

Interactive comment on “McGill Wetland Model: evaluation of a peatland carbon simulator developed for global assessments” by et al.

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This paper is an important contribution to current efforts to include peatlands in climate models. While both, CLASS and CLM were recently updated to include deep organic soils and their hydraulic and thermal properties, the McGill Wetland Model concentrates on the adaptation of the basic biogeochemical processes of peatland ecosystems to simulate the carbon cycle.

The model is at a fair stage for a publication. However, as mentioned by the authors in the conclusions, it is crucial to finalize the pathways for methane and dissolved organic carbon for the inclusion of the MWM into global climate models. Future comparisons

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with measurements of additional peatland sites will show the performance of the model under differing conditions.

The presented adaptations are peatland-specific, therefore I would suggest using the term peatland instead of wetland for the model and article title, or alternatively mention in how other wetlands might be represented by the model.

The site description includes mosses, shrubs, sedges, black spruce, and larch, while the simulations and corresponding modeling parameters (i.e. Table 1) only include mosses and shrubs. Do the shrubs represent all vascular plants or are all other PFTs neglected/neglectable in the comparison of simulations and measurements? In this framework I suggest to mention if the field data represent the landscape scale (flux tower) or limited patches (chamber)).

This paper is very well prepared and written.

Few technical corrections

p. 1692, line 5-6: revise sentence (not included, inclusion)

p. 1695, line 20: non-vascular8

p. 1697, line 11: format gc

p. 1669 and Table 1: inconsistent abbreviation for the rate of carboxylation (V_c , V_{max25} , V_{cmax25})

p. 1701, line 7: see Figure X Froking (fig number is missing)

p. 1705, line 26: Fig. Y-2a is not included in the manuscript (should probably be Table 2)

p. 1717, table title: values used instead of values use. Took me a while to see that the parameters are moss-, shrub- or site-specific (change formatting).

p. 1718: change formatting of table to clarify which columns belong to NEP, GPP, ER,

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NPP. Description of superscripts (1) is missing.

p. 1719: description of superscripts (1-3) is missing

p. 1720, table title: add hwtid

p. 1721: graph shows data up to 2007, while figure title says 1999-2006

p. 1722, figure title: solid instead of sold

p. 1723: graph shows data up to 2007, while figure title says 1999-2006

p. 1725, figure title: solid instead of sold

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