

12th International Conference on Computer Methods and Advances in Geomechanics 2008

**Goa, India
1-6 October 2008**

Volume 1 of 6

ISBN: 978-1-62276-176-0

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2008) by the International Association for Computer Methods
and Advances in Geomechanics (IACMAG)
All rights reserved.

Printed by Curran Associates, Inc. (2012)

For permission requests, please contact the International Association for Computer Methods
and Advances in Geomechanics (IACMAG)
at the address below.

International Association for Computer Methods
and Advances in Geomechanics (IACMAG)
c/o Professor D. N. Singh
Indian Institute of Technology
Geotechnical Engineering Division/ Civil Engineering Department
Powai, Mumbai 400076 India

dns@civil.iitb.ac.in

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2634
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

Volume 1

TOPIC 01 COMPUTATIONAL ADVANCES IN NUMERICAL AND ANALYTICAL METHODS, DIRECT AND INVERSE PROBLEMS, PRACTICAL APPLICATIONS

2-D Non-Orthogonal Spline Wavelets and Schneider's Level-dependent Scheme for 3-D Boundary Elements Method	1
<i>Massoud Hooshmand, Khosrow Bargi</i>	
3D Stability Computation of the Praid Salt Mines Momplex Using DKR Control Method	8
<i>Gyorgy Déák, St. E. Déák, S. O. Mihai</i>	
A Bounding Surface Plasticity Model for Soils with Stress Increment Direction Dependent Plastic Potential	16
<i>Nasser Khalili, Martin Liu</i>	
A Finite Element Study of Beam on Reinforced Granular Beds with Sand Drains	24
<i>Sarvesh Chandra, C. S. Upadhyay, Imran Ahmad, Arindam Dey</i>	
A New Approach to Rapid 3D Mapping of Rock Mass Structure	32
<i>Alparslan Turanboy, Erkan Ülker</i>	
A Numerical Analysis of Non-destructive Tests for the Maintenance and Assessment of Corrosion of Rockbolts and Rock Anchors	40
<i>Omer Aydan, S. Tsuchiya, T. Kinbara, F. Uehara, N. Tokashiki, T. Kawamoto</i>	
A Practical Approach for Estimation of Lateral Load on Piles Under Earthquake	46
<i>Indrajit Chowdhury, Shambhu Dasgupta</i>	
A Quasi-Static Method for Large Deformation Problems in Geomechanics.....	55
<i>Pieter Vermeer, Lars Beuth, Thomas Benz</i>	
A Stabilization Procedure for Soil-water Coupled Problems Using the Mesh-free Method.....	64
<i>Toshiyuki Shibata, Akira Murakami</i>	
A Statistical Model for Slurry Thickening.....	71
<i>Shahid Azam, Syed Imran</i>	
A Study of Thermal Behavior of the Openings Effected by High Temperatures	78
<i>Naoki Kinoshita, Hideaki Yasuhara, Yoshinori Inada</i>	
An Experimental Study on the Behaviour of Vertically Loaded Piled Raft on Soft Clay.....	84
<i>Sudhir Bajad, R. B. Sahu</i>	
Analytical and Computational Results for the Interpretation of Cable Jacking Tests on Rock Masses.....	92
<i>A. P. S. Selvadurai</i>	
Application of a Multilaminated Model for Soils to Practical Boundary Value Problems	101
<i>Helmut Schweiger, Vahid Galavi, Florian Scharerger</i>	
Application of Cosserat Continuum Approach in the Finite Element Shear Strength Reduction Analysis of Jointed Rock Slopes	110
<i>Azadeh Riahi, John Curran</i>	
Application of Digital Image Processing Techniques for Asphalt Concrete Mixture Images	119
<i>H. M. Zelelew, Athanassios Papagiannakis, E. Masad</i>	
Application of Large Three-Dimensional Finite Element Analyses to Practical Problems	125
<i>F. H. Lee</i>	
Application of Optimization and other Evolutionary Techniques in Geotechnical Engineering	133
<i>P. K. Basudhar</i>	
Application of Symmetric Galerkin Boundary Element Method on Elastostatic Neumann Problems	146
<i>Yung-Yen Ko, Cheng-Hsing Chen</i>	
Benchmarking of FEM Technique Involving Deep Excavation, Pile-soil Interaction and Embankment Construction	154
<i>Dominic Ong</i>	
Calibration of Micromechanical Parameters to Reproduce a Frictional Cohesive Continuum by the Distinct Element Method	163
<i>Stefano Utilli, Roberto Nova</i>	
Comparative Analysis on Earthquake Response of Subway Tunnels Between Numerical Simulation and Shaking Table Test	171
<i>Guo-Xing Chen, Xi Zuo, Hai-Yang Zhaung, Xiu-Li Du</i>	
Comparison Between Finite Element Method and Equilibrium Element Method to Predict Stress Field in Fault-Bend Folds	178
<i>Pauline Souloumiac, Modaressi Farahmand Razavi</i>	
Comparison of MSSOR versus ILU(0) Preconditioners for Biot's FEM Consolidation Equations	185
<i>Kok Kwang Phoon, Krishna Bahadur Chaudhary, Kim Chuan Toh</i>	
Computation of Soil Penetration at Finite Strains by Using Arbitrary Lagrangian-Eulerian Methods.....	193
<i>Daniel Aubram, Frank Rackwitz, Stavros Savidis</i>	
Conventional and Advanced Numerical Methods of Rock Slope Stability Analysis, a Comparison Study, Gotvand Dam Right Abutment (Iran) Case Study	203
<i>Ahmad Mahboubi, Mohammad Aminpour, Ali Noorza</i>	

Dual Continuum Fluid Flow Simulation in Stress Sensitive Naturally Fractured Reservoirs	212
<i>Abdul Ravoof Shaik, Mohammad Ali Aghighi, Nam H. Tran, Altaf Syed, Sheikh Rahaman</i>	
Dynamic Analysis of 3D Saturated Poroelastic Media with Boundary Element Method	220
<i>Morteza Jiryaei Sharahi, Mohsen Kamalian</i>	
Dynamic Analysis of Geotechnical Problems by Arbitrary Lagrangian-Eulerian Method	229
<i>Majidreza Nazem, John Carter</i>	
Effect of Arching on Passive Earth Pressure Coefficient	236
<i>Rupa Sunil Dalvi, P. J. Pise</i>	
Efficient Block Preconditioners for the Numerical Modelling of Geological Faults	244
<i>Massimiliano Ferronato, Giuseppe Gambolati, Carlo Janna</i>	
Energy Analysis of Hydraulic Fracturing	251
<i>Aliakbar Golshani, Thanh Tran-Cong</i>	
Estimation of Probable Occurrence of Earthquakes in Chandigarh Region, India	260
<i>Abha Mittal, R. Dharmaraju, Gayatri Devi</i>	
Evaluation of Free Vibration Characteristics of Steel Space Frames	266
<i>Ciniitha Padikaparambil, Rama Raju, Nagesh Iyer</i>	
Experimental and Numerical Studies of Load Transfers and Arching Effect	273
<i>Bastien Chevalier, G. Combe, P. Villard</i>	
Fast Estimation of the Influence Zone Depth Inside the Subsoil in Relation to the Various Shapes of Footing	281
<i>Pavel Kuklik, Marie Kopáčková, Miroslav Broucek</i>	
Finite Element Investigation of Base Tilt Effect on Shallow Foundation Collapse	289
<i>J. M. M. C. Marques, R. N. T. Teixeira</i>	
Generation and Evaluation on Random Polyhedron Aggregate Model	297
<i>Junyong Wu, Zhengyu Ren</i>	
How Far Does Surface Heave Propagate? A Discussion on Analytical and Numerical Modeling of the Surface Heave Induced by Subsurface Fluid Injection	303
<i>Asanga Sanjeevee Nanayakkara, Ron Wong</i>	
Importance of Nonlinearity in Finite Element Analysis of a Braced Excavation in Soft Soils	312
<i>F. Cai, K. Ugai, A. Nakamura</i>	
Influence of the Reinforcement Inclinations on the Mechanical Behaviour of Reinforced Sand Samples	321
<i>Umberto Arosio</i>	
Lower Bound Shakedown Analysis in Geotechnics	328
<i>Scott Sloan, Kristian Krabbenhoft, Andrei Lyamin</i>	
Mathematical Model to Predict Swelling of Expansive Soil	336
<i>Abdullah Al-Mhaidib</i>	
Modeling of Polishing Mechanism in Magnetic Abrasive Polishing	344
<i>M. G. V. S. Raghuvaran, Suhas Joshi</i>	
Modeling Seismic Wave Propagation in 1D/2D/3D Linear and Nonlinear Media	353
<i>Jean-Francois Semblat</i>	
Non-Coaxial Theories of Plasticity for Granular Materials	361
<i>Hai-Sui Yu</i>	
Non-Linear Soil Structure Interaction of Shear Wall System with Super Element	379
<i>Masoud Paknahad, Mohd Saleh Jaafar, Waleed Abdul Thanoon, J. Noorzaei</i>	
Non-stationary Response of Multi-supported Spatially Extended Structures with Continuous Wavelet Transform	386
<i>Arunasis Chakraborty, Biswajit Basu</i>	
Numerical Analysis of the Interaction between Hydraulic Powered Support and Surrounding Rock Strata at Indian Longwall Faces	394
<i>A. K. Verma, Debasis Deb</i>	
Numerical Homogenization of Elastic Behavior of Fractured Rock Masses and Micro-Cracked Materials by FEM	403
<i>Ahmad Pouya, Michel Chalhoub</i>	
Numerical Modeling and Analysis of Micro Piled Square Footing in Silty Sand over Limestone Rock in Riyadh	411
<i>Hussain Alawaji</i>	
Numerical Modeling of Liquefaction-Induced Lateral Spreading	417
<i>Juan Mayoral, F. A. Flores, Miguel P. Romo</i>	
Numerical Modelling of EPS Seismic Buffers	425
<i>Richard Bathurst, S. Zarnani</i>	
Numerical Simulation of a Soilbag Under Vertical Compression	433
<i>Sandy Tantono, Erich Bauer</i>	
Numerical Simulation of Mechanized Tunnelling as Part of an Integrated Optimization Platform for Tunnelling Design	440
<i>G. Meschke, Felix Nagel, Janosch Stascheit, M. Stavropoulou, G. Exadaktylos</i>	
Numerical Simulations of Laboratory Experiments for Determining the Post-Yielding Mechanical Parameters of Soil and Rock	455
<i>Shunsuke Sakurai, Masato Shinji</i>	
On Finite Element Implementation for Cam Clay Model	462
<i>Dipika Devi, Arbind Kumar Singh</i>	
On The Determination of Green's Tensor for a Granular Elastic Medium with Application to Wave Propagation in the Random Medium	471
<i>Gayatri Chattopadhyay, Rabindra Kumar Bhattacharyya</i>	

Operational Philosophy Based on Local Canal Controller(Pi) Algorithm	480
<i>J. S. R. Murthy, J. Chandrasekhar, Vinodkumar Mohansinh Rana</i>	
Parallel Computing Methods for Modelling THM Processes in Rocks.....	490
<i>Radem Blaheta, P. Byczanski, R. Kohut, J. Stary</i>	
Particle-Based Discrete Element Modelling: A Geomechanics Overview	498
<i>Catherine O'Sullivan</i>	
Practical Matrix Compression Strategies and their Properties for Cost Reduction in Wavelet BEM.....	506
<i>Khosrow Bargi, Massoud Hooshmand</i>	
Requirements on the Application of Numerical Methods on ULS Proofs in Geotechnics.....	513
<i>Rolf Katzenbach, G. Bachmann, C. Gutberlet</i>	
Response of Rectangular Raft Foundations Under Transient Loading	524
<i>Jagat Jyoti Mandal, S. Roychowdhury</i>	
Role of Soil Inhomogeneity in Pile Radiation Damping for SSI Applications	531
<i>G. E. Mylonakis, C. Syngros</i>	
Shakedown of Cohesive-frictional Non-homogeneous Soils under Moving Surface Loads.....	538
<i>Jidong Zhao, Andrei Lyamin, Scott Sloan</i>	
Simplification of the Burnmister's Problem by Means of Skew Functions of Discontinuum Mechanics.....	546
<i>Calixtro Yanqui</i>	
Simulation of Short Term and Long Term Responses of the Tournemire Argillite in a Mine-by-Test Experiment.....	555
<i>Alain Millard, Amel Rejeb</i>	
Soil Load Mobilization in Axially Loaded Buried Polyethylene Pipes	561
<i>Lalinda Weerasekara, Dharma Wijewickreme, Gary Johnson</i>	
SPH-Based Numerical Simulations for Large Deformation of Geomaterial Considering Soil-Structure Interaction	570
<i>Ha Bui, K. Sako, R. Fukagawa, J. C. Wells</i>	
The Effect of Tunnel Advance Rate on the Surface Settlements.....	579
<i>George Anagnostou</i>	
The Effects of Geotechnical Material Properties on the Convergence of Iterative Solvers	587
<i>Charles Augarde, R. S. Crouch, T. Li, A. Ramage</i>	
The Generalised-α Algorithm for Dynamic Coupled Consolidation Problems in Geotechnical Engineering.....	595
<i>Stavroula Kontoe, Lidija Zdravkovic, David Potts</i>	
The Role of Friction in Mixing and Segregation of Granular Material.....	603
<i>Algis Dziliys, Robertas Navakas</i>	
The Stability Analysis of Rock Mass Surrounding the Inlet Section of Gardaneh Rokh Tunnel Using Empirical and Numerical Method, Shahrekhord-Esfahan Highway.....	611
<i>Mahmoud Hashemi, A. Ghazifard, V. Alian</i>	
Theoretical Model and Numerical Analysis on Unsaturated Expansive Soil Slope during Digging and Climate Change Courses (II)-Numerical Analysis	618
<i>Zheng-Han Chen, Zai-Hua Lu, Jianfeng Guo, Xiang-Wei Fang, Hai-Qing Zhou</i>	
Three-Dimensional Finite Element Simulations of Compression Tests on Bimrock.....	631
<i>Mauro Borri-Brunetto, Monica Barbero, Mariacristina Bonini</i>	

