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New figures suggest global warming not so hopeless

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Courtesy of Research Council of Norway
and World Science staff

Global warming may be slightly milder than prevailing estimates predict, some scientists are reporting. And though the difference is small, they say, it points to a decided improvement in the controllability of the problem.

“These results are truly sensational,” said climate scientist Caroline Leck of Stockholm University, who was not part of the new study. “If confirmed by other studies, this could have far-reaching impacts on efforts to achieve the political targets for climate.”

The study says current trends point to a most-likely increase in global surface temperatures of 1.9 degrees Celsius (3.4 degrees Fahrenheit) by mid-century. Previous, widely accepted estimates put that increase at around 3 degrees Celsius.

Carbon dioxide, a gas released as a result of human industrial activities, is considered the most important factor causing global warming. A key question that scientists have examined is how much the average air temperature will rise if the carbon dioxide levels in the atmosphere double with respect to the world’s pre-industrialised level around 1750. That’s expected to happen by roughly 2050.

In the new work, researchers at the University of Oslo and the Center for International Climate and Environmental Research-Oslo reached the 1.9 degrees figure as the most likely temperature increase.

“We have worked on finding out the overall effect of all known feedback mechanisms,” said project manager Terje Berntsen. Berntsen and colleagues said they developed a model that considered all factors contributing to man-made climate “forcings” since 1750. They also accounted for climate fluctuations caused by natural factors such as volcanic and solar activity, and entered temperatures measurements taken in the air, ground, and oceans. They used a climate model that repeated calculations millions of times.

When they applied the model and statistics to analyze temperature readings for the pre-2000 period, they found that the temperature increase would most likely be 3.7 degrees Celsius. But when they entered data from 2000 to 2010, the estimate slid to 1.9 degrees Celsius. Berntsen said this increase would be upon us after we reach the doubled level of carbon dioxide concentration compared to 1750. The temperature will then be stable for a while, as the oceans delay the effect by several decades, he said.

The 1.9 degrees figure is just an average: in more detail, the investigators concluded with 90 percent likelihood that warming would lie between 1.2 and 2.9 degrees Celsius. The previous, higher estimate of 3 degrees—with a probable range of 2 to 4.5 degrees—came from the Intergovernmental Panel on Climate Change, under the auspices of the United Nations.

“The Earth’s mean temperature rose sharply during the 1990s. This may have caused us to overestimate climate sensitivity,” Bernstsen said. “We are most likely witnessing natural fluctuations in the climate system—changes that can occur over several decades—and which are coming on top of a long-term warming. The natural changes resulted in a rapid global temperature rise in the 1990s, whereas the natural variations between 2000 and 2010 may have resulted in the levelling off we are observing now.”

Berntsen stressed that the findings must not be construed as an excuse for complacency in addressing human-induced global warming, but they do indicate it may be more within our reach to achieve climate targets than previously thought. Policymakers are trying to contain global warming at less than 2 degrees Celsius, he said.