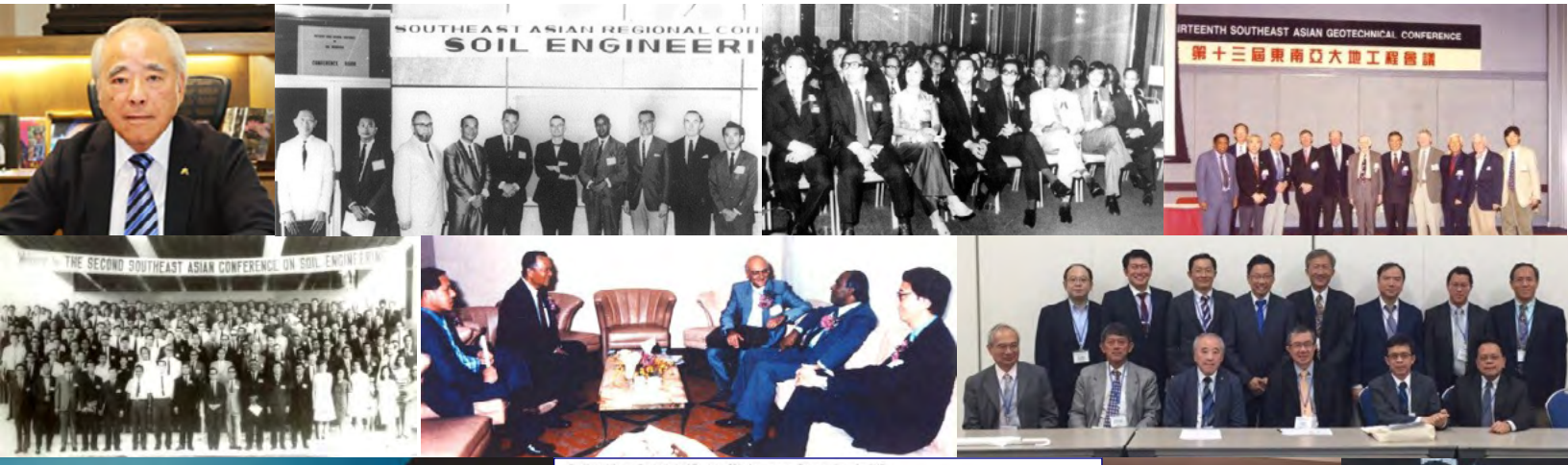
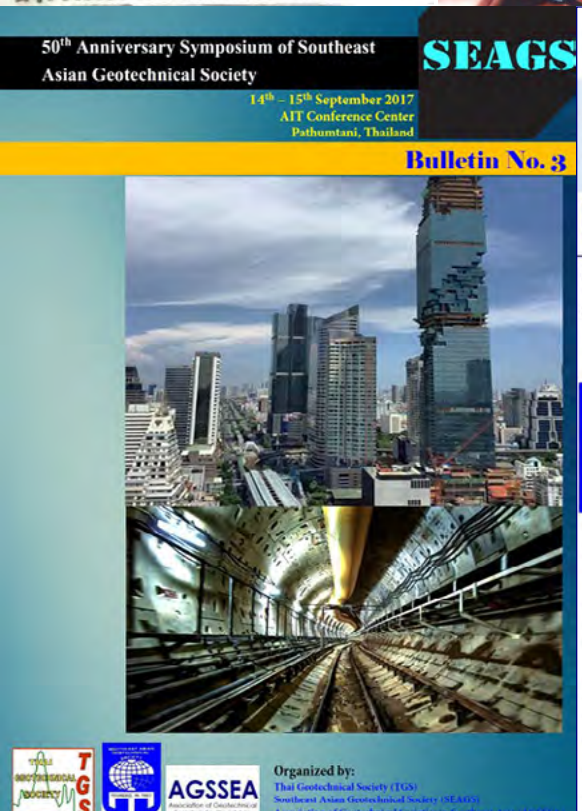
AUGUST 2017 NEWSLETTER

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





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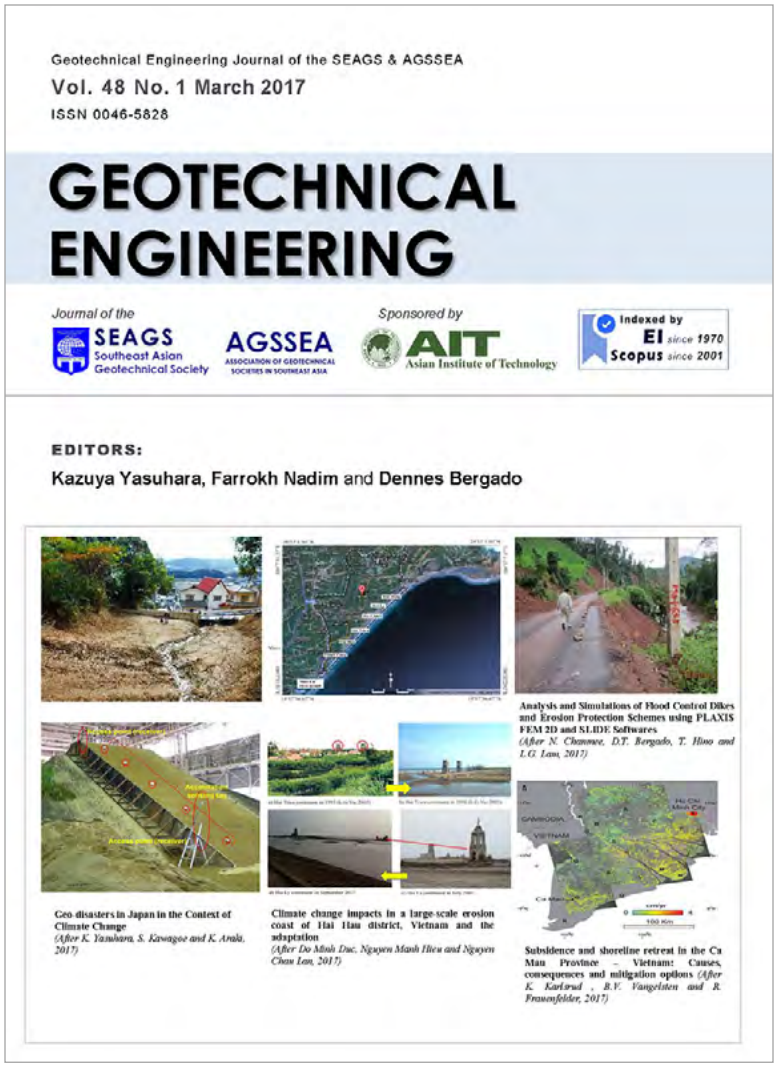
CLIMATE CHANGE, ENVIRONMENTAL GEOTECHNICS AND GEO-HAZARDS

EDITORS

Kazuya Yasuhara,

Farrokh Nadim and

Dennes Bergado



PREFACE

There are fourteen papers in this Issue edited by Yasuhara, Nadim & Bergado. The first paper is by Yasuhara et al on Geo-disasters in Japan in the Context of Climate Change. The authors say: Japan is an area affected strongly by land surface upheaval and by climate change instability. Background evidence of increasing and magnifying geo-disasters includes the following: (i) frequent and extremely severe torrential rainfall; (ii) high and increasing frequency of strong earthquakes (5+ and 6- as the Japan Meteorological Agency seismic intensity scale); and (iii) typhoons with magnified damage effects. Based on a review of that information stated above, an attempt has been made to overview the present situation and future trends of geo-disasters in the context of climate change and to present possible adaptive measures against disasters. Particularly, emphasis is assigned to the importance of the combined effects of plural events, which increases the probability of extreme events, sometimes triggering devastating consequences. Adaptive measures against climate change-associated geo-disasters are presented by classification into software and hardware. Special emphasis is devoted to the availability of information and communication technology (ICT) and information, communication and robot technology (ICRT) involving devices such as IC-sensors and un-crewed vehicles (UAV, drones), which are useful in early warning systems and in simple monitoring systems.

The second paper is by Do Minh Duc et al on climate change impacts in a large-scale erosion coast of Hai Hau district, Vietnam and the adaptation. It seems among the effects of global warming, sea level rise (SLR) and severe typhoons pose the greatest threat to the stability of human settlements along coastlines. Therefore, countermeasures must be developed to mitigate the influences of strong typhoons and persistent SLR for coastal protection. This study assesses climate change impacts on coastal erosion, especially in two projected SLR scenarios of RCP2.6 and RCP8.5. The results show that SLR and severe typhoons lead to the increase of coastal erosion, beach lowering and scour.

Moreover, as in projected SLR scenarios, average waves in high tide can cause severe soil erosion at inner slopes and lead to dyke failure by 2060. The paper highlights the need for additional geotechnical engineering measures to protect the coast of Hai Hau district against SLR and severe typhoons. Among the alternatives available for countering these threats, applying soil stabilization and soil improvement combined with geosynthetics are promising strategies for coastal structures. Hybrid structures can be used with earth reinforcement and soil improvement. Additionally, the paper emphasizes the importance of multiple protective adaptations, including geosynthetics and ecological engineering measures against climate change-induced severe erosion on the coast of Hai Hau district.

Karsrud et al in the third paper described subsidence and shoreline retreat in the Ca Mau Province – Vietnam: Causes, consequences and mitigation options: The authors say in the past decades, the Ca Mau province located at the southern end of Vietnam, has experienced significant land-loss. Satellite data suggest that a loss of land, or a retreat of the shoreline, ranging from about 100 m to 1.4 km have occurred over the past 20 years or so. In addition to the retreating coastline, the Ca Mau coastline has experienced loss of mangrove forests and salt-water intrusion into canals and rivers in the region. A study undertaken in collaboration between Vietnamese and Norwegian institutions has tentatively concluded that the main cause of the land-loss is subsidence of the ground surface as a result of ongoing groundwater pumping. The experienced land-loss may be further enhanced by a climate change related sea-level rise. Large parts of the land area in Ca Mau lie less than 1.5 m above sea-level. The subsidence settlements may already have reached 40 to 80 cm in some places, and the present subsidence rates may correspond to 2-4 cm/year. Recent satellite based data using In SAR technology (Interferometry Synthetic Aperture Radar) confirm that significant subsidence is on-going in all provinces in Vietnam from Ho Chi Minh City and southwards. If no actions are taken soon, the implication will be that these provinces are lost to the sea within a time frame of a few decades.

The only realistic way to prevent such subsidence settlements is to greatly reduce groundwater pumping in the area, and replace it with water from other sources. Also in light predicted climate-change related sea-level rise, some physical barriers may also be required to protect the region against flooding. It is recommended to immediately initiate an observational program and supplementary analyses to verify the present and future subsidence of the ground surface in Ca Mau. This is to ensure that remedial actions are planned for and implemented before it is too late.

In their paper (fourth one) Yahaya et al present rainfall erosivity variability for Penang Island in Malaysia. Rainfall erosivity considers the rainfall amount and its intensity. This is an important parameter for soil erosion risk assessment under future land use and climate change. Comparisons of all climatic parameters show that rainfall is directly involved in the loss of soil quality during torrential rain. The effect of rainfall erosivity in Northern part of Malaysia was considered for two stations, Bukit Berapit and Air Itam. Monthly as well as annual rainfall was obtained from the Department of Drainage and Irrigation, Malaysia for thirty years (1983-2012). Trends analysis of the rainfall data were obtained for 30 years that shows trends for mean annual rainfall. This was conducted using Mann-Kendall trend analysis and Sen's slope tests. Trend analysis shows that there is negative significant difference in mean annual rainfall for the studied period for Air Itam. The Fournier indexes were used to determine the effect of extreme rainfall events towards soil erosivity. Bukit Berapit recorded 3.33% cases of severe impact using Fournier index and 13.33% cases of high impact using modified Fournier index. The result shows that there is a relationship between rainfall trends and soil erosivity.

The fifth paper is on the influence of increased precipitation on the transient seepage through levees during flood events. This paper is by Scheurmann et al. The transient seepage through levees during a flood event depends on several factors, such as the initial water content condition within the levee as a result of former flood and precipitation events which is frequently neglected. Results of ex-

perimental and numerical investigations are presented which show the importance of the initial water content distribution on the resulting transient seepage. Analytical methods for calculating the transient seepage through levees are introduced. The modified method after Brauns (1999) allows for the determination of the seepage through levees under consideration of partly saturated conditions. The initial conditions for the transient seepage can be chosen based on simple considerations related to the field capacity or the effective infiltration of water due to precipitation.

Hazarika in his paper sixth in the series discuss the use of low carbon and low cost (LC2) Materials in climate change adaptation measures. Material recycling of waste tires, which reduces the release of greenhouse gases, for protecting coastal structures from potential natural hazards is proposed here. A new technique using waste tires behind sea walls to protect them from the damage due to impact force of tsunami is described. Cultivation of suitable plants inside the tires was proposed and field tests on planting trees that can grow in saline soil conditions were performed to see whether tire structures can preserve the greenery of the area. A physical model for tsunami impact force simulation was also developed to evaluate the reduction effect of tsunami impact force by the tire structures. Results of this research, if implemented, is not only expected to contribute towards economic countermeasures against natural hazards, but also will go a long way towards providing a sustainable solution for infrastructure development in the future.

Lee et al are the authors of the seventh paper on performance monitoring of bridge foundations under multi-hazards. In an effort to proactively monitoring the safety of bridge foundations so as to probe the possible performance of bridge foundation during natural hazards such as floods, debris flows, rainstorms, and typhoons, an intelligent monitoring system was developed by the authors and had applied to several bridges. In this paper, theoretical background and development will be firstly described. Two case histories will then be presented to describe performance of bridge foundation during natural hazards. Such information will be also further discussed by integrating environment factors such as rainfall amount and flow velocity. Research progress presented in this paper is hoped to be helpful in understanding performance of bridge foundation during hazards so as to provide insights of pre-warning of bridge safety.

The eighth paper by Chanmee et al is titled analysis and simulations of flood control dikes and erosion protection schemes using PLAXIS FEM 2D and SLIDE computer softwares. In 2011, Thailand has suffered from devastating flooding due to climate change. During this time, 2 typhoons from the Pacific area went straight across Vietnam to Northern Laos and Northern Thailand instead of the usual path to Taiwan and Japan. Subsequently, huge flooding damaged many infrastructures and overtopped flood protection dikes of many industrial estates and educational institutions in the Central Plain of Thailand such as at Hi-Tech Industrial Estate, Bang Pa-In Industrial Estate, Navanakorn Industrial Estate and Asian Institute of Technology. The same phenomenon also occurred in Laos PDR which caused unusually heavy rains and widespread river flooding in 2011.

Consequently, slope failures occurred along National Road 1B (NR 1B) in Pongsaly Province in Northern Laos due to undercutting erosions at the lower slopes by the adjacent flooded river. To evaluate the stability of these protection structures, finite element and limit equilibrium methods were utilized. PLAXIS 2D software was used to analyze the slope stability of improved flood protection dikes and erosion control schemes at low and high water levels incorporating the various supporting and reinforcing materials such as geosynthetics, concrete sheet pile and concrete slab. Moreover, the PLAXIS 2D software was also utilized to predict the vertical deformations (settlements) of improved flood protection dikes in cases of additional embankment height and at different cases of flood water levels. In addition, the SLIDE software was used to predict the value of the factor of safety by using limit equilibrium method for the improved flood protection dikes and erosion control schemes.

In the subsequent paper nine in the series Araki et al deal with arresting rainfall-induced red soil runoff in a farmland by inhibitory adaptation measures. Climate change-induced red soil erosion in Okinawa of Japan has become widely recognized due to the increased frequencies of heavy rainfall. Approximately 85% of runoff from farmland is accounted as a source of the red soil erosion. In this study, field experimental plots were conducted in Ginoza village in Okinawa to investigate the effectiveness of potential adaptation measures in arresting the red soil erosion. A physical model for estimating a sediment volume of soil erosion was derived based on grain size distribution. The maximum particle sizes were derived as a function of rainfall intensity, initial soil conditions and strength parameters of the surface soil. The measured maximum particle sizes of the discharged red soil were agreed well with the model results and could offer the basis for determining an appropriate method of adaptation based on geotechnical aspect.

Umino et al in the tenth paper deal with iron and steel slag properties and mechanisms for carbon dioxide fixation in a low-carbon society. The paper presents carbon dioxide (CO2) fixation properties of an iron and steel slag containing calcium, in order to contribute to a geotechnical application for the formation of a sound material-cycle society and a low-carbon society. To investigate the properties of CO2 fixation, CO2 fixation tests with constant flow were conducted. Results show that when the CO2 concentration 4500 μL-CO2/L was flowed in a specimen by 0.05 L/min, for a non-aged steelmaking slag, the amount of CO2 fixed was the maximum: 0.04 g- CO2/g-slag. The amount of CO2 fixed in the steelmaking slag resulted from about 20% of soluble calcium in the chemical reaction. Therefore, it is possible that the quantity of CO2 fixation can be evaluated from the viewpoint of the mechanism of CO2 fixation using the quantity of water soluble calcium.

Kusakabe et al in the eleventh paper deal with the development of gross national safety index for natural disasters. After the Great East Japan Earthquake on March 11, 2011, it appeared that Japan was extremely vulnerable to natural disasters and lack of adequate social systems for mitigating natural disasters. The authors advocated a need for the development of safety index systems for natural disasters for policy makers and decision makers to prioritize mitigation measures to be implemented. The World Conference on Disaster Reduction in Kobe in 2005 adopted the Hyogo Framework for Action, which clearly states the urgent need for developing vulnerability index. An extensive literature survey was firstly conducted to find out the State of the Art regarding to the development of systems of indicators of disaster risk and vulnerability at national and sub-national scale. The survey indicates that the system of indicators such as World Risk Index (WRI) is widely accepted. By modifying the WRI index, a new index named GNS (Gross National Safety for natural disasters) was developed in this study. Risk in GNS is defined by Hazard x Exposure x Vulnerability. Five natural events are considered in 2015 version of GNS, including earthquake, tsunami, storm surge, sediment related disaster event, and volcanic activity. An initial calculation was carried out by using various big data available open to public. The results of disaster risk and vulnerability are presented in the prefectural scale in Japan. Our intension is not to provide the ranking of GNS but to offer the policy and decision makers a piece of scientific information for selecting highest priority measures for mitigation in a rational manner. A few commentary remarks are added to include the impact of climate change on natural disasters in the safety index system.

The twelfth paper by Yuan et al. describes the flooding hazards and potential risks due to heavy rain and sea level change in Shanghai, China. Current sea level change is mainly induced by global warming which is believed to increase the sea level if sustained for a sufficiently long period of time. Many coastal cities around the world have suffered adverse effects as a consequence of sea level change. Shanghai is a coastal city which is located on the estuary of the Yangtze River with an elevation ranging from 3 to 4 m. Its geological and climatic conditions make the city sensitive to flooding risk caused by heavy rain and sea level change. This paper analyses the recent sea level change and heavy rainfall in Shanghai. Regional rates of sea level change can be divided into i) the rate of eustatic sea level change; ii) tectonic movement of the continent; and iii) land subsidence in Shanghai. A correlation analysis shows that the number of local torrential rains and short duration torrential rains correlates with sea level change. In-

cidents including pluvial flooding, sea water intrusion and potential damage to coastal structures will be more serious if the rate of sea level change continues to rise. To protect the environment and to control economic losses, more countermeasures should be established to prevent the potential hazards.

The thirteenth paper by Soralump and Chaithong is on the modeling impact of future climate on stability of slope based on general circulation model. Slope failures are one of geo-hazard which are one of the most dangerous and occur very often. Climate is an important role in stability of slope. In many cases rainfalls induce slope instability and lead to slope failure or landslide whereas evaporation might stabilize slope. Climate change due to greenhouse effect and global warming might affect precipitation and evaporation patterns in the future and influence future slope failure. Therefore, the paper proposes a method for assessment impact of climate change on slope failure occurrences based on general circulation model (GCM). Methodology combines between climate scenarios as a result of general circulation model and modified critical antecedent precipitation index model. GCM results are downscaled with dynamical-statistical technique to derive local climate. Analysis found that trends of susceptibility of soil instability vary and depend on climate in each year period.

The fourteenth paper by Ghosh and Pal describes the geotechnical measures for Uttarakhand Flash Flood in 2013 in India. In many "Run of the River" hydro-electric projects in the four main states of northern India have been frequented by "Cloud Burst" induced flash flood since 2003, which is primarily attributed to climate variability and land use pattern changes. Given the ageing population of vulnerable constructions along the hilly terrains, safety issues require more attention in the form of technical auditing cum inspections, routine monitoring, emergency drills, surveillance systems, and regularly updated emergency action plans. In addition to these accelerated events of "cloud burst" induced flash flood in the hilly region has opened up Dam safety issues, which are debated in the court of law for which geo-professional intervention have to be looked into. The climatic and other geo-morphological changes that might have caused Uttarakhand Flash Flood in 2013 are explained. Damages to the geotechnical structures in the form of excessive erosion, landslides, siltation of catchment area of several Dams in Uttarakhand state of India are described with some illustrations of landslide mitigation by indigenous bio-engineering solution as one the means of rehabilitation measures.

Editors:
Kazuya Yasuhara,
Farrokh Nadim and
Dennes Bergado

ACKNOWLEDGEMENT

Fourteen papers on Climate Change & Geotechnics are contained in this Issue. No doubt the material contained herein would be most valuable to our profession. The editors have adequately described the contributions in the preface. They are to be congratulated for these contributions.

Dr. Teik Aun Ooi
Prof. San Shyan Lin
Prof. Kwet Yew Yong
Dr. Noppadol Phienwej
Prof. A. S. Balasubramaniam

Kazuya Yasuhara

Kazuya Yasuhara is Professor Emeritus of Ibaraki University in Japan; His academic career started in Kyushu University where he was from 1968 to 1978, earning a Doctoral Degree as well. He was then a Professor at Ibaraki University from 1990 to 2007. Prof Yasuhara was the International Project Coordinator at the Institute of Global Change Adaptation Science from 2010 to 2015. He was also a Review Editor for IPCC AR 5 from 2010 to 2014. Since 2015, Prof. Yasuhara is a Specially appointed researcher at Ibaraki University.

Prof. Yasuhara was at University of Illinois Urbana- Champaign in Illinois, USA from 1979-1981 and was a Post Doctorate Research Fellow at the Norwegian Geotechnical Institute from 1986 to 1987. Prof. Yasuhara was the recipient of several prestigious awards: ASCE Best Paper Award in 1999; JGS Award for Meritorious Service in 1999; Groundwater Science and Technology Award (IAHR) in 2000; JGS Award for the Best Research Achievement in 2004; Best Paper Award from Japan Chapter of International Geosynthetics Society in 2006; and JGS Meritorious Research Award for Ground Environment in 2008. His current research interest is in Climate change-induced compound geo-disasters in Asia-Pacific regions and their adaptation countermeasures against earthquake-induced settlements of infrastructures. Prof. Yasuhara is the author of a very large number of publications in this field and others in Geotechnics.

Farrokh Nadim

Dr. Farrokh Nadim is the director of the Centre of Excellence, the “International Centre for Geohazards” (ICG), at the Norwegian Geotechnical Institute (NGI). He has a BSc in structural engineering from Sharif University of Technology in Iran, and MSc and ScD degrees in civil engineering from Massachusetts Institute of Technology (MIT). Dr Nadim came to NGI in 1982 on a post-doctoral fellowship and joined NGI as a fulltime employee in 1984. His major fields of work are related to landslides and geohazards, risk and reliability analysis, geotechnical earthquake engineering, behaviour of geotechnical structures under cyclic and dynamic loading, and offshore foundation engineering. He is author or co-author of over 80 scientific publications, and Chair of Technical Committee 32 of ISSMGE: “Engineering practice of risk assessment and management”. Since 2003 Dr Nadim has been an adjunct professor at both the Norwegian University of Science and Technology (NTNU) and University of Oslo (UiO).

