### TECHNICAL SESSION (Monday, August 4, 2003)

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<tr>
<td>08:30</td>
<td>Opening Ceremony</td>
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<tr>
<td>09:00</td>
<td>Keynote Lecture (Chair: H. G. Poulos, Australia)</td>
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<tr>
<td></td>
<td>LTA Transport Infrastructure Projects – Challenges and Opportunities</td>
</tr>
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<td></td>
<td>T. C. Chew, Singapore</td>
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<tr>
<td>10:00</td>
<td>Tea Break and Exhibition</td>
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<tr>
<td>10:30 – 12:30</td>
<td>Sessions G1, TC2, ATC7 and ATC3 (I)</td>
</tr>
</tbody>
</table>

### G1 (Excavations) Mandarin Ballroom 1

**Chair:** S. S. Gue, Malaysia  
**Discussion Leader:** S. M. Woo, Taiwan

- Recent Development in Ground Anchor Technology in Singapore  
  Chua T. S. (page 777)
- Deep Excavation Analysis with Consideration of Small Strain Modulus and Its Degradation Behavior of Clay  
- Damage Evaluation to Adjacent Structures from Open-Cut Excavation  
  Hsiung B. C. B., H. S. J. Kung, H. D. Lin, W. B. Lin and C. H. Chen (page 789)
- Comparative Study of Constitutive Models on Predictions of Diaphragm Wall Behavior  
  Lok T. M. H. and C. H. Ng (page 817)
- Reducing Earth Pressures below Active State by Controlled Yielding  
  Rajagopal K. and K. Purnanandam (page 821)
- Self-Stabilizing Effect in Seepage Failure of Soil in an Axisymmetric Condition  
  Tanaka T. and K. Sakane (page 833)
- Performance of T-Shaped Cantilever Diaphragm Walls in Deep Excavation  
  Tang S. K., S. Y. Tong, C. W. Loke and T. L. Lim (page 837)
- Performance of Buttress-Support Thin Diaphragm Wall for Underground Car Park in Bangkok  
  Thasnanipan N., Z. Z. Aye and C. Submaneewong (page 841)
- Ground Movements Associated with Deep Excavation — A First Order Prediction  
  Yoo C. and B. S. Choi (page 845)

### TC2 (Physical Modelling) Mandarin Ballroom 2

**Theme:** Applications of Physical Modelling to Geotechnical Practice

**Chair:** Prof O Kusakabe, Tokyo Institute of Technology, Japan

**Theme Lecturer:** Prof Charles Ng, Hong Kong University of Science and Technology, Hong Kong (in collaboration with Prof O Kusakabe and Prof C F Leung, National University of Singapore, Singapore)

**Panelists:**

- Prof A B Huang, National Chiao Tung University, Taiwan
- Dr M Kitazume, Port and Airport Research Institute, Japan
- Dr D M Lee, Arup Geotechnics, Hong Kong
- Prof R N Taylor, City University, UK
- Prof. B V S Viswanadham, Indian Institute of Technology, Bombay, India

**Centrifuge Modelling of Contaminant Migration through Composite Liners**  
Hedge R.A., G. R. Dodagoudar and J. N. Mandal (page 377)

**Description:** This session will provide a state of art review on the applications of physical modeling to geotechnical practice. Panelists from universities, research institution and practicing engineers are invited to present a variety of topics including soil-structure interaction, wharf front structures, geoenvironment and pressure chamber testing.
<table>
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<tr>
<th>Theme: Foundations on Thick Clay Deposits (program not finalized)</th>
<th>Theme: Diversity and Common features of Recent Geotechnical Natural Hazards in Asia</th>
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<tr>
<td>Chair: T. Matsui, Dept of Civil Engineering, Osaka University</td>
<td>Chair: Prof. W. D. Liam Finn, Kagawa University, Japan</td>
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<tr>
<td>Theme Lecturer: Optimization of foundations on unusual thick clay deposits, S. K. Kim</td>
<td>Theme Lecturer: Prof. S. K. Prasad, Sri Jayachamajendra College of Engineering, India (Geotechnical aspects of Gujarat earthquake of 2001 in India) Dr. Richard Pang, Geotechnical Eng. Office, Government of Hong Kong (Rain-induced Landslides in Hong Kong)</td>
</tr>
<tr>
<td>Panelists:</td>
<td>Discussion Leader: Prof. T. Kokusho, Chuo University, Japan</td>
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<tr>
<td><em>Performance of Floating Foundation of a Building on the Nakdong Estuarine Delta</em> S. G. Chung</td>
<td>Panelists:</td>
</tr>
<tr>
<td><em>Remedial Measurements for Differential Settlement in Kansai Airport</em> H. Tanaka</td>
<td>Prof. Liu Hanlong, Geotechnical Institute, Hohai University, China</td>
</tr>
<tr>
<td><em>Analysis of Soil Extraction for Correcting Uneven Settlement of Pile Foundation</em> H. G. Poulos (page 653)</td>
<td>Prof. Kazuhide Sawada, Dept. of Civil Engineering, Gifu University, Japan</td>
</tr>
<tr>
<td><em>Study on Effects of Sampling Operations in Marine Clay of Singapore</em> S. L. Chiam and C. W. Ong (page 11)</td>
<td>Prof. K. S. Rao, Department of Civil Engineering, IIT, New Delhi, India</td>
</tr>
<tr>
<td><em>Significance of Construction Effects on Uplift Behavior of Drilled Foundation</em> Chen J. R. and F. H. Kulhawy (page 591)</td>
<td>Study of Liquefaction Mechanism and Excess Pore Water Pressure Mode of Saturated Loess Prof. Liu Hanlong (page 315)</td>
</tr>
</tbody>
</table>

