



LABORATÓRIO NACIONAL
DE ENGENHARIA CIVIL



3rd Meeting of EWG Dams and Earthquakes

An International Symposium

Portugal • Lisbon • LNEC • May 6 - 8, 2019

Programme

	6 May 2019	7 May 2019	8 May 2019
08h30	Conference Registration		Technical visit
09h30	Opening Ceremony	Keynote lecture Stavroula Kontoe	
10h00	Keynote lecture Emmanuel Robbe	Coffee break	
11h00	Coffee break		
11h30	Technical Sessions Seismic Action & Concrete Dams 1	Technical Sessions Embankment Dams 1	
13h00	Lunch	Lunch	
14h30	Technical Sessions Concrete Dams 2	Technical Sessions Embankment Dams 2	
16h00	Coffee Break	Closing Ceremony	
16h30	Technical Sessions Concrete Dams 3	Coffee Break	
20h00	Conference Banquet		



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Programme

Welcome to the 3rd meeting of the European Working Group Dams and Earthquakes

It is with great pleasure that we welcome you to Lisbon for the 3rd meeting of the ICOLD European Club Working Group "Dams and Earthquakes", to take place at LNEC on 6-8 May 2019. This meeting, following the very successful events in St. Malo and Rome, brings together a group of international experts to discuss the multiple challenges that earthquakes pose to dams. Recent advances on dynamic monitoring techniques coupled with new developments in material and structural modelling are making available to engineers powerful tools that need to be tested, validated and widely disseminated. The digital proceedings contain a collection of papers that reflect the state-of-the-art on the analysis and safety assessment of concrete and embankment dams under seismic actions. We would like to acknowledge our appreciation to the authors for their effort in preparing these contributions and their willingness to share their research accomplishments. We would also like to express our sincere gratitude to the members of the Scientific Committee who reviewed these papers.

The Organizing Committee

Themes

- Definition of seismic hazard for dams
- Measurements of response of concrete or embankment dams under earthquakes
- Dynamic monitoring and testing of dams
- Comparison of numerical models with dynamic field measurements
- Qualification of equipment under seismic loading

Organizing Committee

José V. Lemos

Laura Caldeira

Jorge Pereira Gomes

João Marcelino

Ivo Dias

Andrea Brito

Scientific Committee

Jean-Jacques Fry (EWG Dams & Earthquakes, Chairman)

José Rocha Afonso (CNPGB, Portugal)

Carlos Pina (CNPGB, Portugal)

Bernard Tardieu (CFBR, France)

Giovanni Ruggeri (ITCOLD, Italy)

Ignacio Escuder (SPANCOLD, Spain)

Martin Wieland (ICOLD, Switzerland)

Norihisa Matsumoto (JCOLD, Japan)

Pierre Léger (E.P. Montréal, Canada)

D. Silva Matos (EDP, Portugal)

A.L. Batista, J. Bilé Serra, Telmo Jeremias, A. Campos Costa (LNEC, Portugal)

General Information

Venue

The Symposium will be held at:
Laboratório Nacional de Engenharia Civil (LNEC)
Av. do Brasil 101, 1700-066 Lisboa, Portugal
Tel: +351 21 844 33 61 Fax: +351 21 844 30 26

www.lnec.pt

LNEC is located near the city center and close to Lisbon Airport.

Language

English is the official language of the Symposium.

Internet

Free access to LNEC's wireless network in the congress center area (select: guest_lnec).

Car park

Car park is available at LNEC Campus to all participants during all Symposium events.

Coffee breaks

During the session breaks, drinks are going to be served in the Congress Hall.

Lunch

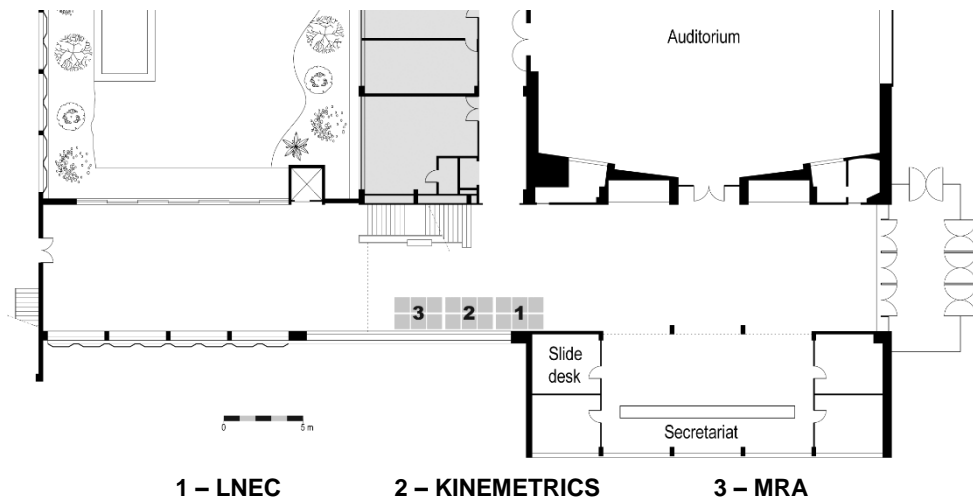
Lunches will be served, in the first two days, near the congress auditorium

