

Dear ITA friends,

Over the last year and a half, the pandemic has forced all of us to adapt the way that we communicate on a daily basis. The resulting "Zoom boom" has affected all fields around the globe and the education and training sector is no exception.

Whilst many of us were initially inexperienced in the use of video-conferencing and webinar tools, most of us have now adjusted to this new way of communicating and organising events. This is the case for the ITA-CET Committee and ITACET Foundation who have adapted their training offer over the last few months in order to propose regular digital events and notably a lunchtime lecture series, with a session taking place each month. Our next lectures (entirely free) will take place on Tuesday September 21st within the scope of the ITA Tunnelling Week and will focus on tunnel refurbishment (see page 2 for more details).

Whilst on-site training cannot be entirely replaced, there are undeniable advantages in switching to online methods. Organisation costs are considerably reduced, there is no need for lecturers or attendees to travel and it is possible to achieve a more global outreach for a given event. It is therefore likely that the pandemic will have a lasting effect on the manner in which ITA training activities are organised.

Within the scope of these new training offers, both the ITA-CET Committee and ITACET

Foundation have recently taken steps to further strengthen collaboration and increase the involvement of other ITA Committees and Working Groups. It would appear that there is a clear willingness to cooperate and work together (see page 3), which can only be beneficial for the ITA as a whole.

Discussions have also taken place with key correspondents of ITA Member Nations who have shown interest in developing a long-term collaboration with the Committee and the Foundation or who wish to discover more about training opportunities on offer (page 4).

In addition to organising training events, the ITA-CET Committee has kept in contact with its university network and is pleased to welcome a new member (Sapienza University of Rome). This network spans all continents and enables university professors to exchange information on research projects, organise exchanges or request assistance in the development of Master courses in tunnelling and underground space. An event organised by Montanuniversität Leoben, Austria, will be held on 3rd December 2021 to enable university professors to meet up and PhD students to present their research activities (page 6). Universities interested in taking part in this event are invited to contact [the ITA-CET Committee secretariat](#), indicating the research work that they would be interested in presenting.

As you can see, despite the ongoing pandemic, the ITA-CET Committee and ITACET Foundation continue to be active in promoting training and education in tunnelling around the globe and have even stepped up their activities, thanks to the increasing use of digital tools and platforms.

We all hope that in 2022 the tunnelling community will be able to meet once again in person at the WTC in Copenhagen. Until then, we wish all our ITA friends the very best, both on a professional and personal level.

Robert Galler - ITA Chairman
 Michel Deffayet - Vice Chairman

Listen, lunch, learn!

Our short lunchtime lecture series has met with considerable success (page 2)

A team effort

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A reminder that despite the pandemic, tailor-made training solutions remain available for ITA Member Nations (page 4)

PhD students to take centre stage

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Tunnel vision

Our newest member of the ITA-CET Steering Board, Eyðbjörg Amanda Petersen, introduces herself (page 6)

FOR MORE INFORMATION

<http://www.ita-aies.org/en/wg-committees/committees/ita-cet>

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Listen, lunch, learn!

The ITA-CET Committee and ITACET Foundation have traditionally co-organised training sessions in the form of one or two-day face-to-face gatherings in a location chosen by the requesting ITA Member Nation. Since the onset of the coronavirus pandemic, this form of training has not been possible and other solutions have had to be found.

In order to pursue education and training activities, a new online format has been developed at the initiative of the ITACET Foundation. Designed to reach a wide public, the "Lunchtime lecture series" aims to provide attendees with information on current issues and cutting-edge technologies and methods within the underground space industry.

Generally held on the second Tuesday of every month from 13:00 hours to 14:30 hours Paris time, each event includes key lectures, followed by a question and answer session. Lecturers are top professionals from the tunnelling and underground space community, notably from the ITA's Working Groups and Committees. Industry representatives and project owners are asked to intervene on a regular basis, in order to give different viewpoints. There is a strong collaboration between the ITA-CET Committee, which chooses the topics and suggests lecturers, and the ITACET Foundation which deals with registration and other organisational aspects.

