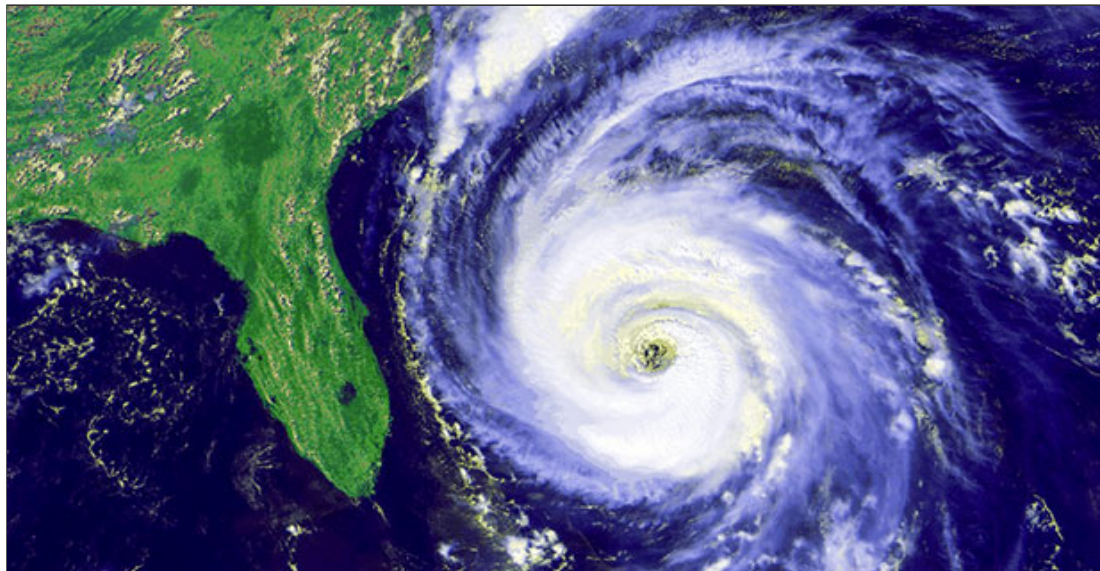


ADAPTATION:

Growing economy won't protect U.S. from hurricane losses — study

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A new study finds that financial losses per hurricane in the United States could triple by the end of the century if climate change is not mitigated, while annual losses could on average rise by a factor of eight. Image courtesy of Wikipedia.

Even if the U.S. economy grows rapidly, an expanded gross domestic product will not compensate for the sheer scale of monetary losses from hurricanes by the end of the century, according to a new study.

The research finds that the loss from each hurricane could triple compared with the United States' GDP by 2100 if nations continue emitting carbon at present-day rates. Annual losses from hurricanes could rise by a factor of eight.

"It has been expected that once you get richer and the economy is developed, people get richer, they get less vulnerable," said Tobias Geiger, a climate scientist at the Potsdam Institute for Climate Impact Research and lead author of the study [published](#) yesterday in *Environmental Research Letters*.

"Therefore, everybody expects that having stronger hurricanes, to some extent, you can just outgrow economically by having just adaptation in place. And once you're rich, you can have better adaptation," he said.

But even with climate adaptation — the building of levees, for instance — the United States faces a dire future as more intense hurricanes are expected to make landfall along the Atlantic coast, the study finds.

"This really is unfortunately the perfect storm for future hurricane losses in the United States," said Laura Bakkensen, a social scientist at the University of Arizona who is not affiliated with the study.

This finding appears to be unique to the United States, Bakkensen said. In most other highly developed countries, economic models suggest that hurricane damages will fall as the economy grows, according to her [research](#).

Geiger and his colleagues did not probe why the United States is so unusual. It could be because Americans tend to invest in high-risk properties, are ignorant of the threats posed by storms, or have an expectation that the insurance industry or the government may share the financial burden when disaster hits, Geiger said over Skype.

Calls for coastal protection reforms

The scientists approached the question of hurricane losses in a novel way. Previous studies by luminaries such as economist William Nordhaus have queried the links between America's future GDP growth and hurricane loss. Geiger and his

colleagues broke down GDP further into population growth and personal income and examined the effects of each on damages.

They found that population growth is tied to a slower growth in hurricane losses, while a doubling of income in the United States would scale to about a quadrupling of hurricane damage, said Robert Mendelsohn, a professor of economics at Yale University who was not affiliated with the study.

"This is a lot higher than estimates from the rest of the literature, which find that a doubling of income would double damage," he said.

Mendelsohn said one reason for the higher values may be because the scientists analyzed personal income at the state instead of the county level.

"If the U.S. reforms its coastal protection policy to encourage, rather than discourage, coastal protection, damages in the future could fall," Mendelsohn said.

Roger Pielke Jr., a political scientist at the University of Colorado, Boulder, said that this study is based on a set of assumptions about the climate and socio-economic futures that are uncertain. This study should not be seen as a precise prediction about the future. Rather, the takeaway should be that Americans can choose to build in a way that minimizes risk.

"The good news is that damage from extreme events results from choices in where and how we build," he said. "So communities exposed to hurricanes have a lot of power to shape future disasters."

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