**Description:** Structures on thick clay deposits are subjected to unusual large settlements, differential settlement between neighboring structures, and prolonged settlements with time. Presented in this session are foundation problems of structures laid on unusually thick soft soil deposits, continuous occurrence of large settlement and remedial measures, some case histories of foundation practice, and so on. Discussion will be followed.

| 12:30 | Lunch and Exhibition |
| 14:00 | Keynote Lecture (Chair: F. H. Kulhawy, USA)  
Behavior and Design of Pile Foundations Subjected to Earthquakes  
K Tokimatsu, Japan |
| 15:00 | Tea Break and Exhibition |
### G2 (Tunnels)
Mandarin Ballroom 1

**Chair:** S. W. Hong, Korea  
**Discussion Leader:** P. Vermeer, Germany  

- **Geotechnical Considerations for Design and Construction of an Immersed Tunnel — The Boston's Third Harbor Tunnel**  
  Chang C. C. and S. Narasimharajan (page 851)

- **Reliability Analysis of Serviceability Limit State of Geotechnical Structures**  
  Goh A. T. C. and F. H. Kulhawy (page 947)

- **Blast-Resistant Analysis of a Tunnel in Taipei**  
  Gui M. W., S. L. Chen and M. C. Chien (page 859)

- **Mechanical Behavior on the Sandy Ground through the 3-D Trapdoor Experiment**  
  Kikumoto M. and K. Kishida (page 863)

- **Effects of Deep Excavation on Adjacent Transit Tunnels and Station**  
  Niu J. X., I. H. Wong and M. Makino (page 883)

- **Evaluation of Remedial Works for Cracked Tunnels in Creep-Behaved Ground**  
  Zhang F., A. Yashima, S. Matsuda, Y. Sekine and H. Hyodo (page 895)

- **Pile-Soil-Tunnel Interaction in Some Layered Soil Profiles**  
  Zhou J., Y. K. Chow, G. R. Dasari, C. F. Leung and C. S. Ng (page 899)

### ATC10 (Urban Geo-Informatics)
Mandarin Ballroom 2

**Chair:** S. Yasuda

**Panelists:**  
- M. Mimura  
- S. Hachinohe  
- Y. Shimizu  
- G. R. Dasari

- **Development of Shakability Maps for the Caspian Basin**  
  Aytaliev Sh. M., R. B. Baymakhan and A. A. Sydykov (page 271)

- **Evaluation of Liquefaction Potential for Seismic Microzonation of Delhi Region**  
  Rao K. S (page 327)

