



The Abdus Salam
International Centre for Theoretical Physics


United Nations
Educational, Scientific
and Cultural Organization


International Atomic
Energy Agency

Workshop on the Interdisciplinary Science of Climate Changes: Basic Elements

12 March to 4 April 2007

Buenos Aires, Argentina

Co-sponsored by:
Geophysical Fluid Dynamics Laboratory/NOAA
NOAA Climate Program Office
Facultad de Ciencias Exactas de la Universidad de Buenos Aires

Introduction

Initial studies of global warming dealt mainly with the atmosphere, but today it is recognized that the climate system depends on interactions between the Earth's atmosphere, oceans, land surface, ice sheets and biosphere. Global warming will present different societal challenges in different parts of the world. What policies should we adopt to cope with global warming? How much confidence should we have in the scientific results that describe various scenarios corresponding to the most likely range of future conditions? Addressing these questions requires an understanding of the methods scientists use to predict climate changes. Of central importance is an integration of what, at present, are separate branches of the earth sciences: meteorology, oceanography, geology, biology, etc. This exciting development, known as Earth System Science, facilitates the study of a variety of unexplored phenomena that raises new issues.

Planning to face the threat of global warming requires detailed predictions of climate changes in different parts of the world. This will involve using an array of models, from the global to the regional scale, to explore various scenarios of change, and associated uncertainties. Indeed, there are many uncertainties in our estimates of the future behavior of the climate system. These range from uncertainties in our basic understanding of processes (e.g. clouds and precipitation), to errors and limitations in the representation of such processes in climate models.

To address these issues, a series of workshops on Climate Change will be presented on: biogeochemical cycles, the hydrological cycle, the role of the oceans, land surface, and cryosphere in the climate system, etc. This is the first workshop of the series and will focus on the "Basic Elements of Climate Change". In addition, there will be presentations on the "The Regional Impact of Climate Change" by participating scientists and students.



Programme

A series of lectures are scheduled for each of the following topics:

- **Models for Climate Change - *F. Giorgi***
- **The Chemistry of Greenhouse Gases - *H. Levy***
- **Mechanisms for Climate Variability and Change - *I. Orlanski***
- **The Role of the Oceans in Climate - *G. Philander***
- **Radiation and Climate Change - *V. Ramaswamy***

Students will be encouraged to complete small projects and report on them at the end of the workshop.

Participation

The workshop is mainly intended for young researchers and PhD students working in the areas of Physics, Chemistry, Atmospheric Physics and Dynamics, Climatology and Oceanography, from countries in Africa and South America that are members of the United Nations, UNESCO or IAEA. The principal objective of the ICTP is to help researchers from developing countries through a programme of training activities within a framework of international cooperation. Participants should have an adequate working knowledge of English. Due to budget limitations, every effort should be made by candidates to secure either total or partial support for their expenses. However, limited funds are available for some participants who are nationals of, and working in, developing countries, and who are not more than 45 years old. Participants are required to take part in all aspects of this activity for its entire duration. There is no registration fee.

The **Application Form** is available at: <http://agenda.ictp.it/smr.php?1877>

Applications should be sent via e-mail, fax or post, to arrive no later than 30 November 2006, to:

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