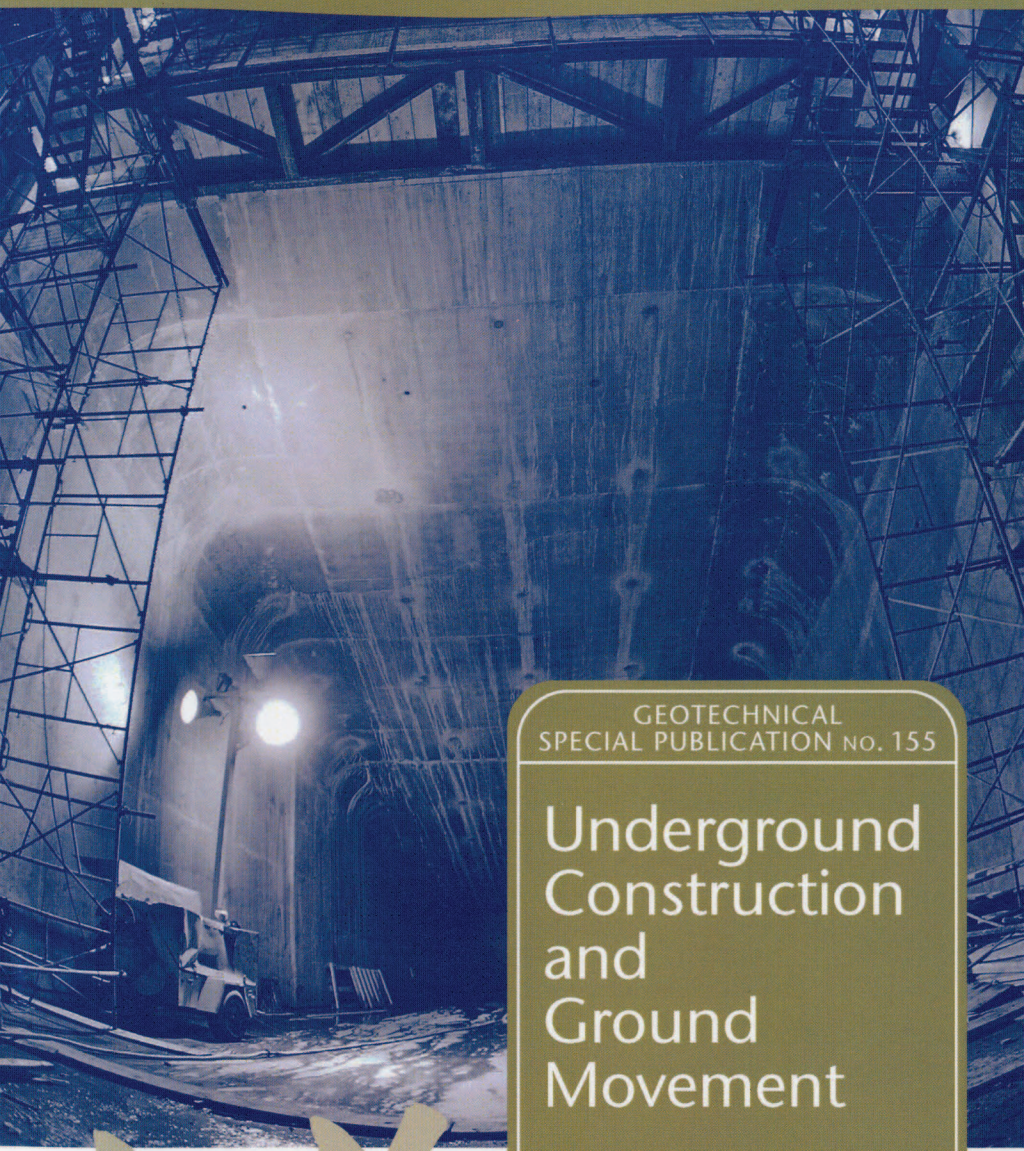


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Underground Construction and Ground Movement

EDITED BY Hehua Zhu, Ph.D.
Feng Zhang, Ph.D.
Eric C. Drumm, Ph.D.
Chung-Tien Chin, Ph.D., P.E.
Dongmei Zhang, Ph.D.

