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# Publisher Correction: Coccolith-calcite Sr/Ca as a proxy for transient export production related to Saharan dust deposition in the tropical North Atlantic

C. V. Guerreiro, P. Ziveri, C. Cavaleiro &amp; J.-B. W. Stuut

Correction to: *Scientific Reports* <https://doi.org/10.1038/s41598-024-54001-3>, published online 21 February 2024

The original version of this Article contained a repeated error, where all instances of the unit ‘ $\mu\text{m}$ ’ were incorrectly given as ‘mm’.

As a result, in the Material and methodology section, under the subheading ‘Quantification of the coccolith-Sr/Ca ratios’,

“The laboratory procedure is further described in the Supplementary Material. We present the Sr/Ca ratios determined from the bulk fraction ( $< 20 \text{ mm}$ ) and from the three coccolith size-fractions ( $> 6 \text{ mm}$ ,  $3\text{--}6 \text{ mm}$  and  $< 3 \text{ mm}$ ), which we compared to published data concerning the total and species-specific coccolith- and coccolith- $\text{CaCO}_3$  export production from the same samples.”

now reads:

“The laboratory procedure is further described in the Supplementary Material. We present the Sr/Ca ratios determined from the bulk fraction ( $< 20 \mu\text{m}$ ) and from the three coccolith size-fractions ( $> 6 \mu\text{m}$ ,  $3\text{--}6 \mu\text{m}$  and  $< 3 \mu\text{m}$ ), which we compared to published data concerning the total and species-specific coccolith- and coccolith- $\text{CaCO}_3$  export production from the same samples.”

Additionally, in the Results, under the subheading, ‘Coccolith  $\text{CaCO}_3$  size fraction separation for Sr/Ca analyses’,

“The bulk fraction ( $< 20 \text{ mm}$ ) overall mimicked the seasonal variation of the original coccolith sinking assemblages and related coccolith- $\text{CaCO}_3$  reported by<sup>8,17</sup>. The small fraction ( $< 3 \text{ mm}$ ) was dominated (38–87%) by  $\text{CaCO}_3$  from deep-dwelling species *Gladiolithus flabellatus* and *F. profunda*. The intermediate ( $\sim 3\text{--}6 \text{ mm}$ ) and large fractions ( $> 6 \text{ mm}$ ) were dominated by carbonate produced by *Helicosphaera* spp. (up to 83%) followed by *Scyphosphaera apsteinii* (up to 44%), *Calcidiscus leptoporus* (up to 19%) and *Pontosphaera* spp. (up to 7%).”

now reads:

“The bulk fraction ( $< 20 \mu\text{m}$ ) overall mimicked the seasonal variation of the original coccolith sinking assemblages and related coccolith- $\text{CaCO}_3$  reported by<sup>8,17</sup>. The small fraction ( $< 3 \mu\text{m}$ ) was dominated (38–87%) by  $\text{CaCO}_3$  from deep-dwelling species *Gladiolithus flabellatus* and *F. profunda*. The intermediate ( $\sim 3\text{--}6 \mu\text{m}$ ) and large fractions ( $> 6 \mu\text{m}$ ) were dominated by carbonate produced by *Helicosphaera* spp. (up to 83%) followed by *Scyphosphaera apsteinii* (up to 44%), *Calcidiscus leptoporus* (up to 19%) and *Pontosphaera* spp. (up to 7%).”

, And under the subheading ‘Seasonal distribution of the Sr/Ca ratios’.

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“We found generally higher ranges of Sr/Ca in the large fraction (> 6 mm; 1.6–12.6), followed by the bulk (< 20 mm; 1.2–5.4) and intermediate-size fractions (3–6 mm; 0.7–5.7), and finally the small size fraction (< 3 mm) with the lowest range (1–2.5).”

now reads:

“We found generally higher ranges of Sr/Ca in the large fraction (> 6  $\mu\text{m}$ ; 1.6–12.6), followed by the bulk (< 20  $\mu\text{m}$ ; 1.2–5.4) and intermediate-size fractions (3–6  $\mu\text{m}$ ; 0.7–5.7), and finally the small size fraction (< 3  $\mu\text{m}$ ) with the lowest range (1–2.5).”

