

ISSUE: 04. WINTER SERVICE MANAGEMENT

SUB-ISSUE: Use of data

Session: 06/02/2014 (17:00 - 18:30 h) Poster: 07/02/2014 (09:00 - 11:00 h)

Room: A

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Presentation title:

HOLISTIC WINTER MAINTENANCE MODEL

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Summary:

From the road users point of view the main purpose of winter maintenance is providing a high level of accessibility and road friction at all times. Faced with a growing demand in winter maintenance quality the personnel is in a difficult situation to decide about treatment intervals as well as application rates and timing. With limited time for decision making during treatment cycles and fast changing environmental factors even expert drivers with vast experience might not be able to arrive at optimal decisions. Based on the combined efforts of all regional road authorities in Austria as well as ASFINAG and BMVIT a holistic model for winter maintenance was developed at the Vienna University of Technology. With this new model all relevant factors from temperatures, precipitation rate, type of de-icing agent, application rate and traffic volume as well as road surface condition can be accounted for. As a result it is both possible to calculate a resulting friction level based on any given application rate as well as timing and necessary application rate in order to provide a certain level of road friction in real-time. The model parameters have already been determined based on a series of partly new developed laboratory and field tests. Among these tests where high precision laser scans to determine road texture volume as well as film thickness tests and friction – measurements at various times during winter maintenance. Combining this model with already available information about traffic and road surface condition as well as weather now-casts a high resolution forecast of friction for very short road sections on the entire network of highways in Austria becomes feasible. The paper gives an overview of this holistic winter maintenance model together with selected findings from field and laboratory test as well as an application of these results.