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International Association of Foundation Drilling
Deep Foundations Institute
Saga University
Delft University of Technology

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48 *Soil Suction Applications in Geotechnical Engineering*
49 *Soil Improvement for Earthquake Hazard Mitigation*
50 *Foundation Upgrading and Repair for Infrastructure Improvement*
51 *Performance of Deep Foundations Under Seismic Loading*
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56 *Static and Dynamic Properties of Gravelly Soils*
57 *Verification of Geotechnical Grouting*
58 *Uncertainty in the Geologic Environment*
59 *Engineered Contaminated Soils and Interaction of Soil Geomembranes*
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61 *Measuring and Modeling Time Dependent Soil Behavior*
62 *Case Histories of Geophysics Applied to Civil Engineering and Public Policy*
63 *Design with Residual Materials: Geotechnical and Construction Considerations*
64 *Observation and Modeling in Numerical Analysis and Model Tests in Dynamic Soil-Structure Interaction Problems*
65 *Dredging and Management of Dredged Material*
66 *Grouting: Compaction, Remediation and Testing*
67 *Spatial Analysis in Soil Dynamics and Earthquake Engineering*
68 *Unsaturated Soil Engineering Practice*
69 *Ground Improvement, Ground Reinforcement, Ground Treatment: Developments 1987-1997*
70 *Seismic Analysis and Design for Soil-Pile-Structure Interactions*
71 *In Situ Remediation of the Geoenvironment*
72 *Degradation of Natural Building Stone*
73 *Innovative Design and Construction for Foundations and Substructures Subject to Freezing and Frost*

74 *Guidelines of Engineering Practice for Braced and Tied-Back Excavations*
75 *Geotechnical Earthquake Engineering and Soil Dynamics III*
76 *Geosynthetics in Foundation Reinforcement and Erosion Control Systems*
77 *Stability of Natural Slopes in the Coastal Plain*
78 *Filtration and Drainage in Geotechnical/Geoenvironmental Engineering*
79 *Recycled Materials in Geotechnical Applications*
80 *Grouts and Grouting: A Potpourri of Projects*
81 *Soil Improvement for Big Digs*
82 *Risk-Based Corrective Action and Brownfields Restorations*
83 *Design and Construction of Earth Retaining Systems*
84 *Effects of Construction on Structures*
85 *Application of Geotechnical Principles in Pavement Engineering*
86 *Big Digs Around the World*
87 *Jacked Tunnel Design and Construction*
88 *Analysis, Design, Construction, and Testing of Deep Foundations*
89 *Recent Advances in the Characterization of Transportation Geo-Materials*
90 *Geo-Engineering for Underground Facilities*
91 *Special Geotechnical Testing: Central Artery/Tunnel Project in Boston, Massachusetts*
94 *Performance Confirmation of Constructed Geotechnical Facilities*
95 *Soil-Cement and Other Construction Practices in Geotechnical Engineering*
96 *Numerical Methods in Geotechnical Engineering: Recent Developments*
97 *Innovations and Applications in Geotechnical Site Characterization*
98 *Pavement Subgrade, Unbound Materials, and Nondestructive Testing*
99 *Advances in Unsaturated Geotechnics*
100 *New Technological and Design Developments in Deep Foundations*
101 *Slope Stability 2000*
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103 *Advances in Transportation and Geoenvironmental Systems Using Geosynthetics*
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107 *Soil Dynamics and Liquefaction 2000*
108 *Use of Geophysical Methods in Construction*
109 *Educational Issues in Geotechnical Engineering*
110 *Computer Simulation of Earthquake Effects*
111 *Judgment and Innovation: The Heritage and Future of the Geotechnical Engineering Profession*
112 *Soft Ground Technology*
114 *Soils Magic*
115 *Expansive Clay Soils and Vegetative Influence on Shallow Foundations*
116 *Deep Foundations 2002: An International Perspective on Theory, Design, Construction, and Performance*
117 *Discrete Element Methods: Numerical Modeling of Discontinua*
118 *A History of Progress: Selected U.S. Papers in Geotechnical Engineering*
119 *Soil Behavior and Soft Ground Construction*
120 *Grouting and Ground Treatment*
121 *Probabilistic Site Characterization at the National Geotechnical Experimentation Sites*
122 *Sinkholes and the Engineering and Environmental Impacts of Karst*
123 *Recent Advances in Materials Characterization and Modeling of Pavement Systems*
124 *GeoSupport 2004: Drilled Shafts, Micropiling, Deep Mixing, Remedial and Specialty Foundation Systems*
125 *Current Practices and Future Trends in Deep Foundations*
126 *Geotechnical Engineering for Transportation Projects*
127 *Recycled Materials in Geotechnics*
128 *Soil Constitutive Models: Evaluation, Selection, and Calibration*
129 *Advances in Designing and Testing Deep Foundations*
130 *Advances in Pavement Engineering*
131 *Contemporary Issues in Foundation Engineering*
132 *Advances in Deep Foundations: In Memory of Michael W. O'Neill*
133 *Earthquake Engineering and Soil Dynamics*
134 *Soil Dynamics Symposium in Honor of Professor Richard D. Woods*
135 *Erosion of Soils and Scour of Foundations*
136 *Innovations in Grouting and Soil Improvement*

