INTERNATIONAL
CONGRESS
LYON 13.14.15
OCTOBER 2014

Tunnels and
Underground space
risks &
opportunities

Tunnels et
Espace
souterrain
risques &
opportunités

Congress
Programme
The French Tunnelling and Underground Space Association (AFTES) is holding its 14th International Congress at the Cité Internationale in Lyon, on 13-15 October 2014.

The theme of this year’s congress, “Tunnels and Underground Space: Risks and Opportunities”, was selected to angle the event firmly at reality, addressing topics ranging from the benefits of underground structures in urban areas to risk, generally well-managed today.

The Congress will, in addition to a sprawling exhibition area and one hundred speakers, feature tours of technical facilities and showcase an ideas competition, a new addition this year, launched across all of France’s National Higher Schools of Architecture (ENSA) on the topic, “Underground Space and Urbanity: Which Projects Will Build the Future?”. Winners will present their work and receive their awards during the Congress.

In addition, organised in conjunction with corresponding associations in neighbouring countries Belgium, Italy, Portugal, Spain and Switzerland, the Congress will be an event not only for engineers specialized in designing, building and operating underground structures, but also for architects and urban planners, eager to facilitate more extensive use of the underground in urban areas.

The Congress will also be an opportunity to illustrate the Association’s chosen focus areas, in particular with a Round Table on Major Transport Infrastructures (integration into major metropolitan areas, economic impact of their activity, and issues relating to the required training for professionals at all levels), and a training seminar for young engineers.

AFTES invites you to get involved and participate to your fullest throughout the duration of this leading event, so that your activities enjoy the benefit of high-quality communication and showcasing. This Congress is your congress.

The President of the AFTES, Yann Leblais
ASSOCIATIONS PARTNERS

ABTUS/BVOTS
Association Belge des Techniques et de l’Urbanisme Souterrains
Président : Jean-François Thimus
c/o ADEB - av. Grandchamp - 148 - B
1150 Bruxelles - Belgique
www.abtus-bvots.be

AETOS
Asociación Española de Túneles y Obras Subterráneas
Président : Manuel Arnaiz Ronda
Almagro, 42
28010 Madrid - Espagne
www.aetos.es

CPT
CPT Comissão Portuguesa de Túneis Sociedade Portuguesa de Geotecnia
Président : João Bile Serra
c/o Laboratório Nacional de Engenharia Civil (LNEC) Av. do Brasil, 101 PT-1700-066 Lisboa - Portugal
www.spgeotecnia.pt

FGUGTS
Fachgruppe für Untertagbau / Groupe spécialisé pour les travaux souterrains
Président : Luzi Reto Gruber
Bachweg 3
CH - 8133 Esslingen - Suisse
www.swisstunnel.ch

SIGITS
SIG/ITS Societa Italiana Gallerie / Italian Tunnelling Society
Président : Andrea Pigorini
Via E. Breda n°28
20126 Milano - Italie
www.societaitalianagallerie.it

ITA-AITES
ITA-AITES (International Tunnelling and Underground Space Association) - Association Internationale des Tunnels et de l’Espace Souterrain c/o EPFL
Président : Soren Degn Eskesen
Bât. GC - Station 18 - 1015 Lausanne - Suisse
www.ita-aites.org
CITÉ CENTRE DE CONGRES LYON
50, Quai Charles de Gaulle - 69463 Lyon cedex 06
Tél.: +33 (0)4 72 82 26 26
info@ccc-lyon.com

CONGRESS PLAN
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<td>Welcome and opening speeches</td>
<td>2:00 pm - 3:45pm</td>
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<td>2:00 pm - 4:00pm</td>
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<td>7:00 pm : Reception</td>
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<td>8:30 am - 10:30am</td>
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<td>Tuesday, October 14th</td>
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<td>2:00 pm - 3:45pm</td>
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<td>8:30 am - 10:15am</td>
<td>Topic A Section A3/A31</td>
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<td>Interview on the underground space</td>
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<td>6:00 pm - 7:00 pm</td>
<td>Awards ceremony to the winners</td>
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MONDAY, OCTOBER 13TH FORUM 1

2:00 pm - 4:00 pm

Topic A
Design and coordination of tunnels and other underground construction projects
Section A1 - Tunnels in an urban environment
A11 - Feedback from the sites

Chairman: Lorenzo Brino

- Général report on section A1: Tunnels in an urban environment. Schivre M.
- Experience Gained at New Subway Line U5, Berlin Presentation of the TBM Tunnel. CD. 001 - Rp. 14 - Erdmann P.
- The Underground Section of T6 Tram in Viroflay. CD.002 - Rp.15 - Samama L.
- The tunnels of the new Pedemontana Lombarda motorway. CD.003 - Rp.16 - Lunardi G.
- Design of automatic metro line B in Greater Rennes, including feedback from line A. CD.004 - Rp.17 - Malbrancke G.

