



Redfield ratios revisited: Removing the biasing effect of anthropogenic CO₂

Körtzinger, Arne, John I. Hedges, Paul D. Quay

Limnol. Oceanogr., 46(4), 2001, 964-970 | DOI: 10.4319/lo.2001.46.4.0964

ABSTRACT: Redfield ratios of remineralization are calculated based on chemical data analysis on isopycnal surfaces. The concentrations of dissolved inorganic carbon used in this study were corrected for the anthropogenic CO₂ content as estimated with a back-calculation technique. The corrections increased the apparent carbon remineralization by 25-30%, thus proving important for the reliable estimation of Redfield carbon ratios in the presence of anthropogenic CO₂. Best estimates from this study largely confirm the more recently published Redfield ratios of remineralization. The following results were obtained for the latitude range 3-41° N along 20-29° W in the Northeast Atlantic Ocean: C_{org}: P ratio = 123 ± 10 ; C_{org}: N ratio = 7.2 ± 0.8 ; -O₂:C_{org} ratio = 1.34 ± 0.06 ; -O₂: P ratio = 165 ± 15 ; N: P ratio = 17.5 ± 2.0 . These ratios are in close agreement with the average composition of phytoplankton and represent respiration of organic matter consisting on average of 52% protein, 36% polysaccharide, and 12% lipid.

Article Links

[Download Full-text PDF](#)

[Return to Table of Contents](#)

Please Note

Articles in L&O appear in PDF format. Open access articles may be freely downloaded by anyone. Other articles are available for download to subscribers only, or may be purchased for \$10 per article. All L&O articles are moved into Open Access after three years.