

## ***Interactive comment on “Modelling holocene carbon accumulation and methane emissions of boreal wetlands – an earth system model approach” by R. J. Schuldt et al.***

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The topic of the manuscript is relevant for *Biogeosciences*. I guess, upon acceptance, the paper will a highly citable study. However, I recommend some revisions before final consideration of this paper for publication. All suggestions for revision are minor and this is the reason why section *General comments* is skipped in my review.

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### **Specific comment:**

First of all, some earlier studies are not credited properly. In particular, in Sect. 1.2.3 (*Methane emission models*), I suggest to cite the paper by Yurova et al. (Yurova, A., A. Wolf, J. Sagerfors, and M. Nilsson (2007), Variations in net ecosystem exchange of carbon dioxide in a boreal mire: Modeling mechanisms linked to water table position, *J. Geophys. Res.*, 112, G02025, doi:10.1029/2006JG000342). In addition, I would suggest to cite the paper by Krupchatnikov and Krylova (Krupchatnikov, V.N., and A.I. Krylova (2000), Numerical simulation of methane distribution using data of ground-based observations, *Atmospheric and Oceanic Optics*, 13 (6–7), 574–579).

### **Technical corrections:**

- It seems there is a misprint in lines 11 and 12 at page 8 (equations for  $R_L$  and  $R_S$  correspondingly). I guess, in both cases it should be  $Q_{10}^{(T-T_{ref})/10K}$  rather than  $Q_{10}^{T/T_{ref}}$ .
- Symbol *wt* in line 8 at page 7 is not explained.
- For reader's convenience, at page 8 it is desirable to indicate that values of parameters *sla* and  $T_{ref}$  are figured in Table 2.
- I suggest to reorder entries in Table 2 to put them in alphabetic order.
- There is a misprint in Table 1. In (Eliseev et al., 2008), methane emission model was coupled to Earth system model.
- In caption to Fig. 4, it is better to use term 'range' instead of term 'amplitude' to avoid ambiguity.

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