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Climate change is real

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By: **Brian Soden**,

The science behind climate change is complex, and there is still much to learn. However, it is clear that our climate is undergoing dramatic changes and there is strong scientific evidence that human activity is the primary cause.

The Intergovernmental Panel on Climate Change is an international body of experts charged with providing a comprehensive, objective and transparent assessment of the science of climate change. I had the privilege of working on the IPCC's most recent Fourth Assessment Report. Our conclusion: The warming of the planet is "unequivocal" and most of the warming over the past half-century is caused by human activity.

The Intergovernmental Panel on Climate Change is not alone. The U.S. National Academy of Science – the most prestigious scientific organization in our country – has endorsed this conclusion, along with virtually every other mainstream scientific organization of relevance.

Many are surprised or even doubtful that such scientific accord exists – their perceptions of climate change often being shaped by seemingly contradictory media reports or disingenuous Internet blogs. However, among scientists, there exists a strong and widespread consensus about the reality of climate change.

In the largest poll of scientists' opinions on climate change ever conducted, more than 80 percent stated that humans were the primary cause of our current warming. More compelling,

97.4 percent of climatologists who actively publish research on the subject agreed that humans are causing the climate to warm. The results of this poll can be found in the Jan. 19 edition of Eos, a scientific journal of the American Geophysical Union.

Such a consensus is not the product of a worldwide scientific hoax. As a scientist, I can attest that we are not nearly organized or imaginative enough to pull off such a stunt. It reflects a growing body of observational evidence that supports the theory of human-caused climate change, and the absence of any tenable alternative explanation for the changes that have occurred over the past half-century.

The National Oceanic and Atmospheric Administration released a long-awaited assessment of climate change effects in the United States. Effects from climate change on North Dakota include more frequent and severe heat waves and droughts, heavy downpours leading to increased flash flooding, increased stress on waterfowl production in the prairie pothole region, and greater pressure on crop yields due to rising temperatures and more extreme weather events.

All predictions of the future have uncertainties, and climate change is no exception. However, there is one prediction that is irrefutable: The consequences of climate change will not be fair.

Just as future generations have no voice in the climate they will inherit from us, poor and undeveloped countries, such as those in sub-Saharan Africa, will suffer the greatest cost. These countries, which contribute virtually no greenhouse gases, lack the resources to adapt to the changes in climate brought on by emissions from the developed world.

For them, the cost of global warming will not be measured in dollar signs but in mortality rates. Such consequences alter the debate about climate change from simply a scientific or economic one to an ethical one.

The climate has already begun to change from human activities, and some future warming is unavoidable. What remains to be determined is how much warming will we commit future generations to.

Soden is a professor of meteorology and physical oceanography at the Rosenstiel School for Marine and Atmospheric Science at the University of Miami. He is speaking at the International Climate Stewardship Solutions Conference in Bismarck today and Tuesday.

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