

## President's address



I have the pleasure to announce that the ITACET Foundation is currently in the process of transferring its headquarters. After two years with BG Conseils in Lausanne the decision was taken to move to Geneva, where we will be housed in the same premises as the ITA headquarters within the United Nations house of NGOs.

This closeness should allow us to develop our activities with the nation members of the ITA and with organisations associated with the ITA. It should also bring us closer to UN bodies as well as the International development banks.

As a Foundation with a goal to promote training in underground space around the world, this move signals a new era and we are very much looking forward to what this change will bring.

**Eng. A. Al-Mogbel**  
**ITACET Foundation President**

### **Tunnelling: a pathway for the development of nations**

Tunnelling is not a modern science of today but rather an old “art”. It may be a surprise for many to know that man built a network of Stone Age tunnels some 12,000 years ago across Europe (examples are seen in Scotland, Germany, Austria and Turkey). Although, these were small tunnels that barely allowed people to crawl through them, they indicate the importance of underground space in human civilizations. We see many “ancient examples” of tunnelling through history; for example Ancient Egyptians used underground space for the construction of hundreds of tombs and caverns as well as kilometres of complex tunnel networks (under the Stepped Pyramid in Sakkara, Egypt, there are tunnelled chambers and galleries that extend for a total length of 6 km and connect to a central square shaft 7m x 7m in an area that is 28m deep).

Recently, tunnelling and use of underground space became a necessity for sustainable development. The use of basements as parking lots and tunnels to solve traffic congestions in urban cities is no longer a luxury for our modern societies. Because of the recent, revolutionary, advances in underground construction technology, tunnelling has become more economical and versatile than ever before. Diameters and lengths of tunnels have progressively increased even if problematic geotechnical conditions are encountered such as soft grounds and cavernous formations (The Gotthard Base Tunnel (GBT) through the Alps in Switzerland is 57 km long; the Washington State Department of Transportation's Alaskan Way Viaduct replacement tunnel project in Seattle used a 17.4m diameter TBM).

Ground deformations associated with tunnelling activities have become much less than before and better controlled (and monitored) allowing tunnelling to proceed through urban developments and under existing structures with minimal disruption to services and distress to structures. Advanced 2D, 3D, as well as time-dependent advanced numerical models are now available to provide more realistic structural and geotechnical analyses for tunnels.

Notwithstanding the recent continuous progress in tunnelling (design and construction), challenges to utilize underground space also grew, as did the expectations from this specialized and essential construction industry. To cater for these new challenges and demand, ITACET was founded as a dedicated continuous education and training facility that provides a platform for the transfer of state-of-art technology to the young motivated engineers who will be entrusted with underground tunnelling and space projects.

The need for upgrade of infrastructure in the world has greatly increased. This calls for quicker and more efficient underground construction as this usually takes place in already existing cities; examples of this are numerous and can be seen in many large cities today. Recently the Middle East has been seeing great demand for tunnelling projects; a natural consequence of the accelerated urban development the region is experiencing. With metro lines being studied, designed or constructed in Riyadh, Jeddah, Cairo, Sinai Dubai, Kuwait and Doha, to name but a few, the need for continuous technology transfer to engineers in the region has never been more. To cater for this need, ITACET will be present in the upcoming GeoMEast 2018 conference that will be held in Cairo, Egypt in Nov 2018 to share State-of-the-Art knowledge on tunnelling and use of underground space with the professionals attending the event.

**Sherif Wissa Agaiby**  
**ITACET Foundation Founder & Council member**  
**Department Director Dar Group**



## Training session reports

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### THE MANAGEMENT OF USER SAFETY IN UNDERGROUND RAILWAY FACILITIES

Date: 05/09/2018

Location: Buenos Aires, Argentina



The ITACET Foundation and the Argentinian Association of Tunnels and Underground Space (AATES) recently hosted a seminar on 'The Management of User Safety in Underground Railway Facilities' in Buenos Aires on 5th September 2018 within the scope of the 8th "Tunnelling and Underground Space Days"...

[Read more...](#)

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### SHARING EXPERIENCE ON THE CONSTRUCTION OF LONG TUNNELS AT GREAT DEPTH

Date: 20/06/2018 to 21/06/2018

Location: Le Bourget du Lac, France



"Sharing Experience on the Construction of Long Tunnels at Great Depth" was the topic of a two-day training session organized by the ITACET Foundation, which took place on June 20th-21st 2018 at the University of Savoie, Le Bourget du Lac, France. This event was organized at the request of TELT (the Lyon –Turin Euralpine Tunnel promoter)...

[Read more...](#)

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### MAIN OPPORTUNITIES AND TECHNICAL ISSUES IN TUNNELLING

Date: 21/04/2018 to 22/04/2018

Location: Dubai, United Arab Emirates



Over the years, the short course organized by the ITACET Foundation within the scope of the annual World Tunnel Congress has become a tradition, providing young underground engineers with the chance to benefit from the knowledge and experience of some of the most respected experts within the International Tunnelling Association...

