

Reviewer's comments for "Global database of actual nitrogen loss rates in coastal and marine sediments".

This study compiles global denitrification and anammox data from both open ocean and estuarine environments, providing a valuable dataset for the scientific community, particularly for researchers studying the nitrogen cycle. The database offers insights into nitrogen loss processes and their environmental controls, which can support future studies and biogeochemical modelling. While the study is well-organized, some aspects require clarification. Below are my comments and suggestions

Line 55 The full name of anammox (Anaerobic Ammonium Oxidation) should be provided here.

Line 69 Please provide a brief introduction to slurry incubation and intact core incubation methods to clarify their differences and applications.

Line 109 Please provide a brief introduction to continuous flow experiments to clarify their methodology.

Line 113 Slurry incubation provides valuable data in certain aspects, and completely excluding these measurements may not be appropriate.

Line 119 Please clarify why measurements under light incubation were excluded.

Line 170 Consider adding a figure to summarize the calculation methods for better clarity

Line 286 Other factors, such as iron and sulfide, can also influence denitrification and anammox. Why were these not considered? While some studies may not have measured these parameters, it would be valuable to discuss their potential role.

In addition, this section applies multiple regression analyses to explore the relationships between various controlling factors and denitrification/anammox. I am curious whether the authors were able to determine a threshold value for these factors—beyond which denitrification exceeds anammox. Additionally, based on the compiled data, which parameter is identified as the most significant controlling factor

Line 357 I am wondering about the sediment characteristics at these study sites. Do they include vegetated areas? These factors can significantly influence denitrification and anammox rates.

Some data in the table represent open ocean environments, while others are from riverine systems. Please consider adding water depth to Table 1 to provide clearer context for the different study sites.