

# 4<sup>th</sup> International Symposium on Flood Defence



Managing  
Flood Risk,  
Reliability &  
Vulnerability



Toronto, Canada ■ May 6 - 8, 2008

## ***Program***

### **Monday, 5 May**

- 13:00 - 17:00 Don River Technical Tour
- A bus tour of the Don River area will start with a presentation and discussion.
- 18:00 - 21:30 Early On-site Registration

### **Tuesday, 6 May 2008**

- 08:00 Registration
- 09:00 Opening Session 1
- Welcome: Paul Kovacs, Executive Director, ICLR  
Welcome: Honourable Donna Cansfield, Minister of Natural Resources, Ontario, Canada  
Welcome: Honourable John Paul Woodley, Jr., Assistant Secretary of the Army (Civil Works), USA  
Welcome: Dr. Salvano Briceno, Director, United Nations, International Strategy for Disaster Reduction
- 10:30 *Coffee Break*
- 11:00 Plenary: Red River Flood of the Century – 10 Years Later  
Session Leaders: Michael Ryan, US Bureau of Reclamation and Co-Chair of the International RedRiver Board and Wayne Dybvig, Saskatchewan Water Authority and Co-Chair of the IRRB
- Panelists:
- Murray Clamen – International Joint Commission (IJC)
  - Daniel Luna – U.S. National Weather Service
  - Doug McNeil – Manitoba Floodway Authority
  - Judith DesHarnais – U.S. Army Corps of Engineers
  - Dale Frink – North Dakota State Water Commission
  - Kent Lokkesmoe – Minnesota Department of Natural Resources
- 12:30 *Lunch*
- 14:00 Parallel Sessions

## Room A

### Mitigation – Vulnerability

Chair: J. van Alphen

1. *Development of an integrated and interdisciplinary flood risk assessment instrument*  
(Germany) M. Pahlow, J. Dietrich, D. Nijssen, Y. Hundecha, B. Klein, C. Gattke, A. Schumann, M. Kufeld, C. Reuter, J. Köngeter, H. Schüttrumpf, J. Hirschfeld and U. Petschow
2. *Development of flood vulnerability index estimation system*  
(Korea) Jang, D.W., Kim, B.S., Kim, B.K., Seoh, B.H. and S.Y. Yoon
3. *Assessing social vulnerability to floods on a sub-national scale*  
(Germany) Fekete, A., and Birkmann, J.
4. *Characterization of agricultural vulnerability for economic appraisal of flood management policies*  
(France) Bremond, P. Bauduceau, N., Grelot, F.

## Room B

### Analytical and Distributive Methodologies – Modeling

Chair: K.D. W. Nandalal

5. *Use of a hydrodynamic model to forecast floods of Kalu River in Sri Lanka*  
(Sri Lanka) Nandalal, K.D.W.
6. *Rapid flood simulation software for personal computer with dynamic domain defining method*  
(Japan) Yamaguchi, S., Ikeda, T., Iwamura, K.
7. *Reliability analysis of river embankments using analytical methods and finite-elements*  
(Germany) Moellmann, A.F.D., Vermeer, P.A., Westrich, B
121. *The Floris-2 project*  
(The Netherlands) Hazenoot, E.C., Havinga, F.J., Kooij, A.F., and Stefess, H.

## Room C

### Preparedness, Response and Recovery – Early Warning

Chair: M. Karamouz

9. *Why flood warnings fail too often: An Australian view*  
(Australia) Keys, C., Cawood, M.
10. *Long lead flood forecast application to benefit society: Experience of 2007 Bangladesh floods*  
(Thailand) Fakhruddin, S.H.M.
11. *Can ensemble forecasts improve the reliability of extreme flood warnings?*  
(Germany) Flood Forecasting Dietrich, J., Wang, Y., Denhard, M., Schumann, A.
12. *Developing a flood warning system: A case study*  
(Iran) Karamouz, M., Ahmadi, A., Moridi, A., and Rassaei Kshuk, S.