MONDAY, OCTOBER 13TH FORUM 1

4:30 pm - 6:15 pm

Topic A
Design and coordination of tunnels and other underground construction projects
Section A1 - Tunnels in an urban environment
A12 - Major Parisian projects: the near future

Chairman: Jean Launay

- Line 15 Southbound of Grand Paris Express, section « Pont de Sèvres-Noisy-Champs ». CD.005 - Rp.18 - Pons G.
- Alignment of Line 17 of Grand Paris Express as a result of optimized preliminary design. CD.006 - Rp.19 - Duclairoir X.
- Extension of Paris Metro Line 14 (Saint-Ouen) – Risk management during design phase. CD.008 - Rp.21 - Jullien P.

CD: Numero texts.
Rp: Page abstracts
Orator
TUESDAY, OCTOBER 14TH FORUM 1

8:30 am - 10:30 am

Topic A
Design and coordination of tunnels and other underground construction projects
Section A2 - Design and Contracting
A21 - Controlled designs

Chairman: Alain Guilloux

• Général report on section A2: Design and Contracting. Robert A.
• Recommendations of AFTES WG16 to take into account the effects due to tunnelling on surrounding structures. CD.011 - Rp.24 - Subrin D.
• The Base Tunnel of the Lyon-Turin New Railway Link: Feedback from the Reconnaissance Works. CD.012 - Rp.25 - Monin N.
• Modelling of primary lining of the caverns of the Romanche-Gavet hydro-electric facilities. CD.013 - Rp.26 - Shiu W.
• The Design Geological and Geotechnical Model (DGGM) for major infrastructures. The contribution of Tectonics and Structural Geology. CD.014 - Rp.27 - Soldo L.

TUESDAY, OCTOBER 14TH FORUM 1

11:00 am - 12:45 am

Topic A
Design and coordination of tunnels and other underground construction projects
Section A2 - Design and Contracting
A22 - General lessons on production methods

Chairman: Pierre Michel

• Successful challenging project in Poland for tunneling and microtunneling technologies for the construction of the 9 km DN2800 collector. CD.015 - Rp.28 - Madryas C.
• Long length railway tunnelling in Belgium – feasibility design and decision-making. CD.016 - Rp.29 - Berten K.
• Tunnels on the A89 Motorway: Feedback from the Designer. CD.017 - Rp.30 - Martinetto O.
• How can sustainable development issues be taken into consideration to assist the stakeholders into the decision-making process? CD.018 - Rp.31 - D’Aloia Schwartzentruber L.
TUESDAY, OCTOBER 14TH FORUM 1

2:00 pm - 3:45 pm

Topic A
Design and coordination of tunnels and other underground construction projects
Section A2 - Design and Contracting
A23 - Towards a « win-win » contracting process

Chairman: Hubert Tournery

- New recommendation of the Working Group No. 25 «Contracting and economic optimum».
CD.019 - Rp.32 - Thibault J-F.
- First assessment of the evolution of the process of risk management in underground projects for 10 years.
CD.020 - Rp.33 - Humbert E.
- Design-and-build contracts for underground constructions; yes, but…Point of view of a contractor’s designer.
CD.021 - R. p.34 - Collomb D.
- Cost assessment of tunnels.
CD.022 - Rp.35 - Hamaid G.

WEDNESDAY, OCTOBER 15TH FORUM 1

8:30 am - 10:15 am

Topic A
Design and coordination of tunnels and other underground construction projects
Section A3 - Feedbacks from TBM and large cavern works
A31 - TBM’s

Chairman: Eric Leca

- Général report in section A3 : Feedbacks from TBM and large cavern works- Piraud J.
- Design of Miami Port twin tunnel.
CD.032 - Rp.45 - Aubrit-Clochar M.
- Back analysis of TBM excavation through the highly deformable rock of the Fréjus Massif under high cover.
CD.033 - Rp.46 - Semeraro M.
- Tunnel of Saverne (Eastern High Speed Line): Progress of the geological and geotechnical studies in design and works phase within the framework of a process of risks management.
CD.034 - Rp.47 - Le Bissonnais H.
**WEDNESDAY, OCTOBER 15TH FORUM 1**

10:45 am - 12:30 am

**Topic A**

Design and coordination of tunnels and other underground construction projects

Section A3 - Feedbacks from TBM and large cavern works

A32 - Large caverns

Chairman: **Michel Levy**

- Challenges in constructing the Nant de Drance hydroelectric scheme. CD.035 - Rp.48 - Garin E.
- The construction of two tunnels in difficult stress-strain conditions in Sochi: the results of the first real comparison between NATM and ADECO-RS. CD.036 - Rp.49 - Lunardi G.
- Construction of the main access tunnels to the next level of El Teniente copper mine in Chile. CD.037 - Rp.50 - Lecomte B.
- Grouting Works around the New Veytaux Underground Hydroelectric Plant. CD.038 - Rp.51 - Müller O.

