

Preliminary Schedule						
Wednesday 8:30	OPENING CEREMONY AND KEYNOTES					
Wednesday 13:00 to 14:50	S1 T1 - Breach Modeling (Room 214)	S2 T2 - Climate Change and Environmental Issues (Room 205)	S3 T3 - Seismic Analysis of Concrete Dams (Room 207)	S4 T2 - Construction and Rehabilitation of Embankment Dams (Room 213)	S5 T5 - Tailings (Room 215)	S6 T2 - Dam Safety (Canada Hall 3)
Wednesday 15:40 to 17:30	S7 T1 - Hydraulic Modeling and Design (Room 214)	S8 T4- Hydrology (Room 205)	S9 T2 - Construction and Rehabilitation of Concrete Dams (Room 207)	S10 T1 - Design of Embankment Dams (Room 213)	S11 T5 - Tailings (Room 215)	S12 T2 - Dam Safety (Canada Hall 3)
Thursday 8:30 to 10:00	S13 T2 - Water Management - Simulation and Optimization (Room 208)	S14 T4 - Protection (Room 205)	S15 T1 - Roller Compacted Concrete Dams (Room 210)	S16 T1 - Design of Embankment Dams (Room 206)	S17 T3 - Geohazard (Room 207)	S18 T2 - Risk (Canada Hall 3)
Thursday 10:30 to 12:00	S19 T2 - Sedimentation - Monitoring and Management (Room 208)	S20 T2 - Water Management - Monitoring and Operation (Room 205)	S21 T1 - Design and Numerical Modeling of Concrete Dams (Room 214)	S22 T1 - Embankment Dams Numerical Modeling (Room 206)	S23 T1 - Dam Foundation and Geology (Room 207)	S24 T2 - Design of Hydropower Scheme (Canada Hall 3)
Thursday 13:30 to 15:00	S25 T2 - Sedimentation - Modeling (Room 208)	S26 T1 - Thermal and Alkali-Silica Reaction - Concrete Dams (Room 205)	S27 T1 - Design and Numerical Modeling of Concrete Dams (Room 214)	S28 T3 - Seismic Analysis of Embankment Dams (Room 206)	S29 T2 - Spillways (Room 207)	S30 T2 - Risk (Canada Hall 3)
Thursday 15:30 to 17:30	S31 T1- Hydraulic Modeling and Design (Room 208)	S32 T2 - Performance and Monitoring of Concrete dams (Room 205)	S33 T3 - Seismic Analysis of Concrete Dams (Room 214)	S34 T2 - Investigation and Monitoring of Embankment Dams (Room 206)	S35 T1 - Instrumentation (Room 207)	S36 T2 - Dam Safety (Canada Hall 3)

Legend :
Session # Theme # Session name
(Room number)

T1 : Innovation
T2 : Sustainable development

T3 : Hazards
T4 : Extreme conditions
T5 : Tailings

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13:00	<p>130 - Breach modelling: why, when and how? M. Hassan, M. Morris & C. Goff <i>HR Wallingford Ltd, Wallingford, United Kingdom</i></p>	<p>318 - Greenhouse gas emissions from newly-created boreal hydroelectric reservoirs of La Romaine complex in Quebec, Canada M. Demarty & C. Deblois <i>Englobe Corp, Montréal, Canada.</i> A. Tremblay & F. Bilodeau <i>Hydro-Québec, Montréal, Canada.</i></p>	<p>14 - Seismic safety evaluation of Tekeze arch dam A. Aman & T. Mammo <i>School of Earth Sciences, Addis Ababa University, Addis Ababa, Ethiopia</i> M. Wieland <i>Chairman, ICOLD Committee on Seismic Aspects of Dam Design, Poyry Switzerland Ltd., Zurich, Switzerland</i></p>	<p>411 - Retour d'expérience sur les mélanges chaux/ciment dans les écrans « deep soil mixing » des levées de la Loire S. Patouillard <i>DREAL Centre-Val de Loire, France</i> L. Saussaye <i>Cerema, France</i> F. Mathieu <i>Solétanche Bachy, France</i> A. Le Kouby <i>Ifsttar, France</i> P. Toumouh <i>Toumouh, France</i></p>	<p>386 - An operational perspective in the implementation of the new guidelines related to tailings management M. Julien, É. Masengo, P. Lavoie & T. Lépine <i>Agnico Eagle Mines Limited, Toronto, Ontario, Canada</i></p>	<p>187 - Using maturity matrices to evaluate a dam safety program and improve practices R. Knott <i>Dam Safety Intelligence, New Zealand</i> L. Smith <i>CEATI International, Canada</i></p>
13:18	<p>134 - Canal Embankment Failure Mechanism, Breach Parameters and Outflow Predictions H. Kheirkhah Gildeh, P. Hosseini & H. Zhang <i>Golder Associates Ltd., Calgary, Canada</i> M. Riaz & M. Acharya <i>Alberta Environment and Parks, Edmonton, Canada</i></p>	<p>126 - Comparison of reproducibility of water temperature and water temperature stratification formation by different methods in dam reservoir water quality prediction model F. Kimura & T. Kitamura <i>Water Resources Environment Center, Japan, Tokyo, Japan</i> Y. Tsuruta & T. Kanayama <i>CTI Engineering Co., Ltd., Tokyo, Japan</i> R. Kikuchi <i>Dai Nippon Construction Co., Ltd, Tokyo, Japan</i></p>	<p>83 - Towards Reliability Based Safety Assessment of Gated Spillways Subjected to Severe Loadings R. Leclercq & P. Léger <i>Department of Civil, Geological and Mining Engineering, Polytechnique Montréal (Montreal University), Québec, Canada.</i></p>	<p>182 - Refurbishment of Ontario Power Generation's Sir Adam Beck Pump Generating Station Reservoir, Niagara Falls - Construction Execution P. Merry, B. Andruchow <i>Golder Associates Ltd, Mississauga, Ontario, Canada</i> V. Rombough <i>Golder Associates Ltd, Vancouver, British Columbia, Canada</i> P. Toth <i>Ontario Power Generation, Niagara Falls, Ontario, Canada</i></p>	<p>175 - Static Liquefaction Analysis of the Fundão Dam Failure G.A. Riveros & A. Sadrekarimi <i>Department of Civil and Environmental Engineering at Western University, London, Canada</i></p>	<p>363 - A consequence-based tailings dam safety framework J. Herza, M. Ashley & J. Thorp <i>GHD Pty Ltd, Perth, Australia</i> A. Small <i>KCB, Canada</i></p>
13:36	<p>133 - CFD Modelling of Near-Field Dam Break Flow S. Esmaeeli Mohsenabadi, M. Mohammadian, I. Nistor & H. Kheirkhah Gildeh <i>Department of Civil Engineering, University of Ottawa, Ottawa, Canada</i></p>	<p>247 - The Study on the Impetus Mechanism into Resettlement due to Reservoirs in China - The Analyses based on WDD Hydropower station's immigration S. Yanguang <i>Three Gorges Corporation, China</i></p>	<p>454 - The use of Ambient Vibration Monitoring in the behavioral assessment of an arch dam with gravity flanks and limited surveillance records L. Hattingh <i>Hattingh Anderson Associates CC, Woodhill, South Africa</i> P. Moyo <i>University of Cape Town, Cape Town, South Africa</i> S. Shaanika & M. Mutede <i>NamWater Windhoek, Namibia</i></p>	<p>23 - Challenging conditions in the design and construction of Puah Dam in Malaysia M. Afif, P.Eng. <i>SNC-Lavalin Inc., Vancouver, BC, Canada</i> SNC-Lavalin Inc., Vancouver, BC, Canada H. Fries, P.Eng. <i>SNC-Lavalin Inc., Kuala Lumpur, Malaysia</i></p>	<p>392 - Comparison of cyclic resistance ratios of tailings estimated using standard empirical methods and cyclic direct simple shear tests G. Nadarajah & D. Bleiker <i>Wood Environmental and Infrastructure Solutions, Mississauga, Ontario, Canada</i> S. Sivathayalan <i>Department of Civil Engineering, Carleton University, Ottawa, Ontario, Canada.</i></p>	<p>195 - A case for innovation in establishing policies, practices and standards for dam safety D.N.D. Hartford <i>BC Hydro, Burnaby, British Columbia, Canada</i></p>
