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Global warming challenged

Two UR studies fault computer models used to determine threat.

By Matthew Daneman
Staff Writer

(August 2, 2004) — Global warming is hot.

It starred in the recent Hollywood disaster flick *The Day After Tomorrow*. The nation's largest state, California, now has a proposal to cut carbon dioxide given off by cars and trucks 30 percent over the next decade. Canada, likewise, is looking at higher fuel efficiency standards to cut down on such greenhouse gases given off by cars.

But a pair of papers by a University of Rochester scientist in the July 9 issue of *Geophysical Research Letters* hammers at shortcomings in the computer models and temperature readings that scientists have been using to predict how carbon dioxide will affect the Earth's temperature.

"The old rule is garbage in, garbage out," said David H. Douglass, a professor of physics and astronomy. "I don't know what's wrong (with the models), but it must be that the basic physics has not been put in properly."

The first paper looks at temperature readings at various heights in the Earth's atmosphere over the past 20 years against what the leading computer models predicted. According to the study, the computer models indicate that temperatures in the upper atmosphere should be rising; yet the opposite is happening.

The second study took various temperature readings from weather balloons and satellites — data provided by the National Center for Atmospheric Research — to try to rectify a longtime gap between temperatures recorded at ground level and temperatures recorded by other satellites. That gap amounts to about one degree.

According to the study, the new temperature readings seem to back up the other satellite readings and show an Earth about a degree cooler than ground-level readings had found. Both those sources indicate that the planet is getting warmer, but to a far less degree than noted by surface thermometers.

Douglass said the holes pointed to by his studies are fatal flaws in the notion that human activity — from industrial smokestacks to car exhaust —

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is causing global warming.

"There is a warming over the last 100 or so years," he said. "(But) the change cannot be assigned to carbon dioxide. The stories you see about global warming all originate from predictions by models. If the models are wrong ... then the conclusion is almost obvious. Why worry about global warming if it comes from a discredited theory?"

But that is reading too much into the studies' findings, said Charles Hall, a professor of systems ecology at State University College of Environmental Science and Forestry.

"They've come up with something interesting," Hall said.

"I certainly don't see any way this substantially undermines all global climate models," he added.

The computer models, which extrapolate what will happen in the Earth's atmosphere based on mountains of data and measurements, are backed up with lots of observable evidence, such as melting glaciers, Hall said.

And while the models are imperfect, they cannot be discounted, said Jose Maliekal, associate dean of earth sciences at SUNY Brockport. "That doesn't mean the models are totally wrong. The modelers themselves acknowledge some of the major issues they haven't solved," such as the roles clouds and soot play in affecting climate change.

"Even imperfect models can help us project things," Maliekal said.

"Absent something better, we have to do the best we can."

Douglass was lead author on both papers; UR graduate student Benjamin D. Pearson was one of the co-authors on both papers.

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