



Improved predictions of atmospheric icing in Norway

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Atmospheric icing of ground structures is a problem in cold climate locations such as Norway. During the 2013/2014 winter season two major power lines in southern Norway suffered severe damage due to ice loads exceeding their design values by two to three times. Better methods are needed to estimate the ice loads that affect various infrastructure, and better models are needed to improve the prediction of severe icing events. The Wind, Ice and Snow loads Impact on Infrastructure and the Natural Environment (WISLINE) project, was initiated to address this problem and to explore how a changing climate may affect the ice loads in Norway.

Creating better forecasts of icing requires a proper simulation of supercooled liquid water (SLW). Preliminary results show that the operational numerical weather prediction model (HARMONIE-AROME) at MET-Norway generates considerably lower values of SLW as compared with the WRF model when run with the Thompson microphysics scheme. Therefore, we are piecewise implementing specific processes found in the Thompson scheme into the AROME model and testing the resulting impacts to prediction of SLW and structural icing. Both idealized and real icing cases are carried out to test the newly modified AROME microphysics scheme. Besides conventional observations, a unique set of specialized instrumentation for icing measurements are used for validation. Initial results of this investigation will be presented at the conference.