**FORUM 2**

**MONDAY, OCTOBER 13TH FORUM 2**

2:00 pm - 3:45 pm

**Topic C**

Development of uses for underground space

Section C1 - Innovations in uses for underground space

Chairman: **Willy De Lathauwer**

- Général report on topic C: Development of uses for underground space. Labbé M.
- Converting an underground quarry in an experimental and demonstration platform. CD.067 - Rp.84 - Cherkaoui A.
- Should we revisit the idea of underground siting of nuclear power plants? A scientific Rock Mechanics view. CD.068 - Rp.85 - De Bruyn D. / Piraud J.
- Feasibility aspects of lined tunnels and shafts for compressed air energy storage in weak rock masses. CD.069 - Rp.86 - Perazzelli P.
MONDAY, OCTOBER 13th FORUM 2

4:15 pm - 6:00 pm

Topic C
Development of uses for underground space
Section C2 - The Underground City

Chairman: Jean-Paul Godard

• «Ville 10D – Ville d’idées», a National Project to promote the use of underground space of metropolis.
  CD.070 - Rp.87 - Palisse J.P.
• What future for the urban underground? Subsurface and surface potential in San Antonio, Texas.
  CD.071 - Rp.88 - Doyle M.R.
• Resilience of the internal city of Montreal: observation, analysis and possible developments.
  CD.072 - Rp.89 - Diab Y.
• Legal aspects of underground urban planning.
  CD.073 - Rp.90 - Cocquière A.

TUESDAY, OCTOBER 14th FORUM 2

8:30 am - 10:15 am

Topic C
Development of uses for underground space
Section C3 - Optimisation of underground spaces

Chairman: Monique Labbé

• What lessons of vernacular architecture for sustainable design in desert environments (Algeria)?
  CD.074 - Rp.91 - Benoudjafer I.
• Estimates of accident costs saved due to new pedestrian tunnels in the Montréal’s interior city.
  CD.075 - Rp.92 - Boisvert M.
• Optimization of the underground space in the design of Metro stations, from a constructive and architectural point of view.
  CD.076 - Rp.93 - Trussoni E.
• Opening of an underground red sandstone quarry at Rothbach.
  CD.077 - Rp.94 - Piraud J.
TUESDAY, OCTOBER 14TH FORUM 2

10:45 am - 12:30 am

Topic B
Technological progress and innovations
Section B1 - Innovations in respect of boring machines

Chairman: Jean-François Thimus

- Général report on topic B: Technological progress and innovations. Subrin D.
- TBM excavation in Underground Research Laboratory of Meuse Haute-Marne. CD.049 - Rp.64 - Carraretto S.
- Robotized Maintenance of TBM Cutter Heads. CD.050 - Rp.65 - Girault B.
- The Evolution and Future of Earth Pressure Balance Machine Tunnelling. CD.051 - Rp.66 - Jordan D.

TUESDAY, OCTOBER 14TH FORUM 2

2:00 pm - 3:45 pm

Topic B
Technological progress and innovations
Section B2 - Innovations in respect of other aspects of underground construction

Chairman: Florent Robert

- Development of immediate re-use of the underground excavated material as mineral resource. CD.052 - Rp.67 - Galler R.
- Production of high quality concrete with mica rich sand – experience from large construction sites. CD.053 - Rp.68 - Thalmann C.
- NEWTUN – New technical developments in pipe roofing. CD.054 - Rp.69 - Cascarino S.
- Precast Tunnel Segments Reinforced With Fiberglass Reinforcement. CD.055 - Rp.70 - Meda A.
WEDNESDAY, OCTOBER 15TH FORUM 2

8:30 am - 10:15 am

Topic D
Managing underground infrastructures
Section D1 - Sustainable infrastructures

Chairman: Miguel Fernandez-Bollo

- Général report on topic D: Managing underground infrastructures - Varjabedian M.
- Risk management in major public infrastructure projects. CD.079 - Rp.98 - Deulofeu C.
- New AFTES recommendations on waterproofing treatments in underground structures. CD.080 - Rp.99 - Mahuet J.L.
- Tunnel auscultation strategy: implantation and notation. CD.081 - Rp.100 - Rhayma N.

WEDNESDAY, OCTOBER 15TH FORUM 2

10:45 am - 12:30 am

Topic D
Managing underground infrastructures
Section D2 - Flagship renovation site

Chairman: Daniel Mérakeb

- ECOMINT - Tunnels Waterproofing by Thin Shells. CD.082 Rp.101 - Larive C.
- Renovation of smoke extraction system of the Nanterre-La Défense underground complex. CD.083 - Rp.102 - Darpas M.
- Innovative method of replacing a ballasted track by a track on concrete in a tunnel under operation. CD.084 - Rp.103 - Alvarez A
- Heavy renovation of the Croix-Rousse (Lyon) tunnel: management of the project in a constrained urban context. CD.085 - Rp.104 - Roux T.