Information for authors

Authors should deliver their presentations at the Slide Desk up two hours before the start of the corresponding session.

Authors should arrive to the auditorium 10 minutes before the start of the session, for a meeting with the Chair.

Exhibitors



Social Programme

Conference Banquet

Date 6 May – 20h00

Venue Espaço Tejo – Praça das Indústrias, 1300-307 Lisboa

Delegates must collect their invitation at Secretariat until 6 may 13h00

Accompanying Person ticket € 50,00

6 MAY 2019

09:30

Auditorium

OPENING CEREMONY

Carlos Pina, José Rocha Afonso, Jean-Jacques Fry,
José V. Lemos and Laura Caldeira

10:00

Auditorium

KEYNOTE LECTURE

Chair: José Rocha Afonso

***Earthquakes records on concrete dams: benefits, difficulties and proposal
of an international database***

Emmanuel Robbe

11:00

Coffee break

11:30

Auditorium

TECHNICAL SESSION – Seismic Action & Concrete Dams 1

Chair: António Batista

PSHA testing against historical seismicity across the border between France and Italy
Pierre Labbé and Umberto Sopranzi

Input motion transfer by linearization technique for seismic qualification of dam equipment
Pierre Labbé and Anh Nguyen

Seismic action to be considered at the hydroelectric scheme of Foz Tua site
Alexandra Carvalho and Telmo Jeremias

Seismic design and safety aspects of dams subjected to aftershocks and multiple earthquakes
Martin Wieland and Sanaz Ahleghagh

ICOLD benchmark workshops to compare numerical models for seismic analyses
Guido Mazzà, Gerald Zenz, Massimo Meghella and Edwin Staudacher

13h00

Lunch

14:30

Auditorium

TECHNICAL SESSION – Concrete Dams 2

Chair: Pierre Labbé

Machine learning based seismic stability assessment of dams with heterogeneous concrete

Fernando Salazar and Mohammad Amin Hariri-Ardebili

Towards the seismic capacity assessment of concrete dams

Luca Furgani, Mohammad Amin Hariri Ardebili and Massimo Meghella

Dynamic behavior of high arch dams under recorded seismic accelerograms. Study on the influence of reservoir water level

André Alegre, Sergio Oliveira Margarida Espada and Romano Câmara

Baixo Sabor concrete arch dam: dynamic monitoring and numerical damage simulation

Sérgio Pereira, Jorge Gomes, José Lemos, Filipe Magalhães and Álvaro Cunha

Fluid structure displacement based interaction models for the dynamic behaviour of an arch dam

Nuno Monteiro Azevedo, Maria Luísa Braga Farinha, Noemi Leitão and Romano Câmara

16:00

Coffee break

16:30

Auditorium

TECHNICAL SESSION – Concrete Dams 3

Chair: Massimo Meghella

Determination of material parameters using numerical models and field measurement data

Edwin Staudacher and Gerald Zenz

Response of Scandarello dam to the 2016-2017 seismic sequence in Central Italy

Matteo Sbarigia, Rosella Caruana, Angelica Catalano and Armando Lanzi

Seismic and structural health monitoring of Cabril dam

Sergio Oliveira and André Alegre

Seismic monitoring system of Baixo Sabor hydroelectric power scheme

Gilberto Monteiro, Jorge Pacheco Neves and Jorge Pereira Gomes

20:00

Conference Banquet

7 MAY 2019

09:30

Auditorium

KEYNOTE LECTURE

Chair: Laura Caldeira

Seismic response of earthfill and rockfill embankment dams

Stavroula Kontoe

10:30

Coffee break

11:00

Auditorium

TECHNICAL SESSION – Embankment Dams 1

Chair: Tadatsugu Tanaka

Identification of dynamic soil properties of dam material by in-situ testing with seismic geophysical methods

