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Potential impact of climate change on water quality in the Huai River: an analysis of trends from 1959 to 2008

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Abstract Historical observations and model simulations have suggested that climate change can significantly affect the hydrology of the Huai River, the sixth largest river in China. However, relatively little is known regarding the effect of climate change on water quality. Climate change trends including air temperature, precipitation, evaporation and runoff were assessed at four typical stations along the Huai River and were analysed by the Mann-Kendall test for statistical significance. The annual mean air temperature increased significantly, along with a significant decrease in evaporation. No significant increasing or decreasing trends were found for precipitation or runoff. Water quality did not change significantly but the concentrations of major ions increased to some extent. Ammonium (NH₄-N) and chemical oxygen demand (COD_{Mn}) appeared to increase with lower flow; however, these variables are more likely controlled by pollutant content in effluent drainage.

Key words climate change; water quality