3D Metalogenic models from Ossa-Morena Zone: Valuation of Alentejo Mineral Resources

ZOM-3D
Modelos Metalogénicos 3D da Zona de Ossa-Morena

LNEG
Laboratório Nacional de Energia e Geologia

I&D Area

Geosciences

Mineral Resources

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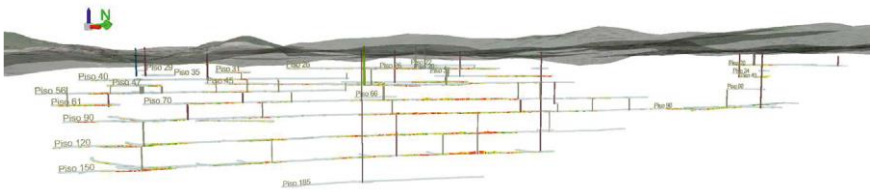
Motivation

Starting from the experience and know-how of a multidisciplinary team of researchers the intension is to contribute to the exploitation of mineral resources of Alentejo, in particular those of the Ossa Morena zone, which are less studied.

Objective and Project Development

The project aims to create metalogenic models for mineral deposits of the Ossa-Morena zone, resulting in a support tool for companies interested in researching and exploring the region resources. The models will enable the economy of resources, means and time in prospecting operations and will include lithoestratigraphy, mineralogical, geochemistry, geophysics and structural information that allow to identify the most favorable locations for the existence of resources. The model will be the final product of the project, this being sustained in a set of classic geological maps and in the form of 3D digital cartography.



1. Creation of a 2D and 3D geological cartography, mainly a structural map and a mineralization map for Ossa Morena Zone, where all the collected information will be presented.
2. Creation of new scientific knowledge, where each one of the key themes of the project, that is, cartography, mineralogy, geochemistry and geophysics should allow the publication of scientific articles which justify the findings incorporated in the metalogenic model.
3. Provision of created information (database and geographic information system) in a web portal, serving as support to companies and other stakeholders operating in the region interested in mineral resources, including local authorities and teaching institutions.
4. The new geological and mining information gained will create a more competitive added value for the region with regard to mineral resources.
5. Geological information acquisition and processing (geochemical and mineralogical) which will allow, in specific cases, to reduce the environmental impact of mining in the region.

Partnership

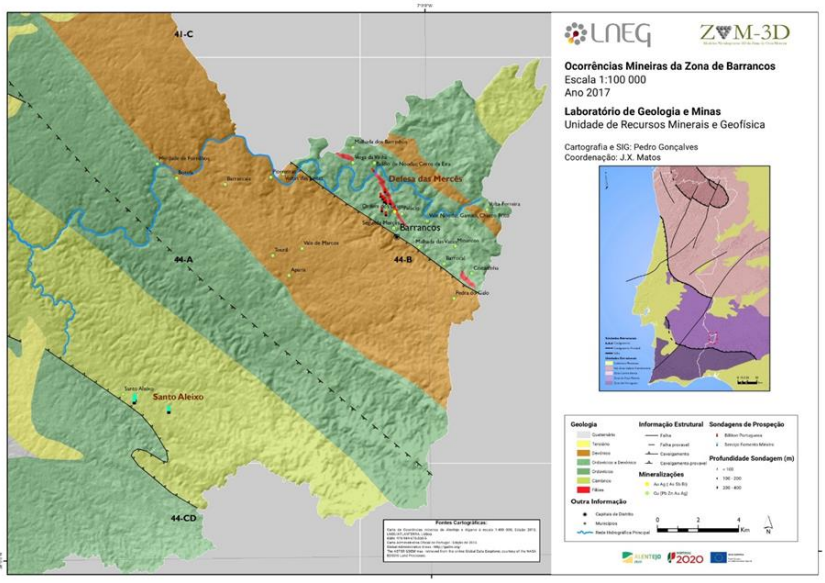
Web Page

http://zom3d.uevora.pt/

Project Durability

36 months

LNEG tasks in ZOM 3D project include thematic mapping production and the development of data bases about regions with mining potential, the execution of geological recognizance in abandoned mining areas, mineralogy studies and the management of LNEG's scientific assets. In this last domain, the project activities are being developed in Aljustrel coreshed, located in the Centro de Estudos Geológicos e Mineiros do Alentejo (Project QREN INALENTEJO), the present LNEG' Aljustrel campus. The project thus contributes to a better management of LNEG's exploration drillholes and soil and sediment samples collections, belonging to different areas in Ossa-Morena Zone. As main research areas were selected Barrancos (Cu, Au) and de Moura – Ficalho (Zn, Pb, Cu) sectors, included respectively in Sousel – Barrancos [Cu-(Au)] and Montemor-o-Novo – Ficalho (Fe, Zn-Pb-(Ag-Sb-Au), Au-As-Bi, Sb] bands. In other areas as Mociços (Alandroal, Sousel – Barrancos band) the research has evolved together with Évora University.



In summary, the following specific tasks are completed or in an ongoing process about ZOM mineralization's:

1. Compilation of available geological and mining information about potential mining areas;
2. Development of databases with information regarding the mineralized structures, geological formations, drillholes and mining infrastructure. Supporting the management of technical archives of LNEG, to improve access to existing information;
3. Study of base metals (Cu, Pb, Zn) and precious (Au, Ag) mineralization's;
4. Production of geological and geochemical 3D models of mineralized structures (ex. Aparis mine);
5. Production of thematic cartography of regional basis;
6. Data integration, in the context of multidisciplinary teams of the project and definition of geological models with mining potential in selected sectors of ZOM.