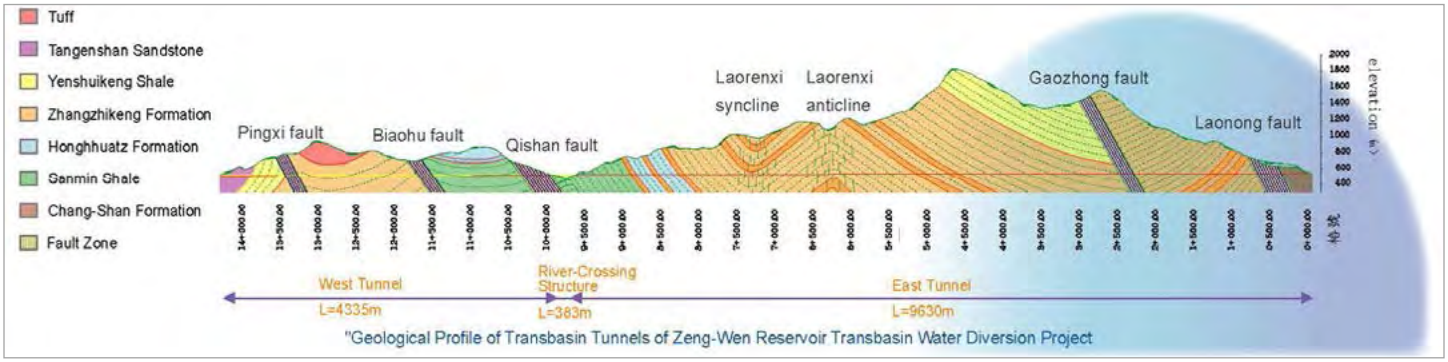
# AUGUST 2016 NEWSLETTER

SEAGS Southeast Asian Geotechnical Society · AGSSEA Association of Geotechnical Societies in Southeast Asia


Satellite Image of the Taipei Basin
*(After Yang, Wong and Hwang, 2016)*


Sedimentation of Typhoon Morakot on Wanda Reservoir in central Taiwan
*(After Lee, Wang, Chang Lien and Huang, 2016)*




Geological profile along tunnels in TDT project *(After Lee, Wang, Chang, Lien and Huang, 2016)*

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19SEAGC & 2AGSSEAC: Opening Ceremony



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**MARCH 2016** ▸ http://seags.ait.asia/journals/seags-agssea-journal-march-2016/

## VIETNAM SPECIAL ISSUE

### EDITORS

**Dr. Phung Duc Long**

**Prof. San Shyan Lin**


Multiple protective measures used in coastal areas (After Yasuhara *et al*., 2016)

Example of erosional scene of river bank in the Mekong Delta (After Yasuhara *et al*., 2016)

Plaxis 3D piled raft foundation model (After Phung Duc Long, 2016)

Geometry of DEM models (After Nguyen Quang Tuan and H. Konietzky, 2016)

### PREFACE

This journal issue was edited and contributed from works in Vietnam by Vietnamese authors and other popular persons. Sixteen papers are contained in this issue. Dr. Phung Duc Long is the lead editor. His Vietnamese team included: Dr. Pham Van Long, Dr. Pham Huy Giao, Mr. Mai Trieu Quang, Dr. Nguyen Anh Minh, Dr. Vu Quang Hung, and Dr. Vu The Manh.

The construction field in Vietnam has been under a very fast development. More than ten years ago the first 30-storey tower appeared in Vietnam. Today, the height has reached to 70-80 floors. During the last decade many tall towers, long bridges, deep tunnels, large hydro-power dams, large airport and habours, etc have appeared in Vietnam. Thousands of kilometers of highway have been constructed. New metro projects have been started both in Hanoi anh Ho Chi Minh City. It is understandable why geotechnical engineering has recently developed very fast in Vietnam.

The issue's major topics relate to piled raft foundations; piled foundations for storage tanks; pile group settlements; coastal and riverine erosion in the context of climate change; soil characterization for land subsidence evaluation for MRT projects; discrete modelling of excavation in fractured rock; settlement management for urban tunnels; evaluation of performance of diaphragm walls; study on clayey soils using piezocone; DEM simulations of medium dense sand in triaxial apparatus; characteristic of unsaturated soil of earth fill dams; ground improvement using soil-cement columns/deep mixing method; and ground improvement with preloading, and PVD and vacuum pressure.

**Phung Duc Long** (paper No.1) has made a detailed study on pile raft foundation in which the piles are used for reducing settlement, not for taking the total load from superstructure as in the conventional pile foundations. The results from his field model test, which strongly supports the concept of settlement reducers, are reviewed. Basing on the experiment, a simplified design method is proposed. In the paper, the method is used for the conceptual design of a large high-rise building complex. In combination with FEM, the simplified method gives a reliable tool for conceptual design of piled-raft foundations. PLAXIS 3D is used for modelling both the piled and un-piled foundations in the study.

**Yasuhara *et al***, (paper No.2) describe climate change related disasters such as erosion along riverine and coastal areas of the Mekong Delta in the South Vietnam. Also, the red river delta in the north is expected to be exacerbated by land subsidence, sea-level rise (SLR), and magnified typhoons. Adaptation to severe erosion is expected to respond to regional circumstances and the demands of local residents. Based on the expectations outlined above, for soft adaptation, attempts were made to conduct perception surveys of local residents, in addition to field surveys of erosion at riverside and coastal areas using an un-crewed aerial vehicle (UAV). Furthermore, for hard adaptation, a proposal is made to conduct pilot field tests at the coast for reinforcing coastal dykes using the combined technique of locally available materials with cost-saving eco-geosynthetics in addition to application of ICT. This paper explains the possibility of smart adaptation combining soft and hard adaptation to reduce severe coastal and riverine erosion in the Vietnamese deltas.

**Nguyen, H. M., Fellenius, B.H., Puppala, A.J. Aravind, P., and Tran, Q.T.** (paper No.3) introduce bidirectional static loading tests on two shaft-grouted barrette piles of the 40-storey Exim Bank Building in Ho Chi Minh City, Vietnam. Simulation of the measured load-movement response indicated that the shaft resistance response was hyperbolic. The test schedule was interrupted by unloading/reloading cycles, which disturbed the gage data and included uneven load-holding durations which exacerbated the analysis difficulty.

**Pham Huy Giao and Ta Thi Thoang** (paper No.4) have an excellent paper on soil characterization and land subsidence prediction for the first MRT line in HCM city to meet the transportation needs of a fast growing population and rapid urbanization. Being located in the Sai Gon-Dong Nai delta HCM city area has low elevations and is underlain by a sequence of clayey, silty and sandy soil layers. Land subsidence due to groundwater extraction had been suspected and observed in HCM city. In this study, geotechnical characterization of the subsoil along the first MRT line was carried out. Prediction of land subsidence along this MRT line was conducted using a FEM consolidation code.

**Shiwakoti and Manai** (paper No.5) examine the application of deep cement-mixing technique in improving engineering properties of soft grounds at nine different sites in southern Vietnam's typical soft soil deposits. The exercise consisted of running a series of laboratory tests on undisturbed soil samples and their mixes with cement and field trials, followed by field application of 500,000 m cement treated columns with 600mm diameter, using Dry Jet Mixing technique. After the field trials and applications, cores were extracted from the treated grounds to evaluate improvement in their engineering characteristics. Both the laboratory and the field results revealed a drastic enhancement in strength, stiffness, and permeability of the treated soft soils.

Over-consolidation ratio (OCR) is an important geotechnical parameter for predicting undrained shear strength, lateral pressure ratio and settlement of clayey ground. Piezocone studies were made by **Bui Truong Son, Le Hong Quang and Lam Ngoc Qui** (paper No.6). In Southern Vietnam, a thick layer of saturated soft clays distributes throughout all the area. It includes Mekong (in Ca Mau province) and Dong Nai (in HCMC and Vung Tau) alluvial deposits. Below the soft clayey layer, there is a layer of either stiff to very stiff clay or fine sand. Based on the reliable data of consolidation test results of samples taken by piston tube and piezocone, relationship between over-consolidation ratio and normalized penetration resistant is established and analysed.

**Phan To Anh Vu** (paper No.7) studied the ground improvement using soil-cement method: A case study with laboratory testing and in-situ verification for a Highway project in Southern Vietnam. This article presents the experimental unconfined compressive strength results of soil-cement columns to improve the soft soil gained by Tan Son Nhat-Binh Loi Outer Ring Road Project, located in Ho Chi Minh City, Vietnam. The laboratory test results revealed that the Stable Soil cement has a greater unconfined compressive strength than tower (60%) slag cement. In addition, cement-soil samples obtained from insitu indicated that the target cement content of 240 kg/m3 was satisfied not only a required compressive strength (>24

kgf/cm2) but also a low-cost. The obtained results are expected to provide an experience for further design and construction in Ho Chi Minh City and its vicinity.

**Bengt Fellenius and Mauricio Ochoa** (paper No.8) write on the use of piled foundations for wide storage tanks. The authors have analyzed five case records involving wide piled foundations and show that the foundation settlement can be modeled as a flexible raft placed at the pile toe level with the foundation load distributed according to Boussinesq stress distribution and that the capacity of an individual pile is not relevant to the foundation performance. Differential settlement between the perimeter and interior piles and the effect of drag force and downdrag are discussed. The limitation of drag force as affected by the pile spacing and the weight of the soil in between the interior piles is addressed.

**Tran Thi Thu Hang and Frederic Dubois** (paper No.9) deal with discrete modelling of excavation in fractured rock by NSCD method. The presence of the network of discontinuities on intact rock is a special feature of nature rock masses. Non Smooth Contact Dynamics method (NSCD) is a discrete numerical method that owns many strong advantages of the study on granular materials and has been used recently in rock engineering. LMGC90, open-sourced software built on NSCD, has demonstrated a robust capacity in the modelling and mechanical analysis of diverse environments, masonry and rock included. In this study, a numerical modelling of a multi-phase-excavation in fractured rock was realized. The simulation of the tunnelling with the consideration of the state of the excavation and its neighbouring rock blocks, during and after the excavation schedule, and at each excavation phase was conducted. The obtained mechanical behaviours of the model were analysed, and three failure mechanisms of the excavation vicinity during the tunnelling was aimed. The observed phenomena showed typical effects of two components of the rock mass (rock structure and rock material) to the stability of the excavation and the host rock mass.

**Duong Diep Thuy, Pham Quang Hung, and Le Thiet Trung** (paper No.10) studied the pile groups in Vietnam using a method for estimating the pile group settlement considering the distribution of pile shaft friction, called SDF. For illustrating the proposed method is used for a full scaled experimental model by Koizumi et al (1967), for a field model test by Phung (1993) and for two case histories in Vietnam, Ca Mau Fertilizer Plant, and Ecopark Tower 2. Comparison of the calculated settlements with the measurement results shows that the SDF method provided a good prediction for all the studied cases.

**Nguyen Quang Tuan and H. Konietzky** (paper No.11) deals with the mechanical behaviour of Hai Duong Medium dense sand in triaxial test and its simulation using DEM. Numerical simulations of the drained triaxial behaviour of medium sand, a typical constructional soil material and widely used in Northern Provinces of Vietnam, were performed using discrete element method (DEM). The sand was simulated based on spherical particles using PFC3D with a non-linear contact model including rolling resistance. The calibrated simulations show that the DEM model is able to capture the mechanical
behaviour of sand. The effects of different microscopic parameters on the macroscopic behaviour of the sand were investigated.

**Tran The Truyen, Nguyen Van Hung, and Tran N. Hoa** (paper No.12) studied the influence of geometrical parameters of soil cement columns on the settlement of embankments on reinforced soft soil. Deep Mixing Method (DMM) is a widely used soft soil improvement method in the construction of road, port, and tunnel foundations, etc. Deep mixing of cement with soil and water, forming Soil Cement Columns (SCC) in situ, has been applied in many projects in Vietnam in recent years; it has proved many advantages compared with other applied methods in the site. At present, Vietnamese engineers are concerned with finding out recommendations for an optimal choice of SCC scheme. This paper analyzes the influence of main geometrical parameters of SCC including the length, the diameter, and the spacing on the behavior of reinforced soft soils in some construction projects in Vietnam. The results will be an important basis for recommendations on the choice of rational schemes of SCC for soft soil improvement in Vietnam.

**Benson Hsiung, Dao Sy Dan and William Cheang** (paper No.13) evaluated the performance of diaphragm walls by wall deflection paths for deep excavations in Central Hanoi. The objective of this paper is to evaluate the performance of diaphragm walls by wall deflection paths for deep excavations in Central Hanoi. PLAXIS 2D was used for 2D finite element analyses in this paper. A benchmark analysis was first conducted on the excavation to verify the validity of material models and their input parameters for predicting wall deflections. The reference envelopes of wall deflection paths were then delivered for various conditions of deep excavations in Central Hanoi. Considering the current prediction, up to 72 mm of the maximum lateral wall displacement was predicted for an excavation with a 21.9 m depth. Reference envelopes of excavations have been developed and discussed in various conditions of the excavation. It is found that the maximum lateral wall displacement at the first stage of excavation is roughly inversely proportional to the Young's moduli of soils. Changing the wall thickness leads to the limited difference in reference envelope at shallow excavation stages, but this may not be correct when the excavation goes deeper.