## Room D

### Various Perspectives – River Basin Perspectives

Chair: D. Soong

13. *An overview of the strategy for flood management for the Kafue River Basin, Zambia and the experiences of the Zambian 2006-2008 Floods*  
(Zambia) Mwelwa, E
14. *The Red River Valley Flood of 1997: A call for worst-case scenario approaches to flood risk management*  
(U.S.A.) Todhunter, P.E
15. *Tailor-made monitoring programs for hydrological extremes - case Elbe River*  
(Germany) Baborowski, M., Schwandt, D., Geller, W., Heining, P
16. *Floods in Karst Area - case study - Croatia*  
(Croatia) Berakovic, B., Garasic, M., Cesarec, K., Berakovic, M.

## Room E

### Structural Approaches – Levees

Chair: P. Bourget

17. *Its in the eye of the inspector - overview of visual inspection methods in four countries and lessons learned*  
(United Kingdom) Flikweert, J.J., and Moser, G.
18. *Application of levee breach safety evaluation for overtopping*  
(Korea) Yoon, K.S., Chu, H.J.
19. *Dike Monitoring*  
(Germany) Thiele, E., Helbig, R., Erth, H., Krebber, K., Nother, N., and Wosniok, A.
20. *Evaluation of geophysical techniques to investigate river embankments*  
(Germany) Niederleithinger, E., Weller, A., Lewis, R., and Stotzner, U.

15:30                      Tea Break

16:00                      Parallel Sessions

## Room A

### Mitigation – Flood Risk Management

Chair: J-M. Stam

21. *Flood insurance - from clients to global financial markets*  
(Germany) Kron, W.
22. *An Integrated institutional and community engagement framework for providing flood defence for the Gold Coast City, Australia*  
(Australia) Rahman, K., and Mirfenderesk, H.
23. *Communicating flood forecast uncertainty under operational circumstances*  
(Germany) Cullmann, J., Krausse, T., and Pilliph, A.
24. *HORA - an Austrian platform for natural hazards as a new way in risk communication*  
(Austria) Stiefelmeyer, H., Hlatky, T.
25. *Rational risk assessment of dikes by using a stochastic subsurface model*  
(The Netherlands) Knoeff, J.G., Vastenburg, E.W., Tromp, E.

## Room B

### Analytical and Distributive Methodologies – Geo-spatial Tools

Chair: A. Ross

26. *Utilising ArcGIS for flood mapping using ID hydrodynamic model*  
(Thailand) Thaveevouthti, T.
27. *Extraction of flood masks using satellite based very high resolution SAR data for flood management and modeling*  
(Germany) Voigt, S., Martinis, S., Zwenzner, H., Hahmann, T., and Schneiderhan, T.
28. *Flood maps in Europe: A Comparative evaluation of methods, availability and application*  
(The Netherlands) de Moel, H., Aerts, J.C.J.H.
29. *Study on mapping and management system of flood risk map*  
(China) Li, C., Huang, J., He, X., Zhang, B.
30. *2-D hydrodynamic modeling for evaluation of flood risk in space and time*  
(Canada) Ahmad, S.S., Simonovic, S.P.

## Room C

### Mitigation – Risk Management

Chair: A. Schumann

31. *Risk-based design of flood defence systems – A preliminary analysis for the New Orleans metropolitan area*  
(The Netherlands) Jonkman, S.N., Kok, M., van Ledden, M., Vrijling, J.K.
32. *HORIX - Development of an operational expert system for flood risk management considering prediction uncertainty*  
(Germany) Disse, M., Pakosch, S., Yoruk, A., Bardossy, A., Bliefernicht, J., Grundmann, J., Herbst, M., Molnar, T.
33. *Analyzing and managing uncertain futures of large-scale fluvial flood risk systems*  
(Germany) Schanze, J., Schwarze, R., Carstensen, D., and Deilmann
34. *Data and predictive uncertainties in flood forecasting: How to decide under uncertain information*  
(Germany) Reusser, D.E., Zehe, E., Bronstert, A.
35. *Flood risk mitigation: Does culture matter?*  
(Germany) Shen, X.

