

Future Paths and Needs in Wave Modelling

Scandic Hotel Solsiden - Beddingen 1, 7042 - Trondheim, Norway.
21st and 22nd October 2019

AGENDA

DAY 1 (21-10-2019)

08:30 – 09:00 *Welcoming and registration*

09:00 – 12:30 **Session A - Ocean and Coastal Wave Modelling**

Opening of first day

Keynote presentation by Dr Luigi Cavaleri:

Future paths and needs in wave modelling and their impact on ocean engineering

Institute of Marine Sciences (ISMAR), National Research Council (CNR), Italy

09:00 – 10:45

Assessing the added value of using a wave boundary layer model in a coupled wave-atmosphere model system

A Wiese¹, J Fischereit², XG Larsén² and J Staneva¹

1. Helmholtz-Zentrum Geesthacht, Germany; 2. Department of Wind Energy, Technical University of Denmark, Risø Campus, Denmark

Response of natural coastal barriers to extreme waves

SM Elsayed¹ and N Goseberg¹

1. Technische Universität Braunschweig, Leichtweiß-Institute for Hydraulic Engineering and Water Resources, Division of Hydromechanics, Coastal and Ocean Engineering, Germany

10:45 – 11:00

Short Break

The role of the nonlinear four-wave interaction source term on the spectral shape

S Ponce de León¹ and AR Osborne²

1. Centre for Marine Technology and Ocean Engineering (CENTEC), Instituto Superior Técnico, Universidade de Lisboa, Portugal; 2. Nonlinear Waves Research Corporation, Alexandria, VA 22314, USA

Maximum wave heights from numerical wave models

F Barbariol¹, JH Alves², A Behrens³, A Benetazzo¹, L Bertotti¹, J Bidlot⁴, S Davison¹, L Cavaleri¹, P Pezzutto¹, M Sclavo¹, J Staneva³ and J Thomson⁵

1. ISMAR-CNR, Venice, Italy; 2. NCEP-NOAA & SRG, College Park, MD, USA; 3. HZG, Hamburg, Germany; 4. ECMWF, Reading, UK; 5. University of Washington, WA, USA

11:00 – 12:30

Do waves create current?

AK Bratland¹

1. Aker Solutions, Norway

REEF3D: open-source hydrodynamics - efficient and accurate multiscale wave modelling

H Bihš¹, T Martin¹, W Wang¹, C Pakozdi¹, A Kamath¹

1. Department of Civil and Environmental Engineering, NTNU Trondheim, Norway

12:30 – 13:30

Lunch

Future Paths and Needs in Wave Modelling

Trondheim, Norway. 21st and 22nd October 2019

Organization: SINTEF Ocean

13:30 – 17:00

Session B - Laboratory methods: Generation, calibration, basin effects

Keynote presentation by Prof. David Ingram:

Recreating the Ocean in the laboratory: multidirectional sea states for the FloWave Ocean Energy Research Facility
Institute for Energy Systems (IES), School of Engineering, University of Edinburgh, UK
Phase-resolving spatio-temporal wave measurements using stereo imaging for model and laboratory studies

 A Benetazzo¹, F Arduin², F Barbariol¹, F Bergamasco³, L Cavaleri¹, S Davison¹, J-F Filipot⁴, PV Guimarães⁵, F Leckler⁵, G Marechal², C Peureux², P Pezzutto¹, F Qiao⁶, M Sclavo⁷, J Yoo⁸

13:30 – 15:00

 1. *Institute of Marine Sciences (ISMAR)-National Research Council (CNR), Italy*; 2. *Univ. Brest, CNRS, IRD, Ifremer, Laboratoire d'Océanographie Physique et Spatiale (LOPS), IUEM, France*; 3. *DAIS – Università Ca' Foscari, Italy*; 4. *France Energies Marines, France*; 5. *Shom, France*; 6. *First Institute of Oceanography (FIO), State Oceanic Administration (SOA), P. R. China*; 7. *Institute for the Dynamics of Environmental Processes (IDPA)-National Research Council (CNR), Italy*; 8. *Korea Institute of Ocean Science and Technology (KIOST), Republic of Korea.*
Influence of spurious waves on the performance of active absorption systems in oblique waves

 T Lykke Andersen¹, MR Eldrup¹ and P Frigaard¹

 1. *Aalborg University, Denmark*

15:00– 15:15

Short Break
Separation of incident and reflected nonlinear waves on steep foreshores

 MR Eldrup¹, TL Andersen¹ and P Frigaard¹

 1. *Aalborg University, Denmark*
A preliminary assessment of an improved bayesian wave estimation method

 J Mas-Soler^{1,2}, A Souto-Iglesias¹ and AN Simos²

 1. *CEHINAV-DACSON-ETSIN, Universidad Politécnica de Madrid (UPM), Spain*; 2. *Numerical Offshore Tank (TPN), University of São Paulo, SP, Brazil*

