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Speleothem evidence for chronology of TII in the North Atlantic Realm

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The absolute chronology surrounding the penultimate deglaciation (Termination II) has been difficult to resolve in the regions most proximal to the Northern Hemisphere ice sheets where the climate signals have the clearest relationship with glacial retreat and meltwater. Here we present a new speleothem record of climate change during TII from northwestern Spain, a region whose marine borders were strongly affected by cycles in ice rafted debris and meltwater arrival as well as deglacial temperature rise. In caves from the coastal plain, one speleothem grew continuously from 176 to 111 ka, while another grew from 140 to 121 ka. The high resolution oxygen isotopic records of these speleothems reproduce the main features of the glacial-interglacial transition. Our modern monitoring of the temperature dependence of oxygen isotopes in local rainfall is consistent with relationships from regional speleothem oxygen isotopes and sea surface temperatures during Greenland Stadial events 25 and 22. We use these relationships to link the chronology of TII in the speleothems with the marine proxy records from the Iberian Margin and better date the sequence of deglaciation.