



ΕΛΛΗΝΙΚΗ ΕΠΙΣΤΗΜΟΝΙΚΗ ΕΤΑΙΡΕΙΑ ΕΔΑΦΟΜΗΧΑΝΙΚΗΣ & ΓΕΩΤΕΧΝΙΚΗΣ ΜΗΧΑΝΙΚΗΣ

Τα Νἑα της Ε Ε Ε Ε Γ Μ



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12 Iouvíou 2009

Εθνικό Ιδρυμα Ερευνών (8οσ. Κωνστοντίνου 48)

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Θ. Π. ΤΑΣΙΟΣ – 80 χρόνια

Την Παρασκευή 12 Ιουνίου 2009 το Τεχνικό Επιμελητήριο Ελλάδος διοργάνωσε, στο Εθνικό Ίδρυμα Ερευνών, τιμητική εκδήλωση για τα 80 χρόνια του Καθηγητή Θ. Π. Τάσιου, ιδρυτικού μέλους της ΕΕΕΕΓΜ και Γενικού Γραμματέα της Εκτελεστικής Επιτροπής της από το 1965 μέχρι το 1970.

Παρουσία ενός πολυπληθούς ακροατηρίου ο Πρόεδρος του ΤΕΕ Γιάννης Αλαβάνος αναφέρθηκε στις «Δραστηριότητες Θ.Π.Τ. στο ΤΕΕ», ο Πρύτανης ΕΜΠ Κώστας Μουτζούρης αναφέρθηκε στην «Προσφορά Θ.Π.Τ. στο ΕΜΠ», η Αναπληρωτής Καθηγήτρια ΕΜΠ Έλλη Βιντζηλαίου αναφέρθηκε στην επιστημονική έρευνα του Θ.Π.Τ. και στην συνεισφορά του στην σύνταξη δεδάδων κανονισμών ανά τον κόσμο, ο Πολιτικός Μηχανικός Πάνος Βέττας αναφέρθηκε στην «Μελετητική και κατασκευαστική δραστηριότητα» του Θ.Π.Τ., ο Καθηγητής Γιώργος Μπαμπινιώτης αναφέρθηκε στα «Γλωσσικά πάρεργα» του Θ.Π.Τ. - στην γλωσσοπλαστική και λοιπή περί την ελληνική γλώσσα δραστηριότητά του, ο Καθηγητής Κωνσταντίνος Βουδούρης αναφέρθηκε στα «Φιλοσοφικά έργα» του Θ.Π.Τ., η Κλαίρη Παλυβού, Αναπληρωτής Καθηγήτρια ΑΠΘ, στις «Δράσεις για την Αρχαία Ελληνική Τεχνολογία» και, τέλος, ο Ομότιμος Καθηγητής του Πολυτεχνείου Miλάνο Giorgio Macchi στις «International activities of T.P.T.».

Στην εκδήλωση έγινε, επίσης, προβολή της ταινίας των Θ.Π. Τάσιου, Γ. Πολύζου και Ν. Μήκα «Δίολκος για 1500 χρόνια», που αναφέρεται στο μεγάλο τεχνικό έργο της αρχαιότητας για το πέρασμα των πλοίων από τον λιμένα του Λεχαίου – βόρειο λιμένα της αρχαίας Κορίνθου επί του Κορινθιακού Κόλπου, στο νότιο λιμένα των Κεχρεών – επί του Σαρωνικού Κόλπου πάνω από τον Ισθμό της Κορίνθου.

Τέλος, στην εκδήλωση παρουσιάστηκε ο τόμος τον οποίον εξέδωσε το ΤΕΕ με τίτλο: Θ. Π. ΤΑΣΙΟΣ Πρόσφατο Δημοσιευμένο Έργο 1996 - 2008. Αντιγράφουμε τον πρόλογο του Προέδρου του ΤΕΕ:

Για το Τεχνικό Επιμελητήριο της Ελλάδας η παρούσα έκδοση αποτελεί, συνάμα, χρέος και τιμή.

Ο καθηγητής Θεοδόσης Τάσιος διατυπώνει δημόσιο λόγο για περισσότερο από πενήντα χρόνια και από περισσότερα του ενός βήματα: Από τις αίθουσες των αμφιθεάτρων, από τα επιστημονικά του συγγράμματα, από τις στήλες του ημερήσιου τύπου. Για θέματα τεχνικά, όσο και για θέματα ποίησης και φιλοσοφίας. αλλά και με γενναίες παρεμβάσεις σε δύσκολα θέματα καυτής επικαιρότητας. Ετσι, όλα τα μέλη του ΤΕΕ, κατά τον έναν ή τον άλλον τρόπο, έχουμε υπάρξει μαθητές του. Και όσα μας δίδαξε είναι, όντως, πολλά.

Για το επιστημονικό έργο του καθηγητή Τάσιου, για το κύρος του και το διεθνές του εκτόπισμα, έχουν μιλήσει πολλοί, εγκαιρότερα και εγκυρότερα από εμένα. Δεν θα μπορούσα, όμως, να μην υπογραμμίσω ένα στοιχείο που διατρέχει αυτό το έργο και που δεν είναι καθόλου αυτονόητο, ακόμα και σε πονήματα μεγάλης επιστημονικής εμβέλειας: Είτε σκέπτεται για το οπλισμένο σκυρόδεμα είτε γράφει για το αντιτεχνοκρατικό σύνδρομο του Αρχιμήδη ή για την Υδραυλο του Ηρωνα του Αλεξανδρέα, ο καθηγητής Τάσιος μας μεταδίδει ένα επιστημονικό ήθος που ανιχνεύει εκλεκτικές συγγένειες σε εκείνο των πρώτων φιλοσόφων της Ιωνίας. Είναι το ήθος που δεν θέλει τον τεχνικό επιστήμονα αποχυμωμένο και «άξεστο των θαυμάτων». Ο τεχνικός επιστήμονας που μας προτείνει ο καθηγητής Τάσιος, έχοντας εφαλτήριο τον «θαυμασμό» - με την αρχική σημασία της έκπληξης, της εκτίμησης και της μέθεξης - ερευνά και θεωρεί τους νόμους της ύλης ως νόμους ενός σύμπαντος και θαυμαστού κόσμου. Όμως για τον καθηγητή Τάσιο η Τεχνολογία δεν είναι μόνον ένα μέσο για να εκπλησσόμαστε γόνιμα, να ερμηνεύουμε και να συμπληρώνουμε τη Φύση. Η Τεχνολογία δεν είναι ένα λυχνάρι του Αλαντίν χωρίς ιδεολογία και χωρίς κοινωνικό στίγμα αναφοράς. Ο καθηγητής Τάσιος μας διδάσκει, για να χρησιμοποιήσω εκ νέου τα λόγια του, ότι ο τεχνικός επιστήμονας δεν πρέπει να είναι «ένας ιδιωτεύων διανοούμενος». Η επιστημονική σκευή της Τεχνολογίας είναι μια παρακαταθήκη που ο τεχνικός επιστήμονας οφείλει να συνεισφέρει στο κοινωνικό σύνολο. Γιατί, αν δεν προαχθεί η παραγωγή και, μέσα από αυτήν και η οικονομική δικαιοσύνη, δεν προάγεται και η Δημοκρατία.

Και εδώ, στην αντίληψη για τον κοινωνικό ρόλο του τεχνικού επιστήμονα, εντοπίζεται το σημαντικότερο, ίσως, κομμάτι της διδακτικής προσφοράς του καθηγητή Τάσιου. Γιατί, πάνω από όλα, μας έμαθε ότι αναγκαίο όρο για την ευδόκιμη υπόσταση του τεχνικού επιστήμονα αποτελεί αυτό που ο ίδιος ήταν και είναι σταθερά και ακαταπόνητα όλα αυτά τα χρόνια: Πολίτης έτοιμος και αποφασισμένος για την πεμπτουσία της Δημοκρατίας. Ετοιμος δηλαδή και αποφασισμένος να μετέρχεται την όσμωση της αγοράς, τον διάλογο, την αντιπαράθεση, την διακινδύνευση.

Ο καθηγητής Θεοδόσης Τάσιος, ακόμα και σε δύσκολες εποχές, δεν ανέστειλε την έκφραση της γνώμης του. Μακριά από ελιτίστικους αναχωρητισμούς και χωρίς ποτέ να καταδεχθεί οποιαδήποτε προνόμια καθηγητικής αυθεντίας, λειτουργεί με την παρρησία, την ακρίβεια και την νηφαλιότητα του λόγου του, σαν ένας γόνιμος καταλύτης στην δημόσια ζωή του τόπου μας.

Η παρούσα έκδοση δημοσιευμάτων του καθηγητή Τάσιου γίνεται με την ευκαιρία των ογδοηκοστών γενεθλίων του. Οφείλω, όμως, να διαλύσω κάθε παρεξήγηση: Δεν έχει καμία χροιά πρεσβείων ηλικίας.

«Απ΄ όλη μου τη ζωή προσπάθησα να φτιάξω μια πετρώδη νεότητα» λέει ο ποιητής και ο στίχος του αρμόζει κατ΄ εξοχήν στον καθηγητή Τάσιο. Και πιστεύω ότι εκφράζω το σύνολο των μελών του Τεχνικού Επιμελητηρίου λέγοντας, ότι προσβλέπουμε σε αυτόν σαν προς ένα από τα ριζοσπαστικότερα και μαχητικότερα στελέχη μας.

Αλλωστε, ποιος από εμάς θα μπορούσε να γράψει, με την δύναμη του καθηγητή Τάσιου;: «Της Χώρας οι κοιμισμένοι ξυπνάτε: Οι ρινόκεροι φθάσανε».

Γιάννης Αλαβάνος Πρόεδρος του ΤΕΕ







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Το **Ελληνικό Τμήμα Αντισεισμικής Μηχανικής** (ΕΤΑΜ), με το Εργαστήριο Εδαφομηχανικής του ΕΜΠ και το Ιαπωνικό Τμήμα Αντισεισμικής Μηχανικής

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ΕΠΙΣΤΗΜΟΝΙΚΑ ΑΡΘΡΑ

Το ἀρθρο αυτό αποτελεί συμμετοχή συναδέλφων στο Διεθνές Συνέδριο Βαθιών Θεμελιώσεων – Μεικτών Θεμελιώσεων – Πασσάλων Γεωθερμίας - International Conference on Deep Foundations – CPRF – Energy Piles, που διοργανώθηκε από την επιτροπή TC 18 και το Institute and Laboratory of Geotechnics · TU Darmstadt και διεξήχθη στο συνεδριακό κέντρο του αεροδρομίου της Frankfurt am Main την 15^η Maïou 2009.

Piled raft foundations: Load distribution and interaction effects

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1 Introduction

The response of a pile group under axial loading is considered to be among the factors that most affect the superstructure behaviour for gravity loading. Capacity based design of structures, still used in many cases, limits the soilstructure interaction mechanism to the determination of the bearing capacity of the group. The suitability of the conventional load capacity approach to predict the actual behaviour of pile foundations is considered questionable despite the fact that it is still widely used in practice. In addition, the development of new design criteria, renders a new displacement based design concept more adequate for piled raft foundations.

There exist many procedures for estimating the response of pile groups, ranging from application of empirical relationships and simple closed form solutions to sophisticated nonlinear numerical procedures. More specifically, based on the experience gained through the research of the last decades, empirical relationships were proposed to estimate the reduction factors on both the bearing capacity and the stiffness of a group because of the interaction between the piles. Specific values for these factors have been proposed in tabular or graphical form resulting from simplified analyses based on elastic continuum analysis and the principle of superposition. However, a superstructure based on pile foundation is a three-dimensional (3-D) physical system presenting non linear behaviour arising from soil nonlinearity and interaction effects, while additional factors from the superstructure may be included. Taking into account the complexity of a straightforward analysis incorporating the above factors, the notion of sub-structuring (Bath and Wilson 1976) is used to effectively model both soil and structural nonlinearities. According to the concept of substructuring, a superstructure based on a pile foundation can be subdivided in the superstructure and the pile foundation. The two substructures can be solved separately in that way that both solutions provide the same stresses and displacements at the common boundary (compatibility conditions). It is, therefore, possible to couple a nonlinear analysis of a complex system by using, independently, a nonlinear superstructure analysis code and a nonlinear foundation analysis code. As a result, an accurate solution and an optimum design of the superstructure and the pile foundation may be achieved, as the foundation stiffness corresponding to a given load combination can be calculated and precisely

introduced in the analysis. The application of this approach allows for efficient analysis of very large finite elements or finite difference systems (O'Neil et al. 1977, Katzenbach et al. 1998, de Sanctis and Mandolini, 2005, Comodromos et al. 2009).

Three-dimensional (3-D) finite element analyses revealed a significant interaction between the piles in a group with a 3.0D spacing, which was still notable even when the spacing was increased to 6.0D (Katzenbach and Moormann 1998). Using 3-D nonlinear analysis Comodromos (2004) demonstrated that, in the case of fixed head pile groups embedded in clay with their tips resting in sand, the group bearing capacity efficiency factor did not deviate significantly from unity. The same conclusion has been drawn from an extensive parametric analysis of pile groups in clayey soils (Comodromos and Bareka 2009). In contrast, it was found that the interaction affects the group stiffness efficiency factor considerably. It was also revealed that the stiffness efficiency factor depends not only on the pile arrangement, but on the settlement level as well. Moreover, Comodromos and Bareka (2009) proposed a simplified relationship, with the capability of predicting the response of pile groups, provided that the response of a single pile is known. According to their results the proposed relationship was able to predict the response of a fixed head pile group in clayey soils with a reasonable level of accuracy.

The aforementioned contributions are mainly concentrated on pile resistance neglecting the contribution of the raft, as adopted in common practice by engineers in many countries and prescribed by the majority of existing codes and regulations (de Sanctis and Mandolini 2005). Such an approach is quite conservative for soils of medium resistance and compressibility. In the case of very compressible soil formation, depending on the foundation configuration, the response of piled raft foundations, for a small level of settlements, is mostly due to pile resistance and, therefore, the stiffness efficiency factor remains unaffected by the raft contribution. On the contrary, when the settlement level increases the raft resistance increases as well and influences both the bearing capacity and the stiffness of the foundation.

With the aim of investigating and quantifying the contribution of the raft, as well as the distribution of the applied load on the raft and the characteristic piles, a 3-D nonlinear analysis for various group configurations has been carried out and interesting conclusions were drawn regarding the effect of the raft on the bearing capacity and the stiffness of pile groups with relation to the settlement level.

2 Raft contribution

According to Poulos (2000) *favourable* circumstances (situations with significant raft contribution) are those corresponding to soil profiles consisting of relatively stiff clays or relatively dense sands. With the aim of more precise investigation of the effect, Bareka (2007) carried out a parametric 3-D nonlinear numerical analysis of pile groups with caps in contact to the soil. More specifically, four types of clayey soil and three types of sandy soil were examined, symbolised by C1, C2, C3, C4 and S1, S2, S3, respectively, covering clays from soft to very stiff and sands from loose to very dense. Table 1 summarises the properties of the above soil types, while Fig. 1 illustrates the finite difference mesh used in the numerical analysis carried out using the computer code *FLAC*^{3D} (2005).

The thickness of the pile cap was twice the pile diameter and the load was uniformly distributed in all cases. The elastic perfectly-plastic Mohr-Coulomb constitutive model was used to simulate the behaviour of the soil, while a linear Coulomb shear-strength criterion was used for the interface elements.



Fig. 1 Finite difference grid for a 3 x 3 pile group with cap; cross section at *y*=0

	Soil types						
Soil parameters	C1	C2	C3	C4	S1	S2	S3
Bulk modulus K (MPa)	8.3	11.1	27.8	33.3	10.0	25.0	88,9
Shear modulus G (MPa)	1.8	4.3	11.4	15.4	6.0	11.6	29.6
Undrained Shear Strength c_u (kPa)	25	50	100	150			
Soil – Pile adhesion, c a (kPa)	25	50	72	75			
Angle of friction $oldsymbol{\phi}$ (deg)					30	35	40
Soil – Pile angle of friction q a (deg)					28	31	35
Unit weight Y (kN/m ³)	20	20	20	20	20	20	20

Table 1Geotechnical properties of soil types C1, C2, C3,
C4, S1, S2 and S3

Figure 2, left column, illustrates the response of a 3 x 3 pile group in soft clay (C1), while on the right hand the response of the same group configurations in very stiff clay (C4) is presented. It can be concluded that in the case of soft clay the effect of the raft can be neglected, while in the case of very stiff clay the effect becomes noticeable at a settlement level of the order of 10%D. Apparently the effect becomes more affecting as pile spacing increases.