Dennes Bergado

Prof. Bergado (Dennes) was in the Geotechnical Engineering batch that graduated from AIT in 1976. After working for a while in Philippines, Prof. Bergado studied at Utah State University in USA on a Full Bright Scholarship and worked with Prof. Loren Anderson. Prof. Bergado joined AIT as an Assistant Professor in 1982. At AIT in the early years Prof. Bergado was involved with many major Sponsored Research Projects including the USAID Funded Welded Wire Mechanical Stabilized Earth and Geosynthetics in Embankments on

Soft Clays. Prof. Bergado was also deeply involved with the PVD Soft Ground Improvement Project at the Second Bangkok (Suvarnabhumi) Airport Site with the Airport Authority of Thailand. The Doctoral Students of Prof. Bergado were: Prof. Shivashankar, Prof. Chai, Dr. Long, Dr Panich, Dr Lorenzo, Dr Sompote, Dr Lai, Dr Abuel-Naga, Dr Chairat, Dr. Pittaya, Dr Jaturonk, and Dr Tawatchai to name a few. He successfully supervised a total of 17 doctor and 160 master graduates. Prof. Bergado wrote 2 books in soil/ground improvement, edited 22 conference proceedings with more than 140 journal and 280 conference papers. Prof. Bergado also edited the Volume on Geotechnical Engineering in SE Asia for the Golden Jubilee Conference at San Francisco in 1985. Prof. Bergado was associated with the Southeast Asian Geotechnical Society from the time he joined AIT, earlier as Editor of the Journal (1996-2000) and later became the Secretary General of SEAGS (2001-2012). He also initiated the Asian Center for Soil Improvement and Geosynthetics (ACSIG) and founded the International Geosynthetics Society (IGS)-Thailand Chapter. Currently, he is serving his second term as elected member of the IGS International Council. Prof. Bergado spent his Sabbatical at Saga University.

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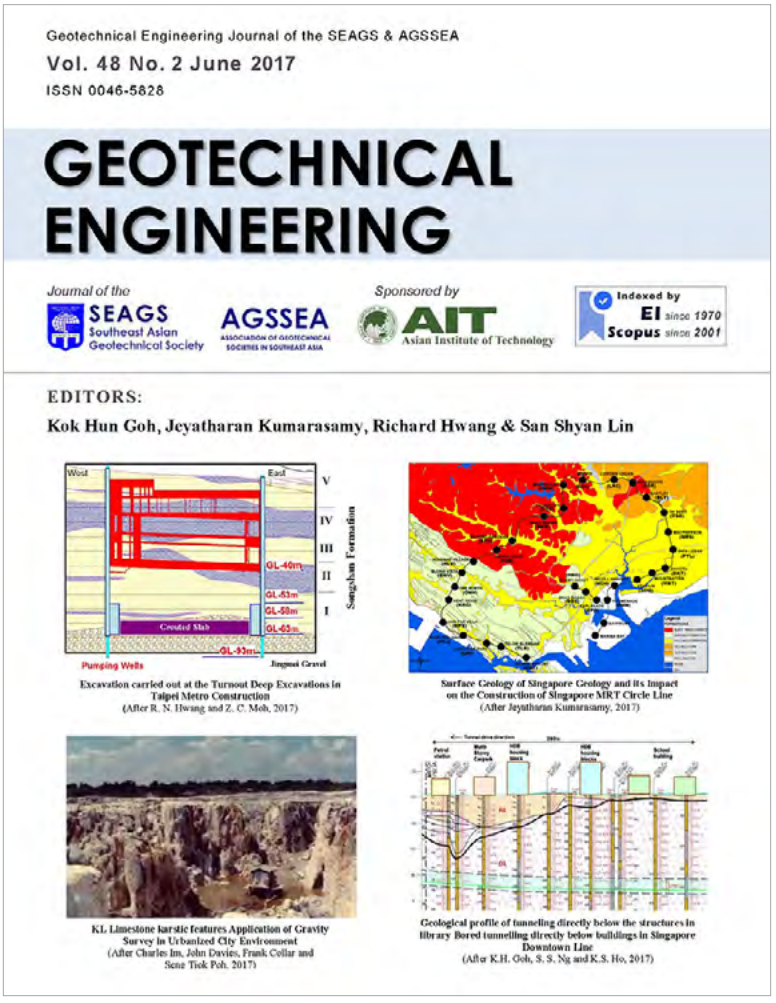
PAPERS ON MASS TRANSIT PROJECTS & ALSO CONTRIBUTED PAPERS

EDITORS

Kok Hun Goh,
Jeyatharan Kumarasamy,
Richard Hwang &
San Shyan Lin



PREFACE

There are seventeen papers in this Issue; the first twelve are papers edited by the Guest Editors: Kok Hun Goh, Jeyatharan Kumarasamy and Richard Hwang on Mass Transit Projects; additionally there are five contributed papers processed by our in-house editors.

The first paper is by R. N. Hwang and Z. C. Moh on Deep Excavations in Taipei Metro Construction: Discussed herein are the geological features of the Taipei Basin relevant to the construction of Taipei Metro and the deep excavations carried out with emphasis on back analyses of wall deflections. The excavation at the crossover next to G17 Station of the Green Line is adopted as an example to illustrate the applications of wall deflection paths and reference envelopes. The importance of calibrating inclinometer readings to account for the movements at the tips is confirmed by numerical analyses; and the assumption that movements at the joints between the struts at the first level and the diaphragm walls would be negligible in subsequent stages of excavation once these struts are preloaded is verified. Furthermore, it is proved that the concept of wall deflection path

is very useful to quantify the influence of various factors, e.g., the depth and width of excavation, wall length, preloads of struts, and the thickness of soft deposits, on the performance of diaphragm walls.

The second paper is by Dazhi Wen on the Development of Reinforced Concrete Segmental Lining Design for MRT Bored Tunnels in Singapore: Reinforced concrete segments are commonly used as tunnel linings for bored tunnels constructed by tunnel boring machines (TBM). This paper describes the development and evolution of the segmental lining design from the Phases I/II of the Singapore Mass Rapid Transit (MRT) construction in the 1980s to the current design for the MRT lines under construction. The topics include the general arrangement of the segmental linings, structural design requirements, durability requirements, fire resistance and selection of waterproofing materials of the linings. The design and construction of bored tunnels in close proximity is presented with the experience gained in the past projects. Fire tests conducted by the Land Transport Authority are also presented. The rational, experience and challenges of adopting steel fibre reinforced concrete segments in recent MRT projects are discussed in the paper. The paper also presents in detail the experience gained in Singapore MRT projects in selecting the gaskets for waterproofing of the joints between segments to achieve the durability requirements for the bored tunnels.

In the third paper, Jeyatharan Kumarasamy described the influence of Geology and its Impact on the Construction of Singapore MRT Circle Line: The Circle Line (CCL) is a fully underground railway line in Singapore connecting the inner suburban areas of the city. It is 39.5 km long with 34 stations and built in six separate packages. Site investigations comprising boreholes, CPTs and geophysical surveys for the project were carried out in various phases to reveal ground conditions along the route in order to determine the most appropriate construction methods. Extensive field and laboratory testing were also carried out to establish geotechnical design parameters. This paper summarises geological conditions encountered along the CCL route and highlights the effect of geology on selected construction methods.

In their paper (fourth one) K.H. Goh and Y. Zhang discussed the issues related to Constructing the cut-and-cover tunnels and bored tunnels of the Singapore Downtown Line: The Downtown Line (DTL) is a major MRT line under construction after the completion of the Circle Line in Singapore. This paper discusses the ground conditions for the DTL and how it influenced the selection of the support systems adopted for the excavation for the stations which are constructed using cut-and-cover method, and also the selection of tunnel boring machines for the bored tunnels. The key features of the temporary support systems were presented together with their performance in terms of ground movements and ground water table drawdown. Issues encountered during the excavation, in particular for DTL Stage 2 in the soils and rocks of the Bukit Timah Granite Formation was also presented in the paper and the effectiveness of various measures implemented will be discussed based on the experience and observations during the construction. The key features and parameters of all the earth pressure balanced and slurry TBMs used in different DTL contracts were also presented and compared.

The fifth paper is on Bored tunnelling directly below buildings in Singapore Downtown Line by K.H Goh et al: One of the specific challenges faced in undertaking underground infrastructure developments is the construction of bored tunnels directly below buildings. This paper reports the experiences of bored tunnelling directly below several buildings in the recently implemented Downtown Line project, including case studies with details such as the structural system and foundation details of the buildings, ground condition, geometry and clearance between the building foundation and the tunnelling works, as well as instrumentation monitoring results of ground and building settlement during tunnelling. It is hoped that these cases could be used as references in the design of future bored tunnelling works; to give greater confidence that tunnelling directly below buildings can be carried out without affecting the buildings so long as appropriate tunnelling controls are taken to mitigate ground deformation issues.

In the sixth paper, Charles Im et al presented the Application of Gravity Survey in Urbanized City Environment: Subsurface information and geotechnical data are required during the planning, development and design stages of all construction projects particularly where major components are supported on or in the earth and underlying rock. An understanding of the basic site geology is also necessary for the proper planning of the ground investigation works. Consequently, the geological features that will affect the design and construction of the project must be investigated and evaluated as much as possible within the allowable project timeframe to ensure successful implementation of the project. This paper presents an overview of the authors' experiences in using Gravity Survey, as a reconnaissance ground investigation method to identify areas of enhanced ground risks, in the complex variable and unpredictable Kuala Lumpur Karstic Limestone formation during the underground reference design stage of the Klang Valley Mass Rapid Transit Line 2 (SSP Line) in Kuala Lumpur, Malaysia. This paper also presents some lessons learnt of the past in the region, and what were the specific measures that had been strictly implemented on this occasion to ensure quality results can be derived from the Gravity Survey within the urbanized city environment and meet the objectives of the survey.

M. Kawasaki et al are the authors of the seventh paper on Water Sealing by Wire Brush with Grease for Pneumatic Caisson Method at Great Depth Underground: Pneumatic caisson method can be widely applied to various ground but suffers from a limitation on the applicable depth due to the work under high atmospheric pressure. To overcome the problem, the pneumatic caisson method employing an unmanned excavation method with helium mixed gas has been developed. However, the new technology of the pneumatic caisson method will be required to construct a vertical shaft for urban tunnels at great depth underground space. Therefore, applying water-sealing technique at shield tail to friction cut space around pneumatic caisson wall, a method to reduce atmospheric pressure in a working chamber at the ground with low permeability has been proposed. This research carried out the element tests to examine the water-sealing performance of the proposed method, and discussed the influence of some properties on water-sealing performance and its mechanism. As a result, it was confirmed that the proposed method can keep the grease pressure of 1 MPa for one hour.

The eighth paper by N. Som and is entitled Geotechnical Challenges of Kolkata Metro Construction: The paper gives an account of the Kolkata Metro construction which included the first underground railway for mass rapid transit system of an Indian city. Construction was started in 1975 and the first line of the metro covering a length of 17 km was opened in 1984. Thereafter construction had been taken up in phases. Currently Kolkata metro construction includes an ambitious package of 140 km of underground, at grade and viaduct stretches. Construction has to be done in very difficult condition through congested urban areas which includes a tunnel below the Ganga river. Resource crunch and construction through heavily built-up urban land extended the period of construction but modern design techniques and field instrumentation have helped to ensure high quality work in densely populated urban centre.

In the ninth paper, Gerardo Agustin Pittaro deals with the use of pressure relief wells to optimize ground improvement layer thickness in deep excavations: Deep excavations in soft ground often need stabilization with ground improvement (GI). One of the methods to improve the ground is to use Jet Grouting Piles (JGP) or Deep Soil Mixing (DSM). JGP and DSM are achieved by mixing the soil with cement and water, generating a structure that performs well under compression forces but not under tension forces. These ground improvement blocks provide larger passive resistance thereby reducing wall displacements. Due to the above mentioned one of the necessary requirements for successful design is that no tension forces are allowed in any zone of the ground improvement block. This paper discussed how pressure relief wells inside the excavation are used in order to decrease the tension strains in the ground improvement block. In order to demonstrate this, 2D numerical analyses were performed.

C. Veeresh and K.H. Goh in the tenth paper discussed about Bukit Timah Granite Formation - Engineering Properties and Construction Challenges: The Bukit Timah Granite Formation is one of the oldest geological formations in Singapore and is found mostly in the central and northern parts of Singapore. A major section of Singapore's underground metro construction passes through the Bukit Timah formation soils, and extensive field and laboratory testing has been carried out on the rock samples. Uniaxial Compressive Strength (UCS) tests have been carried out on hundreds of samples, test results have shown wide variation in the strength and the maximum strength is found to be much higher compared to the previously published data. This paper presents a review of UCS strength of the Bukit Timah Formation, Point Load index tests and correlations which were developed for site specific locations. This paper also reviews the abrasivity of Bukit Timah Granite and factors affecting it. Influence of UCS and other factors on the drilling, coring and excavation rates in Bukit Timah Granite are also presented.

In the eleventh paper and the last one assembled by the guest editors, L.J. Endicott presents the experiences of 41 years of Mass Transit Underground Railways: In 1975 many cities in Southeast Asia were becoming congested and few had underground railways. Now several cities have underground railway systems comprising several lines and many stations, some extend above ground. Currently underground railways are being built or are being extended in many cities in Southeast Asia. Construction projects are often large including several sections of tunnels and stations in one contract. This paper reflects on the early days of pioneering and on some of the changes that have taken place in the planning, design, and construction of underground Mass Transit Systems during the last 41 years.

The twelfth paper as described by by T. N. Huynh, H.V. Pham, M. Sugimoto, Y. Tanaka, H. Ohta and K. Yasui on the Simulation of H&V shield behaviour at sharp curve by kinematic shield model. The paper discusses the restriction of underground space use and the horizontal and vertical variation shield method (H&V shield) was innovated, of which the cross section is changed from horizontal multi-circular shape to vertical one or vice versa. However, this method has never been applied in practice. Therefore, this study aims to examine the H&V shield control method, using the developed the kinematic shield model for H&V shield. As a result, the following were found: 1) the calculated shield behaviour has an overall good agreement with the planned one; 2) the ground displacement is a predominant factor affecting shield behaviour; and 3) the proposed model can simulate the H&V shield behaviour reasonably.

The thirteenth paper (also contributed direct to the in-house editors) by Badee Alshameri, Aziman Madun and Ismail Bakar is the first of the contributed papers edited by San Shyan Lin on Comparison of the Effect of Fine Content and Density towards the Shear Strength Parameters : The improvement of soil strength is very important in the engineering design for the civil and geotechnical projects. However, this improvement can be achieved by improving the shear strength parameters of soil (i.e. shear strength, friction angle and cohesion) by using different techniques (e.g. densify the soil and change the soil composition). This paper will compare between the effects of density and fine content towards the shear strength parameters. Numerous soil samples (i.e. 99 samples) from six soil mixtures of sand-kaolin mixtures were compacted and subjected to direct shear box test to evaluate the effect of density and fine content. The results showed some discordant effects between the density and fine content. While the cohesion increased by the increment of the fine content, it decreased by the increment of the density. However, both of shear strength and friction angle increased to the highest value with the increment of the fine content and density then by further increment in the fine content and density, the shear strength and friction decreased where this behaviour can be explained through the inter-granular void ratio issue. On the other side, even the results showed interface between the effect of density and fine content, but the fine content has more significant effect in the shear strength parameters and also in the soil density value itself.

The fourteenth Paper (also contributed direct to the in-house editors) by Xiao-long Zhou et al is on Shaft Resistances of Jacked Open-ended PHC Pipe Piles: The shaft resistance of open-ended pipe

piles during installation and static loading test plays an important role in the design of pile foundation. One open-ended Pre-stressed High-strength Concrete (PHC) pile instrumented with sensors was jacked to investigate the performance of shaft resistance during installation and loading test. Test results indicated that the shaft resistances gradually transferred along depth during installation, and the magnitude is closely related to soil properties. The shaft resistance at the same depth decrease with jacked cycles. After five jacked cycles, the shaft resistances in sand silt at 6 m depth decreased about 58.8%. The decrement of silty clay at 10 m depth was about 12.1% after three jacked cycles. In the loading test, the shaft resistance of test pile were gradually mobilized from up to down.

P.R. Stott and E. Theron in the fifteenth paper (also contributed direct to the in-house editors) is on the Estimation of Shrink/Swell Potential and Variability of Clays by Small-Scale Suction Tests: The relationship between suction and water content gives crucial information about a soil. Small projects like economic housing do not warrant the time and cost of determining the full soil water suction curve. A considerable range of soil suctions can easily be achieved within a reasonably short time by using small samples, simple suction control and a high precision balance. It appears that in this way it may be possible to estimate heave potential and variability of soil properties at reasonable cost in an acceptable time. Variability assessment appears to offer significant potential for improving the reliability of foundation design on shrink/swell soils.

The sixteenth paper (also contributed direct to the in-house editors) by M. R. Selamat et al is on Pullout Tests on Strips with Anchorage Elements under Low Stresses: The lack of pullout capacity of reinforcement strips often compromised the finishing quality of the mechanically stabilized earth (MSE) structure. In this research, three strips were each attached with 6 anchorage elements of 1cm, 2cm, and 3cm deep respectively in order to enhance the pullout capacities, while another strip was plain. Each strip was subjected to pullout tests under low normal stresses ranging from 1.61kPa to 13.20kPa to simulate shallow embedment in the field. Under the low normal stress of 1.61kPa, the pullout capacities of strips with anchorage elements were enhanced up to 366% of the plain strip capacity; under the higher normal stress of 13.2kPa however, the pullout capacity enhancements were only up to 163% of the plain strip capacity. The results indicate the merit of attaching anchorage elements to strips under shallow overburden in a MSE structure and the significant increase in pullout capacity achievable by such strips.

The last paper of this Issue is seventeenth (also contributed direct to the in-house editors) by Li Changhong, Zhou Xiaolong, Zhang Long,Wei Xiaoming and Li Wanling on Numerical Simulation Analysis and In-situ Monitoring of Long and Narrow Deep Foundation Pit. The authors studied the characteristics of long and narrow deep foundation pit. The displacement distribution of X-axis with different length-width ratios of 1:1, 2:1 and 3:1 were analyzed and then the displacement distribution of Y-axis at the slope bottom and the displacement distribution of Z-axis at the foundation bottom were studied. The different displacement distribution law of pile-anchor support and soil nailing wall support were analyzed in different excavation processes considering in-situ supporting schemes, and the different supporting effects of the two supporting structures were presented on the stability of foundation pit slope. By comparing the monitoring values at the 32 in-situ positions, the numerical simulation result was basically identical with the monitored data, on average 3mm higher than the measured value. By using MIDAS software, the excavation and supporting process of the foundation pit could be simulated, and it can provide guidance for the construction of long and narrow deep foundation pit and adjust the monitoring period appropriately.

Editors:
Kok Hun Goh
Jeyatharan Kumarasamy
Richard Hwang
San Shyan Lin

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Seventeen papers are contained in this issue. Twelve of them are assembled by the Guest Editors and another five contributed papers directly to the in-house editors. No doubt the material contained herein would be most valuable to our profession. The editors have adequately described the contributions in the preface. They are to be congratulated for these contributions.

Dr. Teik Aun Ooi
Prof. San Shyan Lin
Prof. Kwet Yew Yong
Dr. Noppadol Phienwej
Prof. A. S. Balasubramaniam

Kok Hun Goh

Dr Goh obtained his Bachelor of Engineering and Masters of Engineering from the National University of Singapore, and received his doctorate from the University of Cambridge. He has more than 15 years of geotechnical engineering experience, and has been involved in the design aspects of several road and rail infrastructure projects in Singapore. He is currently a deputy director who looks after the Geotechnical & Tunnels Division in the Land Transport Authority of Singapore. He is registered as a professional engineer in Singapore with specialisation in geotechnical engineering as well as a chartered professional engineer.

Jeyatharan Kumarasamy

Dr Jeyatharan Kumarasamy graduated from Cambridge University, UK (Ph.D. in Soil Mechanics) in 1992 and University of Peradeniva, Sri Lanka with B.Sc. (Eng.) First Class Honours in 1985.

He worked as senior geotechnical engineer for nearly five years with Parsons Brinckerhoff in Singapore Office. Since 2002, Jeyatharan is working with Land Transport Authority (LTA) on several major rail and road underground projects. He currently holds the Assistant Chief Specialist (Geotechnical) position in LTA.

Richard Hwang

Dr. Hwang received his bachelor degree from the National Taiwan University, master degree from North Dakota State University and doctor degree from the University of California at Berkeley. His doctoral research was on soil-structure interaction in earthquakes and he is one of the original authors of the finite element computer programmes FLUSH and QUAD4 for seismic studies. He was manager of Singapore Branch of Kiso-Jiban Consultants, and served as leader of a team of geotechnical engineers serving Singapore Mass

Rapid Transit Corporation, which was later merged to Land Transport Authority, for the Phase 1 construction of the Singapore metro systems. At Moh and Associates, Inc. he led a team serving Department of Rapid Transit Systems providing geotechnical engineering consulting services on the construction of Taipei Metro.

Dr. Hwang is specialized in numerical analyses, foundation engineering, and underground constructions and has authored and co-authored 160 technical papers. He delivered the 7th Geotechnical Engineering Heritage Lecture at Taiwan Professional Engineers Association and received Geotechnical Engineering Heritage Award from Sino-Geotechnics Research and Development Foundation.

San Shyan Lin

Prof. San-Shyan Lin graduated from Chung Yuan University with a BSCE degree in 1981. He then obtained his master degree from Utah State University, Logan, Utah in 1985 and his PhD from Washington University in St. Louis, Missouri in 1992. Before his teaching career at university, Dr. Lin served as an engineer at Taiwan Area National Expressway Engineering Bureau between1992 to1994. Dr. Lin has been serving at Department of Harbor and River Engineering (DHRE) of National Taiwan Ocean University (NTOU) since 1994. He was promoted as a full professor in 2000. Thereafter, he took some university duties by serving as the secretary-general at office of the secretariat between 2001 and 2003; the chairman of DHRE between 2005 and 2006; the acting dean of college of engineering in 2007 and the vice president of NTOU between 2006 and 2012.

Prof. Lin served as a committee member of committee A2K03-Foundations of Bridges and Other Structures of TRB, USA between 1995 and 2004. Currently, he is still serving as a committee member of TC-212 and ATC-1 of ISSMGE and as an editorial board member of four international journals. In addition, Dr. Lin also served as the president of Taiwan Geotechnical Society (2011-2013); Chairman of International Geosynthetics Society- West Pacific Regional Chapter (2002-2004); CEO of Sino-Geotechnics Foundation (2011-2014) etc. Dr. Lin received the distinguished alumnus award from Chung Yuan University in 2009 and the distinguish Engineering Professor Award from Taiwan Pavement Engineering Society in 2011. Prof. Lin's research and practical experiences have been dealt with deep foundations and geosynthetics.

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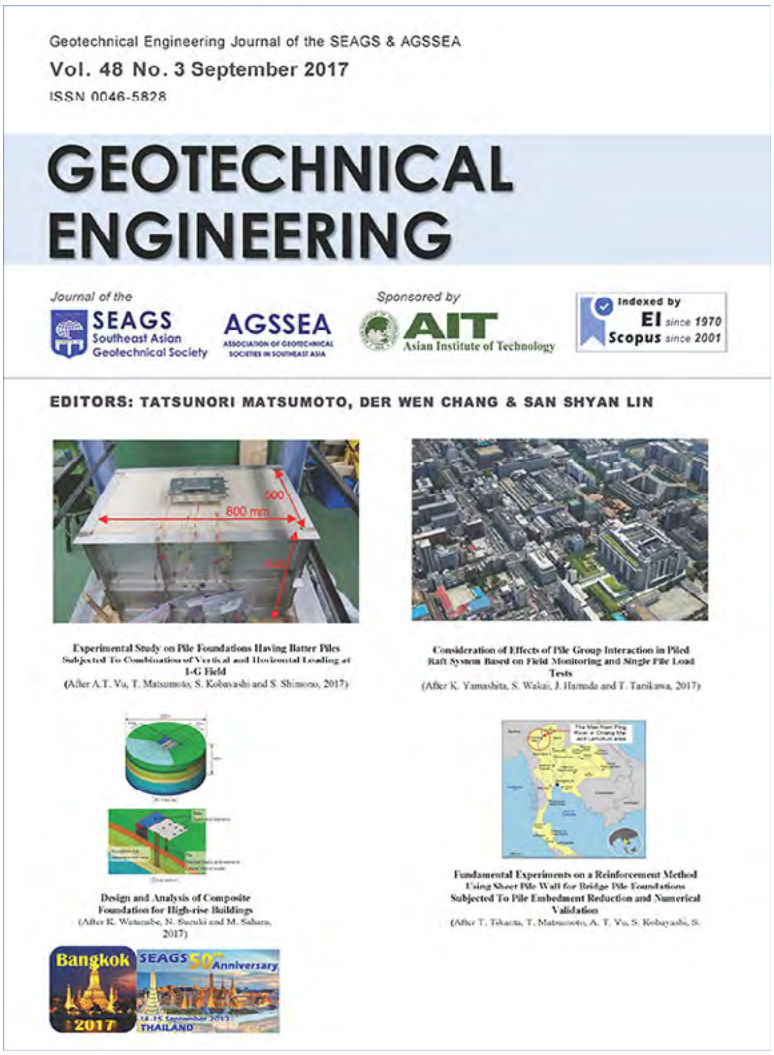

PREFACE

There are 17 papers in this Issue; the first twelve are papers edited by the Guest Editors: Tatsunori Matsumoto, Der-Wen Chang and San-Shyan Lin; additionally there are five contributed papers are processed by our in-house editors.

