

Climatic Influences on Basinal Infill in the Great Sand Dunes, San Luis Valley, Colorado

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The Great Sand Dunes National Park is located in south central Colorado, near the town of Alamosa, and contains the highest sand dune deposits in the United States. The park is situated within an embayment complex along the western side of the Sangre de Cristo Mountains, at a point where the range shifts from southeastern trending to south-southwestern trending. The Great Sand Dunes themselves sit on top of a thick infill of sedimentary packages within the San Luis Valley, with the thickest package of sediments sitting underneath the park, above the Baca Graben. The uppermost layer of the infill sediments are of interest, as they can be used to evaluate the primary depositional mechanisms, source, and effect of paleoclimate on the deposits.

This paper presents the results from an on-going study being conducted at the park. The study focuses on depositional mechanisms and the interplay between aeolian processes, fluvial influences, and ground water fluctuations in the area, which influence the type of infill and preservation of the uppermost layers within the graben. This information can then be used with meteorological data to understand what climatic processes have played a dominant role in the uppermost sedimentary layers. This can then be used to extrapolate how paleoclimatic shifts may have influenced the lowermost layers of the graben infill.