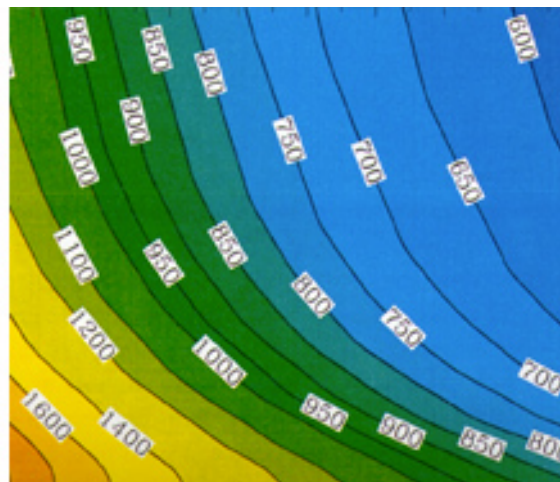
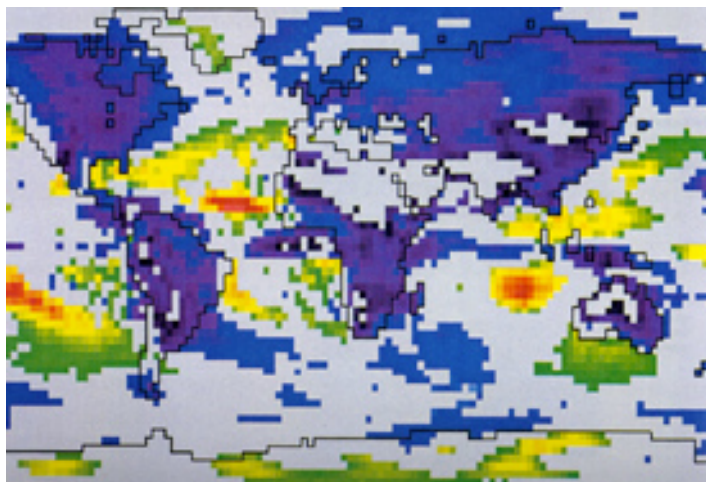




## Geosphere-Biosphere Interactions and Climate



**Working Group 9-13 November 1998** – From 9-13 November 1998 an important workshop was held at the Pontifical Academy of Sciences. This workshop on the subject of Geosphere-Biosphere Interactions and Climate was concerned with those environmental and climatic changes which may pose a threat to human society during the course of the next century. The general public knows about this subject in terms of the greenhouse effect, tropical deforestation, and a broad range of environmental problems. Human society has now reached a state where it might bring about changes in the conditions of human beings in ways which have never been experienced before.

This meeting of world experts at the Pontifical Academy of Sciences summarised our present-day knowledge about the subject and identified gaps in our understanding of how the earth's climate is affected by greenhouse gases, deforestation, and the circulation of the oceans. The carbon cycle was examined by the working group and the ability of the world's oceans and vegetation to absorb carbon dioxide was described and investigated by a number of advanced computer models.

The gathering also discussed an even more controversial and disturbing question. Several of those taking part in the meeting presented data and models which demonstrated that both the world's climate and the earth's life support system may be liable to abrupt and major changes during the course of the twenty-first century. The experts present were worried about this alarming possibility and were also concerned about our lack of understanding about what actually brings about drastic climatic change.

During his paper given on Thursday evening on the subject of the ozone hole, the Nobel prize winner Professor Paul Crutzen pointed out that the existence of the ozone hole had come as a surprise to the scientific community. He strongly urged that the scientific community should devote itself to studying and understanding abrupt and major climatic changes. Small and even neglected changes may be important, as indeed is the case with the ozone hole.

On the last day of the meeting a plenum discussion made clear that cutbacks in basic science in many countries was the wrong step to take at a time when basic research into the earth's life support system was so urgent. The workshop also stressed the need to involve scientists from developing countries in present-day research projects on the subject of global change. This is especially important because many of these countries are in the tropics where the consequences of climatic change and changes in vegetation will have their greatest impact.

The papers delivered at this conference, and the discussions which took place, will be published in book form as soon as possible.

L. Bengtsson and C.U. Hammer

### Participants

Prof. Nicola Cabibbo

Rev. Prof. Marcelo Sánchez Sorondo

Prof. Dr. Meinrat O. Andreae  
Prof. Lennart Bengtsson  
Prof. Dr. André L. Berger  
Prof. Wallace S. Broecker  
Prof. Vittorio M. Canuto  
Prof. Paul J. Crutzen  
Rev. Msgr. Renato Dardozzi  
Prof. Jean-Claude Duplessy  
Prof. Inez Y. Fung  
Prof. Hartmut Grassl  
Prof. Robin J. Grassland  
Prof. Claus U. Hammer  
Dr. Martin Heimann  
Prof. Raymond Hide

Dr. Jean Jouzel  
Prof. J. Kasting  
Prof. John E. Kutzbach  
Prof. Peter Liss  
Prof. Hans Oeschger  
Prof. William R. Peltier  
Prof. Dr. I. Colin Prentice  
Prof. Giampietro Puppi  
Dr. Stefan Rahmstorf  
Prof. Jorge L. Sarmiento  
Dr. David S. Schimel  
Prof. Stephen H. Schneider  
Dr. Will Steffen  
Prof. Thomas F. Stocker  
Dr. Pieter P. Tans  
Prof. Jürgen Willebrand