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Seismic Acquisition and Attribute Analysis in Carbonate Systems as Viewed through the Sedimentologist's Eyes from an Outcrop Perspective

In south-central Turkey, the Miocene Ermenek platform provides spectacular outcrops of intraplateform prograding algal-bank margins and shelf-edge steep-sided barrier margin that allow revisiting the leeward/windward margin geometries, performing fine calibration of seismic attributes in a prograding margin setting and characterizing the extent of large-scale margin collapse. Integrated outcrop observations and subsurface data of the Zhujiang Platform, South China Sea, yield a better calibration of the size, distribution, and internal architecture of margin collapse than a single dataset alone. In addition, forward seismic models of the prograding intraplateform algal bank enable detailed seismic attribute calibration at the reservoir scale and provide guidance for adequate acquisition parameters to fully image carbonate reservoir architecture in similar settings. Beyond the analysis of seismic reflection geometries, refined analysis of distribution and variation of seismic amplitude and other seismic attributes calibrated from outcrop analogs may be done from the sedimentologist's perspective to result in better characterization of the nature and extent of the reservoir facies in carbonate systems.