13:54	<p>537 - Levee and dam breach erosion through coarser grained materials M.W. Morris <i>HR Wallingford Ltd. (HRW), Wallingford, UK</i> J.R. Courivaud <i>Electricité de France (EDF CIH), Bourget du Lac, France</i> R. Morán & M.Á. Toledo <i>Universidad Politécnica de Madrid (UPM), SERPA Research Group, Spain</i> C. Picault <i>Compagnie Nationale du Rhône (CNR), France</i></p>	<p>149 - Integrating climate change impacts in the valuation of hydroelectric assets K. Pineault, E. Fournier, A. Lamy, A. Hannart <i>Ouranos, Montreal, Quebec, Canada</i> R. Arsenault <i>École de technologie supérieure, Montreal, Quebec, Canada</i></p>	<p>494 - State of the art nonlinear seismic analysis of an arch dam G. S. Sooch & D. D. Curtis <i>Hatch Ltd, Niagara Falls, Canada</i> M. Likavec <i>Puget Sound Energy, Bellevue, U.S.A</i></p>	<p>34 - Innovations in drawoff works replacement A. Bush & B. Cotter <i>Dirw Cymru Welsh Water, United Kingdom</i> A.L. Warren & C.E. Woolfcombe-Adams <i>Mott MacDonald, United Kingdom</i></p>	<p>38 - Drainage and consolidation of mine tailings near waste rock inclusions F. Saleh-Mbemba & M. Aubertin <i>Polytechnique Montréal, Québec, Canada</i> G. Boudrias <i>Golder Associés, Montréal, Québec, Canada</i></p>	<p>105 - Necessity of a new public safety program around dams in Korea D.H. Shin & D.S. Park <i>K-water Institute, Daejeon, South Korea</i></p>
14:12	<p>407 - Predictive Breach Analyses for Reservoir Cascades V. Stoyanova <i>Arup, Leeds, United Kingdom</i> R. Coombs <i>CC Hydrodynamics Ltd, High Wycombe, United Kingdom</i></p>	<p>162 - Effects of a salt-contained formation on Gotvand Reservoir, An overview on a 7- year monitoring A. Zia, H. Hassani & N. Kamjou <i>Mahab Ghodss Consulting Engineering Company, Iran</i></p>	<p>515 - Spillway gate-reservoir interaction under earthquakes N. Bouaanani, C. Gazarian-Pagé & JF. Masse <i>Dept. of Civil, Geological and Mining Eng., Polytechnique Montréal, QC, Canada</i></p>	<p>88 - Kangaroo Creek Dam upgrade – a balanced approach to the design of upgrade works P.A. Maisano, J.P. Buchanan & M.B. Barker <i>GHD Pty Ltd, Melbourne, Australia</i></p>	<p>298 - Enhancement of contractive tailings using deep soil mixing technique at Kittilä mine E. Masengo, M. R. Julien, P. Lavoie & T. Lépine <i>Agnico Eagle Mines Limited, Toronto, Ontario, Canada</i> J. Nousiainen, J. Saukkoriipi, M. Piekkari & J. Karvo <i>Agnico Eagle Finland Oy, Kiistala, Finland</i></p>	<p>369 - Risk tolerability criteria in dam safety – what is missing? P.A. Zielinski <i>HYDROSMS Inc., Toronto, Canada</i></p>
14:30	<p>553 - Study of bank erosion and protection measures on Subansiri River, Assam, India R. K. Chaudhary <i>MHPA, Trongsa, Bhutan</i> Vishal Anand <i>NHPC, Dhemaji, Assam, India</i> P. C. Upadhyay <i>NHPC, Faridabad, Haryana, India</i></p>	<p>428 - Challenges And Needs For Dams In The 21st Century H. Blohm <i>Consultant, USA</i> L. Deroo <i>ISL, France</i></p>	<p>51 - Seismic assessment of a dam-foundation-reservoir system using Endurance Time Analysis J.W. Salamon <i>US Bureau of Reclamation, Denver, CO, USA</i> M.A. Hariri-Ardebili <i>University of Colorado & X-Elastica LLC, Boulder, CO, USA</i> H.E. Estekanchi & M.R. Mashayekhi <i>Sharif University of Technology, Tehran, Iran</i></p>	<p>416 - Small earth dam failure in Burkina Faso: the case of the Koumbri dam A. Nacanabo <i>Ministry of Water and sanitation, Ouagadougou, Burkina Faso</i> M. Kabore <i>Burkina National Committee on Dams</i></p>	<p>33 - Innovation in Dams Screening Level Risk Assessment F. Oboni & C. Oboni <i>Oboni Riskope Associates Inc., Vancouver, B.C., Canada</i> R. Morin <i>Richmond, Vancouver, B.C.</i></p>	<p>505- Classification of Itaipu and Three Gorges Dams according to criteria of Brazilian and Chinese government agencies C. Wenbo, F. Huachao <i>China Yangtze Power Co. Ltd., Yichang, China</i> S.F. Matos, E.F. Faria, M. Gayoso <i>ITAIPU BINACIONAL, Brazil/ Paraguay.</i></p>

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15:40	287 - Design and construction of an auxiliary labyrinth spillway for an ageing dam J. Simzer, T. Madden & B. Downing Golder Associates Ltd., Vancouver, British Columbia, Canada	220 - Hurricane Harvey rainfall, did it exceed PMP and what are the implications. B. Kappel Applied Weather Associates, Monument, CO USA	250 - The application of Rubble Masonry Concrete (RMC) construction for African dams and small hydropower projects R. Greyling Knight Piésold, Dams and Hydro, Pretoria, South Africa E. Scherman & S. Mottram Knight Piésold, Vancouver, Canada	194 - Refurbishment of Ontario Power Generation's Sir Adam Beck Pump Generating Station Reservoir, Niagara Falls – Design S. Kam, F. Barone Golder Associates Ltd., Mississauga, Canada M. Aydin & T. Bennett Ontario Power Generation, Niagara Falls, Canada	444 - CDA technical bulletin on tailings dam breach analyses V. Martin Knight Piésold, Vancouver, Canada M. Al-Mamun SNC Lavalin, Calgary, Canada A. Small Klohn Crippen Berger, Fredericton, Canada	241 - Understanding risk communication approaches for dam related disasters E. Yasui Applied Disaster and Emergency Studies, Brandon University, Brandon, Manitoba, Canada