TOPIC 02 CONSTITUTIVE MODELING FOR SOILS AND ROCKS, AND INTERFACES AND JOINTS

A Dimensionless Model for Soil Swelling Behaviour.....	638
<i>Olivier Buzzi, Anna Giacomini, Stephen Fityus</i>	
A Hypoplastic Model for Clays Improved for Undrained Conditions	645
<i>David Masin, I. Herle</i>	
A Lode Angle Dependent Formulation of the Hardening Soil Model	653
<i>Thomas Benz, Markus Wehnert, Pieter Vermeer</i>	
A Microstructural Model for Cemented Sand	661
<i>Pierre-Yves Hicher, Christophe Dano, Ching Chang</i>	
A Multiple-Plane Plasticity Model for Rock Materials. Part I: Definitions of Strength	669
<i>Fermín Sánchez, Pere C. Prat</i>	
A Multiple-Plane Plasticity Model for Rock Materials. Part II: Verification and Applications	678
<i>Fermín Sánchez, Pere C. Prat</i>	
A New Approach to the Modelling of the Pressure-Dependency of the Strength of Rocks	686
<i>Marek Kwasniewski</i>	
A Novel Kinematic Hardening Rule to Simulate the Cyclic Behavior of Material.....	694
<i>Md. Raquibul Hossain, Mohammed Saiful Alam Siddiquee, Syed Ishtiaq Ahmad</i>	
A Refined DEM Study of Grain Size Reduction in Uniaxial Compression	702
<i>Oded Ben-Nun, Itai Einav</i>	
Advanced Constitutive Model for Unsaturated Structured Soil with Double Porosity.....	709
<i>A. Koliji, Lyesse Laloui, L. Vulliet</i>	
Alterations of Breakdown Pressures in Rocks Exhibiting Stress-dependent Mechanical Properties	716
<i>Pawel Nawrocki</i>	
An Energy Based Excess Pore Pressure Generation Model Using Damage Potential.....	723
<i>Keun-Bo Park, Seong-Yong Park, Inn Joon Park, Soo-Il Kim</i>	
Application of a Bond Model for Constitutive Modeling of Cemented Gravely Sands.....	732
<i>Amir Hamidi, Mohsen Haeri</i>	

Application of an Uncoupled ALE-formulation to Confined Granular Flow in Silos	739
<i>Michał Wojcik, Jacek Tejchman</i>	
Application of the Intergranular Strain Concept to the Hypoplastic Modelling of Non-Adhesive Interfaces	747
<i>Michael Arnold</i>	
Can We Trust Numerical Collapse Load Simulations Using Non-associated Flow Rules?	755
<i>Steinar Nordan</i>	
Constitutive Modeling of a Jointed Silica Lime Rock	763
<i>Rakesh Kumar, K. G. Sharma, A. Varadarajan</i>	
Constitutive Modeling of Rocks, Rock Joints and Rock Masses Including Strain Softening Behaviour	771
<i>Krishan Gopal Sharma, A. Varadarajan, Rakesh Kumar</i>	
Constitutive Models for Simulation of Field Performance of Dams	779
<i>Maria Dolezalova, Ivo Hladík</i>	
Description of Time-Dependent Deformation in Sedimentary Rocks	789
<i>Stan Pietruszczak, D. Lydzba, J. F. Shao</i>	
Evaluation of Deformability Properties of Rocks with Overlapping Inclusions by Different Averaging Methods	797
<i>N. Tokashiki, Omer Aydan</i>	

Volume 2

Evolution of Dilatancy Angle during Shearing of Kaolin Clay with Different Microfabrics	805
<i>M. Mukherjee, Ajanta Sachan</i>	
FE-Investigations of Micro-polar Boundary Conditions Along Interface between Soil and Structure	813
<i>Jacek Tejchman, Wu Wei</i>	
Interpretation of Piezocones in Silt, Using Cavity Expansion and Critical State Methods	822
<i>Christian Leblanc, Mark Randolph</i>	
Issues in Modeling the Stress-Strain Behavior of Kaolin Clay with Dispersed Microfabric	830
<i>Gyan Vikash, Amit Prashant</i>	
Mathematical Modelling of Venetian Sediment Behaviour Using Generalized Plasticity	838
<i>Simonetta Cola, Laura Tommi, M. Pastor</i>	
Mathematical Theory of Plasticity for Frictional Materials.....	847
<i>Kristian Krabbenhoft</i>	
Micromechanics of Rough Interfaces.....	853
<i>Anil Misra, Orestes Marangos</i>	
Microstructural Modeling of Rate-Dependent Behavior of Soft Soil	862
<i>Zhen-Yu Yin, Ching-Shing Chang, Pierre-Yves Hicher, Minna Karstunen</i>	
Modeling the Granular Nature of Soils.....	869
<i>Ian Collins, Bai Qu, Siyan Wang</i>	
Modelling of Degradation of Clayey Soils under Repeated Loading.....	877
<i>K. V. Sridhanya, K. Rajagopal, C. Lakshmana Rao</i>	
Modelling the Volumetric Deformation of Naturally Structured Clays during Subyielding	883
<i>Jirayut Suebsuk, Suksun Horpibulsuk, Martin Liu</i>	
Modelling Tunnel Performance in Expansive Gypsum Claystone	891
<i>Eduardo E. Alonso, Sebastià Olivella</i>	
Multilaminate and Micropalane Models: Same Principles and Different Solutions for Constitutive Behaviour of Geomaterials	911
<i>Fermin Sánchez, Pere C. Prat, Vahid Galavi, Helmut Schweiger</i>	
Multi-Mechanism Anisotropic Constitutive Model for Granular Materials.....	920
<i>Annalingam Anandarajah</i>	
Numerical Modelling of the Time-Dependent Behaviour of Venice Lagoon Silts.....	929
<i>Valentina Berengo, Martino Leoni, Paolo Simonini</i>	
Raft and Pile Foundations under Cyclic Loading.....	937
<i>Simon Meissner, Hubert Quick, Uluvi Arslan</i>	
Review of Visco-Plastic Soil Models for Predicting the Performance of Embankments on Soft Soils	945
<i>Md. Rajibul Karim, Carthigesu Gnanendran</i>	
Soil-Structure Interface Modeling: Application to Pile Axial Loading.....	957
<i>Sofia Costa D. Aguiar, A. Modaresi Farahmand-Razavi, F. Lopez-Caballero, J. A. Santos</i>	
Some Recent Developments in Constitutive Modelling of Soft Clays	966
<i>Minna Karstunen, Zhenyu Yin, Mirva Koskinen, Martino Leoni, P. A. Vermeer</i>	
The Characterization of the Grains and the Pores, Applications	976
<i>János Lörincz, Tibor Tarnai, Q. Phong Trang, Emőke Imre, István Talata, Gábor Telekes, Alexander Scheuermann, Olivier Semar, Karl Josef Witt</i>	
The Initial and Induced Fabric Anisotropy of Granular Materials	984
<i>Xia Li, Xiang-Song Li, Hai-Sui Yu</i>	
Theoretical Undrained Shear Behaviour of Unsaturated Soils	992
<i>Michinori Honda, S. Ohno, A. Ilzuka, K. Kawai, H. Ohta</i>	
Thermodynamic Basis of Unsaturated Soil Modeling.....	998
<i>Xiang Song Li</i>	

TOPIC 03 MICROCRAKING, FRACTURE, LOCALIZATION, FAILURE

A 3D Generalized Rigid Particle Contact Model for Fracture Analysis	1005
<i>Nuno Monteiro Azevedo, J. Vieira De Lemos, J. Rocha De Almeida</i>	
Application of the Elemental Degradation Approach to Problems in Rock Engineering.....	1013
<i>John Harrison</i>	
Energy Balance Approach to Shear Band Propagation in Shear-Blade Tests	1024
<i>Erich Saurer, Alexander Puzrin</i>	
FE-Modeling of Shear Resistance Degradation in a Sand Body During Cyclic Shearing Under CNS Condition	1032
<i>J. Tejchman, Erich Bauer</i>	
FE-studies of a Deterministic and Statistical Size Effect in Granular Bodies Including Shear Localization	1040
<i>Jacek Tejchman, J. Górski</i>	
FRACOD Modeling of Rock Fracturing and Permeability Change in Excavation Damaged Zones	1048
<i>Ove Stephansson, Baotang Shen, Mikael Rinne, K. Amemiya, R. Yamashi, S. Toguri</i>	
Fracture Mechanics for Crack Propagation in Drying Soils.....	1060
<i>Pere C. Prat, Alberto Ledesma, M. R. Lakshminatha, H. Levatti, J. Tapia</i>	
Hydro-Mechanical Modelling of Underground CO₂ Storage and Risk Evaluation through a Probabilistic Fracturing Model.....	1068
<i>Nicolas Guy, M. Seyed, François Hild</i>	
Investigation of the Stress Imaging in Rock Samples using Numerical Modelling and Laboratory Tomography	1075
<i>R. Mitra, E. C. Westman</i>	
Modeling Evaporation, Shrinkage and Cracking of Desiccating Soils.....	1083
<i>Liang Bo Hu, Tomasz Hueckel, Herve Péron, Lyesse Laloui</i>	
Modelling Borehole Collapse with Capability of Predicting the Radius Size Effect.....	1091
<i>Panos Papanastasiou, Marc Thiercelin</i>	
Modelling of Desiccation Crack Development in Clay Soils.....	1099
<i>Susanga Costa, Jayantha Kodikara, N. I. Thusyanthan</i>	
Natural Fracture Patterns in Layered Rocks: Initiation and Propagation Mechanisms.....	1108
<i>Daniel Quesada, Claude Putot, Dominique Leguillon</i>	
Numerical Modeling of Desiccation Cracking in Compacted Soils	1116
<i>Gokhan Inci</i>	
Numerical Modeling of Rock Mechanics Tests in Layered Media Using a Finite/Discrete Element Approach	1126
<i>S. Stefanizzi, Giovanni Barla, P. K. Kaiser, G. Grasselli</i>	
Numerical Modelling of Orientation of Partly Drained Shear Band.....	1132
<i>Vikas Thakur, Steinar Nordal, Aleksandar Stijacic, Hans Petter Jostad, L. Andresen</i>	
The Use of Fracture Mechanics for the Study of the Progressive Failure in Geomaterials.....	1140
<i>Claudio Scavia, Marta Castelli</i>	

TOPIC 04 COUPLED PHENOMENA, HYDRO- THERMO- CHEMICO- MECHANICAL RESPONSE OF GEOMATERIALS, ELECTRICAL AND THERMAL PROPERTIES OF CLAYS, CLAY MEMBRANE BEHAVIOR

A Column Device to Study THM Behaviour of Expansive Soils.....	1149
<i>Manju Mishra, Tom Schanz, Snehasis Tripathy</i>	
Consolidation Analysis Using Finite Element Method	1157
<i>Krishnamoorthy Nayak</i>	
Coupled Consolidation and Contaminant Transport in Compressible Porous Media	1162
<i>Patrick Fox, Jangguen Lee, John Lenhart</i>	
Coupled Numerical Simulation of Geothermal Energy Systems	1170
<i>R. Katzenbach, Frithjof Clauss, Thomask Wabersec, Isabel Wagner</i>	
Formulations for the Response of Saturated Porous Media: Validity for Geomechanics Problems	1180
<i>M. B. C. Ulker, M. S. Rahman</i>	
Methane Hydrate Bearing Sediments: A New Subject of Geomechanics	1188
<i>Koji Yamamoto</i>	
Modelling the Response of Argillaceous Rocks in Underground Excavations	1197
<i>Antonio Gens, Benoit Garitte, Jean Vaunat</i>	
Numerical Analysis of the Life-time of an Abandoned Gypsum Mine	1210
<i>D. Betti, G. Buscarnera, Riccardo Castellanza, Roberto Nova</i>	
Numerical Modeling For Mechanical Behavior Of Granular Materials Subjected To Freeze-Thaw Action With DEM	1219
<i>Tatsuya Ishikawa, Seiichi Miura</i>	
Physics and Engineering of Montmorillonite Clay Leading to Discovery of C.N.S.L. Phenomenon.....	1227
<i>Ramanath Katti, Anand Katti</i>	
Plane Strain Quasi-static Deformation of a Poroelastic Half-space in Welded Contact with an Elastic Half-space due to Tensile Faulting.....	1234
<i>Sunita Rani, S. J. Singh</i>	
Poro-hydro-thermal Analyses of Heat Transport in the Limestone around the District Heating Tunnel in Copenhagen	1240
<i>Thomas Kasper</i>	

Quasi-static Axisymmetric Deformation of a Poroelastic Half space with Anisotropic Permeability and Compressible Constituents by Surface Loads	1248
<i>Sarva Jit Singh, S. Rani, R. Kumar</i>	
Simulating Long Term Reactive Transport of CO₂ in Saline Aquifers with Improved Code RetrasoCodeBright	1255
<i>B. Kvamme, S. Liu</i>	
Three Dimensional Analyses of Combined Gas, Heat and Nuclide Transport in a Repository Considering Thermo-Hydro-Geo-Mechanical Processes	1264
<i>Vijen Javeri, B. Baltes</i>	

