Referee #1 Comments:
November 11, 2011

Thank you for the comments on our manuscript, please find our responses in bold font below.

Ben Poulter

Simulation by Dynamic Global Vegetation Model (DGVMs) yielded quite different results when different sources of land cover data were applied. This paper systematically discussed the uncertainties of DGVMs arising from different sources of land cover data as well as different classifications of land cover. The paper was very well organized and I recommend pubication in GMD that is well known to vegetation modellers.
I have only one concern regarding to Table 2 and Table 3. What are the codes in Table 3 mean? An additional column for the full name of these abbreviations will be helpful for the readers to judge your equivalents to PFTs. As listed in Table 2, a 20 years annual mean temperature of 15 degree was adopted to classify C3 and C4 grasses, but you use 22 degree of the warmest month to differentiate C3 and C4 in Table 3. Are there some links between these two temperature criteria? Please add some words to explain it.

We clarified Table 2 and now refer the readers to the original Code from Peel et al. (2007)

Mapping C3 and C4 grassland distributions at global scales relies on integrative techniques that combine satellite data and physiological responses to climate (Still et al. 2003). The temperature at which C4 physiology becomes more efficient than C3 physiology is approximately 22 degrees C. We used this threshold to distinguish between C3 and C4 distributions because of this physiological basis and also because this temperature threshold is used to define warm vs cool grasslands in the Koeppen-Geiger scheme. The LPJ 15 degree threshold is for C4 establishment, and does not necessarily indicate that C4 grasses will be dominant. This is now clarified in the text.

Peel, M. C., B. L. Finlayson, and T. A. McMahon. 2007. Updated world map of the Köppen-Geiger climate classification. Hydrology and Earth System Sciences **11**:1633-1644.

Still, C. J., J. A. Berry, G. J. Collatz, and R. DeFries. 2003. Global distribution of C3 and C4 vegetation: Carbon cycle implications. Global Biogeochemical Cycles **17**:doi:10.1029/2001GB001807.