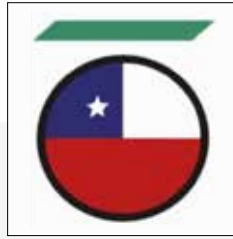


Chile



Name: Committee of Tunnels and Underground Spaces (CTES)

Type of Structure: Non profit, open association

Number of Members: 73 Members (55 are companies from the industry)
Corporate Members: 1 premium category, 15 Category Gold, 39 Category Associated and 18 Individual members.

ASSOCIATION ACTIVITIES DURING 2021 AND TO DATE

Seminars and conferences

11 technical webinars held throughout the year, with more than 1,156 attendees.

- **(April)** El Teniente mining underground megaproject.
- **(April)** Megaproject Vvision: International tunnel.
- **(May)** Gaps, challenges and initiatives for underground development
- **(June)** "Underground blasting: Optimization of production at the Panamericana Silver Mine"
- **(July)** "Automation of underground mining equipment"
- **(August)** "Automation and digitization for mining and tunnel development"
- **(August)** "Underground infrastructure: urban and social integration"
- **(September)** "Double Shield TBM experience at Los Condores Hydroelectric Power Plant"
- **(October)** "Paso Las Le as international tunnel: feasibility study result"
- **(November)** International seminar "Development of underground works in LATAM"
- **(November)** "A structural challenge: use of metallic fibres on line 16 of the Grand Paris metro"

International seminar on the development of underground works in Latin America, co-organized with the Mexico Underground

Association and ACTOS of Colombia.

Other

Visits to a GMTC plant (Geobruigg Mining Technology Centre) and its new production plant in Rancagua, Chile (November). In addition, a visit to the Tobaraba Urban Market, MUT, underground works under construction (October).

A technical working group on "Seismic effects (or induced) in underground works".

Documents: Work is being done to update the Directory and upload 200 documents on the CTES site. The CTES website is being updated, promoting news for members and technical documents, as well as disseminating national and international events, with more than 9,500 visits.

YouTube channel: A new channel is being developed for technical webinars, podcasts and corporate videos promoted by CTES Chile. It currently has 15 webinars available, seven from 2020 and six from 2021.

10 newsletters: Outstanding news, opinion columns, agendas, and events.

Podcasts: The first podcast has been developed that allows a technical communication channel for the community, beginning with the topic - advances in digitization.

Registry of underground spaces in the country: 180 underground projects are identified in Chile.

Celebration of 10 years of the CTES Chile.

FUTURE TUNNELLING ACTIVITIES

- **Webinar 1:** Operation and emergency management in mega-road tunnels in Europe.
- **Webinar 2:** Design and construction of caves
- **Webinar 3:** BIM technologies and innovations in underground works projects (Mining/Infrastructures/Roadworks).
- **Webinar 4:** Equipment and evolution accessories and explosives used underground.
- **Webinar 5:** Rockburst experiences.
- **Webinar 6:** Design and construction of underground works with raise bore and blind hole.
- **Webinar 7:** Advances underground mega projects - 7 Line Advance.
- **Webinar 8:** Activity table for the underground space.
- **Webinar 9:** Drilling steels and umbrella bolts; Innovations and their importance in tunnel development.
- **Webinar 10:** Advances of the working group seismic effects in underground works
- **International Mission:** Norway (April 2022)

STATISTICS

List of tunnels under construction:

Three new underground subway lines will be built; Line 7 (26km), Line 8 (19km) and Line 9 (17km).

AVO II: Urban Road concession of 5.2km length, made up of two express

EDUCATION ON TUNNELLING IN THE COUNTRY

1. Postgraduate Diploma in Tunnels and Underground Spaces; Universidad de Chile
2. Diploma in Modern Tunnel Excavation Techniques; Universidad de Santiago de Chile
3. Undergraduate Programs in Civil Engineering Mining (University of Chile, University of La Serena, University of Santiago of Chile, Universidad Adolfo Ibañez and others)

