COASTS, MARINE STRUCTURES AND BREAKWATERS 2017

The leading international conference highlighting global marine engineering advances

5 - 7 September 2017, Liverpool
DEFINING INDUSTRY STANDARD PRACTICE FOR 30 YEARS

Since 1982, ICE Breakwaters authors, delegates and outputs have shaped the marine engineering sector.

Unveiling innovative technologies, assessing techniques, making formal recommendations and providing in-depth technical analyses. Conference outcomes have translated into guidance documents and manuals that have defined industry standard practice for 30 years.

Over 100 papers will be presented at the 2017 event in the historic maritime city of Liverpool. With more than 500 speakers and delegates from around the world, this quadrennial event is unmissable for the marine engineering community.

WHAT MAKES IT UNIQUE

- **ICE’s rigorous** peer-review process features only the most valuable and relevant information, both strategic and technical
- **Targeting** only the most forward-thinking industry papers, selected by a highly experienced organising committee
- **Bringing** together industry representatives from UK and abroad, with the highest degree of participation from clients, contractors and consultants, complemented with breakthrough researchers from top universities and specialist facilities
- **Shaping** the marine engineering sector, with innovative technologies and new methodologies
- **Addressing** climate change adaptation, from research to design and construction, heavily influencing how schemes are planned, tested and developed
- **Focussing** on marine renewables, bringing together developers and engineers who must design, construct and maintain the infrastructure

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Papers presented from around the world...

The 11th conference in the series

34 years and counting..

100+ Papers to be presented

500+ delegates

3 Days of multi-stream conference sessions

12 Hours of networking

60 Exhibitors

30+ Innovation Spotlight presentations

Rigorous peer review

Site visit boat trip

1 Day workshop on wave overtopping

1 Unforgettable gala dinner

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WHO ATTENDS

The long history of the Breakwaters series has given it time to develop and evolve into a mainstay of the international scientific and engineering community calendars. Over the years the series has engaged with partner Institutions from around the world, and 2017 is shaping up to have unprecedented global reach.

Clients

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- Network Rail
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PROGRAMME

04 September 2017

11:00

11:00 - 17:00
Short course on wave overtopping – improvements in prediction methods

18:30

18:30 - 20:00
Welcome drinks reception for all delegates
Merseyside Maritime Museum

PROGRAMME

5 September

08:15

08:15 - 09:00
Exhibition open; refreshments available
Hall 2B

09:00

09:00 - 10:30
Harbour development
Auditorium 1A

09:05 - 09:25 The development of Aberdeen Harbour expansion project
Ian Cruickshank - HR Wallingford, United Kingdom

09:25 - 09:45 Design of a new fishery harbour in Masirah Island, Oman
Leopoldo Franco - University Roma Tre, Dept. Civil Engineering, Italy

09:45 - 10:05 Investigation and simulation of failure mechanism of a port basin revetment, generation of remediation design and re-construction works
Steven te Slaa - CDR International BV
09:00 - 10:30

**Innovation Spotlight (C)**

**Auditorium 1B**

**09:05 - 09:10** The Atlantic Marine Energy Test Site - Designing for emerging technologies  
Stephen Fraser - Arup, Ireland

**09:10 - 09:15** Using remote inspection tools in the coastal and marine environment  
Ian Mockett - COWI

**09:15 - 09:20** Structure-from-Motion (SfM) monitoring of nourished gravel beaches in Croatia  
Suzana Ilic - Lancaster Environment Centre, Lancaster University

**09:20 - 09:25** On the application of mega-nourishments in the UK  
Antonios Valsamidis - Swansea University, United Kingdom

**09:25 - 09:30** The floating piers  
Ashit Jadav - Arup, United Kingdom

**09:35 - 09:40** Dune and residential buildings protection using geotextile tubes, Atlantic Ocean Portugal  
Mink ter Harmel - TenCate Geosynthetics Netherlands BV, Netherlands

