

Interactive comment on “Stable isotopic evidence for high microbial nitrate throughput in a High Arctic glacial catchment” by A. H. Ansari

Anonymous Referee #3

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Dr. A. H. Ansari has used isotopic mass balance techniques to study the role of microorganisms in transforming nitrogen in High Arctic Glacial catchment. At the outset I must say that this work is based on nice premise and tries to address production and consumption of nitrate in this area. However, I also have a similar issue as pointed out by other reviewers. Does this study contribute something new compared to previous work by the author? He fails to clearly make out the conclusions and increase in our knowledge from his previous work. I have following specific comments:

1. The abstract uses sentences like “overwhelming amounts of ”. This is rather subjective. Please try to be quantitative if you are claiming to provide evidence for ‘high microbial nitrate throughput’.
2. I was wondering if the description about the study site and sample collection sites

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could be made a bit clearer. Right now you appear to get lost at different abbreviations.

3. I do not understand why author has decided to put the method for denitrification in such great detail. This method has been established by someone else whom you have followed. Should not the author make it shorter with appropriate references? Instead they should mention where they have performed this measurement.

4. Some of the information is repeating in results and study area section.

5. Is the author proposing the mass balance equations for the first time during this study? They should again provide the proper references. In this section there are some sentences which are open ended (e.g., 323 -325). Also, He should try to make it reader friendly.

6. The discussion needs significant decluttering. It starts without the overall premise and major findings. They have divided it in different sub-headings without justifying connection to each other.

7. The major assumption by the author during the calculation is that change in microbial assimilation/denitrification is 1:1 where they have cited Kendal et al. 2007. What if this is not followed in the glacial settings author is working on. I think it would be wise to discuss about the uncertainties associated with this assumption and its possible effects on overall results and findings.

8. Author has considered the nitrogen transformation processes within the water column of stream only. What about the contribution from sediments or groundwater discharge? Is there a potential that these components may have role in modifying the isotopic composition?

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