The contribution of the raft is of greater importance for pile groups in sandy soils. It can be seen that even in the case of loose sands the effect can be neglected for settlements levels less than 4%D, Fig. 3. On the contrary, in the case of pile groups in very dense sandy soils the contribution of the raft is comparable to that of the piles. It can therefore be concluded that, for relatively small pile groups and for settlement levels of the order of 1 to 3%D (which corresponds to single pile allowable load), the effect of the raft can be neglected with the exception of dense and very dense sandy soil. Thus, the conclusions regarding the response of fixed head pile groups with *free-standing* pile cap can satisfactorily be used in the case of clayey soils and loose sands.

3 Load distribution to piles and the raft

It is widely accepted that in the case of fixed head piles, for the same settlement, the piles within the group carry different proportions of the applied load (Poulos and Davis 1980, Poulos 1989, Comodromos 2004, Comodromos and Bareka 2009, Comodromos et al. 2009). More specifically,



Fig. 2 Comparison of the response of a pile raft in soft and very stiff clayey soils (after Comodromos and Bareka 2008)





for the same settlement the central pile carries the lowest load, whereas, the external piles carry the highest. At a certain level of settlement, where the surrounding soil yields considerably and the influence of interaction vanishes, all the piles behave the same. Within the framework to investigate the influence of the raft to the design of a bridge foundation, Comodromos et al. (2009) carried out a 3-D analysis for fixed head pile groups and piled rafts. Adequate values for soil parameters were used based on the results of a geotechnical investigation and the adjustment according to a 3-D nonlinear back analysis of a pile test. Figure 4 illustrates the finite difference mesh utilized in the analysis of the 3 x 3 pile group configuration with 3.0D spacing, a pile diameter D = 1.00 and pile length L = 42 m, The mesh consisted of 21840 elements, 23624 nodes, and 360 structural elements, simulating also the 3.0 m thick concrete pile cap.



Fig. 4 Finite difference mesh simulating a 3 x 3 raft pile group, *D*=1.00 m, (after Comodromos et al. 2009)

Figure 5 illustrates the numerically derived loaddisplacement curves for the 3×3 pile group with pile cap and a 3 x 3 pile group with no pile cap, but their heads restricted to exhibit the same settlement. The bold line with circle markers shows the response of the 3 x 3 group with pile cap, which can be separated to the contribution of the piles (thin line with diamond markers) and that of the raft (thin line with square markers). Separate analyses have also been carried out for the group without cap and for the raft without piles. The bold line with asterisk markers corresponds to the response of the 3 x 3 group without cap, whereas, the bold line with triangles stands for the raft load divided by the number of piles. Valuable conclusions can be drawn when comparing the load-settlement response of the above-mentioned configurations. A notable conclusion is that the stiffness of the pile group remains unaffected by the cap. This should be attributed to the fact that, for low level settlements the contribution of the raft is practically negligible in this particular case of very compressible surface soil material.

Figure 6 illustrates the variation of the response of the characteristic piles with the level of settlements for the 3 x 3 fixed head group with no cap (piles with no cap, but restricted to have the same pile head settlement). It can be seen that the central pile P_3 carries 65% of the mean load. This proportion increases with the level of settlement and finally rises to 100% at a settlement level of 3%D, where all the piles of the group share the same mean load. At this point no effect of pile-soil-pile interaction is observed, as

the surrounding soil has completely yielded. In contrast to the central pile, the corner pile P_1 initially carries 115% of the mean load. The response of the perimetric pile, pile P_2 , is less affected by the interaction.



Fig. 5 Comparison of load-settlement response of 3 x 3 pile group with and without cap, (after Comodromos et al. 2009)



Fig. 6 Variation of normalised axial load with normalised settlement for characteristic the piles of a 3 x 3 layout with no cap, (after Comodromos et al. 2009)

When examining the case of the 3 x 3 group with pile cap it is realized that the contribution of the raft alters the behaviour of the characteristic piles. Figure 7 shows the response of these piles together with the load carried by the raft. The modes of the characteristic piles remain the same as those without the cap. Initially, when the raft contribution is almost negligible the response remains unaffected. However, as the settlement level increases the proportion of the load carried by the piles decreases accordingly because of the raft's contribution. It is worth noticing that the effect of the raft continues after soil yielding and the proportion of the load undertaken by the characteristic piles decreases at a constant rate.

Figure 8 illustrates the load proportion carried out by the characteristic piles normalised to the mean total load of the piles N_{p_r} given by Equation 1. It is understood that the modes are very similar to those of the pile group with no cap.

$$N_{p} = \frac{\text{total applied load - load caried by the raft}}{\text{number of piles}}$$
(1)

It should be highlighted that the rigidity of the pile cap may significantly affect the response of the characteristic piles, particularly when the load is not uniformly applied. Eventually, when a point load is applied and the cap is very flexible, the load is mainly distributed to the vicinity of the point where it is applied.



Fig. 7 Variation of normalised axial load with normalised settlement for the characteristic piles of a 3 x 3 layout with cap [pile and raft load normalised to the total applied load, (after Comodromos et al. 2009)]



Fig. 8 Variation of normalised axial load with normalised settlement for the characteristic piles of a 3 x 3 layout with cap, [pile and raft load normalised to the load carried by the piles, (after Comodromos et al. 2009)]

To investigate this effect the 3 x 3 pile group, D = 1.00 m and L = 38.0 m was examined with different pile cap thickness and with no cap (the restriction of common settlement on the pile heads is always valid).A load corresponding to the allowable load (settlement level of the order of 2%D) was applied at the centre of the pile group. The results are plotted in Fig. 9, where a very high diversification can be observed when pile cap thickness is less than the pile diameter. In this case, the applied load is mainly distributed to the piles in the vicinity of the loaded region. When the pile cap rigidity increases the external piles start to carry a higher proportion of the load because of their position and the interaction effect. When the cap thickness is three times higher than the pile diameter the rigidity renders the cap practically a rigid body, and therefore the location and the form of the applied load does not affect the distribution to the piles of a group. In that case the pile-soil-pile interaction remains the main factor affecting the load distribution, depending on the pile group configuration and the settlement level. The piles of the group with no cap always present a higher proportion of load than those with a cap. The difference between bold and dash lines corresponds to the load carried by the raft.



Fig. 9 Variation of normalised pile load with cap thickness for the characteristic piles of a 3 x 3 layout with cap for the allowable load, [pile and raft load normalised to the total applied load, (after Comodromos et al. 2009)]

Eventually, when the load carried by the characteristic piles is normalised to the sum of the load carried by the piles and not to the total load applied, the corresponding curves coincide, demonstrating that the effect of the raft is the same no matter what the position of the pile in a group is. It should be noted that normalizing the raft to the pile diameter might be useful for small range of pile group geometry.

4 Use of the results to the design process

For the design of superstructures, such as bridge projects, a performance-based design approach is adopted, including many load case combinations together with partial factors of safety. From that approach various load envelopes arise and therefore every pier foundation has to be solved for various loads, rendering the analysis extremely demanding, computationally, if a 3-D nonlinear analysis is to be carried out. An alternative approach can be applied to facilitate the calculation process. Assuming that a 3-D nonlinear analysis has been carried out and the response of the piles and the raft is established, the stiffness of the pile head and the raft subjected to vertical loading equal to the allowable load can be defined as a linear spring. Then the pier can be solved using linear elasticity and simulating the cap with plate or shell elements and the piles with springs. All loading cases can be incorporated in such an analysis and the envelope of stresses, moments, and reinforcements can then be provided.

Pile	Pile	Pile Diameter	Spring Stiffnesses						
layout	Length		P1		P2		P3		Soil
Decision -		1.00	312	(64%)	259	(53%)	206	(42%)	2.94
3x3	38.0 m	1.20	382	(45%)	316	(37%)	264	(31%)	2.37
		1.50	432	(40%)	367	(34%)	324	(30%)	1.90
Po 6 0		1.00	342	(53%)	291	(45%)	246	(38%)	3.15
	42.0 m	1.20	406	(44%)	343	(37%)	292	(31%)	2.56
P, • • •		1.50	476	(43%)	417	(38%)	363	(33%)	1.94
		1.00	397	(81%)					1.77
2x2	38.0 m	1.20	440	(51%)					1.37
• •		1.50	463	(43%)					1.00
	/	1.00	422	(65%)					1.81
A	42.0 m	1.20	500	(54%)					1.22
P, O	122-0000-0011	1.50	514	(47%)					0.98

Pile spring stiffness is given in MN/m, while soil spring in M

 Table 2 Spring values simulating pile and soil response under vertical loading

Table 2 summarizes the spring values simulating the response of piles and soil under the raft as defined within the process of parametric analysis. They can then be used in a simplified numerical analysis, provided that the applied load always remains less than the level of the allowable load. Next to the absolute spring value, the ratio of the spring stiffness of the piles in a piled raft to the spring stiffness of a single pile in the same subsoil and the same applied mean load is given in parenthesis. An example of a simplified application is given a little further in the text, corresponding to a 2 x 2 pile group, D = 1.50 m and L = 38.0 m. The applied load of 16.5 MN corresponds to that of the outermost pier of the bridge and is transferred to the pile cap through two circular columns located between the piles, Fig. 10. The Finite Element code Sofistik (2003) was used and the solution was achieved in less than a minute of CPU time. Figure 10 illustrates the isovalues of settlements, the combination of the aforementioned analysis. Apparently, the solution of the aforementioned approach with the results of a 3-D nonlinear analysis, providing the precise response of characteristic piles in a group, is quiet efficient for an appropriate design of a pile foundation, in which the benefits from the contribution of the raft are taken into account.



Fig. 10 Vertical displacement contours of a 2 x 2 pile cap under the load of the outmost pier of the bridge, (after Comodromos et al. 2009)

5 Conclusions

A methodology allowing an efficient and economical design of pile foundations, taking into account the contribution of the raft, has been presented. Appropriate design values for soil shear strength, deformation modulus and information regarding shear strength mobilization at the soil-pile interface were determined by back-figuring from the results of the pile load test. Subsequently, the response of pile groups was numerically established and the distribution of the applied load to the raft and the characteristic piles was calculated. According to the results of the numerical analysis, the existence of the raft does not affect the pile head vertical stiffness, for loadings less than the allowable load. This should be attributed to the fact that for low level settlements, the contribution of the raft is practically negligible in this particular case of very compressible surface soil material.

On the contrary, the ultimate resistance of the group (combined resistance of piles and raft) significantly increases, leading to higher values of allowable load. This has a significantly beneficial effect on the design of piled raft foundations. The mode of distribution of the applied load to the characteristic piles of a group with and without cap remains almost the same with two main differences. The piles of the group with no cap always present higher proportion of load than those with a cap. Contrary to fixed head groups with no cap, where from a certain level of loading all piles behave the same carrying 100% of the mean load, in the case of piled raft foundations the proportion is always less than 100% and is decreasing as the applied load increases.

Interesting conclusions are also drawn regarding the effect of the thickness of the pile cap in the case of non-uniform vertical loading. When the pile cap thickness is less than the diameter of the piles, the applied load is mainly distributed to the piles in the vicinity of the loaded region. For conventional pile spacings of 5 pile diameters or less, when the cap thickness is higher than three times the pile diameter, the rigidity renders the cap practically a rigid body and therefore the location and the form of the applied load does not affect the distribution to the piles of a group. In that case the pile-soil-pile interaction remains the main factor affecting the load distribution, depending on the pile group configuration and the settlement level.

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ΑΝΑΣΚΟΠΗΣΗ ΓΕΓΟΝΟΤΩΝ ΓΕΩΤΕΧΝΙΚΟΥ **ΕΝΔΙΑΦΕΡΟΝΤΟΣ**



επιστημονική **ΕΛΑΦΟΜΗΧΑΝΙΚΗΣ** & ΓΕΩΤΕΧΝΙΚΗΣ ΜΗΧΑΝΙΚΗΣ

Διάλεξη David Hight

Την Δευτέρα, 4 Μαΐου 2009, πραγματοποιήθηκε στην Αίθουσα Εκδηλώσεων της Σχολής Πολιτικών Μηχανικών ΕΜΠ στην Πολυτεχνειούπολη Ζωγράφου η δέκατη εκδήλωση του εφετεινού κύκλου των δραστηριοτήτων της ΕΕΕΕΓΜ με την διάλεξη του Dr. David Hight «The Nicoll Highway Collapse, Singapore».

Περίληψη Διάλεξης

On the 20th of April 2004 the temporary support system for a 33m deep excavation in soft clay for a cut-and cover section of tunnel for the new Circle Line in Singapore collapsed. The support system comprised diaphragm walls, two jet grout layers and steel struts restrained by kingposts. The collapse occurred after the 9th level of struts had been installed and when the upper grout layer was being excavated to create an excavation depth of 30m. The presentation provides background to the construction sequence and describes the key observations made prior to collapse. Reference is made to the errors in design and method of analysis.

The post collapse investigations into the ground conditions, the jet grout, and the strut-waler connections are described. An explanation is offered for the triggering of the collapse that relies on the results of these investigations and which is consistent with the time at which the collapse was initiated, the observed distortions to the strut-waler connections, the trends in the monitoring data and the speed with which the collapse developed. The explanation involves the concept of forced sway failure of the strutwaler connection induced by relative vertical displacement between the diaphragm wall panels and kingposts.

Βιογραφικά Στοιχεία

Dr D.W. Hight, BSc MSc PhD DIC CEng FREng FICE, Senior Consultant

Areas of expertise

Site characterisation, soil and rock properties and their measurement in situ and in the laboratory, onshore and offshore foundations, slopes, earthworks, retaining structures and pavements.

Recent experience

David Hight is one of the founding directors of GCG and has been responsible for specialist advice to consulting firms, contractors, public authorities, solicitors and oil companies on various UK and overseas projects involving foundations, retaining walls, earthworks design, slope stability, site investigation, and laboratory testing.

He has carried out technical audits of the foundations to major projects, including the Gullfaks "C" gravity platform,

Chek Lap Kok Airport (Hong Kong) and the Rion-Antirrion Fixed Link (Greece), and served as expert witness in litigation, involving overwater site investigations, retaining wall failures, offshore foundations, piling and landslides. Recently, he was involved in investigating flow slide failures during construction of two major projects in Bangladesh and was retained by both Nuclear Electric and Magnox Electric in assessing foundation performance and dynamic properties at their power station sites; he has just completed advising on the design and construction of a new port development in Egypt and directing a large-scale investigation into groundwater conditions at a site in southern England. He is currently advising on geotechnical aspects of design for the proposed new terminal at Heathrow Airport. Dr Hight is currently involved in a number of major reclamation projects at Felixstowe, Port of Mostyn and in Malaysia.

Dr Hight has undertaken several applied research contracts, including studies of Anchored Earth, pile capacity in sand, and embankments on soft clay. He has carried out a review of soil sampling and laboratory testing for the Science and Engineering Research Council and was responsible for the ground investigation at the UK soft clay test bed site at Bothkennar.

Dr Hight has published widely on the subjects of soil behaviour, offshore geotechnics, soil sampling, stability problems, and foundations. He delivered the British Geotechnical Society's 1998 Rankine Lecture and was invited to repeat the lecture at fifteen venues worldwide. In 2001 he delivered the theme lecture on soil characterisation at the XVth International Conference on Soil Mechanics and Geotechnical Engineering in Istanbul.

Previous experience

On graduation, Dr Hight worked for 10 years for Scott Wilson Kirkpatrick and Partners on the design of multi-storey buildings and power stations, the construction of the M6 motorway in Cumbria, and subsequently on site investigations and designs for motorways, marine structures, bridge and building foundations and slope stability problems.

Dr Hight's research at Imperial College covered the foundation behaviour of North Sea oil platforms and he was consulted on the design of cuttings in soils and soft rocks, remedial works for coastal landslides, earthworks and pavements for airports and roads in the UK, Middle East and Africa, foundations, retaining structures, and design of soils testing laboratories.

