

# Analyzing the extreme drought in eastern China in 2022 and its future risk

January 9 2024

---



Summer severe drought in eastern China in 2022. Credit: Zhankun Liu

Eastern China was hit by an extreme drought in summer 2022 that caused severe economic and agricultural damage. The event has attracted a great deal of attention not only because of its severe intensity and huge social impacts but also because it is yet another example within the hot topic of the influence of anthropogenic forcing-induced warming on drought extremes and how they might change under different scenarios

of continued warming in the future.

Recently, [\*Atmospheric and Oceanic Science Letters\*](#) published a paper titled "Anthropogenic influence on the [extreme drought](#) in Eastern 2022 [drought](#)-like China in 2022 and its future risk" by Professor Chen's team from Nanjing University of Information Science and Technology.

This research analyzed the anthropogenic impact on the occurrence probability of a "2022 Drought-like event" and provided the projected changes of such an event under various future emission scenarios.

Based on DAMIP (Detection and Attribution Model Intercomparison Project) results, it was found that anthropogenic forcing increases the occurrence probability of a 2022 Drought-like event by 56%.

This change is probably associated with the change in the mean climate state over the eastern China region, including decreased moisture and weakened upward motion. The anthropogenic forcing–induced changes in the mean state may stunt convective activity, providing a favorable condition for the formation of drought extremes.

"We further analyzed the responses of 2022 drought-like events to different warming scenarios and found that, under a low-emissions scenario, the risk of such an event occurring declines dramatically, probably because of increased background moisture and enhanced upward motion."

"In sharp contrast, the high-emissions scenario simulations projected a 79% higher chance of a 2022 drought-like event happening than under present-day conditions, probably because of significantly enhanced background descending motion. The results indicate a nonlinear change in the occurrence of 2022 drought-like events in response to a warmer world," explains Professor Chen.

**More information:** Yinjun Zhang et al, Anthropogenic influence on the extreme drought in eastern China in 2022 and its future risk, *Atmospheric and Oceanic Science Letters* (2023). [DOI: 10.1016/j.aosl.2023.100390](https://doi.org/10.1016/j.aosl.2023.100390)

Provided by Chinese Academy of Sciences

Citation: Analyzing the extreme drought in eastern China in 2022 and its future risk (2024, January 9) retrieved 4 May 2024 from <https://phys.org/news/2024-01-extreme-drought-eastern-china-future.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.