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# Holocene Water Isotope Records Not Reflecting Aridity Changes in Arid Central Asia

**Zhonghui Liu**[1], Jiawei Jiang[1], Zheng Wang[2], Sergey Krivonogov[3], Qingfeng Jiang[4], Juzhi Hou[5], Cheng Zhao[6], Aifeng Zhou[7], Weiguo Liu[2], and Fahu Chen[5]

[1]The University of Hong Kong, Dept. of Earth Sciences, Hong Kong (zhliu@hku.hk)
[2]State Key Laboratory of Loess and Quaternary Geology, Institute of Earth Environment, Chinese Academy of Sciences, Xi'an 710075, China
[3]Institute of Geology and Mineralogy SB RAS, Novosibirsk 630090, Russia
[4]Institute of Geographic Engineering Technology, School of Geography Sciences, Nantong University, Nantong 226007, China
[5]Key Laboratory of Tibetan Environment Changes and Land Surface Processes, Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing 100101, China
[6]State Key Laboratory of Lake Science and Environment, Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences, Nanjing 210008, China
[7]MOE Key Laboratory of Western China's Environmental Systems, College of Earth and Environmental Sciences, Lanzhou University, Lanzhou 730000, China

Holocene moisture evolution in the arid Central Asia region, dominated by the westerly circulation system, has been shown to be in drastic contrast with that in Asian monsoonal regions. Yet, water isotope records, including stalagmite oxygen isotopes and terrestrial long-chain n-alkane/acid hydrogen isotopes, show many common features in the two regions. Here we present several new isotopic records from the arid Central Asia region to examine the isotopic differences from various archives/media, together with existing water isotopic records from both regions. Isotopic records more reflecting terrestrial signal in arid regions appear to follow the pattern in monsoonal regions, while those likely affected by isotopic enrichment due to lake water evaporation display various patterns, and not necessarily resemble moisture changes inferred from the same lakes. It thus appears that the terrestrial water isotopes in both regions may record the isotopic signature in precipitation, but not necessarily linked to aridity changes. Meanwhile, those isotopic records affected by lake evaporation, after subtracting the original precipitation isotopic signal, show good correspondence to moisture changes.