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Biogeosciences Discussions

Interactive comment on "CO₂ enrichment increases nutrient leaching from model forest ecosystems in subtropical China" *by* J. X. Liu et al.

J. X. Liu et al.

Received and published: 6 September 2008

Dear Referee, We would like to express our sincere thanks to you for the comments about our manuscript. We have incorporated your suggestions into our revised manuscript.

Here are our detailed responses to the relevant comments.

A) Responses to the Referee's general comments

Comments: This MS examines leaching from model forests receiving factorial combinations of CO2 fumigation and N addition. Although there have been many studies examining how N deposition affects leaching, quite few studies have examined how

leaching is affected by elevated CO2. Thus, the ms has reported some quite interesting and novel research findings about the effect of high atmospheric CO2 alone and together with N addition on the dynamics of mineral nutrients, particularly on the nutrient leaching losses in the model forest of subtropical China. The ms is generally well written and should be published as soon as possible. It would also be very important that this interesting research could be continued to assess the longer term impacts on the soil - plant processes. I would recommend the publication of the ms in the journal after some minor revisions could be made in response to the following specific comments.

Response: Thanks a lot for your positive comments on our manuscript. Just like you said, there are few papers that are concerned about the effects of elevated CO2 on the mineral nutrients. Up to date, we only found two papers which reported that the elevated CO2 would increase mineral nutrient loss and these two papers only studied the temperate and boreal forests. Hence, more research should be done about this topic, especially in the tropics and subtropics in the future. As suggested by you, we will do the further experiment to see whether the nutrient concentrations will vary in the same way over a long time period.

B) Responses to the Referee's specific comments

1. Comments: Abstracts: "N-NO3" should be written as "NO3–N", and similarly "N-NH4+" as "NH4+-N"; these changes should be made throughout the abstract, methods, results and discussion sections (including in the tables and figures); Page 1 Line 14: it should be changed to "-greater amounts of leaching water."; P1 L18 ; to "subtropical China might suffer from nutrient limitation and reduction in plant biomass ";

Response: Agreed. "N-NO3"has been replaced by "NO3–N"; and "N-NH4+" has been replaced by "NH4+-N"in the revision. Page 1 Line 14: have been changed to "greater amounts of leaching water."; P1 L18, to "subtropical China might suffer from nutrient limitation and reduction in plant biomass ";

BGD

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2. Comments: Materials and methods: P2 L24,to "solar radiation of 23.1 MJ m-2 in the ";

Response: Agreed. The sentence in P2 L24 has been changed to "solar radiation of 23.1 MJ m-2 in the ";

3. Comments: Results: P4 L42-51,see comments for the abstract on the expression of "NO3–N" and "NH4+-N"; Discussion: P6 L10-26 - see comments for the abstract on the expression of "NO3–N" and "NH4+-N"; Tables 2 and 3 - see comments for the abstract on the expression of "NO3–N" and "NH4+-N"; Figures 3 and 4 - see comments for the abstract on the expression of "NO3–N" and "NH4+-N";

Response: Agreed. "N-NO3" has been replaced by "NO3–N" and "N-NH4+"has been replaced by "NH4+"throughtout the paper.

C) Summary

We wish to thank the Referee for the valuable comments, which help us to improve the manuscript considerably. We hope that you would find our revised ms to be satisfactory for the publication in Biogeosciences.

Sincerely,

Juxiu LIU

Interactive comment on Biogeosciences Discuss., 5, 2679, 2008.