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Predicting weak winds

Haraldur Ólafsson
(haraldur68@gmail.com) Univ. Iceland & Icelandic Met. Office

The ability of a NWP system to predict very weak winds is explored. In general, 24 hours forecasts are very good, with errors usually less than 2 m/s. The largest errors of about 6 m/s are associated with mesoscale wind structures, and not errors in the boundary conditions. The most common of the mesoscale structures leading to wrong wind forecasts are either horizontal wind gradients in topographic flow patterns (shearlines at the edge of wakes) or convection with high temporal fluctuations of wind speed.