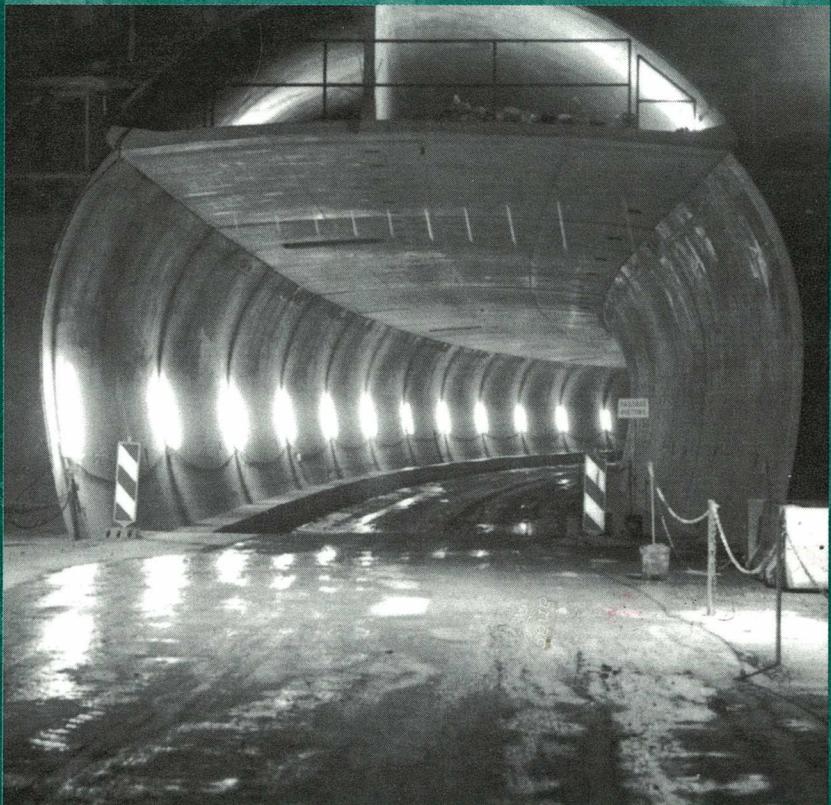
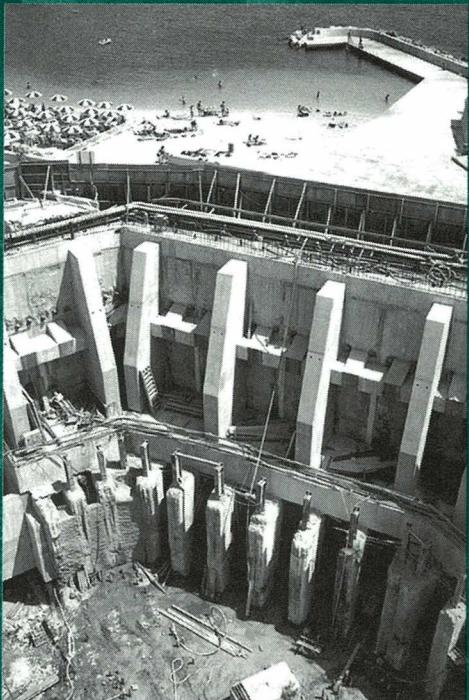


Geotechnical Aspects of Underground Construction in Soft Ground



*R. Kastner
F. Emeriault
D. Dias
A. Guilloux
editors*

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GEOTECHNICAL ASPECTS OF UNDERGROUND CONSTRUCTION IN
SOFT GROUND – IS-TOULOUSE 2002
TOULOUSE / FRANCE / 23-25 OCTOBER 2002

Geotechnical Aspects of Underground Construction in Soft Ground

Edited by

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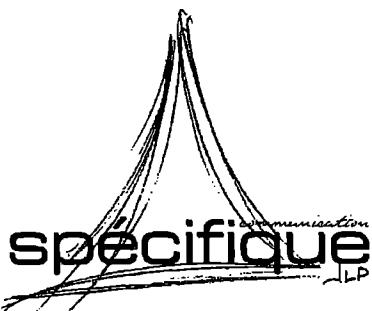
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Preface

Technical Committee TC28 on Underground Construction in Soft Ground was established by the International Society of Soil Mechanics and Foundation Engineering in 1989. Its main purpose was to provide a forum for interchange of ideas and discussion using representatives from many countries with active interest in tunnelling and deep excavations. In 1994, TC28, chaired by Professor K. Fujita, organised a very successful Symposium which coincided with the International Conference then being held in New Delhi. The one-day Symposium was principally aimed at discussing codes of practice and methods of construction of underground excavation adopted in different countries. The success of that Symposium led to the strong feeling that organising regular events would be both productive and well received.

The host society was then handed over from the Japanese Geotechnical Society to the British Geotechnical Society and Professor R.J. Mair was appointed as chairperson and Professor R.N. Taylor as secretary of TC 28. In April 1996, a first three day symposium was organised at City University in London, followed, in July 1999, by a second one in Tokyo.

