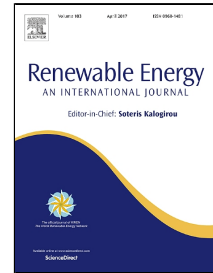


# Accepted Manuscript

Asymmetry of tidal currents off the W. Brittany coast and assessment of tidal energy resource around the Ushant Island

Maxime Thiébaud, Alexei Sentchev



PII: S0960-1481(16)31141-7  
DOI: 10.1016/j.renene.2016.12.082  
Reference: RENE 8419  
To appear in: *Renewable Energy*  
Received Date: 16 March 2015  
Revised Date: 07 November 2016  
Accepted Date: 28 December 2016

Please cite this article as: Maxime Thiébaud, Alexei Sentchev, Asymmetry of tidal currents off the W. Brittany coast and assessment of tidal energy resource around the Ushant Island, *Renewable Energy* (2016), doi: 10.1016/j.renene.2016.12.082

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

A novel method of assessing and mapping the hydrokinetic resource at two very promising tidal stream energy sites around the Ushant Island in the Iroise Sea is presented.

By merging surface velocity time series recorded by HF radars with ADCP measurements, the major metrics of the tidal flow required for detailed resource characterization are quantified.

Current velocities recorded by the radars show a pronounced asymmetry between the flood and ebb flow varying in a wide range, from 0.5 to 2.5, around the Ushant Island. The strongest variation of asymmetry was found in the Fromveur Strait.

In the Fromveur Strait, the  $1/7$  power law is appropriate to characterize the velocity profile, during at least 3-hour period of the strongest current observed on ebb and flood flow.

Assuming the  $1/7$  power law velocity profile to be appropriate for sites around the Ushant Island, the time series of the theoretical and technical power were reconstructed and used for quantifying the power available in the lower and upper half of the water column at different time scales.

Download English Version:

<https://daneshyari.com/en/article/4926477>

Download Persian Version:

<https://daneshyari.com/article/4926477>

[Daneshyari.com](https://daneshyari.com)