EUROSION PROJECT
The Coastal Erosion Layer WP 2.6

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EXECUTIVE SUMMARY

EUROSION is a project commissioned by the Environment Directorate-General (DG) of the European Commission (contract: B4-3301/2001/329175/MAR/B3). Within this project, work package 2 (WP2) has to build a Geographical European Coastal Erosion database in accordance with the standards laid down by the European Environment Agency. BRGM is in charge of WP 2.6, which is the "Geology, geomorphology and coastal erosion layer" of the database.

This report describes the methodology used to design the European Coastal Erosion Layer (CEL), for which the data have to be compatible with a scale of 1:100,000. The information will characterise the official coastline of the EUROSION project provided by IGN FI. The new coverage has been named **CEEUBG100KV2**, in accordance with GISCO rules.

The design approach is an update of the 1990 CORINE Coastal Erosion (CCEr) methodology in which three criteria were used: i) morpho-sedimentology (rocky coasts, beaches, muddy coasts, etc.) ii) evolutionary trends (erosion, aggradation, stability) and iii) presence or not of coastal defence measures.

Two further criteria were applied for the CEL:
- Coastline geology, to provide information on the potential scale of possible erosion
- Data status and availability: i) no data available, data are from the CCEr database, ii) updated or new information.

The CEL inventory is extended to East Germany and to new EU-15 members (Finland, Sweden) and to applicant countries with coastlines i.e. Bulgaria, Cyprus, Estonia, Latvia, Lithuania, Malta, Poland, Romania, Slovenia.

The codes of the different attributes are explained where necessary in order to avoid different interpretations of the same object and thus provide a homogeneous and consistent method for describing the European coastline.

The data were provided by national or local contact organisations, with specific files which have been merged into a seamless coastline database.

The data were verified in different ways:
- checking and correction of polyline topological errors such as dangle nodes (i.e. disjoined segments) and auto-intersections (i.e. loops and peaks)
- verifying that national coastline data, which are supplied by national contacts in a specific file, comply with database specifications
- for each file (country), the projection used and datum are verified
- compliance with the defined methodology i.e. length of segments, coding of segments (codes have to correspond to lexicon, no voids), consistency between codes (to detect any inconsistent combination between the codes of the different attributes),
- consistency with the 60 WP4 case studies

In accordance with the Terms of Reference, the CEL database is made available in the ArcInfo Exchange Format (E00 file), as well as in coverage and shapefile formats.

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1. INTRODUCTION

1.1 Aims and context of the study

EUROSION is a project commissioned by the Environment Directorate-General (DG) of the European Commission (contract: B4-3301/2001/329175/MAR/B3). Within this project, work package 2 (WP2) has to build a Geographical European Coastal Erosion database in accordance with the standards laid down by the European Environment Agency. BRGM is in charge of WP 2.6, which is the "Geology, geomorphology and coastal erosion layer" of the database. This information will characterise the official coastline provided by IGN FI. Data accuracy has to be compatible with a scale of 1:100,000.

The aims of the work package W2.6 are to:

- update the first 1990 CORINE Coastal Erosion (CCEr) database with new existing data, and check the CCEr data in accordance with the new methodology described below.

- Add two new criteria for the CEL database, in addition to the CCEr three types of criteria: i) morpho-sedimentology (rocky coasts, beaches, muddy coasts, etc.) ii) evolutionary trends (erosion, aggradation, stability) and iii) presence or not of coastal defence measures:
    - Coastline geology, to provide information on the potential scale of possible erosion

    - Data status: no data available, data from the CCEr database, updated or new information.

- extend the inventory to Eastern Germany and to new EU-15 member countries (Finland, Sweden) and to applicant countries with coastlines (i.e. Bulgaria, Cyprus, Estonia, Latvia, Lithuania, Malta, Poland, Romania, Slovenia),

- improve the CCEr methodology. The general principles adopted in the approach developed for the EUROSION project are as follows:
    - to retain as many of the CCEr's codes as possible in order to allow comparisons between the CEL and CCEr databases,
    - to give sufficient explanations for each code to avoid different interpretations for the same type of coast

The first step involved checks and a critical analysis of the CCEr database.

The purpose of this report is to describe the methodology used to design the European Coastal Erosion Layer (CEL) of the EUROSION project.

The codes of the different attributes are explained, where necessary, in order to avoid different interpretations of the same object and thus provide a homogeneous and consistent method for describing the European coastline. The outline of a modus operandi is proposed, as are elements for quality control that used to be check results with the leader of WP2, IGN FI.

1.2 Background

The objective of the first CORINE Coastal Erosion project (http://themes.eea.eu.int/Specific_areas/coast_sea/data), which covered 11 Member States at the time (i.e. the EU-12 Member States excluding Luxembourg), was to provide a scientific database that would enable the identification of risks arising from potential coastal erosion problems on a Europe-wide scale. The method is based on identifying coastal segments and characterising them according to three criteria or attributes:

- Morpho-sedimentology, using 19 code items
- Evolutionary trends, using 10 code items
- Coastal defence works, using 2 code items (presence or not)

Approximately 17,000 segments with a minimum length of 200 m and covering almost 56,000 km of coastline were digitised and entered into the database.

The database contains three types of basic data:

- Coastlines, built up from approximately 0.5 million nodes,
- geographical coordinates of the extremities of the 17,037 coastal segments and serial numbers for these segments within NUTS III units,
- codes for the three attributes of each coastal segment,

1.3 The Coastal Erosion Layer

The new coverage has been named **CEEUBG100KV2**, in accordance with GISCO rules:

- CE stands for Coastal Erosion
- EU stands for EUrope, which includes applicant countries covered by the Eurosion project
- BG stands for BrGm, the source
- 100K stands for the scale of 1:100,000
- V2 stands for version 2

The Coastal Erosion Layer (CEL – New CCEr) database uses the updated Eurosion Coastline provided to BRGM by IGN FI. The geometry of the Coastal Erosion Layer (CEL) is therefore different from the geometry of the 1990 CCEr.

In the EUROSION project, the coastal shoreline has been produced in accordance with the Terms Of Reference, with the following characteristics as described in detail in the IGN FI report:

- seamless representation of the limit between land and sea
- scale of 1:100,000 (the 1990 CCEr is available to scales of 1:100,000 and 1:1,000,000), i.e. with an estimated average accuracy of 50 metres. This means that the position of the actual shoreline lies within a 50-metre radius of the Eurosion representation of the shoreline.
- The coordinate system is based on the ETRS89 horizontal reference system.

2. METHODOLOGY

2.1 Geographical coverage

Below is the list of European countries and territories whose coastlines are to be covered by the EUROSION project. However, some countries and overseas territories will only be covered in part (at least 20% of their coastlines).

Countries covered by the CCEr database
Belgium, Denmark (excluding Greenland and the Faroe Islands), France (excluding its overseas territories), Germany (Western part), Greece, Ireland, Italy, Portugal (including the Azores), Spain (including the Canary Islands), The Netherlands, United Kingdom (excluding specific status islands Jersey, Guernsey and the Isle of Man).
The islands included in the CCEr database need to meet with the initial 1990 specifications i.e. coastline perimeter of more than 0.5 km (at high tide). Islands linked to the continent by a bridge are considered as islands.

New countries to be included in the EUROSION database
- Eastern Germany and new EU Countries i.e. Finland and Sweden (full coverage),
- Applicant countries (full coverage): Estonia, Latvia, Lithuania, Poland, Slovenia,
- Applicant countries (partial coverage): Bulgaria, Cyprus, Malta, Romania.

  For these new countries, only islands located more than 1 km from the mainland, with an area greater than 1 km^2 and a population of at least 50 permanent inhabitants, should have been included. But only the surface criterion (area less than 1 km^2) was applied, as information on numbers of inhabitants is not available. Islands linked to the continent by a bridge are considered as islands.

It must be emphasised that in some cases (e.g. Finland in Fig. 1), islands not covered may make up an important part of the overall coastline.

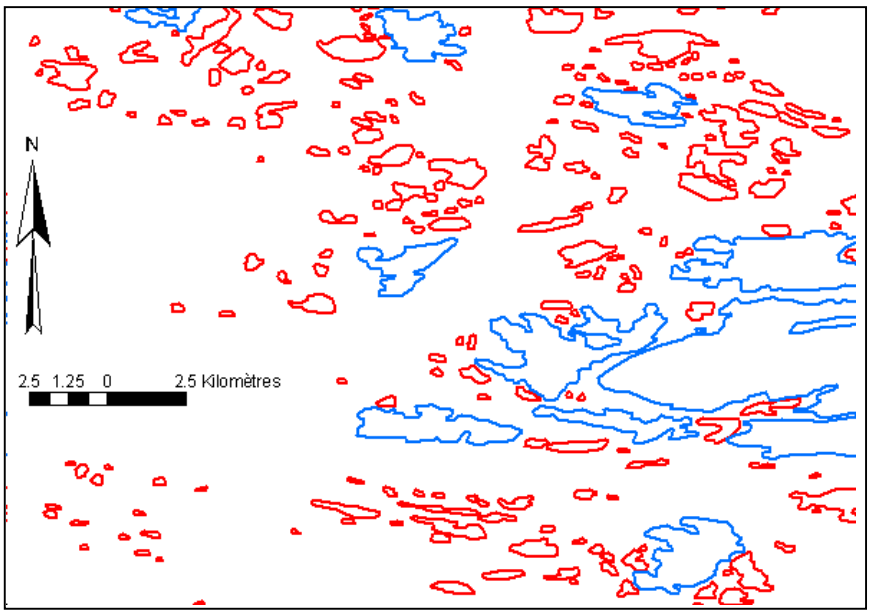

Fig. 1: Example of the Finnish coastline (red: not covered by CEL, blue: covered)

Details concerning territories where only part of the coastline is covered.

Bulgaria:
- partial coverage: Burgass and Varna region.

Cyprus:
- partial coverage: Larnaca area (WP3 pilot area).

France:
- full coverage of Guadeloupe and of French Guiana.

Malta:
- full coverage.

Portugal:
- full coverage of the island of Sao Miguel in the Azores archipelago, partial coverage of Madeira island.

Romania:
- partial coverage : Danube Delta and Mamaïa area (WP3 pilot areas).

Spain:
- full coverage of the Canary Islands.

The official coastline is provided by IGN FI. Like small islands, the internal coasts of estuaries, rias, fjords, bays and coastal lagoons are excluded from this study when the marine mouth is less than 1 km wide. On an other hand, this official coastline includes Russian and Turkish coasts which are not covered by our study.

The official coastline can, however, be amended by more detailed national data. In other words, it is possible for the official coastline to be refined by national data at a comparable scale.

In accordance with the principles detailed above, the CEL database covers 34,256 coastal segments out of the 51,697 segments of the original official coastline, which represents 100,926 km of coastline out of the initial 130,627 km (including small islands, mouth, etc..). The table below summarises the relevant data for the following countries:

Code	Country	IGN FI Coastline		CEL database		
		Length of coastline[1]	No. of segments	Length of coastline	No. of segments	% covered in length
BE	Belgium	97 km	55	97 km	55	100 %
BG	Bulgaria	464 km	75	125 km	51	26 %
CY	Cyprus	748 km	49	66 km	28	9 %[2]
DE	Germany	3622 km	1324	3524 km	1320	97 %
DK*	Denmark	5453 km	2402	4605 km	2385	84 %
EE*	Estonia	3033 km	676	2549 km	222	84 %
ES	Spain	6616 km	3385	6583 km	3381	99 %
FI*	Finland	29443 km	16795	14018 km	2297	47 %
FR	France	8250 km	5507	8245 km	5505	100 %
GR	Greece	14687 km	3585	13780 km	2935	94 %
IE*	Ireland	5916 km	2702	4577 km	2361	77 %
IT	Italy	7482 km	3012	7468 km	3011	100 %
LT	Lithuania	262 km	106	262 km	106	100 %
LV	Latvia	581 km	278	534 km	274	92 %
MT*	Malta	196 km	106	173 km	105	88 %
NL*	The Netherlands	1585 km	274	1275 km	269	80 %
PL*	Poland	984 km	182	634 km	156	64 %
PT*	Portugal	2062 km	305	1187 km	291	57 %
RO	Romania	739 km	74	226 km	27	31 %
SE*	Sweden	15511 km	2891	13567 km	2227	87 %
SI	Slovenia	45 km	53	45 km	53	100 %
UK*	United Kingdom	20084 km	7857	17381 km	7197	86 %

Tab. 1: Statistics on length and number of segments for each country

[1] Length of the coastline including islands and coastal indentations (natural or artificial)
[2] The IGN FI coastline also concerns the Turkish part of the island
* Only islands located more than 1 km from the mainland, with an area greater than 1 km^2, have been included

2.2 Coding

2.2.1 Coastal erosion segment identifier

Each coastal segment will have an identifier composed of two letters representing the country followed by a specific sequential number for each country.

Country codes:

Country code	Country
BE	BELGIUM - BELGIQUE-BELGIË
BG	BULGARIA
CY	CYPRUS
DE	GERMANY - DEUTSCHLAND
DK	DENMARK - DANMARK
EE	ESTONIA
ES	SPAIN – ESPAÑA
FI	FINLAND – SUOMI
FR	FRANCE
GR	GREECE - ELLADA
IE	IRELAND
IT	ITALY - ITALIA
LT	LITHUANIA
LV	LATVIA
MT	MALTA
NL	THE NETHERLANDS
PL	POLAND
PT	PORTUGAL
RO	ROMANIA
SE	SWEDEN - SVERIGE
SI	SLOVENIA
UK	UNITED KINGDOM

Tab. 2: List of country codes

Russia (RU) and Turkey (TR) are not covered although their coastline is present in the database.

2.2.2 Morpho-sedimentology codes

The morpho-sedimentology coding system, originally adopted for the CCEr database, makes it possible to characterise the principal morphological and sedimentological elements of intertidal strands from generally accessible data and information (photographs, maps, reports, etc.). Each coastal segment is characterised by a single morpho-sedimentology code chosen from the proposed nomenclature (see table 3).

CODE	Description
Rocky coasts	
A	Rocks and/or cliffs made of hard rocks (low level of erosion), sometimes with a rock platform
B	Conglomerates and/or soft-rock cliffs (e.g. chalk), which are subject to erosion: presence of rock waste and sediments (sand or pebbles) on the strand
AC	Mainly rocky, low level of erosion, with pocket beaches (<200 m long), not localised on the segment
Beaches	
C	Small beaches (200 to 1000 m long) separated by rocky capes (<200m long)
D	Extensive beaches (>1 km long) with strands of coarse sediment (gravel or pebbles)
E	Extensive beaches (>1 km long) with strands of fine to coarse sand
F	Coastlines of soft non-cohesive sediments (barriers, spits, tombolos)
P	Soft strands with rocky "platforms" (rocky flats) on intertidal strands
R	Soft strands with "beach rock" on intertidal strands
N	Very narrow and vegetated strands (pond or lakeshore type)
S	Soft strands made of mine-waste sediments
K	Artificial beaches
X	Soft strands of mixed grain-size categories
Z	Soft strands of unknown grain-size category
Muddy coasts	
G	Strands of muddy sediments: "wadden" and intertidal marshes with "slikkes and shorres"
M	*Polders*
Artificial coasts	
Y	Artificial shoreline or shoreline with longitudinal protection works (walls, dikes, quays, rocky strands), without sandy strands
L	Coastal embankments for construction purposes (e.g. earthworks)
J	Harbour areas
Mouths (virtual coastal segments)	
H	Estuary (virtual line)

Tab. 3 : Morpho-sedimentological codes

Explanations are given, when needed, in order to limit the range of personal interpretations and to provide a homogeneous method for describing the European coastline. Moreover, unless the coast is delimited by rocky structures or artificial structures directly subjected to the action of the sea, the proposed classification emphasises the nature of the constitutive materials of the intertidal strand, this being the zone that exhibits the most visible signs of erosion or sedimentation processes and where the majority of coastal defence works are carried out.

Rocky coasts

A Rocks and/or cliffs made of hard rocks (low level of erosion), sometimes with a rock platform

B Conglomerates and/or soft-rock cliffs (e.g. chalk), which are subject to erosion: presence of rock waste and sediments (sand or pebbles) on the strand

AC Mainly rocky, low level of erosion, with pocket beaches (<200 m long), not localised on the segment

Beaches

C Small beaches (200 to 1000 m long) separated by rocky capes (<200m long)

D Extensive beaches (>1 km long) with strands of coarse sediment (gravel or pebbles)

E Extensive beaches (>1 km long) with strands of fine to coarse sand

F Coastlines of soft non-cohesive sediments (barriers, spits, tombolos)

Limits between morphological features and when to use code F:

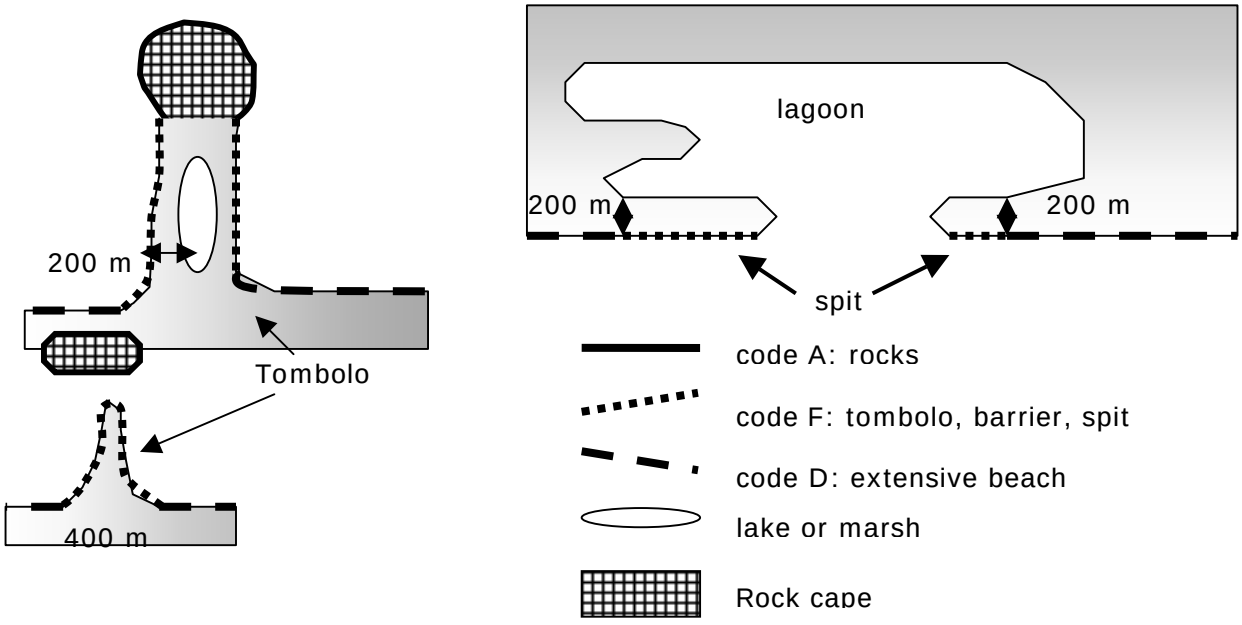

Fig. 2: Morpho-sedimentology code F

P Soft strands with rocky "platforms" (rocky flats) on intertidal strands

The rock platform was present before the soft strand was deposited. The strand is commonly a thin layer.

