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Upper Miocene Depositional History of Central Gulf of Mexico Basin

The upper Miocene depositional episode (UM depisode) records a long-lived family of sediment dispersal systems that persisted with little modification for nearly 6.5 m.y. In the central Gulf of Mexico Basin, this depisode records extensive margin offlap, primarily centered on the paleo-Mississippi dispersal axes, that began immediately following the Textularia W/Textularia stapperi flooding and was terminated by a regional flooding event associated with the Robulus E biostratigraphic top. Together with four other flooding events associated with Cibcides carstensi, Discorbis 12, Cristelleria K and Bigenerina A biostratigraphic tops, the UM genetic sequence can be subdivided into 5 genetic subsequences which display overall progradational stacking pattern. Throughout the entire UM depisode, two principal extra-basinal fluvial axes, the Central and East Mississippi axes, collected sediment from a westward-spreading sandy tributary alluvial apron. A composite fluvial-dominated paleo-Mississippi delta system rapidly built beyond the subjacent middle Miocene shelf margin to construct a sandy delta-fed apron. Margin outbuilding was locally and briefly interrupted by hypersubsidence due to salt withdrawal and consequent slope mass wasting. Adjacent deep Gulf floor deposition was dominated by culmination of the east Gulf McAVLU submarine fan system, which forms a sand-rich depocenter beneath the Atwater Valley OCS area. A broad, but relatively thin, sandy shore zone and clastic shelf succession, supplied by reworking of the deltaic deposits, extends eastward from the delta system. In the west-central Gulf, adjacent to the paleo-Mississippi delta system, abundant strike-reworked sediment locally prograded the strand plain to the shelf edge, with slope offlap exceeding 30 mi.