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Interactive comment on "Environmental signal shredding on sandy coastlines" *by* Eli D. Lazarus et al.

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This manuscript submitted by Lazarus et al. covers and interesting subject matter. I had the opportunity to read through the in-discussion manuscript, and this prompted a few questions/suggestions that I believe could contribute to the final published version. Note that these review comments do not constitute a full review.

- Andrew Ashton

L22. L23 "detailed" is used twice in a row meaning different things. Or undefined things.

L109-111. Could use more discussion of how shoreline change is converted to flux and the physical motivation behind this. Particularly here where this is first discussed.

C1

Also having read through this seems to be the full methods explanation. Overall the MS could use more detailed methods. In this case, the connection between the wave flux and shoreline changes needs to be made more explicit. Right now just implied. This also needs to be separated into the cross-shore (alongshore averaged) and the alongshore-varying examples used later.

L141-2. Why using "q" for something that is not directly flux. Leading.

L147. Overall, I feel that the -> q analogy is somewhat circumspect. I wish the authors could explain/justify much better. It strike me that they are forcing their results a bit too much into the specific framework of the Jerolmack and Paola (2010) rather then just being inspired by this work. The latter makes more sense as there are functional differences between the systems.

L158. Explicitly define the criteria for beach width. This probably does not affect the results, as L is just a scaling coefficient. Maybe better to scale with $max - min$? My concern is that on many developed/anthropogenically affected beaches, the beach width itself is set by things like development, how dune lines are locally determined, and the location of symbolic fencing.

L195. Could reference other, older works on PCA analyses of beach signals. Just an idea, I do not have specific examples on hand.

L213. Overall I feel that a constitutive connection is missing between the analyses of Fig 2 and Fig 4. Analysis one (Fig 2) is alongshore-averaged shoreline position. Analysis two (Fig 4) is about modes of change of shoreline position about the average (or at last most modes are, such as rotation, breathing, etc.). It would be helpful add more glue to put these concepts together together.

L232. I feel that overall the rice pile analogue is overemphasized. This example is constantly forced but the field site is not. I presume Fig 3 is meant to convey that there is weak spectral forcing in the data, but that should be different than constant forcing,

C2

no?

L246-7. Um?

L250. Add some references here.

Fig 2. Please make this figure easier to read. The whole alphabet is not needed to signify the plots (not referenced as such in the text). Would be better to give titles to the columns and find a way to make the row descriptions more obvious (not hidden in the axis text).

Fig 4. Please use color or at the very least different line types here.

Overall, I think that the MS could benefit from some form of summary plot/s. Values such as the tc for the different analyses should be summarized to make the point. Instead we are left with the spiderweb thin blue lines on the plots. On the log scale nobody can even read what these numbers are. I'm not a big fan of tables, but at the least a table of the T values would help. Even better if a plot could be figured out.