

General appraisal

In their revised manuscript and author comments, Ingeniero et al. addressed my major concerns about the paper (namely, the assumption that nitrifier-denitrification was the only reductive process that may be occurring in their study site). While the authors do not spend a lot of time on the implications of their study for global biogeochemical cycles, the measurements are novel and provide another piece of the puzzle of marine NO cycling.

My main criticism of the revised manuscript is that it should be streamlined and revised for clarity. As it is, the discussion is a bit convoluted and difficult to read — especially section 4.3 (see below).

Also, at this stage of publication the data should be deposited in a repository with an associated DOI. Not enough to say it “will be made available.”

Specific comments

Lines 130-131: Why not just use the GSW MATLAB toolbox to calculate density?

Lines 292-303: I would drop these two paragraphs and just say, "Nonetheless, salinity alone is insufficient to explain the uneven distribution of NO at our study site, indicating that other parameters influence NO concentrations along the Elbe estuary." The salinity gradient tells you about mixing but not about the sources of NO, so I think it's sufficient in this section simply to point out that the weak negative correlation between NO and salinity indicates that higher NO concentrations in the Hamburg Port area mix out as your move towards the North Sea.

Line 304/Section 4.3: This section still needs to be streamlined and clarified. Is the main point just that high DIN doesn't necessarily lead to high NO? Or that there isn't much evidence for NO photoproduction in your study area?

Line 336/Table 1: Here, is N_2O just the concentration or ΔN_2O ? Figure 7 is ΔN_2O ...

Line 360: Specify that this reaction is for ammonia-oxidizing bacteria; the exact pathway and enzymology for archaeal nitrification is still a matter of debate. Also, use the commonly accepted abbreviations for each enzyme to make this figure easier to read. E.g., amo instead of ammonium monooxygenase.

Lines 460-462: Wait, I thought you had a whole section on how your study challenges the assumption that higher concentrations of nitrogen nutrients automatically lead to increased dissolved NO concentration?

Technical corrections

Line 46: global estimates OF oceanic NO emissions

Line 423: should be "these sampling locations"