



## Seafloor morphology related to recent tectonics in the Alboran Sea Basin

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A detailed geomorphological study of the northern part of the Alboran Sea Basin has been realized based on the combined analysis of multibeam swath bathymetric data and medium to very high resolution seismic profiles (singled Sparker, Airgun, TOPAS and Atlas PARASOUND P35). This has enabled us to define several tectonic-related seafloor features and their role in the recent tectonics.

The observed morpho-tectonic features correspond to: i) lineal scarps with a wide range of dimensions and following several trends, WNW-ESE, NE-SW, NNE-SSW and N-S; ii) NE-SW to NNE-SSW-oriented compressive ridges; iii) ENE-WSW to NE-SW-striking antiforms; iv) NNE-SSW-oriented lineal depressions; v) rhomb-shaped depressions; vi) lineal valleys, canyons and gullies with WNW-ESE, and N-S orientations; and vii) N-S directed dissected valleys, canyons and gullies.

Three families of faults and related folds, with NE-SW, WNW-ESE and NNE-SSW to N-S have been interpreted within this geomorphological scheme. The NE-SW family corresponds to: a) major scarps in both flanks of the Alboran Ridge and b) the offshore prolongation of La Serrata Fault, and both have been considered as a set of sinistral strike-slip faults. To this family, some compressive ridges, antiforms and occasionally reverse faults have been correlated. The WNW-ESE family corresponds to a set of faulted valleys (occasionally with rhomb-shaped depressions), fault scarps and linear inflection points occurring in the northern Alboran margin and the Yusuf-Habibas corridor. This family has been interpreted as transtensive dextral strike-slip faults. The NNE-SSW to N-S family corresponds to a penetrative system of linear fault scarps and tectonic depressions that cross-cut the Alboran Ridge and the Djibouti-Motril marginal plateau. This family can be considered as more recent since it offsets the other two families and shows a minor importance with regard to the main reliefs.

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