1st International Geo-Symposium for Canadian Offshore Wind

Program

16 November 2026 | **Ottawa, Ontario, Canada** | **Fairmont Château Laurier**

1 Rideau Street, Ottawa, ON K1N 8S7 | Organized by **Norwegian Geotechnical Institute** and **Western University**

Event website

8:00–9:00 **Registration, Welcome Coffee & Networking**

9:00–9:15 **Welcome and Introduction** Federico Pisanò (Norwegian Geotechnical Institute) and Tim Newson (Western University)

Presenter	Affiliation	Presentation
9:15–10:30 **Session 1**	*Offshore Wind Development in Atlantic Canada: Context, Perspectives and Enabling Frameworks*	
Kimberly Doane	Nova Scotia Department of Energy	Setting the foundation for offshore wind development in Nova Scotia
Elizabeth Andrews	Avangrid	Assessing ground conditions and new market opportunities
Francesca Ciavaglia	Lloyd's Register	Project certification for offshore wind farms: focus on geotechnical aspects
Tim Newson	Western University	Supporting Canada's offshore wind development through academic excellence
Gerry Piercy	C-CORE	From oil & gas to offshore wind: engineering challenges and solutions for offshore wind in Atlantic Canada
10:30–11:00 **Coffee Break & Networking**		
11:00–12:15 **Session 2**	*Site Characterization, Ground Modelling and Geotechnical Challenges*	
Jordan Eamer	Geological Survey of Canada	Geoscience data collection and analyses for Canadian offshore wind energy decision-making at the Geological Survey of Canada
Sougata Halder	TGS	A new era of geophysical site characterization: building confidence from seabed to subsurface
Kevin Smith	Fugro	An overview of geotechnical conditions in Atlantic Canada's future wind development areas
Maarten Vanneste	Norwegian Geotechnical Institute	Multidisciplinary integration through machine learning, uncertainty quantification, and visualization
Zack Westgate	University of Massachusetts Amherst	Glauconite: is it a risk for Canada's offshore wind industry?
12:15–13:15 **Lunch**		
13:15–14:30 **Session 3**	*Foundation and Seabed Engineering: Design and Installation Challenges*	
Sylvie Raymackers	DEME	Offshore pile installation: solutions for different soil-related challenges
Benjamin Foley	Ramboll	Relevant learnings from offshore wind foundation designs worldwide applied to Nova Scotia
Ryan Stelzer	Norwegian Geotechnical Institute	Suction bucket jackets for offshore wind: design, installation and applicability to Atlantic Canada's transitional waters
Yorick Broekema	Deltares	Shaping the seabed: the impact of sediment dynamics on offshore wind farm design
Mayuresh Dhaigude	DNV	Geotechnical risks and challenges related to offshore cable installations
14:30–14:45 **Coffee Break**		
14:45–15:45 **Panel Discussion**	*Emerging challenges, R&D needs, and priorities for Canadian offshore wind development*	
Panelists:	Elizabeth Andrews (Avangrid) | Thomas Langford (Norwegian Geotechnical Institute) Thomas Levy (Natural Resources Canada) | Jan Matthiesen (Carbon Trust)	
15:45–16:00 **Closing Remarks**		
16:00–17:00 **Networking & Informal Discussions**		

Presentation Abstracts

Session 1

Offshore Wind Development in Atlantic Canada: Context, Perspectives and Enabling Frameworks

Kimberly Doane (Nova Scotia Department of Energy)

Setting the foundation for offshore wind development in Nova Scotia

Nova Scotia is entering a transformative period in offshore wind development, with plans to offer licenses for up to five gigawatts of offshore wind energy through its first Call for Bids. This presentation will provide the provincial perspective on the vision, priorities, and regulatory foundations shaping the industry. It will highlight the importance of geoscience in establishing the enabling conditions for offshore wind development, including improving our understanding of offshore stratigraphy, seabed conditions, and regional geological frameworks. Building a robust geoscience knowledge base is essential to reducing uncertainty, ensuring data readiness, and supporting informed decision-making as Atlantic Canada develops a globally competitive offshore wind sector.

