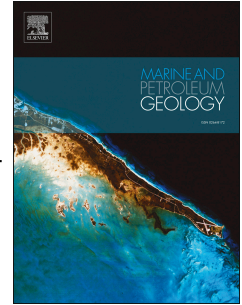


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SEISMIC ARCHITECTURE AND SEISMIC GEOMORPHOLOGY OF HETEROZOAN CARBONATES: EOCENE-OLIGOCENE, BROWSE BASIN, NORTHWEST SHELF, AUSTRALIA

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Highlights

- Seismic stratigraphy and architecture varies in a heterozoan carbonate succession
- Basal onlapping deposits are overlain by sigmoidal and tangential oblique units
- Controls include waves, downwelling/upwelling, and syndepositional deformation
- Heterozoan carbonates have seismic architecture distinct from photozoan systems

Abstract

Seismic characterization of Eocene-Oligocene heterozoan carbonate strata from the Browse Basin, Northwest Shelf of Australia, defines marked progradation of nearly 10 km. Stratal terminations and stacking subdivide the succession into mappable seismic units. Stratal architecture and seismic geomorphology varies systematically through the succession.

Individual surfaces, discerned by toplap, onlap, and truncation, outline sigmoidal to tangential oblique clinofolds with heights of ranging from 350 to 650 m and maximum gradients between 8 and 18°. Sigmoidal clinofolds can include aggradation in excess of ~200 m, prograde more than 500 m, and have slopes characterized by inclined, wavy to discontinuous reflectors that represent ubiquitous gullies and channels. In contrast, the overlying tangential oblique clinofolds include downstepped shelf margins, limited on-shelf aggradation (<100 m) and toplap, subdued progradation (<500 m), and continuous parallel inclined reflectors on the slope. Wedges of basinally restricted reflectors at toe of slope onlap surfaces of pronounced erosional truncation or syndepositional structural

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