



A Comparison of Two Allocation Schemes in A Land Surface Model

Qiudan Dai (1) and Yingping Wang (2)

(1) Institute of Atmospheric physics, Chinese Academy of Sciences, Beijing, P.R. China (dqd@mail.iap.ac.cn), (2) CSIRO Marine and atmospheric Research, Melbourne, Australia

Biomass allocation is to partition the products of photosynthesis toward different biomass components and much attention has paid to its applying in climate models in order to better simulate the carbon dynamics in terrestrial ecosystems. Currently there are three allocation schemes commonly used in the land surface models. Here a new scheme for partitioning the products of photosynthesis towards different biomass components in forest ecosystem was developed for using in the land surface models. By implementing the new scheme in the Community Atmosphere-Biosphere-Land Exchange (CABLE) land-surface model, we compared the results of the model using the new scheme with those with an old scheme (a constant allocation scheme) against the observations. We found that the estimated results of the Gross Primary Production (GPP) using the new scheme are lower than those using the old scheme and closer to the observed values. So the new scheme can be used to simulate carbon cycle. Accordingly, the plant carbon pool sizes calculated from the new allocation scheme for needle leaf vegetation are smaller and more reasonable than those from the old one. To evaluate its performance in an elevated CO₂ environment could contribute to using it for simulating climate change.