**Hoang Hiep and Pham Huy Giao** (paper No.14) studied the effect of vacuum pressure distribution on settlement analysis results for an improved thick soft clay deposit at Sai Gon-Hiep Phuoc terminal port, South of Vietnam. In this study an approach of settlement analysis using a FORTRAN code was proposed to successfully simulate the large consolidation settlement of a thick soft clay deposit, improved by combination of preloading, PVD and vacuum pressure for Sai Gon-Hiep Phuoc (SGHP) project. Geotechnical characterization of the subsoil profile underlying the project site was carefully done to provide input data for settlement analysis, in which a particular focus was given on studying the vacuum pressure distribution along the 35-m deep PVD. It was found that the coefficient of vacuum pressure distribution (kP) from 0.85 to 1.0 gave the best estimation of the time-dependent total primary settlement as embankment construction goes in addition to a smear effect RS= 3.0. The increasing trend of kP with time might be explained by the fact that for the later stages of loading the vacuum pressure could spread more to the depth.

**Nguyen Thi Ngoc Huong and Trinh Minh Thu** (paper No.15) studied the Characteristic of Unsaturated Soil of Earth Fill Dams in Vietnam. Earth dams in Vietnam, especially earth dams at the central part of Vietnam, are generally made using in-situ soils having low clay content. The knowledge, experience, calculation theory, apparatus etc, for unsaturated soils in Vietnam are still very limited, especially the studies of the influences of the shear strength of unsaturated soils to the stability of earthen structures. Therefore, study on the soil-water characteristic curve, shear strength and coefficient of permeability versus different matric suction for Vietnamese soil is an urgent task. This study shows that when the matric suction in the soil changes, the effective cohesion c' would also change; however the internal friction angle is almost unchanged for some types of soil in Vietnam. The experimental results can be applied to study the effect of unsaturated soil to the factor of safety of the slope.

Finally paper by **Alain Guilloux and Hervé Le Bissonnais** (paper No.16) is on the management of settlements for urban tunnels. The TOULON highway tunnel is located in a very dense urban environment, and a much complex geology. The excavated section is about 120 $m_2$ and the depth is in the range 15-35 m. The aim of the paper is to show how a great attention was paid to the settlements control: at the design stage through soils investigations, survey of existing constructions in regards to their sensibility to tunnel induced settlement, definition of settlements thresholds, and choice of ground prereinforcement techniques; during the construction, by heavy monitoring of deformations and continuous adaptation of the supports to the actual settlements and buildings behaviour.

This issue contains sixteen papers which are related to the Vietnam soil conditions and contribute to the advancement of geotechnics, and are all written by the Vietnamese authors, about projects in Vietnam, or the topics that Vietnam are facing. It is hoped that the issue will demonstrate how the authors have made their studies geared in a manner useful to geotechnical engineers in Vietnam and elsewhere.

**Phung Duc Long**

## Dr. Phung Duc Long

Dr. Phung is President of the Vietnamese Society for Soil Mechanics and Geotechnical Engineering (VSSMGE). He received his Ph.D. degree at the Geotechnical Department, Chalmers University of Technology in Gothenburg, Sweden in 1993. He has worked at the Institute for Building Science & Technology (IBST) in Hanoi, Vietnam from 1975 to 1988; at the Swedish Geotechnical Institute (SGI) in Linköping, Sweden from 1988 to 1994; at Chalmers University of Technology from 1989 to 1993, at Skanska Sweden as Technical Manager from 1994 to 2002; at WSP Asia in Hong Kong as Associate Director from 2002-2003; at WSP Vietnam in Hanoi as General Director from 2003-2011; and at Long GeoDesign as Director since 2011.

Dr. Phung has 40 years of international experience. His expertise areas are: deep foundations and piled raft foundations for high-rise buildings, temporary and permanent support for deep excavations, tunneling, soil improvement, underpinning, pile dynamics, and numerical analysis of soil-structure interaction problems. He has worked with projects in many countries, as Sweden, Norway, Denmark, USA, England, Russia, Germany, India, Hong Kong, China and Vietnam, etc. Some of his highlight projects are: Uni-Storebrand Headquarter in Oslo with steel-core piles into rock; SL-10 South Link in Stockholm with sheet pile wall for deep cut & cover tunnel in soft clay; Fredriksberg Metro Station in Copenhagen, the world largest drilled-pile wall for deep excavation; soil stabilization with lime-cement columns for Highway I15, Salt Lake City, Utah, USA; Öresund Link between Sweden and Denmark; Årsta Bridge in Stockholm with pile foundations and sheet pile walls in deep water and soft clay; the peer-review of piled foundation for the ICC Tower, 118 floors, 490m high in Hong Kong, the No. 4 tallest high-rise in the world, and the Sailing Tower in Ho Chi Minh City, Vietnam. He is the author and co-author of more than 100 technical papers and books in English, Swedish and Vietnamese for different national, regional and international seminars, conferences, and technical journals. He is the chief editor of a number of publications, as the proceeding of the international conferences Geotec Hanoi 2011, and Geotec Hanoi 2013.

## Prof. San-Shyan Lin

Dr. Lin is a Professor at Department of Harbor and River Engineering of National Taiwan Ocean University in Taiwan. He received his Ph.D. degree in Civil Engineering from Washington University in St. Louis, Missouri USA in 1992. Dr. Lin was an engineer at Taiwan Area National Expressway Engineering Bureau from 1992 to 1994. Prof. Lin also served as TRB A2K03 Committee member on Foundations of Bridges and Other Structures between 1995 and 2004. He is also serving as committee member of TC-212 and ATC-1 of ISSMGE and as editorial board member of four major international journals in geotechnical engineering.

Prof. Lin's research and practical experiences have been dealt with static and dynamic behaviour of deep foundations, ground improvement and effects of scouring on bridge foundations. In the past decades, he was involved in many research projects such as interpretation of pile load testing results due to axial, lateral, or combined loading; effect of soil liquefaction on performance of pile foundation in sand; seismic effect of pile foundations; performance of suction pile in sand or in clay; and effect of scouring on performance of pile and caisson foundations etc. Prof. Lin has published more than 110 peer-reviewed journal papers and conference papers. One of his published Journal papers dealing with cyclic lateral loading effect on permanent strain of deep foundation due to cyclic lateral loading has been cited more than 60 times in Google academic website by many international researchers working on wind turbine foundations.

## ACKNOWLEDGEMENT

It is a genuine pleasure to note that this Issue contains sixteen excellent contributions as made by authors mostly from Vietnam in using modern developments in Geotechnics relevant and applicable to Vietnamese soil and rock conditions. They are mostly practical in nature and is an excellent example of how research be conducted useful to our geotechnical profession in practice. Dr. PHUNG Duc Long is the lead editor. His Vietnamese team included: Dr. Pham Van Long, Dr. Pham Huy Giao, Mr. Mai Trieu Quang, Dr. Nguyen Anh Minh, Dr. Vu Quang Hung, and Dr. Vu The Manh.

The Preface by Dr. Phung adequately covers the details of the contributions by the authors. Vietnam is an important arm of our AGSSEA and has developed enormously in the recent years with tall buildings, coastal structures, highways and expressways, airport developments etc. It is a paradise for geotechnical engineers. We are all most grateful to Dr. Phung and his team. This issue demonstrates the future of Geotechnics extend to all member countries of AGSSEA and beyond. The successful conferences and symposia organised by the Vietnamese Society for Soil Mechanics and Geotechnical Engineering (VSSMGE) is also worthy of praise.

**K. Y. Yong**
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## CHINESE TAIPEI SPECIAL ISSUE

### EDITOR

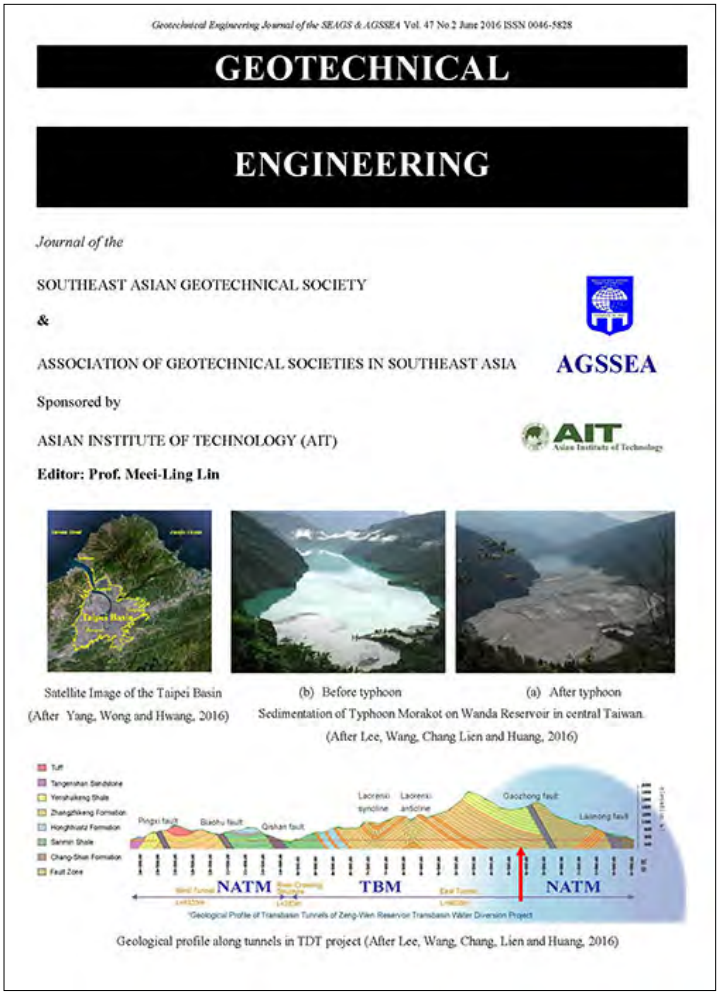
**Prof. Meei-Ling Lin**

### PREFACE

This Issue contains thirteen excellent papers as the country issue from Chinese Taipei Geotechnical Society (CTGS). It is an example of contributions from leading private sectors in Taiwan and also academics.

The first paper by Lee et al deals with the topic of rock tunnelling applied to steady water resources supply in Taiwan, challenges and examples. The authors deal with increasing soil erosion and slope collapse in some catchment area in Taiwan in the past decade. Also, increased sedimentation rates of the reservoirs reducing the effective capacity, and severely affecting the steady water supply. Multiple measures have

been proposed for stabilizing the water supply. Tunnelling in the catchment area, even close to a dam, represents serious environmental and engineering risks. The authors present two cases of rock tunnelling as applied to steady water resources supply. Challenges and some distinctive issues, such as the presence of a high-temperature ground, a combustible gas emission ground, and potential instability of rock wedges caused by large underground excavation, are discussed. The authors then present countermeasures with a clever design of an elephant-trunk intake pipe to release turbid water. State-of-the-art tunnelling through rock and some innovative tunnelling technologies are utilized in these two cases.




The second paper by Chiu et al deals with the interesting topic of the state-of-the-art of tunnel maintenance in Taiwan and challenges to sustainable development. Tunnel construction in Taiwan started as early as the late nineteenth century; within the last 125 years, tunnel maintenance in Taiwan went through several stages. In early years engineers dealt with tunnel excavation. Now tunnel inspections, repairs and reinforcement were performed only when serious damages were observed. As the number of damaged tunnels increased, investigations revealed that the degradation of tunnels in Taiwan is inevitable and usually occurred in an exceptionally shot period. Frequent earthquakes, a high ground water level and poorly cemented rock masses provide an environment for such degradation. To adapt more effectively to the environment, tunnel maintenance looked at the entire life cycle of a tunnel. Thus the diagnostic methods have demonstrated to be useful in enhancing the sustainable operation of tunnels.

An interesting contribution by Wang et al dealt with rock tunnel –shaft intersection in projects in Taiwan. The construction of an intersection between a shaft and a rock tunnel is a three-dimensional problem, and requires more complex excavation and support methods than those used in conventional two-dimensional tunnel construction. The paper considered examples of rock tunnelling in Taiwan, and the construction of intersections between shafts and tunnels. Data are collected from case histories first, and the excavation sequences are classified. Then challenges as encountered to secure construction of the intersections of shafts and tunnels are examined, including the significant scale effects of rock masses on excavations; difficulties in controlling rock deformation near the intersections, and groundwater ingress are also discussed. Strategies and countermeasures as applied to overcome these difficulties in recent projects, and their effectiveness is investigated. Finally, the state-of-the-art design and construction of intersections between shafts and tunnels in Taiwan are presented.

