American Society of Civil Engineers

Computer Applications in Geotechnical Engineering 2007

Geotechnical Special Publication No. 157

February 18-21, 2007 Denver, Colorado, USA

Printed from e-media with permission by:

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

ISBN: 978-1-60423-768-9

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

Notices

Any statements expressed in these materials are those of the individual authors and do not necessarily represent the views of ASCE, which takes no responsibility for any statement made herein. No reference made in this publication to any specific method, product, process or service constitutes or implies an endorsement, recommendation, or warranty thereof by ASCE. The materials are for general information only and do not represent a standard of ASCE, nor are they intended as a reference in purchase specifications, contracts, regulations, statutes, or any other legal document.

ASCE makes no representation or warranty of any kind, whether express or implied, concerning the accuracy, completeness, suitability, or utility of any information, apparatus, product, or process discussed in this publication, and assumes no liability therefore. This information should not be used without first securing competent advice with respect to its suitability for any general or specific application. Anyone utilizing this information assumes all liability arising from such use, including but not limited to infringement of any patent or patents.

Copyright © 2007 by the American Society of Civil Engineers. All Rights Reserved.

Manufactured in the United States of America.

American Society of Civil Engineers ASCE International Headquarters 1801 Alexander Bell Drive Reston, VA 20191-4400 USA

Call Toll-Free in the U.S.: 1-800-548-2723 (ASCE) Call from anywhere in the world: 1-703-295-6300

Internet: http://www.pubs.asce.org

American Society of Civil Engineers

Computer Applications in Geotechnical Engineering Geotechnical Special Publication No. 157 2007

TABLE OF CONTENTS

Continuous Soil Deposition	1
Maximum Kinematic Pile Moment in layered soil profile: Artificial Neural Network Approach	11
Irshad Ahmad	
Meso-scale modeling of deformation banding in saturated dense and loose sands Jose Andrade	21
Studying the Effect of Concrete Key Size on Mechanically Stabilized Earth Wall Deformations using Finite Element Method	29
Damage Evaluation of the Taum Sauk Reservoir Failure using LiDAR Ronaldo Luna	37
Engineering Aspects of the South China Levee System with Implications for the Reconstruction of the New Orleans Levee System	47
Fully Automatic and Reliable Real Time Monitoring Systems for Steep Slopes, Embankments, and Structures	56
Hazard Mitigation using Broken Back Retaining Walls	66
Hazard and risk assessment of landslides	75
Review of the October 9, 1963 failure of the Vaiont reservior slope	85
Compression Tests on a Sandy Silt at Different Suction and Temperature Levels Bertrand François	95
Thermo-Hydro-Mechanical Numerical Modelling : Application to a Geological Nuclear Waste DisposalGRANET Sylvie	105
THMC Analysis of Unsaturated Swelling Clay Subjected to Heating and Hydration Marcelo Sanchez	115
Soil, A Dynamically Coupled Solid-Water-Gas System Jack Oostveen	125
Viscous Soft-Soil Modeling	135

Modeling Internal Erosion in Porous Media	145
Drying Shrinkage of Deformable Porous Media: Mechanisms Induced by the Fluid Removal	155
Herve Peron	
Modeling Heaving in Frost-Susceptible Soils	165
Experimental Study of the Water Retention Curve as a Function of Void Ratio	175
Experimental Evidences on Thermo-Hydro-Mechanical Coupling in Engineered Clay Barrier for Deep Nuclear Waste Disposal	185
Author Index	