

## Preface

# Climate–biOsphere Interactions (CORE)

This issue is the special issue related to research activities in two different CORE projects: a national project connected to FIGARE program (project 47082) and an international project connected to EU 5<sup>th</sup> framework (project EVR1-CT1999-40009). Altogether in 14 different papers the recent scientific results are summarised involving different aspects on climate–biosphere interactions.

As known, the Intergovernmental Panel on Climate Change (IPCC) has given in its reports an estimation of the globally and annually averaged radiative forcing for direct and indirect contributions of greenhouse gases, direct and indirect aerosol effect and for natural changes in the solar output. Since each of these contributions reflects the integrated effects of various anthropogenic and biogenic pathways, a critical task is to describe the content of each contribution, its sources and reduce the error bars.

The objective of CORE projects was to produce results which reduce the errors in the present estimates of radiative forcing components. The other outstanding issue was to figure out how different components of radiative forcing will interact with each other. These are also our contribution to Global Climatic Change problem. We have focused on (I) variation of absolute CO<sub>2</sub> concentration, (II) fluxes of CO<sub>2</sub>, water vapour, heat and aerosols based on direct measurements, (III) direct and indirect aerosol forcing, formation of aerosols and atmospheric water vapor content, (IV) formation of cloud droplets and their optical properties and (V) importance of changes in solar activity. The work has been divided into studies and the development of numerical modelling, evaluation of existing data sets and field experiments.

This special issue is a compact demonstration of the power of continuous measurements combined with modelling and extensive field campaigns. Here a significant part of all CORE results are presented. We would like to thank all authors for their contribution and acknowledge the Academy of Finland and EU for their financial support.

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**Markku Kulmala and Timo Vesala**