

Interactive comment on “DO₃SE modelling of soil moisture to determine ozone flux to European forest trees” by P. Büker et al.

Anonymous Referee #2

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Interactive comments on "DO₃SE modelling of soil moisture to determine ozone flux to European forest trees" by Büker et al.

General comments : the reviewed paper presents the results from the development and evaluation of a method to estimate soil moisture status and its influence on stomatal conductance for a variety of forest tree species. This study has investigated four different modelling approaches. The analysis is very thorough and very good evaluations are done. With the exception of a few specific comments, I would recommend the manuscript for publication. Specific comments : - title : please remove "European" word because this study is also on North American forest tree species. I think it would have been judicious to contact research teams also in France and in Italy. - list of authors : give the author's contribution - introduction : concerning the effective dose please add

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the reference "DIZENGREMEL P, LE THIEC D, BAGARD M, JOLIVET Y. 2008. Ozone risk assessment for plants: central role of metabolism-dependent changes in reducing power. Environmental Pollution 156 : 11-15" - introduction p33588 l 20 : please add some sentences about the interaction of drought and ozone. The authors will indicate the possible effect of ozone with different timing of drought during the vegetation season. Drought sometimes protects against ozone and sometimes the affects are additives - methods : the authors have to give a complete formula of each model!!!! - p33602 l4 : precise the sites where gsto data do exist - p33602 l23 : please indicate which software was used to perform statistical analyses. - p33605 l28 : in fig5b and fig 3a : the correlation between modelled and observed data are very bad : the explanations are not persuasive, which data are good? modelled or measured? - p 33609 l9 : tables 6 and 7 do not provide statistics!!!! so change this sentence - p33612 l9 : yes, gmax is very important and change with level of light inside to the canopy; maybe we need to modelize gmax with the tree's height and light or take into account leaf mass area which is a good indicator for sun and shade leaves. - p33615 l 23 : this discussion is very important, actually the direct effect of ozone on gsto is not taken into account, it is a pity and there are a lot of papers where we observed this effect. We need absolutely studies on the effects of ozone on stomatal responses to environmental parameters (blue light, red light, CO₂, VPD and temperature).

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 33583, 2011.

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