

Future Paths and Needs in Wave Modelling

Scandic Hotel Solsiden - Beddingen 1, 7042 - Trondheim, Norway.

21st and 22nd October 2019

AGENDA

Preliminary version

DAY 1 (21-10-2019)

09:00 – 12:00

Session A - Ocean and Coastal Wave Modelling

Welcoming and opening of first day

Keynote presentation by Dr Luigi Cavaleri

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

09:00 – 10:15

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

10:15 – 10:30

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

10:30 – 12:00

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

Do waves create current?

AK Bratland¹

1. Aker Solutions, Norway

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

H Bihs¹, T Martin¹, W Wang¹, C Pakozdi¹, A Kamath¹

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

12:00 – 13:30

Lunch

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13:30 – 17:00

Session B - Laboratory methods: Generation, calibration, basin effects
Keynote presentation by Prof. David Ingram

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

The influence of dynamic water level changes in physical model tests on the wave overtopping

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

1. *Leibniz University Hannover, Ludwig-Franzius-Institute for Hydraulic, Estuarine and Coastal Engineering, Germany*

Parameters for sampling of critical nonlinear random wave events

CT Stansberg¹ and S Fouques²

1. *Ctstansberg Marinteknikk*; 2. *SINTEF Ocean, 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

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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 Waves Research Corporation (NWRC), Virginia, USA.***Modelling the proper waves to identify the design action effects****08:30 – 10:00**OT Gudmestad¹*1. University of Stavanger, Norway***Extreme wave statistics in following and counter-propagating wave fields: Laboratory experiments and numerical simulations**K Trulsen¹, S Støle-Hentschel¹, L Rye¹ and S Olluri¹*1. Department of Mathematics, University of Oslo, Norway***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, BR Furevik¹, O Gramstad², H Haakenstad¹, 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 Euler-Lagrange spectral method**S Fouques¹, C Pakozdi², CT Stansberg³*1. SINTEF Ocean, Norway; 2. Norwegian University of Science and Technology, Norway; 3. Ctstansberg Marinteknikk***11:45 – 12:45****Lunch****Future Paths and Needs in Wave Modelling**Trondheim, Norway. 21st and 22nd October 2019

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12:45 – 15:45**Session D - Numerical and experimental wave modelling****Keynote presentation by Prof. Guillaume Ducrozet**

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 "IH Cantabria", 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

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