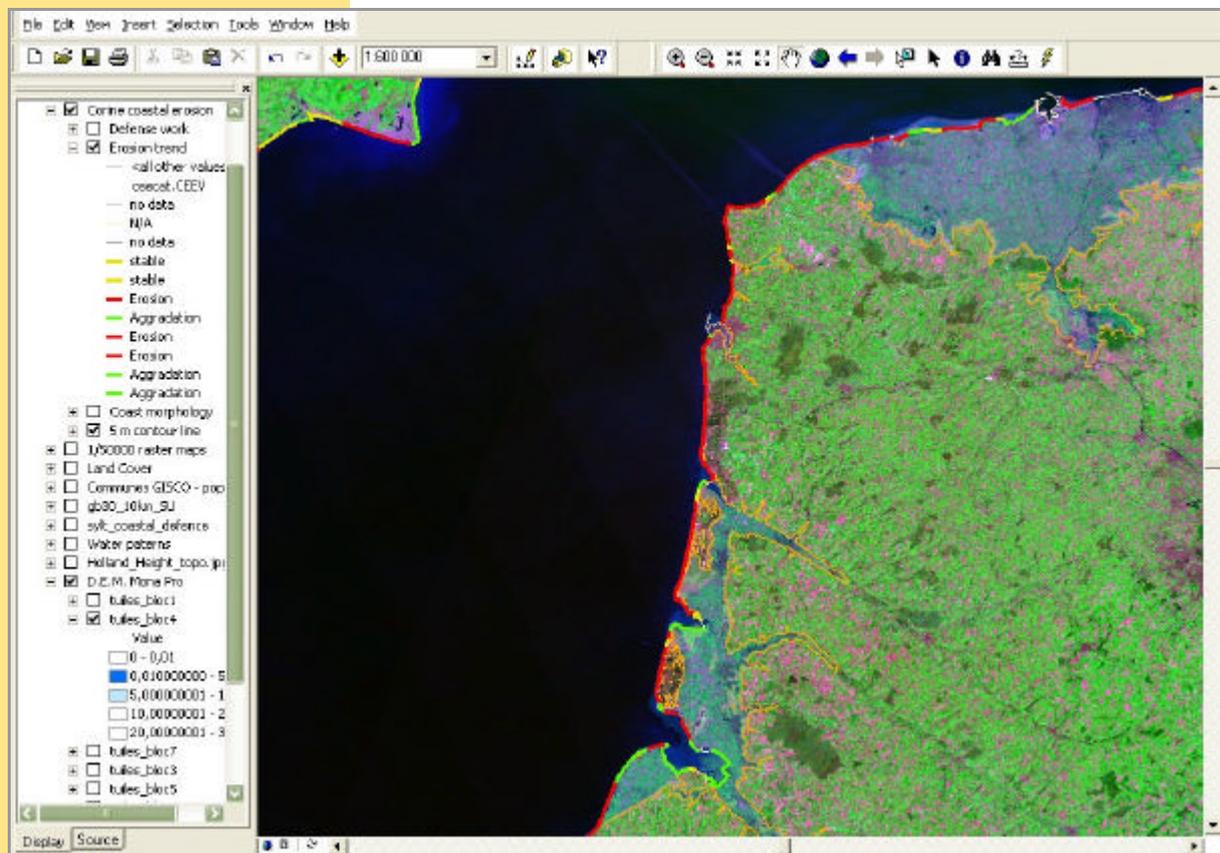




# Quick Start to the EUROSION database



May 2004





- As for islands, only those which area exceeds 1 km<sup>2</sup> and population exceeds 50 inhabitants are covered by the database. This coverage is compliant with the EUROSTAT definition of islands.
- The database shall feature a wide range of themes – or “layers” – among which administrative boundaries (both terrestrial and maritime), topography, wave and wind regime, tidal range, sea level rise, geomorphology, sedimentology, geology, erosion trends, infrastructure, land use, demography and economics.
- The data shall be provided with a GIS format, namely ArcInfo export (.e00) for vector data and .bil or .tif for raster data, and organised in various GIS layers consistent with the above mentioned themes.
- The accuracy shall be compatible with scale 1:100,000
- The coordinate systems shall be based upon the horizontal reference system ETRS89, and vertical EVRF2000 for altitudes.
- Each layer shall be fully documented using a metadata structure compliant with ISO19115 extended to Dublin Core Metadata Initiative and GELOS.

It is also worth mentioning that the database shall build as much as possible upon existing data sources, and production of new data shall remain limited.

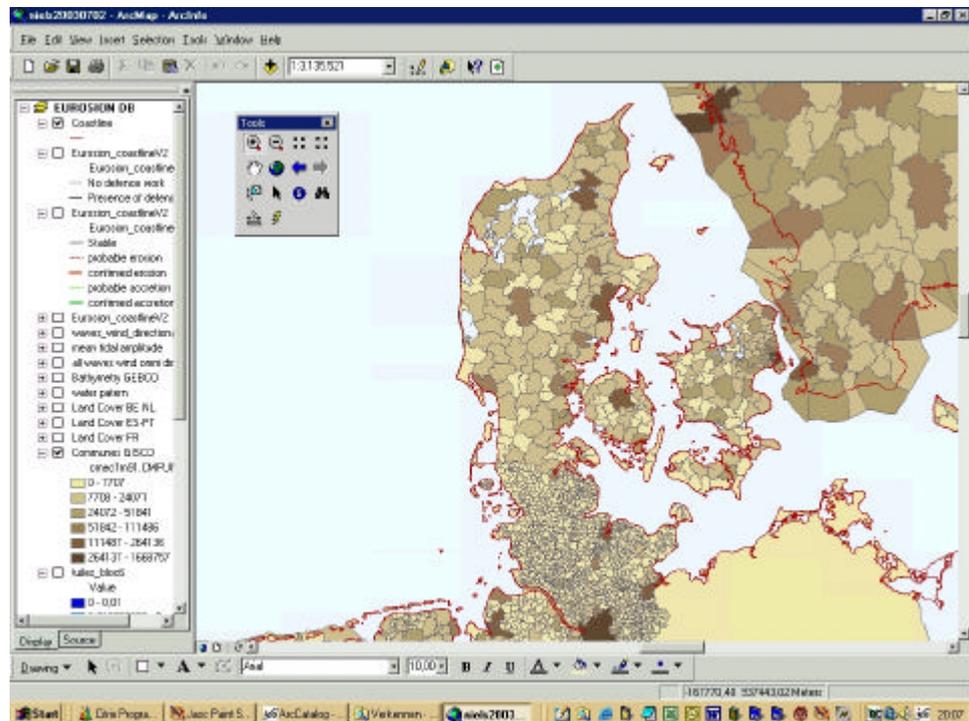
## **EUROSION data layers**

As mentioned above, the EUROSION database is structured in various data layers. Each of these layers highlights a specific factor deemed to impact coastal erosion processes or human responses to them. These layers are listed below :

1. Terrestrial Administrative Boundaries
2. Maritime Boundaries
3. Shoreline
4. Bathymetry
5. Elevation
6. Geomorphology and geology
7. Erosion trends and coastal defence works
8. Hydrography
9. Infrastructure
10. Wave and wind climate
11. Tidal regime
12. Sea level rise
13. Land cover and land cover changes since 1975
14. Areas of high ecological value

# 1. Terrestrial administrative boundaries

This screenshot features administrative boundaries of Denmark, Northern Germany and Southern Sweden at the Municipal/Gemeinde level (NUTS 5). In this example, the municipal boundaries have been coupled with demographic data provided by GISCO. The coastline has been displayed in red. In some countries (e.g. Sweden) the administrative boundaries of municipalities go far into the sea.



