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Editors

Challenges of a Changing Earth

Proceedings of the
Global Change Open Science Conference,
Amsterdam, The Netherlands,
10–13 July 2001




Springer

Will Steffen · Jill Jäger · David J. Carson · Clare Bradshaw (Eds.)

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With 101 Figures and 7 Tables

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Preface

This volume is based on plenary presentations from Challenges of a Changing Earth, a Global Change Open Science Conference held in Amsterdam, The Netherlands, in July 2001. The meeting brought together about 1 400 scientists from 105 countries around the world to describe, discuss and debate the latest scientific understanding of natural and human-driven changes to our planet. It examined the effects of these changes on our societies and our lives, and explored what the future might hold.

The presentations drew upon global change science from an exceptionally wide range of disciplines and approaches. Issues of societal importance – the food system, air quality, the carbon cycle, and water resources – were highlighted from both policy and science perspectives. Many of the talks presented the exciting scientific advances of the past decade of international research on global change. Several challenged the scientific community in the future. What are the visionary and creative new approaches needed for studying a complex planetary system in which human activities are intimately interwoven with natural processes?

This volume aims to capture the timeliness and excitement of the science presented in Amsterdam. The plenary speakers were given a daunting task: to reproduce their presentations in a way that delivers their scientific messages accurately and in sufficient detail but at the same time reaches a very broad audience well beyond their own disciplines. Furthermore, they were required to do this in just a few pages. The result, contained in the following pages, is impressive.

The science presented in this volume relies, in large part, on research carried out under the auspices of the three international global change programmes that sponsored the Global Change Open Science Conference – IGBP (International Geosphere-Biosphere Programme), IHDP (International Human Dimensions Programme on Global Environmental Change) and WCRP (World Climate Research Programme) – and on DIVERSITAS, an international programme of biodiversity science. We thank the thousands of scientists around the world who contribute to these programmes and thus provide the rich array of research that forms the basis for our improved understanding of global change.

Several people provided invaluable assistance in the preparation of this volume. Susannah Eliott inspired us with the original idea for the book and encouraged us to proceed, John Bellamy transformed many of the figures into publication quality, Paola Fastmark carried out some of the initial editing of the manuscripts, and Luisa Tonarelli provided much help and advice on the technical production of the volume.

Without the financial support to the Global Change Open Science Conference itself, this book would not have been possible. We are most grateful to the following agencies and organisations for their support: The Netherlands Organization for Scientific Research (NWO), The Dutch Ministry of Education, Culture and Science, The Netherlands National Programme on Global Air Pollution and Climate Change, The Royal Netherlands Academy of Arts and Sciences, the US Global Change Research Program, the European Commission, the UK Natural Environment Research Council, the Natural Sciences and Engineering Research Council of Canada, the Climate

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