15:58	278 - Innovative Approach to Hydraulic Design and Analysis for Bluestone Dam Primary Spillway Stilling Basin D. Moses USACE, United States N. Koutsunis USACE, United States	282 - Sensitivity of Probable Maximum Flood estimates: Climate change, modelling, and adaptation K. Sagan, K. Koenig, P. Slota Manitoba Hydro, Winnipeg, Manitoba, Canada T. Stadnyk University of Manitoba, Winnipeg, Manitoba, Canada	438 - Acaray generating station life extension and modernization studies D. Flores, A. Bridgeman and F. Welt Hatch, Niagara Falls, Canada J. Aveiro Manitoba Hydro International Ltd. (MHI), Winnipeg, Canada D. Benitez & J. Vallejos Administración Nacional de Electricidad (ANDE), Asuncion, Paraguay	208 - Feedback on the Innovative Spillway for Crotty Dam – 25 Years of Performance Data R. Herweynen & P. Southcott Entura, Hobart, Tasmania, Australia	311 - Application of Simplified / Empirical Framework to Estimate Runout from Tailings Dam Failures M. De Stefano, G. Nadarajah & D. Bleiker Wood Division of Environment and Infrastructure, Mississauga, ON, Canada	193 - Oroville in Retrospect: What needs to change? S.J. Rigbey SJR Consulting Inc., Canada D.N.D. Hartford BC Hydro, Canada
16:16	341 - "Hydrothermal" and season based design of dual PKW - Flap gate spillway at Gage Dam F. Laugier EDF-CIH, Le Bourget du Lac, France	549 - Australian experience with application of Monte Carlo approach to extreme flood estimation D.A. Stephens, M.J. Scorah & P.I Hill Hydrology & Risk Consulting (HARC), Melbourne, Australia R.J. Nathan University of Melbourne, Melbourne, Australia	292 - Långströmmen Dam Safety – Best Practice Project, an additional new spillway with an emergency radial gate and 2.5 km earth-fill dam enlargement P. Kotrba Pöyry Austria, Salzburg, Austria C. Sjöberg AF Energy Scandinavia, Östersund, Sweden P. Bylander Fortum Sverige, Östersund, Sweden	488 - Case histories of tailings dam and reservoir waterproofed with a bituminous geomembrane (BGM) N. Daly Axter Coletanche Inc., Montreal, QC, Canada Bt. Breul Axter SAS, Paris, France P. Bylander Expert Consultant BGM, France	593 - Tailings management – current practice in Sweden S. Töyrä LKAB, Kiruna, Sweden A. Bjelkevick, R. Sutton Tailings Consultant Scandinavia AB, Stockholm, Sweden L. Lindahl Swedish Association of Mines, Mineral and Metal Producers (SveMin), Stockholm, Sweden	103 - Development of new simulator for training of dam operation and its future outlook K. Tamura & S. Kano Japan Water Agency, Saitama, Japan
16:34	399 - Hydraulic Design of Stepped Spillway using CFD Supported by Physical Modelling: Muskrat Falls Hydroelectric Generating Facility J. Patarroyo, D. Damov & M. Tremblay SNC-Lavalin Inc., Montreal, Canada D. Shepherd SG1 Water Consulting Ltd., Edmonton, Canada G. Snyder SNC Lavalin Inc., St. John's, Canada	22 - Integrated watershed modeling to support dam safety studies J. Perdikaris & W. Kettle Ontario Power Generation, Niagara-on-the-Lake, Canada R. Zhou Hatch, Niagara Falls, Ontario, Canada	135 - Underwater technologies for rehabilitation of dams: Studena case history A.M. Scuro & G.L. Vaschetti Carpi Tech, Balerna, Switzerland	299 - Impact of variable foundation conditions on the design of the Itare Asphalt Core Rockfill Dam (ACRD) in Kenya L. Lopez-Ortiz, J. Bekker, D.B. Badenhorst, & C.R. Fynn AECOM SA, Centurion, South Africa	143 - Design and operating challenges at a TSF in a high altitude, desert setting in China B.P Wrench Golder Consulting Limited, Beijing, China F.W. Gassner Golder Associates Pty Ltd, Melbourne, Australia M. Platts Mining Professional, Melbourne, Australia	279 - Lessons learned from dam failures and incidents due to spillway malfunctions F. Bacchus & F. Champiré BETCGB, Grenoble, France L. Deroo ISL, Lyon, France F. Lempérière Hydrocop M. Poupart Poupart EIRL
16:52	389 - The Redesign of a Plunge Pool Slab for a Temporary Diversion due to Dynamic Pressures R. Haselsteiner Bjoernsen Consulting Engineers, Koblenz, Germany A. Trifkovic Fichtner GmbH & Co. KG, Stuttgart, Germany	450 - Impact of climate change on the flow regime and operation of reservoirs - A case study of Bhakra and Pong dams D. K. Sharma Bhakra Beas Management Board, Chandigarh, India	183 - Safety by design - The new intake at John Hart Generating Station project A.V. Maiorov, A. Kartawidjaja & K. Gdela SNC-Lavalin, Vancouver, BC, Canada	564 - Construction of diversion culverts on compressible foundations – Large Earthfill Dams M. Safavian GHD, Sydney, Australia	572 - Staged emergency spillway development – design considerations K.L Ainsley & B. Otis Knight Piésold Ltd. Vancouver Canada E. Chong PanAust Ltd. Brisbane Australia	285 - Importance of Emergency Management Programs for Dams and Hydropower Projects - Canadian Perspective and Nepalese Context M. Acharya Environment and Parks, Alberta, Canada C. Richard Donnelly & J. Groeneveld & J. H. Rutherford Hatch Ltd., Canada & USA T. Bennett Ontario Power Generation, Ontario, Canada
17:10	457 - Dam and spillway rehabilitation to accommodate increased design flood: Calero Dam A.R. Firoozfar & E.T. Zapel HDR, Seattle, WA, United States A.L. Strain HDR, Des Moines, IA, United States N.B. Adams HDR, Salt Lake City, UT, United States	462 - Climate change and waterpower - Reducing the impacts and adapting to a new reality C. Richard Donnelly Hatch Ltd., Niagara Falls, Canada Steven Bohrn Hatch Ltd., Winnipeg Manitoba Susan McGeachie Hatch Ltd., Mississauga, Ontario Canada Joe Groeneveld Hatch Ltd., Calgary, Canada	344 - Geomembrane Sealing Systems for Rehabilitation and Upgrading Concrete Dams D. Cankoski Salini Impreglio S.p.A, Milan, Italy	42 - Small embankment dams – benefits and problems J. Řiha Faculty of Civil Engineering, University of Technology, Brno, Czech Republic	415 - Maintenance of safety and reliability of high tailings dams in cold regions of Russia during the design phase E. Bellendir JSC Hydroproject, Moscow, Russia E. Filippova JSC Vedeneev VNIIG, St. Petersburg, Russia O. Buryakov JSC Vedeneev VNIIG, St. Petersburg, Russia	204 - Toward effective emergency action plan of a dam by using a network analysis B.-H. Choi & B. Lee Rural Research Institute, Republic of Korea