These proceedings are the outcome of Third International Symposium on Geotechnical Aspects of Underground Construction in Soft Ground held in Toulouse in October 2002. It has been organised by URGC Géotechnique (INSA de Lyon) with the support of the French Geotechnical Society (CFMS) and in cooperation with AFTES (French Tunnelling Association) who held its International Congress on October 21-23 in the same place, one day of the two events being common.

The themes for the TOULOUSE symposium were established in line with the terms of reference of Technical Committee TC28 as case histories and other information concerning the design and construction of tunnels and deep excavations (braced excavations, shafts), with special emphasis on (i) relationship between ground improvement schemes, excavation methods used and displacements of the surrounding grounds and adjacent structures, and (ii) the role of physical and numerical modelling.

The call for papers drew an overwhelming response and over 150 abstracts were received. This resulted in 116 refereed papers being included in the symposium, which were received from 21 countries. The Symposium attracted an attendance of 160 delegates from 21 countries.

The first two days of the Symposium were dedicated to 6 main discussion sessions covering:

- Design methods of tunnels: stability, settlements and tunnel linings
- Bored tunnels construction
- Ground movements caused by tunnelling: measurements and back analysis
- Deep Excavations: design and analysis
- Deep Excavations: construction
- Numerical and physical modelling

During each session, a general report has been presented together with selected individual papers and followed by a large open discussion. A special lecture has been given at the end of each day:

- Geotechnical aspects of current underground construction in Japan by Pr H. Akagi,
- Results of the French National Research project "EUPALINOS" on tunnelling by Y. Leblais (an English version of the report of this research project has been issued to the participants)

The third day of the Symposium was devoted to visits to a number of different construction sites of the second line of the TOULOUSE metro.

This volume of the proceedings includes 107 papers, the written versions of the session reports and the special lecture on "Geotechnical aspects of current underground construction in Japan". All the papers have been reviewed by members of the scientific committee of the symposium. The collection of papers and reports contained within this volume should provide a major source of reference on underground construction in soft ground.

The success of the Symposium was due in no small part to the efficiency and hard work of the members of the organising committee and the tremendous support from the members of the Geotechnical Research Group at "INSA de Lyon". We thank also the organisation committee of the AFTES for their collaboration and for sharing their great experience in organising such events. Special thanks are due to VINCI Construction and INSA Lyon for their financial support, and to the Toulouse Metro Authority for their support in arranging the site visits. We are grateful to Technical Committee TC28 to have been given the opportunity to hold the Symposium and to gather together and exchange ideas with so many people concerned with deep excavations and tunnels.

R.J. Mair & A. Guilloux, Chairmen of the symposium,
R. Kastner, F. Emeriault and D. Dias, Secretary of the symposium and Editors.

Organisation

The Symposium was organised by the International Society for Soil Mechanics and Geotechnical Engineering, Technical Committee TC 28 on Geotechnical Aspects of Underground Construction in Soft Ground.

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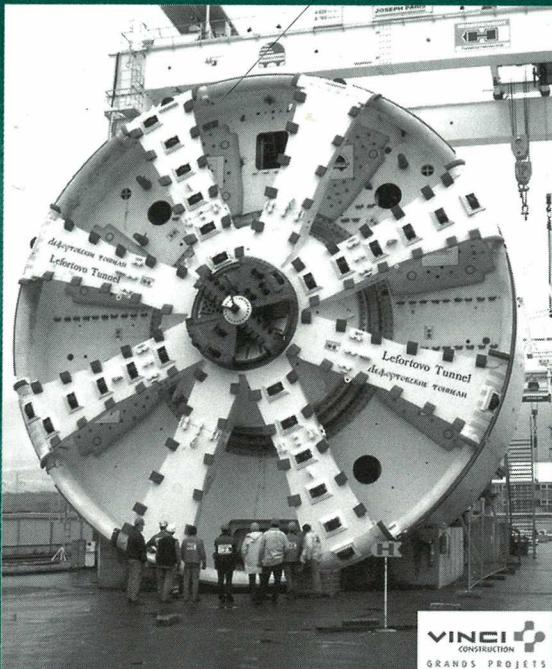
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This volume contains a collection of 107 papers, 6 general reports and a special lecture presented at the Third International Symposium on Geotechnical Aspects of Underground Construction in Soft Ground held in Toulouse (France) in October 2002.

This symposium has been organised by the Technical Committee 28 of the International Society of Soil Mechanics and Geotechnical Engineering after the first one held in London in 1996 and the second one in Tokyo in 1999. It has been sponsored by the French Society of Soil Mechanics (CFMS).

Papers have been contributed by researchers and engineers from 21 countries involved in the design and construction of underground structures in soft ground. The contributions cover tunnelling (design methods for stability, settlements and tunnel lining, construction aspects of bored tunnels, measurements and back-analysis of ground movements), deep excavations (design and analysis, construction aspects) and numerical and physical modelling. The general reports present an overview of the different papers listed in the six sessions of the symposium.

The volume provides a valuable source of reference on the current practice of analysis, design and construction of deep excavations and tunnels in soft ground.