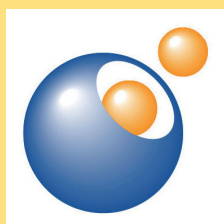


Second Bulletin

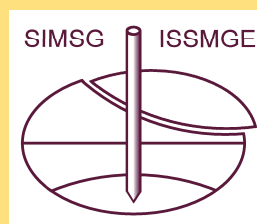
2nd International Conference on Transportation Geotechnics

IS-Hokkaido 2012

Hokkaido University, Sapporo
September 10 (Mon) - 12 (Wed), 2012



Organized by
Japanese Geotechnical Society



Under the auspices of
International Society for Soil Mechanics
and Geotechnical Engineering

With the support of



Hokkaido
University



Geo-Institute of
ASCE



International
Geosynthetic
Society



Transportation
Research Board

Conference and Exhibition

The International Conference on Transportation Geotechnics (ICTG) was first held at the University of Nottingham in 2008, which had been selected as host by TC3 (Geotechnics of Pavements) of the ISSMGE. The conference was a great success and significantly promoted co-operation and exchanges of information and knowledge concerning the geotechnical aspects of the design, construction, maintenance and monitoring of pavements and related transportation infrastructure. The 2nd ICTG will offer speciality sessions to discuss some issues essential for further development of transportation geotechnics (e.g. unsaturated soils, frost geotechnics, advanced laboratory testing) in addition to the topics addressed in the 1st ICTG.

This conference will comprise parallel sessions over a 3-day period and will include keynote lectures, oral presentations and discussions. Sessions will be chaired by internationally recognized academics and practitioners. Three workshops are also planned.

The conference is being organized, under the auspices of the ISSMGE, by the Hokkaido Branch and the TC202 (Transportation Geotechnics, former TC3) national committee of the Japanese Geotechnical Society in association with TC202 of the ISSMGE. Co-operation is also provided by TC101 (Laboratory Stress-Strain Strength Testing of Geomaterials), TC106 (Unsaturated Soils) and TC216 (Frost Geotechnics) of the ISSMGE.

One of the highlights of the conference will be the technical exhibition, to take place in the Conference hall. It will demonstrate a complete range of products and state-of-the-art technologies relevant to Transportation Geotechnics.

Organizing and Advisory Committees

Local Organizing Committee

Prof. Seiichi Miura (Chair)
Dr. Nobuyuki Yoshida (Co-Chair)
Prof. Takashi Ono (Co-Chair)
Dr. Tatsuya Ishikawa (Secretary General)
Prof. Yukihiro Kohata (Secretary)

ISSMGE TC202 Executive Members

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Prof. Buddhima Indraratna (Australia)

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Prof. Kunihito Matsui (Japan)
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Prof. Makoto Sunaga (Japan)
Prof. Lijun Sun (China)
Prof. Kazuyoshi Tateyama (Japan)
Dr. Masaru Tateyama (Japan)
Prof. Fumio Tatsuoka (Japan)
Prof. Hai-Sui Yu (UK)

Correspondence

If you have inquiries about the Conference, please contact us.

2nd ICTG Secretary General

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2nd ICTG Secretariat

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Technical Program

Topics

1. Geotechnics for Pavement, Rail Track and Airfield
2. Geomaterial, including Nontraditional Materials
3. Asphalt Mixtures and Hydraulically-bound Materials
4. Earthworks for Transportation Facilities
5. Application of Geosynthetics
6. Laboratory Testing and In-situ Testing
7. Modeling and Numerical Simulations
8. Design, Construction and Maintenance
9. Performance Evaluation and Quality Control
10. Sustainability of Management and Rehabilitation
11. Risk Assessment and Environmental Issues