## Room D

### Various Perspectives – Urban Floods

Chair: S. Blanchard

36. *Overview of urban drainage flood forecasting methods and approaches*  
(Canada) Chen, J., Adams, B.
37. *Modeling of flood inundation in urban areas including underground space*  
(Korea) Han, K.Y., Kim, G., Lee, C.H., Cho, W.H.
38. *The Peterborough flood – From the inside*  
(Canada) Burritt, D.
39. *Zonation of flash floods in urban areas. A case study: Darband basin in North Tehran*  
(Iran) Ghahroudi T. M., Neta, T., and Serati, N.
40. *Perceptions of overland flooding in Peterborough, Ontario, Canada*  
(Canada) Sandink, D., and Shrubsole, D.

## Room E

### Structural Approaches – Flood Hydraulics

Chair: X. Cheng

41. *Experimental studies on the seepage control effects of suspended cutoffs in dike foundation*  
(China) Ding, L.Q., Yao, Q.L., and Sun, D.Y.
42. *Assessment and optimization of flood control systems: The Unstrut River case study*  
(Germany) Pahlow, M., Hundecha, Y., Nijssen, D., Dietrich, J., Klein, B., Gattke, B., Schumann, A., Reuter, C., Schuttrumpf, H., Hirschfeld, J., and Petschow, U.
43. *Control strategies, efficiency and design of bypass flood-control retention basins in Germany*  
(Germany) Fischer, M., Haselsteiner, R.
44. *Increasing the energy losses beyond the base of the flood spillway*  
(Greece) Demetriou, J.D. and Dimitriou, D.
45. *Innovative method of greatly reducing flow resistance - Innovative method of flood control*  
(China) Weiyi, L.

18:00 *Icebreaker hosted by Emergency Management Ontario (EMO)*

*Speaker Mr. Dan Hefkey, EMO Chief*

## Wednesday, 7 May 2008

- 9:00 Plenary: Hurricane Katrina - Perspectives on Risk and Reliability  
Session Leader: Dr. Gerald E. Galloway, University of Maryland,  
"Flood Risk Management Implications of Katrina - The US National  
Perspective"
- Panelists:
- Dr. L. E. Link, Director, Inter-agency Performance Evaluation Task Force (IPET). "The Challenges in Risk Determination and Communication."
  - Mr. Jos Dijkman, Delft Hydraulics, "The Dutch Perspective on US Gulf Coast Protection?"
  - r. John Barry, Author, Rising Tide: The Great Mississippi Flood of 1927, and member, Southeast Louisiana Flood Protection Authority-East. "Looking at Risk from the Inside"
- 10:30 *Coffee Break*
- 11:00 Parallel Sessions

## Room A

### Mitigation – Tools and Strategies

Chair: J. Bales

46. *The flood problem and mitigation methods in Bangladesh*  
(Bangladesh) Hossain, M.M., Baki, A.B.M., and Ahmad, S.S.
47. *Flood mitigation strategies at watershed scale through dispersed structural measures*  
(France) Chennu, S., Gresillon, J-M., Faure, J-B., Leblois, E., Poulard, C., and Dartus, D.,
48. *Using mitigation planning to reduce disaster losses*  
(U.S.A.) Helbrecht, K., Wissmann Smith, K.
49. *Flood defence in Pakistan: From conventional to scientific approach*  
(Pakistan) Ahmad, B., J. Muhammad, M. M. Ahmadand, and Z. H. Dhari

## Room B

### Analytical and Distributive Methodologies – Statistics and Optimization

Chair: M. Pahlov

50. *Bivariate flood frequency analysis using Copula*  
(Canada) Karmakar, S., Simonovic, S.P.
51. *Mixed-integer optimization of flood control measures using evolutionary algorithms*  
(Germany) Hubner, C., Muschalla, D., and Ostrowski, W.
52. *Probabilistic analysis of hydrological loads to optimize the design of flood control systems*  
(Germany) Klein , B., Pahlow, M., Hundecha, Y., Gattke, C., Schumann, A.
53. *Flood risk management and the U.S. Army Corps of Engineers actions for change*  
(U.S.A.) Moser, D.A., Schultz, M.T., Bridges, T.S., and Harper, B.K.