The first paper is by K. Ng and T. Sullivan on challenges and recommendations for steel H-piles driven in soft rock: The capacity of a pile driven in soft rock depends on soil confinement along the pile and rock at its toe; these are rarely known during design. This design challenge often leads to a large discrepancy between estimated and measured resistances. Results of six bridge projects completed in Wyoming, USA, are presented to highlight the challenges pertaining to present design and construction practices of driven piles in rock. The results show that static analysis methods, dynamic analysis methods, and structural analyses yield inconsistent pile resistance estimations. A recommendation considering the structure-geomaterial interaction is proposed to improve the design and construction of steel H-piles driven in soft rock.

The second paper is by Anh-Tuan Vu, Tatsunori Matsumoto, Shun-ichi Kobayashi and Shinya Shimono on Experimental study on pile foundations having batter piles subjected to combination of vertical and horizontal loading at 1-g field: in the paper, the behaviours and resistance mechanisms of pile foundations having batter piles were investigated through a series of vertical load tests and combination load tests on model foundations in dry sand ground at 1-g field. Pile foundation models consisting of 3 piles and 6 piles, with or without batter piles, were used in the experiments. The model pile was close-ended pipe with a length of 255 mm and an outer diameter of 20 mm. Dry silica sand having a relative density, Dr, of about 82% was used for the model ground. The results indicate that the piled raft having batter piles is the most effective to increase the resistances (in both vertical and horizontal directions) and reduce the inclination.

In the third paper, T. Tikanta, T. Matsumoto, A. T. Vu, S. Kobayashi, S. Shimono and C. Bamrungwong conduct experiments on a reinforcement method using sheet pile wall for bridge pile foundations subjected to pile embedment reduction and numerical validation. Due to the riverbed soil excavation for the utilization in construction works for many years, the level of riverbed of the Mae Nam Ping River has been

considerably decreased, resulting in reduction of embedment lengths of piles for many bridge foundations. Erosion was not a cause of the lowering of the riverbed. Reductions of bearing capacity due to the lowering of riverbed soil is the main cause of bridge pile foundation settlements or collapses at present. In order to prevent the damages of existing bridge pile foundations caused by the riverbed soil excavation, a reinforcement method using sheet piles called “Sheet Pile Wall (SPW) reinforcement” is proposed. The experimental results show that the proposed SPW reinforcement method is very efficient and promising. Numerical simulation of an experiment using FEM was also carried out to get more insight into the mechanism of the SPW method and validate the proposed SPW method.

In their paper (fourth one) San-Shyan Lin, Yun-Chih Chiang, Xin-Hua Lin, Hsing-Yu Wang, and Sung-Shan Hsiao carry our numerical studies on performance of offshore wind turbine composite suction pile in sand subjected to combined loading. Numerical analysis on the performance of the proposed suction pile with enlarged lid size subjected to combined lateral and axial loading is presented in the paper. The numerical model is firstly validated by comparison with other numerical study results. The parametric analysis results prove a suction pile with enlarged lid size has better performance than a normal suction pile on both the overall bearing capacity and the stability of the foundation.

The fifth paper is on Consideration of Effects of Pile Group Interaction in Piled Raft System Based on Field Monitoring and Single Pile Load Tests by K. Yamashita, S. Wakai1, J. Hamada and T. Tanikawa. In the paper, the effects of pile group interaction were investigated based on the results of two monitoring cases of piled raft foundations and single pile load tests in soft ground. Based on the investigation, it was found that the modified load-settlement data of the monitored piles were generally consistent with the static load-settlement curve of a single pile. Therefore, no significant effects of pile group interaction on settlement were found. In such cases as pile groups with large spacing, single pile load test data can be more useful in the settlement prediction of piled rafts and pile groups. In addition, it was found that the pile head stiffness of the equivalent static load-settlement curve derived from the rapid load testing in clay soils using the UPM was considerably large compared to the stiffness of the static load test curve, as pointed out by previous studies.

In the sixth paper, In-situ Full Scale Load Tests and Reliability Evaluation of Bearing Capacity for Nodular Cast-in-place Concrete Pile is studied by K. Watanabe, A. Mitsumori, H. Nishioka and M. Koda. This paper firstly summarizes the in-situ full scale load tests, and then describes the results of standard bearing capacity based on the data from the in situ full-scale load tests, finally mentions the estimation of ground resistance coefficient for nodular cast-in-place concrete piles.

The seventh paper by K. Watanabe, T. Yamamoto and T. Sudo is titled Development of Steel Pipe Pile Combined with Ground Improvement in Narrow Spaces. Since pile construction in narrow spaces is constrained by the site and process, in this paper, a construction method combining steel pipe piles with ground improvement using a mechanical agitator (e-column construction method®) was developed. This paper briefly summarizes the construction method, presents the static load tests and rapid load tests, and discusses the results of load tests. The results of the loading tests suggest that the bearing capacity can be evaluated by using the undrained shear strength and SPT N-value. Also, a simplified rapid loading test can be applied to validating the bearing capacity at a construction site. For the joint of the steel pipe piles, the maximum tensile resistance obtained from the experiment was larger than that obtained from the calculation formula.

In the subsequent paper eight in the series K. Watanabe, N. Suzuki and M. Sahara deal with Design and Analysis of Composite Foundation for High-rise Buildings. This paper shows two design cases of composite foundations for high-rise buildings. These two foundations were designed by considering the effect of deformation on the results of a static FEM analysis. The slab settlement was measured upon completion of construction. It was con-firmed that composite foundations deform within a presupposed range.

Hung-Jiun Liao, Chin-Lung Chiu, Chung-Kuang Chien, Yi-En Tang and Heng-Chih Cheng in the ninth paper deal with Pervious Material Made from Landslide Debris for Road Base Construction. This paper introduces an on-site mixing method to prepare pervious-CLSM (controlled low strength material) from the landslide debris by mixing it with proper amount of cement and water. Through the mixing process, the fine soils in the debris will flocculate to a sizable particles and/or stick to the surface of aggregates. As a result, the fines content of the debris can be eliminated and a pervious-CLSM is made. Through the binding effect of cement, the pervious-CLSM can also have moderate strength to maintain the stability of filled embankment and to sustain the traffic load as well. Together with geo-grid, a wrap-faced reinforced embankment as the road base can be constructed quickly using the site prepared CLSM as well as a backhoe machine and hand tools.

The tenth paper is by E. Heins, K.-F. Seitz, A. Chmelnizkij, M. Milatz and J. Grabe on Advances in numerical modelling of different ground improvement techniques. A lot of successful scientific research is conducted on piles and piling using various numerical methods. Therefore, it is assumed that numerical models can be used to improve ground improvement methods. In this contribution, different ground improvement techniques and numerical models to simulate the influence of these techniques on the surrounding soil are presented. Furthermore, optimization methods and potentials of ground improvement techniques are shown.

Ashutosh Kumar and Deepankar Choudhury are the authors of the eleventh paper on Load sharing mechanism of Combined Pile-Raft Foundation (CPRF) under seismic loads. In the present work, the load sharing mechanism under seismic loads for fully hinged (H) and fully rigid (R) connected Combined Pile-Raft Foundation (CPRF) have been studied by using three-dimensional finite element based geotechnical software. Results of the present analyses show that connection rigidity had little influence on vertical settlement of CPRF but had pronounced response on the load sharing by foundation components. In the purview of seismic loading, lateral stiffness played a pivotal role in deciding the load-settlement, lateral displacement, bending moment in piles and inclination response of CPRF. The load sharing by foundation components is governed by mobilization of lateral displacement.

The 12th paper and the last one as assembled by the guest editors is Deflection Behaviour of GFRP Bar Reinforced Concrete Passive Bored Pile in Deep Excavation Construction by J. L. Zhou, E. Oh, X. Zhang, M. Bolton, H. Y. Qin and L. Zhang. This paper describes the investigation of a glass fibre reinforced polymer bar (GFRP bar) as a replacement for a traditional steel bar reinforcement in bored concrete piles with specific application to deep excavation construction. The deflection behaviours of GFRP piles during the installation of one concrete and two steel supports were provided. It is concluded that, based on the difference between the total accumulated deflection of each pile, the GFRP bar reinforced concrete piles can resist the lateral loading and can provide an alternative to traditionally reinforced concrete piles used in shield construction.

The 13th paper by describe by Byron Mawer, Denis Kalumba and Charles Warren-Codrington is the first of the contributed papers edited by San Shyan Lin on Loading and Dynamic Response Considerations for the Design of Wind Turbine Foundations on South African Soils. The discussion of this paper was centered on the sources of loading that wind turbines experience and the consequences of this on the geotechnical design of gravity footings. Rotational stiffness of the foundation was shown to have an important effect on the dynamic response of the wind turbine tower, and thus, on the assumptions surrounding the calculation of the natural frequency of the global system. Soil stiffness effects on natural frequency assumptions were found to be more critical than the minimum stiffness requirements applied by design guidelines and had a notable effect on dynamic amplification for an undamped system.

The 14th paper (also contributed direct to the in-house editors) by Mounir BOUASSIDA, Mnaouar KLAI, Seifeddine TABCHOUCHE and Mekki MELLAS on Comparison of Numerical Analyses of Behaviour of Column-Reinforced Foundations. This paper studies the prediction of behaviour of foundations resting on a soil reinforced by sand and stone columns. A Tunisian case history of oil tank is investigated. By adopting the Mohr-Coulomb failure criterion for columns material and the hardening soil model for soft clay, the evolution of long term settlement predicted by Plaxis code showed the acceleration of the consolidation of the compressible soft clay due to the enhanced drainage property of column material.

P. Pizette and N-E. Abriak in the 15th paper (also contributed direct to the in-house editors) is on Particle image velocimetry analysis on the sinking of shallow foundation in 2D. This paper focuses on the development of punching device dedicated to study the failure of 2D analogue soil. In order to follow the kinematic behaviors of soil, Particle Image Velocimetry (PIV) analysis has been developed and tested in the case of the shallow foundations. The results show that the field of the soil displacement under the foundation can be followed via the PIV method. In particular, the image analysis results are qualitatively in good agreement with the Prandlt scheme.

The 16th paper of this Issue (also contributed direct to the in-house editors) is by B. T. T. Nguyen1, T. Takeyama2 and M. Kitazume on Attempt of Simple Calculation on studying Failure mechanism of DM Columns. A simple calculation, based on limit equilibrium method, was performed to evaluate the failure pattern of deep mixing (DM) columns, used to reinforce an embankment slope. In this study, a trial of limit equilibrium method to access the failure mode of the columns is focused with an overall mechanism. As a result, while the calculation can simply predict the failure pattern of the DM columns, a parametric study was also performed to evaluate the effect of several improvement factors.

The last paper of this Issue, the 17th (also contributed direct to the in-house editors) is Microzonation of liquefaction hazard using liquefaction index in Babol City by A. Janalizadechoobbasti, M. Naghizadeh rokni, and R. Charaty. In this paper, the zoning map of Babol liquefaction risk is provided. In this regard, a study was conducted on the soils in Babol and after examining different areas of the city, laboratory results and field studies of more than 50 boreholes in different areas with a depth of 20 m were analyzed for finding liquefaction and non-liquefaction segments. In this study, different approaches were used including Seed, Iwasaki, Haeri and Yasrebi, Chin & Zhang and Sewmez & Gocojlou procedures and finally, a computer program was written for examining and providing microzoning map of Babol liquefaction risk.

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Dr. Teik Aun Ooi
Prof. San Shyan Lin
Prof. Kwet Yew Yong
Dr. Noppadol Phienwej
Prof. A. S. Balasubramaniam

Tatsunori Matsumoto

Prof. Matsumoto is now with Kanazawa University in Japan for nearly 37 years. He was educated at the Kanazawa University and received his Doctoral Degree from Kyoto University for his work on steel pipe piles in 1989. He has extensive research and practical experience on piled foundations and piled raft foundations. Prof. Matsumoto has a Shake Table Facility for the study of dynamic and earthquake type of behaviour of piled foundations. He has also worked on the centrifuge with pile groups and piled raft foundations in collaboration with Taisei Corporation. Prof. Matsumoto also has wide experience in the seismic design of raft and piled raft foundations. Prof. Matsumoto is one of the authors of the computer software PRAB—Piled Raft Analysis with Batter Piles. With this software piled raft foundation can be analyzed with vertical and horizontal loads as well as moment.

Der Wen Chang

Prof. Der-Wen Chang has been the Geotechnical faculty member at The Department of Civil Engineering of Tamkang University (TKU), Taipei, Taiwan for over 25 years. He received Ph.D. in Civil Engineering at The University of Texas at Austin in 1991 and MS in Civil Engineering at Michigan State University in 1987. Prof. Chang has supervised the research work of over 70 Master Thesis and 3 Ph.D. Thesis at TKU, and published more than 200 articles as the Journal, Conf. papers and reports. Nearly all his research studies are related to numerical modeling and dynamic analyses for the geotechnical structures. His research experiences include NDT methods on pavements, seismic behaviors of the pile foundation, constitutive modeling of the soils, and recent study on the performance based design for the earth structures. Prof. Chang is also the visiting Professor at University of Washington at Seattle, US in 2008 and LN Gumilyov Eurasian National University at Astana, Kazakhstan for research studies in 2010 and 2011. Other than the research works, Prof. Chang devotes himself a great deal to serve the communities. He involves heavily and indeed shows his good performance in the public works related to education and constructions. Prof. Chang is currently the Executive Board member of Chinese Taipei Geotechnical Society, GC member at SEAGS and Editorial Panel for SEAGS/AGSSEA J. of Geotechnical Engineering, and TC212/TC305/ATC18 member at ISSMGE. He is also the Chairman of Conference Committee at 16ARC which is to be held in Taipei, Taiwan in October, 2019.

San Shyan Lin

Prof. San-Shyan Lin graduated from Chung Yuan University with a BSCE degree in 1981. He then obtained his master degree from Utah State University, Logan, Utah in 1985 and his PhD from Washington University in St. Louis, Missouri in 1992. Before his teaching career at university, Dr. Lin served as an engineer at Taiwan Area National Expressway Engineering Bureau between1992 to1994. Dr. Lin has been serving at Department of Harbor and River Engineering (DHRE) of National Taiwan Ocean University (NTOU) since 1994. He was promoted as a full professor in 2000. Thereafter, he took some university duties by serving as the secretary-general at

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Challenges and Recommendations for Steel H-Piles Driven in Soft Rock
By K. Ng and T. Sullivan

Experimental Study on Pile Foundations Having Batter Piles Subjected to Combination of Vertical and Horizontal Loading at 1-G Field
By Anh-Tuan Vu, T. Matsumoto, S. Kobayashi and S. Shimono

Fundamental Experiments on a Reinforcement Method using Sheet Pile Wall for Bridge Pile Foundations Subjected to Pile Embedment Reduction and Numerical Validation
By T. Tikanta, T. Matsumoto, A.T. Vu, S. Kobayashi, S. Shimono and C. Bamrungwong

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By K. Yamashita, S. Wakai, J. Hamada and T. Tanikawa

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Pervious Backfill Material Made from Landslide Debris for Road Base Construction
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By E. Heins, M. Milatz, A. Chmelnizkij, K.-F. Seitz and J. Grabe

Load Sharing Mechanism of Combined Pile-Raft Foundation (CPRF) under Seismic Loads
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Deflection Behaviour of GFRP Bar Reinforced Concrete Passive Bored Pile in Deep Excavation Construction
By J. L. Zhou, E. Oh, X. Zhang, M. Bolton, H. Y. Qin and L. Zhang

Loading and Dynamic Response Considerations for the Design of Wind Turbine Foundations on South African Soils
By Byron Mawer, Denis Kalumba and Charles Warren-Codrington

Comparison of Numerical Analyses of Behaviour of Column-Reinforced Foundations
By Mounir Bouassida, Mnaouar Klai, Seifeddine Tabchouche and Mekki Mellas

Particle image velocimetry analysis on the sinking of shallow foundation in 2D
By P. Pizette and N-E. Abriak

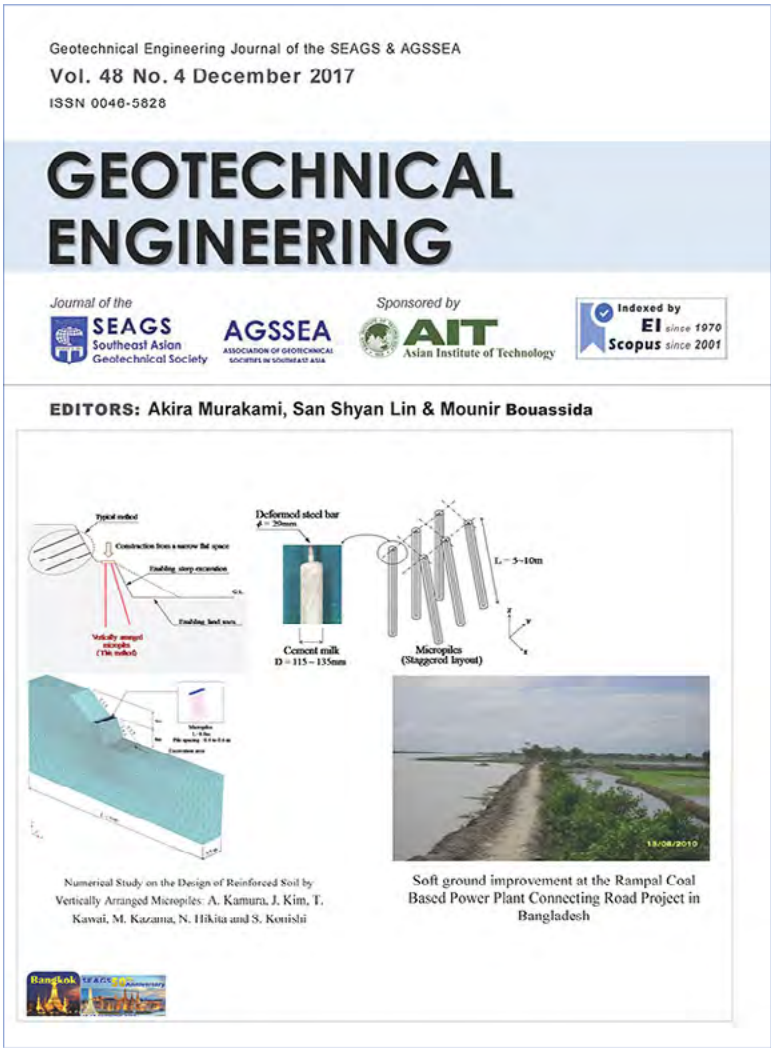
Attempt of Simple Calculation on studying Failure mechanism of DM Columns
By B. T. T. Nguyen, T. Takeyama and M. Kitazume

Microzonation of liquefaction hazard using liquefaction index in Babol City
By A. Janalizadechoobbasti, M. Naghizadeh rokni, and R. Charaty

DECEMBER 2017 CONTRIBUTED PAPERS

EDITORS

Akira Murakami,
San Shyan Lin &
Mounir Bouassida



PREFACE

This Issue is in two parts; Part 1 papers edited by Prof Akira Murakami as Guest Editor and Part 2 contributed papers directly edited by In-house Editors and Prof Mounir Bouassida.

The first seven papers in the Issue are edited by Prof Akira Murakami as the Guest Editor and the subsequent papers are direct contributed ones; quite a few papers were acquired by Prof Mounir of papers from African continent.

The first paper is on Modeling the effects of static shear on the undrained cyclic torsional simple shear behavior of liquefiable sand by Gabriele Chiaro, L.I. Nalin De Silva and Junichi Koseki: Spanning from purely theoretical standpoint to practical applications, there is a particu-

lar interest to enhance understanding of the effects of static shear on the cyclic behavior of soil elements underneath sloped ground. To address this issue, two subsequent steps were undertaken in this study. First, a systematic laboratory investigation was carried out on Toyoura sand specimens subjected to various levels of combined static and cyclic shear stresses. Then, a new state-dependent cyclic model was developed. Since experimental findings have been exhaustively reported elsewhere, in this paper they are only briefly recalled for the benefit of comprehensiveness. Instead, the new model is presented in details and its performance is verified by simulating undrained cyclic torsional simple shear tests carried out on Toyoura sand specimens. Essentially, the model is built on an extended general stress-strain hyperbolic equation approach, in which the void ratio and stress level dependency upon non-linear stress-strain response of sand is incorporated. Besides, a novel empirical stress-dilatancy relationship is used to account for the effect of density on the stress ratio as well as to model the excess pore water pressure generation in undrained shear conditions as the mirror effect of volumetric change in drained shear conditions.

The second paper in this Issue on Numerical Study on the Design of Reinforced Soil with Vertically Arranged Micropiles by A. Kamura, J. Kim, T. Kawai, M. Kazama, N. Hikita and S. Konishi: The mechanical behavior of the reinforced soil by vertically arranged micropiles was considered using the three-dimensional finite element analysis. To make effective use of space around the slope, soil needs to be reinforced using micropiles placed in a small area. The main objective of this investigation was to evaluate the mechanical influence of various micropile arrangements and to determine the effects of pile spacing for design purposes. Numerical simulations of three cases using different pile angles indicated the amount of slope displacement and the values of the sectional force of the micropiles differed significantly. Among the three cases, the maximum slope displacement was 1.7 times the minimum value. Finally, numerical simulations of three cases using different pile spacing was carried out to clarify the effects of pile spacing on the amount of slope displacement and the sectional force of the micropiles.

The third paper is on Soil-water coupled analysis of pore water pressure dissipation method in anticipation of advanced performance design—examinations of effectiveness in reclaimed ground by Toshihiro Nonaka, Shotaro Yamada, and Toshihiro Noda: Japan has a large number of reclaimed regions unimproved against liquefaction and countermeasures in such regions are necessary to prepare for a great earthquake. A new macro-element method has been proposed that involves applying the soil-water-coupled finite deformation analysis code GEOASIA with an inertial term, and a numerical-analysis technique has been designed that quantitatively evaluates the improvement effect of the pore water pressure dissipation method (PWPDM). In this study, PWPDM effectiveness was examined for a reclaimed ground using the proposed method. Detailed examinations were conducted with the intention of developing a more advanced performance design, without being limited to the concept of the current design code. The main findings are as follows: 1) the proposed analysis code enables quantitative evaluation of the improved effectiveness of PWPDM in a reclaimed ground; 2) more advanced PWPDM designs are possible by not only suppressing the maximum excess pore water pressure to the permissible range of the current design code, but also evaluating the ground deformation adequately; and 3) the new macro-element method, capable of reproducing the phenomenon of well resistance, can evaluate the reduction in the improvement effect because of the degradation of drainage capability, thus making it useful for maintenance purposes such as drain clogging.

The fourth paper on Comparison of sheared granular soils: Same void ratio but considerably different fabric by Y. Fukumoto and S. Ohtsuka: This paper reports a comparison of two types of sheared granular soil specimens, with almost the same void ratios but considerably different fabric, using the discrete element method in two dimensions. The specimens are prepared by applying two different methods of particle generation; one specimen is generated by placing the particles geometrically, while the other specimen is generated by placing the particles randomly. Then, computational direct shear tests are conducted in order to compare the yielding behaviours of the two specimens. The obtained bulk shear

responses show different trends, even though the values for the void ratio at the initial state are almost the same. Toward the critical state, however, the initial differences in the stress state and the granular fabric gradually disappear and eventually reach almost the same state. The results reveal that not only macroscopic quantities, but also the contact force distribution and the angular variation in contact forces, have a unique critical state. In particular, the angular distribution of contact angles inside the shear band is also found to have a unique critical state.