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08:30	<p>82 - Analyzing the water supply effect of Three Gorges Reservoir on Dongting Lake during the dry season L.Q. Dai, H.C. Dai <i>China Three Gorges Corporation Co., Ltd., Beijing, China</i> H.B. Liu, Z.Y. Tang, Y. Xu <i>China Yangtze Power Co., Ltd., Yichang, Hubei Province, China</i></p>	<p>216 - Modelling of the ice load on a Swedish concrete dam using semi-empirical models based on Canadian ice load measurements. R. Hellgren, R. MaIm & D. Eriksson <i>KTH Royal Institute of Technology, Department of Civil and Architectural Engineering, Stockholm, Sweden</i></p>	<p>480 - Muskrat Falls North Dam - overcoming the challenges of placing RCC in an extreme environment T. P. Dolan <i>Lower Churchill Management Co, St. John's, NL, Canada (from Dolan and Associates)</i> D. Protulipac <i>Lower Churchill Management Co, St. John's, NL, Canada (from Darren Protulipac and Associates Ltd.)</i> T. Chislett <i>Lower Churchill Management Co, St. John's, NL, Canada (from Darren Protulipac and Associates Ltd.)</i></p>	<p>265 - The failure of homogeneous dams by internal erosion – The case of Sparmos Dam, Greece G.T. Dounias <i>EDAFOS SA, Athens, Greece</i> M.E. Bardonis <i>EDAFOS SA, Athens, Greece</i></p>	<p>308 - The 2014 Ludian co-seismic landslide dam (Yunnan, China): transformation from high hazard to dual purpose water conservancy and hydropower project Stephen G. Evans <i>University of Waterloo, Waterloo, Canada</i> Jing Luo, Xiangjun Pei & Runqiu Huang <i>Chengdu University of Technology, Chengdu, China</i></p>	<p>186 - Dam portfolio risk management: What we learned from analyzing seven dams owned by the Regional Government of Extremadura (Spain) M. Setrakian-Melgionian <i>Regional Government of Extremadura, Mérida, Spain</i> I. Escuder-Bueno & J.T. Castillo-Rodríguez <i>Universitat Politècnica de València and IPRESA Risk Analysis, Valencia, Spain</i> A. Morales-Torres</p>
08:48	<p>217 - Optimal water resources allocation and water supply risk assessment under changing environment in the Mid-lower Hanjiang River Basin, China X. Hong, L. Zhang, Y. Huang, Q. Zou, R. Zhang & X. He, L. Wang <i>Changjiang Institute of Survey, Planning, Design and Research, Wuhan, China</i> X. Hong <i>State Key Laboratory of Water Resources and Hydropower Engineering Science, Wuhan University, Wuhan, China</i></p>	<p>123 - Riprap Upgrade at WAC Bennett Dam in Canada G. Wu, K. Wellburn, M. Lawrence, F. Sadeque & L. Yan <i>BC Hydro Engineering, Burnaby, BC, Canada</i></p>	<p>542 - RCC knowledge: how specific test can help to evaluate the real behavior of material and a better design of RCC dams E. Schrader <i>Dam expert, U.S.A.</i> P. Mastrofini <i>Salini-Impregilo S.p.A.-Italy</i> R. Saccone & F. Surico <i>Mapei S.p.A.-Italy</i></p>	<p>442 - ICOLD Bulletin 164 on internal erosion - how to estimate the loads causing internal erosion failures in earth dams and levees R. Bridle <i>UK Member, ICOLD Embankment Dams Committee; Dam Safety Ltd, Great Missenden, United Kingdom</i></p>	<p>211 - A Multi-Disciplinary Approach to Active Fault Rupture Risk Characterization: 3D Geological Modelling of the Willunga Fault, Mt Bold Dam, South Australia S.R. Macklin, Z. Terzic, J.F. Barter, P. Buchanan <i>GHD Pty Ltd, Melbourne, Australia</i> M. Quigley <i>University of Melbourne, Melbourne, Australia</i></p>	<p>64 - Incorporation of a time-dependent risk analysis approach to dam safety management J. Fluixá-Sanmartín <i>Centre de Recherche sur l'Environnement Alpin (CREALP), Stion, Switzerland</i> A. Morales-Torres <i>IPRESA Risk Analysis, Valencia, Spain</i> L. Altarejos-García & I. Escuder-Bueno <i>Universidad Politécnica de Cartagena (UPCT), Cartagena, Spain</i></p>
09:06	<p>163 - Unknown DPRK's dam water level analysis applying Artificial Intelligence & Machine Learning Method J.B. Park, S.H. Lee, S.J. Kim <i>K-water, Daejeon, Republic of Korea</i></p>	<p>528 - Multi-purpose permanent booms - design approach and past experience R. Abdelnour & E. Abdelnour <i>Geniglance Inc., Montreal, QC, Canada</i></p>	<p>178 - High performing RCC and pumpable poor CVC mix design for Monti Nieddu Dam (Italy) T. Adamo, V. Aiello, S. Bonanni, R. Collarelli, F. D'Angeli & C. Rollo <i>Astaldi S.p.A., Rome, Italy</i></p>	<p>536 - Application of Ground-Penetrating Radar (GPR) as supporting technology for monitoring cracks at Bening Dam, East Java, Indonesia N. Sadikin <i>Research Center for Water Resources, Ministry of Public Works and Housing, Bandung, Indonesia</i></p>	<p>92 - A large landslide, a reservoir and a small inspection gallery – A risk assessment, based on a well-designed instrumentation F. Landstorfer, A. Blauhut, E. Wagner <i>VERBUND Hydro Power, Vienna, Austria</i></p>	<p>491 - In praise of monitoring and the Observational Method for increased dam safety S. Lacasse & K. Höeg <i>Norwegian Geotechnical Institute, Oslo, Norway</i></p>
09:24	<p>453 - New guidelines and processes for development of additional water storage in the U.S. B. N. Dwyer & K. J. Ranney <i>HDR, Denver, Colorado, U.S.</i></p>	<p>466 - River management challenges during construction of large hydropower projects in cold climates J. Malenchak <i>Water Resources Engineering Department, Manitoba Hydro, Winnipeg, Canada</i> D. Danov <i>SNC-Lavalin Inc., Montreal, Canada</i> J. Groeneveld <i>Hatch, Calgary, Canada</i> G. Snyder <i>SNC-Lavalin Inc., St. John's, Canada</i></p>	<p>317 - Tallest RCC gravity dam in Lao PDR - Need for high speed and solutions adopted at the Nam Ngiep 1 Hydropower Y. Aosaka & T. Seoka <i>Nam Ngiep 1 Power Company, LAO, P.D.R.</i> Bolikhamsay Province, Japan S. Tsutsui <i>Kansai Electric Power Co., Inc., Osaka prefecture, Japan</i></p>	<p>69 - Hydro-TISAR and Hydro-SEEp – State of the art innovative geophysical techniques for dam safety investigations D. Campos Halas, J.L. Arsenault, McClement, B. & M. Situm <i>Geophysics GPR International Inc., Montreal, Canada</i></p>	<p>93 - Diversion Tunnels – Risk Management Confronting Multiple Hazards W. Riemer <i>Consultant, Germany</i> K. Thermann <i>Lahmeyer International GmbH, Germany</i></p>	<p>525 - Scaling risk assessment methods and approaches - from over 200 dams to site-specific studies J.A. Quebbeman & S.K. Carney <i>RTI International, Colorado, USA</i></p>