- **Internet-Based Geotechnical Information System for Singapore**  

**Description:** The session first outlines objectives and activity of ATC10. Then committee members will present contents of the case history volume of the urban geo-informatics the committee is preparing for publication. A few conference papers with topics related to the TC will be presented. Finally discussion on future activities of ATC10.
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<th>G3 (Deep and Shallow Foundations (1))</th>
<th>ATC11 (Geotechnical Consultants)</th>
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<td><strong>Mandarin Ballroom 3</strong></td>
<td><strong>Mandarin Court A</strong></td>
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<tr>
<td><strong>Chair:</strong> Z Askar, Kazakhstan</td>
<td><strong>Theme:</strong> Discussion Forum on Geotechnical Consultancy</td>
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<tr>
<td><strong>Discussion Leader:</strong> M. Kimura, Japan</td>
<td><strong>Chair:</strong> V. V. S. Rao</td>
</tr>
<tr>
<td><strong>Content:</strong></td>
<td><strong>Theme Lecturer:</strong> M. R. Madhav</td>
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<tr>
<td><em>High Strain and Low Strain Dynamic Pile Testing at the New Blanchetown Bridge, SA</em></td>
<td><strong>Panelists:</strong></td>
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<tr>
<td>Cannon J.  (page 571)</td>
<td>Y. Iwasaki</td>
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<tr>
<td><strong>Improving Pile Raft Performance</strong></td>
<td>Z. C. Moh</td>
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<tr>
<td>Chan S. F.  and Y. K. Tan (page 577)</td>
<td>K. Dave</td>
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<tr>
<td><strong>Wave Equation Analyses on Seismic Responses of Grouped Piles</strong></td>
<td>R. Kaniraj</td>
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<tr>
<td>Chang D. W.  and B. S. Lin (page 581)</td>
<td><strong>Description:</strong> The discussion will concentrate on the following issues: (i) Collaboration between professionals and academia, (ii) Creation of geotechnical database for consultants, (iii) Harmonization of design codes, (iv) Cross-national practice for consultants, and (v) Legal matters concerning consultancy practice.</td>
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<tr>
<td><strong>Effect of Groundwater Level in Sand on Footing Performance</strong></td>
<td><strong>Panelists:</strong></td>
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<td>Chang M. F.  (page 587)</td>
<td>Y. Iwasaki</td>
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<td><strong>Drained Lateral Loading for Drilled Shafts</strong></td>
<td>Z. C. Moh</td>
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<td>Chen Y. J.  and F. H. Kulhawy (page 595)</td>
<td>K. Dave</td>
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<tr>
<td><strong>Analysis of Laterally Loaded Pile Group in Clay</strong></td>
<td>R. Kaniraj</td>
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<tr>
<td>Ilyas T., C. F. Leung and Y. K. Chow (page 607)</td>
<td><strong>Panelists:</strong></td>
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18:00 to 20:00 Welcome Reception (Mandarin Court, Main Tower, 4th floor)
### TECHNICAL SESSION (Tuesday, August 5, 2003)

**09:00**  
Keynote Lecture (Chair: T. Adachi, Japan)  
Geotechnical Issues in Design and Construction of Viaducts of the Taiwan High Speed Rail  
Za-Chieh Moh, Taiwan

**10:00**  
Tea Break and Exhibition

**10:30 – 12:30**  
Sessions G4, G5 and G6

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<th>G5 (Coastal and Marine Geotechnics) Mandarin Ballroom 2</th>
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| **Chair:** C. Makarim, Indonesia  
**Discussion Leader:** A. T. C. Goh, Singapore | **Chair:** H. Liu, China  
**Discussion Leader:** S. C. R. Lo, Australia |
| **Lateral Resistance of Single Pile near Slopes of Sand**  
Koda M., M. Okamoto and J. Takemura (page 615) | **Consolidation Settlement in Soft Clays using Finite Strain Theory**  
Balakrishnan A., M. J. Chacko and R. Howard Jr. (page 205) |
| **Numerical Analysis of Model Pile Failure due to Soil Movement using FLAC3D**  
Lee K. Y., J. Kodikara and A. Haque (page 627) | **Two-dimensional Consolidation Study of Caissons with Drains for Reclamation**  
Cho N. J., C. S. Park and K. K. Phoon (page 209) |
| **Visualization of Failure Patterns under Vertically Loaded Pile Foundation using X-RayCT Method**  
Otani J., J. Hironaka and T. Mukunoki (page 973) | **Verification of Reclaimed Area in Asaluyeh Oil Complex Port, Iran**  
Heidari S. and S. Gitipour (page 221) |
| **Centrifuge Modelling of Pile Groups Adjacent to Surcharge Loads**  
Lee E. C. and M. Y. Norzan (page 225) |
| **Smother Transition of Approach Embankments Supported on Piles**  
Wong S. C. and H. G. Poulos (page 661) | **Comparative Study on the Compressibility of Lumpy Fill in Water and in Clay Slurry for Land Reclamation**  
| **Skin Friction of Driven Piles in Pleistocene Laminated Ground**  
Yasufuku N., H. Ochiai and Y. Maeda (page 677) | **Soil Aggressivity Consideration for Laying Petroleum Pipelines**  
Sridharan A., H. N. Ramesh, R. Sundareswaran and N. Ranganath (page 237) |
| **A Simplified Method for Calculation of Settlements of Soils with Creep Based on Hypothesis B**  
Yin J. H. (page 681) | **Assessment and Remediation of a Failed Wharf**  
Srithar S. T. and A. L. Garrard (page 241) |
| **Bearing Capacity of Long Driven Piles using Dynamic Methods**  
Zhang L., A. C. W. Chau and M. P. Shek (page 685) | **Seismic Performance Evaluation of Pile-Supported Wharf by 3D Finite Element Analysis**  
Takahashi A. (page 245) |
| **Case Studies of Lightweight Treated Soil Method in Seaport and Airport Construction Project**  
Tsuchida T. and M. S. Kang (page 249) | |
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<td>Aoki H., K. Watanabe, M. Tateyama and T. Yonezawa</td>
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<td>Prediction of Slope Movements by Moderate Seismic Loads</td>
<td>Cho S. W. and M. M. Kim</td>
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<td>Seismic Analysis of Renyi Dam in Taiwan</td>
<td>Gui M. W. and H. H. Wu</td>
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<td>Applicability of Similitude Laws for 1-g Shaking Table Tests</td>
<td>Kim S. R., J. I. Hwang, C. K. Chung and M. M. Kim</td>
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<td>Two- and Three-Dimensional Dynamic Analysis of Large Deformation of Liquefied Ground</td>
<td>Kobayashi Y. and S. Nishimura</td>
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<tr>
<td>Seismic Response Analysis of Reinforced Earth Retaining Structures</td>
<td>Lee W. F., S. S. Lin, Y. J. Lai and C. C. Chiang</td>
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12:30 Lunch and Exhibition
14:00 Keynote Lecture (Chair: K. Ishihara, Japan)
   Liquefaction Potential in Moderate Earthquake Regions
   S. I. Kim, Korea
15:00 Tea Break and Exhibition
### G7 (Soil Dynamics and Earthquake Engineering (2))
**Mandarin Ballroom 1**

