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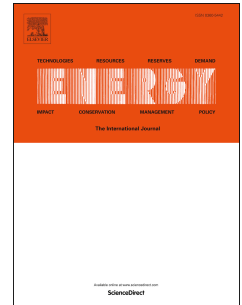
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1 Influence of the wave climate seasonality on the
 2 performance of a wave energy converter: A case study

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9 **Abstract**

10 CECO is a novel Wave Energy Converter (WEC) concept, which has
 11 shown promising results in previous studies. The present work focuses on
 12 assessing the performance of CECO for a 11-year horizon in relation to the
 13 characteristics of the wave climate (intra and inter-annual seasonal varia-
 14 tions) by means of two performance indicators defined *ad hoc*: Captured
 15 Energy (CE) and Captured Energy Efficiency (CEE_{ff}). For this purpose,
 16 the CECO matrix of absorbed wave power was constructed for an operat-
 17 ing water depth of 30 m using the panel-based model ANSYS[®]-AQWA[™].
 18 The Atlantic coast of the Iberian Peninsula, which presents a highly seasonal
 19 and energetic wave climate, was used as case study. Overall, it was found
 20 that CECO is able to capture large amounts of wave energy, especially for
 21 milder wave conditions, with values of CEE_{ff} exceeding 40 %. However, for
 22 harsher wave conditions the results of CEE_{ff} decrease considerably ranging
 23 from 10% to 20%, which may result from the current design of CECO. In
 24 this context, the results obtained offer some valuable insight into the future
 25 evolution of CECO with the purpose of addressing the limitations of the cur-
 26 rent design and to optimise its performance according to the wave conditions
 27 for specific locations.

28 *Keywords:*

29 CECO, WEC, Iberian Peninsula, NAO, AQWA, Captured Energy Efficiency

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