EuroGlobalMap
Digital Database covering Europe

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ABSTRACT

EuroGlobalMap (EGM) is a digital, seamless 1:1 million scale data base. It is based on official data from the contributing National Mapping Agencies. EuroGlobalMap database is produced under the umbrella of EuroGeographics (www.eurogeographics.org), the association of the European National Mapping and Cadastral Agencies. The National Land Survey of Finland coordinates the EuroGlobalMap data production.

Currently the EuroGlobalMap database covers 35 European countries. Aim of the EuroGlobalMap project is to cover all of Europe with harmonised data. The EuroGlobalMap data set is made up of 6 themes (administrative boundaries, hydrography, transportation networks, settlements, elevation and named location), including total of 12 layers.

The European National Mapping and Cadastral Agencies work on several other database projects too. For example in EuroRegionalMap a database covering Europe is being produced in scale 1:250 000 and aim is to release the data in end of 2006.

Background and aims

The EuroGlobalMap (EGM) Project was started in 2000. In the background of the EuroGlobalMap is the MapBSR Project (www.mapbsr.nls.fi): the Digital Map of the 14 countries around the Baltic Sea. The MapBSR database was finalised in 2000. The MapBSR database will no longer be up-dated as an independent database, but the data will be incorporated into the EGM database. The National Land Survey of Finland was the project coordinator also of the MapBSR project.

Besides producing data for the European use, the EuroGlobalMap aims to be the European contribution to the Global Mapping initiative. The European National Mapping and Cadastral Agencies (NMCAs) have found it important to create a seamless European database - i.e. the data will be integrated at international boundaries – which is a single important improvement compared to the basic Global Map data.

Generally data in each European country is created to meet the national needs, so the resulting data infrastructure is not seamless between countries and no European wide data base has been available with seamless coverage and secured up-dating. EuroGlobalMap database is a million scale dataset and it covers the European countries with harmonised topographical data. The EuroGlobalMap database provides the first European geographic information infrastructure that will be maintained at the source level by the National Mapping Agencies, and by providing harmonised access conditions for geographic information. In EuroGlobalMap database the national data is harmonised to meet the agreed specifications and the data is compiled into one seamless database covering whole Europe.

EuroGlobalMap is designed for business and private use. It can be used for spatial analysis, as a geographic backdrop for presentation and visualisation or as a geographical interface to ground related data in Europe. Applications of it will comprise e.g. freight fleet management at the European level, environmental assessment, strategic planning in the private and in the governmental sector, strategic cross border security aspects, large scale hydrographic analyses and geographical names analyses with different languages.

The EuroGlobalMap data production

Each participating National Mapping Agency has accepted to make available its national data, harmonised by conversion into the common specification. The project work is coordinated by National Land Survey of Finland and regionally by so called Regional and Sub-Regional Coordinators.

The idea of the “Regional Coordinators” in the EuroGlobalMap Project has arisen from the fact that it is beneficial, both financially and operationally, to share the work in this European wide project. In addition, it allows better cooperation and a wider spread of knowledge within the project. Project management by one “focal point” (Project Manager) is difficult when there are almost 40 organisations working together. The role of the RCs is important as they will take care of the data integration between countries and of the pan-European integration of data in to one seamless European wide database. Beneficial for the project is also that the RCs know the regional circumstances in their area.

Currently there are four Regional Coordinators (Finland, France, Germany, Ireland) and three Sub-Regional Coordinators (Estonia, Greece, Spain) for smaller parts of Europe. Each of them will be in charge of one Region of Europe (typically of 6 to 10 countries). The main duty of the Regional Coordinators (RCs) is to coordinate the project in their area of responsibility and to be the channel between the Project and the data providers. The RCs disseminate the information about the EGM Project, transfer technology and provide general support to data providers. They help the National Mapping Agencies of Europe to re-engineer their existing national datasets into the common

EuroGlobalMap specification. The RCs take care of the quality control, compile the data from neighbouring countries and also take part in the finalisation of the entire pan European-database (data integration, final quality control etc).