## Data description

This layer depicts European administrative units from the highest level (national boundaries) to the lowest level (municipalities or equivalent), using the Nomenclature of Territorial Units for Statistics (NUTS). NUTS is a 5-level classification established by EUROSTAT to provide a single uniform breakdown of territorial units for the production of regional for the European Union. NUTS 5 corresponds to the lowest level.

## Source of data

Seamless Administrative Boundaries of Europe (SABE) version 2.1 (1997). Distributed by EuroGeographics. SABE is derived from cartographic data provided by the national mapping agencies.

## Geographical restrictions

SABE v2.1 covers all European Union countries, as well as Estonia, Latvia, Lithuania, Poland, Slovenia.

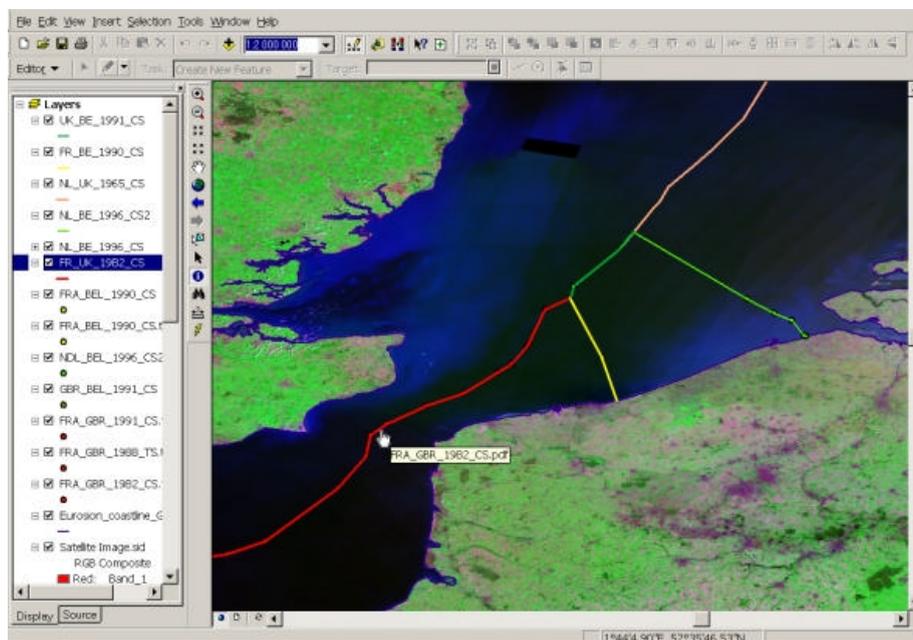
## Quality

SABE is derived from basic data which are of the best available semantic quality and of the application scale the closest to 1: 50.000 for each country. These basic data have been organised into a homogeneous structure and a uniform reference system, line-filtered to a uniform resolution and are edge matched at international boundaries ("seamless" polylines).

## Copyright and data access conditions

The dataset is copyrighted (EuroGeographics). Licence fees for accessing the complete database is about 15,200 Euros, with the possibility to be purchased country by country. A licence of SABE 97 has already been granted to the European Commission, which makes this layer available free-of-charge for any application internal to the European Commission. Its dissemination outside the European Commission shall be subject to negotiation with EuroGeographics.

## 2. Maritime boundaries



Maritime boundaries are established through international bilateral or multilateral agreements and conventions. This screenshot depicts such boundaries for a part of the Channel and North Seas. EUROSION database does not just provide the geographical boundaries but also a link to the international convention which establishes these boundaries (by clicking on the relevant segment)

### Data description

Maritime boundaries are established through international conventions. These conventions list the coordinates of points which are the vertices of segments which, in turn, define the maritime boundaries. This layer therefore features the following elements:

- the textual content of international conventions establishing maritime boundaries in Europe. Maritime boundaries featured in this layer include territorial waters, bi- or multi-lateral boundaries (e.g. in the North Sea) as well as contiguous and exclusive economic zones. Some fishing areas are also defined.
- The coordinates of points listed in these conventions are vertices of maritime boundaries
- The maritime boundaries themselves, defined as the segments which links the different points listed in the international conventions.

### Source of data

The main source of data comes out of the United Nations Convention on the Law of the Sea (UNCLOS), where nations define and update their sovereign claims to the ocean. Information provided by UNCLOS has been geocoded by EUROSION.

### Geographical restrictions

Restrictions are those cases where no regulatory text exists within the UNCLOS till now.

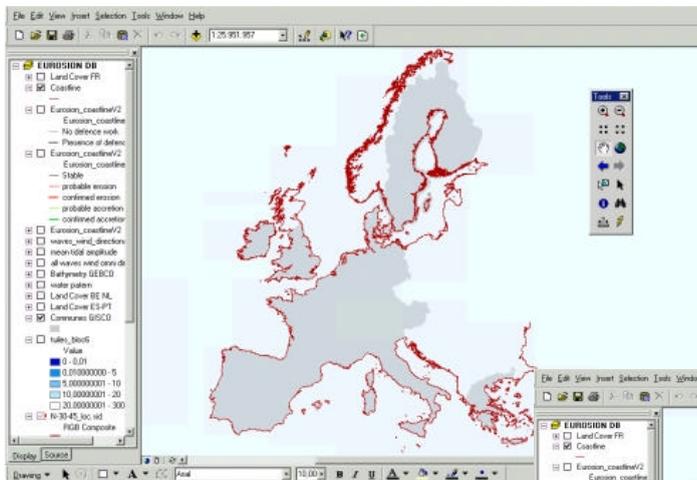
### Quality

This layer is entirely generated from the EUROSION project. Comparisons are being made with extracts of the copyrighted Global Maritime Boundaries Database (GMBD) distributed by the US based company Veridian. EUROSION targets a comparable accuracy as Veridian, but will remain copyright-free.

