Acta Geologica Sinica (English Edition), 2019, 93(supp.2): 371–372

Type and Comparative Analysis of Water-storage Structure of Karst Areas in the Southeast Slope area of Yunnan Plateau and Central South Region of Shandong

WANG Xinfeng[1], LIU Yuanqing[1], SONG Mian[1, *], GONG Lei[1], LI Wei[1], LV Lin[1], DENG Qijun[1] and YU Kaining[2]

[1] *Center for Hydrogeology and Environmental Geology,CGS,Baoding ,071051*
[2] *Hebei Research Center for Ecological and Environmental Geology,Shijiazhuang,050031*

Citation: Wang et al., 2019. Type and Comparative Analysis of Water-storage Structure of Karst areas in the Southeast slope area of Yunnan Plateau and Central South Region of Shandong. *Acta Geologica Sinica* (English Edition), 93(supp.2): 371–372.

Abstract: The theory of water-storage structure guides the direction groundwater exploration in bedrock mountain areas, and it's important to transformation and application of achievements in hydrogeology survey. Water storage structure types have been studied 40 years, it become an important topic as the scope extension and precision improvement of the large scale hydrogeology survey. Based on the hydrogeology survey achievements in karst of the Southeast slope area of Yunnan Plateau and the central south region of Shandong, the paper establishes concept mode of water storage structureby statistical analysis and inductive deduction. Based on the information of water quantity, hydrochemistry and water level, this paper systematically sorts out similarities and differences on north and south water storage structure types and divisions represented. Moreover, it determines the correlation between the scale of water storage structures in the south and the north and the development and utilization, and clarifies the typical units of water storage structures, their structural characteristics and water flow characteristics. This paper studies the action mode of different geological structures, different lithostratigraphic assemblages, neotectonic movement, climate and vegetation differentiation and geomorphic units on the type of water storage structure from the aspects of typical water storage structure unit, water storage structure scale and groundwater flow system. By studying the water storage structure function, record index and maintenance mechanism, this can provides scientific basis for determination of well location with different water demands in water shortage area, and formulate the development and protection models of different types of water storage structures.

Key words: water-storage structure, Scale effect, the Southeast slope area of Yunnan Plateau, the central south region of Shandong of Karst area

Acknowledge: This project is belong to China Geological Survey Bureau Project: "Xianning-Yueyang and Nanchang Huaihua high-speed rail along the middle reaches of the Yangtze River 1:50,000 Environmental Geological Survey" (DD 20179262).

* Corresponding author. E-mail: 15188952612@126.com

References

Ding Bingbi. 1989. Exploration of the text 《compiling map of water storage structure in Chaoyang Area》. Journal of Hebei College of Geology, 12(2): 50–56, 28.

Du Ee. 2011. Research on synthetic analysis model of bedrock groundwater supply survey based on multivariate geological information. Nanjing: Master Thesis of Nanjing Normal University.

FengYubao, Yang Guangxia, Yang Suzhen. 1998. Discussion on expert system of water exploration in bedrock mountain area. Journal of North China Institute of water conservancy and hydropower, 19(4): 58–60.

Hu Kuanrong, Cao Yuqing, Hu Zhongyi, et al. 2000. Classification of grade and zone of water storage structure and characteristics of water resources distribution in hydrogeology. Journal of Changchun University of Science and Technology, 30(3): 246–250.

Li Wei, Zhu Qingjun, Wang Honglei, Li Shu. 2011. On methods of finding water in the karst zones of Southwest China. Geology and Exploration, 47(5): 918–923.

Liang Jinhua. 1982. Water storage structure and detection of natural radioactivityy. Nuclear Electronics & Detection Technology, 2(3): 14–19.

Liu Guangya. 1978. Water storage structure in bedrock mountain area. Journal of Hebei College of Geology, (1): 19–39.

Liu Guangya. 1981. Theory and practice of bedrock water storage structure. Journal of Hebei College of Geology, (4): 231–236.

Liu Xinhao. 2011. Integrated water exploration technique in mountainous area based on water storage structure. Hydrogeology and engineering geology, 28(6): 8–12.

LuoGuohuang, Liu Guangcai, Yin Shuren, et al. 1992. Comprehensive geophysical prospecting method for determining water rich dominant faults. Engineering Investigation (3): 69–72.

Pan Xiaodong, Tang Jiansheng, Su Chuntian. 2014. Karst groundwater system in central and southern Shandong province-A case in Daiyue district of Tai'an. Journal of Guilin university of technology. 34(1): 39–44.

Pan Xiaodong, Liang xing, Tang J iansheng, Su Chuntian, Meng Xiaojun. 2015. The patterns and characteristics of four karst groundwater systems in northeast GuiZhou slope zone based on the landscape and reservoir structure. Acta Geoscientica Sinica. 36(1): 85–93.

Shu Longcang, Lin Xueyu, Liao Zisheng. 1997. Expert system of bed rock fissure water prospecting and exploitationn. Hydrogeology and engineering geology, (5): 30–32.

Xu Junxiang, Kang Fengxiang, Zhang Zhongxiang, et al. 2014. Important hydrogeological problems in Shandong Province-theory, technology innovation and Application. Jinan

© 2019 Geological Society of China

Shandong Provence: Shandong Science and Technology Press, p219.
Yang Lei, Cai Yin. 2008. Application of time domain induced polarization method in groundwater resources exploration. Journal of North China Institute of water conservancy and hydropower, 29(4): 8–10.
Zhang Zhigan, Chen Weihai. 2000. Karst reservoir structure and groundwater. Hydrogeology & Engineering Geology, 6: 1–5.
Zhu Qingjun, Li Wei, Li Fengzhe, Sun Yinhang, Li Shu. 2011. Analysis on geologic-geophysical model and geophysical response of groundwater reservoir in Longan County, Guangxi. Carsologica Sinica, 30(1): 34–40.

About the first author

WANG Xinfeng (1982-), Male, engineer, mainly engaged in research about hydrogeological survey and results integration in bedrock mountain area. (tele) phone number: 151 8895 2612; email: 15188952612@126.com

About the Corresponding author

SONG Mian (1988-), Female, engineer, mainly engaged in research about groundwater hydrogeochemistry. Email: songmian88@126.com