



3. Numerical Study of Surface Energy Partitioning on the Tibetan Plateau: Comparative Analysis of Biosphere Models

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We scrutinized the surface energy partitioning on the Tibetan Plateau through comparative analysis of the two biosphere models (i.e., Simple Biosphere Model version 2 and Noah LSM version 2.7) constrained by the *in-situ* observation data. Our extensive analysis shows that the different behaviors of the two land surface models mainly resulted from the differences in (1) the parameterization for soil evaporation, (2) the way to deal with roughness lengths of momentum and scalars, and (3) the parameterization of sub-grid velocity scale for turbulent exchange coefficients. Unique environments on the Tibetan Plateau provide useful information for the improvement in simulating surface energy partitioning using biosphere models. Our study further suggests that one should carefully interpret the model results on the Plateau especially during pre-monsoon period.