137 *Legal and Liability Issues in Geotechnical Engineering*
138 *Site Characterization and Modeling*
139 *Calibration of Constitutive Models*
140 *Slopes and Retaining Structures Under Seismic and Static Conditions*
141 *International Perspectives on Soil Reinforcement Applications*
142 *Waste Containment and Remediation*
143 *Geomechanics: Testing, Modeling, and Simulation*
144 *Sinkholes and the Engineering and Environmental Impacts of Karst*
145 *Seismic Performance and Simulation of Pile Foundations in Liquefied and Laterally Spreading Ground*
146 *Asphalt Concrete: Simulation, Modeling and Experimental Characterization*
147 *Unsaturated Soils 2006*
148 *Advances in Unsaturated Soil, Seepage, and Environmental Geotechnics*
149 *Site and Geomaterial Characterization*
150 *Soil and Rock Behavior and Modeling*
151 *Advances in Earth Structures: Research to Practice*
152 *Ground Modification and Seismic Mitigation*
153 *Foundation Analysis and Design: Innovative Methods*
154 *Pavement Mechanics and Performance*

Preface

This special publication contains 52 technical papers which cover recent advances in research and practical applications in engineering issues in karst and ground subsidence, tunneling and underground construction, and deep excavation. Two invited keynote papers by Professor Linde Yang and Professor Jian Zhao (co-authored with Drs. X. B. Zhao, G. W. Ma, H. B. Li, and Y. X. Zhou) summarize recent advances in some key problems on stability analysis of underground rock structures and recent studies of rock dynamics for underground development, respectively. Technical papers in the *engineering issues in karst and ground subsidence* section address investigation, construction, and design issues in karst terrain, and ground subsidence due to withdrawal of fluids. This publication includes a significant number of technical papers in *tunneling and underground construction*, which cover a wide range of topics from box culverts, shield tunnels, to interactions between tunnels and other underground/surface structures. The *deep excavation* section contains technical papers presenting theoretical and case studies on stability and deformations associated with deep excavation.

Each paper published in this ASCE Geotechnical Special Publication (GSP) was evaluated by at least two reviewers including the editors. The authors of the accepted papers have addressed all the reviewers' comments to the satisfaction of the editors. All published papers are eligible for discussion in the Journal of Geotechnical and Geoenvironmental Engineering, and also eligible for ASCE awards.

The papers in this publication were presented during the GeoShanghai International Conference held in Shanghai, China, June 6–8, 2006. This conference was hosted by Tongji University and the Shanghai Society of Civil Engineering, China in cooperation with ASCE Geo-Institute, the Georgia Institute of Technology, the University of Kansas, the University of Tennessee, International Assoc. of Foundation Drilling, Deep Foundation Institute (USA), Saga University (Japan), and Delft University of Technology (Netherlands).

We are thankful to Professor Yongsheng Li, the conference chair for GeoShangai, and Professors Paul W. Mayne, Jie Han, and Baoshan Huang, who have been instrumental in organizing this conference. Thanks are extended to the former and current chairs of Technical Coordination Council of ASCE Geo-Institute, Professors Edward Kavazanjian and Barbara A. Luke, and the council members for their support to the publication of the GSPs as proceedings of this conference. Thanks are also due to Carol Bowers at ASCE Geo-Institute for her enthusiastic support to this conference. In producing this Geotechnical Special Publication, the editors also would like to acknowledge the assistance of Donna Dickert at ASCE.

The editors wish to thank the following individuals who reviewed one or more papers for this geotechnical special publication.

