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Bayesian Palaeoclimate Reconstruction

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ABSTRACT

Quantitative reconstructions of the palaeoclimate are valuable for the insights they supply into the Earth's history as well as the basis they provide for evaluating models which predict future climate change. A hierarchical Bayesian modeling approach to palaeoclimate reconstruction is introduced and applied to the reconstruction of the climate since the last ice age at Glendalough, Ireland from fossil pollen. This method extends on earlier work in both its treatment of uncertainty and its reconstruction of entire climate histories. We compare reconstructions from this model with those generated by preexisting techniques. Several challenging, unresolved statistical issues are also discussed.