TOPIC 05 TESTING AND MODELING: LABORATORY AND FIELD TESTING, PHYSICAL MODELING, GEOTECHNICAL CENTRIFUGE MODELING

A Comparison Between Angle of Repose and Friction Angle of Sand	1272
<i>Mahmoud Ghazavi, M. Hosseini, M. Mollanouri</i>	
A Comparison of the Results of the Numerical Analysis and the Physical Behavior of a Pipe Buried in Reactive Clay	1276
<i>Chaminda P. K. Gallage, J. K. Kodikara, Derek Chan, Paul Davis</i>	
Anchoring Effect of Geotextile in Sand	1285
<i>Raj Khera</i>	
Assessment of Efficiency of Different Cluster Analysis Methods for Evaluation of a Stratigraphy of Strongly Laminated Subsoil	1291
<i>Zb. Mlynarek, J. Wierzbicki, W. Wolynski, W. Tschuschke</i>	
Collapses of Underground Cavities and Soil-structure Interactions: Influences of the Position of the Structure Relative to the Cavity	1300
<i>M. Caudron, M. Al Heib, Fabrice Emeryault</i>	
Constitutive Modeling of Normal Strength and High Performance Concrete using Hierarchical Single Surface Model	1308
<i>Musharraf Zaman, Pranshu Solanki, Pei-Yin Chin</i>	
Cyclic Lateral Response of Model Pile Groups in Clay	1316
<i>S. S. Chandrasekaran, A. Boominathan, G. R. Dodagoudar</i>	
Determination of Coefficient of Permeability From Soil Percolation Test	1324
<i>Jayantha Fernando</i>	
Effect of Erosion on the Hydrogeological Behaviour of Badland Surfaces in Western Canada	1332
<i>Shahid Azam</i>	
Effects of Particle Shape and Microstructure on Strength and Dilatancy During a Numerical Direct Shear Test	1340
<i>Wai Man Yan</i>	
Evaluation of Apparent Co-efficient of Friction between Soil and Nails	1346
<i>Meenal Gosavi, Swami Saran, Satyendra Mittal</i>	
Geotechnical Modelling of the Behaviour of Piles	1355
<i>Diganta Sarma, M. D. Sarma</i>	
Impact of Soil Magnetic Permeability on Water Content Prediction Using TDR	1365
<i>A. M. O. Mohamed</i>	
Laboratory and Numerical Modelling of a Jointed Rock Mass	1373
<i>Mahendra Singh, Bhawani Singh</i>	
Laboratory Investigation of Support Mechanism for Thin Spray-on Liners	1381
<i>V. Lau, S. Saydam, Yuejun Cai, Rudrajit Mitra</i>	
Liquefaction of Heterogeneous Soil: Centrifuge Study	1389
<i>Pradipta Chakrabortty, Radu Popescu, Ryan Phillips, Hesham Dief</i>	
Measurement of Stress Change Tensor by Conical Gauge Probe	1397
<i>L. Stas, K. Soucek, J. Knejzlik, P. Wacławik, L. Palla</i>	
Model and Prototype Testing of Well Rings as Foundation for Residential Buildings	1405
<i>Reshma. Rajendran, Arvee Sujil Johnson, N. Unnikrishnan, P. K. Jayasree</i>	
Novel Algorithm for the Estimation of Swell Pressure of Fine-grained Soils Based on Diffuse Double Layer (DDL) Theory	1413
<i>T. Venkata Bharat, P. V. Sivapullaiah, M. M. Allam</i>	
Numerical Study of Neutron Probe Measurement of Water Content in Expansive Soils	1420
<i>Wenxiong Huang, Stephen Fityus</i>	
Option for Improving the Deformation Behaviour of Compacted Clay Barriers Subjected to Differential Settlements	1428
<i>Bhamidipati V. S. Viswanadham, S. Rajesh, S. S. Sengupta</i>	
Permeability of Charnokite Rock at High Temperatures	1436
<i>R. D. Dwivedi, R. K. Goel, Anil Swarup, V. V. R. Prasad, R. K. Bajpai, P. K. Narayan, V. Arumugam</i>	
Permeability of Natural Clay Liners: Effect of Accelerated Permeability Testing on Soil Structure	1443
<i>C. Anderson, V. Sivakumar</i>	
Physical Experiments With Medium Granular Models under Lateral Passive Pressure	1451
<i>P. Koudelka</i>	
Physical Modeling of Seismic Responses of Underground Structures	1459
<i>O. Kusakabe, J. Takemura, A. Takahashi, J. Izawa, S. Shibayama</i>	

Preconsolidation Pressure from Soil Index and Plasticity Properties	1475
<i>Chandresh Solanki, M. D. Desai</i>	
Relationship between the Mean Particle Size, the Size Factor, Optimum Moisture Content, and Permeability of Sandy Soils.....	1480
<i>Ashok Kumar Gupta</i>	
Reliability Estimation of Flow Characteristics Obtained in Laboratory Tests	1486
<i>W. Sas, E. Malinowska, A. Szymanski</i>	
Reliability of Inclined Board Test on GCL.....	1493
<i>Mustapha Kebaili, A. Bali</i>	
Seeing Through the Ground - Mapping the Underworld Project.....	1502
<i>N. Metje, C. D. F. Rogers, D. N. Chapman</i>	
Shear Strain Calculation, and Determination of Failure Surface Using Image Processing Technique in Geotechnical Centrifuge Tests	1509
<i>Amin Askarinejad, Habib Shahnazari, Hosseyn Salehzade, Masoud Zare</i>	
Shear Viscosity of Clays to Compute Viscous Resistance	1516
<i>Sandeep Mahajan, Muniram Budhu</i>	
Soil-structure Interface Modelling: Influence of Impregnation.....	1524
<i>Diganta Sarma, M. D. Sarma</i>	
Some Investigations on Cracking Characteristics of Soils.....	1532
<i>K. Venkataramana, Rao B. Hanumantha, D. N. Singh, C. S. Harendranath, Sudarshan B. Shinde</i>	
Swell - Shrink Behaviour of Expansive Soils Under Stabilized Fly Ash Cushions	1539
<i>A. S. Rao, M. Rama Rao</i>	
Testing and Modeling the Hydraulic Permeability Evolution of Permeable Reactive Barriers Clogged by Colloids.....	1547
<i>Benoît Courcelles, Arezou Modaresi Farahmand-Razavi, Daniel Gouvenot, Annette Esnault-Filet</i>	
The Horizontal Capacity of Circular and Square Sheet Pile Foundations on Various Sand Densities.....	1555
<i>P. Punrattanasin</i>	
The Influence of Porosity on Dynamic Properties of the Snail Soil from the Ljubljana Marsh	1563
<i>L. Trauner, B. Žlender</i>	
The Stress-Strain-Strength Behaviour of a Completely Decomposed Granite Soil Measured Using a New Advanced True Triaxial Testing System.....	1571
<i>Jianhua Yin, Md. Kumruzzaman</i>	
The Study of In-situ Pore Pressure Monitoring of Seabed Soil Under Wave Loading	1580
<i>Lien-Kwei Chien, Wen-Chien Tzeng, Tsung-Shen Feng, S. C. Chang</i>	
The Use of Dissipated Energy in Cyclic Mobility Modeling	1588
<i>Stanislav Lenart</i>	
Three-Dimensional Numerical Simulations of Landslide for Slopes with Skewed Anchoring.....	1596
<i>Hemanta Hazarika, Tomokazu Ozawa, Yoichi Suzuki, Seishi Okuzono</i>	
Use of Retention-Soil-Filters for the Cleaning of Contaminated Water of Infrastructure Surfaces	1606
<i>R. Katzenbach, B. Astheimer, S. Wachter, A. Werner</i>	

TOPIC 06 ARTIFICIAL INTELLIGENCE TECHNIQUES/METHODS: NEURAL NETWORKS, EXPERT SYSTEMS, RELIABILITY, DATA-MINING, CASE-BASED REASONING, RISK ANALYSIS, GENETIC ALGORITHMS

A Genetic Algorithm for Identification of Slip Surfaces with Minimum Reliability	1612
<i>A. Fahd, R. Jimenez</i>	

Volume 3

Allowable Pressure of Strip Footing in Spatially Varying Cohesionless Soil - A Probabilistic Approach	1619
<i>Dasaka Satyanarayana Murty, G. L. Sivakumr Babu</i>	
Applicability of Statistical Learning Algorithms for Seismic Attenuation Prediction	1627
<i>Sarat Kumar Das, Pijush Samui</i>	
Application of Artificial Neural Networks (ANNs) in Prediction and Interpretation of Pressuremeter Test Results	1634
<i>S. H. Yasrebi, M. Emami</i>	
Application of Neural Networks in Coastal Engineering - An Overview.....	1639
<i>S. Mandal, Sanjay G. Patil, Y. R. Manjunatha, A. V. Hegde</i>	
Artificial Neural Network Based Backcalculation of Conventional Flexible Pavements on Lime Stabilized Soils.....	1647
<i>O. Pekcan, E. Tutumluer, M. R. Thompson</i>	
Artificial Neural Networks for Coastal and Ocean Studies	1655
<i>M. C. Deo, Pooja Jain</i>	
Artificial Neural Networks for Snow Avalanche Forecasting in Indian Himalaya.....	1664
<i>Amreek Singh, Ashwagosha Ganju</i>	
Comparison of Compaction Control Parameters Obtained by Different Test Methods.....	1671
<i>Selim Altun, Alper Sezer, Volkan Okur, G. Ozden</i>	
Computed Analysis to Determine Service Life Criteria of Special Elements and Applications.....	1679
<i>M. Kopecky</i>	

Determination of Ground Behavior Using Fuzzy Logic.....	1686
<i>Kai Oberste-Ufer, N. Radonicic, D. Hartmann, W. Schubert</i>	
Extreme Learning Machine as a New Framework in Predicting Material Properties: Methodology and Comparison	1693
<i>Emad El-Sabakhy</i>	
Forecasting Embankment Dam Behaviour with Artificial Intelligence	1702
<i>Emilie Masse, Corinne Curt, Marc Le Goc</i>	
Future Challenges for Artificial Neural Network Modelling in Geotechnical Engineering	1710
<i>Mark Jaksa, H. R. Maier, M. A. Shahin</i>	
Fuzzy and Neural Network Models for Pollution Concentration Predictions in Streams	1720
<i>Raj Mohan Singh</i>	
Generalization of Field Measurement Data Based on a Neural Network.....	1730
<i>Hyu-Soung Shin, I. J. Park, G. N. Pande</i>	
Genetic Algorithm In Stability Of Non-Homogeneous Slopes.....	1737
<i>Asha Rao, Narayana Sabhahit</i>	
Ground Evaluation by Expert System	1744
<i>Arun Kumar, A. K. Basu, J. P. Sinsh</i>	
Ground Water Level Fluctuations Using Artificial Neural Network	1750
<i>V. Jothiprakash, Suhasini Sakhare</i>	
Intelligent Controller for Mobile Robot: Fuzzy Logic Approach	1755
<i>Mukesh Kumar Singh, Dayal R. Parhi, S. Bhownik, S. K. Kasyap</i>	
New Method for Generation of Artificial Earthquake Record	1763
<i>G. Ghodrati Amiri, A. Bagheri</i>	
Optimization of Mine Support Parameters Using Neural Network Approach	1770
<i>S. K. Kashyap, D. R. Parhi, A. Sinha, Mukesh Kumar Singh, B. K. Singh</i>	
Permeability Analysis Based on Information Granulation Theory	1780
<i>M. Sharifzadeh, H. Owladeghaffari, K. Shahriar, E. Bakhtavar</i>	
Predicting Horizontal Deformations Under an Embankment Using an Artificial Neural Network.....	1787
<i>Raymond Vandermeij</i>	
Prediction of Soil Properties from PCPT Pore Pressure Measurements Using Data Fusion	1795
<i>Pradeep Kurup, Erin P. Griffin</i>	
Probabilistic Analysis of the External Stability of MSE Structures Using Monte Carlo Simulations.....	1804
<i>Ioannis E. Zevgolis, Philippe L. Bourdeau</i>	
Probabilistic Reliability Estimation of An Axially Loaded Pile	1811
<i>Jungwon Huh, Achintya Haldar, Kiseok Kwak, Jaehyun Park</i>	
Pull Out Capacity Prediction Of Circular Plate Anchors In Cohesionless Soils Using Artificial Neural Networks.....	1818
<i>D. Padmini, K. Ilamparithi, K. P. Sudheer</i>	
Reliability-based Design of Earth-Fill Dams Considering Spatial Distribution of Strength Parameters	1827
<i>S. Nishimura, A. Murakami, Ken Matsuu</i>	
Risk Assessment of Surface Miner for Estonian Oil-Shale Mining Industry	1836
<i>Sergei Sabanov, Juri-Rivaldo Pastarus, Oleg Nikitin, Erik Väli</i>	
Settlement Prediction of Tropical Soft Soil by Artificial Neural Network (ANN)	1843
<i>P. K. Kolay, Ahmad Bustami Rosmina, Neng Wee Ling</i>	
Shaft Resistance of Driven Piles Based on CPT and CPTu Results Using GMDH-type Neural Networks and Genetic Algorithms.....	1850
<i>Hamed Ardalan, A. Eslami, N. Nariman-Zadeh</i>	
Solving Geoseismic Problems with Soft Computing.....	1859
<i>M. Romo, Silvia Garcia</i>	
Stress-Strain Prediction of Jointed Rocks Using Artificial Neural Networks	1872
<i>Arunakumari Garaga, G. Madhavi Latha</i>	
Swelling Pressure of Soil: Artificial Intelligence Technique Approaches	1880
<i>Sarat Kumar Das, Akshaya Kumar Sabat</i>	
The Dynamic Control of Crushing Mineral Raw Materials Using Neural Networks Technologies	1885
<i>M. V. Mikheleva</i>	
The Use of Neural Networks for the Prediction of Swell Pressure	1890
<i>Yusuf Erzin</i>	
Updating Uncertainties in Soil Shear Strength Parameters with Multivariate In-situ and Laboratory Test Data	1898
<i>Jianye Ching, Yi-Chu Chen, Kok-Kwang Phoon</i>	
Vibration Control of Underwater Blasting Works Using Artificial Neural Networks	1906
<i>R. Resende, J. Mata, Jorge Gomes, J. P. Neves</i>	
Volume Change Behaviour in Calcitic Soil Influenced with Sulphuric Acid Using Artificial Neural Networks	1915
<i>P. V. Sivapullaiah, B. Guru Prasad, M. M. Allam</i>	

