

Interactive comment on “Quantifying the effects of clear-cutting and strip-cutting on nitrate dynamics in a forested watershed using triple oxygen isotopes as tracers” by U. Tsunogai et al.

Anonymous Referee #1

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This manuscript presented triple oxygen isotope ratios of nitrate eluted from a small catchment after clear-cutting and subsequent strip-cutting. The topic is relevant to the journal and I consider it worth publishing in BG.

Technical comments p.7423 l. 17; Exchange of oxygen in nitrite (NO₂) and nitrate (NO₃). The authors mentioned that nitrite concentrations were below the detection limit, which corresponded to nitrite/nitrate ratios less than 10 %. However, oxygen atom in nitrite easily exchanges with that in H₂O, the uncertainty in ¹⁷O value may cause an error in calculating contributions using eqs (2)-(4).

p. 7425 l. 18 - l.23; variation of ¹⁸O and ¹⁷O: It is not clear that the authors avoided

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the sampling after rain or snow. It is known that both isotope ratios are high after snow melt, it is not surprising that the values were high in March-April irrespective of the event, such as clear-cutting or strip-cutting.

p.7429 l. 10; ¹⁸O-atm value should be +87.1.

p.7430 l.8-10; Why do high ¹⁷O values cause the large errors in ¹⁸O-re?

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