The fourth paper by Hsiao et al dealt with the influence of peak strength degradation in assessing the stability of tunnels in hard rocks. Tunnelling depths are increasing rapidly in Taiwan. The effect of brittle failure on hard rock tunnelling is, however, rarely studied. In this paper, a study is carried out on the importance of the post-peak behaviour using Hoek-Brown failure criterion is investigated; through strength loss experimental studies , a relationship between strength loss parameter and confining stress

is established. Subsequently, a numerical analysis model (so-called strength degradation model), is proposed and applied to predict the impact of the post-peak strength degradation on an actual tunnel. The analysis showed that the effect of the post-peak strength degradation on deformation during excavation is becoming more and more pronounced with increasing depth of tunnels. Severe deformation due to the excavation may endanger the tunnel stability during construction in deep overburden. Thus the strength degradation beyond brittle failure shall play an exceptionally important role in the stability of deep tunnelling.

The fifth paper by Hwang et al is on the deep excavations in Taipei Basin and the performance of diaphragm walls. Since movements of diaphragm walls are reduced by the presence of existing underground structures in the vicinity of excavation, comparison of the observed wall deflections with the results obtained by using two-dimensional analyses may lead to erroneous conclusions. Similarly, additions to diaphragm walls, such as buttresses, station entrances, ventilation shafts, etc., will also tend to reduce wall deflections. Thus the authors recommend to compare the results of two-dimensional analyses with the upper envelopes, designated as "reference envelope", of a family of wall deflection paths of the same geometry of excavation and the same characteristics of the retaining system. Inclinometer readings obtained at Shandao Temple Station of the Bannan Line of Taipei Metro were studied to establish the relationship between wall deflections and depth of excavations. The results are verified by numerical analyses using PLAXIS computer software. Reference envelopes were then developed for estimating maximum wall deflections; and charts were established for correcting inclinometer readings to account for the movement at diaphragm wall toes. The authors found that the width of excavation has significant influence on wall deflections and toe movements. Additionally, the consolidation of the Songshan Formation due to the drawdown of groundwater in the Jingmei Formation reduced the movements of diaphragm wall toes.

In an interesting paper Yang et al studied the hydraulic characteristics of the Jingmei Formation and the Dewatering of Deep Excavations in Taipei Basin. Geotechnical Engineers in Taipei are well aware that the Jingmei Formation is a unique geological feature of the Taipei Basin. It is highly permeable and a water-rich stratum responsible for many failures in underground constructions. The piezometric heads in the Jingmei Formation had to be lowered by pumping for the deep excavations to be carried out safely. The authors thus discuss the hydraulic characteristics of the Jingmei Formation and the experience gained in large scale dewatering schemes. Attempts have been made to establish the relationship between the progression of tides in the river and the fluctuation of the piezometric levels in this Formation. The authors found that, the transmissivity and storage coefficient deduced from the observed groundwater drawdown are affected not only by the pumping rate, but also the duration of pumping; thus the rates required tend to be overestimated as based on the results of pumping tests.

Forensic studies have now become an important field in geotechnical engineering. The seventh paper by Lee et al is on the forensic investigation of a subway tunnel failure during construction. In this paper, the forensic evidences and investigation of a subway tunnel construction failure occurred in Kaohsiung, Taiwan is presented. The studied construction failure occurred during a cross-passage excavation of a shield tunnel construction work of the Kaohsiung Mass Rapid Transit System, and resulted in severe tunnel collapse and extensive ground failure that even reached to ground surface 30m above the tunnel depth. Valuable photo images obtained during and post event, as well as results of special geophysical testing methods were presented and compared to verify aspects of the proposed failure scenario. Information presented in this paper would be helpful to improve engineers' knowledge for preventing similar construction risks.

Typhoon Morakot brought tremendous rainfall of a hundred-year recurrence period in Taiwan. The paper by Chou et al concentrates on the effects as encountered by roads and houses in the middle and southern part of Taiwan; from landslides, debris flows, and floods. Erosion of road foundations, sliding of slopes, and collapse of bridges has paralysed the road system. Using Alishan Route 18 as an example, this paper discusses different causes, types, and renovation methods of slope disasters for future reference.

The paper by Lee et al also deals with the forecast of shallow landslides pertinent to Taiwan in a study which combines rainfall parameters and landslide susceptibility. Catastrophic landslides and debris slides triggered by typhoons such as Typhoon Morakot (2009) have occurred more frequently in the recent years, and caused many casualties and much economic loss in Taiwan. For the purpose of reducing the damage and preventing loss of life resulting from geological hazards, this study collects multiple period landslide inventories which contain the information of occurrence time, location, magnitude, rainfall intensity, and accumulated rainfall to establish the rainfall threshold for shallow landslides on a regional scale. The concept of a hazard matrix which combines the magnitude (landslide ratio of slope units) and the possibility of occurrence (historical disaster records) are investigated to set up the early warning thresholds. Accordingly, the critical rainfall thresholds were built up based on the R24 (24 hours cumulated rainfall) and I3 (3-hour mean rainfall intensity) of historical records. The model developed can predict the possible sediment hazard on the hillslope 2~9 hours before occurrence of landslides. The web based GIS helped to have early-warning systems to display the real-time rainfall data and the warning signal immediately for disaster prevention through increasing the response time.

Chang et al made dynamic analyses for performance based seismic design of geotechnical structures with examples in deep foundation. Performance-Based Seismic design (PBSD) of geotechnical engineering structures can be evaluated by a number of methods taking into account the uncertainties of the designed influence factors. Despite the fact that the seismic force is known to be a significant factor, the static and/or pseudo static analyses seem to be commonly adopted in design practice. The paper by Chang et al briefly discusses alternate approaches with the emphasis on dynamic analysis. Examples are given with the assessments of two deep foundations located in Taiwan. Dynamic analysis is rather important to the seismic design problems since it can monitor the details of time-dependent structural responses incorporating both peak ground acceleration and duration of the earthquake. Other than the 3D finite element analysis, the simplified solution from 1D wave equation analysis can be very effective and convenient for PBSD analysis on deep foundation.

The eleventh paper in this CTGS Issue is on the time dependent dynamic characteristics during soil liquefaction in saturated sand. Chen et al, conducted model pile tests to quantify the relation between soil stiffness and excess pore water pressure during liquefaction, the test data of a series of shaking table tests on model pile in saturated sand using a large biaxial laminar shear box conducted at the National Center for Research on Earthquake Engineering were analysed. The pile tip was fixed at the bottom of the shear box to simulate the condition of a pile foundation embedded in a firm stratum. The pile head was mounted with steel disks to simulate the superstructure. In addition, strain gauges and mini-accelerometers were placed on the pile surface to obtain the response of the pile under shaking. Therefore, the model pile can be considered as a sensor to evaluate the changes of dynamic characteristics of soil-pile system during the shaking by using the time-frequency analysis and system identification technique. The results showed that the stiffness of the soil would increase with the dissipation of pore water pressure and the recovery of soil stiffness is directly related to the effective stress ratio of soil specimen.

The interesting paper by Shi et al present geological investigation and sliding mitigation in Jiufen Area in Taiwan. Jiufen's orographic and geological characteristics together with frequent typhoons and heavy rain make it potentially vulnerable to landslides. The landslide problems can be disastrous not only to the 2,300 local residents, but also to the constant flow of tourists visiting the town. After the site investigations, it is concluded that both of the colluvium and groundwater are the most important geological factors to the slope stability problems. According to the long-term groundwater level monitoring result, it varied from 8m to 12m during the period of typhoon and heavy rainfall. And the displacement induced by the groundwater level rising was found. Four underground flow lines were located based on the resistivity image profiling and self-potential investigation. Then five water collection wells were planned to construct according to the locations of underground flow lines. The level lowered down about 15m after the wells completed and the slope became stable. It is suggested that the depth of colluvium in Jiufen area needs to be investigated in more detail.

Finally the last paper thirteenth in this Issue is by Shu et al on the interpretation and analysis of potential fluidised landslide slope. Fluidized landslide, also called hillslope-type debris flow, often occurs on the village side hillslope in the mountain area during extreme weather condition. Fluidized landslide induces more severe damages than the shallow landslide; however its recognition model is still lacked. In this research a recognition model of the potential fluidized landslide slope was developed using 80 cases occurred in the Kaoping River basin, southern Taiwan. 30 fluidized landslides and 30 shallow landslides are employed for the model development and another 10 events of each landslide are applied for verification. Results show that the recognition model composed of 8 discriminant factors including geomorphology factors, hydrology factors and potential landslide factor predicated by SHALSTAB model provides accuracy rate of 85% of the verification events. Thus the model can be of practical use for fluidized landslide interpretation. The model can be used to identify the potential dangerous slope areas and effectively assist the disaster prevention and early warning of villages in mountain area.

The editor of this CTGS Issue is very pleased to be able to present the geotechnical activities in Taiwan through these thirteen contributions and hope that the material would be beneficial to Geotechnical Engineers in SE Asia and elsewhere.

**Meei Ling Lin**

### Prof. Meei-Ling Lin

Dr. Lin is a Professor at Department of Civil Engineering, National Taiwan University. She received her Ph.D. degree in Civil Engineering from University of Texas, Austin, USA, in 1987. Dr. Lin has been a member of the General Committee of the Southeast Asia Geotechnical Society since 2007. She serves as a committee member of the Jointed Technical Committee 1 (JTC1 on Landslide) of the International Society for Soil Mechanics and Geotechnical Engineering, the International Association for Engineering Geology and the Environment, the International Society for Rock Mechanics, and the International Geo-textile Society. She also serves as a committee member of Technical Committee 303 (TC-303 on Flood) and Asian Technical Committee-1 (ATC-1 on Climate Change) of ISSMGE.

Prof. Lin's research interests and experiences include: potential analysis and simulation and behaviors of debris flow and slope stability, seismic slope behavior and stability, dynamic soil behaviors associated with soil liquefaction and ground responses analysis, mapping and micro-zonation of related debris flow, seismic slope stability potential, and seismic ground response. She lead a group to initiate a drafted Code for the Engineered Slope for the Ministry of Transportation and Communication, Executive Yuan, Taiwan. She has been invited as a Keynote speaker of international conferences, a special lecture speaker of International Landslide Symposiums and a panel reporter by ISSMG Conferences, and recently delivered an Opening Keynote for the Fourth Italian Workshop on Landslides.

## SPECIAL FEATURE STORY ON "Recent Diaphragm Wall Technologies and Future Challenges"
## By Hosoi Takeshi and Matsushita Shinya

### Dr. Hosoi Takeshi

Dr. Hosoi Takeshi is a Technical Advisor at WSP Parsons Brinckerhoff, Singapore. He received his PhD with research focused on "Bearing Capacity of Diaphragm Wall Foundation and various Issues during its Construction" from Kyoto University, Kyoto, Japan in the year 1993.

Dr. Hosoi has more than 50 years of experience in design and construction of underground structures, tunnelling, bridge foundations and marine works. He is an international expert in diaphragm wall, barrette and bored pile foundation, shield tunnelling, NATM tunnelling, and other complex geotechnical works.

He is a Professional Engineer (PE) in Japan Since 1983, Fellowship of Japanese Society of Civil Engineer and International Member of Japanese Geotechnical Society. He coordinated the Asian Ocean Seminar sponsored by Japanese Ministry of Port and Harbour for 10 years. He was also a national member in "E-Defence Project" in Japan.

He served as a General Manager of Technical Research & Earthquake Technology Research Institute for 8 years and General Manager of Design Department of Nishimatsu Construction Co. Ltd. for 7 years.

### Mr. Matsushita Shinya

Mr. Matsushita Shinya has been a Chief Engineer of Matsushita M&C Lab Co. Ltd. Since 2013. He was graduated from Nagoya University (Department of Science) in 1972 and joined Matsushita M&C Lab Co. Ltd. in 1972. He served as CEO of Matsushita M&C Lab. Co. Ltd. from 2003-2013. He is a Member of Japanese Geotechnical Society. He has been involved in a lot of big diaphragm wall projects in Japan for more than 40yers.

In 1982 he was engaged in the experimental diaphragm wall construction for practical use of high DS polymer slurry and in 1984 he was joined the diaphragm wall construction project for Nagoya Subway 6 Line to lead successful adoption of polymer slurry. He was involved in Diaphragm Wall Foundation of Aomori Bay Bridge in 1988 and also in 1991 Diaphragm Wall Shaft at Kawasaki Artificial Island for Trans Tokyo Bay Highway Road. From 1992 to 1994 he was invited by the Grand Hi-Lai Hotel project and the Tuntex project（the Tuntex & Chien Tai Tower）at Kaohsiung, Taiwan as a consultant of Polymer slurry.

