

“Erosion of Great Escarpments” for submission to *Geology* by Matmon et al.

“Erosion of Great Escarpments” presents theories concerning the erosional history of escarpments. The Matmon et al. present sinuosity data along with compilation of other data to support their theories that escarpments are, for the most part, stable, that they are controlled by deep crustal structure, and that they erode by embayment, not by parallel retreat as is presently assumed. Matmon et al., support each of these claims, mostly using published literature. Hence, this paper is a theory paper with little primary data but significant review of literature.

Matmon et al., challenge the well-established paradigm of escarpment erosion. I believe that the authors sufficiently support their new theories. Therefore, I believe that “Erosion of Great Escarpments” should be published in *Geology* but only after (Sorry Ari) moderate revisions. Since this paper relies heavily on reviewing published data, and only adds a little new data the manuscript should be carefully and clearly written. There are several places where the writing style will lose the reader. The figures complement the text well. However, I believe Figure 2 should have some additional information and explanation. The tables are appropriate for the data repository. The title is appropriate for the manuscript and should generate sufficient interest. I believe that there are several major issues that should be addressed. I also have several minor editorial comments on the manuscript and are numbered below.

Major issues

1. The sinuosity data should come before the “review” of the literature. As the manuscript reads now the new data is lost in, or some would even say irrelevant to, the paper. If the data is presented right after the methods it will set up the discussion of passive vs. rift margins. The sinuosity data will lead into the rest of the paper, and thus, make it more pertinent to the paper.
2. The conclusions of the sinuosity data need to be made clearer to show why sinuosity is important. By looking at the data in Fig. 2, I do not see correlation between age and sinuosity as suggested by the authors. Maybe statistical analysis would better support the argument.
3. There should be some mention that there are numerous questions regarding erosion of great escarpments and this paper will not answer all of them. You could mention that process of pediment formation at the base of the escarpments is unknown.
4. There needs to be some explanation on the assumption of where the “retreat” started. Do we know where the faults are for passive margins? Why do parallel retreat supporters use the coastline, more or less, for the starting point of retreat?
5. Does retreat only occur by embayment? Are there hillslope processes that could erode hillslopes parallel? Maybe a paragraph detailing the parallel retreat model.

Minor issues

1. You do not discuss the lithologic, local structural variability or climate in the paper. If this is going to stay in the abstract then you should at least discuss these factors briefly in the text.
2. Insert “passive margins” for parallelism
3. Drainages do not flow; they are stationary. Reword for clarity.
4. Sentence is difficult to understand. Break into two sentences.

5. Again, sentence is difficult to follow.
6. Older than what?
7. Last few sentences are choppy. One is redundant, delete it. The last sentence would be better blended into the text higher in the paragraph.
8. Break into two sentences or use a semi-colon
9. Correspondence is a funny word to use here. How about similarity or correlation?
Also see suggestions for minor edits in rest of sentence.
10. Break first sentence into two. Delete the second sentence, it is redundant.
11. A trend not observed is not a sentence. Use a comma instead of the semi-colon.
12. Check spacing of words and sentences through out manuscript.
13. Sentence starting with "Continental rifts.." is confusing. Try breaking into two sentences. Try these: "Continental rifts with shoulder-type margins generally have low sinuosity values. Arch-type margin sinuosity values are generally higher than shoulder-type sinuosity values and cover a wide range of values."
14. Nah. It is ok I guess.
15. Are these values statistically significant? Seems like the increase of sinuosity with age should be strong for shoulder margins but not so strong for arch margins (due to influence of prior drainage systems).
16. What do you mean by "spatial pattern"? You should elaborate.
17. Will readers understand "young ocean" or should you say something like:
"...although the spreading center is opening the Red Sea like the beginning stages of an ocean, the escarpments..."
18. Why rapid erosion at onset of sea floor spreading? Base level lowering? Wouldn't flooding of water raise base level?
19. See comments on Figure 2.