09:42	<p>313 - The role of streamflow forecast horizon in real-time reservoir operation K. Gavahi & S.J. Mousavi <i>Amirkabir University of Technology, Tehran, Iran, 158754413, Tehran, Iran</i></p>	<p>471 - Performance of the complex spillway structure after gate replacement - physical modelling M. Broucek, M. Kralik & L. Satrapa <i>Czech Technical University in Prague, Faculty of Civil Engineering, Prague, The Czech Republic</i></p>	<p>468 - Updating the dam safety instrumentation systems of concrete gravity dams: A case study from the Kootenay River, British Columbia, Canada A.I. Bayliss, L. Hurlbut; A. Hughes <i>Stantec Consulting Ltd, Calgary, Canada; Denver, USA</i> P. Hamlyn; G. Johnston <i>FortisBC, Castlegar, Canada</i></p>	<p>418 - Underwater visualization for asset management and risk mitigation of dams K.J. LaBry <i>Underwater Acoustics International, L.L.C.</i></p>	<p>324 - Review of the Mudflow Incident at Kafue Gorge Power Station and Lessons Learnt M Silwembe <i>Civil Engineering Services, ZESCO Limited, Lusaka, Zambia</i> A Mutawa <i>Civil Engineering Services, ZESCO Limited, Lusaka, Zambia</i></p>	<p>458 - A risk-informed approach to justify dam safety improvements A.R. Firoozfar & K.C. Moen <i>HDR, Seattle, WA, United States</i> B. McGoldrick <i>Idaho Power Company, Boise, ID, United States</i> A.N. Jones <i>HDR, Portland, ME, United States</i></p>

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T1 : Innovation
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Thursday 8:30 to 10:00

Start	S19 T2 - Sedimentation - Monitoring and Management (Room 208)	S20 T2 - Water Management - Monitoring and Operation (Room 205)	S21 T1 - Design and Numerical Modeling of Concrete Dams (Room 214)	S22 T1 - Embankment Dams Numerical Modeling (Room 206)	S23 T1 - Dam Foundation and Geology (Room 207)	S24 T2 - Design of Hydropower Scheme (Canada Hall 3)
10:30	297 - Sediment replenishment as a measure to enhance river habitats in a residual flow reach downstream of a dam S. Stähly, A.J. Schleiss École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland M.J. Franca IHE Delft Institute for Water Education & Delft University of Technology, Delft, The Netherlands C.T. Robinson Swiss Federal Institute of Aquatic Science	87 - Flexible approaches to maximum supply water level of multi-purpose dams M. Möller Thüringer Fernwasserversorgung, Erfurt, Germany W. Thiele Thiele + Büttner GbR, Erfurt, Germany	451 - Computation of safety margins of a cracked dam considering drainage efficiency in a coupled hydro-mechanical model S.-N. Roth Hydro-Québec Production, Montréal, Canada P. Léger École Polytechnique de Montréal, Montréal, Canada	383 - Numerical Modelling of Construction and Impoundment of the Romaine-2 Asphaltic Core Rockfill Dam (Québec, Canada) R. Plassart & F. Laigle EDF Hydro – Centre d'Ingénierie Hydraulique, Le Bourget-du-Lac, France H. Longtin & E. Péloquin Hydro-Québec Production, Montréal, Canada	66 - Mechanical characteristics of class-I columnar jointed basalt of Baihetan hydropower station L.Q. Li, J.R. Xu, Y.L. Jiang Powerchina Huadong Engineering Corporation Limited, Hangzhou, China H.M. Zhou, Y.H. Zhang Yangtze River Scientific Research Institute, Wuhan, China	275 - Small historic dams made safe D.E. Neeve & M. Jenkins Arup, Leeds, UK
10:48	557 - Change in river basin morphology due to climate change led extreme flood event D.V.Singh & R. K Vishnoi THDC India Limited, Rishikesh, Uttarakhand, India	225 - Operation of large Norwegian hydropower reservoirs after quantifying the downstream flood control benefits B. Glover & K.L. Walløe Multiconsult, Oslo, Norway	427 - Dams in 3D: The Importance of Considering Three-Dimensional Response of Gravity Dams Scott L. Jones, PE, PhD AECOM, Conshohocken, Pennsylvania, USA Andrea Jacobs AECOM, Conshohocken, Pennsylvania, USA Leo Martin, PG AECOM, Chelmsford, Massachusetts, USA	261 - Global sensitivity analysis in the design of rockfill dams Rajeev Das & Azzeddine Soulaïmani École de technologie supérieure, Montreal, Quebec, Canada	575 - Développement de nouveaux coulis cimentaires pour l'injection des fondations en milieu froid K. Champagne & G. Touma Hydro-Québec, Montréal, Canada A. Yahia Université de Sherbrooke, Sherbrooke, Canada	233 - Site C Clean Energy Project, Design Overview A.D. Watson BC Hydro, Vancouver, BC, Canada G.W. Stevenson Klohn Crippen Berger Ltd., Vancouver, BC, Canada A. Hanna SNC Lavalin Inc. (retired), Vancouver, BC, Canada
11:06	566 - Bener Dam as the management efforts of Bogowonto Watershed M. Yushar Yahya Alfarobi Serayu Opak River Basin Unit, Ministry of Public Works and Housing, Yogyakarta, Indonesia.	274 - National Census on River and Dam Environments in Japan and utilization for appropriate dam management using the results T. Osugi, E. Akashi, K. Yamaguchi & H. Kanazawa Water Resources Environment Center, Tokyo, Japan M. Nishikawa IDEA Consultants Inc. Kanagawa, Japan	110 - Diversion tunnel orifices for energy dissipation during reservoir filling at Site C J. Bruce, P.Eng. Klohn Crippen Berger Ltd., Vancouver, BC, Canada J. Croockewit, P.Eng. formerly BC Hydro, Vancouver, BC, Canada F. Yusuf, M.A.Sc., P.Eng. BC Hydro, Vancouver, BC, Canada J. Nunn, P.Eng. formerly Klohn Crippen Berger Ltd., BC	35 - Reliability-based safety factors for earth dam stability calculations G. Molinder, I. Ekström & R. Ma1m Sweco Energuide AB, Stockholm, Sweden J. Yang Vattenfall Research and Development, Älvkarleby, Sweden	75 - Challenges in Engineering of Pare Dam on Weak Foundation A. Mehta & D.V. Thareja SNC Lavalin Engineering India Pvt. Ltd., New Delhi, India V. Batta SNC Lavalin Inc., Vancouver, British Columbia, Canada	371 - Role of dams and levees in the flood risk management in Romania A. Abdulamit Romanian National Committee on Large Dams – ROCOLD