### Copyright and data access conditions

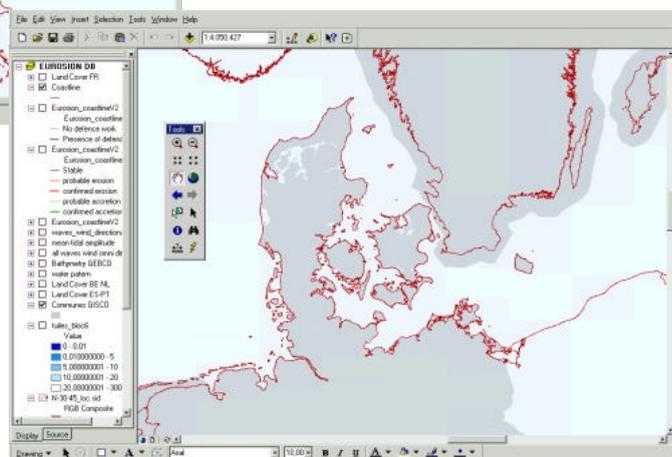
The layer "Maritime boundaries" of EUROSION database will be available without any restriction, since source documents are publicly accessible and for free at URL: <http://www.un.org/Depts/los/LEGISLATIONANDTREATIES/europe.htm>

### 3. Shoreline



*EUROSION shoreline is a hybrid product derived from various data sources: digitisation of topographical maps, SABE, GISCO, World Vector Shoreline. Its representation is seamless which means that it is not disrupted at borders (for example). This screenshot provides an overview of EUROSION shoreline for the whole Europe.*

*Once corrected with results from layer "Geomorphology and geology", EUROSION shoreline is expected to provide the best representation at scale 1:100,000 of the European shoreline. This screenshot depicts an excerpt from EUROSION shoreline for Denmark and surrounding countries.*



**Data description**

The EUROSION shoreline is a seamless representation of the limit between land and sea, at the scale of 1:100,000 covering the whole Europe.

**Source of data**

The construction of the EUROSION shoreline results from a three-step process:

- a baseline shoreline for the whole European coastline has been compiled using different sources of data: (i) the first version of CORINE Coastal Erosion for EU countries as of 1990 (this version was derived from digitisation of topographical maps), (ii) SABE CoastLine – at scale 1:100,000 - for countries which joined EU after 1990 and Centre East European Countries, (iii) the World Vector Shoreline (WVS) – at scale 1:250,000 – for some specific territories such as Crete and other greek islands, Malta, Cyprus, Baltic States and Romania. GISCO 1:1 Million is used to “connect” EU territories (e.g. Slovenia with Greece, Greece and Black Sea region) and complete ultraperipheral regions.
- Comparison of the baseline shoreline with declassified LANDSAT satellite images distributed by NASA has made it possible to identify and fill data gaps (especially the delineation of estuaries and missing islands)
- The baseline shoreline is then being improved locally as part of the process to produce the layer “Geomorphology and geology” (see corresponding section). Improvements are based upon large scale maps (in general 1:50,000).

**Geographical restrictions**

No geographical restriction

**Quality**

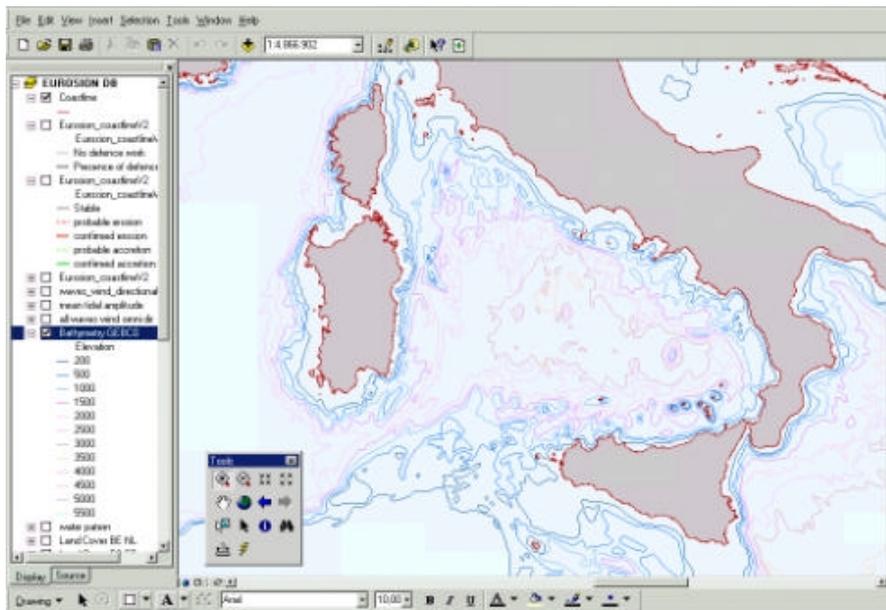
EUROSION shoreline has an average accuracy estimated to 50 meters. It means

that the position of the “real” shoreline lies on average within a radius of 50 meters from EUROSION shoreline representation. This accuracy is estimated by comparing the EUROSION shoreline representation with declassified LANDSAT satellite images distributed by NASA. We strongly recommend that the accuracy of EUROSION shoreline is also assessed using IMAGE 2000 data when available.

**Copyright and data  
access conditions**

EUROSION shoreline is a hybrid product derived from various copyrighted and copyright-free data sources. Its use is without restriction within the European Commission. However, its use by external users is subject to restrictions which will be clarified before the completion of EUROSION.

## 4. Bathymetry



Bathymetry of the Tyrrhenian Sea and surroundings. The first contour line available is 200 m, which restricts this product to low resolution applications (e.g. calculation of surge level) but not for local applications (e.g. modelling of long-shore currents)

### Data description

The bathymetric layer depicts the following isobaths: 200m, 500, 1000m, 1500m, 2000m, 2500m, 3000m, 3500m, 4000m, 4500m, and 5000m. Data are provided as a GIS polyline.

### Source of data

Isobaths are extracted from the GEneral Bathymetric Chart of the Oceans (GEBCO) gathered and distributed by the British Oceanographic Data Centre, on behalf of the International Oceanographic Commission.

### Geographical restrictions

GEBCO represents a European-wide unified dataset, derived from a collection of existing maritime sheets and atlases. However, GEBCO does not ensure the same level of details for all European waters: depending on the areas, not all the isobaths are represented and not with the same accuracy.