The fifth paper is on Coupled analysis of Navier-Stokes and Darcy flows by the Brinkman equations by S. Arimoto, K. Fujisawa and A. Murakami:Simultaneous analysis of seepage flows in porous media and regular flows in fluid domains has a variety of applications to practical problems. The objective of this paper is to present a numerical method to simulate these two different flows simultaneously and continuously, and to investigate the influence of the Darcy flows in porous media on the Navier-Stokes flows in the fluid domain. To this end, the authors have employed the Darcy-Brinkman equations, which include the Navier-Stokes equations and can approximately describe Darcy flows by changing the values of porosity and hydraulic conductivity. The solutions of the Darcy-Brinkman equations are affected by two dimensionless quantity, i.e., the Reynolds number, Re and the Darcy number, Da. After the procedures to provide stable solutions of the governing equations are explained, this paper considers the two types of problems involving Navier-Stokes/Darcy coupled flows and the influence of the two dimensionless parameters on the solutions are investigated. One is the backward-facing step flow with a porous step, and the other is the preferential flows in porous media. The numerical results have shown that the permeability of the porous step slightly affects the reattachment of the flow in the former problem, and that the shape of the void or cavity in porous media changes the structure of the flow in it and the Darcy number changes the flux into the fluid domain in the latter problem.

The sixth paper is on Numerical Investigation on Mechanical Behaviour of Natural Barrier in Geological Repository of High-Level Radioactive Waste by Y. Kurimoto, Y. L. Xiong, S. Kageyama and F. Zhang:
It is commonly known that geological repository is regarded as the most practical way of permanent disposal of high-level radioactive waste (HLW). Yet, there are some engineering problems needed to be solved before its practical application. In geological repository, one of the most important factors is the thermo-hydraulic-mechanical (THM) behaviour of natural barrier. The aim of this paper is to investigate the influence of temperature on the deformation and the strength of host rocks, such as the soft sedimentary rock, with some element tests and the numerical simulations with a program of FEM named as SOFT based on a thermo-elasto-viscoplastic constitutive model.

The seventh paper is on Change of Soil Properties in the Bengawan Solo River Embankment due to Drying–Wetting Cycles by Trihanyndio Rendy Satrya, Ria Asih Aryani Soemitro, Toshifumi Mukunoki and Indarto: This paper studies the behavior of Bengawan Solo River embankment soil properties for both in-situ and laboratory conditions. In the laboratory, series of cyclic drying and wetting tests were carried out to clarify the changes of in-situ soil properties over time since the soil had been initially compacted. Maximum dry density from Standard Proctor test was applied as initial compacted condition. Three cycles of drying and wetting were used to represent three cycles of dry and rainy seasons. The in-situ soil investigation was carried out during seasons. The results show that the investigated in-situ soil properties were in good agreement with the laboratory test results at the 2nd and 3rd cycles. It denotes that these number of cycles are required to achieve the similar condition as in-situ soil. In addition, by observing the rate of change in soil properties, it was possible to trace back the construction time of the river embankment.

The eighth paper and the rest are direct contributed ones on Soft ground improvement at the Rampal Coal Based Power Plant Connecting Road Project in Bangladesh by Sudipta Chakraborty, Ripon Hore, Fahim Ahmed and M. A.Ansary: Preloading with vertical sand drain (VSD) is presented as a soil improve-

ment method in this paper. The work is based on a real life road (4 lane and 2 slow moving lanes) construction project carried out in Rampal sub-district of Bagerhat, Khulna, Bangladesh. The construction sequences and the basic design example of VSD for embankment works on very soft clay soil are discussed in this paper. This paper presents soft ground improvement using VSD including VSD installation, preloading techniques, settlement and stability, design calculation, observational method and analysis of monitoring data. No extra load has been used; preloading has been carried out with the self-weight of road in combination with fill embankment. Soil treated with VSD, has resulted in improvement of soil settlement.

The ninth paper is on Assessment on the effect of fine content and moisture content towards shear strength by Badee Alshameri , Aziman Madun and Ismail Bakar: The shear strength τ, shear modulus G, friction angle □, and cohesion c are remarkable design parameters in the geotechnical and civil projects. These design parameters were affected by several factors. In this paper, the fine content and moisture content factors will be evaluated. Numerous compacted sand-kaolin samples were test through the direct shear box test (by using shear rate equals to 1 mm/min, the samples dimension equals to 100 × 100 mm) to assess the effect of these factors. The results show interface between both effects of fine content and moisture content towards the shear strength parameters. According to the results; (1) there is no significant effect on shear strength parameters at low portions of fine content FC and moisture content w, (2) at higher portion of FC and w, bot FC and w show different relationships with shear strength parameters, (3) both relative high shear rate and low applied stress lead to present high value of friction angle (4) compact the soil mixtures with same compaction effort and different fine and moisture content lead to change the soil structure and void ratio thus produce regressive relationship between the friction angle toward density.

The tenth paper is on Ground Response Based Preliminary Microzonation of Kathmandu Valley by Dipendra Gautam, Hemchandra Chaulagain, Hugo Rodrigues and Hem Raj Shahi: This paper analyzes spatially selected 286 deep borehole logs reaching up to the bedrock are and the results are presented in terms of amplification factor, ground acceleration and predominant period. The peak ground acceleration (PGA) is estimated to be between 0.10 and 0.50 g indicating strong influence of nonlinearity in particular areas of Kathmandu valley wherein de-amplification is observed. The peak spectral acceleration is found to be varying between 0.30 to 1.75 g for the study area and soil predominant period is estimated in the range of 0.7 to 5 sec. Preliminary microzonation maps for PGA and soil predominant period are prepared and presented in this paper. Comparisons and interpretations on the basis of 1934 and 2015 earthquakes are presented in terms of damage scenario.

The eleventh paper by V. Oderah and D. Kalumba on the Investigation of the Use of Sugarcane Bagasse for Soil Reinforcement in Geotechnical applications : The global initiative of minimizing the generation of waste materials, and the reduction of the environmental footprint of industrial processes has impelled the innovation into their use in geotechnical applications. Use of these materials in this manner, especially as soil reinforcements, could help solve the drudgery and secondary snags of disposing of the materials. This study therefore aimed at investigating the effects of sugarcane bagasse reinforcement on selected South African soils as well as the drawbacks of environmental conditions on the composite formed. Different types of sugarcane bagasse were utilised in evaluating their effect on the shear strength characteristics of the composite. The results indicated a higher improvement in the angle of internal friction in finely grained soil compared to coarsely grained soil. Saturation of the composite in water insignificantly reduced the strength characteristics beyond 2 days. In addition, an increase in shear characteristics depended on fineness of the soil, bagasse type and content, and on the vertical load.

The twelfth paper on Quasi-static numerical modeling of an ore carrier hold is by S. Daoud, I. Said, S. Ennour and M. Bouassida: The problems associated with ore carriers' incidents, have preoccupied inter-

national organizations and many research laboratories which have been mobilised to identify the causes and seek for the solutions. The cargo liquefaction is considered to be the major cause of ore carriers' capsizing. The final aim of this research is to establish a new test procedure for evaluating the shear strength of loaded ore in view of its liquefaction prevention. First, a brief review is presented about the possible origins of cargo instability and examines the stress distribution by means of a quasi-static numerical modelling. Second, an assessment of the shear ratio variation, in terms of the hold inclination is established. According to this analysis, at a 15° hold inclination, the maximum shear ratio is less than 0.2 in all pile areas except under the residual slopes and at the surface that are assumed to be the most vulnerable parts.

The thirteenth paper is on Shear Strength of an Expansive Overconsolidated Clay Treated with Hydraulic Binders by A. Mahamedi and M. Khemissa: This paper presents and analyzes the results of a series of identification, compaction and direct shear tests performed in accordance with the Algerian standards on an expansive overconsolidated clay treated with locally manufactured hydraulic binders (composed Portland cement and extinct lime). This clay comes from the urban site of Sidi-Hadjrès city (wilaya of M'sila, Algeria), where significant damages frequently appear in the road infrastructures, roadway systems and various networks and in civil and industrial light structures. Tests results show that the geotechnical parameters values deduced from these tests are concordant and confirm the shear strength improvement of this natural clay treated with cement or lime and compacted under the optimum Proctor conditions. However, contrary to its mineralogical characteristics which do not seem to be affected by the treatment, this expansive natural clay is characterized by as well drained as undrained shear strength sensitive to stabilizer content; the best performances are obtained for a treatment corresponding to 8% cement or lime content.

The fourteenth paper is on Numerical Modeling of Retaining Wall Resting on Expansive Soil by Bushra Suhale Al-Busoda , Safa Hussain Abid Awn, & Hassan Obaid Abbase : To model the behavior of expansive soil, it seems necessary to move towards elastoplastic models that have been used for different types of clays. Hardening soil model is chosen in this study. Retaining walls rested on expansive soils are subjected to uplift and lateral forces due to soil swelling. More importantly, the swelling in expansive soil tends to cause additional lateral pressure on wall that caused deformations and bending. Various pattern types of helical piles are used to reduce the vertical and lateral movement of retaining wall constructed on expansive soil. The backfill soil beyond retaining wall is affected by swelling of expansive soil that caused additional lateral earth pressure on the wall of retaining wall. This study showed that the use of inclined helical piles beside vertical helical piles under the base of retaining wall decreased vertical movement 94% and lateral movement 70% for ratio of length of helical pile to depth of expansive soil (L/H) equal to 3.2. In general, the presence of helical piles below retaining wall resisted and controlled the vertical movement but do not control lateral movement except the case of using inclined helical piles.

The fifteenth paper is on Simplified Method for Designing Piled Raft Foundation in Sandy Soils by N. M. Alsanabani, T. O. AL-Refeai, and A. O. Alshenawy: The main purpose of this study is to develop a simplified method for computing the load carried by piles, and settlement of piled raft based on the characteristics of an unpiled raft, pile group, and soil. These are important criteria for preliminary piled raft design. Based on the results obtained from finite element analysis, simplified formulas and curves are generated for different conditions of sand and different pile spacing. These formulas and curves contain the stiffness ratio and efficiency factor of the unpiled raft and pile groups. The results of the proposed method were validated using the Poulos–Davis–Randolph method.

The sixteenth paper is on Stabilization of Seepage Induced Soil Mass Movements using Sand Drains by Ramkrishnan R., Karthik V., Mukund S. Unnithan, Kiran Balaji R., Athul Vinu M., Anju Venugopalan: Rising groundwater levels increases the pore water pressure in the soil slopes, acting as a triggering factor for landslides. By installing sand drains (horizontal or vertical) along the slope, the groundwater level can be

lowered below the critical level, reducing the pore water pressure and also the probability of slope failure significantly. In this study, laboratory-scale soil slopes of varying geometry were modelled in a tank and constant inflow was provided to simulate groundwater flow. With and without loading, the critical phreatic levels for the various slopes were determined. Vertical sand drains were then installed along the slope and the tests were repeated for a fixed duration. It was found that the slopes did not fail and remained stable for a longer time period, even with increase of groundwater flow. Hence it was concluded that sand drains are a feasible slope stabilization technique even on slopes subjected to static loading.

The seventeenth Paper is on Experimental Study on the Durability of Soil-Cement Columns in Coastal Areas by Pham Van Ngoc, Brett Turner, Jinsong Huang and Richard Kelly: Deep soil mixing is one of the most commonly used ground improvement techniques. With high sulphate content in soil and seawater, stabilised soil in coastal areas can deteriorate due to sulphate attack. In this research, the degradation in strength of cement treated soil exposed to synthetic seawater is measured by uniaxial compression and needle penetration testing. Three exposure conditions, namely 100% seawater, 200% seawater and sealed condition (control samples), were used to measure the deterioration level due to the effect of sulphate. In addition, the extent of the portlandite consumption was also measured by Thermo-gravimetric Analysis which reflects the calcium distribution in the soil-cement columns. The test results show that the deterioration occurs deeper and faster in higher seawater environments. Furthermore, in contact with increasing sulphate concentration, the deterioration shows a close relation with calcium distribution.

The eighteenth paper is on The Change Laws of Strength and Selection of Cement-sand Ratio of Cemented Backfill by Wei Xiaoming ,Li Changhong ,Zhou Xiaolong ,Hu Baowen & Li Wanling: Lilou Iron Mine is the largest domestic underground backfill mining and uses advanced whole tailings cemented filling process system. For the backfill, both the change law of strength development and the cement-sand ratio are important considerations for design. A differentiation analysis was performed of the strength of laboratory test blocks at the age of 28d and in situ cemented backfill samples. When the filling slurry concentration was 72% and cement-sand ratio was 1:4, the in situ coring strength was 2.98 MPa higher than that of laboratory-cured specimens; when the slurry concentration was 68% and cement-sand ratios were 1:4, 1:6 and 1:8, the in situ coring strength was 1.68MPa, 2.33 MPa and 1.44 MPa higher than that of laboratory-cured specimens. With an increase of filling height, the change laws has been explored of downward parabola in conditions that the strength difference is consistent with the bulk density difference of the cemented backfill. The stress of cemented backfill with different ratios were calculated and analyzed on the basis of ANSYS numerical simulation and similar filling mines. According to the position of stress concentration and change law of strength difference, this paper proposes an design scheme for high-stage cemented backfill with ratio parameters at different heights.

ACKNOWLEDGEMENT

Seventeen papers are contained in this issue. Twelve of them are assembled by the Guest Editors and another five contributed papers directly to the in-house editors. No doubt the material contained herein would be most valuable to our profession. The editors have adequately described the contributions in the preface. They are to be congratulated for these contributions.

Dr. Teik Aun Ooi
Prof. San Shyan Lin
Prof. Kwet Yew Yong
Dr. Noppadol Phienwej
Prof. A. S. Balasubramaniam

December 2017 Journal - List of Papers

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MARCH 2018 CALL FOR ABSTRACTS/PAPERS

Announcement on call-for-paper of Research and Practice in Geotechnical Earthquake Engineering special issue in Geotechnical Engineering, J. of SEAGS and AGSSEA

Subject: Announcement and invitation of call for abstracts and papers on Geotechnical Earthquake Engineering Issue of the SEAGS-AGSSEA Journal published in March, 2018.

Theme: **Research & Practice in Geotechnical Earthquake Engineering**

Topics:

01 Soil dynamics: field and laboratory testing;

02 Soil-site characterization and dynamic soil modeling;

03 Soil liquefaction and lateral spreading;

04 Shallow and deep foundations;

05 Slope and retaining structures;

06 Lifeline earthquake engineering;

07 Soil-structure-foundation interaction;

08 Case histories, observations and lessons from recent and past earthquakes;

09 Codes, policy issues, insurance and standard of practice;

10 Findings and lessons learnt from recent earthquakes;

11 Engineering issues of seismic fault;

12 Performance-based design in earthquake geotechnical engineering.

For this Research & Practice in Geotechnical Earthquake Engineering Issue about 15 papers are envisaged with consideration of balances among topics, expertise and countries. The following is the tentative schedule for this issue:

(1) Due date of Abstract: July 31, 2016

(2) Acceptance of Abstract: September 30, 2016

(3) Due date of full paper: March 31, 2017

(4) Notice of Review Comments: June 30, 2017

(5) Due date of final manuscript: August 31, 2017

The SEAGS & AGSSEA Journal is an open access, specialized, peer-reviewed Journal that focuses on research, development and application within the fields of geotechnical engineering and technology. Published four times per year, it tries to give its contribution for enhancement of research studies. Contributions must be original, not previously or simultaneously published elsewhere.

Accepted papers are available freely with full-text content upon receiving the final versions, and will be indexed at major academic databases.
- Papers should be written in English.
- Submitted papers should follow the format of the sample article attached.
- Submissions are accepted via e-mail: towhata.ikuo.ikuo@gmail.com; dwchang@mail.tku.edu.tw

Download Sample Article for Abstract (PDF format)

JUNE 2018 CALL FOR ABSTRACTS/PAPERS

Announcement on call-for-papers June 2018 - Kusakabe Issue

Announcement and invitation of call for abstracts and papers for June 2018 Issue of SEAGS-AGSSEA Journal

Theme: **Development and Future Plan of Infrastructures in Asia**

Asia is the region where infrastructure development has rapidly progressed and this trend will continue for many years to come. Thus it seems appropriate from the view of SEAGS-AGSSEA Journal to gather and publish important case histories of development of infrastructures in the Asian region.

Case histories may include,
(1) Airport project
(2) Underground project
(3) Highway project
(4) Railway project
(5) Port and harbor project
(6) Disaster prevention project
(7) Building project
(8) Future plan

Along with the scope of SEAGS-AGSSEA journal, all the case histories must have geotechnical challenges. It should be noted that this issue does not necessarily focus on big or mega projects. A wide variety of case histories are welcome.

For this Issue about 15 papers are envisaged. The following is the tentative schedule for this issue:
(1) Call for paper abstracts (August 2016 – December 2016)
(2) Full paper submission (on or before September 2017)
(3) Revision to and finalization of papers (before December 2017)
(4) Manuscripts ready for publication (February 2018)
(5) This special Issue appears in June 2018

The Journal is an open access, specialized, peer-reviewed, Journal for SEAGS: (Southeast Asian Geotechnical Society) & AGSSEA. (Association of Geotechnical Societies in South East Asia) that focuses on research, development and application within the fields of geotechnical engineering and technology. Published four times per year. Contributions must be original, not previously or simultaneously published elsewhere.

Accepted papers are available freely with full-text content upon receiving the final versions, and will be indexed at major academic databases.
• Papers should be written in English.
• The number of papers accepted is generally 15 but can be more depending on the quality.

- All articles are sent for blind peer review, with a fast and without delay review procedure (within approximately one month of submission).
- Submitted papers should follow the format of the sample article attached.
- Submissions are accepted via e-mail: please contact
  Masaki Kitazume: masaki_k@msj.biglobe.ne.jp
  Jiro Takemura: takemura.j.aa@m.titech.ac.jp jtakemur@cv.titech.ac.jp
  Yoichi Watabe: Yoichi Watabe (Home) watabe@ipc.pari.go.jp

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SEPTEMBER 2018 CALL FOR ABSTRACTS/PAPERS

Fellenius Issue: Announcement on call-for-papers September 2018

Announcement and invitation of call for abstracts and papers contributed to the September 2018 Issue of SEAGS-AGSSEA Journal

Theme: Deep Foundation Practice and Interpretation of Load Test Data

1. Interpretation of Pile load test data
2. New pile testing techniques
3. Design and analysis of piled foundations
4. Design and Analysis of Pile-Raft Foundations
5. Construction aspects of deep Foundations
6. Field monitoring of Deep Foundations
7. Others in Deep Foundation Engineering

For this Issue about 15 papers are envisaged The following is the tentative schedule for this issue:
(1) Call for paper abstracts (March - June 2017)
(2) Full paper submission (on or before November 2017)
(3) Revision to and finalization of papers (before March 2018)
(4) Manuscripts ready for publication (June 2018)
(5) This special Issue appears in September 2018

The Journal is an open access, specialized, peer-reviewed, Journal for SEAGS: (Southeast Asian Geotechnical Society) & AGSSEA. (Association of Geotechnical Societies in South East Asia) that focuses on research, development and application within the fields of geotechnical engineering and technology; Published four times per year. Contributions must be original, not previously or simultaneously published elsewhere.

Accepted papers are available freely with full-text content upon receiving the final versions, and will be indexed by major academic databases.

- Papers should be written in English.
- All articles are sent for blind peer review, with a fast and without delay review procedure (within approximately one month of submission).
- Submitted papers should follow the format of the sample article attached.
- Submissions are accepted via e-mail: please contact
  P. D. Long phung.long@gmail.com
  Der-Wen Chang dwchang@mail.tku.edu.tw
  Harry Poulos Harry.Poulos@coffey.com

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Announcement on Call-For-Paper For SEAGS-AGSSEA Journal December 2018 Issue Honouring Professor Jian-Hua Yin

Theme: **Fundamental Behavior of Soils and Soil-structural Interfaces and Applications to Soft Soil and Slope Engineering**

Topics:

- Laboratory Tests and Constitutive Modeling of the Behavior Of Soils and Soil-Structural Interfaces
- Physical and Numerical Modeling of Geotechnical Structures
- Landslides, Debris Flows, and Slope Stabilization
- Ground Improvement
- Optical Fibre Sensors and Field Monitoring
- Geotechnical History and Case Studies
- Others

Tentative schedule:

- Call for paper abstracts (June 2016 – June 2017)
- Full paper submission (before September 2017)
- Finalization of papers (before March 2018)
- Manuscripts ready for publication (June 2018)
- This Issue appears in December 2018

Guest Editors:
Professor Guofu Zhu, Wuhan University of Technology, China
A/ProfessorWan-Huan Zhou, University of Macau, Macau SAR, China
A/Professor M. A. Hossai, Rajshahi University of Engineering & Technology, Bangladesh

SEAGS-AGSSEA Journal is an open access, specialized, peer-reviewed, Journal for SEAGS (Southeast Asian Geotechnical Society) & AGSSEA (Association of Geotechnical Societies in South East Asia) that focuses on research, development and application within the fields of geotechnical engineering and technology. Published four times per year, it tries to give its contribution for enhancement of research studies.

Contributions must be original, not previously or simultaneously published elsewhere.
Accepted papers are available freely with full-text content upon receiving the final versions, and will be indexed at major academic databases.

- Papers should be written in English.
- All articles are sent for blind peer review,with a fast and without delay review procedure.
- Submitted papers should follow the format of the sample article attached.
- Submissions are accepted via e-mail.