Program

	Sep.9	Sep.10	Sep.11	Sep.12
9:30			Keynote Lecture "Performance Evaluation of Shock Mats and Synthetic Grids in the Improvement of Rail Ballast" Professor B. Indraratna	Keynote Lecture "Bituminous Mixtures: from Thermo-mechanical Properties of Components to Structure Calculation" Professor H. Di Benedetto
10:00				
10:15		Opening Ceremony	Break	Break
10:45				
11:00		Special Lecture "Trends and Challenges in Earthworks for Transportation Infrastructures" Professor A. Gomes Correia Professor J.-P. Magnan	Tech. Session	Tech. Session
12:00				
12:15		Lunch	Lunch	Lunch
13:30				
14:15	Workshop 1 Intelligent Compaction (IC)	Workshop 2 Challenges for Transportation Geotechnics in Extreme Climates	Keynote Lecture "GRS Structures Recently Developed and Constructed for Railways and Roads in Japan" Professor F. Tatsuoka	Keynote Lecture "Soil Suction Measurements in Highway Subgrades" Professor D. G. Fredlund
14:45			Keynote Lecture "Sustainable Pavement Construction Utilizing Engineered Unbound Aggregate Layers" Professor E. Tutumluer	Break
15:00				
15:30	Break	Break	Break	Tech. Session
16:00			Tech. Session	
16:15	Workshop 1 Intelligent Compaction (IC)	Workshop 3 Geotechnical Challenges in Rail Track and its Transition Zones		Break
16:30			Break	
17:00			Special Lecture "Mechanical Behavior and Earthquake-induced Failures of Volcanic Soils in Japan" Professor S. Miura	TC202 State-of-the-arts Report
17:20				
17:30				
17:45				
18:00		Tech. Session		Closing Ceremony
18:30				
19:00				
19:30		Welcome Party		
20:30			Banquet	
21:30				

Invited Lecturers

Seven internationally renowned academics and engineers are invited to deliver special/keynote lectures.

Special Lectures



**Professor
A. Gomes Correia**



**Professor
J.-P. Magnan**

"Trends and Challenges in Earthworks for Transportation Infrastructures"



**Professor
S. Miura**

"Mechanical Behavior and Earthquake-induced Failures of Volcanic Soils in Japan"

Keynote Lectures



**Professor
H. Di Benedetto**

"Bituminous Mixtures: from Thermo-mechanical Properties of Components to Structure Calculation"



**Professor
D. G. Fredlund**

"Soil Suction Measurements in Highway Subgrades"



**Professor
B. Indraratna**

"Performance Evaluation of Shock Mats and Synthetic Grids in the Improvement of Rail Ballast"



**Professor
F. Tatsuoka**

"GRS Structures Recently Developed and Constructed for Railways and Roads in Japan"



**Professor
E. Tutumluer**

"Sustainable Pavement Construction Utilizing Engineered Unbound Aggregate Layers"

Workshops

Date September 9, 2012

Time Workshop 1 13:30 - 17:20, Workshop 2 13:30-15:30, Workshop 3 16:00-18:00

Venue Sapporo center for gender equality, Sapporo, Hokkaido, Japan
For location, see "Venue and Sapporo"

Workshop 1

Intelligent Compaction (IC)

"Intelligent compaction" is the advanced soil compaction in which the construction and the site management are sophisticated with modern information communication technologies. The ground evaluation system through the vibrating behavior of a vibratory roller is one of the representative techniques in the intelligent soil compaction. In the system, the degree of soil compaction can be grasped by monitoring its vibrating behavior which changes with the increase of the ground stiffness during soil compaction. The intelligent compaction has been introduced widely in the world, because the stiffness of the compacted soil can be monitored in real-time on whole the site. In the workshop, the present conditions of the intelligent compaction will be reported on each region of Europe, North America and Japan and the results of other research projects will be presented by some participants.

P R O G R A M

13:30-15:30 State of the art reports

Europe: Professor A. Gomes Correia (University of Minho, Portugal)

North America: Dr. Yukinori Tsukimoto (Sakai Heavy Industries, .Ltd, Japan)

Japan: Dr. Hiroshi Furuya (Obayashi Corporation, Japan)

16:00-17:00 General presentations on the Intelligent Compaction

17:00-17:20 Discussion

Workshop 2

Challenges for Transportation Geotechnics in Extreme Climates

This session will be divided into two categories. One is transportation geotechnics at low temperatures such as in cold regions or at high altitudes. Many road, rail road and air field structures are seriously damaged every year due to the freezing and thawing of soils and of the lower, unbound, materials beneath the pavement. Dr. Arne Instanes, chair of TC216 on Frost, from Norway, will make a state-of-the-art report. The report will include frost protection design procedures in the Nordic countries, case studies from the European North and results from recent studies on the effect of future climate change on road systems in the North.

