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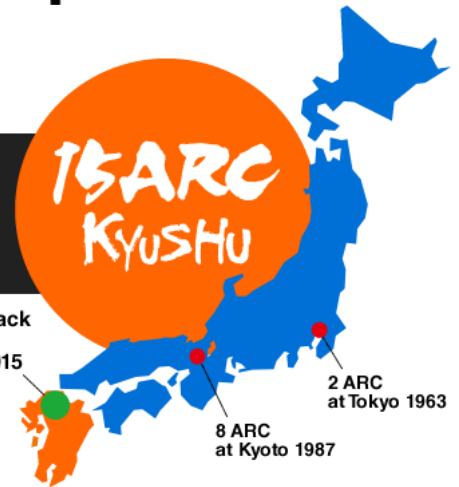
The 15th Asian Regional Conference on Soil Mechanics

New Innovations and Sustainability

Date : 9-13 November 2015, Fukuoka Japan

Venue : Fukuoka International Congress Center

Welcome back
to Japan,
Fukuoka 2015



8 ARC
at Kyoto 1987

2 ARC
at Tokyo 1963

NOTE:

This USB contains the preprints of the contributions to 15ARC.

The official proceedings will be uploaded later at Japanese Geotechnical Society Special Publication (<https://www.istage.ist.go.jp/browse/jgssp/>).



"Sakurajima volcano"
Kagoshima



"Takachiho Gorge"
Miyazaki



"Peace Statue"
Nagasaki



"Kumamoto Castle"
Kumamoto

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The 15th Asian Regional Conference

Preface

Dear colleagues,

I would like to express my warm regards to participants of the 15th Asian Regional Conference on Soil Mechanics and Geotechnical Engineering here in Fukuoka, November, 2015. This series of conference have taken place in many countries in Asia and is now considered to be the most important event in our region. It is important not only in the sense of soil mechanics and geotechnical engineering but also in promoting mutual relationships among member countries (societies) and individuals. Asia is huge. It is not easy to visit each other frequently. Therefore, one-week stay in Fukuoka will provide you an important opportunity to construct new human relationships that will facilitate your future projects.



Historically Fukuoka and its surrounding region have been the main gate of Japan through which civilization propagated from the Asian Continent to Japanese Archipelago. Typical examples were importing of rice agriculture. Photo 1 shows the Yoshinogari archaeological site which is one of the sites of technical visit during this conference. Recently reconstructed, the Yoshinogari site was established in BC 5th century and existed for 800 years or so. People lived on rice agriculture. Probably this level of Japanese life in those days was extremely low from the standards of the continental Asia. But this was the beginning towards higher levels. Later in AD centuries, metal civilization and Buddhism came among others. Similar to those days, my colleague participants are willing to learn from international delegates of this conference.

Fukuoka exported many things as well. In early days, marine products and copper were the major trade products. Later, pearl joined. Today I wish international participants to get in Fukuoka some hints towards the future of geotechnical and civil engineering. The point is that we are going into the time of sustainability in which we have to think about the limit of construction. Soon we encounter the problem of maintenance of existing infrastructures. People become more interested in the quality of life than in construction. We have to cope with this rather difficult situation. I wish international delegates to talk with Japanese engineers during the Engineering Session Day (ESD on Wednesday). They have been working hard for the past decades to survive difficult times. Their experience will be useful for all.

The organizing committee worked hard to reduce the registration fee to a very reasonable level. For early-bird registration of ISSMGE members, the fee is merely US 407 \$ as per the currency exchange rate on July 12th, 2015. This fee is drastically inexpensive as compared with those of similar international conferences, probably

being half! Although I respect the good quality and important contributions made by more expensive conferences, I also believe that there have to be events for those who cannot afford high cost but seek for good quality. This idea is called "Low Cost Conferences (LCC)". This Asian Regional Conference is one of the LCCs. My JGS colleagues have made significant efforts to achieve LCC conference here in Fukuoka. I am very happy to see their achievement but this is not the only one LCC. Nepal Geotechnical Society hosted an LCC in 2014, and the Japanese Society will organize another one in Nagoya in 2016. I am trying to produce one more in Asia.



Photo.1 Reconstructed Yoshinogari archaeological site

I wish you all to find this conference in Fukuoka to be a very memorable event in your engineering career.

Best wishes

Ikuo Towhata

Vice President for Asia of International Society for Soil Mechanics and Geotechnical Engineering
President of Japanese Geotechnical Society

Welcome Speech

Dear 15ARC participants,



First of all, I would like to welcome all participants for the 15th Asian Regional Conference (15ARC) under the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) which is held in the City of Fukuoka, Kyushu, Japan on November 9 - 13 in 2015. The subtitle of this conference is "New Innovations and Sustainability" which indicates not only new technologies and methods in geotechnical engineering but also the sustainability of human resources in the geotechnical engineering community. The Japanese Geotechnical Society (JGS) has previously hosted ARC twice: once in Tokyo as the 2nd in 1963 and once in Kyoto as the 8th in 1987. This means that over a quarter of a century has passed since the last conference was held in Japan. Therefore, all the JGS members take great pleasure in inviting all of participants from Asia and all over the world to 15ARC, Fukuoka, Japan. It is our great pleasure to announce you that we have total of 843 participants which includes 366 from Asia and worldwide, and 477 from Japan.

The Kyushu Island is the closest location to Asia in Japan and has established a close relationship with the Asian continent. The City of Fukuoka has been an academic and cultural gateway from Asian countries in Japan and a large number of events related to Asia have been held. Even for the geotechnical engineering field, there are well known problematic soils (Ariake clay, volcanic soil, etc) and geo-hazards such as landslide and debris flow induced by typhoon and volcanic eruption in Kyushu area. JGS members have been trying to solve those problems. In addition, "IS Kyushu" which is well known as an international earth reinforcement conference was held here in Fukuoka 5 times (1988, 1992, 1996, 2001 and 2007).

Total number of accepted technical papers is 522 which is the largest number for the history of Asian Regional Conference. We have total of 7 keynote lectures including one lecture called "Mercer Lecture" with the endorsement of ISSMGE and International Geosynthetics Society (IGS) and of course, there are many technical sessions including TC or ATC organized sessions. In addition to those programs, as many of you know, ISSMGE members are from both academia and engineering practice working in the fields, and thus the fusion of those two members is one of the most important issues for sustaining our society. In this 15ARC, we will hold a special event called "Engineering Session Day" in which we set one full day (November 11) for this event and it includes another 7 keynote lectures introducing world-class big projects and one special lecture from Japan. There are also technical sessions mostly presented by engineers. In addition, a discussion on the rehabilitation projects following mega disasters such as the 2011 Great Tohoku Earthquake will be featured as a work of collaboration involving groups from industry-government-academia.

Lastly, we had several heart-warming supports and those are from International Geosynthetics Society (IGS); Asian Civil Engineering Coordinating Council; Ministry of Land, Infrastructure, Transport and Tourism Japan; Japan Society of Civil Engineers; Architectural Institute of Japan; The Japanese Society of Irrigation, Drainage and Rural Engineering; Japan Federation of Construction Contractors; Japan Geotechnical Consultants Association; and Japan Civil Engineering Consultants Association. In addition to those auspices, we had supporting associations including their offer of financial supports such as JSPS KAKENHI (No.15HP0306); Fukuoka Convention & Visitors Bureau; Organizing Committee of 14th International Conference of the International Association for Computer Methods & Advances in Geomechanics; The Maeda Engineering Foundation; Kyushu Regional Planning Association; Association for Disaster Prevention Research; Kyushu Regional Management Service Association; and 7 others. We also had total of 16 sponsorships. Without those supports, the success of this 15ARC could not have been made real and those supports are highly appreciated.

Finally, we hope that all participants will join all the events and sessions, and have fruitful discussion on all kinds of geotechnical issues. I am sure that you will become a witness for the new direction of geotechnical engineering. At the same time, please enjoy staying Kyushu and the City of Fukuoka.

Best wishes

A handwritten signature in black ink, appearing to read "Jun Otani".

Jun Otani
Chair of 15ARC

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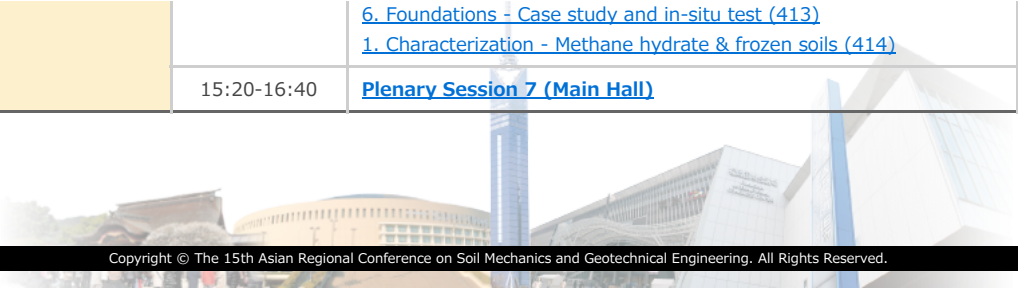
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Day	Time	Program
Nov. 9	9:10-10:30	Plenary Session 1 (Main Hall)
	11:00-12:30	Technical Sessions I Geosynthetics - Materials and interactions (Organized by IGS Asian Activity Committee) (Main Hall) 11. Ground improvement - Densification, Part 1 (409) 10. Geoenvironmental engineering - Global and local environmental issues (410) Land reclamation (TC217 Session) (411) 16. Design and construction practice (412) 6. Foundations - Lateral loading (413) 1. Characterization - Unsaturated soil (414) 1. Characterization - Rock and expansive soil (502) 7. Underground construction and tunnelling - Underground construction (503)
	13:30-14:30	Plenary Session 2 (Main Hall)
	14:15-15:45	Technical Sessions II Geosynthetics - Foundation engineering (Organized by IGS TC on Reinforcement) (Main Hall) 4. Geodisaster - Physical modelling of slope failure (409) 10. Geoenvironmental engineering - Contamination (410) 3. Geodisaster - Seismic site response (411) Geotechnical heritage, Part 1 (TC301/ATC19 Session) (412) 6. Foundations - Bearing capacity, Part 1 (413) 1. Characterization - Dynamic behaviour (414) 1. Characterization - Problematic soils (502) Urban geoengineering - Deep excavation (ATC6 Session) (503)
	16:15-17:45	Technical Sessions III Geosynthetics - Geotechnical earthquake engineering (Organized by IGS TC on Reinforcement) (Main Hall) 4. Geodisaster - Numerical analysis of slope failure (409) 10. Geoenvironmental engineering - Reuse and recycle (410) 3. Geodisaster - Seismic hazards (411) Geotechnical heritage, Part 2 (TC301/ATC19 Session) (412) 6. Foundations - Bearing capacity, Part 2 (413) 1. Characterization - Soft soil and improvement (414) 1. Characterization - Local soils (502) Urban geoengineering - Shield tunneling (ATC6 Session) (503)
	8:30-10:10	Plenary Session 3 (Main Hall)
	10:40-12:10	Technical Sessions IV 11. Ground improvement - Densification, Part 2 (Main Hall) 4. Geodisaster - Monitoring of slope failure and rainfall (409) Geosynthetics - EPS, geocell and fiber reinforcement (Organized by IGS Asian Activity Committee) (410) 3. Geodisaster - Liquefaction, Part 1 (411) Forensic geotechnical engineering (TC302 Session) (412) 6. Foundations - Dynamic behaviour (413) 1. Characterization - Ground investigation (414) Advances in computational geomechanics (TC103 Session) (502) 7. Underground construction and tunneling - Tunnelling (503)
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	Nov. 10		(Organized by IGS TC on Barrier Systems) (410) 3. Geodisaster - Liquefaction, Part 2 (411) Transportation geotechnics, Part 1 (TC202 Session) (412) 6. Foundations - Piled raft (413) 1. Characterization - Deformation characteristics (414) Geo-mechanics from micro to macro - Experimental and practical issues (TC105 Session) (502) Risk assessment and management, Part 1 (TC304 Session) (503)
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	Nov. 11	8:30-10:00	Plenary Session 4: Mega projects in the world, Part 1 (Main Hall)
		10:20-12:20	Plenary Session 5: Mega projects in the world, Part 2 (Main Hall)
		13:20-14:30	Plenary Session 6 - Open to public (Main Hall)
		14:40-16:40	ESD Session 1 ESD 1A: Disaster waste - resource recovery and utilization (Organized by Japan Federation of Construction Contractors) (Main Hall)
		14:40-16:10	ESD 1B: Mega foundations (ATC18 Session) (409+410) ESD 1C: Retaining structures & slope stability (411+412) ESD 1D: Underground structures (413+414)
		17:00-18:00 16:30-18:00	ESD Session 2 ESD 2A: Geo-environmental engineering (Main Hall) ESD 2B: Foundations (409+410) ESD 2C: Earthworks and soil improvement (411+412) ESD 2D: Investigation & evaluation, other topics (413+414)
	Nov. 12	8:30-10:00	Technical Sessions VII 11. Ground improvement - Mixing, Part 2 (Main Hall) 9. Dams and embankments - Dynamics (405) Climate change-induced geo-disasters (ATC1 Session) (409) 10. Geoenvironmental engineering - Geomechanics of wastes (410) 3. Geodisaster - Dynamic properties of soil (411) Geotechnical infrastructures for megacities and new capitals, Part 1 (TC305 Session) (412) 6. Foundations - Settlement control (413) 1. Characterization - Laboratory testing of sand (414)
		10:30-12:00	Technical Sessions VIII 11. Ground improvement - In-situ mixing, Part 1 (Main Hall) 9. Dams and embankments - Seepage (405) Geotechnology for natural hazards (ATC3 Session) (409) Innovations in environmental geotechnics (TC215 Session) (410) 3. Geodisaster - Earthquake-induced slope failure (411) Geotechnical infrastructures for megacities and new capitals, Part 2 (TC305 Session) (412) 6. Foundations - Excavation (413) 1. Characterization - Laboratory testing of clay (414)
		13:20-14:50	Technical Sessions IX 11. Ground improvement - In-situ mixing, Part 2 (Main Hall) 9. Dams and embankments - Stability (405) 15. Case histories (409) 10. Geoenvironmental engineering - Barriers (410) 14. Innovative technologies and informatics (411) Urban development and sustainability (Vice Presidential Session) (412)

		6. Foundations - Case study and in-situ test (413) 1. Characterization - Methane hydrate & frozen soils (414)
	15:20-16:40	Plenary Session 7 (Main Hall)



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About this USB	<div><div>Plenary Sessions</div><div><div><div>Plenary Session 1</div><div>Nov. 9, Monday, 9:10-10:30, Room Main Hall</div><div>Moderator: Prof. Askar Zhussupbekov (Eurasian National University)</div><div>Reliability of geotechnical structures (KL-1)</div><div>Kok-Kwang Phoon</div><div>Environmental impact of ground deformation caused by underground construction in China (KL-2)</div><div>Gang Zheng and Yu Diao</div></div><div><div>Plenary Session 2</div><div>Nov. 9, Monday, 13:30-14:30, Room Main Hall</div><div>Moderator: Prof. Fumio Tatsuoka (Tokyo University of Science)</div><div>Stabilization of paved roads using geosynthetics (KL-M)</div><div>J.G. Zornberg</div></div><div><div>Plenary Session 3</div><div>Nov. 10, Tuesday, 8:30-10:10, Room Main Hall</div><div>Moderator: Prof. Charles W.W. Ng (The Hong Kong University of Science and Technology)</div><div>Hydro-mechanical behavior of collapsible soils in unsaturated soil mechanics context (KL-3)</div><div>S. Mohsen Haeri</div><div>Evaluation of seismic loads on structures considering soil-foundation-structure interaction via centrifuge (KL-4)</div><div>D. S. Kim, D. K. Kim and J. G. Ha</div></div><div><div>Plenary Session 4: Mega projects in the world, Part 1</div><div>Nov. 11, Wednesday, 8:30-10:00, Room Main Hall</div><div>Chair: Dr. Kenichi Horikoshi (Taisei Corporation)</div><div>Challenges in recent underground construction in Taiwan (ESD-KL-1)</div><div>Za-Chieh Moh and Richard N. Hwang</div><div>Wind coursing through the Seabed - Marmaray Project - (ESD-KL-5)</div><div>Takashi Imaishi</div></div><div><div>Plenary Session 5: Mega projects in the world, Part 2</div><div>Nov. 11, Wednesday, 10:20-12:20, Room Main Hall</div><div>Chair: Dr. Kenichi Horikoshi (Taisei Corporation)</div><div>Geotechnical foundation design for some of the world's tallest buildings (ESD-KL-2)</div><div>Frances Badelow and Harry G. Poulos</div></div></div></div>

Geotechnical works of the Hong Kong-Zhuhai-Macao Bridge Project ([ESD-KL-3](#))

Albert T. Yeung

Construction of D-Runway at Tokyo International Airport ([ESD-KL-4](#))