Awards

British Geotechnical Society Prize, 1993 (for work on sampling and testing of soft clay)

Education/Research

Visiting Professor, National University of Singapore, 2000 Visiting Professor, Nangyang Technological University, Singapore, 1999 Royal Society Industrial Fellowship, 1997 -1998

Visiting Professor, Imperial College, London, 1993 - present Visiting Research Fellow, Nottingham University, 1988 -1989 Visiting Research Fellow, Imperial College, London, 1985 - 1987 Visiting Professor, Massachusetts Institute of Technology, 1983 PhD, Imperial College, London, 1983

Lecturer in Soil Mechanics, Imperial College, London, 1978 - 1983 Research Fellow, Imperial College, London, 1975 -1978 MSc (Distinction), Imperial College, London, 1971 BSc (1st Class), Imperial College, London, 1965

Professional Qualifications

Fellow of the Royal Academy of Engineers 2001 - present Fellow of the Institution of Civil Engineers, 1997 - present Member of the Institution of Civil Engineers, 1970 - 1997

Service on Technical/Professional Bodies

Chairman of the International Society's Technical Committee on Soil Sampling, 1994 2001

Member, the International Society's Technical Committee on Small Strain Measurement, 1994 - 2001

Chairman of the Southern Geotechnical Group, 1993 - 1997 Member, Gotechnique Advisory Panel, 1978 - 1981

Year of Birth : 1943

Η ίδια διάλεξη παρουσιάστηκε την επομένη ημέρα, Τρίτη 5 Μαΐου, στο Κεντρικό Αμφιθέατρο της Πολυτεχνικής Σχολής του ΑΠΘ «Παναγής Παναγιωτόπουλος».

Και τις δύο διαλέξεις παρακολούθησε μεγάλος αριθμός συναδέλφων (υπέρ των 100 σε κάθε μία), ενώ επακαλούθησε ενδιαφέρουσα συζήτηση.

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Διάλεξη Γιώργου Μυλωνάκη

Την Δευτέρα, 18 Μαϊου 2009, πραγματοποιήθηκε στην Αίθουσα Εκδηλώσεων της Σχολής Πολιτικών Μηχανικών ΕΜΠ στην Πολυτεχνειούπολη Ζωγράφου εμβόλιμη εκδήλωση του εφετεινού κύκλου των δραστηριοτήτων της ΕΕΕΕΓΜ με διάλεξη του Γιώργου Μυλωνάκη, Αναπληρωτή Καθηγητή του Τομέα Γεωτεχνικής και Υδραυλικής Μηχανικής του Τμήματος Πολιτικών Μηχανικών της Πολυτεχνικής Σχολής του Πανεπιστημίου Πατρών «Ο Σεισμός της L'Aquila της 6ης Απριλίου 2009: Επισκόπηση, Παρατηρήσεις Γεωτεχνικού και Σεισμολογικού Ενδιαφέροντος».



Διάλεξη Πάνου Ντακούλα

Την Τετάρτη, 3 Ιουνίου 2009, πραγματοποιήθηκε στην Αίθουσα Εκδηλώσεων της Σχολής Πολιτικών Μηχανικών ΕΜΠ στην Πολυτεχνειούπολη Ζωγράφου η τελευταία εκδήλωση του εφετεινού κύκλου των δραστηριοτήτων της ΕΕΕΕΓΜ με την διάλεξη του Πάνου Ντακούλα «Μη γραμμική 3Δ προσομοίωση της σταδιακής κατασκευής, πλήρωσης, και σεισμικής απόκρισης φραγμάτων λιθορριπής (CFRDs) και αξιολόγηση της επίδρασης σημαντικών παραμέτρων».

Περίληψη Διάλεξης

Παρουσιάστηκε μία προχωρημένη μεθοδολογία για τη μηγραμμική 3Δ δυναμική ανάλυση φραγμάτων λιθορριπής με ανάντη πλάκα σκυροδέματος που περιλαμβάνει: προσομοίωση της σταδιακής κατασκευής, των καθιζήσεων ερπυσμού, της σταδιακής πλήρωσης της λεκάνης και της σεισμικής απόκρισης, λαμβάνοντας υπόψη τη δυναμική συνίζηση.

Κατά την σταδιακή κατασκευή, η λιθορριπή προσομοιώνεται με το προσομοίωμα Duncan & Chang. Για την δυναμική ανάλυση, χρησιμοποιείται ένα μη-γραμμικό υστερητικό προσομοίωμα, το οποίο βασίζεται στις δυναμικές ιδιότητες της λιθορριπής και παράγει βρόγχους υστέρησης σε συμφωνία με τα πειραματικά δεδομένα για τη μεταβολή του μέτρου διάτμησης και του λόγου απόσβεσης με τη διατμητική παραμόρφωση. Οι πλάκες του σκυροδέματος προσομοιώνονται με ένα ελαστοπλαστικό προσομοίωμα το οποίο λαμβάνει υπόψη την αντοχή σε εφελκυσμό και την χαλάρωση μετά την αστοχία, καθώς επίσης και την αντοχή σε θλίψη και την κράτυνση/χαλάρωση του σκυροδέματος πριν/μετά την αστοχία κατά την ανακυκλική φόρτιση.

Η μεθοδολογία εφαρμόζεται για την μελέτη ενός φράγματος ύψους 150 m σε στενή κοιλάδα. Το φράγμα και οι 23 πλάκες διακριτοποιούνται με πεπερασμένα στοιχεία και προσομοιώνονται ο οπλισμός και όλες οι διεπιφάνειες τριβής. Παρουσιάζεται η σταδιακή κατασκευή και φόρτιση του φράγματος, κατά την οποία αναπτύσσονται ζώνες εφελκυσμού περιμετρικά της πλάκας. Κατά την ισχυρή σεισμική δόνηση ($a_{\rm max}$ =0.35 g) αναπτύσσονται ζώνες θλίψης στο κέντρο της πλάκας. Εξετάζονται σενάρια δυναμικής συνίζησης της λιθορριπής κατά 0, 50 και 100 cm στη στέψη. Εξετάζεται η επίδραση της δυσκαμψίας της λιθορριπής και της κατανομής της. Τέλος, εξετάζεται η επίδραση της στενότητας της κοιλάδας.

Βιογραφικά Στοιχεία

Ο Πάνος Ντακούλας έλαβε το Δίπλωμα Πολιτικού Μηχανικού από το Εθνικό Μετσόβιο Πολυτεχνείο το 1980 και το Διδακτορικό του από το Rensselaer Polytechnic Institute, ΗΠΑ, το 1985, υπό την επίβλεψη του καθ. κ. Γκαζέτα. Στη συνέχεια εργάσθηκε σαν Συνεργάτης Ερευνητής και υπεύθυνος του Εργαστηρίου Εδαφομηχανικής και Εδαφοδυναμικής του Rensselaer Polytechnic Institute. Το 1987 εξελέγη Επίκουρος Καθηγητής στο Πανεπιστήμιο Rice, Χιούστον, και το 1993, Αναπληρωτής Καθηγητής. Το 2001 εξελέγη στο Τμήμα Πολιτικών Μηχανικών του Πανεπιστημίου Θεσσαλίας, όπου τώρα έχει την βαθμίδα του Αναπληρωτή Καθηγητή.

Η έρευνά του επικεντρώνεται στην περιοχή της Γεωτεχνικής Σεισμικής Μηχανικής, με εφαρμογές στην σεισμική συμπεριφορά φραγμάτων, σεισμική συμπεριφορά λιμενικών τοίχων αντιστηρίξεως, πειραματική συμπεριφορά του εδάφους υπό ανακυκλική φόρτιση, ρευστοποίηση, ανάπτυξη καταστατικών προσομοιωμάτων και προχωρημένη αριθμητική προσομοίωση της ανελαστικής συμπεριφοράς συστημάτων εδάφους – κατασκευών.

Διατέλεσε πρόεδρος της Επιτροπής Σεισμικής Μηχανικής και Εδαφοδυναμικής της American Society of Civil Engineers από το 1992 έως 2000, και μέλος της Εκδοτικής Επιτροπής του J. of Geotechnical and Geo-environmental Engineering. Έλαβε το Prakash Award (1995) για σημαντική συμβολή στην έρευνα στο αντικείμενο της Γεωτεχνικής Σεισμικής Μηχανικής. Έχει σημαντική διεθνή εμπειρία από την μελέτη μεγάλων έργων, στα οποία περιλαμβάνονται φράγματα, σημαντικές γέφυρες, συστήματα αγωγών φυσικού αερίου, εξέδρες πετρελαίου, κλπ.





Συνεδρίαση της Τεχνικής Επιτροπής TC 18 της ISSMGE

Η συνεδρίαση έγινε στο συνεδριακό κέντρο του αεροδρομίου της Frankfurt am Main την 14^η Μαΐου 2009 μετά από πρόσκληση του καθ. R. Katzenbach Προέδρου της Επιτροπής TC-18 με αντικείμενο τις μεικτές θεμελιώσεις πασσάλων – κοιτοστρώσεων (Compbined Piled Raft Foundatrions, CPRF). Στη συνεδρίαση πήραν μέρος 40 περίπου αντιπρόσωποι από όλες τις ηπείρους, ενώ συμμετείχε ο Πρόεδρος της ISSMGE καθ. Pedro Sêco e Pinto και ο Αντιπρόεδρος της ISSMGE καθ. Roger Frank.

Έγινε αρχικά εισαγωγή από τον καθ. κ. Katzenbach για τον τρόπο προσέγγισης του θέματος και τη σχετική εμπειρία στη Γερμανία, όπου ήδη υπάρχουν σχετικές οδηγίες. Διαμοιράσθηκε κείμενο ως βάση συζήτησης για την έκδοση διεθνών οδηγιών για την ανάλυση και το σχεδιασμό μεικτών θεμελιώσεων πασσάλων-κοιτοστρώσεων. Στη συζήτηση που ακολούθησε εξετάσθηκε το κείμενο παράγραφο προς παράγραφο και αποφασίσθηκε όπως υποβληθούν στον κ. Katzenbach εντός τριμήνου όλες οι παρατηρήσεις των μελών της επιτροπής ώστε στην τελική του μορφή να είναι πλήρες και απαλλαγμένο από πιθανά προβλήματα εφαρμοσιμότητας. Στόχο αποτελεί η ανάρτηση του τελικού κειμένου στο δικτυακό τόπο της ISSMGE σε όλες τις γλώσσες ώστε να μπορεί να εφαρμοσθεί σε κάθε χώρα από τους μηχανικούς και να μην περιορισθεί η χρήση τους στον ακαδημαϊκό και μόνο χώρο.

Την Ελλάδα εκπροσώπησε ο Αναπληρωτής Καθηγητής Αιμίλιος Κωμοδρόμος, μέλος της TC 18.

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International Conference on Deep Foundations – CPRF – Energy Piles

Το συνέδριο διοργανώθηκε από την επιτροπή TC 18 και διεξήχθη την επομένη μέρα της συνεδρίασης της επιτροπής στο συνεδριακό κέντρο του αεροδρομίου της Frankfurt am Main την 15^η Μαϊου 2009. Στο συνέδριο πήραν μέρος περίπου 140 ερευνητές από όλο τον κόσμο. Το συνέδριο προλόγησε ο Πρόεδρος της ISSMGE Καθ. Pedro Sêco e Pinto, ακολούθησε γενική εισαγωγή από καθ. R. Katzenbach και στη συνέχεια παρουσιάσθηκαν 20 εργασίες οι οποίες κάλυψαν τα πεδία:

- Ανάλυση-Σχεδιασμός, Chairman Καθ. Pedro Sêco e Pinto
- Αριθμητική Πειραματική Προσομοίωση, Chairman Kaθ. Roger Frank
- Δοκιμαστικές Φορτίσεις, Chairman Καθ. Α. Holeyman

- Παραδείγματα εφαρμογών, Chairman Kaθ. J.-L. Briaud
- Πάσσαλοι Γεωθερμίας, Chairman Kaθ. W.V. Impe

Το συνέδριο έληξε με γενική συζήτηση και ανανέωση της συνάντησης στην Αλεξάνδρεια κατά το 17° Παγκόσμιο Συνέδριο της ISSMGE.

Στο συνέδριο παρουσίασε την ακόλουθη εργασία ο Αναπληρωτής Καθηγητής Αιμίλιος Κωμοδρόμος:

Piled raft foundations: Load distribution and interaction effects, Comodromos, E.M., Papadopoulou, M.C., Bareka, S.V.

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SINOROCK2009

International Symposium on Rock Mechanics "Rock Characterization, Modelling and Engineering Design Methods" 19-22 May 2009, Hong Kong www.hku.hk/sinorock

Το Διεθνές Συνέδριο της ISRM για το έτος 2009 πραγματοποιήθηκε στο Χονγκ Κονγκ. Πριν από την έναρξη του συνεδρίου, την Δευτέρα 18 Μαΐου πραγματοποιήθηκε η συνεδρίαση της ISRM προκειμένου να εκλεγεί ο νέος πρόεδρός της. Την ΕΕΕΕΓΜ στη συνεδρίαση εκπροσώπησε ο καθηγητής ΑΙ Σοφιανός. Νέος πρόεδρος της Ένωσης εξελέγη ο καθηγητής Xia-Ting Feng του Ινστιτούτου Βραχομηχανικής και Εδαφομηχανικής της Κινεζικής Ακαδημίας Επιστημών. Ο καθηγητής Feng θα διαδεχθεί τον νυν πρόεδρο της ISRM καθηγητή John Hudson το 2011 στο συνέδριο της ISRM που θα πραγματοποιηθεί στο Πεκίνο.

Οι εργασίες του συνεδρίου πραγματοποιήθηκαν από Τρίτη 19 έως Παρασκευή 20 Μαΐου 2009. Συμμετείχαν 250 επιστήμονες από όλο σχεδόν τον κόσμο.

Οι βασικές θεματικές ενότητες του Συνεδρίου ήταν:

- Μηχανικές ιδιότητες των πετρωμάτων (engineering properties of rocks)
- Βραχομάζα και ασυνέχειες (rock mass and discontinuities)
- Αστοχία, ρωγμάτωση και εκτίναξη (failure, fracture and burst)
- Θεωρίες κινηματικής αστοχίας, διακριτών στοιχείων και προχωρημένα θέματα προσομοίωσης (block theory, dda and other advanced modeling)
- Φράγματα και πρανή (dams and slopes)
- Θεμελιώσεις σε βραχώδεις σχηματισμούς (foundations in rock)
- Σήραγγες (tunneling)
- Υπόγειοι θάλαμοι (rock caverns)

- Εκμετάλλευση ορυχείων και λατομείων (mining and quarry)
- Απόθεση πυρηνικών αποβλήτων (nuclear waste repository)
- Υποστήριξη (support and reinforcement)
- Εκρηκτικά και δυναμικά (blasting and dynamics)
- Διαχείριση κινδύνων και ανατροφοδότηση (risk management and retrofit)
- Παρακολούθηση πεδίου (field monitoring)

Κεντρικές ομιλίες δόθηκαν από τον Malcolm Gibson για τα vέα σιδηροδρομικά έργα του Hong Kong, τον Bezalel Haimson για ένα νέο τριδιάστατο κριτήριο αστοχίας, τον Li Gang για την μέτρηση των τάσεων με μία νέα πειραματική διάταξη, τον Shunsuke Sakurai για ιδιαίτερα θέματα προσομοίωσης υποστήριξης διακλασμένου πετρώματος με ηλώσεις σε σήραγγες, τον Wang Ju για το πρόγραμμα αποθήκευσης ραδιενεργών αποβλήτων της Kivaς και τον John Cosgrove για την γένεση των ρωγμών και τη χρησιμότητα της γνώσης αυτής στη γεωτεχνική μηχανική.

Από ελληνικής πλευράς συμμετείχαν οι Α.Ι. Σοφιανός, Καθηγητής ΕΜΠ, Π.Π. Νομικός, Λέκτορας ΕΜΠ και Π. Γιούτα-Μήτρα, Μεταλλειολόγος Μηχανικός ΕΜΠ, οι οποίοι παρουσίασαν στο Συνέδριο τις επιστημονικές τους ανακοινώσεις: «Response of some lined tunnels within original HB and equivalent MC rock masses» (Nomikos & Sofianos) και «Bolting requirements for non-jointed stratified rock roof» (Yiouta-Mitra & Sofianos).

Στο τέλος του συνεδρίου πραγματοποιήθηκαν τρεις επισκέψεις που αφορούσαν «Υπόγειο Θάλαμο», «Σύστημα αποστράγγισης του Hong Kong με κεκλιμένη σήραγγα» και «Τα Γραφεία Γεωτεχνικής Κρατικής Υπηρεσίας».

