High-Resolution Geologic Characterization of the Mississippi River Delta Plain

Abstract

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For over a half-century scientists have been unraveling the complex geology of the Mississippi River Delta Plain, however, higher resolution is needed to better understand subsurface processes and address coastal management issues related to storm impact and global sea-level rise. Numerous studies have defined the stratigraphy of the delta plain as an amalgamation of shallow-water delta complexes, formed as the river shifts from one predominant course to another. Following abandonment, the subsiding delta deposits are flooded and reworked or buried. This process produces a stacked sequence of fluvio-marine muds and sands that can be directly related to shoreline morphology. Building on decades of existing knowledge with new technologies, scientists are integrating distinct spatial and temporal geologic datasets into multi-dimensional perspectives. This provides increased resolution for visualization and interpretation of coastal evolution processes, and augments characterization of the delta plain from delta-complex to subdelta-lobe scales.