GLOBAL CHANGE

Getting Warmer, However You Measure It

Could thermometers be lying about global warming? They show that Earth’s surface has been warming of late by a substantial 0.17°C per decade. That’s about what climate models predict under the growing greenhouse. But at least by some analyses, orbiting satellite sensors have detected a distinctly slower warming in the lower atmosphere as do thermometers at the surface. “Within the uncertainty of measurements caused by the ongoing cooling of the stratosphere. Once adjusted, satellite readings show much the same warming as do thermometers and the globally comprehensive satellite has long been Exhibit A for contrarians arguing that the greenhouse effect is feeble.

Now, in this week’s issue of Nature, a group of researchers describes a way to correct a long-standing problem in the satellite readings caused by the ongoing cooling of the stratosphere. Once adjusted, satellite temperatures show the same warming in the lower atmosphere as do thermometers at the surface. “Within the uncertainty of reasonable methods of analysis of the satellite data, this paper essentially reconciles the satellite surface temperature trend debate,” says meteorologist Thomas Vonder Haar of Colorado State University in Fort Collins. “Our disparate observing systems are in agreement.”

For more than a decade, atmospheric scientists have argued about how to analyze weather satellite measurements of the atmosphere’s microwave emissions (Science, 25 September 1998, p. 1948). The intensity of the emissions depends on the temperature of the layer of the atmosphere doing the emitting. But scientists disagree about how to analyze emissions from the lower atmosphere, a few kilometers above the surface, measured by a series of satellite-borne Microwave Sounding Units (MSUs) 850 kilometers up. Last year, three groups published MSU-based warming trends that ranged from 0.02°C to 0.10°C to 0.24°C per decade, bracketing the surface warming.

There is agreement, however, that all three of these reported trends fail to take into account the fact that the emitting layer in question extends into the lower stratosphere, where strong cooling has occurred due largely to the loss of ozone. In the Nature paper, the satellite still. Global warming is faster if satellite data are adjusted for stratospheric effects.

U.S. RESEARCH POLICY

NSF Warned Off Smithsonian Pact

Responding to objections from an influential senator, the National Science Foundation has suspended plans to let scientists at the Smithsonian Institution compete equally with academic researchers for NSF grants (Science, 2 April, p. 26). University-based organizations are also fighting the planned policy change, because in their view it will increase the competition for limited NSF dollars.

“This is a very dangerous precedent … that will open up NSF’s programs to all federal researchers,” Senator Kit Bond (R-MO) wrote on 23 April to Warren Washington, the chair of NSF’s oversight body, the National Science Board. Bond, who chairs the Senate spending panel that sets NSF’s budget, urged the board to reconsider. Four days later, Washington assured Bond in a letter that “I have asked the NSF acting director to discontinue negotiations [with the Smithsonian Institution] … The board shares your concerns.”

The board triggered the controversy on 25 March when it voted to provide an exception for the Smithsonian’s 500 scientists because of the institution’s “unique status … and its special contributions to science research and education.” The board asked Acting NSF Director Arden Bement to negotiate an agreement with the Smithsonian and submit it for review. However, some members warned Bement to make sure that the agreement did not send NSF down a “slippery slope.”

Bond’s opposition creates a mixed message from Congress. Leaders in the House of Representatives had advocated the policy change as a way to clarify NSF’s inconsistent handling of applications from Smithsonian scientists, some of whom had been allowed to compete equally with university scientists while others were summarily rejected. Congress had urged NSF to clear up the confusion in a report accompanying NSF’s 2003 spending bill, but one science lobbyist speculates that Senate aides may have signed off on the language “at 3 a.m., and probably nobody realized the implications at the time.”

The university community didn’t object at the time but has now jumped on the bandwagon. On 28 April the Association of American Universities, which has posted the correspondence online (aau.edu), wrote the science board echoing Bond’s fears of “a dangerous precedent.” Then it pressed home its point: “We believe that … researchers supported from [federal] agencies should not be able to supplement appropriated funds with research grants from other agencies.”

Bement says his talks with David Evans, the Smithsonian’s undersecretary for science, are “dead in the water” pending guidelines from Congress and the Administration, which this winter ordered a review of federal guidelines governing support for scientists at other agencies. “I don’t think there’s anything unique about the Smithsonian,” says Kathie Olsen of the White House Office of Science and Technology Policy, who expects that the report, due this month, will prompt an interagency discussion of the issue.

Jeffrey Mervis
meteorologist Qiang Fu of the University of Washington, Seattle, and his colleagues offer a way to correct for the stratosphere’s effect on the calculated lower atmosphere temperature by using stratospheric MSU measurements and balloon temperature measurements. When applied to the middle of the three recent trend estimates, the correction raises the trend from 0.10°C per decade to 0.18°C per decade, versus the surface trend of 0.17°C per decade. Even the low estimate rises to 0.10°C per decade.

