INTRODUCTION

There have recently been significant developments in numerical techniques for use in atmospheric models used for weather prediction and climate studies. Particularly worthy of mention is the semi-Lagrangian method which enables more efficient model integrations and offers potential benefit in the treatment of the humidity field and other variables through use of shape-preserving interpolation. The move of global models towards higher resolution has prompted renewed interest in the comparison of spectral, finite-difference and finite-element techniques.

Therefore, it seemed appropriate to devote the annual ECMWF seminar to the numerical methods for atmospheric models in order to provide an up-to-date review which should benefit both the Centre and the Member States.

The seminar covered the following topics:

- Horizontal and vertical discretizations: spectral, finite difference and finite element methods adaptive grids;
- Time discretization, including semi-Lagrangian methods;
- Coordinate systems and boundary conditions;
- Numerics for physical parametrizations;
- Numerical aspects of variational methods;
- Practical experience of numerical formulations in NWP.