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Buried cold-water coral mounds in the Atlantic Moroccan Coral Province



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The Atlantic Moroccan Coral Province (AMCP) is situated in the southern Gulf of Cadiz roughly between 34° 50'N to 35°35'N and 6°30'W to 7°15'W. Besides the presence of many surfacing small cold-water coral mounds, hundreds to thousands of mounds were discovered in the subsurface through 2D parasound and sparker reflection seismic profiles. Over 90% of the mounds are situated at water depths between 600 and 1000 meters and most of them occur in clusters (see Figure 1).

The cold-water coral mounds are rather small in this region (compared to the 100 m high mounds in the Belgica Province in the Porcupine basin [1]). Their width varies between 20 and 200 m with a modus around 60 m, while their height varies between 2 and 40 m with a modus around 10 m. Moreover, many (>10) horizons at which mound growth initiated can be distinguished, compared to the single mound growth event observed in the Porcupine Basin [1]. This points towards rapidly changing environmental conditions in the AMCP which were sometimes favourable for initiation and growth of cold-water coral mounds. These favourable periods rapidly switched into periods when corals were not able to settle and the mounds could get buried.

Mound growth initiates mostly at elevated places, e.g. tectonic ridges, outcropping bedrock or even previous cold-water coral mounds. When mounds were able to reach a certain height at which they did not get buried by sediments during subsequent non-favourable periods, they were usually recolonized, leading to complex mound shapes. All of these factors indicate that the AMCP is a very promising region to further unravel the conditions (both geographically and environmental) favourable for mound initiation.

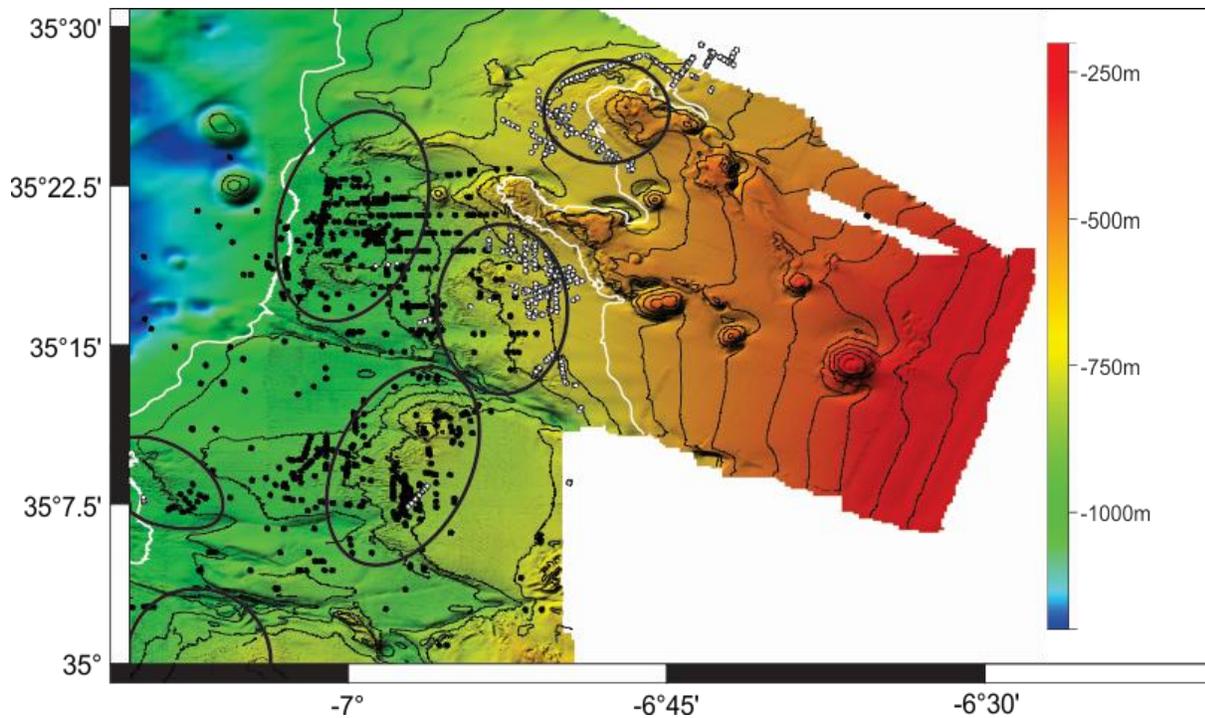


Figure 1: The AMCP with surfacing mounds (black ovals) and buried mounds (white dots: sparker data, black dots: parasound data). The white contour lines are those of 600 and 1000 m water depth.

References:

- [1] Huvenne et al. (2003) *Marine Geology* 198: 5-25

