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Last Glacial Sedimentary and Pedological Sequences and Environment Change Implication of the Osong Sites, Cheongwon County of Korea

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In Korea, slope-fluvial sedimentary deposits on the lower fluvial terrace are observed at many prehistory archeological sites, including Sorori site, Nosanri site, Yongsandong site and Mansuri site. This study focuses on the slope-fluvial sequences intercalated with several paleosol layers, as shown at Mansuri site of Cheongwon County along the Miho Riverwhere the gravel terrace deposits are developed at a level of 12-13m above river bottom, since Early Last Glacial Period (~ca 70ka). Toward upper part of the Mansuri sequence, several paleosol layers are repetitively found, indicating relatively a shorter cycle than either that of the terrace formation or terrace deposits. They have multiple layers of structured and patterned grounds of different formation age; the lower paleosol layers on the lower terrace derived from alluvial to slope sediments as old45ka to 55ka, the middle paleosol layers ranging from 28ka to 34ka, and the upper one is about 20ka, based on AMS datings and OSL datings. High MS found in reddish brown paleosols with high hematite contents, while low MS both in fluvial sediments and in dark brown paleosols. The paleosols are characterized by several horizons of patterned grounds with horizontal lamination and vertical frost cracks. In short the patterned ground, typified by Korean paleosols, shows a repetition of freezing/thawing features and suggests type sections of the early, middle, and late Last Glacial periods in South Korea. Lastly the cycles of the paleosols distributed on the terraces, are indicative of shorter period than the terrace landscape formation, which are presumed to be linked with 10^4 cycles environmental changes during Last Glacial Period. This implies that the patterned grounds of paleosols, identified as cold indicators, are highly possible to indicate some of terrestrial "Heinlich Events" (possibly H3 ~ H6) in Korea, implying cyclic advents of extremely cold events coupled with Siberian High Pressure regime.

Keyward: slope, fluvial, paleosol, patterned ground, last glacial