

United Nations-sponsored Intergovernmental Panel on Climate Change (IPCC), released the draft of a new report concluding “that there has been a discernible human influence on global climate.” If those words hold up under further expert and governmental review, they would be the strongest official pronouncement yet that human-induced warming is real.

“Something definitely seems to have happened” to the climate, says climate researcher Tim P. Barnett of the Scripps Institution of Oceanography in La Jolla, California, who reviewed part of an earlier draft. As this draft points out, “three of the last 5 years have been the warmest in the instrumental record,” which goes back 140 years. And three different records of temperature preserved in tree rings and elsewhere have now revealed the large, abrupt 20th-century warming to be unique in the past 1000 years.

The confident recognition of an anthropogenic climate effect—which could bolster calls for action to curb global warming—is the draft report’s only major shift since 1995, when the IPCC found that “the balance of evidence suggests a discernible human influence.” The new report notes that there has been little progress in projecting the future of greenhouse warming, thanks to uncertainties about everything from climate

tives—the natural ups and downs of temperature, solar variability, or volcanic emissions. None seems to suffice. And model simulations of the past century including rising greenhouse gases bear a strong resemblance to the actual warming.

Barnett is cautious about declaring complete certainty, but “we have a change we can’t explain with natural variations. There aren’t many other options.” Climatologist Gerald North of Texas A&M University in College Station, who does greenhouse detection work but has not been involved in the IPCC process, is more confident: “There are too many independent pieces of evidence, and there’s not a single piece of contradictory evidence,” he says. North is particularly impressed by the 1000-year temperature records. “The planet had been cooling slowly until 120 years ago, when, bam!, it jumps up,” he says. “We’ve been breaking our backs on [greenhouse] detection, but I found the 1000-year records more convincing than any of our detection studies” using climate models.

Even greenhouse contrarians are tacitly going along with the IPCC’s confident conclusion. Rather than dispute the reality of the warming or its cause, they have lately emphasized its modest size and inferred minimal future negative effects. Much of the

ports. Indeed, that range goes back to a National Academy of Sciences report of 1979. Uncertainties in the magnitudes of complicating factors such as solar variations and the effects of pollutant hazes have changed little since 1995.

One change in the report—a more prominent role for socioeconomic factors—only increases the uncertainty. Depending on which of six possible scenarios for emission of greenhouse gases and cooling pollutant hazes is used, warming by 2100 could be between a modest 1°C and a sizzling 5°C. The range of warming created by economic, demographic, and policy assumptions in the scenarios “is similar to that due to uncertainty in models,” the report observes. With so much up in the air, the IPCC should have no lack of grist for its next report in 2005.

—RICHARD A. KERR

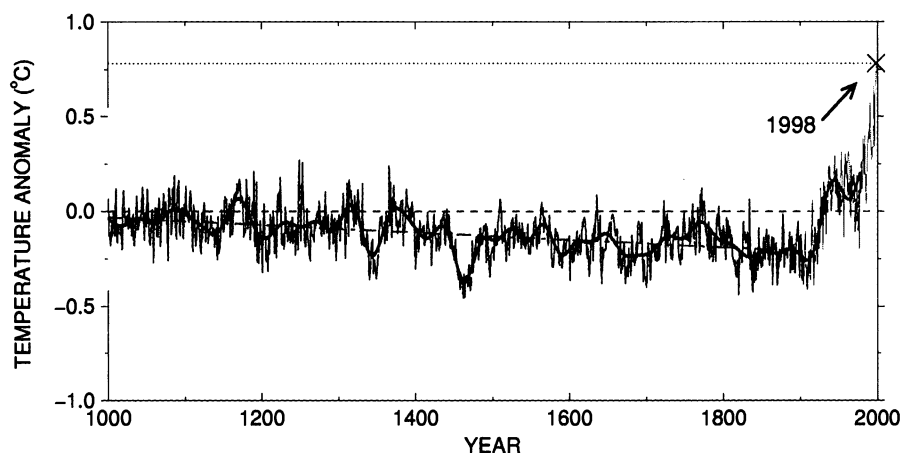
SOUTH AFRICA

AIDS Researchers Decry Mbeki’s Views on HIV

Most governments that face a serious AIDS epidemic have taken a long time to acknowledge the fact. In South Africa, one of the hardest hit countries in the world, this pattern has a bizarre twist: President Thabo Mbeki has acknowledged that his country has an AIDS epidemic, but he has questioned whether HIV is to blame.

