

Interactive comment on “Complex coastlines responding to climate change: do shoreline shapes reflect present forcing or “remember” the distant past?” by Christopher W. Thomas et al.

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Response to review by Dr Eli Lazarus We thank Eli for an insightful, thoughtful and helpful review. In his opening remarks following his summary, Eli feels that: a) the ‘why’ of the paper gets lost amidst the ‘how’, b) highlights a lack of clarity on the reasons for our particular approach and c) asks for more clarity with regard to what we mean by wave climate change. We have endeavoured to modify the introduction to address the specific issues he raises and hope that our additional text clarifies our intentions. We hope that this clarifies our purpose and helps make the manuscript easier to read overall, following the introduction. We have considered closely Eli’s comments on structure and grouping of certain parts of the text. However, we feel that the way we

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have organised the paper makes most sense, having gone through various iterations in structure in drafts prior to submission. In addition, given that the anonymous reviewer regarded the manuscript as generally clear and well-written we are loathe to make significant changes. We feel that the structure is also consistent with other publications on similar coastal modelling, and with the explanation of modelling, mechanisms and interpretations. However, we have taken on board many of Eli's comments and made revisions to the text in several places to aid clarity. We hope that the revised introduction may help in answering Eli's misgivings in this regard. With regard to specific comments:

P2, L10: We have modified the paragraph beginning 'In this paper...' to be more explicit about the questions we are addressing in the paper. Hopefully this gives the previous paragraph more context.

P2, L24 and P4, L5: It is not clear where the confusion lies here as the explanations seem appropriate. The paragraph on Gamma doesn't specifically refer to Figure 1 here, but such an approach was used initially by Ashton and Murray in their 2006b paper, so we have referenced this here, by comparison.

P5, L10: We have modified and expanded the text hopefully to make this section clearer and more connected. In essence, we are explaining how we garnered the net flux and diffusivity data from the CEM, in largely practical terms.

Fig 3: A static wave climate is one which doesn't change. This seems pretty self-explanatory to us. Static in this context means that U and A are unchanged through the run of the model. Of course, H and T are also fixed. Hence, this represents long-term static conditions. Note that we have also corrected the second panel of the triptych 3b.iii – thank you for pointing out that the incorrect coastline had been mistakenly included.

P7 We feel that we can't really talk about length-scales before talking about the features to which we are referring. With regard to semi-colons, these are a very useful ways of adding sub-clauses to sentences without breaking the general theme.

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General comment: ‘...characteristic timescales...’: we have amplified this by specifying ‘morphological change’ in various places as suggested by Dr Lazarus.

Figures 4 & 5: e-folding times for the changes in aspect ratio for capes and spits subject to instantaneous change in wave climate from $U = 0.7$ to 0.45 have been added graphically, as suggested.

Figure 6: This has been revised extensively, so the justification issue should have been resolved...

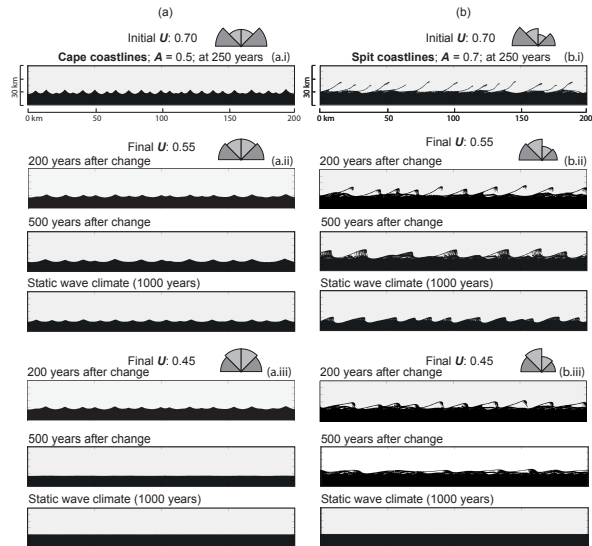
Interactive comment on Earth Surf. Dynam. Discuss., doi:10.5194/esurf-2016-35, 2016.