**Chair:** John Li, Taiwan  
**Discussion Leader:** K. S. Rao, India

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<td>Seismic Evaluation of Inclined Steel-Pile Foundation in Soft Ground</td>
<td>Okawa K., H. Kamei and M. Kimura</td>
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<td>Mitigation of Liquefaction-Induced Floating of Embedded Structures by using Underground Walls</td>
<td>Towhata I., N. Nakai, H. Ishida, S. Isoda and T. Shimomura</td>
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<td>Seismic Stability of Preloaded and Prestressed Reinforced Soil Abutments</td>
<td>Uchimura T., F. Tatsuoka and K. Nakarai</td>
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<td>Analyses for Liquefaction-Induced Settlement of River Levees by ALID</td>
<td>Yasuda S., T. Ideno, Y. Sakurai, N. Yoshida and H. Kiku</td>
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<td>Seismic Response Analysis of Soft Clay Strata</td>
<td>Yu Y. and F. H. Lee</td>
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### G8 (Numerical Modeling)
**Mandarin Ballroom 2**

**Chair:** S. Frydman, Israel  
**Discussion Leader:** T. G. Sitharam, India

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<td>Elasto-Viscoplastic Analysis of Embankments on Soft Soils</td>
<td>Manivannan G., C. T. Gnanendran and S.-C. R. Lo</td>
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<td>SASW Method for Evaluating Ground Condition</td>
<td>Miao L., S. Liu, Y. Qiu and M. Shi</td>
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<td>Localized Behavior of Saturated Soil via Element-Free Strategy</td>
<td>Murakami A. and S. Arimoto</td>
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<td>Some Applications of Artificial Neural Network in Geotechnical Engineering</td>
<td>Neaupane K. M. and N. R. Adhikari</td>
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<td>Considerations on Shear Strength and Roughness of Rock Joint</td>
<td>Ohtsuka S. and M. Doi</td>
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<td>Three-Dimensional Drainage Modelling of Hydraulic Fill Mines</td>
<td>Rankine K. J., K. S. Rankine and N. Sivakugan</td>
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<tr>
<td>Collapse of Compacted Unsaturated Clay and Its Elastoplastic Modelling</td>
<td>Sun D. A. and H. B. Cui</td>
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G9 (Geoenvironmental Engineering)
Mandarin Ballroom 3

Chair: M. Kamon, Japan
Discussion Leader: S. Imamura, Japan

Large-scale Tests of Leachate through Defects in Geomembrane Underlain a Soil Layer
Chai J. C. and N. Miura (page 361)

Environmental Risk Assessment of a Containment Disposal Facility at a Contaminated Site
Kamon M., T. Inui and T. Katsumi (page 381)

