

# EXTREME WEATHER BATTERS THE INSURANCE INDUSTRY

Worldwide, insurers suffered \$36 billion in catastrophic losses last year, and the forecast for the industry is gloomy.



REUTERS/GENE BLEVINS

BY BEN BERKOWITZ  
NEW YORK, FEB 9

**I**N CHESTER COUNTY, South Carolina, off a dirt road in the middle of a field, insurance companies are literally unleashing a storm.

To simulate hurricane-like conditions, an industry group has built a wind tunnel big enough to accommodate nine large residential homes. Some 105 fans deliver gusts of 175 miles per hour, destroying dwellings built precisely for this purpose.

The goal is to construct homes across the country that can withstand the worst Mother Nature has to offer, which lately has been quite a lot -- not to mention tough if not impossible for insurers to predict.

"One thing we as a society don't really do anymore is build for where we live. We build

for how we want to live," said Julie Rochman, chief executive of the Institute for Building and Home Safety, the industry-sponsored group behind the wind tunnel initiative.

"There's a wonderful ability to be living in denial and where disaster happened a long time ago we get disaster amnesia."

It's a tough time to be in the \$500 billion



**STORM FORCE:** Exterior view of a bank of large wind turbines at the Institute for Business and Home Safety's Research Center in Richburg, South Carolina on December 22, 2010. **REUTERS/CHRIS KEANE**



**WIND TEST:** A test building is seen inside of the test chamber and wind tunnel at the Institute for Business and Home Safety's Research Center in Richburg, South Carolina on December 22, 2010. **REUTERS/CHRIS KEANE**

**"IT'S HARD TO REALLY DENY THAT GLOBAL WARMING EXISTS."**

know how much property insurance should cost.

The last couple of months underscore just how much climate seems to be changing. Queensland state in Australia has suffered a virtual apocalypse -- flooding in December, flooding in January and tropical cyclones in February that inundated at least 30,000 homes and crippled the local coal industry.

Meanwhile in the United States, snow fell on Christmas Day in a number of southern cities for the first time since at least the 1880s. Los Angeles got six months' worth of rain in three weeks, causing some of the worst flooding in the state's history. The New York metropolitan area had an unprecedented blizzard the day after Christmas and a month later got almost the same, breaking historical records.

Private weather service AccuWeather, in a blog entry on its website two days before the Christmas blizzard in New York, asked its forecasters for their take on the sophisticated, expensive new computer models used to predict the path and behavior of the storm.

The forecasters' collective answer, according to the blog: "None of them are right."

**BUILDING IN BAD PLACES**

WORLDWIDE, INSURERS suffered at least \$36 billion in catastrophe losses in 2010, according to Swiss Re -- the fourth-highest total of the last decade, and the highest if years with major hurricane landfalls are excluded.

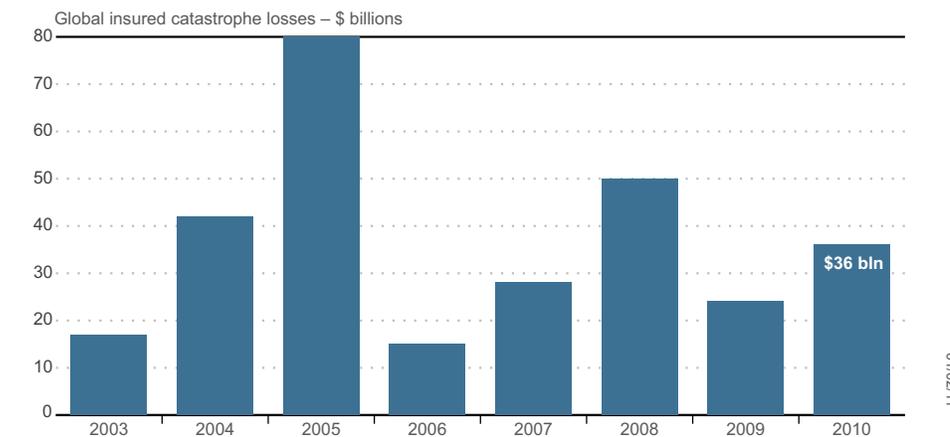
But this year, as with last year and the year before, what insurers are seeing is the unexpected. That means both storms going where they're not supposed to as well as a spate of totally unexpected losses at entirely unpredicted times of year.

