Proceedings of ASME 2026 45th International Conference on Ocean, Offshore and Arctic Engineering

(OMAE2026)

Volumes 1-11

June 7–12, 2026
Tokyo, Japan

Conference Sponsor
Ocean, Offshore and Arctic Engineering Division

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

© 2026, The American Society of Mechanical Engineers, 290 W. Mount Pleasant Avenue, Suite 1400, Bldg. 4, Livingston, NJ 07039, USA (www.asme.org)

All rights reserved. "ASME" and the above ASME symbols are registered trademarks of the American Society of Mechanical Engineers. No part of this document may be copied, modified, distributed, published, displayed, or otherwise reproduced in any form or by any means, electronic, digital, or mechanical, now known or hereafter invented, without the express written permission of ASME. No works derived from this document or any content therein may be created without the express written permission of ASME. Using this document or any content therein to train, create, or improve any artificial intelligence and/or machine learning platform, system, application, model, or algorithm is strictly prohibited.

INFORMATION CONTAINED IN THIS WORK HAS BEEN OBTAINED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS FROM SOURCES BELIEVED TO BE RELIABLE. HOWEVER, NEITHER ASME NOR ITS AUTHORS OR EDITORS GUARANTEE THE ACCURACY OR COMPLETENESS OF ANY INFORMATION PUBLISHED IN THIS WORK. NEITHER ASME NOR ITS AUTHORS AND EDITORS SHALL BE RESPONSIBLE FOR ANY ERRORS, OMISSIONS, OR DAMAGES ARISING OUT OF THE USE OF THIS INFORMATION. THE WORK IS PUBLISHED WITH THE UNDERSTANDING THAT ASME AND ITS AUTHORS AND EDITORS ARE SUPPLYING INFORMATION BUT ARE NOT ATTEMPTING TO RENDER ENGINEERING OR OTHER PROFESSIONAL SERVICES. IF SUCH ENGINEERING OR PROFESSIONAL SERVICES ARE REQUIRED, THE ASSISTANCE OF AN APPROPRIATE PROFESSIONAL SHOULD BE SOUGHT.

ASME shall not be responsible for statements or opinions advanced in papers or . . . printed in its publications (B7.1.3). Statement from the Bylaws.

For authorization to photocopy material for internal or personal use under those circumstances not falling within the fair use provisions of the Copyright Act, contact the Copyright Clearance Center (CCC), 222 Rosewood Drive, Danvers, MA 01923, tel:978-750-8400, www.copyright.com.

Requests for special permission or bulk reproduction should be addressed to the ASME Publishing Department, or submitted online at: https://www.asme.org/publications-submissions/journals/information-for-authors/journalguidelines/rights-and-permissions

VOLUME 1 ISBN: 978-0-7918-8947-3
VOLUME 2a ISBN: 978-0-7918-8948-0
VOLUME 2b ISBN: 978-0-7918-8949-7
VOLUME 3 ISBN: 978-0-7918-8950-3
VOLUME 4 ISBN: 978-0-7918-8951-0
VOLUME 5a ISBN: 978-0-7918-8952-7
VOLUME 5b ISBN: 978-0-7918-8953-4
VOLUME 6 ISBN: 978-0-7918-8954-1
VOLUME 7a ISBN: 978-0-7918-8955-8
VOLUME 7b ISBN: 978-0-7918-8956-5
VOLUME 8 ISBN: 978-0-7918-8957-2
VOLUME 9 ISBN: 978-0-7918-8958-9
VOLUME 10 ISBN: 978-0-7918-8959-6
VOLUME 11 ISBN: 978-0-7918-8960-2

TABLE OF CONTENTS

Enough Data? Variance- and Variogram-Based CPT Sampling Optimisation for Offshore Wind Farm Site Investigations 1
Kathy Ziwei Wen

Grain Size Distribution Pattern and Sedimentary Dynamic Process Analysis of Surface Sediments in the Western Hainan Island 9
Hang Sun, Botao Xie, Bigui Huang, Zaike Liu, Qi Zhang, Guoxin Li

A Fully CPT-Based Solution for Evaluating the Effective Friction Angle of Bio-Cemented Calcareous Sand 17
Yunuo Liu, Zhongkun Ouyang

ModPen - Free Fall Cone Penetrometer for Geotechnical Deep Sea Investigations 27
Nina Stark, Jack Parker, Kelly Dorgan

An Interpretable Machine Learning Model for Predicting Equilibrium Scour Depth Beneath Submarine Pipelines Under Steady Currents 34
Shun-Yi Wang, Xuhui He, Haiquan Jing, Qing-Kai Song, Biao Li, Wen-Gang Qi

A Framework for Accurate Soil Damping Modelling in Seismic Design of Offshore Wind Turbines 41
Junkan Wang, Yiorgos Perikleous, Aswin Nagarajan Sivakumarr, Carlos Espanol-Espinel, Gopal Santana Phani Madabhushi, Jin Sasaki

Formation of Sand Waves, Transport Trends, and Engineering Scour Impact Analysis in the Northwestern South China Sea 50
Lun Yuguo, Sun Hang, Tan Haiyue, Cai Jialong, Huang Bigui, Xie Botao

Seismic Response of Subsea Mudmat-Pile Hybrid Foundations in Sands 60
Li Yang, Xiaowei Feng

Scour Effects on the Bearing Area and Settlement of Spudcan Foundations 67
Hossein Ameri, Pan Hu, Ming Zhao, Chin Leo