**09:40 - 09:45** A potential additional barrier for flood protection?  
Charles Brindley - none, United Kingdom

**09:45 - 09:50** Use of an advanced workshop on ‘Port Engineering and Maritime Works’ in teaching future engineers  
Guillaume Carpentier - ESITC Caen, France

09:00 - 10:30

**Wave design conditions**

**Auditorium 1C**

**09:05 - 09:25** The conversion of spectral wave heights to design wave heights  
Markus Muttray - BAM Infraconsult, Netherlands

**09:25 - 09:45** Wave Spectra revisited – New guidelines based on observations  
Lluis Via-Estrem - Imperial College, United Kingdom

**09:45 - 10:05** Effects of storm duration and sequencing on armour layer damages  
Andrea Marzeddu - Politecnical university of Catalonia, Spain

10:30 - 11:00

**Break**

Refreshments, exhibition, and networking

Hall 2B

11:00 - 12:45

**Construction at the coast**

**Auditorium 1A**

**11:05 - 11:25** Working within a sensitive, flood vulnerable environment – Landing the power cable for the Race Bank Offshore Wind Farm  
Matt Wearmouth - Mott MacDonald Limited, United Kingdom

**11:25 - 11:45** Practical use of technology in delivering the UK’s largest coastal defence scheme on the Yfide Coast, Lancashire  
Carl Green - Wyre Borough Council, United Kingdom

**11:45 - 12:05** Innovative construction of the Sandsend Road coastal protection scheme using the ‘MULE’  
Graham Dewe - Balfour Beatty, United Kingdom

**12:05 - 12:25** Hopton coastal defences - failure to replacement in 24 months  
Alastair Tindle - rosebay services, United Kingdom

11:00 - 12:45

**Ecological aspects of design**

**Auditorium 1B**

**11:05 - 11:25** Developing a business case for greening of hard coastal and estuarine infrastructure: preliminary results from the IGGI Frame project.  
Larissa Naylor - University of Glasgow, United Kingdom

**11:25 - 11:45** Assessing the performance of natural and nature based defences  
Nigel Pontee - CH2M, United Kingdom

**11:45 - 12:05** Challenges in applying ecological enhancement factors into coastal and marine concrete construction  
Andrew Rella - ECOncrete Inc., United States

**12:05 - 12:25** Multi-purpose breakwaters  
Jena Gilman - COWI
ICE Coasts, Marine Structures and Breakwaters 2017

11:00 - 12:45  
**Stream 3**  
**Tsunami impact**  
Auditorium 1C

- 11:05 - 11:25 Numerical analysis on hydraulic characteristics of tsunami overtopping caisson breakwaters  
  Jun Mitsui - Fudo Tetra Corporation, Japan
- 11:25 - 11:45 Clarifying the stability of armour blocks behind the caisson against tsunami after abrupt change of breakwater width  
  Kojiro Suzuki - Port and Airport Research Institute, Japan
- 11:45 - 12:05 Experimental study on breakwater against overflow and big waves  
  Tsukasa Kita - Port and Airport Research Institute, Japan
- 12:05 - 12:25 Tsunami inundation forces on coastal buildings - effects of building layout  
  Ian Chandler - HR Wallingford, United Kingdom

12:45 - 15:15  
**Stream 1**  
**Multi-purpose design**  
Auditorium 1A

- 13:50 - 14:10 Architecture and wave defence, the Louvre Abu Dhabi  
  Matthew Vaughan-Shaw - Buro Happold Ltd, United Kingdom
- 14:10 - 14:30 Crown walls in mass and reinforced concrete. The way to aesthetics in maritime works.  
  Vicente Negro - Universidad Politécnica de Madrid, Spain
- 14:30 - 14:50 Planning and design of Swansea Bay tidal lagoon  
  Iain Roberts - Atkins, United Kingdom