"Some people believe that is because weather patterns have changed. I happen to be in that camp," said Tom Wilson, the chairman and chief executive of Allstate, the largest publicly traded property insurer in the country. "I just don't think it should happen three years in a row."

One of the biggest problems for insurers is that they have to insure increasingly valuable properties in risky areas that, by and large, are not being built with disaster risk in mind. That in and of itself is driving their risk up dramatically.

**World insured catastrophe losses, 2003-2010**

Hurricane landfalls cause large spikes.



Source: Swiss Re



Reuters graphic/Stephen Culp

U.S. property insurance business. Storms are happening in places they never happened before, at intensities they have never reached before and at times of year when they didn't used to happen.

Those bizarre weather patterns damage not just homes but also insurance companies' financials. If seas rise and houses flood, insurers pay. If winds shift and buildings blow down, they also pay. If temperatures rise and crops fail, same thing.

The industry hasn't reached a consensus on what's causing weird weather.

"It's hard to really deny that global warming exists," said Karen Clark, chief executive of Boston-based Karen Clark & Co., which

helps insurance companies forecast natural disasters. "You can accept that and that's fine, but that doesn't mean we can quantify the impacts."

Others in the business are reluctant to assign blame to broader trends. "Our view would be it's too early to come to a conclusion," said Liam McGee, chief executive of the Hartford Financial Services Group.

What no one disputes is that the storms the industry expects aren't happening and the ones they don't expect are hitting them hard.

The implications are profound for consumers as well as insurers. If hundred-year storms are now at risk of happening every 40 years or every three, it is difficult to

When an insurer writes a policy for a property, it takes various factors into account, such as the property's location, its age, the propensity of the region it's in to be affected by weather events and the potential cost of replacing the property if it is damaged or destroyed.

Those criteria have largely stayed the same over the years, but what changed is the value of the properties to be insured and the volume of them. People around the world love beachfront houses and developers love selling them.

In most places, no one stopped to think whether building the houses was a good idea, or whether there were appropriate building codes in place, or how many billions of dollars would be at stake if a major hurricane blew through.

"Even if the baseline of activity from a natural hazards point of view stays constant, the level of losses you're going to see will certainly be increasing commensurate to the increases in economic activity and national wealth," said Bill Keogh, the president of Eqecat, another major global risk modeler.

Most people in the business of predicting risk agree with Keogh that the changes in the environment matter less now than the changes in the "built environment" -- the size, value and type of buildings being put in high-risk areas like Florida's coastal zone and geologically unstable areas of California.

Stringent building codes would overcome much of those risks, but such things either do not exist or are not strictly enforced in many parts of the world, and even in the United States they are a state-by-state patchwork. In many cases, it takes a disaster for them to be updated to reflect modern demands.

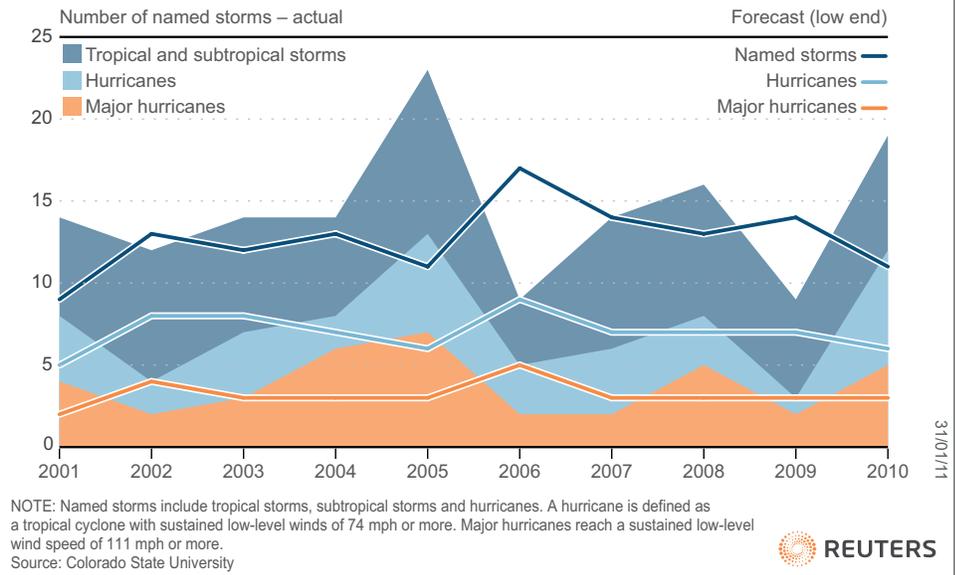
The lack of data on how homes survive disasters drove IBHS, the industry-sponsored research center, to create the South Carolina wind tunnel late last year to test how building codes and materials hold up under extreme duress. Nestled on a 90-acre plot abutted by cow pastures and hay fields, the site is located on a rural, two-lane country road.

