

Artificial Neural Networks and Geographic Information Systems for Coastal Erosion Prediction

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Abstract : Artificial Neural Networks (ANNs) and Geographic Information Systems (GIS) are applied as a robust tool for modeling and forecasting the erosion changes in Costa Caparica, Lisbon, Portugal, for 2021. ANNs present noteworthy advantages compared with other methods used for prediction and decision making in urban coastal areas. Multilayer perceptron type of ANNs was used. Sensitivity analysis was conducted on natural and social forces and dynamic relations in the dune-beach system of the study area. Variations in network's parameters were performed in order to select the optimum topology of the network. The developed methodology appears fitted to reality; however further steps would make it better suited.

Keywords : artificial neural networks, backpropagation, coastal urban zones, erosion prediction

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