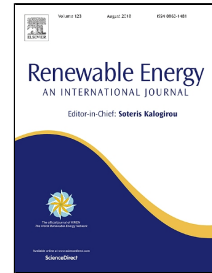


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Wave Energy Assessment For Northern Spain From A 33-year hindcast

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1 **WAVE ENERGY ASSESSEMENT FOR NORTHERN SPAIN FROM A 33-YEAR**  
2 **HINDCAST**

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13 **ABSTRACT**

14 The wave energy resource along the Northern Spanish coast is determined, for a  
15 period of 33 years (1979-2012) based on hindcast results of WAVEWATCH III for the  
16 Atlantic ocean area, coupled with the SWAN model for the coastal areas, and using  
17 surface winds from ECMWF's ERA- Interim data base. Results are validated with buoy  
18 data, in order to evaluate the model's accuracy. Statistical analysis of the wave parameters  
19 and wave power results are presented.

20 The analysis was carried out for a coarse grid, on the North of Spain, and for three  
21 local areas with a finer mesh: Northwest Galicia, the area between Cape San Adrián and  
22 Cape Ortegal and Santander. The case studies include a more realistic perspective of the  
23 amount of energy that can be extracted with a wave energy converter, by adopting  
24 examples of a large and a small device. A seasonal variability evaluation is done for the  
25 nested areas through the analyzes of the seasonal average wave power resource for the  
26 different locations, throughout the 33 year hindcast, and the joint distributions of  
27 significant wave height and peak period for the number of occurrences and wave power.

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