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Comment

Interactive comment on “CO₂ radiative forcing during the Holocene Thermal Maximum revealed by stomatal frequency of Iberian oak leaves” by I. García-Amorena et al.

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The conclusion of a CO₂ decrease between 5000 and 1000 years BP arises from only five measurements with a standard deviation of up to 10 ppmv. This is in contrast to very robust results from several polar ice cores, which report an increase of about 10 ppmv during this time interval. Four ice cores from very different locations with respect to geographical location, altitude and accumulation rate in Antarctica (EPICA Dome C, Taylor Dome, DML and Talos Dome) show essentially the same features. The time resolution reaches up to 100 years and the reported measurement accuracy is 1.5 ppmv (Monnin et al. 2004, Luethi et al. 2007) well below the reconstructed trend. Due

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to the large uncertainty and the low time resolution of the stomatal data in comparison to the ice core results, we hold that stomatal investigations do not show a clean and robust atmospheric CO₂ signal. Without a quantitative biophysical understanding of stomatal density and its dependence on environmental and physiological parameters, a reconstruction of atmospheric concentrations seems premature to us.

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