



Laboratório Nacional de Energia e Geologia

## Research Area

Geosciences

Mineral Resources

## Contacts

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Project Co-Funded by:



Definition of new vectors of geological, geophysics and geochemistry knowledge for the northern region of Neves-Corvo



## Motivation

With the inauguration in 2018 of the Aljustrel Campus, a QREN INALENTEJO operation, LNEG has launched the bases for local research in the most important metallogenic province in Europe. LNEG Aljustrel is thus a fundamental technical and scientific infrastructure for ID&T and exploration projects, both developed by companies or universities, being also the mainframe of the large asset of drillholes and soil and sediments samples from Alentejo region.

In this context, the EXPLORA project becomes a reality, funded by the Alentejo2020 program, Portugal 2020 / FEDER and based at LNEG Aljustrel, developed by LNEG and Hércules Laboratory in collaboration with Somincor/Lundin Mining.

It intends to increase the geological knowledge of the Neves-Corvo region in a concept of near mining exploration. It is considered of extreme importance for the exploration and mining sector, for local economy and for LNEG institution, to contribute from scientific point of view, but also, to follow, potentiate and innovate has part of the decision making process that can lead to new massive sulphide discoveries in Pyrite Belt.



## Objectives

Project EXPLORA proposes innovative research in the Neves-Corvo mine region. It considers the current state of mining and know-how and will come up with new tools for sulphide mineralization exploration. It is intended that the R&D will promote new knowledge related to deep-seated deposits and catalyze new foreign investment in exploration, indirectly contributing to a longer life and sustainability of the Neves-Corvo mine project, considered one of Europe's largest and main extractive center of the Iberian Pyrite Belt metallogenic province.

Using R&D already tested techniques, EXPLORA innovates by proposing innovative methods of geological modeling in geochemistry and geophysics. Specific objectives of the project are:

## Partnership



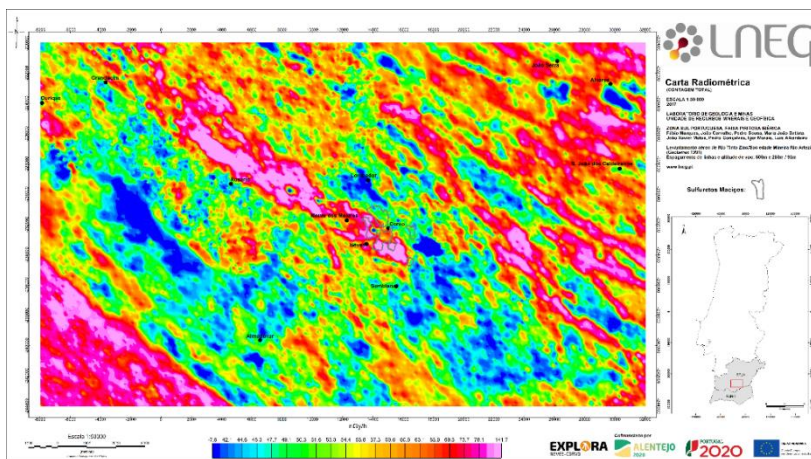
## Web page

<http://www.lneg.pt/iedt/projetos/582/>

## Project duration

2016-2019 (36 months)

- Detailed study of the Mestres-Algaré, Rosa Magra-Semblana and Lombador N geological sections, supported by the interpretation of geological mapping and sampling and logging of 10 exploration drill holes;
- Volcanic host rock dating by U-Pb zircon and sedimentary rocks geochronology using palinostratigraphy and high resolution stratigraphic studies;
- Geophysical study of the Neves-Corvo region through reanalysis and modeling of existing gravimetric and magnetic data. 2D and 3D models will be produced and constrained by seismic reflection and geological data surveys, with a view to achieving realistic 3D models of massive sulphide mineralization's;
- Geochemical study of the Neves-Corvo geological units based on new rock and soil analyses;
- Interactive modeling studies integrating different geological, geophysical and geochemical data for definition and constraint of chronostratigraphic horizons and geological-structural models favorable to the massive sulphide mineralization prospect. Identification of the geophysical signature of the geological formations and massive and vein (stockwork) mineralizations in new areas;
- Contribute to the scientific research of the mining region of Neves-Corvo, defining new exploration vectors of sulphide mineralization. Carry out teaching and training seminars with local mining and exploration companies;
- Contribute to the scientific research of the mining region of Neves-Corvo, defining new exploration vectors of sulphide mineralization.
- Carry out teaching and training seminars with local mining and exploration companies;
- Innovate R&D approach in terms of integrated methodologies related to base metals deposit exploration, considering geological scenarios up to 1500 m depth;
- Seminars in Somincor and a final Workshop + field course dedicated to the theme "Exploring the Iberian Pyrite Belt".



To date, the project team has significantly increased the geological, geophysical and geochemical knowledge of the Neves-Corvo region as well as other sectors of the Iberian Pyrite Range Belt through the study of drill holes and the production of thematic cartography on a regional scale. Of note is the edition of the new thematic cartography on a regional scale (1/400 000) - Radiometric chart, Geochemical chart of copper in soils, Gravimetric chart and Magnetic Chart. Up to now, 20 exploration drill holes were carried out (the deepest drill holes carried out so far at FPI) and three thematic workshops were held for companies and universities