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### Desert-steppe migration on the Loess Plateau at about 450 kaBP

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According to the field investigation, observation by an electronic microscope and x-ray identification and chemical analysis, desert-steppe migration in the Loess Plateau at about 450 kaBP was studied. The data show that gypsum illuvial horizon indicating the desert-steppe environment developed in the early stage of the formation of the fifth layer loess in Shaoling tableland in Chang'an and Bailu tableland in Xi'an of Shaanxi are situated in the southern Loess Plateau. This indicates that remarkable drying occurred, a large-scale migration of desert steppe took place toward south and the climate zone migrated 5 degrees in latitude to south which is the largest migration range indicated by geochemical indexes. The desert-steppe and more wild environment distributed widely on the Loess Plateau at that time. The development of gypsum also indicates that the climate changed at 450 kaBP from monsoon climate to nonmonsoon climate in the Loess Plateau, and the region was not affected by summer monsoon and was in the cold and dry environment of nonmonsoon climate. Annual mean precipitation was about 200 mm, 400 mm less at that time than at present.

[Paper \(PDF\)](#)

**关键词:** the Loess Plateau; gypsum; arid climate; large-scale migration of desert-steppe