



Because the pathway to sustainability cannot be charted in advance, it will have to be navigated through trial and error and conscious experimentation. The urgent need is to design strategies and institutions that can better integrate incomplete knowledge with experimental action into programs of adaptive management and social learning.

The Guiding Vision of NCAR's Institute for the Study of Society and Environment from Our Common Journey, National Research Council, 1999

non-governmental organizations, and policy makers. NCAR's climate scientists are among the best in the world and can contribute significant contextual work to the Firor-Jacobsen Fellows. The Community Climate System Model (CCSM) produced at NCAR is a world-renowned global climate model that provides state-of-the-art computer simulations of the Earth's past, present, and future climate states. The Intergovernmental Panel on Climate Change, an international body of climate scientists that produces reports upon which policy decisions about climate change are based, is using CCSM model results.

The combination of NCAR's climate scientists and the physical and social scientists of NCAR's Institute for the Study of Society and Environment (ISSE—the divisional host for the Firor-Jacobsen Fellow), provides a powerful opportunity for collaborative work with Firor-Jacobsen Fellows. ISSE is a newly formed institute at NCAR that provides a catalyst for the integration of natural science and social science—of research results and the import of these results for societal problems. The focus of ISSE's activity is to study and illuminate the relevance of coupled natural and human interactions within the Earth system, issues that cannot be addressed through physical science alone. ISSE's grand challenge is to understand the science of societal-environment interactions and to discover

how such knowledge might be useful to society in its quest to navigate a transition to a sustainable world—a world where human resource consumption and the natural world exist in balance.

Bringing interdisciplinary science to bear on societal issues requires new approaches for understanding the context in which information is used and forging new ways in which to apply this information to societal problems. The work of the Firor-Jacobsen Fellow will be at the center of these groundbreaking efforts. And the Firor-Jacobsen Fellow will contribute to a new generation of leaders able to conceptualize solutions to the dilemmas of the world and articulate those solutions to policy makers.



The John W. Firor and Judith E. Jacobsen

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POSTDOCTORAL FELLOW

at the National Center
for Atmospheric Research

The John W. Firor and Judith E. Jacobsen Postdoctoral Fellow will be a permanently endowed position at the National Center for Atmospheric Research (NCAR) established to further the extraordinary accomplishments and vision of John William Firor and Judith Eva Jacobsen toward global sustainability. The Fellow will honor Dr. Firor's lifelong achievements in the atmospheric sciences, solar physics, science policy, and the public understanding of climate change, and Dr. Jacobsen's internationally renowned work in world population trends and policy.

John and Judy cared deeply about making the world a better place and worked tirelessly to solve the problems besetting humankind. First independently and then together during their marriage, they demonstrated constantly the moral courage of their convictions through their writings, their work with non-governmental organizations, and their public speaking. Their scholarship, cut far too short by Judy's untimely death in 2004, was an alliance of two brilliant minds working together in an interdisciplinary partnership to convince fellow citizens of the dangers facing the world and to spur us all to act. The societal value of their work is illustrated well in their widely acclaimed book of 2002, *The Crowded Greenhouse: Population, Climate Change, and Creating a Sustainable World*, in which hope, optimism, and inspiration are the fuel they offer readers to tackle the seemingly insurmountable and intertwined problems of rapid world population growth and human-induced global warming caused by emissions. The work of the Firor-Jacobsen Postdoctoral Fellow will focus at the interface of these two fundamental issues.

Parameters of the Fellow Position

The Firor-Jacobsen Fellow will be the first endowed postdoctoral fellowship at NCAR. Firor-Jacobsen Fellows will work within NCAR's Institute for the Study of Society and Environment (ISSE), collaborating with ISSE scientists and other experts from the broad scientific and policy communities, but designing and conducting their own research projects.

The primary goals of the fellowship are to advance the careers of extraordinarily promising Ph.D. or Doctor of Science graduates, to advance research and/or policy work at the interdisciplinary intersection of the fields of climate science and population theory, and to develop scientists capable of communicating effectively the relevance of their work to public policy. All candidates chosen to be Firor-Jacobsen Fellows will have

demonstrated creativity, leadership skills, the ability to think in an integrative and broad manner, and the skill to communicate with the public and decision-makers. During their fellowship, they will be expected to participate in policy fora and occasional seminars. At the end of their two-year terms as Fellows, they will be expected to articulate their work through the Firor-Jacobsen Lecture at NCAR and on Capitol Hill in Washington, D.C.

Population and Climate Change—Issues to be Addressed

The enormous problems at the interface of population and climate change are explained succinctly by Drs. Firor and Jacobsen in *The Crowded Greenhouse*:

"One of the mechanical ways in which population and climate change interact is, obviously, human consumption of fossil fuels. Without reducing dramatically

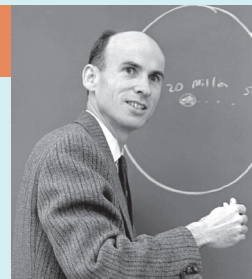
the amount of fossil fuel that each person uses, continued population growth accelerates climate change...[E]very time per-capita emissions rise, the negative impact of each person on the climate is multiplied.

