



icse2014

7th International Conference on Scour and Erosion

2nd - 4th December 2014 • Rendezvous, Scarborough, Western Australia



Program

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Welcome

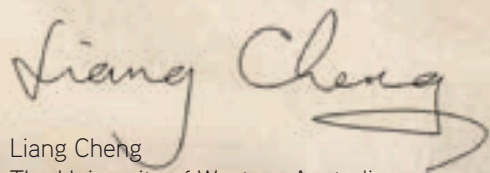
Dear Colleagues,

Welcome to the 7th International Conference on Scour and Erosion (ICSE-7) and welcome to Perth, Western Australia. The ICSE conference series was initiated by the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) in 2002 and is currently run by the Technical Committee TC213 (Scour and Erosion).

The first six conferences were successfully held in Texas, USA (2002), Singapore (2004), Amsterdam, The Netherlands (2006), Tokyo, Japan (2008), San Francisco, USA (2010) and Paris, France (2012). The objective of the conference is to provide a platform for scientists and engineers from various disciplines (e.g. Hydraulic and geotechnical engineering) to exchange ideas and report advances in research and practice on scientific and engineering challenges related to scour and erosion. The broad topics covered in ICSE conferences include fundamental mechanisms of erosion and scour, modelling (both physical and numerical) of erosion and scour processes and engineering applications that involve scour and erosion processes. The ICSE conferences have been well attended by scientists and engineers from broad areas such as Civil Engineering, Hydraulic Engineering, Coastal and Offshore Engineering.

One of the strong features of the ICSE conferences has been the cross discipline collaborations and exchanges between geotechnical and hydraulic engineers. ICSE-7 will endeavour to maintain the traditions of the ICSE conferences and build on the success of the previous ICSE conferences.

You will find Perth, the Capital City of Western Australia a unique place to visit. I hope you will be able to join us and play your part in making the ICSE-7 a successful and memorable event.



Liang Cheng
The University of Western Australia
Chair, ICSE 2014



Conference Organising Committee

LOCAL ORGANISING COMMITTEE

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 N. Fogliani (Woodside Energy Ltd., Australia)
 J. Gibson (Chevron Australia, Australia)
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 H. Verheij, *Deltares, The Netherlands*
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 K. Witt, *UnivWeimar, Germany*

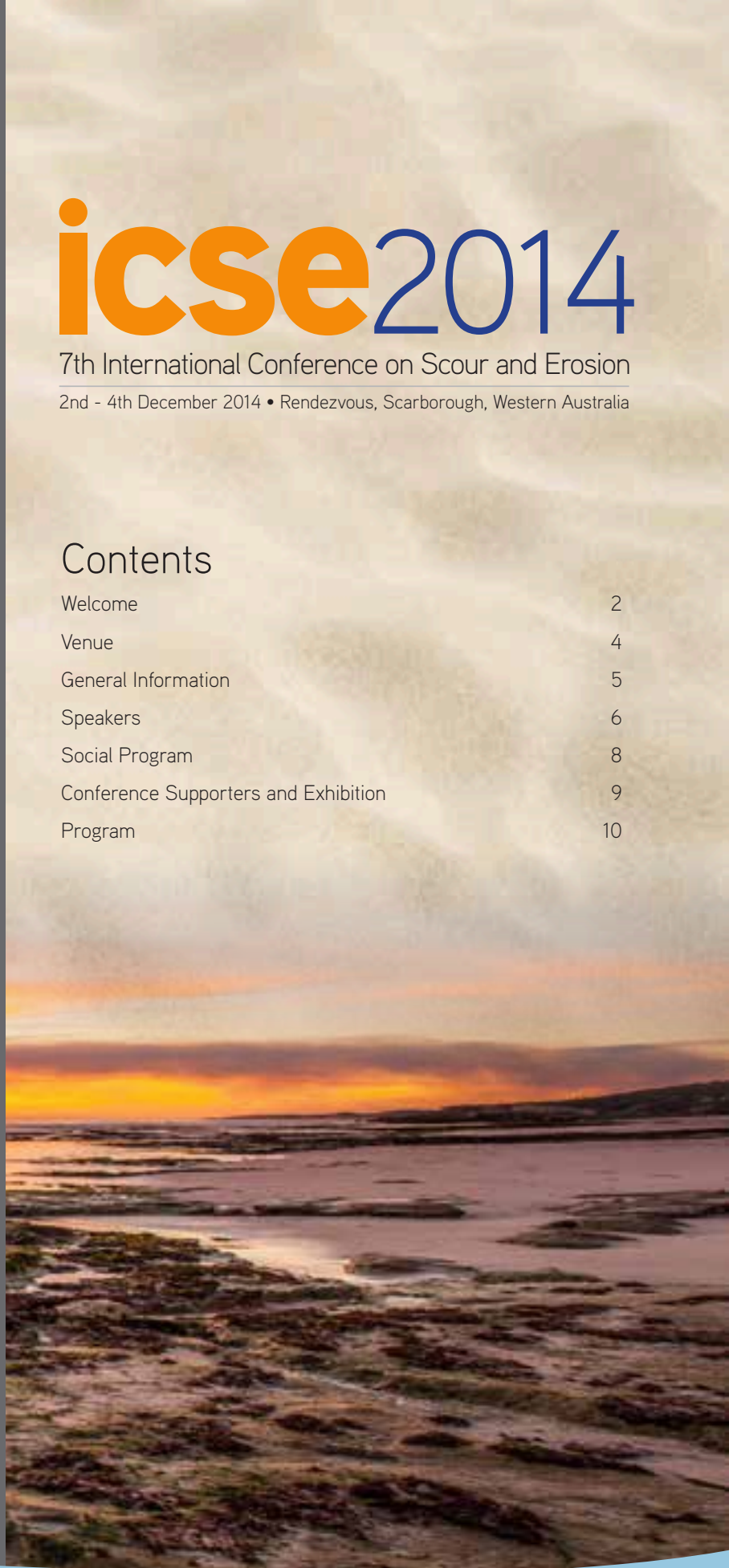
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Conference Venue

