



## **Study on the heterogeneity of water resources in peak cluster depression in karst area**

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Water resource in Mumei subterranean stream drainage is divided into precipitation, surface water, water in saturation zone, seasonal fluctuation zone and aeration zone. From the view of water exploitation and utilization, the characteristic of heterogeneity for water resource in karst water system is reduce to four: 1. Precipitation is asymmetric in a year due to climate is affected by S.E. monsoon; 2. Surface water resource is asymmetric. There is perennial allogenic water in Devonian non-carbonate area in the South and West of the drainage area, but surface water resource is absent in peak cluster depression area. There are only several seasonal rivers and karst lakes emerging after heavy rain; 3. Groundwater resource in saturation zone and seasonal fluctuation zone is asymmetric. Complicated underground conduits are main channels for water-flow, and they are difficult to investigate because they are controlled by geology tectonic. 4. Water resource in aeration zone is asymmetric. There are many suspended springs because of aquifuge in Devonian dolomitic limestone. Epi-karst springs outcrop where limestone is not cracked. Heterogeneity of water resource distribution is not equal to heterogeneity of karst development, but has a close relationship with it. In which heterogeneity of water resource in saturation zone and seasonal fluctuation zone can be called this, while in the others can not. Measures to exploit and utilize water resource should be base on the four heterogeneity correspondingly.