Elizabeth Andrews (Avangrid)

Assessing ground conditions and new market opportunities

Entering a new offshore wind market requires evaluation of multiple, interlinked factors. This presentation highlights the role of ground conditions within a practical framework for assessing opportunities such as that in Nova Scotia. Key market evaluation factors can include: the strength of offtake opportunities, lease area siting for interconnection and transmission availability, regulatory and policy considerations and, critically, the suitability of the physical characteristics of the available lease areas. Where a site's wind speeds, geology and ground conditions support established foundation and cable technology, participation in a new market can be an enticing proposition. What could this mean for site characterization work in Nova Scotia over the next few years?

Francesca Ciavaglia (Lloyd's Register)

Project certification for offshore wind farms: focus on geotechnical aspects

This presentation provides an overview of the offshore wind farm project certification process, its objectives, and the certification schemes commonly applied across the industry. The certification modules considered throughout the project lifecycle will be discussed, including site conditions assessment, design basis evaluation, and design evaluation, with emphasis on their respective requirements. Particular attention will be given to geotechnical requirements and the reviews and checks typically performed as part of the certification process, which play a key role in de-risking projects and ensuring safe foundation design. Drawing on experience from offshore wind developments worldwide, the presentation will share practical insights and lessons learned before discussing considerations for offshore wind projects in Canada.

Tim Newson (Western University)

Supporting Canada's offshore wind development through academic excellence

Atlantic Canada's offshore wind plans present an opportunity to advance renewable energy while strengthening economic growth and energy security. Achieving these goals requires innovative geotechnical solutions to address complex technical challenges. Canadian universities possess internationally recognized expertise in geotechnical engineering and unique research infrastructure, including centrifuge facilities, advanced laboratory testing, field instrumentation, and computational modelling capabilities. This presentation describes how academia can support industry throughout the offshore wind project lifecycle. Opportunities for collaboration among academia, industry, and government will be highlighted, demonstrating how coordinated research can reduce technical uncertainty, improve design standards, and accelerate project delivery. The role of education and workforce development will also be discussed.

Gerry Piercy (C-CORE)

From oil & gas to offshore wind: engineering challenges and solutions for offshore wind in Atlantic Canada

The development of offshore wind in Atlantic Canada can build upon experience gained through the offshore oil and gas industry. The region has developed strong offshore engineering capabilities, including specialized personnel and research facilities, and extensive experience designing, constructing, and operating infrastructure in demanding offshore environments. While many engineering principles are transferable, offshore wind introduces new challenges. Site-specific characterization of winds, waves, currents, seabed conditions, sea ice, icebergs, marine icing, and vessel accessibility will be needed to optimize designs while maintaining safety and reliability. This presentation will review experience from offshore oil and gas developments in eastern Canada and discuss its application to offshore wind.

Session 2

Site Characterization, Ground Modelling and Geotechnical Challenges

Jordan Eamer (Geological Survey of Canada)

Geoscience data collection and analyses for Canadian offshore wind energy decision-making at the Geological Survey of Canada

The Geological Survey of Canada has conducted marine geoscience research supporting sustainable development, offshore resources and ocean governance for decades. Since 2023, its Marine Renewables program has expanded research supporting offshore wind development in Atlantic Canada, with 14 expeditions collecting extensive seabed, sub-bottom and mapping data. Current research addresses surficial geology, stratigraphy, geohazards, bedrock, sediment mobility and geotechnical properties. Key investigations include the distribution and origin of glauconite, complex stratigraphy at French Bank, bedform distribution and mobility at Middle Bank, bedrock conditions at Sydney Bight and French Bank, and preserved paleo-landscapes. These regional studies highlight the value of understanding seabed and subsurface conditions beyond individual wind energy areas.

Sougata Halder (TGS)

A new era of geophysical site characterization: building confidence from seabed to subsurface

Ground conditions across Nova Scotia offshore wind development areas are expected to include geohazards and subsurface heterogeneities associated with complex post-glacial geology. While regional geophysical data can support initial screening, site-specific characterization of the seabed and shallow subsurface will be essential to reduce project risks and build investor confidence. This presentation will discuss integrated Ultra-High Resolution (UHR) 3D seismic solutions for wind farm site characterization. Experience from formerly glaciated offshore wind areas demonstrates the value of dense spatial sampling and high-resolution imaging for characterizing complex ground conditions. For Canada's emerging offshore wind market, early UHR3D surveys can support quantitative ground models, engineering-property estimation, hazard identification, and efficient project planning and execution.