Junichi Mizukami and Yasuo Matsunaga

ESD 1A: Disaster waste - resource recovery and utilization (Organized by Japan Federation of Construction Contractors)

Nov. 11, Wednesday, 14:40-16:40, Room Main Hall

Chair: Prof. Takeshi Katsumi (Kyoto University)

Co-Chair: Dr. Masanori Shimomura (Taisei Corporation)

Treatment of disaster waste generated by the Great East Japan Earthquake -Treatment of disaster waste by member corporations of the Japan Federation of Construction Contractors- ([ESD-KL-6](#))

Kazuo Ide

Disaster waste recovery and utilization in developing countries - Learning from earthquakes in Nepal ([ESD-KL-7](#))

Mushtaq A. Memon

Plenary Session 7

Nov. 12, Thursday, 15:20-16:40, Room Main Hall

Moderator: Prof. Mamoru Mimura (Kyoto University)

Evaluation of engineered barrier system for hazardous waste disposal - A case study ([KL-5](#))

G. N. Gandhi, G. L. Sivakumar Babu and G. L. Santhosh

Challenge for methane hydrate production by geotechnical engineering ([KL-6](#))

Masayuki Hyodo, Yukio Nakata and Norimasa Yoshimoto

Technical Sessions[▲ PageUp](#)**- Day 1- November 9 (Monday)****Geosynthetics - Materials and interactions (Organized by IGS Asian Activity Committee)**

Nov. 9, Monday, 11:00-12:30, Room Main Hall

Chair: Prof. Chungsik Yoo (Sungkyunkwan University)

Strength characteristics of reinforcement material used in deformed geotextile reinforced soil wall ([IGS-23](#))

Hirotake Nakamura, Seiya Yokota, Shinichiro Tsuji and Naoki Tatta

Properties of Life Geosynthetics (LLGs) for slope stability analysis on soft ground ([SEA-10](#))

S. Artidteang, D.T. Bergado and S. Chaiyaput

Pullout mechanism of the bearing reinforcement embedded in claystone soil of Mae Moh mine ([SEA-03](#))

S. Horpibulsuk, A. Udomchai, A. Joongklang, N. Mavong, P. Nikompakdi, A. Arulrajah and M.M. Disfani

Investigation of global stress-strain and interaction behavior of geogrid reinforced soil with biaxial compression tests ([IGS-32](#))

Felix Jacobs and Martin Ziegler

Modeling microscopic behavior of geotextile-wrapped soil by discrete element method ([IGS-13](#))

H. Cheng and H. Yamamoto

Electro-kinetic techniques and geotextiles for high water content sludge dehydration tests ([IGS-05](#))

Chiwan Hsieh, Jeng-Han Wu and Xiao-Jie Lu

A method of monitoring water flow in prefabricated board drain to estimate consolidation progress ([IGS-36](#))

Yuzuru Ito, Shuhei Yamashita, Tadaaki Nomura, Yoshifumi Yamauchi and Takeshi Sato

Geosynthetics - Foundation engineering (Organized by IGS TC on Reinforcement)

Nov. 9, Monday, 14:15-15:45, Room Main Hall
Chair: Prof. Yoshihisa Miyata (National Defence Academy)

Effective reinforcing method for increasing bearing capacity with geosynthetics ([JPN-042](#))

Teruo Nakai, Hossain M. Shahin, Yukihiro Morikawa, Saki Masuda and Susumu Mio

Analytical and numerical studies on geosynthetic mattress resting on deformable foundation soil ([IGS-16](#))

Wei Guo, Jian Chu and Shuwang Yan

Strain behavior of geogrids reinforcing sand under a rectangular footing ([IGS-04](#))

Raid R. Al-Omari, Zeyad S. M. Khaled and Tawfek Sheer Ali

The load sharing behavior of geosynthetic-reinforced and pile-supported high-speed railway subgrade under fill and dynamic loads ([CHN-07](#))

Quanmei Gong and Zhuang Li

Experimental and numerical modelling of geosynthetic encased stone columns subjected to shear loading ([IGS-08](#))

Sunil Ranjan Mohapatra and K. Rajagopal

Critical review on the bond strength of geosynthetic interlayer systems in asphalt overlays ([IGS-09](#))

Nithin Sudarsanan, Rajagopal Karpurapu and Veeraragavan Amrithalingam

Numerical study on lateral bearing capacity and failure mode of geosynthetic-reinforced soil barriers ([IGS-01](#))

Kuo-Hsin Yang, Jonathan T.H. Wu, Rong-Her Chen and Yi-Shou Chen

Geosynthetics - Geotechnical earthquake engineering (Organized by IGS TC on Reinforcement)

Nov. 9, Monday, 16:15-17:45, Room Main Hall

Chair: Dr.-Ing. Dimitar Alexiew (Huesker)

Recent research and practice of GRS integral bridges for railways in Japan ([IGS-03](#))

Fumio Tatsuoka, Masaru Tateyama, Masayuki Koda, Ken-ichi Kojima, Toyoji Yonezawa, Yoshinori Shindo and Shin-ichi Tamai

Model tests on the stability of GRS integral bridge against tsunami load ([IGS-20](#))

Shohei Kawabe, Yoshiaki Kikuchi, Kenji Watanabe and Fumio Tatsuoka

Effects of reinforcement on the geo-structure for mitigation of the earthquake effects ([IGS-25](#))

Babloo Chaudhary, Hemanta Hazarika, Babita Sah and A. Murali Krishna

Effect of lattice-frame reinforced geosynthetics on seismic stability improvement of embankment on loose sand deposit ([IGS-28](#))

M. Okamoto, T. Obara, Y. Nakajima, T. Yoshida, Y. Kitamoto, H. Kyokawa, Y. Sawada and K. Fujisaki

Numerical assessment of the seismic performance of a Terre Armée retaining wall: a comparative study between non extensible and extensible reinforcements ([IGS-34](#))

Y. Bennani, L. Lenti and N. Freitag

Improvement effects of two and three dimensional geosynthetics used in liquefaction countermeasures ([JPN-147](#))

Hemanta Hazarika and Amizatulhani Abdullah

Static and cyclic load response of reinforced sand through large triaxial tests ([IGS-39](#))

G. Madhavi Latha. and A.M. Nandhi Varman.

11. Ground improvement - Densification, Part 1

Nov. 9, Monday, 11:00-12:30, Room 409

Chair: Prof. B.V.S. Viswanadham (Indian Institute of Technology Bombay)

Non-linear consolidation with PVDs under ramp loading ([IND-25](#))

Pathan Ayub Khan, Madhira R. Madhav and Eadala Saibaba Reddy

Optimum design of a soil improvement system by preloading with wick-drains ([IRO-03](#))

Haider S. Al-Jubair and Murtada M. Jabir

Numerical simulation of pore water pressure dissipation method based on a soil-water coupled analysis enhanced by macro element method ([JPN-135](#))

Toshihiro Nonaka and Mutsumi Tashiro

Consolidation effect of dredged soil by siphon method focusing on the porous filter material ([JPN-058](#))

Ryohei Ishikura, Shodai Soda and Shintaro Miyamoto

Determination of ground model for capacity increase project for disposal pond of dredged marine

deposit ([JPN-102](#))

Masato Nakamichi, Shuji Yamamoto, Masaaki Katagiri and Kanta Ohishi

Development of new volume reduction technique for natural cohesive soil ground by disturbing ([JPN-093](#))

Yoshio Mitarai, Yosuke Tanaka, Daisuke Kiuchi and Kohta Nishida

4. Geodisaster - Physical modelling of slope failure

Nov. 9, Monday, 14:15-15:45, Room 409

Chair: Dr. Kazunori Fujisawa (Kyoto University)

A centrifuge model study on a slope reinforced by rock bolts with prestressed facing plate ([JPN-095](#))

Shion Nakamoto, Sakae Seki, Naoto Iwasa and Jiro Takemura

Centrifuge model tests of deposits slope under rainfall ([CHN-38](#))

Bo Li, Hai Tian and Biwei Gong

Consideration on evaluation of seismic slope stability based on shaking table model test ([JPN-100](#))

S. Nakajima, K. Watanabe, M. Shinoda, K. Abe, S. Nakamura, T. Kawai and H. Nakamura

Roles of spacing and angle of slit-type barriers on velocity reduction of debris flows ([KOR-31](#))

Shin-Kyu Choi and Tae-Hyuk Kwon

Back analyses for slope failures in rock ([OTH-01](#))

An-Jui Li, Yun H. Lo and Mark J. Cassidy

Stability evaluation of full-scale embankment constructed by volcanic soil in cold regions ([JPN-063](#))

S. Kawamura, S. Miura and S. Matsumura

Maximum width of undercut slope with planes of discontinuity studied by 1G physical models ([JPN-090](#))

T. Techawongsakorn and T. Pipatpongsa

4. Geodisaster - Numerical analysis of slope failure

Nov. 9, Monday, 16:15-17:45, Room 409

Chair: Prof. Tsai Chi-Chin (National Chung Hsing University)

Numerical analysis of preferential flows in soils by the Darcy-Brinkman equations ([JPN-045](#))

Kazunori Fujisawa and Akira Murakami

Numerical modelling of groundwater response in slopes in Hong Kong ([HKG-15](#))

Axel K. L. Ng

Numerical studies on slope stability in torrential rainfall by using two-phase flow analysis ([JPN-105](#))

Satoshi Sugimoto, Yujing Jiang, Kiyoshi Omine, Jumpei Ishida and Yukihiro Higashi

Experimental researches and numerical analyses of non-orthogonal rainfall infiltration on the surfaces of unsaturated sand slopes ([CHN-27](#))

Chenghua Wang, Zhengyi Wan and Chenglin Zhang

Instability analysis of rainfall-induced landslides using hydro-mechanically coupled model ([KOR-07](#))

Yongmin Kim, Sangseom Jeong and Kwangwoo Lee

New application of mesh-free particle method to geotechnical engineering ([JPN-125](#))

Hideto Nonoyama and Masaki Nakano

Shallow landslide hazard modeling by incorporating heavy rainfall statistics and quasi-dynamic wetness index: a case study from Korean mountain ([KOR-01](#))

Ananta Man Singh Pradhan, Hyo-Sub Kang, Ji-Sung Lee, Paolo Tarolli and Yun-Tae Kim

10. Geoenvironmental engineering - Global and local environmental issues

Nov. 9, Monday, 11:00-12:30, Room 410

Chair: Dr. Toru Inui (Kyoto University)

Modeling of concrete mattress for shore protection by Plaxis 2D ([SEA-13](#))

Tjie-Liong Gouw

A study on effects and functions of developed Greening Soil Materials (GSM) for combating desertification ([JPN-052](#))

Zentaro Furukawa, Noriyuki Yasufuku and Ren Kameoka

Evaluation of self-restoration characteristics of GBFS by using hydration reaction ([JPN-113](#))

Hiroshi Matsuda, Hiroyuki Hara, Naoyuki Igawa and Shoya Nakamura

Effect of aging on the leachate characteristics from municipal solid waste landfill ([IND-06](#))

B.P. Naveen, P.V. Sivapullaiah and T. G. Sitharam

Durability of microbially induced calcite precipitation (micp) treated cohesionless soils ([IND-23](#))

Kasinathan Muthukkumaran and Bettadapura Subramanyam Shashank

10. Geoenvironmental engineering - Contamination

Nov. 9, Monday, 14:15-15:45, Room 410

Chair: Dr. Moonkyung Chung (Korea Institute of Civil Engineering and Building Technology)

Geochemical and physical characteristics of contaminated sediment in a harbour area ([OTH-19](#))

Mehdi Pourabadehei and Catherine N. Mulligan

The transport processes of soluble contaminant in unsaturated soils under pond infiltration ([CHN-50](#))

Qingke Nie, Bing Bai, Huawei Li and Tao Yu

Study on contaminant transport in one-layered media with variable diffusion coefficient ([CHN-56](#))

Chuang Yu, Junfeng Liu and Jiangwei Xu

The stress-strain properties of the cement stabilized/solidified chromium contaminated soils eroded by sodium chloride ([CHN-53](#))

Fusheng Zha, Jingjing Liu, Xueqin Zhang, Chengbin Yang and Kerui Cui

Geo-environmental improvement of sediment by using microbial fuel cell (MFC) ([JPN-150](#))

M. Azizul Moqsud and Yuichiro Kanehagi

Remediation of LNAPL in sandy soil resulting from air injection ([JPN-049](#))

Erika Shiota and Toshifumi Mukunoki

10. Geoenvironmental engineering - Reuse and recycle

Nov. 9, Monday, 16:15-17:45, Room 410

Chair: Prof. Kenichi Sato (Fukuoka University)

Durability evaluation of coal ash mixed material on wetting and drying test considering the various environmental degradation factors ([JPN-019](#))

Takuro Fujikawa, Kenichi Sato and Chikashi Koga

Improvement of shallow foundation using non-liquefiable recycle materials ([SEA-08](#))

Amizatulhani Abdullah and Hemanta Hazarika

Effectiveness evaluation on reuse of construction sludges considering uncertainties of environmental economics ([JPN-018](#))

Shinya Inazumi and Maya Manabe

Study of using recycled glass cullet as an engineering fill in reclamation and earthworks in Hong Kong ([HKG-14](#))

Sunny T C So, Robert M K Lee, Thomas Hui and Y K Shiu

Geotechnical utilisation of soil generated from earthquake waste-derived wood chips ([JPN-122](#))

Keisuke Hamajima, Hideto Nonoyama, Takeru Araki and Takuma Jinno

Soil improvement of tsunami sediment soil by steel slug and concrete sludge ([JPN-001](#))

Yasuyuki Nabeshima

Soils recovered from disaster debris ([JPN-097](#))

Takeshi Katsumi, Atsushi Takai, Toru Inui, Masafumi Okawara, Kazuto Endo and Hirofumi Sakanakura

Land reclamation (TC217 Session)

Nov. 9, Monday, 11:00-12:30, Room 411

Chair: Dr. Yoichi Watabe (Port and Airport Research Institute)

Land reclamation & soil improvement works for a coal-fired power plant in Malaysia ([SEA-12](#))

Yoon C. Lam, Dennis Ganendra and Krishna Prasad

Land reclamation and soil improvement works for two deep water ports in Vietnam ([TC217-01](#))

Herve Abt

Pearl Jumeira project: a case study of land reclamation in Dubai, UAE ([TC217-03](#))

Marwan Alzaylaie and Aly Abdelaziz

History of land reclamation using dredged soils at Tokyo Haneda Airport ([TC217-04](#))

Yoichi Watabe and Shinji Sassa

Land reclamation using clay slurry or in deep water: challenges and solutions ([TC217-02](#))

Jian Chu and Wei Guo

A new method to improve the effectiveness of vacuum preloading on the consolidation of dredged fill in Wenzhou ([TC217-05](#))

Y-Q Cai, J. Wang, J. Ma, P. Wang and H. Fu

3. Geodisaster - Seismic site response

Nov. 9, Monday, 14:15-15:45, Room 411

Chair: Dr. B. Sharma (Assam Engineering College Guwahati)

Monte Carlo Simulation for modelling uncertainties in ground response analysis ([OTH-07](#))

Ganesh W. Rathod, K. Seshagiri Rao and Kaushal K. Gupta

Subsurface flexure of Uemachi Fault and its characteristics in Osaka plain ([JPN-108](#))

Naoko Kitada and Mamoru Mimura

Evaluation of seismic stability of layered soil bases in areas that are composed of clays and water-saturated sandstones ([OTH-29](#))

Ilizar T. Mirsayapov, Irina V. Koroleva and Ilgina I. Mirsayapova

Liquefaction damage enhanced by interference between the body wave and surface wave induced from the inclined bedrock ([JPN-118](#))

Kentaro Nakai, Akira Asaoka and Yoshihiro Sawada

Increment of seismicity of the building area depending on soil conditions ([UZB-02](#))

Khayat Rasulov and Rustam Rasulov

Non-linear site-specific seismic ground response analysis for port sites in Mumbai, India ([IND-22](#))

Sarika S. Desai and Deepankar Choudhury

Depth of the diluted zone in the loessial bases at seismic influences ([UZB-04](#))

I. I. Usmanxodjayev, A. U. Tashxodjayev and R. H. Rasulov

3. Geodisaster - Seismic hazards

Nov. 9, Monday, 16:15-17:45, Room 411

Chair: Dr. Shinji Sassa (Port and Airport Research Institute)

Dynamic penetration test with measuring of the pull-out resistance ([JPN-024](#))

Shun-ichi Sawada

Elimination of consequences of earthquakes on the territory of the Republic of Kazakhstan ([KAZ-06](#))

Yeraly Shokbarov

Riedel shear band formation with flower structures that develop at the surface ground on a strike slip fault ([JPN-121](#))

Akira Asaoka, Yoshihiro Sawada and Shotaro Yamada

Seismic hazard assessment of South Korea ([HKG-20](#))

M.M.L. So, T. Mote and J.W. Pappin

Real time earthquake hazard map of liquefaction in Korea ([KOR-36](#))

