

The usage of Scatterometer data at ECMWF

*Hans Hersbach and Peter Janssen,
European Centre for Medium-Range Weather Forecasts (ECMWF)
Shinfield Park, Reading RG2 9AX, United Kingdom
e-mail: Hans.Hersbach@ecmwf.int*

At the European Centre for Medium-Range Weather Forecasts (ECMWF) scatterometer winds have been assimilated in the operational integrated forecast and assimilation system from 30 January 1996 onwards. The four-dimensional variational assimilation system at ECMWF allows for a dynamically consistent use of observations.

Currently, data is used from the AMI scatterometer on-board the European Remote sensing Satellites ERS-2 (from June 1996 onwards), the SeaWinds instrument on-board QuikSCAT (from January 2002 onwards), and from the ASCAT instrument on the MetOp-A platform (from June 2007 onwards). Thanks to the different timing of ascending nodes of these three satellites, most areas on the globe are covered within a six-hour period.

Besides active assimilation, the characteristics of scatterometer data are routinely monitored and inter compared. An example of a collocation study involving ERS-2, ASCAT and QuikSCAT data will be presented.

Since September 2008 EUMETSAT disseminates an Advanced Retransmission Service (EARS) for ASCAT, which provides data in large parts of the Northern Hemisphere at a much improved timeliness. The impact of assimilation of this ASCAT data at ECMWF (in addition to the global service) will be discussed.

In variational data assimilation the comparison between observations and model is determined by the choice of an appropriate (model) observation operator. So far, for scatterometer data, (model) wind at a height of 10-metre has been used. An extension to an observation operator that acts on model neutral-equivalent wind, and on the relative motion with respect to the sea surface (to allow for the effect of ocean current) is discussed.