Not only is Mbeki publicly flirting with scientifically discredited ideas about the cause of AIDS, but a leading skeptic of HIV’s role in the disease has been invited to serve on a panel to discuss how South Africa should deal with the crisis. These moves are drawing international attention—and increasingly sharp attacks from AIDS researchers inside and outside South Africa, where the virus has infected one out of every 10 adults.

Mbeki’s questioning of the scientific evidence that HIV causes AIDS became front-page news around the world last week when *The Washington Post* revealed that he recently sent a letter about his views to President Bill Clinton, other heads of state, and U.N. Secretary Kofi Annan. In the letter, Mbeki decries the “orchestrated campaign of condemnation” that has been directed at him for seeking out the views of so-called AIDS “dissidents,” such as the University of California, Berkeley’s, Peter Duesberg, who in 1987 began challenging the widely accepted scientific conclusion that HIV causes AIDS (*Science*, 9 December 1994, p. 1642). “We are now being asked to do precisely the same thing that the racist apartheid tyranny we opposed did, because, it is said, there exists a scientific view that is supported by the majority, against which dissent is prohibit-



Exceptional century. Temperatures recorded in tree rings and elsewhere (purple) reveal that the 20th century (red is instrumental record) was unique in the millennium.

models and the behavior of clouds to the vagaries of humans’ burning of fossil fuels. Even so, the report, to be finalized later this year, should inform negotiations that culminate this fall on the implementation of the Kyoto Protocol for the reduction of greenhouse gas emissions.

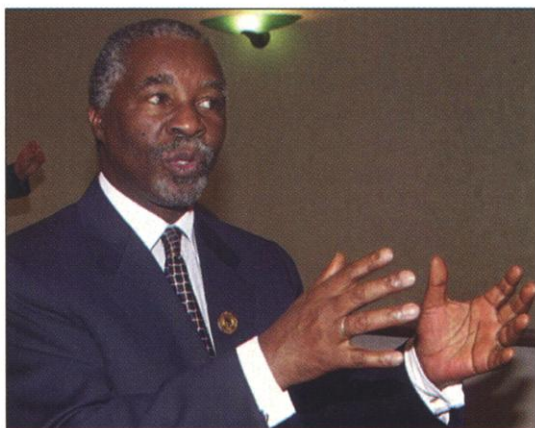
The IPCC gained confidence in identifying the 0.6°C warming of the past century as anthropogenic through a process of elimination. Since the previous report, researchers have run their improved climate models repeatedly and longer to look for alterna-

warming, they note, has come at night, in the winter, and in areas that might stand some warming, such as Siberia.

While the report seems to reflect broad support for the recognition of human-induced climate change, “we don’t quite know what it means for the next 100 years,” admits North. The report offers nothing new on how much temperatures might rise given an added shot of greenhouse gases. It cites the same possible warming from a doubling of carbon dioxide—2.5°C with a range of 1.5° to 4.5°C—as did the 1990 and 1995 re-

SOURCE: MANN ET AL./AMERICAN GEOGRAPHICAL UNION

ed," wrote Mbeki in his 3 April letter. "The day may not be far off when we will, once again, see books burnt and their authors immolated by fire by those who believe that they have a duty to conduct a holy crusade against the infidels."



Drawing flak. President Mbeki's questioning of the evidence that HIV causes AIDS has provoked an outcry.

"I think the letter was emotional and irrational," says Malegapuru William Makgoba, an Oxford-trained immunologist who in July became the first black head of South Africa's Medical Research Council. "This man will regret this in his later years. He displays things he doesn't understand."

Makgoba says Mbeki told him and others earlier this year that he became intrigued by the dissidents' views after reading about them on the Internet. In January, Makgoba says Mbeki sent him about 1500 pages of documents that question the so-called "HIV/AIDS hypothesis." "It's pure rubbish," says Makgoba. "They never provided any data and, at the same time, they are taking things out of context." He told Mbeki as much in a letter that also offered detailed counterarguments. "His credibility as an African leader may suffer from this," says Makgoba, who recently edited a book called *African Renaissance*, which has an introduction written by Mbeki.

