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## Paleo-permafrost development on the Darhad basin, northern Mongolia

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Darhad basin, northern Mongolia, is located on the southern boundary of Eurasian continuous permafrost region. The clear lacustrine terraces indicate the presence of large paleo-lake, which has occupied entire the basin. Geomorphic studies have shown that the lake level was controlled by damming of glacier advance and retreat, and that the lake has completely disappeared in 10ka. A number of permafrost affected landforms presently occurred on the former lake floor would be formed after lake disappearance. In order to reconstruct historical permafrost development of this basin, we investigated intensively a well-developed pingo (i.e. perennial, intrapermafrost, ice-cored hill) on the northern basin. This pingo shows elongated form with the two connected mounds, the higher one has relative height of 14m and convex southern slope. DC resistivity tomography delineated the high electrical resistive materials in the entire of this elongated form, suggesting the occurrence of extensive ground ice. We drilled to 35m depth at the highest point, and found massive ice at the depths between 13 to 23 m. River transported materials with sand and rounded gravels at the depths of 6.0 m indicate that pingo formation has initiated after this sedimentary stage, which was dated as 3,350 - 3,246BC by C14 AMS.

Keywords: permafrost, ground ice, pingo, Mongolia, permafrost formation