## Room C

### Preparedness, Response and Recovery – Emergency Planning

Chair: S. Blanchard

54. *The use of evacuation and loss of life models to improve flood incident management in the UK*  
(United Kingdom) Lumbroso, D., Di Mauro, M., Tagg, A.
55. *Closing breaches in earthen flood defenses, technical feasibility of emergency closure concept*  
(The Netherlands) van Gerven, K.A.J., Akkerman, G.J., Pool, A.D., and Jonkman, S.N.
56. *Estimating the costs of emergency services during flood events*  
(Austria) Pfurtscheller, C., and Schwarze, R.
57. *Analyses of flood defense strategy in Golidagh watershed in northern Iran*  
(Iran) Maramaei, M.G.H.

## Room D

### Various Perspectives – Case Studies

Chair: D. Sandink

58. *The October-November 2007 floods in Tabasco, Mexico: An interim diagnosis and courses of action*  
(Mexico) Aparicio, J., Martinez-Austria, P.F., Guitrón, A., and Ramirez, A.I.
59. *Storm of August 19, 2005: A catalyst for change from reactive to adaptive urban flood management in Toronto, Ontario, Canada*  
(Canada) Farrell, L., Haley, D., D'Andrea, M. and Snodgrass, W.J.
60. *The Peterborough Flood, A Case Study in Urban Flood Damage Mitigation Strategies*  
(Canada) Worsley, B. and Ward, D.
61. *Great Odra/Oder flood in 1997 – Ten years after*  
(Poland) Kundzewicz, Z.W., and Kowalczyk, W.

## Room E

### Structural Approaches – Levees and Reservoirs

Chair: M. Kim

62. *Levees, embankments, dikes: finding common ground between the flood risk management cultures in the USA, England and the Netherlands*  
(United Kingdom) Flikweert, J., and van Ledden, M.
63. *A playful approach to flood defence*  
(The Netherlands) Hartevelde, C.
64. *A management system for optimizing operating rules of multipurpose reservoirs allowing for both extreme floods and ecological performance*  
(Germany) Dittmann, R., Froehlich, F., Pohl, R., Ostrowski, M.
65. *Overview of flood retaining structures in the Netherlands*  
(The Netherlands) Stalenberg, B., and Vrijling, J.K.

12:30            *Lunch*

14:00            Plenary: Assessing the Flood Risk  
Session Leader: Mr. Pete Rabbon, National Flood Risk Management Program, U.S. Army Corps of Engineers, Davis, CA, Washington DC, USA

Panelists:

- Dr. Alberto de Sousa Costa, DMS Foundation, Canada "Floods, cause and effect, diminishing budgets and practical solutions that work" (paper 156)
- Mr. Katsuhito Miyake, ICHARM, PWRI, Japan
- Dr. Paul Sayers, HR Wallingford, Ltd., United Kingdom

15:30            *Tea Break*

16:00            Parallel Sessions



## Room B

### Analytical and Distributive Methodologies – Uncertainty Analyses

Chair: P. Todhunter

66. *The role of building flood resilience in the flood risk management hierarchy* (United Kingdom) Tagg, A.F., and Escarameia, M.
67. *Evaluation of effectiveness and efficiency on non structural measures* (Germany) Schanze, J., Hutter, G., Penning-Rowsell, E., Nachtnebel, H-P., Meyer, V., Koniger, P., Neuhold, C., Harris, T., Kuhlicke, C., and Olfert, A.
68. *Flood security: an assessment of the strategies of compartmentalization and flood shelters* (The Netherlands) J. Lansink, A.Y. Hoekstra, M.W.J. van Reedt Dortland, C.M. Steinweg
69. *Probabilistic sensitivity analysis of dune erosion calculations* (The Netherlands) den Heijer, C., van de Graaff, J., and van Gelder, P. H.J.M.
70. *Use of Bayesian model averaging to determine uncertainties in river discharge and water level forecasts* (The Netherlands) Beckers, J.V.L., Sprokkereef, E., Roscoe, K.L.

## Room C

### Flood Management – Planning and Information

Chair: K. Helbrecht

71. *Towards a new flood forecasting system for the lower Mekong river basin* (Cambodia) Pengel, B., Malone, T., and Hartman, M.
72. *Information content of weather predictions for flood-control in a Dutch lowland water system* (The Netherlands) Weijs, S.V.
73. *Flood control planning and evaluation with an information and decision support system* (Germany) Hubner, C., Winterscheid, A., Ostrowski, M.W., Horchler, P., Rosenzweig, S., Husing, V., Fuchs, E., Belger, G., Haase, M., Hens, T., Kuch, D, Lippert, K., and Thul, M.
74. *Damage and loss prediction model based on the vulnerability of building types* (Germany) Schwarz, J., and Maiwald, H.
75. *A socio-ecological vulnerability assessment for Germany* (Germany) Damm, M.

