



Surface-Atmosphere interactions: Modelling the development of local circulations and generation of convection at Nam Co Lake

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Surface-atmosphere interactions play an important role for the development of local circulation systems and the generation of convection on the Tibetan Plateau. Local re-circulation of water and water bodies that act as water sources have important functions in the regional water cycle. Evapotranspiration and the atmospheric transport of water are governed by the radiation balance and the development of local circulation systems that are caused by differential heating of the plateau's surface. Other influencing factors are the complex topography and the limited water availability over land.

We use the Active Tracer High-resolution Atmospheric Model (ATHAM) that is in use and active development at the University of Cambridge coupled with the HYBRID land-surface model and the COARE sea flux algorithm for high resolution modeling of atmospheric circulation at Nam Co basin. Special interest is given to the interaction of complex topography, turbulent surface energy fluxes, the development of boundary layer clouds in the diurnal cycle and how these processes relate to local circulation and the transport of water. Model initial conditions for the simulations were taken from analysis data (GFS-FNL) and field measurements that were conducted in 2009 by University of Bayreuth.

First results seem to highlight the importance of the above processes for the development of complex transport processes of water vapor.