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Interactive comment on "Using satellite data to improve the leaf phenology of a global Terrestrial Biosphere Model" by N. MacBean et al.

Anonymous Referee #2

MacBean et al. used MODIS NDVI to optimize phenology-related parameters in a famous terrestrial biosphere model, ORCHIDEE and found that the model-predicted vegetation phenology had been overall improved via the optimization and the improvements varied with PFTs. The improved vegetation phenology led to shorten growing season lengthes and resulted in a substantially dereased prediction of global annual GPP by $\sim$10 Pg C yr-1. These information indicates the important role of accurate representation of vegetation phenology in terrestrial biosphere models/earth system models, therefore is useful and helpful for a better simulation of the climate system. The manuscript is very well organized and written, I only have a few minor suggestions.

1) Page 13323, Line 8-9: why select "the greatest % reduction" first guess MS optimiza-

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tion rather than the one with lowest cost function? 2) Section 4.5: were the numbers calculated with area-weighted grid-level values? Please clarify. 3) Figure 2: NC3 and NC4 are the same figure.

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Interactive comment on Biogeosciences Discuss., 12, 13311, 2015.