



A coupled D/18O approach to reconstruct the paleohumidity during the Younger Dryas in the Eifel, Germany

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Leaf waxes, such as long-chain n-alkanes and n-alkanoic acids, and their D/H isotopic composition, are increasingly used in lake, marine and eolian sediments to reconstruct past changes in vegetation, as well as the isotopic composition of precipitation. However, evaporative enrichment of leaf water might compromise such reconstructions, and it remains difficult to quantitatively reconstruct past climate changes.

For the present study, we have analyzed samples from the Gemündener Maar, a lake situated in the western Eifel, Germany, for their isotopic composition of n-alkanes (D) and sugars (18O). Combination of both isotopes allows calculating not only the isotopic composition of paleo-precipitation, but also relative humidity (rh), based on reconstructed d-excess of leaf water. Our results suggest that the Younger Dryas was not particularly dry compared to the Alleröd. The onset of the Holocene, on the other hand, seems to have been very dry, except for one humid spell. Only with the transition Preboreal/Boreal, rh increased again.