11:24	267 - Sediment management plan in Sakawa River -The results of the first phase Y. Fukuda & R.Akita & K.Doke NIPPON KOEI CO.,LTD. Tokyo, Japan	373 - Multipurpose water uses of reservoirs in Slovenia N. Smolar-Žvanut, J. Meljo, N. Kodre, T. Prohinar Slovenian Water Agency, Ljubljana, Slovenia	388 - Detailed investigations and finite element analysis of Idukki dam in India V.V. Arora & B. Singh National Council for Cement & Building Materials, Ballabgarh, Haryana P. Narayan & B. K Patra Dam Safety Rehabilitation Directorate, Central Water Commission, Delhi	443 - Comparison of cracks and settlements in Givi Dam body in two periods, before and after earthquake (case study, Givi Dam, Iran) A. Negahdar Faculty of Engineering, University of Mohaghegh Ardabili, Iran R. Eshragi Earthquake Approach, Ardebil, Iran H. Negahdar Islamic Azad University Central Tehran Branch, Faculty of Engineering, Iran	104 - Innovative 3D ground models for complex hydropower projects J. Weil iC consulenten ZT GmbH, Vienna, Austria I. Pöschl & J. Kleberger iC consulenten ZT GmbH, Salzburg, Austria	432 - Un barrage en milieu aride L. Deroo & A. Tardieu ISL, France N. Ouchar ANBT, Algérie
11:42	127 - Turbidity control and sediment management using sluicing tunnel at hydropower dam H. Okumura, C. Onda & T. Satoh Electric Power Development company, Tokyo, Japan T. Sumi Kyoto University, Kyoto, Japan	21 - Consequences of Flooding: Comparing Different Quantitative Methods for Estimating Loss of Life (LOL) J. Perdikaris & W. Kettle Ontario Power Generation, Niagara-on-the-Lake, Ontario, Canada R. Zhou Hatch, Niagara Falls, Ontario, Canada	514 - Assessment of apparent cohesion at dam-rock interfaces through multiscale modeling S. Renaud, T. Saichi & N. Bouananani Dept. of Civil, Geological and Mining Eng., Polytechnique Montréal, QC, Canada B. Miquel Division of Expertise in Dams, Hydro-Québec, Montréal, QC, Canada	294 - Considering geosynthetic-reinforced piled embankments as cemented material dam (CMD) foundation A. Noorzad Shahid Beheshti University, Tehran, Iran; Vice President, ICOLD; President, IRCOLD E. Badakhshan Shahid Beheshti University, Tehran, Iran A. Bouazza Monash University, Melbourne, Australia	380 - Stabilization of abutments for dam safety: A case of Punatsangchhu-I dam with adverse geology R.K. Gupta Polavaram Project Authority, India V. Tripathi Central Water Commission, India	190 - Unexpected risks and work experience in construction of HPP's cascade on the Grande-de-Santiago River, Mexico A. Kozyrev Russian National Committee ICOLD, Moscow, Russia & JSC "Lenhydroproject", Saint-Petersburg, Russia A. Lashin & I. Uskov PJSC "Power Machines", Saint-Petersburg, Russia Vladislav Uskov

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Thursday 10:30 to 12:00

Thursday 13:30 to 15:00	Start	S25 T2 - Sedimentation - Modeling (Room 208)	S26 T1 - Thermal and Alkali-Silica Reaction - Concrete Dams (Room 205)	S27 T1 - Design and Numerical Modeling of Concrete Dams (Room 214)	S28 T3 - Seismic Analysis of Embankment Dams (Room 206)	S29 T2 - Spillways (Room 207)	S30 T2 - Risk (Canada Hall 3)	
	13:30	59 - The Study on Optimization of Sediment Flushing Efficiency from Cascade Reservoirs as Mitigation to the Secondary Impact of Volcanic Hazard P. T. Juwono Brawijaya University, Malang, Indonesia F. Hidayat, R.V. Ruritan, A. Rianto & M. Taufiqurrachman Jasa Tirta I Public Corporation, Malang, Indonesia	219 - Assessment of frost damage in hydraulic structures using a hygro-thermo-mechanical multiphase model D. Eriksson, R. Malm & R. Hellgren KTH Royal Institute of Technology, Stockholm, Sweden	524 - Reducing generation loss - operating with ice and debris on the Upper Mississippi River B. Holman & A. Judd Stanley Consultants, Minneapolis, USA A. Peters Pacific Netting Products, Kingston, USA	492 - Site effect study of Denis-Perron Rockfill Dam D. Verret & E. Péloquin Hydro-Québec, Québec, Canada D. LeBoeuf Université Laval, Québec, Canada	16 - Effect of boundary layer conditions on uplift pressures at open offset spillway joints T.L. Wahl US Bureau of Reclamation, Denver, Colorado, USA	501 - Bayesian Network approach for failure prediction of Mountain Chute dam and generating station A. El-Awady & K. Ponnambalam Department of Systems Design Engineering, University of Waterloo, Ontario, Canada T. Bennett & A. Zielinski Ontario Power Generation, Ontario, Canada A. Verzobio Department of Civil and Environmental Engineering, University of Strathclyde, Glasgow, UK	
	13:48	546 - Reservoir operation of Mangdechhu project and safety of the structure B. Joshi, N. Kumar, K. Deshmukh, R. Baboota & M. Mishra NHPC Limited, Faridabad, Haryana, India	484 - Thermal analysis and design features of Muskrat Falls RCC North Dam H. Bouzaiene SNC-Lavalin Inc., Montreal, Canada T. Smith & G. Snyder SNC-Lavalin Inc., St. John's, Canada T. Chislett & J. Reid Lower Churchill Management Co, St. John's, Canada (Secoded by Hatch Ltd.)	410 - Concrete Assessment and Service Life Extension Planning for Morris Sheppard Dam S.S. Vaghti Gannett Fleming, Inc., Phoenix, AZ, United States of America M. McClendon Brazos River Authority, Waco, TX, United States of America G.S. Lund Gannett Fleming, Inc., Denver, CO, United States of America	28 - Earthquake-induced cracking evaluation of embankment dams L. Mejia Geosyntec Consultants, Oakland, California, United States E. Dawson AECOM, Los Angeles, California, United States	302 - The challenge of securing a concrete lined spillway founded on weak fractured rock containing active aquifer layers D. Ryan Consultant, Brisbane, Australia P. Foster Stantec, Wellington, New Zealand B. Wark GHD, Perth, Australia	146 - Analysis of the probability of failure of the Moste Dam P. Žvanut Slovenian National Building and Civil Engineering Institute, Ljubljana, Slovenia	
	14:06	101 - Experimental study on effective sediment channel with reservoir topography and morphology Y. Kitamura & T. Ishino Chigasaki Research Institute, Electric Power Development Co.,Ltd.(J-POWER), Kanagawa, Japan T. Okada Chigasaki Technical Business Division, JP Design Co.,Ltd,Kanagawa,Japan	251 - Refurbishment of the 120 year old inlet tower on Mundaring Weir A Gower Water Corporation, Western Australia, Australia B. Wark GHD Pty Ltd, Perth Western Australia, Australia	260 - Biscarrués. The first hardfill dam in Spain C. Granell & A. Duque GRANELL Hydraulic Engineers, Spain J.L. Sanchez ACUAES, Spain L.J. Ruiz FYSEG, Spain	252 - Key Technologies on the Harnessing Project of Hongshiyuan Barrier Lake on Niulan River triggered by the 2014 Ludian earthquake Z. Zang, K. Cheng & Z. Yang PowerChina Kunming Engineering Corporation Limited, Kunming, China	15 - "You Don't Know What You Don't Know" Inspecting and Assessing Spillways for Potential Failure Modes Paul Schweiger, Robert Kline & Scott Burch Gannett Fleming, Inc., Pennsylvania, USA Scott Ramsey Walker Tennessee Valley Authority, Tennessee, USA	463 - Risk management of new hydropower dams on the White Nile Cascade - A case study of Isimba & Karuma Hydropower Dams in Uganda W. Manirakiza, F. Wasike, N.A.Rugaba, J.Sempewo, H.E.Mutikanga & L.Spasic-Griil Uganda Electricity Generation Company Ltd (UEGCL), Kampala, Uganda	
