



Runoff Variation in the Zoige wetland Basin and Its Response to Climate Change

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As a typical alpine marsh wetland on the Qinghai-Tibet Plateau, the Zoige Wetland plays an important role in the water source recharge of Yellow River. Meanwhile, it is more sensitive to climate change. Therefore, it is necessary to study the hydrological cycle of Zoige Wetland and the impact of climate change, which will also provide important support and reference for the study of hydrological process, and protection of wetland water resources in Alpine areas. Based on the distributed hydrological model, this paper analyzed the runoff process in the Zoige wetland basin, and explored the trend of runoff variation in the Zoige wetland basin under different climate change scenarios in the next 30 years from 2020 to 2050. The impact of climate change on wetland runoff were also discussed. Results showed that the runoff in the Zoige Wetland basin decreased under the future climate change scenario. The rate of runoff reduction was the largest in Machu station, followed by Zoige station, and finally Tangke station. The reduction in non-flooding runoff is significantly higher than that in the flood season. The runoff during non-flood season in the Zoige Wetland basin from 2020 to 2050 will decrease by more than 25% in the future climate change scenario. The sharp decline in non-flooded runoff may have an impact on the protection of the Zoige Wetland and the management of water resources in the middle reaches of the Yellow River and downstream areas. This poses more stringent requirements for the protection of the Zoige Wetland in response to future climate change. Under future climate change scenarios, how to strengthen the management and protection of wetland water resources and prevent the degradation and atrophy of wetlands is the issue we need to further discuss and consider.