R Soft strands with "beach rock" on intertidal strands

The beach rock (cemented sand) has developed within the beach strand. Such cases are usually found in Mediterranean countries.

N Very narrow and vegetated strands (pond or lakeshore type)

No sandy or muddy beach at high tide. Vegetation almost reaches the sea.

S Soft strands made of mine-waste sediments

This kind of sediment does not have a greater physical impact than other sediments in terms of erosion but can have a strong impact in terms of environmental pollution. Such deposits can also be transported by coastal drift and deposited on other beaches.

K Artificial beaches

This code concerns:
- entirely man-made beaches such as those found in the Canary Islands
- beaches where the granulometric nature of the sediments changes after coastal defences have been installed, e.g.: formation of a sand beach in front of a gravel beach after completion of coastal defence work.
- nourished beaches.

X Soft strands of mixed grain-size categories

Z Soft strands of unknown grain-size category

Priority rules in cases where two codes are possible

Some morpho-sedimentology beach codes emphasise sedimentological aspects (grain size), while and others emphasise the morphological aspect:
- sedimentological types indicate the granulometry of beaches: coarse sediment (D: gravel to shingle), fine to coarse sand (E), heterogeneous granulometry (X), or unknown granulometry (Z),
- morphological types: barrier, spit or tombolo (F), very narrow and vegetated strands (N), soft strands with a rocky platform (P), or soft strands with beach rocks (R).

This may give rise to a choice between a sedimentological or a morphological code for the same object. In order to make the database as homogeneous as possible and to avoid the possibility of different interpretations for the same object, the following rules have been applied:

For beaches:
- case 1: for a flat area with beaches (pebbles, sand or silt) backed by depressions such as marshes or lakes, the morphological code F is used. This code is valid for spits and barriers up to 200m wide and for tombolo up to 400 m wide. It is more important to know that it is a barrier, a spit or a tombolo that can erode, potentially with major consequences for the hinterland in terms of ecology or damage, than to know that it is a beach made of coarse or fine sediment. Example: south-eastern coast of France (Languedoc)
- case 2: for beaches backed by a relief such as well developed dunes, code D,E, S, X or Z (depending on the granulometry of the beach) is used. Example: south-western coast of France (Aquitaine), NW Portugal.

Giving preference to morphology indicates a "width" for the coastline and gives an idea of the potential consequences of erosion.

Muddy coasts

G Strands of muddy sediments: "wadden" and intertidal marshes with "slikkes and shorres"

M Polders

Note that code M (Polders) was used in the CCEr database for 135 coastline segments in Denmark, France, Germany, Greece and the United Kingdom. As polders are areas localised behind the coastline, we propose to discontinue code M and replace it as follows:
- *where the embankment is fronted by a strand, use code E or G or X or Z, depending on the granulometry of the beach*
- *where the embankment is active and there is no strand, use code Y.*

Artificial coasts

Y Artificial shoreline or shoreline with longitudinal protection works (walls, dikes, quays, rocky strands), without sandy strands

L Coastal embankments for construction purposes (e.g. earthworks)

J Harbour areas

Mouths (virtual coastal segments)

H Estuary (virtual line)

Internal coasts of estuaries, rias, fjords, bays and coastal lagoons are excluded from the inventory when the mouth is less than an arbitrary width of 1 km. In these cases and in order to have a continuous coastline, the two sides of the estuary, ria, bay or coastal lagoon are joined by a virtual line (Fig. 2).

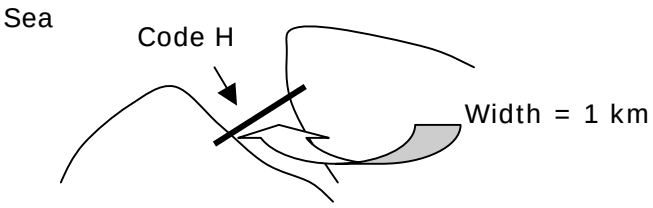

Fig. 3: Virtual line H

2.2.3 Codes for evolutionary trends

Each coastal segment is characterised by a code representing that segment's evolutionary trend. The ten code items (see table 4) are divided into four main classes:
- not in nomenclature or absence of information
- stability
- erosion
- aggradation (sedimentation, accretion)

CODE	Description
Absence of information	
0	Not in nomenclature
1	No information on evolution
Stability	
2	Stable: evolution almost imperceptible at human scale
3	Generally stable: small "isolated" variations around a stable position – the evolutionary trend is uncertain
Erosion	
4	Erosion probable, but not documented
50	Erosion confirmed (available data) along parts of the segment
51	Erosion confirmed (available data) along almost the whole length of the segment
Aggradation	
6	Aggradation probable, but not documented
70	Aggradation confirmed (available data) along parts of the segment

71	Aggradation confirmed (available data) along almost the whole length of the segment

Tab. 4 : Evolutionary trend codes

Owing to major disparities in the available data, it is not possible to have quantitative information on evolutionary trends at European scale. Moreover, the rate of erosion is far from constant in terms of time, and inversions can occur in the trend. It is therefore important to know the time-frame in which the data on erosion was collected, as well as the meteorological conditions that prevailed during that time:

- measurements made during a storm will show severe erosion
- measurements made after a storm may show aggradation
- measurements made before and after the installation of a coastal defence system will produce a different range of values

All these reasons explain why evolutionary trends are always qualitative.

No information

0 Not in nomenclature

e.g.: H (virtual line for mouth) and J for harbour areas

1 No information on evolution

The evolutionary trend of a coastline is usually known for a localised area but not for the whole of a region or country. For the other areas, there is either no knowledge (no data available) or the knowledge is at a very local level (inhabitants).

Stability

2 Stable: evolution almost imperceptible at human scale

This code should be used whenever it is impossible to formulate an objective judgement on the recent evolutionary tendency of a coastal segment.

3 Generally stable: small "isolated" variations around a stable position – the evolutionary trend is uncertain

Seasonal fluctuations in the coastline may occur with variations in the rate of natural sediment deposition
The time-scale of coastal monitoring is too short to show evolutionary trends with any certainty in this case.

Erosion

4 Erosion probable, but not documented

Coding based on questionnaires and assessments by experts of probable but undocumented tendencies.

50 Erosion confirmed (available data) along parts of the segment

Different cases can occur:
- for morpho-sedimentological code "AC - mainly rocky with pocket beaches", the pocket beaches are not localised on the segment but they may be affected by from erosion
- erosion is very localised (measured on a part of the segment),
- measurements only exist for part of the segment and there is no knowledge for the rest of the segment

51 Erosion confirmed (available data) along almost the whole length of the segment

Aggradation

6 Aggradation probable, but not documented

Coding based on questionnaires and assessments by experts of probable but undocumented tendencies.

70 Aggradation confirmed (available data) along parts of the segment

Different cases can occur:
- for morpho-sedimentological code "AC - mainly rocky with pocket beaches", aggradation may be occurring on the pocket beaches (made of sand or mud) but they are not localised on the segment,
- aggradation is very localised and measured on a part of the segment,
- measurements only exist for part of the segment and there is no knowledge for the rest of the segment

71 Aggradation confirmed (available data) along almost the whole length of the segment

General rules for coding evolutionary trends

As far as possible (depending on the availability of data), evolutionary trends concern the last fifteen years. This time-frame was chosen in order to allow comparisons between evolutionary trends as given by the CCEr and the CEL. In the case of variation in an evolutionary trend over the last fifteen years, the longest period (or the more representative in terms of duration) in that time is coded. When the change is due to construction work (harbours, coastal defences, etc.), it is be considered as human interaction and not a natural trend. In this case, the natural trend is chosen for coding. The impact of human interaction on the natural trend should be extracted when cross-linking the different attributes of this layer concerning erosion features.

If there is only one trend over a short period of time (<15 years), this is also coded.

2.2.4 Coastal geology codes

A new "Coastal geology" attribute is to be added for all countries covered by the EUROSION Project. This completes the information on morpho-sedimentology by describing the geological context, thus providing greater accuracy as to the scale of possible erosion according to the geology of the coastline. For example, chalk cliffs are more subject to erosion than granite cliffs.

The Coastline Geology nomenclature to be collected under the EUROSION project is listed in Table 3. This includes 34 different items in three increasingly detailed hierarchical levels that allow variably detailed knowledge to be represented. Whenever possible, the code for the most detailed category should be attached to each coastal segment. The geological codes are derived from the International Geological Map of Europe and the Mediterranean Regions, published by UNESCO and the German Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover.

Code	Item	Code	Item	Code	Item
A00	Substratum	A10	Plutonic	A11	Ultramafite and mafic rocks
				A12	Intermediate rocks (diorite, gabbro-diorite,..)
				A13	Granitic rocks
		A20	Volcanic	A21	Lava (basalts, etc.)
				A22	Ashes and stone fragments
				A23	Volcano-sedimentary formations
		A30	Metamorphic	A31	Gneiss
				A32	Schist
				A33	Marble
				A34	Quartzite
		A40	Sedimentary	A41	Sandstone
				A42	Marl and consolidated clay
				A43	Limestone
				A44	Chalk
				A45	Evaporites
				A46	"Flysch" and interbedded series
B00	Soft Formations	B10	Marine deposits	B11	Undifferentiated recent marine deposits
		B20	Lacustrine deposits	B21	Undifferentiated recent lacustrine deposits
		B30	Continental deposits	B31	Eolian sands and dunes
				B32	Fluvial (sand and gravel)
				B33	Peat bog
				B34	Loess and silts
				B35	Moraines and glacial or periglacial deposits
				B36	Non cohesive undifferentiated sediments
				B37	Man-made ground
C00	No information				
D00	Not in nomenclature				

Tab. 5 : Geological code items

Codes A00 and B00 are to be used exceptionally when there is no other possibility.

In some cases, the choice will be between a coastal geological formation (sand beach) and the hinterland context. In such cases, if the coastal geological formation extends for less than 100 m seaward (Fig. 4), the land geology should be used.

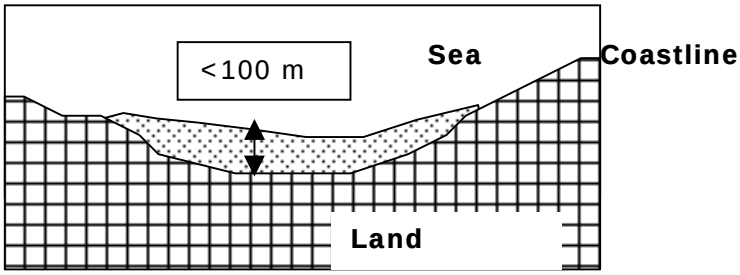

Fig. 4: Schematic example of a geological context

2.2.5 Coastal defence codes

The presence (Yes/No) of coastal defences, whether longitudinal (walls, quays, rocky strands) or transversal (embankments, groins), built on the strand or offshore is recorded. The nature of the protective installations is not specified in the inventory due to the difficulty of accessing this type of information.

It should be stressed that the presence of coastal defences on a segment does not necessarily affect the stability of that segment.

2.2.6 Data status codes

Two additional codes are used to express the availability and status of the information (change in code value between CCEr and CEL).

Data availability

0	No data available
1	No new data available. Any existing data are from CCEr 1990 (version 1)
2	CEL data (same as CCEr or updated information)

Data change

This code expresses the change in value from CCEr to CEL when new data are available

1	No change in attribute values. Data are from CCEr 1990 (version 1)
2	New CEL data (new or updated information)
3	Correction of erroneous information (only for CCEr version 1) This concerns 87 segments i.e. 117 km of coastline

Example of encoding:

- CEL data is the same as CCEr data, data availability is “2” and data change is “1”
- If one of the values of one attribute has changed between CCEr and CEL, the data change value is “2”

3. PRODUCTION

The Coastal Erosion Layer (CEL) was produced by BRGM with contributions sub-contracted to GIM (Geographic Information Management). The data were supplied by national or local contacts.

3.1 Data delivery

3.1.1 Data format

In accordance with the Terms of References, the CEL database is made available in the ArcInfo Exchange Format (E00 file), as well as in coverage and shapefile formats.

3.1.2 Data structure

The structure of CEEUBG100KV2 is described in detail in the report entitled "D2.3.3 Eurosion Dataset Structure Description".

Attribute Name	Type	Description
FID	OID	Unique object identifier (ArcGIS attribute).
Shape	Geometry	Polyline (ArcGIS attribute).
CESGLN	Float	Coastal Erosion SeGment LeNgth. Length of the segment in metres. This attribute only has added value if the final database is in a lat./long. coordinate system. If the final database is in a projected coordinate system where the units are metres, this field contains the same information as the required ArcGIS field ShapeLength.
NURGCDV7	String	NUTS ReGion Code Version 7. Identification of NUTS level 3 administrative regions (NUTS version 7) to which the coastal segment belongs.
CESGCD	String	Coastal Erosion SeGment CoDe. This is the identifier for all coastal segments. It is made up of 2 letters representing the country followed by a sequential number.
CEMOV1	String	Coastal Erosion MOrpho-sedimentological code Version 1. Coastal Erosion MOrpho-sedimentological code in the Corine Coastal Erosion (CCEr) database, version 1. This is the Morpho-Sedimentology code according to the nomenclature provided in table CEMO.INF.
CEMOV2	String	Coastal Erosion MOrpho-sedimentological code Version 2. Coastal Erosion MOrpho-sedimentological code in the Coastal Erosion Layer (CEL) database, version 2. This is the Morpho-Sedimentology code according to the nomenclature provided in table CEMO.INF.

CEEVV1	String	Coastal Erosion EVolutionary trend Version 1. Coastal Erosion EVolutionary trend in the Corine Coastal Erosion (CCEr) database, version 1. This is the evolutionary trend code according to the nomenclature provided in table CEEV.INF.
CEEVV2	String	Coastal Erosion EVolutionary trend Version 2. Coastal Erosion EVolutionary trend in the Coastal Erosion Layer (CEL) database, version 2. This is the evolutionary trend code according to the nomenclature provided in table CEEV.INF.
CEGOV2	String	Coastal Erosion GeOlogical code. Coastal Erosion GeOlogical code in the Coastal Erosion Layer (CEL) database, version 2. This is the geological code according to the nomenclature provided in table CEGO.INF. The nomenclature used to complete this includes 36 different items organised into 3 levels of increasing detail reflecting available knowledge. These 3 levels allow more or less detailed knowledge to be represented. Whenever possible, the code for the most detailed category should be attached to each coastal segment.
CEDWV1	String	Coastal Erosion Defence Works Version 1. Coastal Erosion Defences in the Corine Coastal Erosion (CCEr) database, version 1. Indicates the presence of man-made defensive structures. The content of this attribute is documented in table CEDW.INF.
CEDWV2	String	Coastal Erosion Defence Works Version 2. Coastal Erosion Defences in the Coastal Erosion Layer (CEL) database, version 2. Indicates the presence of man-made defensive structures. The content of this attribute is documented in table CEDW.INF.
CEDAV2	String	Coastal Erosion Data Availability. Coastal Erosion Data Availability in the Coastal Erosion Layer (CEL) database, version 2. The Coastal Erosion Data Availability (CEDA) attribute indicates the availability of updated data (same or not) with respect to the CCEr data. The content of this attribute is documented in table CEDW.INF.
CEDC	String	Coastal Erosion Data Change. Coastal Erosion Data Change. Indicates a change in values from the CCEr database (version 1).

Tab. 6: CEL dataset structure

3.2 Data acquisition

The tasks involved in this work package are:

- Identification of national or regional data providers.
- Collection of data from national data providers.
- Collection of information on coastal morpho-sedimentology, presence of coastal erosion, presence of coastal defences, geology.
- Integration of the data into a common GIS database on the official Eurosion coastline provided by IGN - FI.
- Topological cross-checking

For each country, contacts and data providers are identified (see Appendix 1) and the collected data and data processing procedures are described.

The table below summarises the data obtained from national data providers in each country:

Digital 1	Digital data obtained in Eurosion nomenclature
Digital 2	Digital data obtained - not in Eurosion nomenclature
Analogue 1	Analogue data obtained in Eurosion nomenclature
Analogue 2	Analogue data obtained - not in Eurosion nomenclature
No data	No data obtained from national data provider - data purchased or collected elsewhere.
X	data obtained free of charge
XX	data obtained at cost

country	Digital 1	Digital 2	Analogue 1	Analogue 2	No data
BE	X				
BG			XX		
CY			X		
DE		X	X		
DK	X	X			
EE					X
ES	X				
FI	X			X	
FR		X	X	X	
GR	XX			XX	
IE	X				
IT				X	
LT	X				
LV	XX			X	
MT			X	X	
NL		X		X	
PL			X	X	
PT				X	X
RO			XX		
SE		XX		XX	
SI					X
UK	X	XX			

Tab. 7: Data characteristics for each country

The database was created with ArcGIS software, version 8.2. Personal geodatabases per country were created to process the data for each one. After finalisation for each country, all the datasets were integrated into a seamless database, and transformed into a shapefile.

3.3 Rules for generalisation

A segment should be at least 200 m long, but no maximum length is defined. If a segment has a different value for one of its attributes, then it should be split into two different segments, provided that each has the minimum length of 200 m. Some segments in the CCEr database may be smaller than 200 m. In such case, they are kept in CEL to ensure consistency between the two databases and to avoid losing accuracy. For new segments, the 200 m rule is applied.

In case segments need to be generalised to fit the minimum length requirement, the following rules should be observed:

1. Morpho-sedimentology criteria have first priority,
2. Evolutionary trend criteria have second priority,
3. Different geology criteria have third priority,
4. The presence of coastal defences takes last priority.

Fig. 5 gives an example of this kind of situation. Here, within an initial single segment, the characteristics of the three attributes change at different points. The first split will therefore be at the point of change in Morpho-sedimentology (result A), and the second split at the point of change in the Evolutionary trend (result B). Since the new median segment already has the minimum length of 200 m, it cannot be further divided at the point of change in Coastline geology.

