

Coasts, Marine Structures and Breakwaters 2009

Adapting to Change

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Keynote Presentations

A series of keynote presentations will cover leading areas including:

- Progress towards realistic marine renewable energy extraction
- Understanding inherited infrastructure
- Debating the future of coastal management

300+
ATTENDEES
110+
PAPERS

16 – 18 September 2009

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CONFERENCE WELCOME



Jim Mather MSP
Minister for Enterprise, Energy and
Tourism, Scottish Government



Prof Paul Jowitt
Senior Vice President and President
Elect, Institution of Civil Engineers

**NEW
FOR 2009
RENEWABLES**

OPENING PLENARY

Progress towards a Viable UK Marine Renewable Energy
Prof Ian Bryden, University of Edinburgh

Historical Experience of Vertical Breakwaters in the UK
Prof William Allsop, Technical Director of Maritime Structures, HR Wallingford and University of Southampton

The Sea versus Wick Breakwater 1863-77: An Instructive Disaster
Prof Roland Paxton, Heriot-Watt University

Breakwater Development in Spain: The Last Ten Years
Ramón Gutiérrez-Serret, Director of the Maritime Experimental Laboratory, CEDEX, and Secretary General, IAHR

LUNCH

STREAM A	STREAM B	STREAM C
<p>SHORELINE MANAGEMENT</p> <p>Dee Estuary Evolution: An Expatiation <i>Dr Philip Barber, Senior Partner, Shoreline Management Partnership</i></p> <p>Global Warming Influences on Tidal Wetland in Japan <i>Dr Hajime Tanji, Laboratory of River and Coastal Engineering</i></p> <p>The Water Framework Directive and the Management of Physical Habitats in Estuaries and Coasts <i>Dr Lucy Bolton, Technical Advisor, Hydromorphology, Environment Agency</i></p> <p>Coastal Flooding in Scotland: Past, Present and Future <i>Dr Tom Ball, Academic Research Fellow, University of Dundee</i></p>	<p>RENEWABLES</p> <p>Developing Standards for the Marine Energy Industry <i>John Griffiths, Technical Director, EMEC</i></p> <p>The Development of Technology Evaluation Protocols for the Equitable Evaluation of Marine Renewable Energy Converters <i>Dr David Ingram, Reader, University of Edinburgh</i></p> <p>Tidal Power from the Estuaries of Northwest England <i>Terry Hedges, Senior Lecturer, University of Liverpool</i></p> <p>Developing further Understanding of Site Selection for Harvesting Tidal Current Energy: Sites Dominated by Tidal Streaming <i>Dr Scott Couch, Senior Research Fellow, University of Edinburgh</i></p> <p>Composite Seawalls for Wave Energy Conversion <i>Dr Gerald Müller, Senior Lecturer, University of Southampton</i></p>	<p>HYDRODYNAMICS</p> <p>Modification of the Goda Formula to Evaluate the Movement of a Caisson Breakwater Protected by Failed Armour <i>Dr Miguel Esteban, Post-Doctoral Fellow, United Nations University Institute of Advance Studies</i></p> <p>Dynamic Analysis of Fluid-elastic Solid Interaction Using the Moving Particle Semi-implicit Method <i>Toshinori Ogasawara, Assistant Professor, Iwate University</i></p> <p>Large Scale Simulations on Impulsive Wave Pressures by Using CADMAS-SURF/3D <i>Dr Taro Arikawa, Senior Researcher, Port and Airport Research Institute</i></p> <p>Physical Modelling of Violent Flows and their Impact using a New Tsunami Generator <i>Tristan Lloyd, PhD Student, University College London</i></p> <p>Resonant Fluid Motions in Joint Gap of Caisson-type Breakwater under Random Wave Attack <i>Dr Takehisa Saitoh, Associate Professor, Kanazawa University</i></p>

