

# Researchers say economies in South China and Indochina set to suffer under precipitation extremes

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Not a week seems to go by without news somewhere in the world of a disastrous flood, drought, wildfire, or some other kind of extreme

climatic event. In Asia, the region of South China and Indochina (INCSC) is no exception.

Here, as recently exemplified by the catastrophic floods in China's southern province of Guangdong, which killed at least 4 people and left many more missing, [heavy precipitation](#) and extreme drought have taken their toll in recent decades.

Aside from the human cost, the [economic impacts](#) can be brutal; for instance, in the case of the Guangdong floods, there were direct economic losses of more than 346 million yuan (close to 50 million US Dollars).

Also, given that those parts of the INCSC region with the largest GDP (gross domestic product) tend to be distributed along the coastline, where the [effects of global warming](#) are felt the most, understanding the likely future economic impacts as we move into an even warmer world becomes imperative.

With this in mind, in a study published in [Advances in Atmospheric Sciences](#) on May 18, a cross-disciplinary team of researchers led by the Institute of Atmospheric Physics at the Chinese Academy of Sciences, used data from state-of-the-art [climate models](#) to investigate future projections of precipitation extremes and their impacts on GDP across the INCSC region under the Intergovernmental Panel on Climate Change's fossil-fueled development pathway—one of several possible future climate change scenarios of socioeconomic changes.

What they found has major implications not only for the INCSC region as a whole, but also for specific areas within the region where it turns out the impacts will be hardest felt.

"When solely considering the influence of climate change on GDP, the

future changes in heavy precipitation and extreme drought in the INCSC region projected by climate models will have the greatest economic impacts in provinces such as Hunan, Jiangxi, Fujian, Guangdong, and Hainan in South China, as well as in the Malay Peninsula and southern Cambodia in Indochina," explains Dr. Wenting Hu, corresponding author of the study.

It is clear, then, that while climate models show heavy precipitation intensifying and dry spells lengthening across the entire INCSC region, when we dig down into the subregional detail of the economic consequences of those changes, it will be necessary for certain areas to design and implement adaptation strategies tailored to the particular future they are facing.

The 2015 Paris Agreement challenged the world to keep the rise in global surface temperature to well below 2°C, and preferably not exceeding 1.5°C. If this can be achieved, regional repercussions of climate change such as those uncovered in the INCSC region in this study could be avoided.

Not only that, but in the other direction, from regional scales to the global scale, there is now evidence to suggest that extreme daily rainfall and [heat waves](#), for example, can wield a considerable impact on global economic growth. This, say the authors of the current study, is an important aspect to be examined in the next steps for this line of research.

**More information:** Bin Tang et al, Impacts of Future Changes in Heavy Precipitation and Extreme Drought on the Economy over South China and Indochina, *Advances in Atmospheric Sciences* (2024). [DOI: 10.1007/s00376-023-3158-7](https://doi.org/10.1007/s00376-023-3158-7)

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