



PROGRAMME

MONDAY 9 SEPTEMBER

Time

30th EWG-IE Meeting

Palazzo Herculani, Strada Maggiore 45, Bologna

8.30 - 9.15

REGISTRATION

9.15 - 9.35

OPENING SESSION

Valerio Cozzani, Head of Department DICAM, Università di Bologna, Italy

Stéphane Bonelli, Chair of EWG-IE, INRAE, France

Laura Tonni, Michela Marchi, Organizing Committee, Università di Bologna, Italy

9.35 - 10.45

SESSION 1, PART 1: Laboratory Testing and Physical Modelling

Presentations & Discussion

- J. Pol, V. van Beek, H. van Hemert, K. Dorst, M. Hijma, R. Koopmans, E. Rosenbrand. *Backward Erosion Piping with point outflow and semi-permeable polder blankets: experiments, modelling and research program*
- B.A. Robbins. *Prediction of the critical secant gradient function*
- S. Ramezanifouladi, J. Côté. *Representative grain diameter in backward erosion*
- M. Wewer, J. Stamm, J.P. Aguilar-López. *Experimental study on the process behaviour of backward erosion piping in levee and dam foundations*

10.45 - 11.15

Coffee Break

11.15 - 12.45

SESSION 1, PART 2: Laboratory Testing and Physical Modelling

Presentations & Discussion

- J. Riha, L. Petrula. *Sand erodibility at backward erosion piping*
- S. Bersan, A. van der Brug, R. Servais, V. van Beek. *Small-scale tests on a semi-permeable barrier against backward erosion piping*
- D. Ayssami, C. Chevalier, Y. Boussafir, S. Hemmati, P. Reiffsteck. *Disaggregation susceptibility of clayey silt mixture subjected to drying-wetting cycles observed by automated crumb test*
- A. Farhat, L.-H. Luu, A. Doghmane, P. Cuellar, P. Philippe. *Comprehensive study of suction bucket foundations and the associated risk of piping*
- E. Berglqvist, J. Laue, P. Wiklander. *Stress-controlled suffusion testing of crushed dam material*

12.45 - 14.30

Lunch

14.30 - 15.40

SESSION 1, PART 3: Laboratory Testing and Physical Modelling

Presentations & Discussion

- S. Ataii, J. Fannin. *Onset of internal instability in gap-graded BSM sands*
- A. Hegde, N. Benahmed, A. Wautier, P. Philippe, A. Doghmane. *Experimental assessment of the mechanical stability of erodible soils injected with fines*
- S. Ruangchai, A. Takahashi. *Effects of initial fines content and repeated seepage on suffusion-induced heterogeneity in gap-graded soils*
- S. Aulestia, P. Wiklander, J. Toromanovic, J. Laue. *Study of development of internal erosion by use of transparent materials*

15.40 - 16.10

Coffee Break

16.10 - 17.20

SESSION 2, PART 1: Internal Erosion Mechanisms and Modelling

Presentations & Discussion

- F. Chen, A. Hegde, A. Wautier, N. Benahmed, P. Philippe. *Injecting fine grains into 3D spherical packing-numerical and experimental implications*
- A. Abdallah, E. Vincens, H. Magoariec, C. Picault. *Filtration in granular materials: anisotropy induced effects due to ellipsoidal filter particle shapes*
- R. Dhamne, M. Disfani. *Impact of stress path on fabric evolution and erodibility of fine particles in gap-graded granular soils*
- F. Federico, C. Cesal. *Analysis of particle migration phenomena. Micro-mechanical modelling and interpretation of lab tests*