AFTERNOON COFFEE BREAK

<p>COASTAL DEFENCES</p> <p>Storm Damage and Rehabilitation of Coastal Structures on the East Coast of South Africa <i>David Phelps, Research Group Leader, CSIR</i></p> <p>Damage from Waves, Surges and Overtopping at Vertical Seawalls <i>Dr Vanesa Magar, RCUK Academic Fellow, University of Plymouth</i></p> <p>Optimization of a Step-berm Embankment <i>Dr Jeffrey Melby, Head, Coastal Structures Group, US Army Engineer Research and Development Center</i></p> <p>Engineering Site Selection Considerations for Reclamation Seawalls in the Hong Kong Special Administrative Region <i>Alexander Mackay, Associate, Hyder Consulting</i></p> <p>Flare-shaped Revetments: Installation Experience and Results on Sensitivity of Design to Climate Change <i>Prof Isao Irie, Kyushu University, and IDEA Consultants</i></p>	<p>RENEWABLES</p> <p>Competitive Concrete Gravity Base Foundations for Offshore Wind Farms <i>William Brook-Hart, Technical Director, Gifford</i></p> <p>Ocean Brick System (OBS) as a Foundation Structure for Offshore Wind Turbine: An Experimental Study for Wave Loads and Stability <i>Andreas Kortenhaus, Senior Researcher, Technical University of Braunschweig</i></p> <p>Landing Marine-derived Renewable Energy: Optimising Routing of Electricity Cables in the Nearshore to Offshore Environment <i>Dr Rosalind Turner, Coastal Scientist, Mott MacDonald</i></p> <p>Construction Planning for the Greater Gabbard Offshore Wind Farm <i>David Summers, Construction Manager, Fluor</i></p> <p>Scour Around Gravity-based Wind Turbine Foundations: Prototype Measurements <i>Annelies Bolle, Project Engineer, International Marine and Dredging Consultants</i></p>	<p>BREAKWATERS</p> <p>Single Layer Armour Systems: Toe, Crest and Roundhead Details <i>Phil Besley, Group Manager, HR Wallingford</i></p> <p>On the Design of Quasi-static Berm Breakwaters <i>Dr Otavio Sayao, Senior Engineer, Sandwell Engineering</i></p> <p>Development of an Icelandic-type Berm Breakwater for the Oakajee Port Project in Western Australia <i>Sigurdur Sigurdarson, Senior Coastal and Harbour Engineer, Icelandic Maritime Administration</i></p> <p>Design to Construct <i>Gerard Spaan, Senior Engineer, Van Oord Dredging and Marine Contractors</i></p> <p>Offshore Breakwater Design Optimization for the Argentine Coastal Protection <i>Prof Rocio Fernández, National University of Cordoba</i></p>
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STREAM A

SHORELINE MANAGEMENT

An Innovative Tool for Improving Stakeholder Engagement

Kevin Burgess, Executive Director, Maritime Business, Halcrow Group

Coastal Defences: Social Utility, Imagination and Justice

Jonathan Simm, Technical Director, HR Wallingford

A Performance Based Assessment of Design Tools and Design Conditions for a Beach Management Scheme

Prof Andrew Bradbury, Director, Channel Coastal Observatory

Energy and Carbon Costing of Breakwaters

Dr Tom Bruce, Senior Lecturer, University of Edinburgh

STREAM B

RENEWABLES

Wave Induced Dynamic Pressures on a 150 kw Capacity OWC Prototype Wave Energy Caisson

Prof Kannapiran Thiruvengatasamy, Head, Department of Harbour Engineering and Offshore Technology, AMET University

Experience Gained from the Design and Construction of Oyster, a Nearshore Surging Wave Power Device

Prof Trevor Whittaker, Queens' University Belfast

The Construction and Commissioning of the Mutriku Multiple Oscillating Water Column Breakwater

Dr Tom Heath, Chief Technology Officer, Wavegen

Development of a Generic Caisson Design for an Oscillating Water Column Power Generator

Steven Preen, Chief Engineer, Heavy Civil Structures, Halcrow Group

STREAM C

BREAKWATERS

Rehabilitation of Yzerfontein Breakwater by Dolos Armour Units

Masupha Letsie, Coastal Engineer, CSIR

Cost Effectiveness of the Renovation Scenarios of the IJmuiden Breakwaters

Hans Janssen, Senior Advisor, Hydraulic Engineering, Rijkswaterstaat

Breakwater Construction at New Port in Punta Langosteira, A Coruña, Spain: Execution Process and Technical Innovation

