Proposal for a USTH Thesis		
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USTH Thematic Group (choose one of the 6 USTH thematic BP, EA, En, STIC, MN, EEO) :	**EEO & En**	

Laboratory :	**Laboratory of Oceanology and Geosciences, UMR 8187 CNRS-ULCO-Lille1**	**Website address : log.univ-littoral.fr**
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Scientific domain : Physical Oceanography, Marine Renewable Energy

Two major publications in the field proposed for the PhD :

Falnes, J. (2007). A review of wave-energy extraction. Marine Structures, 20(4), 185-201.

Polagye, B., & Thomson, J. (2013). Tidal energy resource characterization: methodology and field study in Admiralty Inlet, Puget Sound, WA, USA. J. of Power and En.

Description of the research work proposed for a PhD

Title : Assessment of Marine Renewable Energy potential in Vietnamese waters

Subject :

Marine renewable energy (MRE) conversion to electric power seems to leave the early stage of development due to growing interest for wave, tidal flow energy, and thermal energy conversion. A basic evaluation of renewable energy resources by research and consulting companies showed that the Vietnamese seas and estuaries have a non negligible potential, assuming also various marine energy resources. However there is no detailed knowledge of the quantity of extractable resources and their geographic location.
We propose to quantify MRE resources, in particular hydrokinetic marine and estuarine resources, wave energy, and thermal energy potential, using metrics conventionally employed in different countries.
The methods of resource assessing and mapping involves the use of numerical modeling, current velocity measurements by towed and bottom mounted devices, ocean wave measurements, and the analysis of oceanographic and meteorological data.
Based on recent development achieved in France in these fields, the present study is supposed to provide the first reliable estimate of the major MRE resources in Vietnam, and to help evaluating the feasibility of MRE projects. This evaluation will take into account a variety of conversion devices that are currently being proposed or are under active development in France and in UK.
A part of the work, in particular field measurement and modeling, will be performed in Vietnam, in the Laboratory of Oceanography of the USTH.

Keywords

Renewable Energy; Hydrodynamic modelling; Tidal flow potential; Wave energy potential; Marine engineering

Expected collaborations in Vietnam

International Lab of Oceanography (HILO) at USTH, Hanoi (Dr. Nguyen Nguyet Minh, Dr. Marine Herrman);
Laboratory Clean Energy and Sustainable Development (CleanED) at USTH (Dr. Minh Ha Duong);
VNU-HUS (Dr. Nguyen Minh Huan)

If a cosupervision is possible, please give the name and institution of the Vietnamese cosupervisor :