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Abstract

This study presents a detailed analysis of icing measurements from a cold climate site in Canada. The collected dataset provides a complete set of inlet boundary conditions suitable for the modelling of icing events, by for example, computational fluid dynamics. The study also attempts to quantify the uncertainties associated with the established inlet boundary conditions. Acknowledging this uncertainty is of importance, since the modelling of atmospheric icing is especially sensitive to these. To construct the dataset, effort was put in determining the icing specific atmospheric variables. In particular, two methods for retrieving the cloud liquid water content and the associated droplet size were used. Furthermore, ice growth was measured on a cup anemometer support arm during the icing event to provide an experimental comparison for ice modelling. From image analysis the ice growth was observed and a maximum ice thickness of 234.7 mm was found, this corresponds to an ice load of 6.49 kg/m. The resulting dataset can

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