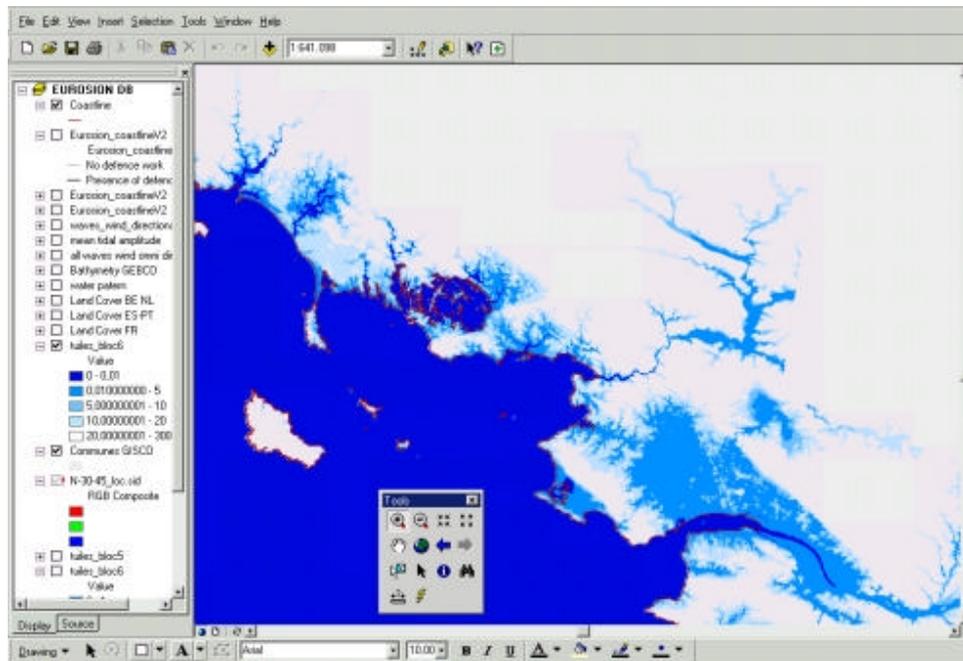
### Quality

GEBCO has been designed for illustrative purpose and for low resolution modelling. Its nominal scale is 1:1,000,000, which is not suitable for applications at scale 1:100,000. However, it is worth mentioning that GEBCO is currently the only product featuring bathymetry in vector format and available for all European waters. Its quality is being regularly improved by the British Oceanographic Data Centre.

### Copyright and data access conditions

The dataset is copyrighted (BODC). Licence fees for accessing the complete database in vector format is about 250 £. It is however possible to freely disseminate GEBCO data in raster format (e.g. .bmp, .jpg, .gif). Only the mention of GEBCO copyright is then required. Contractually the BODC insists to communicate that "Data from the GEBCO Digital Atlas are not to be used for navigation or for any other purpose relating to safety at sea".

## 5. Elevation



This screenshot features elevation in the areas of Lorient and Saint-Nazaire (France). Elevation has been displayed using five different classes: (i) below 0 meter (marine blue), (ii) between 0 and 5 meters, (iii) between 5 and 10 meters, (iv) between 10 and 20 meters, and (v) above 20 meters (white).

### Data description

The Elevation layer makes it possible to identify lowlands which are vulnerable to significant sea level rise and the risk of flooding. Elevation data are provided in two forms:

- A Digital Terrain Model (DTM) which consists in a grid data of altitudes with a 90 to 100m resolution
- 5 meter and 10 meter height contour lines, in vector format, derived from the DTM and completed where needed with other sources of data

### Source of data

The Digital Terrain Model, MONA PRO Europe©, is a copyrighted product provided by Geosys Data. To derive contour lines of 5 and 10 meters, the data were locally complemented with other sources, namely national DTM and digitised topographical maps.

### Geographical restrictions

Restrictions for Scandinavian countries.

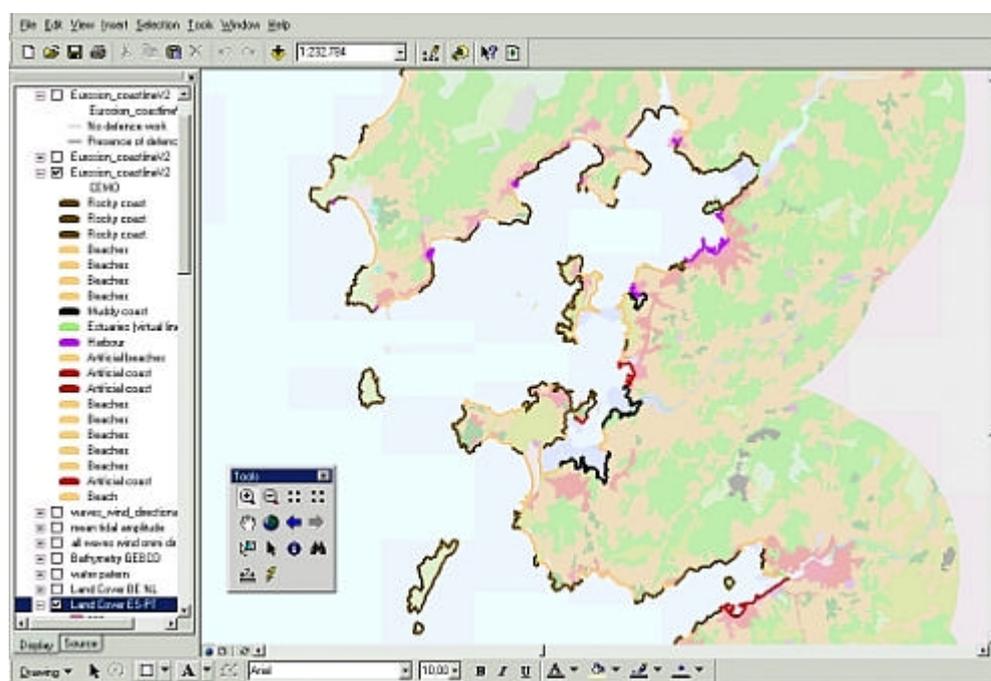
### Quality

The resolution of grid data is 90 to 100 meters. Its geometrical accuracy in x,y and z does not exceed 5 meters for lowlying areas and 15 meters for mountainous areas.

### Copyright and data access conditions

MONA PRO Europe© is copyrighted. A multi-posts "agency" license has been acquired for the European Commission, which makes the product available for applications developed within the European Commission. Dissemination outside the European Commission is restricted to raster representations (i.e. images) of the DTM. However, most of contour lines are copyright-free and publicly available.

## 6. Geomorphology and geology



Morpho-sedimentology along the coast of Galicia, near Vigo and Pontevedra (Spain). The coastline is divided into contiguous segments, each of them representing a homogenous geo-morphological type. 20 different geo-morphological types have been defined. However, they may be aggregated into 6 major types (rocky coasts, beaches, muddy coasts, estuaries, harbours, and artificial coasts). This screenshot illustrates a complex coastline along which all geo-morphological types are present.

### Data description

The layer features both morpho-sedimentological and geological patterns of the European coastline at scale 1:100,000 and in vector format. The data consist in a segmentation of the EUROSION shoreline. Both a geomorphological and a geological code is assigned to each segment. 20 different geomorphological types (and thus codes) and 13 geological types have been defined.

### Source of data

The layer mainly results from an update of CORINE Coastal Erosion version 1.0 (CCEr v1.0). CCEr v1.0 was carried out by the European Commission from 1985 to 1990. This version covers European Union countries as of 1990. The update of CCEr version 1.0 and the extension of the database to countries which joined EU after 1990 and to accession countries was part of EUROSION assignments. These new or updated data are mainly derived from ancillary data such as national geological maps, reports, or existing database (such as FutureCoast for England and Wales).

### Geographical restrictions

Most of European countries are fully covered. Restrictions concern Romania, Bulgaria, Cyprus, and ultra-peripheral regions which coastline is only covered 20%.

