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The Morning

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By Ian Prasad Philbrick and Ashley Wu

Good morning. Population growth is supercharging the costs of hurricanes.



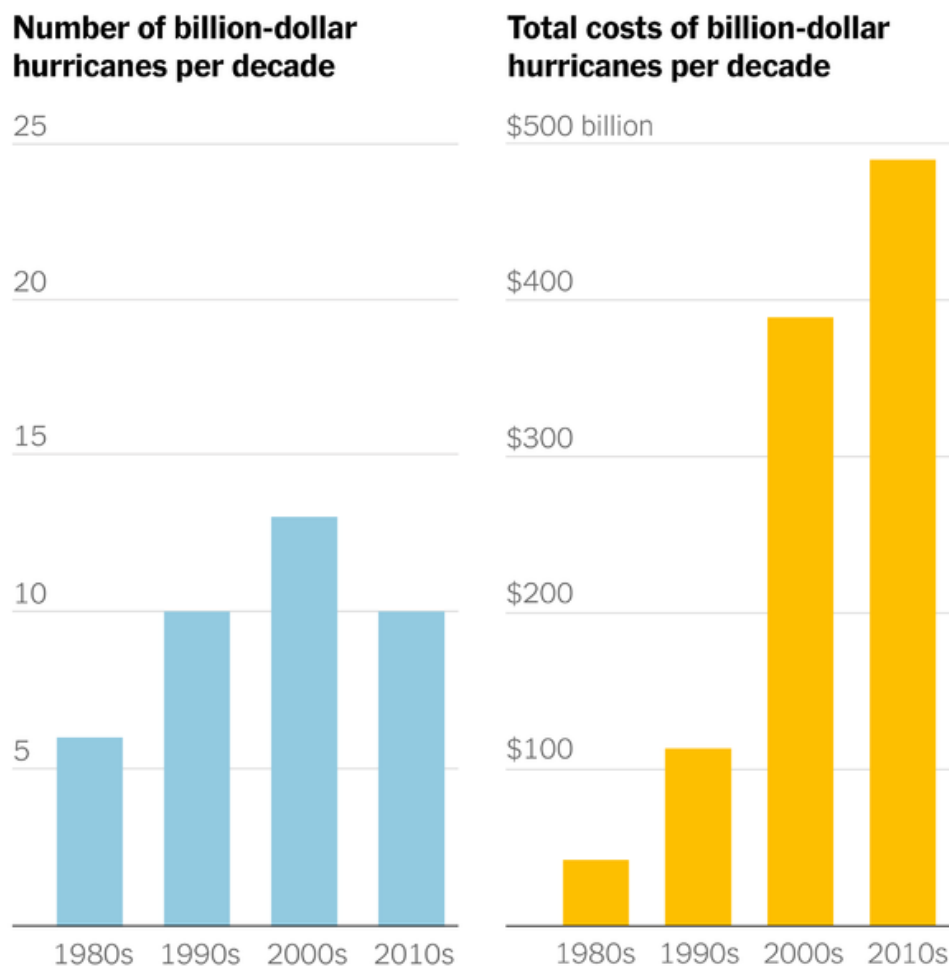
Destruction left behind by Hurricane Ian in Florida. Johnny Milano for The New York Times

More at risk

Hurricane season in the Atlantic Ocean [ended this week](#) as one of the most destructive on record. Hurricane Ian, which hit the southeastern U.S. in September, was the season's worst storm and among the country's deadliest

hurricanes in recent decades. It was also among the costliest in American history, causing [an estimated \\$67 billion](#) in privately insured property damage across five states.

Ian is part of a trend. Hurricanes tend to be among the most damaging forms of extreme weather, the costs of which are greatly rising. Hurricanes that caused more than \$1 billion in damage have roughly doubled since the 1980s. During the same period, the total costs in damage, adjusted for inflation, have increased by a much greater amount — more than elevenfold:



Costs are adjusted for inflation. | Source: N.O.A.A.

Climate change has increased the likelihood of severe hurricanes and, in some cases, their destructiveness. But there is a bigger culprit behind rising damage costs, experts said: Americans flocking to coastal areas. This migration has added to the number of homes, businesses and other buildings in harm's way.

