

Interactive comment on “Modelling Holocene peatland dynamics with an individual-based dynamic vegetation model” by Nitin Chaudhary et al.

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I would like to thank the authors for their detailed reply. I understand that millennial-scale variability was not the objective of the simulations, even though it would have been useful that such important climate changes were included in the model, in my opinion.

Unfortunately, climate models have also struggled to reproduce Holocene long-term trends, as documented by Marcott et al. 2013 (DOI: 10.1126/science.1228026). Longterm trends of reconstructed vs. simulated temperatures show major discrepancies. I am attaching Figure S8 from the Supplement of the Marcott et al. paper which shows the simulated temperatures. Please compare to Figure S12 (also attached) which presents the reconstructed temperatures. These look very different to me.

C1

Interactive comment on Biogeosciences Discuss., doi:10.5194/bg-2016-319, 2016.

C2

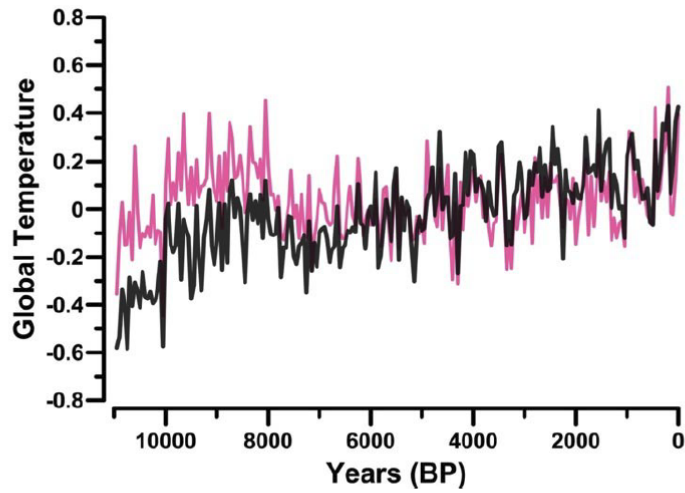


Fig. S8: Simulated global mean temperature for the last 11000 years at the 73 proxy sites (black) from the ECBilt-CLIO transient simulations (81), and the global mean temperature assuming a seasonal proxy bias (red) as described in text.

Fig. 1.

C3

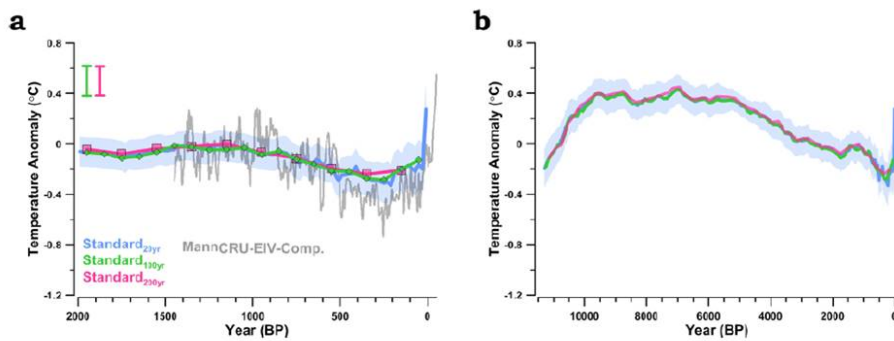


Fig. S12: Temperature reconstructions using multiple time-steps. (a) Global temperature envelope ($1-\sigma$) (light blue fill) and mean of the standard temperature anomaly using a 20 year interpolated time-step (blue line), 100 year time-step (pink line), and 200 year time-step (green line). Mann et al.'s (2) global temperature CRU-EIV composite (darkest gray) is also plotted. Uncertainty bars in upper left corner reflect the average Monte Carlo based 1σ uncertainty for each reconstruction, and were not overlain on line for clarity. (b) same as (a) for the last 11,300 years. Temperature anomaly is from the 1961-1990 yr B.P. average after mean shifting to Mann et al.(2).

Fig. 2.

C4