



DMI Road Weather Modelling System : Evaluation of Slippery Road Seasons

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The road weather forecasts done by the DMI Road Weather Modelling (RWM) system is an important operational product. After each season the evaluation of the performance of the Road Conditions Model (RCM) is conducted in order to continue further development and improvement of the system and model. This system uses as input the continuous observations from the synoptic weather and road stations of the Danish road network along with the meteorological output from the DMI-HIRLAM (High Resolution Limited Area Model) numerical weather prediction (NWP) model to produce 5 hour forecasts every hour. The data assimilation produces a model state at the forecast initial time and atmospheric input data which are modified by observations. These data force the RCM during the forecast.

For the last two - 2005-2006 and 2006-2007 - road weather seasons, the scores for 3 hour forecasts of the road surface temperature with an error of less than $\pm 1^{\circ}\text{C}$ is almost 80 and 83%, respectively, based on more than 635 and 259 thousand corresponding forecasts. For the last season, the overall seasonal averages of the bias and mean absolute error are 0.22°C and 0.74°C . It shows a slightly better performance of RCM compared with the season of 2005-2006, when the bias and mean absolute error were 0.31°C and 0.78°C , respectively. It was found that during the last two seasons, for the road surface temperature, the bias has changed from 0.31°C to 0.22°C , and the mean absolute error has been slightly decreased from 0.78°C to 0.74°C . For the air temperature, the bias has been improved from 0.15°C to -0.02°C , and the mean absolute error changed from 0.80°C to 0.77°C . For the dew point temperature, the bias has changed from 0.27°C to 0.33°C , and the mean absolute error remained the same of 0.86°C .