Simplified Design Methods for Hybrid Monopile-Bucket Foundations for Offshore Wind Turbines 74
Henry Gunawan, Nallathamby Sivasithamparam, Zhongqiang Liu, Yutao Pan

Towards Informed Parameter Selection for the Stiffness Degradation Method: Insights From Cyclic Triaxial Testing on Sand 82
Junnan Song, Khalid Abdel-Rahman, Martin Achmus

On the Application of the Cyclic Strain Accumulation Method to Monopile Foundation in Sand Under Partially Drained Condition 91
Shuhan Cao, Martin Achmus, Khalid Abdel-Rahman, Michael Muller

Prediction of Excess Pore Pressure Accumulation Around Cyclically Loaded Offshore Foundations Using the Sanisand Constitutive Model 98
Henrike Bock, Khalid Abdel-Rahman, Martin Achmus

Numerical Modelling of Helical Piles for Offshore Wind Turbine Foundations in Dense Saturated Sand 105
Harrison Stamoudis, Li Cheng, Shah Neyamat Ullah, Yuxia Hu

Influence of Pile Penetration Velocity on Soil Plugging in Cohesive Soils....113
Philipp Wiesenthal, Britta Bienen, Sascha Henke

Modelling Non-Linear Soil-structure Interaction in the Dynamic Analysis of Monopiles....119
Martin Bjerre Nielsen, Berk Yyoztyurk, Marijn Johannes Dekker, David Robert Verelst

Towards Efficient Seismic Design of Offshore Monopile Foundations - Validation of a Simplified 1D Approach With 3D FE 128
Julia K. Moller, George Pittos, Evangelia Skiada, Jun Yoshitake, Shubham Trivedi, Paulius Bucinskas, Gerry Murphy, Martin B. Nielsen, Akshat Agrawal, Fabian Ortiz Wall, David M. G. Taborda

Back Calculation of Monitored Offshore Wind Turbines Frequencies Using 3D Finite Element Method 138
Anis Kheffache, Bruno Stuyts

Vibration Propagation on Nearby Berthing Structure due to Pile Driving 146
Jeena Mary John, Nilanjan Saha, Ranganathan Sundaravadivelu

Beyond First Applications: Lessons and Geotechnical Insights From Large-Scale Offshore Finned Suction Pile Installations 155
Pablo Castillo Garcia, Camila Ferreira Floriano, Charilaos Tsetoulidis, Edy Serra

Enhancing Lateral Performance of Finned Suction Piles: Parametric Analysis of T-Fin Geometry and Position in Deepwater Clay Soils 164
Camila Ferreira Floriano, Pablo Castillo Garcia, Charilaos Tsetoulidis, Edy Serra

Pullout Capacity of Suction Anchors in Sand: a Parametric Numerical Investigation of the Failure Surface.... 173
Kachallah Alhaji Kau, Kerstin Lesny

Pull-Out Test on Plate Anchors With Different Embedment Ratio and Aspect Ratio in Sandy Ground.... 182
Rikuto Fujikata, Shun Nomura, Hidenori Takahashi

Discrete Element Modelling of Helical Pile Installation: Effects of Particle Shape Representation on Micromechanics 192
Elmira Mahmoodi, Shah Neyamat Ullah, Li Cheng, Yuxia Hu, Britta Bienen

Numerical Simulation of Torpedo Anchor Holding Capacity Based on Centrifuge Test Results.... 202
Guilherme Kronemberger Lopes, Jose Renato Mendes de Sousa, Marcio de Sousa Soares de Almeida, Maria Cascao Ferreira de Almeida, Allan Carre de Oliveira, Rachel Guerreiro Basilio Costa Genzani

Anchor Load Sensitivity to Foundation Stiffness in Mooring Systems for Floating Wind Turbines: A Geotechnical Design Workflow for Suction Caissons 212
Nikolaj Bjerge, Andrea Franza, Giuseppe Abbiati, Luis Felipe Prada-Sarmiento, Soren Dam Nielsen, Soren Peder Hyldal Sorensen, Lars Vabbersgaard Andersen

Buckling of Suction Anchors During Installation Considering Soil Support Effects: A Semi-Analytical Approach.... 222
Liu Zhenhui

Coupled Eulerian-Lagrangian (CEL) Modelling of a Full-Scale Suction Caisson Installation in Sand With One-Way Hydro-Mechanical Coupling 232
Eirik Nilsen, Hans Petter Jostad, Yutao Pan

Calibration of Analytical Suction Bucket Installation Models Using Grain-Scale LBM-DEM Simulations 240
Samuel Kemmler, Pablo Cuellar, Antoni Artinov, Matthias Baessler, Harald Kostler

Full-Scale Field Test on the Installation of Circular Steel Cofferdams Using Suction in Jebudo, South Korea 247
Seongho Hong, Ju-hyung Lee, Jun-Seo Jeon, Jae-Hyun Kim, Wan Kyu Yoo

Development of a New Capacity Envelope for a Shared Suction Anchor for Ulsan Floating Offshore Wind Energy Farms 255
Hojin Yoon, Kyung-Tae Bae, Joonmo Choung

Full-Scale Fatigue Test Simulations of 66kV Dynamic Power Cable Under Controlled Tensions 262
Tri Hoang Nguyen, Kim Hyun Kyung, Junsik Han, Joonmo Choung

Author Index