From 2001 to 2006 he took part in the Water Cut-off Wall Project at Kansai International Airport for stabilizing land settlement as a chief engineer for quality control of slurry. In 2008 he engaged in the Wall Foundation, "Knuckle Wall " Project of Tokyo Sky Tree as a chief engineer for quality control of polymer slurry.

## HISTORICAL NOTE ON "Expriences of Geotechnical Development in Japan and Future Directions"

## By Masami Fukuoka

### Professor Masami Fukuoka

Prof. Fukuoka was born on 12 March 1917 in Okayama Prefecture, Japan. He studied Civil Engineering at the University of Tokyo, and in 1940 he entered the profession fully, taking up a post as a civil engineer for Japan's Public Works Research Institute (PWRI) of the Ministry of Internal Affair. During the Second World War, he served in the Japanese military.

He returned to PWRI after the war ended, and his engineering acumen was immediately needed. Japan experienced a series of severe earthquakes and floods, which further complicated the damage the

country had suffered to its infrastructure during the war. It was one of the most difficult times in the history of Japan, he said to me when I was young.

As a civil engineer, in particularly, as a geotechnical engineer, he worked to restore Japan's infrastructures from the effects of war and natural disasters. His strength of leadership was an especially important contribution to the design and construction of a great number of important infrastructures; and his work improved projects across a broad range of sectors, including those dealing landslides, road building and pavements, slope stability, flood control, river and coastal dyke engineering, ground investigation and soil test, earth pressure and retaining walls, rock-fill and earth-fill dams, ground subsidence, foundations of long-span bridges, earthquake geotechnical engineering and, eventually, geosynthetic engineering. The breadth of his work was extraordinary, considering how difficult it is to become a specialist in even one of these areas today. After rising to serve as PWRI's director, he retired in 1970 and entered academia and became a full professor of Civil Engineering of the University of Tokyo, where I was studying as doctoral candidate.

In 1977, Prof. Fukuoka transitioned to a professorship at Tokyo University of Science where he remained until his retirement in 1986. As his career progressed; he contributed greatly to multiple professional organizations. He helped establish the Japanese Geotechnical Society (JGS) in 1949 and served as President from 1976 – 1997. He was integral to Tokyo playing host to the 9th International Conference on Soil Mechanics and Foundation Engineering, then served as President of the International Society for Soil Mechanics and Foundation Engineering (now ISSMGE) from 1977-1981. During this period, while at Tokyo University of Science, he started the research on geosynthetic-reinforced soil retaining walls and geomembrane lining at the bottom of reservoirs.

## ACKNOWLEDGEMENT

Thirteen excellent contributions are contained in this Country Issue of the Chinese Taipei Geotechnical Society (CTGS) as edited by Prof. Meei Ling Lin. All contributions are by authors from Taiwan and Prof. Meei Ling Lin must be congratulated for her excellent task. In the Preface Prof Lin have described in great detail the contributions from the authors. It is a pleasure to note that successful country issues are now completed by the Thai Geotechnical Society, The Vietnamese Society and now the Chinese Taipei Society. The contributions from Singapore, Hong Kong and Malaysia will also be released soon. Also, last but not least from Indonesia.

This issue also contains a special feature story on "Recent Diaphragm Wall Technologies and Future Challenges" by Hosoi Takeshi and Matsushita Shinya; a historical note on "Experiences of Geotechnical Development in Japan and Future Directions" by Masami Fukuoka and an "Obituary of Masami Fukuoka" by Fumio Tatsuoka. The passing away of Prof Masami Fukuoka on 27 January 2016 is a great loss to the engineering communities.

**K. Y. Yong**
**N . Phienwej**
**T. A. Ooi**
**A. S. Balasubramaniam**

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## *Report on 19SEAGC & 2AGSSEAC* ▸ 31 May – 3 June 2016, Malaysia

Dorsett Grand Subang, Subang Jaya, Selangor Darul Eshan, Malaysia

*By **Ir. Dr. Teik Aun Ooi**, Immediate Past President SEAGS on June 7, 2016.*

The **19SEAGC & 2AGSSEAC** was successfully held on 31 May – 3 June 2016 in Dorsett Grand Subang Hotel with more than 500 participants. The conference was organized jointly by the **Southeast Asian Geotechnical Society (SEAGS)**, the **Association of Geotechnical Societies in Southeast Asia (AGSSEA)**, the **Geotechnical Society of Malaysia (MGS)** and **The Institution of Engineers, Malaysia (IEM)**. The Organizing Committee under the leadership of Organizing Chairman **Ir. Dr. Sin Fatt Chan** and Co-Organizing Chairman **Ir. Dr Teik Aun Ooi** with **Ir. Yew Weng Yee** as Secretary General and **Ir. Kenny Yee** as Treasurer, **Ir. Dr. Swee Huat Chan** as Chairman of the Technical papers Committee and other committee and subcommittee members did an excellent job to bring about a very successful and memorable conference.


*Opening Ceremony*

There were 4 Keynote Lectures namely: Opening Keynote Address delivered by **Dr. Za-Chieh Moh** on "*Professionalism and Ethics of Geotechnical Engineering*" Keynote 1 (Chin Fung Kee Lecture) on "*Recent Advances in Pile Testing*" delivered by **Kenji Ishihara**. Keynote 2 (S. L. Lee Lecture) delivered by **Jian Chu** on "*Innovations in Soil Improvement Method*" Keynote 3 (Za-Chieh Moh Lecture) delivered by **Harry Puolos** on "*Lessons Learned from Designing High-rise Building Foundations*".

The 10 Special Lectures are: Special Lecture 1 delivered by **Ikuo Towhata** Vice President Asia, ISSMGE on "*Grain Crushing Under Pile Tip Explored by Acoustic Emission*"; Special Lecture 2 delivered by **Buddhima Indraratna**, representing SEAGS, on "*Advancements in Rail Track Geotechnology at Increased Speeds and Axle Loads*"; Special Lecture 3 delivered by **Thien Seng Yee** (Malaysia) on "*A Brief Perspective on Forensic Geotechnics*"; Special Lecture 4 delivered by **C. W. W. Ng** (Hong Kong) on "*Modelling the Effects of Strain- and Path- dependent Soil Stiffness on Soil-Structure Interaction Problems: An Engineer's Perspective*"; Special Lecture 5 delivered by **Siu-Mun Woo** (Taiwan) on "*Long Term Study on Pile-Soil Interactions in Subsiding Ground with Surcharge Effects – A Case History*"; Special Lecture 6 delivered by **P.V. Long** (Vietnam) on "*Performance and Analyses of Thick Soft Clay Deposit Improved by PVD with Surcharge Preloading and Vacuum Consolidation - A Case Study at CMIT*"; Special Lecture 7 delivered by **Paulus P. Rahardjo** (Indonesia) on "*The Unwanted Effect of Dewatering for Excavations and Its Counter Measures*"; Special Lecture 8 delivered by **Tiong Guan Ng** (Singapore) on "*Trenchless Construction Method for Roads and Underpasses in Singapore*"; Special Lecture 9 delivered by **Suttisak Soralump** (Thailand) on "*Rehabilitation of Leakage and Seismic Damaged Problem of Mae Suai Earth Zone Composited RCC Dam*" and Special Lecture 10 delivered by **Lean Hock Ooi** (Malaysia) on "*Deep Excavation Works in Kuala Lumpur Karsts – Some Considerations*".


*Dr. Sin Fatt Chan, Organizing Chairman Delivering his Welcoming Address*

In addition to the Keynote and Special Lectures the conference has a total of 26 Technical Sessions divided into four parallel sessions in each day for 3 days with one day of Technical Site Visits. The participants of the conference were treated to a Conference Banquet and Cultural Shows on the second day of the conference.

The 3-day conference also attracted 180 technical papers which were all presented by the presenters in parallel sessions. Hard bound and soft copies of the proceedings of over 1200 pages were produced and given to the participants together with a complimentary DVD on the late Professor **Chin Fung Kee**. Prof Chin was an Honorary Fellow of both the Institution of Civil Engineers and The Institution of Engineers, Malaysia of which he was a founder Council member in 1959 and a President from 1966 to 1968. He was also President of the Southeast Asian Geotechnical Society from 1973-1975 and the Vice President for Asia of the International Society for Soil Mechanics and Foundation Engineering in 1981-1985. He was Chairman of the Commonwealth Engineer's Council in 1973-1977.

*Dr. Teik Aun Ooi, President SEAGS Delivering his Welcoming Message*

The conference was made possible by the generous financial support of the sponsors, exhibitors and advertisers. Their efforts to make this conference a success are greatly appreciated and acknowledged. To the participants, I thank you for your support and I have no doubt that you have greatly benefited from the exchange of ideas and networking during the conference.

In conjunction with the conference, the respective council meetings of SEAGS & AGSSEA and the General meeting of SEAGS members were also held. **Dr. Noppadol Phienwej** and **Prof San Shyan Lin** were elected as President and Chairman of the SEAGS and AGSSEA respectively. Dr Noppodol Phienwej was also elected as the Honorary Secretary General Cum Treasurer of SEAGS. **Ir Kenny Yee** was re-elected Honorary Secretary General as well as Treasurer of the AGSSEA. The meetings commended on the devotion and contributions of **Prof A. S. Balasubramaniam** and confirmed that starting from 20SEAGC-3AGSSEAC a named lecture in the name of A. S. Balasubramaniam will be instituted. The meetings also confirmed Prof A. S. Balasubramaniam as the Editor-in-Chief of the SEAGS-AGSSEA Journal.

The meetings also confirmed that the 20SEAGC-3AGSSEAC will be held in Jakarta, Indonesia in 2019. The conference will be organized by Indonesian Society for Geotechnical Engineering (HATTI), the Southeast Asian Geotechnical Society (SEAGS) and the Association of Geotechnical Societies in Southeast Asia (AGSSEA).

*General View of SEAGC -2AGSSEAC Participants*


*Prof K Y Yong, Chairman AGSSEA Delivering his Welcoming Address*

*General View of SEAGC -2AGSSEAC in Progress*

The Organizing Committee also distributed complimentary copies of CD on the 63rd Anniversary Commemorative Dinner of the late Professor Chin Fung Kee during the conference. The CD will be useful to practitioners and researchers alike. On 30th May 2016, a one day conference was held successfully for the Young geotechnical engineers.


*Ir. Yew Weng Yee, Deputy Chairman MGS Delivering his Welcoming Speech*

Photos show some record of the proceedings of the events. Chairman of MGS, **Dr. Sin Fatt Chan** delivering his welcoming Address; **Dr Teik Aun Ooi**, President SEAGS delivering his welcome message; **Prof K Y Yong**, Chairman of AGSSEA delivering his welcome Address; **Ir. Yew Weng Yee**, Deputy Chairman MGS delivering his welcoming speech; President of The Institution of Engineers, Malaysia (IEM), **Ir. Yean Chin Tan** delivering his Opening Address and declared open the Conference.


*Ir. Yean Chin Tan, President IEM Delivering his Opening Address*


*Presentation of Certificate of Appreciation to Sponsor at the Opening Ceremony*


*Group Photo at end of the Opening Ceremony*

*Dr. Za-Chieh Moh Delivering his Opening Keynote Address*


*Presentation of Memento to Dr. Za-Chieh Moh*


*Prof Kenji Ishihara Presenting his Chin Fung Kee Keynote Lecture*

*Professor Harry Poulos Delivering his Za-Chieh Moh Keynote Lecture*


*Prof Jian Chu Delivering his S L Lee Keynote Lecture*


*Prof Ikou Towhata, Vice President Asia ISSMGE, Delivering his Special Lecture*


*Prof. Buddhima Indraratna*


*Prof. Charles Wang-Wai NG Delivering his Special Lecture*


*Ir. Thien Seng Yee, Chairman GETD, Delivering his Special Lecture*

*Prof PHAM Van Long Delivering his Special Lecture*


*Prof Suttisak Soralump, President TGS Delivering his Special Lecture*


*Prof Der-Wen Chang made his Presentation at Parallel Session*


*Ir Dr Ooi Teik Aun with the ICE Student Chapters and Rapporteurs and MCs*

*Conference Banquet*


*Peacock Dance*


*East Malaysian Dance*

*Incoming SEAGS President, Dr. Noppadol Enjoying the Cultural Dances*

*Za-Chieh Moh Keynote Lecturer, Prof Harry Poulos Enjoying the Cultural Shows*


*Incoming Chairman AGSSEA Prof San Shyan Lin Delivering his Pledge*


*Presentation of Certificate of Appreciation to Sponsor at the Conference Banquet*


*Prof Eun Chul Shin welcomed participants to 19ICSMGE in 2017 in Seoul, Korea*


*Prof. Askar Zhussupbekov, immediate Past Vice President of ISSMGE for Asia Welcome participants to the 8th Asian Young Geotechnical Engineering Conference, 5-7 August 2016 - Astana, Kazakhstan.*

**Prof Ikuo Towhata** Vice President of ISSMGE for Asia wanted opinion from the SEAGS General Assembly and AGSSEA Council Meeting on 31st May 2016 on the issue of Iran proposal for Asia to be divided into East and West Asia. The meeting concluded that Asia should stay as one. **Prof. Askar Zhussupbekov**, immediate Past Vice President of ISSMGE for Asia also attended the SEAGS and AGSSEA Meetings to seek support for the 8th Asian Young Geotechnical Engineering Conference, 5-7 August 2016 - Astana, Kazakhstan. Information: http://kgs-astana.wix.com/8aygec

**Prof Eun Chul Shin** also welcomed SEAGS and AGSSEA support for the 19th International Conference on Soil Mechanics and Geotechnical Engineering 17 to 22 September 2017, Seoul, Republic of Korea.

