Abstract

The density and composition of Oldowan stone artifact assemblages deposited during the first ca. 20,000 years of lowermost Bed II times show a recurrent pattern of variation across recognized synsedimentary faults that compartmentalized landscapes of the eastern Olduvai Lake Basin. When active, the faults created minor topographic relief. The upthrown fault footwalls accumulated assemblages with relatively high densities of artifacts, including types retaining potential usefulness, particularly volcanic flaked pieces, manuports, pounded pieces, and split cobbles. Values for these assemblage characteristics decline toward the lower-lying hangingwall of the fault compartments, accompanied by an increase in the proportionate weight of artifact assemblages comprising quartzite, particularly flaking shatter and potentially useful detached pieces. Values reverse once again at faults, either on the downthrown, hangingwall side or on the upthrown side. The patterns are stronger for the volcanic components of the artifact assemblages than for the quartzite components, reflecting the additional influence of distance from the local source on quartzite assemblage characteristics reported previously. The landscape distributions of artifact assemblages are consistent with a landscape-fault model in which minor faultinduced topographic relief at times created a mosaic of vegetation environments repeated within each of the three fault compartments of the lake margin and distal alluvial fan. The fault-compartmentalized landscape model is currently supported only by sediment thickness and facies changes across synsedimentary faults, but it provides predictions for spatial variation in the cover abundance of trees, freshwater reservoirs and associated distributions of resources and hazards associated with stone artifact use and discard that can be tested if sample sizes of key paleoenvironmental indicators are increased.