

Interactive comment on “A new synthesis for terrestrial nitrogen inputs” by B. Z. Houlton and S. L. Morford

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With regard to the exchange of molecular and reactive nitrogen with the atmosphere, I would like to draw the authors' and readers' attention to recent studies indicating that cryptogamic covers on soil, rock and plant surfaces may account for nearly half of the biological nitrogen fixation on land (Elbert et al. 2012) and that nitrous acid (HONO) can be reversibly deposited and emitted in large amounts (Su et al. 2011; Oswald et al. 2013).

Elbert, W., Weber, B., Burrows, S., Steinkamp, J., Budel, B., Andreae, M. O., and Poschl, U.: Contribution of cryptogamic covers to the global cycles of carbon and nitrogen, *Nature Geosci*, 5, 459-462, 2012.

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Author: We thank Dr. Sleutel for this suggestion. New text reads:

"Free-living rates of fixation in rocks and soil are lower than symbiotic ones, but the widespread distribution of cryptograms, and the capacity of such organisms to respond rapidly to change, means that this functional group is globally important, perhaps accounting for up to 50% of terrestrial N fixation (Elbert et al., 2012)."

The role of HNO₃ from these sources reflects a recycling term in the global N balance.

Interactive comment on SOIL Discuss., 1, 497, 2014.