Furthermore, in the legend of Fig. 2,

“Species-specific coccolith- $\text{CaCO}_3$  contribution (%) in the bulk fraction (< 20  $\mu\text{m}$ ) and coccolith size fractions (small < 3 mm; intermediate 3–6 mm; and large > 6 mm), from selected sediment trap M4 samples U2, U7, U12, U14, U18, U21 and U24.”

now reads:

“Species-specific coccolith- $\text{CaCO}_3$  contribution (%) in the bulk fraction (< 20  $\mu\text{m}$ ) and coccolith size fractions (small < 3  $\mu\text{m}$ ; intermediate 3–6  $\mu\text{m}$ ; and large > 6  $\mu\text{m}$ ), from selected sediment trap M4 samples U2, U7, U12, U14, U18, U21 and U24.”

In the legend of Fig. 3,

“(a) Seasonal variation of the coccolith-Sr/Ca ratios in the bulk fraction (< 20  $\mu\text{m}$ ) and in the coccolith size fractions (small < 3 mm; intermediate 3–6 mm; large > 6 mm); (b) total coccolith- and coccolith- $\text{CaCO}_3$  fluxes<sup>8,17</sup> from sediment trap M4.”

now reads:

“(a) Seasonal variation of the coccolith-Sr/Ca ratios in the bulk fraction (< 20  $\mu\text{m}$ ) and in the coccolith size fractions (small < 3  $\mu\text{m}$ ; intermediate 3–6  $\mu\text{m}$ ; large > 6  $\mu\text{m}$ ); (b) total coccolith- and coccolith- $\text{CaCO}_3$  fluxes<sup>8,17</sup> from sediment trap M4.”

And in the legend of Fig. 4,

“(a) Normalized coccolith-Sr/Ca ratios from the bulk fraction < 20 mm (light orange line) and coccolith size fractions (small, intermediate and large size fractions—red, blue and black lines, respectively);”

now reads:

“(a) Normalized coccolith-Sr/Ca ratios from the bulk fraction < 20  $\mu\text{m}$  (light orange line) and coccolith size fractions (small, intermediate and large size fractions—red, blue and black lines, respectively);”

and,

“Numbers refer to samples U2, U7, U12, U14, U18, U21 and U24, in which we performed a taxonomic analysis of the bulk fraction (< 20 mm) and of the coccolith small, intermediate, and large size fraction (shown in Fig. 2).”

now reads:

“Numbers refer to samples U2, U7, U12, U14, U18, U21 and U24, in which we performed a taxonomic analysis of the bulk fraction (< 20  $\mu\text{m}$ ) and of the coccolith small, intermediate, and large size fraction (shown in Fig. 2).”

in the Discussions section, under the subheading ‘Coccolith size fractions and species-specific Sr/Ca signal’,

“Our data clearly support this, based on the much higher Sr/Ca ratios measured in the large (> 6 mm) coccolith size fractions.”

now reads:

“Our data clearly support this, based on the much higher Sr/Ca ratios measured in the large (> 6  $\mu\text{m}$ ) coccolith size fractions.”

and,

“According to coccolith biometric data presented in<sup>17</sup>, coccoliths of *S. apsteinii* were by far the largest coccoliths measured in samples from trap M4 (mean length of 15.24  $\mu\text{m}$ ), resulting in a coccolith calcite mass of 1665.06  $\mu\text{g}$ . (Table IV in the Supplementary Material).”

now reads:

“According to coccolith biometric data presented in<sup>17</sup>, coccoliths of *S. apsteinii* were by far the largest coccoliths measured in samples from trap M4 (mean length of 15.24  $\mu\text{m}$ ), resulting in a coccolith calcite mass of 1665.06  $\mu\text{g}$ . (Table IV in the Supplementary Material).”

Finally, the header row of Table 1 has been corrected.

Coccolith Sr/Ca (m mol/mol)			
< 20 micron	< 3 micron	3–6 micron	> 6 micron

now reads:

Coccolith Sr/Ca (m mol/mol)			
< 20 $\mu\text{m}$	< 3 $\mu\text{m}$	3–6 $\mu\text{m}$	> 6 $\mu\text{m}$

The original version of this Article has been corrected.



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