Enrique Maciñeira-Alonso, General Manager, Port Authority of A Coruña

Final Rehabilitation of Sines West Breakwater: Physical and Numerical Modelling of Overtopping

Dr Maria Teresa Reis, Research Officer, National Civil Engineering Laboratory

Rehabilitation of the Old Cube Breakwater of Port of Poti, Georgia, with Xbloc® Armour Units

Pieter Bakker, Senior Coastal Engineer, Delta Marine Consultants

MORNING COFFEE BREAK

SHORELINE MANAGEMENT

Re-building East Anglia's Beaches

Steve Hayman, Coastal Advisor, Environment Agency

The Design and Performance of a Detached Breakwater and Beach Recharge in a Crenulate Bay:

*A Case Study, Newbiggin-by-the-Sea, Northumberland
Iain Roberts, Associate Maritime Engineer, Atkins*

Precautionary versus Reactionary Adaptation to Coastal Climate Change: Local Solutions to this Global Problem

Mike Attwell, Regional Delivery Manager, Environment Agency

Coastal Monitoring and Analytical Work on the 'Dynamic' Anglian Coastline

Nigel Pask, Project Manager, Environment Agency

Coastal Defences and Biodiversity: The Influence of Material Choice and Small-scale Surface Texture on Biological Outcomes

Martin Coombes, PhD Postgraduate, University of Exeter

RENEWABLES

Analysis of the Wave Energy Resource at the European Marine Energy Centre

Dr Matt Folley, Senior Research Fellow, Queen's University Belfast

Development of Wave Energy Breakwater at Siadar, Isle of Lewis

Christopher Patterson, Technical Director, Ports and Maritime, Jacobs Engineering

Overtopping Performance of Sea Wave Slot Cone Generator

Dr Jens Peter Kofoed, Associate Professor, Aalborg University

WaveRush: A New Concept for a Breakwater Wave Energy Converter

Iain Roberts, Associate Maritime Engineer, Atkins

BREAKWATERS

An Overview of the Construction of the Core-loc™ Armoured Breakwater at Newbiggin-by-the-Sea, Northumberland

Andrew Wareing, Engineer, Atkins

Innovative Technique for Single Layer Armour Unit Placement: An Example of Increased Production Efficiency whilst Improving Health and Safety

Peter van Geldere, Senior Engineer, Van Oord Dredging and Marine Contractors

Armour Unit Placement and Positioning in 3D Real Time

Alain Mouquet, Managing Director, MESURIS

Post-construction Monitoring of a Core-loc™ Breakwater using Tripod-based LiDAR

Jessica Podoski, Coastal Engineer, US Army Corps of Engineers

Stochastic Risk-Based Life Cycle Simulation of Century Old Jetties at the Mouth of the Columbia River, USA

Hans Moritz, Hydraulic and Ocean Engineer, US Army Corps of Engineers

LUNCH

COASTAL DEFENCES

Saltcoats Flood Prevention Scheme: Analysis, Design and Construction

Dr Elizabeth Johnson, Engineer, Royal Haskoning

The Construction of Weston-super-Mare Sea Defences and Seafront Enhancements

Christopher Hill, Project Manager, Birse Coastal

Rehabilitation of the Revetment along Galle Marine Drive

Tharanga Pemasiri, Engineering Manager, Lanka Hydraulic Institute

Sustainable Coastal Defences for Felixstowe

Andrew Rouse, Project Manager, Environment Agency

Applying the Artificial Submerged Reefs Techniques to Reduce the Flooding Problems along the Alexandria Coastline

Dr Akram Soliman, Associate Professor, Arab Academy for Science and Technology and Maritime Transport

COASTAL RESPONSES TO STRUCTURES

Simulation of Long-term Beach Changes within a Flood Defence Scheme

Prof Dominic Reeve, University of Plymouth

Towards Design Guidance for Nearshore Detached Breakwaters on Macro-tidal Coasts

Hakeem Johnson, Associate Director, Halcrow Group

Beach Nourishment Modelling: Impact of Coastal Structures

Dr Shunqi Pan, Reader in Coastal Engineering, University of Plymouth

Morphological Change of Nourished Beach Fronted by Nearshore Structures

Amy Taylor, PhD Student, University of Aberdeen

Numerical Modelling Morphodynamics of Offshore Breakwaters Using an Improved Q3D Model

