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Morphology and Fluvio-Aeolian Interaction of the Tropical Latitude, Ephemeral Braided River Dominated Koigab Fan, Skeleton Coast, Northwest Namibia

The Koigab Fan is formed by the ephemeral braided Koigab River. Issuing from the Great Escarpment, the river intermittently traverses the coast-parallel Namib Desert to reach the Skeleton Coast. It flows to the Atlantic Ocean across a considerable climatic gradient from semi-arid in the mountainous catchment to arid in the coastal depositional setting.

The Koigab Fan represents an undocumented type of braided fluvial fan system: (1) operating in an arid climatic, tropical latitude setting; (2) dominated by ephemeral braided rivers; (3) lacking significant vegetation on the fan surface; (4) has been relatively little affected by human activity; (5) is a perfect study site for recording various types of fluvio-aeolian interaction and (6) thereby acts additionally as a model for certain Precambrian and Early Palaeozoic fan depositional systems deposited prior to the evolution of land plants.

As the Koigab catchment restricts source rock lithologies to volcanics of the Etendeka Plateau, components which unequivocally relate to this source indicate fluvial transport whereas grains reflecting a metamorphic basement source must be aeolian derived. Both heavy mineral and grain size data were used to estimate the amount of fluvio-aeolian interaction at the Koigab fan surface.

In the spectrum of fan types, the Koigab Fan takes an intermediate position both in size and in terms of the braided river style between debris flow and low sinuosity meandering fan systems. Within the braided fluvially dominated fan class itself the Koigab fan is also size intermediate, but its ephemeral channels contrast sharply with those of perennial glacial outwash fans.