

Table S1: Full list of all measured conventional and calibrated radiocarbon ages and full description of Ramped Pyrolysis Oxidization (RPO).

Core Nr./ position	Depth (cmbsf)	Carbonate source	Conventional radiocarbon ages (¹⁴ C ka BP) ± error	Marine20 calibration Age range (cal ka BP) 2 sigma rounded	Median (cal ka BP) rounded
PS128_4 4-1	6	Benthic foraminifers	1,583 ±71	200-500	400
Outer shelf	106	Benthic foraminifers	14,095 ±142	14,500-15,500	15,000
NB	147	Benthic foraminifers	14,356 ±149	14,900-15,800	15,400
PS128_4 6-1	192	Benthic foraminifers	11,625 ±135	11,900-12,600	12,300
Outer shelf	220	Benthic foraminifers	11,629±116	11,900-12,600	12,300
IA	228	Benthic foraminifers	11,606 ±106	11,900-12,600	12,300
	243	Benthic foraminifers	12,487 ±111	12,700-13,200	12,900

Ramped-Pyrolysis-Oxidation (RPO) ¹⁴C ages were determined using a modified SoliTOC Cube Carbon Analyzer (Elementar Analysensysteme GmbH, Germany) located at the radiocarbon dating facility of the Alfred Wegener Institute (AWI) in Bremerhaven. 100 mg of ground, freeze-dried sediment was weighted into pre-combusted (6h at 900°C) ceramic crucibles, acidified with 3 drops of 0.5 M HCl and placed on a heating plate at 60°C for 1h to remove inorganic carbon. This procedure was repeated two more times and the sediment was allowed to dry completely before analysis. RPO was conducted in pyrolysis mode (oxygen-free conditions) with a heating rate of 15°C/min. Based on the shape of the thermograms (evolved CO₂ over temperature) the temperature limit for an appropriate fraction was determined such that the upper temperature limit was as low as possible while including a total amount of 80-100 µgC. For the trapping run, an appropriate amount of sediment was weighted in, prepared and analysed as described above. During this second run, all CO₂ produced between the onset of the heating phase and 290°C was collected on a self-constructed zeolite trap system and subsequently ¹⁴C-analysed using AWI's Mini CArbon DAting System (MICADAS 15; Ionplus AG, Switzerland) applying the standard gas measurement method. The data were blank corrected against blank and modern CO₂ reference gases (Mollenhauer et al., 2021).