Prof. Towhata, Prof Askar and Prof Shin all left after delivering their messages. Prof Askar and Prof Shin also made their presentations at the Conference Banquet.

## Report on Repeat 56th Rankine Lecture on "Geotechnics and Energy" at the IEM Prof Chin Fung Kee Auditorium on 26th July 2016 in Petaling Jaya

*By **Ir Dr Teik Aun Ooi** (Immediate Past President of SEAGS)*

**Prof Richard Jardine**, Professor of Geomechanics at the Imperial College London and currently Deputy Head of Civil and Environmental Engineering delivered his Rankine lecture tour commencing in Kuala Lumpur at the IEM Prof Chin Fung Kee Auditorium on 26th July 2016 in Petaling Jaya to a packed audience of about 100 participants (see Fig. 1). The lecture is on "Geotechnics and Energy" (see Fig. 2). Prof Jardine is a Fellow of the Royal Academy of Engineering. He has worked as visiting professor in Singapore, Japan and China. He is currently a Ministry of Education distinguished scholar at Zhejiang and Wenzhou University respectively. Prof Jardine published over 200 papers and received 17 UK and International research prizes. He has given the named lectures such as the Geotechnique, Coulomb, Zeng, Bishop and Sowers.

The repeat 56th Rankine Lecture covered three main areas namely

1. Research to support offshore hydrocarbon production in deep water.

2. Research into climate change impacts and engineering on flood defenses founded on difficult organic soils.

3. Report on current research on the major impact on offshore wind turbine foundations and renewable energy economics (see Fig. 3).

*Fig. 1 View of a packed IEM Auditorium with about 100 participants*

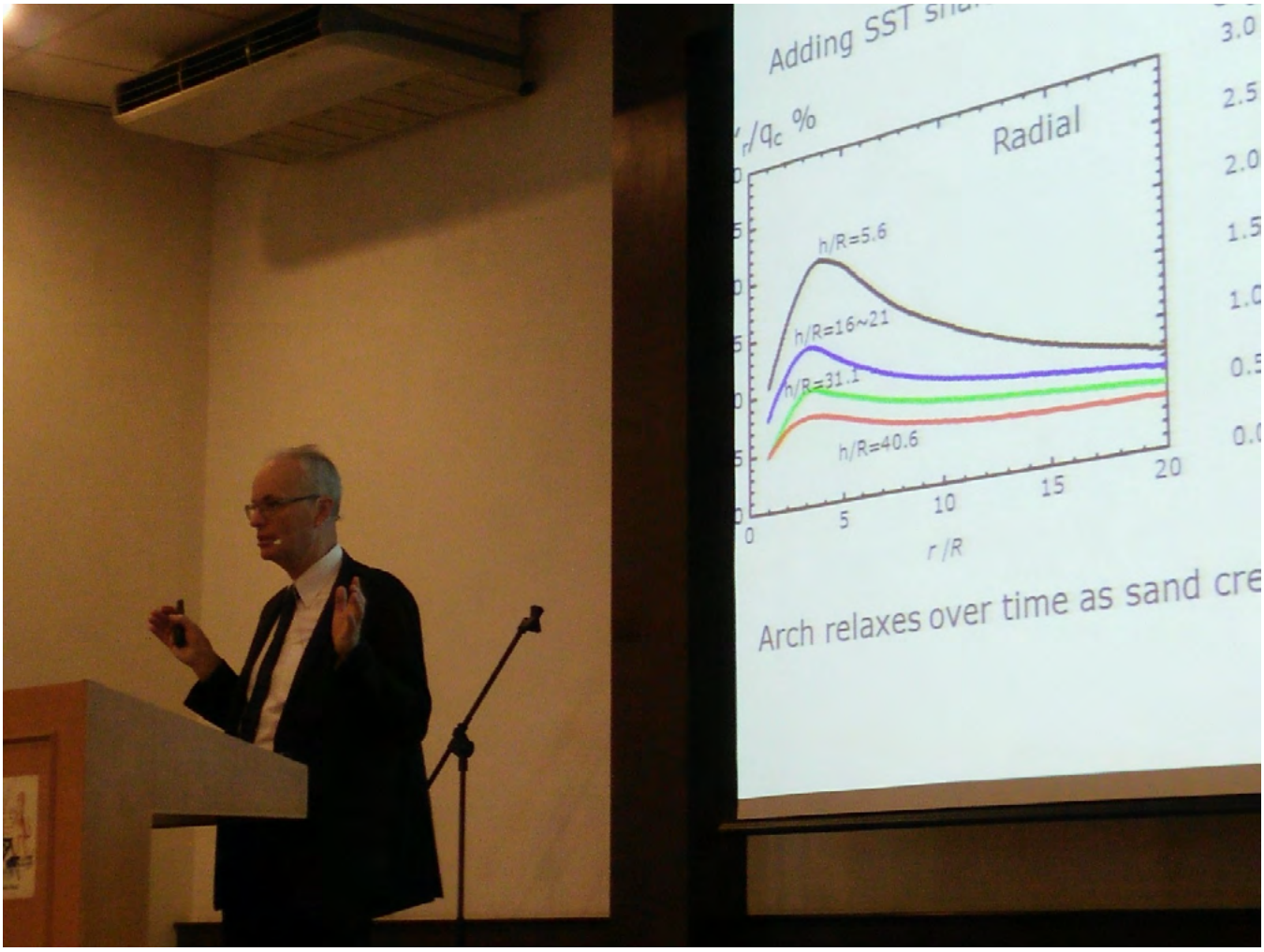


*Fig. 2 Prof Jardine Delivering his Repeat 56th Rankine Lecture*


*Fig. 3 Prof Jardine on Geotechnics and renewable energy economics*

Prof Jardine emphasizes on the need to integrate geology and rigorous analysis with advanced laboratory and field experiments in order to solve complex geotechnical engineering problems. Fig. 4 shows the IEM GETD Committee having dinner with Prof Jardine after the lecture.

*Fig. 4 Prof Jardine with IEM GETD Committee Members*

## Minute of Workshop on Seismic Design and Analysis of Piled Raft Foundation

On August 18 2016, a Workshop on Seismic Design and Analysis of Piled Raft Foundation was held at Tamkang University (TKU) Taipei campus. The workshop is organized by Prof. Der-Wen Chang at TKU with the support of Taiwan Geotechnical Society. Six 30-min lectures on various topics of the theme were delivered and followed by 30-min discussions in both the morning and afternoon. The speakers are Prof. Tatsunori Matsumoto (Kanazawa U.), Dr. Kiyoshi Yamashita (Takenaka Co.), Mr. Yashimasa Shigeno (Takenaka Co.), Dr. Junji Hamada (Takenaka Co.), Mr. Vu Anh Tuan (Kanazawa U.) and Prof. Chang at TKU. The titles of the speeches covered up various aspects of the design, analysis, physical modeling and field monitoring on piled raft foundation. It is a very successful event to share and exchange the advanced knowledge. Participants of the workshop are nearly 50 persons. The audience mainly includes practitioners, researchers, university faculty and students. Group photo taken at the workshop is shown below.

Titles of the lectures are summarized as follows,

1. Static and seismic performance of a friction piled raft in soft ground
   - *Dr. Kiyoshi Yamashita*
2. Numerical analyses of a piled raft foundation with grid-form DMWs under large earthquake load
   - *Mr. Yashimasa Shigeno*
3. Simplified equations to evaluate stress of piles on piled raft and pile foundation during earthquake
   - *Dr. Junji Hamada*
4. Shaking table tests on piled raft and pile group models in saturated sand at 1-g field
   - *Prof. Tatsunori Matsumoto*
5. Experimental and numerical study on pile foundation models subjected to cyclic horizontal loading
   - *Mr. Vu Anh Tuan*
6. Simplified analysis on seismic responses of piled raft foundation and prospective in PBSD
   - *Prof. Der-Wen Chang*


*2016.08.18 workshop of seismic design and analysis for piled raft foundation in Taipei*

**Vice President for Asia**

**Professor Ikuo Towhata**

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| **Hong Kong Geotechnical Society** | **Hong Kong** |
| **Bangladesh Society for Geotechnical Engineering** | **Bangladesh** |
| **CISMGE-CCES** | **China** |
| **Chinese Taipei Geotechnical Society** | **Chinese Taipei** |
| **Indian Geotechnical Society** | **India** |
| **Indonesia Society for Geotechnical Engineering** | **Indonesia** |
| **Iranian Geotechnical Society** | **Iran** |
| **Iraqi Scientific Society for Soil Mechanics and Foundation Engineering** | **Iraq** |
| **Japanese Geotechnical Society** | **Japan** |
| **Kazakhstan Geotechnical Society** | **Kazakhstan** |
| **Kyrgyzstan Geotechnical Association** | **Kyrgyzstan** |
| **Lebanese Geotechnical Engineering Society** | **Lebanon** |
| **Malaysian Geotechnical Society** | **Malaysia** |
| **Nepal Geotechnical Society** | **Nepal** |
| **Pakistan Geotechnical Engineering Society** | **Pakistan** |
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| **Tajikistan Geotechnical Society** | **Tajikistan** |
| **Thai Geotechnical Society** | **Thailand** |
| **Uzbekistan Geotechnical Society** | **Uzbekistan** |
| **Vietnam Society for Soil Mechanics and Geotechnical Engineering** | **Vietnam** |

# The 3rd International Conference on GEOTECHNICS FOR SUSTAINABLE INFRASTRUCTURE DEVELOPMENT

***24th – 25th November 2016*** ***Hanoi, Vietnam***

## *Introduction*

Started from October 2011, the first international conference GEOTEC HANOI 2011 was excellently successful with about 450 attendees from 24 countries. Among the conference highlights were the six keynote-lectures given by Prof. Sven Hansbo (Sweden), Prof. Kenji Ishihara and Dr. Hiroshi Yoshida (Japan), Prof. Harry G. Poulos (Australia), Prof. Pieter A. Vermeer (Netherlands), Prof. Alain Guilloux (France).

In November 2013, the second conference GEOTEC HANOI 2013 was held with great keynote lectures by Prof. Rolf Katzenbach (Germany), Prof. Alain Guilloux (France), Prof. Fumio Tatsuoka (Japan), Prof. Kenichi Soga (UK), and Prof. Helmut Schweiger (Austria), and an honorary lecture given by Prof. Sven Hansbo from Sweden. GEOTEC HANOI 2013 was an unforgettable event with 112 papers, 500 attendees from 27 countries.

Continuing the success of the two previous events, GEOTEC HANOI 2016 conference is organized by FECON Corporation, the Vietnamese Society for Soil Mechanics and Geotechnical Engineering (VSSMGE), and the Japanese Geotechnical Society (JGS), and will be held on 24th and 25th November 2016 at JW Marriott Hotel in Hanoi.

At this conference the keynote-lectures will be given by the five world leading experts: Prof. Bengt H. Fellenius from Canada, Prof. Chang-Yu Ou from Taiwan, Prof. Buddhima Indraratna from Australia, Prof. Kazuya Yasuhara from Japan and Dr. Jamie Standing from the U.K.

## *Call for Papers*

Engineers, researchers, teachers and other professionals are invited to submit papers dealing with one or more of the conference themes. Well-documented case histories and design experience, especially relating to the projects in Vietnam, are encouraged.

Abstracts and full papers should be submitted in the conference format, which are provided in the conference homepage.

The best papers will be selected for Conference Proceedings, and published by the Construction Publishing House, Ministry of Construction, Vietnam with the registration number ISBN 978-604-82-1821-8. The conference proceedings, hardbounded hardcopy with a CDROM, will be provided to the conference attendants.

