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Multi-scale and multi-disciplinary investigation of the southwest Portuguese Continental shelf, the MINEPLAT project

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The MINEPLAT project (Assessment of the mineral resources potential in the continental shelf of Alentejo and of the environmental conditions caused by the tectonic uplift in the Pliocene-Quaternary) allowed acquisition of 1700 km of ultra-high resolution seismic profiles, and full coverage of multibeam bathymetry and acoustic backscatter of 1450 km² and 1940km of magnetic data of the Alentejo continental shelf, SW Portugal. 270 sediment samples were collected (Smyth-Macyn tire dredges and multicores) and processed for sediment, geochemical and mineralogical analyses (granulometry, Xray diffractometry, major and trace metals analysis).

The wealth of data is meeting its full processing phase. Preliminary interpretation of the large dataset has already allowed to understand various novel contributions: i) identification of various sea level stand stills in Pliocene-Quaternary times; ii) drainage network during low stand sea levels; iii) grain size dependency on submarine relief and inherited morphology from low stand periods; iv) eustatic, oceanographic, fluvial and depth dependency of the post-alpine orogeny deposits of Pliocene-Quaternary age; v) location of deposits with high-quality sand for beach nourishment; and vi) identification of submarine harbor waste disposal sites and their environmental impact and dispersal; vii) high resolution mapping of magnetic anomalies related with magmatic events that can be source of heavy minerals.

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