Figure S1: Mean intra-annual maximum leaf area index for years 2000–2004 from (a) MODIS MOD15A2 Collection 4 LAI product (Myneni et al., 2002; Zhao et al., 2005); (b) as simulated by JeDi-DGVM; and (c) the difference between the MODIS observations and the JeDi-DGVM model output.
Figure S2: Mean leaf area index for years 2000–2004 from (a) MODIS MOD15A2 Collection 4 LAI product (Myneni et al., 2002; Zhao et al., 2005); (b) as simulated by JeDi-DGVM; and (c) the difference between the MODIS observations and the JeDi-DGVM model output.
Figure S3: (a) Data-driven model estimate of mean annual gross primary productivity for years 1998–2005 (Beer et al., 2010); (b) mean annual terrestrial gross primary productivity from JeDi-DGVM for years 1998–2004; and (c) the difference between the data-driven model estimate and the JeDi-DGVM model output.
Figure S4: Mean annual net primary productivity for years 2000–2004 from (a) MODIS MOD17A3 Collection 4.5 product (Heinsch et al., 2006; Zhao et al., 2005, 2006); (b) as simulated by JeDi-DGVM; and (c) the difference between the MODIS product and the JeDi-DGVM model output.
Figure S5: (a) Data-driven model estimate of mean annual evapotranspiration for years 1982–2008 (Jung et al., 2010); (b) mean annual evapotranspiration as simulated by JeDi-DGVM for years 1982–2004; and (c) the difference between the data-driven model estimate and the JeDi-DGVM model output.
Figure S6: Taylor diagram comparing the simulated mean annual cycle of atmospheric CO$_2$ for years 1991–2000 to GLOBALVIEW observations at 57 stations in the Northern Hemisphere. The annual cycle of atmospheric CO$_2$ was computed by applying TRANSCOM impulse response functions (Gurney et al. 2004) to the monthly NEE fluxes simulated by JeDi-DGVM.
Figure S7: Aboveground live biomass in the Amazon Basin from (a) observation-based estimates using plot measurements and remote sensing data (Saatchi et al., 2007); (b) as simulated by JeDi-DGVM at model year 2000; and (c) the difference between the observation-based estimates and the JeDi-DGVM model output.
Figure S8: Geographic pattern of the simulated enhancement of net primary productivity (NPP) due to a step increase of atmospheric CO$_2$ concentrations from ambient to 550 ppm. NPP values averaged over the period 1997–2001.
References


