



Multi-scale evaluation of ISIMIP biome models against NDVI and MODIS NPP data

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The net primary productivity (NPP) is commonly used for understanding the dynamics of terrestrial ecosystems and their role in carbon cycle. The global NPP, highly variable over space and time, cannot be directly observed, therefore, satellite based observations of Normalized Difference Vegetation Index (NDVI) are used as a proxy to understand and monitor the NPP dynamics. In this study, we used a combination of most recent NDVI and modeled NPP data for the period 1982-2012, to study the role of terrestrial ecosystems in carbon cycle under the prevailing climate conditions. We found that in general there is good agreement between the spatial patterns and global seasonal cycles between observed NDVI and modeled NPP values. Simulated NPP values also generally agree with MODIS NPP spatially, and temporally, MODIS NPP falls within the model spread of NPP values. Despite of the general agreement in the trends of global total NDVI, MODIS NPP and modeled NPP, considerable spatial differences are found, and the ensemble mean of the models often agrees better with the spatial patterns of observed NDVI and MODIS NPP than individual models.