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Editors:

Hehua Zhu, Tongji University
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January 12, 2006

Contents

Keynote Lecture Papers

Recent Studies of Rock Dynamics for Underground Development 1
J. Zhao, X. B. Zhao, G. W. Ma, H. B. Li, and Y. X. Zhou

Some Key Problems on Stability Analysis of Underground Rock Structures 26
L. D. Yang

Engineering Issues in Karst and Ground Subsidence

Seismic Crosshole Tomography Studies of Foundation Sites in Karst Terrane 42
Dennis R. Hiltunen and Patrick W. Dunn

Cavity Effects on the Bearing Capacity of Footing Foundations and the Calculation Method 50
F. L. Peng, M. Kiyosumi, M. Ohuchi, and O. Kusakabe

State-of-the-Art of Land Subsidence Prediction due to Groundwater Withdrawal in China 58
Y.-S. Xu, S.-L. Shen, and Y. Bai

Analysis of the Mechanism of Water Inrush in Karst Tunnels 66
Xiuying Wang and Mengshu Wang

Prediction of Ground Displacement and Deformation Induced by Dewatering of Groundwater 73
Shifan Qiao and Baochen Liu

The Impacts of Construction Dewatering on Surrounding Structures of a Project Site 80
Z. J. Xia, V. Dolezel, L. J. Rak, B. Rao, and J. Chahine

Design and Construction of Highway Structures in Karst Terrain 88
M. Z. Yang, D. Sajedi, E. C. Drumm, and A. M. Ramakrishna

Geotechnical and Geohydrological Investigations in Eastern United States Karst 96
Joseph A. Fischer, Joseph J. Fischer, James G. McWhorter, and Richard S. Ottoson

Simulation of Graded Rock Fill for Sinkhole Repair in Particle Flow Model 104
Feng Chen, Ozgur Akturk, and Eric C. Drumm

Tunneling and Underground Construction

Optimal Analysis of Construction Schemes for Twin Tunnel Based on Back Analysis 112
W. Q. Ding, X. X. Wang, Y. Cheng, H. H. Zhu, and D. W. Xie

Research on the Effect of Permittivity on the Result of GPR Detection of Grouting Material behind Shield Tunnel Segment 120
J. Du, H. W. Huang, X. Y. Xie, and F. S. Zhang

Numerical Modeling of Jacking Process for Underpass Bridge through Railway Line 128
S. J. Du, J. Chen, and J. D. Zhu

A Model Test of the Tunnel Anchorage for E-Gong-Yan Suspension Bridge in Soft Rock Masses in Chongqing City, China 134
Z. L. Feng, Z. H. Zhang, H. X. Cheng, N. L. Wei, S. R. Weng, and X. F. Wang

Research on the Stress Mechanism of the Ultra-Deep Open Caisson System during Subsidence Process 142
Zheng-hong Guo and Wei Xu

Risk Analysis of Building Structure Due to Shield Tunneling in Urban Area 150
Hongwei Huang and Long Chen

Study of Controlling Measures on the Deflection of Metro Tunnels Due to Overlying Excavation 158
Jian Jia

Analytical Solution to the Vortex-Excited Vibration of Tether in the Submerged Floating Tunnel 164
Jian Li and Yong-sheng Li

Effect of Lubrication Strength on Efficiency of Slurry Pipe Jacking 170
S. Khazaei, W. Wu, H. Shimada, and K. Matsui

Study on Steel Pipe Mechanism during Culvert Box Extruding into Soft Soil 178
H. H. Zhu, X. Y. Li, J. K. Ge, S. G. Xiao, and Z. G. Yan

Direction Deviation Control during Double-O-Tube (DOT) Tunnel Construction 185
S.-L. Shen, F.-X. Cai, T.-H. Bai, and J.-M. Zhu

3-D Numerical Simulation of Air Losses in Compressed Air Tunneling 193
G. Steger and S. Semprich

An Innovated Support System for Super Cross-Section Highway Tunnel with Lower Flat-Ratio 201
Y. Yuan and S.-H. Wang

Optimal Design and Analysis for Reasonable Distance of Twin-Tube Crossing-River Shield Tunnel 208
C. C. Xia, W. Wang, Z. Lin, X. Zhao, and H. H. Zhu

The Application of Stereo-Analytical Method for Block Theory to the Stability Analysis of Longtan Hydropower Station Underground Power-House 216
C. C. Xia, H. H. Mao, Z. X. Zhang, X. Zhao, and L. D. Yang

Analysis on Construction Influence of Shield Machine Passing Beneath Old Running Subway Tunnels 224
Q. W. Xu and H. H. Zhu