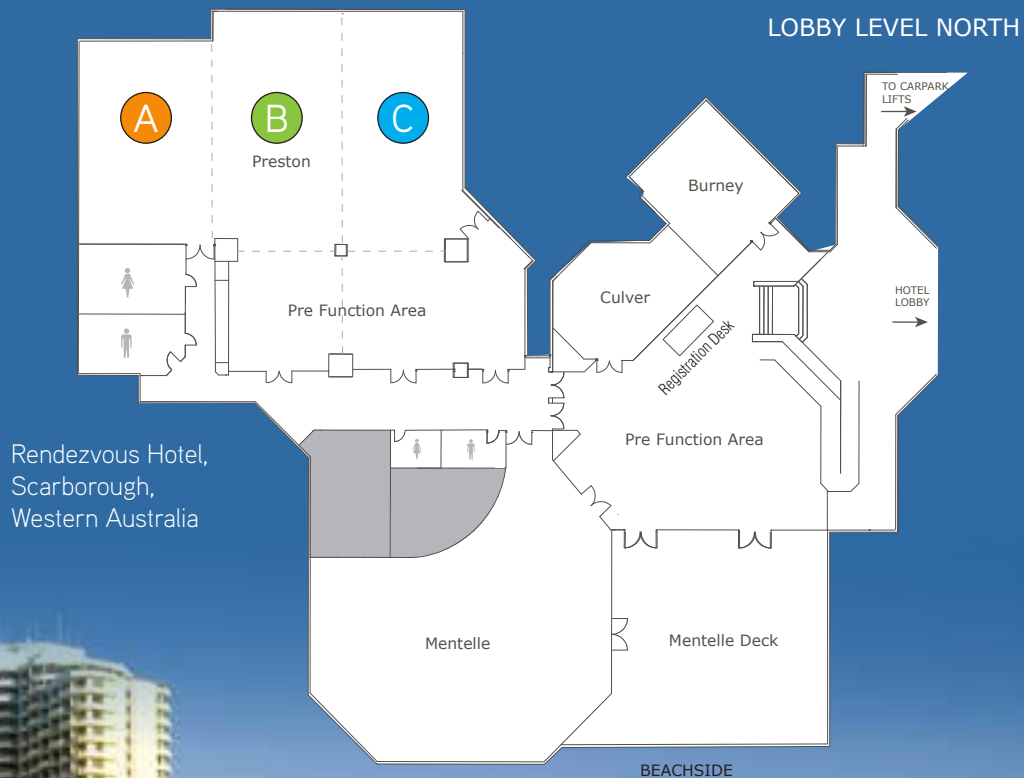
Venue

Rendezvous Grand Hotel Perth Scarborough
The Esplanade Scarborough
WA, Australia, 6019
Tel: +61 8 9245 1000
Fax: +61 8 9245 1345

The Organising Committee has chosen a fantastic conference venue and location. The Rendezvous Grand Hotel Perth Scarborough is a dedicated conference venue situated just 30 minutes from Perth Airport and 15 minutes from downtown Perth. It's a spectacular beachfront venue which offers advanced technical facilities as well as first class catering and service, meeting all the requirements needed for an enjoyable and productive networking and learning environment.

Whether you are travelling from near or far, you will appreciate having the beach at your doorstep and easy access to some of the area's main attractions, including Hillarys Boat Harbour, Rottnest Island, Swan Valley, Karrinyup Shopping Centre and the port city of Fremantle.

Conference Floor Plan



General Information

Acknowledgements

The 2014 Organising Committee would like to thank those that assisted in the preparations for ICSE 2014 including abstract and paper reviewers, session chairs and speakers.

ATM (Automated Teller Machine)

The nearest ATM is found opposite the Rendezvous Grand Hotel in the small shopping centre.

Car Rental

Budget: 1300 362 848
Hertz: 13 30 39
Avis: 13 63 33

Child Care

Please note that no official arrangements have been made for child care during the Conference. Please check with your hotel who may be able to assist you further with babysitting services during your stay.

