

# The Washington Post

## U.S. climate report says global warming impact already severe

By Darryl Fears

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The government's newest [national assessment of climate change](#) declares that increased global warming is affecting every part of the United States.

The report released Tuesday cites wide and severe impacts: more sea-level rise, flooding, storm surges, precipitation and heat waves in the Northeast; frequent water shortages and hurricanes in the Southeast and the Caribbean; and more drought and wildfires in the Southwest.

### Climate gauges

Temperatures at sea, on land and on ice all point to a warming trend over the past century, according to several indicators in the government's National Climate Assessment.

“For a long time, we have perceived climate change as an issue that’s distant, affecting just polar bears or something that matters to our kids,” said Katharine Hayhoe, a Texas Tech University professor and a co-author of the report. “This shows it’s not just in the future; it matters today. Many people are feeling the effects.”

The federal climate assessment — the third since 2000 — brought together hundreds of experts in academia and government to guide U.S. policy based on the best available climate science.

The authors of the more-than-800-page report said it aims to present “actionable science” and a road map for local leaders and average citizens to mitigate carbon and other gas emissions that warm the planet.

But the report ran immediately afoul of conservative critics who called it a political document, aimed at giving President Obama a leg up on regulating major polluters such as power plants. In their opinion, regulation costs jobs. Obama, who is increasingly focusing on climate change, spent part of the day talking about the report with television meteorologists from across the country.

Echoing the findings of a recent global report by climate scientists at the Intergovernmental Panel on Climate Change, U.S. scientists said that the climate is changing in the United States and that the warming of the past 50 years was primarily caused by emissions of heat-trapping gases released by humans.

Burning coal for electricity, using gasoline to fuel vehicles, clear-cutting forests and engaging in certain agricultural practices that remove carbon-trapping vegetation contribute to the problem, the assessment said.

By the end of the century, temperatures could be up to 5 degrees higher, even if the nation acts aggressively to reduce greenhouse gas emissions. It could be up to 10 degrees hotter if emissions are high.

The higher the temperature, the more [dire the impact](#). Extreme weather in the United States caused by climate change has increased in recent decades, the report said.

The decade starting in 2000 was the hottest on record, and 2012, the year Hurricane Sandy followed [an epic summer drought](#), was the hottest ever recorded in the nation's history, the report said. U.S. temperatures are 1.3 degrees to 1.9 degrees Fahrenheit higher now than they were in 1895, and most of that increase — 80 percent — occurred over the past 44 years, the assessment says.

Alaska warmed twice as fast as the rest of the country in the past 60 years, leading to permafrost thaw that is causing highways and even airport runways to sink.

The authors pointed to major concerns for the mid-Atlantic region, which includes the District, Maryland and Virginia.

“As sea levels rise, the Chesapeake Bay region is expected to experience an increase in coastal flooding and drowning of . . . wetlands” that protect against storm surge, the report said. That's especially bad because the lower bay region is at higher risk as a result of sinking land. Water quality would decline and low-oxygen “dead zones” would increase.

If there are higher greenhouse gas emissions, the majority of Maryland and Delaware, and parts of West Virginia and New Jersey, are projected to have 60 extra days per year of temperatures topping 90 degrees starting around the middle of the century, the report said.

The effects sound alarming, but there are reasons to be optimistic that they can be mitigated, said David Wolfe of Cornell University, a lead co-author of the report's chapter on change in the Northeast.

Business leaders are looking more toward investments in renewable energy, he said. This report, unlike the first two, has a Web site with interactive tools that show Americans how to reduce climate impacts.

“It will be a living document, a resource for people,” he said. “It's a place to start.”

Wolfe's optimism wasn't universally shared, even among some co-authors who said the document is a consensus meant to reflect the diverse views of the more than 300 scientists who compiled it.

"It's important to understand that this is a very, very, very conservative document, a consensus document," said Drew Harvell, a Cornell University professor and a co-author of the marine resources chapter of the assessment. The truth is more dire, she said.

But Cato Institute researchers Paul C. "Chip" Knappenberger and Patrick J. Michaels issued a statement calling the assessment "biased toward pessimism." As a resource, it is meant to justify "federal regulation aimed towards mitigating greenhouse gas emissions." The Cato Institute is a libertarian think tank co-founded by Charles Koch, one of two brothers whose multibillion-dollar fortune is partly derived from fossil fuels, and who deny the effects of climate change.

Sen. Jim Inhofe (R-Okla.) joined other conservatives in describing the report as part of a political agenda. He said it seemed timed to coincide with a Senate debate about the Keystone XL oil sands pipeline from Canada.

"With this report, the president is attempting to once again distract Americans from his unchecked regulatory agenda that is costing our nation millions of job opportunities and our ability to be energy-independent," said Inhofe, a longtime champion of the oil and gas industries.

The climate experts worked for several years, holding 70 workshops nationwide and revising the final drafts to reflect thousands of public comments. They were guided by a 60-member panel called the National Climate Assessment and Development Advisory Committee.

Climate change is leading to heat-stress events, forcing people with respiratory illnesses to turn to devices such as inhalers or to hospitals, the federal assessment said. It is resulting in more severe allergies and waterborne illnesses as pathogens increase. Minority communities are particularly vulnerable.

Extreme heat causes more deaths than other weather events, and that is expected to continue. Such fatalities have decreased in recent years, but the assessment attributed that to better weather forecasting.

Cato's researchers took issue with that. Knappenberger and Michaels pointed to "peer-reviewed" research in the journal *Nature Climate Change* showing that extreme heat effects "are often overplayed while the impacts of adaptation to heat are underplayed."

The risk of dying from extreme heat has declined for decades and by now "this should be rather unsurprising as it has been demonstrated over and over again," they said.

Increased heat doesn't just affect humans. In warmer and more acidic oceans, particularly the Pacific, the effects of climate change are deadly, Harvell said.

Marine scientists in the Pacific have traced the [mass die-off of the sunflower star](#), a type of sea star, to higher temperatures. In a laboratory, 10 sunflower stars were placed in water with a normal temperature and another 10 in water only 1 degree warmer.

Within two days, half the sunflower stars in the warmer water were dead. “It’s going to get worse with warming,” Harvell said.

Thirty percent of carbon released into the atmosphere ends up in the ocean, leading to acidification that’s killing coral and shell life. Coral protects young fish from predators, and tiny shellfish, at the bottom of the food chain, help feed entire ecosystems.

“A third of all coral is at the risk of extinction,” said Harvell, who has studied marine life for two decades and holds a more negative view of the future than Wolfe and the Cato researchers.

“The Pacific Ocean is the place with the most extreme problem with acidification and salmon, mussels, things heavily affected,” she said. “I’m not sure there are many mitigations to these impacts. There’s hope, but there’s got to be some pretty radical changes to practices and policies.”