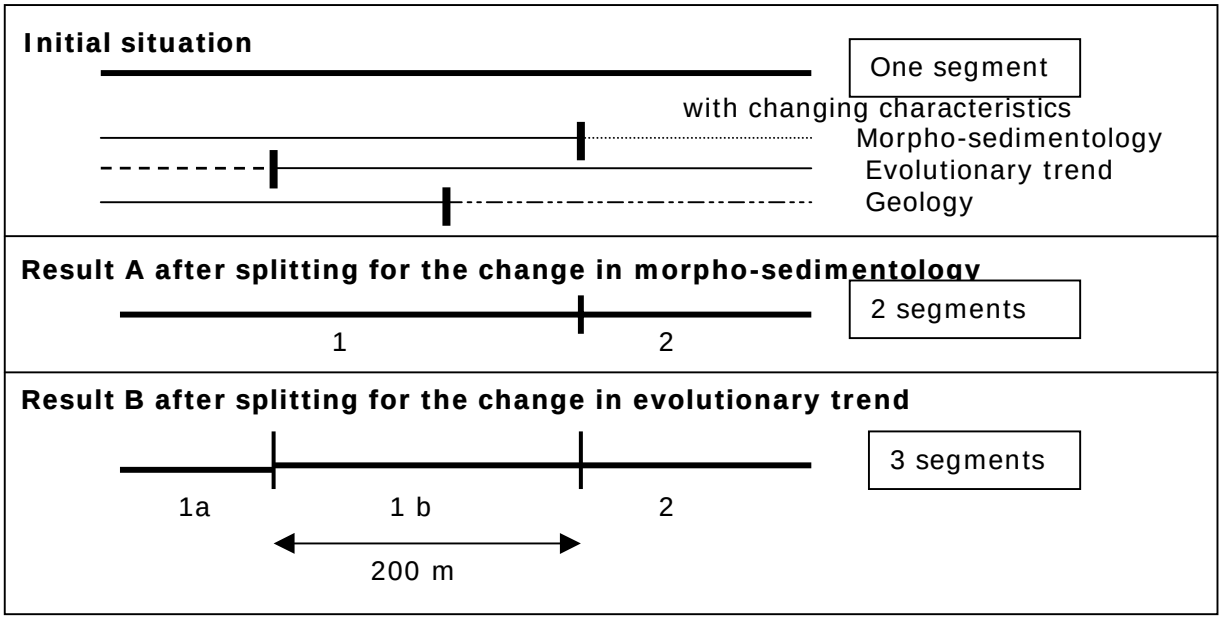

Fig. 5: Rules for splitting segments

In this case, where there are two different features for an attribute within a 200m segment, the longest characteristic represented should be chosen for coding.
If there are two different features for an attribute within a 200m segment, the attribute with the longest segment should be chosen.

3.3.1 Eurosion coastline files

Coastline supplied by local data providers

The Eurosion coastline file was created by IGN France International, from CORINE Coastal Erosion readjusted with SABE geometry and completed with World Vector Shoreline and GISCO shoreline data.

If a national coastline file of better quality were available, the Eurosion coastline could be replaced. However, national coastline files with the Eurosion attributes were only delivered for two countries (IE and LT), but no authorisation was received to replace the Eurosion coastline with these national coastline files. Part of the national coastline was received for three other countries (DK, LV, RO), but no authorisation was given to use them to replace the Eurosion coastline files.
The table below shows whether or not a national coastline file was obtained.

Code	Country	Coastline
BE	Belgium	inventory on Eurosion coastline
BG	Bulgaria	no national coastline received
CY	Cyprus	no national coastline received
DE	Germany	no national coastline received
DK	Denmark	only a small part of the national coastline received, no improvement on Eurosion coastline
EE	Estonia	no national coastline received
ES	Spain	inventory on Eurosion coastline
FI	Finland	no national coastline received
FR	France	no national coastline received but improvements from original 1:25,000-scale maps
GR	Greece	no national coastline received
IE	Ireland	coastline received, but no authorisation to replace Eurosion coastline with national coastline
IT	Italy	no national coastline received
LT	Lithuania	coastline received, but no authorisation to replace Eurosion coastline
LV	Latvia	part of coastline received, but no authorisation to replace Eurosion coastline
MT	Malta	no national coastline received
NL	The Netherlands	no national coastline received
PL	Poland	no national coastline received
PT	Portugal	no national coastline received
RO	Romania	part of coastline received, but no authorisation to replace Eurosion coastline
SE	Sweden	no national coastline received
SI	Slovenia	no national coastline received
UK	United Kingdom	no national coastline received

Tab. 8: Coastline databases supplied by local data providers

Thus, the only improvements from local data providers have been to the French coastline file (French Guiana, Guadeloupe and the island of Oléron).

Topological cross-checking

Using topological tools from ArcGIS 8.3, we checked and corrected polyline topological errors, i.e.:
- dangle nodes (i.e. disjoined segments)
- auto-intersections (i.e. loops and peaks)

Overall, 841 segments have been modified. The table below shows the number of corrected segments for each country.

Code	Country	Number of corrected segments
BE	Belgium	4
BG	Bulgaria	0
CY	Cyprus	0
DE	Germany	37
DK	Denmark	64
EE	Estonia	2
ES	Spain	75
FI	Finland	14
FR	France	25
GR	Greece	147
IE	Ireland	122
IT	Italy	107
LT	Lithuania	0
LV	Latvia	0
MT	Malta	0
NL	The Netherlands	33
PL	Poland	0
PT	Portugal	13
RO	Romania	4
SE	Sweden	0
SI	Slovenia	0
UK	United Kingdom	194

Tab. 9: Results of topological corrections

3.4 Modus operandi

The EUROSION coastline can be updated with ArcGIS tools. The arc coverage can be displayed in ArcMap with related information (e.g. topographical or geological maps, etc.) in the background. This provides the basis for all future updating, for which three main operations are used:

- calculation of default values,
- manual updating of selected segments,
- splitting of selected segments.

3.4.1 Calculating default values

The calculation of default values starts by opening an "Edit" session (Fig. 6). The "calculator" tool then automatically gives a single value to each attribute in all the records of the table (or in a set of selected records).

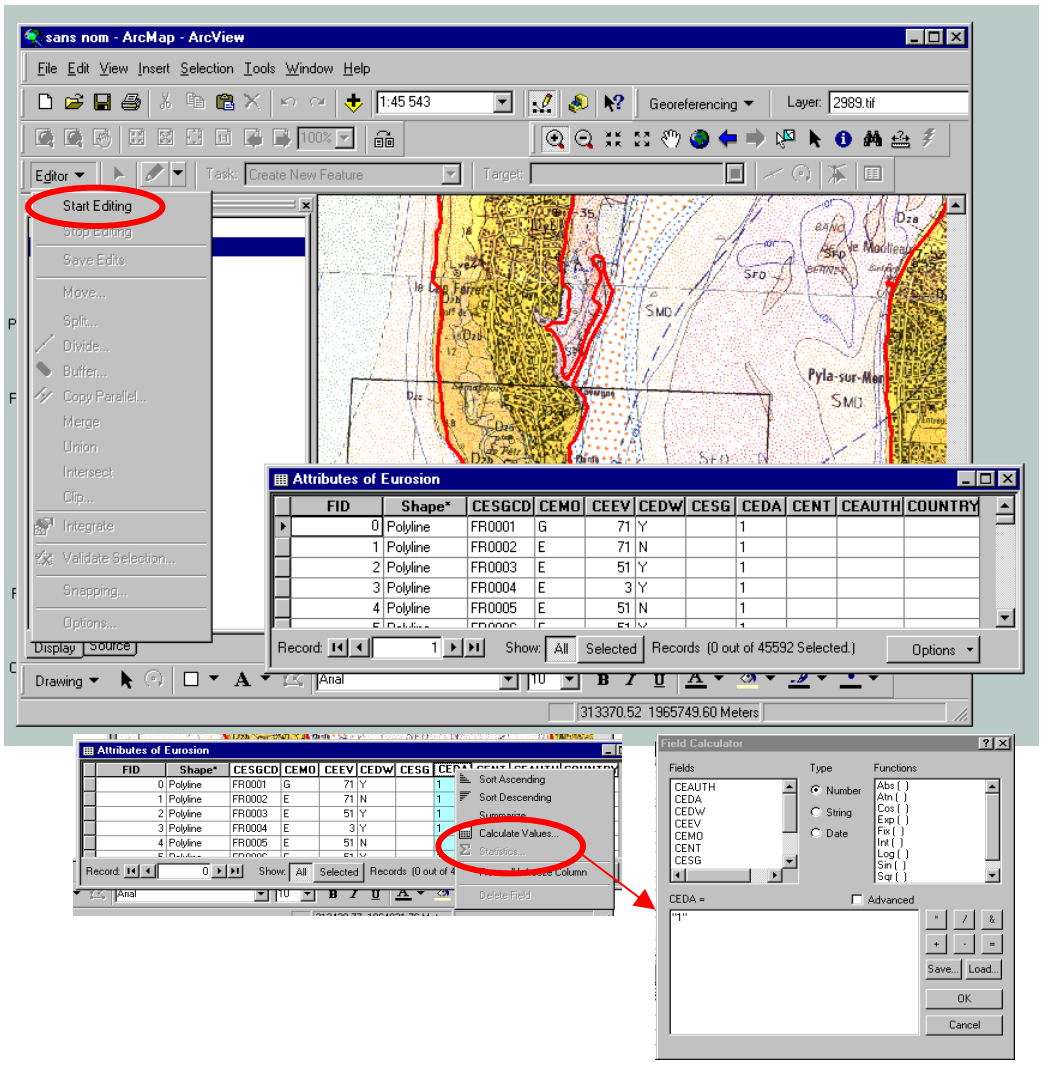

Fig. 6: Screen shots for calculating default values

3.4.2 Manual updating of segment data

Manual updating of segment data begins by opening an "Edit" session (as above). The segment to be updated is then selected with the black arrow tool (Fig. 7), which displays the attribute table in “selection” mode to focus on selected segments.

The new value can be entered manually (keyboard) or calculated from multi-selected objects.

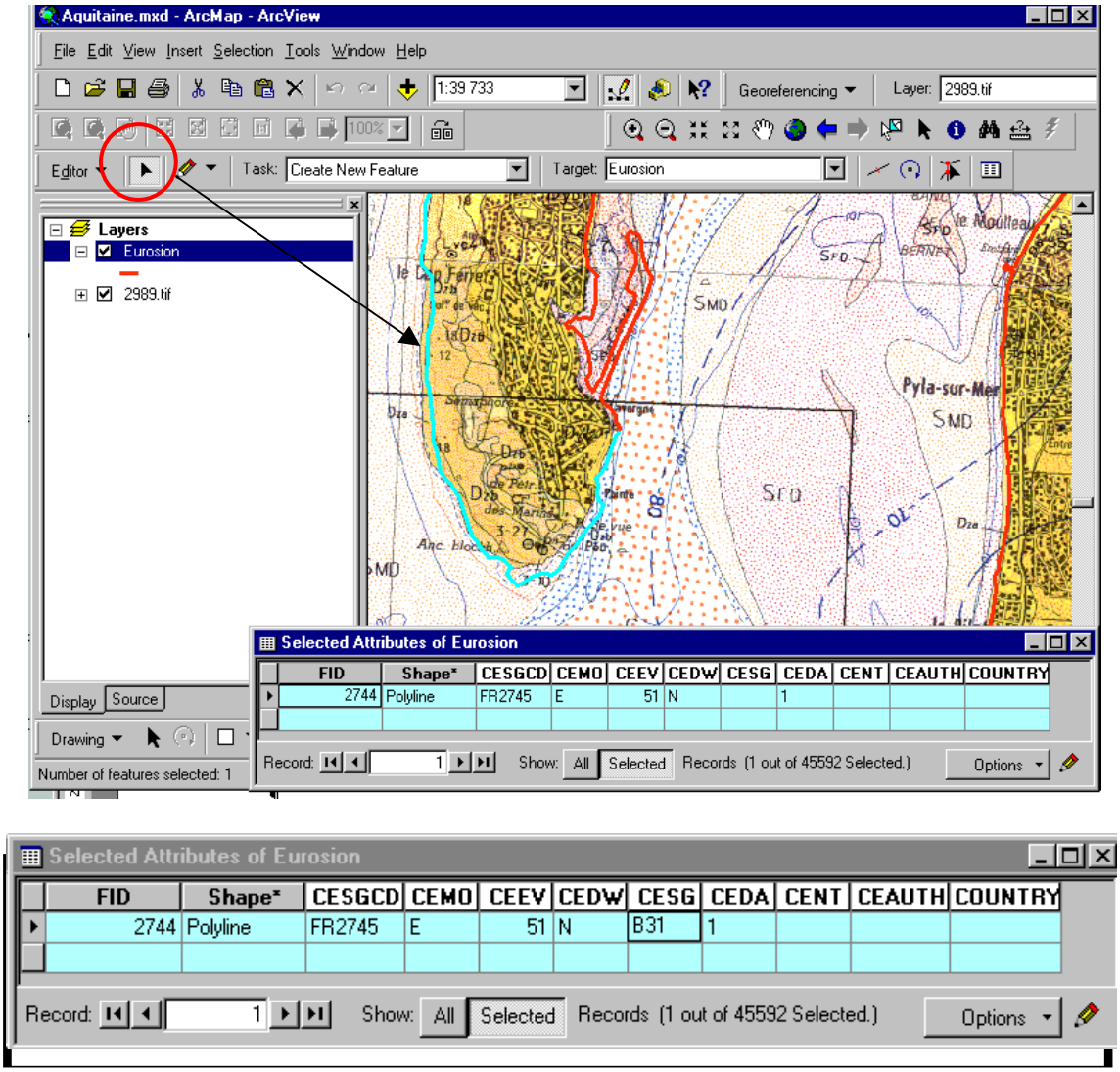

Fig. 7: Screen shots for manual updating of segments

3.4.3 Splitting segments

Segment splitting is done with the splitting tool (Fig. 8), which splits the segment at the selected point and duplicates the attribute row.

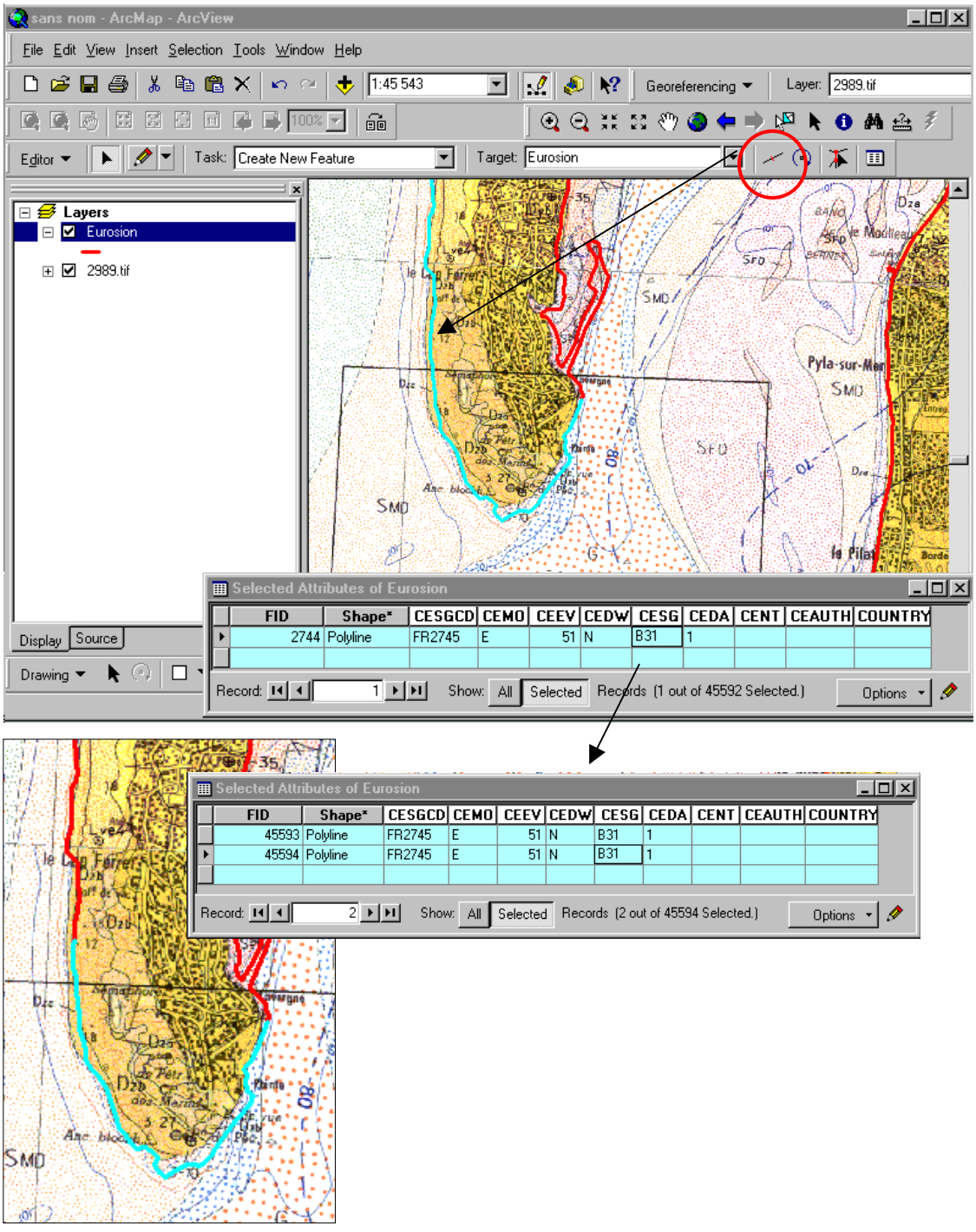

Fig. 8: Screen shots for splitting segments

4. QUALITY CONTROL

In addition to the topological cross-checking (see § 3.3.1), the CEL database includes systematic quality control.

The design of the quality control methodology is based on the production methodology defined in October 2002. A form including each of the controls listed below was systematically filled in for each of the countries (see Appendix 2). All segments with anomalies were identified, checked and corrected wherever possible. This procedure was repeated twice to validate the first modifications. The results of this quality control procedure are shown in Appendix 2.

The third and final step was to perform the same quality control procedure for the seamless CEL database.
It should be mentioned that no quality checks were performed for the initial Corine Coastal erosion database - CCEr (1991).

