1: Modelling of Soil Behaviour in Geotechnical Engineering Practice: February 16-20, 2010

The Workshop is in three modules: Saturated soil modelling by Prof. David Muir Wood; Unsaturated soil modelling by Prof. Eduardo Alonso and Seismic soil behaviour and geotechnical earthquake engineering by Prof. Thevanayagam. The details are as follows:

Module 1: Saturated soil modelling: Prof. David Muir Wood, University of Dundee

Monday, 15th February, 2010:

Introduction to modelling: soil behaviour; Elastic modelling; The most widely used soil model: Mohr-Coulomb; Cam clay I; Cam clay II; Practical exercise : choice of soil parameters.

Tuesday, 16th February, 2010 :

Cam clay improved: nonlinearity and structure; Mohr-Coulomb improved: nonlinearity and critical states; Practical exercise: stress paths and laboratory testing; Modelling of effects of particle breakage; Modelling of effects of erosion of fine particles; Modelling of sand/fibre mixtures. Concluding remarks

Module 2: Unsaturated soil modelling Prof. Eduardo Alonso Polytechnic University of Catalunya, Barcelona

Prof. Eduardo Alonso, a world authority on the modelling of unsaturated soil behaviour will give lectures. The details are as follows:

Wednesday, 17th February, 2010:

Unsaturated soil mechanics in geotechnical engineering: the range of materials involved; The state of water. Suction. Effective stress; A reference material: low plasticity, open structure. experimental behaviour; An idealized unsaturated granular soil; A reference elastoplastic model: BBM (Barcelona Basic Model); Advanced elastoplastic models. Hydro-mechanical coupling

Thursday, 18th February, 2010:

Rockfill behaviour; Rockfill modelling; Features of expansive soil behaviour; Elastoplastic modelling of expansive soils; Balance equations; Field problems. Case histories

Module 3: Seismic Soil Behaviour and Soil Liquefaction Theva S. Thevanayagam, State University of New York, Buffalo, USA

Friday, 19th February:

Prof. S. Thevanayagam (Theva), a renowned research leader in the study of soil liquefaction, screening, and liquefaction mitigation in sands and silty soils will give these lectures.

Introduction to Geotechnical Earthquake Engineering; Undrained Monotonic and Cyclic Behaviour of Sands; Soil Liquefaction & Liquefaction Screening; Post-Liquefaction Behaviour and Lateral Spreading and Case Histories; Ground Improvement Techniques for Soil Liquefaction Mitigation; Lateral spreading Effects on Pile Foundations and Case Histories

2: Geotechnical Engineering Practice & Mega Projects: April 6-9, 2010

The second in this series for 2010 will be on the role of geotechnics in mega-projects; these projects are often high risk structures such as very tall buildings (sky scrapers as some time described), long span bridges, major airport works, sea ports, land reclamation works and also large scale projects in developing countries. We are most fortunate to have some of the most outstanding geotechnical experts, Prof. Tatsunori Matsumoto, Mr. Patrick Wong, Dr. Stephen Buttling, Prof. Harry G Poulos, Prof. Chris Haberfield, Mr. James D. McIlquham, Dr. T.H. Seah among others.

Tuesday April 6, 2010

Piled Raft Foundations: Prof. Tatsunori Matsumoto & Dr. Stephen Buttling:

Prof. Tatsunori Matsumoto: A simplified three-dimensional deformation analysis of piled rafts PRAB; Load tests of piled raft models with different pile head connection conditions and their analyses; Piled raft foundation constructed using a reverse construction method: Field measurements and analyses; Piled raft foundations constructed by Takenaka Corporation; Piled raft foundations constructed by Taisei Corporation

Dr. Stephen Buttling: Piled and piled raft foundations: Case Studies on Major Projects in SE Asia and Australia

Wednesday April 7, 2010

Incheon Bridge in Korea & Middle-east Projects: Dr. Sung-Min Cho, Prof. Tatsunori matsumoto, Prof. Harry G Poulos: Dr. Sung –Min Cho:

An Introduction to the Incheon Bridge Project; Geotechnical Designs of the Incheon Bridge; Foundation Constructions of Incheon Bridge; Ship Impact Protection System of Incheon Bridge

Prof. Tatsunori Matsumoto: A 600 m high-rise tower (Tokyo Sky Tree) constructed by Obayashi Corporation; Rapid load tests of piles and rigid plates for design of building foundations

Thursday April 8, 2010

Prof. Chris Haberfield, Dr. T.H. Seah , Mr. Greg Hackney & Prof. Tatsunori Matsumoto:

Prof. Chris Haberfield: Design aspects of deep foundations in rocks; Analysis and design of foundation system for Nakheel Tower, Dubai

Dr. T.H. Seah: Taiwan High Speed Railway Project

Mr.Greg Hackney: Gateway Bridge Upgrade Project

Prof. Tatsunori Matsumoto: Rapid load tests of piles and rigid plates for design of building foundations

Friday, April 9, 2010

Dr. T.H. Seah,

Dr. T.H. Seah: Soft clay engineering and advanced soil testing;Ground improvement schemes at the Suvarnabhumi International Airport in Bangkok; Foundations and Highway Projects in Vietnam, Sri Lanka and Bangladesh

Mr. James D. McIlquham: Geotechnical Works at the Botany Bay Project Mr **Patrick Wong:**Performance versus Design Prediction of Various Ground Improvement Schemes at Balina Bypass: conventional preload, surcharge with wick drains, stone columns, dynamic replacement, vacuum consolidation, and deep soil mixing.

Mr Peter Boyle: Use of Wick Drains to Improve Deep Soft Clay Deposits – Port of Brisbane Experience

3: Workshop & Lectures on Eurocode 7: A Model Code for All: Trevor Orr: July 12-13, 2010

Dr. Trevor Orr from Trinity College Dublin will give a series of lectures on July 12-13, 2010 on Eurocode. The objectives of the series of lectures on Eurocode 7 are to:

- To explain the concepts and key features of Eurocode 7
- To provide an appreciation of the issues that arose in preparing Eurocode 7 and which have led to its final form
- To show how the following structures are designed to Eurocode 7:
 - A spread foundation
 - A pile foundation
 - A retaining structure
 - A slope.
- To provide practice in the design of a spread foundation and a retaining wall to Eurocode 7.

