

Topic: Ecological functioning of landscapes (funded by the BMBF within the research for BEST BioEnergy regions STrengthening)

Name: Merja Schlüter                      Contact: mschlue@gwdg.de

Impact of land use changes in central Germany on the regional climate.

Brief description: Climate models project changed environmental conditions on the regional and global scale. Land use must adapt to this climate change. The overall aim of BEST is to evaluate the ecological and socio-economic effects of land use changes and to find an optimal adaptation strategy alongside climate protection. To support the estimation of impact of land cover changes in central Germany on the regional climate and its feedback, this project plans to analyse the results of climate simulations with a high-resolution regional climate model COSMO-CLM (down to 2 km horizontal resolution) for the 21<sup>st</sup> century. Furthermore, the COSMO-CLM coupled with the CLM (Community Land Model) from ETH Zurich will be used. The regional simulations will address the role of precipitation, evaporation, temperature, moisture, clouds, radiation and greenhouse gases. Simulations will be performed for present land use conditions and for modified land use scenarios including grass-land, maize, forest, and short rotation forestry. Where necessary the results will be downscaled to local resolution. The results of the regional climate simulations will also be the basis for analysis of future climate variability and water cycles in central Germany with an emphasis of southern Lower Saxony and Thuringia.