GeoERA-MINDeSEA project: mapping and studying critical elements in the pan-European seabed mineral deposits

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The GeoERA is an ERA-NET action (2018-2021) under Horizon 2020. The aim of GeoERA is to fund transnational projects contributing to the best use and management of the subsurface including the raw materials. The project MINDeSEA [1] results of the collaboration between eight GeoERA Partners and four Non-funded Organizations at various points of common interest for exploration and investigation on seafloor mineral deposits. MINDeSEA is investigating, generating and compiling data and metallogenic models on the occurrence of strategic and critical metals based on seafloor massive sulphides, ferromanganese crusts, phosphorites, polymetallic nodules and marine placer deposits, potential future resources for a wide variety of elements. The objective is to provide a better and more accurate basis for future exploration and exploitation, as well as sea-use management, and to provide high quality marine mineral intelligence data to the European data portals. The methodology will include: procedures for submarine minerals exploration; mineral evaluation and seafloor minerals mapping; a web service that will disseminate procedures, maps and information to the general public, downstream users and decision makers.

Polymetallic nodules rich in manganese, copper and nickel; crusts rich in cobalt, tellurium, rare earth elements and platinum; phophorites source of phosphorous and yttrium; seafloor sulphides enriched in copper, zinc and precious metals and placer deposits accumulating rare earth elements make these seafloor mineral deposits particularly interesting to both science and society. MINDeSEA has produced in 2018 a preliminary map providing a first pan-European compilation of data on submarine cobalt- and lithium-rich ferromanganese mineralization. The map shows the resource potential for these “energy-critical elements” in nodules and crusts. 379 deposits and occurrences of cobalt and lithium have been mapped (164 crusts, 215 nodules). Integrative maps, metallogenic models and case studies will be produced in the next future under MINDeSEA, and continuously updated with new data and additional information on strategic and critical metals on seabed deposits in the European seas.

[1] http://geoera.eu/projects/mindesea/