4.1 Checking the structure of the database

Preliminary checks are made to verify that national coastline data, which are supplied by national contacts in a specific file, comply with database specifications, so that the final data product can be assembled. The consistency of the different files has to be validated to ensure that no information is lost during assembly of the seamless database. It should be noted that in the event of any inconsistency in the structure of the database, ArcGis does not produce an error message but simply deletes the segments in question.

4.1.1 Coordinate system

For each file (country), the projection used and datum are verified. If these differ from ETRS89 (Terms Of Reference), the consistency of the coordinate system used with the geographical location is verified. Coordinate transformation is then performed as the last step, just before assembling the seamless database.

4.1.2 List of attributes

The properties of the attributes (name, type and length) of each file are listed to ensure consistency between different files.

4.1.3 Rules on coverage

The percentage of segments for which values are calculated is checked. Some countries need full coverage, but in some cases, less than 20% coverage is required.

4.2 Compliance with the methodology

The methodology used to design the coastal erosion layer for the EUROSION database (Lenôtre and Thierry, 2002) includes coding of the coastal erosion layer, rules on generalisation and data delivery and a modus operandi. Compliance with these rules was checked during the quality control procedure.

It must be underlined that while erroneous segments are identified automatically through systematic tests, verifications of the context and corrections must be performed "manually", segment by segment.

4.2.1 Length of segments

Two cases occur (cf. § 3.3):

- For the countries covered by the CCEr database, segments should be at least 100 m long (this rule was defined in 1991).
- For the new countries included in the EUROSION database, segments should be at least 200 m long.

For each country in these two groups, we looked for segments less than 200 m in length (100 m in CCEr database) to increase their length if possible by adding adjacent segments. When the length was close to 200 m (or 100 m), no changes were made.

4.2.2 Coding of segments

Preliminary checks were made to verify that all attributes contain information (no voids) and that all codes present correspond to the designated lexicons.

For segments with no information, we kept any existing data from the CCEr database, with CEDAV2 = 1 and CEDC = 1.

Morpho-sedimentology codes (CEMO)

- Estuary (code H): these segments should be no longer than 1000 m.

We looked for estuary segments longer than 1000 m and shortened them if necessary by splitting. When their length was close to 1000 m, no changes were made. Some segments longer than 3000 m were left in the database as such. These were cases where the fluvial context was becoming increasingly predominant.

- Small beaches (code C): these segments should be no longer than 1000 m.

We looked for small beach segments longer than 1000 m, changing the code from C to E (extensive beach) if this was indicated by analyses of adjacent segments (topology and codification).

- Extensive beaches (code E): these segments should be at least 1000 m long.

We looked for extensive beach segments less than 1000 m in length, changing the code to C if this was indicated by analyses of adjacent segments (topology and codification).

- Polders (code M): code M was used in the CCEr database (see § 2.2.2). In EUROSION, we have had to discontinue code M and replace it with code E (extensive beaches), G (strands of muddy sediment), X (soft strands), Z (soft strands) or Y (artificial shoreline). In addition, depending on the context, 32 segments with the M code (Polder) were changed to L (embankments), B (soft-rock cliff), S (soft strands), D (extensive beach), A (cliff) or P (soft strand).

Evolutionary trend code (CEEV)

No specific checks.

Coastal geology codes (CEGO)

The geological codes for 'substratum' (code A00) and 'non cohesive formations' (code B00) have to be used exceptionally when there is no other possibility. Checks were made to ensure that these values were not too frequent. If they were, the relevant formations were identified more accurately.

Coastal defence codes (CEDW)

No specific checks.

Value change code (CEDC)

No specific checks.

Data availability codes (CEDA)

No specific checks.

4.3 Consistency between codes

The meanings of the attributes used to characterise coastlines are inter-connected but not all associations are possible. The purpose of these checks is to detect any inconsistent combination of morpho-sedimentology codes, coastline geology codes, evolutionary trend codes and coastal defence codes. Links between value-change codes and data-availability codes will also be checked, as well as combinations of these two codes with all the others.

All the associations between a) morpho-sedimentology and evolutionary trends and b) morpho-sedimentology and coastal geology were systematically considered and characterised as "possible" or " unlikely" in order to design a simplified search procedure to locate unlikely associations (see Appendix 3 - Tables 1 and 2). However, after refining our analysis, it appeared that some situations initially characterised as "unlikely" could correspond to specific contexts and need no modification.

4.3.1 Morpho-sedimentology and evolutionary trend codes

The morpho-sedimentological characteristics of a coast can be used to define the most likely scenarii concerning its evolutionary trend. For example, aggradation is more likely to occur on a muddy coast than on a rocky coast.
All segments characterised by an " unlikely" association were highlighted and analysed with greater precision to enable us to decide whether to change their coding or not.

- For each value for CEMOV2 codes (except H, J, L and Y) a value CEEVV2 = "1" (i.e. No information) is accepted for all "new" coastlines. A specific procedure is applied to countries covered by the CCEr database, as initial information may be used.

- Artificial coasts: artificial shoreline (code Y), coastal embankments (code L) and harbours (code J): by convention, all these codes are associated with CEEVV2 = 0 (not in nomenclature). This means that changes in artificial coasts (e.g. dyke collapse, aggradation within a harbour area) are not taken into account in this database.

- Estuary (code H): this code is attributed to a virtual line, for which there is no evolutionary trend. By convention, CEMOV2 = H is associated with CEEVV2 = 0.

We looked for segments where CEMOV2 = Y, L, J or H and CEEVV2 $\neq$ 0, systematically changing CEEVV2 $\neq$ 0 to CEEVV2 = 0

- On the other hand, CEEVV2 = 0 cannot occur if CEMOV2 is different from Y or L or J or H.

- Hard rock coasts (code A): by definition, these coasts are not subject to significant erosion. This code should therefore be found mainly with CEEVV2 = 1 (no information) or 2 (stable).

We looked for segments that did not conform to this rule (CEMOV2 = A and CEEVV2 = 1 or 2). Depending on the context, either the morpho-sedimentology code or the evolutionary trend code was changed. Nevertheless, 161 were found that did not conform to this rule. Different cases were identified, where CEMOV2 = A was associated with:
- CEEVV2 = 70, 71 or 6 (aggradation): this is a possible combination, since it indicates a soft strand (less than 100 m wide) aggradating in front of a rocky coast.

- CEEVV2 = 3 (generally stable: small "isolated" variations around a stable position)
- CEEVV2 = 4 (erosion probable, but not documented): a possible combination, since the trend of erosion is uncertain.
- CEEVV2 = 50 (erosion confirmed): this combination should not be possible, but 17 segments in the United Kingdom could not be corrected because of the lack of accurate information.

- Soft rock coasts (code B): by definition, these are subject to erosion. This code therefore has to be associated with CEEVV2 = 1 (no information), 50, 51, 4, 2 or 3.

Nevertheless 155 segments were found not to conform to this rule. In these cases, code CEMOV2 = B was associated with CEEVV2 = 70, 71 or 6 (aggradation). As in the case above, this may indicate a soft strand (less than 100 m) aggradating in front of a rocky coast.

- Mainly rocky, not subject to erosion, with pocket beaches (code AC): For such coasts, any evolutionary trend is possible except those coded 0 (not in nomenclature) and 71 (aggradation confirmed along almost the entire segment). On such coasts, aggradation should in fact be limited to only part of the segment (CEEVV2 = 70), but we found no cases where CEMOV2 = AC and CEEVV2 = 71.

Beaches: small beaches (code C), extensive beaches (code D), extensive beaches (code E), barriers – spits – tombolos (code F), soft strands with rocky "platforms" (code P), soft strands with "beach rock" (code R), vegetated strands (code N), mine-waste sediments (code S), artificial beaches (code K), mixed grain-size (code X), unknown grain-size (code Z) and muddy coasts (code G): for all these types of coast, any evolutionary trend is possible except those coded 0 (not in nomenclature).

4.3.2 Morpho-sedimentology and coastal defence codes

- Estuary (code H): by convention and by analogy with the CCEr database, this code is attributed to virtual lines with no coastal defence measures.

We looked for segments that conformed to CEMOV2 = H, systematically changing CEDWV2 = Y to CEDWV2 = N.

- Artificial coasts: artificial shoreline (code Y), coastal embankments (code L) and harbours (code J): The presence of coastal defences is included in the definition of this type of coast. By convention and by analogy with the CCEr database, we have therefore associated CEDWV2 = N with these codes.

We looked for segments that conformed to CEMOV2 = Y, L or J and CEDWV2 = Y, systematically changing CEDWV2 = Y to CEDWV2 = N.

4.3.3 Geology and morpho-sedimentology codes

Coastal geology and morpho-sedimentology are closely linked and associations between these two attributes are more or less likely. For example, "eolian sand and dunes" (code B31) are unlikely to be found in association with a rocky coast (code A).

All segments characterised by "unlikely" associations were highlighted and analysed more accurately to enable us to decide whether to change the segment coding or not.

In cases when the coastal geological formation extends seawards for less than 100 m, the land geology is used. Thus, in some cases, we might find an extensive beach (<100 m wide) associated with a geological substrate code.

- Not in nomenclature (code D00): only CEMOV2 = H (virtual line) is possible.

We looked for segments that conformed to (CEMOV2 = H and CEGOV2 ≠ D00) and (CEMOV2 ≠ H and CEGOV2 = D00), changing either CEMOV2 or CEGOV2.

- Non cohesive formations (code B**): geological formations of this type are unlikely to be associated with a hard rock coast (code A) or (code AC)

We looked for segments that conformed to (CEMOV2 = A or AC and CEGOV2 = B**), changing them in accordance with available map data.

- Peat bog (code B33): this type of geological formation is unlikely to be associated with morpho-sedimentology codes A, AC, C, D, E, F, P, R, X, Y and H.

- Man-made areas (code B37): these are unlikely to be associated with morpho-sedimentology codes A, AC, C, D, E, F, P, R, N, X, Z, G and H.

We looked for corresponding segments and changed the geological or morpho-sedimentology code if possible, in accordance with available map data.

- Substrate formations (code A**): during the quality control procedure, we looked for the following unlikely or impossible combinations:
  CEGOV2 = A00 and CEMOV2 = F: unlikely but not impossible.
  CEGOV2 = A00 and CEMOV2 = H: impossible.
  CEGOV2 = A10, A11, A12, A13, A31, A33 or A34 and CEMOV2 = B or F: unlikely but not impossible.
  CEGOV2 = A10, A11, A12, A13, A31, A33 or A34 and CEMOV2 = H: impossible.
  CEGOV2 = A20, A21, A22, A23, A30, A32, A40, A41, A42, A43 or A46 and CEMOV2 = F: unlikely but not impossible.
  CEGOV2 = A20, A21, A22, A23, A30, A32, A40, A41, A42, A43 or A46 and CEMOV2 = H: impossible.
  CEGOV2 = A44 or A45 and CEMOV2 = A, F: unlikely but not impossible.
  CEGOV2 = A44 or A45 and CEMOV2 = H: impossible.

We looked for corresponding segments and changed the geological or morpho-sedimentology code if possible, in accordance with available map data.

4.3.4 Change in value, data availability and other attributes

Change in value (CEDC) and other attributes

CEDC = 1 is attributed when there has been no change between CCEr and CEL values (CEMO, CEDW, CEEV).
We looked for segments that conformed to CEMOV2 ≠ CEMOV1 or CEDWV2 ≠ CEDWV1 or CEEVV2 ≠ CEEVV1 and CEDC = 1, systematically changing CEDC = 1 to CEDC = 2 or 3.

CEDC = 2 is attributed when at least one value (CEMO, CEDW, CEEV) has been changed between CCEr and CEL.
We looked for segments that satisfied the condition CEMOV2 = CEMOV1 and CEDWV2 = CEDWV1 and CEEVV2 = CEEVV1 and CEDC = 2 or 3, systematically changing CEDC = 2 or 3 to CEDC = 1.

Change in value (CEDC) and data availability (CEDA)

CEDAV2 = 0 is attributed when no data are available.

CEDAV2 = 1 is attributed when no new data are available. Data are from CCEr.

CEDAV2 = 2 is attributed when some new data are available.

Combinations between CEDC and CEDAV2 are:

If CEDC=2 then, CEDAV2 <> 0 or 1
If CEDC=2 then, CEDA=2
We looked for segments that did not satisfy these conditions and corrected them.

4.3.5 Checking geology codes

A random check is performed whenever a first version is received from a local data provider. This aims to assess the overall quality of the geological information supplied and is based on the geological maps available in the BRGM office.

However, geological maps are not available for all countries. As an example, synthesised maps suitable for our analysis do not appear to be produced in the UK. A degree of heterogeneity in database quality therefore has to be assumed, which will also depend on the experience of the local data provider.

4.3.6 Case studies

As part of the quality control procedure, we compared our results with the 60 EUROSION case studies. For each site, we checked for consistency between the information in the database (CEL) and the information presented in the case study document.

This led to some changes to segments in 12 case studies from the following countries (in Romania, the Mamaia area was not covered in our initial study but the corresponding information has been included):

- Estonia: six segments were modified in accordance with the Tallinn case study.

The CEMO code for one segment was changed from 'extensive beaches' to 'artificial shoreline' because of the presence of a seawall along the coastline without strand; we also changed the CEEV code from 'no information' to 'not in nomenclature'.
The CEEV code for four other segments was also changed from 'no information' to 'confirmed erosion', and the CEDW code for one segment was changed from 'No' to 'Yes' because of the presence of a coastal defence system.

- Germany: 18 segments were modified in accordance with the Rostock case study.

The CEDW code for one segment was changed from 'No' to 'Yes' and the CEEV code for 18 segments was changed as follows: 13 were changed from 'erosion probable, but not documented' to 'erosion confirmed', two from 'aggradation probable but not documented' to 'aggradation confirmed', two from 'aggradation probable, but not documented' to 'erosion confirmed', one from 'stable' to 'erosion'.

- Greece: one segment was modified in accordance with the Lakkopetra case study.

The CEDW code for one segment was changed from 'No' to 'Yes' because of the presence of a breakwater.

- Italy: 18 segments were modified in accordance with the case studies on Sarzana, Marina di Massa and Giardini-Naxos.

Sarzana: the CEDW code for one segment was changed from 'No' to 'Yes' and the CEEV code for one other segment was changed from 'stable' to 'aggradation confirmed'.

Marina di Massa: the CEEV code for 15 segments was changed: seven from 'erosion confirmed' to 'stable', four from 'aggradation confirmed' to 'stable', one from 'stable' to 'erosion confirmed', two from 'stable' to 'aggradation confirmed', one from 'aggradation confirmed' to 'erosion confirmed'.

Giardini-Naxos: the CEDW and CEEV codes for one segment were changed: CEDW from 'No' to 'Yes' and CEEV from 'stable' to 'erosion confirmed'.

- Poland: one segment was modified in accordance with the case study on the West Polish Coast.

The CEDW code for one segment was changed from 'No' to 'Yes' because of the presence of a coastal defence system.

- Portugal: 46 segments were modified in accordance with the case studies on Cova do vapor, Vagueira and the Azores.

Cova do vapor: the CEDW code for five segments was changed from 'No' to 'Yes' because of the presence of coastal defence installations. The CEEV code for three segments was changed from 'erosion probable, but not documented' to 'erosion confirmed', and from 'stable' to 'erosion confirmed' for one segment

Vagueira: the CEEV code was changed for 17 segments: from 'erosion probable, but not documented' to 'stable' in seven cases, and from 'erosion probable, but not documented' to

'erosion confirmed' in 10 cases. The CEDW code for one other segment was changed from 'No' to 'Yes'.

Azores: the CEEV code for 24 segments was changed from 'no information' to 'stable'.

- Romania: eight segments were modified in accordance with the Danube and Mamaia case studies.

Danube: the CEEV code was changed for six segments: three were changed from 'no information' to 'erosion confirmed', one from 'no information' to 'stable' and three from 'stable' to aggradation confirmed'.

Mamaia: This area was not covered by our study, but the new information from the case study has been included. Two segments have been coded as follows: 'extensive beaches' for CEMO, CEDW coded 'Yes', CEGO coded 'marine deposits' and CEEV coded 'aggradation confirmed' in one case and 'erosion confirmed' in the other.

- United Kingdom: 10 segments were modified in accordance with the Humber case study.

The CEEV code was changed for 10 segments: from 'no information' to 'erosion confirmed' in four cases, from 'erosion probable, but not documented' to 'erosion confirmed' in one case, from 'stable' to 'erosion confirmed' in one case, from 'aggradation probable, but not documented' to 'aggradation confirmed' in two cases, from 'aggradation confirmed' to 'erosion confirmed' in two cases. The CEDW code for three of these segments was changed from 'No' to 'Yes'.

These checks have contributed locally to CEL accuracy and also help to test the overall quality and consistency of the database.
Discrepancies between CEL v2 and the case studies are mainly due to the difference in scales (presence of isolated coastal defences) and improved knowledge (change from "not documented" to "confirmed"). With a scale of 1:100,000, CEL v2 provides a good overall view of the European coastline, whereas the case studies can be used to zoom in on sensitive areas.

4.4 Quality control limitations

This work package overall is based on data provided by national and local contacts. Most of the time these data where provided free of charge. Even when anomalies were identified, it was very difficult to obtain more accurate information from these contacts. The lack of data explains why some anomalies identified could not be corrected. For example, some segments described as hard rock coast (code A) or mainly rocky with pocket beaches (code AC) may still be associated with a non cohesive formation (B**), but we have no information allowing us to change the CEMOV2 and CEGOV2 codes.

The problems that still need correcting are listed below.

4.4.1 Morpho-sedimentology codes (CEMOV2)

- H (virtual line) must be smaller than 1 km. The database still contains 58 segments with a width greater than 1 km. As we previously indicated, these segments correspond to contexts where fluvial characteristics predominate.

- Attributes not given: one segment (in Ireland) with no CEMOV2 or CEDWV2 information. This segment was identified by topological cross-checking but no further information was available.

- Combination of CEMOV1 = M and CEMOV2 <> E, G, X, Z, Y. This combination is not impossible but needs to be checked. The database still contains 32 segments where this combination occurs.

4.4.2 Coastal defence codes (CEDW)

- Attributes empty: 15 segments found (14 in Finland and one in Ireland).

4.4.3 Coastal geology codes (CEGO)

- Attributes empty: one segment (in Finland).

4.4.4 Change in value codes

- 15 segments remain in the UK for which CEDC = 2 (new or updated information) but with no other change between CCEr and CEL.

4.4.5 Morpho-sedimentology and evolutionary trend codes

- CEMOV2 = A and CEEVV2 ≠ 1 or 2: 161 segments remain. Most of these correspond to an aggradation in front of a rocky coast.