Day 1: Monday July 12, 2010

The Eurocode programme and key features of Eurocode 7; Geotechnical data Characteristic values and related CEN standards; Eurocode 7 Design Approaches and Calculation models; Design of spread foundations with examples; Practical design exercise: Design of a spread foundation

Day 2: Tuesday July 13, 2010

Geotechnical complexity and Geotechnical Design Triangle; Design of retaining structures with examples; Design of pile foundations and design against hydraulic failure; Practical design exercise – Design of an embedded retaining wall; Implementation of Eurocode 7, Report on Pavia Workshop and Future Development

4: Workshop & Short course on Geosynthetics and Ground Improvement Date: July 14 – 16, 2010

This Workshop will be conducted by **Chris Lawson** and **Prof. Jie Han** who are internationally recognised experts in this field. Following the types, functions and applications and the properties and testing of geosynthetics, the separation, filtration and drainage characteristics of geosynthetics would be described. The use of geosynthetics in reinforced unpaved and paved roads, and reinforced slopes will then be presented. Basal reinforcements for embankments over soft soils and design of stone columns, deep mixed soil columns as well as the design of geosynthetic reinforced column supported embankments will also be covered. Several case histories on these subjects will be presented. The geosynthetic applications in hydraulic and coastal structures, geotextile tubes for dewatering slurry wastes and landfills are also covered in a comprehensive manner.

Day 1: Wednesday July 14, 2010

Geosynthetics - types, functions and applications (**Chris Lawson**); Geosynthetic properties and testing (**Jie Han**); Separation, filtration, and drainage (**Chris Lawson**); Design of Geosynthetic-reinforced unpaved roads (**Jie Han**); Design of Geosynthetic-reinforced paved roads (**Jie Han**)

Day 2: Thursday July 15, 2010

Design of geosynthetic-reinforced slopes (**Jie Han**); Basal reinforcement for embankments over soft soil (**Chris Lawson**); Design of stone columns (**Jie Han**); Design of deep mixed columns (**Jie Han**); Geosynthetic-reinforced column-supported embankments (**Chris Lawson**)

Day 3: Friday July 16, 2010

Design of geosynthetic-reinforced earth retaining walls (Jie Han); Case histories of geosynthetic-reinforced earth structures (Chris Lawson); Hydraulic and coastal structures (Chris Lawson); Geotextile tubes for dewatering slurry waste (Chris Lawson); Landfills (Chris Lawson)

5: Workshop and Lectures on Earth Pressure Theories, Deep Excavations for Basements of Buildings, Cut and Cover Tunnels and Mined Tunnels for MRT Works September 27 –October 1, 2010

The September Workshop and Course will be on Deep Exacavations and Tunnelling. Excavation is an important segment of foundation engineering. For example, in the construction of the foundations or basements of high rise buildings, underground oil tanks, subways or mass rapid transit systems, etc. Though books on general foundation engineering introduce the basic analysis and design of excavations, they are usually too simple to cope with analysis and design in practice. With economic development and urbanization, excavation goes deeper and is larger in scale, sometimes it is carried out in difficult soils. These conditions require advanced analysis and design methods and construction technologies. Prof. Ou, the author of a well known text book would give two days of lectures (September 27-28) including several case histories including the MRT works in Taipei and Singapore and the 101 building basement of the Taipei World Trade Centre. At the same time, working with industrial builders, Prof. Ou has also taken part in many large-scale excavation projects and accumulated experience in analysis and design. Supported by extensive studies and combined with analytical experience, he has developed an excellent course on deep excavation at his university. Dr. Noppodol will lecture on the deep excavation works in Bangkok both for basements of buildings and MRT station works. The latter three days of September 28 to October 1 will be on cut and cover tunnels and mined tunnels. Authoritative lectures would be given by Profs. Mitsutaka Sugimoto, Keichi Ono, Noppodol Phienwej, Oliviera and engineers from Arup. These lectures also include excellent case histories in Japan and SE Asia, Brazil, and Australia.

Day 1: September 27, 2010 Deep Excavations: C.Y. Ou

Stability analysis- 1: Push in, basal heave and ground upheaval; Stability analysis- 2: Sand Boiling & Case studies with sand boiling; Deformation analysis-1: Simplified methods- Effect of wall installation and wall lateral movements, 3D effects; Deformation analysis-2: Ground settlements: characteristics, influence zones, shapes of settlement patterns, 3D effects;

Day 2: Tuesday, September 28, 2010: Deep Excavations: C.Y. Ou & Noppodol Phienwej

Deformation and stress analysis (numerical method): (i)Beam on elastic foundations and (ii) FEM of analysis (**C.Y.Ou**); FEM analysis continued and case studies (**C.Y.Ou**); Usage and performance of cement jet grouting and deep mixing soil cement columns for excavations in soft soils(**N.Phienwej**); Excavation and protection of adjacent structures-1: (i) Procedure of evaluating the potential damage of adjacent structures; (ii) Ground improvement (**C.Y.Ou**); Deep excavation with diaphragm walls in Bangkok soft soil: General practice (design & construction methodology), control of ground movements (lesson learn from MRT projects), and a case study on value-engineering in deep excavation for the underground car park in front of Bangkok City Hall (**N. Phienwej**); Excavation and protection of adjacent structures-2: (i) Cross wall (ii)Buttress wall (ii) Micro piles and (iv)Strengthening the retaining-strutting system (**C.Y.Ou**)

Day 3: Wednesday, September 29, 2010: Tunnelling Prof. Sugimoto & Prof. Ono

Introduction of Tunnelling: NATM, Shield driven method, cut and cover method (**Sugimoto**); Overview of shield tunnelling technology: (i) Segment lining; (ii) TBM (iii) Ground movement; and (iv) New technologies (**Sugimoto**); Use of tunnel and underground space; Tunnel fire and the damage (**Ono**); Case studies on shied tunnelling; (i) SENSE method: This is a new technology by combining shield tunnelling concept and NATM one. The first application was done at Sanbongi Tunnel in Tohoku Shinkansen Line; (ii) URUP method: This is also a new technology which can launch a shield from the ground surface without a vertical shaft. The prototype test was done in 2007 and the first application just launched at the Shinagawa line of Metropolitan expressway (**Sugimoto**)

Day 4: September, 30, 2010: Tunnelling Prof. Sugimoto& Prof. Ono

Analytical behaviour of a shield tunnel lining during fire Lining protectors from fire and the fire test; Fire design concept to tunnel lining; Fire design concept to tunnel lining (**Ono**); Unique topics in tunnelling: Evaluation of the spring constant of the ground around a shield tunnel and measurement of load acting to the tunnel (**Ono**); Case studies on shied tunnelling (2): Ootsu flood tunnel: The ground displacement was analysed using the shield kinematic model and 3D FEM analysis (**Sugimoto**); Unique topics in tunnelling: Distortion of a TBM skin plate during excavation under the sea; A large excavation in a soft ground and displacement prediction of the retaining wall (**Ono**)

