

## FOREWORD

This book represents the Proceedings of the International Specialty Conference, "*Acid Rain Research; do we have enough answers*", held for about 120 scientists from 15 countries 10 - 12 October 1994 in 's-Hertogenbosch in the Netherlands. The conference proved a valuable conclusion to the co-ordinated research on acidification in the Netherlands, lasting from the beginning of 1985 to the end of 1994. Directly following the conference, an international team of experts in the field reviewed the research of the third and last phase of the Dutch Priority Programme on Acidification. The main results of the first two phases including a scientific review were published in the Elsevier series on Studies in Environmental Sciences, no. 46 (Heij and Schneider, 1991), while the results of the third phase of the programme, including the review team's report, will also be published in the same series.

The Specialty Conference focused on:

Atmospheric deposition

Effects of acid deposition on forest ecosystems in the Netherlands

Future of acidification research.

Atmospheric deposition has been a major research issue in several national and international research programmes. The aim of the Dutch Priority Programme on Acidification in this field was to assess acid, nitrogen and base-cation deposition loads to forest and heathland, and to compare these loads with critical deposition values to determine exceedances. As the critical loads concept is applied to ecosystems, deposition fluxes must also be assessed at the ecosystem level. During the conference, special attention was given to the following subjects: *trace gases*, chaired by David Fowler (Institute of Terrestrial Ecology, UK); *ammonia*, chaired by Willem Asman (National Environmental Research Institute, Denmark) and *particle deposition*, chaired by Jan Willem Erisman (National Institute of Public Health and Environmental Protection, the Netherlands). Other topics, such as wet deposition, fog and cloud-water deposition, important for obtaining an overall assessment of deposition loads to ecosystems and soils, were discussed in a session on *generalisation* chaired by Bruce Hicks (National Oceanic and Atmospheric Administration, USA).

At the end of a long-term research programme the question usually arising is: Do we have enough answers, or are we generating new problems to keep our research going .....? Final results and conclusions of the Dutch research on forest stands and forest soils were presented and discussed in that light in a session chaired by Bert-Jan Heij (National Institute of Public Health and Environmental Protection, the Netherlands). The session on "*Future of acidification research*" on the last day of the conference brought up the question of whether present day knowledge and research trends have attracted sufficient support for decision-making purposes. This session was chaired by Ellis Cowling (College of Forest Resources, North Carolina State University, USA). Future acidification research has to be combined with research on other environmental topics, such as climate change, landuse changes or ecosystem dynamics, incorporating all relevant stress factors. A special session on these topics was chaired by Tomas Paces (Czech Geological Survey, Czech Republic).