

The application and comparison of several flux profile relations in CoLMYuchun Chen[†];[†] CAREERI/CAS, China, People's Republic ofLeading author: cyuchun@ns.lzb.ac.cn

This paper discusses the important role that flux profile relations play in momentum flux, sensible heat flux and latent heat flux simulations in CoLM and compares the application of the three flux profile relation schemes in CoLM by means of the Loess Plateau land-atmosphere interaction pilot experiment (LOPEX) of 2005. It discovers that the results simulated by the model have hardly changed in the original flux profile schemes of the models after wiping off the very stable condition and the very unstable condition, and there are only tiny changes in numerical values, which indicates that the corrected terms added to ρA are very tiny and can be ignored under very stable and very unstable circumstances. According to the comparison of the three flux profile relations, the simulation results are basically coherent by using any CoLM: the correlation coefficient of the simulation value and the observed value is 0.89, and this bears on the coherence with the numerical procedures for the flux profile relations under unstable circumstances. The simulation results have improved a lot by utilizing the numerical procedures under unstable circumstances and the three above-mentioned Loboeki flux profile relation schemes which differ a lot from each other, and then the correlation coefficient of the value of simulation and the observed value becomes 0.95. In the next procedure, it will be of great importance for the development of land surface process model to continue experimenting on the application of some novel flux profile relation schemes in the land surface process models in typical regions.