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Calibration of Seismic Data from the Western Margin of Great Bahama Bank with Exposed Strata in the Maiella Mountains (Italy)

Large-scale geometries and seismic facies from seismic data across the margin of Great Bahama Bank (GBB) are compared with geometries and lithologic facies in outcrops of the superbly exposed Maiella platform in central Italy. This integration of seismic and outcrop data combines the strengths of two data sets to better understand the stratigraphic architecture and sedimentary processes at isolated platform margins. In both platforms the margin develops from an escarpment in the Cretaceous into a prograding margin during the Neogene. The escarpment is imaged on the seismic section as a steep but initially wide and ill-defined seismic boundary, separating a mostly chaotic seismic facies of the platform from continuous reflections in the basin. A steep wedge of coarse breccias and calcarenites overlapping the base of the escarpment is observed in the Maiella and probably is the cause of this seismic facies transition. The seismic facies of the upper slope along GBB displays continuous reflections and a series of channels. In the Maiella, upper slope channels are filled with fining-upward package of boulder conglomerates at the base and fine-grained calciturbidites at the top. The lower slope facies is seismically discontinuous with abundant small channel and lens-shaped bodies. Laterally stacked lobes of redeposited carbonates fed by small channels characterize the lower slope and basin adjacent to the Maiella platform. Synthetic seismic sections across the Maiella platform corroborate the correlation between seismic and litho-facies and show that such a comparison is a powerful method to relate seismic facies to high-resolution facies information.