



## The Landscape Evolution of Ulan Buh Desert in North China during Late Quaternary

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Desert evolution was one of the major environmental changes in northern China during Quaternary. Ulan Buh Desert (UBD), at margin of present summer monsoon, is one of main desert fields and dust source areas in the north and northwest China. In this paper we present the results of lithology, Optical Stimulated Luminescence (OSL) dates, grain-size, carbonate content, organic content and pollen analysis from the drilling cores in the different parts of UBD. Our results show that most area of the present Ulan Buh desert was covered by the Jilantai-Hetao mage-paleolake before ~90 ka ago, a uniform paleolake of about 34,000 km<sup>2</sup> covering the whole Hetai plain, and sevrious eolian and desert environment was prevailing during the last glacial and early Holocene. Then an Ulan Buh paleolake (UB paleolake), likely a desert-wetland enviroment, formed in the northern part of UBD and Jilantai salt lake at around 8-7 ka, leaving dry lake bed landform in northern UBD, while high dune landscape probably prevailed in south UBD. After that, the mordern UBD landscape formed. The Jilantai Salt Lake in western UBD continued to exist until present with high lake level during UB paleolake preiod. During the recent 2000 years aeolian sand from Badan Jaran desert invaded the north UBD through Langshan mountain to form dune landform covered on dry UB paleolake bed and seperated main Ulan Buh desert and Jilantai Salt Lake. Human activities such as changing low wetland to farmland and following abandonment resulted the formation of easten Ulan Buh desert in Han dynasty since 200 BC. The formation of UBD landfporms was suggested to be relate to disintegration of Jilantai-Hetao mage-paleolake, and was also likely to corresponding to summer monsoon changes during during last glacial and Holocene.