

Interactive comment on “Insights into the transfer of silicon isotopes into the sediment record” by V. N. Panizzo et al.

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Panizzo and co-authors have produced a high quality dataset of silicon isotopes in lake waters and in diatom opal from a sequence of sediment traps and core tops in Lake Baikal. This is the first such systematic study of silica production, sinking and sedimentation and their effects on the isotopic composition of opal. As such, their findings are an important contribution to our understanding of biomineralisation and the use of diatom silicon isotopes in palaeoclimate studies. Their data are good quality and robust, and the methods are described thoroughly.

I have just a few minor comments for the manuscript. Firstly, I think it would be good to include in the introduction the Sutton et al. (2013) reference showing that – in laboratory cultures – some diatom species have been shown to have fractionation factors

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that differ significantly from the -1.1 per mil estimate. Secondly, I think that it would be useful to include some images of the cleaned diatoms (SEM and/or light microscope) for both identification purposes and to show that the opal is clean of debris. Lastly, there are is a minor mistake in the tables. In table 2, the $\delta^{30}\text{Si}$ value should read $\delta^{30}\text{Si}_{\text{diatom}}$ not $\delta^{30}\text{Si}_{\text{DSi}}$ (opal rather than seawater). Also, I'm not quite clear in the tables what the 2SD values represent: are these 2SD on full replicates or on repeat measurements of the same solution? It would be useful to clarify this.

Kate Hendry

Sutton, J., D. Varela, M. A. Brzezinski, and C. Beucher (2013), Species-dependent silicon isotope fractionation by marine diatoms, *Geochimica et Cosmochimica Acta*, 104, 300-309.

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