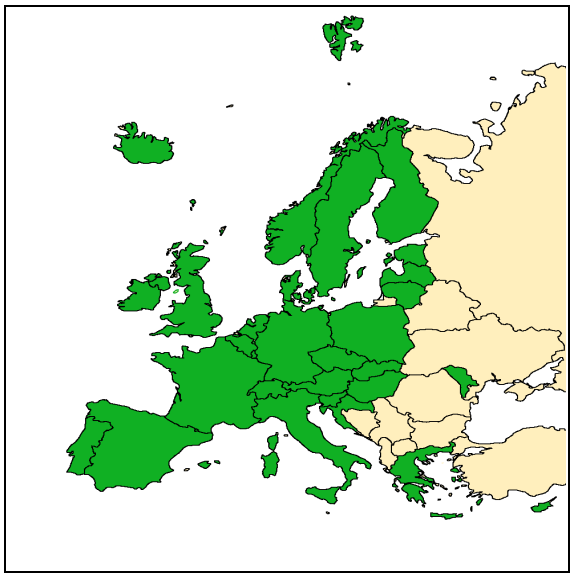

Figure 1. EuroGlobalMap, version 1.1 (release of 2004)

EuroGlobalMap v1.1 covers 35 European countries: Andorra, Austria, Belgium, Croatia, Czech Republic, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Great Britain, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Lithuania, Luxembourg, Moldova, Monaco, Northern Ireland, Norway, Poland, Portugal, San Marino, Slovakia, Slovenia, Spain, Sweden, Switzerland, The Netherlands and The Vatican. Next release with some new countries included will be available in June 2006.

The technical specifications

The first release of EuroGlobalMap specifications has been issued in 2001 and it is accepted by the European National Mapping Agencies. The total specifications can be found at the EuroGlobalMap website: http://www.eurogeographics.org/eng/04_products_globalmap.asp

The data set is formed from six themes (administrative boundaries, hydrography, transportation networks, settlements, elevation and named location), each of them including one or several layers.

Data format and map scale

The EuroGlobalMap database is produced using ArcInfo software. Data format is ArcInfo vector format and features are stored using ArcInfo's coverage method. ArcInfo's Geodatabase is not used yet. Features and their attributes are stored into the coverages (= layers) according to the specifications. National source datasets must be converted to the ArcInfo format according the EuroGlobalMap Technical Specification by each participating National Mapping Agency. After compiling of the national datasets into a seamless database, the final EuroGlobalMap database will be maintained in ArcInfo vector format. EGM Database is intended to be used in map scales 1:500 000 - 1:1 000 000.

Coordinates and spatial reference system

EuroGeographics uses ETRS89 as a reference coordinate system in its products. Coordinate units in EuroGlobalMap database are geographical decimal degrees: latitude and longitude. EGM database is produced with ArcInfo software using WGS84 coordinate system. Reasons for this are that ETRS89 does not yet belong to the supported datums in ArcInfo and the difference between WGS84, ITRF94 and ETRS89 (= EUREF89) coordinate systems is negligible at the scale of EGM (1:1 000 000). Ellipsoid is GRS80 (known also as WGS84).

The National Mapping Agencies use their own national metric coordinate system during the data production. Data coverages, which are checked and adjusted with each other, are then projected to WGS84 using national projection parameters.

Positional accuracy

The positional accuracy describes on how the coordinates of the feature agree with their real world values. The degree of the accuracy depends on the following processing steps:

- The positional accuracy of the source dataset.
- The errors due to conversion processes.
- Errors due to the manipulation processes.

Recommended positional accuracy is within 1000 meters or at least better than 2000 meters (which is used in GlobalMapping).

Data policy of EuroGlobalMap

Consistent data representation, data resolution and feature representation are other essential demands for EuroGlobalMap to satisfy users needs and expectations for an integrated, harmonised, edge-matched pan-European dataset The project participants worked on the common pricing and licensing conditions and distribution policy. The general objective was to find an acceptable and reasonable data policy for the EuroGlobalMap database finally covering 35 countries.

The EuroGlobalMap product policy consists of the following:

- The product marketing objective is "to maximise use of homogeneous reference (core) dataset from NMAs for the European customers that operate in cross-boundaries market";
- The minimal license period for new users is 2 (two) years.
- The product will be constantly updated in average at two years cycle.

More information:

http://www.eurogeographics.org/

http://www.eurogeographics.org/eng/04_products_globalmap.asp