

Preface

This special issue is devoted to contributions presented at the *International Conference on Atmospheric Carbon Dioxide, its Sources, Sinks and Global Transport*, that took place 2–6 September, 1985, in Kandersteg, Switzerland. The conference was supported by the International Commission on Atmospheric Chemistry and Global Pollution of IAMAP.

The agenda covered the following main subjects.

- Analysis of atmospheric CO₂ data, with emphasis on northern and southern hemisphere surface stations.
- Isotopic measurement of atmospheric CO₂.
- CO₂ measurements from air in ice cores.
- Terrestrial biospheric carbon cycle – data and modelling.
- Air-sea interaction in the global carbon cycle.
- Carbon cycle modelling – oceanic aspects of 3-dimensional atmospheric models.

39 papers were presented; 54 scientists from several continents participated. Besides the formal presentations, there was ample time for discussions.

CO₂ topics of continuing strong interest are the concentration changes in time on different time scales – day-to-day fluctuations connected to different air masses, seasonal variations in response to biospheric activity, interannual variations connected in a still poorly understood manner to the El Niño/Southern Oscillation phenomenon, and the anthropogenic increase about which analyses on ice cores have provided valuable information.

The existing CO₂ monitoring stations now cover the whole globe sufficiently well to permit a global analysis of CO₂ concentration data. A full exploitation of these data has begun, using 3-dimensional atmospheric models which simulate in a realistic way the various processes responsible for atmospheric CO₂ variations – atmospheric transport, fossil fuel burning, seasonal carbon release and uptake by land biota and air-sea exchange.

This special issue contains a number of papers presented at the Kandersteg Conference. Late papers will be published in regular issues of *Tellus B*.

The final 3 papers in this issue, also dealing with atmospheric CO₂, were presented at the Symposium: *CO₂ in the Ocean/Atmosphere System* at the IAMAP/IAPSO Joint Assembly in Honolulu, Hawaii, 5–16 August 1985.

C. D. Keeling U. Siegenthaler
Guest Editors of Tellus B