Kevin Smith (Fugro)

An overview of geotechnical conditions in Atlantic Canada's future wind development areas

Offshore wind development is being planned on the continental shelf of Atlantic Canada. Past-geologic processes on the continental shelf have resulted in ground conditions that exhibit a wide range of geotechnical conditions and potential ground risk for future wind developments. Fixed-bottom foundation systems and floating wind turbines are being considered for future wind development solutions. This presentation will focus on geotechnical conditions that will influence the planning, design and installation of foundations, anchors, and cables. Geotechnical conditions and potential risk, such as boulders, hard ground/rock, and low strength soils will be highlighted during the presentation. The summary represents a synthesis of geophysical and geotechnical data acquired during the past few decades and includes modern data.

Maarten Vanneste (Norwegian Geotechnical Institute)

Multidisciplinary integration through machine learning, uncertainty quantification, and visualization

The expansion of offshore wind requires quantitative ground models that can be delivered while capturing subsurface conditions. This presentation will review current and emerging approaches that integrate geology, geophysics and geotechnical engineering within consistent 3D frameworks. Emphasis will be placed on multidisciplinary databases, advanced seismic interpretation, geostatistics and machine learning. These methods combine seismic data, CPTs, boreholes, laboratory testing and engineering parameters to improve traceability, characterize spatial variability and identify geohazards. Advanced interpretation and machine-learning tools can accelerate mapping of geological structures and anomalous features, while geostatistics supports transparent prediction between investigation points. Together, these approaches improve uncertainty assessment and provide updateable ground models for offshore wind design and installation.

Zack Westgate (University of Massachusetts Amherst)

Glauconite: is it a risk for Canada's offshore wind industry?

Glauconite presents a significant challenge for offshore wind foundations due to its crushability and potential transition from sand-like to clay-like behaviour during pile driving. Associated changes in plasticity and permeability can contribute to premature pile refusal, increase installation costs, and influence foundation selection and turbine layouts. In Eastern Canada, glauconite adds complexity to established geotechnical challenges including glacial stratigraphy, ice loading, and seabed scour. This presentation summarizes recent

insights into glauconite sands, drawing primarily on the Piling in Glauconitic Sand Joint Industry Project and related research. These studies improve understanding of glauconite behaviour and provide preliminary guidance for reducing risk and modelling its response during pile foundation installation.

Session 3

Foundation and Seabed Engineering: Design and Installation Challenges

Sylvie Raymackers (DEME)

Offshore pile installation: solutions for different soil-related challenges

Offshore Nova Scotia is characterized by dense glacial deposits, variable tills and sands, weathered rock, and locally shallow bedrock, creating significant challenges for pile installation. This presentation examines how varying ground conditions influence installation performance and the practical solutions available to manage associated risks, including hard driving, pile run, and drill-drive installation approaches. Drawing on experience from offshore wind projects worldwide, it will demonstrate how site investigation data, geological interpretation, installation analyses, and operational experience can be combined to anticipate challenges before construction. Particular attention will be given to applying international lessons to Atlantic Canada and using sound geotechnical understanding to reduce uncertainty, improve constructability, and support successful project delivery.

Benjamin Foley (Ramboll)

Relevant learnings from offshore wind foundation designs worldwide applied to Nova Scotia

Canada's emerging offshore wind sector presents significant opportunities alongside geological and geotechnical challenges affecting project risk, installation, and foundation selection. This presentation reviews key considerations for developments on the Scotian Shelf, including variable seabed conditions, shallow bedrock, glacial sediments, boulders, and heterogeneous stratigraphy. Drawing on Ramboll's experience from offshore wind projects across Europe, Asia-Pacific, and North America, case studies will illustrate how similar conditions have been addressed through targeted site characterization, risk-based design, and adaptation of foundation concepts. The presentation will discuss how these international lessons can be applied in Nova Scotia to reduce uncertainty, optimize site investigations, and support informed and efficient foundation design decisions.

Ryan Stelzer (Norwegian Geotechnical Institute)

Suction bucket jackets for offshore wind: design, installation and applicability to Atlantic Canada's transitional waters

Suction bucket jackets (SBJs) combine a jacket substructure with suction-installed caissons, offering an alternative to monopiles or pile jackets for offshore wind. The presentation introduces the concept and reviews geotechnical principles governing design, installation and performance. It draws on NGI's design and monitoring at Borkum Riffgrund 1, installation experience at Seagreen and Greater Changhua, FEED studies off the US East Coast, and lab testing, design, installation and extraction of skirted foundations at Deep Panuke Production Field on the Sable Island Bank. Applicability to Atlantic Canada's transitional waters is considered, with emphasis on variable glacial soils, layered profiles, boulders, shallow bedrock, cyclic loading

and installation risk. Environmental benefits of suction buckets include avoiding impulsive pile-driving noise and the potential for full removal during decommissioning.

