PREFACE

Climate change is evidently affecting the whole biosphere, as already illustrated by hundreds of publications and research projects under the most important scientific organizations (EC, FAO, WMO, IPCC, etc.). Natural ecosystems, as well as human-made ones (agroecosystems) are changing so fast that planning the use of natural resources, both for development and protection, requires tools and technologies able to understand and take into account complex relations, at Regional and Global scale.

Moreover, these ecosystems and large natural areas do not have only a passive role in climate change issue, since they also play an active role in the emission and balance of greenhouse gasses (carbon dioxide, methane, nitrogen oxides, etc.). In particular is fundamental to determine the role of these ecosystems in areas such the South American Continent, due to the relevance of its natural resources, the mitigation and adaptation strategies may have global level repercussions.

To face such a problem, communication and experience sharing is needed between Research Groups from different Countries. Indeed, knowledge flow is a key to satisfy the need for supporting a sound and sustainable development, based on strong scientific results. This must be based on an interdisciplinary approach, integrating atmospheric physics, remote sensing, eco-physiology, modelling. Thus, very often the usual university backgrounds are not sufficient to work on these aspects.

This book describes the main results obtained within the Impact of Climate change On agricultural and Natural Ecosystems (ICONE) Project funded by the ALFA Programme of the EC. This project aims at strengthening the relations between the scientific communities from different Countries within Latin America and with European ones working on the same topics, beginning from seminars, students and researchers interchange, to help the development of common research ideas; within them, a special focus was given to trends and models at Regional and Global scale, for a general improvement of educational offer and academic activities between all the members of the Network.

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