ARCTIC OBSERVATIONS TO PREDICT TROPICAL CYCLONES

Relevant for: World & Indian Geography | Topic: Important Geophysical phenomena - Cyclones & Atmospheric Circulation

Weather observations in the Arctic can help track tropical and mid-latitude cyclones more accurately, improving the forecast of extreme climate events, scientists say.

"Extreme weather events have been frequently observed in all seasons all over the world," said Kazutoshi Sato, an assistant professor at the Kitami Institute of Technology in the US. "Hurricanes and typhoons are one of the most influential phenomena for human life. Precise weather forecast is critical to enable communities to adequately prepare for weather disasters."

For the study published in the journal *Scientific Reports*, researchers performed weather forecast experiments for three tropical cyclones that occurred over the North Atlantic and North Pacific during 2016, to determine whether additional observations could help predict their paths and intensity more accurately. To supplement existing weather data observations, additional observations were conducted using weather balloons released from ship- and land-based weather stations based in the Arctic.

The data were analysed using a data assimilation system developed in Japan Agency for Marine-Earth Science and Technology, which can produce reanalysis datasets by "mixing" observations into global atmospheric conditions. The observations improved the predictability of the cyclones, allowing the scientists to track the paths of the cyclones as well as forecast their intensity more accurately.

"This study demonstrated the usefulness of additional Arctic observations for mid-latitude numerical weather forecasts for tropical cyclones," said Jun Inoue, from NIPR.

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