

Climate and Early Human Adaptation

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Much of the diet, morphology and inferred behaviour of the early hominins has been explained in the context of various climatically driven models. My own work and that of others has linked factors such as australopithicene and early Homo bipedalism, body form, masticatory structure, facial form, and brain, size as well as inferred language capability, cognitive evolution, cooperation, and life-history patterns (extended ontogeny, longevity, menopause) directly to climate and/or resulting habitat conditions. At present, many of these linkages are based on superficial understanding of prevailing conditions and can best be described as thought experiments to help make sense of the observed patterns and their implications. The first step in testing these ideas depends not only on improved temporal correlation between environmental effects and the fossil and archaeological evidence, but importantly on how the climate evidence inferred particularly from deep sea cores relates to the terrestrial climate and habitat. A highly important missing piece of the paleoenvironmental puzzle is the spatial distribution of different palaeoenvironments at crucial time-slices through the fossil record. How patchy or homogenous was the habitat? What was the influence of the waxing and waning of the African lakes and the uplift of the Rift? Where and when would we expect barriers (or not) to hominin movement? What was it actually like for a hominin on the ground (or for that matter in the trees)? These points will be illustrated with a few key environmentally related morphological hypotheses and the controversy surrounding them.