

Supplement to: cp-2019-153Estimating the timescale-dependent uncertainty of paleoclimate records---a spectral approach. Part II: Application and interpretation.

Stable oxygen isotopes were performed on *Globigerinoides ruber* (s.s.) from the 250-355  $\mu\text{m}$  (250-400  $\mu\text{m}$  when not enough specimens were available) size fraction. For Rep1 5 specimens were analysed; for Rep2 30 specimens were crushed and mixed before enough material was taken from this mixed sample for analysis. Analyses were performed Thermo-Fisher Scientific 253plus gas isotope ratio mass spectrometer with Kiel IV automated carbonate preparation device at MARUM, University of Bremen. Isotopic results were calibrated relative to the Vienna Pee Dee belemnite (VPDB) using the NBS19 standard. The standard deviation of the laboratory standard was lower than 0.05‰ for the measuring period.

Radiocarbon dating was performed on 9 mono-specific samples of *Trilobatus sacculifer* consisting of ~50 specimens per sample from the 250-400  $\mu\text{m}$  (Table S1). To determine the age-heterogeneity ( $\tau_b$ ) using the inter-individual standard deviation, 10 samples consisting of 10 specimens of *T. sacculifer* each from the same sediment depth (68-69 cm) were analysed (Dolman et al., in prep.). All AMS- $^{14}\text{C}$  dates were analysed using a Mini Carbon Dating System (MICADAS) at the Alfred Wegener Institute, Bremerhaven, Germany (Wacker et al., 2010). Samples consisting of 50 specimens were analysed using a graphite target, samples consisting of 10 specimens using a gas target.

Wacker, L., Bonani, G., Friedrich, M., Hajdas, I., Kromer, B., Nemeč, N., Ruff, M., Suter, M., Synal, H.-A. and Vockenhuber, C.: MICADAS: Routine and High-Precision Radiocarbon Dating, *Radiocarbon*, 52(2), 252–262, 2010.

Table S1. Down-core AMS- $^{14}\text{C}$  dates for GeoB 10054-4. Radiocarbon ages were calibrated with the Marine13 radiocarbon calibration curve.

Analysis ID	Depth top (cm)	$^{14}\text{C}$ age	$\sigma$ $^{14}\text{C}$ age	Calibrated age	No. foraminifera	Weight total ( $\mu\text{g}$ C)	Taxon
1660.1.1	3	944	59	551	100	84.0	<i>T. sacculifer</i> / <i>G. ruber</i>
2662.1.1	13	1662	64	1214	43	110.0	<i>T. sacculifer</i>
2663.1.1	28	1962	62	1514	50	136.0	<i>T. sacculifer</i>
2664.1.1	48	3113	64	2895	50	143.0	<i>T. sacculifer</i>
2665.1.1	88	4950	70	5282	50	169.0	<i>T. sacculifer</i>
2666.1.1	108	5520	72	5902	50	164.0	<i>T. sacculifer</i>
2667.1.1	128	6831	81	7346	50	165.0	<i>T. sacculifer</i>
2668.1.1	148	7675	81	8136	50	157.0	<i>T. sacculifer</i>
2669.1.1	173	8558	102	9194	50	154.0	<i>T. sacculifer</i>