Parks Mankahlana, Mbeki's spokesperson, stresses that Mbeki has never said that he does not believe that HIV causes AIDS. "We've gone through all of his speeches," says Mankahlana, who points out that Mbeki has increased support for AIDS research, encourages the use of condoms, and always wears an AIDS ribbon on his lapel. Mbeki, says Mankahlana, is simply exploring a range of views on the role that HIV plays in the disease. "The problem that the scientific world has is this: It has to do with human arrogance."

The dissidents' views are expected to be included in a panel of about 30 AIDS "experts" that South Africa's Department of Health is convening to discuss how to ad-

dress the country's epidemic. Duesberg says he has been invited and may well attend the panel's meeting next month. "I think after this letter, I have to go," says Duesberg. "It's getting hot again, just like in the old days, thanks to Mbeki. I'm surprised that there's a place left on this planet where you can ask commonsensical questions."

In part because of Mbeki's stance, some AIDS researchers have threatened to boycott the international AIDS conference scheduled to be held in Durban this July. But Salim Abdool Karim, a leading South African AIDS researcher who chairs the scientific committee for the meeting, says he does not expect Mbeki's views to depress attendance. "In fact, it has encouraged some people to say, 'I will attend the conference,'" Karim says. Karim, who conspicuously was not invited to sit on the health department's panel, hopes Mbeki will quickly declare that he believes HIV causes AIDS. "This should be resolved urgently, rather than making it an international issue," says Karim.

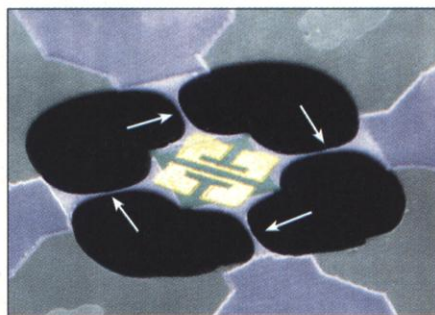
—JON COHEN

PHYSICS

Heat Flow Runs Into Quantum Limit

Heat is a symphony of vibrations rippling through a material. But, just like the electrons flowing in an electrical current, the individual vibrations are really quantum mechanical waves. Now a team of physicists has found that they can filter out all but a handful of those vibrations by making them jiggle down a tiny beam only a few billionths of a meter thick. When they do that, the quantum mechanical nature of the vibrations sings out, as the amount of heat the vibrations will carry butts into a fundamental quantum limit.

The findings, reported in the 27 April issue of *Nature*, raise the prospect of observ-



Quartet. Four vibrating beams carry heat away from silicon wafer, center.

ScienceScope

Ready for Action With summer just months away, Centers for Disease Control and Prevention (CDC) officials are saying that a "sound public health control plan is now in place" to contain the mosquito-borne West Nile virus (right), which killed seven people in New York last year (*Science*, 24 March, p. 2129). "Last fall, many of our state and local partners were unprepared," CDC West Nile coordinator Stephen Ostroff said at a press conference this week. Now, CDC has spent \$2.7 million to help 19 state and local health departments on the Eastern seaboard and the Gulf of Mexico—where migratory birds are most likely to spread the virus—set up virus surveillance and mosquito-control programs.



Ostroff stressed that the odds of contracting West Nile are very low. An unpublished study by CDC and New York City's department of health found that about 2.5% of over 600 residents of the "Hot Zone"—the area in Queens where most cases occurred—got infected last summer. But the vast majority of those infected suffered mild symptoms or none at all.

Lobbying for Bargains AIDS activists are preparing a last-ditch lobbying effort to make cheaper AIDS drugs available to patients in Africa and the Caribbean. A coalition of AIDS groups is backing an effort by Senators Dianne Feinstein (D-CA) and Russ Feingold (D-WI) to amend a pending bill designed to expand trade between the United States, Africa, and Caribbean nations. The amendment would relax patent protections on popular AIDS drugs from major companies, enabling poor nations to import or manufacture them at lower cost. Opponents, including pharmaceutical companies, say the change would open a troubling loophole in international patent law and reduce incentives for R&D. They claim that a lack of doctors, clinics, and planning—not high drug prices—is the major barrier to better AIDS treatment in poorer nations.

The House has already rejected its version of the Feinstein-Feingold measure, leaving proponents to focus on the Senate, which is expected to complete its work on the trade bill early next month. If the AIDS amendment is added, one Republican aide predicts that "it could become very difficult to craft a final bill. It could be a deal killer."

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