Conference Secretariat



EECW Pty Ltd
47 Hampden Road
Nedlands WA 6009
T: (08) 9389 1488
F: (08) 9389 1499
E: info@eecw.com.au

Dress

Conference Sessions: Smart Casual
Welcome Reception: Smart Casual
Conference Dinner: Smart

Indemnity

Should for any reason outside the control of the Conference Organisers, the venue or speakers change, or the event be cancelled, the Conference Organisers shall endeavour to reschedule, but the client hereby indemnifies and holds the Conference Organisers including but not limited to the Host, Organising Committee and EECW Pty Ltd harmless from and against any and all costs, damages and expenses. This agreement is subject to the laws of Australia and a registration submission ensures acceptance of this indemnity.

Internet

Complimentary unlimited internet access is available throughout the hotel.

Meals

All tea breaks and lunches will be served in the Mentelle Room. We recognise that some delegates may have special dietary requirements. Should you have requested a special dietary meal, please ask the venue staff for further assistance.

Mobile Phones

Delegates are asked to either switch off their mobile phones or turn them to silent when in sessions.

Messages

The Conference Secretariat will receive all messages, which can be collected from the Registration Desk. No responsibility will be accepted for undelivered messages.
Telephone: 0439 912 333

Name Badge

It would be appreciated if delegates wear their name badge at all times during the Conference as this identifies them as eligible for catering and entry to Conference Sessions.

Parking

Undercover parking is available at the Hotel, entry from the main driveway via the West Coast Highway. This parking is \$10 per day for delegates attending the conference. Limited car parking is available on the Esplanade behind the hotel.

Privacy Statement

In registering for this event relevant details may be incorporated into a delegate list for the benefit of supporters, exhibitors, EECW Pty Ltd and other parties directly related to the Conference. Should you wish for your details not to be included in this list, please advise EECW staff on the registration desk.

Transport

The closest taxi rank is located on the Esplanade outside the Rendezvous Grand Hotel.

Registration Desk

The Registration Desk will be located in the Mentelle Pre Function Foyer and will be open during these times:

Monday 1 December 2014
5:00pm – 6:30pm

Tuesday 2 December
8:00am – 5:30pm

Wednesday 3 December
8:00am – 5:00pm

Thursday 4 December
8:00am – 2:00pm

Upon registration delegates will be issued with their registration pack including delegate satchel, program handbook, social event tickets (if applicable) and name badge.

All enquiries in relation to social events, program information, accommodation, general information and friendly local advice may be directed to the registration desk.

Smoking Policy

The Rendezvous Grand Hotel has a no smoking policy. This policy also applies to the majority of restaurants, bars and shopping centres in Perth.

Speakers' Preparation Area

Speakers are invited to load their presentation with a member of the Audio Visual Support team located next to the Registration Desk. Bring your PowerPoint Presentation on a USB and meet with the Audio Visual Support member at least two hours prior to your presentation.

The Audio Visual Support team will be ready to assist you with your presentation at the following times:

Tuesday 2 December
8:00am – 4:00pm

Wednesday 3 December
8:00am – 4:00pm

Thursday 4 December
8:00am – 12:00pm

Useful Local Telephone Numbers

Swan Taxis:	13 13 30
Bus & Rail Information:	13 62 13
Ambulance:	000
Police:	13 14 44

Keynote Speakers

B. Mutlu Sumer

is Professor at the Technical University of Denmark. His main fields of research are flow around marine structures –scour, liquefaction, forces, hydroelastic vibrations– and sediment transport. He has coordinated SCARCOST (Scour Around Coastal Structures) (1997-2000) and LIMAS (Liquefaction Around Marine Structures) (2001-2004), two European research programmes financed by the European Community under MAST III and FP5 programmes, respectively. He has also coordinated EPCOAST (Exploitation and Protection of Coastal Zones), a frame research program financed by Danish Technical Research Council (2005-2008); and Seabed Wind Farm Interaction, another frame research program financed by Danish Council for Strategic Research (DSF)/Energy and Environment (2008-2012). He is the author of three books: (1) B.M. Sumer and J. Fredsøe: Hydrodynamics Around Cylindrical Structures (2) B.M. Sumer and J. Fredsøe: The Mechanics of Scour in the Marine Environment; and (3) B.M. Sumer: Liquefaction Around Marine Structures. He has published over 100 journal papers and 80 conference papers on flow around and forces on marine structures, scour, liquefaction of marine soils, and sediment transport. He received 2005 ASCE Karl Emil Hilgard Hydraulic Prize. He has done consultancy work for companies in Denmark and abroad on (1) scour/ scour protection in connection with wind farms, marine structures and marine pipelines; (2) liquefaction of marine soils and its implication for marine structures; (3) forces on and vibrations of marine pipelines; and (4) river engineering and sediment transport.



Dr John Harris

is a principal engineer in the Coasts and Estuaries group at HR Wallingford and is both a Chartered Engineer and Chartered Marine Scientist. He is a specialist in marine scour and has worked on wide range of offshore projects over the last 24 years



including oil and gas and renewable energy projects. To date John has worked on various aspects of wind farm developments and has worked on around 80% of built or currently planned wind farms in the UK and is the co-author of several industry guidance documents including “Dynamics Of Scour Pits And Scour Protection” and the COWRIE “Modelling Best Practice Guide” and “A Further Review of Sediment Monitoring Data”. In December 2004 he gave an invited lecture to the Danish Society of Hydraulic Engineers at the University Aalborg entitled “Offshore wind farms a UK perspective”.

