Climate
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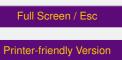Open Access
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Interactive comment on "Quantitative reconstruction of precipitation changes on the NE Tibetan Plateau since the Last Glacial Maximum – extending the concept of pollen source-area to pollen-based climate reconstructions from large lakes" *by* Y. Wang et al.

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The manuscript contains interesting methodological aspects on climate reconstructions using pollen based transfer functions and ordinations. The authors address tapho-nomic effects on the pollen composition in the training set caused by lake size and the effect of within lake differences in pollen composition on the reconstructed values. The source area of 50% pollen for the major taxa is used to link the climate signal to the

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area generating the pollen signal, which may help in particular where surface samples from different lake sizes are used together. These new concepts are applied in a reconstruction of precipitation from pollen data of a large lake on the NE Tibetan Plateau and in conjunction with previous results provide an improved late Quaternary history for that region.

Specific comments

P.3579, L. 7-8: I do not understand the validation of the pollen data with ostracod data from the same site showing different trends through time in ordination space. Also the pollen data from Lake Kuhai is not revealing a strong pattern that would "validate" the patterns in this pollen dataset. Although, I agree in general that a multi-proxy or multi-site approach is adding confidence or different aspects of climate variability, I do not see a "rigorous validation" here. The comparison of the precipitation reconstruction with two nearby lakes (Fig. 8, P. 3586, L. 4) is more convincing. Thus may be the procrustes analysis is not the best method to support the argument in this section.

P. 3587, L. 19: This is somewhat circular. You used a model which is known to indicate a larger source area for larger lakes. You affected that relationship somewhat by weighting the 50% source area according to species composition, but the initial relationship is still there.

Technical comments

P. 3567, L. 10-14: This sentence mixes two important concepts: 1) Pollen source area depends on lake size (note differences in the why between Tauber 1965 and Prentice 1985). 2) Due to species specific characteristics in fall speed the pollen source area should vary between species.

P. 3567, L. 18: Sugita (1993) has not just calculated the source area for 50% of pollen with different fall speed but provided graphs from his numerical model illustrating the source area for different proportions depending on fall speed and lake size.

P. 3575, L. 24 and elsewhere: I suppose CP as an online journal has no size restriction so some or all supplementary material may be presented in the article itself.

P. 3577, L. 25: Two samples fall into LSG 2.

P. 3581, L. 10: "proved" may be a bit strong here considering the small sample size.

Fig. 5: The triangles should be labelled or may be omitted.

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