

Reconstruction of the rainfall on the Chinese Loess Plateau during the past 130 ka from the dolomite distributions

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Few documents about dolomite in the loess deposits were reported so far. Recently, we analyze the mineral compositions of 18 surface modern soils and 48 samples from 8 loess-paleosol sequences across the Chinese Loess Plateau (CLP). Both mineralogy and geochemistry analyses results indicate that the dolomite is detrital in origin, thus the weathering of dolomite provides the information about paleoclimate change. Based on the analysis results of surface modern soils, we find that dolomite only exists in the zones where modern rainfall is less than 540 mm/yr. According to the distributions of detrital dolomite in 8 loess-paleosol profiles across CLP, we try to reconstruct the paleorainfall for the past 130 ka. Compared to the present, for the last interglacial, the sites studied received 30-140 mm more rainfall per year, whereas during the glacial episodes, we identify 80-160mm/yr less in precipitation.

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