Dr Ming Li, Lecturer, University of Liverpool

BREAKWATERS

Extending the Life of Brighton Marina Breakwaters from 30 to 130 Years

Jonathan Orrell, Managing Director, Hemsley Orrell Partnership

Installation of Caisson Breakwater at Costa Azul, Mexico

Martin Young, Deputy Chief Resident Engineer, Scott Wilson

Foundations to Precast Marine Structures

Martin Hawkswood, Director, Proserve

Restoration of St Catherine's Breakwater Roundhead, Jersey, Channel Islands

Steve Hold, Associate, Arup

The Influence of the Crown Wall on the Design of a High Crested Composite Breakwater

Neil Bevan, Project Manager, Mouchel

AFTERNOON COFFEE BREAK

COASTAL DEFENCES

Polyurethane Bonded Aggregate (PBA) Revetments in Coastal Engineering

Egon Bijlsma, Junior Specialist, Flood Defences, ARCADIS

The Study and Development of a New Structure for Coastal Protection

Matteo Zanella, Technical Manager, Coastal Protection System

METOCEAN

Evaluating Potential Implications of Cumulative Storm Power on Coastal Infrastructure Damage and Shoreline Erosion

Heidi Moritz, Coastal Engineer, US Army Corps of Engineers

Tropical Cyclone Gonu: Post Event Wave Modelling

Nicholas Elderfield, Coastal Engineer, Atkins

Marine Forecasts for the Safe Construction and Maintenance of Coastal Structures

Nigel Tozer, Principal Scientist, HR Wallingford

Tsunami Inundation Modelling and Risk Assessment: City of Galle, Sri Lanka

Prof Sam Hettiarachchi, University of Moratuwa

DESIGN GUIDANCE

HYDRALAB III: Guidelines for Physical Model Testing of Rubble Mound Breakwaters

Dr Guido Wolters, Advisor and Researcher, Deltares-Delft Hydraulics

Introducing the New Ciria Manual on the Use of Concrete in the Maritime Environment

Dr Sébastien Dupray, Coordinator of Methods and Research for Structures, CETMEF

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ARUP

STREAM A	STREAM B	STREAM C
<p>EROSION RISK</p> <p>From Failure to Success: Update on the Vero Beach P. E. P. Reef™, Indian River County, Florida <i>Adam Priest, Maxwell Marine Consulting Engineers</i></p> <p>Coastal Erosion in Uruguay <i>Guillermo López-Méndez, Assistant Professor and Researcher, University of the Republic</i></p> <p>A Rock and a Hard Place: Managing Coastal Erosion Risk at Trow Quarry, South Shields <i>Dr Nick Cooper, Technical Director, Royal Haskoning</i></p> <p>Vulnerability to Climatic Changes with a 2DH Modelling on Four French Beaches <i>Philippe Larroudé, Assistant Professor, Joseph Fourier University</i></p> <p>Beyond Sustainability <i>Vicki Kelly, Director, Koru Coaching UK</i></p>	<p>OVERTOPPING</p> <p>A Comparison of Field Measurements, Laboratory Measurements and Probabilistic and Empirical Wave Overtopping Predictions <i>Tim Pullen, Senior Engineer, HR Wallingford</i></p> <p>Overtopping and Scour at Vertical Seawalls <i>Dr Jonathan Pearson, Assistant Professor, University of Warwick</i></p> <p>Towards a Unified Approach for Design of Overtopped Coastal Structures <i>John Headland, Senior Vice President, Moffatt & Nichol</i></p> <p>Riprap Stability for Deep Water, Shallow Water and Steep Foreshores <i>Marcel Mertens, Structural Engineer, BAM Infraconsult</i></p>	<p>PORTS</p> <p>Expansion of Jebel Ali Port <i>Dennis Padron, Executive Vice President, Halcrow Group</i></p> <p>Expansion Works to the Port of Salalah, Oman <i>Cleanthis Lambrou, Project Manager, Archirodon Construction</i></p> <p>Innovation in the Extension to the Port of Gijón <i>José Luis Díaz-Rato, General Manager, Gijón Port Authority</i></p> <p>Isles of Scilly Link Harbour Improvements: Social and Environmental Issues in a Unique Island Location <i>Gareth Robertshaw, Senior Engineer, Halcrow Group</i></p> <p>Dredging Innovations for Dames Point Container Terminal, Jacksonville <i>Dr Paul Starr, Regional Manager, Jacksonville, Halcrow Group</i></p>