Day 5: October 1, 2010: Tunnelling Prof. Ono, Dr. Phienwej, Dr. Oliviera, and Arup Engineers

Lesson learnt from bored tunnelling with EPB shields in the first Bangkok underground MRT projects. Use of Observational Method in control of impact on close-proximity tunnelling. Characteristics of induced ground movements – Actual versus prediction (**N.Phienwej**); Lesson learnt from bored tunnelling with EPB shields in the first Bangkok underground MRT projects; Responses of building piled foundations (**N. Phienwej**); Geotechnical challenges in construction of MRT stations in Bangkok soft soil in sensitive city area using non-conventional methods in the upcoming Extension Project; A combination method of bored tunnelling, mining ; excavation with extensive ground improvement for soft marine clay and sand is proposed ; Discussion will be on environmental constraints, design concept, method of analysis, and risk(**N.Phienwej**) Experiences with the design and performance of cut and cover tunnels (**Arup Engineers**); Numerical modelling of underground excavations; Modelling approach; Discontinuum versus pseudo continuum; case history - collapse of the Pinheiros Metro Station, Brazil in 2007(**Oliviera**); Temporary support design for mined tunnels (**Arup Engineers**)

6: Workshop and Lectures on Slope Stability, Residual Soils and Landslides: By Professors Sunil Sharma, Charles Ng & Dr. Alex Li November 22-26, 2010

An excellent Workshop & Lectures on Slope Stability, Residual Soils and Landslides will be presented from November 22-26, 2010. The first two days of the lectures will be on slope stability design and analyses by Prof. Sunil Kumar. The lectures on the 3rd day are by Prof. Charles Ng an authority on Landslide studies in Hong Kong. The lectures on the fourth and fifth day will be given by Dr Alex Li: currently the senior geotechnical engineer, heading the Landslip Investigation Section of the Geotechnical Engineering Office (GEO) of the Civil Engineering and Development Department, Government of the Hong Kong Special Administrative Region. Over the years the key strategies of this body is to incorporate the latest technological advances in enhancing the stability of natural and man made slopes and in educating the public on the importance of slope stability.

Day 1: November 22, 2010: Slope Stability: Prof. Sunil Kumar (USA)

Landslide features; Shear Strength of soils for slope stability analysis - drained analysis;

Analysis: Infinite slopes, planar surfaces (wedges), method of slices; Shear Strength of soils for slope stability analysis - undrained analysis; Method of slices – computer basedexamples

Day 2: November 23, 2010 : Slope Stability: Prof. Sunil Kumar (USA) Computer based analysis of slopes; Seismic analysis; Case history – staged construction; Slope Stabilization

Day 3: November 24: Mechanisms of Static Liquefaction of Loose Fill Slopes and Stabilisation Measures: 3rd Day: Prof. Charles Ng (Hong Kong)

Fundamental soil behaviour (flow liquefaction and cyclic mobility and associated theoretical framework); Saturated and unsaturated behaviour of loose granitic and volcanic saprolites;

Principles of centrifuge modelling and mechanism of static liquefaction of loose sand fill slope

Centrifuge modelling of loose completely decomposed granite fill slopes with and

without soil nails under both static and dynamic conditions; Fundamentals of recompaction and the use of soil nails in loose fill slopes; Discussion on Hong Kong Institution of Engineers (2003) design guidelines

November 24, 2010: Residual Soils, Slope Stability and Landslides(1) -Dr. Alex Li (Hong Kong)

Geology and Residual Soil; Rainfall-Landslide Correlation; Site Characterisation; Man-made Slope Failures; Soil-nailed Cut Slopes: Theory, Design and Construction; Slope Greening and Maintenance

November 25, 2010: Residual Soils, Slope Stability and Landslides (2) -Dr. Alex Li (Hong Kong)

Natural Terrain Hazards: Types and Impact; Natural Terrain Hazard Assessment; Mitigation Strategies; Natural Terrain Landslides; Design and Construction of Mitigation Measures

7: Workshop & Lectures on Sustainable Multimodal Transport & Urban Development Len Johnstone, Nate Chancharoen & Kali Nepal Date: November 29- December 03, 2010

This workshop will spread over four days with the emphasis on each day on particular aspects of transport planning namely:

- Transport Models;
- Case Studies of Transport Plans;
- Project Evaluation; and
- The Linkage between Land Use and Transport Planning.

A transport model is nothing but a tool that we need to understand complex transport situations. A transport model whether it be at the strategic, mesoscopic or the animation consists of a database, modelling software and a set of equations. These set of equations are developed from data sources and meant as a hypothesis of the real world of transport. This hypothesis is tested against the real world during the calibration procedure.

Day 1: November 29, 2010: Tools Needed to Understand Sustainable Transportation and Urban Development

Sustainable Transport-the Tools:*Macro Model, Mesoscopic Models, overview of major available software packages CUBE, VISSUM, EMME and TransCad. What is sustainable transport?*(**Len Johnstone); Why a model--Demand, Supply and the Environment:** *In cities, countries or regions, there are often many projects, there is a need for a tool to prioritize projects? What is the environmental impact of a transport project?*(**Len Johnstone); Strategic Transport Models:** *Two major forms of transport* model, the traditional four step model and the activity based model(Len Johnstone); Mesoscopic /Microsimulation Models: Transport models have three levels of hierarchy: strategic, mesoscopic and microsimulation. The linkage between all three are discussed during this presentation (Nate Chancharoen)

Day 2: November 30, 2010: Case Studies and their Relation to Sustainable Multimodal Transport

Case Studies of Strategic Models: An overview of transport models for cities in Bangkok, Cairo and Jakarta. A national model in Thailand and Vietnam with particular reference to the CUBE software(Len Jhonstone); Case Studies of Mesoscopic/-Microsimulation Models: In cities, countries or regions, there are often many projects, there is a need for a tool to prioritize projects? What is the environmental impact of a transport project?(Nate Chancharoen); Transport Master Plans including Transit Master Plans: Examples of National Transport Master Plans from the Asian experience. An evaluation of a city wide transit plan in Bangkok (Len Johnstone); Sustainable Transportation Planning on New Developments----Major Transportation Impact Analysis (TIA) Studies .The North American experience in the use of these models (Nate Chancharoen)

