STP 1283

Geostatistics for Environmental and Geotechnical Applications

Shahrokh Rouhani, R. Mohan Srivastava, Alexander J. Desbarats, Marc V. Cromer, and A. Ivan Johnson, editors

ASTM Publication Code Number (PCN): 04-012830-38

ASTM
100 Barr Harbor Drive
West Conshohocken, PA 19428-2959
Printed in the U.S.A.
Contents

OVERVIEW PAPERS

Geostatistics for Environmental and Geotechnical Applications: A Technology Transferred—MARC V. CROMER

Describing Spatial Variability Using Geostatistical Analysis—R. MOHAN SRIVASTAVA

Geostatistical Estimation: Kriging—SHAHROKH ROUHANI

Modeling Spatial Variability Using Geostatistical Simulation—ALEXANDER J. DESBARATS

ENVIRONMENTAL APPLICATIONS

Geostatistical Site Characterization of Hydraulic Head and Uranium Concentration in Groundwater—BRUCE E. BUXTON, DARLENE E. WELLS, AND ALAN D. PATE

Integrating Geophysical Data for Mapping the Contamination of Industrial Sites by Polycyclic Aromatic Hydrocarbons: A Geostatistical Approach—PIERRE COLIN, ROLAND FROIDEVAUX, MICHEL GARCIA, AND SERGE NICOLETIS

Effective Use of Field Screening Techniques in Environmental Investigations: A Multivariate Geostatistical Approach—MICHAEL R. WILD AND SHAHROKH ROUHANI

A Bayesian/Geostatistical Approach to the Design of Adaptive Sampling Programs—ROBERT L. JOHNSON

Importance of Stationarity of Geostatistical Assessment of Environmental Contamination—KADRI DAGDELEN AND A. KEITH TURNER

Evaluation of a Soil Contaminated Site and Clean-Up Criteria: A Geostatistical Approach—DANIELA LEONE AND NEIL SCHOFIELD

Stochastic Simulation of Space-Time Series: Application to a River Water Quality Modelling—AMILCAR O. SOARES, PEDRO J. PATINHA, AND MARIA J. PEREIRA

Solid Waste Disposal Site Characterization Using Non-Intrusive Electromagnetic Survey Techniques and Geostatistics—GARY N. KUHN, WAYNE E. WOLDT, DAVID D. JONES, AND DENNIS D. SCHULTE
Enhanced Subsurface Characterization for Prediction of Contaminant Transport Using Co-Kriging—CRAIG H. BENSON AND SALWA M. RASHAD 181

Geostatistical Characterization of Unsaturated Hydraulic Conductivity Using Field Infiltrometer Data—STANLEY M. MILLER AND ANIA J. KANNENGIESER 200

Geostatistical Simulation of Rock Quality Designation (RQD) to Support Facilities Design at Yucca Mountain, Nevada—MARC V. CROMER, CHRISTOPHER A. RAUTMAN, AND WILLIAM P. ZELINSKI 218

Revisiting the Characterization of Seismic Hazard Using Geostatistics: A Perspective after the 1994 Northridge, California Earthquake—JAMES R. CARR 236

Spatial Patterns Analysis of Field Measured Soil Nitrate—FARIDA S. GODERYA, M. F. DAHAB, W. E. WOLDT, AND I. BOGARDI 248

Geostatistical Joint Modeling and Probabilistic Stability Analysis for Excavations—DAE S. YOUNG 262

Indexes 277