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## Airborne measurements of nucleation mode particles II: boreal forest nucleation events

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**Abstract.** Airborne measurements of nucleation mode aerosol concentrations during nucleation events over the boreal forest of southern Finland are reported. Three case studies are analyzed in an attempt to characterise the spatial scales over which these events occur and to identify the source region for particle production. For the cases presented, there is no evidence of nucleation mode particles in the Free Troposphere. Nucleation mode particles are first detected in the surface layer as the nocturnal inversion breaks up and develops into the current-day's new boundary layer. In terms of spatial variability, significant variability in the concentration of nucleation mode particles was observed and was attributed to changes in the topography which comprised a mix of forest canopy and frozen lakes. Measurements over the Gulf of Bothnia indicated no nucleation mode over the sea and confirm that the scale of the events is associated with the boreal forest scale and that the new particles are produced directly above the forest canopy.

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