Day 3:December 1, 2010: Evaluation of Transport Projects

Economic Evaluation and non Quantifiable Evaluation (Len Johnstone); Individual Transit Evaluation: What about an evaluation of an individual transit line? This is done with a review of transit evaluation in Bangkok (Len Johnstone); **Strategic Transport Models:** Two major forms of transport model, the traditional four step model and the activity based model (Len Johnstone); Sustainable Street Overview of the new HCM 2010, Complete Street Level of Service, Pedestrian and Bicycle Analysis; (Nate Chancharoen)

Day 4: December 2, 2010: Land Use Mix and Supply Controls

Land Use Transportation Mix---Theory: *Recent releases in updated techniques have led to new software such as CUBE Land. This discusses the theory behind this relationship* (Len Johnstone); Land Use Transportation Mix---Reality: *This is a follow on from previous presentation with references to examples of the usage of the CUBE Land software* (Len Johnstone); Supply Control - Congestion Pricing What is supply control? This would include area-wide congestion pricing, toll road pricing and parking pricing. The examples in Singapore , London, San Francisco, and other cities around the world that are planning to apply this concept (Nate Chancharoen)

Day 5: December 3, 2010: Disaggregate Travel Demand Modelling Dr. Kali Nepal

Introduction to Discrete Choice Analysis; Discrete Choice Models; Statistical Estimation and Simulation; Applications of Discrete Choice Models in Transportation

8: Workshops & Hands on Training: Advanced Plaxis Course and International Users Day: November 21-25, 2011

Advanced courses are scheduled by Plaxis International at constant intervals to present to the industries new features as introduced in the Plaxis Software. The new things introduced in this Workshop are: Fully coupled flow-consolidation-deformation analysis (Bishop stresses) vs. Semi-coupled analysis (Terzaghi stresses); Unsaturated flow; Introduction of Plaxis 3D (a full 3D version, not like the semi-3D version we had before); Brief introduction of some newly implemented constitutive models, for instance UBCS. These new features are introduced on different days as appropriate.

DAY 1: NOVEMBER 21, 2011: HARD SOILS

Concepts of plasticity (**Schweiger**); Density and Shear hardening of soils (**Schweiger**); The Hardening Soil model (**Waterman**); Parameters of the HS model(**Waterman**); Simulation of lab tests (exercise); Deep Excavations(**Schweiger**) Analysis with HS and HS-Small:exercise; Evaluation of the exercises

DAY 2: NOVEMBER 22, 2011: SOFT SOILS

Critical State Soil Mechanics (**Schweiger**); Soft Soil Creep Model (**Waterman**); Boston Embankment using SSC: exercise; Drained and undrained soil behaviour (**Waterman**); Soil improvement (**Schweiger**); Consolidation (**Schweiger**); Modelling groundwater flow (**Waterman**); Rapid drawdown: exercise; Evaluation of the exercises

DAY 3: NOVEMBER 23, 2011: 3D MODELLING

Piles and foundations (**Schweiger**); Structural elements and soil-structure interaction (**Waterman**); Introduction to Plaxis 3D (**Waterman**);Raft foundation: exercise; Embankments and slope stability (**Schweiger**); Modelling embankments in Plaxis 3D (**Waterman**);Modelling water pressures in Plaxis 3D (**Waterman**); Embankment subject to a traffic load: exercise: Evaluation of exercises, questions & answers

Day 4: NOVEMBER 24, 2011: ROCKS AND TUNNELS

Modelling of rock (**Schweiger**); Hoek-Brown and Jointed Rock in Plaxis(**Waterman**) 2D Tunnel in Rock: exercise; NATM Tunneling (**Schweiger**); Modelling tunnels in Plaxis 3D (**Waterman**); 3D Face stability: exercise; Evaluation (**Waterman**)

FRIDAY, 25 NOVEMBER 2011 – INTERNATIONAL USERS DAY

Bio-Data of Lecturers

1. Prof. David Muir Wood:

David Muir Wood read Mechanical Sciences at Peterhouse, Cambridge University, graduating in 1970. He received his PhD there in 1974 for research on the true triaxial behaviour of clays. He was a lecturer and Fellow of Emmanuel College, Cambridge from 1975-1987. In 1987 he moved to Glasgow University where he held the Cormack Chair of Civil Engineering.

In 1995 he was appointed to the Chair of Civil Engineering at Bristol University, becoming Dean of the Faculty of Engineering in 2003. He was elected a Fellow of the Royal Academy of Engineering in 1998. He joined the University of Dundee in 2009.

David Muir Wood's current research explores themes concerned with the particlecontinuum duality of soils. He is developing constitutive models for soils with breakable particles, for soils whose finer particles are being transported away by internal flow of water, and for soils whose mechanical response is improved by the addition of short flexible fibres. The ongoing challenge for each of these is to obtain appropriate experimental data to support the modelling hypotheses.

He has written three books: Soil behaviour and critical state soil mechanics (1990), Geotechnical modelling (2004), Soil mechanics: a one-dimensional introduction (2009).

2. Prof. Eduardo Alonso:

Prof. Eduardo Alonso is the Professor of Geotechnical Engineering at the Technical University of Catalunya, Barcelona in Spain. He had his early education in University of Madrid (1963) and Northwestern University (PhD in 1973) in USA. He was also at McGill University as a Research Fellow in early seventies.

An author of more than 300 publications, Eduardo is the recipient of the prestigious Telford Medal of Institution of Civil Engineers London (ICE) on two occasions in 1994 and 2006. He also won the Crampton prize of ICE and the Geotechnical Research Medal of ICE in 2009. Eduardo was also a Buchanan and Sowers Lecturer at Texas A & M and at Georgia Tech.

Eduardo's teaching experience are on Theoretical soil and rock mechanics; foundation design; geotechnical construction; reliability in geotechnical engineering; tunnels and underground excavations. Eduardo's research interests are on Reliability and risk in Geotechnical Engineering; Behaviour of partially saturated soils; expansive soils and rocks;

numerical analysis of geotechnical problems (soils and rocks); field measurements and geotechnical back analysis; slope stability. Earth and rockfill dams.

3. Prof. S.Thevanayagam

Prof. S. Thevanayagam (Theva) is a renowned research leader in the study of soil liquefaction, screening, and liquefaction mitigation in sands and silty soils. Theva is a professor in Civil Engineering at the State University of New York. He was also a key member of the development of the flagship earthquake engineering research facility at the university at Buffalo as part of a network of 15 major state-of-the-art facilities known as the NSF sponsored George E. Brown Network for Earthquake Engineering Simulation, NEES in the USA. He is currently engaged in a large scale research involving several US universities on liquefaction-induced lateral spreading and effects on pile foundation using 6m deep laminar box equipment, centrifuge testing, and FEM simulations. Professor Theva is a member of the American Society of Civil Engineers and International Society of Soil Mechanics and Foundation Engineering. He was also the director of education at the Multi-disciplinary Centre for Earthquake Engineering Research at the University at Buffalo, a US National Science Foundation sponsored agency for earthquake engineering research.

