



## Modeling of water isotopes in oceanic models: review and perspective

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*The potential given by foraminiferal calcite  $d_{18}O$  content to give access to past conditions of the ocean surface is complicated by its non-unique relationship to seawater temperature, and seawater  $d_{18}O$  content. Models of the oceans on the other hand rely on the estimation of temperature and salinity to compute density, the latter giving access to the ocean dynamics. The use of oxygen-18 as a passive tracer in oceanic models gives in principle the potential to compute all parameters needed and thus to disentangle the different effects at play.*

*I will provide a review of the development of oxygen-18 as a tracer in oceanic models, its applications to palaeoceanographic conditions as well as perspective and pitfalls. The discussion will be focused on the capability of the models to simulate adequately the seawater isotopic content and on its translation into a quantity that can be compared to foraminiferal calcite. A review of the paleosalinity estimation will also be provided.*

*I will demonstrate the need for an additional step between the passive tracer modeling and the direct comparison to foraminiferal isotopic content and show a simplified way forward to include foraminifera species specific effects into the oceanic models.*