Project: **937**

Project title: **Influence of land-use transformations on local and regional climate in Germany**

Principal investigator: **Merja Toelle**

Report period: **2019-01-01 to 2019-12-31**

Due to my involvement in the CLM-community test case simulations could be reduced and adjusted with other works of CLM-community members. One community initiative is to test different configurations for convection-permitting climate simulations, where at the end one configuration was agreed upon. This configuration adapts the COSMO-DE configuration of the German Weather Service with adjustments for climate simulations and slight changes in the configuration after multiple tests of CLM-community members. This configuration was adpated for the simulations of the convection-permitting model. The domain covers Central Europe. The base year 1999 is finished and compared with various other regional climate model simulations, which resulted in a publication (see Coppola et al. 2018).

The simulations and evaluation of the results for the longer-term simulations is ongoing in agreement with other modelling groups. Here, the simulations also need to be put into a common format by CMORization. Here, my direct downscaling hindcast simulation forced by ERA-Interim from 1999 to 2015 is compared to another hindcast simulation of another modelling group forced by ERA-Interim, but using an interim nest. My long-term simulation had a different time step, which was written out. For the simulation itself it was no problem. But to compare it to other group's simulations using CMOR it turned out to be a problem that could not be solved. The reason was an error in the used model version CCLM_5-0-9. After many trials, the simulations needed to be repeated with a newer model version CCLM_5-0-15. The simulation and time step output is now correct. The simulations are currently CMORized to provide the results for comparison to other modelling groups. The first RCP scenario run started.

References:

Coppola, E., S. Sobolowski, E. Pichelli, F. Raffaele, B. Ahrens, N. Ban, M. Belda, D. Belusic, U. van Bert, R. M. Cardoso, S. Davolio, A. Dobler, J. Fernandez, L. Fita Borrell, Q. Fumiere, K. Goergen, I. Güttler, S. Kartsios, E. Katragkou, L. Kendon, S. Khodayar, S. Knist, A. Lavin, T. Lorenz, D. Maraun, L. Marelle-Sebrechts, J. Milovac, H.-J. Panitz, M. Piazza, T. Raub, C. Schär, K. Sieck, P. M. M. Soares, S. Somot, P. Stocchi, C. Teichmann, M. H. Tölle, L. Torge, H. Truhetz, R. Vautard, H. de Vries, K. Warrach-Sagi, F. Giorgi, 2018: The CORDEX FPS on convective phenomena at high resolution over Europe and the Mediterranean: work plan description and preliminary results, Climate Dynamics, DOI: 10.1007/s00382-018-4521-8