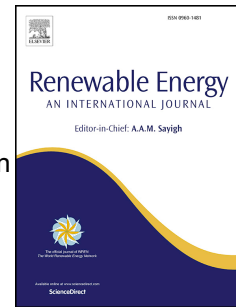


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Characterising the tidal stream power resource around France using a high-resolution harmonic database

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Abstract

Although tidal stream energy is highly predictable, the distribution of the resource varies over small spatial scales and over tidal-to-decadal time scales, requiring detailed models and accurate analysis techniques. The present study investigates the spatial and temporal variability of the tidal stream energy resource around France, using a tidal current harmonic database. The 250 m resolution tidal database covers western Brittany and the western English Channel, two regions that have strong potential for tidal array development. As well as generating a refined resource assessment for the region, a series of simplified parameters are considered to assess resource variability, both spatially and temporally. Particular attention is dedicated to variability over spring-neap time scales (resulting from M_2 and S_2 compound tides) and current asymmetry (governed by M_2 and M_4 velocities). A clear contrast in the nature of the resource is found between sites located off the Cotentin Peninsula, which exhibit low spring-neap variability and

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