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Energy and matter exchange in the convective boundary layer above the Tibetan Plateau at Nam Co Lake

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Key factors for the generation of small scale atmospheric processes are the turbulent surface fluxes as well as atmospheric profiles of wind velocity, temperature and moisture. In summer 2009 an energy balance station was set up at the shore line of Nam Co Lake near the CAS Nam Co station on Tibetan Plateau. The measured fluxes are partitioned into contributions from the lake and land surface; gaps were filled by respective land surface modelling. This data set was used in order to model the development of turbulence, convective features and the resulting small scale boundary layer clouds with the ATHAM model of the University of Cambridge. This investigation is closely connected with the problems of energy balance closure, free convection and feedback mechanisms. In the paper daily cycles of the energy fluxes for both land use types will be shown together with the development of convective cells and boundary layer clouds.