

Variation in concentration of solutes in the oceans IV: oxidation of sinking organic particles - a summary

Parts I, II, and III of this series have shown how concentrations of dissolved nutrients, O_2 , and CO_2 vary both vertically and laterally through the oceans. This page merely emphasizes the linkages among these distributions, all of which are greatly influenced by oxidation of organic particles sinking from the photic zone through the thermocline and into the

deeper ocean. As one can see below, this oxidation of organic matter consumes O_2 and releases CO_2 and the nutrients NO_3^- and PO_4^{3-} . In addition, oxidative (or other) decay of organic coatings on siliceous tests in the deep ocean allows dissolution of those siliceous tests, allowing release of a third critical nutrient, $SiO_{2(aq)}$, in the deep water.