	14:24	125 - Study on water diversion and sediment control of diversion type hydropower station downstream of high dam with large reservoir Xiangrong Chen, Hongliang Sun, Yimin Chen, Fei Yang Huadong Engineering Corporation Limited, Power China, Hangzhou, China	398 - Study of concrete hydroelectric facilities affected by AAR using multi-physical simulation: consideration of the ultimate limit state Mahdi Ben Ftima École Polytechnique, Montreal, Qc, Canada IDAE, Montreal, Qc, Canada Emre Yildiz & Oumaima Abra IDAE, Montreal, Qc, Canada	409 - Safe design and operation of spillway gates under extreme conditions - cold climate P. Bennerstedt & A. Halvarsson WSP, Stockholm, Sweden	201 - Seismic design aspects and first reservoir impounding of Rudbar Lorestan rockfill dam M. Wieland Chairman, ICOLD Committee on Seismic Aspects of Dam Design & Poyry Switzerland Ltd., Zurich, Switzerland H. Roshanomid Poyry Switzerland Ltd., Tehran, Iran	567 - Avoiding rock erosion in the discharge channel of the Péribonka spillway C. Correa & M. Quirion Hydro-Québec, Montréal, Québec, Canada	281 - Conditional flood risk management B. Kolten HKV consultants, Lelystad, The Netherlands & Delft University of Technology, Delft, The Netherlands M. Zethof & B.I. Thonus HKV consultants, Lelystad, The Netherlands	
	14:42	340 - Morphological modelling of sediment-induced problems at a cascade system of hydropower projects in hilly region of Nepal S. Giri, A. Omer Deltares, Delft, The Netherlands P. Mool Hydroconsult Engineering, Nepal Y. Kitamura Chigasaki Research Institute, Kanagawa, Japan	176 - FE assessment of the ASR-affected Paulo Afonso IV dam R.V. Gorga ART Engineering Inc., Ottawa, ON, Canada L.F.M. Sanchez & B. Martin-Pérez University of Ottawa, Ottawa, ON, Canada P.L. Fecteau GHD, Quebec City, QC, Canada A.J.C.T. Cavalcanti & P.N. Silva CHESF, Recife, PE, Brazil	71 - Design and operational safety of ultra-deep buried large headrace tunnels of Jinping II hydropower station in China Chunsheng Zhang, Xiangrong Chen, Futing Sun, Yang Zhang, Feng Wang & Xiaohong Zheng Power China Huadong Engineering Corporation Limited, Hangzhou, Zhejiang Province, China	364 - Modified equivalent linear analysis of the Aratozawa dam subjected to the 2008 Miyagi earthquake Z. Kteich & P. Labbé Ecole Spéciale des Travaux Publics, France M. Kham & V. Alves Fernandes EDF R&D, EDF Lab Paris-Saclay, France Ph. Kolmayer EDF-CIH, Le Bourget du Lac, France	330 - High resolution spillway monitoring: Towards better erodibility models (and benchmarking spillway performance) M. F. George BGC Engineering, Inc., Golden, CO, USA	132 - Integrated hydrological risk analysis for hydropower projects T. H. Bakken SINTEF Energy Research / Norwegian University of Science and Technology (NTNU), Norway D. Barton Norwegian Institute for Nature Research (NINA), Norway J. Charmasson SINTEF Energy Research, Norway	

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Start	S31 T1- Hydraulic Modeling and Design (Room 208)	S32 T2 - Performance and Monitoring of Concrete dams (Room 205)	S33 T3 - Seismic Analysis of Concrete Dams (Room 214)	S34 T2 - Investigation and Monitoring of Embankment Dams (Room 206)	S35 T1 - Instrumentation (Room 207)	S36 T2 - Dam Safety (Canada Hall 3)
15:30	394 - Screening level analysis of Ilisu Dam first filling impacts at Mosul Dam M. Wygonik Kinkley, PE US Army Corps of Engineers, Pittsburgh, USA	414 - Guideline for structural safety in cracked concrete dams E. Nordström, R. MaIm & M. Hassanzadeh SWECCO, Stockholm, Sweden T. Ekström & M. Janz AF, Stockholm, Sweden	328 - Topographic amplification on hilly terrain under oblique incident waves Z.W. Chen & G. Wang Department of Civil and Environmental Engineering, The Hong Kong University of Science and Technology, Hong Kong, China D. Huang & F. Jin Department of Hydraulic Engineering, Tsinghua University, Beijing, China	58 - Internal Settlement Measurements of the Romaine-3 Rockfill Dam M. Smith Hydro-Québec, Montréal, Canada J. Brien Hydro Québec, Baie-Comeau, Canada	148 - regObs, a tool to share observations in safety management P. H. Hiller & G. H. Midttømme Norwegian Water Resources and Energy Directorate, Trondheim, Norway R. Ekker Norwegian Water Resources and Energy Directorate, Oslo, Norway	57 - Safety vs wildlife: managing conflicting interests during dam projects in the UK T.A. Williamson GHD, Brisbane, Queensland, Australia P. Wells Arup, Cardiff, Glamorgan, United Kingdom
15:48	245 - Solving spillway geometry for three-dimensional flow G. L. Coetzee University of Pretoria, Pretoria, The Republic of South Africa & Knight Piésold Consulting, Keetmanshoop, The Republic of Namibia S. J. van Vuuren University of Pretoria, Pretoria, The Republic of South Africa	384 - Measurement of in situ stresses in the concrete of the Cahora Bassa dam L. Lamas Portuguese National Laboratory for Civil Engineering – LNEC, Lisbon, Portugal J.P. Gomes Portuguese National Laboratory for Civil Engineering – LNEC, Lisbon, Portugal E. F. Carvalho Hidroeléctrica de Cahora Bassa (HCB), S. A, Songo, Mozambique	52 - Analytical study on effects of fracture energy for crack propagation in arch dam during large earthquake H. Sato, M. Kondo & T. Sasaki National Institute Land and Infrastructure Management, Tsukuba, Japan H. Hiramatsu Eight-Japan Engineering Consultants Inc., Osaka, Japan H. Kojima CTI Engineering Co., Ltd., Tokyo, Japan	413 - The North Spur Story: Two Years Later R. Bouchard SNC-Lavalin Inc., Jonquiere, Qc, Can. A. Rattue SNC-Lavalin Inc., Montreal, Qc, Can. J. Reid Lower Churchill Management Co., St. John's, Newfoundland and Labrador, Can. G. Snyder SNC-Lavalin Inc., St. John's, Newfoundland and Labrador, Canada	577 - Fiber optic temperature sensors in under-documented dams M.C.L. Quinn & C. Engel U.S. Army Corps of Engineers, Cold Regions Research Laboratory, Hanover, USA T. Coleman Silixa LLC, Houston, USA S. Johansson HydroResearch, Täby, Sweden C. D. P. Baxter University of Rhode Island, Civil and Environmental Engineering, USA	362 - Investigation and assessment of interfaces with earthen levees J. Simm & M. Roca Colletl HR Wallingford, Wallingford, United Kingdom J. Flikweert Royal HaskoningDHV, Peterborough, United Kingdom R. Tourment IRSTEA, Aix en Provence, France C. Neutz US Army Corps of Engineer, Louisville, KY, USA
