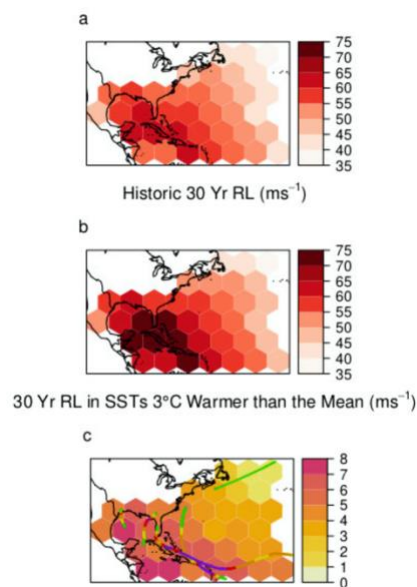


## Future Warming Ocean Temperatures Could Increase Hurricane Winds in the North Atlantic



A: General hotspot climatologically (30 years) for Category 4 hurricanes in Caribbean & Gulf of Mexico.  
B: Expected hurricane intensity increase (30 years) with warmer SSTs.  
C: Largest increase in activity is near Florida, Caribbean and Gulf of Mexico.

Hurricanes, especially during more recent seasons, are responsible for major devastation along the U.S. coastlines. A South Central CASC Research Affiliate from Louisiana State University, Dr. Jill Trepanier, recently published her work on *North Atlantic Hurricane Winds in Warmer than Normal Seas*. This research focuses on past hurricane extremes compared to future hurricane events. Despite the recent devastation from these events, their predictability of these extreme events in the future given warming sea surface temperatures (SSTs) is not well understood. For this reason, understanding the role of warmer ocean waters and its contribution to more extreme hurricane winds is crucial for adaptation planning and future predictability.

To improve predictability and increase resiliency along the U.S. coastlines, it's important to understand the role in which hurricanes play on the planet. A hurricane's main purpose is to transfer heat from the equator toward the poles. But what happens when the heat continues to increase? As scientists have worked on gaining insight to future hurricane unknowns for decades, Dr. Trepanier used a comparison approach by using historical SSTs and maximum wind speed data (1854-2018) to estimate future maximum hurricane intensity. It should also be noted that warm SSTs are not the only component necessary for hurricane formation but are the primary focus for this research.

As a result of this comparison over the North Atlantic Basin, we see an overall increase in future hurricane wind speeds located in the Gulf of Mexico and Florida due to warmer local SSTs. Changes to hurricane intensity are not expected to increase as much in the northern portion of the North Atlantic since SSTs are cooler than at the equator. However, coastal residents in the Northeastern U.S. should expect stronger storms than previously experienced in the past when SSTs were warmer than the climatological average. In a future climate, SSTs are expected to be warmer closer to the equator than historical averages and thus contribute a stronger variable to the formation of hurricanes. In response to these results, adaptation planning and preparedness along the U.S. coastlines is a critical factor in minimizing large economic and human losses. Therefore, emergency managers in these regions should begin to prepare coastline communities and plan for a future with stronger hurricanes.

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