- CEMOV2 = B and CEEVV2 = 0, 6, 70 or 71: 155 segments remain. Most of these correspond to an aggradation in front of a rocky coast.

4.4.6 Coastal geology and morpho-sedimentology codes

- CEGOV2 = A10, A11, A12, A13, A31, A33 or A34 and CEMOV2 = B or F: 672 segments remain. This combination is not impossible but needs to be checked.

- CEGOV2 = A20, A21, A22, A23, A30, A32, A40, A41, A42, A43 or A46 and CEMOV2 = F: 181 segments remain. This combination is not impossible but needs to be checked.

- CEGOV2 = B00, B10, B11, B20, B21, B30, B31, B32, B34, B35 or B36 and CEMOV2 = A, AC: this combination is highly unlikely. It was corrected when information was available (geological maps), but 15 of these segments still remain.

- CEGOV2 = B33 and CEMOV2 = A, AC, C, D, E, F, P, R, X, Y: After cross-checking with German geological maps, 42 segments remain.

- CEGOV2 = B37 and CEMOV2 = A, AC, C, D, E, F, P, R, N, X, Z, G: after checking, 1 segment remains in France.

The conclusion drawn from these results is that 1,348 segments can be considered as doubtful, out of an overall total of 34,256 segments in the CEL database, i. e. 3.9%.

5. CONCLUSIONS

The Coastal Erosion Layer (CEL) updates the 1990 CORINE Coastal Erosion (CCEr) database, extending it to East Germany, to new EU-15 members (Finland, Sweden) and to applicant countries with coastlines, except Turkey (i.e. Bulgaria, Cyprus, Estonia, Latvia, Lithuania, Malta, Poland, Romania and Slovenia).

In the CCEr database, three criteria were used: i) morpho-sedimentology (rocky coasts, beaches, muddy coasts, etc.) ii) evolutionary trends (erosion, aggradation, stability) and iii) presence or not of coastal defence measures.

The CEL contains two new criteria:
- Coastline geology, to provide information on the potential scale of possible erosion
- Data status: no data available, data from the CCEr database, updated or new information.

This CEL database is made available in the ArcInfo Exchange format (E00 file). It contains 34,256 segments which represent 100,926 km.

The overall quality of the database can be assessed through comparisons with former CCEr results and descriptions of Eurosion case studies.

A comparison of CEL and CCEr results in terms of the length of coasts shows that:

- 12% of the former CCEr version has been “cut and pasted” with no added value from EUROSION
- 51% of the former CCEr data have been confirmed (increase in knowledge)
- concerning changes in attribute values:
  - 12% of morpho-sedimentology codes have been changed (errors corrected or real changes observed).
  - 29% of evolutionary trend codes have been changed. Of these, one fifth (6.5% of the total length) corresponds to a change from the “no information” evolution trend code in the CCEr to a code value in the CEL (increase in knowledge)
  - 7% of coastal defence codes have been changed (“Y” to “N” or vice versa)

The conclusion drawn from the systematic quality control is that 1,348 segments can be considered as doubtful, out of an overall total of 34,256 segments in the CEL database. They represent only 3.9% of the database. These segments could not be corrected because of lack of information and constitute a priority goal for future updating. The quality assessment based on comparisons between the CEL and EUROSION case study descriptions showed that 12 local situations needed improvement (out of a total of 60 case studies). In two of these 12 cases, only one segment was concerned.

The following comments should be borne in mind when using this database:
- it has been designed to provide a general overview on a European scale;
- the scale used (i.e. 1:100,000) does not provide sufficient accuracy for the database to be used on the scale of an individual property or even a large installation.

APPENDIX 1

LIST OF DATA PROVIDERS

In this appendix:

CEMO refers to information on morpho-sedimentology
CEEV refers to information on evolutionary trends
CEGO refers to geological information
CEDW refers to information on coastal defences

BE - BELGIUM

	Request	Response
Ministerie van de Vlaamse Gemeenschap - Administratie Waterwegen en Zeewezen Peter De Wolf Vrijhavenstraat 3 - 8400 Oostende tel: +32 59 55 42 11 fax: +32 59 50 70 37 peter.dewolf@lin.vlaanderen.be	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Data received on CEMO, CEEV, CEDW, CEGO*

BG – BULGARIA

	Request	Response
Institute of Oceanology Prof. Veselin Peychev P.O. Box 152 - 9000 Varna Tel: + 359 52 370491 Fax: + 359 52 370491 margeo@io-bas.bg	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Data received on CEMO, CEEV, CEDW, CEGO*

CY – CYPRUS

	Request	Response
Ministry of Communications and Works Coastal Unit Public Works Department Nicos Iacovou szervos@pdw.mcw.gov.cy	*Data/information on CEMO, CEEV, CEDW, CEGO*	*No reply*
AKTO Project and Research Center Nicosia Mrs. Xenia Loizidou Tel: + 357 22 452727 Fax: + 357 22 458486 xenia@logos.cy.net	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Data received on CEMO, CEEV, CEDW, CEGO*

DE - GERMANY

Mecklenburg-Vormpommern	***Request***	***Response***
Staatliches Amt für Umwelt und Natur Rostock Knutt Sommermeier Erich-Schlesiner str. 35 - 18059 Rostock tel: +49 3 81 122 2501 Knut.sommermeier@staunhro.mv-regierung.de	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Data received on CEMO, CEEV, CEDW*
Landesamt für Umwelt, Naturschutz und Geologie Schütze , Karsten Goldberger Str. 12, D-18273 GÜSTROW tel: 49 3843 777 703, karsten.schuetze@lung.mv-regierung.de	*Data on CEGO*	*Data received on CEGO*
Schleswig Holstein		
Ministerium für ländliche Räume, Landesplanung, Landwirtschaft und Tourismus des Landes Schleswig-Holstein Hofstede, Jacobus Postfach 7129 - D-24171 KIEL tel: 49 431 988 49 84 jacobus.hofstede@mlr.landsh.de	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Data received on CEMO, CEEV, CEDW*
Nationalparkamt Jörn Kohlus joern.kohlus@nationalparkamt.de	*Data/information on CEEV*	*reply: no information on evolutionary trends available.*
Landesamt für Natur und Umwelt Dr. Sven Christensen	*Data on CEGO*	*no reply*
Niedersachsen		
Niedersächsischer Landesbetrieb für Wasserwirtschaft und Küstenschutz – Direktion Thorenz, Frank Am Sportplatz 23 - D-26506 NORDEN tel: 49 4931/ 947- 152 Frank.thorenz@nlwk-nor.niedersachsen.de	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Data received on CEEV, CEDW*

DK - DENMARK

	Request	Response
Kystdirektoratet John Jensen Højbovej 1 - DK-7620 LEMVIG tel: +45 99 63 63 Fax: +45 99 63 63 99 jj@kyst.dk	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Data received on CEMO, CEEV, CEDW, CEGO for Western part of Denmark(North Sea Coast)*
Kystdirektoratet Højbovej 1 - DK-7620 LEMVIG Jens Otto Andersen joa@kyst.dk	*Data/information on CEMO, CEEV, CEDW, CEGO*	*no data available for Eastern part of Denmark (Baltic coast)*
Nature and Forest Agency sns@sns.dk Janne Christensen jac@sns.dk	*Data/information on CEMO, CEEV, CEDW, CEGO for Baltic coast of Denmark*	*Request forwarded to Geological Survey*
Geological Survey of Denmark Merete Binderup Oster Voldgade 10 - DK-1350 Copenhagen mb@geus.dk	*Data/information on CEMO, CEEV, CEDW, CEGO for Baltic coast of Denmark*	*Data received on CEMO* *no data available on CEEV, CEDW*
Geological Survey of Denmark Björn Hermansen Oster Voldgade 10 - DK-1350 Copenhagen Tel: +45 38 14 20 00 Fax: +45 38 14 20 50 bjh@geus.dk	*digital geological map ordered*	*digital geological map purchased*
dhi@dhi.dk	*Data/information on CEMO, CEEV, CEDW of Thyboron region*	*references received on 2 scientific publications*

EE – ESTONIA

	Request	Response
Geological Survey of Estonia Dept. of Geological Mapping, Marine Geology and Geophysics Kadaka tee 82 - 12618 Tallinn Mr. Juri Kask j.kask@egk.ee	*Data/information on CEMO, CEEV, CEDW, CEGO*	*only 150 km of 3700 km coast is monitored at present. Request forwarded to Mr. Jaan Kivisilla, research director*
Geological Survey of Estonia Dept. of Geological Mapping, Marine Geology and Geophysics Mr. Jaan Kivisilla Kadaka tee 82 - 12618 Tallinn Tel: (372) 6 72 00 72 Fax: (372) 6 72 00 91 j.kivisilla@egk.ee	*Data/information on CEMO, CEEV, CEDW, CEGO*	*No information available within limited Eurosion timescale and budget.*
Geological Survey of Estonia Information Service Kadaka tee 82 - 12618 Tallinn tel: + 372 672 0072, fax: + 372 672 0072 Saima Peetermann peetermann@egk.ee	*Geological maps*	*Purchase of geological maps on bedrock and quaternary geology.*
harry.liiv@ekm.envir.ee	*Data/information on CEMO, CEEV, CEDW, CEGO*	*no reply*
Estonian Land Board Lagle Randma	*Topographic maps*	*Link to public map service on the web supplying recent topographical information.*

ES – SPAIN

	Request	Response
IGME Antonio Barnolas Ríos Rosas 23 - ES-28003 MADRID tel: + 34 91 34 95 907 a.barnolas@igme.es	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Data received on CEMO, CEEV, CEDW, CEGO*

FI – FINLAND

	Request	Response
Geological Survey of Finland Jyrki Rantataro Betonimiehenkuja 4 P.O.Box 96 - FIN 02151 Espoo Tel: +358-20 550 2493 Fax: +358 20 550 12 Jyrki.Rantataro@gsf.fi	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Request forwarded to Finnish Environment Institute - Mr. Jan Ekebom*
Finnish Environment Institute Mr. Jan Ekebom Jan.Ekebom@ymparisto.fi	*Data/information on CEMO, CEEV, CEDW, CEGO*	*No information on coastal erosion available.*
National Land Survey of Finland Reino Ruotsalainen Opastinsilta 12 C - P.O.Box 84, 00521 Helsinki Tel: +358 20541 5440 Fax: +358 20541 5454 reino.ruotsalainen@nls.fi	*Data/information on CEMO, CEEV, CEDW, CEGO*	*No information on coastal erosion available.* *Request forwarded to Turku University or Helsinki University*
University of Helsinki Department of Geography Dr. Matti Seppälä MSEPPALA@penger.helsinki.fi	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Request forwarded to Mrs. Pirjo Hellemaa.*
University of Helsinki Department of Geography Pirjo Hellemaa P.O.Box 33 (Yliopitonkatu 4) - FIN 000014 Tel: 40 594 3958 (50763) Fax: 40 594 3958 (50763) phellema@mappi.helsinki.fi	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Data received on CEEV plus general information on Finnish coast*
Geological Survey of Finland Olli Rantala Olli.Rantala@gsf.fi	*Geological data*	*Purchase of digital geological map to scale of 1:1.000.000*
National Land Survey of Finland Opastinsilta 12 C - P.O.Box 84, 00521 Helsinki Tel: +358 (0)205 41 5482 Fax: +358 20541 5454 Kari Leppäaho kari.leppaaho@nls.fi	*Topographical data*	*Purchase of licence to use on-line map service*

FR - FRANCE

France	Request	Response
Bureau de Recherches Géologiques et Minières (BRGM) Connaissance et Diffusion de l'information Géologique Cartothèque 3, avenue Claude Guillemin – BP 6009 45060 Orléans cedex 2 Contact: Patrice LANNEZ tel: 02 38 64 38 94 fax: 02 38 64 39 50 p.lannez@brgm.fr	*Data/information on CEGO*	*Data received on CEGO* *Format: paper and scanned maps at scales of 1:50.000 and 1:100.000*
Nord – Pas de Calais		
ENR – Environnement Littoral et Marin Quai Giard "Le Riverside" 62930 Wimereux Contacts: Claire HERISSON, Olivier TRICOIRE, William LEROY tel: 03 21 87 69 00 fax: 03 21 87 69 19 c.herisson@enr-lille.com o.tricoire@enr-lille.com w.leroy@enr-lille.com	*Data/information on CEMO, CEEV, CEDW*	*Data received on CEMO, CEEV, CEDW* *Format: shape files*
Picardie		
Géographie physique et environnement Université de Caen Basse-Normandie Esplanade de la Paix – BP 5186 14032 Caen cedex Contact: Stéphane COSTA tel: 02 31 56 55 91 Stephane.costa4@libertysurf.fr	*Data/information on CEMO, CEEV, CEDW*	*Data received on CEMO, CEEV, CEDW* *Format: jpg files*
Direction Départementale de l'Equipement de la Somme Service Maritime et Navigation 2, rive droite de la Somme – BP 840 80108 Abbeville cedex Contact: Guy LECOMTE tel: 03 22 25 31 90 (direct line) tel: 03 22 25 31 72 (standard) fax: 03 22 24 66 70 smn.betm.dde-80@equipement.gouv.fr	*Data/information on CEMO, CEEV, CEDW*	*Data received for Authie bay on CEMO, CEEV, CEDW* *Format: paper report*
Haute-Normandie		
Géographie physique et environnement Université de Caen Basse-Normandie Esplanade de la Paix – BP 5186 14032 Caen cedex Contact: Stéphane COSTA tel: 02 31 56 55 91 Stephane.costa4@libertysurf.fr	*Data/information on CEMO, CEEV, CEDW*	*Data received on CEMO, CEEV, CEDW* *Format: jpg files*
Basse-Normandie		
Conseil Général du Calvados Service Port et Littoral Rue Saint-Laurent 14000 Caen Contact: Olivier BRIAND tel: 02 31 57 15 52 (secretary) o.briand@cg14.fr	*Data/information on CEMO, CEEV, CEDW*	*Data received on CEMO, CEEV, CEDW for Calvados department* *Format: eps files and paper maps*
Conseil Général de la Manche Service Maritime Maison du Département	*Data/information on CEMO, CEEV*	*Data on CEMO, CEEV on internet* *www.lamanche.net*

Rond-point de la Liberté 50008 Saint-Lô cedex Contact: M. MEIGNANT tel: 02 33 05 96 48		*fpr Manche department* *Format: htm files*
Direction Départementale de l'Equipement de la Manche Service Maritime & Aéroportuaire Allée du Président Léon Menut – BP 69 50651 Cherbourg-Octeville Contact: Patrick GRESSIEN tel: 02 33 23 33 15 (direct line) fax: 02 33 23 33 35 patrick.gressien@equipement.gouv.fr	*Data/information on CEDW*	*Data received on CEDW for Manche department* *Format: MapInfo files*
Bretagne		
Ecole pratique des hautes études Laboratoire de géomorphologie et environnement littoral 15, boulevard de la mer 35800 Dinard Contact: Chantal BONNOT-COURTOIS tel: 02 99 46 10 72 fax: 02 99 88 18 69	*Data/information on CEMO, CEEV, CEDW on Ille-et-Vilaine and part of Côtes d'Armor departments*	*Data received on CEMO, CEEV, CEDW for Ille-et-Vilaine department* *Format: paper maps*
Direction Départementale de l'Equipement de l'Ille-et-Vilaine 20, rue Ampère – BP 90314 35803 Dinard cedex Contacts: Daniel MENGUY, Jérôme BASTIN tel: 02 99 16 35 50 fax: 02 99 46 80 64 jerome.bastin@equipement.gouv.fr	*Data/information on CEDW on Ille-et-Vilaine department*	*Data received on CEDW for Ille-et-Vilaine department* *Format: paper map*
Direction Départementale de l'Equipement des Côtes d'Armor SPPC "Etudes Générales" 3, place du Générale De Gaulle 22000 Saint-Brieuc cedex Contact: Patrice CADOU tel: 02 96 62 70 77 (direct line) fax: 02 96 62 69 87 Patrice.Cadou@equipement.gouv.fr	*Data/information on CEMO, CEEV, CEDW on Côtes d'Armor department*	*Data received on CEMO, CEEV, CEDW for Côtes d'Armor department* *Format: Adobe Illustrator files*
LETG – Geomer – UMR 6554 CNRS Institut Universitaire Européen de la Mer Technopôle Brest-Iroise Place Nicolas Copernic 29280 Plouzané Contact: Alain HENAFF tel: 02 98 49 86 11 fax: 02 98 49 87 03 alain.henaff@univ-brest.fr	*Data/information on CEMO, CEEV, CEDW*	*Data received on CEMO, CEEV, CEDW* *Format: Shape files*
Direction Départementale de l'Equipement du Finistère Service Maritime Fluvial et Aéroportuaire 2, boulevard du Finistère 29325 Quimper cedex Contact: Marc PRONOST tel: 02 98 76 50 76 fax: 02 98 76 50 21 Marc.Pronost@equipement.gouv.fr	*Data/information on CEDW on Finistère department*	*Data received on CEDW for Finistère department* *Format: paper list*
Direction Départementale de l'Equipement du Morbihan Service Maritime Subdivision Etudes et Travaux maritimes 2, boulevard Adolphe Pierre 56324 Lorient cedex Contact: Valérie LE MEITOUR tel: 02 97 64 85 35 (direct line) fax: 02 97 64 85 04 valerie.le-meitour@equipement.gouv.fr	*Data/information on CEMO, CEEV, CEDW on Morbihan department*	*Data received on CEMO, CEEV, CEDW for Morbihan department* *Format: paper reports*