Thomas Weber and Lorenz Keller

Laboratory investigation on nonlinear dynamic properties of core materials of Italian dams

Giuseppe Lanzo, Alessandro Pagliaroli, Giuseppe Scasserra and A. Di Giulio

Application of SPT results on liquefaction phenomenon modeling of tailings dams

Ljupcho Petkovski and Stevcho Mitovski

The effect of liquefaction-induced damage of an embankment: “Virtual” laboratory tests

Christina Khalil and Fernando Lopez Caballero

Validation of the FR-JP simplified dynamic analysis

Moez Jellouli, Antoine des Garets and Jean-Jacques Fry

13h00

Lunch

14:30

Auditorium

TECHNICAL SESSION – Embankment Dams 2

Chair: Jean-Jacques Fry

Deformations of rockfill dams under strong earthquake and nonlinear dynamic response analyses

Tadatsugu Tanaka, Hiroshi Mori

Seismic analysis of hardfill dams

Ioannis Siskos and Panos Dakoulas

Site effect study of a large rockfill dam: Denis-Perron dam

Daniel Verret, Denis LeBoeuf, Éric Péloqui and Annick Bigras

Performance of Darbandikhan dam during a major earthquake on November 12, 2017

Omed Yousif, Kawa Zaidn, Younis Alshkane, Abdulrahman Khani and Salar Kareem Hama

Assessment of the seismic risk associated with small earth dams: a simplified approach

Renato Maria Cosentini, Federico Passeri and Sebastiano Foti

Dynamic behavior of a large earth dam located in a severe seismic area

Dariush Belashi

16:00

Auditorium

CLOSURE

Jean-Jacques Fry, José V. Lemos and Laura Caldeira

16:30

Coffee break

8 MAY 2019

TECHNICAL VISIT

Meeting point Congress Hall, next to the Secretariat

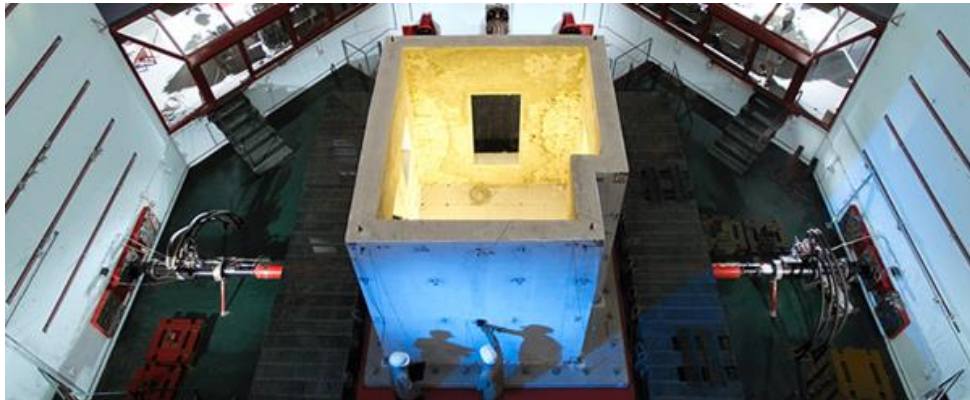
Please, register at the Secretariat until 7 may 13h00

During this event we will visit the 3D shaking table, located in LNEC Structural Dynamics Laboratory, and the installations of the Portuguese Institute for Sea and Atmosphere (IPMA), which operates the Portuguese National Seismic Network. A brief discretion of this network will be given during the visit.

LNEC-3D shaking table

The LNEC-3D shaking table, on which the models to be tested are placed and fixed, has the shape of a triangular prism with the following characteristics:

- dimensions $4.6 \times 5.6\text{m}^2$;
- maximum capacity of 40 tons;
- three independent orthogonal axes;
- displacements controlled actively, passively restricted rotation (torsion bars);
- frequency range of 0 to 40 Hz.





LABORATÓRIO NACIONAL
DE ENGENHARIA CIVIL

Avenida do Brasil 101
1700-066 Lisbon

GPS

38° 45' 31" N

9° 8' 28" W

Conference Banquet

Espaço Tejo

Praça Indústrias
1300-307 Lisbon

GPS

38° 41' 56" N

9° 10' 57" S





<http://ewg2019.lnec.pt>

