

Interactive comment on “Modeling soil bulk density at the landscape scale and its contributions to C stock uncertainty” by K. P. Taalab et al.

Anonymous Referee #3

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The current study explored whether the landscape attributes, derivatives and climatic factors can predict the land surface soil bulk density (topsoil and subsoil horizons), and then applied the best modeled bulk densities to derive the organic carbon stock at a large spatial scale. I think the study relying on the empirical relationship type modeling method is of potential great significance to improve the accuracy of estimating organic carbon stock at a large scale. The results and discussions read well and the conclusion is naturally reached. However, it is unclear to me how these predictor variables were ranked and selected. This will need to be further clarified in the method section.

Some specific line comments are attached below.

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Interactive Discussion

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P18836. 2.1 Data may be renamed to Data and predictor variable;

P18839. 2.3 Statistical methods should be renamed to Modeling methods in compatible with your title; In addition, it is necessary to indicate this empirical modeling approach relies on two different statistical methods.

P18842. 2.3.3 Line 9. Add d

Line 19 delete σ from σ OC*Db

P18845 Line 5. Recorded to recoded

Line 6 delete use of

Table 1. Some of these variables are not clearly indicated in either method section or the Table. In addition, how do you rank these variables? What is your criterion for determining their importance? If this was derived from a scoring system please give these quantities explicitly so that one may compare the importance of certain variable as derived in different methods, such as land use.

Table 2 and table 3 should be combined together and the error type should be explicitly indicated (standard error or standard deviation). What is Eq. (6)?

Figure 3. Why do the panels b and e look identical to each other?

Interactive comment on Biogeosciences Discuss., 9, 18831, 2012.

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