Pays de Loire		
Communauté de Communes de l'Ile de Noirmoutier Rue de la Prée au Duc – BP 714 85330 Noirmoutier en l'Ile Contacts: Martin PAILLARD (technicien), Luc BONNIFAIT (president) tel: 02 51 35 89 89 (standard) fax: 02 51 39 51 04 cc-iledenoirmoutier@wanadoo.fr	*Data/information on CEMO, CEEV, CEDW on the Noirmoutier Island*	*Data received on CEMO, CEEV, CEDW for the Island of Noirmoutier* *Format: paper report*
Conseil Général de Vendée Direction des infrastructures Routières et Maritimes Service Maritime 39 ter, rue de la Bauduère – BP 388 85119 Les Sables d'Olonne cedex Contact: Patrick VILLALON tel: 02 51 21 42 06 fax: 02 51 23 81 99 smd@vendee.fr	*Data/information on CEDW on Vendée department exept the Noirmoutier Island*	*Data received on CEDW for Vendée department except the Island of Noirmoutier* *Format: paper list*
Université de Nantes Institut de Géographie et d'Aménagement Régional (IGARUN) Chemin de la censive du Tertre – BP 81227 44312 Nantes cedex Contact: Alain MIOSSEC tel: 02 40 14 11 52 fax: 02 40 14 11 00 alain.miossec@humana.univ-nantes.fr	*Data/information on CEMO, CEEV, CEDW*	*Data received on CEMO, CEEV, CEDW* *Format: paper maps*
Poitou – Charentes		
Direction Départementale de l'Equipement Service Maritime 5, rue de la Cloche – BP 506 17018 La Rochelle cedex Contacts: William PROUST, Serge GUIGNARD tel: 05 46 00 56 53/05 46 00 56 44 william.proust@equipement.gouv.fr serge.guignard@equipement.gouv.fr	*Data/information on CEMO, CEEV, CEDW*	*Data received on CEMO, CEEV, CEDW* *Format: MapInfo files (not georeferenced)*
Aquitaine		
Bureau de Recherches Gélogiques et Minières (BRGM) Service Géologique Régional d'Aquitaine Parc Technologique Europarc 24, avenue Léonard de Vinci 33600 Pessac Contact: Cyril MALLET tel: 05 57 26 52 70 fax: 05 57 26 52 71 c.mallet@brgm.fr	*Data/information on CEMO, CEEV, CEDW*	*Data received on CEMO, CEEV, CEDW* *Format: paper maps*
Languedoc – Roussillon		
Service Maritime et de Navigation du Languedoc Roussillon 1 quai Régy 34200 Sète Contact: Pierre-Yves VALANTIN tel: 04 67 46 34 00 Pierre-Yves.Valantin@equipement.gouv.fr	*Data/information on CEMO, CEEV, CEDW*	*Data received on CEMO, CEEV, CEDW* *Format: MapInfo files*
Provence – Alpes – Côtes d'Azur		
Direction Départementale de l'Equipement du Var Subdivision maritime 244, avenue de l'infanterie de Marine 83000 Toulon Contacts: Michel GINIEYS, Patric BRICOUT tel: 04 94 46 82 02/04 94 46 82 66 (direct line P. Bricout) fax: 04 94 46 80 04 patric.bricout@equipement.gouv.fr	*Data/information on CEMO, CEEV, CEDW on Var department*	*Data received on CEMO, CEEV, CEDW for Var department* *Format: paper maps*

Direction Départementale de l'Equipement des Alpes Maritimes Subdivision maritime Route de Nice 60200 Nice Contact: Hubert MARQUER tel: 04 93 72 72 72 fax: 04 93 72 72 12 hubert.marquer@equipement.gouv.fr	*Data/information on CEMO, CEEV, CEDW on Alpes Maritimes department*	*Data received on CEMO, CEEV, CEDW for Alpes Maritimes department* *Format: paper maps*
Direction Départementale de l'Equipement des Bouches-du-Rhône Service Maritime 3, quai du port 13003 Marseille Contact: M. BRANDLI tel: 04 91 14 06 50	*Data/information on CEMO, CEEV, CEDW on Bouches-du-Rhône department*	*Data received on CEMO, CEEV, CEDW for the Bouches-du-Rhône department* *Format: paper maps*
Bureau de Recherches Géologiques et Minières (BRGM) Aménagement et Risques Naturels Aménagement du Territoire et Littoral 3, avenue Claude Guillemin – BP 6009 45060 Orléans cedex 2 Contact: Carlos OLIVEROS tel: 02 38 64 34 49 fax: 02 38 64 33 99 c.oliveros@brgm.fr	*Data/information on CEMO, CEEV, CEDW on the Rhône Estuary*	*Data received on CEMO, CEEV, CEDW for the Rhône Estuary* *Format: MapInfo files and paper maps*
Corse		
Bureau de Recherches Géologiques et Minières (BRGM) Service Géologique Régional de la Corse Immeuble Agostini, ZI de Furiani 20600 Bastia Contacts: Eric PALVADEAU, Carlos OLIVEROS (Orléans) tel: 04 95 58 04 33 fax: 04 95 30 62 10 e.palvadeau@brgm.fr c.oliveros@brgm.fr	*Data/information on CEMO, CEEV, CEDW*	*Data received on CEMO, CEEV, CEDW* *Format: MapInfo files and paper maps*
Guyane		
Bureau de Recherches Géologiques et Minières (BRGM) Service Géologique Régional de la Guyane Domaine de Suzini Route de Montabo – BP 552 97333 Cayenne cedex 2 Contacts: Jean-Louis LASSERRE, Carlos OLIVEROS (Orléans) tel: 05 94 30 06 24 fax: 05 97 31 49 07 jl.lasserre@brgm.fr c.oliveros@brgm.fr	*Data/information on CEMO, CEEV, CEDW*	*Data received on CEMO, CEEV, CEDW* *Format: MapInfo files and paper maps*
Guadeloupe		
DIREN Guadeloupe Cité Guillard rue Bougainvilliers 97100 Basse Terre Contact: Franck MAZEAS tel: 05 90 41 04 56 fax: 05 90 99 35 65 nat971@outremer.com	*Data/information on CEMO, CEEV*	*Data received on CEMO, CEEV* *Format: paper maps*
Direction Départementale de l'Equipement de Guadeloupe BP 54 – Saint-Phy 97102 Basse-Terre cedex Contact: Vincent COURTRAY tel: 05 90 21 29 21 fax: 05 90 21 29 01 vincent.courtray@equipement.gouv.fr	*Data/information on CEDW*	*Data received on CEDW* *Format: paper maps and list*

GR – GREECE

	Request	Response
Institute of Geology and Mineral Exploration - Department of General Geology and Geological mapping Dr. Constantin Perissoratis Messoghion 70 - GR-11527 ATHENS Tel: + 30 10 7795093 prs@igme.gr	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Data received on CEMO, CEEV, CEDW*
Institute of Geology and Mineral Exploration - Department of General Geology and Geological mapping Dr. Constantin Perissoratis Messoghion 70 - GR-11527 ATHENS Tel: + 30 10 7795093 prs@igme.gr	*Geological data*	*Purchase of paper geological maps.*

IE – IRELAND

	Request	Response
Department of Marine And Natural Resources Gerard Farrell Leeson Lane, DUBLIN 2. Tel: +353 1 619 9343 Gerard.Farrell@dcmnr.gov.ie	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Request forwarded to Mr. Jim Casey*
Department of Marine And Natural Resources Jim Casey Leeson Lane, DUBLIN 2. Tel: +353 1 619 9343 jim.casey@dcmnr.gov.ie	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Request forwarded to Compass Informatics, who carried out an inventory under the authority of the Department of Marine and Natural Resources*
Compass Informatics Gearoid O'Riain 19 Nassau Street, Dublin 2 Tel: +353-1-6705761, Fax: +353-1-6703037 goriain@compass.ie		*Data received on CEMO, CEEV, CEDW, CEGO*

IT – ITALY

	Request	Response
Apat Mr. Antonio Pugliese Pugliese@apat.it Mr. Vittori Vittori@apat.it	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Reply from Vittori that he does not have the requested information available. Request forwarded to University of Firenze*
University of Firenze Dipartimento di Scienze della Terra prof. Enzo Pranzini Via Jacopo Nardi 2 - 50132 Firenze Tel: + 39055243486, Fax: + 39055241595 epranzini@unifi.it	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Data received on CEMO, CEEV and CEDW (Atlas of the Italian coast)*
University of Firenze Dipartimento di Scienze della Terra Pierluigi Aminti Via Jacopo Nardi 2 - 50132 Firenze aminit@dicea.unifi.it	*Data/information on CEMO, CEEV, CEDW, CEGO*	*no reply*
Università di Siena Dipartimento di Scienze della Terra Dr. Andrea Ventura Via Laterina, 8 - 53100 Siena tel: 0577/233963 Fax: 0577/233880 ventura@unisi.it Maurizio Latini Via Laterina, 8 - 53100 Siena tel: 0577/233963 Fax: 0577/233880 latini@unisi.it	*Data/information on CEGO*	*Purchase of scanned geological maps to scale of 1:1.000.000*

LV – LATVIA

	Request	Response
Latvian Environment Agency Mr. Ansis Grantins Straumes iela 2 - Jurmala Tel + 371 7811502 ansis.grantins@lva.gov.lv	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Data received on CEMO, CEEV, CEDW and CEGO for 50 % of Latvian coast (Gulf of Riga).*
Geological Survey of Latvia Mr. Uldis Nulle Tel: + 371 7 323 860 Uldis.Nulle@vgd.gov.lv	*Data/information on CEMO, CEEV, CEDW, CEGO for the coast between the Lithuanian border and Kolka*	*Received general lithological and geomorphological map of Latvian shore zone, scale 1/200.000*

LT – LITHUNIA

	Request	Response
Geological Survey of Lithuania Julius Belickas S. Konarskio 35 - LT – 2600 Vilnius Tel: + 370 5 233 22 67, Fax: + 370 5 2336156 julius@lgt.lt	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Request forwarded to Coastal Research and Planning Institute*
Coastal Research and Planning Institute Saulias Gulbinskas H. Manto 84 - LT 5808 Klaipeda Tel: + 370 6 39884 Fax: + 370 6 398845 saulius@geologin.lt	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Data received on CEMO, CEEV, CEDW and CEGO.*

MT – MALTA

	Request	Response
Office of the Prime Minister Oil Exploration Department Mr. Saviour Xerri Auberge de Castille - Valletta CMR02 Tel: + 356 2299 6277 rita.vella@gov.mt	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Information received on CEMO, CEEV, CEDW, CEGO.*

NL - THE NETHERLANDS

	Request	***Response***
National Institute for Coastal and Marine Management - RIKZ Kortenaerkade, 1 - P.O. Box 20907 NL-2500 EX DEN HAAG Tel: +31 70 311 43 11, Fax: Niels Rode N.J.Roode@rikz.rws.minvenw.nl	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Information received on CEEV, CEMO and CEGO*
Topografische dienst Nederland Bendienplein 5 NL7800 Emmen Tel: 0591 69 69 11 Fax: 0591 69 62 96		*Purchase of printed topographical atlas.*

PL – POLAND

	Request	Response
Polish Geological Institute Szymon Uscinowicz suscinowicz@pgi.gda.pl	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Can deliver data but requests large budget*
dr. Porebski ndporebs@cyf-kr.edu.pl	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Request forwarded to Prof. Leszek.*
Polish Geological Institute Prof. Leszek Marks ul. Rakowiecka 4, 00-975 Warszawa, Tel: (+48-22) 849 53 51 lmar@pgi.waw.pl	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Can deliver data but this requires a large budget.*
Technical University of Gdansk Faculty of Managment and Economics Prof. Andrzej TUBIELEWICZ atu@zie.pg.gda.pl	*Data/information on CEMO, CEEV, CEDW, CEGO*	*no reply*
Polish Geological Institute Mrs. Malgorzata Sikorska - Majkowska mmay@pgi.waw.pl	*Data/information on CEMO, CEEV, CEDW, CEGO*	*no reply*
Polish Geological Institute Mrs. Zachowicz jzachowicz@pgi.gda.pl	*Data/information on CEMO, CEEV, CEDW, CEGO*	*no reply*
University of Szczecin Institute of Marine Sciences Prof. Furmanczyk kaz@sus.univ.szczecin.pl	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Document received on CEEV and CEDW for Western part of Polish coast.* *Request forwarded to Prof. Pruszak for other parts of coast.*
Institute of Hydro-Engineering of the Polish Academy of Sciences Prof. Zbigniew Pruszak zbig@ibwpan.gda.pl	*Data/information on CEEV, CEDW*	*no reply*
Maritime Office Gdynia Chrzanowskiego 10, 81-338 Gdynia, Poland Mr. Andrzej Cieslak Tel: +48 58 621 75 25 Fax: + 48 58 661 66 97 cieslak@umgdy.gov.pl	*Data/information on CEEV, CEDW*	*Maps received with information on CEEV and CEDW.*
Topographic Survey of Poland gugik@gugik.gov.pl	*Information on topographical maps*	*no reply*
Polish Geological Survey dystryb@pgi.waw.pl	*Information on geological maps*	*no reply*

PT – PORTUGAL

	Request	Response
Augusto Mourão Ezequiel Director Técnico Instituto Hidrográfico dirtecnica@hidrografico.pt	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Request forwarded to Instituto da Agua*
Fatima Dias Instituo da Agua snirh@inag.pt	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Power point presentation on Portuguese coast (in Portuguese)*
Institute of Hydraulics and Water Resources Faculty of Engineering - University of Porto Fransisco Pinto fpinto@fe.up.pt	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Positive response first, then a request for 2000 € for CEEV and CEDW, then an email with message that they can't do this job.*
Fernando Veloso Gomez Institue of Hydraulics and Water Resources Faculty of Engineering - University of Porto vgomes@fe.up.pt	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Refers to Eurosion work done on 2 pilot sites, requests a budget for delivery of Eurosion data, forwards to Instituto Hidrografico and Instituo da Agua.*
Orlando Borges Instituo da Agua orlandob@inag.pt	*Data/information on CEMO, CEEV, CEDW, CEGO*	*no reply*
Teresa Gamito Instituo Hidrografico gamitot@icn.pt	*Data/information on CEMO, CEEV, CEDW, CEGO*	*no reply*
Fernando Magelhaes Instituo da Agua jose.magalhaes@imarpor.pt	*Data/information on CEMO, CEEV, CEDW, CEGO*	*no reply*
Prof. Trigo Teixeira Instituto Technico Superior Lissabon cehidro@civil.ist.utl.pt	*Data/information on CEMO, CEEV, CEDW, CEGO*	*no reply*
Fernando Veloso Gomes vgomes@fe.up.pt	*Information on possible national data providers*	*replied*
foliveira@lnec.pt	*Information on publication in the Journal of Coastal Research on beach development*	*no reply*
Instituto Geografico Portugues Rua Artilharia Um 197 - 1099-052 Lisboa Tel: + 351 21 381 96 00 Fax: + 351 21 381 9697 igeo@igeo.pt	*Information on purchase of topographic maps*	*reply with instructions for ordering topographical maps. Purchase of printed topographical maps*
University de Minho Helena Granja Tel: + 351 253604303 hgranja@dct.uminho.pt	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Replies that she wants to assist in collecting data, but cannot supply requested data within the required time. Document received with some information on evolutionary trend and coastal defences in the northern part of Portugal. Feedback on existing data requested - no reply.*
Instituto Geologico e Mineiro Estrada da Portela-Zambujal - 2721-866 Alfragide Tel: + 351 214 705 478 Fax: + 351 214 720 203 v.publ@igm.pt	*Information on purchase of geological maps*	*Reply with instructions for ordering geological maps Purchase of printed geological maps (on Portugal, Madeira and Azores).*

RO – ROMANIA

	Request	Response
Technical University of Civil Engineering - Bucharest Prof. Radu Drobot drobot@hidro.utcb.ro	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Request forwarded to GeoEcomar - M. Panin*
National Institute of Marine Geology and Geo-ecology GeoEcomar Nicolas Panin Dimitrie Onciul Street No.23-25 Bucharest RO-70318 Tel: + 40 1 2522594 Fax: + 40 1 252 25 94 panin@geoecomar.ro	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Data received on CEMO, CEEV, CEDW, CEGO for Danube Delta region.*

SI – SLOVENIA

	Request	Response
Podjetje za urejanje hudournikov (PUH) Dr. Ales Horvat Hajdrihova ulica 28 1000 Ljubljana ales.horvat@puh.si	*Data/information on CEMO, CEEV, CEDW, CEGO*	*no reply*
University of Llubljana Prof. Aleksandra Kornhauser aleksandra.kornhauser@uni-lj.si	*Data/information on CEMO, CEEV, CEDW, CEGO*	*no reply*
Geological Survey of Slovenia Dr. Dragomir Skaberne dragomir.skaberne@geo-zs.si	*Data/information on CEMO, CEEV, CEDW, CEGO*	*no reply*
Environmental Agency of Republic of Slovenia Petra Krsnik petra.krsnik@gov.si	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Request forwarded to* • PUH • University of Ljubljana • Geological survey of Slovenia
University of Ljubljana Biotechnical office Department of Agronomy Jamnikarjeva 101 1111 Ljubljana franc.lobnik@bf.uni-lj.si	*Data/information on CEMO, CEEV, CEDW, CEGO*	*no reply*
Geological Survey of Slovenia Irena Trebusak Dimiceva 14 - 1000 Ljubljana Tel: + 386 1 2809-733 Fax: + 386 1 2809-753 irena.trebusak@iggg1.geo-zs.si	*Geological maps*	*Purchase of printed geological map to scale of 1:100.000*
Geodetical Survey of Slovenia Darja Komovec Zemljemerska ulica 12 - Ljubljana Tel: + 386 1 478 48 00 Fax: + 386 1 478 49 09 Darja.Komovec@gov.si	*Topographical maps*	*Purchase of printed topographical maps to scale of 1:25.000.*

SE – SWEDEN

	Request	***Response***
Swedish Geotechnical Institute Mr. Bengt Rydell Bengt.rydell@swedgeo.se	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Swedgeo has only recently been appointed as national responsible body. No centralised info exists.*
Swedish Geological Survey Mr. Jacob Johnson Box 670 SE-751 28 UPPSALA Tel: 46 18-17 91 86 Jacob.Johnson@sgu.se	*Data/information on CEGO*	*Data received on geology*
Swedish National Survey (Lantmateriet) Kungsgatan 74 - 111 22 STOCKHOLM Tel: + 46 8 202 303 Fax: + 46 8 202 711 Kartbutiken@lm.se	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Volume of National atlas on Coast and Sea purchased.*
Swedish Environmental Agency Mr. Sverker Evans Sverker.Evans@naturvardsverket.se	*Data/information on CEMO, CEEV, CEDW*	*Request forwarded to Erosionsskadecentrum - Kristin Mattsen*
Erosionsskadecentrum Kristin Mattsen 271 80 Ystad Tel: +46 41177150 kristin.mattsson@ytad.se	*Data/information on CEMO, CEEV, CEDW*	*no reply*
University of Lund Dept. of Water Resources Engineering Hans Hansson hans.hanson@tvrl.lth.se	*Data/information on CEMO, CEEV, CEDW*	*no reply*

