

Interactive comment on “Spatial and temporal patterns of plantation forests in the United States since the 1930s: An annual and gridded data set for regional Earth system modeling” by Guangsheng Chen et al.

Anonymous Referee #3

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This study reported a time-series spatially-explicit forest plantation data and generation methods for the conterminous US during 1928-2012. The dataset is very important and beneficial for the modeling community to estimate the impacts of human activities on carbon, water and nitrogen cycles in managed forests at national or regional scales, which are currently lacking in the assessments of global and regional carbon, nitrogen, and water budgets.

The assumption of plantation area did not decrease (line 209-215), needs justification. “In this study, we assumed that the plantation forest area did not decrease with time

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for each state, so if the data at the previous period (e.g., 2007) was less than the data at present period (e.g., 2012), the data at the present period (e.g., 2012) was then replaced by the previous one (e.g., 2007). We assumed the data in 2007 is the actual plantation area (i.e., assume the inventory data in this year are accurate) to control the post-processing, and therefore, the plantation area in other periods could not be exactly the same with the collected inventory data.” This needs to be justified.

This manuscript is generally written well; some improvements in writing and presentation are needed, see below comments. The data generation methods and implications are clearly described. I would like to see a moderate revision before publishing in the journal.

Specific comments and suggestions: Line 83: “are monitored” should be replaced with “are being monitored” since these activities are ongoing work. Line 110: “section 2.7” should be clearer. Suggests change to “see Section 2.7 for more details”. Line 153-155: hard to understand. Modifications are needed. Line 178-179: more details are needed for the descriptions of species area data from Oswald et al. (2014). Line 193: “not” is missed before “yet” Line 196-197: a little confused. Suggest a modification. Line 218-219: “the annual plantation forest area data” should be “the annual planted area data”. “and” should be “with”. It is easily to be confused about the “plantation area data” with “annual planted area data”. Is there any better representation to easily distinguish the difference? Line 226: I am not quite sure what does the “j” represent. A little clearer explanation here? In addition, “N” in the equation is not explained. Line 252: “Ai” need to change the format. Line 264-266, the sentence is weird, the largest rate, followed by. Line 265: is the per decade change during the 1950s calculated as the change from 1940s to 1950s or from 1950 to 1959? Line 300: Smith et al. (2012) is not listed in the reference. It should be interesting to add a little more discussion here to discuss the future projection. Line 310: “a small” should be “small” Line 443: better to move the citation to the end of this sentence Figure 9: the graph for 2012 seems sheltered by the legend.

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