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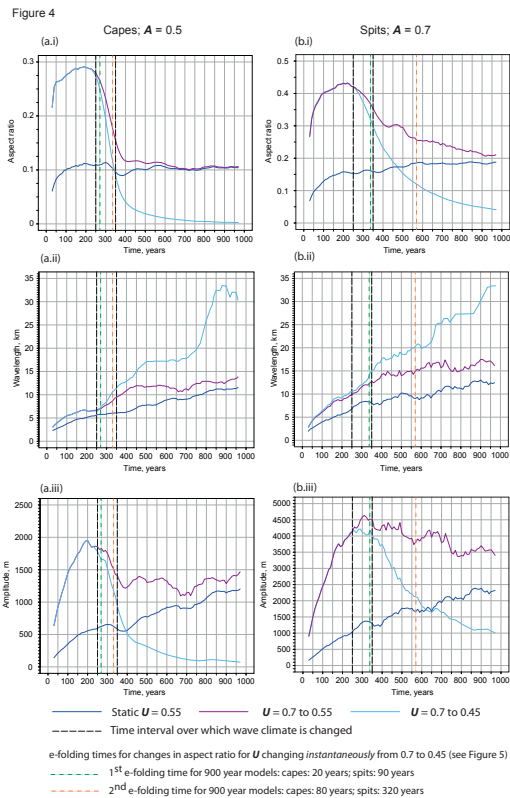


Figure 3



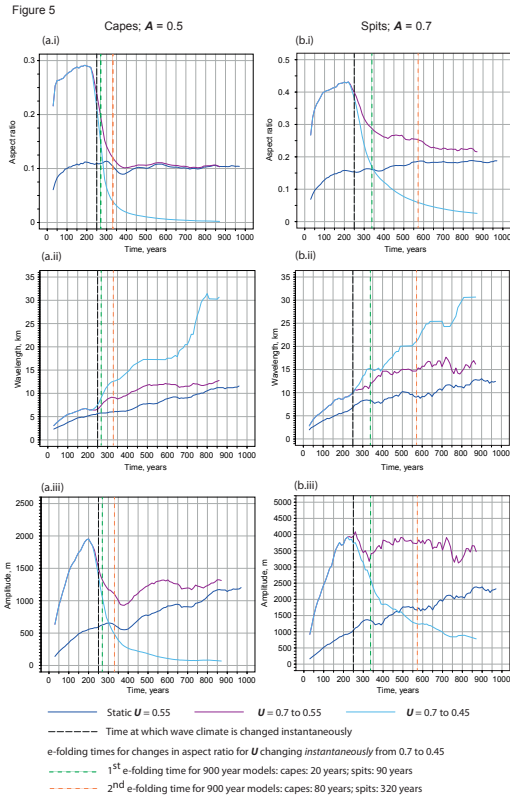
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Fig. 1.



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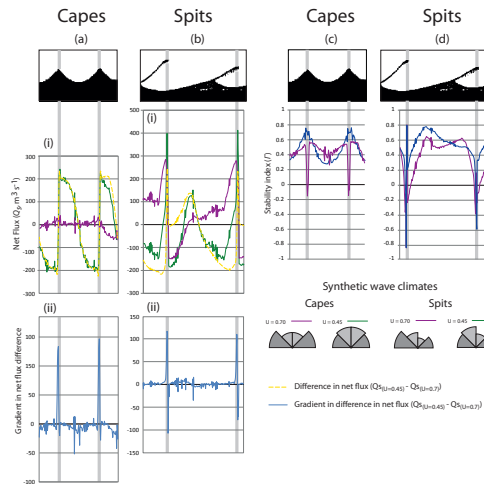
Fig. 2.



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Fig. 3.

Figure 6



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Fig. 4.

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