New Research Adds Twist to Global Warming Debate

Thursday, October 12, 2006

By Steven Milloy

A new study provides experimental evidence that cosmic rays may be a major factor in causing the Earth’s climate to change.

Given the stakes in the current debate over global warming, the research may very well turn out to be one of the most important climate experiments of our time – if only the media would report the story.

Ten years ago, Danish researchers Henrik Svensmark and Eigil Friis-Christensen first hypothesized that cosmic rays from space influence the Earth’s climate by effecting cloud formation in the lower atmosphere. Their hypothesis was based on a strong correlation between levels of cosmic radiation and cloud cover – that is, the greater the cosmic radiation, the greater the cloud cover. Clouds cool the Earth’s climate by reflecting about 20 percent of incoming solar radiation back into space.

The hypothesis was potentially significant because during the 20th century, the influx of cosmic rays was reduced by a doubling of the sun’s magnetic field which shields the Earth from cosmic rays. According to the hypothesis, then, less cosmic radiation would mean less cloud formation and, ultimately, warmer temperatures – precisely what was observed during the 20th century.

If correct, the Svensmark hypothesis poses a serious challenge to the current global warming alarmism that attributes the 20th century’s warmer temperatures to manmade emissions of greenhouse gases.

Just last week, Svensmark and other researchers from the Centre for Sun-Climate Research at the Danish National Space Centre published a paper in the Proceedings of the Royal Society A – the mathematical, physical sciences and engineering journal of the venerable Royal Society of London – announcing that they had experimentally verified the physical mechanism by which cosmic rays affect cloud cover.

In the experiment, cosmic radiation was passed through a large reaction chamber containing a mixture of lower atmospheric gases at realistic concentrations that was exposed to ultraviolet radiation from lamps that mimic the action of the sun’s rays. Instruments traced the chemical action of the penetrating cosmic rays in the reaction chamber.[Click here for more details about Svensmark’s hypothesis and experiment, including high-quality animation].

The data collected indicate that the electrons released by the cosmic rays acted as catalysts to accelerate the formation of stable clusters of sulfuric acid and water molecules – the building blocks for clouds.

“Many climate scientists have considered the linkages from cosmic rays to clouds as unproven,” said Friis-Christensen who is the director of the Danish National Space Centre. “Some said there was no conceivable way in which cosmic rays could influence cloud cover. [This] experiment now shows they do so, and should help to put the cosmic ray connection firmly onto the agenda of international climate research,” he added.

But given the potential significance of Svensmark’s experimentally validated hypothesis, it merits more than just a place on the agenda of international climate research – it should be at the very top of that agenda.

Low-level clouds cover more than a quarter of the Earth’s surface and exert a strong cooling effect. Observational data indicate that low-cloud cover can vary as much as 2 percent in 5 years which, in turn, varies the heating at the Earth’s surface by as much as 1.2 watts per square meter during that same period.

“That figure can be compared with about 1.4 watts per square meter estimated by the [United Nations’] Intergovernmental Panel on Climate Change for the greenhouse effect of all the increase in carbon dioxide in the air since the Industrial Revolution,” says Svensmark.
That is, cloud cover changes over a 5-year period can have 85 percent of the temperature effect on the Earth that has been claimed to have been caused by nearly 200 years of manmade carbon dioxide emissions. The temperature effects of cloud cover during the 20th century could be as much as 7 times greater than the alleged temperature effect of 200 years worth of additional carbon dioxide and several times greater than that of all additional greenhouse gases combined.

So although it has been taken for granted by global warming alarmists that human activity has caused the climate to warm, Svensmark’s study strongly challenges this assumption.

Given that the cosmic ray effect described by Svensmark would be more than sufficient to account for the net estimated temperature change since the Industrial Revolution, the key question becomes: Has human activity actually warmed, cooled or had no net impact on the planet?

Between manmade greenhouse gas emissions, land use patterns and air pollution, humans may have had a net impact on global temperature. But if so, no one yet knows the net sign (that is, plus/minus) of that impact.

Not surprisingly, Svensmark’s potentially myth-shattering study has so far been largely ignored by the media. Though published in the prestigious *Proceedings of the Royal Society A*, it’s only been reported – and briefly at that – in *The New Scientist* (Oct. 7), *Space Daily* (Oct. 6) and the *Daily Express* (U.K., Oct. 6).

The media’s lack of interest hardly reflects upon the importance of Svensmark’s experiment so much as it reflects upon the media’s and global warming lobby’s excessive investment in greenhouse gas hysteria.

*Steven Milloy publishes JunkScience.com and CSRWatch.com. He is a junk science expert, an advocate of free enterprise and an adjunct scholar at the Competitive Enterprise Institute.*

*Respond to the Writer*