TOPIC 07 COMPUTERS AND INFORMATION TECHNOLOGY: REAL-TIME INSTRUMENTATION AND MONITORING, RISK ASSESSMENT AND MANAGEMENT

A Method Study on Data Conversion between 3-D Geological Modeling Software and Numerical Simulation Software.....	1922
<i>An Guangming, Liu Da'An, Z. D. Cui, G. Y. Han, Sun Bo</i>	

Correlation Between CBR Strength and Fractal Dimensions of Sands	1928
<i>A. Sezer, Selim Altun, A. Burak Goktepe, Devrim Erdogan</i>	
Decision Support Systems for Geo-Environmental Engineering with Specific Reference to Contaminated Land Investigation	1936
<i>A. Bello-Dambatta, A. A. Javadi, J. Martin</i>	
Development and Practical Adoption of an Internet-based Platform for Geotechnical Engineering Projects	1943
<i>M. Mejstrik, P. Degebrodt, F. Rackwitz, Stavros A. Savidis</i>	
Development of an IT-based Monitoring System for Mountain Tunnel Construction	1952
<i>Xiaojun Li, Zhigang Li, Wengqi Ding, Hehua Zhu</i>	
International Data Exchange: The Future for Geo-engineering	1958
<i>David Toll</i>	
Landslide Hazard Automated Zonation (LHAZ) System.....	1966
<i>J. K. Ghosh, Devanjan Bhattacharya</i>	
Real Time Microseismic Monitoring to Study Geomechanics of Underground Structures	1972
<i>C. Sivakumar, C. Srinivasan, Y. A. Willy, Ch. S. N. Murthy</i>	
Service Oriented Architecture For GIS Applications	1980
<i>Pallavi Talegaonkar</i>	

TOPIC 08 EMERGING GEOMECHANICS: UNSATURATED SOIL AND ROCK MECHANICS, CARBON SEQUESTRATION, MULTI-PHYSICS & MULTI-SCALE, MICROMECHANICS, NANOMECHANICS, BIO-GEO INTERFACE: MOLECULAR MECHANICS AND MOLECULAR INTERACTIONS IN CLAYS

A Critical Review of the Methodologies Employed for Suction Measurement for Developing the SWCC	1988
<i>Sreedeep Sekharan, D. N. Singh</i>	
A Four Elements Porous Model to Estimate the Strength of Unsaturated Soils.....	1994
<i>E. Rojas, Alfredo Zepeda, M. L. Pérez-Rea, Julio C. Leal, G. Gallegos</i>	
A General Density Law for Sands	2003
<i>János Lorincz, Emoke Imre, Kálmán Rajkai, Tom Schanz, Stephen Fityus, Q. Phong Trang, János Puszta, Gábor Telekes</i>	
A Hyperbolic Model for Stress-strain Behavior of Unsaturated Soils.....	2012
<i>H. Rahmema</i>	
A Multiscale Computational and Experimental Investigation of Swelling Clay Behavior: Bridging Scales Using Steered Molecular Dynamics, Modified Discrete Element Method and Experiments	2022
<i>Dinesh Katti, Kapana Katti, Santiram Chatterjee, Priyanthi Amarasinghe, Steven Schmidt, Pijush Ghosh, Mohammad Matar</i>	
A Soil-Water Coupled Analysis of the Deformation of an Unsaturated River Embankment due to Seepage Flow and Overflow.....	2029
<i>Fusao Oka, S. Kimoto, R. Kato, T. Kodaka, S. Sunami</i>	
An Investigation of Unsaturated Soil Stiffness.....	2042
<i>Radhey Sharma, Ananth T. Bukkapatnam</i>	
Axial Segregation in Horizontally Vibrated Granular Materials: A Numerical Study.....	2049
<i>Ashish Bhateja, Jayant K. Singh, Ishan Sharma</i>	
Biology, the Next Frontier for Advanced Materials Design: Unearthing the Secrets to Extraordinary Mechanical Properties of Nacre, a Biological Nanocomposite	2058
<i>Kalpana Katti, Dinesh Katti, Santiram Chatterjee, Shashindra Man Pradhan, Devendra Verma, Pijush Ghosh, Arundhati Bhosle, Jingpeng Tang, Bedabibhas Mohanty</i>	
Characterization of Some Sand Mixtures.....	2064
<i>Emőke Imre, János Lorincz, Pál Rózsa</i>	
Cyclic Features of Polygon-shaped Materials Through DEM Simulations	2076
<i>E. Vincens, C. Nouguier-Lehon</i>	
Elasto-plastic Modelling of Unsaturated Soils: An Overview	2084
<i>Daichao Sheng, D. G. Fredlund</i>	
Geotechnical Characterization of Some Indian Bentonites for Their Use as Buffer Material in Geological Repository.....	2106
<i>Sudhakar M. Rao, Tahir Ahmad Kachroo, Mehter M. Allam, M. R. Joshi, A. Acharya</i>	
In-situ Soil Carbon Dioxide Flux Measurement From Forest Floor In Karasu Forests In Western Black Sea Region Of Turkey	2115
<i>H. V. Oral, Mert Güney, M. Ali Kucukler, Turgut Onay, N. Copty, O. Yenigün</i>	
Modelling the Stress versus Settlement Behavior of Model Footings in Saturated and Unsaturated Sandy Soils	2126
<i>Won Taek Oh, Sai K. Vanapalli</i>	
Nano and Neutron Science Applications for Geomechanics.....	2138
<i>Dayakar Penumadu, Amal K. Dutta, Xin Luo, Kenneth G. Thomas</i>	
Non-Isothermal Multi-Component Reactive Transport Model for Unsaturated Soil - Some Numerical Aspects.....	2150
<i>Suresh Seetharam, H. R. Thomas</i>	
Numerical Modeling of Smooth Geomembrane - Soil Interaction	2158
<i>S. Kazempoor, A. R. Mahboubi, Ali Noorzad</i>	
Numerical Particle-Scale Study of Swelling Pressure in Clays	2165
<i>D. W. Smith, Guillermo A. Narsilio, Peter Pivonka</i>	
On the Inclusion of Some Biological Impacts and Influences in Coupled Transport Phenomena in Unsaturated Soil.....	2172
<i>Hywel Thomas, S. C. Seetharam</i>	

Prediction of Consolidation Properties of Partially Saturated Clays	2181
<i>Moumy Sarma, D. Sarma</i>	
Seismic Methods for Recognition and Evaluation of Gas-Hydrates.....	2189
<i>Kalachand Sain</i>	
Some Aspects of Caprock Failure in Geo-sequestration of Carbon Dioxide: A Review	2197
<i>Richa Shukla, P. G. Ranjith, Peter Van Ruth, S. K. Choi, A. Haque</i>	
Some Geomechanical Aspects of Geological CO₂ Sequestration.....	2204
<i>Bogdan Orlic</i>	
The Shear Strength Behavior of a Silty Soil in the Residual Zone of Unsaturation	2213
<i>Tomoyoshi Nishimura, H. Toyota, Sai K. Vanapalli, Won Taek Oh</i>	
Theoretical Model and Numerical Analysis on Unsaturated Expansive Soil Slope during Digging and Climate Change Courses (I)-Elasto-plasticity-damage Constitutive Relationship and Consolidation Model.....	2222
<i>Zheng-Han Chen, Zai-Hua Lu, Jianfeng Guo, Xiang-Wei Fang, Hai-Qing Zhou</i>	
Viscoplastic Modelling of Unsaturated Geomaterials	2232
<i>Vincenzo De Gennaro, J. M. Pereira</i>	

TOPIC 09 GEOENVIRONMENTAL ENGINEERING: WASTE DISPOSAL, CONTAINMENT, ISOLATION, ALTERNATIVE COVERS, REMEDIATION, RECYCLED MATERIALS, MINING ISSUES

A Numerical Study of the Stress Field at Forsmark Based on the Shearing Behaviour of Major Deformation Zones	2242
<i>Hossein Hakami, Rolf Christiansson</i>	
Activity Limit for Earth Trench Disposal of Radioactive Solid Waste based on Radionuclide Leaching and Well Groundwater Yield.....	2248
<i>P. Vijayan, D. N. Singh, George Thomas</i>	
Assessment of Ground Contamination at Perungudi Municipal Dumping Yard in Chennai	2254
<i>Madha Padmavathi</i>	
Characterization of Fly Ash from Various Locations of Electrostatic Precipitator	2261
<i>S. Shanthakumar, D. N. Singh, R. C. Phadke</i>	
Compressibility and Creep Behaviour of Hydraulically Placed PFA and Mine Tailings Fills.....	2269
<i>Carlos Alberto Charles-Cruz, T. W. Cousens, D. I. Stewart</i>	
Cover Systems For High Waste Dumps - Stability Aspects.....	2277
<i>Manoj Datta</i>	
Effect of Freezing-Thawing and Wetting-Drying on Tensile Strength of Lime-Flyash Stabilized Black Cotton Soil	2285
<i>Dharmender Kumar Soni, Ashwani Jain</i>	
Experimental Investigation of the Lining System at the Bellville South Landfill, Cape Town, South Africa	2292
<i>F. Scheele, W. E. Rounicell</i>	
Geoinformatics in Ground Water Potential Evaluation and Management- Case Study of District Allahabad	2300
<i>R. K. Srivastava, Saumya Singh</i>	
Impact Assessment Study of Municipal Solid Waste (MSW) Dumping in a Rain Catchment Area	2307
<i>Anju Singh, Radha Krishna Mothadaka, Rajan Sharma</i>	
Innovative Barriers For Covering Open Waste Dumps-Use Of Industrial Sludges	2313
<i>R. K. Srivastava, R. P. Tiwari, S. Saxena</i>	
In-situ Lysimetric Studies for Radionuclide Migration in Undisturbed Unsaturated Soil under Geoenvironmental Conditions.....	2320
<i>Ravi Rakesh, P. K. Narayan, P. K. Wattal, S. Anil Kumar, B. Hanumantha Rao, V. Sridhar, D. N. Singh</i>	
Migration of Contaminant Below the Municipal Solid Waste Landfills in Variably Saturated Soils	2327
<i>Ch. Sudheer, Shashi Mathur, Shailendra K. Jain</i>	
Modelling the Effects of Aging of Geomembranes on Contaminant Transport and the Long-Term Performance of Landfill Composite Liners	2334
<i>R. Kerry Rowe, Dali Naidu Arnepalli</i>	
Numerical Simulation of an In-situ Underground Experiment for Nuclear Waste Storage	2345
<i>Lyesse Laloui, B. Francois</i>	
Performance Evaluation of Fiber Reinforced Soil- Fly Ash Mixtures	2355
<i>Pradip Dagdu Jadhao, P. B. Nagarnaiak</i>	
Pilot Studies on the Utilisation of Solid Waste from TTPL as a Fill Material.....	2365
<i>Sheela Evangeline Yesudian, P. K. Jayasree, T. M. Anima, B. V. G. Dhanyatha</i>	
Predictive Model to Design the Permeable Reactive Barrier Filters	2372
<i>Benoit Courcelles, Arezou Modaresi Farahmand-Razavi, Daniel Gouvenot, Annette Esnault-Filet</i>	
Soil-Leachate Interaction and Their Effects on Hydraulic Conductivity and Compaction Characteristics	2380
<i>Sunil B. Malegole, S. Shrihari, Sitaram Nayak</i>	
Sorption of Radiozinc on Red, White and Black Potteries	2387
<i>A. A. Helal, M. I. Ahmad, S. M. Khalifa, H. F. Aly</i>	
Suitability of Industrial Process Wastes as Alternative Materials for Landfill Covers	2394
<i>S. S. Quadri, H. Lakshminantha, Mallikarjun Patil</i>	
The Effects of Landfill Temperature on the Contaminant Transport Through a Composite Liner	2398
<i>R. Kerry Rowe, Dali Naidu Arnepalli</i>	
The Retention Characteristics of Heavy Metals in Natural Soils Using Soil Column Experiment.....	2405
<i>Wan Yaacob Wan Zuhairi, Abdul Rahim Samsudin, Nurita Ridwan</i>	

The Study of Economy of Ferrocement with Flyash as an Admixture.....	2412
Harpreet Gaba, Harvinder Singh	
Three-Dimensional Field-Scale Coupled Thermo-Hydro-Mechanical Modelling	2419
Philip Vardon, Peter J. Cleall, Hywel R. Thomas, Roger Philp	
Utilization of Electroplating Waste and Flyash Mixed with Cement	2426
S. Salahuddin Shah	