UK - UNITED KINGDOM

England and Wales	***Request***	***Response***
Halcrow Ltd Kevin Burgess Burderop Park - Swindon WILTSHIRE SN4 0QD Tel: 44 (0) 17 93 81 63 09 BurgessKA@halcrow.com	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Purchase of Future Coast data*
Scotland		
Scottish Natural Heritage Mr. George Lees 2 Anderson Place - EH6 5NP Edinburgh Tel: 44 131 44 62 452 George.Lees@snh.gov.uk	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Data received on CEMO, CEEV, CEDW*
Northern Ireland		
Department of the Environment in Northern Ireland Ian Enlander Clarence court 10 - 18, Adelaide Street Belfast B2T 8GB Tel: 44 28 9054 0540 ian.enlander@doeni.gov.uk	*Data/information on CEMO, CEEV, CEDW, CEGO*	*Information received on CEMO, CEEV, CEDW*
Geology for Scotland and Northern Ireland		
British Geological Survey Keyworth - Nottingham NG125GG Tel: 44 115 936 3241, Fax: 44 115 936 3488	*Geological maps*	*Purchase of printed geological maps to scale of 1/250.000 for Scotland and Northern Ireland*

APPENDIX 2

EXAMPLE OF A COUNTRY QUALITY CONTROL FORM (GREECE)

Quality control

PROJECTION AND FILE STRUCTURE

Author: D. Batkowski

COUNTRY	GREECE
DATE	16/09/2003

3582 segments (717 small island)

14687 kms

2866 Completely informed

Projection parameters	*Official*	*Country*	*Correction (Y/N)*	*Comments*	*Date of correction*
Name		GCS_WGS_1974			
Angular unit		Degree (0,017453292519943299)			
Prime Meridian		Greenwich (0,0)			
Datum		D_WGS_1984			
Spheroid		WGS_1984			
Semimajor axis		6378137			
Semiminor axis		6356752.31424517000000000			
Inverse flattening		298.257223563000000			

Names and types of the different attributes					
Description	***Name***	***CEEUBG100KV2 Type***	***National fileType***	***Comments***	***Date of correction***
Coastal erosion segment identifier	CESGCD	String	String		
NUTS ReGion Code	NURGCDV7	String		To be valorised	Integration
Segment length in meters	CESGLN	Float	Float		
Morpho-sedimentology code (CEL)	CEMOV2	String	String		
Evolutionary trend code (CEL)	CEEVV2	String	String		
Coastal defence works code (CEL)	CEDWV2	String	String		
Coastal geology codes	CEGOV2	String	String		
Morpho-sedimentology codes	CEMOV1	String	String		
Temporary field	CEEVV1	String	short integer	To be corrected	Integration
Temporary field	CEDWV1	String	String		
Data status codes	CEDAV2	String	String		
Data change status	CEDC	String		To be valorised	Integration
ARCGIS field	OID		long integer		
ARCGIS field	SHAPE_LENGTH		double real		
Temporary field (Arc Info)	FNODE_		long integer	To be deleted	Integration
Temporary field (Arc Info)	TNODE_		long integer	To be deleted	Integration
Temporary field (Arc Info)	LPOLY_		long integer	To be deleted	Integration
Temporary field (Arc Info)	RPOLY_		long integer	To be deleted	Integration
Temporary field	COUNTRY		String	To be deleted	Integration
Temporary field	CEEC_GEO_		long integer	To be deleted	Integration
Temporary field	CEEC_GEO_I		long integer	To be deleted	Integration
Temporary field	N_VERTEXS		long integer	To be deleted	Integration
Temporary field	ID_USUARI		long integer	To be deleted	Integration
Temporary field	CESGCD_1		text	To be deleted	Integration
Temporary field	CESGCD1M		text	To be deleted	Integration
Temporary field	NURGCDV5		text	To be deleted	Integration
Temporary field	CETR		text	To be deleted	Integration
Temporary field	CESGCDV2		text	To be deleted	Integration
Temporary field	SM_Island		text	To be deleted	Integration

Quality control

COASTLINE TOPOLOGY

Author : F. Vermeersch

COUNTRY	GREECE
DATE	01/10/2003

Length of segment					
Number of segments < 100 m :		**0**			
Segment identity before corrections	**Length**	**Correction (Y/N)**	**Which correction**	**Date of correction**	**Segment identity after corrections**
CESGCDV2					**CESGCDV3**

Continuous segment				
Number of segments not continous with the 2 others which border it :				
Segment identity	**Comments**	**Correction (Y/N)**	**Date of correction**	
CESGCDV2				
GR1696	these 2 segments are not joined	Y	01/10/2003	Small island
GR1817		Y	01/10/2003	Small island

A loop in the segment				
Number of segments : 142				
Segment identity	**Comments**	**Correction (Y/N)**	**Which correction**	**Date of correction**
CESGCDV2				
		Y for all segments	modification	01/10/2003

Anomaly ?					
Number of segments : 3					
Segment identity	**Comments**	**Correction (Y/N)**	**Which correction**	**Date of correction**	
CESGCDV2					
GR1657	Polygon on the coastline	Y	transformed in polyline	01/10/2003	Small island
GR2623	Anomaly	Y		01/10/2003	
GR1493	Polygon on the coastline	Y	transformed in polyline	01/10/2003	Small island

Quality control

CEMOV2 Code

Author : D. Batkowski

COUNTRY	GREECE
DATE	01/10/2003

Code "H virtual line" > 1km					
Number of segments :		**0**			
Segment identity before corrections	**Length (m)**	**Comments**	**Correction (Y/N)**	**Date of correction**	**Segment identity after corrections**
CESGCDV2					**CESGCDV3**

Attributes : empty and/or different from lexicon items				
Number of segments :	**640**			
	Segment identity	**Comments**	**Correction (Y/N)**	**Date of correction**
	CESGCDV2			
field empty : all these segments are small islands and were not in CCEr				

"M" polders codes			
Number of segments :	**0**		
	Segment identity	**New attribute (E, G, X, Z or Y)**	**Date of correction**
	CESGCDV2		

CEMOV1 different from CEMOV2			
Changes	**Number of segments**	**Segment identity CESGCDV2**	**Comments**
A, B, C, D, E, M, X, Z to J	226		Locations of ports entered based on information from national data provider.
TOTAL	**226**		

Unvalid CEMOV2 codes for the segment ?					
Number of segments with likely unvalid code CEMOV2 :					
Segment identity CESGCDV2	**Existing CEMOV2 code**	**Comments**	**Correction (Y/N)**	**Which correction**	**Date of correction**
GR1671	AC	the whole segment seems to be an error	small island, had C code	removed CEMC	27/10/2003
GR0071	E	I don't think the whole segment is E: a part of it may be F	CEMOV1 = Z	CEMOV2 = Z	27/10/2003
GR0490	E	I don't think the whole segment is E: a part of it may be F	NO CEMOV1 = E		
GR1923	E	I don't think the whole segment is E: a part of it may be F	N (no information available for correction)		
GR1917	E	I don't think the whole segment is E: a part of it may be F	N (no information available for correction)		
GR1914	E	I don't think the whole segment is E: a part of it may be F	N (no information available for correction)		

Quality control

CEEVV2 Code

Author : D. Batkowski

COUNTRY	GREECE
DATE	01/10/2003

Attributes: empty and/or different from lexicon items					
Number of segments :		**637**			
Segment identity CESGCDV2	**Existing code**	**Comments**	**Correction (Y/N)**	**Which correction**	**Date of correction**
		field empty: all these segments are small islands and were not in CCEr			

CEEVV1 different from CEEVV2			
Changes	**Number of segments**	**Segment identity CESGCDV2**	**Comments**
	1496		A number of segments that were wrongly encoded as "1" were recoded with available information.

Quality control

CEGOV2 Code

Author : D. Batkowski

COUNTRY	GREECE
DATE	01/10/2003

Attributes : empty and/or different from lexicon items				
number of segments :		**0**		
Segment identity CESGCDV2	**Comments**	**Correction (Y/N)**	**Which correction**	**Date of correction**

509 segments with CEGOV2 = C00 - No information (687 km) (502 segments are small islands)

Invalid CEGOV2 codes for the segment ?					
Number of segments with probably invalid code CEMOV2					
Segment identity CESGCDV2	**Existing CESG code**	**Comments**	**Correction (Y/N)**	**Which correction**	**Date of correction**
GR2592	A40	On my geological map (1:50,000 scale), these seem to be metamorphic rocks, can you check ?	Y	A30	27/10/2003
GR3480			Y	A30	27/10/2003
GR2591			Y	A30	27/10/2003
GR3484			Y	A30	27/10/2003
GR3581	B32	On my geological map (1/50 000 scale), these seem to be granitic rocks, can you check ?	Y	A13	27/10/2003
GR1225	A13	On my geological map (1:50,000 scale), this seems to be marble, can you check ?	Y	A33	27/10/2003
GR3582	B32		Y	A33	27/10/2003
GR3193	B32	On my geological map (1:50,000 scale), these seem to be granitic rocks, can you check ?	Y	segment split and partly recoded A13	27/10/2003
GR0228	A13	On my geological map (1:50,000 scale), a part of the segment seems to be marble, can you check ?	N	A13 according to our geological map	

GR0022	B32	On my geological map (1:50,000 scale), these seem to be granitic rocks, can you check ?	N	B32 according to our geological map	
GR3453	A43	On my geological map (1:50,000 scale), a part of the segment seems to be volcanic rocks, can you check it ?	N	A43 according to our geological map	
GR0774	B20	On my geological map (1:50,000 scale), this seems to be limestone, can you check ?	Y	B10 according to our geological map	27/10/2003

Quality control

CEDWV2 Code

Author: D. Batkowski

COUNTRY	GREECE
DATE	01/10/2003

Attributes : empty and/or different from lexicon items			
Number of segments:		**716**	
Segment identity CESGCDV2	**Comments**	**Correction (Y/N)**	**Date of correction**
	field empty: all these segments are small islands and were not in CCEr		

CEDWV1 different from CEDWV2					
Changes	**Number of segments**	**Segment identity CESGCDV2**	**Comments**	**Correction (Y/N)**	**Date of correction**
N to Y	212		no problem		
TOTAL	**212**				

Quality control

CEDAV2 Code

Author : D. Batkowski

COUNTRY	GREECE
DATE	01/10/2003

Attributes : empty and/or different from the lexicon items

Number of segments :		**714**		
Segment Identity CESGCDV2	**Comments**	**Correction (Y/N)**	**Which correction**	**date of correction**
	field empty : all these segments are small islands and were not in CCEr			

CEDAV2 = 2 or 3 but no changes to CEMO, CEDW or CEEV codes

Number of segments :		**0**		
Segment identity CESGCDV2	**Comments**	**Correction (Y/N)**	**Which correction**	**Date of correction**

CEDAV2 = 1 but some changes to CEMO, CEDW or CEEV codes

Number of segments :		**946**	**NO PROBLEM WITH CEDC**	
Segment Identity CESGCD2	**Comments**	**Correction (Y/N)**	**Which correction**	**Date of correction**

CEDAV2 = 0 but CEEV <> 1 and CEGO <> C00

Number of segments :		**0**		
Segment Identity CESGCD2	**Comments**	**Correction (Y/N)**	**Which correction**	**Date of correction**

Quality control between codes CEMOV2 and CEEVV2 - CEDWV2

COUNTRY	GREECE
DATE	01/10/2003

Author : D. Batkowski

CEMOV2 code = A and CEEVV2 <> 1 or 2

Number of segments : **50**

Segment Identity CESGCDV2	CEMOV2	CEEVV2	Comments	Correction (Y/N)	Date of correction
GR0049	A	4		N	28/10/2003
GR0093	A	4		N	28/10/2003
GR0106	A	4		N	28/10/2003
GR0165	A	4		N	28/10/2003
GR0169	A	4		N	28/10/2003
GR0195	A	4		N	28/10/2003
GR0196	A	4		N	28/10/2003
GR0205	A	4		N	28/10/2003
GR0207	A	4		N	28/10/2003
GR0209	A	4		N	28/10/2003
GR0272	A	4		N	28/10/2003
GR0277	A	6		N	28/10/2003
GR0326	A	6		N	28/10/2003
GR0328	A	4		N	28/10/2003
GR0329	A	4		N	28/10/2003
GR0341	A	4		N	28/10/2003
GR0344	A	4		N	28/10/2003
GR0465	A	4		N	28/10/2003
GR0467	A	4		N	28/10/2003
GR0487	A	4		N	28/10/2003
GR0489	A	4		N	28/10/2003
GR0536	A	4		N	28/10/2003
GR0579	A	4		N	28/10/2003
GR0679	A	4		N	28/10/2003
GR0741	A	4	Needs checking	N	28/10/2003
GR0742	A	4		N	28/10/2003
GR0743	A	4		N	28/10/2003

For Greece, only generalised information was available. Therefor, if cemov1 existed, cemoV2 = cemoV1 Information on CEEV is also taken from generalised source, as no better information is available.

GR0766	A	4		N	28/10/2003
GR0767	A	4		N	28/10/2003
GR0796	A	6		N	28/10/2003
GR0818	A	4		N	28/10/2003
GR0819	A	4		N	28/10/2003
GR1854	A	4		N	28/10/2003
GR1872	A	4		N	28/10/2003
GR1943	A	4		N	28/10/2003
GR1947	A	4		N	28/10/2003
GR1948	A	4		N	28/10/2003
GR2081	A	4		N	28/10/2003
GR2114	A	4		N	28/10/2003
GR2125	A	4		N	28/10/2003
GR2136	A	4		N	28/10/2003
GR2416	A	4		N	28/10/2003
GR2510	A	4		N	28/10/2003
GR2515	A	4		N	28/10/2003
GR2523	A	4		N	28/10/2003
GR2524	A	4		N	28/10/2003
GR2525	A	4		N	28/10/2003
GR2526	A	4		N	28/10/2003
GR2602	A	4		N	28/10/2003
GR2617	A	4		N	28/10/2003

CEMOV2 code = B and CEEVV2 = 0, 6, 70 or 71					
Number of segments :		**7**			
Segment Identity CESGCDV2	**CEMOV2**	**CEEVV2**	**Comments**	**Correction (Y/N)**	**Date of correction**
GR0052	B	6	need to be checked	N	28/10/2003
GR0113	B	6		N	28/10/2003
GR0276	B	6		N	28/10/2003
GR0538	B	6		N	28/10/2003
GR1954	B	6		N	28/10/2003
GR2023	B	6		N	28/10/2003
GR2328	B	6		N	28/10/2003

CEMO code = AC and CEEV = 0 or 71					
Number of segments :		0			
Segment Identity CESGCDV2	CEMOV2	CEEVV2	Comments	Correction (Y/N)	Date of correction

CEMO code = H, J, L or Y and CEEV <> 0					
Number of segments :		34			
Segment Identity CESGCDV2	CEMOV2	CEEVV2	Comments	Correction (Y/N)	Date of correction
GR0014	J	1		Y	28/10/2003
GR0015	J	1		Y	28/10/2003
GR0016	J	1		Y	28/10/2003
GR0017	J	1		Y	28/10/2003
GR0034	J	1		Y	28/10/2003
GR0058	J	1		Y	28/10/2003
GR0059	J	1		Y	28/10/2003
GR2754	J	1		Y	28/10/2003
GR3444	J	1		Y	28/10/2003
GR0394	J	1		Y	28/10/2003
GR0405	J	1		Y	28/10/2003
GR0792	J	1		Y	28/10/2003
GR1108	J	1		Y	28/10/2003
GR1109	J	1		Y	28/10/2003
GR1366	J	1		Y	28/10/2003
GR1918	J	1		Y	28/10/2003
GR1989	J	4	CEEVV2 needs to be changed to code 0	Y	28/10/2003
GR1990	J	4		Y	28/10/2003
GR2074	J	1		Y	28/10/2003
GR2075	J	1		Y	28/10/2003
GR2174	J	1		Y	28/10/2003
GR2535	J	1		Y	28/10/2003
GR2650	J	1		Y	28/10/2003
GR3142	J	1		Y	28/10/2003

GR3143	J	1		Y	28/10/2003
GR3396	J	1		Y	28/10/2003
GR3397	J	1		Y	28/10/2003
GR3418	J	1		Y	28/10/2003
GR3419	J	1		Y	28/10/2003
GR3542	L	1		Y	28/10/2003
GR3543	J	1		Y	28/10/2003
GR3544	J	1		Y	28/10/2003
GR3549	L	1		Y	28/10/2003
GR3550	L	1		Y	28/10/2003

CEMOV2 code <> H, J, L or Y and CEEVV2 = 0				
Number of segments:		**0**		
Segment Identity CESGCDV2	**CEMOV2**	**Comments**	**Correction (Y/N)**	**Date of correction**

CEMOV2 code = Y and CEDWV2 = N			
Number of segments:		**0**	
Segment Identity CESGCDV2	**Comments**	**Correction (Y/N)**	**Date of correction**

CEMOV2 code = H and CEDWV2 = Y			
Number of segments:		**0**	
Segment Identity CESGCDV2	**Comments**	**Correction (Y/N)**	**Date of correction**

CEMOV2 code = E and CESGLN < 1km			
Number of segments:		**21**	
Segment Identity **CESGCDV2**	**Comments**	**Correction (Y/N)**	**Date of correction**
GR0311	C?	Y	28/10/2003
GR0343	C?	Y	28/10/2003
GR0386	C?	Y	28/10/2003
GR0470	C?	Y	28/10/2003
GR0770	no need for correction (Two E side by side)	N	28/10/2003
GR0807	no need for correction (Two E side by side)	N	28/10/2003
GR0907	no need for correction (Two E side by side)	N	28/10/2003
GR0911	924 km (no need for correction)	N	28/10/2003
GR0914	C?	Y	28/10/2003
GR0945	no need for correction (Two E side by side)	N	28/10/2003
GR0946	no need for correction (Two E side by side)	N	28/10/2003
GR1678	no need for correction (Two E side by side)	N	28/10/2003
GR1916	no need for correction (Two E side by side)	N	28/10/2003
GR1982	no need for correction (Two E side by side)	N	28/10/2003
GR2742	no need for correction (Two E side by side)	N	28/10/2003

New information on morpho-sedimentology .

only mentions 'Rocky/Pebbles', 'Sandy', 'Muddy'

This information was encoded as

rocky: cemo = AC

sandy: cemo = C

muddy: cemo = G

So it is very likely that within the C codes, E beaches exist.

But there is no detailed information on exact location of these beaches.

