



The effect of three extreme land-use scenarios on regional climate change

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Land cover is continuously modified both by natural as well as anthropogenic factors. These modifications show impacts on climate especially on the regional scale. Until now, this degree of interactions was mainly examined by global climate models with coarse horizontal resolutions.

Based on extreme land-use scenarios, this study presents analyses of land-atmosphere interactions in the convection resolving scale of 2.8km horizontal resolution with the regional climate model COSMO-CLM. The focus is on the northern part of Germany which is predominantly characterised by the adjacency of the Baltic Sea and the North Sea and comparable smooth orography. Three extreme cases are integrated for the period of 2002 and 2003: only mixed forest, only continuous urban fabric and only non-irrigated arable land.

We will investigate both the direct effect on systematic changes in near surface temperature and humidity as well as indirect effects on precipitation formation and general atmospheric circulation patterns.