

WORKSHOPS AND SHORT COURSES

Title: Practical use of structural geology in rock tunnels

Duration: Morning short course.

Description:

Geological mapping is relatively simple; however, in rock tunnels and underground caverns it is often an issue, essentially because of a limited time frame in industrial projects as well as difficult working conditions (humidity, dust, low lighting, accessibility, height). Because of such conditions, geological maps of the face or walls performed immediately the blast sequence may become totally useless for tunnel construction, especially in fractured rock masses. Nevertheless, a reliable mapping of the discontinuities is essential for stability and permeability/grouting purpose. The objective of the workshop is twofold: i) to demonstrate the interest of structural geology for the performing of quick and reliable mapping, adapted to fractured rock masses and ii) to provide simple but efficient structural tools to do so, that can be easily applied in industrial projects. Several examples from tunnels and caverns in China, Japan, India will be used all along the workshop.

Target Audience:

The workshop is primarily dedicated to geologists in charge of mapping activities in rock tunnelling, whatever the construction technique (drill-and-blast, TBM) or the mapping method (compass, laser-scanning, use of rock mass classification system such as Q or RMR). However, rock mechanical engineers in charge of support and reinforcement, at design and/or construction stage, are also a target because using directly the mapping output data. Postgraduate students and young engineers in the field of rock tunnels are most welcome.

Lecturers Biography:

Philippe VASKOU dedicated his career to geology and underground works. He worked over 15 years at Electricité de France (EDF) on tunnelling activities for dams and power houses. He then spent 25 years at GEOSTOCK leading site investigations, design and construction of large caverns for hydrocarbons. Through working in more than 50 countries, he has experienced first-hand a wide range of geological and geotechnical environments. Philippe now provides his technical advisory services to several companies across Asia and is also giving professional courses at Paris-Cergy University. Philippe's key value-add is his ability to work with and for rock mechanical engineers and hydrogeologists, placing the geological structure at the centre of properties and behaviours of rock masses.

Program:

1 - Introduction of the workshop

2 - Some theoretical aspects including fracture hierarchy, associated hydraulic conductivity, fracture termination and arrest, effect of stress on fractures

3 - How to use these theoretical aspects and putting them into practice in the specific domain of rock tunnelling

4 - Conclusions

Maximum number of attendees: 15 (in order to allow necessary interactions and team working)