The other topic is about the effect of moisture on the behavior of soils and aggregates in

Workshops

transportation structures. Mr. Andrew Dawson from UK, chair of the European COST Action and editor of the reference book on “Water in Road Structures” will make a general report, addressing the effects that water can have on mechanical response, methods for measuring, analyzing and managing the condition and what effects pavements and associated earthworks may have to face in the light of climate change.

Presentations will be given by experts drawn from the TC members, with others, to stimulate participants’ interest.

PROGRAM

- 13:30-14:20** Discussion leader: Dr. Arne Instanes;
1. General report by Dr. Arne Instanes about transportation geotechnics at low temperatures.
2. Some related presentations and discussions by participants.
- 14:20-15:10** Discussion leader: Mr. Andrew Dawson;
3. General report by Mr. Andrew Dawson about effect of moisture on the behavior of soils and aggregates in transportation structures.
4. Some related presentations and discussions by participants.
- 15:10-15:30** 5. Summarizing comments by two leaders.

Workshop 3

Geotechnical Challenges in Rail Track and its Transition Zones

Railway transition zones between different structures, especially embankment and bridge, are known to be an area in which problems often arise and where extra care is needed in inspections or maintenance work. In transition zones, local track irregularities easily occur due to differential settlement of structures or sudden change of the support rigidity causing various troubles of the track (hanging sleepers, ballast crush, mud pumping, fatigue of track parts, etc.). Furthermore, transition zones are weak against disasters, especially major earthquakes. Based on the above-mentioned problems, we expect to discuss the following keywords in the workshop: “High-speed lines” , “Heavy haul” , “Anti-seismic structures” , “Measure for existing lines” , “New track system for transition zone” and etc.

PROGRAM

Chair: Dr. Sofia Costa D'Aguiar (SNCF)

- 16:00-17:30** The state of the art
Professor Peter Woodward (Heriot-Watt University, UK)
Professor Konstantinos Giannakos (Visiting Professor of Railway Engineering, University of Thessaly, Greece)
Dr. Yasuo Watanabe (East Japan Railway Company, Japan)
Dr. Kenji Watanabe (Railway Technical Research Institute, Japan)
- 17:30-18:00** Discussion

Conference Information

Dates

Conference: Monday, September 10 through Wednesday, September 12, 2012

Workshop: Sunday, September 9, 2012

Venue

Conference: Hokkaido University, Sapporo, Japan

Workshop: 4th Floor, Sapporo Center for Gender Equality, Sapporo, Japan

	Early bird On/Before July 31, 2012	Regular / On-site On/After August 1, 2012
ISSMGE Members IGS Members	45,000 JPY	55,000 JPY
JGS Members *	50,000 JPY	60,000 JPY
Others	60,000 JPY	70,000 JPY
Students	20,000 JPY	
Accompanying person(s)	10,000 JPY	
Banquet fee (Sep. 11)	6,000 JPY	

* In case your organization is a corporate member of JGS, you are allowed to make a registration as a JGS member.

Registration Fees (for Members, others and students) include:

- Access to ceremonies, lectures, sessions and workshops.
- The Program
- Proceedings (USB)
- A hardcopy of the abstract volume
- Lunches
- Refreshments

* Welcome party (Sep. 10) is free of charge for all of participants.

Accompanying person(s) Fee includes:

- Lunches
- Refreshments
- Accompanying persons program

* Welcome party (Sep. 10) is free of charge for all of participants.

Please note that "Accompanying person(s)" means a member of your family, not your colleagues.