Professor Richard Whitehouse

is a Technical Director in the Coasts and Estuaries group at HR Wallingford and has over 25 years’ experience of working on marine projects with emphasis on seabed stability under wave and current loading. He is a Fellow of the Royal Geographical Society and Chartered Geographer, and is the author of the book “Scour at Marine Structures” (Thomas Telford, 1998). He is also the lead-author of the book “Dynamics of Estuarine Muds: A Manual for Practical Applications” (Thomas Telford, 2000). Richard is the co-author of several industry guidance documents including “Dynamics Of Scour Pits And Scour Protection” and the COWRIE “A Further Review of Sediment Monitoring Data”. He leads on HR Wallingford’s Scour Research Programme.



Damien Pham Van Bang

is specialised in the soil and fluid mechanics of (cohesive and non-cohesive) sediment transport in rivers and estuaries (11 international papers, an h-index of 5). He has headed the Sediment Transport Group at the LHSV Lab for 2 years and co-supervised young researchers (2 Ph.D. theses, 5 postdocs) and participated in / coordinated projects (ENCORA-FP6 2005-2008, Coastgap Interreg MED 2013-2014, CNRS-INSU-LEFE 2013-2014). He has a seat on



the Steering Committee for the THESIS (Two-phase modelling for Sediment dynamics in geophysical flows) conference and co-chaired the Sediment Transport session at the International Symposium on River Sedimentation (Kyoto, 2013, Japan).

Christophe Chevalier

is an experienced researcher in the Geotechnical engineering, Environment, Natural hazards and Earth sciences Department at Ifsttar. He has been directing the SRO (Soils, Rocks and Geotechnical Structures) research unit for three years and oversees the work of some 20 scientists. After receiving a Ph.D. in the Physics of fluids in 2006, he specialised in the study of erosion processes and associated risks relative to geotechnical structures like embankments. He was co-chair of the successful Sixth International Conference on Scour and Erosion (ICSE) held in Paris in August 2012. Mr Chevalier has authored 8 international papers (h-index of 5) and produced numerous presentations and communications in the fields of flow physics (granular and porous) and soil mechanics. He has also co-supervised 6 Ph.D. theses and is now in charge of writing a French guide of laboratory testing on erosion.



Edouard Durand

is an experienced civil geologist and geotechnical engineer (ENSG*, 1998). Geotechnical projects engineer in private contractor (ANTEA) during 3 years, he has joined in 2002 a technical Public office of French Ministry of Ecology and Sustainable Development as chief of soil mechanism team.



He now heads a “Environment and Risks” technical Group at *Cerema and is in charge for 4 years’ of an innovation and skills development centre “Knowledge on hydraulic structures and river morphodynamics” which includes specific hydraulic, bathymetry, geotechnical and geophysical equipments.

He was in the scientific committee of the sixth international conference on Scour and Erosion (ICSE) in 2012 and was co-leader from 2009 to 2013 in the International Levee Handbook (ILH) of the chapter 8 dealing with "physical processes and tools for levee assessment and design". He is also co-leading for 4 years a French research programme dealing with erosions, scours and seismic topics on earthen structures.

*ENSG : Ecole Nationale Supérieure de Géologie (National Higher School of Geology)

*Cerema : Centre d'Etudes et d'Expertise sur les Risques, l'Environnement, la Mobilité et l'Aménagement (Centre For Studies and Expertise on Risks, Environment, Mobility, and Urban and Country planning)

Dr. Gijs Hoffmans is an expert in the field of scour and erosion and core member of the Technical Committee of Scour and Erosion. He wrote the "Scour Manual" (1997) and "The Influence of Turbulence on Soil Erosion" (2012) and published many scientific publications and many reports, was assigned to dozens of appealing projects.



He presented many lectures, amongst these the Invited Lecture "On the Challenges of Scour Prediction" at the ICSE-1 (College Station) in 2002 and the Invited Lecture "Developments in Scour and Erosion" at the ICSE-6 (Paris) in 2012. He received a medallion from the US Army Corps of Engineers for his contribution in modelling scour and erosion (2004; Memorandum of Understanding between the Dutch Rijkswaterstaat and the USACE).

Professor Bruce Melville is Professor of Civil Engineering at the University of Auckland. His academic career spans more than 30 years, prior to which he spent 6 years working for civil engineering consultants in NZ and overseas on water-related projects. He is an active researcher with an international reputation in the field of fluvial sediment transport. His expertise encompasses most aspects of water resources engineering, including hydraulic, hydrological, river, environmental and hydro-electric engineering. He is a founding member of the Centre for Infrastructure Research and is Associate-Editor of the (ASCE) Journal of Hydraulic Engineering, has served on local and international research committees, and has been a member of many tribunals for water consent hearings. He has supervised more than 25 PhD students, published over 90 refereed journal papers and has more than 1250 citations in academic journals (ISI Web of science). He received the 2002 ASCE Hydraulic Structures Medal, in recognition of his contributions in the field and was elected to fellowship of the Royal Society of New Zealand in 2006. In 2007, he received the R.J. Scott Medal from RSNZ for his research contributions and in 2012 he received the Dobson Supreme Technical Award in Transportation Infrastructure. In 2011, he was promoted to Distinguished Fellowship of IPENZ and was awarded a Hood Travelling Fellowship.



