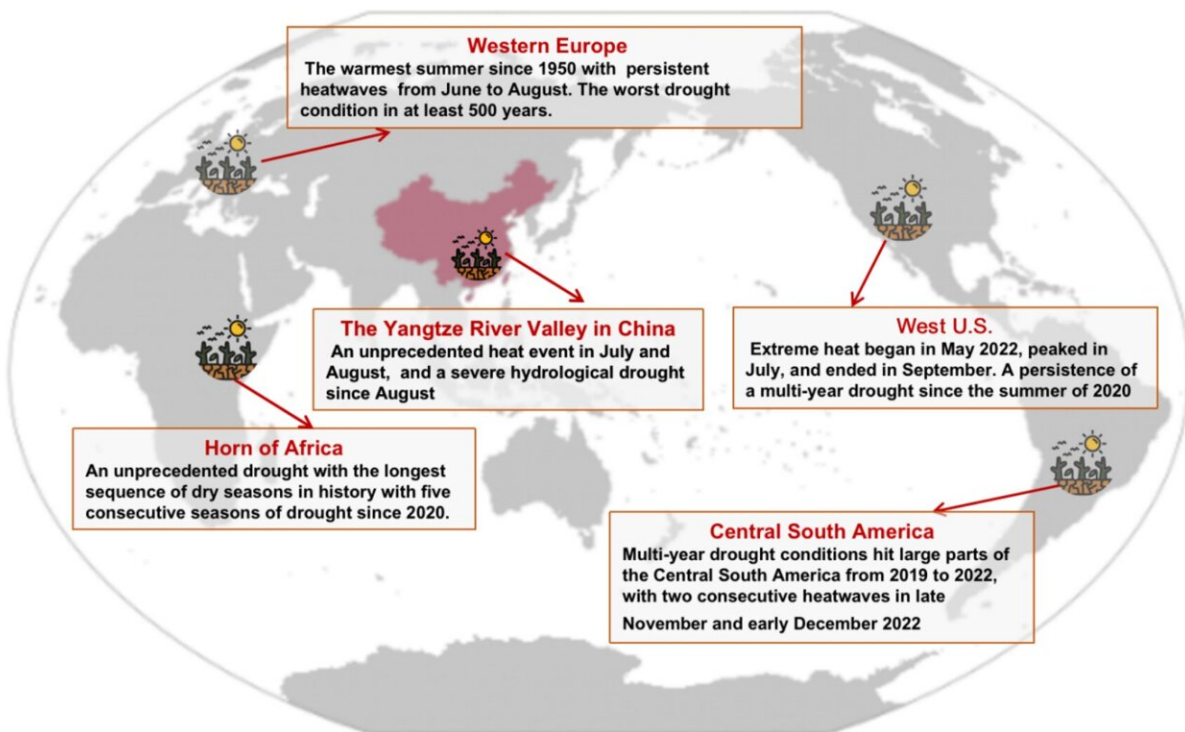


# Cracking the code of 2022's unprecedented heat waves and droughts

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Global extreme hot and drought events in 2022 selected to review in the study.  
Credit: Lixia Zhang

Extreme weather events have been making headlines worldwide due to their increasing frequency and severity, often attributed to ongoing global-scale warming. The year 2022 was no exception, with record-

breaking heat waves and droughts of highly unusual spatial extent, duration, and intensity.

A study titled "Understanding and Attribution of Extreme Heat and Drought Events in 2022: Current Situation and Future Challenges" examines these events from a global perspective, shedding light on the causes and implications of these extreme weather phenomena.

The [research](#), conducted by a team of scientists from the Institute of Atmospheric Physics at the Chinese Academy of Sciences, and the Met Office, the UK's national meteorological service, delves into some of those events of particularly striking impacts that occurred in various parts of the world in 2022.

Extreme droughts measured by surface soil moisture covered almost 50% of global land areas in 2022, marking the second most widespread year since 1980. In many places, these droughts were also accompanied by unprecedented heat waves with hotspots in China's Yangtze River region, western Europe, the western U.S., the Horn of Africa and central South America.

By exploring the potential roles of circulation patterns, oceanic forcing (notably the "triple-dip" La Niña) and [anthropogenic climate change](#), the study reviews potential causes of the events. With the [global community](#) increasingly concerned about the impacts of [climate change](#), the study serves as a crucial reference for advancing our understanding, prediction, and attribution of [extreme weather events](#), ultimately working towards a more resilient future.

Lead author Dr. Lixia Zhang from the Institute of Atmospheric Physics at the Chinese Academy of Sciences emphasized the significance of this research, "The extreme heat waves and droughts of 2022 were unprecedented in their scale and impact. Our study seeks to unravel the

complex interplay of factors that led to these events, with the ultimate goal of enhancing our ability to predict and mitigate the consequences of future extreme weather occurrences."

Commenting on the study, Met Office scientist Robin Clark, one of the co-authors, says, "What happened in 2022, and indeed, in other recent years, really does appear to be a foretaste of what is likely to become increasingly common in coming years and decades as climate change starts taking hold."

The study is [published](#) in the journal *Advances in Atmospheric Sciences*.

**More information:** Lixia Zhang et al, Understanding and Attribution of Extreme Heat and Drought Events in 2022: Current Situation and Future Challenges, *Advances in Atmospheric Sciences* (2023). [DOI: 10.1007/s00376-023-3171-x](#)

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