Το πρόγραμμα του Συνεδρίου περιελάμβανε επίσης και δύο πολύ ενδιαφέροντα short courses, τα οποία είχαν αθρόα προσέλευση και πραγματοποιήθηκαν την Παρασκευή 15 Μαΐου και την Δευτέρα 18 Μαΐου. Στα πλαίσια του δεύτερου πραγματοποιήθηκε και επίσκεψη σε λατομείο εξόρυξης πετρωμάτων για αδρανή υλικά απ' όπου και οι φωτογραφίες. Στην πρώτη φαίνεται χαρακτηριστική ανεστραμμένη επιφάνεια λόγω υποσκαφής, ενώ στη δεύτερη διακρίνεται ο J. Cosgrove υποδεικνύων χαρακτηριστική διεπαφή μαγματικής διείσδυσης





ΤΙΜΗΤΙΚΕΣ ΔΙΑΚΡΙΣΕΙΣ ΕΛΛΗΝΩΝ ΓΕΩΤΕΧΝΙΚΩΝ -



George Stephenson Medal

Ο Καθηγητής της Ecole Nationale des Ponts et Chaussées of Paris (ENPC) και Αντιπρόεδρος Ευρώπης της International Society for Soil Mechanics and Geotechnical Engineering και φίλος της ΕΕΕΕΓΜ **Roger Frank** έλαβε το **George Stephenson Medal** από το Institution of Civil Engineers του Ηνωμένου Βασιλείου για το άρθρο του στο περιοδικό *Geotechnique* «Experimental pile subjected to long duration thrusts owing to a moving slope» (R. Frank and P. Pouget, *Geotechnique* 58, 2008, 8, 645-658).





Η European Association for Earthquake Engineering καθιέρωσε προσφάτως την **Prof. Nicholas Ambraseys Distin**guished Lecture Award. Σύμφωνα με την απόφαση της Εκτελεστικής Επιτροπής:

"The Prof. Nicholas Ambraseys Distinguished Lecture Award is granted by the European Association for Earthquake Engineering to distinguished European researchers in the field of Earthquake Engineering residing in one of the member countries.

The motivations for the Prof. Nicholas Ambraseys Distinguished Lecture Award are;

- (a) To honour Prof. Nicholas Ambraseys, a pioneer in Earthquake Engineering in Europe.
- (b) To award European leading researchers in the field of earthquake engineering,
- (c) To recognize and encourage outstanding contributions in the field of earthquake engineering in Europe,
- (d) To promote European Association for Earthquake Engineering,

The Prof. Nicholas Ambraseys Distinguished Lecture Award is granted with two year intervals on the occasion of the European Conference on Earthquake Engineering every four years and in between during the General Assembly of European Seismological Commission as one of the keynote lectures in the Earthquake Engineering block. The award recipient will be granted a Commemorative EAEE Plaque."

Ο πρώτος παραλήπτης του βραβείου είναι ο Ομότιμος Καθηγητής ΕΜΠ και ιδρυτικό μέλος της ΕΕΕΕΓΜ **Θεοδόσης Τά**σιος, ο οποίος θα παρουσιάση την διάλεξη κατά την διάρκεια του 14th European Conference on Earthquake Engineering στην Οχρίδα, FYROM, τον Σεπτέμβριο 2010.

Ο Καθηγητής της Σχολής Πολιτικών Μηχανικών του Εθνικού Μετσοβίου Πολυτεχνείου και μέλος της ΕΕΕΕΓΜ Γιώργος Γκαζέτας τιμάται εφέτος ως ο Ομιλητής COULOMB 2009 από την Comité Français de Mécanique des Sols et de Géotechnique.

Η διάλεξη Coulomb με τίτλο : *Seismic Soil–Foundation Interaction on the Verge of "Failure"* θα δοθεί από τον Καθηγητή Γκαζέτα στο Παρίσι την 26^η Ιουνίου (ώρα 2:00-3:30 μμ) **στο Conservatoire des Arts et Métiers.**

Σημειωτέον ότι η Διάλεξη Coulomb είναι η ανώτερη επιστημονική διάκριση της Γαλλικής επιτροπής, έχει δε δοθεί μέχρι σήμερα 6 φορές, από διεθνούς κύρους γεωτεχνικούς (από και εκτός Γαλλίας), αρχής γενομένης από το 2001.

Conférence Coulomb

Programme de la demi-journée Technique et de la Conférence COULOMB Vendredi 26 juin 2009 à partir de 14h00 (CNAM – Amphi Z - 2, rue de Conté 75141 PARIS)

14h00 14h10	Présentation du Conférencier et de la demi- journée Technique Philippe Liausu (Menard)	Président de la Commission Tech- nique						
14h10 15h25	Conférence COULOMB Seismic Soil-Foundations-Structure Interaction on the Verge of "Failure"							
	Professeur G. Gazetas							
15h25 15h45	Discussions / pause							
15h45 16h30	"Interaction sol structure non linéaire : une nécessité pour le dimensionnement parasismi- que des fondations"	Alain Pecker - Cha- risis Chatzigogos - Jean Salençon						
16h30 17h15	"Guide de recommandations AFPS 2010 : AMELIORATIONS ET RENFORCEMENTS DE SOL SOUS ACTIONS SISMIQUES Mise en évidence des différen- tes techniques et présentation des points principaux"	Patrick Berthelot - Serge Lambert						
17h15 17h30	Discussions							

17h30 : COKTAIL

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ΠΡΟΣΕΧΕΙΣ ΓΕΩΤΕΧΝΙΚΕΣ ΕΚΔΗΛΩΣΕΙΣ

Για τις παλαιότερες καταχωρήσεις περισσότερες πληροφορίες μπορούν να αναζητηθούν στα προηγούμενα τεύχη του «περιοδικού» και στις παρατιθέμενες ιστοσελίδες.

The 3^{rd} International Geotechnical Symposium (IGS2009) on Geotechnical Engineering for Disaster Prevention and Reduction, July 22 ÷ 25, 2009 Harbin, China, <u>igs2009.hit.edu.cn</u>

TCLEE 2009 – Lifeline Earthquake Engineering in a Multihazard Environment, June 28 – July 1, 2009, Oakland, California, USA, <u>content.asce.org/conferences/tclee2009</u>

Asheville 2009, 43rd U.S. Rock Mechanics Symposium - 4th U.S.-Canada Rock Mechanics Symposium June 28- July 1, 2009, Asheville, North Carolina, USA www.armasymposium.org

STREMAH 2009 - Eleventh International Conference on Structural Repairs and Maintenance of Heritage Architecture, 22 - 24 July 2009, Tallinn, Estonia, www.wessex.ac.uk/09-conferences/stremah-2009.html

The 3rd International Geotechnical Symposium (IGS2009) on Geotechnical Engineering for Disaster Prevention and Reduction, 22 - 25 July 2009, Harbin, China, <u>igs2009.hit.edu.cn</u>

GeoHunan International Conference: Challenges and Recent Advances in Pavement Technologies and Transportation Geotechnics, 3 – 6 August 2009, <u>dchen@dot.state.tx.us</u>

PROTECT2009, Second International Workshop "Performance, Protection & Strengthening of Structures under Extreme Loading", nan Village Center, Hayama, Japan, August 19-21, 2009, <u>www.nda.ac.jp/cc/users/fujikake/protect2009</u>

GeoAfrica 2009 "Geosynthetics For Africa", 2 – 5 September 2009, Cape Town, South Africa, <u>www.gigsa.org</u>

Symposium Mechanics of Natural Solids, Horto, Pelion, Greece 7th - 9th September 2009, <u>geotechnik.uibk.ac.at</u>

AMIREG 2009 - 3rd International Conference Advances in Resources & Hazardous Waste Management Towards Sustainable Development, 7 – 9 September 2009, <u>heliotopos.conferences.gr/amireg2009</u>

Jubilee Symposium on Polymer Geogrid Reinforcement, Institution of Civil Engineering, London, 8 September 2009, www.jubilee-symposium.co.uk.mht

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International Symposium on Geoenvironmental Engineering ISGE2009 Sep. 8-10 2009, Zhejiang University, Hangzhou, China <u>www.ssgeo.zju.edu.cn/isge2009.htm</u> Issues associated with Environmental Geotechnics continue to be a major preoccupation for governments, public and private organizations and the general community worldwide. The Chinese Government has been putting great effort on environmental issues including treatment of wastewater, sanitary disposal of solid waste, prevention of groundwater contamination etc. China has much to share on the opportunities, challenges and responsibilities for environ-mental geotechnics with other countries.

Ministry of Education Key Laboratory of Soft Soils and Geoenvironmental Engineering, Zhejiang University (<u>SSGeo@ZJU</u>), the Chinese Institution of Soil Mechanics and Geotechnical Engineering (CISMGE) and the Chinese Chapter of International Geosynthetics Society (CCIGS) are pleased to host the International Symposium on Geoenvironmental Engineering on Sep. 8-10, 2009 in Hangzhou, China, under the auspices of ISSMGE.

The general theme of this symposium is "Reclamation of the Past and Toward a Sustainable Geoenvironment". The symposium will feature the 2009 Zhejiang University Zeng <u>Guo-Xi Lecture</u> delivered by Prof. Pedro Seco e Pinto (President ISSMGE) and Prof. R. Kerry Rowe (Fellow of the Royal Society of Canada, the 45th Rankine Lecturer (2005) by the British Geotechnical Society) as well as a series of invited lectures covering various topics of current interest.

Topics

- Basic and advanced theories for modelling of geoenvironmental phenomena
- Testing and monitoring for geoenvironment
- Municipal solid wastes and landfill engineering
- Sludge and dredging
- · Geotechnical recycling and reuse of industrial wastes
- Mine sites, tailing dams and sludge ponds
- Engineering barriers for radioactive waste disposals
- Contaminated land and remediation technology
- Applications geosynthetics in geoenvironment
- Geoenvironmental risk assessment, management and sustainability
- Ecological techniques and case histories
- Engineering practice and regulations in environmental geotechnics

Secretary-General: Prof. Xiaowu TANG Secretary: Miss Xiaoli WAN; Miss Yang GAO Email: isge2009@zju.edu.cn Phone: +86-571-88208791 Fax: +86-571-88208793 Address: Anzhong Building B-412, Zhejiang University Hangzhou, 310058, P.R. China

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Geological Engineering Problems in Major Construction Pojects, Chengdu, China, September 9th - 11th, 2009, www.iaeg2009.com

EURO:TUN 2009 Computational Methods in Tunnelling, 9-11 September 2009, Bochum, Germany, <u>www.eurotun.rub.de</u>

9th International Symposium on Tunnel Construction and Underground Structures, 16-18 September 2009, Ljubljana, Slovenia, <u>www.drustvo-dpgk.si</u>

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ISRM 1st Annual Technical and Cultural Field Trip Florence, Italy, 21-22 September 2009

The 1st Annual ISRM Technical and Cultural Field Trip will take place on 21-22 September 2009, in the Florence region, Italy. It is devoted to the Carrara Marble quarries and the historical quarrying and mining activities which have taken place in Tuscany since Etruscan times (about 700 B.C.).

Organisation is by Prof. Geol. Massimo Coli, Department of Earth Sciences, and Prof. Geol. Carlo Alberto Garzonio, Department of Restoration and Conservation of Architectural Heritage of the University of Florence.

A brochure (download here) with the main information was released and it includes the application form. Please be reminded that the number of participants is limited and that the deadline for payment is 20 July.

A Guide Book (<u>download here</u>) was prepared with detailed technical information on the sites that will be visited.

Those who wish to participate please contact: coli@unifi.it

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17th International Conference on Soil Mechanics and Geotechnical Engineering "Future of Academia & Practice of Geotechnical Engineering", 5 – 9 October 2009, Alexandria, Egypt - <u>www.2009icsmge-egypt.org</u>

4th International Young Geotechnical Engineers (4iYGEC), 2 - 6 October 2009, Alexandria, Egypt - <u>www.2009icsmge-egypt.org</u>

Sardinia 2009 Twelfth International Waste Management and Landfill Symposium, 5 - 9 October 2009, S. Margherita di Pula (Cagliari), Sardinia, Italy, <u>www.sardiniasymposium.it</u>

1st International Symposium on Rockfill Dams, 18 ÷ 21 October 2009, Chengdu, China, <u>chincold@iwhr.com</u>, <u>zhangyaook@gmail.com</u>

ISRM 1st annual technical and cultural field trip, Florence, Italy, 21-22 September 2009

3° Ελληνο – Ιαπωνικό Συμπόσιο: ΑΝΤΙΣΕΙΣΜΙΚΟΣ ΣΧΕΔΙΑ-ΣΜΟΣ ΘΕΜΕΛΙΩΣΕΩΝ: Έμφαση στα Έργα Υποδομής, 22 – 23 Σεπτεμβρίου 2009, Σαντορίνη, <u>www.ntua.gr/qj-</u> workshop

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XVIIth International Conference on Soil Mechanics & Geotechnical Engineering EARTHQUAKE GEOTECHNICAL ENGINEERING Satellite Conference TC4 of ISSMGE 2-3 October 2009, Alexandria, Egypt

The Egyptian National Committee of Soil Mechanics and Foundation Engineering and the Technical Committee (TC4) on Earthquake Geotechnical Engineering of the International Society for Soil Mechanics and Geotechnical Engineering take great pleasure in renewing their cordial invitation to attend the Satellite Conference on Earthquake Geotechnical Engineering to be held in Alexandria prior to the XVIIth International Conference on Soil Mechanics and Geotechnical Engineering.

The Conference will offer an opportunity for the presentations and discussions on earthquake geotechnical engineering issues observed during the recent years.

SCIENTIFIC PROGRAMME

The scientific programme for Saturday, October 3 is planned with a keynote lecture, theme lectures and panellists for discussion sessions on five themes.

Theme 1: "Strong Motions & Site Amplification" Theme 2: "Microzonation & Earthquake Scenarios" Theme 3: "In-situ and Laboratory Testing of Soils"" Theme 4: "Liquefaction and Counter Measures" Theme 5: "Earthquake-Induced Landslides"

Friday October 2 will be organized as a workshop devoted to lectures on similar topics to inform the local engineers and scientists about the current State-of-the-Art and Practice in the field of Earthquake Geotechnical Engineering.

CONFERENCE ORGANISER Assoc. Prof. Dr. Mohamed A. Sakr Director, Geotechnical Engineering Research Laboratory Faculty of Engineering Tanta University, Tanta, EGYPT Fax: +2040-3420330 Mobile: +2012-3168002 E-mail: mamsakr@yahoo.com

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17th International Conference on Soil Mechanics and Geotechnical Engineering, 5 – 9 October 2009, Alexandria Library, Alexandria, Egypt, <u>www.2009icsmge-egypt.org</u>

58th Geomechanics Colloquy 2009, 8-9 October 2009, Salzburg, Austria, <u>www.oegg.at</u>

16° ΣΥΝΕΔΡΙΟ ΣΚΥΡΟΔΕΜΑΤΟΣ, 21 ÷ 23 Οκτωβρίου 2009, Κύπρος, <u>www.tee.gr/</u>Διεθνείς Σχέσεις/Συνέδρια-Εκδηλώσεις

HYDRO 2009 Progress - Potential – Plans, Lyon, France, 26-28 October 2009, <u>www.hydropower-dams.com</u>

EUROCK'2009 Rock Engineering in Difficult Ground Conditions - Soft Rocks and Karst, 29 - 31 October 2009, Dubrovnik-Cavtat, Croatia, <u>www.eurock2009.hr</u>

Submarine Mass Movements and Their Consequences, 4th International Symposium, Austin, Texas, November 8 – 11, 2009,

www.beg.utexas.edu/indassoc/dm2/Conference2009

12th International Conference of ACUUS «Using the Underground of Cities: for a Harmonious and Sustainable Urban Environment», November 18-19, 2009, Shenzhen City (China), <u>www.acuus.qc.ca/coming.html</u>

6th WBI-International Shortcourse «Rock Mechanics, Stability and Design of Tunnels and Slopes», November 26 to 30, 2009, Christmas market time, WBI - head office, Aachen, Germany, <u>www.wbionline.de</u>

5th Colloquium "Rock Mechanics - Theory and Practice" with "Vienna-Leopold-Müller Lecture", November 26th and 27th, 2009, <u>christine.cerny@tuwien.ac.at</u>

Stuva Tagung'09 – Stuva Conference'09 "Tunnels – Key to Sustainable Mobility", 1-3 December 2009, CCH Hamburg, Germany, <u>www.stuva.de/STUVA-Conference-</u>09.tagung.0.html?&L=1

International Symposium on Geotechnical Engineering, Ground Improvement, and Geosynthetics for Sustainable Mitigation and Adaptation to Climate Change including Global Warming, 3 to 4 December 2009, Bangkok, Thailand, <u>www.set.ait.ac.th/acsig/conference</u>

International Symposium on Ground Improvement Technologies and Case Histories (ISGI09), 9 to 11 December 2009, Singapore, <u>ISGI09@nus.edu.sg</u>

13th International Conference on Structural & Geotechnical Engineering, Cairo, Egypt, 27-29 December 2009, <u>www.icsge2009.com</u>

GeoFlorida - Advances in Analysis, Modeling & Design, February 20-24, 2010, Wesi Palm Beach, Florida, USA <u>con-</u> tent.asce.org/conferences/geoflorida2010/index.html

CAVING 2010 Second International Symposium on Block and Sublevel Caving, 20 – 22 April 2010, Perth, Australia, www.caving2010.com

CPT'10 2^{nd} International Symposium on Cone Penetration Testing, May 9 - 11, 2010, Huntington Beach, California, USA.

