

How sensitive is simulated icing to the treatment of cloud microphysics?

Kristjansson Jon Egill¹, Nygaard Bjørn Egil K., Mamen Jostein, Moi Rita,
Thompson Gregory

¹Department of Geosciences, University of Oslo
P.O.Box 1022 Blindern, N-0315 Oslo, Norway
+4722855813, jegill@geo.uio.no

Very little research has been done on aircraft icing in Norway, even though supercooled water and freezing drizzle are common over parts of Norway during the winter. In this study, we have investigated recent episodes of aircraft icing, combining model simulations and observations. In the first case, from October 1999, an aircraft taking off from Skien airport, SW of Oslo, surprisingly encountered severe icing at 3000 m elevation, causing a potentially dangerous situation. This area was on the east side of a high pressure zone, and no icing was predicted at the time. Results from simulations with different treatments of cloud microphysics will be shown and interpreted in terms of icing predictability. In another case from 14 December 2008, a shallow moist layer over a cold ground led to freezing drizzle over parts of SE Norway. Weather radar investigations show the evolution and structure of the drizzle. Model simulations focus on the ability of the model to reproduce the observed features, and how this depends on the treatment of cloud microphysics.