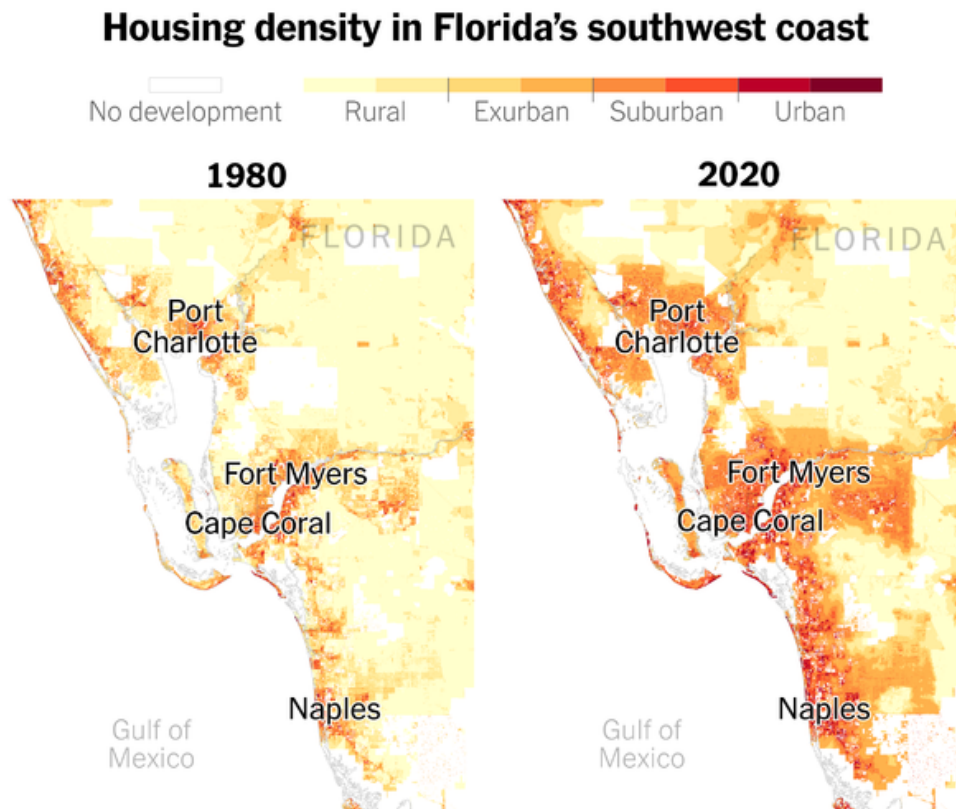
As our colleague Christopher Flavelle, who covers climate, put it: "Stronger

storms plus more development in coastal areas equals more damage.” Today’s newsletter will focus on how the development piece of that equation contributes to expensive hurricanes.

More people, more damage

Stephen Strader, who studies the geography of disasters at Villanova University, calls the increased development in areas vulnerable to hurricanes the “[expanding bull’s-eye effect](#).” As the target — the number of people, homes and businesses in a vulnerable area — grows, the potential for storms to cause costly damage increases. “There’s more things in the path of these hurricanes than there’s ever been,” he said.

