

Road stretch forecasting

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Due to increased resolution (5 km and finer) in the numerical weather prediction models, assimilation of satellite cloud related data on an hourly basis, and integration of measurements of road conditions from road maintenance vehicles allowed to improve quality and accuracy of road weather forecasting. The DMI-Road Weather Model (RWM) system uses these changes for operational forecasting of road conditions at more than 300 road stations of the Danish road network. Recently the focus has shifted to forecasting along the roads' stretches at short distances of 2 km or less.

A set of possible approaches to interpolate observations vs. modeled data at road stations is analyzed. The methods of the geometrical nearness and statistical methods based on weighted average are tested. The possibilities of methods using basic functions and methods of artificial neural networks are explored. Several different interpolation methods were tested and intercompared. At first, an "imaginary" road was used where all points along the road pathway were given by the existing road stations and represented different climatic and geographical conditions (i.e., Danish coastal vs. inland stations, different heights, etc.). At second, two existing relatively long segments of the Danish roads were selected and similar approaches were tested.

The output of road conditions forecasting for the month of February 2006 is evaluated. The main focus is on the night time forecasts, although the diurnal variability was also evaluated. The possibilities of thermal mapping data assimilation into RWM system and intercomparison with forecasted temperature values for several specific cases are discussed.