"The causation arrows point in the opposite direction, too: climate change can amplify troubles faced by rapidly growing populations. Changes in the climate can make food production and economic development more difficult, by producing damaging floods and changing other environmental conditions important to human activities, and by forcing people from their homes and livelihoods through sea-level rise."

John and Judy argue that two revolutions are necessary to achieve a stable population and freedom from human-induced climate change: a social revolution that improves equity, particularly the status of women, and a technical revolution that yields vastly greater efficiency in energy and materials use than we have today. They offer a vision that incorporates these changes, and they urge professionals to work to achieve them. It is the ranks of these professionals that the Firor-Jacobsen Fellows will join in the quest to answer the grand dilemma and challenge posed in the book: "...how to meet the needs of ever more people ever more generously, with a limited, even deteriorating, base of physical resources."

National Center for Atmospheric Research (NCAR)

NCAR is uniquely suited to host the Firor-Jacobsen Fellow given Drs. Firor and Jacobsen's long association with the institution, and because of NCAR's broad basic and applied research capabilities; its strong ties to federal agencies and to the university community through its parent body, the University Corporation for Atmospheric Research; and its significant interactions with professional associations,

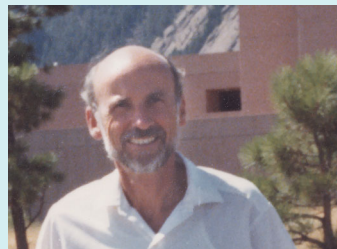


John William Firor

John Firor is an internationally recognized expert on public policy issues relating to the atmospheric sciences, including climate change and sustainable development. He is a physicist by training whose scientific research led him into high-energy astrophysics and radio astronomy with a side trip into seismology and continental structure. John is the prolific author of articles on solar magnetism, cosmic radiation, and solar flares. Perhaps his most influential contributions as a writer have come from his articles and books on global climate change. In addition to many scientific and policy-related articles on the subject, he authored the 1990 book, *The Changing Atmosphere*, which addresses global ecology and the interlinking of the issues of acid rain, ozone depletion, and global warming. For the past several decades, John has traveled the world talking to audiences about global problems that are seemingly insurmountable, yet he manages to communicate a positive message that radiates faith in humanity and our ultimate capacity to create solutions to address the most pressing issues of our time.

From the earliest days of its history over four decades ago, John has been instrumental in shaping and guiding NCAR in Boulder, Colorado. One of the first people recruited by founding NCAR director, Walter Orr Roberts, John was responsible for the creation and development of NCAR's Advanced Study Program, the highly respected graduate and post-graduate program that prepares young scientists for careers in the atmospheric sciences and that will administer the competition among candidates for the Firor-Jacobsen Fellow. He directed the High Altitude Observatory, the NCAR division that studies the effects of solar variability on the Earth. Succeeding Walt Roberts, John became the second director of the Center. He now holds the title of Director *Emeritus* as well as Senior Scientist in NCAR's Institute for the Study of Society and Environment.

Dr. Firor is an elected Fellow of both the American Meteorological Society and the American Association for the Advancement of Science. He has served on multiple boards and panels for federal agencies, academic journals, corporations, and international delegations. He was a long-time trustee of the World Resources Institute and continues as a long-time board member for Environmental Defense (formerly the Environmental Defense Fund). As the Walter Orr Roberts Distinguished Lecturer of 1999, Dr. Firor commented on advice he was given years ago as a young man—that to be a good scientist, one must love this Earth. "From that love, I now believe, we all must not only gain inspiration to work hard on understanding the Earth and universe, we should also accept the responsibility for protecting that Earth as well." He has lived by these words.



Judith Eva Jacobsen

Judy Jacobsen's career reflected and tracked closely the unfolding history of human problems nationally and internationally over the past 30 years, making her influential in some of the most important social policy developments of our time. Following law school, she worked for the Worldwatch Institute identifying global trends in population and consumption for a worldwide audience. Wanting to help actively with the problems she was addressing on paper, she went to the Agency for International Development (AID) and worked on family planning in Africa, developing a population policy for Nigeria and calling for training and family planning services in that continent's most populous and rapidly growing country.

While earning a doctorate in geography once she returned from Africa, Judy developed expertise in western U.S. problems, contributing greatly to the quantification of Indian water rights. As a faculty member at the University of Wyoming, Judy integrated the intricacies of climate change into her work and applied them to shape her evolving population theories. She was proud of being named "Top Prof" by her students.

Judy was president of the non-governmental organization, Zero Population Growth, leading it through a difficult time of transition. Her participation in Cairo at the 1994 United Nations International Conference on Population and Development was influential in reaching historic agreements. Her leadership of the Population and Consumption Task Force for President Clinton's Commission on Sustainable Development resulted in a coherent, compelling, and influential report on this seemingly intractable subject matter. By the time of her death, she had lived well the final words of *The*

Crowded Greenhouse, "[D]o what you must: reach deep, dig into your most profound beliefs about how the world works and how you fit into it, mourn the sorrows and the losses. And then get back to work, with joy."

