

P6 Simulation of meteorological fields for icing applications at the summit of Mount Washington

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Hazards related to in-cloud icing on aircraft and ground structures are important considerations for structural design, risk mitigation and operations. A variety of robust ice accretion algorithms exist for application dependent purposes; however, these algorithms are often dependent on reliable meteorological input data to be of use. This study investigates the potential for predicting meteorological parameters relevant to in-cloud icing episodes at ground level using the Weather Research and Forecasting (WRF) model. Model performance with regards to explicit simulation of super-cooled cloud liquid water content, cloud droplet diameter, temperature, and wind speed is evaluated against measurements collected at the summit of Mount Washington. Simulation sensitivity to horizontal grid resolution, cloud microphysics parameterization, and terrain height representation are also discussed. Results from the case studies analyzed provide guidance for model configuration for icing purposes and justification for further scientific investigation.