13:45 - 15:15  
**Stream 2**  
**Asset risk and reliability**  
Auditorium 1B

- 13:50 - 14:10 Using Reliability metrics to evaluate vulnerability of a coastal dike subjected to climate change  
  Hans Moritz - U.S Army Corps of Engineers, United States
- 14:10 - 14:30 Improving the representation of the fragility of coastal structures: Brunel seawall (Dawlish, UK)  
  Robert Jane - University of Plymouth, United Kingdom
- 14:30 - 14:50 Uncertainty in coastal structure reliability  
  Jeffrey Melby - USACE Engineer R&D Center, United States

13:45 - 15:15  
**Stream 3**  
**Waves on structures**  
Auditorium 1C

- 13:50 - 14:10 Caisson design for high storm conditions  
  Martin Young - HR Wallingford
- 14:10 - 14:30 Investigation of the performance of a multi-functional harbour structure  
  Sara Mizar Formentin - Unibo
- 14:30 - 14:50 Hydraulic loads on large gates  
  Hessel Voortman - Arcadis Nederland B.V., Netherlands
15:15

15:15 - 15:45

Refreshments, exhibition, and networking
Hall 2B

15:45

15:45 - 17:30

Closing Plenary
Auditorium 1A

15:50 - 16:10 A standard approach to coastal structures?
Simon Burchett - WSP Group, United Kingdom

16:10 - 16:30 Stabilisation to railway coastal defences at Shakespeare Beach – Dec 2015 to autumn 2016
John Vincett - Tony Gee and Partners LLP, United Kingdom

16:30 - 16:50 Case Study: Design and construction of a breakwater in a remote location in Western Australia
Hubert VANDER MEULEN - BESIX - Engineering Department, Belgium

PROGRAMME

6 September

08:15

08:15 - 09:00

Exhibition open; refreshments available
Hall 2B

09:00

09:00 - 10:30

Stream 1

Working in the marine environment
Auditorium 1A

09:05 - 09:25 Risky Business: Dealing with unexploded ordnance (UXO) in the marine environment
Nick Cooper - Royal HaskoningDHV, United Kingdom

09:25 - 09:45 Recent approaches to the solidification and stabilisation (S/S) of contaminated dredge material in Ireland
Michael O’Shea - Malachy Walsh & Partners, Ireland

09:45 - 10:05 Rock structures – Has advances in technology made them any better?
Mark Glennerster - Glennerster Consulting, United Kingdom

09:00 - 10:30

Stream 2

Joint design conditions
Auditorium 1B

09:05 - 09:25 Assessing the joint probability of sea conditions: A robust approach
Dominic Hames - HR Wallingford

09:25 - 09:45 An event-based approach for extreme joint probabilities of waves and sea levels
Franck Mazas - ARTELIA, France

09:45 - 10:05 An approach to evaluating coastal total water levels over varied temporal and spatial scales for future design and vulnerability assessment
Heidi Moritz - US Army Corps of Engineers, United States
10:00 - 10:30
**Applying CFD**

**Auditorium 1C**

- 09:25 - 09:45 Numerical modelling of caisson breakwaters under sliding and overturning motion using the Proteus toolkit
  - Angelos (Aggelos) Dimakopoulos - HR Wallingford, United Kingdom
- 09:45 - 10:05 Numerical modelling of wave downfall pressures landward of a seawall
  - Annalie Baines - University of Manchester, United Kingdom

10:30 - 11:00
Break

11:00 - 11:25
**Challenges at the coast**

**Auditorium 1A**

- 11:05 - 11:25 Impacts of climate change on asset deterioration
  - Andy Tan - Environment Agency
- 11:25 - 11:45 Coastal road asset management: Dealing with uncertainty using quantitative erosion monitoring and modelling
  - Michael Lim - Northumbria University, United Kingdom
- 11:45 - 12:05 Maximising the standard of protection of a rock revetment in Lahinch for a predefined capital budget
  - Alexander Dane - Jeremy Benn Associates, United Kingdom