ITA – AITES 1010 World Tunnel Congress and 36th General Assembly "TUNNEL VISION TOWARDS 2020", Vancouver, Canada, May 14 - 20, 2010, <u>www.wtc2010.org</u>

12° Διεθνές Συνέδριο της Ελληνικής Γεωλογικής Εταιρείας, Πάτρα, 19 - 22 Μαΐου 2010 <u>www.synedra.gr</u>

IX International Conference on Geosynthetics, Guarujá, Brazil, 23 – 27 May 2010 - <u>www.igsbrasil.org.br/icg2010</u> Fifth International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics and Symposium in Honor of Professor I. M. Idriss, May 24 – 29, 2010, San Diego, California, USA, <u>5geoeqconf2010.mst.edu</u>

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www.geotechnicalconference.com/page.cfm/Link=20

This DEEP FOUNDATION INSTITUTE (DFI) and EUROPEAN FEDERATION OF FOUNDATION CONTRACTORS (EFFC) three day international conference will bring together consultants, contractors, geotechnical engineers, regeneration experts and key manufacturers and suppliers in the global foundations business. Do not miss the international forum for both networking and information exchange! The conference will build upon the experience gained from the very successful 10th International Conference held in Amsterdam in 2006.

Day One: Let's get technical

The technical sessions on day one will include the presentation of selected papers and discussion, chaired by the industry great and the good. Key themes to be addressed include:

- Deep Basements and Underground Excavations
- Soil Displacement Piles from Installation Technology to Performance
- Special Foundation Solutions for Urban Regeneration

Day Two: Out and about

The second day will feature a combination of presentations followed by site tours across some of London's most notable regeneration projects. The site visits will include presentations to describe the environmental issues and deep foundations aspect of the job. What are the challenges? How can they be overcome?

Key themes:

- Sustainable development from architectural and landscape perspective, Lower Lea Valley
- London's infrastructure needs CrossRail
- Geotechnical challenges of constructing CrossRail
- Flood risk to London

The conference organising committee are confirming opportunities to visit:

- The Olympic Park under construction for the London 2012 Olympics
- The Canary Wharf Crossrail Station
- The Thames Barrier
- The Brunel Museum

Day Three: Serious debate and exchange

Our final day will conclude with lively debate, discussion and questions, as key experts and attendees ponder environmental and professional issues affecting the industry. This will include session debate on:

- Design, construction and contracting risk
- Young Engineers in the foundation industry
- Sustainability and the foundations industry
- Recent lessons from foundation failures

As part of the continuing development and improvement of the DFI and EFFC conference, there will be a number of additions to the agenda that are all designed to enhance the delegate experience. These include:

- Networking lunches
- Drinks reception on the evening of day one
- Special Gala dinner on day two
- Showcase of some of the world's leading geotechnical service providers/supplier

Secretariat

Registration and general enquiries: Customer Services Tel: +44 (0)207 554 5816 Fax: +44 (0)207 7728 5299 Email: <u>constructconferences@emap.com</u>

Programme and speaker opportunities: Melissa Corstorphine Tel: +44 (0)207 728 5265 Email: <u>melissa.corstorphine@emap.com</u>

Abstract enquiries: Debbie Young Marketing Manager Tel: +44 (0)207 728 3910 Email: <u>debbie.young@emap.com</u>

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3rd International Workshop on Rock Mechanics and Geo-engineering in Volcanic Environments <u>www.citiesonvolcanoes6.com</u>

The "Sociedad Española de Mecanica de Rocas" (the Spanish National Group of the ISRM) is organizing the "3rd International Workshop on Rock Mechanics and Geoengineering in Volcanic Environments Conference" to be held in the Canary Islands on 31st of May and 1st of June 2010.

This event is complementary to those technical meetings organized in previous years at Madeira and Azores, in 2002 and 2007, respectively.

In this case this Workshop is included in a multidisciplinary Congress (Cities on Volcanoes 6 – Tenerife 2010), organized by the International Association of Volcanology and Chemistry of Earth Interior. Volcanologists, geologists, disaster mitigation experts, and other specialised professions are expected to participate.

The topics to be discussed in this 3rd Workshop will be related to geoengineering, mining, water resources and infrastructures in volcanic environment. In other words, laboratory and field characterisation of volcanic rock media, slope stability, tunnelling and excavation in volcanic areas will be studied and papers will provide a deeper insight in their knowledge.

For more information <u>click here to download the brochure</u> or go to web pages <u>www.citiesonvolcanoes6.com</u> or <u>www.semr.es</u>.

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. on Geotechnical Engineering "From research to design th European practice Bratislava, Slovakia | 2nd June 44 June 2010

www.decge2010.sk

The Organising Committee has the pleasure to invite you to Bratislava, the capital city of the Slovak Republic, to which the Danube-European Conference came back after 33 years.

We believe that the main conference theme "From Research to Design in European Practice" will be of interest to you.

The Conference's primary intention is:

To share the latest experience in the field of research and practice, leading up to new methods of geotechnical design.

Topics

- 1. New theoretical approach in soil mechanics.
- 2. Quality of soil and rock properties via laboratory and field tests.
- 3. Design methods for geotechnical structures.
- 4. Numerical and physical models in geotechnical design.
- Monitoring and supervision of geotechnical constructions.
 Interactive design (observation method) in geotechnical practice.
- 7. Specific problems for environmental consideration.
- 8. Case studies using Eurocode 7.

A special session will be arranged for each topic and Organising Committee will collaborate with the Conference Advisory and Scientific Committees to select key persons (main lecturers, panel members, etc.) for each session. At the end of each session, a discussion from the floor will follow.

Conference agency GUARANT International spol. s r.o. Uhrova 10, 831 01 Bratislava Slovak Republic +421 2 54 430 206 e-mail: decge2010@guarant.cz

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7th European Conference on Numerical Methods in Geotechnical Engineering June 2 - 4, 2010, Trondheim, Norway <u>www.ivt.ntnu.no/numge2010</u>

The European Regional Technical Committee ERTC7 - Numerical Methods in Geotechnical Engineering has the pleasure of inviting you to attend the 7th European Conference in Trondheim, Norway 2010.

This conference is the seventh in a series of conferences organized by the ERTC7 (Numerical Methods in Geotechnical Engineering) under the auspices of the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE).

One of the first conferences of this series was held in 1986 in Stuttgart, Germany and continued every four years (1990 Santander, Spain; 1994 Manchester, United Kingdom; 1998 Udine, Italy; 2002 Paris, France; 2006 Graz, Austria).

The conference provides a forum for exchange ideas and discussion on topics related to geotechnical numerical modelling. Both, senior and young researchers, scientists and engineers from Europe and overseas are invited to attend this conference to share and exchange their knowledge.

TOPICS

Example of key topics are:

On basic theory and new developments:

- Constitutive modeling including small strain stiffness
- Anisotropy
- Structure
- Creep and cyclic behavior
- Computer programs for geotechnical engineering what's next?
- Large deformation large strain analysis
- Fluid flow and consolidation analysis
- Non-saturated soil mechanics
- Reliability and probability analysis
- Dynamic problems
- Geotechnical earthquake engineering
- Discontinuum modeling
- Artificial intelligence

On applications:

- Tunnels and caverns
- Slopes and cuts
- Piles
- Deep excavations and retaining walls
- Embankments and shallow foundations
- Ground improvement modeling
- Offshore geotechnical engineering
- Laboratory and centrifuge testing
- Geohazards
- Application of numerical methods under EU codes and guidelines

For practical information, please contact:

Mrs. Astrid Bye - Conference Secretariat NTNU Videre Paviljong A, Dragvoll N-7491 Trondheim, Norway Phone: +47 - 73 59 52 54 E-mail: <u>numge10@videre.ntnu.no</u>

For scientific information, please contact:

Professor Steinar Nordal - Conference Chairman NTNU, Geotechnical Division Høgskoleringen 7a N-7491 Trondheim, Norway Phone: +47 - 73 59 45 94 E-mail: <u>steinar.nordal@ntnu.no</u>

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2010 MOSCOW - International Geotechnical Conference GEOTECHNICAL CHALLENGES IN MEGACITIES, 7 – 10 June 2010, Moscow, Russia <u>www.GeoMos2010.ru</u>

International Conference Underground Construction Prague 2010 Transport and City Tunnels, 14 – 16 June 2010, Prague, Czech Republic, <u>www.ita-aites.cz</u>

Rock Mechanics in Civil and Environmental Engineering, European Rock Mechanics Symposium (EUROCK 2010) ISRM Regional Symposium on Rock Mechanics, Lausane, Switzerland, 15 – 18 June 2010, <u>Imr.epfl.ch</u>

7th International Conference on Physical Modelling in Geotechnics, Zurich, Switzerland, 28 June - 1 July 2010, www.icpmg2010.ch

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August 1 – 4 2010, Bellevue, Washington content.asce.org/conferences/er2010

The conference will consist primarily of plenary sessions, with several breakout sessions in two tracks. This format is designed to provide attendees with a survey of the state of the practice since the 1990 conference, establish the current state-of-the-art and to provide a review of current applications and forecast future trends. In particular, the conference will include 2 to 5 technical short courses or workshops, 8 plenary sessions, 6 concurrent technical sessions, an exhibition, field demonstrations, and a poster session. Additional events which will help you to renew acquaintances and meet new colleagues include a welcome reception and a networking reception with posters in the Exhibition Hall.

Conference Topics

The conference will provide comprehensive coverage of design, performance and construction of earth retaining structures. Presentations will include invited keynote lectures given by leading international experts and oral and poster sessions of submitted papers.

Topics include, but are not limited to:

- Supported excavations
- Mechanically-stabilized earth walls
- Seismic design of walls
- Numerical analyses of walls
- Wall selection
- Recent advances
- Performance of walls
- Design of walls
- Soil mixed walls
- Tied-back support
- Sinking of shafts
- Soil nailing
- Concrete diaphragm walls

Technical Program Questions? <u>Contact Youssef M.A. Hashash</u> – <u>hashash@illinois.edu</u>, or <u>Richard Finno</u> – <u>r-finno@northwestern.edu</u>

Conference Questions? Contact Stacey Gardiner – stacye.gardiner@tggroup.com

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Isap Nagoya 2010 - The 11th International Conference on Asphalt Pavements, August 1 to 6, 2010, Nagoya, Japan, <u>www.isap-nagoya2010.jp</u>

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AUGUST 25-27, 2010 BEIJING, CHINA

THE 5th INTERNATIONAL SYMPOSIUM ON IN-SITU ROCK STRESS <u>www.rockstress2010.org</u>

The 5th International Symposium on In-situ Rock Stress will be held in Beijing, China, 25-28 August 2010, organised by the Institute of Crustal Dynamics (ICD), the China Earthquake Administration (CEA) and the Seismological Society of China (SSC) Chinese Society for Rock Mechanics and Engineering (CSRME).

The conference will deal with topics such as:

- Methods and theory of in-situ stress measurement
- Engineering Application of in-situ stress
- Numerical modeling
- Crustal stress of strong earthquake
- Stress-strain observation and earthquake prediction

Topics

1.Method and theory of in-situ stress measurement

- Hydro-fracturing, stress relief, etc.
- AE, ASR & DSCA
- Seismic analysis method
- Tectonic analysis and inversion method
- Scientific drilling and in-situ stress

2.Engineering Application of in-situ stress

- Deep mining of resources, such as petroleum oil and coal, etc.
- Tunnel engineering
- Nuclear waste disposal
- Induced earthquake
- Geological hazards and regional stability
- Case study

3.Numerical modeling

- Interpretation of in-site rock stress
- Stress field numerical modeling
- Seismic dynamic process and stress triggering
- Back analysis

4. Crustal stress of strong earthquake

- World Stress Map, Lithospheric stress and plate tectonics
- Mechanism of earthquakes and seismic disasters
- Seismic surface ruptures and seismotectonics
- Seismic processes and dynamic responses
- Special topics about Ms 8.0 Wenchuan earthquake in 2008

5.Stress-strain observation and earthquake prediction

- Stress and strain observation techniques in borehole
- Progress of PBO program
- Observation of deformation and fluids
- Application of geodesic techniques

ISRSV Secretariat

Institute of Crustal Dynamics, CEA No.1, Road Anningzhuang, Xisanqi, Haidian, Beijing, P.R.China, 100085 Tel: +86(0)10-62913587, +86(0)10-62846718 Fax: +86(0)10-62913587 Email: <u>ISRSV@rockstress2010.org</u>

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14th EUROPEAN CONFERENCE ON EARTHQUAKE ENGINEERING Ohrid, FYROM, August 30 – September 3 2010 <u>www.14ecee.mk</u>

The Conference will be held in Ohrid, ancient town in the FYROM, in the period 30th August – 3rd September, 2010.

The Conference will serve as a forum for bringing you together and will provide a unique opportunity for exchanging ideas on the present status of earthquake engineering and its implementation in protection of population and national economies against seismic impacts and development of risk prevention culture. The established contacts among the scientists will create opportunities for future bilateral and multi-lateral scientific cooperation within Europe and beyond. Different workshops on existing joint projects are planned to be organized within the Conference, as well. Through the exhibitions organized during the Conference, the participants will also be familiarized with the latest technological achievements in earthquake related research.

The Conference will provide the perfect opportunity for us to connect and learn from each other and then return home ready to face our shared challenges and create communities of knowledge and innovations that will contribute to a seismically safer world.

TOPICS

T1. ENGINEERING SEISMOLOGY

- Seismic Networks and Monitoring
- Real-time Data Acquisition and Exchanget
- Strong Motion Studies
- Earthquake Hazard Assessment
- Design Ground Motion

T2. GEOTECHNICAL EARTHQUAKE ENGINEERING

- Earthquake Induced Soil Behavior
- Soil-Structure Interaction
- Earth Structures
- Foundation Design
- Laboratory and Field Testing
- Codes for Ground Conditions

T3. SEISMIC PERFORMANCE OF BUILDINGS

- Architectural Issues
- Materials and Structural Systems
- Historic Buildings and Monuments
- Tall Buildings
- Retrofitting
- Vulnerability
- Codes for Design of Buildings
- Codes for Existing Buildings
- Codes for Tall Buildings

T4. EARTHQUAKE RESISTANT ENGINEERING STRUCTURES

- Bridges
- Dams
- Nuclear Power Plants
- Infrastructures
- Other Structures

- Retrofitting
- Codes for Engineering Structures

T5. NEW TECHNIQUES AND TECHNOLOGIES

- New Materials
- Structural Health Monitoring
- Structural Control
- Experimental Studies
- Codes for Buildings with Passive Seismic Control Devices

T6. MANAGING RISK IN SEISMIC REGIONS

- Implications of Recent Earthquakes
- Disaster Risk Assessment and Management
- Earthquake Scenarios
- Early Warning and Tsunamis
- Social, Economic and Planning Aspects
- Insurance Policy Related to Earthquake

Topics T1 and T6 will be organized and chaired as joint sessions of the EAEE and ESC during the last three days of the Conference.

Several special sessions will be organized. Authors who are interested are invited to submit proposals including short description, title of the contribution and presenting author(s).

