



## **Effects of different climatic conditions on the site potential of Norway spruce, common beech and grassland assessed by modelling photosynthesis**

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Climate change will affect the site conditions for plants and will result in shifts of spatial distribution of vegetation. However, such interactions are difficult to predict on a local and regional level because other influences like land use and management also need to be considered. Carbon gain can be used as an indicator for changes of the vitality of the considered vegetation types, that are affected by different climate and weather patterns. Within the project LandCaRe (Land, climate and resources) 2020 ([www.landcare2020.de](http://www.landcare2020.de)) the site potential for Norway spruce, common beech and grassland is assessed by modelling approaches to quantify the photosynthesis rate for different climatic scenarios. The simulations are focused on two test sites in the East of Germany and will be extend to entire Germany later on. The presentation shows results of simulation with the Soil-Vegetation-Atmosphere-Transfer model SVAT-CN that enables the prediction of changes of carbon as well as of the water cycle by coupling micrometeorological with ecophysiological processes. The input data are measured (meteorological parameters), taken from other projects (ecophysiological parameters) and derived by pedotransfer functions of a soil map (soil parameters). The test site is the Weißeritz catchment in Saxony (East of Germany). The period of investigation ranges from 2000 to 2006 including different extremes of weather patterns. SVAT-CN includes a module to simulate soil water content and matric potential. By coupling or uncoupling the soil module with plant physiological traits, coupled effects of soil water availability and plant water use are simulated. Sensitivity of different parameters are discussed by regional maps of annual budgets.