



Forecasting in Ethiopia, one of the most challenging and vulnerable regions with respect to weather and climate

V. Wulfmeyer, H.-S. Bauer, and T. Schwitalla

Institute of Physics and Meteorology, University of Hohenheim

Ethiopia is one of the most challenging areas for weather forecasting. This is due to the fact that weather and climate are controlled by strong interaction between large-scale and small-scale phenomena. On the one hand, large-scale conditions are given by ocean-land-surface-atmosphere interaction and upper tropospheric jets and waves leading to the development of the west African and Asian monsoon systems. On the other hand, land-surface and orographic conditions are extremely heterogeneous leading to a strong and complicated interaction with large-scale processes. Furthermore, verification data are sparse. This results in high weather and climate variability, which is poorly understood, and in low predictive skill of models in a particular vulnerable and challenging region. In this presentation, efforts concerning weather forecasting in Ethiopia are presented. The forecast system is based on a convection-permitting version of WRF-NOAH driven by ECMWF analyses. The dependence of the quality of short- to long-range forecasts on boundaries, land-surface and vegetation conditions, and orography is discussed. Furthermore, it is evaluated what observations and methodologies are available and reasonable for data assimilation.