

Hurricanes: State of the Risk

The distinguishing feature of the 2023 Atlantic hurricane season is a tug-of-war between a shift from cool- to warm-water conditions in the central Pacific Ocean (La Niña to El Niño) and exceedingly warm tropical Atlantic waters.

During La Niña, the Atlantic hurricane season tends to be more active because the cooler Pacific waters promote development of high pressure that influences atmospheric conditions over the Atlantic, strengthening the trade winds that blow from east to west across the tropical Atlantic. La Niña also tends to reduce vertical wind shear, preventing developing storms from being torn apart and enabling them to intensify into hurricanes.

La Niña conditions have prevailed during the most recent three seasons, contributing to above-average hurricane activity, including Hurricane Ian in 2022, a Category 4 hurricane that killed more than 100 people and caused estimated losses between \$50 billion and \$65 billion, [according to Swiss Re Institute](#). In a typical season, the shift to El Niño conditions would be expected to lead to a less active season. But coinciding with this shift are historically warm waters in the tropical Atlantic that Brian McNoldy, a tropical weather researcher at the University of Miami, [described in a tweet](#) as “beyond extraordinary”.

These warming conditions are part of a global pattern that is now outpacing anything seen in four decades of satellite observations. Around mid-March, ocean-temperature monitoring data shows that average surface water temperatures surpassed 70 degrees Fahrenheit around the globe, excluding polar waters, for the first time since at least 1981, when the data set originated. That is warmer than what scientists observed at this time of year in 2016, when a strong El Niño drove the planet to record warmth.

These conditions contributed to the [early formation of Tropical Storm Bret](#) off the coast of Africa – two months ahead of schedule for that part of the Atlantic. June tropical storms are not unusual. What’s different about this one is where it’s forming at this point in the season. Typically, a June tropical storm would form at the tail end of a cold front in the Gulf of Mexico or in the western subtropical Atlantic or in the Caribbean. For one to form this early from an African easterly wave is rare.

Insured losses steadily rising

Insured losses from hurricanes have risen over just the past 15 years. When adjusted for inflation, nine of the 10 costliest hurricanes in U.S. history have struck since 2005. This is due mainly to the fact that more people have been moving into harm’s way since the 1940s, and Census Bureau data show that homes being built are bigger and more

Key Insurance Considerations



Is coverage adequate to rebuild?

Check your [homeowners’ policy limit](#). Remember: Market value is not replacement cost.



Hurricane/windstorm deductible?

Insurers in every coastal state from Maine to Texas include [deductibles for hurricanes/windstorms](#) in their homeowners policies.



Understand exclusions. All

[standard homeowners’ policies](#) contain “exclusions.” One common exclusion is flooding.

