20 October 2011

8:00-17:00  SESSION

09:00 - 11:00  BW Opening Ceremony

ALAIN CARRERE, Coyne et Bellier, France
"The importance of numerical modelling on dam engineering"

JOSE POLIMÓN, Spanish National Committe on Large Dams (SPANCOLD)

IGNACIO ESCUDER, Universitat Politècnica de València (UPV), Spain
"New challenges for ICOLD Committee A - Committee on Computational Aspects of Analysis and Design of Dams"

11:00 - 11:30  Coffee Break

11:30 - 14:00  Theme A - "Effect of Concrete Swelling"

Chair: CHRISTINE NORET, Coyne et Bellier, France

Introduction Theme A

Presentation of Solutions by:
- Antonella Frigerio, Giorgia Faggiani, Piero Masarati & Massimo Meghella (RSE Milano, Italy)
- Javier Rodríguez (Principia, Spain)
- Jaime Moles & Etienne Grimal (EDF, France)
- Thomas Menouillard, Jean-François Seignol, Liviu-Ioan Boldea, Patricia Roure, Anton Tzenkov & Russell Michael Gunn (STUCKY Ltd, Switzerland)

Break

Presentation of Solutions by:
- Rita Esposito, M.A.N. Hendriks, G. Lilliu & G.M.A. Schreppers (TUDELFT & TNO DIANA, Netherlands)
- Vladimir Kostylev (The B. E. Vedeneev VNIIG, Inc., Russia)
- D. Curtis, L. Feng & M. Lafreniere (Hatch Ltd., Canada)

Comparison & Debate

14:00-15:00  Lunch

15:00 - 15:30  EUGENIO OÑATE
International Center for Numerical Methods in Engineering (CIMNE), Spain
"Advance in development of particle-based methods and finite element methods for fluid-soil-structure interaction problems"

15:30 - 16:00  CAMILO MARULANDA
INGETEC, Colombia
"Behavior and analysis of CFRDs – a follow up of the 10th ICOLD Benchmark Workshop"

16:00 - 16:30  DEREK SAKAMOTO
British Columbia Hydro, Canada
"A Case Study in Loss of Life Risk Assessment for Dam Facilities Using a Simulation Model"

16:30 - 17:30  Theme B - "Overtopping and seepage evolution"
Chair: ANTONIA LARESE, International Center for Numerical Methods in Engineering (CIMNE), Spain

Introduction Theme B

Presentation of Solutions by:
- Antonia Larese, Riccardo Rossi y Eugenio Oñate (CIMNE, UPC, Spain)
- Eduardo Salete, Sergio De Rico Herrero, Cristina Rodríguez Alvarez, Ruben Establés Antón & Sheila Coca Sola (INGECIBER SA, Spain)

Comparison & Debate

20:30  Benchmark Workshop Dinner
### Technical Programme: 11th ICOLD BENCHMARK WORKSHOP - October 20-21, 2011

#### 21 October 2011

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**Theme C - "Probability of failure and safety coefficient"**

**Chair:** LUIS ALTAREJOS, Universitat Politècnica de València (UPV), Spain

**Introduction Theme C**

**Presentation of Solutions by:**
- Antonella Frigerio, Giorgia Faggiani, Piero Masarati & Massimo Meghella (RSE Milano, Italy)
- Adrian Popovici (Technical University of Civil Engineering Bucharest)
- Bachir Touilleb (Sogreah Consultants, France)
- Alexandra Krounis & Fredrik Johansson (Royal Institute of Technology, Sweden)
- Dmitry Shcherba (Hydraulic Engineering Research Institute, Saint-Petersburg, Russia)
- Miriam Mercedes Cabrera Carpio & Rafael Jiménez-Rodríguez (Technical University of Madrid, Spain)
- Mara Gascó Jiménez (Universitat Politècnica de València, Spain)

**Comparison & Debate**

| 11:00 - 11:30 | Coffee Break |
| 11:30 - 14:00 | Theme D "Open Technical Session" |

**Chair:** GUIDO MAZZA, RSE Milano, Italy

**Introduction**

**Panos Dakoulas**
University of Thessaly, Greece

SEISMIC BEHAVIOR OF CONCRETE FACE ROCKFILL DAMS
& EFFECT OF LONGITUDINAL VIBRATIONS ON THE BEHAVIOR OF CONCRETE FACED ROCKFILL DAMS

**Francisco Javier Sánchez Caro**
GEOprob, Spain

NON-ELASTIC MOVEMENTS ANALYSIS IN ORDER TO EVALUATE ARCH DAM SAFETY

**Richard Malm, Daniel Eriksson, Tobias Gasch, Manouchehr Hassanzadeh**
Vattenfall Research and Development AB, Sweden

PROBABILISTIC ANALYSES OF THERMAL INDUCED CRACKING IN A CONCRETE BUTTRESS DAM

**I. Aliguer, I. Carol, E.E. Alonso, F. Rio, R. Griñó**
Universitat Politècnica de Catalunya (UPC), Spain / ENDESA, Madrid, Spain

NUMERICAL ANALYSIS AND SAFETY EVALUATION OF A LARGE ARCH DAM FOUNDED ON FRACTURED ROCK, USING ZERO-THICKNESS INTERFACE ELEMENTS AND A C-FI REDUCTION METHOD

**Debate**

**Sam Johansson, Pontus Sjödahl**
Hydroresearch, Sweden

NUMERICAL MODELING OF SEEPAGE AND TEMPERATURE FOR INTERNAL EROSION DETECTION IN EMBANKMENT DAMS

**Javier Rodríguez, Patricia González, Francisco Martínez, Joaquín Martí**
Principia, Madrid, Spain

CONCRETE SWELLING IN TWO SPANISH DAMS

**Fernando Salazar, Rafael Morán, Riccardo Rossi, Antonia Larese**
International Center for Numerical Methods in Engineering (CIMNE), Spain

NUMERICAL MODELING OF THE HYDRAULIC PERFORMANCE OF OLIANA DAM SPILLWAY USING KRATOS

**Daniel Pozo, Fernando Salazar, Miguel Á. Toledo, Miguel Á. Celigueta**
International Center for Numerical Methods in Engineering (CIMNE), Spain

NUMERICAL MODELING OF THE AERATION IN BOTTOM OUTLETS USING THE PARTICLE FINITE ELEMENT METHOD (PFEM)

**Debate**

| 14:00-15:00 | Lunch |
| 15:00-17:00 | Round Table |

**IGNACIO ESCUDER, Universitat Politècnica de València (UPV), Spain**