11:05 - 11:25
**Orphan breakwaters – what protection is given when they collapse?**

- William Allsop - HR Wallingford, United Kingdom

11:25 - 11:45
**Exploring structural stability of old blockwork breakwaters**

- Adrian Pearson - Moffatt & Nichol, United States

11:45 - 12:05
**Wave impacts on the Eddystone lighthouse: a field and laboratory investigation**

- Davide Banfi - Plymouth University, United Kingdom

12:05 - 12:25
**Overcoming the challenges of refurbishing a Victorian coastal defence - A case study from Cromer coastal protection scheme**

- Clifford Phang - AECOM, United Kingdom

12:45 - 13:45
Lunch, exhibition, and networking

**Hall 2B**
**13:45 - 15:15**

**Innovation Spotlight (B)**

**Auditorium 1A**

13:50 - 13:55 Sandscaping: making innovative coastal management work in the UK  
Victoria Clipsham - Royal HaskoningDHV, United Kingdom

13:55 - 14:00 A novel technique for nearshore morphological monitoring using marine radar: initial deployment and preliminary survey results  
Cai Bird - Marlan Maritime Technologies, United Kingdom

14:00 - 14:05 Innovative use of drone technology, with high resolution digital photogrammetry & 3D numerical modelling for coastal cliff stability evaluation  
Trevor Carter - Golder Associates, Canada

14:05 - 14:10 The use of sand encapsulated elements for beach protection.  
Edwin Zengerink - TenCate Geosynthetics, Netherlands

14:10 - 14:15 Design for accessibility for floating structures  
Matthew East - GHD, United Kingdom

14:15 - 14:20 Ecological enhancement of coastal Infrastructure  
Mairi Mac Arthur - University of Glasgow, United Kingdom

14:20 - 14:25 Marine construction in concrete  
Martin Hawkswood - Proserve Ltd, United Kingdom

14:25 - 14:30 Measurement of layer thickness, as-built bulk density and void porosity in antifer cube armour breakwaters  
Atilla Bayram - CH2M, United States

**15:15 - 15:45**

**Break**

*Refreshments, exhibition, and networking*

*Hall 2B*

**15:45 - 17:30**

**Stream 1**

**Armoured breakwaters**

**Auditorium 1A**

15:50 - 16:10 Design and construction of the Cubipod® armoured west breakwater for the outer port of A Coruña (Spain)  
Antonis Corredor - Sociedad Anónima Trabajos y Obras (SAT), Spain

16:10 - 16:30 Armourstone for berm breakwaters  
Sigurður Sigurðarson - IceBreak Consulting Engineers & Icelandic Road and Coastal Authority, Iceland

16:30 - 16:50 Hydraulic response & placement methods for a new single-layer concrete armour unit called C-ROC™  
Sylvain Perrin - ARTELIA, France

16:50 - 17:10 Automated industrial production of ACCROPODE™ II armour units: Case of "NRL" in Réunion Island  
Moncef Ait Fora - APS, France

**15:45 - 17:30**

**Stream 2**

**Understanding hydro/morpho-dynamic impacts for design**

**Auditorium 1B**

15:50 - 16:10 Tidal lagoon Swansea Bay: Modelling the effects of the scheme on marine physical environment  
Adam Fulford - ABPmer, United Kingdom

16:10 - 16:30 Evolution of offshore sandbanks and channels and their influence on shoreline behaviour in a high energy environment using induction modelling at Great Yarmouth  
Phil Barber - Shoreline Management Partnership, United Kingdom

16:30 - 16:50 Hydrodynamic and morphological response of the Mersey Estuary to the on-going Mersey Gateway bridge construction works  
Adrian Wright - AECOM, United Kingdom

16:50 - 17:10 Pagham Harbour: Managing a dynamic coast for people and the environment  
Colin Scott - ABPmer, United Kingdom
**Developments in overtopping (B)**