## *Conference Themes*

1. Deep Foundations
2. Underground Construction & Tunneling
3. Ground improvement for Infrastructure Projects
4. Coastal Geotechnics for Climate Change
5. Monitoring , Inspection and Maintenance

## *Keynote Lectures*

1. "*Mistakes and delusion in piled foundation design*",
by Prof. Bengt H. Fellenius (Canada)

2. "*Evaluation of different measures in reducing movements induced by deep excavation*",
by Prof. Chang-Yu Ou (Taiwan)

3. "*Drains and Vacuum for Soft Soil Stabilization - Recent Advances in Experimental and Numerical Modelling*",
by Prof. Buddhima Indraratna (Australia)

4. "*Geotechnical response to natural disasters in the context of climate change*",
by Prof. Kazuya Yasuhara (Japan)

5. "*Ground and structural response to tunneling - lessons learnt from three major projects in London*",
by Dr. Jamie Standing (UK)

## *Important Dates*

**January 2016 - June 15th 2016 EARLY REGISTRATION**
- May 25th 2016 Deadline for submitting abstracts
- June 10th 2016 Notification of accepted abstracts

**June 16th - November 24th 2016 NORMAL REGISTRATION**
- August 1st 2016 Deadline for submitting (accepted) paper manuscripts
- September 15th 2016 Deadline for submitting final papers

## *Contact / Hotline*

(+ 84) 94.959.5760

**FECON Corporation**
15th Floor, CEO Tower,
Lot HH2-1 Urban Me Tri Ha,
Pham Hung Street,
Ward Me Tri, Nam Tu Liem
District, Hanoi, Vietnam

Tel: (+ 84) 46.269.0481/82
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Website: www.geotechn.vn

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2nd ANNOUNCEMENT (pdf format)

## *Report on 16 ARC in Taiwan:* *by* **Prof. Der Wen Chang**

In preparing the **16ARC in Taipei**, **2019**, the web site of the Conference shall be available in June 2016. The major links of this website shall be able to access through ISSMGE, CTGS and AGSSEA web sites. The dates of the Conf. are fixed on **October 21-25, 2019**. Venue of 16ARC will be either Taipei Int. Convention Center or Marriott Taipei (a brand new hotel just opened).

Main theme of the Conf. is "***Geotechnique for Sustainable Developments and Emerging Market Regions***". 4-day in-door program with 1-day tech tours are scheduled. Complimentary 1- or 2-day short courses on geotechnical work for infrastructures will be offered for Asian member society's representatives (2/per member society) right before the Conference. Heritage of the historic ARCs and many other subjects related to the main theme will be planned for Keynote Lectures. Least ten slots are prepared to accommodate oral presentation of technic papers. Contingent plans of TC/ATC special sessions are welcomed. 1/2-day poster sessions will be available for the contributed papers.

The registration fees of 16ARC are US$500~US$700 for Early Bird ~ Non-ISSMGE member on-site registration. For students, the registration fee will be US$250~US$400 for Early Bird ~ on-site registration (valid student ID is required). The estimated scale of the 16ARC is: 700+ delegates and 500+ papers (both oral and poster). It is the greatest pleasure and honor for CTGS to host this Conference; we believe it will be the biggest Int. geotechnical activity ever held in Taiwan. It certainly will become a remarkable experience to all the members at Taiwan Geotechnical Society.

For any suggestions and/or interests to 16ARC, please contact Prof. D.W. Chang at dwchang@mail.tku.edu.tw.

## ICSMGE 2017

### 19th International Conference on SOIL MECHANICS AND GEOTECHNICAL ENGINEERING

***17 – 22 September 2017***
***Seoul, Korea***

### Theme: *'Unearth the Future, Connect beyond [ ]'*

Five colours of the Olympic Flag are conceptualised with stratum to demonstrate harmonious contribution the 19th ICSMGE-Seoul 2017 may bring to life. The five colours are representing living organisms, ground waters and stratum, mirrors the role of soil, the foundation of life. Arched stratum, too, embodies the flowing image of the Han River, which has been perceived as the heart of Korea's Economic Miracle for nationals. The logo of the 19th ICSMGE-Seoul 2017 presents our commitment of sharing and bridging knowledge, experience and friendship with participants from all over the world.

The theme of 'Unearth the Future, Connect beyond [ ]' can be differentiated with indefinite variable last word. The bid committee of the 19th ICSMGE-Seoul 2017 shall offer you a vision with unique interpretation of past, present and future, bridging young and senior engineers as well as developed and developing nations.

### 19th ICSMGE Secretariat

T. +82-2-6288-6347 F. +82-2-6288-6398 E. secretariat@icsmge2017.org
W. http://www.icsmge2017.org

### Conference Objectives

- To pursue mutual understanding and collaboration between experts and interested parties.
- To create an opportunities of sharing and learning up-to-date knowledge and offer a platform where experts, researchers and students could be re-assembled to discuss present and prospective pertinent issues.
- To arouse a positive momentum in achieving the convergence of Korea's advanced civil construction technology and high technology, with the application of renewable energies, IT, BT and Nano technologies.
- To establish an environment where transforming research is implemented to improve science and social structure.

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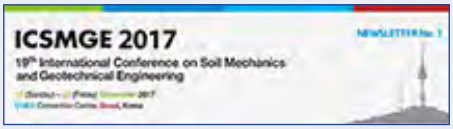
NEWSLETTER No. 1 (pdf format)



# SEAGC 2019

## *20TH Southeast Asian Geotechnical Conference*

## *3rd AGSSEA Conference*

## *23rd Annual National Conference HATTI*

### Indonesia

Date: 5-7 February 2019 (tentative)
Venue: Bidakara Hotel Jakarta (tentative)

Hosted by:
Indonesian Society for Geotechnical Engineering
Association of Geotechnical Societies in Southeast Asia
Southeast Asian Geotechnical Society

**2016 Council Meeting** of **Southeast Asian Geotechnical Society** and **Association of Geotechnical Societies in Southeast Asia**

31 May 2016, Subang Jaya, Malaysia

Next SEAGC 2019 will be conducted in Indonesia and hosted by HATTI

**HIMPUNAN AHLI TEKNIK TANAH INDONESIA (HATTI)**
INDONESIAN SOCIETY FOR GEOTECHNICAL ENGINEERING (ISGE)

HATTI was established in 1976
Became a member of ISSMGE since 1977


Combine the 20TH Southeast Asian Geotechnical Conference and 3rd AGSSEA Conference with 23rd Annual National Conference HATTI

***Download***
ANNOUNCEMENT (pdf format)

## The advantages in joining the SEAGS, AGSSEA and ISSMGE are as follows:

Southeast Asian Geotechnical Society

**1** Receive updated activities, current events and important information regarding geotechnical engineering around the world through the bi-annual SEAGS / AGSSEA Newsletter and 4 issues of Journals annually.

**2** The opportunity to submit papers for publication and to read up-to-date technical papers through the 4 issues of Geotechnical Engineering Journal annually.

ISSMGE & ARC

**3** The ability to attend, participate, and avail of state-of-the-art lectures and papers in the local, regional, and international geotechnical conferences at discounted registration fees.

**4** The chance to network with other geotechnical engineers, academics, and practitioners around the world as SEAGS member automatically becomes member of ISSMGE.

**5** The opportunity to fraternize with professionals of related fields of geology, geophysics, and rock mechanics through the association of ISSMGE with the International Society for Rock Mechanics (ISRM) and International Association of Engineering geology (IAEG).

## Latest ISSMGE News

*Download ISSMGE Bulletin to read more:*

*http://www.issmge.org/en/resources/issmge-bulletin/799-vol-10-issue-3-june-2016*

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- An overview of the geotechnical damage brought by the 2016 Kumamoto Earthquake, Japan

### 27 Conference Reports

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- The 15th Pan-American Conference on Soil Mechanics and Geotechnical Engineering
- 19SEAGC & 2AGSSEA
- 19SEAGC & 2AGSSEA YGEC

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- Book review: Design of Column-Reinforced Foundations
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ISSMGE Bulletin

Volume 10, Issue 3
June 2016

International Society for Soil Mechanics and Geotechnical Engineering

www.issmge.org

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Major Project

An overview of the geotechnical damage brought by the 2016 Kumamoto Earthquake, Japan

*Hemanta Hazarika*
Professor, Kyushu University, Fukuoka, Japan
*Takaji Kokusho*
Professor emeritus, Chuo University, Tokyo, Japan
*Robert E. Kayen*
Professor, University of California, Los Angeles, USA
*Shideh Dashti*
Assistant Professor, University of Colorado, Boulder, USA
*Yutaka Tanoue*
Director, Kiso-Jiban Consultants Co., Ltd., Kyushu Branch, Japan
*Shuuichi Kuroda and Kentaro Kuribayashi*
Chief Engineers, Eight-Japan Engineering Consultants Inc., Okayama Branch, Japan
*Daisuke Matsumoto*
Assistant Manager, Japan Foundation Engineering Co., Ltd., Kyushu Branch, Japan
*Hideo Furuichi*
Assistant Manager, Giken Ltd., Tokyo, Japan

Abstract:
The 2016 Kumamoto earthquake with a moment magnitude of 7.0 (Japanese intensity = 7) that struck on April 16 brought devastation in many areas of Kumamoto Prefecture and in parts of Oita Prefecture in Kyushu Region, Japan. The earthquake succeeds a foreshock of magnitude 6.5 (Japanese intensity = 7) on April 14. The authors conducted two surveys on the devastated areas: one during April 16-17, and the other during May 11-14. This report summarizes the damage brought to geotechnical structures by the two consecutive earthquakes within a span of twenty-eight hours. This report highlights some of the observed damage and identifies reasons for such damage. The geotechnical challenges towards mitigation of losses from such earthquakes are also suggested.

## Major Project

### An overview of the geotechnical damage brought by the 2016 Kumamoto Earthquake, Japan

*Hemanta Hazarika*
Professor, Kyushu University, Fukuoka, Japan

*Takaji Kokusho*
Professor Emeritus, Chuo University, Tokyo, Japan

*Robert E. Kayen*
Professor, University of California, Los Angeles, USA

*Shideh Dashti*
Assistant Professor, University of Colorado, Boulder, USA

*Yutaka Tanoue*
Director, Kiso-Jiban Consultants Co., Ltd., Kyushu Branch, Japan

*Shuuichi Kuroda and Kentaro Kuribayashi*
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Assistant Manager, Japan Foundation Engineering Co., Ltd., Kyushu Branch, Japan

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*Read more from ISSMGE Bulletin...*

## EVENT DIARY: ISSMGE Events

*Please refer to the specific conference website for full details and latest information.*

# 2016

### 12th International Symposium on Landslides

Date: Sunday 12 June 2016 - Sunday 19 June 2016
Location: Naples, Italy
Language: English
Contact person: Italian Geotechnical Association (AGI)
Address: Viale dell'Università, 11 - 00185, Roma, Italy
Phone: +39 064465569 - 0644704349
E-mail: agi@associazionegeotecnica.it ■ Website: http://www.isl2016.it/

### 8ème Journées Africaines de la Géotechnique

Date: Monday 20 June 2016 - Friday 24 June 2016
Location: Hotel Sawa, DOUALA, Cameroon
Language: French and English
Organizer: CTGA
E-mail: http://www.8jag-cngc.org/8jag/contact/ ■ Website: www.8jag-cngc.org

### 1st International Conference on Natural Hazards & Infrastructure: Protection, Design, Rehabilitation

Date: Tuesday 28 June 2016 - Thursday 30 June 2016
Location: Minoa Palace Resort & Spa, Chania, Crete, Greece
Address: Pampouki 3, N. Psychiko,15451, Athens, Greece
Phone: +30 210 7723383, +30 210 6721798
E-mail: secretary@iconhic2016.com ■ Website: http://iconhic2016.com/

### Conference in Honour of Michele Maugeri

Date: Friday 01 July 2016 - Friday 01 July 2016
Location: University of Catania Department of Civil Engineering and Architecture (DICAR) Auditorium - Edificio della Didattica Cit, Catania, Italy
Language: English
Organizer: Italian Geotechnical Society
Contact person: AGI
Address: Viale dell'Università 11, 00185 Rome, Italy
Phone: +39 06 4465569 ■ Fax: +39 06 44361035
E-mail: agi@associazionegeotecnica.it ■ Website: www.associazionegeotecnica.it

GeoChina 2016
Date: Monday 25 July 2016 - Wednesday 27 July 2016
Location: Shandong, China
Language: English
Organizer: Shandong University in Cooperation with Shandong Department of Transportation and University of Oklahoma
Contact person: Antony Warden
Address: Shanghai, China
Phone: +86-021-54721773
E-mail: geochina.sec@gmail.com ■ Website: http://geochina2016.geoconf.org/

8th Asian Young Geotechnical Engineering Conference (8 AYGEC)
Date: Friday 05 August 2016 - Sunday 07 August 2016
Location: Astana, Kazakhstan
Language: English
Organizer: Kazakhstan Geotechnical Society
Contact Person: Prof. Askar Zhussupbekov - Chairman of Organizing Committee of the 8th AYGEC
Address: 2 Satpayev Str, Astana, Kazakhstan, 010008,
Phone: +7-7172-35-37-40 ■ Fax: +7-7172-34-47-96
E-mail: astana-geostroi@mail.ru ■ Website: http://kgs-astana.wix.com/8aygec