WEDNESDAY, OCTOBER 15TH FORUM 2

1:30 pm - 4:15 pm

Specialist training seminar
Managing risk in underground structures

Chairman: Richard Kastner

- Introduction - Kastner R.
- Challenge and approach taken by AFTES control risks. Rp.122-125 - Robert A.
- Risk management process during studies. Rp.122-125 - Gaillard C.
- Contractualisation principles Rp.122-125 - Hamaide G.
- Discussion Rp.122-125 - Kastner R. & al
- Seminar conclusion. Rp.122-125 - Deffayet M.
AGORA

MONDAY, OCTOBER 13TH AGORA

8:30 am – 10:00 am: Registration – Reception Bellecour
10:00 am – 10:30 am: Welcome
• Philippe Millard, Président du Congrès
10:30 am – 12:00 am: Opening speeches:
• Alain Vidalies, Secrétaire d’état aux Transports
• Eliane Giraud, Vice-présidente de la Région Rhône-Alpes, déléguée aux transports
• Jean-Luc Da Passano, Vice-président du Grand Lyon
• Yann Leblais, Président de l’AFTES
• Eric Leca, Membre du Bureau de l’AITES
• Hubert du Mesnil, Président de Lyon-Turin Ferroviaire
• Gérard Cherel, Directeur du programme de la Société du Grand Paris
12:00 am – 12:30 am: Inauguration of the exhibition
4:00 pm – 4:15pm: SETEC « Design and rules »

TUESDAY, OCTOBER 14TH AGORA

10:30 am – 10:45 am: SETEC « Metrology and means »
10:45 am - 12:15 am: Interview on the underground space
4:00 pm – 6:00 pm: Round table animated by Pierre Ostian
Know-now and training
• Eliane Giraud, Vice-présidente de la Région Rhône-Alpes, déléguée aux transports
• Alain Chabert, Directeur du département « Études du Projet » de LTF
• Patrick Dieny, Chargé de la mission NTL dans le Préfet de la Savoie
• Patrick Dieny, Chargé de la mission NTL auprès du Préfet de la Savoie
• Michel Lallement, Président du Syndicat des Entrepreneurs de Travaux Souterrains
• Gérard Labrit, Directeur du projet « Anneau des Sciences » au Grand Lyon
• Anne Lambusson, RFF, Directrice Région Rhône-Alpes Auvergne
• Ludovic Boyron, Directeur de la Mission « Part Dieu » au Grand Lyon
• Frédéric Longchamp, Directeur des gares de Lyon et Grenoble pour « Gares et Connexions » de la SNCF
• Dominique Perrault, Architecte du projet « Two Lyon »
6:00 pm – 7:00 pm: Competition of idea in architecture
Awards ceremony to the winners

WEDNESDAY, OCTOBER 15TH AGORA

4:30 pm – 5:30 pm: Closure of the congress
• Rick Lovat, Vice-président de l’AITES
• Yann Leblais, Président de l’AFTES
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3 // TECHNICAL EXCURSIONS

- **Tuesday, October 14th**: Visit to the “Soft modes” tunnel of the Croix-Rousse extended by the visit to the Gallo-Roman Museum at Fourvière
  By coach - Departure 8:30 am (Amphithéâtre - Cité Internationale)

- **Tuesday, October 14th**: Visit to the Technical Center “Louis Vicat”
  By coach - Departure 8:30 am (Amphithéâtre - Cité Internationale)

- **Wednesday, October 15th**: Visit of the maintenance and operation centre of the Grand Lyon tunnels
  By coach - Departure 8:30 am (Amphithéâtre - Cité Internationale)

4 // EVENTS

- **Monday, October 13th**: Official evening event at the Town Hall.
- **Tuesday, October 14th**: Evening Gala event at the Abbaye de Collonges. Located on the bank of the River Saône, the Abbaye de Collonges will welcome you from 8pm onwards in a dazzling and unique setting. To the sound of organs and barrel organs you will savour the cuisine of one of the world’s leading ‘masters of gastronomy’, Paul Bocuse. You will travel by coach from the Congress Centre to the venue of the reception.
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6 // PLAN DE L’EXPOSITION
Ingénieur VINCI du côté de Nanterre
Chez VINCI, nous veillons à privilégier les compétences et le mérite de chacun, quels que soient ses diplômes ou ses origines. Nous nous engageons à former nos managers aux bonnes pratiques et à combattre toute discrimination à l'embauche, dans l'accès à la formation et à la promotion, pour que chaque salarié dispose des mêmes chances d'évolution au sein du Groupe.