



A radiometric chronology for the Iberian margin marine sequence through Termination II: implications for inter-hemispheric phasing of deglaciation

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Ice- and marine-core records show that profound and widespread environmental changes occur when the Earth's climate shifts between glacial and interglacial states. Precise and accurate chronologies for these transitions are essential for testing climate-forcing hypotheses. Compared to the last deglaciation (T-I), the chronology of palaeoclimatic events for the period spanning the penultimate deglaciation (T-II) is poorly resolved. Given the critical role of the North Atlantic Ocean in the global climate system and its links to the Southern Ocean via the global oceanic conveyor belt, sites directly influenced by North Atlantic circulation are key targets for investigating T-II.

We present the first detailed chronology of North Atlantic palaeoclimate through T-II based on precisely dated stable-isotope and growth-rate variations in Italian speleothems. By tuning proxy data from Iberian-margin marine-core sediments to the speleothem chronology, we provide important new age constraints for the onset of deglaciation (141 ± 2.5 kyr), the major ice-rafting episode of T-II (Heinrich-like Event

11: 140 ± 2 to 130 ± 1 kyr), and the Saalian-Eemian vegetation transition in southwestern Europe (129 ± 1 kyr). Our record allows for the robust testing of hypotheses on climate forcing and interhemispheric phasing through T-II. Based on the recent Dome Fuji chronology, we suggest that Antarctic warming preceded North Atlantic warming by several thousand years.