

Distribution, Forms and Spatial Variability of Desert Pavements in Arid Western Rajasthan

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Abstract: A vast area between Phalodi in Jodhpur and Pokaran in Jaisalmer district of western Rajasthan, is occupied distinctly by rocky, shallow gravelly surfaces and occasional hills. These surfaces exhibit quartz and quartzite pebbles, angular, sub-angular and few rounded sandstone gravels, have slightly convex outline and can be best described as desert pavements. Such land features assume significance because of their extent and variability under a dominantly dry aeolian environment. Morphology and distributional pattern of such formations indicate that sediments are either of *in-situ* origin or may have been transported to a short distance. The present study is based on field level assessment of such surfaces in the above two desert districts. Over much of the area, the profile shows a surficial concentration of gravels followed by thick sand and silt mixed with gravels and then the parent material. There are also occasional rock outcrops of very low relief exhibiting vertical, horizontal and conchoidal pattern of fractures over these surfaces near Pokaran and north of Jaisalmer which indicate disintegration of rocks under extreme diurnal fluctuation of temperature. Such manifestations in the morphology indicate impact of both thermal as well as aeolian processes. In the east of Jaisalmer town near Basanpir and Bhojka, the pavement surfaces are found covered with abundant sub-rounded to rounded pebbles and cobbles. This type of condition would indicate a profound action by fluvial activities followed by wind sorting. Our study found significant spatial variability in the distribution of pavement surfaces, which carried imprints of climatic fluctuations and environment of deposition during Holocene.

Keywords: Arid climate, Desert pavements, Spatial variability, Holocene, Rajasthan.