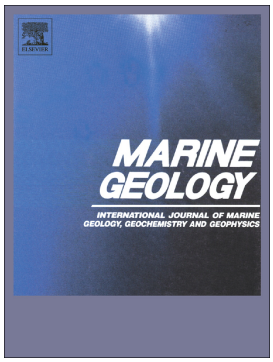

Bottom currents, submarine mass failures and halokinesis at the toe of the Sigsbee Escarpment (Gulf of Mexico): Contrasting regimes during lowstand and highstand conditions?

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Highlights

1. Three types of mass transport complexes were recognised along the Sigsbee Escarpment.
2. Submarine mass failures were triggered by bottom currents and halokinesis.
3. Bottom currents were more energetic during interglacial intervals.
4. Halokinesis forced oversteepening of the Sigsbee Escarpment during glacial intervals.

Keywords

Mass transport complex, sediment drift, hazard, seismic geomorphology, Gulf of Mexico.

Abstract

In this study we explore the role of sediment supply, halokinesis and deep ocean circulation in promoting margin instability. The analysis was carried out on multibeam and high-resolution seismic data that allowed the imaging of mass failure deposits and current-driven depositional features along a portion of the lower continental slope and upper continental rise of the Sigsbee Escarpment (Gulf of Mexico). Different styles of deposition have been recognised during sea level lowstand (LST) and highstand (HST) conditions, due to alternating bottom current activity and salt tectonics. Lowstands are characterized by a reduced intensity of the Loop Current, as underlined by