

# **First Symposium on OpenFOAM® in Wind Energy 2013**

**ITM Web of Conferences Volume 2 (2014)**

**Oldenburg, Germany  
20 - 21 March 2013**

**ISBN: 978-1-63266-280-4**

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

This work is licensed under a Creative Commons Attribution license:

<http://creativecommons.org/licenses/by/2.0/>

**You are free to:**

**Share** – copy and redistribute the material in any medium or format.

**Adapt** – remix, transform, and build upon the material for any purpose, even commercial.

The licensor cannot revoke these freedoms as long as you follow the license terms.

**Under the following terms:**

You must give appropriate credit, provide a link to the license, and indicate if changes were made.

You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. The copyright is retained by the corresponding authors.

Printed by Curran Associates, Inc. (2014)

For additional information, please contact EDP Sciences – Web of Conferences at the address below.

EDP Sciences – Web of Conferences  
17, Avenue du Hoggar  
Parc d'Activité de Courtabœuf  
BP 112  
F-91944 Les Ulis Cedex A  
France

Phone: +33 (0) 1 69 18 75 75

Fax: +33 (0) 1 69 28 84 91

[contact@webofconferences.org](mailto:contact@webofconferences.org)

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: [curran@proceedings.com](mailto:curran@proceedings.com)  
Web: [www.proceedings.com](http://www.proceedings.com)

## TABLE OF CONTENTS

<b>Influence of a Roughness Length Error on Vertical Wind Speed Extrapolation for 2D Ideal Hills using an OpenFOAM® RANS Simulation .....</b>	1
<i>H. Einav-Levy, A. Rosen, R. Shenkar</i>	
<b>Validation of the SimpleFoam (RANS) Solver for the Atmospheric Boundary Layer in Complex Terrain.....</b>	5
<i>C. Peralta, H. Nugusse, S. Kokilavani, J. Schmidt, B. Stoevesandt</i>	
<b>The Effect of Moving Waves on Neutral Marine Atmospheric Boundary Layer.....</b>	15
<i>A. Sam, R. Szasz, J. Revstedt</i>	
<b>From Meso-scale to Micro Scale LES Modelling: Application by a Wake Effect Study for an Offshore Wind Farm.....</b>	24
<i>M. Mache, H. Mouslim, L. Mervoyer</i>	
<b>Adding Complex Terrain and Stable Atmospheric Condition Capability to the OpenFOAM-based Flow Solver of the Simulator for On/Offshore Wind Farm Applications (SOWFA).....</b>	34
<i>M. Churchfield, S. Lee, P. Moriarty</i>	
<b>The Influence of Orographic Features on Wind Farm Efficiencies.....</b>	50
<i>C. Peralta, J. Schmidt, B. Stoevesandt</i>	
<b>Dynamic Mesh Optimization based on the Spring Analogy.....</b>	59
<i>J. Schmidt, B. Stoevesandt</i>	
<b>OffWindSolver: Wind Farm Design Tool based on Actuator Line/Actuator Disk Concept in OpenFoam Architecture .....</b>	68
<i>B. Panjwani, M. Popescu, J. Samseth, E. Meese, J. Mahmoudi</i>	
<b>Dynamic Flow Analysis using an OpenFOAM based CFD Tool: Validation of Turbulence Intensity in a Testing Site .....</b>	79
<i>L. Casella, W. Langreder, A. Fischer, M. Ehlen, D. Skoutelakos</i>	
<b>Comparison Between OpenFOAM CFD &amp; BEM Theory for Variable Speed – Variable Pitch HAWT .....</b>	91
<i>I. ElQatary, B. Elhadidi</i>	
<b>Actuator Disk Modeling of the Mexico Rotor with OpenFOAM*.....</b>	101
<i>A. Jeromin, A. Bentamy, A. Schaffarczyk</i>	
<b>A Semi-parabolic Wake Model for Large Offshore Wind Farms Based on the Open Source CFD Solver OpenFOAM.....</b>	113
<i>D. Cabezon, E. Migoya, A. Crespo</i>	
<b>Author Index</b>	