Weak tropical cyclones are intensifying due to global warming, study of surface drifter data finds
18 November 2022, by Bob Yirka

A pair of researchers at Fudan University's Department of Atmospheric and Oceanic Sciences and CMA-FDU Joint Laboratory of Marine Meteorology, working with one colleague from the University of North Carolina at Chapel Hill and another from the University of California San Diego, has found that weak tropical cyclones, also known as tropical storms, are growing stronger due to climate change.

In their paper published in the journal *Nature*, the group describes their study of data from thousands of surface drifters over a 29-year period. Robert Korty, with Texas A&M University has published a News & Views piece in the same journal issue outlining the ways in which ocean storms are measured and the work done by the team on this new effort.

Prior research has suggested that major cyclones and hurricanes have been growing in size and strength in recent years due to climate change. In this new effort, the researchers found evidence suggesting that smaller tropical cyclones are growing stronger, too.

As the planet grows warmer, so do the world's oceans. The storms that develop over warmer oceans contain more water and energy and are larger than those of past decades. Prior research has involved the use of satellite imagery and direct observation by aircraft, which, the researchers note, works well for large storms. But for smaller storms, such data can be imprecise at best.

Because of that, the researchers looked for other ways to measure smaller storm strength. They noted that researchers have deployed what are known as surface drifters over the past several decades. These devices are like miniature buoys with sensors and are not tethered to the ocean floor. The sensors aboard the drifters can measure both wind and current speed, along with rain amounts, giving accurate measurements of the severity of a cyclone or tropical storm.

The researchers collected data from thousands of the drifters deployed over the years 1991 to 2020 to create simulations of storm strength in different parts of the world over time. They were able to see that the average storm strength for category 1 tropical storms has been intensifying due to warmer ocean conditions at a rate of approximately 1.8 meters per second each decade.

