The line numbers reference the marked-up document, Rimondini_etal_2023_Manuscript_Ver4_TrackChanges.pdf

Referee 1

- **Comment 1**: *"However, I found the comments in the Discussion regarding the reliability of Gotland and Oland results a little confusing. Would it not have been better to exclude these areas?"*

  Response 1: We agree that the product should exclude Gotland and Öland. We propose that they should be masked in the next version and that the paragraph regarding the reliability of their mapping should be lightly revisioned and moved from "Discussions" to "Methods". National peat estimates are changed accordingly.

  MS changes 1:
  - Line 16: Change national peat estimates
  - Line 172-175**:** Add *"Gotland and Öland were also excluded in the final maps. These islands were scarcely sampled with 64 sampling points in Gotland and 16 points in Öland, of which only 1 point per island was classified as peatland using O-layer thickness >=40 cm as definition. The signal from the sampling on mainland Sweden could therefore have adverse influence on the quality of prediction on these islands, which have relatively distinct geological characteristics."*
  - Line 230-231: Add *"and on Gotland and Öland 150 Km_2 together"*
  - Table 3: Change national peat estimates, subtracting Öland and Gotland
  - Line 266 & 359: Change reference to dataset version 2

- **Comment 2:** *"My overall recommendation would be to accept the manuscript with the following minor corrections addressed."*

  Response 2: We appreciate the corrections you pointed out and will change the content of the manuscript accordingly.

  MS changes 2:
  - Line 10: add *"change"*
  - Line 115: add *"to"*
  - Table 1 caption: change *"and"* to *"an"*
  - Line 135: change *"Totally"* to *"In total"*
  - Line 167: adapt to sub-heading and add *"2.3.3"*
  - Table 2 caption: capitalize *"peat40"*
  - Line 215: add *"case"*
  - Lines 224, 229, 230, 234, 235, 236: change *"km2"* to *"Km_2"*
  - Line 227: change *"us"* to *"we did"*

Referee 2

- **Comment 3**: *"It is mentioned that the reference data has some spatial inaccuracy. Unfortunately, this topic is no longer covered in the discussion. It is strongly recommended to discuss the potential influence of the spatial inaccuracies on the derived result."*

  Response 3: We agree that it would be of interested to further discuss how the spatial inaccuracy may affect the results. In brief, we believe that the spatial inaccuracy of the soil data mostly concerns the SGU peat archive. We believe that it is of minor importance for our results, as the data from the SGU archive mostly includes points from the inner parts of peatlands with an O-layer depth > 100 cm and a relatively narrow value range in the geodata used as features. We have visually checked if this is the case by comparison against a land cover dataset (NMD2018), and conclude that ~100 points part from this pattern (mostly in the Stockholm area). This means that only a small portion of the points may lead to any important errors in the features. This will be reflected in the updated manuscript.

  MS change 3 (Line 204-214)**:** Remove previous text about Gotland and Öland and add *"Some errors in the features may have been caused by the spatial inaccuracies of the soil data, especially in the case of the SGU peat archive which is a collection of historical data with varying quality. However, we believe that this has had minor effect on our results, as the data from the SGU archive mostly includes points from the inner parts of peatlands with an O-layer depth > 100 cm and a relatively narrow value range in the geodata used as features. Only a minority of the SGU archive data points around Stockholm part from this pattern, meaning that a small portion of the points may lead to any important errors in the features."*

- **Comment 4: "***For the used formulas, please add unit information to all used variables."*

  Response 4: We appreciate your comment on the inclusion of unit information for all variables in the formulas. We interpret that your comment concerns the DTW formula, and will add the information accordingly in the next version of the manuscript.

  MS change 4 (Line 110-111): "*where dz_i and dx_i are the vertical and horizontal distance in meters between two cells; a is a constant of 1 or √2 depending on whether two adjacent cells connect parallelly or diagonally; x_c is the raster cell size in meters*."