Nino Fogliani graduated from the University of Western Australia with a Bachelor of Engineering (Civil) in 1987. He has 28 years experience in subsea & pipelines engineering and project management. He has worked on a wide range of subsea & pipeline projects from deepwater through to shallow water. His project and operations experience includes Australia, Europe, Africa and Asia. He has been working with Woodside for 8 years and currently manages a portfolio of upstream oil & gas technology projects. Nino is also Adjunct Professor within the School of Civil & Resource Engineering at the University of Western Australia.



Jason Gibson works with Early Concepts Development team at Chevron within the Australian Business Unit and also holds Technology Manager for Subsea Systems and Pipelines Program. His professional career currently spans 18 years, prior to which he furthered his academic studies in Scotland and later Newfoundland within Geotechnics. His project experience with multiple operators includes North America, Europe, Asia and more recently Australasia within global mega projects.



He has a passion and successful track record of pushing innovative technology with commercial applications and currently works closely with Chevron Technology Ventures company.





Social Program

Conference Welcome Cocktail Function

Date: Monday 1 December 2014

Time: 5:30pm – 7:30pm

Location: Rendezvous Hotel, Mentelle Room

Dress Code: Smart Casual

Networking Reception

Date: Tuesday 2 December 2014

Time: 5:30pm – 7:30pm

Venue: Rendezvous Hotel, Scarborough

Location: Rendezvous Hotel, Mentelle Room

Dress Code: Smart Casual

Conference Dinner

Date: Wednesday 3 December 2014

Time: 6:30pm – 11:30pm

Venue: Frasers Function Centre, Kings Park

Dress Code: Smart

Transport: Coach transfers have been arranged for conference delegates and will be departing from outside the main entrance at the Rendezvous Grand Hotel at 5:30pm, Wednesday 3 December. Return coach transfers will depart Frasers Restaurant, Kings Park at 10.30pm and 11:30pm, returning to Rendezvous Grand Hotel.



Conference Supporters and Exhibition

The exhibition area is located in the Mentelle Room.
Please make some time to meet with the Conference Supporters.

Sponsor



THE UNIVERSITY OF
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Supporters



Program

PRE-CONFERENCE: MONDAY 1 December

TIME	
17:00 – 18:30	REGISTRATION DESK OPEN
17:30 – 19:30	Conference Welcome Reception Cocktail Function <i>Mentelle Room, Rendezvous, Scarborough</i>

DAY 1: TUESDAY 2 December

TIME			
08:00 – 17:30	REGISTRATION DESK OPEN		
09:00 – 09:30	CONFERENCE OPENING - Welcome - Acknowledgement to Country		
09:30 – 10:30	PLENARY SESSION 1: Mutlu Sumer – A review of recent advances in numerical modelling of local scour problems		
10:30 – 11:30	PLENARY SESSION 2: John Harris and Richard Whitehouse – Marine Scour: Lessons from Nature's Laboratory		
11:30 – 12:00	MORNING REFRESHMENT BREAK – MENTELLE ROOM		
	PARALLEL SESSIONS		
Session	1A - Internal Erosion	1B - Advanced Numerical Modelling of Scour and Erosion	1C - River/Bridge Scour and Erosion
Chair	Didier Marot	Ming Zhao	Bruce Melville
Room	Preston A	Preston B	Preston C
12:00 – 12:20	Separation of grain size distribution for application of self-filtration criteria in suffusion assessment Huu Duc To	Analysis of Pile Scour and Associated Hydrodynamic Forces using Proper Orthogonal Decomposition Niels Jacobsen	Comparisons of time-dependent pier scour models under unsteady flow conditions Jian-Hao Hong
12:20 – 12:40	Experimental findings regarding piping failure of embankments Tsutomu Tanaka	Breaching of levees: an erosion model that takes into account the soil tensile strength Fabienne Mercier	Temporal variation of scouring topography around dual bridge piers Meric Selamoglu
12:40 – 13:00	A case study of piping failure of dams caused by Typhoon No.15 in 2011 on Awaji Island Takashi Miki	Accumulative Damage and Dissipated Energy during Saltation Abrasion of Soft Rock - A Micromechanics Perspective Kuo-Wei Li	Technical-biological bank protection for waterways on trial Michael Heibaum
13:00 – 14:00	LUNCH – MENTELLE ROOM		