KEYNOTE SPEAKERS

- 1. Atilla Ansal, Ground Motion, Microzoning (T1)
- 2. Nuray Aydynoglu, Repair and Strengthening (T3)
- 3. Salvano Briseno, Managing Risks in Seismic Regions (T6)
- 4. Farzat Naeim, Performance Based Design, Tall Buildings (T3)
- 5. Carlos Sousa Oliveira, Historical Buildings and Monuments (T3)
- 6. Artur Pinto, Large Scale Testing (T5)
- 7. Alain Packer, Geotechnical Earthquake Engineering (T2)
- 8. Paolo Pinto, Earthquake Resistant Engineering Structures, Bridges (T4)
- 9. Theo P. Tassios, First Ambraseys Distinguished Lecture Award – Laureate

MAEE (IZIS) 73 Salvador Aljende, P.O.Box 101 1000 Skopje, FYROM Tel. +389.23.107701 secretariat@14ecee.mk

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Geologically Active 11th IAEG Congress, 5 – 10 September 2010, Auckland, New Zealand, <u>www.iaeg2010.com</u>

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International Symposium on Geomechanics and Geotechnics: From Micro to Macro 10 – 12 October 2010, Shanghai, China geotec.tongji.edu.cn/is-shanghai2010

Soils are composed of grains but they are generally treated as continua in the classical framework of geomechanics. Their macroscopic response under loading, such as their non-linearity and anisotropy, is controlled by their microstructure, the characteristics of the grains and the disposition of contacts between them. There have been rapid advances in technology both to investigate the microscopic properties of soils, and to simulate their granular behaviour explicitly through Discrete Element Method (DEM). DEM was originally used to reproduce element tests, but it is now being advocated for boundary-value problems. This symposium aims to provide an opportunity for the exchange of ideas and information on experiments, numerical models and engineering applications related to the discrete nature of geomaterials.

Main topics

Micro- / macro-characterization

Natural / disturbed soils Dry / partially saturated soils Rocks / cemented materials Sands / clays Non-terrestrial soils Experimental techniques Microscopy / Imaging Visualization of particle movement

Discrete element modelling

Particle shape, size and grading Dry / partially saturated soils Crushable grains Small strain, yielding and failure Creep and rate effects Shear bands / compaction bands Vibrations / dynamics Granular flow

Engineering applications

In-situ tests Slope stability Foundations Landslides and granular flow Tunneling engineering Hydraulic engineering Railway and pavement engineering Reservoir geomechanics and well-boring

For more information contact:

Prof. Mingjing Jiang Department of Geotechnical Engineering Tongji University 1239, Siping Rd., Shanghai 200092, China Tel:+86-21-65980238; Fax:+86-21-65985210 E-mail: <u>mingjing.jiang@mail.tongji.edu.cn</u> <u>is shanghai2010@163.com</u>

Prof.Masayuki Hyodo Dept. of Civil and Environmental Engineering Yamaguchi University Tokiwadai 2-16-1 Ube, 755-8611 Japan Email:<u>hyodo@yamaguchi-u.ac.jp</u> Dr. Yu XIAO Department of Geotechnical Engineering Tongji University 1239, Siping Rd., Shanghai, China 200092 Email:<u>001xxyy@163.com</u>

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Msc. Min ZHENG Department of Geotechnical Engineering Tongji University 1239, Siping Rd., Shanghai, China 200092 Email:<u>freejemmy@163.com</u>

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11th International Symposium on Concrete Roads, Seville (Spain) 13th - 15th October 2010, www.2010pavimentosdehormigon.org

ARMS – 6 ISRM International Symposium 2010 and 6th Asian Rock Mechanics Symposium "Advances in Rock Engineering", New Delhi, India, 23 – 27 October 2010, <u>www.cbip.org</u>

8 – 10 November 2010, Perth, Western Australia w3.cofs.uwa.edu.au/ISFOG2010

The Centre for Offshore Foundation Systems will host the 2^{nd} International Symposium on Frontiers in Offshore Geotechnics (ISFOG) 8-10 November 2010, at the University of Western Australia, Perth, Western Australia.

The 2nd International Symposium on Frontiers in Offshore Geotechnics (ISFOG) will provide a platform for academics and practitioners to discuss and exchange ideas to address the emerging challenges in offshore geotechnical engineering.

Offshore design and construction presents unique challenges to geotechnical engineers. Many of the challenges routinely encountered have persisted for decades and continue to be gradually overcome with advances in technologies and methodologies, while new challenges are faced with the necessary move to harness resources in deeper waters, harsher environmental conditions and uncharacterized seabed deposits.

ISFOG will provide a specialist international forum to address current and emerging challenges facing those working in offshore construction, design and research.

CONFERENCE THEMES

- Geohazard risk assessment and mitigation
- Seabed processes, geomorphology and pore pressure regime
- Geotechnical aspects of gas hydrates
- Developments in site investigation techniques
- Soil characterisation and modelling
- Piled foundations, conductors and caissons
- Shallow foundations (including for subsea systems)
 Anchoring systems (suction caissons, drag and plate anchors, torpedo anchors)
- Jack-up rigs and spudcan foundations
- Foundations for renewable energy facilities
- Pipelines and riser systems
- Trenching, ploughing, excavation and burial
- Arctic developments
- Reliability and non-deterministic design methods

CONTACT DETAILS

For any queries, or for joining the conference mailing list to receive further updates and bulletins, contact the Conference Secretariat, Monica Mackman:

ISFOG 2010

Centre for Offshore Foundation Systems (M053) The University of Western Australia Crawley, Perth, WA Australia 6009 Tel: +61 8 6488 3094 Fax: +61 8 6488 1044 Email: <u>ISFOG2010@civil.uwa.edu.au</u>

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6ICEG 2010 - Sixth International Congress on Environmental Geotechnics, November 8 - 12, 2010, New Delhi, India <u>www.6iceg.org</u>

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Santiago, Chile, 17 – 20 January 2011 www.5icege.cl

The Technical Committee of Earthquake Geotechnical Engineering (TC4) of the International Society of Soil Mechanics and Geotechnical Engineering (ISSMGE) and the Chilean Geotechnical Society (SOCHIGE), take great pleasure in renewing their invitation to attend the 5th International Conference on Geotechnical Earthquake Engineering (5-ICEGE) to be held in Santiago de Chile in January 2011. TC4 provides the main forum for ISSMGE members in the area of earthquake geotechnical engineering and it is has been continuously contributing in responding to the hazards and challenges imposed by the seismic activity of the world.

Earthquake and geotechnical engineers, geologists, seismologists, practicing and consulting engineers, public and private contractors and all those involved with engineering works related to earthquake geotechnical engineering, are welcome to attend and present their recent experiences and developments.

Since 1985 when the Technical Committee of Earthquake Geotechnical Engineering was instituted in the International Society of Soil Mechanics and Geotechnical Engineering, four successful ICEGE have been held (Tokyo 1995, Lisbon 1999, Berkeley 2004, and Thessaloniki 2007). With your active participation in the 5-ICEGE, this coming conference will also be an excellent event where you will be professionally rewarded, scientifically stimulated and at the same time you will enjoy the Chilean hospitality. We look forward to welcoming you to Santiago de Chile in January 2011.

The conference will last four days, where plenary and poster presentations of both invited and submitted papers will be accomplished in conjunction with keynote lectures and state-of-the-art reports addressed by leading international experts. The 5 ICEGE will include the 3th Ishihara Lecture, an award lecture created by TC4 to honor the life contribution of Professor Kenji Ishihara to the field of Geotechnical Earthquake Engineering.

Three workshops will be carried out during the conference on the following topics:

- 1. Seismic design and stability analysis of tailings disposals
- 2. Recent advances on liquefaction analysis and remedial methods
- 3. Performance based design in earthquake geotechnical engineering: concepts, advantages and limitations. (round table discussion)

Taking into account recent significant damages by earthquakes in the world, the conference themes have been expanded to cover a wider spectrum of earthquake-associated geotechnical problems. Accordingly, prospective authors are invited to submit abstracts in a broad range of topics in the field of earthquake geotechnical engineering and soil dynamics. These include, however are not limited to the following:

- 1.- Soil dynamics: Field and Laboratory testing
- 2.- Soil-site characterization and dynamic soil modelling
- 3.- Analytical and numerical methods
- 4.- Seismic hazard and strong ground motion
- 5.- Site effects and microzonation
- 6.- Soil-structure interaction
- 7.- Soil liquefaction and liquefaction countermeasures
- 8.- Slopes, embankments, dams and waste fills
- 9.- Earth-retaining and waterfront structures
- 10.- Shallow and deep foundations
- 11.- Underground structures
- 12.- Lifeline earthquake engineering
- 13.- Vulnerability assessment of geotechnical structures
- 14.- Seismic performance and vulnerability of monuments and historical centres related to geotechnical engineering
- 15.- Blasting and other artificially made dynamic loading
- 16.- Performance based design
- 17.- Active and passive control of response related to geotechnical engineering
- 18.- Codes, policy issues, insurance and standard of practice
- 19.- Case histories, observation and lessons from recent and past earthquakes

- 20.- Earthquake-induced slope failures influenced by rainfalls
- 21.- Ground motion-related building damage
- 22.- Ground devastation by tsunamis
- 23.- Singular soils of seismic regions

GENERAL SECRETARIAT Secretariat 5th ICEGE San Martín N° 352, P.O Box: Casilla 487 Santiago, Chile Tel. 56-2-696 8647, 56-2-978 4705 Fax: 56-2-697 1136

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International Conference on Tunnelling and Trenchless Technology, 1-3 March 2011, Kuala Lumpur (Malaysia), www.iem.org.my/external/tunnel/index.htm

WTC2011 Helsinki, AITES-ITA 2011 World Tunnel Congress and 37th General Assembly, 21-25 May 2011, Helsinki, Finland, <u>www.ril.fi/web/index.php?id=641</u>

XIV Asian Regional Conference Soil Mechanics and Geotechnical Engineering, Hong Kong, China, 23 - 28 May 2011

XV African Regional Conference on Soil Mechanics and Geotechnical Engineering Maputo, Mozambique, 13 - 16 June 2011.

XV European Conference on Soil Mechanics and Geotechnical Engineering, 12 – 15 September 2011, Athens, Greece.

 24^{th} WORLD ROAD CONGRESS, 25 – 30 September 2011, Mexico City, Mexico

XIV Panamerican Conference on Soil Mechanics and Geotechnical Engineering (October) & V PanAmerican Conference on Learning and Teaching of Geotechnical Engineering & 64th Canadian Geotechnical Conference, Toronto, Ontario, Canada, 2 - 6 October 2011

Beijing 2011, 12th International Congress on Rock Mechanics, 16 – 21 October 2011, Beijing, China, <u>www.isrm2011.com</u>

ΝΕΑ ΑΠΟ ΤΙΣ ΔΙΕΘΝΕΙΣ ΓΕΩΤΕΧΝΙΚΕΣ ΕΝΩΣΕΙΣ

INTERNATIONAL SOCIETY FOR SOIL MECHANICS AND GEOTECHNICAL ENGINEERING www.issmge.org

Την Κυριακή 4 Οκτωβρίου 2009 θα διεξαχθή η Γενική Συνέλευση της ISSMGE, κατά την διάρκεια της οποίας θα γίνη και η εκλογή του νέου Προέδρου της ISSMGE για την περίοδο 2009-2013.

Υποψήφιοι είναι ο Καθηγητής Jean-Louis Briaud, Πρόεδρος του Geo-Institute της American Society of Civil Engineers και ο Καθηγητής Waldemar Hachich από την Brasilian Society for Soil Mechanics and Geotechnical Engineering.

Στις 18 Μαΐου διεξήχθη στο Hong Kong, China η Γενική Συνέλευση της ISRM, κατά την οποία εξελέγη ο Πρόεδρος της ISRM για την περίοδο 2011-2015. Την ΕΕΕΕΓΜ εκπροσώπησε το μέλος Δρ. Αλέξανδρος Σοφιανός, Καθηγητής της Σχολής Μεταλλειολόγων – Μεταλλουργών Μηχανικών του ΕΜΠ.

Υποψήφιοι ήταν οι: Prof. Xia-ting Feng (China), Dr Claus Erichsen (Germany) και Prof. Francois Heuze (USA) και εξελέγη ο Prof. Xia-ting Feng, η θητεία του οποίου θα αρχίση αμέσως μετά το 12th International Congress της ISRM, στο Beijing, China, το 2011.

Xia-Ting Feng, BSc, PhD, obtained his BSc degree in Mining Engineering from the Northeast University of Science and Technology in Shenyang, China, in 1986 and his PhD in rock mechanics from the Northeastern University, China, in 1992. Then he has been affiliated as Lecturer, Associate Professor (from 1993-1996) and Professor (from 1996-2001) at the same university, from September

1995 to March 1996 as a Visiting Researcher and from December 1996 to November 1997 as a ITIT Special Research Officer at National Institute for Resource and Environment, Tsukuba, Japan, and from May to November 1996 as a Research Officer at Department of Mining Engineering, the University of Witwatersrand, South Africa. As a Professor of Hundred Talent Program of the Chinese Academy of Sciences, he moved to Institute of Rock and Soil Mechanics, the Chinese Academy of Sciences in 1998, from 2001-2003 as Vice Director in Charge and from 2003-2005 as Director of this institute, from 2001-present as Director of Key Laboratory of Rock and Soil Mechanics, the Chinese Academy of Sciences. He worked in Imperial College, UK, Royal Institute of Technology, Sweden, and Lille University of Science and Technology, France, as a Visiting Professor or Academic Visitor in short term.

Prof. Feng is a member of the ISRM, through the Chinese Society for Rock Mechanics and Engineering (CSRME) (ISRM National Group for China) (1995-present), President of ISRM National Group for China (2004-present), Vice President of Chinese Society for Rock Mechanics and Engineering (2004-present), Vice Chairman of the 12th ISRM International Congress on Rock Mechanics, Co-Chairman of the ISRM International Symposium-SINOROCK2009, Hong Kong, China, 2009, and have being Co-Chairman of the ISRM SINOROCK Symposium, Yichang, China, 2004.

He is also Editor-in-Chief of Chinese Journal of Rock Mechanics and Engineering, Member of Editorial Board of International Journal of Rock Mechanics and Mining Sciences (2003-present), Member of the Advisory Board of International Journal of Analytic and Numerical Methods in Geomechanics (2007-present). He has authored/co-authored six books and more than 150 technical papers.

His research interests cover 'intelligent' rock mechanics and engineering, including intelligent recognition of models and parameters, stability analysis, global optimum design, disaster prediction and prevention in rock engineering; coupled mechanical-chemical-hydraulic process of rock masses; and radioactive waste disposal.

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INTERNATIONAL ASSOCIATION OF ENGINEERING GEOLOGY

Change of Secretary General of the IAEG

On January 1st 2009 Dr. Michel Deveughele has stepped down as Secretary General of the IAEG, a position that he occupied since 1999. He was followed up by Dr. Sébastien Dupray.

Michel Deveughele, born in 1948, studied Engineering Geology at the Ecole Nationale des Ponts et Chaussées and the Ecole des Mines both inParis and obtained his PhD In Engineering Geology at the Université Pierre-et-Marie-Curie in Paris in 1976. Since 1971 he has worked as a lecturing

professor and later also as research scientist at the Ecole des Mines de Paris.

Michel has been a member of the IAEG right from the start of the Association, and has served the Association in the French National Group, as the IAEG Treasurer from 1995 – 1998 and as the IAEG Secretary General from 1999 to December 31st 2008. Michel's secretary Francoise Nore has assisted Michel with administrative work during his terms as Secretary General. IAEG thanks both Michel and Francoise for the important amount of work that they have carried out for the IAEG in a very efficient way.

Sebastien Dupray, born in 1972 studied Civil Engineering at the Ecole Nationale des Travaux Publics de l'Etat and obtained his PhD in 2005 from Imperial College. He worked in the field of Engineering Geology and applied rock engineering from 1998 in the Laboratoire Régional des Ponts et Chaussées at Lyon, mainly researching and teaching on hazards and the use of rock based materials for hydraulic structures. He has been an IAEG member since then and received the young professional award of the Société de l'Industrie Minerale for his work on armourstone for breakwaters and erosion control structures. After a short secondment in the UK, he recently moved to the Centre d'Etudes Techniques Maritimes et Fluviales of Compiègne in the North of Paris.