Yorick Broekema (Deltares)

Shaping the seabed: the impact of sediment dynamics on offshore wind farm design

Natural marine systems experience continuous seabed change through interactions between currents, waves, and erodible sediments. Offshore wind development introduces large infrastructure into these dynamic environments, where seabed evolution can influence foundation design and cable routing, while foundations themselves alter local flow and sediment transport. This interaction can cause local seabed lowering, or scour, with important consequences for foundation performance. Understanding scour development, mitigation, and broader seabed dynamics is therefore essential for offshore wind design. This presentation provides an overview of the state of the art in local scour, scour protection, and global seabed dynamics, with particular emphasis on practical implications for planned offshore wind developments along Canada's east coast.

Mayuresh Dhaigude (DNV)

Geotechnical risks and challenges related to offshore cable installations

Power cables are critical to the success of offshore wind farms, providing the essential connection between offshore generation and the onshore grid. Geotechnical uncertainty remains a major risk, requiring targeted and detailed ground investigations to support cable route selection and engineering design, as inadequate characterization can lead to cable exposure, insufficient protection, and compromise performance. Route engineering is influenced by variable seabed conditions, landfall constraints, water depth, and morphology, which affect the suitability of the selected trenching methods and may necessitate secondary protection measures. Industry standards such as DNV-ST-0359 and DNV-RP-0360 guide route engineering, burial design, soil characterization, and cable protection. Long-term reliability of cables depends on monitoring burial status and seabed changes to validate design assumptions throughout the wind farm lifecycle.

Symposium Organizers



Federico Pisanò

Norwegian Geotechnical Institute

Federico Pisanò is Manager of Energy Transition and Emerging Markets at NGI, where he supports consulting, R&D, and emerging-market activities across the Americas. He specializes in advanced numerical modelling, with applications to soil–structure interaction and, particularly, offshore geotechnical problems. Before joining NGI in 2023, he was Associate Professor of Offshore Soil Mechanics at TU Delft. Federico holds a doctorate from Politecnico di Milano, has authored over 100 journal and conference publications, and is Chair of ISSMGE Technical Committee 209 on Offshore Geotechnics.



Tim Newson

Western University

Tim Newson is Professor of Civil and Environmental Engineering at Western University and a specialist in geotechnical engineering, with particular expertise in offshore and energy geotechnics. His research spans offshore foundations, soil–structure interaction, soft soil and clay engineering, and the response of soils and structures under cyclic and dynamic loading. His work combines physical modelling, laboratory testing, and advanced numerical modelling. He has also provided consultancy to the offshore and civil engineering industries and held leadership roles within the Canadian Geotechnical Society and the ISSMGE.

Speaker and Panelist Biographies



Elizabeth Andrews

Avangrid

Elizabeth Andrews is Director of Offshore Development at Avangrid Power, where she combines her technical background with responsibility for project configuration, permitting, business case development, and pathways to market. She has 15 years of offshore wind industry experience and previously worked as a lead geophysicist for offshore survey contractor EGSi and across Ørsted's UK, European, and US portfolios. At Avangrid, she has also supported the geotechnical discipline before moving into her current development role. She holds a doctorate in geospatial analysis in maritime archaeology from the University of Southampton, bringing a strong geoscience background to offshore wind development.



Yorick Broekema

Deltares

Yorick Broekema is a Specialist at Deltares, specializing in scour, scour protection, and offshore engineering. He leads Deltares' Offshore Scour and Scour Protection discipline team and manages strategic research within the Offshore Energy program. His work combines fundamental understanding of water–soil–structure interaction with practical applications for offshore wind projects across Europe, Asia, and the United States. He holds master's degrees from Delft University of Technology and the National University of Singapore and a doctorate in Environmental Fluid Mechanics from Delft University of Technology.