18.00

GUIDED VISIT OF THE HISTORIC BOLOGNA

Time	30 th EWG-IE Meeting Palazzo Herculani, Strada Maggiore 45, Bologna
9.00 - 10.30	SESSION 2, PART 2: Internal Erosion Mechanisms and Modelling Presentations & Discussion <ul style="list-style-type: none"> F. Pilati, F. Gabrieli, F. Zarattini. <i>Numerical analysis of bearing capacity factors for uplift mechanism</i> B. Bonaccorsi, S. Barbetta, T. Moramarco, G.T. Aronica. <i>On the identification of the saturation line in the earthen levees: a comparison between a physically-based model and a practical approach</i> M.W. Morris, J.-R. Courivaud. <i>Conclusions from the performance assessment of industry applicable IE initiated breach prediction models</i> S. Bonelli, L. Girolami. <i>Numerical modeling of internal erosion in the foundation of Agly river dikes (France)</i> Z. Deng, S. Bonelli, L. Girolami, N. Benahmed, P. Philippe, G. Wang. <i>Numerical simulation of erosion mechanisms in Agly dike</i>
10.30 - 11.00	Coffee Break
11.00 - 12.30	SESSION 3, PART 1: Monitoring and Field Cases Presentations & Discussion <ul style="list-style-type: none"> L. Girolami, E.J. Fogueng-Wafo, S. Bonelli, J.-M. Carozza, C. Camerlynck. <i>Detection of the paleo-environment of a diked river: implications for the erosion of foundation soils</i> E. Koch, R. Ray, M. Maller, G. Bartal, M. Mayassah. <i>Underseepage analysis on the Szigetköz floodplain area</i> F. Seblany, R. Fellag, H. Chapuis, C. Picault, R. Béguin, C. Guidoux. <i>Internal erosion within CNR earth structures: a review of field cases on the Rhône River from the 1950's to the present</i> F. Ceccato, P. Simonini. <i>On the triggering mechanism and evolution of concentrated erosion causing the failure of the levee of Panaro River (Italy) on the 6th December 2020</i> J.R. Courivaud, O. Bory, A. Vogel, K. Jarecka. <i>Analysis of case studies of canal embankment failures</i>
12.30 - 14.00	Lunch
14.00 - 15.15	SESSION 3, PART 2: Monitoring and Field Cases Presentations & Discussion <ul style="list-style-type: none"> C. Guidoux, R. Béguin, M. Boucher, P. Pinettes, J.-R. Courivaud, L. Salvan, T. Mallet. <i>Commissioning of the world's first Fibre Optics monitoring system installed along a flood protection dike, in the Arles region, France : first data and setting up of the detection thresholds</i> M. Boucher, P. Pinettes, J.-R. Courivaud. <i>Thermal and mechanical resistance mapping of a hydraulic structure : detection and quantification of an internal flow before, during and after reinforcement work</i> A. Höttges, C. Rabaiotti, A. Rosso. <i>The Fibra Dike project: Preliminary Test Results</i> A. Ran. <i>Internal erosion identification and quantification using Vadose Zone Monitoring Technologies</i>
15.15 - 15.45	Coffee Break
15.45 - 17.15	SESSION 4: Risk Assessment and Management Presentations & Discussion <ul style="list-style-type: none"> V. van Beek, B. Robbins, L. van der Linde, W. Kanning, E. Rosenbrand, T. O'Leary, A. Hill, H. Knoeff, H. van Hemert. <i>Evaluation of the decision support framework on backward erosion piping</i> V. Mangraviti, L. Pinter, N. Fabbian, S. Cola. <i>Towards fragility curves: the case of Adige River levees</i> T.M. O'Leary. <i>Updated piping toolbox - Significant changes to concentrated leak erosion methodology in vertical cracks and impacts on practice</i> N. Lebrun, J.-R. Courivaud, A. Vogel. <i>Lessons learnt for safety analysis from internal erosion accidents and incidents on embankment dams, based on a 3000 documents database</i> T.M. O'Leary, D.M. Schaaf. <i>USACE levee internal erosion incidents and failures</i>
19.30 Via Saragozza 210 Bus stop "Villa Benni"	ITALIAN APERICENA (APERITIF & BUFFET SUPPER) AT VILLA BENNI

WEDNESDAY 11 SEPTEMBER

Time	30th EWG-IE & 5th EWG-OOE Meetings Common Session School of Engineering, Room TA01 - University of Bologna, Via Terracini 28, Bologna
8.00 - 9.10	REGISTRATION TO THE EWG-OOE MEETING
9.10 - 9.15	WELCOMING ADDRESS BY THE LOCAL ORGANIZING COMMITTEE
9.15 - 9.35	WELCOMING ADDRESS BY THE PRESIDENT OF ITCOLD
9.35 - 10.50	INTRODUCTION TO THE TECHNICAL VISITS <ul style="list-style-type: none"> • Regional Agency for Territorial and Civil Protection of the Emilia-Romagna Region - RER, Italy. <i>The May 2023 flood event in Emilia-Romagna</i> • Po River Basin District Authority (ADBp), Flood Risk Management Office. <i>Risk reduction measures</i> • D. Mingozi, M. Bentini, R. Paciolla, S. Tozzi, A. Zamagni, S. Saccà (ENSER srl, Italy). <i>Emergency reconstruction and safety enhancement project for the Idice Torrent embankment breach</i> • E. Dodaro, E. Tumedei, M. Marchi, G. Gottardi, L. Tonni. <i>A novel medium-scale experimental setup to investigate backward erosion piping phenomena</i>
10.50 - 11.15	Coffee Break
11.15 - 12.45	TECHNICAL VISIT, PART 1 - VISIT TO THE DICAM LABORATORIES (Via Terracini, 28)
12.45 - 13.45	Lunch
14.00 - 18.30	TECHNICAL VISIT, PART 2 - VISIT TO THE MAY 2023 FLOOD EVENT AREAS (Idice River, Emilia-Romagna)

