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COMMENTARY

Political Science

By PHILIP STOTT

February 3, 2007; Page A11

I confess I was afflicted by a profound world-weariness following the release yesterday of the latest gloomy machinations from the Intergovernmental Panel on Climate Change (IPCC). The U.N.'s global-warming caravanserai, founded in 1988 by the World Meteorological Organization and the United Nations Environment Program, had this time pitched camp in Paris, in order to issue the "Summary for Policy Makers" relating to Working Group One of its "Fourth Assessment Report: Climate Change 2007." This is the group that focuses on "The Physical Science Basis" of climate change, and its summary was greeted with the usual razzmatazz, the Eiffel Tower's 20,000 flashing bulbs being symbolically blacked out on the evening before. Further IPCC reports are due this year, one in April from Working Group Two, on the impacts of, and adaptation to, climate change, and another in May, from Working Group Three on climate-change mitigation.



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But it is the science summary that always gives rise to the jamboree -- with journalists, politicians and eager environmentalists desperate to claim that this particular report is the last word on climate change, that it represents a true consensus, that the world is doomed, and that we must recant our fossil-fuel ways. Moreover, as in 2001 with the Third Assessment Report, Friday's release was preceded by speculative leaks, the political shenanigans and spinning beginning even before the final text had been haggled over and agreed upon.

Unfortunately, the IPCC represents science by supercommittee, as rule 10 of its procedures states: "In taking decisions, and approving, adopting and accepting reports, the Panel, its Working Groups and any Task Forces shall use all best endeavors to reach consensus." I bet Galileo would have had a rough time with that.

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In this context, it is vital to remember that science progresses by skepticism and by paradigm shifts: A consensus early last century would have given us eugenics. Moreover, the IPCC does no original research, nor does it monitor climate-related data; its evidence is instead from selected secondary sources. But, above all, this supercommittee is more political than is often recognized, rule three firmly reminding delegates that: "documents should involve both peer review by experts and review by governments."

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Friday's summary and "best estimates" of temperature-rise by 2100 (as compared to preindustrial times) are thus little more than a committee compromise chewed over by governments with different agendas: an average potential rise of three degrees Celsius (up from 2.5 degrees in 2001); a probable rise of between 1.8 to 4 degrees; a possible rise of between 1.1 to 6.4 degrees. So you can take your pick, also bearing in mind that there are groups outside the IPCC predicting cooling by one or two degrees Celsius. Moreover, the conclusion that climate changes seen around the world are "very likely" to have a human cause is wonderful Alice-through-the-Looking-Glass talk.

Unsurprisingly, the report will please neither a Humeian skeptic nor a rabid apocalyptic. Indeed, even before it appeared, environmentalists were incensed that predictions for the rise in sea levels this century have been lowered to between 28 and 43 cm (11 to 17 inches). They want the polar bears to be drowning now!

For the skeptic, however, the problem remains, as ever, water vapor and clouds. Enormous uncertainties persist with respect to the role of clouds in climate change. Moreover, models that strive to incorporate everything, from aerosols to vegetation and volcanoes to ocean currents, may look convincing, but the error range associated with each additional factor results in near-total uncertainty. Yet, there is a greater concern. Throughout the history of science, monocausal explanations that overemphasize the dominance of one factor in immensely complex processes (in this case, the human-induced emissions of greenhouse gases) have been inevitably replaced by more powerful theories.

Worryingly for the IPCC's "consensus," there is a counterparadigm, relating to the serious uncertainties of water vapor and clouds, now waiting in the wings. In the words of Dr. Henrik Svensmark, director of the Center for Sun-Climate Research at the Danish National Space Center: "The greenhouse effect must play some role. But those who are absolutely certain that the rise in temperatures is due solely to carbon dioxide have no scientific justification. It's pure guesswork." A key piece of research in this emerging new paradigm was published in the Proceedings of the Royal Society A (October 2006): "Do electrons help to make the clouds?"

Using a box of air in a Copenhagen lab, physicists managed to trace the growth of clusters of molecules of the kind that build cloud condensation nuclei. These are specks of sulfuric acid on which cloud droplets form. High-energy particles driven through the laboratory ceiling by exploded stars far away in the galaxy -- cosmic rays -- liberated electrons in the air, which helped the molecular clusters to form much faster than atmospheric scientists have predicted. This process could well explain a long-touted link between cosmic rays, cloudiness and climate change.

The implications for climate physics, solar-terrestrial physics and terrestrial-galactic physics are enormous. This experiment ties in elegantly with the work of certain geochemists and astronomers, who for some time have been implicating cosmic rays and water vapor, rather than carbon dioxide, as the main drivers of climate change. Indeed, they have put down up to 75% of all change to these drivers.

Cosmic rays are known to boost cloud formation -- and, in turn, reduce earth temperatures -- by creating ions that cause water droplets to condense. Calculating temperature changes at the earth's surface -- by studying oxygen isotopes trapped in rocks formed by ancient marine fossils -- scientists then compared these with variations in cosmic-ray activity, determined by looking at how cosmic rays have affected iron isotopes in meteorites. Their results suggest that temperature fluctuations are more likely to relate to cosmic-ray activity than to carbon dioxide. By contrast, they found no correlation between temperature variation and the

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changing patterns of CO2 in the atmosphere. But the mechanism remained far from understood -- until last October, that is, when the team in the Copenhagen lab may have discovered it.

Who knows where this exciting research will lead? What it unquestionably shows, however, is that the science of climate change is far from settled, and most certainly not by a government-vetted committee policy "summary" from a U.N. supercommittee.

The inconvenient truth remains that climate is the most complex, coupled, nonlinear, chaotic system known. In such a system, both "doing something" (emitting human-induced gases) and "not doing something" (not emitting) at the margins are equally unpredictable. What climate will we produce? Will it be better? And, if we get there, won't it, too, change?

This is the fatal flaw at the heart of the whole global-warming debacle. Climate change must be accepted as the norm, not as an exception, and it must be seen primarily as a political and economic issue, focusing on how best humanity can continue to adapt to constant change, hot, wet, cold or dry. The concept of achieving a "stable climate" is a dangerous oxymoron.

We must hope that IPCC Working Group Two on adaptation will set a wiser agenda in their April report.

Mr. Stott, professor emeritus of biogeography at the University of London, is co-editor of "Political Ecology: Science, Myth and Power" (Oxford University Press, 2000).

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