Development of Contaminant Leakage Detection System using Electrical Resistivity Measurement: Evaluation of Applicability for Landfill Site by Field Model
Oh M. H., J. B. Park, J. H. Lee and S. W. Hong (page 397)

Recycling of MSW Incineration Ash by Clay Mixing and Baking Treatment
Omine K. (page 401)

Leachate Analysis of Designated Waste through Clay Liners
Shroff A. V., L. S. Thakur and N. H. Patel (page 405)

Relation between Structure and Hydraulic Conductivity of Marine Clayey Soils
Tanaka H., M. Tanaka, F. Ritoh and N. Omukai (page 413)

Utilization of Dredged Soil Treated with Small Quantity of Cement for Waste Reclamation Landfill
Watabe Y. (page 417)

Application for Embankment Material of Coal Fly Ash with Cement
Yoshimoto N. and M. Hyodo (page 421)

17:30 to 19:30 Asian Societies Meetings
**TECHNICAL SESSION (Thursday, August 7, 2003)**

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<tr>
<td>09:00</td>
<td>Keynote Lecture (Chair: S. F. Chan, Malaysia)</td>
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<tr>
<td></td>
<td><em>Reinforcement – Soil Interactions under Transverse and Oblique Forces</em></td>
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<td>M. R. Madhav, India</td>
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<td>10:00</td>
<td>Tea Break and Exhibition</td>
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<td>10:30 – 12:30</td>
<td>Sessions G10, TC9 and ATC12</td>
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<tr>
<th>Ballroom 1</th>
<th>Theme: Combined Technology in Earth Reinforcement</th>
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<tr>
<td></td>
<td>Chair: K. Orihara, Singapore</td>
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<td></td>
<td>Discussion Leader: Y. H. Lee, Korea</td>
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- *Effect of Stress History on Deformation Characteristic of Gravely Soil*  
  Anhdan L., J. Koseki and F. Tatsuoka (page 3)

- *Behaviour of Sand with Plastic and Non-Plastic Fines*  
  Bobei D. and S.-C. R. Lo (page 7)

- *Effect of Drainage Conditions on Instability of Sand*  
  Chu J. and W. K. Leong (page 15)

- *Effect of Elapsed Time since Slip Plane Development on Residual Strength*  
  Frydman S., M. Talesnick and A. Shvarzman (page 23)

- *Dilatancy and Strength for a Bonded Granular Material*  
  Katsuki D. and H. Murata (page 31)

- *Small Strain Stiffness of the Taipei Silty Clay*  
  Kung T. C. and C. Y. O (page 39)

- *Effect of Drying on the Liquid Limit of Singapore Marine Clay*  
  Low H. E. and K. K. Phoon (page 51)

- *Prediction of the Mechanical Behaviour of Mexico City Clay; Normally Consolidated Drained Case*  
  Rivera-Constantino R, E. Juárez-Badillo, H. Nava-Muguiro, R. Villa-Escobar and F. Jerónimo-Rodríguez (page 73)

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<th>Ballroom 2</th>
<th>Chairman: J. Otani and K. Yeo</th>
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<tr>
<td></td>
<td><strong>Panelists</strong></td>
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- Recent case histories on combined technology with earth reinforcement in Japan  
  Y. Miyata

- Korean practice of earth reinforcement in combination with other methods  
  E. C. Shin

- Southeast Asian practice of soil reinforcement in combination with other soil improvement methods  
  C. Lawson

- Behavior of reinforced embankment on soft ground with and without jet grouted soil-cement piles  
  D. T. Bergado

**Description:** This session will be organized with following contents.  
(i) General Report on the accepted technical papers,  
(ii) Four panelists’ presentations on the topics of combined technology in earth reinforcement in Asia.  
Discussion on the current topics and future prospects on the subject of combined technology in earth reinforcement technique.
### ATC12 (Land Reclamation and Coastal Structures in Asia)
#### Mandarin Ballroom 3

**Theme:** Land Reclamation and Coastal Structures  
**Chair:** H. Tanaka (PARI, Japan)

**Theme Lecturer:**  
*The Main Reclamation Projects in Japan*  
H. Tanaka

**Panelists:**
- **Central Japan International Airport**
  - Y. Mitarai
- **Case Study of Sand Compaction Pile Method (SCP) at Pusan New Port Project in Korea**
  - K.-J. Byun
- **Reclamation Projects in Singapore**
  - T. S. Tan
- **Hong Kong Chekrapkok Airport**
  - J. H. Yin
- **Waste Reclamation Site in Coastal Area (Japan)**
  - Y. Watabe

**Description:** The theme of ATC 12 is focused on the large-scale coastal reclamation projects in Asia including airport, port structure and waste landfill. During the session, participants will hear the recent trend of coastal development in practice with remarkable technical achievement, through a theme lecture followed by 5 panel presentations by high level experts.

