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Temporal and spatial variation of hydrological condition in the Ziwu River Basin of Hanjiang River in China

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The middle route of South-To-North Water Diversion in China transfers water from Hanjiang River and Han-To-Wei Water Diversion project of Shaanxi Province will transfer water from Ziwu River, which is a tributary of Hanjiang River. In order to gain a better understanding of the temporal and spatial distribution of future water resources changes in the Ziwu River Basin, the trend analysis of Mann-Kendal (M-K) is coupled with the persistence analysis of rescaled range analysis (R/S) in the study. The change of hydrological characteristics in future in Ziwuhe River Basin is obtained by analyzing the change of meteorological factors. The results show that the future precipitation and potential evaporation are seasonal, and the spatial variation is significant. The future water supply in the spring and autumn of the Ziwuhe river basin is severe, and the future water supply in the summer and winter will be better. In addition, the areas with the same water supply situation are relatively concentrated. The results will provide scientific basis for the planning and management of river basin water resources and socio-hydrological processes analysis.