Jae-Soon Choi, Woo-Hyun Baek and Oh-Gyu Kwon

Long-term settlement of Holocene clay ground caused by the 2011 off the Pacific coast of Tohoku earthquake ([JPN-022](#))

Naohiro Nigorikawa and Yoshiharu Asaka

Seismic assessment of Nagoya Port Island against Nankai Trough earthquake ([JPN-137](#))

Takayuki Sakai and Kentaro Nakai

16. Design and construction practice

Nov. 9, Monday, 11:00-12:30, Room 412

Chair: Dr. Shintaro Nakashima (Yamaguchi University)

Practices in the design of excavation engineering for Ningbo rail transit ([CHN-51](#))

Junneng Ye

Role of engineering geology investigations in deep excavations ([IRN-18](#))

Zaman Malekzade

Embankment properties and construction techniques in winter ([JPN-057](#))

Atsuko Sato, Teruyuki Suzuki and Shinichiro Kawabata

Compaction quality on the embankment slope and its evaluation method ([JPN-082](#))

Noriyuki Yasufuku, Ryohei Ishikura and Mitsuru Taniyama

Calibration of resistance factors for drilled shafts considering lower-bound resistance ([KOR-05](#))

Seok-Jung Kim, Jae-Hyun Park and Myoung-Mo Kim

Mechanical characteristics of mine tailings and seismic responds of tailing reservoir ([CHN-06](#))

Pengwei Zhang, Liming Hu, Hui Wu and Lin Zhang

Seismic damage of residential land and land evaluation using an embankment map ([JPN-148](#))

Kazumasa Abe and Hajime Imanish

Geotechnical heritage, Part 1 (TC301/ATC19 Session)

Nov. 9, Monday, 14:15-15:45, Room 412

Chair: Dr. Yoshinori Iwasaki (Geo-Research Institute)

Characteristics of groundwater movement at a hillslope above Kiyomizu-dera Temple, an important cultural asset ([TC301-01](#))

Masamitsu Fujimoto, Yuuki Arimitsu, Nobutaka Hiraoka, Toru Danjo, Toru Kimura, Yuko Ishida and Ryoichi Fukagawa

Geotechnical characterization of the Florence (Italy) soils ([TC301-02](#))

M. Coli, L. Guerri and P. Rubellini

Construction methods of ancient earth fills and natural environments in East Asia ([TC301-03](#))

Katsutada Onitsuka

Mechanical behaviors of the arch-type stone bridge ([JPN-003](#))

Tomio Tamano, Masanobu Kanaoka, Sadaaki Nishikawa and Kunio Suzuki

Implementation of reduced impact geotechnics on historical monuments in Central Asia ([UZB-01](#))

L.V. Nuzhdin, M.L. Nuzhdin, A.Z. Khasanov and Z.A. Khasanov

Protection and preservation of monuments in the Central Asian region ([KAZ-02](#))

Rakhima Chekaeva, Farid Chekaev, Mnir Chekaev, Rustam Chekaev and Assem Issina

Geotechnical heritage, Part 2 (TC301/ATC19 Session)

Nov. 9, Monday, 16:15-17:45, Room 412

Chair: Dr. Yoshinori Iwasaki (Geo-Research Institute)

Remote sensing monitoring of historical centre of Kyiv for reducing risks from disasters at world heritages properties ([TC301-04](#))

Vadim I. Lyalko, Vladimir E. Filipovich, Lyidmila P. Lischenko, Natalia V. Pazynych, Aleksandr N. Teremenko and Anna B. Krylova

Results of geotechnical modelling of the influence of construction of the deep foundation ditch on the existing historical building ([ATC19-01](#))

A.B. Ponomaryov, S.V. Kaloshina, A.V. Zakharov, M.A. Bezgodov, R.I. Shenkman and D.G. Zolotozubov

In situ dynamic strength properties of the 3rd Meiji fortress reclaimed sands ([JPN-016](#))

Takaharu Shogaki

Evaluation of rainfall induced slope failure in tumulus mounds and conservation of the damaged tumuli ([JPN-054](#))

Mai Sawada, Mamoru Mimura and Mitsugu Yoshimura

Analysis of engineering-geological conditions of mausoleum Arystan-Bab in South Kazakhstan ([KAZ-03](#))

Askar Zhussupbekov, Assem Issina, Tursun Zhunisov and Irina Drozdova

Architectural and constructive solution of architectural monuments and evaluation activities of operational reliability ([UZB-03](#))

K.S. Abdurashidov, SH.ZH. Kenjaev and X.M. Khudoibergano

6. Foundations - Lateral loading

Nov. 9, Monday, 11:00-12:30, Room 413

Chair: Dr. Kentaro Nakai (Nagoya University)

Mechanical joints transmitting lateral force to grid-form soil improvement ([JPN-014](#))

Tomohiro Tanikawa, Junji Hamada and Tsuyoshi Honda

Analysis on foundation settlement and island wall deformation of offshore artificial island ([CHN-23](#))

Jinfang Hou, Ruiqi Zhang and Xiaoqiang Kou

Horizontal loading experiments on reinforced gravity type breakwater with steel walls ([JPN-053](#))

Yoshiaki Kikuchi, Shohei Kawabe, Shinji Taenaka and Shunsuke Moriyasu

New reinforcing method for improving the bearing capacity of breakwater foundation against earthquake and tsunami ([IND-35](#))

Babloo Chaudhary, Hemanta Hazarika, Naoya Monji, Kengo Nishimura, Ryohei Ishikura and Kiyonobu Kasama

Back analysis of laterally loaded pile behavior using Midas/GTS to determine stiffness modulus of pile-soil interface ([MYS-07](#))

Y. H. Ong

Sliding and overturning stability of seawalls subjected to non-breaking waves ([IND-21](#))

B.G. Rajesh and Deepankar Choudhury

6. Foundations - Bearing capacity, Part 1

Nov. 9, Monday, 14:15-15:45, Room 413

Chair: Prof. Sangseom Jeong (Yonsei University)

Evaluation of the vertical bearing capacity of steel pipe piles driven by the vibratory hammer method with water and cement milk jetting ([JPN-126](#))

Shunsuke Moriyasu, Yoshiyuki Morikawa, Hisao Yamashita and Shinji Taenaka

Laboratory study on the bearing capacity of cemented layer overlaying dredged sediment ([CHN-22](#))

Chunlei Zhang, Qingsong Liu, Fanlu Min and Liang Wang

Testing of pile to pile-cap connection on steel pipe piles subject to axial and uplift loads ([KOR-38](#))

Moon S. Nam, Hong-Jong Kim and Sung-Gi Kwon

Effect of shaft rotation of driven spiral piles on vertical bearing capacity ([JPN-110](#))

Takahiro Sato, Jun Otani, Bastien Chevalier and Tugba Eskisar

Effect of compressibility of ground on bearing capacity of foundation under moment loading ([IND-09](#))

M. Padmavathi, V. Padmavathi and M. R. Madhav

Vertical stress under vertical pressure by extended Mindlin's equation ([CHN-21](#))

G. H. Lei, H. S. Sun, Charles W. W. Ng and Abraham C. F. Chiu

Analytical and numerical approaches to compute the influence of vertical load on lateral response of single pile ([IND-11](#))

Kaustav Chatterjee and Deepankar Choudhury

6. Foundations - Bearing capacity, Part 2

Nov. 9, Monday, 16:15-17:45, Room 413

Chair: Prof. Kenichi Maeda (Nagoya Institute of Technology)

Comparison of results of series pile load test in accordance with ASTM and Kazakhstan standards ([KAZ-05](#))

R.E. Lukpanov

Inner skin friction of open-ended piles considering the degree of soil plugging ([KOR-25](#))

Sangseom Jeong and Junyoung Ko

Understanding inner friction mechanism of open-ended piles - an experimental study ([LKA-01](#))

Janaka J. Kumara, Takashi Kurashina, Takahiro Yajima and Yoshiaki Kikuchi

Bearing capacity of hybrid suction foundation on sand with loading direction via centrifuge model test ([KOR-23](#))

Jae Hyun Kim, Surin Kim, Dong Soo Kim, Jun Ung Youn, Dong Joon Kim and Sung Hyun Jee

A computational procedure to predict the load- settlement behavior of axially loaded piles in sandy soils ([IRQ-02](#))

Ala N. Aljorany and Fouad A. Al-Jumaily

Bearing capacity of strip footing in reinforced granular bed over soft non-homogeneous ground stabilized with granular trench ([SEA-06](#))

Madhira R. Madhav, Rajyalakshmi Kurapati and Venkata Abhishek Sakleshpur

Axial performance of barrettes socket in firm ground ([TWN-13](#))

S.S. Lin, F.C. Lu, Y.K. Lin and C.J. Kuo

1. Characterization - Unsaturated soil

Nov. 9, Monday, 11:00-12:30, Room 414

Chair: Prof. Jafarzadeh Fardinsuke (Sharif University of Technology)

Water retention curves of intact and re-compacted loess at different net stresses ([HKG-04](#))

H. Sadeghi, SK. B. Hossen, Abraham C.F. Chiu, Q. Cheng and C.W.W. Ng

Experimental consideration on evaporation efficiency β of unsaturated sandy soil surface ([JPN-029](#))

Kazunari Sako, Motoki Moriwa and Tomoaki Satomi

Shear strength of unsaturated completely decomposed granite soil under different stress state conditions ([HKG-16](#))

Wan-Huan Zhou and Xu Xu

A new artificial root system to simulate the effects of transpiration-induced suction and root reinforcement ([HKG-22](#))

V. Kamchoom, A. K. Leung and C.W.W. Ng

Impact of void ratio and state parameters on the small strain shear modulus of unsaturated soils ([IRN-03](#))

A. Khosravi, A. Gheibi, M. Rahimi, J. S. McCartney and S. M. Haeri

Properties of compacted soil as a function of dry density and the degree of saturation ([JPN-099](#))

Fumio Tatsuoka, Kenji Fujishiro, Kazuyoshi Tateyama, Shohei Kawabe and Yoshiaki Kikuchi

Hardening behavior of a hydro collapsible loessial soil ([IRN-02](#))

S. M. Haeri and A. A. Garakani

1. Characterization - Dynamic behaviour

Nov. 9, Monday, 14:15-15:45, Room 414

Chair: Dr. Daiki Takano (Port and Airport Research Institute)

Effect of water content of clay on dynamic deformation characteristic of sand and clay mixtures ([JPN-136](#))

Shingo Watanabe and Masayuki Hyodo

Experimental study on the dynamic deformation characteristics of volcanic soil "Shirasu" on equivalent granular void ratio ([JPN-144](#))

Taichi Hyodo

Development of high precision direct shear apparatus for liquefaction testing ([JPN-145](#))

Sokkheang Sreng, Hiroki Ishikawa, Takuya Kusaka, Takashi Okui and Akitoshi Mochizuki

Microscopic characteristics of nanoparticles for seismic liquefaction mitigation ([CHN-08](#))

Yu Huang and Lin Wang

Influence of stress ratio and moisture condition of loose deposit on dynamic parameters and ground response spectrum ([CHN-46](#))

Lingwei Kong, Zhiliang Sun, Aiguo Guo and Hai Tian

Interpretation of slaking of a mudstone embankment using soil skeleton structure model concept and reproduction of embankment failure by seismic analysis ([JPN-124](#))

Masaki Nakano and Takayuki Sakai

1. Characterization - Soft soil and improvement

Nov. 9, Monday, 16:15-17:45, Room 414

Chair: Dr. Chee-Ming Chan (Universiti Tun Hussein Onn Malaysia)

A laboratory study on dredged lumpy clay subjected to a freezing-thawing cycle ([IND-12](#))

Anurag S. Chafale and Ashish Juneja

Is critical state soil mechanics framework applicable to pond ash? ([OTH-09](#))

Jiajun Zhang, Sik-Cheung Robert Lo, Jun Yan and Md Mizanur Rahman

Evaluation on the compressive strength of dredged soil-steel slag ([KOR-12](#))

Myounghak Oh, Gil L. Yoon and Yeo W. Yoon

Effect of sand content on stabilization of dredged soil - steel slag mixture ([JPN-120](#))

T. Kaneko and Y. Watabe

Influence of magnitudes of negative pressures on dewatering behavior of ultra-soft clay ([CHN-36](#))

Jun Tong, Noriyuki Yasufuku and Kiyoshi Omine

Assessment of shrinkage characteristic in blended cement and fly ash admixed soft clay ([THA-01](#))

T. Chompoorat and S. Likitlersuang

Experimental study on mechanical and acid-alkali properties of reactive magnesia carbonated-stabilized soil ([CHN-15](#))

Guanghua Cai, Songyu Liu, Jingjing Cao and Xu Zheng

1. Characterization - Rock and expansive soil

Nov. 9, Monday, 11:00-12:30, Room 502

Chair: Prof. Vitaly Khomjov (Kazakhstan Leading Academy of Architecture and Civil Engineering)

Physical and numerical modeling of canal lining on expansive soil ([IRN-05](#))

M. Hajjalilue-Bonab and F. Behrooz-Sarand

Time dependence of swelling in oedometer tests on expansive soil ([OTH-35](#))

John D. Nelson

Shear behavior of the interface between expansive soil and sand liner during wetting-drying cycles ([CHN-20](#))

Jun-ping Yuan, Yan-ling Lin, Peng Ding and Qiang-lin Wang

Mechanical properties of soft sedimentary rock under K_0 and isotropic cyclic loading conditions ([JPN-074](#))

Yuhei Kurimoto, Yuzuru Yamamoto, Hide Sakaguchi, Feng Zhang and Yukimasa Saeda

Correlation between uniaxial strength and point load index of rocks ([IRN-08](#))

Mahtab Alitalash, Mostafa Mollaali and Mahmoud Yazdani

Simulation of rock subjected to underground blast using FLAC3D ([IND-27](#))

Ranjan Kumar, Deepankar Choudhury and Kapilesh Bhargava

1. Characterization - Problematic soils

Nov. 9, Monday, 14:15-15:45, Room 502

Chair: Dr. Giancarlo Flores (Kyoto University)

Geotechnical properties of a type of iron ore fines ([JPN-079](#))

Hailong Wang, Junichi Koseki, Takeshi Sato and Yukika Miyashita

Mechanical properties of coral-silt composite soils evaluated on the basis of skeletal structure of coral gravels ([JPN-089](#))

Yoichi Watabe, Takashi Kaneko and Shinji Sassa

Influence of diesel pollution on the physical properties of soils ([CHN-16](#))

Han-liang Bian, Song-yu Liu, Guo-jun Cai and Ya Chu

A study in the micro-characteristic and electricity properties of silt clay contaminated by heavy metal zinc ([CHN-17](#))

Ya Chu, Song-yu Liu, Guo-jun Cai and Han-liang Bian

Geopolymeric cements based on South-Kazakhstan clay loam produced by non-clinker and non-fired scheme ([KAZ-11](#))

Altay A. Seitmagzimov, Bakhytzhon K. Sarsenbayev, Galina M. Seitmagzimova, Zhambyl T. Aimenov, Alimzhan S. Kurtayev and Karlygash S. Abdiramanova

Treatment of Iraqi collapsible soil using encased stone columns ([IRO-01](#))

N. Al-Obaidy, I. Jefferson and G. Ghataora

Studies on improvement of properties of gypseous soils ([IRO-04](#))

Saad F. Ibrahim, Nael Kamel Dalaly and G.Al.Ahbab Mahmoud

1. Characterization - Local soils

Nov. 9, Monday, 16:15-17:45, Room 502

Chair: Dr. Pipatpongsa Thirapong (Kyoto University)

Shear modulus at small strain of normally consolidated peat ([JPN-025](#))

Hirochika Hayashi and Satoshi Nishimoto

Characterising the small strain stiffness behaviour of the Singapore old Alluvium ([SIN-07](#))

Veeresh Chepurthy, Kok Hun Goh and Wen Dazhi

Variation of shear wave velocity of Macao marine clay during secondary consolidation ([SEA-20](#))

Thomas M.H. Lok, Xuantao Shi and Shengshen Wu

The static and dynamic characteristic of undisturbed residual soils under drying-wetting cycle's repetition ([INA-04](#))

Mohammad Muntaha, Ria Asih Aryani Soemitro and Dwa Desa Warnana

The effect of drying - wetting cycles to the Wischmeier soil erodibility factors ([INA-06](#))

Ria Asih Aryani Soemitro and Runi Asmaranto

Recent development on deep basement construction in soft Bangkok clay next to British Embassy

[\(THA-02\)](#)

Wanchai Teparaksa

Partial drainage characteristics of intermediate soils with low plasticity from Incheon, Korea [\(KOR-17\)](#)

Sangduk Lee, Seokjo Kim, Juhyun Kim and Taeho Kim

7. Underground construction and tunnelling - Underground construction

Nov. 9, Monday, 11:00-12:30, Room 503

Chair: Dr. Shunichi Kobayashi (Kanazawa University)

