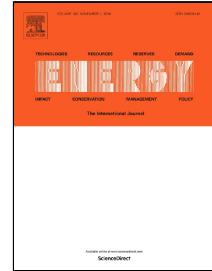


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A 33-year hindcast on wave energy assessment in the western French coast

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ABSTRACT: A 33-year hindcast is presented to quantify the wave energy resource available in the Atlantic coast of France, showing its availability and variability. The evaluation of the waves is performed using WAVEWATCH III model for the Atlantic Ocean and SWAN model for the western French coast. The hindcast was validated in a prior study, presenting good results. Given the growing need of a good description of the wave climate in any given location, this study intends to provide a more robust characterization of the wave climate, combining previous results with the new studies, leading to a 33-year hindcast for the western coast of France, focussing in the test site area of the SEM-REV location.

Keywords: Wave energy; Spectral models; Wave transformation; WAVEWATCH III; SWAN; French coast

1. INTRODUCTION

Wave energy is a major subject of interest and to support its development a good characterization of the wave climate is essential. Numerical models consider the physics of waves allowing the assessment of the wave energy resource in coastal areas where developments are being planned.

Extensive research based on numerical models describing the wave energy availability has already been conducted. These studies provide descriptions of monthly and seasonal variability on a global scale, [1]-[7], or at a European scale [8][9].

In Europe, different hindcast studies were performed. For instance, in Spain, Iglesias and Carballo, [9] studied the wave energy resource using wave buoy data and a 44-year hindcast for SE Bay of Biscay. Sierra et al, [11] analysed the wave energy resource in Menorca using a 17-year hindcast wave climate database, showing a considerable seasonal variability. Rusu and Guedes Soares, [12] carried out a 10-year period analysis

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