

Earth Surf. Dynam. Discuss., author comment AC1  
<https://doi.org/10.5194/esurf-2021-44-AC1>, 2021  
© Author(s) 2021. This work is distributed under  
the Creative Commons Attribution 4.0 License.

## Reply on RC1

Jennifer R. Shadrick et al.

---

Author comment on "Multi-objective optimisation of a rock coast evolution model with cosmogenic  $^{10}\text{Be}$  analysis for the quantification of long-term cliff retreat rates" by Jennifer R. Shadrick et al., Earth Surf. Dynam. Discuss.,  
<https://doi.org/10.5194/esurf-2021-44-AC1>, 2021

---

We would like to thank Vincent Regard for his highly constructive and thoughtful review. We are happy to see that his review is overwhelmingly positive and that he shares our enthusiasm about the significance of our work. Many helpful comments have been made, and these will be addressed in detail in the response to reviewers document if we are invited to resubmit with revisions made.

Here, we would like to address a few comments that relate to interpretations of  $^{10}\text{Be}$  concentrations and associated geomorphological implications. We see the first order purpose of this paper to be a packaged presentation of the optimisation methodology, where input measured data act simply as test datasets for demonstration purposes. A detailed geomorphological interpretation of these results in the context of the field sites is beyond the scope of the present work, but is currently in preparation for a subsequent manuscript. A detailed and rigorous methodology was required for that purpose, and we felt it was involved enough that it merited its own publication as presented here.

One particular comment that we wish to offer an initial response to relates to the possibility of reoccupation of the shore platform. This will be considered by our future publication, with discussion of observed geomorphology of the sites and referencing a wider appropriate literature. Furthermore, the future publication includes multiple cosmogenic nuclide concentrations, not only  $^{10}\text{Be}$  but also  $^{26}\text{Al}$ , for one of the sites, which allows a direct test of a simple, continuous surface exposure history versus a complex exposure history with periods both surface exposure and burial. These data can address absolutely whether the shore platform is entirely formed in the current interglacial period, or whether subaerial exposure, burial and/or reoccupation of the platform has occurred.

Finally, we would also like to ask for clarification on a particular comment regarding Figure 7. The reviewer asks for more discussion for this figure but is not specific about which particular aspects of the figure have not been explained or require additional discussion. On reflection, we are unsure whether a clearer explanation of the figure is needed. Could the reviewer please clarify with a further response to this comment?

Once again, we thank Vincent Regard for a detailed review and look forward to any more discussion on topics highlighted above.