



## Driving factors of the evolution of groundwater level in People's Victory Canal Irrigation District, China

Zhongpei Liu<sup>a,b,c</sup>, Yuting Zhao<sup>d</sup>, Yuping Han<sup>a,b,c,\*</sup>, Chunying Wang<sup>a</sup>, Fuqiang Wang<sup>a</sup>

<sup>a</sup>North China University of Water Resources and Electric Power, Zhengzhou, 450011, China, email: hanyup@ncwu.edu.cn (Y. Han)

<sup>b</sup>Collaborative Innovation Center of Water Resources Efficient Utilization and Support Engineering, Zhengzhou 450011, China

<sup>c</sup>Henan Key Laboratory of Water Environment Simulation and Treatment, Zhengzhou 450011, China

<sup>d</sup>The Yellow River Survey & Design Co., Ltd., Zhengzhou 450003, China

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### ABSTRACT

It is an efficient way of dynamic characteristics and driving factors analyses of groundwater system to make clear of groundwater cycle and its influence degree by anthropogenic activities. First of all, the temporal and spatial variation law of groundwater level was analyzed based on the measured data of groundwater level in People's Victory Canal Irrigation District in 1993–2013; then, the influence degree of each influencing factor on the groundwater level was quantified by using correlation analysis; finally, the dominant driving factors influencing the evolution of groundwater level were determined using grey relational analysis. The results show that the groundwater level decreased with the decrease of precipitation, and decreased with the decrease of irrigation water from the Canal, and decreased with the increase of groundwater exploitation. Human activities played a dominant role in the variation of groundwater, and the irrigation water of wells as well as the mining of groundwater for living and industrial use was the dominant driving factors of the variation of groundwater level in the study area.

*Keywords:* Groundwater level evolution; Driving factors; People's Victory Canal Irrigation District; Human activities; Groundwater mining

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\* Corresponding author.