## Room D

### Analytical and Distributive Methodologies – Spatial Modeling

Chair: P. Bourget

76. *Development of near-real-time and predicted flood-inundation maps for internet display and hazard mitigation planning* (USA) Kim, M.H., Pavlow, S.
77. *Application of satellite data for improved flood forecasting and mapping* (The Netherlands) Barneveld, H.J., Silander, J.T., Sane, M., and Malnes, E.
78. *Mapping hurricane Rita inland storm tide* (U.S.A.) Berenbrock, C., Mason, R.P., and Blanchard, S.

79. *Application of variational data assimilation method on a distributed physically based flash flood model*  
(France) Bessiere, H., and Dartus, D.
80. *Evaluation of river flood regulation by means of model predictive control*  
(Belgium) Willems, P., Barjas-Blanco, T., Chiang, P.K., Cauwenberghs, K., Berlamont, J., and De Moor, B.

## Room E

### Structural Approaches – Modeling and Design

**Chair: S. Simonovic**

81. *The Red River floodway expansion project*  
(Canada) Carson, R.W., McNeil, D.D.
82. *Erosion and sediment yield estimation for flood protection*  
(Germany) Schoenau, S., Thapa, P., Bárdossy, A.
83. *Modeling of 2D flood flow analysis by finite element method*  
(Korea) Han, K.Y., Kim, B.H., Choi, S.Y.
84. *Stranraer flood protection scheme: A case study*  
(United Kingdom) Fernandez, J., McGee, S., and Fraser, A.
85. *Evaluation of urban floods considering climate change impacts*  
(Iran) Karamouz, M., Hosseinpour, A., and Nazif, S

18:00 Banquet - Frontenac Ballroom (Room A) - Ticket Cost \$80 (CAD)

Banquet speaker: Gordon McBean, Professor, University of Western Ontario, "ICSU Planning Group for an Integrated Research on Disaster Risk program"

## Thursday, 8 May 2008

08:00 Paralell Sessions

## Room A

### Mitigation – Inundation Issues

**Chair: B. Radojevic**

86. *Flood disaster mitigation by inundation of the deep floodplain*  
(Hungary) Koncsos, L., Balogh, E.
87. *Fluvial environment planning in Catalonia: Harmonizing river and floodplain restoration with human development*  
(Spain) Fleta, J., Garcia, E., Gode, L., Gracia, A., Moxo, D., Verdu, J.
88. *Importance of land use management on the flood management in Chi river basin, Thailand*  
(The Netherlands) Kuntiyawichai, K., Schultz, B., Uhlenbrook, S., Suryadi, F.X., and van Griensven, A.
89. *The flood regimes of mid-sized and mixed land-use catchments: Can we assess theurban contribution?*  
(France) Radojevic, B., Breil, P. , and Chocat, B.

90. *Application of tsunami modeling for escape and refuge planning in Aceh (Indonesia)*  
(Netherlands) Nieuwenhuis, O.E., Vatvani, D., Alberts, J., and Jansen, D.

## **Room B**

### **Mitigation – Flood Risk Management**

**Chair: E. McBean**

91. *New approaches for flood risk management in the Netherlands*  
(The Netherlands) Roos, A., van de Geer, I.
92. *Physically based modeling of extreme flood generation and assessment of flood risk*  
(Russia) Kuchment, L.S., Gelfan, A.N., Demidov, V.N.
93. *Risk analysis of coastal flood defences - A Vietnam case*  
(The Netherlands) Mai, C.V., van Gelder, P.H.A.J.M., Vrijling, J.K., and Mai, T.C.
94. *Flood risk from dike failure*  
(Hungary) Nagy, L.
95. *Exploring future flood management: A comparison of scenarios from literature and stakeholder perspectives*  
(The Netherlands) Raadgever, G.T., and Becker, G.

