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Title: Large-scale regionalization of water table depth in peatlands optimized for greenhouse gas emission upscaling
Author(s): M. Bechtold et al.
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General comments:
The paper is well-written. The English is good
The topic is very relevant: drained peat soils are in many countries a major source of GHG gasses. Moreover peat soils are very prone to climatic change and GHG emissions from peat soils can increase dramatically in this century. However, this is not widely known by the general public and policy makers. To raise the public awareness with convincing arguments upscaling is needed to quantify in a better way the GHG emissions of peat soils.
Not every researcher on the degradation of peat soils and/or on the emissions of GHG was fully aware of the importance of the groundwater table as explaining factor for the emissions of GHG. In too many papers no data is available on the (dynamic) groundwater or surface water table. The reviewed paper is filling up this gap for at least a part.
The paper is very complete and only minor revision is needed, so I have only a few specific comments

Specific comments:
1. I am missing some rather obvious predictor variables:
   - the thickness of the peat layer: the GHG emission of a thin peat layer (e.g. 40 – 50 cm) will be significant lower than of a peat layer > 100 cm. This can have a direct effect on the transformation presented in Figure 3.
   - the existence of a (thin) mineral layer on top of the peat soil: this can be an artificial layer of sand to increase the trafficability in wet periods and reduce damage by trampling and pouching. The mineral layer can also be clay deposited by flooding by rivers or the sea. This can have substantial effect on the GHG emission (because the mineral layer does't contribute to the oxidation) and so a direct effect on the transformation presented in Figure 3.
   - positive or negative seepage (and/or potential of deep groundwater): can have a major effect on the WL (10 – 20 cm).

Maybe there is no good data about these variables, however, then this should be mentioned.

2. Why do the authors only use the mean annual water table. For CO2 emissions the (deepest) summer water table is probably a much better predictor variable. For CH4 are probably the highest groundwater levels important. I have the impression that good year round data is available.

3. I have the impression that the ditches are only considered for drainage, while infiltration via the ditches can be very important to keep the groundwater table as high as possible. This could also be (a part) of the explanation of the impact of the total length of ditches: $di_{len\_dry}(250)$. Anyway, whether ditch water infiltrates (as in a polder situation) or not, can also be a strong key variable.

4. Unconsolidated rock as material at peat base: do you mean sand or clay soil? There is a major difference in saturated water conductivity of clay and sand, so making a difference would be very advisable. Note that many readers are not used to the term "unconsolidated rock".

5. The word " raster" is used. Shouldn't that be "grid"

Page 3866, line 13: influence of grassland is reduced by a factor 0.5: why 0.5? This is a very strong reduction. My feeling is that this reduction is by far too strong.
Furthermore: wouldn't it be more logic to have grassland as a basis and use a factor > 1 for arable land?

Page 3871, line 17: If I remember well, Berglund and Berglund (2011) concluded that sensitivity of CO2 emissions to WL was very low or not existent. Can this be somehow in agreement with the relation in fig 3. (Note: In fact I think that the relation in fig. 3 is OK!). Note that the GHG emissions of thin peat layers and peat layers with on top a (thin) mineral layer might not be well represented by the relation in fig 3.