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Study on the Variation Trend of Potential Evapotranspiration in the Three-River Headwaters Region in China Over the Past 20 years

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To study the variation trend of potential evapotranspiration (PET) in the Three-River Headwaters (TRH) region of the Qinghai-Tibet Plateau in China, we use 2-m temperature and surface pressure observation data from 14 meteorological weather stations in the TRH region, and the surface PET is calculated by the Penman-Monteith formula. The global land surface data assimilation system from 2000 to 2018 were used to compare and verify the accuracy and applicability of the calculated PET in the THR region. The results show that in the past 20 years, the PET of 14 weather stations in the TRH region has shown an increasing trend, with annual averaged growth rate of $1.4 \pm 1.2 \text{ mm}\cdot\text{a}^{-1}$, and the spatial distribution of the annual variation rate of PET has obvious difference. PET is higher in the eastern area of TRH region, and lower in the western area. The drought in this area increased from southeast to northwest, which was consistent with the spatial distribution of precipitation. The aridity index K has fluctuated and increased before 2015, but there was a sudden change in 2018, and the aridity index K in the TRH began to decline after 2018, and the climate changed from dry to wet.