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中期更新世の古カトマンズ湖堆積物に記録されたモンスーン気候と湖水位の変動
Change in monsoon climate and lake-water-level recorded in middle Pleistocene Paleo-Kathmandu Lake sediments

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In order to reconstruct terrestrial Indian monsoon record during the MPT (Middle Pleistocene Transition) and to clarify the causes of lake-water-level changes, pollen and other microfossils analyses were conducted on the lacustrine sediments in the southern Kathmandu basin on southern slope of the Central Himalaya.

We reconstructed continuous record of vegetation and climate changes from ca. 1000 ka to 500 ka on the basis of pollen analysis of a 114-m-long drill core at Champi. In addition, changes in ratio of other proxy: sponge spicules, phytoliths and plant fragments are analyzed and compared with the reconstructed climatic record

On the basis of changes in relative abundance and assemblage of fossil pollen, nine pollen zones are constructed. Pollen zone 9, 7, 5 and 3 indicate cold and dry climate and zone 8, 6, 4 and 2 indicate warm and wet climate. Cold index (*Abies* and *Tsuga*) and dry index (*Artemisia* and Chenopodiaceae) increase during period of cold climate after zone 7. Cold index (*Abies* and *Tsuga*) and dry index (Gramineae) increase much more under cold climate after zone 5 and at the same time, ratio of arboreal pollen begins to cyclically change. A comparison of pollen zones with MIS (marine isotope stage) and magnetostratigraphic study indicate that pollen zones from 8 to 2 correspond to MIS 27-15. The pollen diagram suggests that climate of the Kathmandu Valley became cool and dry at 900 and 700 ka (pollen zone 7 and 5), and cyclic climatic change started at 700 ka. These changes seem to correspond to abrupt increase and cyclic changes of global ice volume in the MPT.

Sponge spicule decreases its ratio during the period of dry climate, therefore it could be ascribed to shrinking of habitat of sponge due to the lowering of lake-water under dry climate. Abrupt and rapid decrease of sponge spicule and diatom at around 50 m in depth suggests rapid lowering of lake-water-level for a moment. This change possibly is caused by drain of lake water owing to occasional break of the dam, because the pollen zone 2 indicates warm and wet climate which implies increase of lake-water-level.
Keywords: Indian monsoon, Kathmandu basin, lacustrine sediments, pollen analysis, sponge spicle