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Biogeosciences Discussions

Interactive comment on "Variation of key elements in soils and plant tissues in subalpine forests of the northern Rocky Mountains, USA" *by* David P. Pompeani et al.

Anonymous Referee #2

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This study examined the variation of some element concentrations of foliage and soils collected from 15 sites in the northern Rocky Mountains, USA. The results showed that the foliage C and N concentrations differed between broad-leaved and conifer trees, and soil C concentrations differed between not-burned and burned sites. I think that the present results are important as the basis to understand biotic and abiotic factors affecting the biogeochemical processes. However, there are a number of issues to be addressed before a recommendation could be made for publication in Biogeosciences.

1. The rationale and goal of this study are unclear. It should be required to mention what a kind of questions remain unclear, why and how the question is important, and

how this study is designed to solve the question. For example, why was it necessary to examine the spatial variability of the elements of soil and plants? I suppose that the effects of wild fire on elemental composition could be the main topic for this study. It would be required to reorganize largely this manuscript to clarify these points.

2. The authors would need to explain about materials and methods more carefully. For example, it is unclear how many soil cores were collected from each study site, and how many plant individuals of the same species were examined at each study site. How were the samples dried (L131)? For what the authors made the comparison (L153)? In particular, it is not clear to me why the authors applied PCA for the element compositions of soil and plants. Was it important to demonstrate the difference in elemental compositions between soil and foliage? Please clarify.

3. I would like to recommend that Results and Discussion section (L159) would be separated into Results section and Discussion section in order to present clearly the present findings and the interpretation.

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