Earth's temperatures heating up

Averages to rise 8 degrees by end of century, climate scientist says

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Denver -- A leading government climate scientist predicted here Sunday that average temperatures around the world will rise by as much as 7 to 8 degrees Fahrenheit before the end of this century -- a major climate change that could affect widespread crop fertility and the economies of many industrial nations.

The senior scientist did not take sides on the current conflict between the United States and the rest of the industrialized world over mandatory control of so-called greenhouse gases called for by the 1997 Kyoto Protocol which the Bush administration strongly opposes.

But he did contend it is obvious by now that corporate leaders of U.S. industries and power plants need to be making serious efforts to curtail their emissions of the heat-trapping gases -- principally carbon dioxide -- that are affecting climate.

Warren Washington, chief of the Climate Change Research Group at the National Center for Atmospheric Research in Boulder, Colo., offered his long- range forecast here at the annual meeting of the American Association for the Advancement of Science, where climatologists and physicists are discussing the various computer models they have created to explain past climate changes and the forecast for the near-term future.

"It's clear," Washington said, "that we're in the midst of a rapidly changing climate that has accelerated in the past 25 years." It makes the last ice age -- an event that ended more than 10,000 years ago -- a "mere minor perturbation," he said.

In only the past 25 years, he said, global average temperatures have already risen between a third and eight-tenths of a degree, and pace is increasing even now, he said.

Scientists have created a wide variety of computer models in efforts to understand the many factors that can affect climate, and these can include, for example:

Long-term changes in Earth's orbit around the sun which can increase or decrease the solar energy that reaches the planet; major natural events like volcanic eruptions that can cloud the entire atmosphere with gases and ash for centuries, and long-lasting forest fires that can rage for years and darken skies with long-lasting soot.

On the basis of the most recent computer models by many groups -- including those developed by his own colleagues at Boulder -- Washington said, "Scientific confidence in the ability of the models to project future climate has increased." Recent experiments as well as routine monitoring, he said, "have found evidence of global climate changes already occurring that are much larger than can be explained by the climate's natural variability."

Many scientists have been considering efforts to help rid Earth's atmosphere of carbon dioxide by "sequestering" the gas as it emerges from the plants that emit it. Some advocate technologies that would scour the atmosphere and somehow send the gas deep into the ocean; others believe it could be buried deep underground -- in whose back yard, they don't say.

"Sequestering the carbon dioxide burden would slow down the pace of climate change appreciably," Washington conceded. "But we also ought to start cutting back on emissions as a precautionary principle -- because every time you put a single carbon dioxide molecule into the atmosphere, it stays there for 900 to 1,000 years or so."

Washington is a 40-year veteran of climate research, and leads the Boulder team's development of computer climate models. He is also chairman of the National Science Board and has been an adviser on climate issues to five presidential administrations, from Jimmy Carter to President Bush.

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