Social Events

Welcome Party

All of participants are invited to the welcome party. The party will be held in Restaurant "ELM" of Faculty House Trillium in Hokkaido University.

Date Monday, September 10

Time 19:30 - 20:30 (Tentative)

Fee Free of charge



Banquet

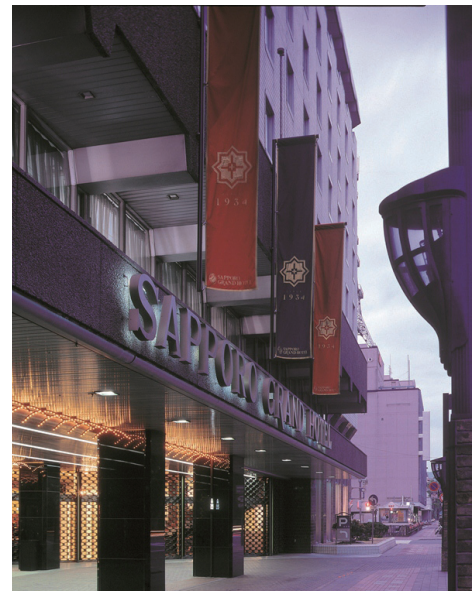
Why don't you join us for the conference banquet?

The banquet will be held in Sapporo Grand Hotel where was built in 1934 as the first European style hotel in Hokkaido and is one of the best hotel in the city. They serve very local dishes.

Date Tuesday, September 11

Time 19:30 - 21:30 (Tentative)

Fee 6,000 JPY



Accompanying Persons Program: Flower arrangement in Japanese style

We invite accompanying persons to our special program: Kado, the way of the flowers.

This traditional art pursues quintessentially Japanese aesthetics, 'wabi-sabi' (simpleness and calmness) in a perfect harmony of vase, stems, leaves, branches and flowers. This event will take place in the same venue as the conference.

