Natural Hazards
and Earth System
Sciences

Discussions

Interactive comment on "Automated classification of the atmospheric circulation patterns that drive regional wave climates" *by* J. Pringle et al.

Anonymous Referee #3

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The paper is devoted to investigation of pure statistical links between the atmospheric circulation patterns and the extreme wave events along the east coast of South Africa. The aim of the study is to establish the local circulation configurations which are followed by development of large waves coming into shore. The input variables are the fields of the normalized anomaly of 700 hpa geopotential height while the output is a significant wave height. The difficulty of this task is that a high-dimension variable should be statistically connected with a single value (wave height). The idea of this technique is not explained, which makes it difficult to understand the method, at any rate for the readers who is unfamiliar with such specific topic. The authors admit that 'the procedure as a whole cannot be considered fully objective'. It makes difficult to follow the description of derivations, especially the algorithm of optimization. Probably,

a clearer knowledge can be obtained from the papers cited such as Bárdossy et al., 2002 and Huth et al., 2008, but I doubt that it comes into a range of Reviewer's responsibilities. The procedure of attributing the weather pattern to a specific CP class still remains unclear. However, I am inclined to think that this part of the paper is correct, and the results obtained contain some useful information. The work is definitely targeted at solution of the problem of the extreme waves statistics.

Recommendations: 1. I cannot consider myself a specialist in this specific area of the statistical analysis used in the work under reviewing. Maybe because of that I would recommend the authors to describe the idea of evaluation of the links in a more general form that would be understandable for researchers not working in this particular area.

In general, I presume that for solution of this problem it would be more appropriate to use the neural network technique combined with a highly compressed presentation of weather patterns over orthogonal constituents. This approach is probably free from using some 'fuzzy rules'. It is not a recommendation; it is just my private opinion. 2. It would be very interesting to see the standard estimations of predictability of the method, calculated, for example, on the basis of the dataset used for the evaluation.

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