

9th International Workshop on Wave Hindcasting & Forecasting
Victoria, B.C. Canada, September 24-29, 2006

FINAL PROGRAM

Sunday, September 24

4:00 – 6:00 p.m. Workshop Registration Desk Open

5:30 – 7:30 p.m. Icebreaker

5:30 p.m. Poster Display

P1 Pacific Land Ocean Typhoon Experiment (Pilot); *Stanley Boc Jr., Andrew Garcia and Cheryl Pollock*

P2 An Operational Way of Supplying CMC Forecast Wind Field with Hurricane Attitude to the Operational Wave Model; *Serge Desjardins, Roop Lalbeharry, Harold Ritchie and Alan Macafee*

P3 Maritime Activities in Senegal; *Mamina Kamara*

P4 Validation of a Regional Wave Model With Satellite And Buoy Observations; *Jian-Guo Li, and Martin Holt*

P5 Main Characteristics of Significant Wave Formation in the Coastal Zone of Vietnam; *Bui Xuan Thong*

P6 Hawaiian Islands Severe Wave Climate 1995-2004; *Barbara Tracy, Jeffrey Hanson, Alan Cialone, Hendrik Tolman, Douglas Scott and Robert Jensen*

P7 Marine Meteorology at Direction Meteorologie Nationale Morocco; *Mohammed Harouche*

P8 Impact of Directionality on the Extreme Wave Occurrence in a Discrete Random Wave System; *Takuji Waseda*

Monday, September 25

8:45 a.m. Welcome and Introduction

8:55 a.m. The WMO/IOC JCOMM Wave Programme; *Alice Soares*
The JCOMM Extremes Wave Database; *Val Swail*

Session A: Wave Hindcasts
Chair: Alice Soares

9:25 a.m. The MSC50 Wind and Wave Reanalysis; *V.R. Swail, V.J. Cardone, M. Ferguson, D.J. Gummer, E.L. Harris, E.A. Orelup and A.T. Cox*

9:45 a.m. Pacific Hindcast Performance Evaluation of Three Numerical Wave Models; *Jeffrey Hanson, Barbara Tracy, Hendrik Tolman and Douglas Scott*

10:05 a.m. Prediction of Extreme Wave Conditions in the Black Sea with Numerical Models; *Eugen Rusu, Liliana Rusu and C. Guedes Soares*

10:25 a.m. Break

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Session B: Extreme Storm Seas

Chair: Kevin Ewans

- 10:50 a.m. **Forecasting a 100-Year Wave Event; *Anne Karin Magnusson, Magnar Reistad, Øyvind Breivik, Rasmus Myklebust and Ellis Ash***
- 11:20 a.m. **Extreme Waves in the ECMWF Operational Wave Forecasting System; *Jean-Raymond Bidlot, Peter Janssen and Salah Abdalla***
- 11:40 a.m. **Application of the UK Met Office North Atlantic and European Regional Wave Model for Prediction of Extreme Sea States; *Gary Fullerton, Jian-Guo Li, Martin Holt and Andrew Saulter***
- 12:00 p.m. **Lunch**

Session C: Extreme Storm Seas – Tropical Storm

Chair: Vincent Cardone

- 1:30 p.m. **Performance of Third Generation Wave Models In Extreme Hurricanes; *R.E. Jensen, V.J. Cardone and A.T. Cox***
- 2:00 p.m. **The Impact of Roughness Changes by Sea State under Typhoon Field; *Nadao Kohno, Akihiro Murata and Wataru Mashiko***
- 2:20 p.m. **Modeling Nearshore Waves for Hurricane Katrina; *Jane McKee Smith***
- 2:40 p.m. **Hurricane-Generated Ocean Waves; *Fumin Xu, Will Perrie, Bechara Toulany, and Peter C. Smith***
- 3:00 p.m. **TBD**
- 3:20 p.m. **Break**
- 3:50 p.m. **Discussion Session – Extreme Storm Seas
Chair: Vincent Cardone**

