



## **The impact factors of shallow groundwater dynamics in Badain Jaran Desert during the seasonally freezing period**

He Dong and Pengfei Han

China University of Geosciences, School of Water Resources and Environment, Beijing, China (donghe@cugb.edu.cn)

Understanding the groundwater change in the shallow water table regions is important in arid and semiarid areas, especially for the Badain Jaran Desert. Seasonally frozen soils also have a considerable effect on shallow groundwater level because of the freezing – induced water redistribution in winter, however, few studies have been carried out in this region. In this paper, based on the data of lake water and groundwater levels, soil temperature and soil moisture content from November, 2017 to April, 2018, we use the the Simultaneous Heat and Water (SHAW) model to analyze the effect of freezing and thawing of seasonal frozen soil on groundwater level near the lake quantitatively. The results showed that the groundwater level is controlled by the lake and seasonally frozen soils simultaneously. The change of water table result from seasonally frozen soils is 9 cm, accounted for 38 percent on the total water table variation. It makes sense to understand the groundwater dynamics and the interaction between lake and groundwater in the desert.