



Holocene Environmental Change Recorded by the Mineral Magnetic Properties of Juyan Lake Sediments in Northwestern China

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The Holocene environmental change of Juyan region in northwestern China was studied by a combination of scientific methods including analyzing magnetic parameters, total organic carbon content (TOC), grain size and other environmental proxies of the core G36 in Juyan Lake, based on the precise AMS¹⁴C dating. Results show that most magnetic carrier minerals that appeared in coarse sediments and the main magnetic minerals are contained in multi-domain magnetite particles. Environmental proxies show that the Holocene environmental changes of Juyan Lake could be divided into four arid-wet alternating periods: arid period in 6700~4600 a BP, wet period in 4600~3100 a BP, arid period in 3100~2500 a BP, and the lake drying up period since 1800 a BP. In these four periods, two significant wet events and two outstanding arid events are recorded in magnetic parameters. The change mechanism of magnetic susceptibility is complicated and there is no simple positive or negative relationship between magnetic susceptibility change and environmental arid-wet change.