Dust input to the surface sediment of Lake Hongjiannao in the south boundary of Mu Su Desert, Northern China

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For understanding the sedimentological resources of the surface sediment of Lake Hongjiannao, twelve samples of surface sediment in the lake and two samples of river sediments from the river discharged into the lake were taken by the Van veen grab sampler. The distribution of sampling sites in the lake were designed to be even to ensure the representativeness of the samples. BEMMA, a model based on hierarchical Bayesian method for separating the end-member of sediment grain-size distributions, was used to the end-member analysis of the grain-size distributions of the lake surface sediment. Four end-members, generally related to river input, estuary sediment area, shore zone sedimentary area, and dust input, were separated from each sample. The content of dust input was found high in the center and the north part of the lake, which might indicate that the dust input was mainly influenced by the activity of the southward wind flow from Mu Su desert. Our result also suggests that the suitable drilling site for the study of past dust activity should be in the center of the lake.