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Interactive comment on "Pliocene diatom and sponge spicule oxygen isotope ratios from the Bering Sea: isotopic offsets and future directions" *by* A. M. Snelling et al.

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This paper by Snelling and co-authors presents some intriguing new data comparing diatom and sponge oxygen isotopes (d18O) from the Bering Sea. The authors separate the biogenic opal from Pliocene age sediments by size, and find that the isotopic composition correlates strongly with sponge spicule content (such that the sponges are isotopically lighter than the diatoms). The mechanisms that lie behind the spicule d18O signature have remained elusive to date. This paper adds an extra piece of the puzzle, showing that there might be a water d18O signature contained within spicules that is consistently offset from diatoms.

It is a shame that the authors could not obtain a pure sponge spicule fraction. I can only imagine that the spicules were too few/small to handpick (c.f. Hendry et al., 2010, 2012, 2014), especially given the amount of SiO2 required for a measurement.

It would also be really interesting to know the silicon isotope composition of the spicules (d30Si), given that there are some very interesting Arctic seawater d30Si studies coming out of the GEOTRACES programme.

Regarding the comparison between the spicule d18O and the L&R stack, it's an interesting observation that there are temporal links, but there are some very important differences, most notably being the difference in amplitude (as noted in the paper) and the difference in behaviour at $\sim$2.8Mya. Do the authors have any explanation for this? Also, would they expect the Bering Sea to record a "global" d18O signature? Or do they think that it's recording a local phenomenon forced by something external to the system, which is also driving ice-sheet behaviour and global deep ocean d18O?

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