Ferromanganese Crust and Phosphorites Pan-European Predictivity Cartography. MINDeSEA project results

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Abstract

MINDeSEA is a project framed in GeoERA whose general objective is to obtain a metallogenetic study of the main types of mineral resources existing in the bottom of the European seas: hydrothermal sulphides, ferromanganese crusts, phosphorites, marine placers and polymetallic nodules. One of the specific objectives of the project is to develop databases and harmonized cartography of the mineral deposits of the seabed, the latter providing predictivity maps, among others.

For the elaboration of predictivity maps of ferromanganese crust and phosphorites, a model of the marine environment has been made based on bathymetric data, distance from the coast and age of the oceanic crust, using a geographic information system. In the first place, the location of possible seamounts, an ideal location for the formation of these deposits, has been automated. Secondly, a cartographic model has been made that considers depth, slope, distance from the coast and age of the crust. By assigning favourable and limiting values to these parameters, suitable zones and unfavourable zones for the deposit of Fe-Mn crusts and phosphorites have been identified. The superposition of this model with the possible locations of seamounts has resulted in the mapping of potential areas in which this type of deposits could be found.