MORNING COFFEE BREAK

<p>EROSION RISK</p> <p>Cliff Recession Process Modelling as a Basis for Set-back Definition <i>Dr Trevor Carter, Principal Geological Engineer, Golder Associates</i></p> <p>Successful Minimisation of Clipping on Recharged Mixed Shingle Beaches <i>Ian Thomas, Project Manager, Pevensey Coastal Defence</i></p> <p>Development of Guidance for the Management of the Toe of Coastal Defence Structures <i>Michael Wallis, Coastal Research Scientist, HR Wallingford</i></p> <p>The Role of Water and Beach Levels in Seawall Abrasion in the Macro-tidal High Energy Environment of Southeast England <i>Dr Uwe Dornbusch, Coastal Technical Specialist, Environment Agency</i></p>	<p>OVERTOPPING</p> <p>Guidance on Erosion Resistance of Inner Slopes of Dikes from Three Years of Testing with the Wave Overtopping Simulator <i>Dr Jentsje van der Meer, Principal, Van der Meer Consulting BV</i></p> <p>Flow Parameters of Combined Wave Overtopping and Storm Surge Overflow of a Trapezoidal Levee <i>Dr Steven Hughes, Senior Research Hydraulic Engineer, US Army Engineer Research and Development Center</i></p> <p>Modelling of Sohar Intake Breakwater <i>Dr Ali Riza Günbak, Partner, ARG Coastal Engineering Company</i></p> <p>Effect of Protruding Roughness Elements on Wave Overtopping <i>Dr Alison Hunt-Raby, Lecturer, University of Plymouth</i></p>	<p>MARINAS</p> <p>The New Marina of Rodi Garganico: Design, Construction and Monitoring <i>Prof Leopoldo Franco, University of Roma 3, and consultant, MODIMAR</i></p> <p>Physical Modelling of the Mechanical and Hydrodynamic Behaviour of Reinforced Concrete Floating Breakwaters: Application in Baiona (Galicia, Spain) <i>Dr Enrique Peña-González, Associate Professor, University of A Coruña</i></p> <p>Preliminary Design Studies for a Multifunctional Artificial Surf Reef on the Carrara Coast, Italy <i>Damiato Scarcella, PhD Student, University of Rome 3</i></p>
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LUNCH

<p>FRINGE</p> <p>In addition to the formal papers a number of short technical notes, announcements and position papers will be presented.</p>	<p>FRINGE</p> <p>In addition to the formal papers a number of short technical notes, announcements and position papers will be presented.</p>	<p>ARMOURING</p> <p>Cube and Cubipod Armour Unit Drop Tests and Cost Analysis <i>Prof Josep Medina, Technical University of Valencia</i></p> <p>Evolution of Damage on Roundheads Protected with Cubes and Cubipod Armour Units <i>Dr Pedro Lomónaco, Senior Research Officer, University of Cantabria</i></p> <p>Reliability Analysis of Breakwater Armour Blocks of Harbours in Korea <i>Seung-Woo Kim, PhD Student, Seoul National University</i></p> <p>Risk Awareness: Key to a Sustainable Design Approach for Breakwater Armouring <i>Bas Reedijk, Head of the Coastal Department, Delta Marine Consultants</i></p> <p>Review of the Use of Concrete in the Manufacture of Concrete Armour Units <i>Dr Sébastien Dupray, Coordinator of Methods and Research for Structures, CETMEF</i></p>
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AFTERNOON COFFEE BREAK