"There has been research on wind damage to structures for several decades, but we as an industry hit a brick wall in not being able to do full scale testing," said Anne Cope, the center's director of research.

The wind tunnel has enough space to hold up to nine 2,300-square-foot (210-square-metre) homes. When fully operational, the center can test hurricane force winds, mixed with up to 8 inches (20 cm) of water per hour of simulated rain.

## Atlantic hurricane activity

The storm cycle is getting harder to predict.



Reuters graphic/Stephen Culp

For heavily wooded areas, the tunnel has a fire pit, where hot embers can be sucked into the wind currents, simulating how wild fires spread from house to house.

Cope said the aim, in part, is to become the building code analogue for the Insurance Institute for Highway Safety, the group whose crash videos have become ubiquitous since it was founded in Arlington, Virginia in 1959.

"The goal is we open some people's eyes to construction standards," Cope said.

### FEAR OF THE UNKNOWN

WEIRD WEATHER HAS undermined many of the insurance industry's assumptions.

Some in the modeling business say the best they can do is to give their clients scenarios to pick from based on the client's own belief about the evolution of the climate.

"The uncertainties are so large that a lot of our clients focus on the uncertainty they can handle and manage to, which is today's risk," said Peter Dailey, director of atmospheric science at AIR Worldwide.

Dailey's firm, for example, offers a model of sea-surface temperatures -- sea temperatures being one of the most important factors in hurricane formation -- and an alternate model that assumes temperatures are warmer than usual.

Warm seas are hurricane fuel, so those who believe in global warming can plan accordingly. Other modelers agree that what is changing is not the mathematics behind

modeling, but the willingness of clients to accept their conclusions.

"There's a lot of science involved and there's a lot of uncertainty involved. To the extent the models produce credible results, people use them. To the extent the models produce results that might not be consistent with peoples' view of risk, they might not use them," Eqecat's Keogh said.

But ultimately, no model, no matter how good, can really tell an insurer exactly what a storm means for its business.

"We shouldn't kid ourselves that just capturing a better hurricane windfield gets you a better answer in terms of losses," said Robert Muir-Wood, chief research officer of Risk Management Solutions.

### WHAT TO CHARGE?

THERE IS ENOUGH confusion about changes in the environment that in 2010, the U.S. Securities and Exchange Commission issued guidelines for public companies on climate change risk and how and when they have to disclose their exposure to investors.

From an accounting perspective, though, they may have to start caring much more about the future than they do now if a series of changes to industry requirements go into effect.

The Financial Accounting Standards Board and the International Accounting Standards Board are working on a unified global standard for insurance contract accounting.

*"THE GOAL IS TO OPEN SOME PEOPLE'S EYES TO CONSTRUCTION STANDARDS."*



**BURNT OUT:** A wild fire burns next to power lines along Carbon Canyon road near Brea, California November 16, 2008. **REUTERS/MIKE BLAKE**

While there are still major differences between the two sides, most expect them to come to some agreement that would take effect in the next five or so years.

One of the major changes in the new regime would force insurers to estimate their future liabilities from catastrophe losses each reporting period. In other words, an insurer would have to make its most educated guess each quarter what catastrophes it expects to face, how bad they will be and how much they will cost the company.

A senior industry accountant posited the scenario of an insurer that is hours away from reporting its quarterly results when it hears that a tropical depression has formed in the Atlantic Ocean.

Under the new rules, that company might have to rip up its results and re-do its entire reserves to account for the damages it thinks it might incur if that depression becomes a hurricane and makes land.