**Auditorium 1C**

15:50 - 16:10 The new EurOtop Neural Network tool for an improved prediction of wave overtopping
   Barbara Zanuttigh - Università di Bologna - DICAM

16:10 - 16:30 Causes for increased wave overtopping on rubble mound breakwaters and revetments
   Pieter Bakker - DMC, Netherlands

16:30 - 16:50 The conundrum of specifying very low wave overtopping discharges
   Eunice Silva - HR Wallingford, United Kingdom

16:50 - 17:10 Wave overtopping hazard to pedestrians: video evidence from real accidents
   Claudio Sandoval - University of Edinburgh, United Kingdom

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**PROGRAMME**

**7 September**

08:15

08:15 - 09:15

Registration, refreshments, and exhibition
ACC Main Entrance and Hall 2B

09:20 - 11:00

Plenary
Auditorium 1A

Chair: Kevin Burgess - Organising Committee Chair, Coasts, Marine Structures, and Breakwaters 2017

09:40 - 10:00 Alderney and Jersey “harbours of refuge” – what was built, why did they fail, and what has remained?
   William Allsop - HR Wallingford, United Kingdom

10:00 - 10:20 Construction aspects of the civil works for the storm surge barrier at Chioggia inlet – Venice
   Paolo De Girolamo - La Sapienza University of Rome, Italy

10:20 - 10:40 Adaptation to sea level rise in cities: Lessons from present examples of land subsidence
   Miguel Esteban - The University of Tokyo, Japan

11:00

Break

11:00 - 11:30

Refreshments, exhibition, and networking
Hall 2B

11:30 - 13:00

Stream 1

**LNG terminals**

Auditorium 1A

11:55 - 12:15 Challenges, opportunities and design impacts for different construction methods on Curtis Island LNG Jetties, Australia
   Cossel Chang - Arup, United Kingdom

12:15 - 12:35 Designing out the need for a breakwater, studies for floating LNG terminals and alternative mooring solutions
   Gillian Millar - Moffatt & Nichol, United States
### Stream 2

**Upgrading existing infrastructure**

**Auditorium 1B**

- **11:35 - 11:55** Appraisal of Lochranza Ferry Terminal for a hybrid-fuel ferry  
  - Martin Kirkpatrick - Arch Henderson LLP, United Kingdom

- **12:15 - 12:35** St Mary’s Harbour improvement works  
  - Rients Jan Veldkamp MEng (Hons), CEng, MICE - Kier Infrastructure, United Kingdom

### Stream 3

**Armour testing**

**Auditorium 1C**

- **11:35 - 11:55** Measuring damage in physical model tests of rubble mounds  
  - Bas Hofland - Deltares, Netherlands

- **11:55 - 12:15** Physical modelling of beakwaters armoured with tetrapods  
  - Otavio Sayao - Stantec Consulting Ltd, Canada

### 13:00 - 14:00

**Lunch, exhibition, and networking**

**Hall 2B**

### 14:00 - 15:45

**Stream 1**

**Beaches and shorelines**

**Auditorium 1A**

- **14:05 - 14:25** Examples of coastal catch-up including barrier roll-back, marsh and brick-earth cliff erosion in Southeast England  
  - Uwe Dornbusch - Environment Agency, United Kingdom

- **14:25 - 14:45** Constanta coastline rehabilitation, application of advanced models and practical solutions to develop a sustainable low-maintenance coastal defence scheme  
  - Cuno Langeveld - Van Oord Dredging and Marine Contractors, Netherlands

- **14:45 - 15:05** Chesil Beach at Portland, Dorset: Recovering from the winter 2013/14 storms  
  - Alan Frampton - CH2M, United Kingdom

- **15:05 - 15:25** The protection of the Happisburgh to Winterton coastal frontage - maintaining a sustainable approach despite long term uncertainty  
  - Andrew Rouse - Environment Agency, United Kingdom

