

Tunnelling in Limestone

Two-day Training Session for Continuous Professional Education
Riyadh, Saudi Arabia, **Sunday 23rd – Monday 24th June 2013**



I am very pleased, as Mayor of Riyadh and President of ITACET Foundation for Education and Training, to announce the organization of a Two-day Seminar on **"Tunnelling in Limestone"**.

Limestone and other carbonatic rocks with karstic features often present risks to tunnelling. Tunnel excavation and support operations in such ground need to face with unpredictable cavities of various sizes, which may be either empty or filled with loose materials and water, or even with underground rivers. A sudden and unexpected breakthrough of a cavity filled with water-saturated loose deposits under pressure is a constant life threat to the tunnelling crew working at the face.

This specific training course will present both the basic concepts and principles of tunnel design and construction in karstic ground and the state-of-the-art technologies available today for managing the risks associated with tunnelling in such conditions. Both of these two aspects will be illustrated by industrial experts with well-documented case histories.

The course will benefit not only beginners but also already-experienced tunnellers. Attendees are welcome to bring interesting and challenging cases for discussion with the experts during this two-day course.

I extend a heartily welcome to Riyadh to international experts and to all concerned professionals in the Kingdom of Saudi Arabia and the Gulf countries

Eng. Abdullah Al-Mogbel
Mayor of Riyadh
President of the ITACET Foundation

Host and Organization

This event is hosted by H.E. Eng. Abdullah Al-Mogbel, Mayor of Riyadh and co-organized by the Riyadh Municipality and the ITACET Foundation.

Objectives and Development

This course aims to present the general concepts of design and construction of underground structures, especially in karstic rock mass.

All topics delivered will focus first on tunnelling aspects and then, the peculiarities related to tunnels in karstic zones will be highlighted.

For the Limestone karst aspect of the subject addressed, the lecturers will concentrate on site investigation prior and during construction, and special care in design and construction.



Photo Credits: L. to R.: Mass rapid transit Kuala Lumpur TBM, Herrenknecht AG | Numerical Simulation, Dr. Peter Popov | Koralm Tunnel Austria, Tunnels & Tunnelling | Baoshan-Longling Expressway, Cowi.

Who should attend ?

The contents will be adequate to engineers and geologists interested and familiar with tunneling concepts. Consultants, contractors and suppliers will also benefit from the lectures and open discussion.

Benefits for the participants

- Receive the latest state of the art information from internationally well-known experts
- Be informed on the different techniques and latest technological developments
- Receive a Certificate of Attendance
- Course and references material. A notepad illustrated with all the slides to be used during the seminar, abstracts of the lectures and a short bio of the lecturers. A digital copy (USB Memory Key) of all slides used during the lectures.
- Extend its social and professional network

Registration & Costs



Register to : ITACET Foundation, online registration form on www.itacet.org

Costs : Registration Fee is **1000 € / person**



Payment : Bank transfer to ITACET Foundation 1015 Lausanne - Switzerland
CREDIT SUISSE | BIC/SWIFT: CRESCHZZ80A | IBAN: CH78 0483 5042 6569 72000
CREDIT CARD AND PAY PAL Payment services are available on www.itacet.org

Lecturers

in the order of their intervention



Felix Amberg (CH - Amberg group Engineering ltd)

President of the Amberg Group Amberg Engineering Ltd. Amberg Measuring Technique Ltd. Hagerbach Test Gallery Ltd.

Project-related experience: L-SURF (Design Study for a Large Scale Underground Research Facility on Safety and Security). Coordination of an EU-research project. 2000 to date Tunnel TESLA (TeV Energy Superconducting Linear Accelerator), DESY (German Electron Synchrotron), Germany. 1990 to date Gotthard Base Tunnel.



Piergiorgio Grasso (I - GEODATA S.p.A)

Founder, President and Principal Engineer of Geodata since 1984, which is a consultancy specialized in the design and management of underground works, both in urban environment and in mountain areas. Among several current projects are the Metro São Paulo – Line 5 - Brazil and Chengdu-Chongqing new high-speed railway line, P.R. China.

Vice President of ITA for the 2007-2010 term. Vice President of the ITACET Foundation.



Harald Wagner (AT)

International Consultant for Underground Infrastructures with more than 40 years of Professional Experience in Tunnel Design, Construction and Consultancy.

Consultant to the World Bank for more than 15 years. Former Assistant Professor at Technical University Graz in Austria on Soil Mechanics & Foundation Engineering for Architects, Vice President of ITA-AITES and Expert Member of ITA's Executive Council.

General Discussion: Case Histories, Innovation and lesson learned

With the participation of the lecturers of the training session and delegates from Herrenknecht AG and The Robbins Company.

ITACET Foundation

The ITACET Foundation aims to be a center of Excellence for Education and training on Tunneling and underground Space Use and fulfils its mission by notably organize specialized Training Sessions for the ITA-AITES member nation and private corporations.

Contact the Foundation:

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Tunnelling in Limestone

Two-day Training Session for Continuous Professional Education

Sunday 23rd – Monday 24th June 2013

Toaque Palace, Riyadh, Saudi Arabia

Sunday 23.06

Registration, check in and distribution of the documents

08.00 – 09.00: Training session reception desk

Welcome and Opening

09.00–09.15: H.E. Eng. Abdullah Al-Mogbel, ITA-AITES and ITACET Foundation representatives

General Tunnelling

09.15 – 10.00: Principles of Tunnelling – Specificities of Tunnelling in Limestone

10.00 – 10.30: Ground Investigation for Tunnelling in karstic ground, before, during and after completion of excavation

10.30 – 11.00: *Coffee Break*

11.00 – 11.30: Choice of the Construction Method in Rock – Design Criteria for Conventional & Mechanized Methods

11.30 – 12.15: Monitoring & Risk Management

12.15 – 12.45: *Prayer*

Case Histories - Innovations – Lesson learned

12.45 – 13.30: Manufacturers

13.30 – 14.00: General Discussion - Round Table Style

14.00 : *Lunch*

Monday 24.06

Conventional Tunnelling

09.00 – 09.30: Conventional Methods

09.30 – 10.00: Design & Durability

10.00 – 10.30: *Coffee break*

10.30 – 11.15: Alternatives for Ground Improvement in Karst Areas

Mechanized Tunnelling

11.15 – 12.00: Types of machines for Rock and mode of selection

12.00 – 12.30: *Prayer*

12.30 – 13.00: Segment lining

13.00 – 13.30: Alternatives for karst areas

13.30 – 14.00: General Discussion and Closing remarks

14.00 : *Lunch*

From 14.00 : Distribution of the course certificates & collection of the evaluation forms