

Erratum: Application of the isotope pairing technique in sediments where anammox and denitrification co-exist

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A mathematical error occurs on page 69 in Eq. 30—the expression for r_{14} (i.e., the ratio between $^{14}\text{NO}_x^-$ and $^{15}\text{NO}_x^-$ in the NO_x^- reduction zone).

Equation 30 incorrectly reads

$$r_{14}^{(1)} = \frac{p^{29}\text{N}_2^{(1)} - V \cdot p^{29}\text{N}_2^{(2)}}{p^{30}\text{N}_2^{(1)} - V^2 \cdot p^{30}\text{N}_2^{(2)}}$$

The error is repeated in Table 2 (page 68).

Using this expression will lead to wrong estimates of genuine N_2 production, when calculated from data from a $^{15}\text{NO}_3^-$ concentration series experiment.

The correct procedure for calculating r_{14} in such an experiment is

$$r_{14}^{(1)} = \frac{p^{29}\text{N}_2^{(1)} - V \cdot p^{29}\text{N}_2^{(2)}}{2 \cdot (p^{30}\text{N}_2^{(1)} - V^2 \cdot p^{30}\text{N}_2^{(2)})} \quad (\text{A})$$

where $p^{29}\text{N}_2^{(1)}$ and $p^{30}\text{N}_2^{(1)}$ are production rates of $^{29}\text{N}_2$ and $^{30}\text{N}_2$ in incubation 1 and $p^{29}\text{N}_2^{(2)}$ and $p^{30}\text{N}_2^{(2)}$ are production rates of $^{29}\text{N}_2$ and $^{30}\text{N}_2$ in incubation 2—a parallel incubation with a different $^{15}\text{NO}_3^-$ concentration in the water column. V is the ratio between $^{15}\text{NO}_x^-$ concentration in the water column in incubations 1 and 2. Thus, expression (A) should replace the former Eq. 30 on page 69 and in Table 2.

The authors regret the error.

Reference

Risgaard-Petersen N., Nielsen L. P., Rysgaard S., Dalsgaard T., and Meyer R. L. 2003. Application of the isotope pairing technique in sediments where anammox and denitrification co-exist. *Limnol Oceanogr: Methods* 1:63-73.