

Magnetic properties of Quaternary terrestrial deposits in the lower Changjiang (Yangtze) River area, China

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We made environmental magnetic study of terrestrial sediments at Heshangdun in the lower Changjiang (Yangtze) River area, China. The sediments at Heshangdun consist of alternation of reddish brown paleosol and yellow loess deposits, which is probably comparable to the terrestrial wind-blown silt deposit (loess) in inland China.

We collected samples for magnetic measurements at 2.5 cm intervals from the upper sediments of 3.76 m thick using plastic cubes. We also obtained samples at 5 cm intervals from the lower sediments of 4.75 m thick, which were mounted in plastic cubes at laboratory. Low-field magnetic susceptibility of the cubic samples was measured using a Bartington Instruments MS2 susceptibility meter with MS2B sensor operated at two frequencies, 0.47 kHz (LF) and 4.7 kHz (HF). Color indices of the cubic samples were measured by a soil color reader (KONICA MINOLTA SPAD-503).

Magnetic susceptibility of our samples showed increased values at the horizons of paleosol, which are characterized by low L^* and high a^* of color indices. Thus, the variations of magnetic concentration at Heshangdun are correlative to the typical Chinese loess sequence. It is also noticeable that even the interval of low susceptibility showed high frequency dependence of more than 10%. It is suggested that process of the fossil soil formation is more extended than the arid Chinese loess plateau, probably due to higher precipitation in the lower Changjiang (Yangtze) River area, China.