

Three-day exceptional heat wave in China linked to human-induced climate change

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Extreme heat in China linked to human-induced climate change. Credit: IOP Publishing

A record-breaking heat wave occurred in North China in June, marking the first time that temperatures reached or exceeded 40°C in Beijing for three consecutive days. A new paper, published in the journal *Environmental Research Letters*, explores the extent to which such extreme heat wave events can be attributed to human-induced climate

change and how frequent and intense such strong heat wave events will be in the future.

The study was led by Cheng Qian of the Institute of Atmospheric Physics at the Chinese Academy of Sciences in Beijing, as part of an international consortium of research groups. Their work used two probability-based attribution approaches, an empirical approach based on observations and a coupled model approach, both with a low CO₂ emissions, carbon neutral scenario and an intermediate CO₂ emissions scenario.

Qian, Professor of Atmospheric Science, says, "This study is a first attempt in establishing a [real-time](#) rapid attribution service in China, providing risk information on [climate change](#) to inform policy-making. Our findings highlight the need for change and measures to reduce emissions to address the consequences of extreme heat wave events."

"Rapid attribution analysis can also inform the public of how [climate](#) change is linked to the severe weather they have recently experienced. Analyses like these promote awareness and push participation in climate actions to reduce the effects of climate change and contribute to the completion of carbon neutrality. The attribution results were released to the public eight days after the event on third of July," continues Qian.

Heat wave events are characterized by intensity and length per [geographical area](#), with the event in June resulting in negative effects on transportation, public health, energy supply, [agricultural development](#), and economic growth.

A co-author of the paper, Professor Cunrui Huang from Vanke School of Public Health at Tsinghua University in China adds, "Our work has important implications across the globe, not just in North China. Countries need to implement a range of effective interventions to

manage [public health](#) risks caused by climate change, including the development of heat adaptation plans and the establishment of heat-health early warning systems by government departments."

More information: Rapid attribution of the record-breaking heatwave event in North China in June 2023 and future risks, *Environmental Research Letters* (2023). [DOI: 10.1088/1748-9326/ad0dd9](https://doi.org/10.1088/1748-9326/ad0dd9)

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