

COMET FHWA/NWS Collaborative Program.

**“Use of Road/Weather Information Systems in the Improvement of Nevada
Department of Transportation Operations and National Weather Service Forecasts
in the Complex Terrain of Western Nevada,”**

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Abstract

The main objectives of this study are 1) to improve the accuracy of the DOT pavement temperature forecast using the Vaisala Ice Break (VIB) model through improved model input; 2) to advance NWS operational mesoscale forecasts through improvement of the model's initial and boundary conditions; 3) to improve DOT operational decisions regarding snow and control operations; and 4) to develop a DOT public travelers forecast. These objectives will be achieved by using a high-resolution Mesoscale Model 5 in conjunction with an optimum data assimilation system that uses data from the DOT and NWS operational mesoscale networks. The improved input to the pavement model will include surface temperature, humidity, winds, cloudiness and precipitation fields as forecasted by the MM5 model. The MM5 model's initial conditions will be improved by using a pre-forecast Four-Dimensional Data Assimilation simulation with observational nudging utilizing DOT network data. This operational version of the MM5 model will be tested and evaluated in winter and the possible improvement of the pavement forecast will be estimated. The results obtained from this project could be a tool to improve other pavement models that can be used in guiding DOT operations.