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>12:30</td>
<td>Lunch and Exhibition</td>
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</table>
| 14:00   | Keynote Lecture (Chair: S. K. Kim, Korea)  
*Consolidation of Clay and Compaction of Sand – An elasto-plastic description.*  
A. Asaoka, Japan |
<p>| 15:00   | Tea Break and Exhibition |</p>
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<th>G12 (Soil properties 2)</th>
<th>TC23(I) (Limit State Design in Geotechnical Engineering Practice)</th>
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<tr>
<td><strong>Chair:</strong> S. Surachat, Thailand</td>
<td><strong>Theme:</strong> Advances in Geotechnical Limit State Design</td>
</tr>
<tr>
<td><strong>Discussion Leader:</strong> A. Ghalandarzadeh, Iran</td>
<td><strong>Chair:</strong> Honjo Y., Gifu University, Japan</td>
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- **Deformations of Sand around a Cone Penetrometer**
  - Kobayashi T., R. Fukagawa and T. Kakita *(page 131)*

- **Evaluation of Critical State Parameters for Three Coastal Soils of Bangladesh**
  - Siddique A., A. M. M. Safiullah and M. A. Bashar *(page 89)*

- **Design Parameters of Klang Clay, Malaysia**
  - Tan Y. C., S. S. Gue, H. B. Ng and P. T. Lee *(page 93)*

- **Characterisation and Engineering Properties of Soft Soils in Hanoi, Vietnam**

- **Case Study of Pressuremeter Test Using Foam Drilling Method**
  - Wada A., A. Lwin and A. C. Nayar *(page 139)*

- **Effects of Test Method on Evaluation of Sample Disturbance of Sand**
  - Yamashita S., T. Hori and T. Suzuki *(page 105)*

- **Variation of Shearing Strength Parameters of Undisturbed CDG in Hong Kong**
  - Shang Y.J., S. J. Wang and Z. Q. Yue *(page 85)*

- **Opening Remarks & Report on TC23 Activities**
  - Honjo Y. (Chair, TC23)

- **Reliability-based design of foundations**
  - Kulhawy F. H.

- **Limit state design experiences in Australia**
  - Lo S-C. R.

- **Practical reliability-based design illustrated for foundations and retaining walls**
  - Low B. K. *(related reference: page 965)*

- **Practical guidelines for reliability-based design calibration**
  - Phoon K. K. *(Core member, TC23)*

- **Limit state design experiences in Hong Kong and Mainland China**
  - Zhang L. M.

- **Activities Related to ISO23469 (Seismic Actions for Designing Geotechnical Works)**
  - Horikoshi K.

**Description:** The purpose of this session is to disseminate information on geotechnical code developments on the international scene, with particular emphasis on reliability-based and performance-based design. A report on LSD2003 and some practical guidelines for reliability calibration will be presented by Professor Honjo (Chair, TC23) and Dr Phoon (Core member, TC23), respectively.
### ATC3(II) (Geotechnology for Natural hazards)
#### Mandarin Ballroom 3

<table>
<thead>
<tr>
<th>Theme: Potential Geotechnical Natural Hazards in Asia</th>
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<tr>
<td>Chair: K. Ishihara, Chuo University/Tokyo Science University, Japan</td>
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<tr>
<td>Theme Lecturer: R. Kitamura, Kagoshima University, Japan (Influence of Mt. Fuji Eruption on Human Life in Urban Area) Dr. M. Silver, ADB Principal Water Disaster Mitigation Expert (Vietnam Geotechnical Aspects of the Government Policy of ‘Living With Floods’ in the Lower Mekong River Basin)</td>
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<tr>
<td>Discussion Leader: Prof. I. Towhata, University of Tokyo, Japan</td>
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<tr>
<td>Panelists: Prof. Chaidir Aswar Makarim, Tarumanagara University, Jakarta, Indonesia. Dr. Sanjay Gupta, Cengrs Geotechnica Pvt. Ltd., India Prof. Askar Khasanov, Samarkand State Architectural and Civil Engineering Institute, Uzbekistan.</td>
</tr>
<tr>
<td>Distribution of Soft Soil in Jakarta Area: Characteristic, Thickness and Its Potential Long Term Settlement Makarim C. A.</td>
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<tr>
<td>Geotechnics of artesian Flow – Case Study of River Shivganga, Nepal Gupta S. and R. Sundaram</td>
</tr>
<tr>
<td>Influence of hydro-geological regime of underground waters on geological environment of towns of Central Asia Khasanov A.</td>
</tr>
</tbody>
</table>

**Description:** Asia has a large potential of natural hazards not only earthquakes or rain-induced landslides but also volcanic hazards, flooding, etc. The two lectures focus on geotechnical hazards due to volcanic eruption and due to flooding of lowland areas of Mekong and other large rivers. After that related papers are presented orally and discussions will be carried out lead by a leading discusser on future potentials of geotechnical natural hazards in Asia.

