

Dateline/UCD

A newspaper for faculty and staff of the University of California, Davis

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Greenhouse challenge

Meeting rallies experts

While summertime temperatures bordered on hot, debates and discussions warmed in lecture halls and meeting rooms on campus last week as more than 150 scientists participated in a three-day brainstorming session on tackling the issue of global warming.

The goal: pinpoint gaps in the scientific understanding of how the "greenhouse effect" might alter the environment in California, and identify ways to help policy-makers deal with potentially catastrophic changes in agriculture, water supplies, climate, ecosystems, energy and lifestyles.

The conclusion: Researchers have only scratched the surface of a complex issue. To make any sense of what may happen, scientists said they need to improve current climate models, organize existing information for better exchange, examine the possible impacts of different public policies, conduct more studies of the state's diverse ecosystems, and continue



Rep. Vic Fazio (Photo: Mike Birch)

observing and measuring changes in the environment.

In the meantime, they urged, Californians should adjust their living habits to conserve the use of energy and water. Demand for both resources promises to grow if gases generated by human activities continue to accumulate in the atmosphere. The accumulation is building a wall of gases around the planet that, acting like a greenhouse, let sunlight in but block the release of heat.

Uncertainty stood as a backdrop to the meeting, which was co-sponsored by the University of California, U.S. Department of Energy and Save the Earth Foundation. Scientists are split over the question of whether global warming is happening now, or if not, when and how likely it is to occur in

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the future.

"This stuff is not cut and dry. We're still struggling with it," said Tim Barnett, an oceanographer at UC San Diego's Scripps Institution of Oceanography.

Although their ideas and approaches varied widely at times, workshop participants did agree on one thing: the need to start planning ahead.

"There will always be uncertainty, even in the year 2000. But I think we have to start making some decisions now," said workshop chair Joseph Knox, an atmospheric scientist and assistant to the associate director for physics at the Lawrence Livermore National Laboratory.

Rep. Vic Fazio, D-West Sacramento, who addressed the gathering of scientists during the opening session, expressed the importance of preparing for what could be "the greatest challenge in the history of this beautiful planet."

The workshop, "Global Climate Change and Its Effects on California," launched a series of three conferences planned at UC Davis to help scientists and policy-makers grapple with the emerging issues that surround global environmental change.

"National Energy Policy Issues," scheduled for Sept. 6-8, will focus on ways to reduce the emission of carbon dioxide gas, a principal "greenhouse" gas. "Pacific Rim Research Development Strategies Related to Climate Change," planned for Oct. 22-27, will look at how global warming will affect developing countries in the Pacific Rim and how they can prepare to deal with issues and problems generated by the change.

Program executive committee chair Noreen Dowling, director of the JCD Public Service Research and Dissemination Program, says she hopes the meetings will help shape national and international research

agendas to address global climate change.

California, with its rich economic, geographic, cultural and ecological mix, promises to pose a special challenge for scientists trying to understand and predict the consequences of global warming for the state.

For this reason, California should begin to marshal its resources and talent to work on the problem, according to Roger Revelle, director emeritus of the Scripps Institution of Oceanography and one of the first to pursue global warming. What scientists learn in California could prove helpful elsewhere.

"California is looked to by the rest of the world as an experimental laboratory," he said. "A lot of research must be done in California by Californians."

Recommendations that emerged from the meeting included:

- seek ways to increase the flexibility of California's agricultural industry, such as engineering more adaptive plants, shifting crop systems, and finding versatile ways to control agricultural pests.
- investigate how the "greenhouse effect" might disrupt the state's principal water supply in the Delta, and explore possible actions to preserve the supply. Also, look at recycling water more often for certain uses, and examine the prospect of developing and tapping groundwater systems more extensively.
- modify and improve current climate models so that climate change can be studied in detail on a regional scale, making possible local predictions and better planning.
- establish systems for linking existing information banks — to improve the exchange of information and to monitor trends — and establish new information centers where needed;
- increase state support for organized research efforts — perhaps even set up a special research group — to study ways to track the progress of the greenhouse effect. Also look at ways that it might effect California,

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-Roger Revelle



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and provide possible solutions for dealing with predicted changes.

— test various public policy options on a small scale to measure their success.

— pursue alternatives to the use of fossil fuels that produce greenhouse gas such as nuclear energy, solar energy, wind-generated power and hydropower.

Many of the conference partici-



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pants noted that the recommendations being made were practical and not simply limited to dealing with the possible consequences of global warming.

"We ought to do these things because they make sense, not just because of the "greenhouse effect." There's an ecological need for it," Dowling said.

-Karen Watson

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PUBLIC SERVICE RESEARCH AND DISSEMINATION PROGRAM

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WORKSHOPS HELD

THREE MAJOR INTERDISCIPLINARY WORKSHOPS ON GLOBAL CLIMATE CHANGE have been held at the University of California, Davis, in the past four months. With the increasing concentration of CO₂ and other trace gases in the atmosphere, it had become clear to climate researchers that the potential for climate change on a global scale is very real and the resultant impacts could be significant. In light of this, the University of California--at the urging of members of Congress and the U. S. Department of Energy---initiated a series of interdisciplinary workshops and committed itself systemwide to bring the multidisciplinary resources of the nine UC campuses and the three national laboratories at Livermore, Berkeley, and Los Alamos to focus on what may be the crucial challenge facing the world.

The California Energy Commission, Universitywide Energy Research Group, and Save the Earth Foundation joined The University of California and U.S. Department of Energy in sponsoring the Global Climate Change Workshops. Noreen Dowling, Director of Public Service Research & Dissemination Program at UC Davis was responsible for planning and coordinating the workshops with active guidance from members of the Executive and Advisory Committee.

Designed to be sequential and complementary, all workshops discussed the scientific evidence that the chemical composition of the atmosphere has been altered and the questions of scientific certainty in identifying evidence of climate change amidst the numerous signals emanating from our very complex global coupled ocean, atmosphere, land, biosphere system. Desired improvements in climate modeling which might increase the level of certainty and detail to climate projection were also discussed. A goal of each focused workshop was to identify crucial research, 1) to understand systems' responses or impacts, 2) to reduce or mitigate undesirable effects of climate change, or 3) to reduce emission of "greenhouse gases." The identification of strategies and implementable policies was also encouraged.

A SHORT SYNOPSIS OF WORKSHOP ONE: Global Climate Change and Its Effects on California, is found on page 3. Copies of the Executive Summary for this workshop may be obtained from Public Service Research and Dissemination Program, UC Davis (\$10.00 postage and tax included. Checks payable to Regents University of California)