Increasing resolution of sea surface temperature data causes artificial decadal variability of storm track

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The "storm track" is the term given to the region where storms prevail. Large amounts of precipitation can be delivered along its pathway, and it plays a key role in modulating the weather and climate of the middle latitudes.

"Generally, reanalysis data are used to examine the variation of the storm track. With the development of ERA-Interim—currently the most

popular reanalysis product in climate studies—the spatial resolution of sea surface temperature has been markedly improved in the past two decades," said Prof. LIU Hailong from the Institute of Atmospheric Physics (IAP) of the Chinese Academy of Sciences, whilst talking about a new study he led.

"However, inconsistencies are also apparent during the whole period of the dataset from 1979 to 2018, and this may bring some artificial influences on the variability of the storm track, not only over the North Pacific but also in other storm-track regions globally," he said.

In the study published in Advances in Atmospheric Sciences, LIU and his team found that the maximum values of the low-level storm track in the North Pacific increased by about 30% after increasing the resolution of sea surface temperature, through the air-sea interaction of the mesoscale SST anomalies. They conducted a series of experiments to further confirm the conclusion by using a high-resolution atmospheric model.

According to LIU, this study prompts researchers not to overestimate the decadal variability of the storm track in the middle latitudes. More numerical experiments should be performed to extensively investigate the physical processes behind the phenomenon.

More information: Chao Zhang et al. Impacts of Increased SST Resolution on the North Pacific Storm Track in ERA-Interim, *Advances in Atmospheric Sciences* (2020). DOI: 10.1007/s00376-020-0072-0

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