



Modelling Oxygen isotopes in the Eocene

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Oxygen isotopes from planktic and benthic foraminefera have been widely used to interpret ocean temperatures conditions for the distant past. In order to calculate temperature, it is necessary to eliminate any diagenetic overprints and “vital” effects, and to estimate the oxygen isotope composition of sea water. The latter cannot generally be observed and can be strongly dependent on climate, resulting in a potential for inaccuracy and bias in the reconstructed temperatures. An alternative approach is to include a representation of isotopic changes within a climate model and let the climate model predict the composition of sea water. We present the first attempt at using a fully coupled atmosphere-ocean GCM to simulate oxygen isotope composition of sea water during the Eocene. The impact on reconstructed sea surface temperatures will be discussed.