To submit an abstract or to request further information, please contact:
Dr. W.H. Zhou by email: hannahzhou@umac.mo

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2011 MARCH Vol. 42 No. 1

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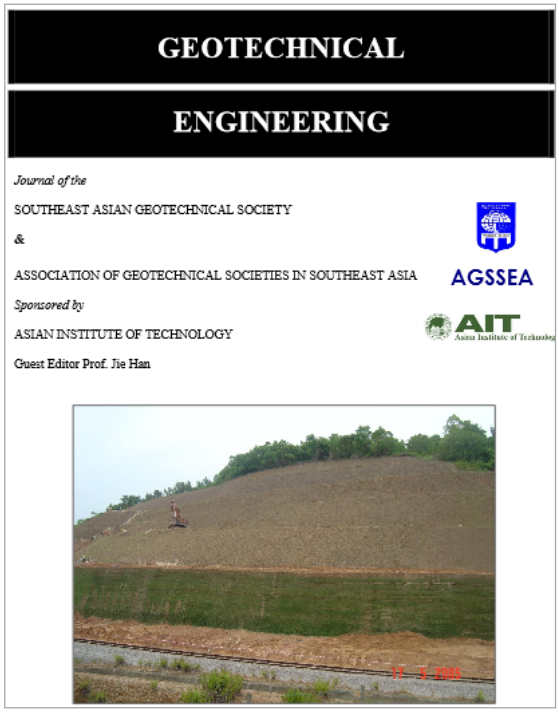

Part I General papers

Some Issues in Geosynthetic Reinforced Walls and Slopes
by D. Leshchinsky

Advance in Geogrid Reinforced Slopes in Malaysia
by T.A. Ooi and C.H. Tee

Embankment Construction with Saturated Clayey Fill Material Using Geocomposites *by J.-C. Chai, T. Hino, Y. Igaya, and Y. Yamauchi*

Numerical Modeling of Geosynthetic-Reinforced Earth Structures and Geosynthetic-Soil Interactions
by J. Huang, A. Bhandari, and X. Yang

Geosynthetic Tubes and Geosynthetic Mats: Analyses and Applications *by J. Chu, W. Guo, and S.W. Yan*

Performance-based Design for Geosynthetic Liner Systems in Landfills
by Y.M. Chen,W.A. Lin, B. Zhu, and L.T. Zhan

Quantifying the Influence of Geosynthetics on Performance of Reinforced Granular Bases in Laboratory
by J. Han, Y. Zhang, and R.L. Parsons

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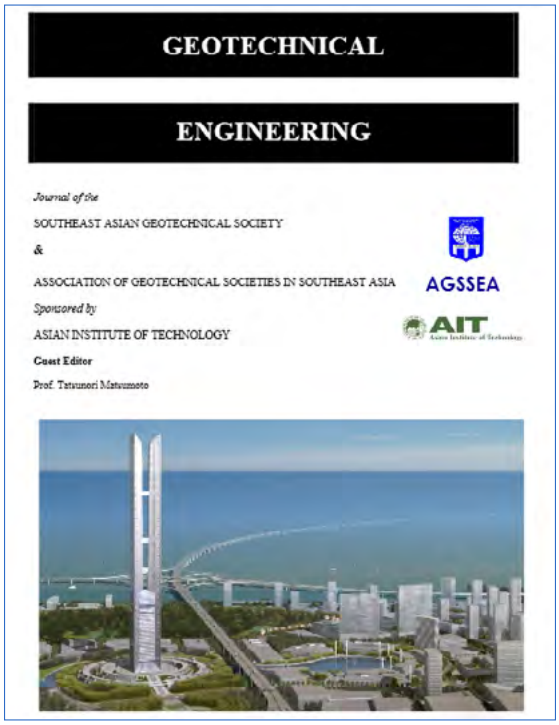

Part I General papers

Field Measurements on Piled Rafts with Grid-Form Deep Mixing Walls on Soft Ground
by Kiyoshi Yamashita, Junji Hamada and Takeshi Yamada

Static Axial Reciprocal Load Test of Cast-in-place Nodular Concrete Pile and Nodular Diaphragm Wall
by K. Watanabe, H. Sei, T. Nishiyama and Y. Ishii

Vertical Load Test and Settlement Analysis of Cast-in-place Concrete Nodular Piles Supporting a High-Rise Building
by N. Suzuki and T. Seki

Extended Use of Spring Hammer Rapid Load Testing
by K. Matsuzawa and T. Matsumoto

Push-up Load Tests Using Uncrushable Particles and Its DEM Analyses
by SuriyahThongmunee, Shun-ichi Kobayashi and Tatsunori Matsumoto

On Design and Construction of Pile Group Foundation of Taipei 101
by Ching-Han Yu

Capacity versus Deformation Analysis for Design of Footings and Pile Foundations
by Bengt H. Fellenius

Pile Raft Foundations for Tall Buildings
by H.G. Poulos, J.C. Small and H. Chow

Foundation Design of the 151 Story Incheon Tower in a Reclamation Area
by Ahmad Abdelrazaq, Frances Badelow, Sung Ho-Kim, Harry G. Poulos

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Research Papers:

Building Damage Assessment for Deep Excavations in Singapore and the Influence of Building Stiffness
by K.H. Goh and R.J. Mair

Concept and Design Methodology of Redundancy in Braced Excavation and Case Histories
by G. Zheng, X.S. Cheng, Y. Diao, and H.X. Wang

Three-Dimensional Deformation Behavior of an Over-sized Excavation in Shanghai Clay
by Y. M. Hou, J. H. Wang and D-S. Jeng

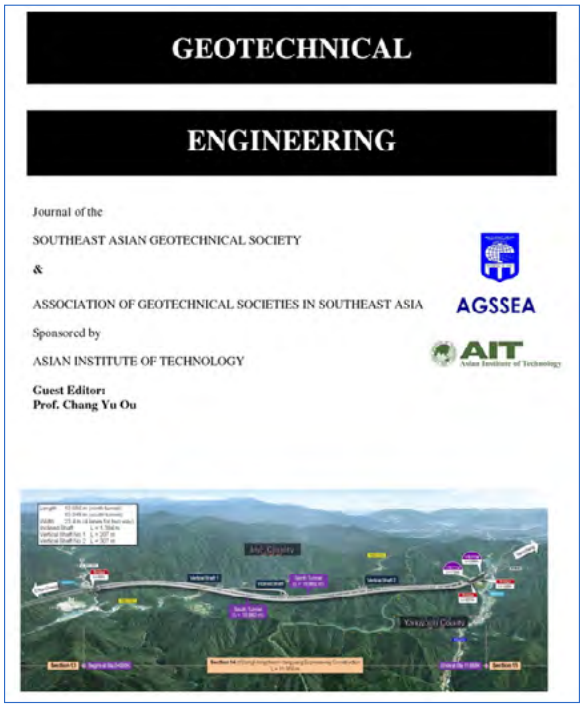
Numerical Study on the Movement of Existing Tunnel Due to Deep Excavation in Shanghai
by J. J. Chen, J. H. Wang, G. W. Xiang, S. L. Wen, and Y. Du

Observed Performance of Diaphragm Wall Construction
by *C.Y. Ou and L.L. Yang*

Performance of Construction with New Pneumatic Caisson Method in Shanghai Soft Ground *by F.L. Peng and H.L. Wang*

Technologies of Micro-disturbance Construction of Pipe-Jacking
by W. Q. Ding, B. Li, S. L. Yuan and J. K. Ge

Design and Construction of InJe Tunnel, the Longest Road Tunnel of Korea *by S. M. Cho, S. D. Lee, and Y. J. Kwon*



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Research Papers:

Dilation and Stability of Sand in Triaxial Tests
by A. Sawicki

The Strength Anisotropy of a Residual Soil in Singapore
by G. Meng and J. Chu

Effect of Boundary Conditions on Shear Banding in True Triaxial Tests on Sand *by P.V. Lade and Q. Wang*

Behavioural Patterns of Fine Sands *by V.N. Georgiannou*

Simulating Shear Rate-Dependent Undrained Stress-Strain Behaviour of Natural Sedimentary Clay at Kobe Airport
by M.-S. Jung and S. Shibuya

Experimental Investigation on Settling Behavior of Hong Kong Marine Deposits in Settling Column Condition
by F. Tong J.H.Yin and G.F. Zhun

Development of a Hollow Cylinder Torsional Apparatus for Pre-failure Deformation and Large Strains Behaviour of Sand
by E. Ibraim, P. Christiaens and M. Pope

Effect of High Confining Pressure on the Behaviour of Fibre Reinforced Sand *by S. Ud-din, A. Marri and D. Wanatowski*

TECHNICAL NOTE

A Comment on the Ratio of the Maximum and Minimum Dry Density for Sand
by E. Imre, S. Fityus, E. Keszeyne and T. Schanz

2012 MARCH Vol. 43 No. 1

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Some Applications Of Unsaturated Soil Mechanics In Thailand: An Appropriate Technology Approach
by W. Mairaing, A. Jotisankasa and S. Soralump

Calculation Of Heave Of Deep Pier Foundations
by J.D. Nelson, K.C. Chao, D.D. Overton and R.W. Schaut

In-Situ And Laboratory Investigations Of Stress-Dependent Permeability Function And SDSWCC From An Unsaturated Soil Slope
by C. W. W. Ng and A. K. Leung

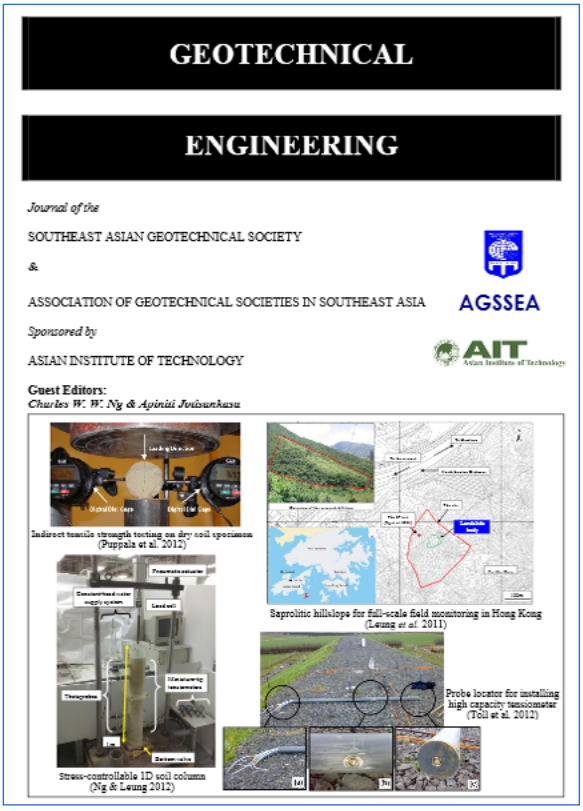
Measurements Of Shrinkage Induced Pressure (Sip) In Unsaturated Expansive Clays
by A.J. Puppala, T. Wejrungsikul, V. Puljan and T. Manosuthikij

Unsaturated Soil Mechanics For Slope Stabilization
by H. Rahardjo, A. Satyanaga, E. C. Leong

The Development Of Unsaturated Soil Mechanics At Imperial College, London
by J.R. Standing

Climate Change And The Role Of Unsaturated Soil Mechanics
by D.G. Toll, J. Mendes, P.N. Hughes, S. Glendinning and D. Gallipoli

Some Mining Applications Of Unsaturated Soil Mechanics
by D.J. Williams



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Papers:

Proposed Changes to the Geotechnical Earthquake Engineering Provisions of the Bangladesh National Building Code
by Tahmeed M. Al-Hussaini, Tahsin R. Hossain and M. Hayeem Al-Noman

Analysis of Soil Liquefaction during the Recent Canterbury (New Zealand) Earthquakes
by RP Orense, MJ Pender and LM Wotherspoon

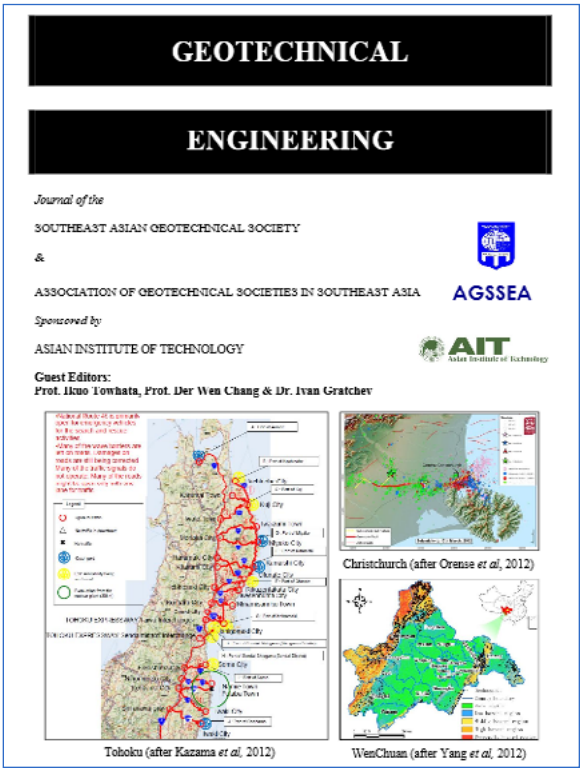
Numerical Simulation of Seismic Slope Stability Analysis based on Tension-Shear Failure Mechanism
by Yingbin Zhang, Guangqi Chen, Jian Wu, Lu Zheng, Xiaoying Zhuang

A Real-time Prediction Method for Regional Rainfall-induced Geohazards in Post-earthquake Region of Wenchuan Earthquake
by Z. Yang, J. Qiao, H. Tian, D. Huang, M. Wang and H. Meng

Effects of Anisotropic Consolidation and Stress Reversal on the Liquefaction Resistance of Sands and Silty Sands
by Abbas Galandarzadeh and Alireza Ahmadi

Characteristics of Slope Failures During Natural Disasters Considering Geographical Features and Groundwater Level: Case Study of the Chuetsu Region of Niigata, Japan
by H. Toyota

Overview of the Geotechnical Damages and the Technical Problems Posed after the 2011 off the Pacific Coast of Tohoku Earthquake
by M. Kazama, T. Noda, T. Mori and J. Kim



Development of Potential Map for Landslides Induced by the Chi-Chi Earthquake Using Instability Index
by Meei-Ling Lin and Yu-Hung Shu

Technical Notes:

Geotechnical Hazards with Emphasis on Seismically-Combined Effects on Slopes *by Ikuo Towhata*

Monitoring on Earthquake Induced Landslide – A Case Study in Northwest Chengdu, China
by Hongling Tian, Jianping Qiao., Taro Uchimura and Lin Wang

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Waste/Lining System Interaction: Implications for Landfill Design and Performance *by N. Dixon, K. Zamara1, D.R.V. Jones and G. Fowmes*

Wrinkling of a Geomembrane on a Compacted Clay Liner on a Slope
by R. K. Rowe, P. Yang, M.J. Chappel, R.W.I. Brachman , W.A. Take

Diffusion of phenolic compounds through an HDPE geomembrane *by N.Touze-Foltz, M.Ahari, M.Mendes, C.Barral, M.Gardoni and L. Mazeas*

Shear-Induced Geomembrane Damage due to Gravel in Underlying Compacted Clay
by P. J. Fox, C. Athanassopoulos, S. S. Thielmann, and A. N. Stern

Evaluation of mineral barriers against acid rock drainage
by A. Naka, T. Katsumi, G. Flores, T. Inui, T. Ohta, T. Urakoshi, and T. Ishihara

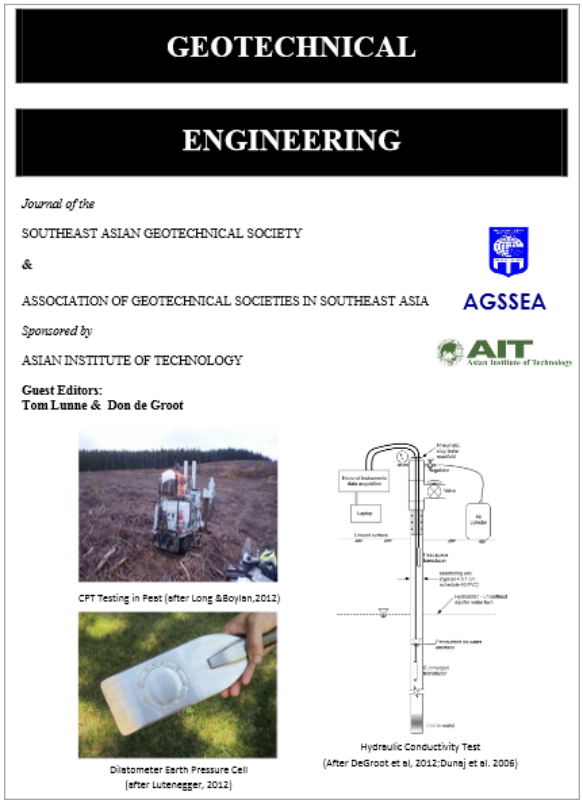
Improvement on the Performance of Geosynthetic Clay Liners Using Polymer Modified Bentonite
by Y. Liu, W. P. Gates and A. Bouazza

Effect of Settlement rate and Geogrid reinforcement on the Deformation Behaviour of Soil barriers of Landfill Covers: Centrifuge Study
by S. Rajesh and B.V.S. Viswanadham

Effect of differential settlements on the sealing efficiency of GCLs compared to CCLs: Centrifuge Study
by B.V.S. Viswanadham, S. Rajesh and A. Bouazza

Geosynthetic Lining System for Modern Waste Facilities – Experiences in Developing Asia *by H. B. Ng and B. Ramsey*

The Use of Geosynthetics in Major Metropolitan Landfills in Perth, WA – Two Case Studies
by L. Du Preez, R. Beaman and I. Watkins



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Evaluation of existing CPT correlations in silt
by A. S. Bradshaw, A. C. Morales-Velez and C.D.P. Baxter

Characterisation of quick clay at Dragvoll, Trondheim, Norway
by A. Emdal, M. Long, A. Bihs, A. Gylland and N. Boylan

Field response of push-in earth pressure cells for instrumentation and site characterization of soils
by Alan J. Lutenegger

Frequent-interval SDMT and continuous SCPTu for detailed shear wave velocity profiling in soils
by T. Ku and P.W. Mayne

In situ testing of peat – a review and update on recent developments *by M. Long and N. Boylan*

Understanding the stiffness of soils in Singapore from pressuremeter testing
by K.H. Goh, K. Jeyatharan and D. Wen

In situ measurement of hydraulic conductivity of saturated soils
by D.J. DeGroot, D.W. Ostendorf and A.I. Judge

Rate effect on cone penetration test in sand *by F. A. B. Danziger and T. Lunne*

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Some factors affecting deep excavation in clay over gassy bedrock
By Ahmed B Mabrouk and R Kerry Rowe

Effects of Consolidation and Specimen Disturbance on Strengths of Taipei Clays *By Richard N Hwang, Za-Chieh Moh and I-Chou Hu*

Lime Stabilisation of Organic Clay and the Effects of Humic Acid Content *By NZ Mohd Yunus, D Wanatowski and LR Stace*

Estimating Wetting-induced Settlement of Compacted Soils using Oedometer Test *By EC Leong, S Widiastuti and H Rahardjo*

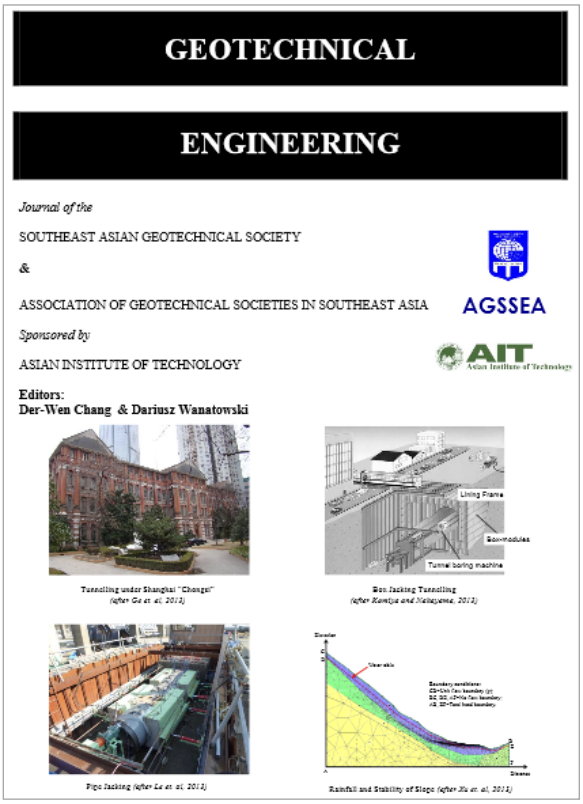
Compaction Curve with Consideration of Time and Temperature Effects for Mudstones
By A Puttiwongrak, H Honda, T Matsuoka and Y Yamada

Small strain behavior of sand under various stress paths considering anisotropic initial stress state
By Lai Yong, Shi Jian-yong, Yu Xiao-jun and Cao Qiu-rong

Study of Joint Effect on Pipe in Pipe Jacking Method
By L G Le, M Takise, M Sugimoto and K Nakamura

Finite Element Analysis of Ground Behaviour due to Box-jacking Tunnel Work *By K Komiya and T Nakayama*

Tunneling Induced Deformation of a Historic Building in Shanghai
By Shi-ping Gea, Dong-wu Xied, Wen-qi Dinga, Ya-fei Qiao and Jin-chun Chai



In-situ monitoring of internal displacements by FBG sensors and slope stability analysis under rainfall infiltration
By Dongsheng Xu, Fei Tong, Huahu Pei, and Jianhua Yin

Mechanistic-Empirical Pavement Design: A Brief Overview *By A T Papagiannakis*

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Soil-water-air coupled finite element analysis of model test on slope failure in unsaturated soil
By Y.L. Xiong, X.H. Bao and F. Zhang

Relation between seepage force and velocity of sand particles during sand boiling
By K. Fujisawa, A. Murakami, S. Nishimura and T. Shuku

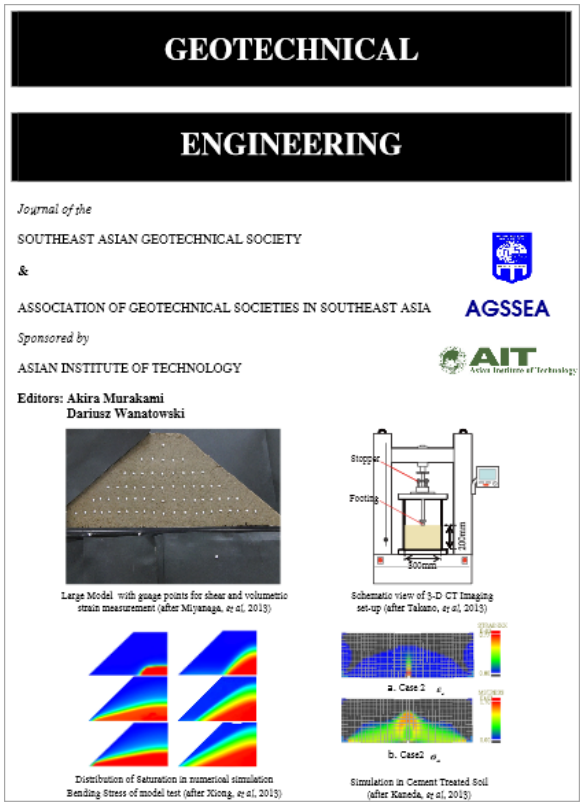
A density-and stress-dependent elasto-plastic model for sands subjected to monotonic undrained torsional shear loading *By G. Chiaro, J. Koseki and L.I. Nalin De Silva*

1-G model test with digital image analysis for seismic behavior of earth dam *By Y. Miyanaga, A. Kobayashi and A. Murakami*

X-ray CT imaging of 3-D bearing capacity mechanism for vertically loaded shallow foundations
By D. Takano, J. Otani, M. Nakamura, and R. Mokwa

Modeling and bending test simulations of cement treated soil
By K. Kaneda, T. Tanikawa and S. Onimaru

Modelling viscous effects during and after construction in London Clay *By S. D. Clarke and C. C. Hird*



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Numerical Simulation of the Rainfall Infiltration on Unsaturated Soil Slope Considering a Seepage Flow
By S.Kimoto, F.Oka and E.Garcia

Seismic Response of Gravity-Cantilever Retaining Wall Backfilled with Shredded Tire
By N. Ravichandran and E. L. Huggins

Numerical modeling of lateral response of long flexible piles in sand
By Md. Iftekharuzzaman and Bipul C Hawlader

A New Sampling Algorithm in Particle Fileter for Geotechnical Analysis *By T. Shuku, S. Nishimura, K. Fujisawa and A. Murakami*

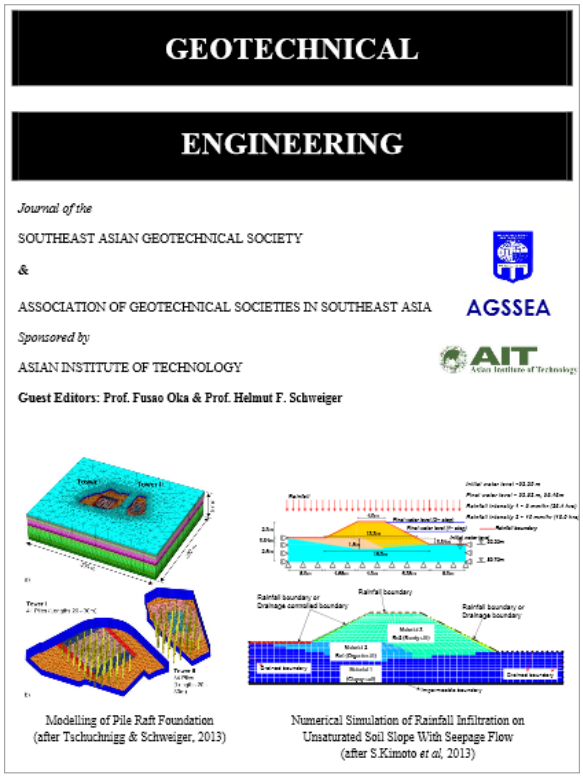
Comparison of deep foundation systems using 3D finite element analysis employing different modeling techniques
By F. Tschuchnigg & H.F. Schweiger

Application of a constitutive model for swelling rock to tunnelling
By B. Schadlich, T. Marcher and H.F. Schweiger

Finite element modelling of seismic liquefaction in soils
By V. Galavi, A. Petalas and R.B.J. Brinkgreve

Random Wave-Induced Seabed Responses around Breakwater Heads
By Y Zhang, D-S Jeng, Z-W Fu and J Ou

Influence of brittle property of cement treated soil on undrained bearing capacity characteristics of the ground
By S. Yamada, T. Noda, A. Asaoka and T. Shina