4. Prof. Tatsunori Matsumoto

Prof. Matsumoto is now with Kanazawa University in Japan for nearly 32 years. He was educated at the Kanazawa University and received his Doctoral Degree from Kyoto University for his work on steel pipe piles in 1989. He has extensive research and practical experience on piled foundations and piled raft foundations. Prof. Matsumoto has a Shake Table Facility for the study of dynamic and earthquake type of behaviour of piled foundations. He has also worked on the centrifuge with pile groups and piled raft foundations in collaboration with Taisei Corporation.

His research work on piled raft foundations range from the simplified calculation methods of Poulos - Davis and Randolph (PDR Method), Burland's method to approximate computer based methods such as the strip on spring and plate on spring approaches and hybrid methods. He has also worked on more rigorous method using boundary elements and finite elements.

From his vast practical experience, Prof. Matsumoto has selected more than ten case histories involving piled raft foundations in Japan. These foundations are under various soil conditions. These studies involve the long term performance as well.

Prof. Matsumoto also has wide experience in the seismic design of raft and piled raft foundations. Prof. Matsumoto is one of the authors of the computer software PRAB— Piled Raft Analysis with Batter Piles. With this software piled raft foundation can be analyzed with vertical and horizontal loads as well as moment .Prof. Matsumoto has travelled very widely and have lecture red in Piled foundation and Piled Raft Foundations. He has also published his research work in numerous journals and conferences.

5. Dr. Stephen Buttling

Stephen Buttling graduated from Imperial College, University of London, in 1970 and immediately engaged in research at Bristol University leading to award of a PhD in January 1975. He has spent the last 36 years in geotechnical work, initially with Cementation Piling & Foundations for 5 years and then as a consulting engineer in the UK. He has lived in Hong Kong, Singapore, and Thailand, and from these bases has worked in China, Philippines, Malaysia, Indonesia, Taiwan and Burma.

During 16 years in Thailand he designed the foundations for a cable stayed bridge, and also a type of piled raft to support three 70 storey condominium towers. He spent his last 4 years in Thailand supervising the installation of 27,000 piles for the passenger Terminal Complex of the Second Bangkok International Airport, and supervising the civil and structural works of the Underground Train Station at the airport to serve the Airport Express. Since arriving in Brisbane in 2006 he has designed the piles for the Hale Street Link Bridge, and been involved with the Port Botany Expansion. Now he is National Technical Manager for Piling Contractors, where he looks after all technical matters, including design of piles and embedded retaining walls.

6. Dr. Sung-Min Cho

Dr. Cho is a principal research engineer of Korea Expressway Corporation (KEC), a government-related organization whose main missions are planning, construction, operation, and maintenance of the national expressway of Korea.

He received his Ph.D. in 1998 and M.Sc. in 1994 in Geotechnical Engineering from the Seoul National University (SNU), Korea. He graduated from SNU with B.S. in civil engineering.

Dr. Cho has been involved in managements and supervisions of the design and the construction of highways in Korea as well as in establishments of technical specifications. Recently, he accomplished a great project to make the longest and largest bridge of Korea. He completed his task to build the Incheon Bridge, an 18.4 km long sea-crossing bridge which has an 800 m wide cable-stayed span. He was a technical advisory director of the Incheon Bridge Construction Office of KEC for 5 years. He transferred to the research institute of KEC as a research director in January, 2010. At present, he works as a project manager (PM) of the design appraisal consulting for Hanoi-Haiphong Expressway Project in Vietnam. This task will be completed in June, 2010.

Dr. Sung-Min Cho has directed research projects related to geotechnical characterizations of the subsurface, soft ground improvements, bridge foundations, slope stabilities, and reinforcement technologies for the highway maintenance since

1998. He carried out a collaborative research on the application of cone penetration tests with the University of British Columbia, Canada in 2004. He also took part in the preliminary study group to launch the national research project for the super-long-span bridge. He has consulting experience in various technical fields for the design and construction of the highway. And he has been lectured on soil mechanics, geotechnical engineering, bridge engineering, and highway engineering at a number of educational institutions including universities. He has published dozens of academic papers (most of them was written in Korean) and also presented in a number of conferences.

Dr. Cho is currently a member of Korean Society of Civil Engineers (KSCE), Korean Geotechnical Society (KGS), Korean Geosynthetics Society (KGSS), American Society of Civil Engineers (ASCE), and International Society of Soil Mechanics of Geotechnical Engineering (ISSMGE). He is also a board director of KGSS, a Technical Committee Chair of KGS, and the counsel member of several advisory committees to the government and public firms in Korea. He won the Best Researcher Award of KEC in 2003, the Young Engineer Award by KGS in 2004, the Merit Award of KSCE in 2004, the Best Presentation Award of KGS in 2006, 2007, and the Prime Minister's Commendation (Citation Ribbon for contributions to the success of the Incheon Bridge Project) awarded by the Korean Government in 2009.

7. Greg Hackney

Greg Hackney graduated from the University of NSW in 1995, and joined Coffey Partners International in the Sydney office. During his time in Sydney, Greg worked on many large scale infrastructure projects, and other projects such as the risk assessment and mitigation for Thredbo Alpine Village following the landslide in 1997. Whilst working with Coffey in Sydney, Greg returned to complete a Masters of Engineering Science degree in Geotechnical Engineering at UNSW. After some nine years in Sydney, Greg moved to the mid-north coast of NSW, to take up the role of managing the Coffs Harbour Office. After three years in Coffs Harbour, Greg moved to Brisbane, where he took on the role of Project Director for Coffey on the Gateway Upgrade Project for a two year period, before moving into the role of a Principal Geotechnical Engineer in the Newstead office. The Project Director's role for the gateway Upgrade Project spanned over the second half stages of the design phase, and throughout the construction phase. During this time, Greg was responsible for leading a team of up to 50 staff in the detailed design and construction monitoring of the Since then, Greg has taken on a design geotechnical aspects of the project. management role for a coffer dam in Papua New Guinea, and a geotechnical design manager role for a consortium bidding the Northern Link tunnel in Brisbane.

