



Finnish Icing Atlas – sensitivity of weather model parameters on icing.

Karoliina Hämäläinen

Finnish meteorological institute, Helsinki, Finland (karoliina.hamalainen@fmi.fi)

Need for renewable energy sources has been discussed much during past years. Also in the latest Energy Strategy the Finnish Government has recognized the wind energy to be one of the potential renewable energy source for Finland. This is why the Finnish Wind Atlas and Finnish Icing Atlas were ordered from Finnish meteorological Institute. The main motivation for these new Atlases was to provide a guidance for wind energy producers in order to determine where to invest new wind farms. Due to Finland's Northern location the risk of icing must be taken into account in planning face. Calculations of icing rate were made by using results of Numerical Weather Prediction (NWP) model AROME as an input to separate Icing-model. The Finnish Icing Atlas was published in the beginning of 2012. It was calculated by using the same meteorological dataset which were produced during Wind Atlas project, few years earlier (2009). Icing observation are not regularly observed at Finnish Meteorological Institute (FMI). Therefore, the verification of the icing model could not be done straightforward by comparing to observations. However, some icing observations from independent measurement campaigns were available for three different sites. To better understand how the icing model actually works and what might be its uncertainties, we performed series of sensitivity tests. Effects of wind speed, air temperature, liquid water content and cloud particle concentration to icing rate were tested. Each parameter was tested separately to be sure what are the effects of weather parameters to the system. Results are represented as hours of active and passive icing, with a threshold value of 10g/h and 10g, respectively, over standard cylinder described in ISO STANDARD 12494.