Climate Quandaries

Why the rise in hurricane activity? Scientists push for clear answers.

Hurricane-weary coastal residents battening down for the '06 season don't have much cause for optimism. Scientists agree the Atlantic basin is undergoing a normal surge in hurricanes. And some say global warming will worsen the outlook.

But hurricane climatology remains a less precise science than conveyed by cable television's drumbeat of doom. Seasonal forecasts are rarely accurate, and sometimes they are way off. Meanwhile, climatologists who worry about longer-range trends admit they grapple with huge gaps in data and chaotic, little-understood forces.

While storms rage across the planet, climatologists debate the reasons why, and insurers raise their rates.

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Known: The Atlantic basin is in a cyclical upswing in hurricane landfalls dating back 150 years in human records and 500 years in natural indicators such as tree rings.
Unknown: How long this upswing will persist. Past cycles have lasted from 10 to more than 30 years. "These cycles that we talk about are not like night and day; they're irregular," explains Florida state climatologist James O'Brien.

Known: Warming of the eastern Pacific known as El Niño reduces Atlantic hurricanes. La Niña, when the Pacific cools, has the opposite effect.
Unknown: Whether this year's weak La Niña will persist long enough into the fall season to punch up the '06 season.

Known: Hurricanes have been forming farther south, nearer the equator, which climatologist say is why so many storms have targeted Florida and the Gulf Coast in recent years.
Unknown: Why this is happening and whether the pattern will continue. O'Brien says hurricanes more often strike Florida and the Gulf Coast in El Niño and normal years, and the East Coast in La Niña years.

Known: Tropical ocean temperatures have increased, in some places by as much as one degree, in the past 35 years.
In dispute: Whether this worsens hurricane intensity. Judy Curry, a climatologist at the Georgia Institute of Technology, co-authored a paper in *Science* last fall contending that the number of Category 4 and 5 hurricanes worldwide nearly doubled during the past 35 years. The scientists tried to find other causes, but the only commonality across the world's oceans was rising sea-surface temperatures. "There's no other explanation that works," she says.

Skeptics, however, question the reliability of the early satellite data. O'Brien also notes that the study's earliest year, 1970, coincides with one of the Atlantic cycle's historical lows. In response, Curry emphasizes that she found a similar upswing in all oceans "and the Atlantic in terms of intensity is by no means the worst."

Known: High-altitude winds break the tops off hurricanes and dampen the storms, a phenomenon known as wind shear.
Unknown: A way to predict seasonal shear long-term. "If you look for trends in wind shear, you don't see them," Curry says.

While the science remains uncertain, insurers, at least, are hedging their bets. Stung by a reported $3.4 billion hurricane loss in 2005, Warren Buffett announced in his annual letter to investors this year that Berkshire Hathaway is raising the price of hurricane re-insurance, in part because of unknowns about global climate change. — *Aaron Hoover*