

## Country Profile: Portugal

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### Country Resources

#### Topographic

Series	Publisher	Scale	Years	Sheets
Portugal 1:25,000 Scale Topographic Maps	Instituto Geografico do Exercito	1:25,000	2005 - 2006	21
Portugal 1:50,000 Scale Topographic Maps (M7810)	Instituto Geografico E Cadastral Portugal	1:50,000	1957 - 1995	175
Portugal 1:50,000 Scale Topographic Maps (M782)	Instituto Geografico E Cadastral Portugal	1:50,000	-	175
VMAPO 1:1,000,000 Scale Vector Data	National Imagery and Mapping Agency	1:1,000,000	1992 - 1992	4

#### Nautical

Series	Publisher	Scale	Years	Sheets
Portugal Nautical Charts (All Scales)	Ministerio da Defesa Nacional Marinha	Varies	2007 - 2015	85

#### Geoscientific

Series	Publisher	Scale	Years	Sheets
Western Sahara 1:1,500,000 Scale Geological Map	Instituto Geologico y Minero de Espana	1:1,500,000	1958 - 1958	1

#### Thematic

Series	Publisher	Scale	Years	Sheets
The World 1:30,000,000 Scale Topographic Map Series 1145 (NGA)	DMA	1:30,000,000	-	2

## Global Census Archive: GIS Census Data

East View Geospatial has an ongoing effort to add GIS census data to our Global Census Archive program. Please contact us for the status and availability of Portugal census resources.

### Global Resources

#### Topographic

Series	Publisher	Scale	Years	Sheets
Soviet Military City Plans	Voенно-topograficheskoe upravlenie General'nogo shtaba (Soviet Union)	Varies	1944 - 2003	3017
Soviet Military 1:100,000 Scale Topographic Maps	Voенно-topograficheskoe upravlenie General'nogo shtaba (Soviet Union)	1:100,000	1947 - 1999	24897
Soviet Military 1:200,000 Scale Topographic Maps	Voенно-topograficheskoe upravlenie General'nogo shtaba (Soviet Union)	1:200,000	1949 - 2009	17799
Soviet Military 1:500,000 Scale Topographic Maps	Voенно-topograficheskoe upravlenie General'nogo shtaba (Soviet Union)	1:500,000	1953 - 1998	3093

#### Nautical

Series	Publisher	Scale	Years	Sheets
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## Aeronautical

Series	Publisher	Scale	Years	Sheets
Joint Operations Graphic (JOG) 1:250,000 - Aeronautical	Defence Mapping Agency	1:250,000	1958 - 2007	4204
Tactical Pilotage Chart (TPC) 1:500,000 Scale - Aeronautical	Defence Mapping Agency	1:500,000	1967 - 2006	598
Operational Navigation Chart (ONC) 1:1,000,000 Scale - Aeronautical	Defence Mapping Agency	1:1,000,000	1969 - 2001	243
Jet Navigation Chart (JNC) 1:2,000,000 Scale - Aeronautical	Defence Mapping Agency	1:2,000,000	1971 - 1999	117
Global Navigation and Planning Chart (GNC) 1:5,000,000 Scale - Aeronautical	Defence Mapping Agency	1:5,000,000	1981 - 1999	27

## Geoscientific

Series	Publisher	Scale	Years	Sheets
Soviet Military 1:1,000,000 Scale Topographic Maps	Voenno-topograficheskoe upravlenie General'nogo shtaba (Soviet Union)	1:1,000,000	1948 - 1994	1089

**Note:** East View Geospatial is continuously sourcing new resources that may not yet be listed in Global Explorer. Please contact us if you have geodata needs beyond what is listed above and we will be happy to discuss available off-the-shelf and custom solutions.

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## Historical Country Mapping Information

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### Topographic

The national civilian mapping agency of Portugal is **Institute Português de Cartografia e Cadastro (IPCC)** (until 1994 **Instituto Geográfico e Cadastral**). **IPCC** carries out geodetic, topographic and cadastral surveys of mainland Portugal and its island territories, and publishes topographic and cadastral map series, as well as providing base mapping for the publication of other official map series. The basic civilian national topographic survey at 1:50,000 scale (Series M7810) is a six-color map on the Bonne projection, Hayford ellipsoid, and is printed with UTM coordinates at the sheet corners. It shows relief with 25 m contours. While sheets in the series have been revised since completion of the 175-sheet series in 1977, many of the more rural areas have not been updated and some sheets still date from the 1950s. Updating and vectorizing is under way for about 20 percent of sheets in this series. Digital terrain data are available and derived from the 1:50,000 scale contours.

