

Seventh International CO₂ Conference, Boulder, Colorado, 25–30 September 2005

The Seventh International Carbon Dioxide Conference was held from 25–30 September, 2005, in Boulder, Colorado, USA, and was hosted by the Climate Monitoring and Diagnostics Laboratory of the National Oceanic and Atmospheric Administration. This conference was one in a series of scientific conferences that have been held every four years, starting in 1981 in Bern, Switzerland. Starting with the second of these conferences, authors were requested to submit their papers to *Tellus Series B*, and a subset of the presentations has been published in special issues of *Tellus* after review. During the seventh conference there were 65 oral presentations and 304 poster presentations by over 400 participants from 25 countries.

During the past decade, public interest in the carbon cycle has intensified because the observed increase of atmospheric CO₂, mostly due to the burning of coal, oil and natural gas, is generally recognized as the major contributor to the forcing of climate change on earth. Our energy supply system and economy depend heavily on fossil carbon resources—those resources, in particular coal, are still enormous. If society continues to turn fossil carbon into atmospheric CO₂ by burning, climate forcing by this gas could become several times larger than it is today. The potential consequences of the associated physical and chemical changes for the ecological systems of our planet, and thus for ourselves, are profound. Further, because the development and implementation of an energy system that is free of carbon emissions will take decades, our society is already committed to significant additional increases in atmospheric CO₂. The evidence of climate change is becoming stronger every year, while the rate of atmospheric CO₂ increase appears to be accelerating.

The carbon cycle straddles the boundaries between many scientific disciplines, and the seventh conference, like the earlier ones, reflected that fact. The conference was not organized by scientific disciplines, but around the following five themes: The fate of fossil fuel emissions, Land use and the terrestrial carbon cycle, Carbon cycle response to environmental change, Impacts of high CO₂ on land and ocean ecosystems and Management of the carbon cycle.

The majority of the papers submitted after the seventh conference is presented in this issue of *Tellus*, while several additional papers will follow in 2007.

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