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Esteban Ferrer • Adeline Montlaur
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CFD for Wind and Tidal Offshore Turbines

 Springer

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Introduction

The International Energy Agency (IEA) concludes in The World Energy Outlook 2008 that the current energy consumption and production is “patently unsustainable environmentally, economically, and socially”. Social concern and international agreements (e.g. Kyoto 1997, Copenhagen 2009 or Durban 2011) are pushing forward the development of renewable energy technologies for sustainable and renewable energy generation.

In particular, offshore wind and tidal turbines have seen increasing interest from academia, industry and government bodies, during recent years, as offshore sites present huge energy potential. The new engineering challenges presented by these technologies, together with the difficulty to undertake experimental test under offshore environments, have raised the interest on Computational Fluid Dynamics (CFD) to design appropriate turbines and blades, understand fluid flow physical phenomena associated with offshore environments and predict power production, among others.

This book encompasses novel CFD techniques to compute offshore wind and tidal applications. All the included papers have been presented at the 11th World Congress on Computational Mechanics (WCCM XI) organised together with the 6th European Conference on Computational Fluid Dynamics (ECFD VI) in Barcelona 2014. The book includes contributions of researchers from academia and industry.

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Esteban Ferrer
Adeline de Montlaur

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