The Rise and Fall of Pikermian Chronofauna

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We build on previous research to integrate the evolution of Pikermian-type mammal
faunas to their ecologic, climatic and paleogeographic contexts. We use similarity
index comparisons to map out the spatial extent of the Pikermian fauna, and how it
developed over time. We then use recently developed late Miocene palaeoclimatic and
palaeogeographical reconstructions to assist in our interpretations.

Our results show that at the European scale there is clear pattern in the rise and fall
of the Pikermian fauna, and that this is connected to a change in community structure
towards more hypsodont herbivore communities. Higher hypsodonty is interpreted
as an adaptation to drier conditions. Our results confirm that this development was
asynchronous regionally

Our results suggest that changes in atmospheric circulation pattern, via changes in
rainfall and pressure systems, had a direct effect on the structure of the late Miocene
mammal communities. There was a strong connection between paleogeographic re-
organisation, changes in atmospheric circulation pattern and development of faunal
provincialism. Pikermian faunas spread from Central Asia to Eastern Mediterranean
during early late Miocene, and this faunal development climaxed during the latest late
Miocene, around 8-5 Million years ago as Pikermian biome, when the associated taxa

spread to much of Europe and Asia. The disappearance of Pikermian faunas happened 5 to 4 Million years ago. After this time we do not have such taxonomic associations anymore in Eurasia. The reasons for the disappearance are not clear.