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Variation in erosion/deposition rates over the last 50 years on alluvial fan surfaces of L. Pleistocene- Mid Holocene age, estimations using 137Cs soil profile data, Amargosa Valley, Nevada.

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Variations in erosion and deposition for the last fifty years (based on estimates from 137Cs profiles) on surfaces (Late Pleistocene to Late Holocene in age) making up the Fortymile Wash alluvial fan south of Yucca Mountain, is a function of surface age and of desert pavement development or absence. For purposes of comparing erosion and deposition, the surfaces can be examined as three groups: (1) Late Pleistocene surfaces possess areas of desert pavement development with thin Av or sandy A horizons, formed by the trapping capabilities of the pavements. These zones of deposition are complemented by coppice dune formation on similar parts of the surface. Areas on the surface where no pavement development has occurred are erosional in nature with 0.0 +/- 0.0 cm to 1.5 +/- 0.5 cm of erosion occurring primarily by winds blowing across the surface. Overall these surfaces may show either a small net depositional gain or small erosional loss. (2) Early Holocene surfaces have no well-developed desert pavements, but may have residual gravel deposits in small areas on the surfaces. These surfaces show the most consistent erosional surface areas on which it ranges from1.0 +/-.01 cm to 2.0+/- .01 cm. Fewer depositional forms are found on this age of surface so there is probably a net loss of 1.5 cm across these surfaces. (3) The Late Holocene surfaces show the greatest variability in erosion and deposition. Overbank deposition during floods cover many edges of these surfaces and coppice dune formation also creates depositional features. Erosion rates are highly variable and range from 0.0 +/- 0.0 to a maximum of 2.0+/-.01. Erosion occurs because of the lack of protection of the surface. However, the common areas of deposition probably result in the surface having a small net depositional gain across these surfaces. Thus, the interchannel surfaces of the Fortymile Wash fan show a variety of erosional styles as well as areas of deposition. The fan, therefore, is a dynamic system that primarily responds to the incising of the channels into the upper fan surface, and the development of protecting desert pavements with time.