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Interactive comment on "Soil resources and climate jointly drive variations in microbial biomass carbon and nitrogen in China's forest ecosystems" *by* Z. Zhou and C. Wang

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Responses to Referee 3 [General comments] This is an interesting and well rationalized study aiming to examine the patterns in microbial carbon and nitrogen by climate zones and management regimes for China's forest ecosystems, as well as identify the factors driving its variability. Before its acceptance for publication in BG, I have some suggestions on their manuscript. Because of the lack of confirmation of some statistical analyses, some points of the discussion are difficult to assess. I think that the discussion needs to be reviewed in some points in order to be less speculative, based on the results and avoiding big conclusions that are not supported by the present find-

ings. The conclusions should be re-writing to summarize the major contributions of the manuscript. [Responses] Thanks for your valuable comments and suggestion. Following your suggestion, we revised the Discussion and Conclusion sections. Specifically, we deleted 192L21-22 and P201 L3-6, and revised the conclusion (please refer to the responses to Referee 2).

Specific comments [1] P195 L7: As reviewer #2 suggested: please explain why the authors collected the studies only starting from Jan. 2000. L9-10: In the case of the data collection in the Web of Science, the authors only used the words "soil microbial" and "forest" as key words? How they limited the search to the target region? [Responses] Thanks. Please refer to the response to Referee 2.

[2] P195L13-14: Please explain why the authors considered enough time 7 years of no anthropogenic disturbances or management activities? [Response] Following and keeping consistent with previous synthesis studies (e.g., Don et al., 2011), we adopted 7 years. We revised the text and added a reference. Don A., Schumacher J., and Freibauer A.: Impact of tropical land-use change on soil organic carbon stocks–a meta–analysis. Global Change Biology, 17: 1658–1670, 2011.

[3] P198 L12: Fig. 2a and b should be Fig. 2a and c, as well as L16 Fig. 2b should be Fig. 2c. [Response] Sorry for the mistake. Revised.

[4] P202 L-4: The authors need more support for the assumption that the soil resources on Cmic and Nmic change with the availability and stoichiometry of Csoil and Nsoil. [Response] Thanks for your suggestion. We worded appropriately as "These findings illustrate that the relationships between soil resources and microbial biomass are affected by stoichiometry of Csoil and Nsoil."

[5] P202 L13-16: These are big assumptions since Fig. 6 show very weak relationships. [Response] We hope it is appropriate. Please refer to the response to Referee 2.

[6] Fig. 2 and 5, Please explain how is that the SE of the inserted figures that are the overall comparisons between the natural (NF) and planted forests (PF) are that small? [Response] We did find big SDs for these variables, but the SEs of the inserted figures (Fig. 2 and 5) of the overall comparisons between NF and PF are small given such a big data set (i.e., big N, refer to the following table).

Interactive comment on Biogeosciences Discuss., 12, 11191, 2015.

[6] Fig. 2 and 5, Please explain how is that the SE of the inserted figures that are the overall comparisons between the natural (NF) and planted forests (PF) are that small?

[Response] We did find big SDs for these variables, but the SEs of the inserted figures (Fig. 2 and 5) of the overall comparisons between NF and PF are small given such a big data set (i.e., big *N*, refer to the following table).

Variables		*N*	Mean	Standard deviation	Standard error
C_{soil}	NF	322	36.8	25.2	1.4
	PF	367	16.8	12.6	0.7
N_{soil}	NF	233	2.8	1.9	0.1
	PF	271	1.4	1.1	0.1
C_{mic}	NF	320	514.1	388.9	21.7
	PF	366	281.8	162.1	8.5
N_{mic}	NF	170	82.6	70.4	5.4
	PF	182	39.0	29.0	2.2
C_{soil}: N_{soil}	NF	233	15.2	8.4	0.5
	PF	271	12.4	4.3	0.3
C_{mic}: N_{mic}	NF	168	7.3	5.5	0.4
	PF	181	9.2	6.7	0.5
C_{mic}/C_{soil}	NF	317	1.7	1.1	0.1
	PF	366	2.1	1.2	0.1
N_{mic}/N_{soil}	NF	165	3.5	2.6	0.2
	PF	173	3.4	2.4	0.2

Fig. 1.