TIME	PARALLEL SESSIONS		
Session	2A- Internal Erosion	2B - Advanced Numerical Modelling of Scour and Erosion	2C - River/Bridge Scour and Erosion
Chair	Rebecca Allan	Liang Cheng	Christophe Chevalier
Room	Preston A	Preston B	Preston C
14:00 – 14:20	Using the ICOLD Bulletin to investigate some internal erosion incidents in embankment dams Rodney Bridle	Large displacements and fluidization of sand due to seepage Bozhana Stefanova	Improving public safety by using DamWatch to monitor 11,900 USDA - assisted dams Joseph Scannell
14:20 – 14:40	Effects of internal erosion on undrained responses of soils with different initial fines contents Mao Ouyang	Results of Jet Erosion Tests Numerical Modelling Fabienne Mercier	Laboratory investigation of the extreme shear stress in the scour holes downstream of dual grade-control structures with a PIV system Jau-Yau Lu
14:40 – 15:00	Evaluation of mechanical properties of sand loosened due to piping Yang Yang	Numerical analysis of seepage-induced erosion of soils by solving the Darcy-Brinkman equations Kazunori Fujisawa	Experimental and numerical study on bed deformation with velocity around T spur dike Seyed Ali Sadat Mousavi
15:00 – 15:20	How a suspended cut-off wall functions: Effect of soil anisotropy in a levee foundation Dayu Wang	Three dimensional numerical simulations of hydrodynamics and morphodynamics on rapidly varied channel Chung-Ta Liao	High performance soft armour erosion control - How is this possible? Raymond Chow
15:20 – 15:40	Effects of internal erosion on deformation characteristics in the triaxial compression test Mari Sato	On the numerical modelling of the Hole Erosion Test Fabienne Mercier	Effect of sediment concentration on the erosion of weak rocks evaluated by mini jet tests Ming-Wan Huang
15:40 – 16:10	AFTERNOON REFRESHMENT BREAK- MENTELLE ROOM		
	PARALLEL SESSIONS		
Session	3A - Internal Erosion	3B - Sediment Transport	3C - Marine Scour And Erosion
Chair	Tsutomu Tanaka	Piers Larcombe	Mutlu Sumer
Room	Preston A	Preston B	Preston C
16:10 – 16:30	3D character of backward erosion piping: small-scale experiments Kristine Vandenboer	Direct numerical simulation of particle saltation in the bed-load regime Chunning Ji	Optimising scour protection stability at offshore foundations Richard Whitehouse
16:30 – 16:50	Suffusion study of coarse soils treated with lime Elandaloussi Radja	Large-scale Dike Breaching Experiments at Lillo in Flanders (Belgium) Patrik Peeters	Marine Scour and Erosion Scour Protection for Subsea Structures Nikki Sackman
16:50 – 17:10	Physical model tests on suffusion-induced change of spatial distribution of fine fraction in embankment Kazuki Horikoshi	River Sediment Transport Monitoring using Time Domain Reflectometry Chih-Chung Chung	Scour prediction in non-uniform soils: Undrained shear strength and erodibility John Harris
17:10 – 17:30	Systematic methodology for characterization of suffusion sensibility Didier Marot	Effect of Sediment Supply on Suction Scour under a Rock Berm Hongwei An	Experimental and Numerical Scour Investigation of a Backfilled Trench Fuyu Zhao
17:45 – 18:45	ISSMGE TC 213 Committee Meeting - Burney Room		
17:30 – 19:30	NETWORKING RECEPTION - MENTELLE ROOM		

DAY 2: WEDNESDAY 3 December

TIME			
08:00 – 17:30	REGISTRATION DESK OPEN		
08:50 – 09:00	Welcome Day 2		
09:00 – 10:00	PLENARY SESSION 3: Bruce Melville – Scour at various hydraulic structures: Sluice gates, submerged bridges, low weirs		
10:00 – 11:00	PLENARY SESSION 4: Nino Fogliani and Jason Gibson – Diary of a pipeline engineer		
11:00 – 11:30	MORNING REFRESHMENT BREAK – MENTELLE ROOM		
	PARALLEL SESSIONS		
Session	4A - Internal Erosion	4B - Advanced Numerical Modelling of Scour and Erosion	4C - Marine Scour and Erosion
Chair	Kristine Vandenboer	Michael Heibaum	Hongwei An
Room	Preston A	Preston B	Preston C
11:30 – 11:50	Development of an experimental research program into backward erosion piping Rebecca Allan	Numerical Modelling of Rock Scour: Case Study of Wivenhoe Dam (Australia) Erik Bollaert	Numerical Investigation of Wave-Induced Local Scour around a Submarine Pipeline Lin Lu
11:50 – 12:10	Influence of sand type on pipe development in small- and medium-scale experiments Vera van Beek	Granular packing generation using DEM - Modified Force-Based-Algorithm Mohamad Reza Salehi Sadaghiani	Scour-inducing flow around gravity anchors astride pipelines in currents Xu Zhao
12:10 – 12:30	Characterization of interface erosion sensibility on compacted cohesive soils Didier Marot	Local scour around two pipelines in tandem in steady current Ming Zhao	Tsunami overflow-seepage-coupled centrifuge experiment for the mound scour Shinji Sassa
12:30 – 13:30	LUNCH – MENTELLE ROOM		
	PARALLEL SESSIONS		
Session	5A - Internal Erosion	5B - Advanced Numerical Modelling of Scour and Erosion	5C - Marine Scour and Erosion
Chair	Rodney Bridle	Tim Raaijmakers	Richard Whitehouse
Room	Preston A	Preston B	Preston C
13:30 – 13:50	Constrictions and filtration of fine particles in numerical granular filters: influence of the fabric within the material Eric Vincens	Shear Stress Amplification Around Subsea Pipelines: Part 1, 2D Parametric Study Terry Griffiths	Development of a new small jet erodometer to measure erosion under atmospheric and submerged conditions Yoichi Watabe
13:50 – 14:10	Assessment of exits hydraulic gradients at the toe of levees in water drawdown conditions Norma-Patricia López-Acosta	Shear Stress Amplification Around Subsea Pipelines: Part 3, 3D Study of Spanning Pipelines Wenwen Shen	Scour development around the Eastern Scheldt storm surge barrier - field measurements and model predictions Greta van Velzen
14:10 – 14:30	Assessment of suffusion susceptibility of soils from a British dam Ahmed Benamar	Seabed Shear Stress Amplification Around Subsea Pipelines: Part 2, 2D Parametric Study With Waves and Combined Waves / Currents Terry Griffiths	A seventeen year, near-annual, bathymetric time-series of a marine structure (SS Richard Montgomery) Amelia Astley
14:30 – 14:50	Experimental Investigation - Influence of the shape of gradation curve on the soil structure Mohamad Reza Salehi Sadaghiani	Pore-scale study of permeability and tortuosity for flow through particulate media using virtual approach Varvara Roubtsova	Edge scour at scour protections around offshore wind turbine foundations Thor Ugelvig Petersen
14:50 – 15:10	Winnowing at circular piers under currents Ben de Sonnevile	Numerical modeling of the flow and seabed erosion around a pipeline using Smoothed Particle Hydrodynamics (SPH) Jürgen Grabe Theme: Marine Scour and Erosion	Laboratory Investigation of Scour Development Through a Spring-Neap Tidal Cycle Kate Porter
15:10 – 15:40	AFTERNOON REFRESHMENT BREAK – MENTELLE ROOM		