CLOSING PLENARY

Managing our Coast: A Strategic View

Alison Baptiste, Area Coastal Manager, Environment Agency

One Hundred and Beyond: Using Shoreline Management Plans

Gregor Guthrie, Principle Coastal Engineer, Royal Haskoning

UK Shoreline Management Planning: Enlightened or Occult

Dr Philip Barber, Senior Partner, Shoreline Management Partnership

Louisiana's Comprehensive Master Plan for a Sustainable Coast: A Response to Hurricanes Katrina and Rita in 2005

Ben Hamer, Director, Maritime, UK, Europe and Central Asia, Halcrow Group

CONFERENCE DINNER

Register at ice-breakwaters.com or call +44 (0)20 7665 2226

Extra Activities

Social Programme

Explore Edinburgh

Three different activities are offered to conference delegates and their guests on the evening of **Thursday 17 September**. All choices are centred on the upper part of the Royal Mile, in Edinburgh's historic Old Town, part of the UNESCO World Heritage area.

Old Town Walking Tour - the ideal introduction to the splendid Old Town of Edinburgh.

Camera Obscura Reception - enjoy fantastic views of Edinburgh and three galleries packed full of optical experiences.

Whisky Tasting - be introduced to the world of Scotch whisky in this relaxed experience.

Conference dinner

The conference will conclude with a dinner offered to all delegates on **Friday 18 September** at Our Dynamic Earth, a unique venue featuring stunning views of the Salisbury Crags, the Palace of Holyroodhouse and the Scottish Parliament. The conference dinner is included in the conference fee and must be booked in advance. Guests are welcome to join this special occasion.

Technical visit

A full day technical visit will take place on **Saturday 19 September**. It will feature visits to St Andrews and the harbours of Buckhaven and East Wemyss, concluding with a boat trip which will allow you to enjoy the spectacular views of the Forth Bridge. This impressive tour is recommended for both delegates and their guests.

