

Interactive comment on “A systematic look at chromium isotopes in modern shells – implications for paleo-environmental reconstructions” by Robert Frei et al.

Anonymous Referee #2

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Frei et al present new bivalve $\delta^{53}\text{Cr}$ data accompanied by coexisting seawater $\delta^{53}\text{Cr}$ data. They confirm that marine calcifiers produce carbonates with much lower $\delta^{53}\text{Cr}$ compared to contemporaneous seawater. They also found large inter-species and small intra-species $\delta^{53}\text{Cr}$ variations. The large proportion of Cr being hosted in bivalve shell organic matter is very interesting as well. Clearly, this work is a nice step forward developing bivalve as potential seawater $\delta^{53}\text{Cr}$ archive, which can potentially help build a more detailed ocean-atmosphere redox record over the Phanerozoic Eon. Based on this, I recommend publication of this work in Biogeosciences. The following minor suggestions should be fairly easy to address.

C1

Technical comments Currently there is significant amount of discussion mingled with results in the result section. I suggest separate out discussion from results.

When discussing distribution coefficients, it would be good to compare biogenic against abiogenic values, to emphasize the importance of biological processes.

Since currently there is still a lack of concrete evidence for Cr(VI) reduction during biological calcification, it may be good idea to equally discuss alternative hypotheses, such as uptaking organic-complexed Cr(III) from seawater.

371 Missing a period.

650. On average.

706. Future, not futures.

Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2018-138>, 2018.

C2