

Session 2

The Challenge of Climate Science

Antonio NAVARRA

Director, Euro-Mediterranean Centre for Climate Changes, Italy

Abstract

The problem of climate change is becoming one of the great historical problems of our era. Climate change has a global reach and a pervasive influence on all sectors of our society. It is a threat to economical well-being, to an equilibrated and sustainable path to development for emerging economies and to the equilibrium of the mature economies. The recently acquired capability of mankind to change our environment is posing unprecedented issues for complexity and outreach.

Climate change is also strongly science-based. The base for this debate is rooted in sophisticated scientific arguments derived by using advanced numerical methods and techniques. This fact poses a special responsibility on the climate scientific community: we have to respond to society demands for information that has to be accurate, honest and timely, that is what we mean when we ask for scientific information.

But we can easily convince ourselves of the extreme complexity of the climate system, a system that contains unknown or poorly known processes, strong nonlinear interactions that enhance sensitivity to small perturbation. How is it possible a quantitative scientific consideration of such a system? This is the great challenge that climate science is facing today, to obtain a scientific method that will produce assessments that will be reliable, consistent and quantitative. The main tools to respond to this challenge are the numerical circulation models of climate. The numerical approach to climate will be presented with a review of recent results and a critical assessment of its potential and limitations.

Antonio NAVARRA

Director, Euro-Mediterranean Centre for Climate Changes, Italy

Academic Degree

1986 Ph. D. Princeton University

Field of Study

Geophysical Fluid Dynamics