In order to enable as many people as possible have access to the series, it is free of charge for those who watch live! Those who register prior to the event but are unable to attend due to conflicting time zones can be sent a link to watch the recording of the lectures, valid for 24 hours. It is also possible to register after the event, but in this case there is a small fee to view the recording. This fee is based on the ITA country category, details of which will be found on the [relative event page](#) in the ["Past sessions" section of the ITA-CET Foundation web site](#).

The series kicked off in February 2021 with a look at new drill & blast techniques in conventional tunnelling and "intelligent" underground rock excavation. This first event gathered almost 200 participants from 47 different countries and paved the way for subsequent events which have steadily been gaining in popularity:

- "Contractual practices and the FIDIC Emerald book" (9th March 2021 – 127 participants)
- "Compressed air" (13th April 2021 – 144 participants)
- "Modern approaches to tunnel waterproofing" (11th May -234 participants)
- "Automation in tunnel construction" (8th June 2021 – 239 participants)
- "Into the future" (13th July 2021 -291 participants).

Many thanks to all the lecturers who took part in these events!

The next lunchtime lectures will take place on Tuesday 21st September from 13:00 to 15:00 within the scope of the ITA Tunnelling Week and will focus on the topic of tunnel refurbishments. The event will begin with examples from Europe and will then move on to present a case study from Wellington, New Zealand. The session will round off by examining challenges for asset managers in Belgium, who are faced with aging tunnels that need to remain in full operation. Registration for this particular event is automatic when you register free for the ITA tunnelling week.

Other topics likely to be presented during the 2021 lunchtime lecture series include digitalization in tunnelling, safety in operation, long and deep tunnels and mechanized tunnelling. We hope to see you there!



A team effort: strengthening collaboration with ITA Working Groups and Committees



Strengthening collaboration with ITA Working Groups and Committees is one of the ITA-CET Committee and ITACET Foundation's major goals, as it is an efficient means of promoting ITA publications and recommendations, in addition to facilitating education opportunities for ITA Member Nations and the tunnelling industry as a whole.

Within the scope of the ongoing "Lunchtime lecture series", (mentioned in our previous article), considerable effort has been made to invite lecturers from Working Groups and Committees whenever possible. To date, collaborations have taken place on the following topics:

- WG19: From rock mechanics to drill and blast
- WG 3: Contractual practices and the FIDIC Emerald book,
- WG5 : Compressed air (notably health and safety issues)
- WG20: Into the future (climate change and resilient underground space)
- ITAtech: Modern approaches to waterproofing
- ITA Young Members: Automation in Tunnel Construction

Further collaborations in 2021 (to be confirmed) are under discussion with WG6 (Tunnel refurbishments), WG 14 (Mechanized tunnelling), WG17 (Long and deep tunnels) and WG 22 (Digitalization in tunnelling).

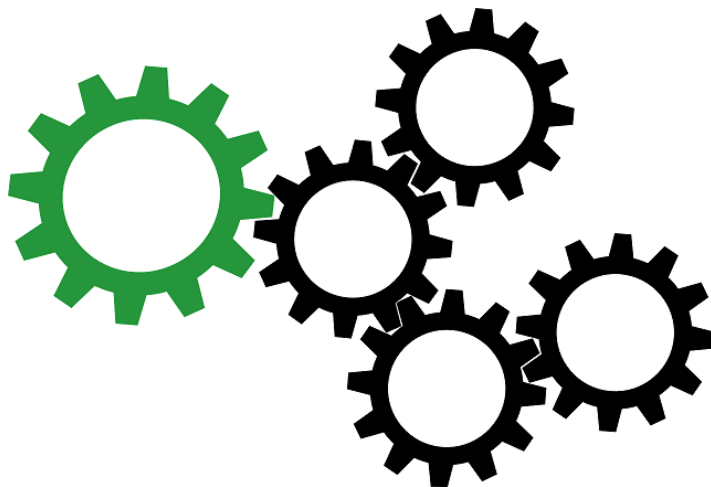
In order to maintain collaboration with these ITA Working Groups and to develop collaboration with others, the ITA-CET Committee and ITACET Foundation organised an online meeting with WG animateurs in May 2021.

