

# CLIMATE CHANGE 1995

## The Science of Climate Change



Contribution of Working Group I  
to the Second Assessment Report of the  
Intergovernmental Panel on Climate Change



# Climate Change 1995

## The Science of Climate Change

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The Intergovernmental Panel on Climate Change (IPCC) was set up jointly by the World Meteorological Organisation and the United Nations Environment Programme to provide an authoritative international statement of scientific opinion on climate change. The IPCC's periodic assessments of the causes, impacts and possible response strategies to climate change are the most comprehensive and up-to-date reports on the subject available. These assessments form the standard scientific reference for all concerned with climate change and its consequences, in academia, government and industry worldwide. Through three working groups, several hundred international scientists have been brought together to assess climate change in this Second Scientific Assessment. Each chapter in the resulting publications is written by teams of lead authors and contributors recognized internationally as experts in their field. During drafting, the chapters were exposed to extensive review by many other independent experts. This volume, *The Science of Climate Change*, is companion to two other volumes from the IPCC produced under the umbrella title *Climate Change 1995* and also published by Cambridge University Press:

*Climate Change 1995 – Impacts, Adaptations and Mitigation of Climate Change: Scientific-Technical Analyses*

*Contribution of Working Group II to the Second Assessment Report of the Intergovernmental Panel on Climate Change*

Editors: R.T. Watson, M.C. Zinyowera, and R.H. Moss. (ISBN 0 521 56431 X Hardback; 0 521 56437 9 Paperback)

*Climate Change 1995 – Economic and Social Dimensions of Climate Change*

*Contribution of Working Group III to the Second Assessment Report of the Intergovernmental Panel on Climate Change*

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*Climate Change 1995 – The Science of Climate Change* is the most comprehensive and up-to-date assessment available of current scientific understanding of human influences on past, present and future climate. The IPCC prepared its first comprehensive assessment report in 1990, with subsequent supplementary reports in 1992 and 1994. *Climate Change 1995* is the first full sequel to the original assessment.

The report includes:

- an overview of the factors governing climate and climate change;
- quantification of the sources of the globally important greenhouse gasses and other pollutants arising from human activities, and a review of the chemical and biological processes governing their removal from the atmosphere;
- analyses of data on climates of the distant past, and an assessment of recent trends in climate during the industrial era, which has witnessed the ever-growing impact of human activities on the global environment;
- assessment of the strengths and weaknesses of the various mathematical models of climate used by today's researchers for understanding past and present climate, and for calculating possible future climates;
- discussion of recent research aimed at the detection of a human influence on the climate of the last century;
- projections of possible future changes in global climate and sea-level, based on a range of scenarios of future emissions of pollutants from human activity;
- a list of research and observational priorities needed to further improve scientific understanding in key areas.

The IPCC reports represent the primary source of scientific and technical advice for the implementation of the UN Framework Convention on Climate Change. This assessment therefore forms the standard scientific reference for all those concerned with climate change and its consequences, including policy makers in governments and industry worldwide, and researchers and senior-level students in environmental science, meteorology, climatology, biology, ecology and atmospheric chemistry.

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