GR2778	962 km (no need for correction)	N	28/10/2003
GR2862	no need for correction (Two E side by side)	N	28/10/2003
GR2864	no need for correction (Two E side by side)	N	28/10/2003
GR3194	983 km (no need for correction)	N	28/10/2003
GR3440	989 km (no need for correction)	N	28/10/2003
GR3573	no need for correction (Two E side by side)	N	28/10/2003

CEMOV2 code = C and CESGLN > 1km			
Number of segments :		**583**	
Segment Identity	**Comments**	**Correction (Y/N)**	**Date of correction**
CESGCDV2			
	All these C codes seem to be OK	N	

Quality control between codes CEGOV2 and CEMOV2

COUNTRY	GREECE
DATE	01/10/2003

Author : D. Batkowski

CEGOV2 code = A00 and CEMOV2 code = F or H

Number of segments : 0

Segment Identity CESGCDV2	CEGOV2 code	CEMOV2 code	Comments	Correction (Y/N)	Which CEGOV2 code ?	Which CEMOV2 code ?	Date of correction

CEGOV2 code = A10, A11, A12, A13, A31, A33 or A34 and CEMOV2 code = B, F or H

Number of segments : 33

Segment Identity CESGCDV2	CEGOV2 code	CEMOV2 code	Comments	Correction (Y/N)	Which CEGOV2 code ?	Which CEMOV2 code ?	Date of correction
GR0001	A31	B	amphibolites, gneisses and schists --> was first encoded as A31, replaced by more general code A30.	Y	A30		28/10/2003
GR0046	A31	B	amphibolites, gneisses and schists --> was first encoded as A31, replaced by more general code A30.	Y	A30		28/10/2003
GR0072	A31	B	amphibolites, gneisses and schists --> was first encoded as A31, replaced by more general code A30.	Y	A30		28/10/2003
GR0082	A13	B	no additional information available for corrections	N			28/10/2003
GR0083	A31	B	amphibolites, gneisses and schists --> was first encoded as A31, replaced by more general code A30.	Y	A30		28/10/2003
GR0084	A13	B	no additional information available for corrections	N			28/10/2003
GR0147	A13	B	no additional information available for corrections	N			28/10/2003
GR0228	A13	B	no additional information available for corrections	N			28/10/2003
GR3026	A10	B	no additional information available for corrections	N			28/10/2003
GR0400	A10	B	no additional information available for corrections	N			28/10/2003
GR0427	A13	B	no additional information available for corrections	N			28/10/2003
GR0428	A13	B	no additional information available for corrections	N			28/10/2003
GR0691	A31	B	amphibolites, gneisses and schists --> was first encoded as A31, replaced by more general code A30.	Y	A30		28/10/2003
GR1631	A31	B	amphibolites, gneisses and schists --> was first encoded as A31, replaced by more general code A30.	Y	A30		28/10/2003

GR1766	A31	B	amphibolites, gneisses and schists --> was first encoded as A31, replaced by more general code A30.	Y	A30		28/10/2003
GR0173	A31	B	amphibolites, gneisses and schists --> was first encoded as A31, replaced by more general code A30.	Y	A30		28/10/2003
GR2327	A31	B	amphibolites, gneisses and schists --> was first encoded as A31, replaced by more general code A30.	y	A30		28/10/2003
GR2444	A31	B	amphibolites, gneisses and schists --> was first encoded as A31, replaced by more general code A30.	Y	A30		28/10/2003
GR2519	A31	B	amphibolites, gneisses and schists --> was first encoded as A31, replaced by more general code A30.	Y	A30		28/10/2003
GR2533	A31	B	amphibolites, gneisses and schists --> was first encoded as A31, replaced by more general code A30.	Y	A30		28/10/2003
GR2624	A10	B	no additional information available for corrections	N			28/10/2003
GR2638	A12	B	no additional information available for corrections	N			28/10/2003
GR2649	A13	B	no additional information available for corrections	N			28/10/2003
GR2896	A10	B	no additional information available for corrections	N			28/10/2003
GR2980	A31	B	amphibolites, gneisses and schists --> was first encoded as A31, replaced by more general code A30.	Y	A30		28/10/2003
GR3144	A13	B	no additional information available for corrections	N			28/10/2003
GR3152	A12	B	no additional information available for corrections	N			28/10/2003
GR3165	A13	B	no additional information available for corrections	N			28/10/2003
GR3166	A13	B	no additional information available for corrections	N			28/10/2003
GR3168	A31	B	amphibolites, gneisses and schists --> was first encoded as A31, replaced by more general code A30.	Y	A30		28/10/2003
GR3189	A31	B	amphibolites, gneisses and schists --> was first encoded as A31, replaced by more general code A30.	Y	A30		28/10/2003
GR3192	A13	B	no additional information available for corrections	N			28/10/2003
GR3196	A13	B	no additional information available for corrections	N			28/10/2003

CEGOV2 code = A20, A21, A22, A23, A30, A32, A40, A41, A42, A43 or A46 and CEMOV2 code = F or H

Number of segments : **0**

Segment Identity CESGCDV2	CEGOV2 code	CEMOV2 code	Comments	Correction (Y/N)	Which CEGOV2 code ?	Which CEMOV2 code ?	Date of correction

CEGOV2 code = A44 or A45 and CEMOV2 code = A, F or H							
Number of segments :	0						
Segment Identity CESGCDV2	CEGOV2 code	CEMOV2 code	Comments	Correction (Y/N)	Which CEGOV2 code ?	Which CEMOV2 code ?	Date of correction

CEGOV2 code = B00, B10, B11, B20, B21, B30, B31, B32, B34, B35 or B36 and CEMOV2 code = A, AC or H							
Number of segments :	188						
Segment identity CESGCDV2	CEGOV2 code	CEMOV2 code	Comments	Correction (Y/N)	Which CEGOV2 code ?	Which CEMOV2 code ?	Date of correction
GR0010	B32	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR0011	B32	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR0018	B20	A		Y	A43		29/10/2003
GR0028	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR0030	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR0036	B32	A		Y	A30		29/10/2003
GR0053	B32	A		Y	A43		28/10/2003
GR0062	B20	A		Y	A40		29/10/2003
GR0066	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR0118	B32	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR0120	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR0163	B20	A		Y	A40		29/10/2003
GR0193	B32	AC		Y		C	29/10/2003
GR0209	B20	A		Y	A40		29/10/2003
GR0222	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR0223	B32	A		Y	A43		29/10/2003

GR0245	B32	A	according to geological map, CEGOV2 is correct. No additional information available on CEMOV2.	N			29/10/2003
GR0268	B20	A		Y		D	29/10/2003
GR0272	B32	A		Y	A43		29/10/2003
GR0307	B20	AC		Y		C	29/10/2003
GR0318	B32	AC		Y		C	29/10/2003
GR1272	B32	AC		Y		C	29/10/2003
GR2757	B32	A		Y	A46		28/10/2003
GR2758	B20	A		Y	A40		29/10/2003
GR2761	B20	A		Y	A40		29/10/2003
GR2764	B10	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR2767	B10	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR2768	B20	A		Y	A40		29/10/2003
GR2769	B10	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR3020	B32	A	according to geological map, CEGOV2 is correct. No additional information available on CEMOV2.	N			29/10/2003
GR3023	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR3458	B20	A		Y	A40		29/10/2003
GR0341	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR0366	B32	A	according to geological map, CEGOV2 is correct. No additional information available on CEMOV2.	N			29/10/2003
GR0396	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR0413	B20	AC		Y		C	29/10/2003
GR0414	B32	AC		Y		C	29/10/2003
GR0418	B32	AC		Y		C	29/10/2003
GR0433	B32	AC		Y		C	29/10/2003
GR0443	B32	A		Y	A43		29/10/2003
GR0458	B32	AC		Y		C	29/10/2003
GR0498	B20	A		Y	A40		29/10/2003
GR0500	B20	A		Y	A40		29/10/2003
GR0618	B32	AC		Y		C	29/10/2003

GR0679	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR0689	B32	A	according to geological map, CEGOV2 is correct. No additional information available on CEMOV2.	N			29/10/2003
GR0693	B20	AC		Y		C	29/10/2003
GR0696	B10	AC		Y		C	29/10/2003
GR0790	B32	A	according to geological map, CEGOV2 is correct. No additional information available on CEMOV2.	N			29/10/2003
GR0796	B32	A		Y	A43		28/10/2003
GR0804	B20	A	according to geological map, CEGOV2 is correct. No additional information available on CEMOV2.	N			29/10/2003
GR0819	B10	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR0871	B20	AC		Y		C	29/10/2003
GR0902	B10	AC		Y		C	29/10/2003
GR0904	B10	AC		Y		C	29/10/2003
GR0924	B10	AC		Y		C	29/10/2003
GR1003	B20	AC		Y		C	29/10/2003
GR1091	B20	AC		Y	A40		29/10/2003
GR1114	B20	AC		Y	A40		29/10/2003
GR1128	B20	AC		Y		C	29/10/2003
GR1131	B20	AC		Y		C	29/10/2003
GR1207	B20	AC		Y		C	29/10/2003
GR1225	B32	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR1770	B32	AC		Y		C	29/10/2003
GR0182	B10	AC		Y		C	29/10/2003
GR1415	B10	AC		Y		C	29/10/2003
GR1862	B20	AC		Y		C	29/10/2003
GR1863	B10	AC		Y		C	29/10/2003
GR1872	B20	A		Y	A40		29/10/2003
GR1880	B10	AC		Y		C	29/10/2003
GR1881	B10	AC		Y		C	29/10/2003
GR1882	B10	AC		Y		C	29/10/2003
GR1889	B32	A	No information available for correction	N			29/10/2003
GR1891	B32	A	No information available for correction	N			29/10/2003
GR1900	B32	AC		Y		C	29/10/2003
GR1907	B32	AC		Y		C	29/10/2003

GR1985	B20	AC		Y		C	29/10/2003
GR2081	B32	A		Y		B	29/10/2003
GR2100	B20	AC		Y		C	29/10/2003
GR2121	B32	A	according to geological map, CEGOV2 is correct. No additional information available on CEMOV2.	N			29/10/2003
GR2172	B20	AC		Y		C	29/10/2003
GR2176	B20	AC		Y		C	29/10/2003
GR2178	B20	AC		Y		C	29/10/2003
GR2179	B20	AC		Y		C	29/10/2003
GR2180	B20	AC		Y		C	29/10/2003
GR2225	B32	AC		Y		C	29/10/2003
GR2229	B20	AC		Y		C	29/10/2003
GR2253	B10	AC		Y		C	29/10/2003
GR2284	B32	AC		Y		C	29/10/2003
GR2294	B20	AC		Y		C	29/10/2003
GR2305	B32	AC		Y		C	29/10/2003
GR2307	B32	AC		Y		C	29/10/2003
GR2308	B20	AC		Y		C	29/10/2003
GR2309	B32	AC		Y		C	29/10/2003
GR2411	B32	AC		Y		C	29/10/2003
GR2468	B32	A		Y	A13		29/10/2003
GR2556	B20	A		Y	A10		29/10/2003
GR2642	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR2657	B20	AC		Y		C	29/10/2003
GR2672	B32	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR2673	B20	A		Y	A40		29/10/2003
GR2677	B32	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR2708	B20	AC		Y		C	29/10/2003
GR2710	B32	AC		Y		C	29/10/2003
GR2724	B20	AC		Y		C	29/10/2003
GR2728	B32	AC		Y		C	29/10/2003
GR2730	B32	AC		Y		C	29/10/2003
GR2731	B32	AC		Y		C	29/10/2003
GR2732	B32	AC		Y		C	29/10/2003
GR2736	B10	AC		Y		C	29/10/2003

GR2737	B10	AC		Y		C	29/10/2003
GR2738	B32	AC		Y		C	29/10/2003
GR2739	B10	AC		Y		C	29/10/2003
GR2775	B20	A		Y	A43		29/10/2003
GR2795	B32	AC		Y		C	29/10/2003
GR2796	B32	AC		Y		C	29/10/2003
GR2802	B32	AC		Y		C	29/10/2003
GR2830	B20	AC		Y		C	29/10/2003
GR2832	B20	AC		Y		C	29/10/2003
GR2851	B20	AC		Y		C	29/10/2003
GR2853	B32	AC		Y		C	29/10/2003
GR2865	B32	A		Y	A43		29/10/2003
GR2868	B32	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR2900	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR2903	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR2906	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR2992	B20	A		Y	A40		29/10/2003
GR3099	B32	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR3130	B32	A		Y	A13		29/10/2003
GR3139	B32	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR3187	B32	A		Y	A31		29/10/2003
GR3218	B32	AC		Y		C	29/10/2003
GR3219	B32	AC		Y		C	29/10/2003
GR3221	B32	AC		Y		C	29/10/2003
GR3222	B32	AC		Y		C	29/10/2003
GR3225	B32	AC		Y		C	29/10/2003
GR3252	B32	AC		Y		C	29/10/2003
GR3253	B20	AC		Y		C	29/10/2003
GR3298	B32	AC		Y		C	29/10/2003
GR3301	B32	AC		Y		C	29/10/2003
GR3304	B32	AC		Y		C	29/10/2003
GR3306	B32	AC		Y		C	29/10/2003

GR3309	B32	AC		Y		C	29/10/2003
GR3310	B32	AC		Y		C	29/10/2003
GR3344	B20	AC		Y		C	29/10/2003
GR3345	B32	AC		Y		C	29/10/2003
GR3363	B20	AC		Y		C	29/10/2003
GR3365	B20	AC		Y		C	29/10/2003
GR3371	B32	AC		Y		C	29/10/2003
GR3423	B20	AC		Y		C	29/10/2003
GR3425	B20	AC		Y		C	29/10/2003
GR3427	B20	AC		Y		C	29/10/2003
GR3463	B32	AC		Y		C	29/10/2003
GR3490	B20	AC		Y		C	29/10/2003
GR3493	B20	AC		Y		C	29/10/2003
GR3498	B32	AC		Y		C	29/10/2003
GR3499	B32	AC		Y		C	29/10/2003
GR3502	B32	AC		Y		C	29/10/2003
GR3504	B20	AC		Y		C	29/10/2003
GR3505	B32	AC		Y		C	29/10/2003
GR3506	B32	AC		Y		C	29/10/2003
GR3507	B20	AC		Y		C	29/10/2003
GR3508	B32	AC		Y		C	29/10/2003
GR3509	B20	AC		Y		C	29/10/2003
GR3510	B32	AC		Y		C	29/10/2003
GR3511	B20	AC		Y		C	29/10/2003
GR3514	B20	AC		Y		C	29/10/2003
GR3517	B32	AC		Y		C	29/10/2003
GR3518	B32	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR3519	B20	AC		Y		C	29/10/2003
GR3521	B20	AC		Y		C	29/10/2003
GR3523	B20	AC		Y		C	29/10/2003
GR3526	B32	AC		Y		C	29/10/2003
GR3528	B20	AC		Y		C	29/10/2003
GR3529	B32	AC		Y		C	29/10/2003
GR3530	B20	AC		Y		C	29/10/2003
GR3535	B20	AC		Y		C	29/10/2003
GR3536	B20	AC		Y		C	29/10/2003
GR3537	B32	AC		Y		C	29/10/2003

GR3538	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR3546	B20	A		Y	A43		29/10/2003
GR3556	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR3558	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR3559	B20	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR3560	B32	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003
GR3561	B32	A	according to geological map, CEGOV2 is correct. No additional information available on CEMOV2.	N			29/10/2003
GR3565	B32	A	according to geological map, CEGOV2 is correct. No additional information available on CEMOV2.	N			29/10/2003
GR3581	B32	A	according to geological map, CEGOV2 is correct. No additional information available for CEMOV2.	N			29/10/2003

CEGOV2 code = B33 and CEMOV2 code = A, AC, C, D, E, F, P, R, X, Y or H

Number of segments :	**0**						
Segment identity CESGCDV2	**CEGOV2 code**	**CEMOV2 code**	**Comments**	**Correction (Y/N)**	**Which CEGOV2 code ?**	**Which CEMOV2 code ?**	**Date of correction**

CEGOV2 code = B37 and CEMOV2 code = A, AC, C, D, E, F, P, R, N, X, Z, G or H

Number of segments :	**0**						
Segment identity CESGCDV2	**CEGOV2 code**	**CEMOV2 code**	**Comments**	**Correction (Y/N)**	**Which CEGOV2 code ?**	**Which CEMOV2 code ?**	**Date of correction**

CEGOV2 code <> D00 and CEMOV2 code = H					
Number of segments :	0				
Segment identity CESGCDV2	CEGOV2 code	Comments	Correction (Y/N)	Which correction	Date of correction

CEGOV2 code = D00 and CEMOV2 code <> H				
Number of segments :	0			
Segment identity CESGCDV2	CEMOV2	Comments	Correction (Y/N)	Date of correction

APPENDIX 3

QUALITY CONTROL
METHODOLOGY FOR CROSS-CHECKING ATTRIBUTES

Attribute compatibility : CEMO and CESG

Geology → Morpho ↓		Substratum																				Non cohesive formations														No information	Not in nomenclature
			Plutonic				Volcanic				Metamorphic					Sedimentary Rock							Marine deposits		Lacustrine deposits		Continental deposits											
		A00	A10	A11	A12	A13	A20	A21	A22	A23	A30	A31	A32	A33	A34	A40	A41	A42	A43	A44	A45	A46	B00	B10	B11	B20	B21	B30	B31	B32	B33	B34	B35	B36	B37	C00	D00
Rocky coasts	A																																				
	B																																				
	AC																																				
Beaches	C																																				
	D																																				
	E																																				
	F																																				
Soft strands with - rocky platform - beach rock - vegetated - mine-waste	P																																			
	R																																				
	N																																				
	S																																				
Artificial beach	K																																				
Heterogeneous grain size	X																																				
Unknown grain size	Z																																				
Muddy sediments	G																																				
Artificial shoreline	Y																																				
Coastal embankments	L																																				
Harbour	J																																				
Estuary	H																																				

Possible

Impossible

Morpho → Evolution ↓			Rocky coasts			Beaches				Soft strands with - rocky platform - beach rock - vegetated - mine-waste				Artificial beach	Heterogeneous grain size	Unknown grain size	Muddy sediments	Artificial shoreline	Coastal embankments	Harbour	Estuary
			A	B	AC	C	D	E	F	P	R	N	S	K	X	Z	G	Y	L	J	H
Out of nomenclature		0																			
No information		1																			
Stable	Not perceptible at human scale	2																			
	Small occasional variations	3																			
Erosion	Probable, not documented	4																			
	Confirmed for part	50																			
	Confirmed for the whole	51																			
Aggradation	Probable, not documented	6																			
	Confirmed for part	70																			
	Confirmed for the whole	71																			

Possible

Impossible

Attribute compatibility **CEDW** **and** **CEMO**

		CEMO	CEMO
		A	H
CEDW	yes		

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