

Table 1: estimated correlation coefficient with 95% calibrated confidence interval using the method in Olafsdottir and Mudelsee (2014).

Time range	Estimated correlation (r) with 95% calibrated confidence interval			
	d18O-d234Ui		d13C-d234Ui	
0-309 ka (66)	-0.675	[-0.948; -0.172]	0.718	[0.203; 0.922]
0-362 ka (81)	-0.640	[-0.904; -0.021]	0.691	[0.333; 0.875]
0-590 ka (110)	-0.528	[-0.810; -0.063]	0.709	[0.567; 0.810]

Table 2: Regression models comparison: the weighted regression methods give about the same fit parameters regardless of the choice of the calibration interval. The regression model without weighting, is somewhat changed, presumably due to the decreased correlation between d234Ui and d18O with more data incorporated from older section (see Table 1). Data with Bold font are the model adopted in the MS.

Time range (counts)	Intercept		$\delta^{18}\text{O}$		$\delta^{13}\text{C}$		Residual	Statistics
	Value	1 $\sigma$ error	Value	1 $\sigma$ error	Value	1 $\sigma$ error	2 $\sigma$ error	Adj. R <sup>2</sup>
Instrumental weighting (factor=1/ $\sigma^2$ ) for 234Ui								
0-309 (66)	874	192	-61	10	57	17	62.4	0.65
0-362 (81)	888	172	-61	9.3	57	14	67.3	0.65
0-590 (110)	898	147	-60	8.0	58	12	78.7	0.65
No weighting								
<b>0-309 (66)</b>	<b>1219</b>	<b>189</b>	<b>-44</b>	<b>10</b>	<b>86</b>	<b>16</b>	<b>60.5</b>	<b>0.61</b>
0-362 (81)	1411	163	-32	8.7	79	16	62.8	0.54
0-590 (110)	1658	151	-20	8.2	108	14	70.9	0.52
No weighting (calculated with the method in Macias-Fauria et al. (2012))								
0-309 (66)	1223		-44		86		60.5	0.62
0-362 (81)	1414		-32		80		62.8	0.55
0-590 (110)	1654		-21		108		70.9	0.54

Table 3: Coefficient of Determination (R2) , Reduction of Error (RE), Coefficient of Efficiency (CE), and Coefficient of Correlation (r2) with the 95% and 99% threshold values are shown

	4-309 ka (R2=0.624, p=0.0025)		4-355 ka (R2=0.553, p<0.001)		4-590 ka (R2=0.536, p<0.001)	
	Normal	Cross Cal./Ver.	Normal	Cross Cal./Ver.	Normal	Cross Cal./Ver.
RE	0.235	0.427	-0.037	0.51	0.351	0.561
RE_95	0.435	0.325	0.248	0.221	0.267	0.226
RE_99	0.605	0.519	0.361	0.361	0.396	0.331
CE	-0.28	0.277	-0.458	0.417	0.294	0.516
CE_95	0.194	0.076	0.155	0.109	0.207	0.165
CE_99	0.503	0.341	0.322	0.267	0.336	0.252
R2	0.691	0.685	0.701	0.472	0.624	0.478
R2_95	0.468	0.74	0.462	0.52	0.368	0.475
R2_99	0.588	0.823	0.591	0.632	0.468	0.611
r2	0.358	0.412	0.406	0.552	0.387	0.525
f2_95	0.609	0.353	0.39	0.354	0.374	0.273
r2_99	0.772	0.496	0.553	0.461	0.531	0.384