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What causes the mid-brunhes transition in benthic d18O stack?

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The interglacial climates of the past 1 Myr are characterized by a transition, about 430 kyr ago, between the older ones, which were relatively cool, and the more recent ones, which were relatively warm. This transition corresponds to the so-called mid-Brunhes Transition (MBE). Benthic calcite d18O (d18Oc) records show systematically lower values during the interglacials after 430 kyr ago, implying a smaller global ice volume and/or a higher deep-ocean temperature. It is widely known that the benthic d18Oc reflects changes in ambient temperature and sea water d18O which itself is a function of global ice volume and ocean mixing. To clarify whether there is a systematic sea level change during interglacials before and after the MBE, here we employ a start-of-art, stable water isotope enabled climate model to isolate the contribution of ice volume within the d18Oc. In this work, we will explore whether we can reproduce the MBE without changes in sea water d18O associated with ice volume, and discuss the roles of ocean mixing and deep sea temperature on our simulated benthic d18Oc stack. The results will aid our understanding of the origin of MBE, as well as the role of ocean circulation on interglacial climates.