

Limiting global warming would relieve populations from wet and dry extremes in China

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Limiting global warming to a lower level, such as the 1.5°C Paris Agreement target, would substantially relieve populations from precipitation extremes in China, according to a study recently published in *Science Bulletin*.

The research, which is an extension of climate projections, sheds light on how extreme precipitation changes would translate into [social impacts](#). Taking population into account, even a half-degree global warming increment could result in a robust increase in extreme rainfall-related impacts, particularly in the densely populated southeastern China.

"China has long been overwhelmed by precipitation extremes such as floods and droughts, as a result of the influences of monsoon, complex topography, and the large population. The accompanying social and economic losses are huge. In addition to traditional climate projections, decision-making also requires impact projections," said Prof. Tianjun Zhou, the corresponding author on the paper. Zhou is a senior scientist at the State Key Laboratory of Numerical Modeling for Atmospheric Sciences and Geophysical Fluid Dynamics at the Institute of Atmospheric Physics and CAS Center for Excellence in Tibetan Plateau Earth Sciences in the Chinese Academy of Sciences. He is also a professor at the University of Chinese Academy of Sciences.

Zhou and his team combined climate projections from CMIP5, an archive of comprehensive climate models, with socio-economic projections to investigate future climate changes and the accompanying impacts at various global warming thresholds. It is demonstrated that heavy precipitation events would intensify with global warming all over China, affecting all the populations around. Meanwhile, dry extremes would intensify in South China and exert adverse impact on the large population there.

"To understand the future impacts, we further separated the roles of future climate change and population redistributions. We found that [climate](#) change dominates the future impacts on population, while population redistributions play a minor role," said Prof. Zhou.

"Our results would, hopefully, provide useful information for mitigation

and adaptation planning. Regional information is important in this regard. The uneven population distribution, particularly the dense [population](#) in southeastern China, has made it a hotspot in face of [global warming](#) as a consequence of high risks of both floods and droughts," Zhou said. "Hence, efficient and timely adaptation activities are in urgent need for this region."

More information: Wenxia Zhang et al, Increasing impacts from extreme precipitation on population over China with global warming, *Science Bulletin* (2019). [DOI: 10.1016/j.scib.2019.12.002](https://doi.org/10.1016/j.scib.2019.12.002)

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