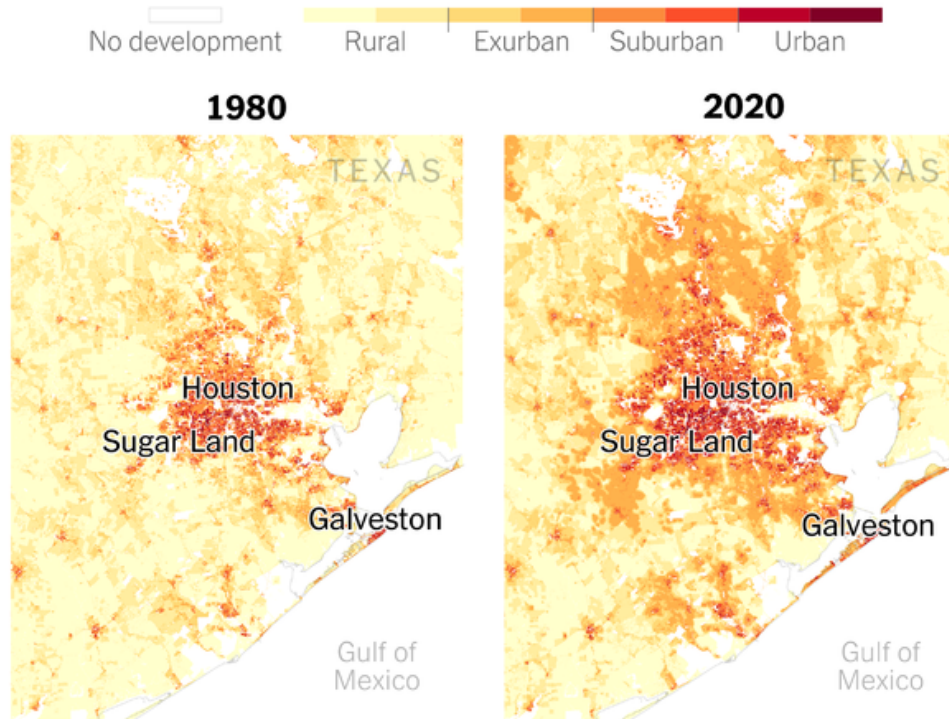
Consider how many homes are in southwestern Florida, where Hurricane Ian made landfall this year. These maps show the housing density increasing as the population rose between 1980 and 2020:



Maps use analysis by Stephen Strader of Villanova University, with data from the Spatially Explicit Regional Growth Model. Density ranges from zero to over 25 housing units per around 2.5 acres.

The Houston area shows a similar trend. The region added nearly 1.3 million homes between 1980 and 2020, as these maps show:

Housing density in the Houston area



Maps use analysis by Stephen Strader of Villanova University, with data from the Spatially Explicit Regional Growth Model. Density ranges from zero to over 25 housing units per around 2.5 acres.

In 2017, Hurricane Harvey lingered over the Houston area for days, dropping more than [50 inches of rain](#) in some places. The storm ultimately cost [an estimated \\$149 billion](#) — more, in inflation-adjusted dollars, than any other hurricane since 1980 besides Katrina in 2005.

This ongoing property development in the parts of the U.S. that are most at risk of hurricane damage also created an additional risk, destroying the natural barriers that would otherwise help protect coastal areas from the storms. In Florida, “hardened” waterfront properties have replaced “spongelike” wetlands and mangroves that were more able to absorb storm surges and rainfall, as Strader [has explained](#).

What's next

Easing the problem of billion-dollar extreme weather events would require tackling both pieces of Christopher's storm damage equation. Reducing carbon emissions and slowing global warming could decrease the likelihood of severe hurricanes and other costly climate disasters like wildfires and droughts.

One option to reduce property damage, experts said, is to strengthen building codes. Florida did so after Hurricane Andrew wreaked havoc in 1992, requiring that new structures be built to better resist high winds. Infrastructure upgrades — like sea walls to block storm surges or pumps to remove rainwater more quickly — could also help against hurricanes, but only so much.

Some experts have proposed a contentious goal: getting people to live elsewhere. The most aggressive effort to persuade Americans to leave hurricane-threatened areas may be a new program that prices federal flood insurance [according to climate risk](#), dramatically increasing costs for people living in vulnerable places.

But relocation is a tough sell. Americans have flocked to Florida's picturesque coast, despite its risks. "People like living somewhere pretty," Christopher said.

There are also political challenges. Florida cities and towns rely heavily on property tax revenues, which leaves state and local officials reluctant to reduce density or to encourage relocation. They can also count on the federal government to fund recovery efforts, giving them less incentive to mitigate future damages.

"There's growing awareness that the current system of basically allowing and subsidizing construction in risky areas doesn't make sense anymore," Christopher said. "The government is still struggling, though, to turn that focus into policy changes that will make much of a difference."

Related: Wirecutter has tips for how to make your home [more resistant to flooding](#).