Experimental study on influence of ground rebound on tunnels caused by groundwater restoration[\(JPN-146\)](#)

Takuya Kusaka, Sockheang Sreng, Hiroshi Tanaka, Hitomi Sugiyama, Tamio Ito and Koji Kobayashi

Influence of aspect ratio of basement on three-dimensional tunnel responses due to overlying excavation [\(HKG-21\)](#)

Jiangwei Shi, Yonghui Chen and C. W. W. Ng

Estimation of damping ratio of rock mass for numerical simulation of blast induced vibration propagation [\(KOR-34\)](#)

Jae-Kwang Ahn, Duhee Park and Jin-Kwon Yoo

Consolidation behaviors of soil-bentonite slurry trench cutoff walls: a large-scale test [\(CHN-39\)](#)

Yu-Chao Li, Han Ke, Xing Tong, Yi-Duo Wen and Yun-Min Chen

Design and optimization procedure for composite soil nail-anchor walls [\(IRN-12\)](#)

Reza Imam and S. Saber Hoseini

Impacts from three-dimensional effect on the wall deflection induced by a deep excavation in Kaohsiung, Taiwan [\(TWN-15\)](#)

Bin-Chen Benson Hsiung and Sy-Dan Dao

Experimental findings of 3D seepage failure of soil within a cofferdam [\(JPN-037\)](#)

Tsutomu Tanaka, Ritsu Tachimura, Shinya Kusumi, Shigeru Nagai and Kazuya Inoue

Urban geoengineering - Deep excavation (ATC6 Session)

Nov. 9, Monday, 14:15-15:45, Room 503

Chair: Prof. Chang-Yu Ou (National Taiwan University of Science and Technology)

The effect of reinforcement on stability of model of the dam on undermining soil ground [\(ATC6-02\)](#)

Askar Zh. Zhussupbekov, Tadatsugu Tanaka and Aliya K. Aldungarova

Finite element analysis of basal heave stability for braced excavations in clays [\(ATC6-03\)](#)

Fan Zhang and Anthony T. C. Goh

Finite element analysis of failure of deep excavations in soft clay [\(ATC6-04\)](#)

Chang-Yu Ou and Tuan-Nghia Do

Concept and characters of deep excavation groups in urban underground space development [\(ATC6-07\)](#)

J. H. Wang, J. J. Chen and M. G. Li

Some issues in core strength measurement in cement-soil treatment for deep excavation - Field data study [\(ATC6-09\)](#)

Yong Liu, Yi-Jie Jiang and Fook-Hou Lee

Influence of a nearby large excavation on existing metro in soft soils [\(ATC6-10\)](#)

Renpeng Chen, Fanyan Meng, Zhongchao Li, Yuehong Ye and Junneng Ye

3D FEM analysis of a vertical shaft constructed in a slope [\(VNM-02\)](#)

Duc Long Phung

Urban geoengineering - Shield tunneling (ATC6 Session)

Nov. 9, Monday, 16:15-17:45, Room 503

Chair: Prof. Mitsutaka Sugimoto (Nagaoka University of Technology)

Thermal performance evaluation of stainless steel pipe as a ground heat exchanger [\(ATC6-01\)](#)

Woo-Jin Kim, Seok Yoon, Min-Jun Kim, Gyu-Hyun Go and Seung-Rae Lee

A trial infrastructure asset management for subway tunnels [\(ATC6-05\)](#)

Takaaki Nishimura, Shinji Konishi, Tetsuya Murakami, Shogo Suzuki and Hirokazu Akagi

Resilience of operated tunnels under extreme surcharge: field study [\(ATC6-06\)](#)

Hongwei Huang and Dongming Zhang

Analysis on shield operational parameters to steer articulated shield ([ATC6-11](#))

T.N. Huynh, J. Chen and M. Sugimoto

Ground settlement due to shield tunneling through gravelly soils in Hsinchu ([ATC6-12](#))

Yung-Show Fang, Chuo-Ming Lin and Cheng Liu

Long-term behaviour prediction of the Bangkok MRT tunnels using simplified finite-element modelling ([SEA-07](#))

Suched Likitlersuang, Chanaton Surarak and Arumgam Balasubramaniam

Three-dimensional influence zone of new tunnel excavation crossing underneath existing tunnel ([HKG-09](#))

Thayanan Boonyarak and Charles W. W. Ng

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11. Ground improvement - Densification, Part 2

Nov. 10, Tuesday, 10:40-12:10, Room Main Hall

Chair: Dr. Satoshi Nishimura (Hokkaido University)

Performance of vacuum consolidation for reducing a long-term settlement ([JPN-068](#))

Toshiaki Kosaka, Hirochika Hayashi, Minoru Kawaida and Nipon Teerachaikulpanich

Lateral displacement of unsaturated clay slurry subjected to vacuum consolidation ([JPN-069](#))

Takashi Kawamura and Takeo Umezaki

Effect of electrode material on electro-osmotic consolidation of bentonite ([SEA-09](#))

Liming Hu, Hui Wu and Jay N. Meegoda

Studies to evaluate the impact of tamper on the depth of improvement in dynamic compaction ([IND-20](#))

Saptarshi Kundu and B.V.S. Viswanadham

Improvement of fine-grained reclaimed ground by dynamic compaction method ([JPN-030](#))

Yoshiharu Asaka

11. Ground improvement - Earth reinforcement

Nov. 10, Tuesday, 13:30-15:00, Room Main Hall

Chair: Prof. Tan Siew Ann (National University of Singapore)

Strength development and post freeze-thaw behavior of kaolin reinforced with fibers ([OTH-14](#))

Tugba Eskisar and Selim Altun

Roller compaction behavior of short fiber reinforced gravelly soil ([JPN-080](#))

Daiki Hirakawa and Yoshihisa Miyata

Load-settlement response of circular footing resting on reinforced layered system ([IND-17](#))

Chennarapu Hariprasad and Balunaini Umashankar

Effect of shape on bearing capacity of embedded footings on reinforced foundation beds over soft non-homogeneous ground ([IND-13](#))

Rajyalakshmi Kurapati, Venkata Abhishek Sakleshpur and Madhira R. Madhav

Performance of geosynthetic reinforced wall during rainfall ([KOR-18](#))

C. Yoo and S. M. Shin

Evaluation of post-earthquake loading capacity of steel reinforced retaining wall by displacement and/or loading controlled pullout test ([JPN-043](#))

Motoyuki Suzuki, Ryohei Asada, Yoshinori Otani and Naoki Shimura

The application of composite soil nailing wall in China ([CHN-45](#))

Wen guang Fu

11. Ground improvement - Mixing, Part 1

Nov. 10, Tuesday, 15:30-17:00, Room Main Hall

Chair: Prof. Balunaini Umashankar (Indian Institute of Technology Hyderabad)

Experimental study on soft clay stabilized with cement-based stabilizer ([CHN-41](#))

Cong Ma, Longzhu Chen and Bing Chen

Strength mobilization of cement-treated marine clay with various curing time ([KOR-14](#))

Go. Kang, T. Tsuchida, H. Wakioka and Ys. Kim

Effects of early-age consolidation on strength development in cement-treated clay ([JPN-070](#))

Satoshi Nishimura and Kosuke Abe

Mechanical properties of cement-treated soil improved using urea ([JPN-107](#))

Kazuhiro Kaneda, Tomohiro Tanikawa, Yuichi Koumura and Toshiro Hata

Fibre distribution effect on behavior of fibre-reinforced cement-treated clay ([SIN-08](#))

H. W. Xiao, F. H. Lee and S. H. Goh

Effect of rich husk ash stabilization on solute transport in a lead-contaminated soil ([CHN-19](#))

Abraham C.F. Chiu, Raphael Akesehe, Moumouni M. Ibrahim and Guo-hui Lei

4. Geodisaster - Monitoring of slope failure and rainfall

Nov. 10, Tuesday, 10:40-12:10, Room 409

Chair: Dr. Daiki Hirakawa (Chuo University)

Real-time prediction of hydraulic conditions in slope ground based on monitoring data of moisture contents ([JPN-038](#))

Taro Uchimura and Lin Wang

Prefailure deformation monitoring of landslide and slope by using tilt sensors ([JPN-048](#))

Lin Wang, Ichiro Seko, Shunsaku Nishie and Taro Uchimura

Assessment of natural slopes susceptible to failure in heavy rainfall based on in-situ cone resistance data ([JPN-027](#))

A.M.R.G. Athapaththu and Takashi Tsuchida

Near real-time landslide monitoring with the smart soil particles ([HKG-05](#))

Ghee Leng Ooi, Pin Siang Tan, Meei-Ling Lin, Kuo-Lung Wang, Qian Zhang and Yu-Hsing Wang

Investigation of shallow landslide scars on Shirasu natural slopes from the viewpoint of forest ecology and geotechnical engineering ([JPN-046](#))

Kentaro Yamamoto, Katsuhisa Nagakawa and Mizuki Hira

Study of 24-hour probable maximum precipitation and associated landslide hazards for Hong Kong ([HKG-06](#))

C.F. Yam, B.Z. Lin, H.W. Sun, Y.K. Shiu and W.K. Pun

Case study of Taipingshan landslide triggered by Typhoon Saola ([TWN-06](#))

Ming-Chien Chung, Chih-Hao Tan and Kuo-Wei Shih

4. Geodisaster - Erosion

Nov. 10, Tuesday, 13:30-15:00, Room 409

Chair: Prof. San-Shyan Lin (National Taiwan Ocean University)

Ash pond erosion process monitoring using LiDAR scans ([TC302-06](#))

Shen-En Chen, John Daniels, Zhengfu Bian and Shaogang Lei

Effects of internal erosion on mechanical properties evaluated by triaxial compression tests ([JPN-127](#))

M. Sato and R. Kuwano

Effect of characteristics of unsaturated soils on the stability of slopes subject to rainfall ([TWN-02](#))

Chia-Cheng Fan and Ren-Yu Zeng

Instability on dike with scour due to surface flow and seepage ([JPN-140](#))

Kenichi Maeda, Tatsuya Matsuda and Hiroshi Saito

The establishment of rainfall thresholds for debris slide in Taiwan - with the combination of multivariate analysis and the I-R index ([TWN-07](#))

Lun-Wei Wei, Hsi-Hung Lin and Chung-Chi Chi

Analysis and simulations of erosion protection designs using the PLAXIS 2D and Slide programs ([TC302-10](#))

N. Chanmee, D.T. Bergado, T. Hino and L.G. Lam

Simulation of Senise landslide in clayey silty soil using a strain softening soil model and Updated Lagrangian H-Adaptive approach ([OTH-36](#))

Samaneh Mohammadi

4. Geodisaster - Remediation measures of slope failure

Nov. 10, Tuesday, 15:30-17:00, Room 409
Chair: Dr. Taro Uchimura (The University of Tokyo)

Flume tests in wettable and water repellent sands: insights into the initiation of wildfire-related debris flows ([HKG-11](#))

Sérgio D.N. Lourenço, Gong-Hui Wang and Toshitaka Kamai

A method for estimating the bed-sediment entrainment in debris flow ([JPN-033](#))

Zheng Han and Guangqi Chen

A geogrid-reinforced landslide stabilization: 20 years passed ([OTH-18](#))

Dimiter Alexiew, Anton Plankel and Graham Thomson

Analyses of the lateral force on stabilizing piles in sandy slope ([JPN-055](#))

Yi He, Hemanta Hazarika, Naoto Watanabe and Hiroki Sugahara

Hazard mapping of landslide-dam induced by earthquake ([JPN-115](#))

Guangqi Chen, Yanan Fan and Yange Li

Disaster prevention measures for expressway embankment ([JPN-109](#))

Tetsuo Abe, Masayoshi Tsukamoto, Seiya Yokota and Satoshi Tayama

Geosynthetics - EPS, geocell and fiber reinforcement (Organized by IGS Asian Activity Committee)

Nov. 10, Tuesday, 10:40-12:10, Room 410

Chair: Prof. Nozomu Kotake (Kagawa National College of Technology)

Effect of boundary conditions on earth pressure reduction using EPS Geofoam ([IND-34](#))

T. N. Dave and S. M. Dasaka

Active screening for axi-symmetric machine loading using EPS geofoam ([IND-04](#))

Mainak Majumder and Priyanka Ghosh

Effect of geocell shape and filling material characteristics on bearing capacity geocell reinforced soils ([KOR-20](#))

E.C. Shin, H.H. Kang, J.K. Kang and H.S. Shin

Static and dynamic behaviours of geocell reinforced soft clay ([IND-29](#))

Ashim K. Dey and Prasenjit Debnath

Experimental study of the effect of rubber chips on the one-dimensional compression behavior of a rubber and aluminum chip mixture ([IGS-18](#))

Takashi Kimata and Kazuhisa Shimada

Evaluation of in-situ compressive stiffness of liquefied-stabilized soil reinforced with fiber ([IGS-41](#))

Hung Quang Duong, Yukihiro Kohata, Keita Ozaki and Saori Abiru

Creep testing on fiber reinforced sand ([OTH-04](#))

Vadim G. Ofrikhter and Ian V. Ofrikhter

Geosynthetics - Mechanical and general aspects of barriers (Organized by IGS TC on Barrier Systems)

Nov. 10, Tuesday, 13:30-15:00, Room 410

Chair: Mr. Kent P. von Maubeuge (NAUE GmbH & Co. KG)

Co-Chair: Prof. Takeshi Katsumi (Kyoto University)

Road noise barriers as longitudinal waste deposits - lined slopes with geosynthetics protecting the environment ([IGS-31](#))

K. von Maubeuge, T. Egloffstein and L. Vollmert

Seismic stability of geosynthetic barrier on landfill slope ([IGS-42](#))

Nozomu Kotake and Masashi Kamon

Interface shear strength between geomembrane and clayey soils ([IGS-35](#))

Akinori Saito and Jin-Chun Chai

Studies on the performance of geocomposite reinforced low-permeable slopes subjected to rainfall ([IGS-10](#))

B.V.S. Viswanadham and Dipankana Bhattacharjee

Review on performance of geosynthetic liners in municipal solid waste landfills ([IGS-21](#))

B.M. Sunil

Estimation of engineering behavior of geosynthetic clay liners using moisture-suction relationships ([IGS-22](#))

Jacob L. Risken, James L. Hanson and Nazli Yesiller

Factors influencing hydraulic conductivity and metal retention capacity of geosynthetic clay liners exposed to acid rock drainage ([IGS-43](#))

Angelica Naka, Giancarlo Flores, Takeshi Katsumi and Hirofumi Sakanakura

Geosynthetics - Containment performance (Organized by IGS TC on Barrier Systems)

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Chair: Mr. Boyd Ramsey (GSE)

Co-Chair: Dr. Nathalie Touze-Foltz (IRSTEA)

Design, installation, and maintenance of temporary storage sites for radioactive decontamination waste ([IGS-44](#))

Takayuki Shimaoka, Koji Kumagai, Takeshi Katsumi and Michio Iba

Comparative field experiment on gas permeability of cover sheets for temporary storage sites of decontamination waste ([IGS-40](#))

Takayuki Masuo, Masatoshi Ishida, Masaki Nishimura and Tomoyuki Akai

Recent developments in the application of HDPE vertical barrier systems in The Netherlands ([IGS-38](#))

Jeroen Dijkstra and Axel Hilligheekken

Electrically conductive geomembrane enhances construction quality assurance at post installation ([IGS-06](#))

Hoeboon Ng and Yongya Zheng

An evaluation of HDPE geomembrane exposed under extreme weather condition in Mongolia ([IGS-07](#))

Yongya Zheng and Hoeboon Ng

Diffusion of phenolic compounds through a flexible polypropylene geomembrane ([IGS-15](#))

N. Touze-Foltz, M. Mendes, M. Mazeas and L. Rouillac

Effects of defects in geomembranes on reducing desiccation potential of geosynthetics clay liners ([IGS-27](#))

A. Ghavam-Nasiri and A. El-Zein

3. Geodisaster - Liquefaction, Part 1

Nov. 10, Tuesday, 10:40-12:10, Room 411

Chair: Dr. Rui Wang (Tsinghua University)

Plan of large-scale shaking table tests using E-Defense for liquefaction of reclaimed ground ([JPN-004](#))

Kazuo Tani

Microbial soil desaturation for the mitigation of earthquake liquefaction ([SEA-05](#))

Jia He, Jian Chu, Han-Long Liu and Yu-Feng Gao

Evaluation for soil liquefaction due to long duration earthquakes with low acceleration ([JPN-005](#))

Jun Izawa and Kyohei Ueda

Correlation of shear wave velocity with liquefaction resistance for silty sand based on laboratory study ([IRN-01](#))

Nima Akbari-Paydar and Mohammad Mehdi Ahmadi

On ageing of liquefaction resistance of sand ([JPN-072](#))

Ikuo Towhata, Shigeru Goto, Yuichi Taguchi, Toshihiko Hayashida, Yuki Shintaku and Yuki Hamada