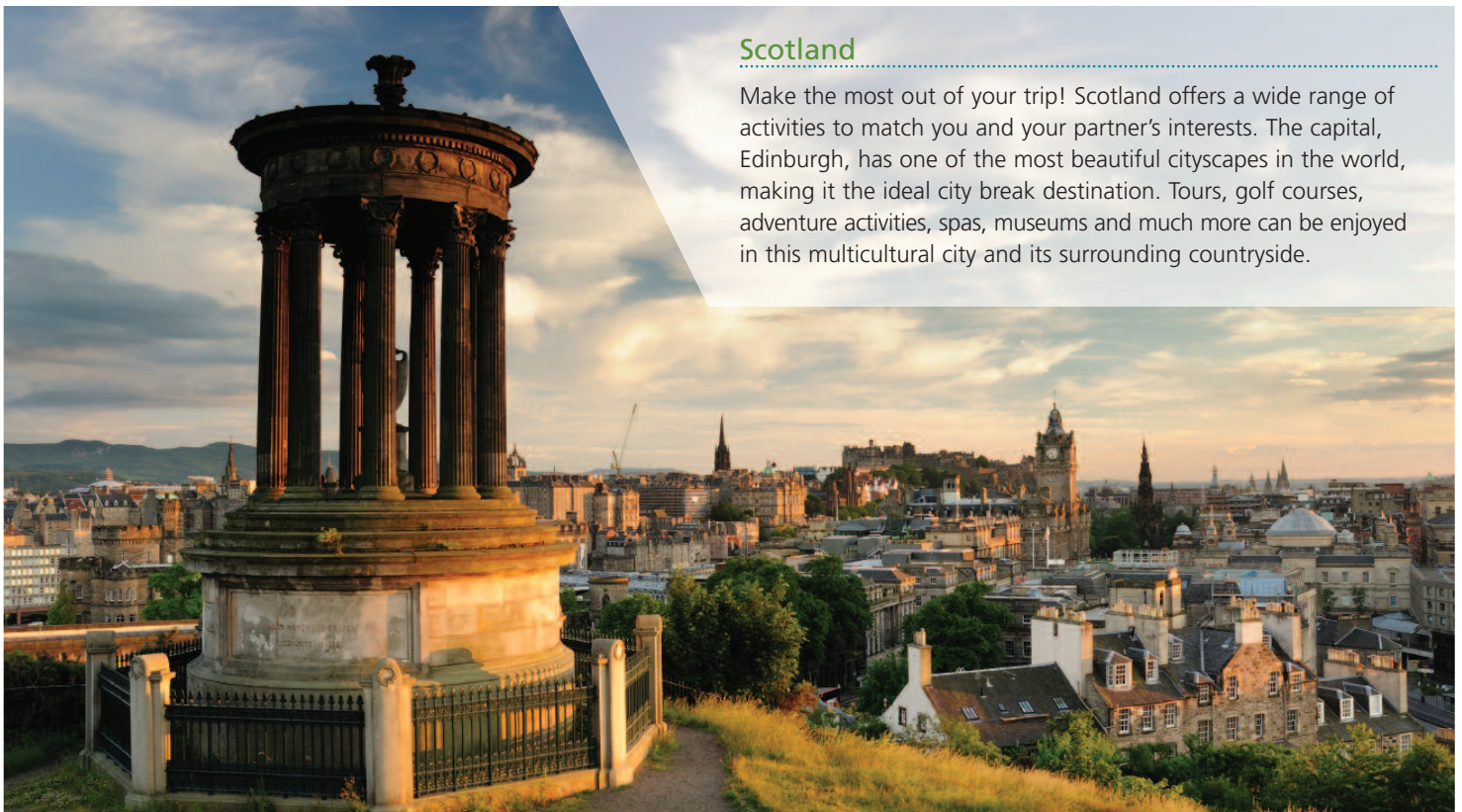
Additional sessions

Pre-conference short course

On **Tuesday 15 September** the University of Edinburgh will host a one-day short course on the **Design of Coastal Structures**, presenting a focussed summary of key recent developments in this field. Attendees will be introduced to new manuals and guidance, receive technical updates covering specific areas which have seen rapid research advances in recent years and have the opportunity to engage with an international panel of experts.

Conference fringe

In addition to **110 formal papers**, the conference organisers will also accept a number of short technical notes, announcements and position papers for less formal presentation. Registered attendees interested in taking part in the conference fringe must submit an abstract by Tuesday 30 June.



Scotland

Make the most out of your trip! Scotland offers a wide range of activities to match you and your partner's interests. The capital, Edinburgh, has one of the most beautiful cityscapes in the world, making it the ideal city break destination. Tours, golf courses, adventure activities, spas, museums and much more can be enjoyed in this multicultural city and its surrounding countryside.

Find out more at ice-breakwaters.com

Fees and discounts

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Fees and discounts

Package ¹	ICE/Supporting organisation member	Non member
Conference ²	£595	£695
Conference ² + Short course ³	£694	£794
Conference ² + Technical visit ⁴	£645	£745
Conference ² + Short course ³ + Technical visit ⁴	£744	£844
Short course only ³	£99	£99
Conference dinner ⁵ (guest)	£70	£70
Technical visit ⁴ (guest)	£50	£50

- 1 All prices are excluding 15% VAT.
- 2 Includes access to all conference sessions and the exhibition area, refreshment breaks and lunches, the drinks receptions on Wednesday 16 and Thursday 17 September, the conference dinner on Friday 18 September and a printed copy of the full conference proceedings to be produced after the event. Conference proceedings will be mailed to attendees. Postage and packaging costs are not included in the conference fee.
- 3 Will take place on Tuesday 15 September. It includes refreshment breaks and lunch.
- 4 Will take place on Saturday 19 September. Lunch is not included. Guests are encouraged to participate.
- 5 Will be held on Friday 18 September at Our Dynamic Earth. Guests must book in advance.
- 6 Conference proceedings will be mailed after the event. Postage and packaging costs are not included in the conference fee.

Terms and conditions apply and can be found on the conference website.

Sponsorship and exhibition opportunities

A limited number of sponsorship and exhibition packages are still available. Sponsoring or exhibiting at this event will allow your organisation to generate new leads, position your brand as a key player in the coastal engineering industry and associate your business with the professionalism and excellence the Institution of Civil Engineers stands for.