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Part I General papers

Behaviour of Clay Subjecting to Vacuum and Surcharge Loading in an Oedometer
By J.-C. Chai, J. P. Carter, A. Saito and T. Hino

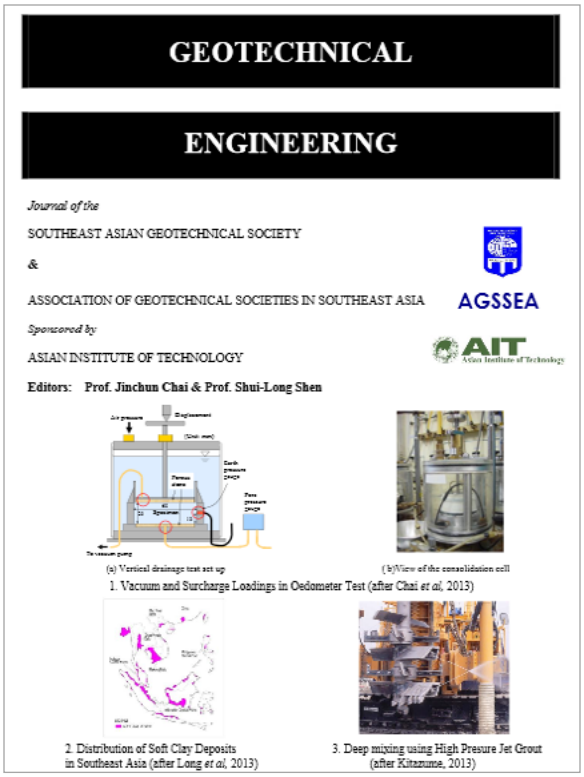
Behaviour of Geogrid Reinforced Abutments on Soft Soil *By Ennio M. Palmeira, André R.S. Fahel and Gregório. L. S. Araújo*

Geocell-Reinforced Granular Fill under Static and Cyclic Loading: A Synthesis of Analysis *By X. Yang and J. Han*

Electrical Vertical Drains in Geotechnical Engineering Applications
By J. K. Lee and J.Q. Shang

Design and Performance of Soft Ground Improvement Using PVD with and without Vacuum Consolidation
By P.V. Long, D.T. Bergado, L.V. Nguyen and A.S. Balasubramaniam

Reassessment of Long-Term Performance of Geogrids by Considering Mutual Interaction among Reduction Factors
By Han-Yong Jeon and Yuan Chun Jin



Part II State-of-the-art (review type) papers

Simulations of PVD Improved Reconstituted Specimens with Surcharge, Vacuum and Heat Preloading using Axisymmetric and Equivalent Vertical Flow Conditions
By P. Voottipruex and D.T. Bergado, and W. Wongprasan

Reinforced Embankments on Soft Deposits: Behaviour, Analysis and Design *By C. Taechakumthorn and R.K. Rowe*

Current State of the Art in Vacuum Preloading for Stabilising Soft Soil
By C. Rujikiatkamjorn and B. Indraratna

Jet Grouting Practice: an Overview *By Z.F. Wang, S.L. Shen, C.E. Ho and Y.H. Kim*

Deep Mixing Method in Japan *By Masaki Kitazume*

Recent Studies of Geosynthetic Tubes and Mattress: an overview *By Wei Guo, Jian Chu and Shuwang Yan*

Design Method for Bearing Reinforcement Earth Wall *By S. Horpibulsuk, C. Suksiripattanapong and A. Chinkulkijniwat*

Current State of Knowledge on Thermal Consolidation using Prefabricated Vertical Drains
By H. M. Abuel-Naga, G. A. Lorenzo and D. T. Bergado

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Part I General papers

Geosynthetic-Reinforced Soil Structures for Railways: Twenty Five Year Experiences in Japan
by F. Tatsuoka, M. Tateyama, J. Koseki and T. Yonezawa

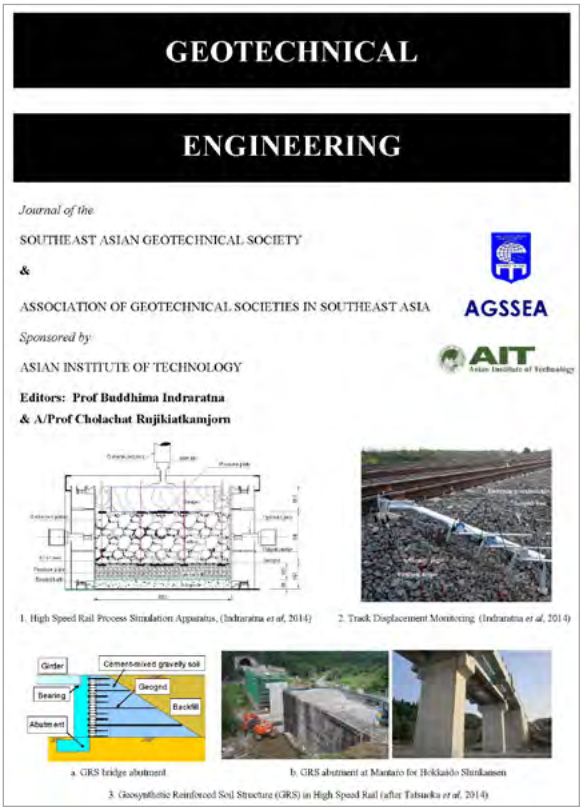
Enhancement of Rail Track Performance through Utilisation of Geosynthetic Inclusion *by Buddhima Indraratna, Sanjay Nimbalkar, and Cholachat Rujikiatkamjorn*

Railway Track Transition Dynamics and Reinforcement Using Polyurethane GeoComposites
by P. Woodward, O. Laghrouche and A. El-Kacimi

How to Overcome Geotechnical Challenges in Implementing High Speed Rail Systems in Australia by H. Khabbaz and B. Fatahi

Maintenance Model for Railway Substructure
by Ali Ebrahimi, James M. Tinjum, and Tuncer B. Edil

Dynamic Behaviour of Railway Ballasted Track Structures in Shaking Table Tests and Seismic Resistant Performance Evaluation in Japan
by T. Ishikawa, S. Miura and E. Sekine



Mechanical Properties of Polyurethane-Stabilized Ballast *by A. Keene, J.M. Tinjum, and T.B. Edil*

Dependency of Cyclic Plastic Deformation Characteristics of Unsaturated Recycled Base Course Material on Principal Stress Axis Rotation *by A. Inam, T. Ishikawa, and S. Miura*

Quickness Test Approach for Assessment of Flow Slide Potentials *by V. Thakur and S. A. Degago*

Cement Stabilization for Pavement Material in Thailand
by S. Horpibulsuk, A. Chinkulkijniwat, A. Suddeepong, and A. Neramitkornburee

Stone Columns Field Test: Monitoring Data and Numerical Analyses
by Marcio Almeida, Bruno Lima, Mario Riccio, Holger Jud, Maria Cascão, Felipe Roza

Technical Note:
Numerical Analysis of Response of Geocell Confined Flexible Pavement *by G. L Sivakumar Babu and Ram Babu*

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Numerical Investigation of Passive Loads on Piles in Soft Soils
by C. Moormann and J. Aschrafi

Numerical Simulation of an Energy Pile Using Thermo-Hydro-Mechanical Coupling and a Visco-Hypoplastic Model
by Xiaolong Ma, Gang Qiu, Jürgen Grabe

Numerical Studies on Dynamic Load Testing of an Open-ended Pipe Pile and a Case Study
by L. Phan Ta, T. Matsumoto and H. Nguyen Hoang

Performance of Piled Raft Foundation Subjected to Strong Seismic Motion *by K. Yamashita, T. Hashiba, H. Ito and T. Tanikaw*

Static Cyclic Load Tests on Model Foundations in Dry Sand
by Y.S. Unsever, T. Matsumoto, S. Shimono and M.Y. Özkan

Axial Bearing Behaviour of a Model Pile in Sand Under Multiple Static Cycles *by J. H. Hwang, Z. X. Fu, P. Y. Yeh, D. W. Chang*

Seismic PBD of Piles from Monte Carlo Simulation Using EQWEAP Analysis with Weighted Intensities
by D.W. Chang, Y.H. Lin, H.C. Chao, S.C. Chu and C.H. Liu

Case Studies on Response of Laterally Loaded Nonlinear Piles
by Wei Dong Guo

Numerical Analysis of the Effect of Pile Tip Shape on Soil Behaviour Around Pile *by Y. Wu and H. Yamamoto*

Shaking Table Test on Superstructure-foundation-Ground System in Liquefiable Soil and Its Numerical Verification
by F. Zhang, R. Oka, Y. Morikawa, Y. Mitsui, T. Osada, M. Kato and Y. Wabi

Model Loading Tests on Bearing Behaviour of a Group Pile and Ground Deformation in Sand
by S. Aoyama, B. Liu, L. Danardi, W. Mao, S. Goto and I. Towhata

Numerical Study on the Bearing Behaviour of Pile Groups Subjected to Lateral Pressure due to Soil Movements
by O. Reul, J. Bauer and C. Niemann

Deep Foundation Systems for High-rise Buildings in Difficult Soil Conditions
by R. Katzenbach and S. Leppla

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Part I: Centrifuge-based Physical Modeling

Centrifuge Modelling of Improved Ground
By M. Kitazume, Y. Morikawa and S. Nishimura

Simulation of Soil Movement in Geotechnical Centrifuge Testing – Deep Excavations, Tunnelling, Deposit
By D. König, O. Detert and T. Schanz

Run-out of Sensitive Clay Debris: Significance of the Flow Behavior of Sensitive Clays *By V. Thakur and D. Nigussie*

Verification of the Generalized Scaling Law for Flat Layered Sand Deposit *By T. Tobita, S. Escoffier, J. L. Chazelas and S. Iai*

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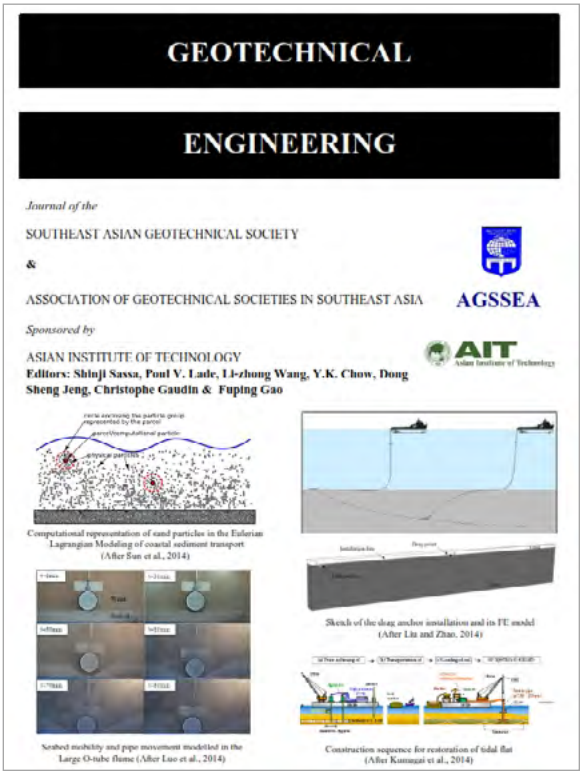

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Evaluation of the Hydraulic Conductivity of Clayey Soil Mixed with Calcium-Bentonite Using Odeometer Tests
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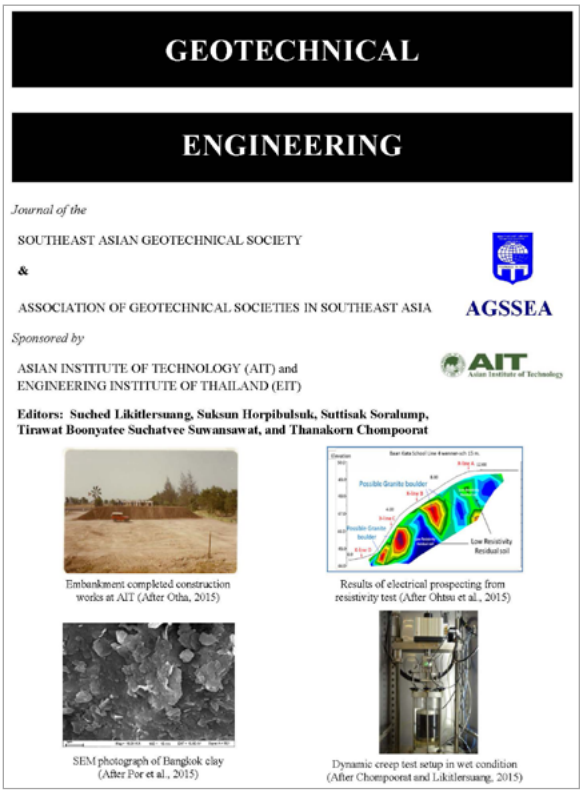

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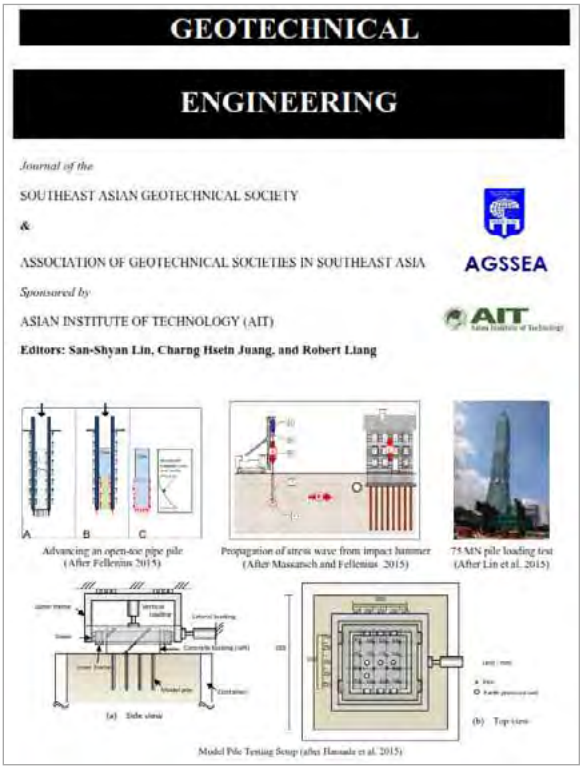

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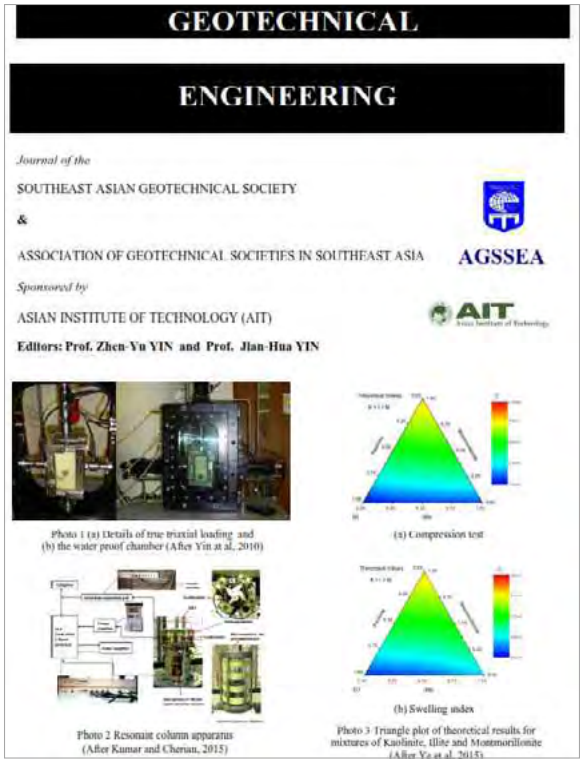

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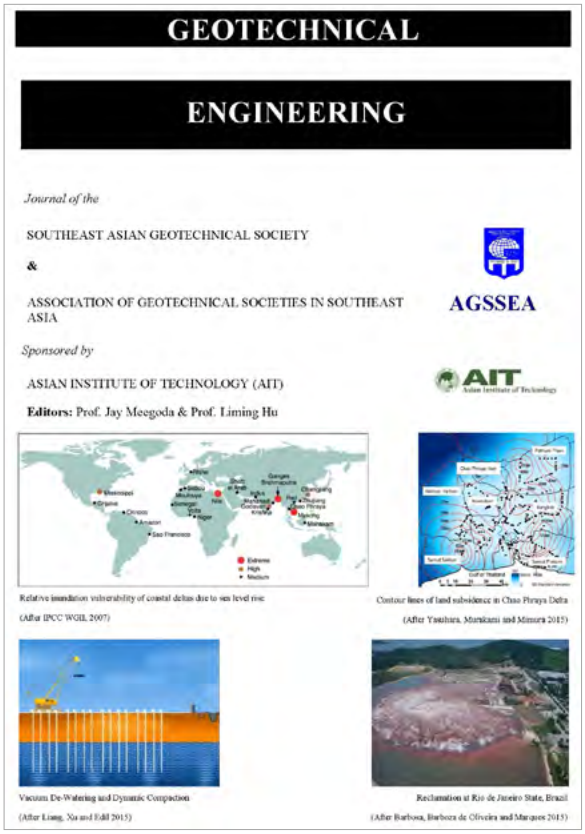

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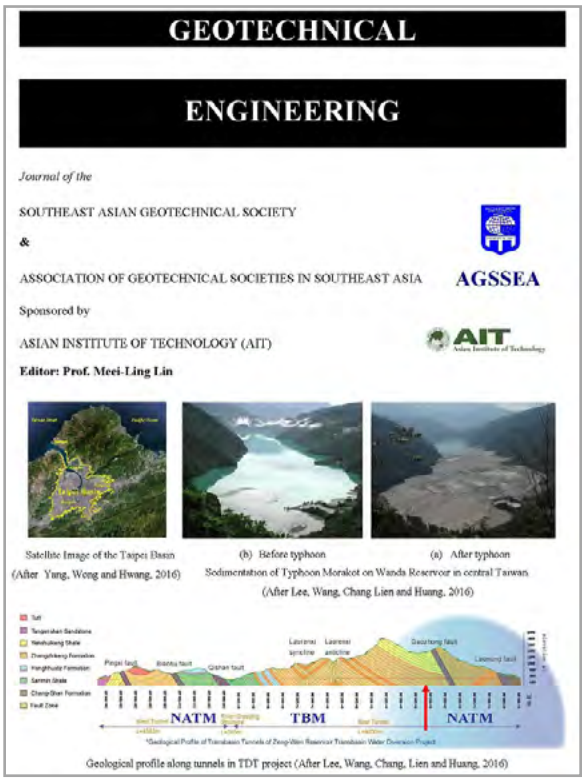

Geological profile along tunnels in TDT project (After Lee, Wang, Chang, Lien and Huang, 2016)

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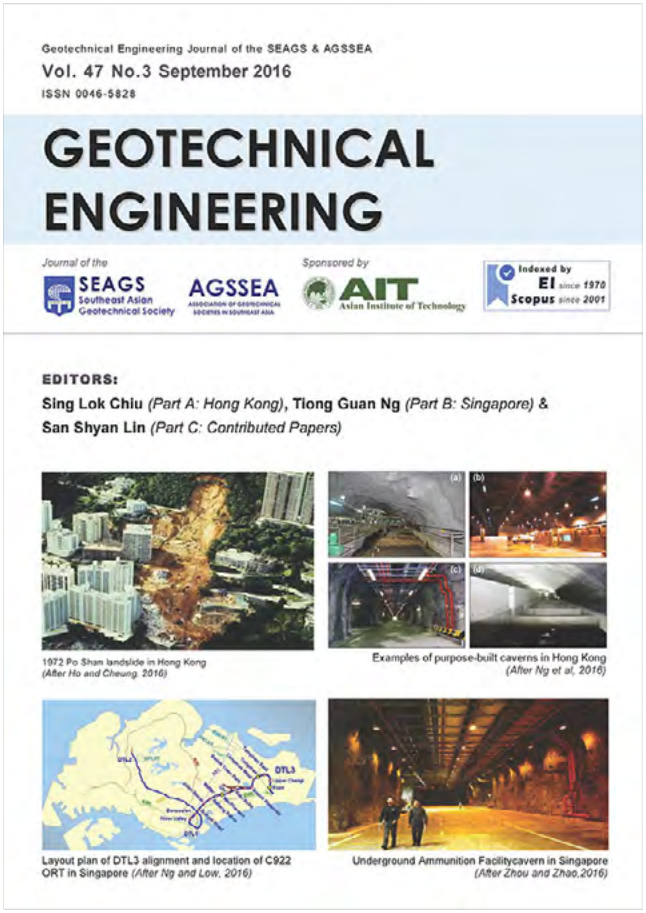

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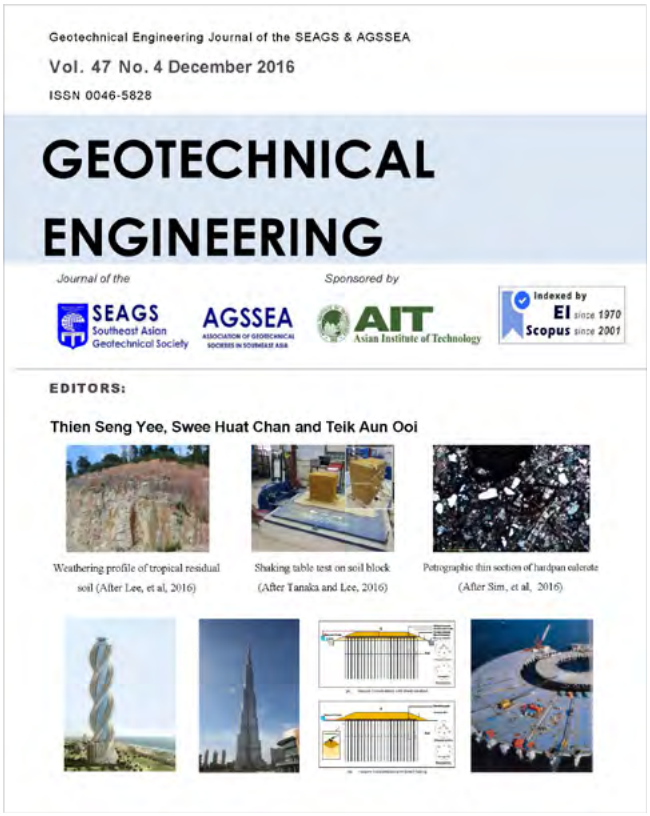

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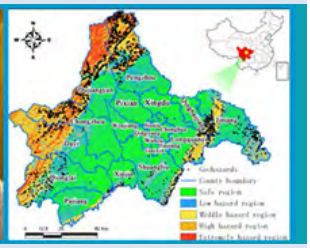

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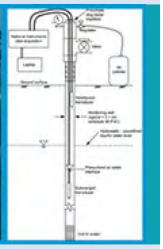

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Contributed Papers

Prof. Der-Wen Chang & Dr. Dariusz Wanatowski ▸ EDITORS

JUNE 2013
Modelling Aspects of Soil Behaviours

Prof. Akira Murakami & Dr. Dariusz Wanatowski ▸ EDITORS

SEPTEMBER 2013
Numerical Analyses

Prof. Fusao Oka & Prof. Helmut F. Schweiger ▸ EDITORS

DECEMBER 2013
Ground Improvement

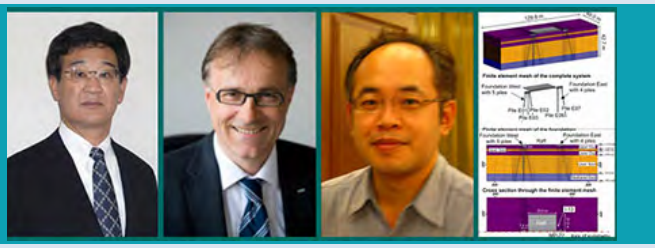
Prof. Jinchun Chai & Prof. Shui-Long Shen ▸ EDITORS

» 2014

MARCH 2014 ▸ Geotechnics for Advancing Transport Infrastructure

Prof. Buddhima Indraratna & A/Prof. Cholachat Rujikiatkamjorn ▸ EDITORS

JUNE 2014
Deep Foundations

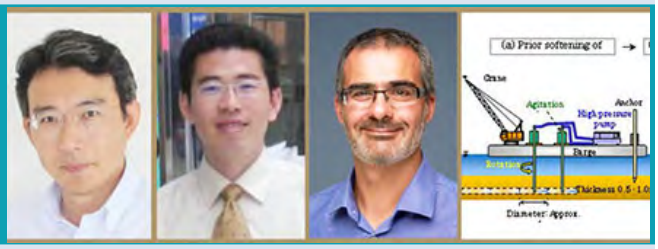


Prof. Tatsunori Matsumoto, Prof. Jürgen Grabe & Prof. Der-Wen Chang ▸ EDITORS

SEPTEMBER 2014
Centrifuge-based Physical Modeling

Prof. B.V.S. Viswanadham & Dr. Hanh Quang Le ▸ EDITORS

DECEMBER 2014
Offshore and Coastal Geotechnics



Dr. Shinji Sassa, Dr. Fuping Gao & Dr. Christophe Gaudin ▸ EDITORS

» 2015

MARCH 2015
Advances in Geotechnical Engineering for Infrastructure Developments in Thailand

Suched Likitlersuang, Suksun Horpibulsuk & Suttisak Soralump
EDITORS

JUNE 2015
Special Issue on Pile Foundations

San-Shyan Lin, Charng Hsein Juang, and Robert Liang
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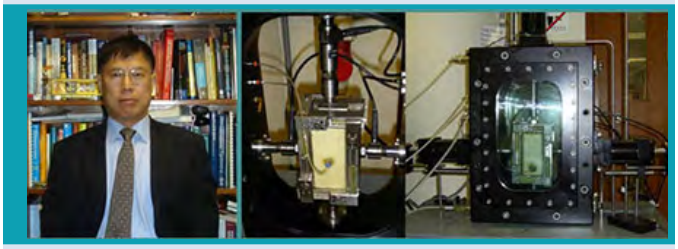
SEPTEMBER 2015
Soil Behaviour and Modelling



Prof. Zhen-Yu Yin and Prof. Jian-Hua Yin
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DECEMBER 2015
Problematic Soils including Contaminated Soils

Prof. Jay N. Meegoda and Prof. Liming Hu
EDITORS

» 2016

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Phung Duc Long & San Shyan Lin
EDITORS

JUNE 2016
CHINESE TAIPEI SPECIAL ISSUE

Prof. Meei-Ling Lin
EDITOR

SEPTEMBER 2016
HONG KONG AND SINGAPORE SPECIAL ISSUE

Sing Lok Chiu, Tiong Guan Ng & San Shyan Lin ▸ EDITORS

DECEMBER 2016
MALAYSIA SPECIAL ISSSUE

Thien Seng Yee, Swee Huat Chan and Teik Aun Ooi ▸ EDITORS

SYMPOSIUM
SEAGS 50th ANNIVERSARY 14-15 September 2017
Asian Institute of Technology, THAILAND

INTRODUCTION

Invitation to all geotechnical specialists from the President of the Thai Geotechnical Society and SEAGS President to attend the **SEAGS 50th Anniversary Symposium** on 14th-15th September 2017 at the Asian Institute of Technology Campus in Bangkok.