8. Jamie Mcllquham

Jamie McIlquham is a Senior Geotechnical Engineer working for Golder Associates in the Sydney Office.

He graduated from the University of Abertay, Dundee in 1999 with a BEng (Hons) in Civil Engineering. After graduation he worked for the respected UK geotechnical contractor Ritchies for three years, gaining experience as a Project Manager on a wide range of geotechnical contracts including installation of ground anchors, slope stabilisation works for roads and railways and grouting of disused mineworkings. These projects were located in the UK and Gibraltar.

In 2002 he joined the Highways Laboratory of Lancashire County Council and completed site investigations, geotechnical design and contaminated land investigation and remediation projects for many sites around Lancashire in the UK. Major projects included investigation and design work for the Lancashire Waste Transfer Network, preliminary investigation and design for the Completion of the Heysham to M6 Link and contaminated land investigations of former ICI chemical works for the REMADE Project.

Since joining Golder in 2007 as a project manager he has completed technical design for a variety of multi-disciplinary projects, focussing on transport and building infrastructure.

He has worked on the Port Botany Expansion project from early 2008, the start of detailed design phase through to providing on-going geotechnical advice during construction. During the design he led design packages for the dredging and reclamation works and design of caisson blockwork units, which will form the outer corners of the new facility and the link to the existing port. Geotechnical analyses and design work included specification of ground improvement for the new reclamation, assessment of the impact of ground improvement techniques on structures and the assessment of berth structure stability and movements.

He is currently working on the Port Botany Expansion site, providing on-going geotechnical advice during construction, including temporary works design and construction supervision. He has also assessed monitoring results during construction to assess measured performance against design predictions. He is a Chartered Engineer in both the UK (CEng) and Australia (CPEng) and won the Australian Geomechanics Society (AGS) Young Geotechnical Professionals award in 2009.

9. Dr. Chris Haberfield

Dr. Chris HABERFIELD: Chris is a Principal with Golder Associates Pty Ltd in their Melbourne Office and an Adjunct Research Associate of Monash University.

Chris is well known internationally for his work in soft, weak and weathered rocks and in particular the performance of socketed piles in these materials. During the 1990s Chris led the research team at Monash University into the analysis, design and performance of piles in weak rock, from which the analysis program ROCKET is based on. Other innovations during this time were the continued development of advanced constant normal stiffness direct shear testing equipment, development of laser based equipment for automatic measurement of socket roughness and socket inspection (SOCKETPRO) and the use of expansive cements to enhance rock socket and anchor performance. Chris was awarded the 2007 E H Davis Memorial Lecture for his work in foundations in weak rock. Since joining Golder Associates in 2000, Chris has provided advice on many tall tower projects with respect to the foundation works, one of the most notable of which is the Nakheel Tower in Dubai.

10. Dr. T.H. Seah

Dr. Seah is currently working as a Geotechnical Engineer with MAA Geotechnics, Co., Ltd. and an Adjunct faculty at the Asian Institute of Technology (AIT) in Thailand.

He graduated from King's College, University of London, in 1985 and received his Doctoral degree from Massachusetts Institute of Technology in 1990 under the guidance of Professor Charles C. Ladd. He worked as a geotechnical engineer in Singapore and Malaysia before joining AIT as an assistant professor between 1991 and 1993. At AIT, he conducted experimental research on soils with several publications on testing of soft Bangkok clay, including constant rate of strain consolidation with radial flow, true triaxial testing, simulations of pressuremeter and vane shear modes etc.

After 1993, he worked as a geotechnical consultant in Bangkok, involving in design and construction of the ground improvement at Second Bangkok International airport (with over 400,000 m^2 of vacuum consolidation), design and construction of pile foundation in Taiwan High Speed Rail project, ground improvement design of several highways and expressways in Southeast Asia, and design and construction of ground treatment and foundation for various petrochemical facilities in Thailand and Vietnam. His main specialty includes laboratory and field testing, PVD preloading, vacuum consolidation and deep mixing methods etc.

At present, he is an advisory committee member of the Engineering Institute of Thailand, and a member of several International geotechnical societies.

11. Peter Boyle

Peter Boyle holds a Queensland University of Technology (QUT) civil engineering degree and is a Fellow of the Institution of Engineers, Australia. He has over 25 years of experience in the public and private sectors covering all facets of port development.

Peter was the Alliance Design Manager for the construction of the Port of Brisbane's FPE Seawall Project. The project involved 4.6km of wall to enclose 230ha footprint, which will enable progressive development of the port. The challenges and risk involved over 25m of soft compressible clay; additionally the project involved some 400,000 m³ of sand, filter and high strength geotextile of 350,000 m² and nearly 700,000 m³ of rockfill overhauled from long distance. The sea wall project won several awards including the ACEA Design Award.

Peter currently has the lead technical role in the reclamation and development of some 300 hectares of future Port Lands. This partially involved a very large number of fully

instrumented test embankments with surcharge and vacuum consolidation with the use of wick drains. This is truly a remarkable set of test embankments carefully instrumented with extensive site investigation works. This ground improvement project recently won the Innovation Award of Engineers Australia (Qld).

12. Trevor Orr

is the Director of the Graduate School of Professional Engineering Studies at Trinity College Dublin. He received his PhD degree from Cambridge University in 1976 for research into the behaviour of tunnels in stiff clay. After first working as an engineer with Sir William Halcrow & Partners in London he has since been at Trinity College Dublin where his research interests include geotechnical design, the use of probabilistic methods in geotechnics and tunnelling. He has spent three half-year sabbatical periods away from Trinity College, one at Karlsruhe University, Germany, another at the Danish Geotechnical Institute, Copenhagen, and the third at the Charles University, Prague, Czech Republic.

He has been closely involved in the development of Eurocode 7, the new European standard for geotechnical design, since work started on this in 1981:

- 1981 – 1987: Member of the committee that produced the model code for Eurocode 7

- 1987 – 1994: Secretary of the drafting panel for the ENV (trial) version of Eurocode
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- 1996: Reporter for the International Seminar, Eurocode 7 - Towards Implementation
- 1997 – 1998: Member of Working Group 1 established to convert the ENV into an EN

- 2006 – present: Member of the Maintenance Group for Eurocode 7.

He has been chairman of the European Technical Committee for the Evaluation of Eurocode 7 from 2003 to the present time and organised a Workshop on the Evaluation of Eurocode 7 in Dublin in 2005. He has written many papers and given many lectures on Eurocode 7, including invited lectures in Austria, Belgium, Croatia, Germany, Italy, Japan, Latvia, Macedonia, Poland, Taiwan and the UK.