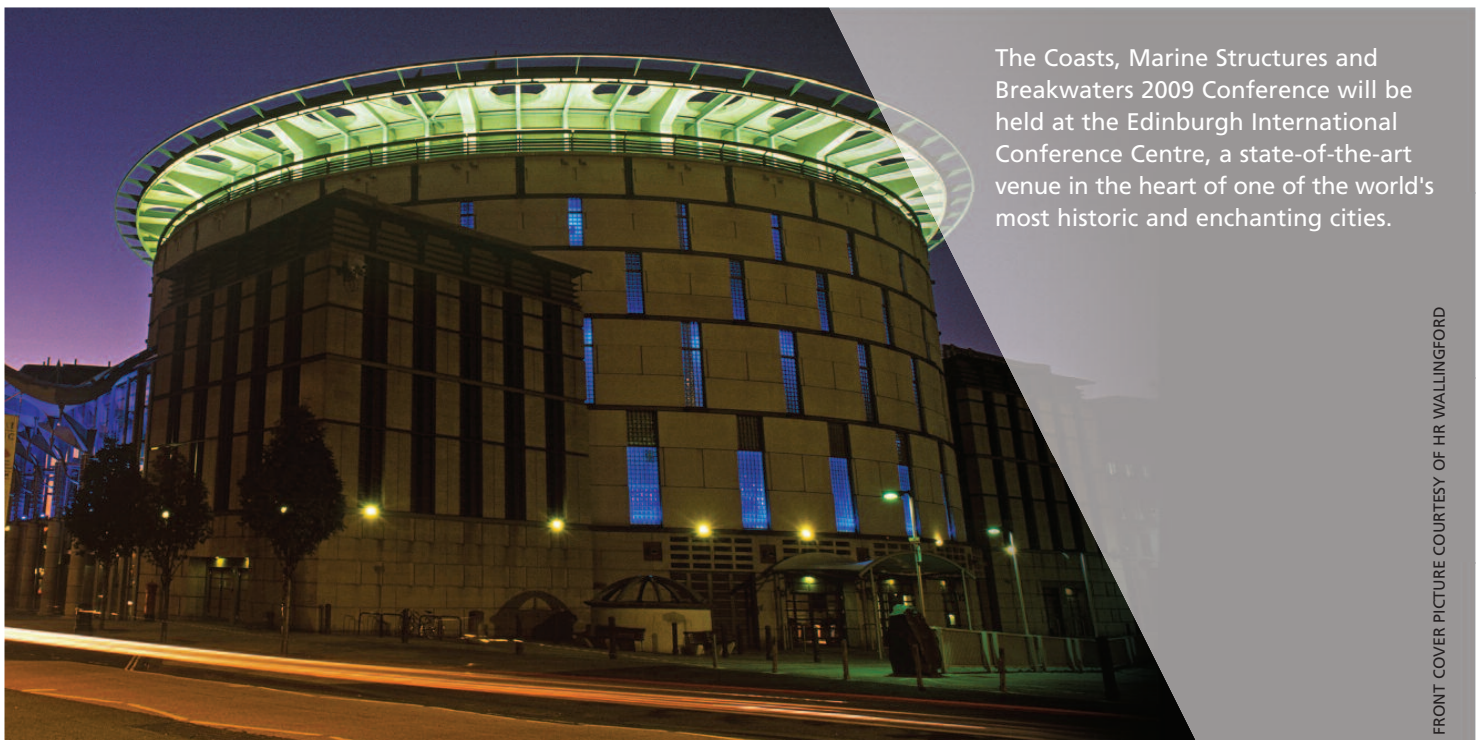
For more information and a personalised sponsorship proposal please contact Norman Anand, Sponsorship and Exhibition Manager, at norman.anand@ice.org.uk or +44 (0)20 7665 2215 or +44 (0)79 8460 6668.

Contact us

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The Coasts, Marine Structures and Breakwaters 2009 Conference will be held at the Edinburgh International Conference Centre, a state-of-the-art venue in the heart of one of the world's most historic and enchanting cities.

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