THURSDAY 12 SEPTEMBER

Time	5th EWG-OOE Meeting Palazzo Herculani, Strada Maggiore 45, Bologna
8.30 - 8.40	OPENING SESSION Jean-Robert Courivaud, <i>Chair of EWG-OOE, EDF, France</i>
8.40 - 10.20	SESSION 1, PART 1: Case Studies and Breach Modelling Presentations & Discussion <ul style="list-style-type: none"> • N. Kafashan, M. Aufleger. <i>Climate Change and Embankment Dam Overtopping: Lessons from the Libyan Dam Disaster in September 2023</i> • L. Del Gatto, Y. El Badaoui, J.-R. Courivaud. <i>Estimation of breach hydrograph resulting from dam embankment failure due to internal erosion or overtopping: comparison of simplified methods with real-case break data and recommendations</i> • T.M. O'Leary, D.M. Schaaf. <i>USACE Levee Overtopping Incidents and Failures</i> • J. Riha, S. Kotaska. <i>Two historical cases of dam overtopping in the Czech Republic</i>
10.20 - 10.50	Coffee Break
10.50 - 11.45	SESSION 1, PART 2: Case Studies and Breach Modelling Presentations & Discussion <ul style="list-style-type: none"> • D. Zumofen. <i>Flooding of the Rhone in Switzerland on 29/30 June 2024: Problems, immediate measures and projects</i> • M. Marchi, I. Bertolini, A. Colombo, G. Gottardi, L. Morreale, T. Simonelli, L. Tonni. <i>A dataset on the breaches caused by the flood events that affected Emilia-Romagna in May 2023</i> • A. Domeneghetti, M. Vaccari, I. Bertolini, M. Marchi. <i>Testing empirical criteria for breach geometry estimation to recent embankment failure datasets</i>
11.45 - 12.35	SESSION 2, PART 1: Rehabilitation & strengthening methods Presentations & Discussion <ul style="list-style-type: none"> • J. López Soto, B.A. Robbins, E.R. Friend. <i>High pressure jet testing on soil-cement</i> • K. Verelst, F. Bertola, S. Nicaise, B. Vandevoorde. <i>Lime treatment for erosion resistant levees in Belgium</i>
12.35 - 14.00	Lunch
14.00 - 14.50	SESSION 2, PART 2: Rehabilitation & strengthening methods Presentations & Discussion <ul style="list-style-type: none"> • D. Niepmann, A. Aboulela, C. Dowds. <i>Calcium Aluminate Concrete - a unique protective material against erosion & cavitation damages</i> • S. Todaro, B.A. Robbins, E. Friend, M. Dirdal. <i>RCC and soil cement overtopping protection of embankments</i>

12 SEPTEMBER (Cont'd)	Time	5 th EWG-OOE Meeting Palazzo Herculani, Strada Maggiore 45, Bologna
	14.50 - 15.40	SESSION 3: Erosion Downstream Dams and Spillways Erosion Presentations & Discussion <ul style="list-style-type: none"> P. Teng, J. Gunnar I. Hellström, F. Johansson, C.-O. Nilsson. <i>Modelling of fractured rock erosion in open channels</i> EDF presentation. <i>Case studies and research needs</i>
	15.35 - 16.25	SESSION 4, PART 1: Overflow and Overtopping Erosion Modelling Presentations & Discussion <ul style="list-style-type: none"> M. van Damme, K. Verelst. <i>The EU Interreg BONSAI project proposal</i> F.G. Sigtryggssdóttir. <i>Eight years of research into rockfill dams in HydroCen</i>
	17.30	GUIDED VISIT OF THE HISTORIC BOLOGNA

FRIDAY 13 SEPTEMBER		
	8.30 - 10.35	SESSION 4, PART 2: Overflow and Overtopping Erosion Modelling Presentations & Discussion <ul style="list-style-type: none"> M.W. Morris, J.-R. Courivaud, C. Picault, R. Morán. <i>The Overcome project: Developing the Laverné field test facility</i> R. Monteiro-Alves, R. Morán, M.Á. Toledo, M. Morris, J.-R. Courivaud, C. Picault. <i>The OVERCOME Project: Advances in experimental research on the macro erosion of coarse-grained embankments in overflow scenarios</i> H. Haddad, M. Hassan, L. Montabonnet, H. Stoter, C. Picault, M. Morris. <i>Resistance to overflow of earth-fill dams: laboratory tests and numerical modelling to characterize erosion processes</i> H. Umdenstock, C. Picault, F. Golay, S. Bonelli. <i>Rhone dike overflow: comparison of field test measurements with different numerical modelling results</i> Z. Amama, S.E. Bourban, J.-R. Courivaud, M. Morris, K. El Kadi Abderrazzak. <i>Simulation of headcut breach dynamics using the two-dimensional depth averaged hydraulic model TELEMAC-2D</i>
	10.35 - 11.05	Coffee Break
	11.05 - 12.10	OPEN DISCUSSION: Problems to be solved by practitioners, research needs, potential collaborations <i>Chairman: J.-R. Courivaud (EDF)</i>
	12.10 - 12.30	CLOSURE OF THE EWG-OOE 2024 MEETING
	12.30 - 14.00	Farewell Lunch

LOCAL ORGANIZATION

Dept. of Civil, Chemical, Environmental, and Materials Engineering (DICAM)

University of Bologna (ITALY)

<https://events.unibo.it/ewg-ie-ooe-meetings-bologna2024>



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

DEPARTMENT
OF CIVIL, CHEMICAL,
ENVIRONMENTAL, AND
MATERIALS ENGINEERING

The meetings are organized under the auspices of



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