

Scientists describe severe and costly future impacts of climate change

Tiffany Stecker, Environment and Energy Publishing, 2-14-13

In a probable scenario for climate change, New Orleans will no longer exist. Neither will Atlantic City, N.J. Boston will look much like it did in the 17th century, before the city was dredged up to build a port. And Florida will no longer keep its distinct appendage shape.

These geographical changes due to sea-level rise are only the beginning, scientists bluntly stated at a briefing yesterday convened by Senate Environment and Public Works Committee Chairwoman Barbara Boxer (D-Calif.).

"Today's talk underscored what I already knew, but gives me more facts," said Boxer. "We have to act because our children and our grandchildren need us to act."

Storms are likely to travel in different patterns than they did before, much like Superstorm Sandy did. Increasing temperatures are changing the cycles of plants and trees and extending the pollination period to exacerbate allergies. In the hottest cities, it will be uncomfortable to step outside during the day. And limited agricultural growth will severely strain the world's ability to feed itself, said a panel composed of two atmospheric scientists, one public health expert and one biological oceanographer.

"These two years [2011 and 2012] have had the largest number of billion-dollar events," said Donald Wuebbles, a professor of atmospheric sciences at the University of Illinois.

Heat waves and precipitation patterns have changed dramatically, and it's due to human causes. The Texas heat wave of 2011 was 20 times more likely to be tied to human-induced warming than to natural causes, said Wuebbles. The National Oceanic and Atmospheric Administration declared 2012 the warmest year on record late last year.

The worst-case scenarios predict a 14- to 15-degree-Fahrenheit increase by the end of the century, said Wuebbles. Chicago would feel like Birmingham, Ala.

While many skeptics assert that climate change is a natural process, previous warming and cooling took place over thousands of years, said J. Marshall Shepherd, president of the American Meteorological Society and director of the atmospheric sciences program at the University of Georgia.

Rolling the dice with Mother Nature

People are asking the wrong questions about climate change, said Shepherd. Instead of asking whether a single extreme weather event is linked to climate change, one should ask whether humans are increasing the probability of that event.

"If we think about the weather and we roll this pair of dice here," said Shepherd, with a pair of dice in his hand, "and we come up with a six two times, that would be a storm like Sandy. Climate change is like we're adding a six to the die. We're loading the die towards more of these events."

He added, "In other words, we're speaking of probabilistic risks."

are indicating that the greatest heat-related harm come may not from extreme exposure but rather from the lower but more frequent stress of increasingly hot summer days.

"We've seen the geographical range of ticks that cover Lyme disease shift northward, and is predicted to shift further northward in the United States and in Canada," said Balbus, adding that there are limited studies on the actual incidence of Lyme disease.

Melting ice is causing heat exchanges between the oceans and the atmosphere that were not possible before, said James McCarthy, a professor of biological oceanography at Harvard University.

"Storms like Superstorm Sandy that begin in the tropics and escape the tropics [now] because of the exceptionally warm surface water remain intense until landfall," he said. "When that storm hits, as it did, we have unprecedented potential for disruption."

With projected sea level rise of 3 to 6 feet, some cities will simply drown. "New Orleans is gone. Atlantic City is gone," he said.

All four hold leading roles in publishing scenarios for the outcomes of climate change. McCarthy, Wuebbles and Shepherd have worked on U.N. Intergovernmental Panel on Climate Change reports, and Balbus is a lead author on the U.S. Global Change Research Program's 2013 National Climate Assessment chapter on human health.

This year's National Climate Assessment, a report issued every four years, will be "very different," said Wuebbles.

"This is a report that really attempts to speak to people in a language that is much plainer," he said. "The more that we can get the language plainer, the more people can relate to, that will also help."

Keystone XL's climate impact

Although the meeting was not a full committee hearing, members of the Environment and Public Works Committee came to discuss climate change impacts to their home states.

"We're seeing irrigation projects that have operated for 75 years with water -- the last two years, zero water," said Sen. Tom Udall (D-N.M.). "We're seeing catastrophic fires, more acreage burned, and then the floods that come up afterwards."

Sen. Bernie Sanders (I-Vt.) asked the panel whether the United States should go forward on the construction and operation of the Keystone XL pipeline, which would bring crude from Canada's bitumen-rich oil sands to the Gulf of Mexico.

The way the extraction of oil sands is being conducted right now, it is "the dirtiest possible source of fossil fuel," McCarthy said. "Simply to burn it is a ridiculous, ridiculous exercise."

A recent report from Keystone XL supporter group the Consumer Energy Alliance said the pipeline would create more than 5,000 jobs and add \$1.8 billion to the economy of Nebraska. Supporters say the pipeline would not increase greenhouse gas emissions any more than if it were not built, because the oil would be transported anyway through an alternative pipeline.

It's "essentially a game over for climate change," Wuebbles said.

Boxer and Sanders will introduce carbon tax legislation today (see related story). "If we can get an idea together to put a price on carbon, we can meet our goals," Boxer said.

She vowed to pass legislation through her committee, despite the strong opposition climate legislation would receive from the other side of the aisle. "It's not going to be pretty," she said. "It's going to make sausage look pretty."

Environment and Public Works ranking member David Vitter's (R-La.) office was unable to provide comment in time for publication.