

OME2: Providing a geological base map for the new Digital Structural Model of Italy

The Digital Structural Model of Italy (DiSMI) we are developing also covers the Alps and adjacent areas, we therefore need a topographic base map, ideally based on vector data, that is continuous across national borders. The free pan-European datasets that have been enhanced by the Open Maps For Europe 2 (OME2) Project provide the coverage we require at the resolution we want.

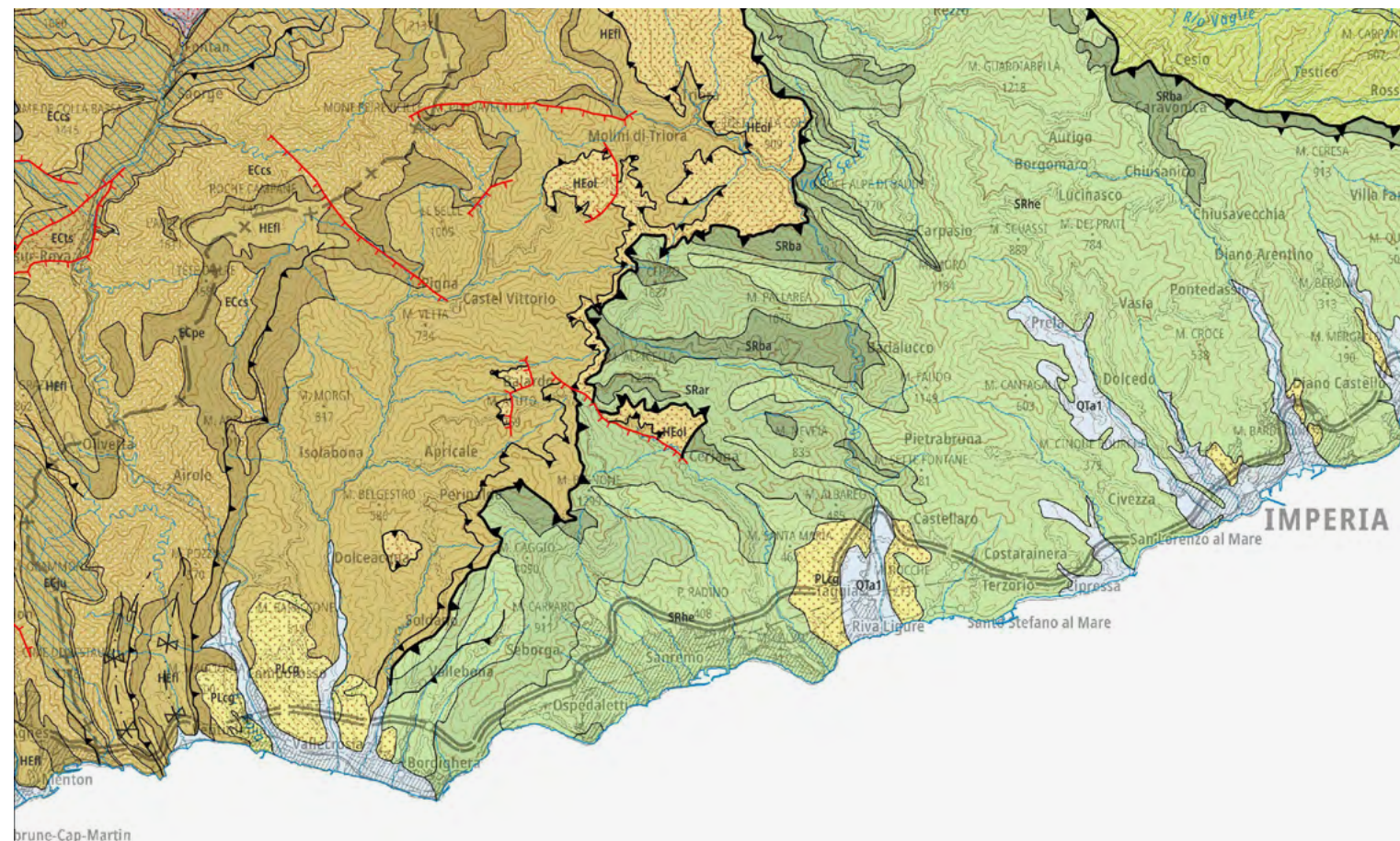
Paolo Conti
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Introduction

Geological maps provide vital information about the Earth's subsurface, natural resources and potential hazards for a wide range of research, planning and engineering activities. With features such as mountain ranges crossing multiple borders, national data must be edge-matched and harmonised to ensure accuracy and completeness.

Challenge

Currently, the 1:500 000 scale Structural Model of Italy is the most detailed geological map to completely cover the Italian territory and the entire Alps. Published in 1990-1992, it has never been updated. To enable compatibility with the latest technology, including integration with geospatial information systems (GIS), and meet the demands of today's data users, the University of Siena is coordinating an international project to produce a 1:250 000 scale vector geological map of Italy, the whole of the Alps and neighbouring areas. The project is funded by Istituto Nazionale di Geofisica e Vulcanologia (INGV).