The Analysis of Underground Chambers Destabilization Induced by Blasting Vibration Based on Catastrophe Theory 232
C. B. Yan and G. Y. Xu

Numerical Simulation of Interaction between Pile Foundation and Adjacent Tunnel 240
J.-Y. Yan, Z.-X. Zhang, H.-W. Huang, and R.-L. Wang

Numerical Analysis and Field Test on Performance of Steel Fibre Reinforced Concrete Segment in Subway Tunnel 248
H. H. Zhu, Z. G. Yan, S. M. Liao, F. J. Liu, and L. J. Zeng

A Study of Ventilation Measures in Tunnel Fire 256
Z. G. Yan, Q. X. Yang, and H. H. Zhu

Earth Pressure on Linings of Shield Tunnel 264
D. T. C. Yao, J. H. Guo, and H. C. Chao

An Analytical Solution for DOT Shield-Driven Tunnel Lining 272
Z. X. Zhang, Z. Li, and J. -Y. Yan

Research on Design Technology of Road Tunnel under Airport Taxiway in Soft Ground 280
H. T. Zhi, Z. H. Zhang, and S. J. Du

Numerical Studies of Fracture Initiation and Propagation in Stiff Soil 288
S. Y. Wang, A. T. Yeung, S. K. Au, Fang Zhen, H. Q. Zhang, and X. Q. Yang

An Evaluation of Theoretical Solutions for Prediction of Ground Movements Due to Shallow Tunneling in Soils 296
Yanyong Xiang

2D Model Tests and Numerical Simulation in Shallow Tunneling Considering Existing Building Load 304
H. M. Shahin, E. Sung, T. Nakai, M. Hinokio, M. Kikumoto, M. Yamamoto, and Y. Tabata

Deep Excavation

Fuzzy Fault Tree Analysis of Failure Probability of SMW Retaining Structures in Deep Excavations 312
Y. H. Bian and H. W. Huang

Three-Dimensional Displacement Computation and Construction Pre-Control of Foundation Pit in Deping Station of Shanghai Track Traffic Line 6 Project 320
Y. L. Chen, R. Azzam, and F. B. Zhang

Bearing Capacity of Multiple Strip Footings and Critical Spacing between Unlagged Soldier Piles—A Classical Plasticity Solution 328
G. Zuo, E. C. Drumm, and J. Lam

New Technologies for Tracking Urban Excavation Progress and Estimating Deformations 336
Y. M. A. Hashash, L. Y. Liu, J. Ghaboussi, C. Marulanda, Y. Y. Su, H. Song, and A. Osouli

Design Reliability of Strutted Excavations in Cohesionless Soils 342
Yasser A. Hegazy

Estimation of Wall Deflection in Deep Excavation—Neural Network Approach 348
Evan C. L. Hsiao, Gordon T. C. Kung, C. Hsein Juang, and Matt Schuster

Several Comments on Influence Zone Depth Progress in Deep Hole Foundations 355
P. Kuklík

Ground Settlement Caused by Excavation in Clay—An Empirical Method 363
Gordon T. C. Kung, C. Hsein Juang, and Evan C. L. Hsiao

Application of Circular Retaining Structure in Shoring Deep Soft Clay Excavation 371
A. G. Li, S. X. Jiang, K. W. Wen, and K. C. Zhang

Analysis of Settlement Due to Withdrawal of Groundwater around an Unexcavated Foundation Pit 377
S.-L. Shen, C.-P. Tang, Y. Bai, and Y. S. Xu

Performance of a Deep Excavation Constructed Using the United Method: Bottom-Up Method in the Main Building Part and Top-Down Method in the Annex Building Part 385
J. H. Wang, Z. H. Xu, G. E. Di, and W. D. Wang

Performance of Base Grouted Bored Piles in Specially Big Excavation Constructed Using Top-Down Method 393
W. D. Wang, J. B. Wu, and G. E. Di

Settlement Analysis in Deep Excavations by Top-Down Construction in Soft Soils Using FEM 401
Xiongyao Xie, Yongsheng Li, and Hongwei Huang

Design of Shoring System for a Deep Foundation Pit Excavation 409
Jun Zhang, Zhiyin Yang, and Xuqiang Li

Design and Construction Aspects of the Largest "Pile Curtain" Retaining Structure Built in the Tropical Soil of the Brazilian Central Area 415
R. P. Cunha, A. G. B. Medeiros, and C. M. Silva

Indexes

Subject Index 423

Author Index 425