

Interactive comment on “Centennial black carbon turnover observed in a Russian steppe soil” by K. Hammes et al.

K. Hammes et al.

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Reviewer 1

1. Page 662, line 19: References are needed for this statement. There are very different estimates for the turnover time(s) of BC in soils. Whereas some authors estimated millennia (as said here, but not supported by references), other estimates are much different. The authors should give all views present in the literature up to know. It has been shown several times now that BC is not recalcitrant in soils.

On Page 662 lines 17 to Page 663 line 3 all views are represented with nine different references. Line 17 gives the background for the assumption mentioned in line 19. From line 23 “However” the other side of the coin is given, with several references.

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2. Page 663, line17: How can a steppe be created? Please explain.

Thanks to the reviewer for noticing that there was a word missing. This should read: including the Kamennaya Steppe Preserve created between 1882 and 1885.

3. Page 671, line14: loss of BC due to erosion should also be included.

We have included a reference to erosion, but we believe there are factors suggesting erosion would not be important because (a) the landscape is very flat, (b) hedgerows were planted 100 years ago to decrease wind-caused erosion and (c) the horizons are well developed, with no change over 100 years in their thickness.

4. Page 672, line 6: Reference (Czimczik and Masiello, 2007) missing in reference list.

We have added: Czimczik, C. and Masiello, C.A. "Controls on black carbon storage in soils." *Global Biogeochemical Cycles*, 21, GB3005 (2007): doi: 10.1029/2006GB002798.

5. Conclusions: The conclusions are very weak and disappointing. So we have another study that shows that BC is degraded in soils (as others have before). What do we learn from this study in particular, apart from the fact that further detailed studies are necessary;

We have amended the conclusions section significantly and hope it is thereby improved.

Interactive comment on *Biogeosciences Discuss.*, 5, 661, 2008.

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