The meeting gathered 35 participants and the vast majority of the Working Group animateurs and vice animateurs attended. There was significant interest in participating in the 2022 lunchtime lecture series, with the following collaborations and topics to be confirmed:

- ITA COSUF: safety in operation
- ITACUS: underground space us
- WG2: site investigations
- WG9 seismic challenges in tunnelling
- WG 11: immersed tunnels
- WG12: permanent shotcrete
- WG15: underground resiliency
- WG23: shafts

In addition to participating in the lunchtime lecture series, several of these Working Groups also showed interest in developing short video lessons with ITA-CET.

It is hoped that 2022 will be a fruitful year with continued exchange and participation in joint education and training actions that will be of benefit to a wide audience. Why not join us?!



The show must go on!

In addition to proposing free online training within the scope of the ongoing “lunchtime lecture series”, the ITA-CET Committee and ITACET Foundation continue to work together to propose tailor-made training solutions at the request of ITA Member Nations.

At the present time, offers are understandably in digital/hybrid format, due to travel restrictions. Training events can be organised over one or several days and for fully digital events it is advised whenever possible to limit presentations to half-day periods as the attention span of participants tends to be shorter with online learning than with face-to-face learning.

Two training courses have been organised so far this year for ITA Member Nations. The first took place at the request of the Mexican tunnelling association, AMITOS, on the 27th and 29th April, and the 4th and 6th of May, over four half-days. The subject of this course was “Calculation methods in tunnel design”, the objective being to provide an introduction to the methods commonly used to assess tunnel stability. As such, it required no prior knowledge or specific skills in numerical simulation or calculation methods. This course, held entirely online, gathered over 180 participants. A translator was on hand to translate the presenters’ lectures into Spanish.

Israel (Netivei) has also requested training from ITA-CET, with four separate short courses organised in 2021:

- 24th-26th May – Tunnelling in soft ground
- 12th-14th July – Challenges in urban areas
- 4th-6th October – Rock tunnelling
- 6th-8th December – TBM project management

These courses have so far taken on a hybrid format, with participants sometimes present in a classroom setting and at other times logging on from home. The local Israeli lecturers are sometimes physically present with the students, but all international lecturers give their presentations online.

France has also taken the opportunity to call on ITA-CET within the scope of the AFTES 2021 International congress, Paris. A training session on “Controlling excavation and instabilities in conventional tunnelling” will be organised on Sunday 5th September, prior to the

official opening of the congress. Registration details can be found on [the congress web site](#).

Argentina is interested in an online session on “Digital tunnels” in October and India (MIT-World Peace University, Pune) has requested a 16-hour course on “Advances in the design of tunnels”, which is also likely to take place in the autumn of 2021.

In order to further develop collaboration with ITA Member Nations, the ITA-CET Committee and ITACET Foundation recently organised an online meeting with key correspondents from countries that have shown interest in developing a long-term partnership or who wish to discover more about training opportunities on offer.

The meeting was organised on 25th May and gathered representatives from 13 ITA Member Nations: Argentina, Brazil, Chile, Denmark, Ghana, India, Israel, Italy, Kenya, Lebanon, Mexico, Norway and Turkey. The World Bank, equally interested in ITACET training offers, also attended.

Each Member Nation was given the floor and the chance to express current training requirements, if any. The following topics were notably identified as being of interest for future courses:

- Underground gas storage
- Challenging case scenarios and their corresponding solutions
- Drainage systems for channelling floodwater in urban areas

It is hoped that this meeting will lead to new collaborations in the months to come.