Influence of sand and low plasticity clay mixtures on the liquefaction and postliquefaction behavior ([IND-10](#))

Muttana S. Balreddy, S. V. Dinesh and T. G. Sitharam

Undrained behavior and post-liquefaction behavior of sand containing fines ([JPN-084](#))

Yolanda Alberto

3. Geodisaster - Liquefaction, Part 2

Nov. 10, Tuesday, 13:30-15:00, Room 411

Chair: Prof. Masyhur Irsyam (Bandung Institute of Technology)

The analysis of dynamic pore pressure ([CHN-13](#))

Junhui Luo, Linchang Miao and Guangfan Li

Liquefaction characteristic of alluvial soil distributed at Sawara dry riverbed in Chiba prefecture ([JPN-062](#))

Fusao Rito and Hiroyoshi Kiku

Deterministic and probabilistic liquefaction potential evaluation of Guwahati city ([IND-32](#))

B. Sharma and M. Chetia

Liquefaction-induced ground subsidence extracted from Digital Surface Models and its application to hazard map of Urayasu city, Japan ([TC203-02](#))

Kazuhiro Kajihara, Pokhrel Rama Mohan, Takashi Kiyota and Kazuo Konagai

Practical application of mitigation measures for existing underground lifelines subjected to liquefaction ([JPN-035](#))

Masahide Otsubo, Shigeru Goto, Takeshi Akima and Toshihiko Hayashida

Three dimensional numerical simulation of piles in liquefiable ground ([CHN-02](#))

Rui Wang and Jian-Min Zhang

Surface ground improvement to reduce liquefaction damage to small structures ([JPN-060](#))

Hideyuki Mano, Yasuhiro Shamoto and Akira Ishikawa

3. Geodisaster - Liquefaction, Part 3

Nov. 10, Tuesday, 15:30-17:00, Room 411

Chair: Dr. Tetsuo Tobita (Kyoto University)

Effects of counterweight fill on reduction of settlement of main embankment constructed on sandy soil deposits liquefied during earthquakes ([TC203-01](#))

H. Nagase, A. Hirooka, Y. Yamamoto and T. Fujishiro

Study on the restoration methods for the houses damaged by the liquefaction during the 2011 Great East Japan Earthquake ([JPN-098](#))

Susumu Yasuda

Dynamic response and load distribution of pile groups in layered liquefiable ground ([CHN-01](#))

Xing Liu, Rui Wang and Jianmin Zhang

Mechanism of sand eruption from liquefied ground through gap of pavement and subsurface cavities ([JPN-111](#))

J. Kuwano and R. Kuwano

Objective seismic motion for liquefaction countermeasures in residential areas of Inashiki City Ibaraki, Japan ([JPN-129](#))

Naoki Ohmukai, Fusao Rito and Kazuya Yasuhara

Centrifuge modeling of sand boil on sand containing silt ([JPN-139](#))

Daiki Takano, Yoshiyuki Morikawa and Hidenori Takahashi

Groundwater level lowering effects for reducing damage to existing residences during earthquakes ([JPN-149](#))

Y. Motohashi, K. Yasuhara and S. Murakami

Forensic geotechnical engineering (TC302 Session)

Nov. 10, Tuesday, 10:40-12:10, Room 412

Chair: Prof. G L Sivakumar Babu (Indian Institute of Science)

Investigation of failure of a rigid retaining wall with relief shelves ([TC302-02](#))

Vinay B. Chauhan, Satyanarayana M. Dasaka and Vinil K. Gade

Analysis of coastal structure damaged by the 2011 Off the Pacific Coast of Tohoku Earthquake - Field investigation and numerical simulation - ([TC302-03](#))

Tsuneo Ohsumi, Hemanta Hazarika, Tadashi Hara, Kentaro Kuribayashi, Shuichi Kuroda, Koichiro Takezawa and Hideo Furuichi

Use of 3D finite element method for back study of a failed basement excavation in soft clay ([TC302-04](#))

S. S. Lin, J. C. Liao and S. D. Yang

Analysis for operation of TBM encountered in five incidents ([TC302-07](#))

Hajime Imanishi

Forensic analysis of failure of retaining wall ([TC302-08](#))

G L Sivakumar Babu, P Raja and P Raghuveer Rao

Assessment of pile failures due to excessive settlement during pile load test ([TC302-09](#))

K. Muthukkumaran, S. Keerthi Raaj and M. Vinoth Kumar

Deformation of crane rail for pile supported warehouse by adjacent macadam stockyard ([JPN-075](#))

Yoshinori Iwasaki and Tomohiro Masunari

Transportation geotechnics, Part 1 (TC202 Session)

Nov. 10, Tuesday, 13:30-15:00, Room 412

Chair: Prof. Bagdat B. Teltayev (Kazakhstan Highway Research Institute)

Co-Chair: Dr. Yoshitsugu Momoya (Railway Technical Research Institute)

Uniaxial compressive strength of hydraulic, graded iron and steel slag base-course material produced at different manufacturers and its increase with curing time ([TC202-13](#))

Nobuyuki Yoshida

Cyclic plastic deformation characteristics of subgrade under moving train wheel load ([TC202-02](#))

Biyavilage Dareeju, Chaminda Gallage, Manika Dhanasekar and Tatsuya Ishikawa

Correlation between flat dilatometer (DMT) index with insitu bearing strength for subgrade material ([IND-26](#))

Kaushik Bandyopadhyay and Sunanda Bhattacharjee

Application of dynamic and static cone penetrometer for characterization of railway substructure ([KOR-39](#))

Yong-Hoon Byun, Won-Taek Hong and Jong-Sub Lee

Lateral resistance of ballasted tracks for various shapes of sleepers based on limit equilibrium methods ([TC202-04](#))

Takuma Ichikawa, Kimitoshi Hayano, Takahisa Nakamura and Yoshitsugu Momoya

Model tests and numerical analyses on the mechanism of flow-out of railway ballasts induced by flood inundation ([JPN-009](#))

K. Hayano

Transportation geotechnics, Part 2 (TC202 Session)

Nov. 10, Tuesday, 15:30-17:00, Room 412

Chair: Prof. Jiankun Liu (Beijing Jiaotong University)

Co-Chair: Prof. Kimitoshi Hayano (Yokohama National University)

Performance enhancement of railtrack ballast with rubber inclusions: a laboratory simulation ([SEA-18](#))

Chee-Ming Chan and Siti Farhana SM Johan

Development of repair method using polymer for ballasted tracks with a high-mixture ratio of fine particles ([TC202-09](#))

Takahisa Nakamura, Katsumi Muramoto, Yoshihiko Yabunaka and Kiyonori Nomura

Application of Mammoth Vibro-Tamper (MVT) for the shallow compaction at airport runway expansion project in Florida ([TC202-10](#))

Mitsuo Nozu, Masaru Sakakibara and Kazunori Matsushita

Seismic behavior of model embankment affected by seepage water and frozen surface ([TC202-06](#))

Hisanori Kishida, Shunzo Kawajiri, Takayuki Kawaguchi, Dai Nakamura and Satoshi Yamashita

The mechanism analysis of micro frost heave coarse-grained filling material in the high-speed railway ([CHN-31](#))

Yang-sheng Ye, De-goui Cai, Hong-ye Yan, Jian-ping Yao, Qian-li Zhang and Ai-jun Cheng

Characteristics of highway subgrade frost penetration in regions of the Kazakhstan ([KAZ-08](#))

Bagdat B. Teltayev, Askhat I. Baibatayrov and Elena A. Suppes

Estimation method of rigid pavement deformation caused by a frost heave of subgrade ([TC202-11](#))

Takashi Ono and Kiyoshi Takeichi

6. Foundations - Dynamic behaviour

Nov. 10, Tuesday, 10:40-12:10, Room 413

Chair: Prof. Deepankar Choudhury (Indian Institute of Technology Bombay)

Effect of climate change on dynamic behavior of monopile supported offshore wind turbine structure ([IND-03](#))

Swagata Bisoi and Sumanta Haldar

A seismic reinforcement method for an existing pile foundation in soft ground and liquefiable ground ([JPN-008](#))

Koichi Tomisawa and Seiichi Miura

New modelling of models for dynamic behavior of a pile foundation ([JPN-026](#))

Tetsuo Tobita and Susumu Iai

Seismic liquefaction analysis by a modified finite element-finite difference method ([CHN-58](#))

X. W. Tang and X. W. Zhang

Soil-water coupling analysis on seismic behavior of an alternately layered sand-silt ground with different foundation system ([TC212-01](#))

Xiaohua Bao, Guanlin Ye, Bin Ye and Feng Zhang

Bearing capacity of foundations under regime cyclic loading ([KAZ-18](#))

Ilizar T. Mirsayapov and Irina V. Koroleva

Long-term cyclic behavior of soils supporting offshore wind turbine foundation ([KOR-26](#))

Jin Man Kim, Su Won Son, Pouyan Bagheri, Tae Gyung Ryu and George Soriano

6. Foundations - Piled raft

Nov. 10, Tuesday, 13:30-15:00, Room 413

Chair: Mr. Ching Guan Kee (Civil and Geotechnical Associates)

Bending moment of piles on piled raft foundation subjected to ground deformation during earthquake in centrifuge model test ([JPN-119](#))

Junji Hamada

Prediction of elastic settlement of rectangular piled raft foundation ([IND-31](#))

Jagat Jyoti Mandal and Tapabrata Roy

Settlement of piled raft subjected to strong seismic motion ([JPN-087](#))

Kiyoshi Yamashita

A 3D FEM analysis on the performance of disconnected piled raft foundation ([KOR-21](#))

Boramy Hor, Myung-Jun Song, Min-Hyung Jung, Young-Hun Song and Yung-Ho Park

Settlement analysis for piled raft foundations ([VNM-03](#))

Duc Long Phung

Load and settlement of pile-raft foundation at post consolidation from 3D FEM analysis ([TWN-05](#))

Der-Wen Chang, Wei-Chen Lin and Chih-Wei Lu

Analysis of load sharing behavior for piled rafts using normalized load response model ([KOR-13](#))

Donggyu Park, Doohyun Kyung, Daesung Park, Incheol Kim and Junhwan Lee

6. Foundations - Group pile

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Chair: Dr. Satoshi Matsumura (Port and Airport Research Institute)

Experimental study of shear failure characteristic of spread foundations ([CHN-43](#))

Yan-jing Teng and Rong-nian Li

Investigation of pile group effect subjected to influence of pile arrangement and pile stiffness ([JPN-138](#))

Shuntaro Teramoto and Makoto Kimura

Evaluation of the monotonic and cyclic shear characteristics of compacted clinker ash ([JPN-133](#))

Michael Winter and Norimasa Yoshimoto

Nonlinear analysis of seismic response of a base isolated building on a piled raft foundation with grid-form ground improvement ([JPN-006](#))

Yoshimasa Shigeno

Group interaction analysis of displacements in granular pile anchors (GPA) ([IND-02](#))

B. Vidyaranya and M.R. Madhav

Numerical analyses and shaking table tests on seismic performance of existing group-pile foundation enhanced with partial-ground-improvement method ([JPN-010](#))

Kheradi Hamayoon, Ryosuke Oka and Feng Zhang

Dynamic coupled response of 6-pile groups with different pile arrangements ([IND-15](#))

Shiva S. Choudhary, Sanjit Biswas and Bappaditya Manna

1. Characterization - Ground investigation

Nov. 10, Tuesday, 10:40-12:10, Room 414

Chair: Prof. Choong-Ki Chung (Seoul National University)

An attempting research on evaluating grain-size characteristics based on acoustic properties of soil for liquefaction assessment by Swedish Ram Sounding ([JPN-142](#))

Suguru Yamada and Akihiko Oshima

Evaluating deformation and liquefaction properties of sandy ground from in-situ and laboratory tests

[\(TC101-02\)](#)

Satsuki Kataoka, Satoru Shibuya, Takayuki Kawaguchi, Syunzo Kawajiri, Tatsuya Wakamoto, Tomoya Kitano and Tara Nidhi Lohani

Effective utilization of dynamic penetrometer in determining the soil resistance of the reconstituted sand bed [\(OTH-30\)](#)

Shubham Srivastava, V Srinivasan and P Ghosh

Excess pore water pressure and its impact [\(SEA-16\)](#)

Akira Wada

Applicability of a two-chamber hydraulic piston sampler for hard soil deposits [\(JPN-023\)](#)

Yoshihito Nakano and Takaharu Shogaki

Estimation of shear wave velocity from SPT N-value - field assessments [\(IND-28\)](#)

Jaykumar Shukla, Deepankar Choudhury and Dhananjay Shah

Design soil resistance for deep foundation [\(KAZ-09\)](#)

A.S. Zhakulin, Aisulu Zhakulina, V.N. Popov, Yerken Akhmetov and Altay Zhakulin

1. Characterization - Deformation characteristics

Nov. 10, Tuesday, 13:30-15:00, Room 414

Chair: Dr. Shotaro Yamada (Nagoya University)

Behaviour of reconstituted sand-sized particles in direct shear tests using PIV technology [\(MYS-06\)](#)

I Peerun., D.E.L Ong. and C.S Choo.

Failure mechanism evaluation in normally consolidated cohesive soils by plane strain test with digital image analysis [\(KOR-02\)](#)

Tae-Young Kwak, Joon-Young Kim and Choong-Ki Chung

Development of 3D particle method for calculating large deformation of soils [\(KOR-37\)](#)

Sung-Sik Park, Han Chang, Kyung-Hun Chae, Sae-Byeok Lee, Sung-Ryol Ye and Zhou Ahn

Soil deformation due to suffusion and its consequences on undrained behavior under various confining pressures [\(JPN-083\)](#)

Lin Ke, Mao Ouyang, Kazuki Horikoshi and Akihiro Takahashi

Determination of failure mechanism of very soft clay behind L-pile wall with physical model tests [\(THA-04\)](#)

Pornpot Tanseng, Winit Haema and Warayoot Chaiyasook

Cracking mechanism of soft clay in evaporation and desiccation conditions [\(CHN-28\)](#)

Shuwang Yan, Bingchuan Guo and Liqiang Sun

Warning hydraulic facilities from the ground in drifts deflation soils [\(KAZ-19\)](#)

S. Koibakov, G. Meldebekova and M. Maliktauly

1. Characterization - Constitutive modelling

Nov. 10, Tuesday, 15:30-17:00, Room 414

Chair: Prof. Akihiro Takahashi (Tokyo Institute of Technology)

Fractional calculus-based compression modeling of soft clay [\(CHN-54\)](#)

Cheng-Cheng Zhang, Hong-Hu Zhu, Guo-Xiong Mei, Bin Shi and Gang Cheng

Modelling small strain behaviors of overconsolidated clays [\(CHN-35\)](#)

Yangping Yao and Shan Qu

Numerical solutions for consolidation of under-consolidated dredger fill under vacuum preloading [\(CHN-29\)](#)

Liqiang Sun, Shuwang Yan, ChangLin Qiu, Tianqiang Jia and Shilun Feng

Proposal of a new double hardening elasto-plastic constitutive model of soil skeleton based on integration of associated and non-associated flow rules [\(JPN-128\)](#)

Shotaro Yamada and Toshihiro Noda

Air-coupled effects on triaxial behavior of silty specimens under a constant confining pressure and various exhausted conditions [\(JPN-116\)](#)

Takahiro Yoshikawa

Effects of time and rate on the stress-strain-strength behavior of soils [\(HKG-01\)](#)

Jian-Hua Yin

Elastic wave theory for propagation of Rayleigh waves at surface of unsaturated semi-infinite media [\(IRN-09\)](#)

Iman Ashayeri, Mahnoosh Biglari and Majid Rezaie Sefat

Advances in computational geomechanics (TC103 Session)

Nov. 10, Tuesday, 10:40-12:10, Room 502

Chair: Dr. Jidong Zhao (Hong Kong University of Science and Technology)

Co-Chair: Dr. Yosuke Higo (Kyoto University)

Soil-water-air coupled seismic behavior accompanying internal water level variation of an unsaturated embankment with an enclosed saturation area on cohesive soil ground ([JPN-077](#))

Toshihiro Noda, Takahiro Yoshikawa and Toshihiro Takaine

Dynamic analysis of hydrate-bearing seabed sediments considering methane gas production induced by depressurization ([JPN-134](#))

T. Akaki, S. Kimoto and F. Oka

Study on opening between shear boxes using DEM simulation ([TC103-01](#))

Byeong-Su Kim, Yuji Takeshita, Seong-Wan Park and Shoji Kato

Random walk particle tracking approach to assess 3-D macrodispersion in heterogeneous aquifers ([TC103-02](#))

Kazuya Inoue and Tsutomu Tanaka

Numerical simulation of dam break by a coupled CFD-DEM approach ([TC103-03](#))

Xingyue Li and Jidong Zhao

Numerical study of shear band formation in triaxial compression tests ([JPN-013](#))