Date Tuesday, September 11

Time 13:30 - 15:00

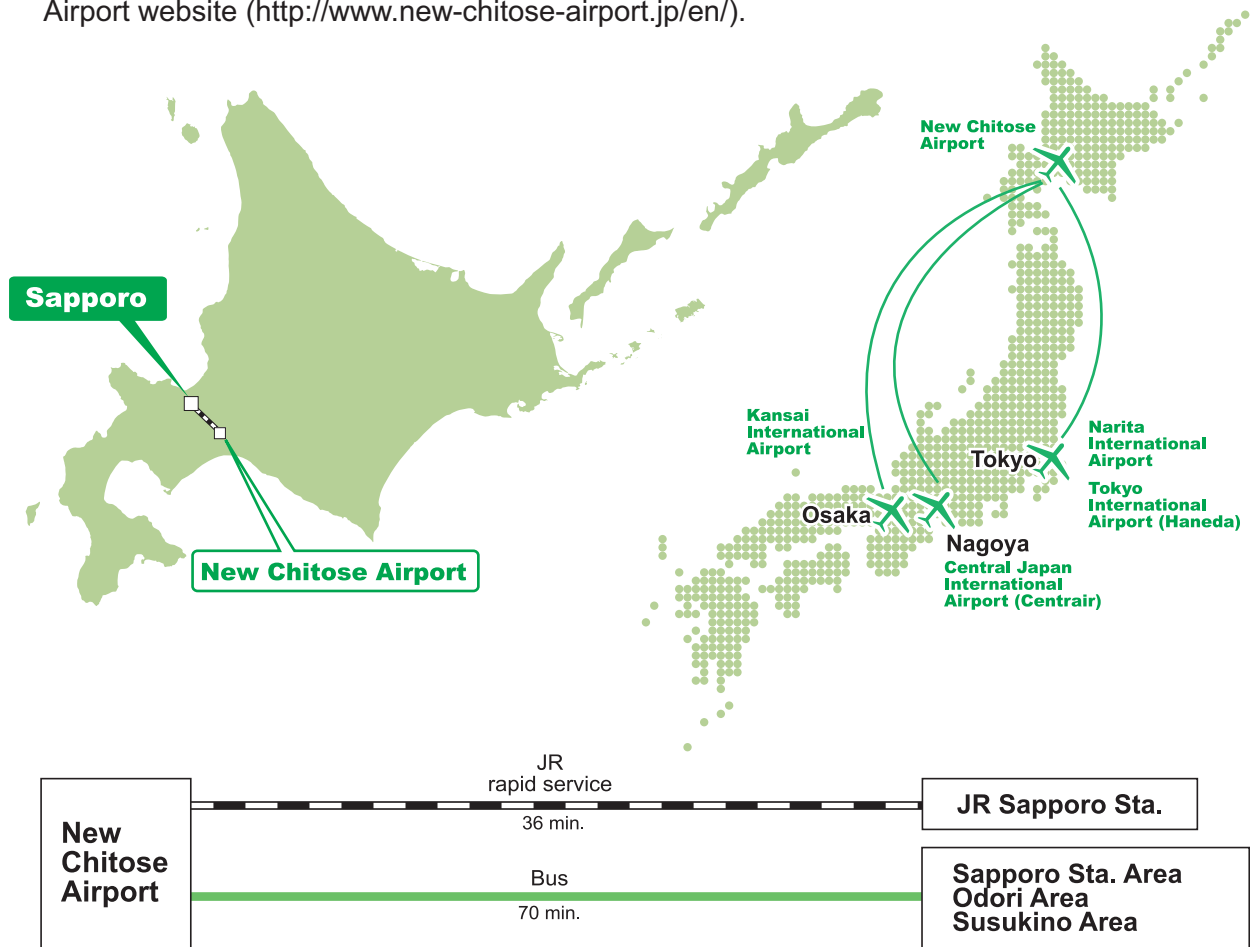
Fee Free of charge



Travel & Accommodation

Travelling to Sapporo

Sapporo is very easy to access from other parts of Japan as well as from overseas like Hongkong, Seoul, Taipei, Shanghai, etc.. Please find more detail information at New Chitose Airport website (<http://www.new-chitose-airport.jp/en/>).



Accommodation

Our official travel agency, JTB Hokkaido Corp., will offer you various kind of hotels in Sapporo listed in below. Application form is available at our website.

Hotel	Access	Type	Price (per room)
Keio Plaza Hotel Sapporo	5-minute walk from the south exit of JR Sapporo St.	Single	12,600 yen
		Twin	22,000 yen
Sapporo Aspen Hotel	2-minute walk from the north exit of JR Sapporo St.	Single	9,800 yen
		Twin	16,800 yen
Hotel Keihan Sapporo	4-minute walk from the west exit of JR SAPPORO St.	Single	8,800 yen
		Twin	16,800 yen
Best Western Hotel Fino Sapporo	2-minute walk from the north exit of JR SAPPORO St.	Single	8,800 yen
		Twin	15,000 yen
Hotel Route-Inn Sapporo Ekimae	1-minute walk from the north exit of JR SAPPORO St.	Single	7,800 yen
		Twin	13,600 yen

*All prices include breakfast, taxes and service charges.

Venue and Sapporo

City of Sapporo

Sapporo is Japan's 5th largest city with a population of 1.9 million, and the capital of Japan's northern island of Hokkaido. Only 150 years or so have passed since the pioneers first arrived, making it a relatively young city. Since the staging of the Winter Olympics in 1972, Sapporo has continued to develop into a truly international city, hosting various international events including the FIFA World Cup in 2002, the Ski Jumping World Cup, the Nordic World Ski Championships, and in 2017 is set to host the Asian Winter Games. Despite being a large metropolis, a short trip out to the suburbs reveals abundant natural scenery, where outdoor leisure activities such as hiking, canoeing and camping can be enjoyed. Each of the four seasons bring their own delights, and every year many tourists from both home and abroad visit the region, which is famous for being one of Japan's leading producers of delicious foodstuff. The city also ranks number one among the places Japanese people would like to live.