5th African Young Geotechnical Engineering Conference
Date: Wednesday 10 August 2016 - Friday 12 August 2016
Location: KNUST, Kumasi, Ghana
Language: English
Organizer: Ghana Geotechnical Society
Contact person: Ing. Felix Jojo Ayeh
Address: Civil Engineering Department, Private Mail Bag, Kumasi, Ghana
Phone: +233(0)264452786 ■ E-mail: 5aygec16@gmail.com

1st International Conference on Energy Geotechnics ICEGT 2016
Date: Monday 29 August 2016 - Wednesday 31 August 2016
Location: Auditorium Maximum (Audimax) of Kiel University, Kiel, Germany
Language: English
Organizer: ISSMGE TC308 on Energy Geotechnics
Contact person: ICEGT 2016 Secretariat
Address: Ludewig Meyn Str. 10, 24118, Kiel, Germany
Phone: +49 - (0) 431 - 880 1976 ■ Fax: +49 - (0) 431 - 880 4376
E-mail: secretary@icegt-2016.de ■ Website: http://www.iceg-2016.de/

3rd ICTG International Conference on Transportation Geotechnics
Date: Sunday 04 September 2016 - Wednesday 07 September 2016
Location: Vila Flor Cultural Centre and University of Minho, Guimaraes, Portugal
Language: English
Organizer: Portuguese Geotechnical Society and University of Minho
Contact person: Prof. A. Gomes Correia (Chair)
Address: University of Minho, School of Engineering, 4800-058, Guimarães, Portugal
Phone: +351253510200 ■ Fax: +351253510217
E-mail: agc@civil.uminho.pt ■ Website: http://www.webforum.com/tc3

5th International Conference on Geotechnical and Geophysical Site Characteristion (ISC'5)
Date: Monday 05 September 2016 - Friday 09 September 2016
Location: QT Hotel, Gold Coast, QLD, Australia
Language: English
Organizer: Leishman Associates
Address: 113 Harrington St, 7000, Hobart, TAS, Australia
Phone: 03 6234 7844
E-mail: hannah@laevents.com.au ■ Website: http://www.isc5.com.au

8th International Conference on Scour and Erosion,
Date: Monday 12 September 2016 - Wednesday 15 September 2016
Location: University of Oxford Mathematical Institute, Oxford, United Kingdom
Language: English
Organizer: HR Wallingford
Contact person: Sarah Moxon
Address: HR Wallingford, Howbery Park, OX10 8BA, Wallingford, Oxfordshire, United Kingdom
Phone: +44 (0)1491 835381
E-mail: icse2016@hrwallingford.com ■ Website: www.icse2016.com/

3rd European Conference on Unsaturated Soils - Paris 2016
Date: Monday 12 September 2016 - Wednesday 14 September 2016
Location: Ecole des ponts ParisTech, Marne la Vallée, France
Language: English
Organizer: Ecole des ponts
Contact person: Severine Beaunier
Address: PFC, Maison des ponts, 15 Rue de la Fontaine au Roi ,75011 Paris, France
Phone: 33144582700
E-mail: severine.beaunier@enpc.fr ■ Website: http://eunsat2016.sciencesconf.org/

13th Baltic States Geotechnical Conference
Date: Thursday 15 September 2016 - Saturday 17 September 2016
Location: Vilnius University, Vilnius, Lithuania
Language: English
Organizer: Baltic Sea states Geotechnical Societies / Main organizer Lithuanian Geotechnical Society
Contact person: Danutė Sližytė
Address: Saulėtekio ave. 15-510, LT-10224, Vilnius, Lithuania
Phone: +37068690044 ■ Fax: +37052500604
E-mail: danute.slizyte@vgtu.lt ■ Website: http://www.13bsgc.lt

International Geotechnical Engineering Conference on Sustainability in Geotechnical Engineering Practices and Related Urban Issues
Date: Friday 23 September 2016 - Saturday 24 September 2016
Location: Ramada Powai Hotel and Convention Centre, Saki Vihar Road, Powai, Mumbai Maharashtra, India
Language: English
Organizer: Indian Geotechnical Society Mumbai Chapter with Indian Geotechnical Society (IGS) and ISSMGE
Contact person: Prof. Deepankar Choudhury
Address: Professor and Organising Secretary, Department of Civil Engineering, IIT Bombay, Powai, 400076 Mumbai, Maharashtra, India
Phone: +91-22-25767335 ■ Fax: +91-22-25767302
E-mail: igsmumbai@gmail.com ■ Website: http://www.igsmumbaichapter.in/

69th Annual Canadian Geotechnical Conference - GeoVancouver2016
Date: Sunday 02 October 2016 - Wednesday 05 October 2016
Location: Westin Bayshore Hotel, Vancouver, British Columbia, Canada
Language: English and French
Organizer: The Canadian Geotechnical Society (see: www.cgs.ca)
Contact person Dr. Mustapha Zergoun, P. Eng., P.E.
Address: Suite 900, 1281 West Georgia Street, V6E 3J7, Vancouver, British Columbia, Canada
Phone: 604-684-4384 ■ Fax: 604-684-5124
E-mail: mzergoun@thurber.ca ■ Website: http://www.geovancouver2016.com

GEO-EXPO 2016 Scientific and Expert Conference
Date: Friday 07 October 2016 - Saturday 08 October 2016
Location: Faculty of Architecture, Civil Engineering and Geodesy, University of Banja Luka, Banja Luka, Bosnia and Herzegovina
Language: English, Bosnian, Croatian, Serbian
Organizer: Geotechnical Society of Bosnia and Herzegovina
Contact person: Prof. Sabid Zekan
Address: Univerzitetska 2, 75000 Tuzla, Bosnia and Herzegovina
Phone: + 387 61 56 22 77 ■ Fax: + 387 35 32 05 70
E-mail: geotehnika@geotehnika.ba, info@geotehnika.ba ■ Website: http://www.geotehnika.ba

9th All-Ukrainian Scientific-Technical Conference “Soil mechanics, geotechnics and foundation engineering”: “Geotechnical innovations and implementation of Eurocodes in Ukraine”
Date: Tuesday 11 October 2016 - Thursday 13 October 2016
Location: Dnieper state academy of construction and architecture, Dnipropetrovsk, Ukraine
Language: English, Ukrainian, Russia
Organizer: Ukrainian society of soil mechanics, geotechnics and foundation engineering
Address: SE NDIBK, 5/2 Preobrazhenska street, 03037, Kiev-37, Ukraine
Phone: (056) 247-08-88
E-mail: iepi@pgasa.dp.ua ■ Website: www.niisc.com (section: Conferences)

XVIII Brazilian Conference on Soil Mechanics and Geotechnical Engineering - COBRAMSEG 2016
Date: Wednesday 19 October 2016 - Saturday 22 October 2016
Location: Minascentro, Belo Horizonte, MG, Brazil
Language: Portuguese and English
Organizer: ABMS - Brazilian Society for Soils Mechanics and Geotechnical Engineering
E-mail: contato@cobramseg2016.com.br
Website: http://www.cobramseg2016.com.br/

SFGE 2016 – Shaping the Future of Geotechnical Education – International Conference on Geo-Engineering Education
Date: Thursday 20 October 2016 - Saturday 22 October 2016
Location: Minascentro, Belo Horizonte, MG, Brazil
Language: English
Organizer: ISSMGE TC306 and ABMS - Brazilian Society for Soil Mechanics and Geotechnical Engineering
Contact person: Michele Calvello
E-mail: sfge2016@cobramseg2016.com.br / michele.calvello@gmail.com
Website: http://cobramseg2016.com.br/index.php/sfge-sobre/?lang=en

V South American Young Geotechnical Engineers Conference - SAYGEC/GEOJOVEM 2016
Date: Thursday 20 October 2016 - Saturday 22 October 2016
Location: Minascentro, Belo Horizonte, MG, Brazil
Language: Portuguese, Spanish, English
Organizer: ABMS - Brazilian Society for Soil Mechanics and Geotechnical Engineering
Contact person: Profa. Terezinha Esposito
E-mail: geojovem@cobramseg2016.com.br ■ Website: http://www.cobramseg2016.com.br

11th ANZ Young Geotechnical Professionals Conference (11YGPC)
Date: Tuesday 25 October 2016 - Friday 28 October 2016
Location: Queenstown, New Zealand
Language: English
Organizer: NZGS
Contact person: Frances Neeson
E-mail: 11ygpc@gmail.com
Website: http://www.nzgs.org/resources/pdfs/YGP_11Queens2016formsv1.pdf

5th International Conference on Geotechnical Engineering and Soil Mechanics
Date: Monday 14 November 2016 - Wednesday 16 November 2016
Location: Tehran, Iran
Organizer: International Conference on Geotechnical Engineering and Soil Mechanics
Contact person: 009888931328
Address: Unit2, No 14, Eftekharnia Alley, Larestan St, Motahari Ave, 1595914911 Tehran, Iran
Phone: 9888931507
Fax: 9888931275
E-mail: info@igs.ir ■ Website: www.igs.ir

Geotec Hanoi 2016
Date: Thursday 24 November 2016 - Friday 25 November 2016
Location: JW Marriott Hotel Hanoi, No 8 Do Duc Duc Road, Me Tri Ward, South Tu Liem District, Hanoi, Vietnam
Language: English
Organizer: FECON, VSSMGE, and JGS
Contact person: GEOTEC HANOI 2016 Secretariat
Address: FECON Corp, 15th Floor, CEO Tower, Lot HH2-1 Urban Me Tri Ha, Pham Hung Street, Ward Me Tri, Nam Tu Liem District, Hanoi, Vietnam
Phone: +84 4 6269.0481 / 82
Fax: +84 4 6269 0484
E-mail: secretariat@geotechn.vn ■ Website: www.geotechn.vn

IX Chilean Congress of Geotechnics
Date: Monday 05 December 2016 - Wednesday 07 December 2016
Location: Universidad Austral de Chile, Valdivia, XIV Región de Los Ríos, Chile
Language: Spanish - English
Organizer: SOCHIGE
Contact person: Macarena Tugas
Address: San Isidro 53, Santiago, Santiago, Chile
Phone: +56994253193
E-mail: directorio@sochige.cl ■ Website: http://www.congresosochige.cl

International Conference on Forensic Geotechnical Engineering
Date: Thursday 08 December 2016 - Saturday 10 December 2016
Location: Satish Dhawan Auditorium,Bangalore, Karnataka, India
Language: English
Organizer: ISSMGE TC 302
Contact person: Dr. Anbazhagan
Address: Indian Institute of Science, 560012, Bangalore, Karnataka, India
Phone: 00918022932467
E-mail: anbu@civil.iisc.ernet.in

## 2017

Advances in Laboratory Testing and Modelling of Soils and Shales
Date: Wednesday 18 January 2017 - Friday 20 January 2017
Location: Swiss Alps, Switzerland
Language: English
Organizer: Prof. Lyesse Laloui and Prof. Alessio Ferrari
Contact person: Ms Valentina Favero
Address: EPFL-ENAC-IIC-LMS, Station 18, CH-1015, Lausanne, Switzerland
Phone: +41 (0)21 693 23 13
E-mail: valentina.favero@epfl.ch
Website: http://atmss.epfl.ch

International Conference on New Challenges In Geotechnical Engineering, ICNCGE-2017
Date: Monday 23 January 2017
Location: FAST National University, Lahore, Punjab, Pakistan
Language: English
Organizer: Pakistan Geotechnical Engineering Society - PGES
Contact person: Syed Badar Ul Hussnain
Address: NESPAK House, 1-C, Block N, Model Town Lahore-Pakistan, 54700, Lahore, Punjab, Pakistan
Phone: +92 42 99090325
Fax: +92 42 99231950
E-mail: icncge2017@gmail.com
Website: http://www.pges-pak.org/home/icncge-2017

9th International Symposium on Geotechnical Aspects of Underground Construction in Soft Ground, IS - São Paulo 2017
Date: Tuesday 04 April 2017 - Thursday 06 April 2017
Location: Centro de Convenções Rebouças,São Paulo,SP,Brazil
Language: English
Organizer: Brazilian Association for Soil Mechanics and Geotechnical Engineering (ABMS) and the Brazilian Tunnelling Committee (CBT)
Contact person: MCI São Paulo
Address: Rua George Ohm, 230 – Torre A, 19º Andar, 04576-020, São Paulo, SP, Brazil
Phone: 55 11 3056-6000
Fax: 55 11 3056-6000
E-mail: atendimento@mci-group.com
Website: http://www.is-saopaulo.com

BCRRA 2017 - Tenth International Conference on the Bearing Capacity of Roads, Railways and Airfields.
Date: Wednesday 28 June 2017 - Friday 30 June 2017
Location: ATHENS, Greece
Language: English
Local Organizer: National Technical University of Athens (NTUA)
Contact person: Prof. Andreas Loizos
Address: 5, Iroon Polytechniou str.,15773, ATHENS, Greece
Phone: + 30 210 7721279
Fax: + 30 210 7724254
E-mail: aloizos@central.ntua.gr
Website: http://www.bcrra2017.com/

