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Interactive comment on "Calibration of a simple and a complex model of global marine biogeochemistry" *by* Iris Kriest

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"Specific comment: Page 5, line 10-11: "The discretised flux divergence, that can actually be remineralised to phosphate and nitrate with available oxidants (oxygen and/or nitrate) Deff, (j), is then determined by...." - organic matter cannot be remineralized to nitrate by nitrate. In the absence of oxygen and the presence of nitrate, organic matter will be remineralized by denitrification (reducing nitrate to N2 while oxidizing the organic carbon), but the organic nitrogen in the organic matter will be remineralised and released as ammonium. This can in turn be oxidized to nitrate in the presence of oxygen (nitrification). Under low oxygen concentration, this process can occur parallel to denitrification (coupled nitrification-denitrification). But in the absence of oxygen, ammonium will not be oxidised to nitrate. I am not sure if this is important in this context, but the sentence as it stands now is misleading."

C1

IK: I thank Friederike Hoffmann for drawing my attention to this quite erroneous and misleading expression in the paper. Indeed, in MOPS organic matter is denitrified to phosphate and N2 (without any intermediate reduced N compounds). To avoid any confusion, I will skip to "phosphate and nitrate"

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