Venue

Conference Hall, Hokkaido University (Sep. 10-12)

Centennial Memory Hall, Hokkaido University (Sep. 10-12)

4th Floor, Sapporo Center for Gender Equality (Sep. 9)

Sapporo Grand Hotel (Sep. 11)



Co-Sponsors

Hokkaido Regional Development Bureau, Ministry of Land, Infrastructure and Transport and Tourism, Government of Japan

Association for Civil Engineering Technology of Hokkaido

Japan Federation of Construction Contractors

Japan Road Association

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Japan Society of Civil Engineers

Civil Engineering Research Institute for Cold Region, PWRI

Nippon Expressway Research Institute Company Limited

Port and Airport Research Institute

Railway Technical Research Institute

City of Sapporo

Hokkaido Government



Hokkaido Regional Development Bureau

Ministry of Land, Infrastructure, Transport and Tourism
Government of Japan



JAPAN FEDERATION OF CONSTRUCTION CONTRACTORS



1. Geotechnics for Pavement, Rail Track and Airfield

1-1 Pavement

- Characterization of highly compressible marine clay for road foundation, *G.W. Chai, N. Mosavat, E.Y. Oh & Y.C. Loo*
- Evaluation of the mechanical characteristics of recycled base layers produced by full depth reclamation (FDR), *J. Depatie, J.-P. Bilodeau & G. Doré*
- Effects of lime content and amelioration period in double lime application on the strength of lime treated expansive sub-grade soils, *C. Gallage, M. Cochrane & J. Ramanujam*
- The use of recycled crushed concrete as a road base material, *J.N. Greitschus*
- Analysis of traffic-load-induced permanent settlement of highway embankment on soft clay ground, *M. Huang & Z. Yao*
- Effects of freeze-thawing on mechanical behavior of granular base in cold regions, *T. Ishikawa, S. Kawabata, S. Kameyama, R. Abe, & T. Ono*
- Characterization of hydrated cement treated crushed rock base as a road base material in western Australia using disturbed state concept, *P. Khobklang, V. Vimonsatit, P. Jitsangiam & H. Nikraz*
- Role of resilient modulus constitutive models on response of pavements, *M. Mazari, E. Navarro, I. Abdallah & S. Nazarian*
- A prediction method of plastic deformation development of subbase and subgrade in concrete pavement, *T. Nishizawa*
- Thick-layer construction using sandy soil as material and embankment performance evaluation: Assessment of rolling compaction test results, *T. Sakaiya, T. Kuwahara, H. Takei & K. Umetsu*
- Effects of the environment-conscious pavements in Fukuoka University and its verification, *K. Sato*
- Study of suction in unsaturated soils applied to pavement mechanics, *B. A. Silva & L. M. G. Motta*
- Cracking and flexural behaviors on cement treated crushed rock for thin flexible pavement, *K. Siripun, P. Jitsangiam, H. Nikraz & C. Leek*
- Jet grouting deformability modulus prediction using data mining tools, *J. Tinoco, A. G. Correia & P. Cortez*
- Full-scale accelerated loading test for

load distribution on subgrade due to CFA stabilized base, *K. Tomisawa, T. Endoh, H. Godenki, T. Okabe & T. Kanai*

Failure on a roadside dip slope with partial anchorage system, *H. Wang & J.-J. Hung*