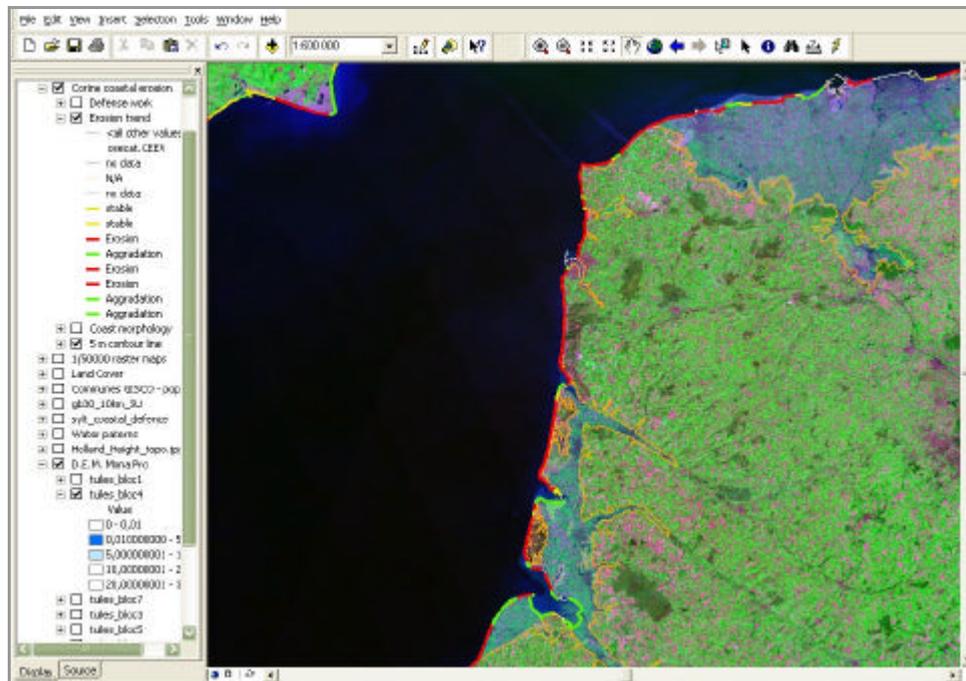
### Quality

Source data have been severely checked and corrected. Double control on the quality of the produced database is currently ensured.

### Copyright and data access conditions

As a EUROSION assignment, this layer is publicly available inside and outside the European Commission.

## 7. Erosion trends and coastal defence works



The present screenshot depicts the erosion trends along the coastline of Nord-Pas-de-Calais in France. Eroding sections of the coastline appear in red, stable sections in yellow and sections in accretion in green. In this screenshot, a satellite image has been used as a background image and the 5 meter contour line has been displayed as well. Congruence of eroding areas with low-lying areas gives an indication of areas at risk of flooding.

### Data description

The layer features both erosion trends and the existence of coastal defence works along the coast. Such as the previous layer, this layer is provided at scale 1:100,000, in vector format, and consists in a segmentation of the EUROSION shoreline. 3 codes have been defined to depict erosion trends (stable, erosion, accretion) and 2 codes to depict coastal defence works (presence, absence).

### Source of data

The layer mainly results from an update of CORINE Coastal Erosion version 1.0 (CCEr v1.0). CCEr v1.0 was carried out by the European Commission from 1985 to 1990. This version covers European Union countries as of 1990. The update of CCEr version 1.0 and the extension of the database to countries which joined EU after 1990 and to accession countries was part of EUROSION assignments. These new or updated data are mainly derived from ancillary data such as national geological maps, reports, or existing database (such as FutureCoast for England and Wales).

### Geographical restrictions

Most of European countries are fully covered. Restrictions concerns Romania, Bulgaria, Cyprus, and ultra-peripheral regions which coastline is only covered 20%.

### Quality

Source data have been severely checked and corrected. Double control on the quality of the produced database is currently ensured.

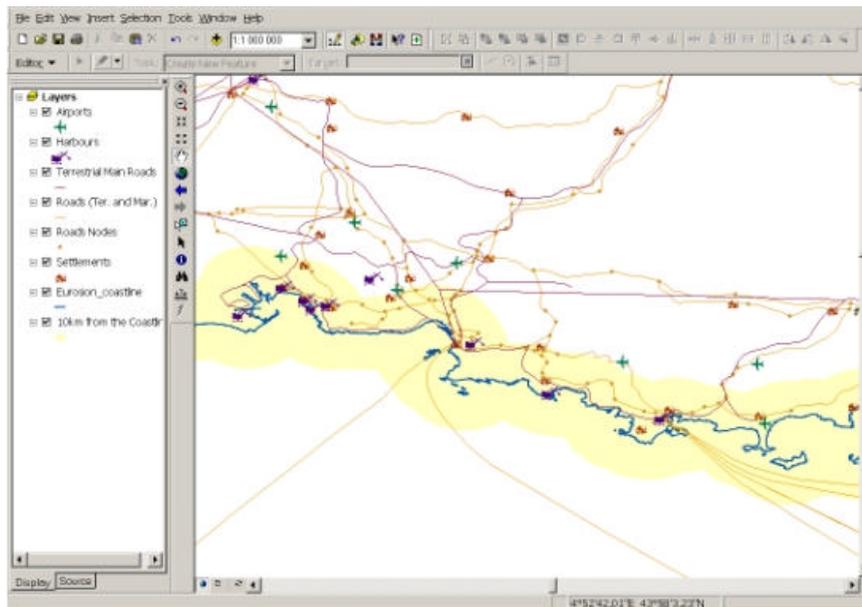
### Copyright and data access conditions

As a EUROSION assignment, this layer is publicly available inside and outside the European Commission.

## 8. Hydrography

<b>Data description</b>	This layer provide a cartographic representation of European rivers, lakes, artificial streams and major sea drainage at scale 1:1,000,000 and in vector format.
<b>Source of data</b>	The data included in this layer come from the Watersheds and Waterpatterns layers of GISCO database distributed by EUROSTAT. No new data have been produced by EUROSION in relation with this layer.
<b>Geographical restrictions</b>	The same as GISCO
<b>Quality</b>	No documentation available
<b>Copyright and data access conditions</b>	As data coming from GISCO, the use of this layer is subject to authorisation from EUROSTAT.

## 9. Infrastructure



Infrastructure layer of GISCO provides information on main airports, harbours, terrestrial and maritime roads, settlements and industries in Europe. This screenshot is an excerpt from this layer in the region of Marseille and Toulon in France.

### Data description

This layer provide a cartographic representation of European harbours, jetties, airports, railways, terrestrial and maritime roads, and industrial facilities, at scale 1:1,000,000 and in vector format.

### Source of data

The data included in this layer come from the Infrastructure layer of GISCO database distributed by EUROSTAT. No new data have been produced by EUROSION in relation with this layer.