16:06	379 - Design, construction and operation of offshore and onshore flood control dams in Sweden and Switzerland Dr. Sven-Peter Teodori AF-Consult Switzerland Ltd., Baden, Switzerland Arvid Hofgaard AF Industry AB, Stockholm, Sweden Heinz Kaspar AF-Consult Switzerland Ltd., Baden, Switzerland	404 - Structural health monitoring of a buttress dam using digital image correlation C. Popescu, G. Sas & B. Arntsen Norut Narvik, Narvik, Norway	571 - DamQuake: More than just a database, a powerful tool to analyze and compare earthquake records on dams E. Robbe & N. Humbert EDF Hydro, Le Bourget du lac, France	224 - Vegetation control on embankment dams as a part of remediation work L. Demers, S. Doré-Richard & D. Verret Hydro-Québec, Montréal, Québec, Canada	223 - The need for instrumentation, experiences on irrigation dams of Ethiopia Y.K. Hassen Ethiopian Construction Works Corporation (ECWC), Addis Abeba, Ethiopia M. Abebe Eastern Nile Technical Regional Office (ENTRO), Addis Abeba, Ethiopia	289 - Design, construction and operation safety of a reinforced soil dam Anibal Maita Statkraft Peru SA, Lima, Peru
16:24	437 - 25 years of Gabčíkovo Water Structure System – operation, upgrade, safety and impacts on environment P. Panenka, M. Bakes, I. Grundova, R. Hudec, L. Koprivova, D. Volesky Vodohospodarska vystavba, state-owned enterprise, Bratislava, Slovakia	67 - Application of Laser Doppler Vibrometry in Dam Health Monitoring M. Klun, D. Zupan, J. Lopatič & A. Kryžanowski University of Ljubljana, Faculty of Civil and Geodetic Engineering	238 - Comparative Seismic Performance of Dams in Canada and China Using Numerical Analysis and Shake Table Testing S. Li, S. Alam & A.S. Issa School of Engineering, The University of British Columbia, Kelowna, BC, Canada T. Alam & R. Austin Austin Engineering, West Trail, BC, Canada	556 - Investigation and treatment of buried channels in river valley projects in Himalayas N. Kumar, I. Sayeed, R. C. Sharma & A. Chakraborty NHPC Limited, Faridabad, Haryana, India	106 - Dam monitoring flaws and performance issues: some thoughts and recommendations M. G. de Membrillera Professor, Universitat Politècnica de València R. Gómez Ebro Water Authority, Water Commissioner M. De la Fuente Ebro Water Authority, Dam Safety Dep.	113 - Application of mechanical facilities support system using tablet terminals for dam management T. Yoshida Kyuyoshinogawa Estuary Barrage Operation and Maintenance Office, Japan Water Agency, Tokushima Japan Y. Matsumoto Tonogawa-karyu Integrated Operation and Maintenance Office, Japan Water Agency, Ibaraki, Japan
16:42	397 - Minimizing the power swing incorporating the trifurcation system of the hydropower plant J. Yun & K. Lim K-water, Daejeon, Republic of Korea	436 - Investigation of Repeated Penstock Weld Ruptures – Case Study C. Sparkes Newfoundland and Labrador Hydro, St. John's, Newfoundland, Canada G. Saunders & M. Pyne Hatch Ltd., St. John's, Newfoundland, Canada	426 - Junction and Clover Dams: Risk-based Seismic Evaluation of Two Slab-and-Buttress Dams Scott L. Jones AECOM, Conshohocken, USA Steve O'Brien AECOM, Melbourne, Australia David Hughes AECOM, Oakland, USA Christopher Dann AECOM, Brisbane, Australia	551 - Means and methods of evaluating subsurface conditions and project performance at Mosul Dam G. Hlepas & V. Bateman United States Army Corps of Engineers	114 - Reservoir Safety System (RSS) V2.0: A highly automated platform for managing the operation of reservoirs K Murray, L Mason & T Judge Scottish Water, Dunfermline, Fife, Scotland	215 - Dam Safety Framework for Decision-Making and Asset Portfolio Management T. Salloum & S. Alrhih Ontario Power Generation, Toronto, Canada
17:00	254 - Investigating high flow measurements using compound gauging structures A. A. Maritz and P. Wessels Department of Water and Sanitation, Pretoria, South Africa S. J. van Vuuren University of Pretoria, Pretoria, South Africa	403 - Evaluating the operational safety of an old run-of-river power plant J.P. Laasonen Fortum Power & Heat Oy, Generation Division, Finland	89 - Effect of joints behavior on seismic safety of concrete arch dams A. Noorzad VP, ICOLD and President, Iranian Committee on Large Dams (IRCOLD) Dean, Faculty of Civil, Water and Environmental Engineering, Shahid Beheshti University, Tehran, Iran A. Daneshyar & M. Ghasemian Department of Civil Engineering, Sharif University of Technology, Tehran, Iran	10 - Empirical shear stiffness of embankment dams D.S. Park Principal Researcher, K-water Convergence Research Institute, Daejeon, Republic of Korea D.-H. Shin Director, Infrastructure Safety Research Centre, K-water Convergence Research Institute, Daejeon, Republic of Korea S.-B. Jo Senior Researcher, K-water Convergence Research Institute, Daejeon, Republic of Korea	13 - Recent Remote Underwater Surveys: Advances in Methods and Technologies for Structural Assessments of Dams and Spillways K.W. Sherwood, ASI Marine, Canada	301 - Safety measures for earth dams on basis of instrumentation data, dam site location and reservoir volume F. Jafarzadeh Sharif University of Technology & Abgeer Consulting Engineers, Tehran, Iran A. Akbari Garakani Niroo Research Institute, Tehran, Iran J. Maleki & M. Banikheir Abgeer Consulting Engineers, Tehran, Iran

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Thursday 15:30 to 17:30