Tropical monsoon during the past

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African and Asian monsoon changes throughout paleotime are investigated (other monsoon regions do not include in the analysis due to lack of information). It is important for a) understanding of climate and environment evolution (changes of vegetation cover, rivers and lakes status, eolian form of relief and so on); b) understanding of role of natural changes for development of ancient civilization; c) investigation of geophysical mechanisms, realizing in earth climatic system.

Monsoon climate in Africa have been existed for a long time. Formation of Asian monsoon circulation were started at about 30 Myrs ago, when the Tetis ocean has began to be closed. Due to collision of continental sheets Tibet was formed. A majority of typical features of modern Asian monsoon circulation have been established at about 10 Myrs ago.

Fluctuations with periods ~ 41 and ~20 kyrs are evidently appeared in the spectrum of monsoon changes. They belong to block of effects, explaining by Milankovitch mechanism. Glacial (deglacial) stages are correlated to intensive (weak) monsoon. The 100 ky cycle does not reconstructed in the paleomonsoon proxies.

There is the correlation between paleomonsoon events and Heinrich and Dansgaard-Oeschger cycles. Warm stages are matched by the intensive monsoon circulations.

Monsoon variations can be caused by different reasons. 1) Changes of monsoon can be directly induced by changes of insolation flux at the top of the atmosphere, accelerating by feedbacks. 2) The monsoon is likely participant of global changes. These effects are possibly controlled by variation of insolation due to solar activity change.