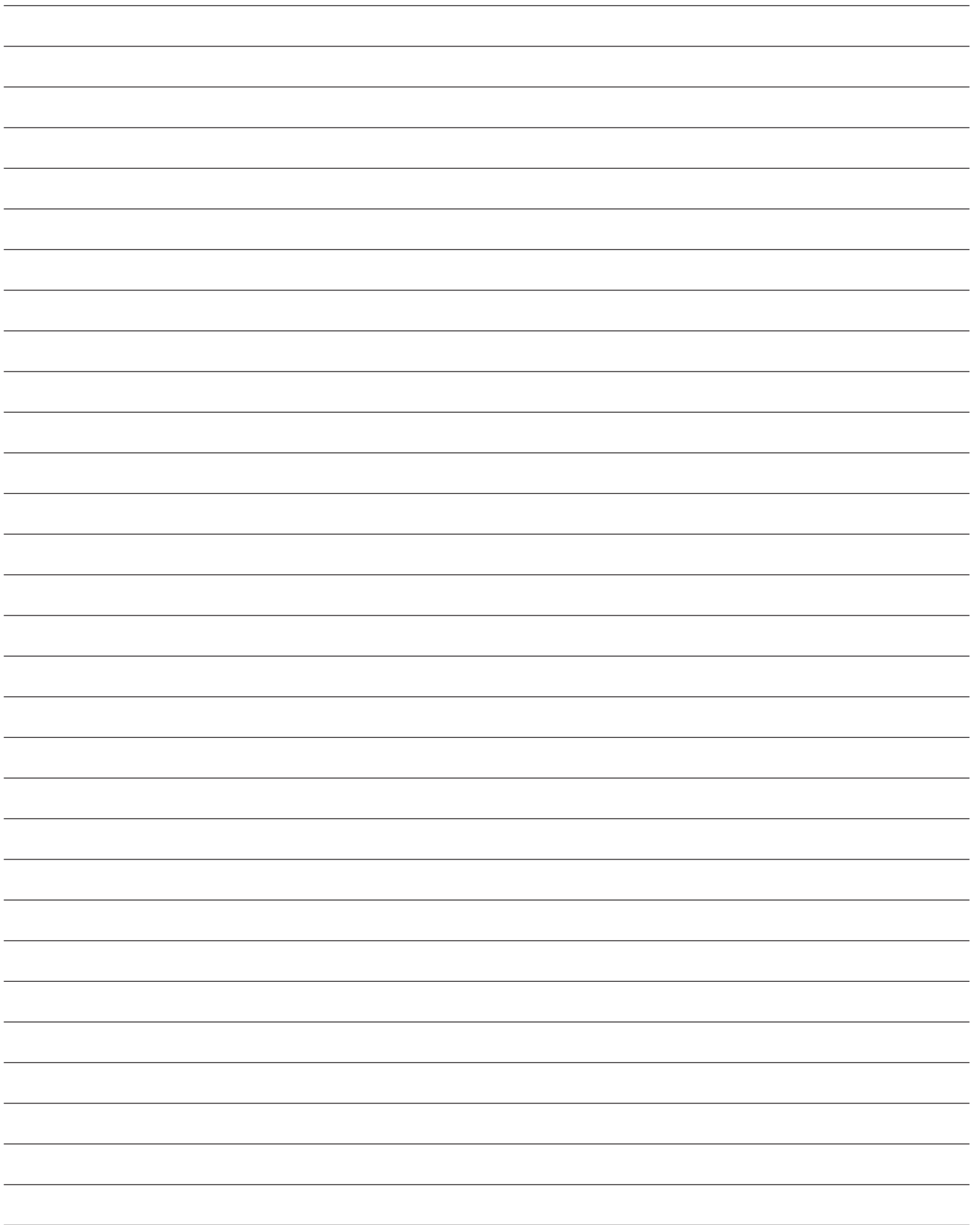
PARALLEL SESSIONS			
Session	6A- Internal Erosion & Terrestrial Scour and Erosion	6B- River/Coastal/Marine Management	6C - Marine Scour and Erosion
Chair	Damien Pham Van Bang	Gijs Hoffmans	John Harris
Room	Preston A	Preston B	Preston C
15:40 – 16:00	Effect of hydraulic load and water chemistry on soil suffusion Ahmed Benamar	An Integrated Process Based Coastal Erosion Hazard Model Christine Lauchlan Arrowsmith	Pipeline scour and self-burial on a thin veneer of sand overlying rock due to steady currents Scott Draper
16:00 – 16:20	Micromechanical Simulation of Hydraulic Erosion Instabilities Harshani Handapongoda Mudalige Dona	Implications of flood event layers in coastal sedimentary environments Ryoukei Azuma	Experimental Study on Onset of Vortex-Induced Vibration of a Pipeline near a seabed Zhipeng Zang
16:20 – 16:40	Internal erosion resistance of soils treated with lime : an evolutive benefit Gontran Herrier	Tidal and intra-tidal sand transport processes across a macrotidal intertidal zone, Broome, Western Australia: implications for measurements of sand transport associated with coastal developments Piers Larcombe	Local Scour and Flow Characteristics around a Vibrating Catenary Riser Yee-Meng Chiew
16:40 – 17:00	Hydrodynamic Erosion in Cohesive Embankment Breach Gensheng Zhao Theme: Terrestrial Scour and Erosion	Mechanical properties of a cemented silty soil for prevention of erosion of irrigation facilities in Cambodia Yuji Kohgo Theme: Terrestrial Scour and Erosion	Numerical calculation of backfilling of scour holes B. Mutlu Sumer
17:30 – 17:45	Complimentary Coach transfer to Fraser's Kings Park – Conference Dinner offsite venue		
18:30 – 23:30	Conference Dinner- Fraser's, Kings Park - Announcement of Paper Prizes		
22:30 & 23:30	Complimentary Coach transfer to Rendezvous, Scarborough		



