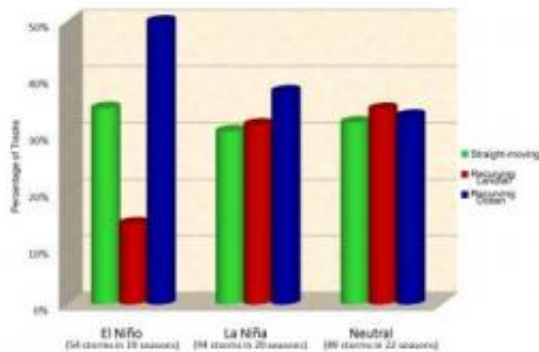


Using 61 years of tropical storm data, scientists uncover landfall threat probabilities

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In a study published in the *Journal of Climate*, University of Miami Rosenstiel School of Marine & Atmospheric Science scientists have found an intriguing relationship between hurricane tracks and climate variability. The team studied data from the Atlantic gathered between 1950-2010, unlocking some noteworthy results and trends. Credit: Angela Colbert

Scientists at the University of Miami's (UM's) Rosenstiel School of Marine & Atmospheric Science have found an intriguing relationship between hurricane tracks and climate variability. Angela Colbert, a graduate student in Meteorology & Physical Oceanography, with the collaboration of Professor and Associate Dean for Professional Masters, Dr. Brian Soden, studied data from the Atlantic gathered between 1950-2010, unlocking some noteworthy results, which appear in the

American Meteorological Society's *Journal of Climate*.

Storms were classified into three different categories based on their projected paths: straight moving, recurving landfall, or recurving ocean. Storms that develop farther south and/or west in the tropical Atlantic are more likely to become straight moving storms that ultimately affect the Gulf Coast of the United States and the Western Caribbean. However, storms that form more north or east have a greater chance to threaten the Eastern seaboard or simply recurve into the open ocean.

Perhaps the most significant finding was that El Niño seasons are not only associated with fewer storms overall, but those storms that do form are less likely to make landfall due to changes in the atmospheric steering currents.

"In a typical El Niño season, we found that storms have a higher probability of curving back out into the ocean as opposed to threatening to make landfall along the East Coast of the US due to a change in the circulation across the Atlantic. This is important for not only weather forecasting, but insurance companies, who can use these findings when determining seasonal and yearly quote rates," said Colbert.

In contrast La Niña seasons, when the equatorial Pacific Ocean surface is cooler than normal, are associated with both greater numbers of storms as well as an increased likelihood that they will make [landfall](#).

"Growing up in Florida I have always been fascinated not only with hurricanes, but with severe weather in general. I wanted to better understand tropical cyclones and why they sometimes seem to follow certain tracks throughout a season or longer, so we can better prepare for them," she added.

Colbert is a graduate of Palm Harbor University High School and

received her Bachelor's degree in Mathematics Education from the University of Central Florida and her Master's degree in Meteorology and Physical Oceanography from the University of Miami. She is a member of the American Meteorological Society and American Geophysical Union, and serves as President of UM's Marine Science Graduate Student Organization.

Provided by University of Miami

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