

Introduction

This Seminar is part of the Centre's educational programme and is aimed mainly at young post-graduate / post-doctorate scientists in ECMWF Member States. In ECMWF's twenty year existence, this is the third annual ECMWF Seminar fully devoted to the physical parametrizations, after those held in 1977 and 1985.

The purpose of this year's seminar was to provide an up-to-date review of the representation of the physical processes in general circulation models of the atmosphere. Past experience had taught us that such a review ran the risk of considering the physical processes one after the other, without much consideration of the global interactive picture. In an attempt to avoid this, the Seminar was scheduled to start with a talk addressing the necessity of defining physical parametrizations as a whole with due respect to consistency in a number of parametrization principles. Likewise, the Seminar finished with talks presenting some of the state-of-the-art physical parametrization packages following these parametrization principles and their consistent, interactive nature.

The main part of the Seminar followed a more usual pattern with sessions addressing the individual physical processes. However, for each of these different processes, the speakers were asked to explicitly address the following topics that were thought to be important for the representation of these physical processes in a large-scale model of the atmosphere:

- what is the significance of the individual process and its role in organizing the atmospheric general circulation?,
- what observations of processes are available now or in the near future that can be of help in guidance and verification, on various temporal and spatial scales?
- what is the present state-of-the-art in the parametrization schemes for this physical process?

We are deeply indebted to all the speakers who have very successfully complied with our wishes regarding the organization of the talks.

We are also grateful to the speakers and participants for their contributions, both written and oral, that ensured a lively and instructive Seminar. We hope that the present proceedings will convey some of the spirit of the week to a wider audience in the Member States and beyond.