15:15 – 17:00

Role and laboratory adjustment of non-stationary water level and wave steepness on the robustness of wave overtopping estimation

 NB Kerpen¹, K-F Daemrich¹, O Lojek¹ and T Schlurmann¹

 1. *Leibniz University Hannover, Ludwig-Franzius-Institute for Hydraulic, Estuarine and Coastal Engineering, Germany*
A parameter for sampling of critical nonlinear random wave events

 CT Stansberg¹

 1. *Ctstansberg Marinteknikk, Norway*
Closing of first day

17:15

BUS transport from Scandic Hotel Solsiden to SINTEF Ocean (Tyholt)

17:30

Visit to SINTEF Ocean facilities at Tyholt

18:30

BUS transport from SINTEF Ocean (Tyholt) to Trondheim city centre

19:00

Social dinner at "To Rom og Kjøkken"

DAY 2 (22-10-2019)**08:30 – 11:45****Session C - Extreme waves***Opening of second day*

Keynote presentation by Dr Alfred R Osborne:

Nonlinear Fourier Analysis of Ocean Wave Fields: Applications to Wave Modeling, Data Analysis and Extreme Waves*Nonlinear Waves Research Corporation (NWRC), Virginia, USA.***08:30 – 10:00****Modelling the proper waves to identify the design action effects**OT Gudmestad¹*1. University of Stavanger, Norway***Extreme wave statistics in following, crossing and counter-propagating wave fields: Laboratory experiments and numerical simulations**K Trulsen¹, S Støle-Hentschel¹, JC Nieto Borge², L Rye¹ and S Olluri¹*1. Department of Mathematics, University of Oslo, Norway; 2. Department of Physics and Mathematics, University of Alcalá, Spain***10:00– 10:15****Short Break****Predicting wave statistics from wave spectral information**O Gramstad¹, EB Bitner-Gregersen¹, OJ Aarnes², O Breivik², AK Magnusson² and M Malila²*1. DNV GL, Norway; 2. MET Norway, Norway***Challenges in description of nonlinear waves due to sampling variability**EB Bitner-Gregersen¹, O Gramstad¹, AK Magnusson² and M Malila²*1. DNV GL GTR, Norway; 2. MET Norway, Norway***10:15 – 11:45****Directional characteristics of some rogue waves. Observations and high-resolution wave hindcasts**AK Magnusson¹, E Bitner-Gregersen², Ø Breivik¹, O Gramstad², MP Malila¹, M Reistad¹, S Støle-Hentschel³, K Trulsen³, OJ Aarnes¹*1. MET-Norway, Norway; 2. DNV-GL, Norway; 3. UiO, Norway***Simulation of steep irregular waves with a mixed Eulerian-Lagrangian spectral method**S Fouques¹, C Pakozdi²*1. SINTEF Ocean, Norway; 2. Norwegian University of Science and Technology, Norway***11:45 – 12:45****Lunch**

12:45 – 15:45**Session D - Numerical and experimental wave modelling**

Keynote presentation by Prof. Guillaume Ducrozet:

Non-linear waves: challenges in ocean engineering*Research Laboratory in Hydrodynamics, Energetics & Atmospheric Environment (LHEEA), EC Nantes, France.***Linking experimental and numerical wave modelling****12:45 – 14:15**J Scharnke¹, S van Essen¹, J Helder¹ and T Bunnik¹*1. MARIN, The Netherlands***Kinematics of nonlinear waves propagating over a shoal: calculation methods with comparison to laboratory measurements**C Lawrence¹ and K Trulsen¹*1. Department of Mathematics, University of Oslo, Norway***14:15– 14:30****Short Break****Phase resolved wave reconstruction from surface measurements - with application to the Justine triple rogue wave group**O Gramstad¹, K Trulsen² AK Magnusson³ EB Bitner-Gregersen¹, M Malila³ and OJ Aarnes³*1. DNV GL, Norway; 2. University of Oslo, Norway; 3. MET Norway, Norway***14:30 – 15:45****New trends on the use of hybrid modelling to analyze the interaction of waves with structures by means of CFD models**JL Lara¹, IJ Losada¹, B Di Paolo¹, M Maza¹, G Barajas¹*1. Environmental Hydraulics Institute "IHCantabria", Univ. de Cantabria, Spain***Digital twin of Sintef ocean basin**C Pakozdi¹, H Bihs¹ and S Fouques²*1. Norwegian University of Science and Technology, Norway; 2. SINTEF Ocean, Norway***15:45– 16:00****Short Break****16:00 – 17:00****Panel discussion on the Future Paths and Needs in Wave Modelling***Closing of workshop*