



Chronology for deglaciation during Termination II from stalagmites in NW Spain

Heather Stoll (1), Carlos Perez (2), Isabel Cacho (3), Ana Moreno (2), Miguel Iglesias (4), R. Lawrence Edwards (5), Hai Cheng (5,6)

(1) ETH Zurich, Geology, Zurich, Switzerland (heather.stoll@erdw.ethz.ch), (2) Instituto Pireneo Ecologia, CSIC, Zaragoza, Spain, (3) Dept. Geologia, Univ. Barcelona, Spain, (4) Univ. de Oviedo, Spain, (5) Dept. of Earth Sciences, University of Minnesota, USA, (6) Xi'an Jiaotong University, Shaanxi, China

A stalagmite with continuous growth from 176 to 111 ka in a cave in Northwest Spain provides a unique chronology for Termination II, with replication of the main features in two additional stalagmites with continuous growth between 140 and 128 ka. The cave location in Northern Spain, on the Atlantic coast, features less fractionation of oxygen isotopes in hydrological processes than sites farther east in Europe. Therefore, the stalagmite tracks the evolution of oxygen isotopes of the surface ocean in the North Atlantic moisture source region, a region rapidly responding to ice sheet melting. The new speleothem oxygen isotope record reveals a two part structure to deglaciation, and shows that the main deglacial oxygen isotope shift several thousand years older than the the oxygen isotope shift in Chinese speleothems. Trace element records allow us to constrain the effects of degassing and prior calcification on carbon and oxygen isotopes. The new record allows us to constrain the relative timing of mid-latitude warming and ice sheet decay. It also allows us to assign an absolute chronology to high resolution marine sediment records covering this time period, facilitating better correlation between terrestrial, marine, and ice core records over the penultimate glacial termination.