Francesca Ciavaglia

Lloyd's Register

Francesca Ciavaglia is a Lead Geotechnical Engineer at Lloyd's Register, where she leads the geotechnical team delivering technical reviews and independent assessments for offshore wind projects worldwide. She has 15 years of experience in offshore energy, with a particular focus on offshore wind, and has supported projects as a certifier, owner's engineer, and consultant. She holds a doctorate in geotechnical engineering from the University of Bristol and is actively involved in industry research. She also leads the technical panel developing guidance on intermediate foundations within the ISO 19901-4 standard.



Mayuresh Dhaigude

DNV

Mayuresh Dhaigude is a Principal Engineer with DNV and brings more than 20 years of experience in offshore energy, spanning engineering design, project management, construction, installation, certification, and technical risk assessment. His expertise related to offshore wind projects focuses on power cables and has been involved in verification of cable design, manufacturing, transportation, installation, and operational integrity. As a licensed Professional Engineer and a certified Project Management Professional, he has contributed to industry standards development through participation in multiple ISO, API and DNV committees and has authored several technical publications.



Kimberly Doane

Nova Scotia Department of Energy

Kimberly Doane is Executive Director, Energy Resource Development with the Nova Scotia Department of Energy, where she provides strategic policy advice on energy development, research, and technical promotion. Her responsibilities span emerging energy opportunities including offshore wind, offshore oil and gas, geothermal, energy storage, tidal and other energy innovations. Kimberly has worked for the Provincial government for over 27 years, following earlier private-sector experience in petroleum exploration and environmental reclamation. She holds a Master of Business Administration (Global Leadership), a Bachelor of Science in Geology, and a Bachelor of Arts in Geography.



Jordan Eamer

Geological Survey of Canada

Jordan Eamer is a marine geoscientist with the Geological Survey of Canada at the Bedford Institute of Oceanography in Dartmouth. His research focuses primarily on the geology of offshore wind energy, coastal geomorphology, and the paleogeography of Canada's coasts. He previously worked with Parks Canada at Sable Island National Park Reserve and conducted postdoctoral research at the University of Calgary on remotely piloted aerial system applications. His research interests in coastal geomorphology and Quaternary geology developed during his studies at the University of Victoria.



Benjamin Foley

Ramboll

Benjamin Foley is Head of Offshore Wind Engineering – Americas at Ramboll and has more than 25 years of experience in offshore engineering, including over 20 years in leadership and management roles. He has worked across offshore wind markets in North America, Europe, and East Asia and was responsible for foundation design for the Block Island Wind Farm, the first commercial offshore wind farm in the United States. He has served as civil/structural Engineer of Record for several US offshore wind projects and is a licensed professional engineer in more than 30 US states and five Canadian provinces.



Sougata Halder

TGS

Sougata Halder is Senior Business Development Manager at TGS, where she drives commercial activities related to offshore wind, carbon capture and storage, and geohazard site surveys. She has more than 17 years of experience across diversified energy sectors, combining a strong geoscience research background with technical and commercial expertise. Her work focuses on developing, executing, and delivering data-driven products, solutions, and services that support effective project development and business strategies for diversified energy initiatives worldwide. She holds a doctorate in geoscience from Southern Methodist University in Texas.



Thomas Langford

Norwegian Geotechnical Institute

Thomas Langford is Director for Offshore Energy at the Norwegian Geotechnical Institute (NGI). He has over 25 years' experience in the offshore sector, spanning consulting, research and contracting across a wide range of projects worldwide. His technical focus is the interaction between geotechnical parameters and their application in design, installation assessment and geohazard evaluation. His career spans the energy transition, from global oil and gas projects to lower-carbon energy, including offshore wind. He sits on the ISO WG10 committee developing offshore geotechnical standards, and has led the export and internationalisation working group within Norway's government-sanctioned "Offshore Wind Collaboration Forum".



Thomas Levy

Natural Resources Canada

Thomas Levy is a professional engineer licensed in Ontario and Senior Technical Advisor – Offshore Renewables at Natural Resources Canada. Active in the wind industry since 2003, he has worked in consulting, industry advocacy, and government research. He previously led wind energy consulting activities supporting over 2 GW of projects and served as Director of Technical and Utility Affairs at the Canadian Wind Energy Association. At Natural Resources Canada, he led wind RD initiatives focused on forecasting, resource assessment, and grid integration. He currently oversees the Government of Canada's Offshore Wind Predevelopment Program.



