

Mid to Late Holocene vegetation and paleoclimate evolution of Lake Dood Basin, northern Mongolia, based on palynological Data

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Lake Dood is a fresh water oligotrophic lake located on the floor of the extensional Darhad Basin, one of two extensional basins that occupy the southern tip of the Baikal Rift Zone in northernmost Mongolia. This basin lies within the transition zone between forest-steppe ecosystems to the south and boreal forest to the north. The vegetation and paleoclimate change can be reconstructed by using palynological data. Our core covers approximately last 6,000 years. In this study, we propose a Normalized Difference Steppe/Forest Index (NDSFI), based on the ratio of the difference between forest-steppe vegetation pollen to arboreal forest pollen to their total pollen concentration, this index is thought to be a proxy for changes in moisture availability and temperature. Typical forest-steppe taxa include *Larix*, *Artemisia* and *Chenopodiaceae* and those of boreal forest are the taxa of *Picea*, *Pinus*, *Larix* and *Betula*. Greater boreal forest pollen concentrations are indicative of humid climate conditions, on another hand, greater steppe concentrations correlate with relatively arid climate conditions. Pollen from this core indicates there are 8 major shifts between forest steppe and boreal forest vegetation. This compares well with other cores from Lake Dood. The vegetation shift suggests that changes in atmospheric circulation and temperature are driven by solar insolation.