UPSCALING IN GLOBAL CHANGE RESEARCH

Guest Editorial

This special issue contains a collection of papers that are an outgrowth of a session of the *Aspen Global Change Institute* entitled "Scaling from Site-Specific Observations to Global Model Grids", held during July 1997 in Aspen, Colorado. The Aspen Global Change Institute has been facilitating interdisciplinary workshops on scientific and policy questions related to global-scale environmental change since 1989. The complete set of papers presented at the workshop can be found in the 1997 edition of the annual institute report, *Elements of Change*. The papers presented in this special issue of *Climatic Change* represent an elaboration and update of a subset of the papers presented in the annual report and discussed at the 1997 workshop.

This special issue begins with an overview paper by myself which discusses issues of upscaling in the full spectrum of disciplines involved in global change research. Upscaling problems are identified in terms of their fundamental causes, and are classified in terms of the solutions developed. The remaining papers discuss in greater depth the upscaling problems in selected disciplines, ranging from the biological sciences (papers by Harold Bugmann and Gary Peterson), the climatic response to deforestation (a paper by Karen O'Brien), demography (a paper by Myron Gutman), the economics of global warming (papers by Chris Green and Dale Rothman), and finishing with political science (a paper by Detlef Sprinz).

Upscaling is required in some way or other in all of the disciplines involved in global change research. Oftentimes, different upscaling problems arise within the same discipline, but for fundamentally different reasons and with different solutions. Across disciplines, one often finds conceptual similarities in the kinds of upscaling problems that arise. Because of the pervasiveness of upscaling problems across and within disciplines, an examination of upscaling problems in other disciplines by practitioners of any given discipline ought to held useful insights for all disciplines involved. This was the rationale behind the 1997 workshop, and is the rationale behind this special issue of *Climatic Change*.

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