Volume 4

TOPIC 10 FLOW AND CONTAMINANT TRANSPORT IN POROUS MEDIA: SEEPAGE, CONTAMINANT TRANSPORT, FRACTURED MEDIA

A Reliable Method of Obtaining Breakthrough Curves of Ions in Soils Using Transport Equation	2433
S. N. Maya Naik, P. Hari Prasad Reddy, P. V. Sivapullaiah	
Adsorption Studies of Methylene Blue onto MCM 41.....	2440
P. Monash, A. Majhi, Gopal Pugazhenthi	
Analysis of Flow in a Horizontal Toe Filter.....	2449
A. K. Singh	
Analysis of Spatial Moments for Reactive Transport through Fracture - Porous Matrix System	2456
Pramod Kumar Sharma, Rajesh Srivastava	
Critical Review of Applications of Artificial Neural Networks in Groundwater Hydrology	2463
P. J. Manisha, A. K. Rastogi, B. K. Mohan	
DEM Modelling of Mudlosses Into Single Fractures and Fracture Networks	2475
Pamela Tempone, Alexandre Vadimovich Lavrov	
Discrete Element Simulation of 1D Upward Seepage Flow with Particle-Fluid Interaction Using Coupled Open Source Software	2483
Feng Chen, Eric. C. Drumm, Georges Guiochon, Kiichi Suzuki	
Drainage Effects in the Interpretation of Penetrometer Data for the Evaluation of the Mechanical and Transport Properties of Soils	2490
Derek Elsworth, Michael Fitzgerald, Dae Sung Lee	
Effect of Stress-Dependant Permeability of the Surrounding Rock and Support System on Seepage Flow in Pressure Tunnels	2497
A. Fahimifar, M. R. Zareefard	
Elitist GA Based Evolutionary Algorithm for Groundwater Contaminant Remediation Using Pump and Treat Method	2505
Sharief Shaik, T. I. Eldho, A. K. Rastogi	
Incorporating Uncertain Site Information into Groundwater Modeling.....	2513
K. Zhang, Hua Li, Gopal Achari	
Influence of Unsaturated Soil Properties Uncertainty on Moisture Flow Modeling	2521
Heather Dye, S. L. Houston, B. D. Welfert	
Numerical Analysis of Solute Transport through Porous Media.....	2529
Shri Ram Chaurasia, Pramod Kr. Sharma, S. M. Ali Jawaid	
Numerical Upscaling of the Permeability of a Randomly Cracked Porous Medium	2536
S. Ghabezloo, A. Pouya	
On the Modelling of Internal Soil Erosion.....	2544
Stephane Bonelli, Didier Marot	
Simulation of Three Dimensional Circulation Flow Field for Groundwater Pollution Remediation.....	2551
Samuel Kirubahanan, T. I. Eldho, Ulf Mohrlok	
Solute Transport in Sandy Soils based on Bulk Electrical Conductivity Breakthrough Curves	2559
Yong Sung Kim, Jae Jin Kim, Hee Soo Woo, Junboum Park	
Study of Solute Migration in a Double-Layered Unsaturated Soil Influence of the Position of the Drainage layer on the Re-tention Capacity of the Sealing Layer.....	2565
Ibrahim Alimi, Laouni Gaidi	
Swarm Intelligence Based Inverse Model For Laboratory Double - Reservoir Diffusion Experiments	2572
Tadikonda Venkata Bharat, P. V. Sivapullaiah, M. M. Allam	
The Behavior of Two-Phase Flow of DNAPL and Water through Fractured Rock under Confining Pressures	2580
Shibani Jha, M. S. Mohan Kumar	
Three-dimensional Finite Element Method for NAPL (Non-Aqueous Phase Liquid) Contaminant and Subsurface Water Two-phase Flows	2587
H. Li, P. G. Ranjith	

TOPIC 11 EARTHQUAKE ENGINEERING AND SOIL DYNAMICS: WAVE PROPAGATION, LIQUEFACTION, BLAST LOADING, DYNAMIC SOIL-STRUCTURE INTERACTION

Analysis of Hopper Bottom Cylindrical Silos Subjected to Earthquakes	2595
Jaspal Singh, V. R. Sharma, Narinder Kumar Khullar	
Anomalous Behaviour of GPS Based Total Electron Content (TEC) Associated with Earthquakes	2604
O. P. Singh, Vishal Chauhan, Vikram Singh, Birbal Singh	

Aseismic Design for Cut-and-Cover Tunnels: Criteria and Practical Applications	2611
<i>Tito Sanò, Edmondo Vitello</i>	
Assessment of Risk of Liquefaction in Granular Materials and It's Mitigation	2619
<i>Gyanendra Pande, S. Pietruszczak</i>	
Comparison of Dynamic Responses of an Embankment Dam Based on Equivalent Linear and Nonlinear Methods	2628
<i>R. Mahin Roosta</i>	
Computation of Point of Application of Seismic Passive Resistance by Pseudo-dynamic Method	2636
<i>Sanjay Nimbalkar, Deepankar Choudhury</i>	
Design of Multiple Tunnel Linings of Arbitrary Cross-section Shapes Under Seismic Effects of Earthquakes	2644
<i>Nina Fotieva, N. S. Bulychev, P. V. Deep</i>	
Design of Turbo-Generator Foundations.....	2650
<i>C. Ravishankar, C. Channakeshava, B. Sreehari Kumar, G. V. Rao</i>	
Determination of Attenuation and Geometric Damping on Clayey Sand Residual Soil in Irregular Profile using Surface Wave Method	2658
<i>S. A. Rosyidi, Mohd. Raihan Taha, Zamri Chik, Amiruddin Ismail</i>	
Discussion on Some Key Techniques about GIS Applied in 3D Evaluation of Earthquake-induced Site Liquefaction Potential	2671
<i>Hao Tang, Guo-Xing Chen, Shen-Ze Kan</i>	
Dynamic Response of Model Footings over a Rigid Base under Vertical Vibrations.....	2680
<i>H. N. Ramesh, M. V. Raghavendra Rao, Manika Thulasiram Prathap Kumar, M. Bhavya, S. Nethravathi</i>	
Dynamic Soil-Abutment-Foundation-Structure Interaction of an Instrumented Skewed Bridge	2688
<i>Anoosh Shamsabadi, Liping Yan</i>	
Dynamic Soil-Structure Interaction Analysis of Tall Multi-flue Chimneys under Aerodynamic and Seismic Force	2696
<i>Negar Sadegh Pour, Indrajit Chowdhury</i>	
Dynamic Soil-Structure Interaction Considering Random Soil Properties.....	2704
<i>Mikhail Lvovich Kholmyansky</i>	
ELF/VLF Amplitude Anomalies Related to Some Large Indonesian Earthquakes Observed at Satellite and Ground Station	2712
<i>Vikram Singh, Birbal Singh</i>	
Experimental Investigation on Dynamic Characteristics of Structures Founded on a Dispersive Soil.....	2717
<i>B. R. Jayalekshmi, K. Lohith, R. Shivashankar, Katta Venkataramana</i>	
FEA of a Typical C/Ku-Band Earth Station Antenna Foundation System	2725
<i>Mahadevan Iyer, B. Virupakshappa, K. Parmesh Iyer, B. S. Munjal</i>	
Finite Element Modelling of the Seismic Behaviour of Water Front Structures	2733
<i>S. P. Gopal Madabhushi, Ulas Cilingir, S. K. Haigh, H. Hazarika</i>	
Finite Strain Meshfree Modelling of Liquefaction-induced Lateral Spreading.....	2742
<i>Evelyne Foerst, Hormoz Modaresi</i>	
Fully Coupled Dynamic Analysis of a Real Earth Dam Overlaying a Stiff Natural Clayey Deposit Using an Advanced Constitutive Model	2750
<i>Angelo Amorosi, Gaetano Elia, Andrew H. C. Chan, Michael Kavvadas</i>	
Influence of Concrete Interface Friction on the Seismic Performance of Fractured Concrete Dams	2758
<i>Bogart C. Mendez, Eduardo Botero Jaramillo, Miguel P. Romo</i>	
Influence of NonlinearSSI on the Seismic Response of Reinforced Concrete Multistory Frames	2766
<i>Esteban Saez, F. Lopez-Caballero, A. Modaresi-Farahmand-Razavi</i>	
Influence of Soil-structure Interaction on Response of Adjacent SDOF Structures Connected by Viscous Damper.....	2774
<i>Chirag Patel, R. S. Jangid</i>	
Large Scale Computational Simulation in Geotechnical Earthquake Engineering.....	2782
<i>Ahmed Elgamal, Jinchi Lu, Linjun Yan</i>	
Life Cycle Cost Evaluation for Seismic Performance-Based Design of Geotechnical Structures	2792
<i>Ikuo Towhata, I. Yoshida, S. Suzuki, Y. Ishihara</i>	
Liquefaction Behavior of the Solani Sand Using Small Shake Table	2797
<i>H. P. Singh, B. K. Maheshwari, Swami Saran</i>	
Liquefaction Potential of Chandigarh City - A Conventional Approach.....	2804
<i>R. Dharmaraju, V. V. G. S. T. Ramakrishna, S. Karthigeyan, Gayatri Devi</i>	
Microtremor Studies for Seismic Site Characterization of Delhi Region	2811
<i>Neelima Satyam, K. S. Rao</i>	
Modeling Wrap Faced Reinforced Soil Retaining Walls Subjected to Dynamic Excitation.....	2816
<i>A. Murali Krishna, G. Madhavi Latha</i>	
Nonlinear Analysis of Pile Groups Using Hybrid Domain Method	2824
<i>Pavan Emani, B. K. Maheshwari</i>	
Nonlinear Seismic Response Analysis of Selected Sites in Chennai.....	2835
<i>R. Uma Maheswari, A. Boominathan, G. R. Dodagoudar</i>	
Pile Foundation-Structure Systems Affected by Liquefaction-induced Soil Flow After Quay Wall Failure.....	2843
<i>Takashi Tazoh, Jiho Jang, Masayoshi Sato, George Gazetas</i>	
Prediction of Liquefaction Potential Based on CPT Data: A Relevance Vector Machine Approach.....	2856
<i>Sarat Kumar Das, Pijush Samui</i>	
Relative Density and Ultrasonic Pulse Velocity Inter-relation of Pilani Soil.....	2862
<i>Kamalesh Kumar</i>	
Reliability Based Design Optimization of Bridge Abutments Using Pseudo-dynamic Method.....	2867
<i>Boja Munwar Basha, G. L. Sivakumar Babu</i>	

Seismic Active Thrust on Retaining Structures	2875
<i>Mohamed Salah Nouaouria, Gueghi Lyazid</i>	
Seismic Analysis of Concrete Gravity Dams Considering Foundation Flexibility and Nonlinearity	2882
<i>Avijit Burman, B. V. Reddy, D. Maity</i>	
Seismic Analysis of Underground Structure Considering Soil Structure Interaction.....	2889
<i>V. S. Phani Kanth, K. Srinivas, S. S. Ratwani, G. R. Reddy, K. K. Vaze</i>	
Site Response Studies for Seismic Hazard Analysis of Kolkata City.....	2899
<i>L. Govindaraju, Subhamoy Bhattacharya</i>	
Soil-structure Interaction and Damage Analysis using Strength Reduction Factors.....	2908
<i>L. E. Pérez Rocha, J. Avilés López</i>	
Some Issues in Modeling Boundary Conditions in Dynamic Geotechnical Analysis.....	2918
<i>Lidija Zdravkovic, Stavroula Kontoe</i>	
The Effect of Rayleigh Surface Waves on Dynamic Slope Stabilities.....	2926
<i>Koji Uenishi</i>	
The Umbria-Marche Sequence: Digital Recordings at ENEA Stations.....	2934
<i>Dario Rinaldis</i>	
Time Domain Modeling of Topographic Effects on the Seismic Response of Slopes.....	2940
<i>Arash Razmkhah, Mohsen Kamalian, Seyed Mohammad Ali Sadroldini</i>	
Two-dimensional Numerical Analysis of Homogenous Topographic Features Using BEM.....	2948
<i>Arash Razmkhah, Mohsen Kamalian, Hamid Alielahi</i>	
Ultra Low Frequency (ULF) Bursts As Precursors of Earthquakes	2957
<i>Vinod Kumar Kushwaha, Birbal Singh, Vikram Singh</i>	
Validation of Commercial Time Domain Finite Difference Codes for 3D Dynamic Soil-Structure Interaction Analyses	2963
<i>Eduardo Botero Jaramillo, Bogart C. Mendez, Miguel P. Romo</i>	
Vertical Vibration of Full-Scale Single Pile - Testing and Analysis.....	2970
<i>Bappaditya Manna, D. K. Baidya</i>	

TOPIC 12 GEO-HAZARD MITIGATION: EARTHQUAKES, HURRICANES, TYPHOONS, CYCLONES, LANDSLIDES, TSUNAMIS

A Probable Isoseismal Map due Maximum Credible Earthquake (M=8.7) in NER, India: An Approach Towards Earthquake Risk Mitigation.....	2977
<i>Saurabh Baruah</i>	
Earthquake Risk Mitigation Strategies in India	2985
<i>C. Ghosh</i>	
Forecasting of Damage of Maritime Structures Caused by Typhoons Based on Improved MWS Method	2992
<i>Ryuusuk Hashimura</i>	
Kriging Interpolation Method and 2.5D GIS Applied in the Probabilistic Estimation of Seismic Site Liquefaction	2998
<i>Guo-Xing Chen, Hao Tang, Shen-Ze Kan</i>	
Numerical Modelling of the Motion of Rapid, Flow-like Landslides for Hazard Assessment.....	3005
<i>Oldrich Hung</i>	
Probabilistic Stability Analysis of Shallow Landslides Using Random Fields	3013
<i>D. V. Griffiths, Jinsong Huang, Gordon A. Fenton</i>	
Static Liquefaction for Flow Type Landslide at Karshingsa - A Case Study	3021
<i>Gokul K. Bayan</i>	
Strategic Approaches For Management of Risk In Geomechanics	3031
<i>R Chowdhury, P. Flentje</i>	
The Application of Autoregressive Moving Average Modeling and Determining Safe Places in Minab Zone, Southern Iran	3043
<i>Mohammad Kavei, S. D. Gore, N. J. Pawar, K. Ahmadi, M. Dashtiani</i>	
The Formation of Earth Fissures Due to Groundwater Decline	3051
<i>Muniram Budhu, Amit Shelke</i>	
Tsunami Finite Element Simulation with In-House Code Tsusol and Comparison with Tunami-N2 Code for National Warning System.....	3060
<i>R. K. Singh, Pavan K. Sharma, A. K. Ghosh, H. S. Kushwaha</i>	
Two Major Landslides in Iran and Their Remedial Measures	3069
<i>Arsalan Ghahramani</i>	