## **Room C**

### **Preparedness, Response and Recovery – Assessment of Losses**

**Chair: B. Lence**

96. *Loss of life caused by the flooding of New Orleans after hurricane Katrina: A preliminary analysis of the relationship between flood characteristics and mortality*  
(The Netherlands) Jonkman, S.N., Maaskant, B., Boyd, E., and Levitan, M.
97. *Impact assessment study of planned flood retention reservoirs in the Upper Tisza Basin, based on model simulations*  
(Hungary) Szabo, J.A., Bodis, K., Toth, S., Jakus, G.
98. *Methods for the evaluation of direct and indirect flood losses*  
(Germany) Thieken, A., Ackermann, V., Elmer, F., Kreibich, H., Kuhlmann, B., Kunert, U., Maiwald, H., Merz, B., Muller, M., Piroth, K., Schwarz, J., Schwarze, R., Seifert, I., and Seifert, J.
99. *Using the central pressure method to forecast damage length of maritime structures caused by Typhoon 9918*  
(Japan) Hashimura, R.
100. *Assessing the value of mitigation strategies in reducing the impacts of rapid-onset, catastrophic floods*  
(Canada) Johnstone, W.M., and Lence, B.J.

## **Room D**

### **Mitigation – Policy Issues**

**Chair: E. Plate**

101. *The new European flood management directive and the municipal flood management systems as one realization approach*  
(Germany) Jupner, R., Gretzschel, M., and Luderitz, V.
102. *British Columbia's flood management policy window - can we take advantage?*  
(Canada) Lyle, T., McLean, D., Mannerstrom, M.

103. *Flood management in the Netherlands: Coping with risks*  
(The Netherlands) van Leussen, W.
104. *Extreme flooding, policy development, and a society - biosphere - climate feedback model*  
(Canada) Davies, E.G.R., Simonovic, S.P.
105. *Cost-benefit analysis to determine efficient flood protection standards for the Netherlands*  
(The Netherlands) Kind, J.

## Room E

### Analytical and Distributive Methodologies – Modeling Issues

**Chair: D. Burn**

106. *Uncertainty Issues in flood inundation mapping*  
(U.S.A.) Bales, J.D.
107. *Generation of severe flood scenarios by stochastic rainfall in combination with a rainfall runoff model*  
(Germany) Petry, U., Hundecha, Y., Pahlow, M., Schumann, A.
108. *Methodology for evaluating hydrologic model parameters in an urban setting: Case study using transferred HSPF parameters in Midlothian and Tinley creek watershed, Illinois*  
(U.S.A.) Soong, D.T.W., and Su, T.Y.
109. *Interlinked modelling of large floods by combining one and two dimensional diffusive wave approaches*  
(Germany) Kamrath, P., Huber, N.P., Kufeld, M., Schuttrumpf, H., and Kongeter, J.
110. *PC-RIVER probabilistic reliability analysis for river dikes*  
(Germany) Merkel, U., Westrich, B.

10:00                      *Coffee Break*

10:30                      Parallel Sessions

## Room A

### Mitigation – Participation and Insurance

**Chair: P. Kovacs**

111. *Community-Based Disaster Mitigation: Camiguin, Phillipines*  
(Philippines) Hipolito, D.
112. *Flood insurance in the Netherlands*  
Jongejan, R.B. (Netherlands), Barrieu, P.M. (United Kingdom)
113. *Role of community participation and indigenous knowledge in integrated flood defence in India*  
(India) Chandra, S.
145. *Improvement of the flood forecasting and warning system of Bangladesh by advanced technological development*  
(Canada) Akhtar, M.K., Simonovic, S.P.

## Room B

### Environmental Considerations – Climate Change

Chair: **G. McBean**

115. *Trends in extreme rain events and flood implications*  
(Canada) Bruce, J.P.
116. *Flood risk in relation to climate change and adaptation in the Netherlands*  
(The Netherlands) Bolwidt, L.J
117. *Possible impacts of climate change on heavy rainfall-related flooding risks in Ontario*  
(Canada) Cheng, C.S., Li, G., Li, Q, Auld, H.
118. *Effects of flood control measures and climate change in the Rhine basin*  
(The Netherlands) te Linde, A.H., Aerts, J.C.J.H., van den Hurk, B.J.J.M.

