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Introduction

Since the last ECMWF workshop on Ocean Wave Forecasting held in 2001, the quality of wind and wave forecasts has steadily improved following advances in many aspects of the atmosphere and wave models. Wave forecast products are now truly part of the standard set of parameters a marine forecaster will analyse when preparing a forecast. Better forecast guidance is now issued, including warning about dangerous sea states.

It is now recognised that the waves are truly the interface between the atmosphere and the ocean. Modelling efforts are under way, at ECMWF as well as elsewhere to include ocean waves as an active component between the atmosphere and the oceans, leading to more fully coupled system for air and oceans (water and ice). As far as the waves are concerned, different scales are inherently present with fairly uniform wave fields in the open oceans to rapidly changing wave conditions near coasts and strong surface currents. A truly global operational system should be able to tackle these different scales. Recent field campaigns and theoretical developments have shown that the parameterisations for the different wave model input source terms might need revision, even more so with the modelling development of fully multi scale integrated systems for air and oceans. All these issues are very relevant to ECMWF.

The workshop followed the usual format of invited lectures and discussions in working groups and concluded with a plenary session. Groups were set up to consider issues involving waves in modelling, physics and data usage. ECMWF is at the forefront of research on these different aspects and with this workshop, it has received advice from the wider community on future avenues in research and developments. The discussions and recommendations of these groups are summarised in the following three reports. It is followed by a collection of the papers, the invited speakers were asked to provide, reflecting their presentation and thoughts on the different topics covered by the workshop.

ECMWF thanks all the participants for contributing to a successful and exciting workshop.