### 14:00 - 15:45

**Innovation Spotlight (A)**

**Auditorium 1B**

- **14:05 - 14:10** Advanced marine asset survey  
  - Andrew Walker - NIRAS Fraenkel Ltd, United Kingdom

- **14:10 - 14:15** Technology changing marine inspections - Marq & Inspect  
  - Oliver Davey - Arup, United Kingdom

- **14:15 - 14:20** UK port preparedness for climate change: The benefits of appropriate adaptation  
  - Esme Flegg - University of Southampton, United Kingdom

- **14:20 - 14:25** Managing historic marine infrastructure: A conservator’s view  
  - Hilary Wyatt - Cardiff University, United Kingdom

- **14:25 - 14:30** Improving habitat heterogeneity on coastal defence structures  
  - Alice Hall - Bournemouth University, United Kingdom

- **14:30 - 14:35** ECOncrete Technologies: Bio-Enhanced Concrete for Coastal and Marine Infrastructure  
  - Ido Sella - ECOncrete Tech.

- **14:35 - 14:40** Evaluation of an Xbloc-type breakwater design through data analysis, numerical and physical modeling  
  - Saygin Derebay - Dolfen Engineering & Consultancy
14:00 - 15:45

**Waves - structures interaction**
Auditorium 1C

14:05 - 14:25 Damage to the Mutriku OWC breakwater – some lessons from further analysis  
Encarni Medina-Lopez - The University of Edinburgh, United Kingdom

14:25 - 14:45 Hydrodynamic load acting on storage tank due to tsunami inundation flow  
Susumu Araki - Osaka University, Japan

14:45 - 15:05 A study on the behavior of a relatively small caisson floating in wave fields and its effective installation method  
Yasu Kotake - Toyo Construction Co., Ltd., Japan

15:05 - 15:25 Wave overtopping and loading for the recurved parapet on the crest of rubble mound breakwater  
Sang-Ho Oh - Korea Institute of Ocean Science and Technology, South Korea

15:45

**Break**

16:15 - 17:45

**Stream 2**
Coastal developments  
Auditorium 1B

16:20 - 16:40 Cadzand-Bad complex integral design of primary flood defences, marina and public space  
Richard de Rover - Delta Marine Consultants, Netherlands

16:40 - 17:00 Protecting the new deep water berth at the Liverpool 2 Container Terminal  
Lizzie Chellew - Van Oord UK Ltd.

17:00 - 17:20 Developments for the Gwynt-y-Môr offshore wind farm at Mostyn  
Gordon Cameron - Mott MacDonald Ltd, United Kingdom

17:20 - 17:40 Coastal protection as a platform for regeneration – Colwyn Bay waterfront project as an exemplar for other UK coastal resorts  
Benjamin Poulton - Mott MacDonald, United Kingdom

16:15 - 17:45

**Stream 3**

**Developments in overtopping (A)**  
Auditorium 1C

16:20 - 16:40 The influence of geometrical shape changes on wave overtopping: A laboratory and SPH numerical study  
Shudi Dong - University of Warwick

16:40 - 17:00 Experimental study of the mean wave overtopping rate of berm breakwaters at different wave steepness conditions  
Karthika Pillai - Griffith University, Australia

17:00 - 17:20 Recalibration of overtopping roughness factors of different armour types  
Mads Røge Eldrup - Aalborg University, Denmark

Programme correct at time of print
SPONSORS

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Venue
We are delighted to be able to take the next Coasts, Marine Structures and Breakwaters conference to the city of Liverpool. With excellent transport connectivity and a state-of-the-art conference and exhibition centre, ACC Liverpool, the city provides a perfect location for this international event.

Known as the city of The Beatles, culture and sport and famed for its maritime heritage, humour and hospitality, Liverpool is certain to leave a lasting impression on delegates and exhibitors alike.
For information about sponsorship contact:

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