## Room C

### Mitigation – Planning

Chair: **A. Tyagi**

119. *Flood response planning in England and Wales*  
(United Kingdom) Evans, K., Berghouse, C.
120. *Assessment of flood remediation with minimal historic hydrologic data: case study for a small urban stream*  
(U.S.A.) Holmes, R. R. and Over T.M.
8. *Development of a discharge prediction method based on topological case-based modeling and a distributed hydrological model*  
(Japan) Harayama, K., Oka, T., Kojiri, T., Tanaka, K., Hamaguchi, T.
122. *Managing flood hazard identification in Alberta*  
(Canada) Choles, J. , Mahabir, C., Haimila, B., and Stevenson, P.
157. *Flooding of underground facilities in urban regions*  
(Germany) Oertel, M., and Schlenkhoff, A.

## Room D

### Various Perspectives – Regional, Historical and Health Perspectives

Chair: **R. Carson**

123. *500 years flood stage records at Dresden Gauge: Data mining and results*  
(Germany) Pohl, R.
124. *Coastal and floodplain management: The U.S. and Dutch experience*  
(USA) Bourget, P., and Stam, J.M.T. (Netherlands)
125. *Reconstruction and analysis of 19th century floods in SW Germany*  
(Germany) Dostal, P., Buerger, K., Imbery, F., and Seidel, J.
126. *Urban flood management for centuries in the Netherlands*  
(The Netherlands) Waals, J.M.J., Kelder, E.
160. *Risk assessment in a trans-boundary cooperation between the Netherlands and Germany*  
(The Netherlands) Stijnen, J.W., Vermeij, W.E.W., Kutschera, G., Silva, W., and Schuttrumpf, H.



## Room E

### Mitigation - Policy, Standards and Strategic Planning

Chair: Z. Kundzewicz

127. *Safety assessment of flood defences in the Netherlands, an ongoing concern*  
(The Netherlands) Wolters, J.F., and de Bake, D.P.
128. *Development of the safety index for regional natural disaster*  
(Korea) Jang, D.W., D.M, Yang., S.M, Jeong., M.J, Park., H.S, Kim
129. *Adaptation as a way of flood management*  
(The Netherlands) Schielen, R., and Roovers, G.
130. *An optimal flood protection standard for dike-ring areas*  
(The Netherlands) Eijgenraam, C.J.J.
159. *NOAH, the Right Information at the Right Time at the Right Place*  
(The Netherlands) Erik Jan Langkamp, E.J., Pengel, B., Wentholt, L., De Gooijer, K., Vogt R., and Schnitzler, S.

12:00 Lunch

13:30 Parallel Sessions

## Room A

### Analytical and Distributive Methodologies – Information and Decision Support Systems

Chair: E. Mwelwa

131. *A web-based flood information system*  
(Canada) Peck, A., Black, J., Karmakar, S., and Simonovic, S.P.
132. *An online tool for real time analysis and management of flood risks of diked areas*  
(The Netherlands) Maccabiani, J., Knoeff, J.G.
133. *Integrating hydraulic and economic analysis for selecting flood protection measures in the context of climate change*  
(Belgium) Ernst, J., Dewals, B.J., Giron, E., Hecq, W., and Piroton, M.
134. *Assessment of vulnerability to floods at local level with a special focus on human-environmental systems and critical infrastructures*  
(Germany) Birkmann, J., Krings, S., and Renaud, F.
135. *Emblematic projects for watershed restoration and flood disaster mitigation in Mexico*  
(Mexico) Baumann, J. Arvizu, I.G., Morales, S.M., Gomez, J.A.G., Priante, S.S.

## Room B

### Environmental Considerations – Winter Floods, Mountain Environments, Sediment

Chair: L. Farrell

136. *Managing river ice flood risk in Alberta*  
(Canada) Mahabir, C., Friesenhan, E., Trevor, B., Jasek, M., Cline, A., and Granson, W.

