

Interaction between climatic factors and timescale affect assessment of extreme drought in China

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Climate change leads to a significant increase in the extreme drought frequency (EDF), which has a profound impact on terrestrial

ecosystems. Due to diverse patterns of precipitation and evapotranspiration in different regions of China, there are obvious temporal and spatial differences in the frequency evaluation results.

In addition, EDF varies greatly depending on the consideration of climatic factors and the selected timescale for [drought](#) indices. Therefore, quantitative assessment of the temporal and spatial changes in the EDF and its influencing factors is an important issue for drought monitoring and forecasting operations and research work.

Recently, Dr. Ma Tianxiao and Dr. Liang Yu of the Landscape Processes Group at the Institute of Applied Ecology (IAE) of the Chinese Academy of Sciences (CAS) revealed how climate and timescale individually and interactively alter EDF at multiple temporal and spatial scales in conterminous China. The study was published in *Atmospheric Research*.

They found that climatic factors exerted a greater effect than timescale on EDF estimates for conterminous China. This pattern was more obvious in the arid and semi-arid regions. The results also indicated the climatic factors and timescale effects on EDF showed a different pattern in the Tibetan Plateau and delineated by the altitude greater than 3,500 meters.

These results highlight the necessity of considering the interaction of climatic factors and timescale, and the importance of regional condition (i.e. precipitation, temperature and elevation) in selecting the optimal drought indices to detect extreme drought.

More information: Tianxiao Ma et al, Quantifying the relative importance of potential evapotranspiration and timescale selection in assessing extreme drought frequency in conterminous China, *Atmospheric Research* (2021). [DOI: 10.1016/j.atmosres.2021.105797](https://doi.org/10.1016/j.atmosres.2021.105797)

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