

***Interactive comment on “Aeolian nutrient fluxes following wildfire in sagebrush steppe: implications for soil carbon storage” by N. J. Hasselquist et al.***

**Anonymous Referee #1**

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The authors describe a study of Aeolian transport of soil particles following a wildfire in sagebrush-dominated steppe in Idaho, USA. As expected, erosion increased for a few months following the fire, leading to a net loss of C and N from the burned area. All in all, this is a very straightforward study. To me the methods appear to be appropriate and the conclusions are valid. I have only a few comments.

The measurement of lower C and N in soils on the burned site are used to support the notion that increased erosion led to losses of C and N. These calculations assume that all sediment moved within the burned site leaves the burned site. That seems to me like an overestimate. It would be important to document what proportion of the

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decrease in soil C and N is a direct function of the fire itself and not wind erosion. How much sediment is actually rearranged within the burn treatment vs. lost through long-distance transport?

How frequently do fires occur in this system? You mention climate change and increasing fire frequency, but how will fire frequency differ in the future? Sediment loss occurred for a surprisingly short time period. If all losses are correct as calculated, are they more than made up for during intervals between fires? Wouldn't the difference between pre- and post-fire levels of soil C and N be better calculations of C and N losses than doing so from wind-borne sampling given that not all sediment leaves the site?

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Interactive comment on Biogeosciences Discuss., 8, 8323, 2011.

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