

CONTENTS

VOLUME I

PREFACE

SECTION 1 DATA ACQUISITION

- A Microprocessor System for the Control, Data Acquisition and Processing of Attenuated Waves by Vertical Barriers 3
P.H. Milne, D. Stefanou and P.C. Mullen

- Experimental-Mathematical Investigations of the Hydraulics of Landfill Leachate Collection Systems 21
G.P. Korfatis, L. Seidas and A.D. Demetracopoulos

- Analysis of Fluid Transients in Spacecraft Propellant Systems 31
G. Manfrida, A. Fusi and G. Borriello

- Description of a Scale Model Used to Check a Computer Code 39
R.E. Arnould

- A Novel Microprocessor Based Instrument for Measuring the Degree of Electrical Balance in Three Phase AC Motor Driven Equipment 49
P.D. Ziogas, G. Xistris and H. Kovalcik

- The Dynamics of a Particle Immersed in Viscous Fluids Under Gravitational or Centrifugal Accelerations 61
G.H. Vatistas, G.D. Xistris

SECTION 2 HEAT TRANSFER

- Heat Transfer at a Latent Heat Storage 75
D. Loyd, A. Solmar

- Propagation of Interacting Turbulent Plumes 93
M. Brahimi, Doan-Kim-Son

- Flame Structure Studies by Computer Controlled Experiments and Numerical Modelling 101
M.C. Branch

- Thermographic Measurements of Heat Transfer from Jets Impinging on a Flat Plate 111
G.M. Carlomagno, L. de Luca

- Application of Network Formulation Techniques to Computer Simulation of Heat Transfer in Buildings 119
A.K. Athienitis

SECTION 3 FLUID DYNAMICS

- Finite Element Solutions for the Compressible Navier-Stokes Equations 151
W.G. Habashi, G. Guevremont, M.F. Peeters and M.M. Hafez

- Analysis of Viscous Effects in the Roll-up of Trailing Vortices 165
M. Cencini, A. Cenedese

A Simple Code for Laminar or Turbulent Flowfield Predictions with Applications <i>G.H. Vatistas, A.A. Busnaina and D.G. Lille</i>	177
Flow Measurements in Compound Ducts <i>P. Prinos, S. Tavoularis and R. Townsend</i>	189
Numerical Solution of the Inviscid Flow Through the Runner of the Cross-Flow Water Turbine – Comparison with Experimental Data <i>D. Papantonis, N. Athanassiadis</i>	199
Evolution of Concentration Fluctuations Downstream of a Step Type Source Profile <i>H. Staptantzis</i>	209
Pulsatile Flow in a Collapsible Tube Subjected to Longitudinal Tension <i>R. Collins</i>	221
SECTION 4 HYDRAULICS	
Currents in the Up-Wave Region of an Inclined Breakwater <i>C.T. Kuo, C.S. Shey</i>	243
Simulation Aspects of Earth Dam Failures <i>V.P. Singh, P.D. Scarlatos, M.R. Jourdan and J.G. Collins</i>	263
Wind Stress Effects on Riverine Networks <i>P.D. Scarlatos, A.C. Demetracopoulos</i>	275
Organisation and Calibration of a Numerical Model for 3-D Wind Generated Coastal Circulation <i>C.G. Koutitas, M. Gousidou-Koutita</i>	285
Wave Diffraction by Offshore Structures: Green's Function Method <i>M. Rahman</i>	299
Analysis of Free Surface Flows <i>I.G. Tsaras, N.D. Katopodes</i>	309
SECTION 5 WATER RESOURCES	
A Comparative Numerical Study for Determination of Pore Pressure Under Undrained Conditions <i>M. Sobhanie, D.H. Timmerman and A.F. Saleeb</i>	325
Determination of Aquitard Resistance from Hydraulic Head Measurements <i>W. Zijl, W.I.M. Elderhorst and F.D.E. Waardenburg</i>	339
Unsaturated Soil Water Movement Simulation, as Influenced by Soil Property Characterization <i>S. Yannopoulos, E. Sidiropoulos</i>	349
Simulation of Advection-Dominated Mass Transport in Two-Dimensional Saturated Aquifers <i>D. Syriopoulou, A.D. Koussis</i>	363

Algorithmic vs Knowledge-Based Expert Models in Water Resources Planning <i>R. Kangari</i>	373
Simulation of Complex Environmental Flows <i>N.D. Katopodes, D.R. Wong</i>	381
SECTION 6 STRUCTURES – GENERAL	
Structural Analysis of a Microexcavator <i>M.A. Bromfield, W.T. Evans</i>	393
The Numerical Treatment of Anisotropic Plate Bending Problems <i>E. Mahajerin, G. Burgess</i>	401
On the Input Identification of Tall Buildings Without the Usual Limiting Assumptions <i>H.G. Natke, N. Cottin</i>	409
Structural Analysis of Magnet Coils <i>R. Mathis, J. Sapper</i>	419
SECTION 7 STRUCTURES – TESTING	
Ultrasonic Nondestructive Evaluation: Computational Methods and Experimental Measurements <i>S.K. Datta, A.H. Shah</i>	433
Development of Experimental Vacuum Chambers at CERN <i>F. Bertinelli, C. Hauviller</i>	449
Computerised Large Scale Strut Testing – Interaction Between Experimental and Numerical Models <i>N. Taylor, P. Hirst</i>	459
Masonry Walls: Boundary Element Analysis and Experimental Results <i>C. Alessandri, C.A. Brebbia</i>	469
Experimental and Numerical Study of Unanchored Cylindrical Tanks Subjected to Lateral Loads <i>G.C. Manos, D. Talaslidis</i>	487
A New Method for the Quantitative Analysis of Dam Displacements <i>J. Mora Ramos, J. Soares de Pinho</i>	497
Wind Tunnel Test on a Radar Antenna <i>P. Cirese</i>	507