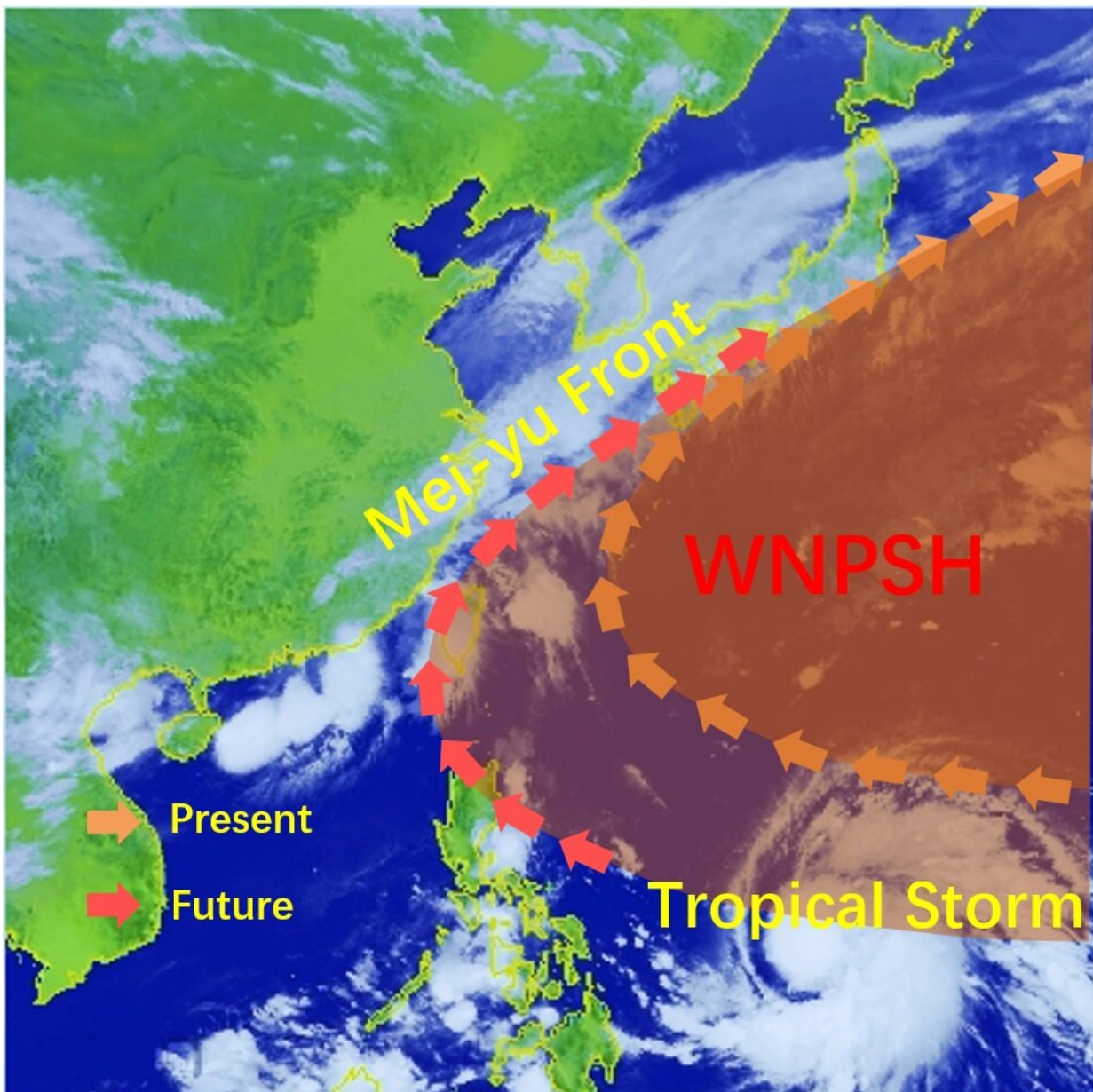


North Pacific Subtropical High models predict summer monsoons, reduced typhoon landfalls

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A controlling circulation on location of Mei-yu Front and track of tropical storms. A new study reports that the western North Pacific Subtropical High will be intensified in future Credit: Xiaolong Chen

The western North Pacific Subtropical High (WNPSH) is a key atmospheric circulation system strongly that influences weather and climate over the entire East and Southeast Asia. It determines the strength and position of the Mei-yu Front (or Baiu/Changma Front) and the trajectories of typhoon and western Pacific tropical cyclones. How it will change in the future concerns the livelihood of many millions of people. The answer from state-of-the-art climate models is currently ambiguous. A total of 35 models of the Fifth Phase of Coupled Model Intercomparison Project (CMIP5) cannot agree on future change scenarios.

A new study published in *Nature Communications* this week, led by the Institute of Atmospheric Physics/Chinese Academy of Sciences (IAP/CAS) in collaboration with the Met Office Hadley Centre in the U.K. and Nanjing University, has found that such uncertainties mainly result from systematic biases in simulating the historical [sea surface temperature](#) from individual models. With correction by observed sea surface temperature, under the Representative Concentration Pathway (RCP) 8.5, a high greenhouse gas emission scenario, the models tend to agree on a future intensification of the WNPSH with 45% of the uncertainty reduced, which implies stronger East Asian summer monsoons with increased rainfall, but reduced typhoon landfalls over East Asia. In the meantime, it could also imply increased risk of heatwaves in the southern and eastern China.

"Uncertainties with [climate models](#) are here to stay, even though models have progressively improved. How to get the best information for climate adaptation and [decision makers](#) from currently available [model](#) projections is an important research topic," said the lead author, Dr. Xiaolong Chen from the Institute of Atmospheric Physics in Beijing.

More information: Xiaolong Chen et al. Emergent constraints on future projections of the western North Pacific Subtropical High, *Nature Communications* (2020). [DOI: 10.1038/s41467-020-16631-9](https://doi.org/10.1038/s41467-020-16631-9), www.nature.com/articles/s41467-020-16631-9

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