Trevor Orr is the co-author of two books on Eurocode 7; the first book, with E. Farrell and entitled *Geotechnical Design to Eurocode* 7, was on the ENV version of Eurocode7 and was published by Springer in 1999. The second book, with six other co-authors and entitled *Designers' Guide to EN 1997-1*, was on the EN version of Eurocode 7 and was published by Thomas Telford in 2004. This book, which is one of a set of Designers' Guides to the Eurocodes, has proved to be extremely popular and a new, updated, edition is currently being planned

He was a founder member of the Geotechnical Society of Ireland and was secretary of the IX European Conference for Soil Mechanics and Foundation held in Dublin in 1987. He was chairman of the 15th European Young Geotechnical Engineers' Conference held in Dublin in 2002. He was a member of the Advisory panel for the journal *Geotechnique* from 2006 – 2009 and is currently a member of the Advisory panel for the journal Geotechnical Engineering.

13: Prof. Koichi ONO

Prof. Koichi Ono did his Bachelor and Masters Degree in Engineering at Kyoto University back in 1965, 1967. He received his PhD from University of Toronto in Canada in 1972. He worked with Konoike Construction Company and was concurrently a Lecturer at Kobe University. He became a Professor at Kyoto University in 1996 and stayed there until he retired in 2005. He then became a Professor Emeritus of Kyoto University and the President of Maizuru National College of Technology.

Prof. Ono has been very active in tunnelling and underground works now for more than two decades and was a Vice-President of ITA in 2004. He was also the Chairman of the International Conference on shotcrete for rock support. He is an Expert to ITA Executive Council and served in several technical committees.

An author of over t 200 technical publications in the field of Tunnel, Underground, Foundation, Pipeline, Concrete and Concrete structures, Prof. Ono is an active consultant in many of the major tunnelling projects in Japan and abroad.

14: Prof. Mitsutaka Sugimoto

Prof. Sugimoto is currently a Professor in the Department of civil Engineering at the Nagaoka University of Technology in Japan; he is the Head of the Graduate School in Engineering and assistant to the President of that University. Prof. Sugimoto has an active research centre on practice oriented research in all kinds of tunneling and in particular shield tunneling. Among the vast professional activities in tunneling, Prof. Sugimoto was : an active member of the technical committee on tunnel design standard for shield tunneling for the Railway Technical Research Institute in Japan; a member of the Technical committee on tunnel design standard for mountain tunneling in urban areas; a member of the Technical committee of the Japanese Society of Civil Engineering (JSCE) on standard segments for shield tunneling, JSCE.

Prof. Sugimoto was an active member of TC 28 on tunneling of ISSMGE. He has carried out extensive research on shield tunneling including: Evaluation of soil properties based on the in-situ data of the shield driven method; modeling of load acting on shield; shield behavior using 3-D shield simulator; development on ground reaction curve for shield tunneling; ground behavior using 4-centered slurry shield driving method; survey system on shield behavior during excavation; Influence of grout material in shield tail on shield tunneling perform; simulation of shield tunneling behavior along a curved alignment in a multilayered ground; development of kinematic shield model; pipe jacking studies.

Prof. Sugimoto is a member of the editorial committee of several journals including Journal of Tunneling Engineering; Soils & Foundations; Chairman, Editorial board for "Journal of Tunnel engineering; Journal of Construction Engineering and Management. A member of several geotechnical and tunnel engineering societies, Prof. Sugimoto has lectured very widely in Asia, Europe and North America. Prof. Sugimoto is currently a Professor in the Department of civil Engineering at the Nagaoka University of Technology in Japan; he is the Head of the Graduate School in Engineering and assistant to the President of that University. Prof. Sugimoto has an active research centre on practice oriented research in all kinds of tunneling and in particular shield tunneling. Among the vast professional activities in tunneling, Prof. Sugimoto was : an active member of the technical committee on tunnel design standard for shield tunneling for the Railway Technical Research Institute in Japan; a member of the Technical committee on tunnel design standard for mountain tunneling in urban areas; a member of the Technical committee of the Japanese Society of Civil Engineering (JSCE) on standard segments for shield tunneling; Chairman, Technical committee on construction loads during shield tunneling, JSCE.

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15: Dr. David Oliviera

David has over 10 years geotechnical engineer experience. Before joining Coffey, he worked on a broad range of geotechnical investigation and design for major infrastructure projects in Brazil including ground improvement, slope stabilisation, foundations, dams and earthworks.

He received his PhD in Rock Mechanics from the University of Wollongong in 2009 which was supervised by Prof. Buddhima Indraratna with the collaboration of Prof. André Assis (former president of ITA-AITES) and Prof. E.T. (Ted) Brown. In Australia, David won significant awards for his contribution to geotechnical engineering such as the 2009 David Sudgen Award by the Australasian Tunnelling Society, AGS NSW Research Award (Runner-up) and Young Geotechnical Professional (2nd Prize) both by the Australian Geomechanics Society.

He was recently involved in the Tender Design for the Sydney CBD Metro and the Toronto Egliton Light Rail Tunnel.

16: Prof. Sunil Sharma:

Prof. Sharma from University of Idaho in USA, has conducted slope stability courses for the American society of Civil Engineers (ASCE) on many occasions. These courses are well attended and involve lectures and computations. Prof. Shrama was educated in University of Leeds in UK where he obtained his B Sc in Engineering in 1975. His Masters and Doctoral Degrees are from University of Purdue in USA in 1980 and 1986 respectively. Hid research interests are on : Computer applications in civil engineering, numerical methods for solving static and dynamic geotechnical problems, slope stability, soil dynamics and earthquake engineering, foundation engineering, groundwater and seepage, computer assisted learning (CAL) using multimedia, software development. An excellent teacher, Prof. Sharma taught courses on Fundamentals of Geotechnical Engineering, Geotechnical Engineering Design), Numerical Methods, Engineering Properties of Soils), Seepage and Slope Stability, Soil Dynamics, and Earthquake Engineering.

Prof. Sharma is a co-author of a book on Slope Stability and Stabilization Methods published by John Wiley and sons in 1995 and revised in 2001. He has conducted Workshops for ASCE on:

"Soil and Rock Slope Stability Analysis' (2001), "Slope Stability and Stabilization" (1997-2001)- Twenty 3-day courses presented nationally for the American Society of Civil Engineers (ASCE). "Advanced Slope Stability Manual and Seminars" (1991-94): Comprehensive slope stability reference manual and presentation of three five-day courses for the Federal Highways Administration (FHWA). This work was jointly performed with Parsons-Brinckerhoff, a consultant from San Francisco, CA.

