 .03	

Parameter	Quality				Comment
	Goal ²	Source ³	Status ⁴	Date ⁵	
<i>Ocean parameter</i>					
Surface reflectance 1-13	<p>Case1: accuracy 0.002 marine reflectance in the blue.</p> <p>Case2: accuracy 5%</p>	<p>ATBD 2.7 Iss 4.1 Feb 2000</p> <p>ATBD 2.6 Iss 4.1 Feb 2000</p>	<p>Clear water works well at most of the validation sites.</p> <p>Reflectance at 681 is not corrected for smile and may be affected diversely depending on the fluorescence activity.</p> <p>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.</p> <p>Case2 exhibits partly doubtful spectra, occasionally strong border</p>	08.12 .03	<p>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. Addition of new</p>

Parameter	Quality				Comment
	Goal ²	Source ³	Status ⁴	Date ⁵	
			between Case2 and Case1.		<p>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.</p> <p>The quality of the ozone values used for correction will be studied.</p>
PCD_1_13			too often raised	08.12.03	<p>Improvement (PCD not raised under high wind conditions) implemented in match-up processing⁶. PCD1_13 is raised if any of the 13 water leaving reflectances is negative.</p>
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

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/m ³ 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/m ³).
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	
<i>Ocean Science Flags</i>					
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 atmospheric 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 have been identified with null radiance values for all the 15 bands. It has been noticed that when the problem occurs the 1st Tie Point of the product is corrupted since it contains latitude and longitude values out of the product geolocalization. The anomaly has been investigated and fixed: a bad variable type 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. This is the reason why the problem is affecting not all the FR L1 products. A patch for the processor is now under test.
- Some MERIS FR L2 products have negative reflectance values above water pixels and corrupted marine geophysical parameters. It has been verified that the auxiliary products used for the processing and the FR L1 products are OK.
- In MERIS RR L2 products the Water Vapour field is characterized by a vertical feature, above water pixels, with negative values of water vapour content and both the HIGHGLINT and PCD_14 flags raised. To investigate the problem, one MER_RR__1P product corresponding to a corrupted L2 product has been processed with MEGS6.2p3 using the proper auxiliary files as in IPF4.06. The resulting L2 product does not show any vertical feature!

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 parameter with negative values. See par. 6.3 for more details.

7 VALIDATION ACTIVITIES AND RESULTS

No new validation results to be shown for the cycle.

7.1 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

The “ENVISAT & ERS Symposium” to be held in Salzburg (Austria) from 6 to 10 September 2004.

A processor 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.