TOPIC 13 FOUNDATION ENGINEERING: SHALLOW AND DEEP FOUNDATIONS, OFFSHORE AND PETROLEUM GEOMECHANICS

A Parametric Study on Raft Foundation	3077
<i>G. S. Kame, S. K. Ukarande, K. Borgaonkar, V. A. Sawant</i>	
An Analytical Approach to Lateral Capacity of Rigid Pile in Layered Soil Using Kinematics and Hyperbolic Model.....	3086
<i>V. Padmavathi, M. R. Madhav, E. Saibaba Reddy</i>	
Analysis of a Composite Short Rigid Caisson with Compressible Granular Core in Non-Homogeneous Media	3095
<i>S. M. Ali Jawaid, Mandira R. Madhav</i>	

Analysis of Pile Using Point Estimate Method	3103
<i>V. A. Sawant</i>	
Analysis of Single and Group of Piles Subjected to Lateral Load Using Finite Element Method	3111
<i>Krishnamoorthy Nayak, K. J. Sharma</i>	
Analysis of Single Piles: Challenges and Solutions	3117
<i>Rodrigo Salgado</i>	
Assessment of Bearing Capacity and Settlement of Irregular-Shaped Mat Supported Oil Drilling Rigs Using Finite Element Analysis	3127
<i>Rupam Mahanta, K. S. Prakasha, A. R. Deshpande, H. S. Dholey</i>	
Comparative Study of Bearing Capacity Estimates of a Footing on Jointed Rock Mass by Different Approaches.....	3133
<i>J. M. Kate, P. K. Nigam</i>	
Comparison between the Behaviour of Coated and Uncoated Lightly Loaded Piles in Swelling Soils	3141
<i>Basem Sh. Hazzan</i>	
Comparison of Different Models for Analysing Foundations on Jet Grout Columns	3149
<i>Franz Tschuchnigg, Helmut F. Schweiger</i>	
Constitutive Modelling of San Francisco Bay Mud.....	3158
<i>Subodh Jain, Atul Nanda</i>	
Contribution of Suction Force to Undrained Breakout Capacity of Plate Anchors	3166
<i>S. P. Singh, S. V. Ramaswamy</i>	
Contribution to the Efficiency of the Underreamed Piles in the Clay	3174
<i>B. Soldo, K. Ivandic, T. Koprek</i>	
Design and Verification of the Foundations of the Dahej LNG Tanks.....	3182
<i>Joaquin Marti, Francisco Martinez, Takashi Kanekura, D. Takuwa, R. Singh</i>	
Determination of the Bearing Capacity Factor N_y Using Upper and Lower Bound Limit Analysis Including Slip Line Method	3191
<i>Vishwas N. Khatri, Jyant Kumar, K. M. Kouzer</i>	
Development and Performance Study of a New Apparatus to Impart Lateral Cyclic Load on Model Piles.....	3199
<i>Sudip Basack</i>	
Effect of Cavity on Bearing Capacity of Shallow Foundations in Geotextile-Reinforced Soil	3210
<i>Mahmoud Ghazavi, Y. Soltanpour</i>	
Effect of Tie Beams on Settlements and Moments of Footings.....	3216
<i>Raid Ramzi Al-Omari, L. H. Al-Ebadi</i>	
Effect on Barrage Raft Floor Due to Intrusion of Rock.....	3224
<i>Kumar Venkatesh, N. K. Samadhiya, A. D. Pandey</i>	
Estimation of Pile Group Behavior Using Embedded Piles.....	3231
<i>H. Kursat Engin, E. G. Septanika, R. B. J. Brinkgreve</i>	
Evaluation of Steel Piles Parameters Effect on Optimization of Pile and Slab Arrangement in Dry Docks with Index Parameter Method.....	3239
<i>Kh. Bargi, H. Ghorbani</i>	

Volume 5

Finite Element Analyses in Offshore Foundation Design	3247
<i>Lars Andresen, Hans Petter Jostad, Knut Henry Andersen, Kristoffer Skau</i>	
Flexural Response of Tapered Piles in Liquefied Soils.....	3263
<i>Shanker Kandukuri, P. K. Basudhar, N. R. Patra</i>	
Influence of Combined Vertical and Lateral Loading on the Lateral Response of Piles	3272
<i>Rajagopal Karpurapu, S. Karthigeyan</i>	
Influence of the Scour on Laterally Loaded Piles	3283
<i>Nanda Kishore Yedula, S. Narasimharao, J. S. Mani</i>	
Interaction Analysis for Piled Rafts in Cohesive Soils	3289
<i>Ningombam Thoiba Singh, Baleshwar Singh</i>	
Issues in Evaluating Capacity of Socketed Rock Foundations	3297
<i>F. H. Kulhawy, W. A. Prakoso</i>	
Large Deformation FE Analysis of Plate Anchor Keying in Clay	3299
<i>Yuxia Hu, Zhenhe Song</i>	
Large Deformation Finite Element Analysis for Offshore Applications.....	3307
<i>Mark. F. Randolph, Dong Wang, Hongjie Zhou, Muhammad Shazzad Hossain, Y. Hu</i>	
Linear Settlement of Axially Loaded Pile-Soil Systems	3319
<i>M. S. Ranadive, S. K. Parikh</i>	
Loads and Moments in Piles Beneath Piled Rafts.....	3327
<i>Helen Chow, John Small</i>	
Method of Initial Parameters for Laterally Loaded Piles	3335
<i>Dipanjan Basu, R. Salgado</i>	
Numerical Investigation of Load-Settlement Characteristics of Multi-Edge Shallow Foundations	3344
<i>Mahmoud Ghazavi, S. Mokhtari</i>	
Numerical Investigation of Passive Loading on Pile Groups Adjacent to Embankment on Soft Ground	3352
<i>Sangseom Jeong, Donghee Seo, Youngho Kim</i>	

Numerical Investigation of the Effect of Recent Load History on the Behaviour of Steel Piles under Horizontal Loading	3361
<i>Khalid Abdel-Rahman, M. Achmus</i>	
Numerical Modeling For Laterally Loaded Piles On Sloping Ground	3368
<i>N. Almas Begum, K. Muthukumaran</i>	
Numerical Study of Limit Shaft Resistance of Bored Piles in Sand	3376
<i>Dimitrios Loukidis, Rodrigo Salgado</i>	
Optimizing Foundation Engineering, Validating Models Against Experience Using Artificial Intelligence	3384
<i>A. M. J. Mens, A. F. Van Tol, A. R. Koolewijn</i>	
Pile Load Distributions from Dynamic Pile-to-Pile Interaction Factors	3392
<i>Der-Wen Chang, Bor-Shiun Lin, Shih-Hao Cheng</i>	
Pile-Soil-Pile Interaction under Horizontal Loading: A Simple Approach	3399
<i>Mahmoud Ghazavi, P. Ravanshenas</i>	
Prediction of Load Displacement Response of Single Pile under Uplift Load: A Comparative Study	3408
<i>K. Srivastava, V. K. Singh, A. Yadav, A. Shelke, N. R. Patra</i>	
Prediction of the Axial Bearing Capacity of Piles by Five-Cone Penetration Test Based Design Methods	3415
<i>Nagwa El-Sakhawy, K. M. Youssef, R. A. E. Badawy</i>	
Probabilistic Approach of Design of Pile Foundations in Non-Liquefiable Soils under Seismic Loading	3424
<i>Sumanta Halder, G. L. Sivakumar Babu, Subhamoy Bhattacharya</i>	
Production Decline In Petroleum Reservoirs - Influence Of Rock Parameters	3433
<i>M. B. Geilikman, Sau-Wai Wong</i>	
Pullout Behaviour of Square Anchors in Reinforced Clay	3441
<i>Phalguni Bhattacharya, Debjit Bhownik, Sibapriya Mukherjee, B. C. Chattopadhyay</i>	
Study on Uplift Behaviour of Plate Anchors under Monotonic and Cyclic Loading in Geo-grid Reinforced Sand Bed	3448
<i>P. T. Ravichandran, K. Ilamparuthi, M. Mohammed Toufeeq</i>	
The Effect of External Wings on the Behavior of Suction Anchor	3456
<i>H. Monajemi, H. Abdul Razak</i>	
Theory of Elasticity Approach for Strip Footings on Multilayered Soil Media	3464
<i>Priti Maheshwari, M. N. Viladkar</i>	
Three-dimensional Finite Element Method Analysis on Steel Pipe Sheet Piles Reinforcement Method for Existing Caisson Foundation	3473
<i>Koichi Isobe, Satoru Ohtsuka, Makoto Kimura</i>	
Three-Dimensional Seismic Analysis of Pile Groups	3481
<i>Rajib Sarkar, B. K. Maheshwari</i>	
Ultimate Bearing Capacity of Underreamed Pile - Finite Element Approach	3490
<i>Neha Srivastava, Nikhil Bhatia</i>	
Ultimate Lateral Load of a Pile in Soft Clay Under Cyclic Loading	3498
<i>D. M. Dewaikar, S. V. Padmavathi, R. S. Salimath</i>	

TOPIC 14 SOIL IMPROVEMENT: STAGED CONSTRUCTION, PRELOADING, DYNAMIC DEEP COMPACTION, SHALLOW AND DEEP SOIL MIXING, SOIL ADDITIVES, REINFORCEMENT, GEOSYNTHETICS, PREFABRICATED VERTICAL DRAINS, VACUUM CONSOLIDATION

A Study on the Effect of Cement on Alluvial Soil Strengthened With Pond and Rice Husk Ash for Construction of Road Subgrade	3508
<i>Tapash Kumar Roy, B. C. Chattopadhyay</i>	
Alternative Road Construction Materials Using Modified Soft Soil	3514
<i>Cheeming Chan, Khairul Azhar Ibrahim</i>	
Analytical Consideration of Installation Damage Tests for Geogrids	3520
<i>Han-Yong Jeon, Abdemalek Bouazza</i>	
Analytical Static Stability Analysis of Slopes Reinforced by Stone Columns	3530
<i>Mahmoud Ghazavi, A. Shahmandi</i>	
Bearing Capacity Improvement of Gravel Base Layers in Road Constructions Using Geocells	3538
<i>Ansgar Emersleben, Norbert Meyer</i>	
Bearing Capacity of Ring Footings on Reinforced Clay	3546
<i>A. H. Boushehrian, N. Hataf</i>	
Behavior of Surface Strip Footing on Geogrid Reinforced Sand Bed	3552
<i>Pratap Kumar Haripal, Rabi Narayan Behera, Chitta Ranjan Patra</i>	
Behaviour of Reinforced Embankments on Rate-Sensitive Foundation Installed with Prefabricated Vertical Drains	3559
<i>Chalermpol Taechakumthorn, R. Kerry Rowe</i>	
Chemical Grouting - Laboratory Study of Chemical Grouts and Geocomposites Properties	3567
<i>Kamil Soucek, Lubomir Stas, Jiri Scucka, Petr Martinec</i>	
Design of Geocell Reinforcement for Supporting Embankments on Soft Ground	3575
<i>G. Madhavi Latha</i>	
Design of Machine Foundation on Reinforced Sand	3583
<i>A. K. Verma, Darshana R. Bhatt</i>	
Effect of Hydrated Lime on the Engineering Behaviour and the Microstructure of Highly Expansive Clay	3590
<i>Abdelmadjid Lasledj, Muzahim Al-Mukhtar</i>	