Fu and colleagues’ approach “is a fairly simple but illuminating way of looking at the problem,” says meteorologist David Karoly of the University of Oklahoma in Norman. “I don’t see any fundamental problem with the analysis.” That would leave researchers with the uncertainties evident in the spread of the three published estimates, but for now satellite temperatures can no longer be used to portray a feeble greenhouse effect. —RICHARD A. KERR

FISHERIES SCIENCE

Plan to Count Hatchery Salmon Criticized

In a decision with sweeping ramifications for conservation on the West Coast, the Bush Administration plans to count hatchery-raised fish along with wild fish in determining whether a Pacific salmon run is endangered. The move could leave some of 27 imperiled populations of salmon and steelhead trout without federal protection and ease development restrictions on millions of hectares where salmon spawn.

The draft policy, reported last week by The Washington Post, has pleased landowner groups but outraged environmental groups and some scientists. “This is not scientifically valid,” fumes Ransom Myers of Dalhousie University in Halifax, Nova Scotia. Myers and five other ecologists recently argued that hatchery fish develop traits and behaviors ill-suited to the wild and that including them in salmon counts could allow wild fish to die out (Science, 26 March, p. 1980). But National Oceanic and Atmospheric Administration (NOAA) Fisheries official James Lecky says that hatcheries “can be managed in a way that contributes to the conservation of endangered species” and that some hatchery fish should be counted.

The government has long dumped fish raised in hatcheries into rivers to maintain commercially valuable stocks harmed by dam-building and other activities. In 2001, a federal judge said NOAA treated hatchery fish inconsistently in its policymaking and ordered it to consider counting them when deciding whether a population is endangered (Science, 30 November 2001, p. 1806).

Last year, a NOAA advisory panel on which Myers served concluded that hatcheries don’t help sustain a population over the long term and that no hatchery fish should be included in “distinct” wild populations. NOAA disagrees. Its draft policy says that “hatchery fish that are genetically no more than moderately divergent from a natural population … will be considered” in deciding whether to list a specific population. Counting some hatchery fish is just one element of the policy, Lecky noted. More important, he says, the new policy upholds the importance of conserving habitat and calls for further studies. “We’re looking to improve the science of hatcheries,” he says.

But outside observers remain dubious. Fish biologist Anne Kapucinski of the University of Minnesota, Twin Cities, says that having scientific disagreement on whether hatcheries are always harmful is different from counting hatchery fish in listing decisions. “That’s going too far,” says Kapucinski, asserting that two National Academy of Sciences panels on salmon conservation on which she served “would not agree with this policy.” Chris Wood of Trout Unlimited says “the absurdity of the decision” becomes clear if it’s extrapolated to other animals. By the same logic, he says, elk raised on game farms should be counted in deciding whether wild elk are endangered.

A federal court has ordered NOAA by 28 May to review the status of eight stocks now listed as endangered or threatened. Lecky, who hopes to include all 27, says there will not be a “wholesale” delisting.

—JOCelyn KAISER

NSF Says Ocean Drilling Is #1

WASHINGTON, D.C.—The National Science Foundation (NSF) said last week that it will prioritize the Integrated Ocean Drilling Program (IODP) over all other projects. NSF director designate France A. Córdova, who chairs a new science planning panel, announced the ranking last week in response to a letter from Senator Kit Bond (R–MO), who chairs the panel that oversees NSF’s budget. Bond was concerned that NSF’s ranking of ocean science projects did not reflect the high priority of ocean research to the scientific community. The National Science Foundation’s (NSF’s) proposed new research projects. At the top of the wish list: a ship for the restructured Integrated Ocean Drilling Program (IODP).

Last month Senator Kit Bond (R–MO) asked for help in “re prioritizing” the five projects already approved by the board but not yet under construction. Bond, who chairs the spending panel that oversees NSF’s budget, worries that Congress may not have enough money to fund everything in the agency’s 2005 request. So the board bit the bullet and, for the first time, offered a numerical ranking: IODP topped its list, followed by the National Ecological Observatory Network and the Rare Symmetry Violating Processes experiment at Brookhaven National Laboratory. Rounding out the list were two projects slated for 2006: the Ocean Observatories Initiative and the Alaska Regional Research Vessel. “We believe we could do it,” says board member Daniel Simberloff, who coordinated the internal review.

Bond may not like the results—his letter tells NSF to place more emphasis on the Arctic region. But aides say that the ranking will satisfy the senator’s preference that the scientific community choose its priorities rather than letting politicians make the call.

—JEFFREY MERVIS

Spain Settles Stem Cell Fight

BARCELONA—The battle over who will control Spain’s first public stem cell bank is over. The nation’s new Socialist leaders last week agreed with allies in the state of Andalusia to drop dueling lawsuits over the bank, which the previous conservative government had claimed violated an embryo research law (Science, 31 October 2003, p. 763).

Now, national health minister Elena Salgado says officials will “start a wide and calm debate” over how to revise the law and regulate the bank. That is “fantastic news,” says Josep Egozcue, a cell biologist at the Autonomous University of Barcelona. Fernando Marina, an embryologist at Barcelona’s Cefer Clinic, says the previous government “sold” the law—which limits research to embryos stored at least 5 years—as “opening the doors to embryo research … which is absolutely false.”

—XAVIER BOSCH