### Geographical restrictions

The same as GISCO

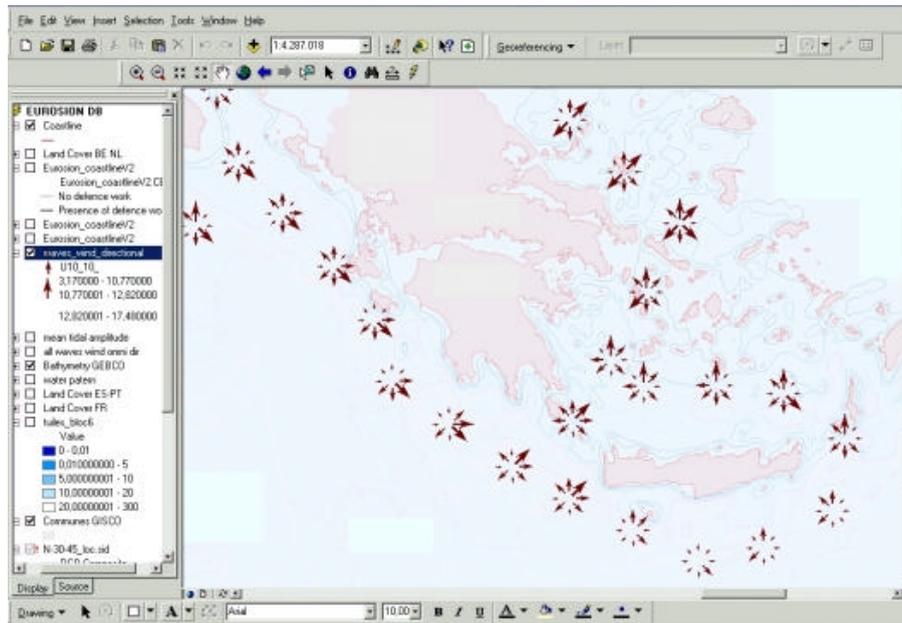
### Quality

No documentation available

### Copyright and data access conditions

As data coming from GISCO, the use of this layer is subject to authorisation from EUROSTAT.

## 10. Wave and wind climate



Data on wave and wind climate are provided at 237 locations all along the European coastline. In this example, along the Greek coastline, information on the mean wind speed (at 10 meters above sea level) has been depicted. At each location, 8 arrows are displayed: one for each direction. The size of the arrow gives an indication of the dominant wind direction and is an important input to estimate the water level rise in case of surge.

### Data description

This layer provides information on wave and wind climate at 237 locations along the European coastline. These locations are situated 50 to 100 km away from the shoreline. Distance from one location to another location is approximately 100 km. For each location, the data included in the layer provide the following parameters:

- average wind speed
- wind speed exceeded by 10% of the measurements
- wind speed exceeded by 1% of the measurements
- average wave height
- wave height exceeded by 10% of the measurements
- wave heights exceeded by 1% of the measurements
- average wave period
- wave period exceeded by 10% of the measurements
- wave period exceeded by 1% of the measurements

These parameters are provided for the following directional sectors: 0, 45, 90, 135, 180, 225, 270, and 315 degrees.

### Source of data

Data were entirely generated from the EUROSION project. The parameters listed above were statistically processed from the database waveclimate.com distributed by the dutch company ARGOSS. waveclimate.com database contains up to 17 years of wind- and wave data (1985-2001). Observations of wave height and wind speed come from altimeters carried by ERS-1, ERS-2, Topex/Poseidon and Geosat satellites. The scatterometer sensors onboard ERS-1 and ERS-2 supplied the wind speed and wind direction data. Wave spectral parameters were derived from spectra of Synthetic Aperture Radar (SAR) imageries collected by ERS-1 and ERS-2 using an algorithm developed by ARGOSS [Mastenbroek and de Valk, 2000]. Production of statistical estimate for the parameters listed above were carried out over « boxes » of 200kmx200km. Each box overlaps with the adjacent boxes with an approximative 50% rate, and results are attached to the box centre (see screenshot above). As a consequence, data are provided with a 100km resolution along the European coast.

### Geographical restrictions

No data have been computed for the ultraperipheral regions and for Cyprus.

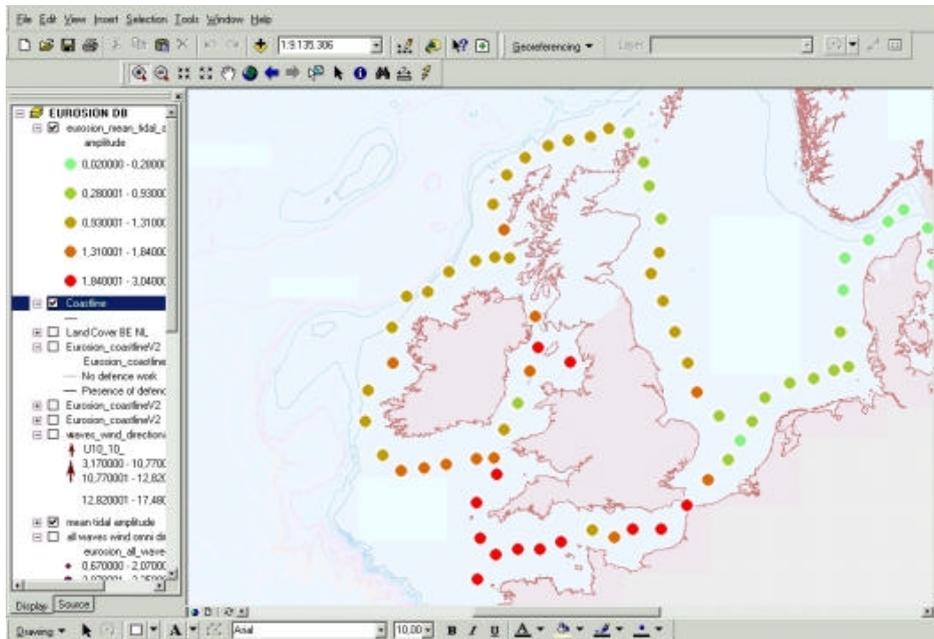
### Quality

Source data have been severely checked and corrected. Double control on the quality of the produced database is currently ensured. Residual Mean Square Error (RMSE) of wave height estimates does not exceed 15%, though the RMSE of wind speed does not exceed 20%.

**Copyright and data  
access conditions**

Though ARGOSS database is copyrighted, statistics generated from it are copyright-free and are therefore publicly available inside and outside the European Commission.

# 11. Tidal regime



Tidal regime informs about the potential influence of the tides on the evolution of the European coastline. In this example, we can easily distinguish macro-tidal areas (in red), meso-tidal areas (brown or greenish), and micro-tidal areas (in green).

## Data description

This layer provides information on the mean tidal range at 237 locations along the European coastline. These locations are situated 50 to 100 km away from the shoreline. Distance from one location to another location is approximately 100 km (see also layer “wind and wave climate”)

## Source of data

Data on tidal range at the 237 locations are extrapolated from the database “tidal-info.com” distributed by ARGOSS. This database contains tidal harmonics for the eight most important components, i.e. M2, S2, N2, K2, K1, O1, P1 and Q1. The harmonics were computed by assimilating eight years of radar altimeter orbit height measurements and tide gauge measurements from approximately 7300 coastal stations into a shallow-water tidal model. The satellite measurements give a good overview of the tidal patterns on deep water, whereas the stations give accurate information for certain locations close to the shoreline. The combination of the two, assimilated in a tidal model, provides good information in shallow coastal seas where tidal effects are most prominent.

