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# Influence of tectonic uplift and orbital forcing on climate in East Africa based on regional climate simulations

**K. Prömmel** (1), F. Kaspar (2), U. Cubasch (1), M. Büchner (1)

(1) Institute for Meteorology, Freie Universität Berlin, Germany, (2) German Weather Service, Offenbach, Germany (kerstin.proemmel@met.fu-berlin.de)

Within the climate modelling part of the German research group RiftLink the feedback between different forcing factors and regional climate change in East Africa is analysed. This analysis uses regional climate simulations performed with the non-hydrostatic regional climate model CLM, which is the climate version of the regional weather prediction model of the German Weather Service. It is developed as a community effort of several universities and research centers (www.clm-community.eu). The simulations will performed with a spatial resolution of 0.5° for the region 35°S to 25°N and 15°W to 65°E covering the whole of Eastern and Southern Africa. They will be driven by different global climate simulations performed with the coupled ocean-atmosphere general circulation model ECHO-G, which consists of the atmosphere model ECHAM4 at approx. 3.75° resolution and the ocean model HOPE-G at approx. 2.8° resolution. To compare the influence of the different forcing factors both the regional and the driving global simulations will be performed with altered topography and orbital parameters. One simulation with present-day topography and orbital parameters will be used as a control simulation for comparison. For the analysis of the influence of tectonic uplift on climate, the topography of the rift system in East Africa will be modified. As contrasting examples for the possible impact of orbital forcing two different timeslices will be simulated. The first is the last interglacial (Eemian, approx. 125000 years before present), during which the orbital parameters led to an enhanced seasonality of northern hemispheric insolation compared to present-day conditions. The second is the last glacial inception (115000 years be-

fore present) when the seasonality of northern hemispheric insolation is weakened.