Testimony prepared by
Richard A. Anthes, President of the
University Corporation for Atmospheric Research (UCAR)
Submitted March 18, 2005 to the
Subcommittee on Energy and Water Development and Related Agencies
U.S. House of Representatives Appropriations Committee
Regarding FY 2006 Appropriations for the
Department of Energy (DOE)

On behalf of the University Corporation for Atmospheric Research (UCAR) and the university community involved in weather and climate research and related education, training and support activities, I submit this written testimony for the record of the House Committee on Appropriations, Subcommittee on Energy and Water Development. The major requests that I address in this document are that funding for the DOE Office of Science be restored in FY06 to the FY05 level of $3.6 billion, and that, within the Office of Science, the Advanced Scientific Computing Research program be restored in FY06 to its FY05 level of $234 million.

UCAR is a 68-university member consortium that manages and operates the National Center for Atmospheric Research (NCAR) and additional programs that support and extend the country’s scientific research and education capabilities. In addition to its member research universities, UCAR has formal relationships with approximately 100 additional undergraduate and graduate schools including several historically black and minority-serving institutions, and 40 international universities and laboratories. UCAR’s principal support is from the National Science Foundation (NSF) with additional support from other federal agencies including the Department of Energy (DOE).

DOE Office of Science

The atmospheric and related sciences community appreciates Congress’ continued support for the DOE Office of Science, but we are troubled by the downward trend in funding. The needs of the country demand that DOE continue to produce a world-class program in science and energy security research. The Office of Science manages fundamental research programs in basic energy sciences, biological and environmental sciences, and computational science, and it supports unique and vital parts of U.S. research in climate change, geophysics, genomics, life sciences, and science education. As in previous years, the House Science Committee’s recently released “Views and Estimates” for Fiscal Year 2006, calls the Administration’s budget request for DOE’s Office of Science “inadequate.” It points out that the request for the Office of Science is well below the amounts authorized in HR 6, the Energy Policy Act of 2003, and HR 610, the Energy Research, Development, Demonstration, and Commercial Application Act of 2005.

DOE is the largest federal sponsor of basic research in the physical sciences, but the level of funding for its peer reviewed, core science programs has remained stagnant for years. If enacted, the FY06 request of $3.46 billion, a 3.8 percent cut, will diminish the Office of Science’s ability to serve the country. The request would cut the Office of Science by $136.0 million. Of this amount, $79.6 million is the elimination of add-ons, but factoring in inflation, the Office takes a real cut of several percent.

I urge the Subcommittee to fund the DOE Office of Science at the level of the FY05 Original Appropriation, or $3.6 billion, at the very least, and to enable the agency to apply the entire
appropriated amount toward planned agency research priorities. This level of research funding will augment and reinvigorate critical work of researchers throughout the nation.

Biological and Environmental Research (BER)

Within the Office of Science, the Biological and Environmental Research (BER) program develops the knowledge necessary to identify, understand, and anticipate the potential health and environmental consequences of energy production and use. These are issues that are absolutely critical to our country’s well-being and security, yet the request of $455.7 million for BER is down over 9 percent from the FY 2005 enacted level of $502.3 million, a figure that does not include add-ons.

Peer-reviewed university research programs play a critical role in the BER program involving the best researchers the nation’s institutions of higher learning have to offer, and developing the next generation of researchers. Approximately half of BER basic research funding supports university-based activities directly and indirectly. All BER research projects, other than those in the “extra projects” category, undergo regular peer review and evaluation. I urge the Subcommittee to fund Biological and Environmental Research at the level of the FY05 Omnibus Appropriation, or $502.3 million (this figure does not reflect add-ons), and to enable BER to apply the entire appropriated amount toward planned agency research priorities that are peer-reviewed and that involve the best researchers to be found within the nation’s university research community as well as the DOE labs.

Climate Change Research. Within BER, the Climate Change Research long-term goal is to deliver improved climate data and models for policy makers to determine safe levels of greenhouse gases for the Earth system. This work is critical to the health of the planet. The Climate Change Research Request of $142.9 million is a 1.4 percent increase over the FY05 appropriated level. I urge the Subcommittee to fund Climate Change Research at a level that is consistent with the request for BER stated above.

Also within Climate Change Research, Atmospheric Chemistry and Carbon Cycle is a program that includes Atmospheric Science, the work of which is essential for assessing the effects of energy production on air quality and climate through the quantification of the impacts of energy-related aerosols on climate. Atmospheric Science is down by 1.6 percent in the President’s Request. I urge the Subcommittee to fund Atmospheric Chemistry and Carbon Cycle at a level that is consistent with the request for Climate Change Research.

Advanced Scientific Computing Research (ASCR)

Within DOE’s Office of Science, the Advanced Scientific Computing Research program provides advances in computer science and the development of specialized software tools that are necessary to research the major scientific questions being addressed by the Office of Science. ASCR’s continued progress is of particular importance to atmospheric scientists involved with complex climate model development, research that takes enormous amounts of computing power. By their very nature, problems dealing with the interaction of the earth’s systems and global climate change cannot be solved by traditional laboratory approaches. The Intergovernmental Panel on Climate Change (IPCC) is drafting its Fourth Assessment Report to be completed in 2007, and ASCR’s contribution to this international document is critical. Yet ASCR is proposed to be cut in the FY06 request by 11 percent, from the FY05 level of $234 million for the FY06 request of $207.1 million.
The proposed ASCR cut eliminates one particularly important component of ASCR – the National Collaboratories program. This program develops, integrates and deploys a wide range of software tools that enable geographically-distributed research teams to work together effectively and that facilitate remote access to both facilities and data resources. Researchers from industry, academia and national labs, through this program, share access to facilities, large datasets and environments, support the frequent interactions needed to address complex problems, and speed up discovery and innovation. The National Collaboratories Program has accomplished much in scientific computing in its short history. One example is the establishment of the Earth System Grid, an on-line repository of climate data providing over 100 terabytes of climate data to the U.S. climate research community. The program and its predecessors have produced the innovations that underpin the emerging major grid computing market that is expected to reach a value of $10 billion by 2007.

In order to maintain our international leadership in supercomputing, I urge the Subcommittee to provide ASCR with the FY 2005 level of $234 million (this number does not reflect the rescission), and to direct DOE’s Office of Advanced Scientific Computing Research to restore full funding for the National Collaboratories program, an economic engine for U.S. competitiveness.

Conclusion

A recent report by the Task Force on the Future of American Innovation states, "For more than half a century, the United States has led the world in scientific discovery and innovation.... However, in today's rapidly evolving competitive world, the United States can no longer take its supremacy for granted. Nations from Europe to Eastern Asia are on a fast track to pass the United States in scientific excellence and technological innovation." DOE plays an important role in sustaining U.S. scientific leadership. On behalf of UCAR and the atmospheric sciences research community, I want to thank the Subcommittee for the important work you do for U.S. scientific research. We appreciate your attention to the recommendations of our community concerning the FY 2006 budget of the Department of Energy. We understand and appreciate that the nation is undergoing significant budget pressures at this time, but a strong nation in the future depends on the investments we make in science and technology today.