Takatoshi Kiriyaama

Cosserat continuum model and its application to the studies of progressive failure ([CHN-57](#))

Hongxiang Tang and Chunhong Song

Geo-mechanics from micro to macro - Experimental and practical issues (TC105 Session)

Nov. 10, Tuesday, 13:30-15:00, Room 502

Chair: Prof. Masayuki Hyodo (Yamaguchi University)

The effect of fines on the small-strain stiffness of sand-non plastic fines mixtures ([TC105-01](#))

Lu Zuo and Béatrice A. Baudet

A multiscale study of inherent anisotropy and strain localization in granular soils ([TC105-02](#))

Jidong Zhao, Ning Guo and WaiChing Sun

Porosity partitioning of a fractured granite basement (FGB) reservoir in the Cuu Long Basin, offshore Southern Vietnam ([TC105-03](#))

P. H. Giao, B. D. Trung and D. Q. Doi

Effect of micro soil properties on the macro behavior of a tunnel ([TC105-04](#))

Ki-Il Song, Gye-Chun Cho, Dae-Soo Lee and Sang-Hyun Lee

A microscopic investigation into the breakage behavior of calcareous origin grains in 1D compression ([HKG-13](#))

Yi Shi, W. M. Yan, T. Mukunoki, T. Sato and J. Otani

Local water-retention behaviour of sand during drying and wetting process observed by micro x-ray tomography with trinarisation ([OTH-13](#))

Yosuke Higo, Ryoichi Morishita, Ryunosuke Kido, Ghonwa Khaddour and Simon Salager

Geo-mechanics from micro to macro - Analytical issue (TC105 Session)

Nov. 10, Tuesday, 15:30-17:00, Room 502

Chair: Dr. Beatrice Baudet (The University of Hong Kong)

DEM analysis of ultimate lateral resistance to rigid short piles in sand ([TC105-06](#))

Yidong Xie and Thomas M.H. Lok

Three-dimensional DEM modelling of isotropic compression of cemented sand ([TC105-07](#))

F.G. Zhang and M.J. Jiang

Hierarchical multiscale modeling of fluid-saturated soils ([TC105-08](#))

Ning Guo and Jidong Zhao

A hierarchical approach to soil arching problem via physical model test with photoelastic measurement and discrete element simulations ([TC105-05](#))

Young-hoon Jung, Tae-gyun Kim and Sang-young Shin

Triaxial tests and DEM simulation on artificial bonded granular materials ([CHN-05](#))

Honglin Lin and Jianhong Zhang

Mechanical behaviour of DEM crushable grains with fines removal ([JPN-117](#))

Yukio Nakata and Akira Kato

7. Underground construction and tunneling - Tunnelling

Nov. 10, Tuesday, 10:40-12:10, Room 503

Chair: Dr. Takayuki Shuku (Okayama University)

Prediction of ground conditions ahead of the TBM face using electromagnetic waves ([KOR-27](#))

Chang-Ho Hong, Gye-Chun Cho and Kyoung-Yul Kim

3D numerical modeling for construction of tunnels intersections- case study of Hakim tunnel ([IRN-15](#))

Aliakbar Golshani, Mehdi Joneidi and Sina Majidian

Influence of copy cutter length on H&V shield behaviour ([SEA-14](#))

S. Chaiyaput, T. N. Huynh and M. Sugimoto

Stability analysis of face-reinforced Divide Shield Method (DSM) using test chamber and its numerical verification for shallow-embedded tunneling ([KOR-10](#))

Sung-Dae Hong, Tae-Young Yoon, Key-Hoon Yoo and Young Uk Kim

Case study on the application of shield TBM in the gravel layer with high water pressure underpassing the Han River ([KOR-22](#))

Chang-soo. Kim, Jae-yoon. Kim, Soo-ho. Lee, Hyun. Cho and Dong-ahn. Hwang

Centrifuge model tests and elastic FE analysis on seismic behavior of buried culverts ([JPN-106](#))

Jun Tohda, Hiroshi Yoshimura and Katsunori Maruyoshi

Risk assessment and management, Part 1 (TC304 Session)

Nov. 10, Tuesday, 13:30-15:00, Room 503

Chair: Prof. Shinichi Nishimura (Okayama University)

Estimation of horizontal transition probability matrix for coupled Markov chain ([TC304-03](#))

Xiao-hui Qi, Dian-qing Li and Kok-kwang Phoon

Can the effect of shear strength spatial variability be summarized as the pure spatial average? ([TWN-10](#))

Yu-Gang Hu, Jianye Ching and Kok-Kwang Phoon

Aggregation of landslide occurrence probability in spatially variable soil ([HKG-03](#))

Liang Li, Yu Wang and Zijun Cao

Reliability-based design for earth-fill dams against heavy rains ([JPN-044](#))

Shin-ichi Nishimura, Takayuki Shuku, Toshifumi Shibata and Kazunori Fujisawa

Reliability-based remediation control for contaminated groundwater ([JPN-040](#))

Yoshihisa Miyata and Toshiro Hata

Methodology of optimal sampling planning based on VoI for soil contamination investigation ([JPN-036](#))

Ikumasa Yoshida

Reliability analysis of pile foundation for an offshore wind turbine ([KOR-04](#))

Gil Lim Yoon, Sun Bin Kim and Jin Hak Yi

Risk assessment and management, Part 2 (TC304 Session)

Nov. 10, Tuesday, 15:30-17:00, Room 503

Chair: Prof. Makoto Suzuki (Chiba Institute of Technology)

Deterioration model of ground anchor for slope stability assessment ([JPN-011](#))

Tomohiro Hamasaki, Kiyonobu Kasama and Yoshito Maeda

Stability evaluation for the caisson-type composite breakwater under tsunami condition ([JPN-094](#))

Kiyonobu Kasama, Kouki Zen and Yasuo Kasugai

Physical modeling of land subsidence due to underground cavity and its monitoring by electrical resistivity survey in geotechnical centrifuge ([KOR-28](#))

Hyung Ik Cho, Eun Seok Bang, Myeong Jong Yi and Dong Soo Kim

Development of the heavy rainfall induced slope failure hazard maps for the villages located in the mountainous area close to Median Tectonic Line ([JPN-028](#))

Makoto Kawamura, Yuji Tsujiko and Kazuhiko Tsujino

Evaluation of the improvement effects by vertical drains/vacuum consolidation on peaty ground under embankment loading ([JPN-086](#))

Mutsumi Tashiro and Son H. Nguyen

Assessment to the sediment concentration affected by river water current during dry and monsoon seasons at Kanor village-Bengawan Solo River ([INA-02](#))

Mahendra Andiek Maulana, Ria Asih Aryani Soemitro and Toshifumi Mukunoki

Rainfall-based landslide susceptibility analysis for natural terrain in Hong Kong ([HKG-10](#))

Frankie L.C. Lo and Florence W.Y. Ko

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Engineering Sessions - Day 3- November 11 (Wednesday)

ESD 1A: Disaster waste - resource recovery and utilization (Organized by Japan Federation of Construction Contractors)

Nov. 11, Wednesday, 14:40-16:40, Room Main Hall

Chair: Prof. Takeshi Katsumi (Kyoto University)

Co-Chair: Dr. Masanori Shimomura (Taisei Corporation)

Treatment of disaster waste generated by the Great East Japan Earthquake -Treatment of disaster waste by member corporations of the Japan Federation of Construction Contractors- ([ESD-KL-6](#))

Kazuo Ide

Disaster waste recovery and utilization in developing countries - Learning from earthquakes in Nepal ([ESD-KL-7](#))

Mushtaq A. Memon

A study on geotechnical properties of recycled geomaterial from tsunami-related sediments ([JPN-114](#))

Hiroki Uno

Realizing utilization of the construction material derived from disaster waste(Disaster-waste-disposing Project in Ishinomaki Block, Miyagi Prefecture) ([ESD-38](#))

Kazufumi Aoyama and Hiroshi Ogawa

Analysis of the integrated data on disaster debris treatment in Yamada town, Iwate prefecture ([ESD-39](#))

Yoshikazu Otsuka and Takeshi Katsumi

ESD 2A: Geo-environmental engineering

Nov. 11, Wednesday, 17:00-18:00, Room Main Hall

Chair: Prof. Takeshi Katsumi (Kyoto University)

Co-Chair: Dr. Junichi Hironaka (Mitsui Chemicals Industrial Products Ltd.)

Encapsulation of mudstone with natural contamination excavated from subway construction ([ESD-04](#))

Mariko Momma, Kenichiro Mori, Mitsuaki Mito and Osamu Hori

Report of soil contamination countermeasures project in Toyosu New Market site ([ESD-18](#))

Naoki Matsunaga, Masashi Sugaya and Shigeki Wakabayashi

Vertical expansion of hazardous waste landfill, by utilizing bottom ash from coal fired power plant as 24m high retaining wall geogrid construction material ([ESD-36](#))

Saravanan Mariappan

Construction of a large geogrid reinforced fill structure to increase landfill capacity ([ESD-40](#))

John Cowland

ESD 1B: Mega foundations (ATC18 Session)

Nov. 11, Wednesday, 14:40-16:10, Room 409+410

Chair: Prof. Myoun-Mo Kim (Seoul National University)

Co-Chair: Dr. Junji Hamada (Takenaka Corporation)

Failure of cantilever piles installed to attest slope movement in lateritic soils ([ESD-06](#))

Ashish Juneja

Design and construction of the reclamation for Hong Kong boundary crossing facilities ([ESD-07](#))

Kek-Kiong Yin, Daman Lee and Kok-Ming Bok

Failure case study of offshore batter drilled shafts subjected to seabed scouring ([ESD-08](#))

Sangseom Jeong, Sungjune Lee and Dohyun Kim

Reuse of existing bored piles for high-rise building foundation ([ESD-09](#))

Toru Watanabe, Sadayuki Ishizaki, Natsumi Tomita, Shin-ichiro Kawamoto and Satoshi Tatsuno

Time dependent on capacity of deep barrette pile in Bangkok subsoils ([ESD-10](#))

Wanchai Teparaksa

Foundation design and construction of a residential development in adverse ground condition in Hong Kong ([ESD-42](#))

James Sze and Kek-Kiong Yin

ESD 2B: Foundations

Nov. 11, Wednesday, 16:30-18:00, Room 409+410

Chair: Ms. Frances Badelow (Coffey)

Co-Chair: Dr. Toru Watanabe (Taisei Corporation)

Design and performance of the piled raft foundation for Shanghai World Financial Center ([CHN-44](#))

W. D. Wang, J. B. Wu and Q. Li

Settlement behavior of piled raft foundation supporting a 300 m tall building in Japan constructed by top-down method ([ESD-21](#))

Kiyoaki Hirakawa, Junji Hamada and Kiyoshi Yamashita

Soil investigation and design for bridge foundation on Pleistocene alternative layers of sand and clay ([ESD-11](#))

Yutaka Tanoue, Hidetoshi Ochiai, Susumu Yasuda, Yoshito Maeda, Noriyuki Yasufuku, Takao Migita and Yasuo Shirai

Construction of the high quality large scale cast-in-place piles in the river ([ESD-17](#))

Junichi Kanashige

Experimental study and application of static bored precast concrete piles in the fourth phase project of Wenzhou Power Plant ([ESD-23](#))

Lei-lei Wu, Wei-ding Fang, Shu-feng Wang and Ri-hong Zhang

Static load tests of nodular diaphragm wall supporting high-rise tower ([ESD-32](#))

Koji Watanabe, Toshimi Sudo, Masahiro Sato and Yusuke Ishii

ESD 1C: Retaining structures & slope stability

Nov. 11, Wednesday, 14:40-16:10, Room 411+412

Chair: Dr. Albert T. Yeung (Hong Kong University)

Co-Chair: Dr. Jun Izawa (Railway Technical Research Institute)

Slope stability studies for India's largest hydroelectric power project ([ESD-01](#))

Ganesh W. Rathod and K.S. Rao

Visualization of geologic model for a cut slope using 3D geological analysis system ([ESD-22](#))

Hiroki Homma, Shoichi Nishiyama, Kazuo Kuwahara and Toshiro Otsu

Inclined-braceless excavation support (IBES) - cantilever braceless earth-retaining walls applicable to deep C & C excavation works - ([ESD-20](#))

Yoichi Shimada, Yoshihisa Sakahira, Tomonari Maeda, Taichi Terui and Shunji Aoki

Construction of GRS integral bridge adopted for Sanriku railway Kitariasu-line post-disaster reconstruction work ([ESD-27](#))

Takahiro Nonaka, Kazuhisa Shiranita, Fumio Koda, Gunji Noda and Yoshinori Shindo

On the case of road retaining wall repair in a narrow ground with heavy traffic ([ESD-26](#))

Masato Ono, Hiroo Takahagi, Kei Takata and Taiyo Kobayashi

Proposal for disaster prevention of road slope in Viet Nam- case study: feasibility study for ground anchor construction method ([ESD-16](#))

Haruka Saito, Hiroyuki Sakamoto, Hisashi Tanaka, Seishi Nagano, Tomoyoshi Yamaguchi and Koji Takeya

ESD 2C: Earthworks and soil improvement

Nov. 11, Wednesday, 16:30-18:00, Room 411+412

Chair: Dr. Yoshiyuki Morikawa (Port and Airport Research Institute)

Co-Chair: Dr. Daiki Takano (Port and Airport Research Institute)

Construction case of a liquefaction measure project by double steel sheet piles ([ESD-24](#))

Tomotaka Hirose and Hideo Furuichi

A study on improvement of strength of industrial waste sludge used for reclamation ([ESD-19](#))

Kiyoshi Mitsui, Hideo Nagase, Akihiko Hirooka and Yoshito Arikuni

Application of permeation grouting method as a countermeasure against liquefaction damages to airport runways in operation ([ESD-31](#))

Rouzbah Rasouli, Kentaro Hayashi, Makoto Morihashi and Kouki Zen

Application of a new medium-depth mixing method to peaty soft ground for the Substructure of the Miura Ohashi Bridge ([ESD-14](#))

Kazuyoshi Yagi, Yasunori Ishii and Shinichi Takumi

Test construction of highway embankment construction on soft ground ([ESD-13](#))

Kouki Sawano, Shinji Kato and Toru Sasaki

Case study of embankment construction on soft clay for Ariake Sea Coastal Road project ([ESD-41](#))

Tadanori Iwanaga, Masaru Nanri, Yasuo Shirai, Jun Tanaka and Takeshi Nonaka

ESD 1D: Underground structures

Nov. 11, Wednesday, 14:40-16:10, Room 413+414

Chair: Dr. Za-Chieh Moh (MAA Group)

Co-Chair: Mr. Tomohisa Shimamura (Kajima Corporation)

Underground stations excavation of up to 45m deep for mass rapid transit in limestone formation, Malaysia ([MYS-03](#))

Yean-Chin Tan, Kuan-Seng Koo and Chee-Meng Chow

Construction of long-distance water transfer tunnel, Pahang-Selangor raw water transfer tunnel, Malaysia ([ESD-29](#))

Takashi Kawata, Akira Mito, Takayuki Matsumoto and Yoshikuni Nakano

A case study of twin bored tunnelling under mixed-face soil - Bendemeer MRT station project (Downtown Line 3), Singapore ([SIN-03](#))

Chee Wee Ong, Jiong Poh Ee, Thiri Su, Kwet Yew Yong and Ariaratnam Kulaindran

Construction of an entrance/exit for an underground expressway on Tokyo Metropolitan Expressway by the open-cut tunnel construction method ([ESD-15](#))

Wakaki Tsuda, Yoshihiro Terashima, Daisuke Miyama and Shigeki Tomiyama

Shield tunnels connected to an operating station - a case study in Taipei MRT projects ([SEA-19](#))

J.F. Chang, C.R. Chou, Y.F. Lai and Y.H. Hsieh

On-Site Visualization of monitored information for advanced safety management in geotechnical engineering ([ESD-30](#))

S. Akutagawa, T. Katayama, T. Yamamoto and S. Tanaka

ESD 2D: Investigation & evaluation, other topics

Nov. 11, Wednesday, 16:30-18:00, Room 413+414

Chair: Prof. Shinichi Akutagawa (Kobe University)

Co-Chair: Dr. Satoshi Tayama (Nippon Expressway Research Institute)

New approach to determine faults properties inducing landslides by combining surveys with airborne lidar and gamma-ray detection ([ESD-25](#))

Yasuyuki Hirakawa, Naozo Fukuda, Tatsuro Yoshimura, Tomohiko Yoshikawa, Mayumi Koshio and Yoshito Kitazono

Effective utilization of underground space in urban area ([ESD-28](#))

Takamasa Takeuchi and Yasumasa Kimura

The new efforts for new technology utilization promotion in the Kyushu Technical and Engineering Office ([ESD-12](#))

Kazuhiro Kurio

Capacity Increase Project for Shinmoji-Oki Disposal Pond at Kita-Kyushu ([ESD-43](#))