On behalf of the Chairman & Co-chairmen of the above conference, the Organizing Committee & the Advisory Committee, it is a pleasure for us to invite all Geotechnical Specialists to attend the SEAGS 50th Anniversary Symposium on 14th-15th September 2017 at the Asian Institute of Technology Campus in Bangkok.

This symposium is jointly organized by the Thai Geotechnical Society and Southeast Asian Geotechnical Society of ISSMGE. The Advisory Committee is very prestigious with Dr. Za Chieh Moh as Honorary Chairman; Prof. Roger Frank the President of ISSMGE & Prof. A.S.Balasubramaniam, a past-President of SEAGS are the dual Chairmen. Dr. Suttisak Soralump is the President of the Thai Geotechnical Society and Dr. Noppadol Phienwej is the President of SEAGS; Prof. A.S. Balasubramaniam is always working very closely with Dr. Noppadol Phienwej and the SEAGS Secretariat at AIT.

The Symposium consists exclusively of invited papers. There are about 35 distinguished invited lecturers. More details can be found on the Advisory Committee, the Lecture topics, biographies of the lecturers, opening ceremony, session chairmen etc. as contained in the conference website. The Histories of SEAGS and AGSSEA are also contained in this website.

We cordially invite participants from everywhere to the beautiful AIT Campus and the scenic city of Bangkok and Thailand.

Dr. Suttisak Soralump
Dr. Noppadol Phienwej

Opening Ceremony

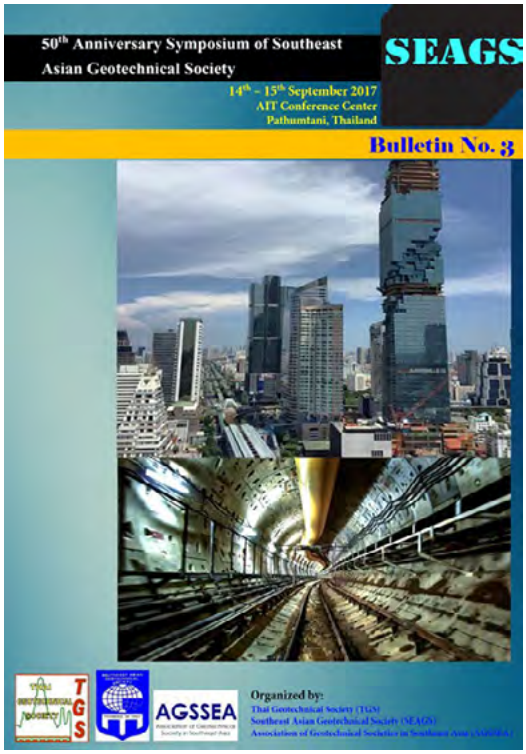
Master of Ceremony: **Dr. Geoff Chao**
Chairmen: **Prof. K.Y. Yong & Dr. Ooi Teik Aun (Past Chairmen AGSSEA)**
Honoured Guests: **Dr. Subin Pinkayan, Dr. John D. Nelson, Dr. Edward W. Brand, Prof. Prinya Nutalaya & Prof. Seng Lip Lee**

Welcome Addresses: **Prof. Worsak Kanokkulchai, AIT President**
Dr. Noppodol Phienwej, President SEAGS
Dr. Suttisak, President Thai Geotechnical Society

Address by: **Dr. Za Chieh Moh: Founder President SEAGS**

Presidential Address: Prof. Roger Franks, ISSMGE President
Address by: Prof. Ikuo Towhata, VP for Asia ISSMGE
Address by: Prof. San Shyan Lin, Chairman AGSSEA

Bulletin #3



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DETAILS OF LECTURES & LECTURERS ARRANGED COUNTRY-WISE

1: Australia (1)
2: Bangladesh (1)
3: France (1)
4: Hong Kong (3)
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6: Indonesia (2)
7: Japan (5)
8: Korea (1)
9: Kazakhstan (1)
10: Malaysia (4)
11: Portugal (1)
12: Singapore (3)
13: Taiwan (7)
14: Thailand (9)

Australia

AU1: Prof. Buddhima Indraratna & Dr. Cholachat: Recent Developments in Transport Geotechnics

Bangladesh

BD1: Prof. Tahmeed Al-Hussaini: Seismic Hazard Assessment Procedures - Reflection on Bangladesh

Hong Kong

HK1: Dr. Charles Ng: State-of-the-Art Research in Geo-energy and Geo-Environmental Engineering: Geothermal Pile and Capillary Landfill Cover System

HK2: Prof. Jian Hua Yin: A New Simplified Hypothesis B Method for Calculating Consolidation Settlements of Multiple Layers of Clayey Soils with Creep

HK3: Prof. John Endicott: Tunnelling Experiences in Hong Kong

India

IN1: Dr. V. Balakumar, Prof. Min Huang, Dr. Erwin Oh & Prof. A.S. Balasubramaniam: A Critical and Comparative Study on The 2D and 3D Analyses of Raft and Piled Raft Analyses

Indonesia

ID1: Prof. Paulus Rahadjo: Selected Case Histories on Man Made Slope Failures in Indonesia

ID2: Ir. Gouw Tjie-Liong: Proposed Design Guideline of Dynamic Compaction for Practicing Engineer

Japan

JP1: Prof. Kazuya Yasuhara: Settlement of River Dykes and Their Adjacent Residences on Soft Clay Deposits

JP2: Prof. Takenori Hino: Recent Deep Mixing Developments in Saga Prefecture Recent Deep Mixing Developments in Saga Prefecture

JP3: Prof. Hosoi Takeshi : Challenging Technologies of Diaphragm Wall and Bored Pile

JP4: Prof. Ikuo Towhata: Future Task of our Discipline

JP5: Prof. Mitsutaka Sugimoto: Recent Developments in Soft Ground Tunnelling

Korea

KP1: Dr. Dong Hyun Kim: Applications of Image Processing to Rock Slope Engineering

Kazakhstan

KZ1: Prof. Askar Zhussupbekov: Piling Designing, Installation and Testing on Problematical Soil Ground of Kazakhstan

Malaysia

MY1: Dr. C.W. Boon and Dr. L.H. Ooi: Recent Advances in Tunnelling Geotechnics: Impact Assessments

MY2: Prof. Dr. Fauziah Ahmad: The Community Slope Safe Awareness at Bukit Antarabangsa, Kuala Lumpur, Malaysia

MY3: Ir. Shaw Shong Liew: Common Blind spots in Ground Investigation, Design, Construction, Performance Monitoring and Feedbacks in Geotechnical Engineering.

MY4: Prof. Dominic Ong: Detrimental Effect of Lateral Soil Movements on Pile Behavior

Portugal

PT1: Prof. Pedro Pinto: Leziria Tagus Bridge - Ground Challenges

Singapore

SG1: Dr. Siau Chen Chen (Darren): Optimising Cement Dosage in Ground Improvement and Early Quality Control Schemes

SG2: Prof. Kwet Yew Yong: 50 Years of Geotechnical Challenges in Singapore Infrastructure Development

SG3: Prof. Chu Jian: Recent Development in Land Reclamation and Related Soil Improvement Works

Taiwan

TW1: Prof. San Shyan Lin: Finite Element Analysis to Characterize the Lateral Behavior of a Capped Pile Group

TW2: Dr. Richard Hwang: Deep Excavations & Tunnelling Experience in Taipei

TW3: Prof. Hun Jiun Liao: The Anchors of Anchored Slopes in Taiwan

TW4: Prof. Chiwan Hsieh: Weaving Pattern and Lateral Confinement Effects on The Engineering Behavior of Hexagonal Wire Mesh Panels

TW5: Prof. Lin Der Guy: Evaluating the Efficiency of Subsurface Drainage for Large Landslides in Taiwan

TW6: Prof. Keh-Jian Shou: Trenchless Excavations for Underground Pipelines in Difficult Geology

TW7: Prof. Louis Ge: Liquefaction-Induced Settlement of Structures on Shallow Foundation

Thailand

TH1: Dr. Geoff Chao: Evaluation of Factors Influencing Expansive Soil Embankment Slope Failure

TH2: Dr. Pham Giao, Dr. Noppadol Phien-wej, Prof. Prinya Nutalaya and Dr. Y. Honjo: Bangkok Land Subsidence and Groundwater Recovery: To Pump or Not To Pump

TH3: Prof. Suched Likitlersuang, Dr. Chanaton Surarak, Dr. Dariusz Wanatowski and Dr. Erwin Oh: Strength and Stiffness Parameters of Bangkok Clays for Finite Element Analysis

TH4: Prof. Suksun Horpibulsuk: Sustainable Stabilization of Problematic Soils

TH5: D.T. Bergado, A.S. Balasubramaniam and P.V. Long, Recent Developments of Soft Ground Improvements Using Prefabricated Vertical Drains (PVD) and Deep Cement Mixing (DCM)

TH6: T.H. Seah, Geotechnical Characterization and Properties of Bangkok Clay

TH7: Dr. Noppadol Phienwej: Geotechnical Engineering Practice 1987 – 2016: Selected Topics

TH8: Dr. Suttisak Soralump: The Modeling Impact of Future Climate on Stability of Slopes

TH9: Dr. Avirut Chinkulkijniwat: Hydrological and Physical Criteria of Rainfall-Induced

Biodata of Lecturers

Prof. Roger Frank

Prof. Roger Frank was born in 1949 at Roslyn, New York (USA). He was then raised in the UK, in Switzerland and in France. He received his Diploma of Engineering... ⏩ *Read more*

Prof. Kazuya Yasuhara

Kazuya Yasuhara is Professor Emeritus of Ibaraki University in Japan; His academic career started in Kyushu University where he was from 1968 to 1978, earning a Doctoral ... ⏩ *Read more*

Dr. John C. Li (李 建 中)

Dr. John Chien-Chung Li graduated from the National Cheng-Kung University of Taiwan in 1971 and then joined the army for his military service as a second lieutenant... ⏩ *Read more*

Prof. Jian Hua Yin

Professor Yin received a BEng degree in 1983 in Chinese Mainland, an MSc degree from Institute of Rock and Soil Mechanics of the Chinese Academy of Sciences in 1984... ⏩ *Read more*

Prof. Hung-Jiun Liao

Prof. Liao got his B.S. degree in Civil Engineering from National Taiwan University (1979), M.Sc. degree from Imperial College of Science and Technology (1982), and Ph.D. degree... ⏩ *Read more*

Prof. Dennes Bergado

Prof. Bergado obtained his B.S. in Civil Engineering Degree from MSU in 1974, Master in Soil Engineering from the Asian Institute of Technology in 1976 and Ph.D. in Civil... ⏩ *Read more*

Prof. Ikuo Towhata

Prof. Ikuo Towhata had his engineering education at the prestigious Tokyo University in Japan and is currently a Professor in the Department of Civil Engineering... ⏩ *Read more*

Dr. Noppodol Phienwej

Dr. Noppadol was an Associate Professor in Geotechnical and Earth Resources Engineering in AIT's School of Engineering and Technology (SET). He became SEAGS President... ⏩ *Read more*

Prof. Keh-Jian (Albert) Shou

Keh-Jian Shou (Professor, Ph.D.) is now working with Department of Civil Engineering, National Chung-Hsing University, Taiwan (since 1994). He get his Ph.D. degree in... ⏩ *Read more*

Prof. Louis Ge

Louis Ge is a Professor of Civil Engineering at National Taiwan University (NTU), Taiwan. He obtained his B.S. in Civil Engineering from NTU in 1995. He then received his... ⏩ *Read more*

Prof. Der-Guey Lin

Dr. Der-Guey Lin is currently, Professor in the Department of Soil and Water Conservation at the National Chung-Hsing University (NCHU), Taichung, Taiwan.... ⏩ *Read more*

Dr. Geoff Chao

Dr. Chao has over 20 years of experience in the area of geotechnical engineering and construction. He received his Master and Ph.D. degrees from Colorado State University... ⏩ *Read more*

Prof. Pedro Simão Sêco e Pinto

Prof. Pedro Simão Sêco e Pinto is Full Professor of Geotechnical Engineering of University of Coimbra. Invited Professor of Master Courses "Soil... ⏩ *Read more*

Prof. Askar Zhussupbekov

Askar Zhussupbekov was born in 1955 at Agatan, Uralsk prefecture (Kazakhstan). He received his Diploma of Civil Engineering (1977) from Saint-Petersburg State... ⏩ *Read more*

Prof. Paulus P. Rahardjo

Prof. Paulus P. Rahardjo completed undergraduate study at Universitas Katolik Parahyangan (Unpar) and since then has been faculty members at the university. He pursued... ⏩ *Read more*

Dr. Suttisak Soralump

Dr. Suttisak Soralump is currently an Associate Professor at Kasetsart University in Bangkok, Thailand. He is also the President of the Thai Geotechnical Society. An Alumnus of... ⏩ *Read more*

Prof. Tahmeed Al-Hussaini

Tahmeed Al-Hussaini is Professor in Civil Engineering at Bangladesh University of Engineering and Technology (BUET). He graduated from BUET in 1994, an Alumnus of AIT... ⏩ *Read more*

Dr. Thian Ho Seah

Dr. Thian Ho Seah had his engineering education at Kings College London and Massachusetts Institute of Technology. He was a Faculty Member at the Asian Institute of... ⏩ *Read more*

Dr. Hosoi Takeshi

Dr. Hosoi Takeshi is a Geotechnical Advisor at WSP Parsons Brinckerhoff, Singapore. He received his PhD with research focused on "Diaphragm Wall Design and... ⏩ *Read more*

Ir. Dr. Dominic Ong

Ir. Dr. Dominic Ong obtained his Bachelor's Degree in Civil Engineering from the University of Western Australia (UWA) and his PhD in Geotechnical Engineering from the... ⏩ *Read more*

Dr. John Endicott

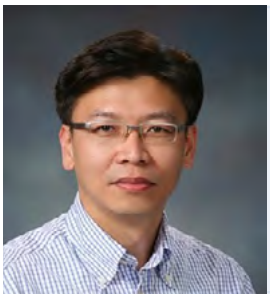
Prof. John Endicott graduated from Cambridge University with a degree in Mathematics and Mechanical Sciences in 1967 and obtained a PhD in 1971 studying the numerical... ⏩ *Read more*

Prof. Mitsutaka Sugimoto

Prof. Sugimoto was born in Tokyo, Japan. After he graduated from the Department of Civil Engineering, Tokyo University in 1980, he worked for Hazama Construction... ⏩ *Read more*

Dr. Chiwan Wayne Hsieh

Chiwan Wayne Hsieh graduated in Hydraulic Engineering from the Feng-Chia University, Taiwan in 1980. He obtained a Ph.D. in the Department of Civil and Environment... ⏩ *Read more*



Dr. Dong-Hyun, Kim

As a PhD and a published researcher, engineering award recipient Dong-Hyun boasts a career of exceptional achievement in civil engineering spanning over 20 years... ⏩ *Read more*

Prof. Fauziah Ahmad

Prof. Dr. Fauziah Ahmad is a Professor in Geotechnical engineering also serves as a Geotechnical Engineer and a Researcher at School of Civil Engineering, Universiti Sains... ⏩ *Read more*

Dr. Chia-Weng Boon

Dr. Boon is now in the Mass Rapid Transit (MRT) industry in the construction of underground stations and tunnels. Prior to this, Dr. Boon obtained his D.Phil. from... ⏩ *Read more*

Dr. V. Balakumar

Dr. V. Balakumar is the whole time retainer consultant for M/S Simplex Infrastructure Limited at Chennai office. He heads the research and designs division of the organization... ⏩ *Read more*

Dr. Erwin Oh

Dr. Oh is the Associate Dean (International) for Griffith School of Engineering and a Senior Lecturer in Geotechnical Engineering at Griffith University. He received his... ⏩ *Read more*

Prof. Yong Kwet Yew

Er Professor Yong Kwet Yew is Vice President at the National University of Singapore and oversees the planning and sustainable development of campus infrastructure... ⏩ *Read more*

Distinguished Professor Buddhima Indraratna, PhD, FTSE

Buddhima Indraratna has earned the highest Australian professorial title as Distinguished Professor at the University of Wollongong. He is also a... ⏩ *Read more*

Prof. Chu Jian

Dr. Chu is Professor in Geotechnical Engineering at Nanyang Technological University (NTU), Singapore. He is the Director of Centre for Usable Space and Interim Co-Director... ⏩ *Read more*

Prof. Suched Likitlersuang

Suched Likitlersuang is currently a full professor at the Department of Civil Engineering, Faculty of Engineering, Chulalongkorn University. He joined the Department of... ⏩ *Read more*

Ir. Tjie Liong Gouw

Mr. Gouw is a senior geotechnical consultant practicing particularly in Indonesia. He graduated from Parahyangan Catholic University, Bandung, Indonesia, with a Master... ⏩ *Read more*

Prof. Suksun Horpibulsuk

Prof. Suksun Horpibulsuk obtained a B.Eng. (Civil Engineering) with Honors Award from Khon Kaen University, Thailand in 1996. Prof. Suksun was subsequently granted... ⏩ *Read more*

Dr. Siau Chen Chian (Darren)

Dr. Chian is an Assistant Professor at the Department of Civil and Environmental Engineering, National University of Singapore. He received his PhD and BEng with gold... ⏩ *Read more*

Prof. Charles Ng

Professor Charles W.W. Ng is the Associate Vice-President for Research and Graduate Studies and a Chair Professor in Civil and Environmental Engineering at the Hong Kong... ⏩ *Read more*

Dr. Richard Hwang

Dr. Hwang received his bachelor degree from the National Taiwan University, master degree from North Dakota State University and doctor degree from the University of... ⏩ *Read more*

Dr. Cholachat Rujikiatkamjorn

Dr. Cholachat is an Associate Professor at the Centre for Geomechanics and Railway engineering, School of Civil, Mining and Environmental Engineering, University of... ⏩ *Read more*

Prof. San Shyan Lin

Prof. San-Shyan Lin graduated from Chung Yuan University with a BSCE degree in 1981. He then obtained his master degree from Utah State University, Logan, Utah in 1985... ⏩ *Read more*

Dr. Chung-Tien Chin

Dr. Chung-Tien Chin received his bachelor's degree in civil engineering from National Taiwan University in 1980, and his Ph.D. in geotechnical engineering from the... ⏩ *Read more*

Ir. Liew Shaw Shong

Ir. Liew Shaw Shong obtained his Bachelor of Science Degree in Civil Engineering with First Class Honours from National Taiwan University at Taipei in 1991 and worked as a... ⏩ *Read more*

Advisory Committee

Prof. Eivind Grøv, Norway
Mr. Felix Amberg, Switzerland
Mr. Mikhail Belenky, Russia
Ms. Antonia Comaro, Switzerland
Mr. Martin Knights
Mr. Tom Melbye, Norway
Dr. Harvey Parker, USA
Dr. Harald Wagner, Austria
Prof. Dr. Bai Yun, China
Prof. Tarcisio Celestino, Brazil

Exhibitions

WTC 2017 will gather public managers, designers, contractors, equipment suppliers, engineering service companies, professors, professionals and students. There will be space and opportunity for the interchange of technical information, for the new products and services divulgation and for the creation and strengthening of relations among the participants. Everything related to underground works will be the focus. Currently Norway offers several businesses and technology exchange opportunities. In 2017 there are several ongoing major projects in the region.

On behalf of the organizing Committee of the WTC 2017, we hereby offer your company to participate at this congress as it will be an excellent opportunity to expose your company brand and products. By offering an effective marked place for your company and its products, the organizing Committee will to do their outmost to ensure that your investment at the WTC 2017 will be as fruitful as possible.

Being “the gateway to the fjords”, Bergen is the ideal destination offering the attractive combination of pure nature, culture and pulsating city life. Bergen is easily accessible with multiple direct international flights.

The congress venue is the famous Grieghallen. Exhibitors will be given excellent opportunities to present company name and products during the conference. The Grieg Hall is situated downtown Bergen within 10 minutes walking distance to most of the major hotels and city service facilities. The outdoor exhibition area is located close to the Grieg Hall. Coffee breaks and luncheons will take place in the Exhibition Hall.

This will offer excellent opportunities for participant interaction in a compact and modern setting. The Conference area is purpose built for conferences combining Exhibition and Scientific programs. More Information on the Grieg Hall can be found at grieghallen.no

The exhibition is coordinated by the officially appointed PCO for the World Tunnel Congress 2017, First United, acting as Agent of Contract on behalf of the above mentioned congress hosts. All questions and orders will be handled individually and confidential.

If you are interested in becoming an exhibitor, then please send an e-mail ASAP to: pco@firstunited.no
Exhibition space will be allocated on a first come, first served basis.