Benefits

- Enables the production of a topographic base map to underpin the geological map.
- Meets requirements for GIS vector data for natural and human features at the desired resolution.
- Provides continuous, consistent coverage across national boundaries.
- Saves time, effort and resources by providing harmonised data from multiple countries.
- Freely available through one central portal under one easy-to-understand open data licence.

Solution

The University of Siena uses EuroRegionalMap, multi-themed topographic open data, as a base map for the geological cartography the new Digital Structural Model of Italy (DiSMI). As a result, the 1:250,000 scale vector geological map will cover not just Italy but also the whole of the Alps as well as the neighbouring areas of France, Switzerland, Austria, Slovenia and Croatia – more than 700,000 km² in total.

Once completed, in addition to the new topography basemap, the DiSMI will comprise: geological cartography at a scale of 1:250 000; full vector maps produced in a GIS environment; a single and continuous geological database and legend for the entire area; PDFs with portions of the geological map with traditional print layout; and explanatory notes. All will be made freely available.

EuroRegionalMap is created using a unique data integration process that harmonises official national geospatial information to standard specifications so users can be confident that it is consistent, comparable and easily shared. Available via the Maps For Europe portal as a web service or download, it has been updated and improved by the OME2 project.

Paolo Conti explains: “Classically a geological map must have a topographic base. However, the topographic maps available from national authorities are not suitable as they stop at the national border and are developed with different content. We chose EuroRegionalMap because it was free to use and provides continuous, consistent coverage across country borders. Without it, the final DiSMI geological maps would not have a topographic base map which would have been a serious shortcoming.”



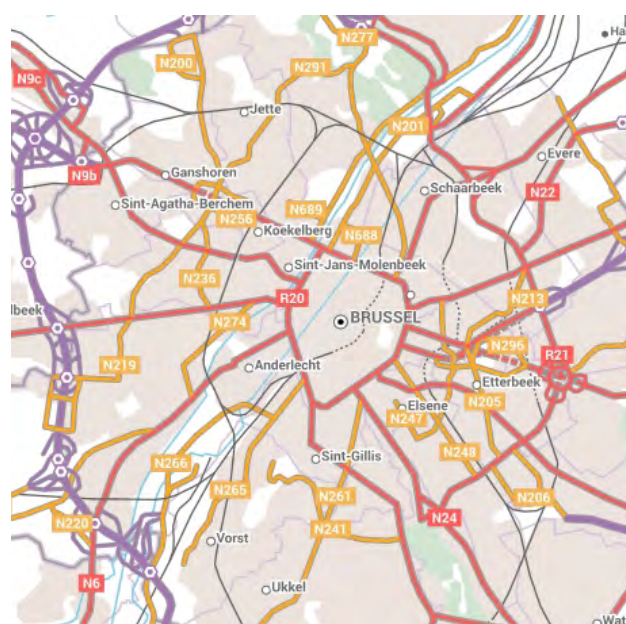
Open Maps For Europe Datasets used

EuroRegionalMap: Multi-themed topographic open data at 1:250 000 scale



VISIT WEBSITE

<https://www.mapsforeurope.org/datasets/euro-regional-map>



About the OME2 Project and Open Maps For Europe Portal

Open Maps For Europe 2 (OME2) is developing a new production process and technical specification for free-to-use, edge-matched data under a single open licence. Authoritative 1:10 000 scale data for 10 countries will be delivered via the [user interface](#) built by the award-winning Open Maps For Europe Project.

OME2 is also enhancing the five existing Open Maps For Europe datasets, including the Open Cadastral Map.

The OME2 project is co-funded by the European Union and being delivered by a consortium comprising: EuroGeographics; National Geographic Institute, Belgium; National Institute of Geographic and Forest Information, France; Hellenic Cadastre; General Directorate for the Cadastre, Spain; and Cadastre, Land Registry and Mapping Agency, The Netherlands.

The project corresponds with Member States' obligations to implement high-value data and will be completed at the end of 2025.



VISIT WEBSITE

<https://eurogeographics.org/open-maps-for-europe/ome2-progress>

EuroRegionalMap

Access

EuroRegionalMap is a Pan-European topographic vector dataset at scale 1:250000, that is seamless and harmonized across boundaries. It is produced in cooperation by the National Mapping and Cadastral Agencies (NMCAs) of the participating countries using official national databases.

Last Update

06/2025

Themes

Administrative Boundaries, Hydrography, Miscellaneous, Named Location, Settlement, Transportation, Vegetation and Soils

Coordinate System

Decimal degrees ETRS89-WGS84

Available Formats

Web Services

WFS, WMS, WMTS

Download

GeoPackage - 3.0Gb zip
FileGeodatabase - 1.2Gb zip
Shapefile - 2.7Gb zip

Dataset Documentation

Coverage



Andorra	Lithuania
Austria	Luxembourg
Belgium	Malta
Croatia	Martinique
Cyprus	Mayotte
Czech Republic	Moldova
Denmark	Monaco
Estonia	Netherlands
Faroe Islands	North Macedonia
Finland	Northern Ireland