Prof. Sharma also own copyrights on the Software XSTABL- an Integrated Slope Stability Analysis Program for Personal Computers. This software, originally released in 1991, is used by: Federal Highways Administration (FHWA), used at six national locations; U.S. Bureau of Land Management: adopted for use at eight locations in the Western US; State Departments of Transportation (DOTs): over 40 states; Over 50 universities in the U.S. and overseas for teaching and research; and Consultants in the United States and overseas. He is also the author /co-author of the design manuals: Micropile Design and Construction Guidelines, Federal Highway Administration, FHWA - SA - 97 - 070, 382 pages; and A Hypermedia Micropile Design Manual - CD Version, Federal Highway Administration, Vancouver, Washington, December.

17: Professor Charles W.W. Ng is a Professor at the Department of Civil and Environmental Engineering, the Director of Geotechnical Centrifuge Facility and an Associate Dean of Engineering at the Hong Kong University of Science and Technology. He obtained his Ph. D from the University of Bristol, UK in 1992; and subsequently joined the University of Cambridge as a Research Associate before returning to Hong Kong in 1995. He was elected as an Overseas Fellow at Churchill College, Cambridge, in 2005. Professor Ng is a Charted Civil Engineer (CEng) and Fellow of the Institution of Civil Engineers (FICE), the American Society of Civil Engineers (FASCE), the Hong Kong Institution of Engineers (FHKIE) and Hong Kong Academy of Engineering Sciences (FHKEng). Recently he has been elected as Chang Jiang Scholar (Chair Professorship) by the Ministry of Soil Mechanics and appointed as a Board Member of the International Society of Soil Mechanics and Geotechnical Engineering. Currently he is Associate Editor of the *Canadian Geotechnical Journal*. He has published widely on slope instability problems, behaviour of saturated and unsaturated soils, soil-structure interaction problems such

as tunnels, piles and deep excavations. He is the main author of two reference books including *Soil-Structure Engineering of Deep Foundations, Excavations and Tunnels* and *Advanced Unsaturated Soil Mechanics and Engineering*.

18: Dr Alex Li is currently the senior geotechnical engineer, heading the Landslip Investigation Section of the Geotechnical Engineering Office (GEO) of the Civil Engineering and Development Department, Government of the Hong Kong Special Administrative Region. He is responsible for investigation of significant landslides. Dr Li obtained his PhD from Manchester University (U.K.) in 1988 and subsequently worked as a geotechnical engineer in Ove Arup & Partners (London), before joining the GEO in 1993. Dr Li is a Chartered Civil Engineer and a member of the Institution of Civil Engineers, and the Hong Kong Institution of Engineers. He has published many papers on investigation of landslides as well as slope greening. Dr Li has also assisted in the formulation of works policy to enhance slope safety in Hong Kong.

19: Len Johnstone

Mr. Johnstone has thirty years of practical experience in diverse transportation development and planning projects augmented by his Chartered Professional Engineering status in Australia. His professional background includes multi-modal transportation planning (short, medium and long-term), traffic engineering, economic and financial feasibility analyses as well as the optimization and development of public transport strategies (bus, light rail, heavy rail). Projects have focused on the development of analytical tools such as transport models to simulate the mathematical impact of transport infrastructure projects.

Mr. Johnstone has completed assignments in Eastern Europe, Asia, Australia, the Middle East and the United States. He was the professional responsible for the development of city transport models in Cairo, Dhaka and Bangkok as well as cities in his native Australia. He is considered an expert in the use of major transport planning software packages such as CUBE/TRIPS, STRADA, EMME/2 and UTPS. He is also familiar with other major transport modelling packages such as Saturn and VISUM. In particular, he received an award for an excellent presentation at the CUBE Annual User Conference for his presentation on the Integration of Economic Evaluation into the Transport Model. He is very familiar with the development and implementation of transport models in particular in the evaluation of transport infrastructure projects.

Mr Johnstone also is an Honorary Guest Lecturer in Transport Planning Courses in Thailand.

20: Nate Chanchareon

Nate Chanchareon is a Regional Director for Citilabs, who leads business operations in the Asia/Pacific region. He has many years of experience in traffic engineering, transportation planning, and model development, and has worked throughout the US, Europe, and Asia. Chanchareon has worked with many of the popular software tools used for traffic and transportation planning, including Cube and ArcGIS, as well as several traffic micro simulation packages. His project work includes advanced traffic operations, highway planning, corridor studies, signal operations, congestion pricing, and multi-modal-transportation planning including bus rapid transit (BRT) and HOV/HOT systems. He has a thorough background in the development and application of transportation models. He has successfully completed transportation projects throughout California, Georgia, and Hawaii. Chanchareon is a member of the Institute of Transportation Engineers (ITE) and serving as the President of the San Francisco Bay Area Section, 2009/2010.

21: Kali Nepal

Dr. Kali Nepal is a lecturer of traffic and transportation engineering at Griffith University. His research expertise includes transportation network optimisation, transportation system analysis, transport demand modelling, transport economics and behavioural models. He has published a dozen of papers in scientific journals and international conferences over the last five year. In this workshop, Dr Nepal will start with the basic concepts on discrete choice analysis including its applications in traffic and transport modelling. Discrete choice analysis requires both behaviour model and parameter estimation. Behavioural models will be covered next that include Logit model, GEV models, Probit model and Mixed-logit model. Complexity of the parameter estimation process varies from simple statistical estimation to complex estimation by simulation. These processes will be covered in detail. At the end, examples of transportation applications will be discussed.

22: Prof. Helmut F. Schweiger

Helmut obtained his Ph.D. form the University College of Swansea, UK and teaches courses on Advanced Soil Mechanics and Computational Geomechanics at the Graz University of Technology, Austria. He has over 15 years experience in development and application of the finite element method in geotechnics. As a member of several international committees Helmut is involved in formulating guidelines and recommendations for the use of finite elements in practical geotechnical engineering.

23: Mr. Dennis Waterman, MSc.

Dennis obtained a Masters degree in Civil Engineering at Delft University of Technology before he joined Plaxis in 1996 as a programmer. He has been involved for several years in creating the Windows user-interfaces of the new Plaxis products before shifting his main field of activity to user support and lecturing courses in 2002. Since 2006 he is the international course coordinator. As a lecturer he is mostly involved in the courses in Latin-America and Australia and as such has received several teaching recognitions from universities in Mexico, Colombia and Ecuador.