1-2 Rail Track

- Establishing linkages between ballast degradation and imaging based aggregate particle shape, texture and angularity indices, *H. Boler, M. Wnek & E. Tutumluer*
- Laboratory tests on a ballasted rail track reinforced by geosynthetics, *L. Briançon, C. Cojean, N. Calon, S. Costa d'Aguiar & A. Robinet*
- Evaluation of a linear elastic 3D FEM to simulate rail track response under a high speed train, *J. Cunha & A. G. Correia*
- Improvement of rail track subgrade using stone columns combined with geosynthetics, *B. Fatahi, H. Khabbaz & T.M. Le*
- Railway ballast requirements for high speed and heavy haul lines: Hardness, fouling, life cycle, *K. Giannakos, A. Loizos & C. Plati*
- Seismic damage assessment of an airport runway based on non-linear FEM analysis with special reference to crack occurrence, *Y. Hata, K. Ichii & A. Nozu*
- Influence of moisture content on cyclic plastic deformation characteristics of recycled crusher-run material under moving wheel loads, *A. Inam, T. Ishikawa & S. Miura*
- Development of integrated RC roadbed for slab track on clay subgrade, *Y. Momoya, T. Takahashi, O. Maruyama, & E. Sekine*
- Effect of ground properties and embankment height on the embankment failure behavior during earthquake, *M. Ohki, M. Seki, T. Sakai & M. Nakano*
- Railroad foundations - verifications and analysis of the dynamic stability, *M. Raithel & E. Leusink*
- Design method for railway bases reinforced with geogrid, *P. Rimoldi*
- Evaluation of train running stability on slab track with vibration exciter, *M. Shinoda, H. Sakamoto, N. Misaki & Y. Sakamoto*
- Modelling and application of polyurethane geocomposites for high-speed ballasted railway tracks including transition zone dynamics, *P.K. Woodward, A. Kacimi, O. Laghrouche & G. Medero*
- Study on the settlement characteristics

and reinforcement technology of unsaturated soil ground of high-speed rail way, *L. Wu & G. Jiang*

1-3 Airfield

- Development of high durable grout for airport prestressed concrete pavement, *N. Kawamura, R. Maekawa, K. Morohashi, A. Shiji, & K. Kamitani*
- Determination method of ground model for reclaimed land with dredged clay and evaluation by settlement record of Kita-Kyushu Airport, *H. Yoshida, H. Kume, S. Yamamoto, M. Katagiri, T. Yoshifuku, K. Ohishi & M. Terashi*

2. Geomaterial, including Nontraditional Materials

- Performance assessment of clay soil stabilized with recycled gypsum based on SEM and XRD, *A. Ahmed, M. Kobayashi & K. Ugai*
- Blended recycled clay masonry and crushed concrete aggregate in bases, *A. H., Azam, D. A. Cameron & M. M. Rahman*
- Evaluation of non-traditional stabilizers with silty-clay desert soil, *A. Bayat & O. Farzaneh*
- Mechanical characteristics of hydrated cement treated crushed rock base for western Australian road base, *S. Chummuneerat, P. Jitsangiam & H. Nikraz*
- Study on effect of mixing condition on strength of mixture of dredged soil and steel slag, *S. Hirai, T. Mizutani, Y. Kikuchi, S. Nakashima & K. Iguchi*
- Mechanical characteristics of foamed bitumen mixtures in western Australia, *Y. Huan, P. Jitsangiam, H. Nikraz & R. Grant*
- Recycled concrete aggregate as a base course material in western Australian road, *P. Jitsangiam, K. Siripun, H. Nikraz & C. Leek*
- A method for accelerating the solidification of granulated blast furnace slag, *Y. Kikuchi, T. Mizutani, S. Oka & K. Nakashima*
- Improvement of swelling-collapsible behaviors of silty clay by calcium carbide residue, *A. Kumpala, S. Horpibulsuk & J. Suebsuk*
- Effects of compaction condition on seismic performance of dike embankment and its evaluation, *S. Matsumura, S. Miura & S. Yokohama*
- Experimental study on deformation characteristics of granular materials made from recycled glass bottles under traffic loading, *T. Mikami, J. Koseki & T. Sato*
- Dynamic centrifuge model tests on quay

wall backfilled with granular treated soil, *Y. Morikawa, H. Takahashi, K. Hayano & Y. Okusa*

- Characterization of gold mine tailings for utilization in development of the rural infrastructure, *F.K. Mutabazi & P.M. Bujulu*
- Efficiency of thermal vertical drains for the consolidation of soils, *S. Salager, L. Laloui & M. Nuth*
- Mechanical characteristics of composite geomaterial mixed with lightweight granular material, *K. Yamanaka & K. Minegishi*
- Change in mechanical characteristics of embankment material by compaction control and its evaluation, *S. Yokohama, S. Miura & S. Matsumura*