[Read more...](#)

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#### Thank you to all those lecturers who presented on behalf of ITACET

In Argentina:

Roland Leucker, Peter Reinke, Hugo Cassio Rocha

In France:

Enrico Fornari, Piergiorgio Grasso, Luzi Gruber, Donald Lamont, Maria-Elena Parisi, Sebastiano Pelizza, Gérard Seingre, Jacques Triclot, Mario Virano Chungsik Yoo, Raffaele Zurlo

In Dubai:

Han Admiraal, Felix Amberg, Wout Broere, Tarcisio Celestino, Antonia Cornaro, Arnold Dix, Robert Galler, Kazuhiko Imakura, Dr Jeya, Donald Lamont, Roland Leucker, Matthias Neuenschwander, Daniele Peila, Jan Rohde, Gunther Volkmann

## Forthcoming sessions

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During the WTC2019 in Naples, ITACET is pleased to be running two sessions, one on 'Tunnelling 4.0' and one on 'Communication'. Read on for further details:

### **TUNNELLING 4.0 - WTC2019 - NAPLES - MAY 2019**

Date: 03/05/2019 to 04/05/2019  
Location: Naples, Italy

#### **TUNNELLING 4.0: INFORMATION TECHNOLOGY FOR THE DESIGN, CONSTRUCTION AND MAINTENANCE OF UNDERGROUND WORKS**

The aim of this course is to highlight some of the most advanced aspects of digital and information technology applications in the design, construction, maintenance and refurbishment of underground works.

The use of BIM in tunnelling will be presented and discussed, providing students with relevant examples from the design to the "as built" model implemented during construction, in addition to BIM use during maintenance and refurbishment of underground infrastructure.

The second key topic of the course is the use of automation and virtual and augmented reality as tools to improve the tunnel construction process.

Advanced technologies available for geotechnical mapping and exploration, surveying and monitoring will be discussed, together with automation applied to equipment used in underground construction and to quality control and assessment processes.

The course is designed to inform designers, site managers, young engineers and university students how the most recent innovations in information technology can be applied to tunnelling and be used to improve design, construction and maintenance processes.

To see the programme, please visit: <http://www.wtc2019.com/conference/itacet-training-course>

To register, please visit: <http://www.wtc2019.com/registration/>

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### **COMMUNICATION - WTC2019 - NAPLES - MAY 2019**

Date: 04/05/2019  
Location: Naples, Italy

#### **TUNNEL DESIGN CONSTRUCTION AND OPERATION, COMMUNICATION AND STAKEHOLDERS ENGAGEMENT**

There is growing awareness of the need for efficient communication with the populations and the stakeholders involved in the increasing number of underground projects all over the world. Engaging in dialogue is necessary at all stages of ideation, financing, design, construction and operation.

There has been a considerable rise in sustainability policies and procedures over recent years and communication strategies need to be adapted accordingly, whilst making the most of new media.

This course will provide advanced information on communication techniques and approaches that can be applied to foster interaction amongst stakeholders, through the use of new media. It will explain sustainability assessment procedures with a special focus on underground works. Finally, relevant cases histories and examples of best practices will be presented from all over the world.

To see the programme, please visit: <http://www.wtc2019.com/conference/itacet-training-course>

To register, please visit: <http://www.wtc2019.com/registration/>

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## Other events in preparation

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- Nigeria - **"Introduction to tunnelling – From design to construction"** - March 2019
- Kenya - **"Underground Space Use"** - date not yet fixed
- Nepal - **"Operation and maintenance of hydro tunnels"** - date not yet fixed
- India- **"Structural use of fibre reinforced concrete in precast segments"** - date not yet fixed
- Malaysia - **"Education and training"** - date not yet fixed
- Mexico - date not yet fixed

Visit the Foundation's web site for further updates.

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## Foundation scholarship recipients

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### A REWARDING YEAR



John Paul Ramirez Santa was awarded an ITACET Foundation scholarship for the year 2017-2018. Now at the end of the academic year, he looks back and reflects on the MSc course at Warwick University:

A very rewarding year I have had studying and learning at the University of Warwick in the MSc course in Tunnelling and Underground Space. I can say that the course has exceeded my expectations, since it has not only taught me the art and the science behind tunnel construction. It has also shown me the values and judgement that should guide a tunnel engineer when approaching the challenges that a tunnel project poses to his team. Values such as collaboration, teamwork commitment, effective communication, responsibility, creativity, accountability, and a good ear to listen to teammates and nature's response to our underground excavations.

[Read more...](#)

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## Other news

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### PROF. DR.-ING. ALFRED HAACK HONOURED WITH ITACET AWARD 2018



During the official opening ceremony of the World Tunneling Congress in Dubai on April 23, 2018, the former ITA President and longtime STUVA Managing Director Prof. Alfred Haack was honoured with the ITACET Award 2018.

Professor Haack receives the ITACET Award 2018 for his remarkable contributions to the Foundation. As early as 2000, during Haack's own ITA presidency, it became increasingly clear that the growing global demand for well-trained engineers posed an increasing challenge to precisely this international tunneling association. It was Haack who set the course for education and training at ITA and continues to provide advice and support to the ITACET for this purpose to this day as an honorary member of the Committee of Surveyors.

[Read more...](#)

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### THE GDPR – THE GENERAL DATA PROTECTION REGULATION

As you may well know, the European Union General Data Protection Regulation was implemented during May 2018. This signals a drastic change in the law relating to how data is stored and used. ITACET Foundation has also had to comply with these new regulations and as a result we have made many changes and updates to our way of working. Here are just some examples of what we have done to comply:

Our website has been updated to comply with the regulations. For example, we no longer capture the IP address of those who contact us via the website and any question via the contact form is now only stored for a period of up to 2 years.

[Read more...](#)

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### THE ITACET FOUNDATION 'PRIVATE AREA'

Here at the ITACET Foundation we have been working hard on a new venture, that of the 'Private Area'. Created as a digital document library on our website, we aim to put presentations given at training sessions into this Private Area. Our hope is that this area will serve as a source of knowledge and reference on all subjects underground for the future lecturers.

The area will only be open to selected individuals – members of the ITACET Foundation, the ITA-CET committee and individuals who will lecture for the ITACET Foundation. Naturally, if you fall into one of these groups and would like access to the Private Area, please don't hesitate to get in contact with the ITACET secretary who will be happy to grant you access.

[Read more...](#)

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