A 1:100,000 scale series in 53 sheets (Series M684) is derived from the 1:50,000 scale map. This program was started in 1938. It too is based on the Bonne projection and uses 25 m contours or 50 m in mountainous areas. Each 1:100,000 scale sheet covers the area of four 1:50,000 scale sheets and is similar in design. Municipal administrative divisions are indicated.

The 1:200,000 scale (Series M585) was started in 1969 and gives eight-sheet coverage of mainland Portugal; the two northern sheets were still to be published in 1999. This series is published on a Transverse Mercator projection, and is also available as a planning edition showing only planimetry and hydrography. Other smaller scale mapping issued by **IPCC** includes three-sheet 1:400,000 scale coverage, with 200 m contours, and a two-sheet 1:500,000 scale map, also available as digital data on CD-ROM, with yearly updates. Administrative and hypsometric coverage are released at 1:600,000 scale. A 1:2,500,000 scale digital map is also available.

1:10,000 scale mapping of the country was started in 1948; 25 sheets are required for each 1:50,000 scale quadrangle. Relief is shown with 5 m contours. For the last 15 years, sheets in this series have been issued as orthophoto editions, which are produced using an automated cartographic system, and orthophoto map coverage of the whole country was due for completion by the end of 1999. **IPCC** started a new digital 1:10,000 scale program in 1996, in collaboration with local municipalities, which will result in complete structured coverage. Other larger scales are also issued by **IPCC** to meet cadastral needs. Four 1:5,000 scale sheets cover the same area as a single

1:10,000, with four 1:2,000 scale plans for each 1:5,000 scale sheet. These larger scale maps are used as source material for the compilation of smaller scale topographic series; digital terrain data from larger scale programs are also available.

Military mapping of Portugal is carried out by **Instituto Geográfico do Exército (IGeoE)**, (until 1993 **Serviços Cartográficos do Exército**) whose origins can be traced back to the formalization of a military mapping service in Lisbon in 1932. **IGeoE** produces a wide range of topographic series. All mapping is compiled on the Gauss-Krüger projection, Hayford ellipsoid. The most important **IGeoE** map is the 1:25,000 scale (Series M888) which covers the country in 638 sheets and was completed between 1935 and 1955. This six-color map shows relief with 10 m contours and has been produced using automated processes since 1986, with data captured using stereo-plotters from regularly flown aerial coverage. Sheets are currently maintained and revised by **IGeoE**, and are automatically generalized into (Series M782), a military 1:50,000 scale map, which covers the country in 175 sheets. Structured vector data comprising eight themes from the 1:25,000 scale series are available for four large blocks of the country (including the area around Lisbon); only relief and hydrographic data are available for the rest of the country, but it is intended to complete digital data capture. The other **IGeoE** map series is the seven-color 1:250,000 scale (Series M586), which was completed in 1968 and shows relief with 100 m contours. This map is revised from satellite imagery and is also used in the publication of a regularly revised road atlas of the country. Other series include a military 1:250,000 scale map and 1:10,000 scale coverage of the Lisbon area in (Series M983).

**IGeoE** also published a series of *Reportórios toponímicas*, which list all the place names appearing on the 1:25,000 scale map.

Soviet military topographic mapping of Portugal exists at the following scales: 1:1,000,000 (6 sheets, complete coverage, published 1985-1987); 1:500,000 (12 sheets, complete coverage, published 1981-1986); 1:200,000 (33 sheets, primarily complete coverage, published 1980-1982); 1:100,000 (83 sheets, primarily complete coverage, published 1966-1981) and city (1:10,000) topographic mapping of Lisbon and Porto published between 1978 and 1979. These products are available in print, digital raster and digital vector GIS formats from **East View Geospatial**.

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## GIS/Vector

The **Centro Nacional de Informação Geográfica (CNIG)** acts as an umbrella organization sponsoring the use of GIS technologies in Portugal. Established in 1990 **CNIG** administers the national system of geographical information (SNIG). **CNIG** itself maintains digital mapping, including the Portuguese CORINE land cover data sets, administrative vector coverages captured at 1:250,000 scale, and a digital version of the 1:25,000 scale land cover map.

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## Nautical

Hydrographic and bathymetric charting of Portuguese waters is carried out by the **Instituto Hydrográfico (IHP)** which maintains a range of 239 nautical charts. **IHP** also compiles charting of coastal waters around Portuguese speaking African states and around Hong Kong and Macau and publishes a 1:150,000 scale series mapping superficial sedimentary deposits of the Portuguese continental shelf.

