



The Abdus Salam
International Centre for Theoretical Physics



School and Conference on

"*the General Circulation of the Atmosphere and Oceans: a Modern Perspective*"

July 11 - 15, 2011

ICTP-Trieste, Italy

The Abdus Salam International Centre for Theoretical Physics (ICTP) in joint collaboration with the Center for Ocean-Land-Atmosphere Studies (COLA, USA) is organizing the School and Conference on "*the General Circulation of the Atmosphere and Oceans: a Modern Perspective*", to take place from July 11 - 15, 2011.

The aim of this activity is to comprehensively review current understanding of the nature and theory of the general circulation of the atmosphere and oceans on a wide range of space and time scales. **The School** will concentrate on both fundamental theories of the circulations, as well as on understanding and using the wealth of modern observational and reanalysis data sets of the atmosphere and oceans. **The Conference** will highlight current research questions on the mean and variability of the general circulation.

Recent efforts at reanalysis of the atmosphere and oceans at a number of institutions around the world has allowed for the incorporation of both historical and modern observational data sets into the predictive framework of state-of-the-art numerical models. The multiplicity of these efforts can be used to better understand what is known firmly about the variability of the climate system (on time scales from hourly to centennial) and what is still unknown. This will be the focus of the Conference. Research topics and questions of interest may include:

- Quantitative examination of the mass, salt, and heat transports that maintain the ocean mean state through the horizontal and overturning circulation processes;
- Understanding of the relationship of the ocean circulation to the surface momentum, heat, and freshwater exchange with the atmosphere;
- How well can we measure the Brewer-Dobson stratospheric circulation? How does it impact tropospheric weather and climate?;
- New diagnostics for the analysis of extratropical circulation based on isentropic and potential vorticity coordinates; application to high-resolution simulations;
- What is the nature of the "background" (i.e. beyond the Madden-Julian Oscillation) planetary wave variability in the tropics?;
- What are the causes of the mid-winter suppression of baroclinic instability in the Northern Hemisphere?

Students in the School will benefit from "**hands-on**" training in diagnosis of the reanalysis, formulation of research hypotheses, and comparison to modern theories. They will have a unique opportunity to access multiple large reanalysis data sets, and to learn how the global circulation interacts with regional climate and weather of local practical concern.

PARTICIPATION:

Scientists and students from all countries that are members of the United Nations, UNESCO or IAEA may attend the School. As it will be conducted in English, participants should have an adequate working knowledge of this language. As a rule, travel and subsistence expenses of the participants should be borne by the home institution. However, limited funds are available for some participants, who are working in the region and not more than 45 years of age. There is no registration fee.

APPLICATION:

The "On-line Application" form can be accessed at the:
ICTP activity website: <http://agenda.ictp.it/smr.php?2250>
inclusive of a **step-by-step instruction guide**.

ACTIVITY SECRETARIAT

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Confirmed Speakers Include

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Confirmed Teachers Include

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Application Deadline:

May 15, 2011

ICTP Home page: <http://www.ictp.it/>
COLA Home Page: <http://www.iges.org/cola.html>