Jan Matthiesen

Carbon Trust

Jan oversees all offshore wind activities within the Carbon Trust. He has pioneered the development of our industry-leading offshore wind research, development and innovation programmes, including the Offshore Wind Accelerator (OWA), since 2010. In addition, he has led the growth of our international offshore wind activity, developing offshore wind in emerging markets including the US and Asia. As a founding member of the U.S. National Offshore Wind Research and Development Consortium (NOWRDC), Jan serves as Chair of the Developers and States RD Working Group. In addition to this role, Jan contributes to a wide range of industry initiatives, providing strategic guidance and sharing extensive expertise to help advance the offshore wind sector.



Gerry Piercy

C-CORE

Gerry Piercey is a senior engineer and Team Lead at C-CORE with over 25 years of experience in mechanical engineering, systems engineering, project management, and geotechnical centrifuge modelling. He manages the C-CORE laboratory, directing operations across a broad spectrum of complex RD and physical modeling projects. Over his career, Gerry has developed microgravity payloads, satellite transponder field deployments and vessel instrumentation installations. His specialized expertise includes designing, commissioning, and executing custom centrifuge and full-scale experimental setups – notably for subsea anchor systems, pipe–soil interaction, ice gouging, and pipeline frost heave.



Sylvie Raymackers

DEME

Sylvie Raymackers is Geotechnical Manager at DEME Offshore, where she leads the Geo Foundations team and supports transport, installation, and EPCI projects worldwide. Since joining DEME in 2012, she has contributed to offshore wind projects including Thornton Bank, Galloper, Arcadis Ost 1, Saint-Nazaire, Zhong Neng, and Coastal Virginia Offshore Wind. Her work focuses on translating complex soil–structure interaction into practical engineering solutions for offshore installation. She holds a Master of Science in Civil Engineering from Vrije Universiteit Brussel and is actively involved in international geotechnical initiatives as a member of the Belgian Society of Soil Mechanics and Geotechnics and ISSMGE TC209.



Kevin Smith

Fugro

Kevin Smith is a Senior Principal Geologist at Fugro with extensive experience in marine geoscience, offshore site characterization, and integrated ground modelling. His work has supported offshore wind and marine infrastructure projects, with a focus on geological and geotechnical ground conditions, geohazards, and foundation and cable installation. He has contributed to projects and industry initiatives across the US East Coast and Atlantic Canada. Kevin holds degrees in Geological Sciences from Binghamton University and the University of Memphis.



Ryan Stelzer

Norwegian Geotechnical Institute

Ryan Stelzer is a Senior Geotechnical Engineer at the Norwegian Geotechnical Institute, specializing in offshore geotechnics and foundation engineering for offshore wind. Since joining NGI in 2019, he has worked on foundation design, installation engineering, geotechnical interpretation, and integrated ground models. His field experience includes suction bucket installation at the Seagreen and Greater Changhua offshore wind farms, as well as instrumentation installation and monitoring at several open pit mine sites. He holds a master's degree in geotechnics from the Norwegian University of Science and Technology and a bachelor's degree in civil engineering from the University of British Columbia.



Maarten Vanneste

Norwegian Geotechnical Institute

Maarten Vanneste is Head of the Geohazards and Dynamics Section at the Norwegian Geotechnical Institute, with more than 25 years of experience in geoscience and offshore geohazards. His expertise includes integrated site characterization, geophysical mapping, quantitative seismic interpretation, and data-driven ground models. He has contributed to major offshore wind projects including Empire Wind, Dogger Bank South, Bałtyk II and III, Arklow Bank, IJmuiden Ver, Mona, Morgan, and Morven. His work focuses on geoscience integration and innovation for offshore development. He is a member of the ISO Technical Panel 19901-10 on Marine Geophysical Investigations and has authored more than 50 peer-reviewed publications and conference papers.



Zack Westgate

University of Massachusetts Amherst

Zack Westgate is Associate Professor of Geotechnical Engineering at the University of Massachusetts Amherst and a Principal Engineer consultant with the Norwegian Geotechnical Institute. He has more than 20 years of experience in offshore energy consulting, research, and management and is a registered professional civil engineer in the United States. His work spans marine site characterization, soil mechanics, offshore foundation engineering, pipeline and riser geotechnics, and glauconite sands. He holds a doctorate in civil engineering from the University of Western Australia.