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# Spatiotemporal variations of actual evapotranspiration over the Lake Selin Co Basin (Tibetan Plateau) during 2003–2012

Jing Zhou and Lei Wang
Institute of Tibetan Plateau Research, Chinese Academy of Sciences, Beijing, China (zhoujing@itpcas.ac.cn)

Actual evapotranspiration (ETa) over the Tibetan Plateau (TP) is an important component of the water cycle, and greatly influences the water budgets of the TP lake basins. Quantitative estimation of ETa within lake basins is fundamental to physically understanding ETa changes, and thus will improve the understanding of the hydrological processes and energy balance throughout the lake basins. In this study, the spatiotemporal dynamic changes of ETa within the Lake Selin Co Basin (the TP's largest lake basin) during 2003–2012 are examined at the basin scale. This was carried out using the previously calibrated and validated Water and Energy Budget-based Distributed Hydrological Model (WEB-DHM) for the land area, the Penman–Monteith method for the water area when unfrozen, and a simple sublimation estimation approach for the water area when frozen. The relationship between ETa changes and controlling factors is also discussed. Results indicate that the simulated land ETa from the WEB-DHM reasonably agrees with the estimated ETa values from the nonlinear complementary relationship model using appropriately calibrated parameter values at a point scale. Land ETa displayed an insignificant increase of 7.03 mm/y, and largely depends on precipitation. For the water area, the combined effects of reduced wind speed and net radiation offset the effect of rising temperature and vapor pressure deficit, and contributed to an insignificant decrease in evaporation of 4.17 mm/y. Sensitivity analysis shows that vapor pressure deficit and wind speed are the most sensitive variables to the changes of evaporation from the water area.