M. Nakamichi, M. Yamaguchi, T. Umeyama, S. Yamamoto, O. Kawahara, M. Katagiri, K. Ohishi and T. Yoshifuku

Overview of rock mass permeability classification and its applications to Gokayama dam ([ESD-34](#))

Naoki Ohta and Takatoshi Toyomasu

Geotechnical innovation for quality surveillance of structural concrete ([ESD-03](#))

Diganta Sarma

11. Ground improvement - Mixing, Part 2

Nov. 12, Thursday, 8:30-10:00, Room Main Hall

Chair: Dr. Tiong Guan Ng (Golder Associates)

Numerical analysis of light-weight air foamed soils using dredged materials for soft ground improvement method ([KOR-03](#))

Gil Lim Yoon and Sun Bin Kim

A study on the applicability of coal ash mixture to reclamation ([KOR-06](#))

Kyounggo Kim, Seong-Wan Park, Hyunyoung Shin, Byungyoon. Kang and Taehoon Kim

Applicability of soil-enzyme for paving ([OTH-10](#))

José A. C. Malko, Rubens Brazetti, Michéle D. T. Casagrande and Ben-Hur A. Silva

Compression and shear behavior of tire chips and prevention effect of liquefaction ([JPN-141](#))

Misato Fuchiyama and Atsushi Konja

Shrinkage behaviour of landfill clay liner materials in dry zone ([LKA-02](#))

N. H. Priyankara, T. A. U. D. Thenuwara, O. D. L. Kumara, K. Kawamoto and A.M.N. Alagiyawanna

Experimental study on method for controlling settlement of backfill of abutment ([JPN-092](#))

Hirofumi Ikemoto and Hideaki Takasaki

11. Ground improvement - In-situ mixing, Part 1

Nov. 12, Thursday, 10:30-12:00, Room Main Hall

Chair: Mr. Y.W. Yee (Keller Asia)

Effect of spatial variability on undrained triaxial test of cement-admixed soil ([SIN-04](#))

Yutao Pan, Fook Hou Lee, Yong Liu and Huawen Xiao

Development and on-site application of new in-situ soil mixing method with ability of obstacle avoidance and inclined operation ([JPN-065](#))

Tadafumi Fujiwara, Hiroyasu Ishii, Makiko Kobayashi and Tomoyuki Aoki

Study on new cementitious materials used for pile and stabilized soil in super saline soil ([CHN-33](#))

Pan Yang, Xin Huang, Jin Pi and Jianwei Yang

Kinematics and bearing capacity of strip footing on RFB over compressible ground stabilized with granular trench ([IND-14](#))

Sakleshpur Venkata Abhishek, Rajyalakshmi Kurapati and Madhira R. Madhav

Sand and stone columns in soft soil at different relative densities ([IRO-05](#))

Namur K.S. Al Saudi, Ahmed S.A. Al-Gharbawi, Nawres A.A. Rajab and G Tanyrbergenova

1-g model tests of tunnels with a surrounding cement-treated soil ring ([SIN-11](#))

Faizal Zulkefli, Eugene Tan, Fook Hou Lee and Siang Huat Goh

11. Ground improvement - In-situ mixing, Part 2

Nov. 12, Thursday, 13:20-14:50, Room Main Hall

Chair: Dr. Takaaki Kobayashi (Port and Airport Research Institute)

Full-scale modeling tests and numerical simulation of infilling behavior of plastic grout ([JPN-101](#))

Hiroyasu Ishii and Masaki Kitazume

Effect of nano silica on the performance of cementitious grout for ground modification ([OTH-32](#))

Vadivel Rajendiran and V.K. Stalin

Numerical analyses on the failure of deep mixing columns reinforced by a shallow mixing layer ([VNM-01](#))

Binh T. T. Nguyen, Tomohide Takeyama and Masaki Kitazume

Field tests on wet grab sampling for quality assurance of deep mixing method ([JPN-002](#))

Masaki Kitazume

A simplified method for evaluating the liquefaction of sandy soil confined by a lattice-type deep mixing wall ([JPN-017](#))

Akira Ishikawa, Yasuhiro Shamoto and Takumi Kimura

Climate change-induced geo-disasters (ATC1 Session)

Nov. 12, Thursday, 8:30-10:00, Room 409

Chair: Prof. Kazuya Yasuhara (Ibaraki University)

Co-Chair: Prof. Hemanta Hazarika (Kyushu University)

Environmentally friendly and cost reducing technique towards tsunami disaster mitigation of coastal structures ([ATC1-3-04](#))

Hemanta Hazarika

Modeling of tyre-mat (8R-MAT) reinforced riverbank using PLAXIS ([ATC1-3-06](#))

Fauziah Ahmad, Ahmad Shukri Yahaya, Fatimah Denan and Soh Tek Peng

Formation of artificial beachrock towards inhibit of coastal erosion in Bangladesh: a review ([TC303-01](#))

Md. Nakibul H. Khan and Satoru Kawasaki

Change of mechanical properties of the cement mixed marine clay under seawater ([ATC1-3-12](#))

Daisuke Suetsugu, Hiroyuki Hara and Suman Manandhar

Determination of rainfall erosivity in Penang ([ATC1-3-05](#))

Ahmad Shukri Yahaya, Fauziah Ahmad, Zul Azmi Mohtar and Syaran Suri

Advances in debris-flow hazard assessment in mountainous area ([ATC1-3-18](#))

Sangseom Jeong, Yongmin Kim, Kwangwoo Lee and Junghwan Kim

Numerical modelling of mudcrack growth ([ATC1-3-17](#))

Hitoshi Matsubara, Kosaburo Hirose, Taka-aki Edo, Kei-ichi Tamanaha, Hisao Hara and Tomonori Yamada

Geotechnology for natural hazards (ATC3 Session)

Nov. 12, Thursday, 10:30-12:00, Room 409

Chair: Dr. Nadeej Priyankara (University of Rufuna)

Co-Chair: Prof. Hemanta Hazarika (Kyushu University)

The geotechnical issues of the damage caused by the great east Japan disaster and reconstruction for the Tohoku region ([ATC1-3-02](#))

Motoki Kazama, Tadashi Kawai, Jongkwan Kim and Tomohiro Mori

Evaluation of cyclic resistance of high quality undisturbed Chiba silty sand samples retrieved by "Gel-Push" sampling technique ([ATC1-3-16](#))

Gabriele Chiaro, Takashi Kiyota, Yuki Umehara, Yasuyo Hosono, Yoshiyuki Yagiura and Hisashi Chiba

Evaluation of liquefaction susceptibility of soils using Screw Driving Sounding method ([ATC1-3-09](#))

Yasin Mirjafari, Rolando P. Orense and Naoaki Suemasa

New ground improvement technologies under restricted conditions in Japan ([ATC1-3-10](#))

Kenji Harada, Jun Ohbayashi, Junnosuke Matsumoto, Yohtaro Kubo and Takeshi Akima

Site-specific warning system for rainfall-induced slope failure ([ATC1-3-08](#))

Samuel Harris, Rolando P. Orense and Kazuya Itoh

Prediction of sliding distance of seismic landslides in Loess Plateau, China ([ATC1-3-13](#))

Lanmin Wang, Nai Wang and Qian Wang

Modeling of landslide generated waves in Three Gorges Reservoir, China using SPH method ([ATC1-3-07](#))

Wei. Wang, Guangqi. Chen, Kunlong. Yin, Suhua. Zhou, Peideng. Jing and Lixia. Chen

15. Case histories

Nov. 12, Thursday, 13:20-14:50, Room 409

Chair: Dr. Takashi Kiyota (The University of Tokyo)

Effects of base grouting and deep cement mixing on deep foundation bored piles at Marina Bay Financial Centre and a study on the geotechnical design parameters for deep foundation bored piles in various soil formations in Singapore ([SIN-02](#))

Ching Guan Kee

Case studies on foundation types of super high-rise buildings considering the soil deposit conditions ([KOR-19](#))

T.S. Yang, N.J. Yoo, S.H. Hong and T.H. Kim

Lateral soil pressure induced failures ([SEA-01](#))

T.A. Ooi, C.H. Tee and C.B. Chan

Cross passage mining in highly permeable and soft ground ([SIN-01](#))

K.H. Yi and S.Y. Marcus Tong

Historic land use and ground condition at Kakamigahara plateau ([JPN-061](#))

Katsuhiro Nishimura, Yukihiro Kani and Kiyoshi Hayakawa

Application to the separation of disaster waste using rotary crushing and mixing method ([JPN-130](#))

Noriaki Nakajima, Kenichi Sato and Takuro Fujikawa

Effect of strength decrease of rock on the displacement of Tangjiashan Landslide in 2008 Wenchuan

Earthquake, China ([CHN-42](#))

J.L. Deng, Q. Xu, L.Z. Chen, J. Koseki and S.L. Shen

Field test study on expansive soil canal of middle route of South to North Water Diversion Project ([CHN-37](#))

Biwei Gong, Zhanlin Cheng, Jun Tong, Jun Liu and Ming Liu

10. Geoenvironmental engineering - Geomechanics of wastes

Nov. 12, Thursday, 8:30-10:00, Room 410

Chair: Prof. Shijin Feng (Tongji University)

Behavior of soft plastic in illegally dumped solid waste according to effective stress changes ([IGS-24](#))

Seiji Kawai, Takayuki Shimaoka and Shinya Sakaguchi

Strength evaluation of solid waste material included various fibrous materials ([JPN-067](#))

Shintaro Miyamoto and Kiyoshi Omine

Study on the strength characteristics of MSW in Sri Lanka ([LKA-03](#))

Udeni P. Nawagamuwa, R. Rajeevan and W.U. Tharanga

Centrifuge model study of municipal solid waste landslide under high leachate ([CHN-55](#))

Y. J. Hou, R. Peng and C. Wang

Simple estimation method of in-situ strength of sedimentary solid waste ground ([JPN-056](#))

Kiyoshi Omine and Satoshi Sugimoto

Reliability analysis of municipal solid waste landfill settlements ([IND-07](#))

Sampurna Datta, Pinom Ering and G.L. Sivakumar Babu

Scale effects on the shear strength of waste in coastal landfill sites ([VNM-04](#))

Chau Lan Nguyen, Toru Inui and Takeshi Katsumi

Innovations in environmental geotechnics (TC215 Session)

Nov. 12, Thursday, 10:30-12:00, Room 410

Chair: Prof. A. Malek Bouazza (Monash University)

Differential settlement behaviour of coal-ash based barriers: centrifuge study ([TC215-04](#))

B.V.S. Viswanadham

Investigation of municipal solid waste massif by method of multichannel analysis of surface waves ([TC215-01](#))

Vadim G. Ofrikhter and Ian V. Ofrikhter

Stress deformation analysis of MSW landfills ([TC215-03](#))

Pinom Ering and G.L. Sivakumar Babu

Use of loess as final cover materials for MSW landfills in northwest China ([TC215-02](#))

Liang-tong Zhan, Wei-guo Jiao, Tao Wu and Ping Chen

Gas migration through geomembrane/ geosynthetic clay liner composite liner with a defect in the geomembrane ([TC215-07](#))

Md A. Rouf, Abdelmalek Bouazza, Rao M. Singh, Will P. Gates and Ronald K. Rowe

Remediation of organics contaminated groundwater by ozone micro-nano bubble ([TC215-06](#))

Zhiran Xia and Liming Hu

Environmental geotechnics and education initiatives for recovery from the Fukushima I Nuclear Power Plant accident ([TC215-05](#))

Hideo Komine, Ikuo Towhata and Seiichi Narushima

10. Geoenvironmental engineering - Barriers

Nov. 12, Thursday, 13:20-14:50, Room 410

Chair: Dr. Tetsuo Yasutaka (AIST)

Deformation and strength characteristics of high-density bentonite-sand mixture under unsaturated conditions ([JPN-085](#))

Ying Cui, Takeshi Kodaka and Shyogo Furuyama

Design flow for specifications of bentonite-based buffer from the viewpoint of self-sealing capability using theoretical equations for swelling characteristics ([JPN-007](#))

Hideo Komine

Influence of shear speed on hydro-mechanical behavior for compacted bentonite ([JPN-051](#))

Tomoyoshi Nishimura

Cesium sorption/desorption characteristics of sodium bentonite affected by major cations in leachate from MSW incinerator ash ([JPN-071](#))

Toru Inui, Takeshi Katsumi and Atsushi Takai

Long-term hydraulic conductivity of compacted clay permeated with landfill leachates ([CHN-52](#))

Q. Tang, H.Y. Wang, H. Chen, P. Li, X.W. Tang and T. Katsumi

Deformation analysis for geosynthetics in a landfill subjected to two adjacent local voids ([CHN-10](#))

S.J. Feng, S.F. Lu, H.J. Xie, Z.H. Qiu and Z.Y. Zhang

Visualization of a desiccated geosynthetic clay liner due to dehumidification using micro-focused X-ray computed tomography ([JPN-050](#))

Toshifumi Mukunoki and Andy Take

3. Geodisaster - Dynamic properties of soil

Nov. 12, Thursday, 8:30-10:00, Room 411

Chair: Prof. Duhee Park (Hanyang University)

Effects of Chiangrai earthquake to Mae Ngat dam from instrument interpretation and finite element simulation ([SEA-17](#))

Tawatchai Tanchaisawat, Sirikanya Laosuwan and Phouthamala Sitthivong

Dynamic analysis of fill dam using 3D FEM analysis ([KOR-09](#))

Byoung-II Choi, Dong-Hoon Shin, Dong-Hun Lee and Kyu-Won Kim

Influence of particle shape and size on the dynamic soil properties ([IND-08](#))

Akhila Manne and Neelima S. Devarakonda

Strain accumulation in soils due to repeated sinusoidal loading ([IND-18](#))

Ashish Juneja and A.K. Mohammed Aslam

Shear wave velocity and shear modulus of silty sand ([HKG-07](#))

Xin Liu and Jun Yang

Effect of wall flexibility on the dynamic earth pressure for cantilevered retaining wall ([KOR-24](#))

S.B. Jo, J.G. Ha and D.S. Kim

3. Geodisaster - Earthquake-induced slope failure

Nov. 12, Thursday, 10:30-12:00, Room 411

Chair: Prof. Ashish Juneja (Indian Institute of Technology Bombay)

A simple procedure to directly estimate yield acceleration for seismic slope stability assessment ([TWN-08](#))

Chi-Chin Tsai and Yu-Chun Chien

Understanding the seismic response of geosynthetic reinforced slope ([TWN-09](#))

Sao-Jeng Chao, Han-Sheng Liu and Chien-Hua Kao

Research of stability of slopes on soil models in the conditions of static and seismic influence ([KAZ-04](#))

V. Khomyakov and E. Bessimbyev

Instability on the sandy ground under breakwater due to earthquake and tsunami ([JPN-081](#))

Tatsuya Matsuda, Kenichi Maeda, Michio Miyake, Kazuhiro Tsurugasaki, Junji Miyamoto and Hiroko Sumida

Collapse mechanism of cut-and-cover tunnels under seismic loading ([KOR-35](#))

Duhee Park, Tae-Hyung Lee, Duy Duan Nguyen and Jeongseon Park

Numerical simulation of earthquake-induced landslide run-out ([CHN-12](#))

Chongqiang Zhu and Yu Huang

Three-phase seepage-deformation coupled analysis for railway embankment damaged in 2004 Niigata-ken Chuetsu earthquake ([JPN-076](#))

Takaki Matsumaru and Ryosuke Uzuoka

14. Innovative technologies and informatics

Nov. 12, Thursday, 13:20-14:50, Room 411

Chair: Dr. Kazunari Sako (Kagoshima University)

Stochastic estimation of consolidation settlement of soft clay layer with artificial neural network ([JPN-041](#))

K. Oda, K. Yokota and L. D. Bu

Geological structure of the Kego fault zone from using the boring database ([JPN-132](#))

Reiji Tanaka, Naoko Kitada and Naoto Inoue

Investigation of high-seepage zones in slopes using the Groundwater Aeration Sound (GAS) survey technique in Thailand ([THA-03](#))

A. Jotisankasa, K. Mahannopkul, N. Teerachaikulpanich, T. Miyashita and Y. Tada

Use of 3-D seismic survey to determine soil-rock profile along bored tunnelling route ([SIN-13](#))

Ai Sang Ling and Kok Hun Goh

Mechanical characteristics and localized deformation of Methane Hydrate-bearing sand using high pressure plane strain shear tests ([JPN-123](#))

Shintaro Kajiyama, Masayuki Hyodo and Akira Nishimura

Enhancing images for particle image velocimetry in centrifuge models ([SIN-05](#))

Kai Qi Tan, Qiao Yue Tung, Fook Hou Lee and Siang Huat Goh

Development of a heating and cooling system for centrifuge modelling of energy piles at HKUST ([HKG-19](#))

Chao Shi, P. A. Van Laak, Anthony Gunawan and Charles W. W. Ng

Geotechnical infrastructures for megacities and new capitals, Part 1 (TC305 Session)