Tuesday, September 26

Session D: Wave Climate Trend and Variability

Chair: Paul H. Taylor

- 8:45 a.m. **Detection of Human Influence on Trends of North Atlantic Ocean Wave Heights and Atmospheric Storminess; *Xiaolan Wang, Val Swail, Xuebin Zhang, Francis Zwiers and Myles Allen***
- 9:10 a.m. **Changes in the North Sea Extreme Waves; *Sofia Caires, Jacco Groeneweg and Andreas Sterl***
- 9:35 a.m. **Applications of the Dynamical and Statistical Downscaling Techniques to the Local Multi-Decade Wave Simulations; *Lidia Gaslikova***
- 9:55 a.m. **Extreme Wind Waves Worldwide from the VOS Data and Their Changes over the Last 50 Years; *Vika Grigorieva and Sergey Gulev***
- 10:15 a.m. **Break**

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Session E: Wave Climate Trend and Variability II
Chair: Xiaolan Wang

- 10:45 a.m. Climatic Variations in Hurricane Characteristics and their Potential Effects on Waves and Surges in the Gulf of Mexico; *Donald Resio and Liz Orelup*
- 11:15 a.m. Directional Wave Climatology for the Hawaiian Islands from Buoy Data and the Influence of ENSO on Extreme Wave Events from Model Hindcast; *Jerome Aucan*
- 11:35 a.m. Evaluating Extreme Storm Power and Potential Implications to Coastal Infrastructure Damage, Oregon Coast; *Heidi P. Moritz and Hans R. Moritz*
- 11:55 a.m. Lunch

Session F: Wave Climate for Design
Chair: Sofia Caires

- 1:30 p.m. The Nature of the Draupner Giant Wave of 1st January 1995 and the Associated Sea-State, and How to Estimate Directional Spreading from an Eulerian Surface Elevation Time History; *Paul H. Taylor, Thomas A.A. Adcock, Alistair G.L. Borthwick, Daniel A.G. Walker and Yao Yao*
- 2:00 p.m. Extreme and Freak Waves: The Difference and Similarity; *Leonid Lopatoukhin and Alexander Boukhanovsky*
- 2:20 p.m. Investigating Parent Distribution of Typhoon-Generated Annual Maximum Wave Height and Sample Distribution of Return Wave Height on the East China Sea; *Masataka Yamaguchi, Hirokazu Nonaka and Yoshio Hatada*
- 2:40 p.m. Estimating Extreme Wave Design Criteria Incorporating Directionality; *Kevin Ewans and Philip Jonathan*
- 3:00 p.m. Reasons for Focussing More on Prediction of the Very Extreme Sea States; *Sverre Haver*
- 3:20 p.m. Break
- 3:50 p.m. Discussion Session – Wave Climate Change and Variability and Design Criteria
Chair: Val Swail

Wednesday, September 27

Session G: Wave Modelling
Chair: Don Resio

- 8:45 a.m. On Modelling Spectral Dissipation Due to Wave Breaking for Ocean Wind Waves; *Michael L. Banner and Russel P. Morison*
- 9:15 a.m. The Spectral Scale of Surface Wave-Breaking; *Johannes Gemmrich*
- 9:35 a.m. Wave Breaking Energy in Coastal Region; *Ray-Qing Lin and Lihwa Lin*
- 9:55 a.m. Direct Numerical Verification of the Theory of Weak Turbulence; *A. O. Korotkevich, A. Pushkarev, D. Resio, and V. E. Zakharov*
- 10:15 a.m. Break

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Session H: Wave Modelling II
Chair: Michael Banner

- 10:45 a.m. Flux Balance and Self-Similar Laws of Wind Wave Growth; *S. I. Badulin, A. V. Babanin, A. N. Pushkarev, V. E. Zakharov and D. T. Resio*
- 11:15 a.m. Towards an Optimal Computation of Non-Linear Four-Wave Interactions in Operational Wave Models; *Gerbrant Van Vledder*
- 11:35 a.m. A Two-Scale Approximation for Efficient Representation of Nonlinear Energy Transfers in a Wind Wave Spectrum; *Donald Resio, and Will Perrie*
- 11:55 a.m. Source Term Balance Using a Two-Scale Approximation (TSA) For Nonlinear Transfers in High Wind Conditions; *Will Perrie and Donald Resio*
- 12:15 p.m. Lunch