3. Asphalt Mixtures and Hydraulically-bound Materials

- Influences of in situ HMA compaction on its performances, *Y. Hachiya, K. Kitauchi & T. Watanabe*
- Characterization of emulsion bitumen stabilized aggregate base, *M. Moaveni, I. Abuawad, K. Hasiba, D. Zhang & E. Tutumluer*
- Effects of mineral fillers on rheological properties of asphalt binders, *A.D. Mwanza, P. Hao & H. Hui*
- Behaviour of asphalt mixture under large amplitude cyclic loading, *Q.T. Nguyen, H. Di Benedetto & C. Sauzéat*
- Effect of water on the strength of bituminous mixes with waste concrete aggregates, *M.A. Sobhan, S.A. Mofiz, T. Humyra & M.R. Awall*
- New x-ray CT evaluation method of engineering characteristics of asphalt mixture, *S. Taniguchi, I. Nishizaki, K. Ogawa & J. Otani*
- A study of developing new tests to evaluate compaction property and deformation resistance for slipform paving concrete, *S. Yokota, T. Sato, R. Kamishita, K. Nakamura, O. Kamada & Y. Sakamoto*
- Interpretation and application of repeated torsional shear test on asphalt mixtures, *N. Yoshida, A. Fuke, T. Uehara & K. Adachi*

4. Earthworks for Transportation Facilities

- A study on the structural assessment of pavement damaged by the Tohoku Earthquake and liquefaction and causes of the damages, *N. Abe*
- A study on increased layer thickness for embankment construction using ordinary compaction machinery, *T. Adachi, S. Nishimoto & A. Sato*
- Influence of the drainage in the

reinforced soil wall during seepage flow, *M. Kobayashi, K. Miura & T. Konami*

The effect of dry unit weight, suction, and imparted energy on the modulus of a compacted mixture of sand and kaolin, *C. Rujikiatkamjorn, A. Heitor & B. Indraratna*

Proposal of control criteria for embankment compaction in Hokkaido, *A. Sato, S. Nishimoto & T. Suzuki*

Numerical study on dynamic interaction between embankment and consecutive culverts, *Y. Sawamura, K. Kishida & M. Kimura*

Relationship between compaction equipment and compaction results, *M. Yamada, S. Nishimoto & A. Sato*

5. Application of Geosynthetics

Monitoring and predicting the seismic behaviors of geosynthetic reinforced soil retaining structures, *S.J. Chao, A. Cheng, C.Y. Chan & J.R. Chang*

Effects of subbase geogrid reinforcement on residual deformation characteristics of asphalt pavement, *D. Hirakawa & Y. Miyata*

Performance of a bearing reinforcement earth (BRE) wall and its numerical simulation, *S. Horpibulsuk, C. Suksiripattanasong & A. Chinkulkijniwat, T. Tangsutthinon & W. Bunyakiat*

Rural road maintenance using geotextile available in developing countries, *M. Kimura & Y. Fukubayashi*

Effectiveness of geotextiles in unsurfaced pavements over weak subgrade evaluated from accelerated field testing, *D. Mishra & E. Tutumluer*

Geosynthetic reinforced earth embankments under traffic induced cyclic loading, *K. Rajagopal & N. Unnikrishnan*

Effect of geosynthetic drainage layers on the recovery rate of pavement surface modulus, *C. Savoie, G. Doré, J.-P. Bilodeau & J. Fachon*

Seismic performance of geotextile reinforced soil wall with double facing system, *S. Tsuji, N. Tatta, Z. Wang, T. Kubo & K. Arai*

6. Laboratory Testing and In-situ Testing

Modification and stabilization of Farmahin city area soil by lime and cement, *M. Asgari & T. Miri*

Influence of stress rotation in unbound granular material using hollow cylinder testing, *H. Barón, D. Gutiérrez & B. Caicedo*

Solidification of dredged marine clay under varied mix conditions:

A laboratory investigation, *C.-M. Chan, Y. Kikuchi & T. Mizutani*

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