

Geosci. Model Dev. Discuss., referee comment RC2
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Comment on gmd-2021-269

Dominik Paprotny (Referee)

Referee comment on "CliffDelineaTool v1.2.0: an algorithm for identifying coastal cliff base and top positions" by Zuzanna M. Swirad and Adam P. Young, Geosci. Model Dev. Discuss., <https://doi.org/10.5194/gmd-2021-269-RC2>, 2021

"CliffDelineaTool v1.1.0: an algorithm for identifying coastal cliff base and top positions" is a manuscript that presents the validation of a Matlab-based tool for coastal applications. As the other reviewer discussed the manuscript and other possible methods quite extensively, and further I find the text and figures adequate apart from the issues already raised, I decided to focus on the code.

The paper extensively discusses the accuracy and calibration issues of the method – especially interesting is the comparison with results obtained by different human mappers. I tested the tool using a 1-meter lidar DEM taken in 2011 by the national surveying agency around the BiaÅła Góra cliffs near MiÅłdzydroje, north-western Poland (fragment of a DEM used in: Paprotny and Terefenko, 2017, Natural Hazards, DOI 10.1007/s11069-016-2619-z). The area is rather tricky due to a very narrow beach, a lot of landslides and anthropogenic influence. I generated 55 cross-shore transects using ArcMap as per the instructions on GitHub. The script run without problems on those transects. After visualizing the output in ArcMap (see attachment), even though the parameters were kept at default, the cliff base and top were identified very well most of the time.

I have some minor suggestions about the code:

- Making the code a function script would make it slightly faster to embed the tool in the workflow by other researchers.
- In line 37, use "display" function
- In line 39, showing "table" is not needed as it will be always empty here;
- It would be good to add a header to the output file, so it is immediately known what the columns contain; also, it would make it easier to load in software other than ArcMap, e.g. QGIS.
- Further, it would be much more convenient if the script could read XY coordinates of

those (if included in the attribute table – could be an optional parameter) and save the output with those, so it can be directly viewed in GIS without the need to merge it with the shapefile every time.

As a future development, that I think is beyond the scope of this paper, I would suggest the following:

- Create a Python script that would contain the pre-processing routine of ArcMap. All except defining the seaward and landward limits as polylines can be rendered in Python.
- Further, use geopandas in such a script to export the attribute table and then post-process the Matlab output directly into a shapefile.

I'm looking forward to the authors' revision of the paper and code.

Please also note the supplement to this comment:

<https://gmd.copernicus.org/preprints/gmd-2021-269/gmd-2021-269-RC2-supplement.pdf>