Session I: Shallow Water Wave Modelling
Chair: Hendrik Tolman

- 1:45 p.m. Computations and Data Analysis of Very Non-linear, Directionally Spread Shallow Water Waves; *A.R. Osborne, M. Onorato, D.T. Resio and C.E. Long*
- 2:15 p.m. Evaluation of Diffraction Behind a Semi-Infinite Breakwater in the SWAN Wave Model; *François Enet, Alphonse Nahon, Gerbrant van Vledder and David Hurdle*
- 2:35 p.m. Development & Validation of Hindcast-Driven Nearshore Wave Information; *William R. Dally and Daniel A. Osiecki*
- 2:55 p.m. 2-D Surface Elevation Measurements by Means of X-Band Radar: An Application of WAMOS II at Duck; *Katrin Hessner, Konstanze Reichert, Jens Dannenberg, Kent Hathaway and Don Resio*
- 3:15 p.m. Break
- 3:45 p.m. Discussion Session – Wave Modelling
Chair: Don Resio
- 6:00 p.m. Reception
- 7:00 p.m. Banquet

Thursday, September 28

Session J: Nearshore and Coastal Waves
Chair: Jean-Michel Lefevre

- 9:00 a.m. Numerical Study of Wave-Current Interaction Using High Resolution Coupled Model in the Kuroshio Region; *Hitoshi Tamura, Takuji Waseda, Yasumasa Miyazawa and Kosei Komatsu*
- 9:20 a.m. Wave Induced Surface Currents on the Grand Banks; *Charles Tang, Will Perrie and Peter C. Smith*

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- 9:40 a.m. **Wind and Wave Modelling in an Operational Warning System Against Flooding; *Gerbrant van Vledder, Lykle Voort, Gijs van Banning, Elizabeth (Ellen) J. Claessens and Yede Bruinsma***
- 10:00 a.m. **Break**
- Session K: Nearshore and Coastal Waves II**
 Chair: Serge Desjardins
- 10:30 a.m. **Evaluation of a Nested Version of the Wave Model WAM4.5 during the DND Field Experiment Near Halifax, Nova Scotia; *Roop Lalbeharry***
- 10:50 a.m. **Wave Forecasting for Offshore Wind Farms; *Morten Rugbjerg, Ole René Sørensen and Vagner Jacobsen***
- 11:10 a.m. **Wave and Current Forecast System for the Mouth of the Fraser River; *James Stronach, Lillian Zaremba, May Wong, Laurie Neil and Neil McLennan***
- 11:30 a.m. **Estimating Nearshore Waves at a Morphologically Complex Inlet during Extreme Storm Conditions: Comparative Performance of Two Phase-Averaged Models; *Hans R. Moritz, Heidi P. Moritz, and David R. Michalsen***
- 11:50 a.m. **Sessions end for the day.**

Friday, September 29

Session L: Forecast Models
Chair: Andrew Cox

- 8:45 a.m. **Towards the Third Release of WAVEWATCH III: A Multi-Grid Model Version; *Hendrik Tolman***
- 9:15 a.m. **Assimilation of RA-2 Altimeter and ASAR Data in 3G Wave Model; *J.-M. Lefevre and L. Aouf***
- 9:35 a.m. **Numerical Simulation of Wind Wave Field; *Lihwa Lin, Ray-Qing Lin, and Jerome P.Y. Maa***
- 9:55 a.m. **The Influence of Wave Drag and Sea Spray on Storm Waves; *Weiqing Zhang and Will Perrie***
- 10:15 a.m. **Break**
- 10:45 a.m. **Wave Analysis Guidance for Tropical Cyclone Forecast Advisories; *Paul Wittmann, Charles Sampson and Hendrik Tolman***
- 11:15 a.m. **The Effect of Improved Marine Wind Forecasts on Wave Forecasts from WAM; *Laurence Wilson and Otilia Diaconu***
- 11:35 a.m. **Closing remarks**
- 12:00 p.m. **Workshop Ends**