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**19:00 to 22:00 Dinner Banquet** (Imperium Restaurant, 391 Orchard Road, Ngee Ann City, Podium Block, 7th floor, Unit 07-01, Tel: 67339833)
### TECHNICAL SESSION (Friday, August 8, 2003)

<table>
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<tr>
<td>09:00</td>
<td>Keynote Lecture (Chair: S. L. Lee, Singapore)</td>
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<td></td>
<td>Geotechnical Aspects of High Embankment Dams in China</td>
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<td>J-M. Zhang, China</td>
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<td>10:00</td>
<td>Tea Break and Exhibition</td>
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<td>10:30 – 12:30</td>
<td>Sessions G13, TC23(II) and G14</td>
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#### G13 (Slopes and Embankments)
Mandarin Ballroom 1

**Chair:** John Wei, Singapore

**Discussion Leader:** Warakorn Mairaing, Thailand

- **Experimental and Analytical Study on the Progressive Failure of Cut Slopes**
  - Adachi T. and Y. Saito (page 691)

- **Trial Embankments on North Java Soft Clay**
  - Barry A. J., H. Rahadian and A. Rachlan (page 699)

- **Application of Mechanistic Models for Filter Design**
  - Kakuturu S. P. and L. N. Reddi (page 727)

- **Settlement Analysis of Pakpanang Closure Dam**
  - Petchgate K., C. Modmoltin, P. Voittopruex and A. Pirat (page 747)

- **Dynamic Amplification in case of Seismic Sliding of Embankments**
  - Saha A., B. Basu and S. Mukherjee (page 751)

- **Finite Element Analysis of a Test Embankment on Soft Clay**
  - Sheng D. (page 755)

- **Performance of Embankment on Soft Clay Supported by Geogrid and Concrete Piles**
  - Shin E. C., S. H. Lee and B. M. Das (page 759)

- **Monitoring the Deformations of Embankment Dams during Construction A Case Study: Panzad Khordad Dam**
  - Yasrebi S. H. and A. R. Bagheri (page 771)

- **Pore-Water Pressure in Residual Soil Slope**
  - Leong E. C., H. Rahardjo and X. -H. Zhang (page 739)

#### TC23(II) (Limit State Design in Geotechnical Engineering Practice)
Co-sponsor: Technical Committee on Civil Works and Geotechnics, SPRING, Singapore
Mandarin Ballroom 2

**Theme:** Current Status and Future Developments of Geotechnical Design Codes in some Asian Countries

**Chair:** O. Kusakabe

**Panelists:**
- T. S. Tan, Singapore
- J. Fukui, Japan
- S. S. Gue, Malaysia
- W. Maraing, Thailand
- G. L. Yoon, South Korea

**Description:** This session intends to bring together a group of interested and active people from Asia who are associated with professional/government bodies carrying legal mandate to draft/review design codes. Problems faced by small and/or developing countries in keeping abreast with rapid developments in geotechnical design codes would be presented and discussed by the panelists.
### G14 (Ground Improvement (1))
Mandarin Ballroom 3

**Chair:** A V Shroff, India  
**Discussion Leader:** D. Bergado, Thailand

<table>
<thead>
<tr>
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<tr>
<td>A Study of Lime Stabilization on Soil of a Selected Reclaimed Site of Dhaka City</td>
<td>Ansary M. A., A. Siddique and K. A. Hasan</td>
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<td>Treatment of Landfill using Dynamic Compaction Technique</td>
<td>Chen C. S.</td>
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<td>Shear Strength Characteristics and Behavior of Ground Grouted using FRP Reinforcing Members</td>
<td>Choi Y. K., S. B. Woo, O. Y. Kwon, J. H. Park and H. H. Han</td>
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<td>MCV and Shear Strength of Compacted Fine-Grained Tills</td>
<td>Lindh P.</td>
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<td>Compaction Behavior of Loose Sand due to the Decay of Soil Structure</td>
<td>Nakano M., A. Asaoka, K. Kaneda and K. Nakai</td>
<td>505</td>
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<tr>
<td>Compaction of Sandy Ground by “Static” Cavity Expansion</td>
<td>Noda T., E. Yamada and S. Yamada</td>
<td>509</td>
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<tr>
<td>Effect of Soil Properties on Performance of Compaction Grouting</td>
<td>El-Kelesh A.M. and T. Matsui</td>
<td>477</td>
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12:30  Lunch and Exhibition
### G15 (Ground Improvement (2))
*Mandarin Ballroom 1*

