



Meeting report: ICSE 2014, Scarborough, Western Australia

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This paper presents an outline of ICSE 2014, the Seventh International Conference on Scour and Erosion. The event was organised jointly by the The International Committee on Large Dams (ICOLD) European Working Group on Internal Erosion (EWGIE) and the Scour and Erosion Group (Technical Committee 213) of the International Society on Soil Mechanics and Geotechnical Engineering (ISSMGE) and was held in Scarborough near Perth, Western Australia, 2–4 December 2014.

1. Introduction

The International Committee on Large Dams (ICOLD) European Working Group on Internal Erosion (EWGIE) met jointly with the Scour and Erosion Group (Technical Committee 213) of the International Society on Soil Mechanics and Geotechnical Engineering (ISSMGE), following the arrangement that started two years ago ICSE-6 in Paris. At the Seventh International Conference on Scour and Erosion (2–4 December 2014), the surf and sun of Scarborough Beach were enjoyed, and the conference dinner at the Botanic Garden gave a sample of the delightful city of Perth. The hosts, led by the University of Western Australia, had worked hard and all the papers are presented in the proceedings of this event (Cheng *et al.*, 2015).

2. Meeting outline

Internal erosion was well represented, with a stream throughout the three parallel presentation sessions and a keynote lecture from Dr Gijs Hoffmans on piping models. Vera van Beek and Kristine Vandenboer presented recent work on the three-dimensional (3D) aspects of backward erosion, highlighting that backward erosion through isolated sand boils at openings through a ‘confining layer’ and draws water from a wide area, thereby increasing the hydraulic forces and causing failure at lower heads than might be predicted from two-dimensional (2D) models. Models without confining layers and real dams and levees with a ditch through to the sand foundation at the toe are 2D configurations, and the results of trials without a confining layer, such as the IJkdijk trials, apply in such situations. Rebecca Allan is also working on backward erosion under the direction of Drs Kurt Douglas and Bill Pierson and Emeritus Professor Robin Fell at the University of New South Wales. Professor Tanaka and colleagues presented experimental results of global backward erosion causing unravelling of downstream slopes, and a case history of a piping failure of a dam. Dayu Wang examined backward erosion beneath a suspended cut-off wall.

Mohamad Reza Saheli Sadaghiani, Huu Doc To, Radja Elandalousi, Kazuki Horikushi, Eric Vincens and Abdelkarim

Bennabi on behalf of Ahmed Benamar dealt with suffusion in theory and experimentation. Professor Didier Marot presented a systematic methodology for the characterisation of sensibility to suffusion and interface erosion, including the influence of stress state and stress history. Mao Ouyang, Yang Yang and Mari Sato also examined influences of internal erosion on soil strength and deformation properties. Norma-Patricia Lopez-Acosta presented analyses of the exit gradients at the toe of levees on drawdown. Fabienne Mercier reported on the results of numerical modelling of the forces in the jet erosion test and the hole erosion test. Gontran Herrier presented further results on the improved erosion resistance of soils treated with lime. Rodney Bridle used the ICOLD internal erosion bulletin to investigate internal erosion incidents.

The other two parallel streams dealt with surface scour and erosion, on bridge foundations, from boat propellers and predominantly from ocean currents around the legs of offshore structures, wind turbines and oil and gas platforms. The ill-effects of scour on such structures can be extensive, and the capabilities that have developed to make predictions of the amount of scour, using both physical and numerical modelling, were most impressive.

Professor Richard Whitehouse and Dr John Harris highlighted the expertise of HR Wallingford in these fields. Their invitation to hold ICSE-8 in Oxford, UK, was accepted and colleagues in internal erosion, scour and erosion, dam engineering and offshore engineering and geotechnics will be welcomed to the ‘dreaming spires’ of Oxford, 12–16 September 2016. USSD are planning an internal erosion symposium to be held in Salt Lake City, 9–11 August 2016.

REFERENCE

Cheng L, Draper S and An H (Eds) *Proceedings of the 7th International Conference on Scour and Erosion, Perth, Australia*. Taylor & Francis Group, London, UK.