ERRATA

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Approximation of the size distribution of marine particles by a sum of log-normal functions (Errata: Corrections and additional results)

Our paper in *Limnology and Oceanography* (1996, same title as this erratum, **41:** 744–754) described an algorithm that permits automated decomposition of a frequency size distribution of marine particles into a sum of log-normal functions. The computer program that performed the decomposition contained an error that caused (in some cases) the sum-of-components fit to be selected as an approximation of a size distribution instead of the statistically equivalent and simpler log-normal fit to all data in that size distribution. Here, we report adjustments to certain numerical results of our paper. The conclusions of our paper remain fully supported by these new results.

The adjustments were caused by a reduction in the number of components of 412 frequency particle size distributions, $FD(D)$, from 902 to 728 components. The allocation of components between the size distributions is shown in Table 1. Out of 728 components, 662 were classified as log normal, using a criterion expressed in Eq. 7. (The equation numbers are those of our original paper.) Thus, only about 9% of the new total number of components can be classified as hyperbolic components. The peak diameter, D_{peak}, of standard component 1 has been reduced to ≈0.38 μm (from 0.65 μm), and the σ parameter of this component has been increased to ≈0.75 (from 0.675). After these adjustments, the linear regression Eq. 8–10 for 662 log-normal components become

$$B_1 = (4.709 \pm 0.532) - (1.433 \pm 0.011)B_0 \quad (8)$$

$$B_2 = -(5.390 \pm 0.478) - (0.522 \pm 0.010)B_0 \quad (9)$$

$$B_2 = -(3.412 \pm 0.321) - (0.380 \pm 0.005)B_1 \quad (10)$$

with r^2 of 0.962, 0.807, and 0.915, respectively. (The number following the ± sign is 1 SD.)

A regression equation (not reported in our original paper) leading to Eq. 11 changes from

$$\ln w = (0.313 \pm 0.021) + (0.899 \pm 0.003)\ln D_{peak}$$

to

$$\ln w = (0.349 \pm 0.018) + (0.798 \pm 0.005)\ln D_{peak}$$

The first of these equations ($r^2 = 0.991$) was based on 893 components out of 902. The missing components were those for which the log-normal parameters FD_{max}, D_{peak}, and σ could not be calculated. The second equation ($r^2 = 0.973$) is based on 662 log-normal components and yields

$$w = 1.42\ D_{peak}^{0.8} \quad (11)$$

The equation of the regression line in Fig. 10 becomes

$$\ln FD_{max} = (7.986 \pm 0.118) - (2.327 \pm 0.035)\ln D_{peak}$$

with $r^2 = 0.873$ for 662 components.

The equation of the regression line in Fig. 11 becomes

$$\sigma = (0.644 \pm 0.007) - (0.113 \pm 0.002)\ln D_{peak}.$$

Table 1. Allocation of all 728 components between the 412 particle size distributions (PSDs).

Number of components per PSD	Number of PSDs	% of the total number of PSDs
1	257	62.4
2	56	13.6
3	55	13.4
4	27	6.6
5	16	3.9
6	1	0.2

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