Sebastien will be assisted by Nathalie Paigneau for the administration of the Secretariate General of the IAEG. We wish both Sebastien and Nathalie all the best for the coming years.

(Niek Rengers)

Dr. Sebastien Dupray will be assisted by Ms. Nathalie Paigneau for the administration of the Secretariat General.

The new contact details of the IAEG Secretariat are now:

Dr Sébastien Dupray, Secrétaire Général de l'AIGI/ Secretary General of IAEG CETMEF – 2, Boulevard Gambetta - BP 60039 60321 – COMPIEGNE CEDEX – France Téléphone/Phone : + 33.3.44.92.60.89 Télécopie/Fax : + 33.3.44.92.60.75 Adresse électronique/E-mail : <u>iaeq-sg@developpement-durable.gouv.fr</u> (ou / or <u>sebastien.dupray@developpement-durable.gouv.fr</u>)

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INTERNATIONAL TUNNELLING AND UNDERGROUND SPACE ASSOCIATION

The General Assembly 2009 of ITA Member Nations has decided to support the constitution of the «Foundation for Education and Training on Tunnelling and Underground Space Use: ITA-CET» in becoming a Founding Member with a seat at the Council of the Foundation.

The Foundation will be officially constituted as soon as the other organizations interested in becoming Founding Mem-

bers have made themselves known and have committed themselves to pay on behalf of the Foundation an amount of their choice; the constitution of the Foundation should take place at the latest in September 2009.

ΧΡΗΣΙΜΕΣ ΠΛΗΡΟΦΟΡΙΕΣ

ΙΣΤΟΣΕΛΙΔΕΣ ΓΕΩΤΕΧΝΙΚΩΝ ΕΝΩΣΕΩΝ

<u>www.issmge.org</u> International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE) : access to News Bulletin, announcements, calendar, etc.

<u>www.isrm.net</u> International Society for Rock Mechanics (ISRM) : access to news, announcements, calendar, etc.

www.ita-aites.org ITA International Tunnelling Association

www.iugs.org International Union of Geological Sciences

www.qeolsoc.org.uk/qsl/qroups/specialist/engineering Engineering group of the Geological Society of London : access to news, announcements, calendar, etc. info@qeolsoc.org.uk

web.uvic.ca/~iugsgem/newsletters.htm IUGS Commission Geoscience for Environmental Management The Newsletter includes a lot of interesting information.

www.icold-cigb.org ICOLD International Commission on Large Dams

www.geosyntheticssociety.org IGS International Geosynthetics Society

<u>www.qeo.uio.no/IPA</u> International Permafrost Association : access to pdf files of all issues of the News Bulletin *Frozen Ground*

www.aeqweb.org AEG Association of Environmental and Engineering Geologists, USA : access to news, announcements, calendar, etc.

www.iahr.org International Association of Hydraulic Engineering

ΑΛΛΕΣ ΙΣΤΟΣΕΛΙΔΕΣ ΓΕΩΤΕΧΝΙΚΟΥ ΕΝΔΙΑΦΕΡΟΝΤΟΣ ΚΑΙ ΠΛΗΡΟΦΟΡΗΣΗΣ

<u>www.geoengineer.org</u> Center for integrating information in geo-engineering. The Online Geoengineering Library now includes more than 1000 publications available online in geoengineering.

www.casehistories.geoengineer.org International Journal of Geo-engineering Case Histories

<u>www.deltares.nl</u> New central organisation in which are cooperating Geodelft, Delft Hydraulics, Geological Survey of the Netherlands

<u>www.dfi.org</u> Deep foundations Institute. Publishes a monthly Electronic Newsletter (<u>www.dfi.org/eupdate</u>) publishes a Journal and organizes conferences

www.ingentaconnect.com/content/geol/gjeg Online access to the Quarterly Journal of Engineering Geology and Hydrogeology of the Geological Society UK

www.ilrg.gndci.cnr.it International Landslide Research Group (ILRG) ILRG consists of about 450 people from 55 countries interested in regional landslide research and the application of this research in solving societal problems related to landslides. We communicate with each other mainly through the newsletter and by email and in cosponsoring (with the Japanese Friends of the ICFL) a field trip to study landslides in various countries every three years. We have a Web site in Italy maintained by our webmasters, Fausto Guzzetti and Massimo Guadagno, and with links to several international landslide organizations.

www.iclhq.org International Program on Landslides, Kyoto University Japan, Database of World landslides

www.floodriskmanagement.org Welcome to the first issue of *Journal of Flood Risk Management*, a new publication for 2008, published jointly with the Chartered Institution of Water and Environmental Management (CIWEM) and Wiley-Blackwell.

ΕΝΔΙΑΦΕΡΟΝΤΑ

MILLAU (France) – The highest bridge in the world

The construction of the Millau viaduct in the southeast of France was a colossal engineering effort. The piers rise 803 feet (245 m) from ground level, and the bridge weighs 400,000 tons. The bridge is supported by seven huge pillars. When the thickness of the platform (14 feet - 4.30 m) and the height of the pillars are included, the total height reaches 1102 feet (336 m). That is about 50 feet (15 m) higher than the famous Eiffel Tower. Construction of this bridge required more than 350,000 tons of concrete and 40,000 tons of steel. Assembled with the precision of a Swiss watch, this giant was designed to resist winds of up to 130 miles per hour and has cost almost 300 million euros (US\$523 million). Built across the mountainous terrain of the Tarn river valley, the 8071-foot (2,460 m) long bridge is part of the A-75 freeway that connects the cities of Clermont-Ferrand and Béziers. It will shorten by more than 60 miles the route connecting Paris with the Mediterranean. Seven European countries participated in construction of the bridge, the design of which was the work of the prestigious British architect, Sir Norman Foster, of Manchester, England.

03 80

Update on the Deep Underground Science and Engineering Laboratory Project (DUSEL)

In mid-May, the mining team working on the rehabilitation of the old Homestake Mine, site of the future Deep Underground Science and Engineering Laboratory (DUSEL), successfully completed dewatering to a depth of roughly 1500m below surface. It is at this depth that scientists and engineers will establish the Sanford Laboratory, the first research facility of what will ultimately become a major underground campus. This level will also serve for construction staging as the miners strive to reopen the mine to its full depth, some 2.4 kilometers below surface. This dedicated facility is being designed to support a broad spectrum of fundamental and applied research at depth in the earth's crust. Research partners include physicists, biologists, geochemists, rock engineers and mechanics.

Homestake Shaft Headhouse

One major physics experiment proposed for DUSEL is the Long Baseline Neutrino Experiment (LBNE). This experiment calls for the construction of single or multiple, large-span (50m+) rock caverns, sited at depths well in excess of a kilometer. The experiment will support the performance of "frontier research" into the fundamental behavior of neutrino and proton particles. To support this initiative, rock engineers and mechanics must deliver large-deep excavation(s) that meet stringent demands for long-term environmental and structural stability, mined within a heavily folded metamorphic rock mass. Site investigation work is on-going to identify potential sites for the caverns, with characterization, modeling and detailed design work targeted to allow for a construction start in 2013.

The State of South Dakota is currently performing initial shaft re-entry work to re-establish access to shallow and intermediate mine depths, install pumps, and perform an initial round of basic tunnel rehabilitation tasks. The University of California at Berkeley, Lawrence Berkeley National Laboratory and South Dakota School of Mines and Technology are responsible for the design of the full facility under a grant from the US National Science Foundation.

Baseline Neutrino Experiment Cavern: Depth-Span Graphic

(graphics sources: US National Science Foundation, Lawrence Berkeley Laboratory and the South Dakota Science and Technology Authority)

Additional information

For information on the deep science initiative go to: http://www.deepscience.org/

For information on the on-going work of the South Dakota Science and Technology Authority go to: http://www.sanfordundergroundlaboratoryathomestake.org

For information on the design of DUSEL go to: <u>http://www.lbl.gov/nsd/homestake/</u>

(Chris Laughton and Zbigniew Hladysz, ISRM Newsletter No.6, June 2009)

ΝΕΑ ΑΠΟ ΤΟΝ ΚΟΣΜΟ

Thirst of the cities drives the giant drills to water China's parched north. Fifty-year project to stem depletion of the Yellow river dubbed a mega-project too far by critics.

Jonathan Watts visits one of three tunnels designed to carry water beneath China's Yellow River Link

Staring up from the bottom of the deepest pipe in the world's most ambitious plumbing operation, the view is that of a frog in a well: a small distant disc of sky. Look again two years from now, and you would see a torrent of water apparently defying gravity as it surges up the 130ft (39m) shaft first towards the heavens, then to Beijing and other thirsty cities.

The Guardian was the first foreign news organisation to enter the pits and tunnels at Jiaozuo in Henan province, which are at the centre of <u>China</u>'s latest, greatest engineering project, the South-North Water Diversion Scheme. In the spirit of President Hu Jintao's drive for "scientific development", the aim is to engineer a solution to the most pressing environmental problem – the alarming depletion of water resources in the arid, heavily populated north.

More than twice as expensive as the Three Gorges Dam and three times longer than the railway to Tibet, the 50-year, 62bn (£40.67bn) project aims to channel a greater volume than the Thames along three channels – each more than 600 miles long – from the moist Yangtze basin up to the dry lands above the Yellow river.

At Jiaozuo, giant drills have already gouged out more than half of the 2.5 mile-long tunnel that will take the water under the Yellow river. At the foot of the construction shaft, the nine-metre wide concrete pipe stretches into the dark far below the farm fields that stretch towards the river. "This is a first in the history of the Yellow," one of the engineers, Han Jiping, says proudly. "There is nothing to compare."

A project too far?

The project has sparked so many ecological, financial and political concerns that government advisers are calling for the plan to be delayed and, possibly, curtailed, raising the possibility that this could prove a mega-project too far even for China. First proposed in 1962, the scheme was approved by Mao Zedong, who said it was fine for the south to "lend a little water", but until recently the government has not had the money or technical ability to go ahead.

In the north, the disparity between supply and demand is evident across swaths of land that rely on the overworked and heavily polluted Yellow. China's second-biggest river accounts for 2% of the country's run-off, yet irrigates 15% of the crops and supplies water to 140 million people, about 12% of the population.

Xinhua news agency reported in 2008 that 4bn tonnes of industrial waste and sewage are discharged annually into

the river system, leaving 83% of the water too contaminated to drink without treatment. Tang Xiyang, one of the founders of the green movement in China, is apocalyptic: "The Yellow river civilisation has been destroyed. People cannot survive on that river any more." Yet the pressure on China's "Mother River" grows as industrial parks and cities expand. The accumulated overuse of water in Beijing, Tianjin and Hebei areas of northern China is estimated at 9bn cubic metres. Water tables are falling and lakes evaporating.

Reducing demand has been difficult. At the control centre of the Yellow River Conservancy Commission in Zhengzhou, water allocations are displayed on a wall-sized screen. Nine provinces share the water. Proportions have been fixed since 1987 based on an over-optimistic estimate that annual run-off is 58bn cubic metres. This year, the volume is forecast to be less than 50bn cubic metres. In 2003, it fell below 45bn. Provinces are supposed to equally share the shortfall. Yet Ningxia, Inner Mongolia and Shandong take more than 1bn cubic metres of water above allocation every year without permission.

The loser is the ecosystem. Twenty-one billion cubic metres are set aside for sediment flushing and maintenance of non-human life on the river. This is the area of the water budget that is raided when provinces go over their limit. Research shows the value of keeping water for nature, but officials say they need more power to achieve this.

'Digital Yellow river'

"Some provinces and reservoirs don't obey our instructions. They ignore us to generate electricity," says Yu. "It's a problem. We lack punitive measures."

The commission has reduced flooding and sedimentation and says pollution has peaked in several areas. But regulation of demand remains a challenge.

Central government is drafting a Yellow river law that will give more power to the river's administrators. There are plans for a "digital Yellow river" scheme for officials in Zhengzhou to remotely control and monitor sluice gates and irrigation channels along the river – today only possible in the lower reaches.

This demand-side solution faces fierce opposition. No province wants a cut in water supplies when they all want to boost industry and agriculture. The latter is the biggest drain on the river, accounting for 90% of diverted water. Yu and his colleagues are dispatched to sluice gates during times of drought.

"It can be very dangerous," he says. "In the past, our engineers have been thrown into the river by angry residents. In the early days after 1999, nobody wanted to accept us. Upstream residents didn't care about lowstream demands. They said that historically, they could always take what they wanted."

Faced by such obstacles in reducing demand, the government is pressing ahead with measures to increase supply. Its primary response is the diversion scheme, approved by Hu Jintao – a hydro-engineering graduate – in 2002.

A year after the first leg was supposed to be completed, all three routes have hit snags. The eastern leg, along the Grand canal, was supposed to be easiest to finish, but pollution in this heavily industrialised region is so great that water treatment is prohibitively expensive. Tianjin reportedly prefers to build desalination plants.

The western leg has been suspended over concerns about the political and economic cost of diverting water from the Yangtze to the Yellow, high on the Tibet-Qinghai plateau. The central route also faces delays over environmental and compensation concerns. About 300,000 people will have to be relocated and swaths of farmland cleared.

At Jiaozuo, a 40-minute drive north of Zhengzhou, engineers from the 16th Bureau of the China Railway Construction Group are digging a 130ft-wide channel through the red earth. Once completed, it will take 9.5bn cubic metres of water from the Han river, which feeds the Yangtze, to Beijing – but it will leave problems at its source.

Du Yun, a geologist at the China Academy of Sciences, has warned that the diversion of a third of the water in the Danjiangkou reservoir will raise the risk of pollution, sedimentation and flooding on the Han river.

To offset these fears, the government has earmarked an extra 8bn yuan (\pounds 760m) to bolster the Han, including diverting water from the Three Gorges reservoir on the Yangtze and along the Xinglong Hinge. These measures – essentially robbing Peter to pay Paul – will require at least 400 miles of channels to be dug through farmland. Many people in Hubei feel they are still losing out.

Solar and wind options

"We are appealing for the government to increase the compensation fund for Han river projects and to build more sewage plants," said Shen Xiaoli, of the Research Academy of Environmental Science in Hubei. "Once a construction project starts upstream, it requires water compensation downstream. This, in turn, necessitates other projects to deal with the negative impacts. It's a circle in which you need ever more solutions and ever more funds."

Most of the grumbles are coming from the middle reaches of the Hanby the diversion scheme. "Local people are very worried about the impact on our ecology because we will lose a fifth of our water," said a resident of Xiangfan City, who asked to remain anonymous. "Although we are concerned, everyone must express support. We dare not oppose the central government."

Yet, this is only the first of three-planned phases of construction on the east and central legs. The government has been advised to wait and see the results before proceeding further.

"The original plans were made 20 years ago. Since then our society has developed and the natural environment has changed. My view is that we must make a new assessment of the plan for the middle and eastern legs," a senior government adviser said. "Then we should decide whether we need changes, whether we should go ahead with the second and third stages."

The comments are part of a debate about the wisdom of nature-conquering mega-projects. The new scientific development aims at sustainability, at quality rather than quantity. A new generation of academics and policymakers has started to question the "big is beautiful" approach of the past.

"I am not a supporter of mega-projects," said Zuo Qiting, a professor of hydrology at Zhengzhou University. "One way to halt the trend of ever-bigger projects is to evaluate their impact from a wider perspective. We need to look not just locally, but at the national and global level."

International environmental groups say the focus should be on reducing demand rather than boosting supply. "Transferring water from the Yangtze tributaries to the thirsty plains of northern China may well lead to environmental collapse of the Han river, the Three Gorges reservoir, and the Yangtze delta," said Peter Bosshard of International Rivers. "To resolve its water crisis, China needs to phase out thirsty industries and agricultural crops in the droughtprone north and replace them with more environmentally sound practices."

(\odot Guardian News and Media Limited 2009, Jonathan Watts guardian.co.uk, Monday 18 May 2009 18.55 BST)

(33 80)

7,300 schools highly vulnerable to quakes

More than 7,300 school buildings are at high risk of collapse in the event of a powerful earthquake, the education ministry said Tuesday.

A survey by the ministry on the nation's 124,976 public schools also found that the quake resistance of 41,206 buildings is insufficient.

The ministry said 7,309 could crumble if hit by a quake measuring upper 6 on the Japanese seismic scale of 7.

The number of school buildings at risk of collapse declined by 3,347 from a year earlier, while the ratio with adequate quake resistance rose 4.7 percentage points to 67.0 percent, the ministry said.