## Geographical restrictions

No data have been computed for the ultraperipheral regions and for Cyprus.

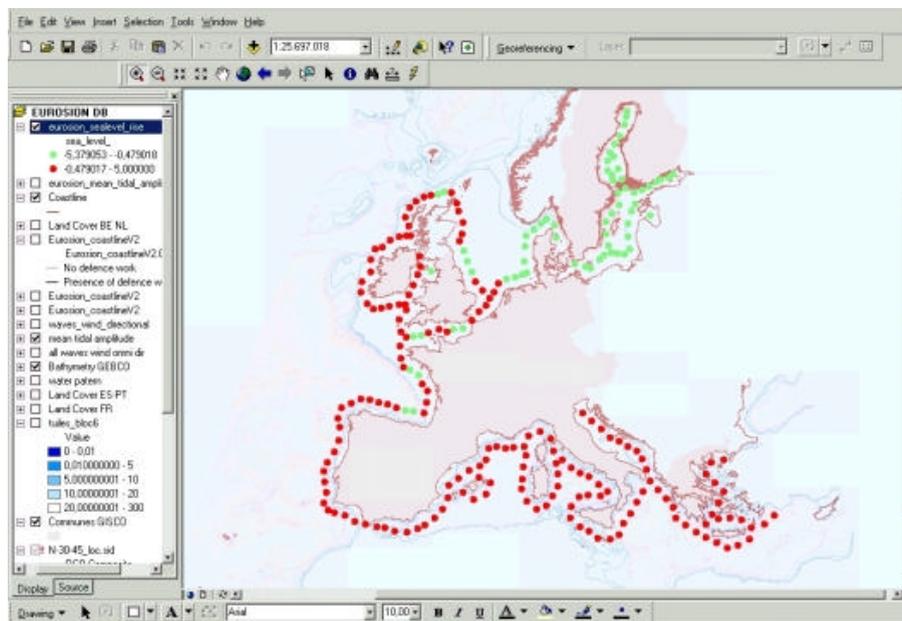
## Quality

Source data have been severely checked and corrected. Double control on the quality of the produced database is currently ensured. The overall accuracy of tidal range estimates lies between 10 and 15%.

## Copyright and data access conditions

Though ARGOSS database is copyrighted, the extrapolated data on tidal range derived from EUROSION are copyright-free and are therefore publicly available inside and outside the European Commission.

## 12. Sea level rise



### Data description

This layer provides information on the relative sea level rise at 237 locations along the European coastline. These locations are situated 50 to 100 km away from the shoreline. Distance from one location to another location is approximately 100 km (see also layer “wind and wave climate”)

### Source of data

Relative sea level rise (RSLR) at the 237 locations are extrapolated from the digitization of two maps, namely :

- the map by [Douglas et al., 2001] which provides an estimate of RSLR for the whole of Europe
- the map by [Lambeck et. al., 1997] which covers a smaller area in more detail, i.e. the North Sea

### Geographical restrictions

No data have been computed for the ultraperipheral regions and for Cyprus.

### Quality

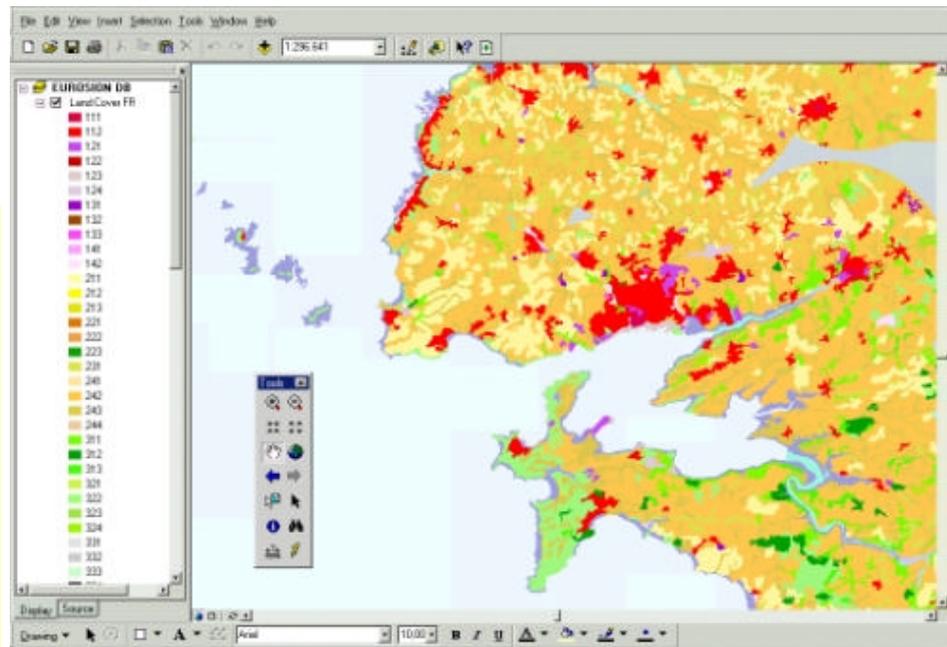
Source data have been severely checked and corrected with observation of tide gauges.

### Copyright and data access conditions

As a EUROSION assignment, this layer is publicly available inside and outside the European Commission.

## 13. Land cover and Land cover changes since 1975

The "Land Cover" layer of EUROSION database is exclusively derived from the CORINE Land Cover database version 1990 (CLC 1990). CLC 1990 features 44 different classes of land cover which may be grouped into 5 major land cover types (urban areas, agricultural areas, natural and semi-natural areas, wetlands, and water bodies). The present screenshot is an excerpt from CLC 1990 in the region of Brest (France). Urban areas appear in red, agricultural lands in orange or yellow, and natural areas (mainly forest) in green.



### Data description

Data contained in this layer are twofold:

- land cover data provided in vector format (polygons) and at scale 1:100,000. The minimum polygon size is 25 hectares. Land cover is organised in 44 different classes distributed into 5 categories (urbanised areas, agricultural areas, natural and semi-natural areas, wetlands, and water bodies) and with 3 levels of details
- land cover changes since 1975 provided in vector format (polygons) and at scale 1:100,000 as well. Land cover changes since 1975 only reports which polygons had a change of their land cover type since 1975.