Effect of Lime on Properties of Soil.....	3599
<i>Jaspal Singh, Atul Kumar, Ritesh Jain, N. K. Khullar</i>	
Engineering Performance Evaluation of PVA Geotextiles	3604
<i>Han-Yong Jeon, Won-Seok Lyoo</i>	
Equal-strain Analysis of PVD-enhanced Consolidation Considering Soil Disturbance.....	3612
<i>Prasenjit Basu, Dipanjan Basu, Monica Prezzi</i>	
Evaluation of Different Reinforced Subbases on Expansive Soil.....	3621
<i>D. S. V. Prasad, G. V. R. Prasada Raju</i>	
Evaluation of Fractal Dimension of Injected Sand.....	3628
<i>Abdelghafour Ait Alaiwa, Nadia Saiouri, Pierre-Yves Hicher</i>	
Finite Element Analysis of a Full Scale Bending Test of Cement Treated Soil Column	3635
<i>Tsutomu Namikawa, Junichi Koseki, Yoshiro Suzuki</i>	
Finite Element Analysis of Arching Behaviour in Soils	3642
<i>Vicky J. Potts, Lidija Zdravkovic</i>	
Footings on Two Layered Reinforced Soil.....	3650
<i>Arvind Kumar, Baljit Singh Walia, Swami Saran</i>	
Granular Pile-Mat Foundation: Long Duration Model Tests and Numerical Simulation	3658
<i>J. T. Shahu, Y. Ramana Reddy</i>	
Ground Improvement of Clayey Soil Formations Using Stone Columns: A Case Study from Greece.....	3664
<i>Haralambos Saroglou, A. A. Antoniou, S. K. Pateras</i>	
Ground Improvement Techniques for Infrastructure Projects in Malaysia	3671
<i>V. R. Raju, Yandamuri Hari Krishna</i>	
Influence of Curing Time and Composition of Clayey-Soils on Their Engineering and Cement-Stabilization Parameters	3683
<i>Evangelos I. Stavridakis</i>	
Load Carrying Capacity of Random Fiber Mixed Granular Pile	3692
<i>Partha Basu, N. K. Samadhiya</i>	
Moisture Susceptibility and Swelling Behavior of Stabilized Lean Clays.....	3700
<i>Pranshoo Solanki, Naji Khoury, Musharraf Zaman</i>	
Non-Linear Analysis of Displacements of Granular Pile Anchors (GPA) in Homogeneous Ground.....	3710
<i>B. Vidyaranya, M. R. Madhav, M. Kumar</i>	
Numerical Analysis of Encapsulated Stone Columns.....	3719
<i>S. N. Malarvizhi, K. Ilamparuthi</i>	
Predicting the Performance of Foundations Near Reinforced Sloped Fills	3727
<i>Jegan Thanapalasingam, Carthigesu T. Gnanendran</i>	
Prediction of Pullout Strength of Woven Coir Geotextiles from Yarn Pullout Resistances	3735
<i>S. Chandrakaran, E. A. Subaida, N. Sankar</i>	
Presentation of a Homogenized Multi-Phase Model for Reinforced Soil Considering Non-Linear Behavior of Matrix	3743
<i>Ehsan Seyed Hosseini, Orang Farzaneh</i>	
Settlement Response of Granular Fill-Soft Soil Reinforced with Extensible Geosynthetics and Stone Columns	3751
<i>Kousik Deb, Sarvesh Chandra, P. K. Basudhar</i>	
Shrinkage Potential of Clay Liner Mixed with Waste Polythene Chips, Cement and Sand.....	3758
<i>Liaqat Ali, Syed Waqar Hasnain</i>	
Slope Stabilization with Jute Geotextile - A Bio-Engineering Approach.....	3765
<i>P. K. Choudhury, Arindam Das, D. N. Goswami, T. Sanyal</i>	
Stability and Cost Aspects of Geogrid Reinforced Earth Wall of Flyover	3770
<i>R. D. Nalawade, Darshan R. Nalawade</i>	
Study on Polypropylene Fiber Reinforced Fly Ash Slopes	3778
<i>Dushyant Kumar Bhardwaj, J. N. Mandal</i>	
The Durability of Stabilized Materials.....	3787
<i>Philip Paige-Green</i>	
The Effect of Subsoil Support in Plane Strain Finite Element Analysis of Arching in a Piled Embankment	3794
<i>Yan Zhuang, E. A. Ellis, Hai-Sui Yu</i>	
Theoretical Approach of Long-Term Behaviors of Geogrids.....	3802
<i>Han-Yong Jeon</i>	

TOPIC 15 GEOTECHNICAL STRUCTURES: RETAINING STRUCTURES, FINITE AND INFINITE SLOPES, DAMS, LEVEES, PIPES, CAVERNS, MINES, TUNNELS, BORE-WELL STABILITY, SUSTAINABLE CONSTRUCTION, QUALITY CONTROL

2D Nonlinear Analysis of Asphaltic Concrete - Core Embankment Dams.....	3812
<i>S. Feizi-Khankandi, A. A. Mirghasemi, A. Ghalandarzadeh, K. Hoeg</i>	
3D Effects on Flood Protection Levees - Plain Strain versus Axisymmetric Modelling	3820
<i>G. Inci</i>	
3D Numerical Analyses of the Soil Variability Impact on Longitudinal Behaviour of Buried Pipes	3827
<i>J. Buco, F. Emeriault, R. Kastner</i>	
3D Numerical Simulation of Heading Face Support in Partially Saturated Soils for Shield Tunnelling.....	3835
<i>Felix Nagel, Janosch Stascheit, Günther Meschke</i>	

3D-Modeling at an Estimation of Construction and Operational Safety of Underground Transport Structures	3843
<i>A. Kashko, D. Panfilov</i>	
A Case of Numerical Analysis of Settlements due to Excavation on Nearby Structures	3849
<i>M. D. Santos, B. R. Danziger, A. C. C. F. Steira</i>	
A Case Study on Safety Analysis for Uneven Pressure at Tunnel Portal Site	3858
<i>Ho Bon Koo, Seung Hee Kim, Seung Hyun Kim, Jong Hyun Rhee</i>	
A Comparative Study of Different Constitutive Relations of Soil in Modelling Shallow Tunnels	3865
<i>Mohammed Y. Fattah, Bestun J. Nareeman</i>	
A Numerical Study on the Long-term Performance of an Underground Powerhouse Subjected to Varying Initial Stress State, Cyclic Water Head and Temperature Variations.....	3875
<i>O. Aydan, S. Tsuchiyama, T. Kinbara, F. Uehara, T. Kawamoto</i>	
Advances in Modeling of Trenchless Pipe Installation and Repair	3883
<i>Ian D. Moore</i>	
Analysis on Active Earth Pressure of Retaining Wall Backfilled with Cohesive Soils by Considering Influence of Cracks	3891
<i>Heping Yang, Wenzhou Liao, Zhiyong Zhong</i>	
Assessment of Dynamic Response and Stability of an Abandoned Room and Pillar Underground Lignite Mine	3899
<i>M. Genis, O. Aydan</i>	
Assessment of Ground Squeezing and Ground Pressure Imposed on TBM Shield.....	3907
<i>J. Khademi Hamidi, H. Bejari, K. Shahriar, B. Rezai</i>	
Behavior of Moderately Buried HDPE Pipelines Subject Strike-Slip Faulting	3915
<i>Tarek H. Abdoun, Da Ha, Michael J. O'Rourke</i>	
Behavior of Sheet Pile Walls at Deep Excavations in Soft Soils Overlying Hard Rock in Stockholm.....	3922
<i>J. Ma, B. S. Berggren, P. E. Bengtsson, H. Stille, S. Hintze</i>	
Behaviour of Reinforced Soil Retaining Wall Under Static Loading Using Finite Element Method	3930
<i>Syed Mohd Ahmad, P. K. Basudhar</i>	
Deformation Reinforcement Theory and Its Application to High Arch Dams	3939
<i>Qiang Yang, Yingru Chen, Yaoru Liu</i>	
Design of Vertical Drainage in the Weak Alluvium Beneath a Cofferdam	3946
<i>R. Mahin Roosta, M. Ahmadi</i>	
Earth Pressure on Retaining Walls with Reinforced Backfill.....	3952
<i>S. Shekarian, A. Ghanbari, M. Makarchian</i>	
Earthquake Effect Analysis of Buried Pipelines	3957
<i>Indranil Guha, Raul Flores Berrones</i>	
Elastoplastic Soil Models for Numerical Analysis of Underground Constructions	3968
<i>Y. Hejazi, D. Dias, R. Kastner</i>	
Evaluation of the Effects of Faulting on Buried Lifelines.....	3976
<i>A. Cividini, S. Bughi, U. Arosio</i>	
FE-Analysis of the Behaviour of Buttressed Jet Grouted Retaining Walls	3984
<i>V. Racansky, H. F. Schweiger, R. Thurner</i>	
Finite Element Modeling of Long Term Performance of Buried Pipes.....	3993
<i>Raj Gondle, Hema Siriwardane</i>	
Geomechanical Measurements and Computations at an Open Pit Marble Quarry	4001
<i>G. Labichino, M. Cravero</i>	
Ground Loss Due to Circular Tunnel Deformation in Sands.....	4009
<i>A. Juneja, S. Dutta</i>	
Investigation of the Junction Coupling Due to Various Types of the Discrete Points in a Piping System	4016
<i>Ahmad Ahmadi, Ali Reza Keramat</i>	
Longwall Geotechnical Program at Mimosa Mines	4025
<i>Hamid Maleki, Ricardo Mendoza, Mario Santillan</i>	
Numerical Analysis of a Novel Piling Framed Retaining Wall System	4033
<i>Eli L. Branch, Eric C. Drumm, Richard M. Bennett, Saieb Haddad</i>	
Numerical Analysis of an Embankment Founded on Structured Clay	4041
<i>A. Grammatikopoulou, L. Zdravkovic, D. M. Potts</i>	
Numerical Analysis of Flexible Pipe	4049
<i>M. Javannard</i>	

Volume 6

Numerical Assessment of the Deformation of CFRD Dams During Earthquakes.....	4054
<i>A. O. Sfriso</i>	
Numerical Modelling and Safety Factor Assessment for a Supported Excavation under Seepage Conditions	4062
<i>D. Sterpi</i>	
Numerical Modelling of Geosynthetic Reinforced Retaining Walls	4071
<i>R. J. Bathurst, B. Huang, K. Hatami</i>	
Numerical Modelling of the Instability in Abandoned Mines Induced by Resaturation Process	4081
<i>J. Rohmer, M. Seyed, B. Bazargan-Sabet</i>	
Numerical Simulation of Directional Drilled Pipelines Placed Under Flexible Pavements	4090
<i>M. A. Knight, A. Adedapo</i>	

Numerical Simulation of the Mechanical Behavior of Buried Pipes in Trench	4098
<i>D. M. S. Gerscovich, A. C. C. F. Sieira, A. M. Ferreira</i>	
Pile Movements Induced Instability of Engineered Slopes	4105
<i>V. Thakur, M. G. Baeverfjord, L. O. Grande</i>	
Pipeline Network Infrastructure: Will Technology Revolutionize the Water and Wastewater Industry?	4113
<i>Jey K. Jayapalan</i>	
Pseudostatic Analysis of Rigid Retaining Wall for Dynamic Active Earth Pressure	4122
<i>Sima Ghosh, Gopi Nandan Dey, Bobi Datta</i>	
Reduction of Blast Induced Ground Vibrations With Open Trenches in Surface Mines	4132
<i>H. S. Venkatesh, R. Venugopala Rao</i>	
Research of the Intense Condition of the Transport Tunnel in the Heterogenous Formation Under Action of Various Loadings	4140
<i>R. Baimakhan, N. Danaev, N. Ivanitskaya, A. Baimakhan, G. Salgarayeva, B. Zhakashbayev, G. Rysbayeva, N. Kurmanbekkyzy, Zh. Kulmagambetova, A. Kozhebayeva, S. Avdarsolkazy</i>	
Response Surface Methodology (RSM) in the Reliability Analysis of Geotechnical Systems	4147
<i>G. L. Sivakumar Babu, Amit Srivastava</i>	
Rock Stress Measurements for Underground Excavations	4166
<i>A. K. Ghosh</i>	
Seepage Analysis through Foundation Using F.E.M. and Flownet	4175
<i>Suvashish Mukhopadhyay</i>	
Seismic Retrofit of Embankment Dams Based on Dynamic Nonlinear Analyses	4183
<i>Meysam Fadaee, Mahmoud Yazdani, Ali Azad</i>	
Slope Stability Analysis of Earth and Rockfill Dam by Numerical Modeling	4192
<i>Rajesh Khanna, R. Chitra, Manish Gupta</i>	
Stability Analysis of Stratified Soil Slopes by Optimization Technique Using Janbu's Generalized Procedure of Slices	4197
<i>K. Arunkumar Bhat, R. Shivashankar, R. K. Yaji</i>	
Study of Distribution of Soil Stress Release with Shield Tunnelling	4206
<i>Lian-Jin Tao, Yin-Tao Zhang, Fa Wang, Guang-Yuan Wei</i>	
Tailings Dams and Waste-rock Dumps Safety Assessment Using 3D Numerical Modelling of Geotechnical and Geophysical Data	4212
<i>S. Mihai, St. Deak, Gy. Deak, I. Oancea, A. Petrescu</i>	
Tensor Analysis on the Evolution of Chemical Damage in Limestone	4222
<i>J. X. Wang, L. S. Hu, J. Zhang, Y. Q. Tang, C. Ye</i>	
The Cuña Problem - Reconsidered	4229
<i>H. P. Rossmanith, K. Uenishi</i>	
The Effect of Ground Drainage on the Mechanical Response of Deep Lined Tunnels Excavated in Elastic and Elasto-plastic Materials	4236
<i>C. Carranza-Torres, J. Zhao</i>	
The Effect of Pipe-Soil Interface Conditions on the Undrained Breakout Resistance of Partially-Embedded Pipelines	4249
<i>R. S. Merifield, D. J. White, M. F. Randolph</i>	
The Importance of Confinement on Coal Pillar Strength and Overburden Stability	4257
<i>Hamid Maleki</i>	
Time Dependent Deformations in Squeezing Tunnels	4265
<i>G. Barla, M. Bonini, D. Debernardi</i>	
Tracking Prediction of Stability and Deformation of the Large Underground Structure Group During the Period of Construction	4276
<i>Shaojun Fu, Bingwen Zhang, Yingji Yu</i>	
Undrained Stability of Dual Square Tunnels	4284
<i>D. W. Wilson, A. J. Abbo, Scott W. Sloan, A. V. Lyamin</i>	
Uplift Behavior of Shallow Horizontal Anchors Plates in Sand	4292
<i>S. Koprivica</i>	
Using Particle Elements to Model the Torino Subsoil Mechanical Behaviour to Improve the Applicability of Microtunnelling Technique	4299
<i>M. Barla, M. Camusso</i>	