Any ITA Member Nations who would like to know more about ITA-CET training offers and/or organise a training event are invited to contact [the ITA-CET secretariat](#).



PhD students to take centre stage



Following the success of the first European meeting of tunnelling professors and PhD students organised by ITA-CET in December 2019, the Committee has taken the decision to organise a similar event at the end of 2021. This year's event will be hosted at Montanuniversität Leoben, Austria, and can be attended by all ITA-CET university members worldwide, travel regulations allowing.

The aim of this event is to strengthen collaboration within the ITA-CET university network, which comprises professors from 28 universities from around the globe that provide Master and PhD level courses in tunnelling and underground space. It will also be an opportunity for these universities to showcase their recent research activities.

This year, the professors meeting will be an informal event that will take the form of an evening dinner on 2nd December and will enable participants to network, meet their peers and exchange on their respective Master courses and student/professor exchange opportunities.

On 3rd December, selected PhD students will be given the opportunity to present their completed research work and in doing so will have the chance to meet and chat with students from other countries.

Universities interested in presenting their completed research work are invited to contact the [ITA-CET Committee secretariat](#), providing the envisaged title of their presentation and a short half-page abstract.

These ITA-CET events will be preceded by another event that will take place at Montanuniversität Leoben on 2nd December: [the Austrian Tunnel Competence Center Symposium 2021](#). This event will focus on the topic of "Digitization in Tunnelling". University professors and PhD students are welcome to attend this event if they wish to do so.

We sincerely hope that travel regulations in December will enable a good number of professors and students to attend these events. In the event that a face-to-face event proves too complicated for a large number of participants, the organisers will envisage switching to an online version.

We look forward to seeing you!



Tunnel vision



The ITA-CET Committee is pleased to present its newest Steering Board member, Eyðbjörg Amanda Petersen, who represents the ITA Young Members Group within the Committee. Since joining ITA-CET, Eyðbjörg has been active in training events, notably having helped co-host the lunchtime lectures on "Automation in Tunnel Construction" in June 2021. Here, she explains her motivations behind joining the Committee and her vision of how training activities can help combat climate change and should be developed in the future.

"I am a member of the ITAym Steering Board and work as a civil engineer at the tunnel department of the Danish consultancy Ramboll. When presenting my candidacy for the ITAym Steering Board, one of my core focuses was on my desire for making tunnelling a more broadly known industry for young professionals, both in general and in my own profession. Joining Chrysothemis Paraskevopoulou as an ITA Young Members representative on the ITA-CET Committee Steering Board was therefore a great opportunity for me.

Recently, the renowned natural historian Sir David Attenborough yet again took the time to express to a group of world leaders the urgency of tackling climate change. In his speech, he stated that he is confident that we have the skills. Beyond our efforts to reduce our carbon footprint in underground activities, there is a trend to explore the potential use of underground space as a means of not only accommodating services in congested urban areas, but also for releasing natural environments from our disruptive presence. We stand strong with the knowledge that ITA-CET, through its training activities, can contribute

to combating climate change by encouraging more sustainable practices in the underground industry and new uses for underground space.

The lunchtime lecture series launched by ITACET in the beginning of 2021 has proven to be a unique opportunity to adapt ITACET's services to the online platform. Here, I must give credit to Kate Havard of the ITACET Foundation for her intensive facilitation work and dedication to continuously improving the settings. Judging from the increasing participation and incredible interest in interacting with the speakers, this format of providing knowledge to the industry should in my opinion be further developed and in time become an essential part of the ITACET portfolio.

Building on ITA-CET's commitment to engage with universities, I see potential for developing educational material for introductory courses to create an early awareness of the industry to the future generation of tunnellers. Collaboration between ITAym and ITA-CET could be extended to explore this idea, with possible utilisation of local young member groups for facilitation and engagement with respective universities".