| Chair: S. Heidari, Iran |
| Discussion Leader: P. Rahardjo, Indonesia |

- *Cyclic Shear Resistance Profile of Sand Deposit Improved with Sand Compaction Piles*  
  Okamura M. (page 513)

- *Movements Associated with Jet Grouting and Mitigation Measures*  
  Poh T. Y. (page 529)

- *Effect of Lime Stabilisation on Swelling and Strength Properties of an Expansive Soil*  
  Siddique A. and M. A. Hossain (page 537)

- *Influence of Composition of Soils on Their Stabilization by Cement*  
  Stavridakis E. I. (page 545)

- *Improvement of Dispersive Soil Embankment using Lime, Cement, and Fly-ash*  
  Sungwornpatansuk W., P. Vootipruex and C. Modmoltin (page 549)

- *Analytical Modeling for Predicting the Pullout Capacity between Hexagonal Wire Mesh and Sand*  
  Teerawattanasuk C., D. T. Bergado and W. Kongkitkul (page 553)

- *Interaction between Hexagonal Wire Reinforcement and Rubber Shredded Tire with and without Sand Mixture*  
  Youwai S., D. T. Bergado and N. Supawiwa (page 565)

### ATC9 (Protection of Cultural Heritage from Landslide and Weathering)
*Mandarin Ballroom 2*

**Theme:** Protection of Cultural Heritage from Landslide and Weathering

**Chair:** M. Chigira

**Panelists:** Joel C. BANDIBAS, Valter Maria SANTORO, Ikuo TOWHATA, Yoshinori IWASAKI, Tadashi YASUDA, Toshitaka KAMAI, Masahiro CHIGIRA

- *Landslide Risk Assessment of the 2000-Year Old Banawe Rice Terraces of the Philippines*  
  Joel C. BANDIBAS

- *Structural damages due to foundation settlements and repair techniques of towers in historical city of Angkor: The case of Pre-Rup Temple*  
  Valter Maria SANTORO

- *Model tests on debris flow over long distance and analysis on its run-out distance*  
  Ikuo TOWHATA

- *A Deterioration Process of a Stone Tower in Angkor based upon Monitoring*  
  Yoshinori IWASAKI

- *Preservation from Rockfall of an engraved sculpture in the Usuki stone image of Buddha, Oita, Japan*  
  Tadashi YASUDA

- *Earthquake-induced landslides on Ancient Tomb Mounds in Japan*  
  Toshitaka, KAMAI

**Weathering of granitic rocks, the most common masonry stone**  
Masahiro CHIGIRA

**Description:** The objective of ATC9 is to promote cooperation and exchange of information on Cultural Heritage at Risk, especially by various landslide phenomena and weathering in Asian Region. This session is co-sponsored by IAEG Asia. Papers from Korea, Philippine, Cambodia, Japan, and Italy will be presented and discussed.
G16 (Consolidation)
Mandarin Ballroom 3

Chair: Abu Siddique, Bangladesh
Discussion Leader: S. A. Tan, Singapore

Effect of Zeta Potential of Clays on Electroosmosis Soil Improvement
Chien S. C. and C.-Y. Ou (page 151)

Field Performance of Highway Embankments Constructed on Soft Clay Improved by Band Drains
Lin K. Q., L. H. Wong and K. S. Wong (page 163)

State of Fly Ash Beds Considering In-Situ Consolidation Characteristics
Madhav M. R. and M. Raja Sekhar (page 171)

Consolidation of Clay with Radial Drainage — Comparison with Measurements and Other Predictions
Nie X. Y. and C. I. Teh (page 179)

Consolidation Properties of Sludge Cakes
Nishimura S., H. Fujii and Y. Wakitani (page 183)

Ground Improvement by Preloading for Storage Tank Foundations on Soft Marine Clay
Som N. N. (page 191)

Experience Gained from Two Vacuum Preloading Projects
Yan S. W. and J. Chu (page 195)

15:30 Tea Break and Exhibition
16:00 Closing Ceremony (Mandarin Ballroom)