Data of this layer are restricted to the 10 km land strip from the coastline

### Source of data

Sources of data on land cover and land cover changes are threefold :

- CORINE Land Cover version 1990 provides data which result from a visual analysis of LANDSAT and SPOT satellite images (mainly from 1987 to 1994) and interpreted with the support of ancillary data (such as aerial photographs, topographical maps, or ecological maps). The 44 classes nomenclature of CORINE Land Cover (and therefore EUROSION) is standardized for all Europe which makes comparison and aggregation at the European level easier. Note that CORINE Land Cover version 2000 is under development by the European Environment Agency.
- LaCoast project. LaCoast is a research project undertaken in the mid 1990 under the lead of the Joint Research Centre (JRC) and aimed at quantifying the changes of land cover types in a 10 km land strip from the coastline. LaCoast uses CORINE Land Cover version 1990 as its reference dataset and track differences of land cover changes using LANDSAT satellite images from the mid-1970's .
- EUROSION is extending the methodology of LaCoast to other European countries not currently covered by LaCoast. The same methodology was used to ensure consistency, easy comparison, and quick aggregation.

**Geographical restrictions**

CORINE Land Cover does not include at this stage validated data for Sweden (validation in process), and no data at all for Malta and Cyprus. These countries have therefore not been included in the EUROSION layer.

EUROSION is extending the current LaCoast database - with the same specifications – to Poland, Baltic states, Romania, Bulgaria and Slovenia. United Kingdom, Sweden, and Finland are not covered due to incompatibilities between CORINE Land cover data in these countries and the LaCoast methodology.

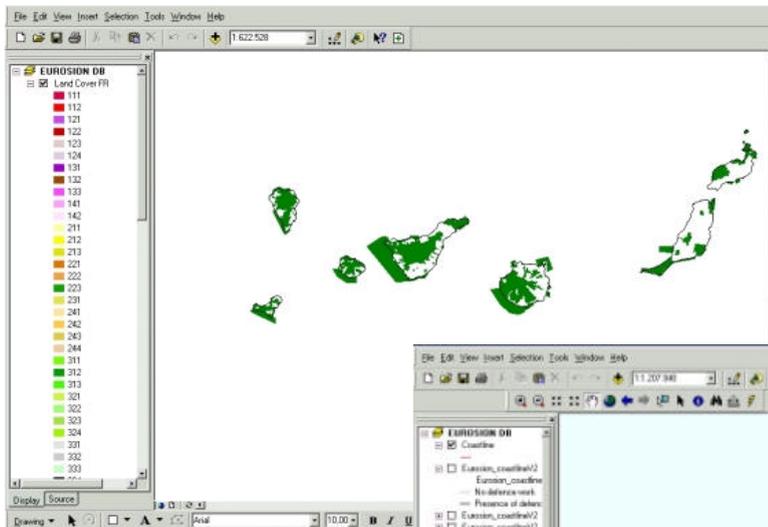
**Quality**

CORINE Land Cover data have undergone several quality controls by the EEA. Geometrical accuracy is relatively good however some inconsistencies exist at the border between different countries (e.g. France and Belgium). The quality of LaCoast data is currently being controlled by the JRC. Results will be shortly known. As for the extension to accessing countries quality results look very satisfactory.

**Copyright and data access conditions**

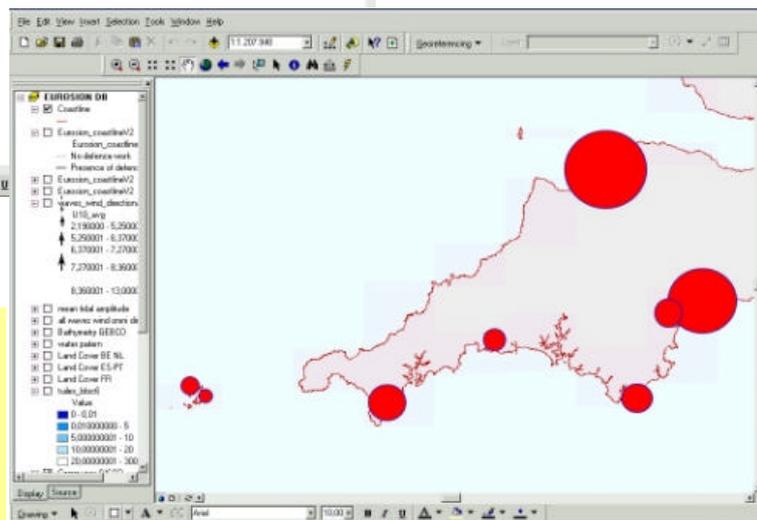
CORINE Land cover data are accessible for free from the European Environment Agency (EEA). LaCoast data have to be requested to the Joint Research Centre (JRC). As for data extended by EUROSION, they will be freely accessible upon request.

## 14. Areas of high ecological value



This screenshot depicts an excerpt from the Natura 2000 GIS files for the Canary Islands. One of the advantages of these data compared to CORINE Biotopes, is the delineation of geographical boundaries in vector format. However at this point, only the Natura 2000 proposed Sites of Community Interest for the Macaronesian ecoregion (of which Canary is part) have been validated and therefore made accessible to EUROSION

CORINE Biotopes provides an inventory of major nature sites in Europe (here in Cornwall, UK). In this example, the location of the sites has been combined with its size, resulting in a "bubble" representation of major nature sites in Cornwall. In the long run, CORINE Biotopes will be replaced by Natura 2000 GIS files



### Data description

This layer contains information on the location and characteristics of areas with a high ecological value. Because of restrictions in accessing the most updated and accurate information on areas of high ecological areas (provided by Member States in the framework of the Habitats Directive), the following approach has been adopted by EUROSION:

- in a first stage, data on areas of high ecological value will be derived from CORINE Biotopes. The data depict the location of major nature sites in Europe (NB: only coordinates of centroids are provided, not the geographical boundaries of the sites). The characteristics of these sites in terms of size, number of species hosted by the sites, or legal status are provided as attributes of the centroids. This makes it possible cartographic representation in the forms of bubbles (see screenshots).
- in a second stage, the above mentioned Biotopes database will be progressively replaced by the database of proposed Sites of Community Interest (pSCI) - which is being established in the framework of the Habitats Directive and Natura 2000 network – as data become public. For the time being, only pSCIs for the Macaronesian ecoregion (Canary, Azores, Madeira) are publicly available, which makes impossible any exploitation of these data for European-wide applications.

### Source of data

CORINE Biotopes is a relational database made of different tables including: (i) species tables (mammals, birds, reptiles, etc.), (ii) habitats tables, (iii) natural sites tables, and (iv) look up files. Since CORINE Biotopes data are not referenced in a GIS format, geocoding operations of the whole database are being carried by EUROSION.

As for Natura 2000 GIS files, they are still in the process of validation and are therefore not accessible for EUROSION.

**Geographical restrictions**

CORINE Biotopes is being extended under the lead of the European Environment Agencies (EEA) for accession countries. However, these data will not be available before the completion of EUROSION.

**Quality**

Quality of CORINE Biotopes is considered as sufficient to carry out the coastal erosion assessment. However, the database itself suffers from various semantical and structural inconsistencies, which should be partly fixed by the ongoing Natura 2000 enhancement project.

**Copyright and data access conditions**

CORINE Biotopes data (non relevant for GIS purposes) are downloadable for free from the web site of the European Environment Agency (EEA). However, the same data - geocoded to fit GIS applications - will be made publicly available through the EUROSION database, without restrictions.