Nov. 12, Thursday, 8:30-10:00, Room 412

Chair: Prof. Askar Zhussupbekov (Eurasian National University)

Analysis of O-cell loading piling test at construction site of Expo 2017, Astana, Kazakhstan ([TC305-02](#))

A.Zh. Zhussupbekov, Levent Kutulu, Ahmet Karahan, Yildirim Üşenmez and B.K Dosmukhambetova

Geotechnical and construction considerations of pile foundations in problematical soils ([TC305-05](#))

A.Zh. Zhussupbekov, J. Frankovská, J. Stacho, Abdullah I. Al-Mhaidib, M. Doubrovsky, N. Uranhayev, S. Yerzhanov and I. Morev

Experience of construction of deep ditches for underground constructions in weak soils Saint-Petersburg ([TC305-04](#))

R. Mangushev, E. Lashkova and V. Smolenkov

Elasto-plastic finite element analysis of deformation of soft ground and retaining structures ([TC305-07](#))

T. Tanaka

Calculated evaluation of shoring of deep excavation in the restrained urban conditions (Khabarovsk, Russia) ([TC305-10](#))

S.A. Kudriavtcev, V.N. Paramonov, A.V. Kazharskii and E.D. Goncharova

The applications of dynamic and static piling tests of Astana ([TC305-12](#))

A.Zh. Zhussupbekov, M.K. Syrlybaev, R.E. Lukpanov and A.R. Omarov

Geotechnical infrastructures for megacities and new capitals, Part 2 (TC305 Session)

Nov. 12, Thursday, 10:30-12:00, Room 412

Chair: Prof. Der Wen Chang (Tamkang University)

The ground stress condition under the strip load of semi-infinite length ([TC305-03](#))

Samuil G. Kushner and D. K. Orazova

Geotechnical aspects of mud eruption disaster In East Java ([TC305-06](#))

Paulus P. Rahardjo

Use of solar energy for heliothermal treatment of concretes on the basis of alkali cements ([TC305-08](#))

Zh.T. Aymanov, B.K. Sarsenbayev, N.B. Sarsenbayev and Zh.A. Aldiyarov

Russian methods and equipment for spatial vibrocompaction foundations and structures ([TC305-11](#))

Oleg P. Minaev

In-situ measurements of frost penetration and frost heave by automatic monitoring system ([TC305-09](#))

Aleksai A. Korshunov, Sergei V. Churkin and Alexander L. Nevzorov

Urban development and sustainability (Vice Presidential Session)

Nov. 12, Thursday, 13:20-14:50, Room 412

Chair: Prof. Ikuo Towhata (Kanto Gakuin University)

Development of inner lining for deteriorating reinforced lining of mountain tunnels ([VPS-03](#))

Yoshinori Nagayama and Masahiro Kondo

Improvement of a slope disaster warning system for practical use ([VPS-05](#))

M. Takemoto, K. Koizumi, Y. Fujiwara, H. Morishita and K. Oda

Forensic investigation of earthquake induced failures during Sikkim 2011 earthquake, India ([IND-19](#))

P Anbazhagan and A Murali Krishna

Remote sensing techniques for geo-problem applications ([TC302-05](#))

Shen-En Chen, Paul Sumitro and Chuck Boyle

Centrifuge model tests of fault rupture effect on some geotechnical structures ([VPS-06](#))

A. Ghalandarzadeh, M. Moradi, M. Ashtiani, M. Kiani and M. Rojhani

The field test for influence of ram-compacted piles with bearing base on settlement of embankments in China Beijing-Shanghai high-speed railway on deep soft soil ([CHN-49](#))

Jianlin Ma, Chunhui Su, Yanxin Yang, Mengsong Wu and Bingnan Jiang

6. Foundations - Settlement control

Nov. 12, Thursday, 8:30-10:00, Room 413

Chair: Dr. Victor Ong Chee Wee (One Smart Engineering Pte Ltd)

Long-term settlement prediction of fast constructed artificial island ([CHN-24](#))

X.-Q. Kou, A.-M. Liu, J.-F. Hou and A.-H. Liang

Sediments foundation bases under long-term regime loading ([KAZ-17](#))

Ilizar T. Mirsayapov and Irina V. Koroleva

Numerical modeling of pile installation effects on stress state in clay ([IRN-19](#))

K. Fakharian and M.R. Khanmohammadi

Research on the influence law of bridge foundation settlement with seasonal underground water level change on high speed railway ([CHN-30](#))

Liang Dong, Bin Niu, Suoting Hu and Yonghua Su

Settlement characteristics of the foundation with a top sand layer and an underlying muck layer treated with three methods ([CHN-34](#))

Shiyang Li, Xin Huang, Yin Cheng and Hao Yu

Similitude law for shallow foundation on cohesionless soils using 2D finite element analysis ([KOR-15](#))

Myungjae Lee, Kyung-tae Bae, Hong Taek Kim, Seung-Cheol Baek and Heejeung Youn

Deformation of building on pile foundation due to frost heave ([KAZ-13](#))

Sergey V. Churkin, Andrey V. Nikitin, Sergey E. Aksenov, Anatoly V. Zaruchevnih and Alexandr L. Nevzorov

6. Foundations - Excavation

Nov. 12, Thursday, 10:30-12:00, Room 413

Chair: Dr. Koichi Isobe (Hokkaido University)

Numerical analysis of dewatering-induced deformation of foundation pit ([CHN-03](#))

Yang Li, Changhui Ma, Wei Huang and Ga Zhang

Interaction of tunneling and existing structure considering the location of foundation ([JPN-032](#))

Hossain M. Shahin, Teruo Nakai and Sho Kuroi

Numerical study on mechanism of dynamic earth pressure on adjacent structures ([JPN-112](#))

Hiroyuki Ishihara, Yasuo Sawamura and Kiyoshi Kishida

Responses of adjacent ground and building induced by excavation using 3D decoupled simulation ([TWN-14](#))

Horn-Da Lin, Sang Mendy, Phuoc H. Dang, Yo-Ming Hsieh and Cheng-Cheng Chen

A study of the efficiency of excavations with the installation of buttress walls in reducing the wall deflection ([TWN-04](#))

Pio-Go Hsieh, Wei-Han Hsieh, Chang-Yu Ou and Shao-Chi Chien

Small strain model based method for analysis of pile responses induced by excavation ([CHN-09](#))

Linlong Mu and Maosong Huang

6. Foundations - Case study and in-situ test

Nov. 12, Thursday, 13:20-14:50, Room 413

Chair: Prof. Horn-Da Lin (National Taiwan University of Science and Technology)

Research on cavity formation below Ohkozu old movable weir in the Shinano River ([JPN-021](#))

K. Isobe and S. Ohtsuka

In-situ loading test of wooden pile at Shinano River Ohkouzu old movable weir and discussion on foundation design ([JPN-091](#))

Satoru Ohtsuka, Toshiyuki Takahara, Yoshinori Hosaka and Koichi Isobe

Performance of high capacity jack-in pile for high-rise building with preboring in weathered sedimentary rock formation ([MYS-01](#))

Chee-Meng Chow, Jason A.H. Lim and Yean-Chin Tan

A study on the development of sonar roughness profiling system (SRPS) ([KOR-11](#))

Byeonghan Jeon, Yongkyu Choi, Chaemin Kim and Byeongdeok Song

Case study on foundation aberration of a river-crossing bridge in Taiwan ([TWN-03](#))

Helsin Wang and Ju-Jiang Hung

Technical and economical comparing of different wind power unit foundations on geological conditions of Ereymentau city ([KAZ-15](#))

A.Zh. Zhussupbekov, R. E. Lukpanov and D. K. Orazova

In-situ pull-out tests of cast-in-place concrete piles with belled enlargements ([JPN-012](#))

Yoshio Hirai, Shuichi Wakai and Masamichi Aoki

1. Characterization - Laboratory testing of sand

Nov. 12, Thursday, 8:30-10:00, Room 414

Chair: Prof. Suched Likitlersuang (Chulalongkorn University)

Particle breakage and its influence on soil behavior under undrained condition ([JPN-020](#))

Fangwei Yu and Ikuo Towhata

Evaluation of strength coefficients of sandy levee soils under various triaxial test conditions ([JPN-088](#))

Takesh Kodaka, Ying Cui, Kyu-Tae Lee, Yoshiki Kobayashi and Yang Wu

The effects of dissipated energy on mechanical behavior of carbonate sands using monotonic triaxial tests ([IRN-04](#))

H. Shahnazari, R. Rezvani and M. A. Tutunchian

Effect of stress anisotropy on the pore water pressure generation of loose sand ([IRN-13](#))

Fardin Jafarzadeh and Mostafa Zamanian

Modeling the monotonic undrained torsional shear response of loose and dense Toyoura sand ([TC101-01](#))

Gabriele Chiaro, Junichi Koseki, Nalin L.I. De Silva and Takashi Kiyota

Laboratory and micromechanical investigation of soil anisotropy ([OTH-12](#))

L.-T. Yang, D. Wanatowski, X. Li, H.-S. Yu and Y. Cai

1. Characterization - Laboratory testing of clay

Nov. 12, Thursday, 10:30-12:00, Room 414

Chair: Prof. Zhanbolat Shahmov (Eurasian National University)

Determination of design shear strength of clay based on the comparison between unconfined compressive strength and the strength obtained by triaxial test ([JPN-059](#))

T. Tsuchida and T. Noguchi

Experimental study of the effect of stress level on time dependent deformation of sandy clay soil ([IRN-14](#))

A. Negahdar, Sh. Yadegari and S. Houshmandi

Consolidation characteristics of soft sediments; Newark bay case study ([OTH-31](#))

Masoud Janbaz and Ali Maher

Comparative Su measurements with vane shear and T-bar testing on soft soils in laboratory ([OTH-25](#))

D. Levacher, A. Razakamanantsoa, R. Gupta and T. Katsumi

Research on consolidation characteristics of ultra-soft clay ([CHN-26](#))

A.M Liu, G.L. Ye and Y.T. Zhu

Correlation between vane shear and viscometer tests on clayey soils under high water content ([JPN-096](#))

Weerakoon.M.N.R. Weerakoon and Hiroyuki Tanaka

Characterization of reconstituted Malaysian kaolinite silts with varying clay contents ([SEA-15](#))

S.T.Y Wong and D.E.L. Ong

1. Characterization - Methane hydrate & frozen soils

Nov. 12, Thursday, 13:20-14:50, Room 414

Chair: Dr. Sayuri Kimoto (Kyoto University)

Plane strain compression behaviour and localization of deformation of MH-bearing sand ([JPN-066](#))

A. Kato and Y. Nakata

Development of a temperature and pressure controlled triaxial apparatus and dissociation tests of carbon dioxide hydrate containing soils ([JPN-143](#))

Hiromasa Iwai, Kazuki Saimyou, Sayuri Kimoto and Fusao Oka

Effects of fines on triaxial shear behavior of methane hydrate bearing sands ([JPN-131](#))

A. Nishimura, N. Yoshimoto and S. Kajiya

Surveys of gas hydrates in the Okhotsk Sea offshore of Abashiri and soil properties of sea bottom sediments ([JPN-031](#))

Satoshi Yamashita, Shintaro Yamasaki, Hiroki Ohshima and Satsuki Kataoka

Application of coupled thermo-hydro-mechanical analysis to frost-heave behavior of earth structures ([JPN-047](#))

Tatsuya Ishikawa, Ippei Kijiya, Tetsuya Tokoro and Masaru Sato

Frost susceptibility of soil and in-situ monitoring of frost depth in construction ([KAZ-14](#))

Zhanbolat A. Shakhmov and Askar Zh. Zhussupbekov

9. Dams and embankments - Dynamics

Nov. 12, Thursday, 8:30-10:00, Room 405

Chair: Dr. Suttisak Soralump (Kasetsart University)

Analysis of the behavior of embankment dams under seismic loading ([LBN-02](#))

Muhsin E. Rahhal and Desiree Najm

A study on the seismic segmentation method of levee using the natural frequency of multiple layers ([JPN-064](#))

T. Takahara, T. Sugimoto and H. Sanada

Experimental study on seismic resistance of a two-hinge precast arch culvert using strong earthquake response simulator ([JPN-103](#))

Yasuo Sawamura, Kiyoshi Kishida and Makoto Kimura

Faulting effects on stability of embankment dams ([IRN-17](#))

Abbas Soroush, Mohammad Khoshini and Mahda Mortazavi Zanjani

Effect of the seismic vibration direction on the water leakage of gravity-type concrete dam ([TC210-01](#))

Akira Kobayashi, Takuto Hayashi, Yasuhiro Tsukada and Kiyohito Yamamoto

Experimental study on frost heave of high-speed railway subgrade in the seasonally frozen region ([CHN-32](#))

Guo-tao Yang, Hong-ye Yan, De-gou Cai, Guo-tang Zhao, Jian-ping Yao and Feng Chen

9. Dams and embankments - Seepage

Nov. 12, Thursday, 10:30-12:00, Room 405

Chair: Dr. Tomohide Takeyama (Kobe University)

Evaluation of seepage quantity of fill dam using 3D FEM analysis ([KOR-08](#))

Byoung-Il Choi, Dong-Hoon Shin, Ki-Young Kim and Chang-Kyu Kang

Suffusion-induced change in spatial distribution of fine fraction in embankment subjected to steady and unsteady seepage flow ([JPN-073](#))

K. Horikoshi, L. Ke and A. Takahashi

Soil/water/air coupled F. E. simulation of phreatic surface generation process within a river levee ([JPN-078](#))

Katsuyuki Kawai, Phommachanh Viradeth and Atsushi Iizuka

Investigation on the resistant of tropical residual soils as clay core of rock fill dams against hydraulic fracturing ([INA-01](#))

D. Djarwadi, K. B. Suryolelono, B. Suhendro and H. C. Hardiyatmo

Sensitivity analysis in stability evaluation of earthen embankments ([JPN-034](#))

Takayuki Shuku and Shin-ichi Nishimura

Empirical formulas in the prediction of breach parameters ([HKG-12](#))

Lin Zhang, W. M. Yan and Ka-Veng Yuen

Ground destabilization due to soil particle effluxes ([JPN-039](#))

Toshio Sugii, Kimio Yamada, Hiroshi Yokawa and Norio Asano

9. Dams and embankments - Stability

Nov. 12, Thursday, 13:20-14:50, Room 405

Chair: Dr. Liming Hu (Tsinghua University)

Boundary shear strength characteristic between surface soil and geosynthetic clay liner and its stability analysis in interface of irrigation pond ([JPN-015](#))

Atsushi Koyama, Motoyuki Suzuki, Yoshifumi Kochi, Tomoko Urabe and Jun Ito

Deformation stability of a dam of tilt anisotropic structure ([KAZ-16](#))

A.R. Baimakhan, G.I. Salgarayeva, A.R. Rysbayeva, A.A. Seinasinova and R.B. Baimakhan

Estimate of the salt contamination sprayed on the highway pavement during the snowy winter ([JPN-104](#))

Tomohide Takeyama, Seiya Yokota, Masumi Sueoka and Hideki Ohta

Assessment to the comparison between the initial state and insitu conditions of Bengawan Solo river embankment during the dry and monsoon seasons at Kanor-Village ([INA-03](#))

Trihanyndio Rendy Satrya, Ria Asih Aryani Soemitro and Toshifumi Mukunoki

Stability analysis of MSW slope layered by aging ([CHN-11](#))

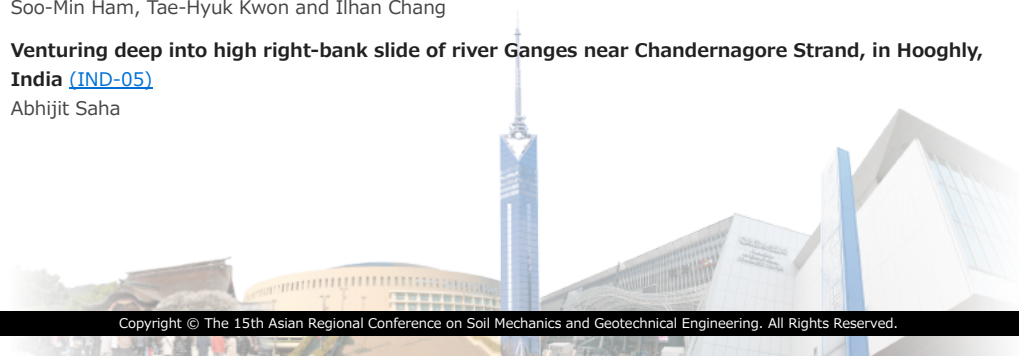
Xinping Fan, Maosong Huang, Yilin Liu and Haoran Wang

Preliminary study on P-wave monitoring of soil erosion in SRICOS-EFA method ([KOR-32](#))

Soo-Min Ham, Tae-Hyuk Kwon and Ilhan Chang

Venturing deep into high right-bank slide of river Ganges near Chandernagore Strand, in Hooghly, India ([IND-05](#))

Abhijit Saha



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