WTC 2017 Session Topics

- Innovations in rock support and water proofing technology
- Case histories – lessons learnt
- Underwater tunnels (strait crossings for road and railway, utility tunnels)

- Urban tunnelling (planning, design and construction)
- Site investigation, ground characterization
- Strategic use of underground space for resilient city growth
- Utilization of underground for hydropower projects (unlined tunnels and shafts, underwater piercing, air cushion chambers)
- Mechanized excavation (hard rock, soft rock and soil)
- Innovations in drill and blast excavation
- Large caverns (planning, design and construction)
- Tunnelling for mining purposes
- Underground waste storage and disposal
- Operation and maintenance
- Safety management of complex underground excavations
- Stability assessment, risk analysis and risk management
- Seismic design of tunnels and underground excavations

WTC 2018: Dubai

WTC 2019: Naples

WTC 2020: IEM: KL, Malaysia: ***Contact Dr Ooi Teik Aun***

World Tunnelling Conference 2020 comes to Kuala Lumpur, Malaysia;
Contact person: Ir Dr. Ooi Teik Aun, IEM Training Centre Sdn.Bhd., Malaysia
Details of the arrangements and themes will be announced shortly;

Kuala Lumpur, Malaysia

Ir Dr. Ooi Teik Aun

Meanwhile The Bergen WTC in 2017 had the themes: Innovations in rock support and water proofing technology; Case histories – lessons learnt; Underwater tunnels (strait crossings for road and railway, utility tunnels); Urban tunnelling (planning, design and construction); Site investigation, ground characterization; Strategic use of underground space for resilient city growth; Utilization of underground for hydropower projects (unlined tunnels and shafts, underwater piercing, air cushion chambers); Mechanized excavation (hard rock, soft rock and soil);Innovations in drill and blast excavation; Large caverns (planning, design and construction); Tunnelling for mining purposes; Underground waste storage and disposal; Operation and maintenance; Safety management of complex underground excavations; Stability assessment, risk analysis and risk management; Seismic design of tunnels and underground excavations

Bergen: WTC 2017

San Francisco : WTC 2014

Malaysia's Bid to Host the ITA-AITES World Tunnel Congress (WTC) 2020
15th – 21st May 2020

Host City
Kuala Lumpur, Malaysia

Host Organisation
The Institution of Engineers, Malaysia

Nominated Organising Chairman
Ir. Dr. Ooi Teik Aun

Expected Participation
1,200 delegates

Proposed Dates
15th – 21st May 2020

The Contact
The Institution of Engineers, Malaysia
Bangunan Ingenieur, Lot 60/62,
Jalan 52/4, Peti Surat 223 (Jalan Sultan),
46720 Petaling Jaya,
Selangor Darul Ehsan, Malaysia.

Tel : (603) 7968 4001/4002
Fax : (603) 7957 7678
email : drtaooi@gmail.com

Contents

WTC2020, Kuala Lumpur, Malaysia, 15-21 May 2020
https://tunneltalk.com/images/article-0669/WTC2020-Malaysia.pdf

16th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering (16ARC)

October 14-18, 2019

Taipei International Convention Center (TICC)

16ARC - 14-18, October, 2019 **http://www.16arc.org/**

The 16th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering (16ARC) will be held on October 14-18 in 2019 in Taipei International Convention Center (TICC), Taipei, Taiwan.

The main theme of the 16ARC is Geotechnique for Sustainable Development and Emerging Market Regions. A number of subjects on modern geotechnical technologies and activities will be covered up to match up the main theme.

In a roll of 60 years, we sincerely hope that the 16ARC will continue to bring great success following the glories of past ARCs (New Delhi 1960, Tokyo 1963, Haifa 1967, Bangkok 1971, Banglore 1975, Singapore 1979, Haifa 1983, Kyoto 1987, Bangkok 1991, Beijing 1995, Seoul 1999, Singapore 2003, Kolkata 2007, Hong Kong 2011, Fukuoka 2015).

http://www.16arc.org/

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)

SEACETUS2017: Southeast Asian Conference And Exhibition In Tunnelling And Underground Space 2017

Innovation and Sustainable Underground Space Development (18 - 19 April 2017)

Dorsett Grand Subang Hotel, Subang Jaya, Selangor, Malaysia

INTRODUCTION

The Tunnelling & Underground Space Technical Division of The Institution of Engineers, Malaysia (IEM TUSTD) is hosting for the first time the Southeast Asian Conference and Exhibition in Tunnelling and Underground Space (SEACETUS2017) in Subang Jaya, which is approximately 27 km from Kuala Lumpur City Centre. The conference will offer case studies and strategies that demonstrate innovation, skills and best practices, and help delegates understand the technologies and techniques guiding the Tunnelling and Underground Space Development Industry.

Its aims are to promote the sharing of knowledge, experience, skills, ideas and achievements in the designing, financing and contracting as well as construction, operation and maintenance of tunnels and other underground facilities among the ASEAN Countries on an organised basis and with agreed aims. International paper contributions are also welcomed.

Download SEACETUS2017 Bulletin No. 2

Organized by:

IEM
The Institution of Engineers, Malaysia
TUNNELLING AND UNDERGROUND
SPACE TECHNICAL DIVISION

An event endorsed by:

ASSOCIATION INTERNATIONALE DES TUNNELS ET DE L'ESPACE SOUTERRAIN
ITA AITES
INTERNATIONAL TUNNELLING AND UNDERGROUND SPACE ASSOCIATION

Managed by:

IEMTC
IEM TRAINING CENTRE SDN. BHD

The Conference covers:

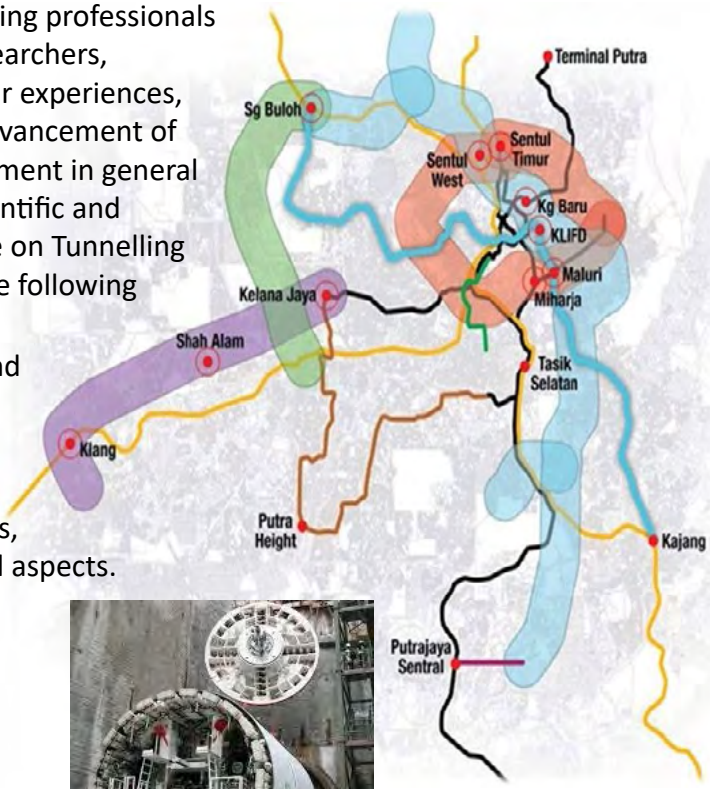
- Tunnelling projects – this includes past and present projects;
- Collaboration among researchers, governments, developers, consultants, contractors and specialists tunnel & trenchless contractors;
- Standards, legal, social, economic, safety & risk management and related topics on the use of underground space.

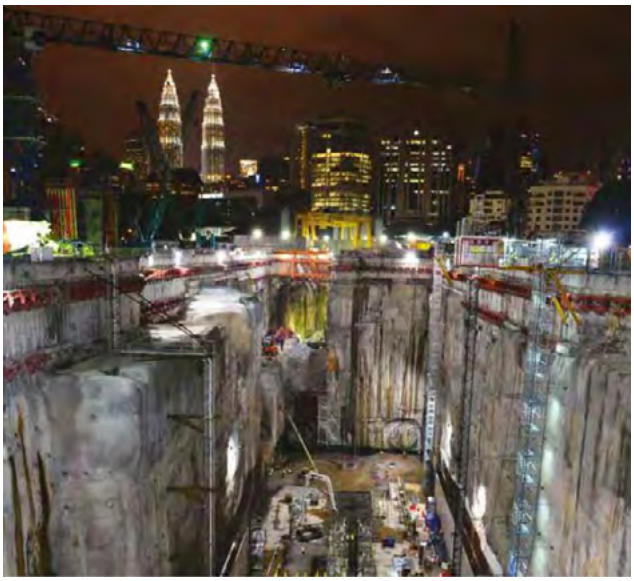
CONFERENCE THEME:

Innovation and Sustainable Underground Space Development

This conference is aimed at providing a forum for practising professionals – engineers, consultants, contractors, technologists, researchers, academicians, manufacturers and suppliers to share their experiences, research, studies and views so as to contribute to the advancement of Sustainable Tunnelling and Underground Space Development in general and particularly in Asia. A wide range of high quality scientific and technical papers of International or Regional significance on Tunnelling and Underground Space Development is expected on the following topics:

- Tunnelling to include process, operation, ventilation and maintenance.
- Trenchless Technology such as micro-tunnelling, pipe-jacking, directional drilling and rehabilitation.
- Related areas such as detection and inspection services, robotic development, sewerage services and structural aspects.
- Safety health environmental quality and legal aspects.
- Machine development and designs, latest models presentation from manufacturers of tunnelling and related machines.
- Geotechnical aspects with particular references to tunnelling and underground space development.
- Research and recent development and progress related to tunnelling & the use of underground space.





CONTACT DETAILS

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No. 33-1A (1st floor), Jalan 52/18,
P.O. Box 224 (Jalan Sultan)
46720 Petaling Jaya, Selangor Darul Ehsan,
MALAYSIA

INVITED SPEAKERS

Opening Keynote Address:

Prof. Jingxiu Yan (Vice President, ITA)

Keynote Lectures:

Prof. Kwet Yew Yong (National University of Singapore)
Prof. Charles W.W. Ng
(Hong Kong University of Science and Technology)
Er. Seng Tiok Poh (MRT Corporation)
Ir. Dato' Paul Ha (Gamuda)

Special Lectures:

Dr. Benson Hsiung
(National Kaohsiung University of Applied Sciences)
Prof. Noppadol Phien-wej
(Asian Institute of Technology)
Dr. Davorin Kolic (ITA Croatia)
Dr. Harald Wagner (ITA Thailand)
Mr. Gus Klados (MMC-Gamuda KVMRT)
Mr. Zaw Zaw Aye (SEAFCO)
Mr. John Davies (Jururunding Arup)
Mr. Alexander (Sandy) Mackay (HSS Intergrated)
Mr. Andreas Raedle (Arup Singapore)

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.

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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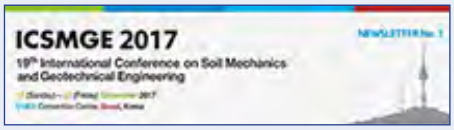
NEWSLETTER No. 1 (pdf format)



Invitation

Honorable Members of the ISSMGE,

On behalf of the Local Organizing Committee for the 19th International Conference on Soil Mechanics and Geotechnical Engineering (19th ICSMGE), I am pleased to welcome you all to the 19th ICSMGE to be held in Seoul, Republic of Korea, from September 17 to 22, 2017.

The theme of the 19th ICSMGE is "Unearth the Future, Connect Beyond [ ]." It is about bridging the gaps between past and future, between young and senior engineers, and between developing and developed nations among others. Making these connections is the key to greater innovations. The logo for the 19th ICSMGE symbolizes our vision where the colours represent how well and harmoniously living organisms, groundwater and strata coexist- the way we hope different regions can coexist in harmony- while the waves represent the Han River, which is the heart of Korea's economic growth.

The 19th ICSMGE will prepare various programs, including a Plenary Session, Parallel Sessions, ISSMGE Honour Lectures, iYGEC, Technical visits, and exhibitions. The Local Organizing Committee would like to invite you all and share our experiences with member societies. We are ready to reach out and listen to various and valuable voices from member societies and are willing to reflect their wishes into the program, serving as a rainbow bridge between member societies in ISSMGE and beyond. ▸▸*Read more*

19th ICSMGE Secretariat

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

Half-day seminar: Centrifuge modelling in research and practice (Thailand)

The Thai Geotechnical Society (TGS) and the Engineering Institute of Thailand under H.M. The King's Patronage have co-organized a half-day seminar on "Centrifuge modelling in research and practice", for the first time of its kind, on 10th June 2017 at the Emerald Hotel, Bangkok, Thailand, sponsored by SEAFCO Public Company Limited and Geotechnical Engineering Research and Development Centre. The event was coordinated by Prof. Suttisak Soralump (President of TGS), Dr Viroon Kamchoom (Post-doctoral fellow at Hong Kong University of Science and Technology) and Dr Thayanan Boonyarak (Chief of Engineering Division, Seafco Public Company Limited).

The seminar aimed to (i) facilitate knowledge exchange of the state-of-the-art and recent technological advancements of centrifuge modelling techniques and (ii) discuss its capability of investigating wide ranges of geotechnical and geoenvironmental engineering problems.

The seminar started with a keynote lecture by Prof. Charles W. W. Ng on the topic "The state-of-the-art geotechnical centrifuge modelling and applications", and then followed by five presentations:

- "The use of centrifuge modelling to solve geotechnical problems in Thailand" by Prof. Suttisak Soralump, Associate Professor at Kasetsart University, Thailand

- "Development and testing experience of centrifuge modelling in Thailand" by Prof. Kitidech Santichianant, Assistant Professor at King Mongkut's University of Technology Thonburi, Thailand

- "Modelling of plant roots for natural geotechnical engineering problems" by Dr Anthony Leung, Senior Lecturer at University of Dundee, UK

- "Centrifuge modelling of seawall embankment over soft marine clay" by Dr Viroon Kamchoom, Post-doctoral Fellow at Hong Kong University of Science and Technology, HKSAR

Opening speech by Prof. Suttisak Soralump

Presentation of gift to the keynote lecturer, Prof. Charles W. W. Ng

Some participants of the event

Prof. Suttisak Soralump
Event organiser and President of TGS

Vice President for Asia

Professor Ikuo Towhata

Department of Civil Engineering University of Tokyo

7-3-1, Hongo Bunkyo-Ku

Tokyo 113-8656, Japan

Tel: +81-3-5841-6121 / Email: towhata@geot.t.u-tokyo.ac.jp

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**
Geotechnical Society of Singapore	**Singapore**
Southeast Asian Geotechnical Society	**South East Asia**
Korean Geotechnical Society	**South Korea**
Sri Lankan Geotechnical Society	**Sri Lanka**
Order of Syrian Engineers and Architects	**Syria**
Tajikistan Geotechnical Society	**Tajikistan**
Thai Geotechnical Society	**Thailand**
Uzbekistan Geotechnical Society	**Uzbekistan**
Vietnam Society for Soil Mechanics and Geotechnical Engineering	**Vietnam**

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).

INTERESTING WEBSITES

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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No.	Please tick choice	TITLE	Discounted Price in Surface Mail (US$)	Additional for Air Mail Charge (US$)	
				Asian Zones	Other Zones
1.		Proceedings of the International Symposium, Exhibition and Short Course on Geotechnical and Geosynthetics Engineering: Challenges and Opportunities on Climate Change, Conference CD, 7 to 9 December 2010.	50	10	15
2.		Proceedings of the International Symposium on Geotechnical Engineering. Ground Improvement and Geosynthetics for Sustainable Mitigation and Adaptation to Climate Change including Global Warming. Conference CD, 3 to 4 December 2009	50	10	15
3.		Proceedings of the 16th Southeast Asian Geotechnical Conference, 8 to 11 May 2006, Kuala Lumpur (Vol. 1 = 964 pages)	150	21	29
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
		Volume I (452 pages) Hard Bound	55	10	15
		Volume II (734 pages) Hard Bound	65	15	20

No.	Please tick choice	TITLE	Discounted Price in Surface Mail (US$)	Additional for Air Mail Charge (US$)	
				Asian Zones	Other Zones
9.		Proceedings of the Civil and Environmental Engineering Conference – New Frontiers and Challenges, 8-12 November 1999. All Volumes. Soft bound.	200	37	50
		Volume 1 – Environmental Engineering (506 pages of 57 papers)	50	10	16
		Volume 2 – Geotechnical and Geo-environmental Engineering (700 pages of 78 papers).	50	13	19
		Volume 3 – Structural Engineering and Construction (634 pages of 72 papers).	50	13	19
		Volume 4 – Transportation Engineering (428 pages of 47 papers).	50	10	16
		Volume 5 – Water Engineering and Management (598 pages of 67 papers).	50	13	19
		Volume 6 - Keynote and Special Lectures. (274 pages of 23 papers)	50	7	10
10.		Proceedings of the 13th Southeast Asian Geotechnical Conference, Taipei, Taiwan, R.O.C,16-10 November, 1998. Vol. 1 (851 pages), Vol. 2 (212 pages), Hard bound.	100	22	30
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

No.	Please tick choice	TITLE	Discounted Price in Surface Mail (US$)	Additional for Air Mail Charge (US$)	
				Asian Zones	Other Zones
15.		Proceedings of the Symposium on Prediction versus Performance in Geotechnical Engineering, Bangkok, Thailand, December 1992. Soft bound (645 pages)	80	10	15
16.		Handouts of the Short Course on Earthquake Resistant Design, Landslides, Slope Stability and Embankment Dams. 28 July – 1 August, 1997 (931 pages)	60	16	22
17.		Handouts of the Short Course on Geotechnical Analysis for Design and Construction Using Finite Element Program – CRISP. 3-6 February, 1997 (441 pages)	60	16	22
18.		Handouts of the Short Course on Estimation of Design parameters for Soils and Rocks from Laboratory and In-situ Tests. 10-14 June, 1996 (1086 pages)	60	21	29
19.		Handouts of the Short Course on Deformation of Soils and Rocks and Displacement of structures - Soil and Rock structure Interaction. 4-8 November, 1996 (1165 pages)	60	26	37
20.		Handouts of the Short Course on Slope Failures and Their Remedial Measures. July 1994 (500 pages)	40	10	15
21.		Proceedings for the One-Day Short Course on Geosynthetic Applications and PLAXIS Numerical Applications. Short Course CD.	30	10	15
		Sub-total			

BOOKS FOR SALE

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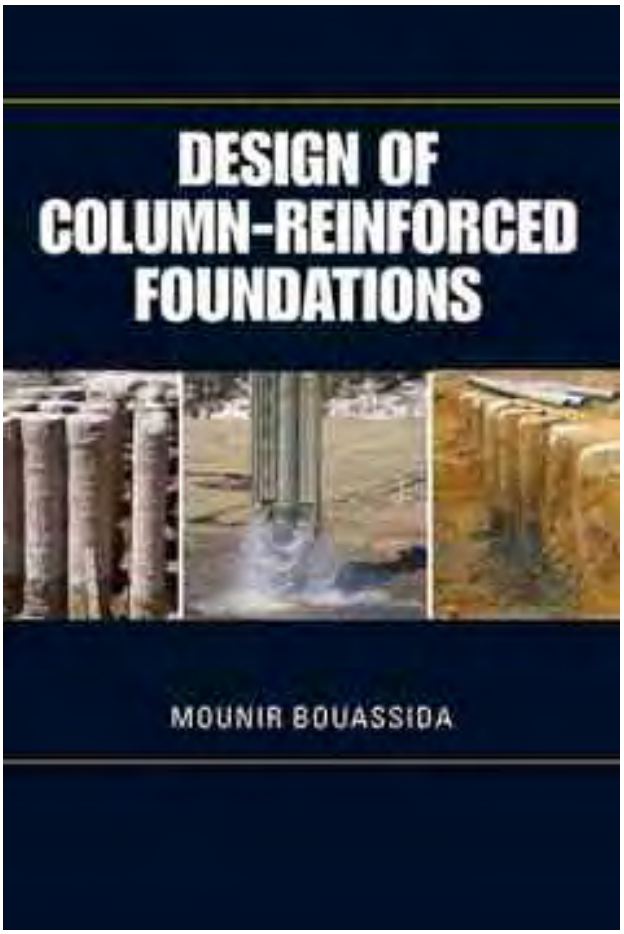

Prof. Mounir Bouassida (University of Tunis El Manar, Tunisia), member of the editorial committee of the SEAGS journal published the book referenced:

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

Key Features:

- Introduces a novel methodology of design for all columnar-techniques, via an optimized improvement area ratio determined by combining the bearing capacity and settlement verifications that constitute an original result
- Provides case histories that show this optimized design is cost effective compared to existing methods based either on bearing capacity or settlement considerations
- Shows the value of the optimized design achieved by elaborated columns through software already in use by geotechnical engineers
- 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
- Rationally handles the design of column-reinforced foundations from modeling up to the study of behavior predicted by numerical analysis and assessed by field test results

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CONTRIBUTION OF ARTICLES / INFORMATION

SEAGS / AGSSEA Newsletters are published bi-annually by Southeast Asian Geotechnical Society and Association of Geotechnical Societies in Southeast Asia. Contributions on the information related to the professional advancement, member profile, and other news of SEAGS and AGSSEA members are invited.

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Secretary-General: *Dr. Noppadol Phienwej*

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Secretariat at Asian Institute of Technology, Km. 42, Paholyothin Highway, Klong Luang, Pathumthani 12120, Thailand

c/o A.I.T., P.O. Box 4, Klong Luang, Pathumthani 12120, Thailand ☯ Tel: 66-02-524-5864 ☯Fax: 66-02-524 5865 ☯ E-mail: <seags@ait.ac.th>

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Address: _____

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_____ **Tel:** _____

Country: _____ **E-mail:** _____

PART I : FEES FOR YEAR 2016

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- ⌘ SOIL ENGINEERING [US$ 50/year] ☐
- ⌘ ENGINEERING GEOLOGY [US$ 55/year] ☐
- ⌘ ROCK MECHANICS AND MINING ENGINEERING [US$ 60/year] ☐

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2) 55 but less than 60 years old, [(60-present age) +5] times annual regular membership fee. ☐

3) Less than 55 years old, ten times of the original annual membership fee. ☐

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5. GEOTECHNICAL SOCIETY MEMBER [US$500/year] ☐

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⌘ ***INSTITUTION MEMBER AND COMPANY MEMBER*** *- The Institution Member refer to professional association or organization while the Company Member refer to private firms. Up to 10 members and up to 2 members, respectively, from Institution Member and Company Member, can enjoy SEAGS member privileges.*

⌘ ***SOIL ENGINEERING*** *- SEAGS Members are entitled for the Group Memberships in International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) and subscriptions of "Geotechnical Engineering Journal" Current Volume No:* 46 *Year:* 2015 *(4 issues per year), and "SEAGS Newsletter" (two issues per year - February and August) are included.*

⌘ ***ENGINEERING GEOLOGY*** *- SEAGS Members are entitled for the International Association of Engineering Geology and subscriptions of "Geotechnical Engineering Journal" Current Volume No: 46 Year: 2015 (4 issues per year), and "SEAGS Newsletter" (two issues per year - February and August) are included.*

⌘ ***ROCK MECHANICS AND MINING ENGINEERING*** *- SEAGS Members are entitled for the International Society for Rock Mechanics, subscriptions of "Geotechnical Engineering Journal" Current Volume No:* 46 *Year:* 2015 *(4 issues per year), and "SEAGS Newsletter" (two issues per year - February and August) are included.*

PAYMENT METHOD

For your convenience, we have arranged ways for you to pay your membership fee, ranging from payment by personal Cheque, Banker's Draft and International Money Order to payment by Telegraphic Bank Transfer or credit card. If payment is made by credit card, please add 4% for processing fee and VAT. In summary, you can make payments follows:

I. Cheque/ Bank draft /Money order (*Add US$ 3 for foreign check*) made payable to

"ASIAN INSTITUTE OF TECHNOLOGY"

and deliver to the SEAGS Secretariat as stated below.

II. Telegraphic Bank Transfer *(Please send the Bank Receipt to SEAGS Secretariat for confirmation of payments)*

Account Name:	**Asian Institute of Technology**
Account Number:	**468-046301-2**
Bank:	**Siam Commercial Bank Pcl, Ltd**
Branch:	**Thammasat University Hospital**
Address:	**95 Moo 8, Khlongnueng, Khlongluang, Pathumthani 12120 Thailand**
Swift code:	**SICOTHBK**
Phone:	**662-516-3470-1**
Fax:	**662-516-3472**

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○ **Visa Card** ○ **Master Card** ○ **American Express*** Please add the Card ID for American Express.
(Card ID is a four digit code printed on the face of the Card).

Credit Card Number:_____ Expiration Date: _____

Cardholder's Name: _____Cardholder's Signature: _____

IMPORTANT: RETURN THIS APPLICATION TOGETHER WITH REMITTANCE/ PAYMENT ADVICE TO:

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Room no: N117, SET Building
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Pathumthani 12120, Thailand
Fax: (66) 02 516 2126 Tel: (66) 02 524 5864
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GEOTECHNICAL ENGINEERING JOURNAL VOLUME NO. 47

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