

Abstracts and Extended Abstracts

Pleistocene Lowstands on the Alabama/West Florida Continental Shelf: Implications for the Importance of Shelf-Edge Fluvial Incision as an Initiator of Slope Canyons

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The bypass of fluvial sediments through canyon-indented slopes is undoubtedly an important contributor to lowstand depositional systems (Vail, et al., 1977). Oxygen-isotope curves indicate many important glacioeustatic Pleistocene lowstands. Previous work on the Texas and Louisiana shelves has revealed incised fluvial valleys that are connected to slope fans (Anderson, et al., 1996). However, due to complex interactions with other mechanisms (sediment supply, antecedent topography, salt tectonics, etc.) the question of how the process of lowstand sediment bypass of the shelf is initiated has not been resolved. In this seismic-stratigraphic study of Alabama/Florida shelf (Fig. 1), an area with low subsi-

dence (Winker, 1991), no faulting and no salt tectonics (Apps, et al., 1994) the isolated response of fluvial systems to relative-sea-level fall is investigated. Based on available age constraints, we tentatively infer that discrete shelf-margin deltas are associated with falling limbs of 100 ka glacioeustatic relative-sea-level cycles of the Pleistocene. Seismic-stratigraphic analysis, contour mapping and paleo-geographic reconstruction of shelf-margin-deltas indicate that slope-canyon connections between the shelf-margin delta and upper slope did not develop in spite of presumed frequent and widespread subaerial exposure of the shelf. Slope canyons may be lacking in the study area due to the absence of salt tecton-

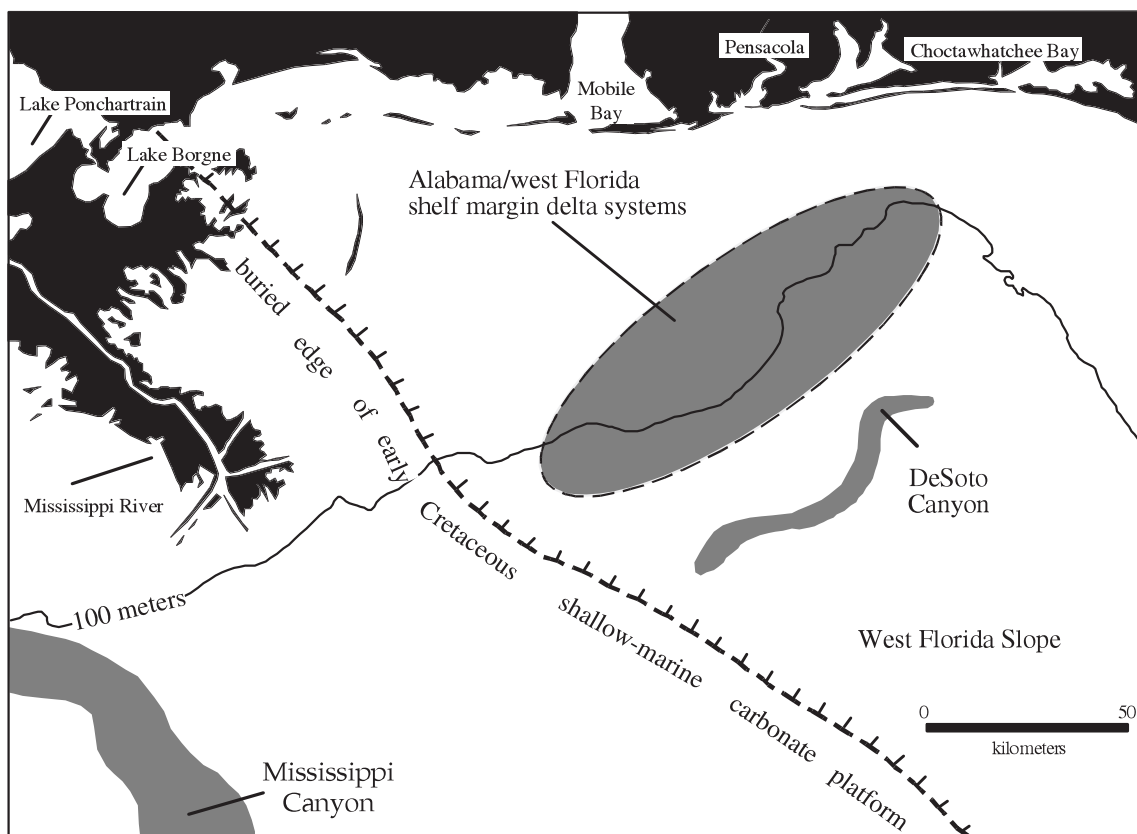


Figure 1.
Location of the Alabama/west Florida shelf-margin-delta systems.

ics and growth faulting. Another possibility is that the sandy nature of surface sediments offshore Alabama/west Florida inhibits organized drainage from the subaerially-exposed continental shelf during relatively-short Pleistocene lowstands. Nonetheless, based on the absence of shelf-to-slope connections in the study area, we propose that, acting alone, lowstand fluvial incision of the shelf edge is not an important initiator of slope canyons and fluvial bypass to the basin.

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