The government has provided more subsidies to local authorities to work on schools since a major quake leveled a huge number of school buildings in <u>Sichuan Province</u>, China, last June.

The ministry plans to provide subsidies to make 16,000 school buildings quake-resistant in the current fiscal year. The ministry also expects to eliminate school structures at risk of collapse by March 2011 and raise the quake resistance ratio to around 78 percent.

Of the 83,770 buildings proven to be fully quake resistant, 50,180 were built under newer quake-resistance standards adopted in 1982, the survey found.

By prefecture, Osaka had the most high-risk school buildings at 527, followed by Hokkaido with 438 and Hyogo with 351. Okinawa had the least at 15.

Kanagawa had the highest percentage of safe buildings at 93.4 percent, followed by Miyagi and Shizuoka at 90.1 percent. Nagasaki was the lowest at 46.6 percent.

Municipal governments are required by law to disclose the results of quake-resistance inspection of the schools in their jurisdiction, but 320 of the 1,880 municipalities, or 17 percent, did not do so, the ministry said.

"It appears that those municipalities failed to disclose the results because they want to avoid causing a panic. School facilities can be evacuation destinations," an official said, adding the ministry will start pushing the municipalities to disclose the results.

(ASCE SmartBrief 17.06.2009 / The Japan Times - Kyodo News 17.06.2009)

ΝΕΕΣ ΕΚΔΟΣΕΙΣ ΣΤΙΣ ΓΕΩΤΕΧΝΙΚΕΣ ΕΠΤΣΤΗΜΕΣ

Principles of **Pavement Engineering**

Nick Thom (Editor)

Principles of pavement engineering offers sound engineering understanding to those learning, practising or researching in this field. It is concerned with the basic principles

underlying material behaviour, pavement design and maintenance, and will allow the reader to move beyond a mere following of design standards and become able to tackle problems outside the scope of such requirements. Key features of this book include: a concentration on principles rather than current (and therefore transient) standards; a cut across the subjects of asphalt and concrete; an inclusion of both new pavement design and maintenance; and an inclusion of genuine assistance to engineers in nonstandard design cases. In an industry responsible for the building and maintenance of so much of the world's transportation infrastructure, it is essential that correct design and construction principles are followed. This includes a realistic assessment of the uncertainty inherent in pavement construction, a balancing of risk and reward, a consideration of the 'bigger picture' i.e. the consequences of pavement deterioration. "Principles of pavement engineering" guides the reader through many of these key design and construction issues. This book covers all types of pavement material and construction techniques and concentrates on the fundamentals of performance. It is based on recent research and the practicalities of pavement design, particularly rehabilitation design - a subject for which official guidance is generally weak. The author introduces the 'calculation approaches' which challenge conventional thought; design is presented as an indeterminate subject and pavement rehabilitation is covered as a serious topic in its own right. This book is written for practicing engineers who are faced with practical design issues for which current manuals and standards are insufficient. By extension, it is also suited to those still in training, on masters courses or carrying out doctoral research, and forms an essential background to those less directly involved.

(Thomas Telford Ltd., 2008)

International Conference on Engineering, Science, Construction, and Operations in Challenging Environments. Topics include Structures; Materials; Dynamics and Controls; Field and Remote Sensing and Robotics; Space Engineering and Construction; Aerodynamics; Advanced Space Systems; Lunar and Martian Exploration and Development; Materials including Granular Lunar and Martian Soils/Regolith, In-Situ Resource Utilization and Development; International Space Station; Human; Exploration and Development of Space; Research in Space Environments; Space Exploration and Transportation; Fluid Distribution and Flow in Porous Media; Life Support Systems; Space Architecture and Operations; Space Power; Space Science; Space Commercialization, Engineering and Science in Earth-based Extreme Regions; and Measurement in Challenging Environments.

This proceedings contains 163 papers presented at the 11th

(American Society of Civil Engineers, 2008)

DESIGN OF PILE FOUNDATIONS IN LIQUEFIABLE SOILS

Gopal Madabhushi, Jonathan **Knappett & Stuart Haigh**

Pile foundations are the most common form of deep foundations that are used both onshore and offshore

to transfer large superstructural loads into competent soil strata. This book provides many case histories of failure of pile foundations due to earthquake loading and soil liquefaction. Based on the observed case histories, the possible mechanisms of failure of the pile foundations are postulated. The book also deals with the additional loading attracted by piles in liquefiable soils due to lateral spreading of sloping ground. Recent research at Cambridge forms the backbone of this book with the design methodologies being developed directly based on quantified centrifuge test results and numerical analysis.

The book provides designers and practicing civil engineers with a sound knowledge of pile behaviour in liquefiable soils and easy-to-use methods to design pile foundations in seismic regions. For graduate students and researchers, it brings together the latest research findings on pile foundations in a way that is relevant to geotechnical practice.

Readership: Researchers, academics, designers and graduate students in earthquake engineering, civil engineering and ocean/coastal engineering.

(World Scientific, September 2009)

Earth and Space 2008

Proceedings of the Earth and Space 2008 Conference held in Long Beach, Callifornia, March 3-5, 2008

Wieslaw Binienda (Editor) **ASCE Technical Activities Committee, Aerospace Divi**sion

WAVE PROPAGATION FOR TRAIN-INDUCED VIBRA-TIONS A Finite/Infinite Element Approach

Y. B. Yang & H. H. Hung

For buildings and factories located near railway or subway lines, the vibrations caused by the moving trains, especially at high speeds, may be annoying to the residents or detrimental to the high-precision production lines. However, there is a lack of simple and efficient tools for dealing with

the kind of environmental vibrations, concerning simulation of the radiation of infinite boundaries; irregularities in soils, buildings and wave barriers; and dynamic properties of the moving vehicles. This book is intended to fill such a gap.

Compared with the boundary element method (BEM) for solving the half-space problems, the finite/infinite element method (FIEM) presented in this book has the following advantages:

- It requires less effort in formulation and computation.
- It can be directly incorporated in an existing FEM analysis program.
- It is capable of simulating the irregularities in buildings, soils and tunnels.
- It can be used to evaluate the efficiency of various wave barriers for vibration reduction.

The methodology presented in the book can be adopted to analyze the vibrations caused by road traffic as well.

Contents:

- Elastic Waves in Half-Space Due to Vehicular Loads
- 2D Finite/Infinite Element Method
- Characteristics of Foundation Vibrations
- Wave Barriers for Vibration Isolation of Foundations: Parametric Study
- Vibration Reduction of Buildings Located Alongside Railways
- 2.5D Finite/Infinite Element Method
- Ground Vibration Due to Moving Loads: Parametric Study
- Wave Barriers for Reduction of Train-Induced Vibrations: Parametric Study
- Soil Vibrations Caused by Underground Moving Trains

Readership: Senior undergraduate and graduate students, researchers and engineers in civil and structural engineering.

(World Scientific, Summer 2009)

TSUNAMT To Survive from Tsunami

S. Murata, F. Imamura, K. Katoh, Y. Kawata, S. Tahashi & T. Takayama

This book provides comprehensive scientific information and knowledge survival tips on how to survive a tsunami. It is especially useful to those living (or about to live) in tsunami-prone areas, and to travelers who may visit such areas. The book is composed of two parts; The first consisting of three chapters on how to survive a tsunami by i) describing precious lessons obtained from actual tsunami disasters, ii) imparting fundamental knowledge of tsunami science for survival, and iii) listing measures for tsunami disaster mitigation. The second part provides more detailed scientific knowledge on tsunamis and consists two chapters: one describes tsunami occurrence mechanism and nearshore behavior; the other mentions numerical simulation and tsunami forecasting.

Contents:

- Tsunamis and Their Disasters
- Knowledge for Tsunami Survival

- Prevention and Mitigation of Tsunami Disasters
- Occurrence and Amplification of Tsunamis
- Tsunami Simulations and Forecasting Systems

Readership: Undergraduates and graduates interested in tsunamis, tsunami mitigation planners, oceanographers and physicists, especially residents in tsunami prone areas.

(World Scientific, Summer 2009)

Environmental Impact Assessment Handbook, 2nd edition

This established handbook offers a

B. Carroll and T. Turpin

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comprehensive practical guide to the requirements of environmental impact assessment (EIA) in accordance with the latest UK

regulations. Explaining the EIA process and legal procedures in a clear and straightforward way, the authors employ their extensive practical experience to cover each of the steps and associated studies needed to undertake an EIA and to produce a successful Environmental Statement.

Following the success of the first edition, this second edition is fully updated in line with the Planning Bill enacted in November 2008 and expanded to include a new chapter on Strategic Environmental Assessment (SEA).

Written by practitioners for practitioners, covering procedures, environmental issues and development types, the handbook:

- Presents the requirements of EIA in a readily accessible and practical way
- Inspires good EIA practice with the use of case studies
- Informs and guides the early and effective use of EIA
- Demonstrates how improvements in EIA practice facilitate better informed planning decisions
- Outlines the procedures associated with SEA and demonstrates its benefits

Including full cross-referencing and checklists, Environmental Impact Assessment Handbook, 2nd edition will provide an invaluable overview and step-by-step guide for local authority planners, environmental regulators, consultants and all professionals working on development proposals. Students and community groups will also find this a valuable introductory text.

Contents

- Introduction
- Procedures
- Environmental topics
- Development types
- Environmental management
- Strategic environmental assessment
- Appendices

(Thomas Telford Ltd, 22.05.2009)

(Whittles Publishing, 2009)

Cores and Core Logging for Geoscientists, 2nd Edition

Graham A. Blackbourn Director and Consultant Geologist, Blackbourn Geoconsulting

- The only book available that provides geoscientists with a thorough account of coring methods and the interpretation of data gathered from core observation and analysis
- Updated new edition which includes all the latest developments

The previous edition of this book has been widely adopted internationally by the petroleum and mining industries and by geotechnical engineers as an authoritative guide for use at the wellsite, in the laboratory or office. This new edition has been brought up-to-date and incorporates modern developments in coring techniques and core handling.

All aspects of cores are covered including cutting and recovery; wellsite handling and logging; recognition of coring damage; laboratory analysis; logging and sampling; preservation and storage. Logging and interpretation are dealt with in detail, encompassing structural and engineering investigations in addition to sedimentology. Emphasis is laid throughout on those features most important to the economical development of geological resources.

Because the methodology is dealt with extensively, the reader with a background in sedimentology, geotechnical engineering, petrophysics or a related subject is able to put the principles and techniques of core studies into practice. As such, the book will prove invaluable for those working with cores and anyone who uses information derived from them.

Contents: Introduction. Drilling and coring methods. Core andling. Core logging. Core analysis and testing. Interpretation and preperation of final logs. Core preservation and storage. Appendix 1: Standard symbols and abbreviations. Appendix 2: Equipment for wellsite coring operations and core logging. Appendix 3: Standard core barrel sizes. Biblography. Index

Readership: the book will be an essential guide for oil company geologists and sedimentologists; sedimentological contractors; geotechnical engineers, engineering and mining geologists and hydrologists; lecturers and senior students in economic and applied geology. Professionals and academics in petroleum engineering will find the book a helpful source of information.

Reviews of the first edition:

'I thoroughly recommend this book to all geologists working with core... The book ... sets a definitive standard'. *Journal of Petrology*

'This is a remarkable little book that presents its readers with almost everything they may need to know about cores'. *American Association of Petroleum Geologists*

'... Excellent coverage on methodology with emphasis on operational geology ... should provide an excellent standard reference for the geologist'. *Marine and Petroleum Geology*

Earthquakes and Tsunamis

Civil Engineering Disaster Mitigation Activities - Implementing Millennium Development Goals Series: <u>Geotechnical, Geological,</u> <u>and Earthquake Engineering</u>, Vol. 11

Tankut, A. Tugrul (Ed.)

Earthquakes and tsunamis are two major natural disasters, causing enormous life and material losses over the entire world, especially in the developing countries that are not well prepared. Since earthquakes and tsunamis are natural phenomena that cannot be prevented, a series of measures need to be taken to minimize the losses. Disaster mitigation covers a wide variety of activities involving numerous disciplines. Civil engineering makes probably the most effective contribution to the mitigation of life and material losses in earthquakes and tsunamis.

This volume contains 11 major contributions of distinguished experts from various areas of civil engineering, and aims at informing the civil engineering community about the recent progress in disaster mitigation concerning earthquakes and tsunamis. It is designed to address the standard practicing civil engineer with the aim of carrying the scientific research results to the engineering practice in simple engineering language.

Written for: Practicing civil engineers

(Springer, 2009, VII)

ΗΛΕΚΤΡΟΝΙΚΑ ΠΕΡΙΟΔΙΚΑ

Electronic Newsletter nr. 4 www.iaeg.info

Κυκλοφόρησε το Τεύχος Νο. 4, του ηλεκτρονικού Newsletter της International Association of Engineering Geology (Απρίλιος 2009).

Μεταξύ ἀλλων αναφέρονται και οι ακόλουθες ηλεκτρονικές διευθύνσεις που παρέχουν ελεύθερη πρόσβαση σε πρακτικά συνεδρίων:

Free access to all papers presented to the 9th International Congress of IAEG in Durban in 2002 is possible through www.iaeg.info/durban2002

Free access to all papers presented to the10th International Congress of IAEG in Nottingham in 2006 is possible through www.iaeg.info/iaeg2006/start.htm

Free access to all papers presented at the International Conference : *Landslide Processes – From Geomophologic Mapping to Dynamic Modelling* in Strassbourg France 6-7 February 2009 through <u>http://eost.u-</u> <u>strasbg.fr/omiv/Conference Landslide Processes.html</u>

(38 80)

www.geoengineer.org

Κυκλοφόρησαν τα Τεύχη #53 και #54 του Newsletter του Geoengineer.org (Μάιος και Ιούνιος 2009) με πολλές χρήσιμες πληροφορίες για όλα τα θέματα της γεωτεχνικής μηχανικής. Υπενθυμίζεται ότι το Newsletter εκδίδεται από τον συνάδελφο και μέλος της ΕΕΕΕΓΜ Δημήτρη Ζέκκο (secretariat@geoengineer.org).

THE NEWSLETTER OF THE EUROPEAN ASSOCIATION FOR EARTHQUAKE ENGINEERING <u>www.eaee.org</u>

Κυκλοφόρησε το Τεύχος Vol. 27, No. 1 του Newsletter της European Association for Earthquake Engineering (Μάιος 2009). Στο τεύχος περιέχεται, εκτός των άλλων, άρθρο σχετικά με τον πρόσφατο σεισμό της L'Aquilla, με χρήσιμες παραπομπές σε σχετικές τοπικές πηγές πληροφόρησης.

(38 80)

INTERNATIONAL SOCIETY FOR SOIL MECHANICS AND GEOTECHNICAL ENGINEERING www.issmge.org

Κυκλοφόρησε το Τεύχος Vol. 3, Issue 2 του ISSMGE Bulletin (Ιούνιος 2009) με αναφορά στους υποψήφιους προέδρους της ISSMGE για την περίοδο 2009 – 2013, παρουσίαση των δραστηριοτήτων Τεχνικών Επιτροπών (TC) και εθνικών ενώσεων, άρθρο – case history με τίτλο "Incheon Bridge Construction – Geotechnical Challenges" και άλλα ενδιαφέροντα νέα.

INTERNATIONAL TUNNELLING AND UNDERGROUND SPACE ASSOCIATION

ita@news n°29 www.ita-aites.org/cms/index.php?id=445

Κυκλοφόρησε το Τεύχος No. 29 - Ιούνιος 2009 των ita@news της International Tunnelling Association.

(36 80)

www.isrm.net/adm/newsletter

Κυκλοφόρησε το Τεύχος No. 6 - Ιούνιος 2009 Newsletter της International Society for Rock Mechanics.

03 80

Κυκλοφόρησε το Τεύχος Νο. 17 (Ιούνιος 2009) της World Road Association (PIARC).

ΕΕΕΕΓΜ Τομέας Γεωτεχνικής ΣΧΟΛΗ ΠΟΛΙΤΙΚΩΝ ΜΗΧΑΝΙΚΩΝ ΕΘΝΙΚΟΥ ΜΕΤΣΟΒΙΟΥ ΠΟΛΥΤΕΧΝΕΙΟΥ Πολυτεχνειούπολη Ζωγράφου 15780 ΖΩΓΡΑΦΟΥ

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