

Modeling the wind disturbance in the land surface model ORCHIDEE

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Earth System Models are currently the most advanced tools to study the interactions between humans, their use of natural resources and the climate. The inclusion of storm damage in Earth System Models has for long been hampered by their big-leaf approach which cannot provide the canopy structure information that is required by process-based wind throw models. Recently the ORCHIDEE¹ model replaced the big-leaf assumptions and replaced it by a 3D description of the canopy structure. This opportunity was used to incorporate the process descriptions included in the small-scale wind risk model ForestGALES², into the large-scale land surface model, ORCHIDEE. This new version of ORCHIDEE has been parameterized over Southern Sweden for Gudrun (2005). Subsequently, performance of the model and its parameters has been validated against big storms in Southern Sweden in the period 1900-2010.

In this talk, a brief introduction of land surface model evolution in the Earth System Models will give, and the benefit of the innovative land surface model with dynamic canopy structures will be highlighted for the future scientific researches as well.

References:

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