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## Geological/Scientific

Geological mapping of Portugal is undertaken by **Instituto Geológico e Mineiro (IGMP)**, in the **Ministry of Industry and Energy**, until 1993 known as **Direcção-Geral de Geologia e Minas**. The 1:50,000 *Carta geológica* has been published on topographic sheet lines since 1937, and is nearing completion, with several new sheets appearing in the 1990s, some as a result of conventional production and more recently in a digital program. Sheets are accompanied by descriptive texts. New 1:200,000 scale mapping in eight sheets is in progress, the geological edition includes offshore geology, and a hydrological map is also being published. Some local monographic

geological coverage is also available, such as a recently published 1:100,000 scale two-sheet map of the Algarve and digital 1:10,000 scale mapping of the Lisbon area. In addition **IGMP** has published a number of smaller scale thematic earth science themes.

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## Soil

Soil, land use and land capability maps are currently the responsibility of **Instituto de Hidráulica, Engenharia Rural e Ambiente (IHERA)** established under this name in 1997 and building upon 40 years of resources mapping. Three important series were started following the creation of the **Centro Nacional de Reconhecimento e Ordenamento Agrário** in 1949. Full color 1:50,000 scale soil and land capability maps now cover the southern half of the country using the topographic map sheet lines. Data for these maps were collected at 1:25,000 scale. The 1:25,000 scale *Carta agrícola e florestal de Portugal* covers the southern two-thirds of Portugal on the military (M888) sheet lines, and includes colored categorization of vegetation species, as well as the nature of agricultural land use. This map is compiled by **IHERA** in conjunction with **CNIG** and the **Direcção Geral das Florestas**. Automation of production procedures began in 1996, and vector data are available for the central region. **IHERA's** predecessor agencies such as **Estruturas Agrárias e Desenvolvimento Rural (IEADR)** also issued 1:250,000 and 1:500,000 scale maps on similar themes, as well as maps of individual commercial tree species. The **Instituto de Conservação da Natureza (ICN)** has carried out digital cartographic work in national parks across the country, and maintains digital databases for CORINE biotopes and protected areas in Portugal.

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## Thematic

The **Research Institute for Fisheries and the Sea (Instituto de Investigação das Pescas e do Mar (IPIMAR))** produces fishing maps of the Portuguese continental shelf.

Other thematic mapping of Portugal has been carried out by **Centro de Estudos Geográficos**, including a 1:1,000,000 scale population distribution map, and 1:500,000 scale geomorphological coverage, and by the **Instituto de Meteorologia (IMP)** the national meteorological agency in the **Environment Ministry**, which provides a range of climate and weather forecast maps, including a fax service, as well as a number of geophysical maps of Portugal.

The **Instituto de Investigação Científica Tropical (IICT)** in Lisbon has carried out a range of topographic and thematic mapping of the Cape Verde Islands, Sao Tomé e Príncipe, Guinea Bissau, Angola, Mozambique, East Timor, Macau and of the Azores.

Maps of the autonomous regions of the Azores and Madeira archipelagos produced by Portuguese organizations.

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## Atlas

Several officially sponsored atlases of Portugal have been published in the last 50 years. The *Atlas do Portugal* which ran to two editions, published in 1940 and 1958. The national atlas is the *Atlas nacional do ambiente*, currently the responsibility of **Direcção-Geral do Ambiente (DGA)**, (formerly **Direcção-Geral dos Recursos Naturais (DGRN)**). This work was projected to provide about 70 thematic sheets, mostly at a scale of 1:1,000,000, and accompanied by explanatory texts in Portuguese with English and French summaries. The emphasis was upon climatic, geological, biological and pedological themes, but eleven human themes were issued in the late 1980s.

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## Tourist/Reference

There is a less well developed commercial mapping sector in Portugal than in many other European countries. The major publisher is **Turinta**, which specializes in the tourist market with an increasing range of road and town maps of the country and of European destinations. A useful national gazetteer is produced by **Domingos Barreira**, Porto. A general road map of Portugal is revised every two years by **Automóvil Club Portugal**, and 1:250,000 scale motoring coverage is maintained. The country is also covered on a wide variety of general maps from major European commercial publishers, with town maps of Lisbon from **Cartographia** and **Falk**, and general coverage of the country from **Ravenstein**, **RV** and **Lonely Planet**. Many overseas agencies produce tourist mapping of the Algarve coast.

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## Census/Demography/Statistics

The census authority in Portugal is the **Instituto Nacional de Estatística (INE)**. It collects statistical data at NUTS levels 1, II and III across the country, which are made available in hard copy and digital format. Data includes digital administrative boundaries. A gridded database with 1 km resolution is available for many socio-economic variables including data from the 1991 census.

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