

Interactive comment on “Tracing atmospheric nitrate in groundwater using triple oxygen isotopes: evaluation based on bottled drinking water” by U. Tsunogai et al.

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The Tsunogai et al. manuscript is a straight forward, well written article detailing using D17O isotope anomalies in drinking. The interpretation data is clear, the discussion concise and the interpretation of the results logical. This is a nice extension of their previous work using D17O to understand atmosphere surface interactions in the N cycle. I thin the authors should add a map showing the location of the drinking water origins, that would help put context for site. One issue with the quantification of the atmospheric fraction is the is uncertainty in how D17O differs depending on location. This must also be considered in the context of ground water age. Alexanders model is

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for modern atmosphere, as are the measurements of tropospheric atmospheric NO₃-. Many ground waters are 100 to 1000's of years old and the No₃- atm inputs would likely have a vey different d17O value. This unfortunately can not be assessed until a pre-anthropogenic model is developed. Do the authors know which aquifers are modern versus ancient? I don't think these issues can be definitely resolved but might be qualitatively discussed. Also a few technical comments

16495: Line 12 reads awkward Line 16 “for sampling ground water directly” Line 19. Im not sure if this is true, I do not think drinking water company evaluate the status of the forests where they obtain their water. 16501 “would be 0.03..” is this even relevant given the analytical uncertainty is 10 times higher and it would not even be a rounding factor? As discussed on p. 16502

Over all I thinks its a sound article and should be published with these minor amend-ments.

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