**Biogeosciences
Discussions**

Interactive comment on "A cost-efficient method to assess carbon stocks in tropical peat soil" *by* M. W. Warren et al.

Anonymous Referee #2

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In Hooijer et al. (2012) study, peat volume losses from oxidation are estimated by measuring subsidence rates, but they did not measure the changes in bulk density. Bulk density was measured from the present land uses (Acacia and oil palm) while the initial bulk density (the BD under forest condition before drainage is started) was missing and was estimated from the BD of present land uses below the lowest average water table depth. This neglegts the high variation of BD in the natural forest which is shown in Figure 3 of Hooijer et al. (2012). While a set of reliable data has been produced for the subsidence rate, the main source of uncertainty in generating the estimate of CO_2 emissions (C stock change) is the absence of BD data prior to the commencement of drainage. The other source of uncertainty is the generalized assumption of C content of 55%, from Suhardojo and Widjaja-Adhi (1977) that you have also pointed out.

In your case, if one would like to estimate C stock change, then the initial and the present BD data as well as the layer thickness for which the BD data are representative will be necessary. You emphasized the quantitave analysis of organic carbon content measurement, but it's good to also point out that the C content may vary depending on many factors such as peat maturity and ash content.

Interactive comment on Biogeosciences Discuss., 9, 7049, 2012.