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Styles of shelf growth in the northern Alboran Sea off Guadalfeo river, SW Mediterranean basin: eustatic control and disturbing factors

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The Pliocene and Quaternary shelf stratigraphy of a sector in the northern continental margin of the Alboran Sea, Western Mediterranean Basin, has been elucidated through the interpretation of a grid of Sparker seismic profiles. We tried to identify evolutionary trends in shelf growth, as well as to discern the regional/local factors that may modify the imprint of glacio-eustatic fluctuations, generating distinct sequence stratigraphic architectures.

The seismic interpretation defines three major prograding units dominated by deposition of shelf-margin wedges that alternate with aggrading units. The prograding units result in significant intervals of shelf progradation, except the last major one, where seismic units tend to stack vertically. This depositional architecture reflects a significant stratigraphic change from lateral to vertical outgrowth which is recognised in the studied continental shelf. We relate this significant stratigraphic change to the combined influence of increased subsidence rates on the shelf and the onset of higher-frequency glacio-eustatic cyclicity after the Middle Pleistocene Revolution.

A second order architectural level is recognised within major units. Major progra-

dational wedges are internally composed by seaward prograding, landward thinning wedges, interpreted to represent shelf-margin deltaic deposition. In contrast, the last aggradational interval is internally composed of shelf prograding wedges that show distinct characteristics, in terms of seismic facies, morphology and distribution when compared with previous shelf-margin wedges. Those shelf wedges are thought to represent a particular case of Regressive Systems Tract or Shelf Margin Systems Tracts, and their development seems to be controlled by the changing depositional conditions established in the margin during the Pleistocene.

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