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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Coastline evolution based on statistical analysis and modelling" *by* Elvira Armenio et al.

Anonymous Referee #2

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The manuscript describes an interannual analysis of the shoreline evolution in a dynamic coastal area in South Italy by means of field observations, statistical tools and 1D commercial model. The topic is certainly of interest for the readers of NHESS; however, some flaws characterize the overall description of the adopted methodologies and results and my recommendation is to accept the manuscript for publication pending major revisions, mainly concerning some clarification on the adopted methodologies, as noted in the following comments.

- In Section 1, the Authors are suggested to review the new integrated approach proposed to assess coastal vulnerability to beach changes (among the others, Bonaldo et al. (2019) Integrating multidisciplinary instruments for assessing coastal vulnerability to erosion and sea level rise: lessons and challenges from the Adriatic Sea, Italy. Journal

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Discussion paper

of Coastal Conservation, 23 (1), pp. 19-37) - In Section 2, the Authors are suggested to add information on the morphological features of the area, such as the longshore transport in the area (main direction and rate), on the (if available) solid discharge from Ofanto river, closure depth. - In Section 2, the Authors are suggested to review Figure 1. The study area extends from the harbor of Margherita di Savoia to Barletta, and not including Gulf of Manfredonia. - In Section 3.1, the Authors are suggested to specify the sources of the analyzed aerial photography images and of the transects. - In Section 3.2, the y-labels in Figures 6, 8 and 10 should be correct into m and not m/year, if I well understood. - In Section 3.3, in the linear regression model (Figure 13), the Authors are suggested to clarify the definition of x variable and its calculation (i.e., central position of each section starting from the the northern one). - In Section 3.3, the Authors are suggested to clarify the input conditions for waves, wind, water levels. - In Figure 13, the caption text misses some years reported in the graph and in the legend. - The presentation and quality of Figure 14 are suggested to be improved. - The new grouping of the transects as shown in Tables on page 20 is a little bit confusing in reference to the results previously described. The Authors are suggested to improve the presentation of this analysis. - In Section 5, the Authors are suggested to discuss the feasibility to run simulations for longer periods (i.e., 2005 - 2013 or shorter period 2005-2011 and 2008-2013) and eventually compare the computational results with observations. - A review of the English language is also suggested.

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