DAY 3: THURSDAY 4 December

TIME			
08:00 – 14:00	REGISTRATION DESK OPEN		
08:50 – 09:00	Welcome Day 3		
09:00 – 10:00	PLENARY SESSION 5: Gijs Hoffmans – An overview of piping models		
10:00 – 11:00	PLENARY SESSION 6: Christophe Chevalier , Damien Pham Van Bang and Edouard Durand : Scour and erosion phenomena occurring in waterways - recent advances		
11:00 – 11:30	MORNING REFRESHMENT BREAK – MENTELLE ROOM		
	PARALLEL SESSIONS		
Session	Session 7A - 05 – River/Bridge Scour and Erosion	Session 7B – Advanced Numerical Modelling of Scour and Erosion & River/Bridge Scour and Erosion	Session 7C - Marine Scour and Erosion & River/Bridge Scour and Erosion
Chair	Edouard Durand	Elandalousi Radja	Eric Jas
Room	Preston A	Preston B	Preston C
11:30 – 11:50	Re-evaluating scour critical bridges Beatrice Hunt	2D numerical modelling of the HET: hydrodynamic forces on the pipe wall particles Jessica Sjah Theme: Advanced numerical methods	Lifelong embedment and spanning of a pipeline on a mobile seabed Simon Leckie Theme: Marine Scour and Erosion
11:50 – 12:10	Erosion and sedimentation near the renovated weir lock complex of Asper in Belgium Kristof Verelst	Mutual interference of bridge piers placed in staggered arrangement on local scour Mubeen Beg Theme: River/Bridge Scour and Erosion	Dynamic scour prediction for offshore monopiles - validation against laboratory and field measurements Tim Raaijmakers Theme: Marine Scour and Erosion
12:10 – 12:30	A real scale experimental dike in lime-treated soil: evaluation of the methodology, mechanical and hydraulic performance Isabelle Charles	Erosion of grass covers at transitions and objects on dikes Gijs Hoffmans Theme: River/Bridge Scour and Erosion	Image-based approach for calculating sediment transport rate and estimating seabed shear stress during scour Scott Draper Theme: Marine Scour and Erosion
12:30 – 12:50	Put on Your Hip Boots: A Practical Application of Partially Grouted Riprap at Mud Creek Bridge, City of Chico, California Martin McIlroy		
12:50 – 13:50	LUNCH – MENTELLE ROOM		
13:50 – 14:10	Closing Session Announcement of Speakers Prizes		





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