TOPIC 16 INFRASTRUCTURE GEOMECHANICS: TRANSPORTATION GEOTECHNOLOGY, AIRPORTS, CANALS, PAVEMENTS, PORTS AND HARBORS, RAILROADS

A Methodology for Determination of Resilient Modulus of Asphaltic Concrete	4307
<i>A. Patel, M. P. Kulkarni, S. D. Gunasite, K. V. K. Rao, D. N. Singh, P. P. Bartake</i>	
A Simplified Method for Evaluation of Pavement Layers Moduli Using Surface Deflection Data	4314
<i>J. Vakili</i>	
Appropriate Standards and Specifications for Surfacing of Low-volume Rural Roads	4320
<i>C. Overby, M. I. Pinard</i>	
Challenging Tradition: Re-Thinking Conventional Approaches To The Provision Of Rural Roads In Southern Africa	4326
<i>M. I. Pinard</i>	

Conceptual Development and Numerical Modelling of Vegetation Induced Suction and Implications on Rail Track Stabilisation.....	4335
<i>B. Indraratna, H. Khabbaz, B. Fatahi</i>	
Dealing with Road Subgrade Problems in Southern Africa	4345
<i>P. Paige-Green</i>	
Dynamic Mechanical Analysis of Performance Grade Asphalt Binder	4354
<i>Z. Hossain, M. Zaman</i>	
Effect of Clay on Soil Cement Blocks.....	4362
<i>S. Krishnaiah, P. Suryanarayana Reddy</i>	
Experimental Investigation and Numerical Analysis of Reinforced Geologic Media.....	4369
<i>Hema Sirwardane, Raj Gondle, Bora Kutuk, Ronald Ingram</i>	
Flexible Pavement Response to Multiple Wheel Loading Using Nonlinear Three-dimensional Finite Element Analysis.....	4377
<i>Minkwan Kim, Erol Tutumluer, Debakanta Mishra</i>	
Laboratory Study for Evaluation of Membrane Effect of Geotextile in Unpaved Road.....	4385
<i>S. S. Bhosale, Bharat R. Kamble</i>	
Modelling Reclamation Process and Its Response to Applied Loads	4392
<i>M. R. Madhav, K. Ramu</i>	
Numerical Modelling of Railway Tracks with Ballast and Sub-Ballast Layers Using Critical State Parameters	4400
<i>J. T. Shahu, Amit Sharma, K. G. Sharma</i>	
Open Graded Asphalt Concrete for Mitigation of Reflection Cracking on Asphalt Concrete Overlays	4409
<i>S. S. Bhosale, J. N. Mandal</i>	
PFWD, CBR and DCP Evaluation of Lateritic Subgrades of Dakshina Kannada, India.....	4417
<i>Ch. Nageshwar Rao, Varghese George, R. Shivashankar</i>	
Roller-Integrated Compaction Monitoring Technology: Field Evaluation, Spatial Visualization, and Specifications	4424
<i>David J. White, Pavana K. Vennapusa, Gieselman Heath</i>	
Shakedown Analysis of Road Pavements.....	4432
<i>P. S. Ravindra, J. C. Small</i>	
 <u>TOPIC 17 SLOPE STABILITY: NATURAL SLOPES, DEEP SEATED GRAVITATIONAL MOVEMENTS, LANDSLIDES, ROCK AVALANCHES, ROCK FALLS, FLOWS AND GLACIER MECHANICS</u>	
A Case Study on the Stability and Numerical Analysis of the Collapsed Cut-Slope in Danyang, Korea.....	4439
<i>Ho Bon Koo, Seung Hyun Kim, Seung Hee Kim, Jung Yeop Lee</i>	
A More General Model for the Analysis of the Rock Slope Stability	4444
<i>Mehdi Zamani</i>	
A Study on Debris and Earth Flow on National Highway-39, Near Kohima, Nagaland	4453
<i>Kishor Kumar, P. S. Prasad, Nitesh Goel, Sudhir Mathur</i>	
Advance Methods of Slope-Stability Analysis for Earth Embankment with Seismic and Water Forces	4461
<i>B. N. Sinha</i>	
Advanced Calculations of Safety Factors for Slope Stability	4470
<i>M. Kupka, I. Herle, M. Arnold</i>	
Assessing the Influence of Climate Change on the Progressive Failure of a Railway Embankment.....	4478
<i>Owen Davies, Mohamed Rouainia, Stephanie Glendinning, Steve J. Birkinshaw</i>	
Comparative Study of Stability of Man Made Slope by Limit Equilibrium Method and Geo5 Software	4487
<i>Y. A. Kolekar</i>	
Constitutive Modeling and Testing of Glacial Tills for Prediction of Motion of Glaciers	4494
<i>C. Desai, S. Sane, J. Jenson</i>	
Differences between LE and FE Methods Used in Slope Stability Evaluations	4509
<i>K. P. Aryal</i>	
Effect of Rock Fall Geometries Impacting Soil Cushion: A Numerical Procedure	4517
<i>S. A. Degago, R. Ebeltffy, S. Nordal</i>	
Estimate of Groundwater Distribution from Drainage and Deformation of a Slip Zone in a Large-scale Landslide Area.....	4525
<i>S. Asano, S. Matsuura, T. Okamoto, U. Kurokawa</i>	
Evaluation of Landslide Behaviour Based on Geological and Geotechnical Investigations in Sikkim Himalaya - A Case Study	4533
<i>R. Dharmaraju, Y. Pandey, A. K. Sharma</i>	
Experimental Reproduction of Rockslide Debris Fragmentation with Parent Rock Structure Retention	4540
<i>A. Dubovskoi, L. Pernik, A. Strom</i>	
Extension of the Fringe Projection Method to Measure Shape and Position of the Centre of Mass of Granular Flow Deposit	4547
<i>I. Manzella, V. Labiouse</i>	
Generalized Method of Optimum Design of Nailed Soil Slopes.....	4555
<i>C. R. Patra, P. K. Basudhar</i>	
Instrumentation and Real Time Monitoring of Slope Movement in Hong Kong.....	4563
<i>S. W. Millis, A. N. L. Ho, E. K. K. Chan, K. W. K. Lau, H. W. Sun</i>	

Investigation of the Geomechanical Aspects of a Large Landslide by Means of a Finite-element Method : A Case Study	4577
<i>B. François, Ch. Bonnard, L. Laloui</i>	
Local Identification of Geo-System Response using Shape-Acceleration Arrays	4586
<i>M. Zeghal, T. Abdoun, A. Elmekati, V. Bennett, L. Danisch</i>	
Mechanism and Analysis of Large and Long-distance Sliding Slope Failures Due to the 2004 Niigata-ken Chuetsu Earthquake.....	4593
<i>K. Ugai, A. Wakai, A. Onoue, S. Kuroda, K. Higuchi</i>	
Misuse of Computational Methods in Engineering Practice	4600
<i>Farrokh N. Screwvala</i>	
Numerical Simulation for a Landslide Induced by Cyclic Shearing During Earthquake	4606
<i>A. Wakai, K. Ugai, A. Onoue, S. Kuroda, K. Higuchi</i>	
Probabilistic Methods Applied To Unsaturated Numerical Modeling.....	4614
<i>Murray Fredlund, Gilson Gitirana</i>	
Rainfall Induced Shallow Landslides on Sandy Soil and Impacts on Sediment Discharge: A Flume Based Investigation	4620
<i>G. Acharya, T. A. Cochrane</i>	
Rigid-Plastic Methods. Safety of Loaded Ground Masses Calculated by Slices and Non-Linear Programming Methods	4629
<i>J. B. Martins</i>	
Simplified Numerical Analysis of the Strengthening Effect of Soil Nails in a Loose Fill Slope.....	4637
<i>Y. D. Zhou, L. G. Tham, J. Li, E. C. Y. To, K. Xu</i>	
Stability Against Translational Failure of Non-cohesive Embankments Founded on Natural Slopes	4645
<i>L. Pantelidis</i>	
Stability Analysis of Harmony Landslide in Garhwal Himalaya, Uttarakhand State, India	4652
<i>R. Anbalagan, Atul Kohli, D. Chakraborty</i>	
Study of Rockfall and Subsidence at km 41 on Mumbai - Pune Expressway - A Case Study	4659
<i>Kishor Kumar, P. S. Prasad, Sudhir Mathur, N. K. Goyal</i>	
Support Vector Machine and Relevance Vector Machine Classifier in Analysis of Slopes	4667
<i>Pijush Samui, Gautam Bhattacharya, Sarat Kumar Das</i>	
Towards Understanding of Lanta Khola Landslide in Sikkim Himalayas.....	4675
<i>Aniruddha Sengupta, K. Anbarasu, Saibal Gupta</i>	

TOPIC 18 CASE HISTORIES: PREDICTION, PERFORMANCE AND EVALUATION, FORENSIC STUDIES, BACK ANALYSIS: PRE-FAILURE AND FAILURE

A Case Study on the Importance of Local Geology on Selection of Cut-off Wall Construction Procedure	4683
<i>Gülgün Yılmaz, Selim İkiz, Turhan Karadayılar, Ali Güney</i>	
Assessment of the Stability Conditions of Ancient Underground Quarries Through on Site Monitoring and Numerical Modelling.....	4689
<i>A. M. Ferrero, A. Segalini, M. D'Attoli</i>	
BBC W1 Development Case Study - Tunnel and Construction Monitoring	4698
<i>M. Vaziri, P. Steen</i>	
Elasto-viscoplastic Numerical Analysis of a Deep Excavation in an Osaka Soft Clay Deposit Using the Open-cut Method	4709
<i>F. Oka, Y. Higo, S. Kimoto, M. Nakano, H. Mukai, H. Kunotsubo, T. Izumitani, S. Takeda, K. Amano, J. Nagaya</i>	
Finite Element Analysis of Four Levees Considering Soil Anisotropy	4716
<i>R. Singh, D. Roy, D. Mitra</i>	
Geotechnical Analysis of Failure of Amona Jetty in Goa	4723
<i>D. V. Karandikar</i>	
Influence of Anisotropy, Destructuration and Viscosity on the Behavior of an Embankment on Soft Clay	4728
<i>Z. Y. Yin, M. Karstunen</i>	
Prediction of the Geotechnical Effects Induced by Deep Drainage in Urban Area	4736
<i>A. Cividini, S. Bonomii, G. C. Vignati, G. Gioda</i>	
Rehabilitation of Earthquake affected Tapar Dam, Gujarat, India.....	4744
<i>S. M. Yadav, R. Mishra, B. K. Samant</i>	
Static Liquefaction Analysis Using Simplified Modified State Parameter Approach for Dredged Sludge Depot Hollandsch Diep.....	4748
<i>R. R. De Jager, F. A. J. M. Mathijssen, F. Molenkamp, A. H. Nooy Van Der Kolff</i>	
The Value of Exact Theory in Geotechnical Engineering.....	4757
<i>Farrokh N. Screwvala</i>	
Theoretical and Observed Behavior of 'Meter Panels'.	4763
<i>V. T. Ganpule, G. S. Parab, V. V. Vaidya</i>	
Typical Bridge Foundations - Selected Cases.....	4771
<i>P. K. Jain, Rakesh Kumar, Anand Selot, S. K. Mittal</i>	

TOPIC 19 GEOMECHANICS FOR ANCIENT MONUMENTS, PRESERVATION AND REHABILITATION

Converting Entrance Hall into Convocation Hall, in Bharathidasan University, Tamilnadu.....	4778
<i>I. Murugan, C. Natarajan, A. Rajaraman</i>	
Cooperation Between Restoration and Retrofitting of Monument Enshrines Imamzadeh Ja'far After Darb-e-Astaneh Earthquake (31 March 2006).....	4786
<i>Hamid Reza Vosoughifar, Arash Razmkhah</i>	
Dynamics of Rock Blocks in Traditional Construction.....	4793
<i>S. Shifana Fatima, I. Murugan, C. Natarajan, A. Rajaraman</i>	
Geotechnical Appraisal of Rock-cut Temples at Masrur, Dist. Kangra, Himachal Pradesh	4801
<i>V. K. Sharma, Pankaj Kumar, Hemant Kumar</i>	
Geotechnical Investigation and Scientific Conservation of Excavated Site "Rani Ki Vav Patan"	4807
<i>V. R. Mangiraj, M. S. Uniyal</i>	
Hydrogeology of the Cradle of Humankind World Heritage Site, South Africa	4811
<i>K. T. Witthüser, M. Holland</i>	
Rehabilitation and Preservation of Structures for Religious Purposes.....	4819
<i>C. Natarajan</i>	
Traditional Construction in Southern Peninsula-knowledge Extraction.....	4824
<i>I. Murugan, C. Natarajan, A. Rajaraman</i>	

TOPIC 20 GEOTECHNICAL EDUCATION AND PROFESSIONAL PRACTICE

BBC W1 Development Case Study - Tunnel Movement Class A Predictions	4830
<i>Mohsen Vaziri, T. Hartlib</i>	
Challenges for Geotechnical Engineering Education	4841
<i>J. N. Jha, K. S. Gill, A. K. Choudhary</i>	
Concept of the NATM in China and Its Influence on the Numerical Analyses on Tunnel Design and Construction with FEM	4846
<i>Jianqin Ma, B. F. Berggren, H. Stille</i>	
Need for Continuing Education for Civil Engineers and ASCE's Role in Providing this Education	4855
<i>Sanjeev Kumar, John Casazza</i>	
Role of G-IT in Soil Identification	4864
<i>Pradeep Kumar, Praveen Kuttu</i>	
Author Index	