

William A. Reiners

Global Change: The View from Berlin



Born 10 June 1937, Chicago. 1959 B. A. in Biology, Knox College, Galesburg, Ill.; 1962 M. S. and 1964 Ph. D. in Botany, Rutgers University, New Brunswick, N. J. Presently Professor of Botany at the University of Wyoming. Interests: ecology, changes in structure and function of terrestrial ecosystems in space and time, biogeochemistry of terrestrial ecosystems, history and interpretation of ecological concepts. Activities: teaching, research on biogenic trace efflux from tropical soils, effects of land use change on trace gas efflux; research on use of remote sensing to identify land surface types in cold deserts in order to facilitate climate dynamics models; research on reorganization of a forest ecosystem clear-felled in 1965; research on effects of acid treatment on soil chemical properties. — Address: University of Wyoming, Department of Botany, P. O. Box 3165, Aven Nelson Building, Laramie, Wyoming 82071, USA.

My position at the Wissenschaftskolleg was different from that of most of the Fellows in that I participated with a group of three to five other Fellows in the planning and formulation of research projects on global change. This arrangement was established through an agreement with the Kolleg and the *International Geosphere-Biosphere Programme* (IGBP). My term as a Fellow extended from October through April when our roles in the planning and writing phase of IGBP came to a close. It is important to make this distinction in mission and length of term to understand the nature of my accomplishments.

My particular role in IGBP was to help plan a research program on the response of terrestrial ecosystems to global change. By "terrestrial ecosystems" we mean integrated land "systems" composed of interacting soil, vegetation, microbes, animals, climate and people. "Global change" is operationally defined to mean change in climate, carbon dioxide concentration in the atmosphere, and land use. The planning document resulting from this effort actually was a culmination of a series of

workshops held in Woods Hole, Brussels and Canberra before the Kolleg term began, one month of collaboration with the IGBP panel chairperson on this project in Canberra during January, and another workshop in Cambridge in February. In addition, this process involved much interaction with IGBP Fellows at the Kolleg and with other scientists worldwide. Thus, the resulting document is very much a product of a substantial subset of the global, scientific community.

More interesting for me than this preestablished mission, was the emergence of a major complex of issues that had not been previously addressed by IGBP-global change in the coastal zone. In developing the terrestrial project, I came to recognize the potential for changes in erosion on land and consequent sedimentation in river valleys and the coastal zone.

Meanwhile, marine scientists in IGBP were recognizing the importance of change in sediment and nutrient delivery from land to coastal zones and how it might be confounded by change in size and frequency of storms, tides and currents and sea level. At a major IGBP Special Committee meeting held at the Kolleg in November, I took on the new task of organizing and developing a planning document for „land-sea interactions in the coastal zone". This led to my participation in a related meeting organized by the Netherlands national IGBP and part of a fortuitously timely Dahlem Konferenz on this topic here in Berlin, my organization of a workshop in London and a very satisfying, subsequent collaboration with an English colleague towards the development of that document. In my opinion, that document both addresses more issues of immediate importance to mankind and outlines a better research plan than does the document on terrestrial ecosystem responses.

Other activities should be mentioned briefly as they represent the kind of background necessities of life in the natural sciences. One is directly related to the Kolleg and IGBP. That is the production of a textbook on global change to be coauthored by IGBP Fellows, a project being led by Harold Schiff. Another writing project is the development of a review paper on global change and coastal ecosystems with my English colleague noted above. Also, through the year I agreed to present two major perspective presentations for the 75th anniversary meeting of the Ecological Society of America to be held next summer. One topic is predicting vegetation change — a topic related to IGBP work. The other topic is on historical changes in concepts and questions on primary production — the fixation of solar energy to biochemical energy. Work on these required material preparation at the Kolleg including a computerbased literature search by the Kolleg's highly professional library staff. Finally, I finished a major grant proposal to the U. S. National Science Foundation in De-

ember through remote control via the Kolleg's evolving electronic mail facilities, and contributed in a minor way to a major proposal to the U. S. NASA Earth Observation Programm through the National Center for Atmospheric Research in Boulder, Colorado.

In what ways did the Kolleg make a difference in my accomplishments for this year? Obviously the Kolleg liberated me from the normal activities of my professional life so that I had the opportunity to contribute toward extremely important and scientifically exciting issues. And clearly, Berlin proved to be a good location for international interactions. Less obvious in terms of the accomplishments listed above were the opportunities to indulge in the intellectual and personal fellowship of the Kolleg. This fellowship, together with the opportunity to experience the magnificent, and especially this year, exciting city of Berlin, were the most important aspects of this year to me. These experiences will have influences on me that cannot be measured or predicted at this time.

What of the future relationship with the Kolleg? I hope that the Kolleg will continue to contribute to questions and programs of global change in ways that exploit the particular attributes of the Kolleg and its location. These probably will involve questions requiring an opportunity to reflect among colleagues providing the widest perspective on man and nature. Other opportunities may include more action-oriented programs on the linkages between human values and behavior, social systems and the environment. However these may evolve, I cling to the hope that I may somehow participate in the life of the Kolleg again, perhaps in a way that will better exploit my own scholarly capacity and potential interactions with this community of Fellows.