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Land use change affecting our (modelled) climate

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Up until now, climate models often have used a static representation of land cover characteristics and only recently, the impact of a changing land surface on climate and climate simulations has attracted more attention. With climate scenarios to the fifth Assessment Report currently in preparation, this time considering different representative concentration pathways and associated land cover scenarios, we are still building up process-knowledge on the strength of land-atmosphere coupling. This study contributes to our understanding of the impact of land cover changes on the atmosphere by running global simulations with the EC-Earth climate model, using different historical land use data as well as two land use scenarios to analyse the following aspects in more detail: On the one hand the impact of land cover change via modified albedo, and on the other hand its impact via modified surface resistance, rooting depth and soil-moisture capacity on available energy, evapotranspiration, wind and temperature.