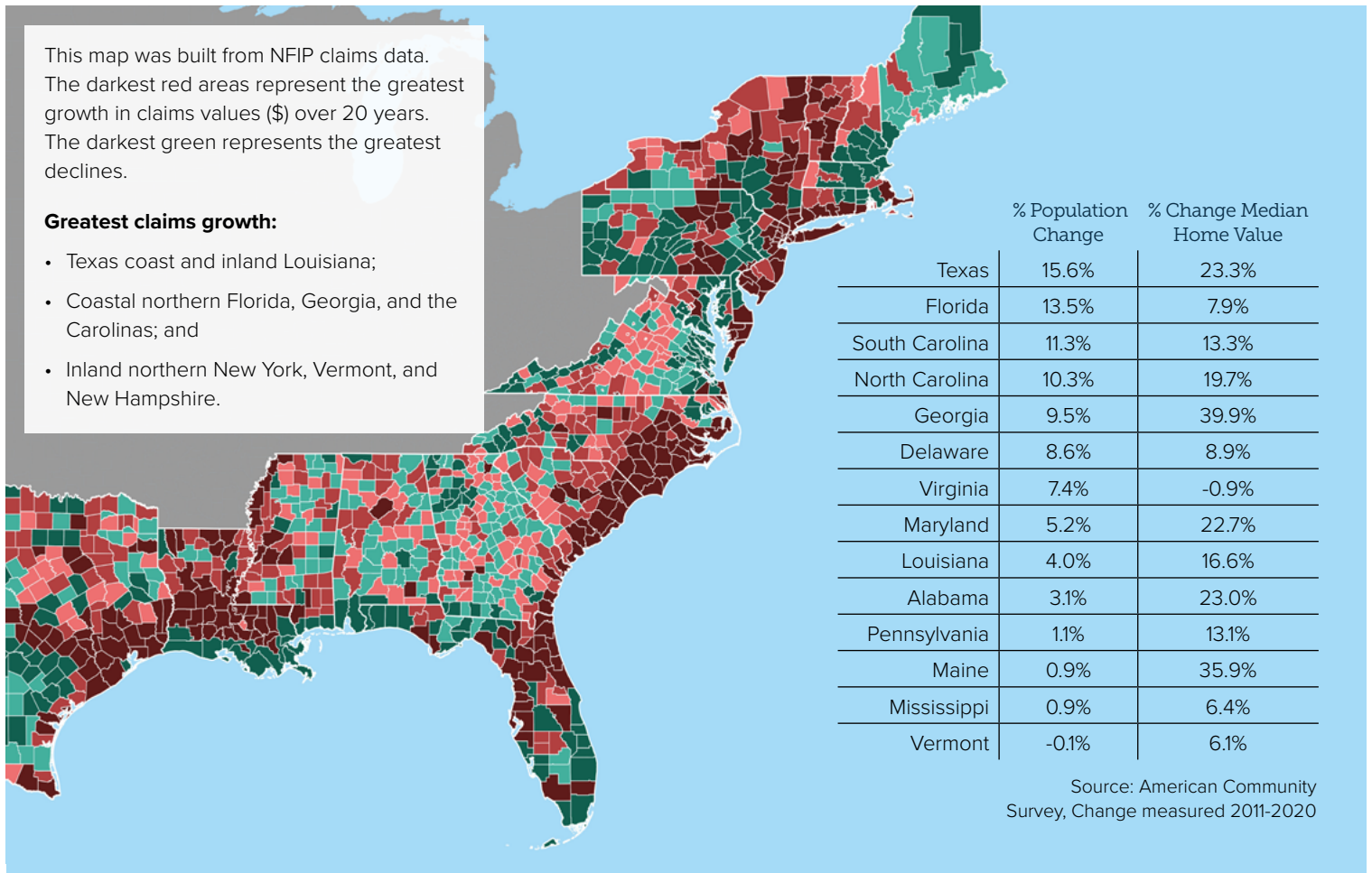
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[Facts + Stats: Hurricanes](#)

expensive than before. With bigger homes filled with more valuables and replacement costs on the rise, the data suggests demographic changes play a greater role in catastrophe-related claims and losses than weather and climate do.

Continued coastal construction – combined with rising property values and [replacement costs](#) driven higher by the COVID-19 pandemic and Russia’s invasion of Ukraine – have contributed to higher loss exposure. Global insurance broker Aon, [in research](#) conducted with Columbia University, has estimated that, under selected scenarios, U.S. hurricane losses could increase by at least 10 percent over 20 years as a result of changes in climatic activity.

“This estimate does not account for increases in exposures as a result of non-climatic factors, such as new development and inflationary momentum,” Aon says. “These findings are based on evolving climate research and could be subject to revision as we gain new insights.”

But while hurricanes may not be more frequent or significantly more intense, they do appear to be getting wetter. While wind speeds and storm surge in coastal areas grab headlines, inland



flooding is on the rise, as shown in the map above, which tracks changes in National Flood Insurance Program (NFIP) claims over the past two decades.

In August 2021, Hurricane Ida brought strong winds and heavy flooding to the Louisiana coast before delivering so much water to the northeast that Philadelphia and New York City saw flooded subway stations days after the storm passed. Ida also caused a surprising death toll thousands of miles from where the storm first made landfall.

Forewarned is forearmed

The risk landscape is changing rapidly, and the property/casualty insurance industry is responding with an increased focus on predicting and preventing damage and losses. Integral to this evolution are technologies and methods that help insurers and policyholders get out in front of perils.

The early detection of the storm system that became Tropical Storm Bret is a prime example. In what [Dr. Phil Klotzbach](#) – a research scientist in the Department of Atmospheric Science at Colorado State University and Triple-I non-resident scholar – called an “impressive long-range predictive signal,” the [European Centre](#)

[for Medium-Range Weather Forecasts](#) was highlighting the area in which the system was identified for potential development nearly a month before it began to form.

“As computer models have become more sophisticated, they have gotten better at long-range prediction of the large-scale atmospheric and oceanic conditions that favor or disfavor hurricane activity,” Klotzbach said.

This predictive power underscores the value of technology and data science in allowing insurers to prospectively price risk and support efforts to prevent costly claims.

Learn More

- [Predictive Model Anticipated Tropical Storm Bret’s Early Appearance](#)
- [Hurricane Ian’s Inland Impact Highlights Flood Protection Gap in Florida and Beyond](#)
- [Scholar Promotes New Approach to Predicting Hurricane Damage](#)
- [Hurricanes Becoming Less Frequent, More Costly](#)