

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

### **Anonymous Referee #1**

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#### Comments to the authors

The authors provide new data of Cr isotope composition in biogenic carbonate (shells) and add further information regarding the potential of the  $\delta^{53}\text{Cr}$  as a proxy for paleo-seawater  $\delta^{53}\text{Cr}$  composition, and/or the past redox conditions of the sea water. The authors compared the  $\delta^{53}\text{Cr}$  signal of fast growing shells to local sea water and found a large offset between shells and sea water, similar to other biogenic carbonates (corals and foraminifera). The authors also provided a model explaining how calcification processes may generate the offset between biogenic carbonate and sea water. This study provides an important message to the biogeochemical community, especially those

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interested in chromium stable isotopic applications. I think the manuscript is a nice contribution and deserves to be considered for publication in Biogeosciences.

Technical corrections 1. Please separate the unit from the number, there are many situation through the text that this is not followed. (e.g. Line 137 “5m”; line 150 “8mm”) 2. Line 321 – “d53Cr” correct to  $\delta^{53}\text{Cr}$  3. Lines 342, 349, 473 – idem 4. Line 382, “(Pereira et al., 2015)” correct to Pereira et al (2015) 5. Line 741, insert “1.” at Cardidae. 6. Line 766, exclude “a (yellow highlighted)” at the sentence “of various *Mytilus edulis* shells and a of a shell mixture”

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