Making those estimates will require, at least to some degree, the right perspective on how bad the climate change really is and what the future may bring.

"People are coming around on their own... if you look up to the poles, something's happening. I think people can only ignore it for so long," said Carl Hedde, a senior

## BLOG

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vice president at reinsurer Munich Re Americas who runs the group's catastrophe management and risk accumulation business.

Figuring out how to price for it is another matter. Insurers and reinsurers in the property and casualty sector are awash in excess capital, lulled into the financial equivalent of a false sense of security by years of limited catastrophe losses. That does not mean, however, that they can start ignoring disaster risk.

"They only have to price over the next 12 months but they certainly take a long-term view for their firms' survival and continued prosperity," said Jay Votta, a principal in the insurance practice at consultancy Ernst & Young.

Reinsurance brokerage Guy Carpenter estimates a \$50 billion loss, roughly the same as Katrina, would immediately stop the decline in rates for at least one year. An event causing losses three times that amount

would instantly reverse the market, forcing rates higher and creating abundant business opportunities for those reinsurers who could survive.

Some insurers are turning to catastrophe bonds, also known as cat bonds or more formally as insurance-linked securities, to mitigate some of their risk.

One executive who has been in the weather business virtually since its inception said using financial instruments to hedge weather risks makes sense given an inherent inability to accurately say with absolute certainty what the climate will do.

"People don't give enough weight to uncertainty and they feel they have to predict," said Martin Malinow, chief executive of New York-based Galileo Weather Risk Management Advisors LLC. "Nobody has God's distribution."

### CLEANING UP

WHILE THE INDUSTRY argues over what's happening and how it's changing and whether there's anything left to be done, the people on the ground are the ones feeling the effects, in ways large and small.

Orange County, Texas was a tired place in Sept. 2008 when Hurricane Ike blew through. The hardscrabble region on the Louisiana

border was already rattled from a false-alarm storm evacuation two weeks earlier, and the memory of harboring Hurricane Katrina evacuees in church gymnasiums in 2005 was still fresh.

That Ike ended up being the third-costliest Atlantic hurricane to make landfall in the United States was bad enough for Orange County. What made it worse was the flooding, which is one of the most difficult disaster perils to insure in the United States.

The water went where it wasn't supposed to go -- flooding houses that sat outside of expected flood zones and turning living rooms into ramshackle swimming pools.

Nobody in the county of 85,000 people had ever seen anything like it, and nobody was ready for it.

"Many, many houses got flooded that weren't in the flood plain. They had no flood insurance," said Darby Byrd, the retired president of the Orange Savings Bank, the privately held institution with more than \$300 million in assets that is a fixture in the county.

Some of his neighbors and clients had to tear their houses down all the way to the studs and let them dry in the fall air before they could rebuild. The lucky ones saved their walls -- or at least the top halves, after cutting away everything from the floor about five feet up.

"We had never had a storm that was positioned in the ideal place to have that much of a negative effect on us," Byrd said.

He and his staff had to set up shop with a data-processing vendor in Houston and shuttle back and forth to Orange County to get the bank reopened, which it did almost a week after the storm.

"An interesting thing when there's no power, cash is king," he said. "You would not believe how much cash we dispersed, we had to pull strings to get cash delivered from the Federal Reserve Bank of Houston."

In total some 3,000 homes were flooded in Orange County, with the water anywhere from six inches to five feet deep. The last emergency housing trailers from the Federal



**NOT SO HIGH AND DRY:** Floodwaters from Hurricane Ike surround homes in Bridge City, in Orange County, Texas, September 14, 2008. REUTERS/DAVID J. PHILLIP/POOL

Emergency Management Agency just left town last summer, almost two years after the storm that caused \$20 billion in losses nationwide.

In the wake of the storm, relatively little changed about the way Byrd's bank did business with its customers.

Where the change came was in their insurance coverage -- they took more of it and paid a higher deductible for the privilege.

(Additional reporting by Joe Rauch in Chester County, South Carolina)

**COVER PHOTO:** A woman waits to be rescued by Los Angeles city fire-fighters after she tried to drive down a flooded street in the Sun Valley section of Los Angeles December 22, 2010. REUTERS/GENE BLEVINS

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