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Hydrogeochemical Characteristics of Qingmuguan Karst Underground River under Different Conditions

CHEN Xuebin^{1,2,*}, Mo Xue^{1,2}, SHI Yang^{1,2} and Qiu Shulan^{1,2}

1 School of Geographical Sciences, Southwest University, Chongqing 400715, China

2 Key Laboratory of Eco-environments in Three Gorges Reservoir, Ministry of Education, Chongqing 400715, China

The chemical dynamics of Qingmuguan karst groundwater system in Chongqing were monitored to acquire the hydrogeochemical data of different conditions. The analysis shows that: For long time scale, the chemistry of groundwater shows obviously seasonal variation. The ions' density of Ca^{2+} , Mg^{2+} , K^+ , Na^+ , HCO_3^- , Cl^- , SO_4^{2-} , NO_3^- are higher in wet season than dry season. This hydrochemical change is mainly controlled by karstification, and influenced by dilution effect of precipitation in wet season. The change shows obviously during precipitation, due to these ions' density increased significantly and appear the crest value in the early of precipitation. The change of ions' density have different characteristics after precipitation due to different source and migration path of ions. Therefore the density of K^+ , Na^+ , Cl^- increased in varying degrees, the density of

Ca^{2+} , Mg^{2+} , HCO_3^- decreased then increased, the density of SO_4^{2-} changed stably, and the density of Cl^- , SO_4^{2-} , NO_3^- decreased then appeared the bottom. Because of the human agricultural fertilized activities the density change of Cl^- , SO_4^{2-} , NO_3^- is significant during the period of farming. As a whole, the hydrochemical variation of Qingmuguan groundwater shows different characteristics which mainly are controlled by karst process meanwhile influenced by precipitation diluting process and human activities under different conditions and time scale.

Key word: karst groundwater; hydrochemistry; karstification; rainfall; agricultural activities Qingmuguan

* Corresponding author. E-mail: jiaju-forever@163.com