



Chinese loess linked to Tripolar environmental changes

Zhisheng An, Youbin Sun, and Li Li

The State Key Laboratory of Loess and Quaternary Geology, Institute of Earth Environment, Chinese Academy of Sciences, China

The thick loess–paleosol succession of central China contains a detailed record of changes in East Asian monsoon climate since the late Miocene Epoch. The alternating loess–paleosol stratigraphy closely resembles the marine oxygen-isotope record, implying that episodic dust deposition and pedogenesis are in phase with global ice-volume fluctuations and controlled by variations in solar radiation reaching the land surface. We review the subsequent progress of Chinese loess studies, as well as to present the new clue for deciphering the dynamics of climatic/environmental changes with loess relevant evidence. Particularly, we will focus on the connections between environmental change signals deduced from loess records and those from Tripolar, namely, the North Pole, the South Pole and the Tibetan Plateau (usually referred to as the Third Pole), regions. Supported by auxiliary evidence in East Asia, Chinese loess is proved to be a unique continental archive that may be utilized to explore the intricacies of global environmental changes entangled by Tripolar driving.