

Assessing climate change induced modification of Penman potential evaporation in the middle reaches of Huai River basin, China

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Abstract Potential evaporation (E_p) is influenced by meteorological variables such as net radiation, wind speed, vapour pressure and air temperature. An attribution analysis was performed using the Penman formulation to quantify the contribution of each input variable to overall trends in E_p in the middle reaches of Huai River basin from 1960 to 2011. The results show that the E_p presented positive and negative trends during 1960–1970 and 1971–2011, respectively, which resulted in a slight overall decreasing trend from 1960–2011. The result of the research here uncovers the fact that E_p rates did not necessarily increase in correspondence with mean air temperature over the past few decades. It is critical to take all the factors driving E_p into consideration, and this will continue to be so as climate change continues.

Key words potential evaporation; climate change; attribution analysis