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A Tectonic Role in Drowning of Carbonate Platforms: Triassic of South China

The Yangtze platform was a stable paleogeographic element and site of intermittent shallow-water carbonate deposition from Late Proterozoic to end of Middle Triassic. Large portions of the Yangtze platform drowned at the transition from Permian to Triassic, but soon recovered to establish a new platform-margin that persisted through Early and Middle Triassic. This long history of carbonate deposition ended at the Ladinian/Carnian transition, with drowning of the platform. Peritidal cyclic limestones were covered by dark, nodular, basinal lime mudstones followed by a condensed interval of black shale and manganiferous pelagic limestones. Siliciclastic turbidites later filled the accommodation created during drowning.

Extensive faulting and tilting of the Yangtze platform in two areas (Guanling and Zhenfeng, southwest Guizhou Province) produced a slight angular unconformity locally at the base of the overlying drowning sequence, indicating that syn-depositional tectonics played a role in platform demise. Local sea-floor topography associated with flower structures in a strike-slip setting was draped by the basinal limestones. Faulting and collapse of the margin augmented breccia wedges adjacent to the margin that were sealed by the fine siliciclastic turbidites. Extensive collapse of reefs throughout the late depositional history of the platform is consistent with Triassic tectonics.

Termination geometry in southwest Guizhou provides an example of tectonic-related drowning of a vast carbonate platform and enhances overall understanding of the termination of carbonate platforms.