137. *Hydrological modeling in alpine catchments – sensing the critical parameters towards an efficient model calibration*  
(Austria) Achleitner, S., Rinderer, M., Kirnbauer, R., and Kleindienst
138. *Sensitivity analysis of lapse rate and corresponding elevation of the snowline-limited data availability and its impact on snow and glacier melt*  
(Austria) Rinderer, M., Achleitner, S., Asztalos, J., and Kirnbauer, R.
139. *Management of riparian woodlands to mitigate flood risk while conserving the environment in Hokkaido, Japan*  
(Japan) Yoshii, A., and Watanabe, Y.
140. *Targeted retention of contaminated sediment in a green flood retention reservoir*  
(Germany) Wurms, S., Westrich, B.

## Room C

### Environmental Considerations – Climate Change

Chair: J. Bruce

141. *River floods in the changing climate*  
(Poland) Kundzewicz, Z.W.
142. *Intensity duration frequency analysis under changing climatic conditions*  
(Canada) Prodanovic, P., Simonovic, S.P.
143. *Climate change impacts on flood risk*  
(Canada) Burn, D.H.
144. *Stage discharge rating with ADCP measurements*  
(Canada) Chen, J., Fooks, J., Goertz, H.
- NA. *Field-demonstrated evidence of changing rainfall intensities in Ontario for short duration storms*  
(Canada) Vasiljevic, B., and McBean, E.

## Room D

### Various Perspectives – Urban Flooding

Chair: M. Hossain

146. *Problems of flash flood and urban inundation in Dhaka*  
(Bangladesh) Rumi, S.R.A.
147. *Sewer backup flooding: Homeowner perception and mitigative behaviour*  
(Canada) Sandink, D
148. *Making coastal cities flood resilient in the era of climate change*  
(Germany) Goltermann, D., Ujeyl, G., and Pasche, E.
149. *Futureproof design of flood defences*  
(The Netherlands) terHorst, W.L.A., Vrijling, J.K., Bernardini, P.
150. *Flood risk mapping in Europe, experience and best practices*  
(The Netherlands) van Alphen, J., Martini, F., Loat, R., Slomp, R., Passchier, R.

## Room E

### Structural Approaches – Dikes, Reservoirs and Dams

Chair: K. Takeuchi

151. *Analysis of dike breach sensitivity using a conceptual method followed by a comprehensive statistical approach to end up with failure probabilities*  
(Belgium) Peeters, P., Van Looveren, R., Vincke, L., Vanneuville, W., and Blanckaert, J.



152. *Cracked clay dikes investigation with geoelectrical tomography*  
(Hungary) Nagy, L., Kovacs, A., Varga, M.
153. *Improvement of the general resistance of dikes against erosion during dike overflow*  
(Germany) Kubetzek, T., Steuernagel, J., Ramm, H., Saenger, N., and Zanke, U.
154. *Risk based procedure for design and verification of dam safety*  
(Germany) Anhalt, M., Meon, G.
158. *Stabilisation of river dykes with drainage and stabilising elements*  
(Germany) Riegger, T., Bieberstein, A., Hörtkorn, F., Kempfert, H.-G., Seeger, M., and Erth, H

15:30 Tea Break

16:00 Plenary: Strategy for Mainstreaming Flood Risk Reduction in Society  
Session Leader: Dr. K. Takeuchi, International Centre for Water Hazard and Risk Management, Tsukuba, Japan

Panelists:

- Avinash Tyagi (WMO, Director of Division of Hydrology and Water Resources) “Main-streaming climate variability and change in flood risk management”
- Sálvano Briceño (ISDR Executive Director) “Integrating flood risk reduction in national policies for climate adaptation and the Hyogo Framework for Action”
- Andreas Schumann (UNESCO) “Barriers to prevent science and technology achievements to put to practice”
- Erich Plate (UNU) “mainstreaming flood preparedness in local communities” (paper 155)
- Kuniyoshi Takeuchi (ICHARM) “Indicators and standards to monitor and promote the flood preparedness of society”

17:30 Closing

## Friday, 9 May 2008

09:00 - 17:00 Niagara Falls Social Tour

Starts at \$55.00

Buses depart Toronto by 9:00AM and return by evening. Pick up from most Toronto hotels. The bus will drive through the Fruit Belt of Ontario, Niagara-on-the-Lake and the Wine Regions to the Scenic Niagara Parkway. At the Falls you will have approximately 4 hours to experience Niagara attractions. For an additional \$14.00 you can experience the boat ride “Maid of the Mist”.

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