GeoMEast 2017
Date: Saturday 15 July 2017 - Wednesday 19 July 2017
Location: Sharm El-Sheikh, Egypt
Language: English
Organizer: The Egyptian Housing and Building Research Center (HBRC) in cooperation with the Soil-Structure Interaction Group in Egypt (SSIGE)
Contact person: Hany Farouk Shehata
Address: Tower C, Maamora Towers, 7th District, Nasr City, 11727 ,Cairo, Egypt
Phone: +201110666775
E-mail: hanyfarouk808@gmail.com
Website: http://www.geomeast2017.org/

PBD-III Vancouver 2017 - The 3rd International Conference on Performance Based Design in Earthquake Geotechnical Engineering
Date: Sunday 16 July 2017 - Wednesday 19 July 2017
Location: Westin Bayshore Hotel (http://www.westinbayshore.com/) Vancouver, British Columbia, Canada
Language: English
Organizer: TC203 (Earthquakes)
Website: http://pbdiiivancouver.com/

ICSMGE 2017 - 19th International Conference on Soil Mechanics and Geotechnical Engineering, Seoul
Date: Sunday 17 September 2017 - Thursday 21 September 2017
Location: Coex Convention Center, Seoul, Korea
Language: English and French
Organizer: Organising Committee of ICSMGE 2017
Contact person: Ms. Soi LEE
Address: 4F, SUNGJI Building, 192, Bangbae-ro, Seocho-gu, 137-835, Seoul, Republic of Korea
Phone: +82-2-6288-6347
Fax: +82-2-6288-6399
E-mail: secretariat@icsmge2017.org
Website: http://www.icsmge2017.org

## 2018

4th International Symposium on Cone Penetration Testing (CPT'18)
Date: Thursday 21 June 2018 - Friday 22 June 2018
Location: Delft University of Technology (TUD), Delft, Netherlands,
Language: English
Organizer: Delft University of Technology (endorsed by TC102)
Contact person: Prof. Michael Hicks, Dr. Federico Pisanò and Ir. Joek Peuchen
Address: Faculty of Civil Engineering and Geosciences, Section of Geo-Engineering, Building 23, Stevinweg 1, 2628 CN Delft, The Netherlands
Phone: +31 70 31 11299
E-mail: info@cpt18.org
Website: http://www.cpt18.org

The 7th International Conference on Unsaturated Soils (UNSAT2018)
Date: Friday 03 August 2018 - Sunday 05 August 2018
Location: The Hong Kong University of Science and Technology (HKUST), Hong Kong, China
Language: English
Organizer: The Hong Kong University of Science and Technology (HKUST)
Contact persons: Prof. Charles W. W. Ng (Chair), Miss Shirley Tse (Administrative Secretary) or Dr Anthony Leung (Technical Secretary)
Address: Geotechnical Centrifuge Facility, The Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, HKSAR, China
Phone: (852) 2358-0216
Fax: (852) 2243-0040
E-mail: unsat2018@ust.hk ■ Website: http://www.unsat2018.org

## 2019

ISDCG 2019 – 7th International Symposium on Deformation Characteristics of Geomaterials
Date: Wednesday 26 June 2019 - Friday 28 June 2019
Location: Technology and Innovation Centre (TIC) of the University of Strathclyde, Scotland, UK,
Language: English
Organizer: TC101
Website: in construction

ECSMGE 2019 – XVII European Conference on Soil Mechanics and Geotechnical Engineering
Date: Sunday 01 September 2019 - Friday 06 September 2019
Location: Harpa Conference Centre Reykjavik, Iceland
Language: English
Organizer: The Icelandic Geotechnical Society
Contact person: Haraldur Sigursteinsson
Address: Vegagerdin, Borgartún 7, IS-109, Reykjavik, Iceland
Phone: +354 522 1236
E-mail: has@road.is
Website: http://www.ecsmge-2019.com

*FOR FURTHER DETAILS, PLEASE REFER TO THE WEBSITE OF THE SPECIFIC CONFERENCE*

## SGI - Line

- http://www.swedgeo.se/templates/SGIStandardPage____184.aspx?epslanguage=EN
- http://www.swedgeo.se/templates/SGIStandardPage____186.aspx?epslanguage=EN

The SGI-Line is a literature database containing references to international geotechnical and geoenvironmental literature in a broad context, from practical solutions to theoretical analysis. The database is one of a small number in the world specialized in geotechnical and goenvironmental engineering. The database contains some 70,000 references from 1976 up to present. The database is continuously updated and expanded with about 2,000 references a year. Several references added during the recent years links to further information, full-text documents or abstracts/table of contents.

SGI-Line is produced by the Swedish Geotechnical Institute, Sweden. Most of the documents, books, articles in journals, papers in conference proceedings, reports, theses, ets, referred to in the database are available in the SGI Library.

Link to more information on the Database (Information sheet):

- http://www.swedgeo.se/upload/SGI-tjanster/pdf/SGILine-english-2007.pdf

## QuadSearch

- http://delab.csd.auth.gr/~lakritid/index.php?lan=1&s=2

QuadSearch are metasearch engines that are web services designed to transfer the user's queries to multiple existing search engines. A metasearch engine does not maintain its own index of documents.

It collects and reorganizes the result lists (top-k lists), then it returns the processed data to the user. Compared to a classic single search engine, a metasearch engine offers increased web coverage, improved retrieval effectiveness, effortless invocation of multiple search engines.

## ICE Virtual Library

The ICE Virtual Library hosts all the content from ICE Publishing, the publishing division of the Institution of Civil Engineers (ICE).

This site is an online journal service. It provides the opportunity to stay on top of cutting-edge issues in all aspects of civil engineering with papers and articles. It contains large amount of civil engineering journals. All Proceedings of the Institution of Civil Engineering journals are listed on this site. Abstracts and table of contents are freely available to all.

- http://www.icevirtuallibrary.com/content/journals

# Geotechnical software sites

The following sites contain geotechnical software's indispensable to geotechnical engineers.

### http://www.usucger.org

This site's mission is to provide advocacy for the continued development and expansion of high quality geomechanical, geotechnical and geo-environmental engineering research and education which will enhance the welfare of humankind.

### http://alert.epfl.ch

The Alliance of Laboratories in Europe for Research and Technology (ALERT) "Geomaterials" has been created to develop a European School of Thinking in the field of the Mechanics of Geomaterials. The generic name "Geomaterials" is viewed as gathering together materials, whose mechanical behaviour depends on the pressure level, which can be dilatant under shearing and which are multiphase because of their porous structure.

### http://www.geoengineer.org

The site started as a personal effort to provide useful information for engineers, students, and academia by taking advantage of the opportunities provided by the internet. Consecutively, it provides a cost-free resource for the engineers to learn about the latest news in their field and keep up with the progress of research.

### http://www.ascelibrary.org

In this site you can find and download full-text civil engineering research and applications-oriented articles. You can choose only the content you need from across a universe of 260,000 pages of content; journal papers from 1993 to present, proceedings papers from 2003 to present, 28,000 articles-4,000 new articles added each year. You can quickly have the information thru Research Library gold Card.

## Other Links:

**The Engineer Explains** http://engineerexplained.com/VincentChuColumn/#T1

**Ask An Expert** http://engineeringcivil.com/ask-an-expert

**Ask a Civil Engineer** http://aboutcivil.com/answers/

**RockWare** http://www.rockware.com/home/lobbyMod.php?id=3&mod=industry

**SoilVision Systems** http://www.soilvision.com/

**GAEA Technologies** http://www.gaea.ca/

**TAGAsoft** http://www.tagasoft.com/TAGAsoft

**GEO-SLOPE** http://www.geo-slope.com/

**Geotechnical Software Resources** http://www.ejge.com/GVL/soft-gvl.htm

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| 4. | | Proceedings of the International Symposium on Geotechnical Aspects of the Suvarnabhumi Airport Thailand | 50 | 10 | 20 |
| 5. | | Proceedings of the 15th Southeast Asian Geotechnical Conference, 22 to 26 November, 2004, Bangkok (Vol. I = 1,000 pages/ Vol.2 = 210 pages) | 100 | 21 | 29 |
| 6. | | Proceedings of the Malaysian Geotechnical Conference 2004, The Institute of Engineering Malaysia, 16-18 March 2004 (524 pages) | 100 | 14 | 21 |
| 7. | | Proceedings of the 14th Asian Regional Conference on Geotechnical Engineering Meeting Society's Needs, Hong Kong, 10-14 December 2001 (2 Volumes) | 100 | 10 | 15 |
| 8. | | Proceedings of the GEOTECH-YEAR 2000, Developments in Geotechnical Engineering, Bangkok, Thailand, November 2000. All Volumes. | 100 | 16 | 22 |
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| 11. | | Proceeding of the 30th Year Anniversary Symposium on Deep Foundations, Excavations, Ground Improvements and Tunneling, Bangkok, Thailand, 03-07 November, 1997. 645 pages. | 100 | 16 | 22 |
| 12. | | Proceedings of the 12th Southeast Asian Geotechnical Conference and the 4th International Conference on Tropical Soils, Kuala Lumpur, Malaysia, May 1996. Vol. 1 (618 pages), Vol.2 (332 pages). | 80 | 21 | 29 |
| 13. | | Proceedings of the 11th Southeast Asian Geotechnical Conference, Singapore, March 1993. Hard bound (864 pages). | 80 | 16 | 22 |
| 14. | | Proceedings of the Symposium on Developments in Geotechnical Engineering (From Harvard to New Delhi, January 1936-1994) Bangkok, Thailand. (694 pages). | 80 | 10 | 15 |

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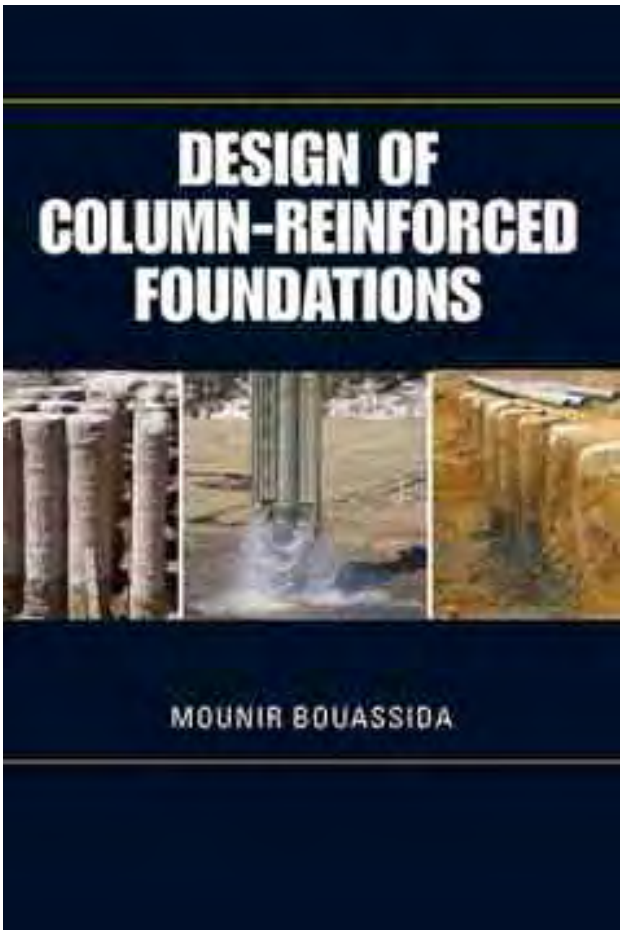


**Prof. Mounir Bouassida** (University of Tunis El Manar, Tunisia), member of the editorial committee of the SEAGS journal published the book referenced:

**Bouassida M. (2016). Design of Column-Reinforced Foundations. J. Ross Publishing (FL, USA), August. 224 pages. ISBN: 978-1-60427-072-3.**

This book addresses the design of foundations on reinforced soil by columns within a general framework where several aspects are taken into consideration: modeling of reinforced soil, bearing capacity, settlement, acceleration of consolidation, and improvement of soil characteristics with selected case histories. Unlike existing books on unique improvement techniques (deep soil mixing, stone columns, sand compaction piles) that focus on installation and equipment issues, this one-of-a-kind guide details design purpose. It is an important work for all in the geotechnical field, including practitioners, academics, and students.

Key features of this book and authors information are available via the link:
http://www.jrosspub.com/design-of-column-reinforced-foundations.html

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- Analysis of the behavior of reinforced soil by columns, carried out by finite element and finite difference codes, subjected to various vertically loaded structures, shows the effectiveness of floating columns that can be adopted for reinforcement of thick compressible deposits
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# SOUTHEAST ASIAN GEOTECHNICAL SOCIETY (SEAGS)

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**Secretary-General:** *Dr. Noppadol Phienwej*

**Editor-in-Chief of**
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