

PROCEEDINGS OF THE ELEVENTH
INTERNATIONAL CONFERENCE
ON SOIL MECHANICS AND
FOUNDATION ENGINEERING
SAN FRANCISCO / 12-16 AUGUST 1985

EDITOR: PUBLICATIONS COMMITTEE OF XI ICSMFE

VOLUME 5
POST CONFERENCE PROCEEDINGS
COMPTES RENDUS D'APRES CONFERENCE

COMPTES RENDUS DU ONZIEME
CONGRES INTERNATIONAL DE
MECANIQUE DES SOLS ET DES
TRAVAUX DE FONDATIONS
SAN FRANCISCO / 12-16 AOUT 1985

EDITEUR: COMITE DES PUBLICATIONS DU XI CIMSTF



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Scheme of the work / Schéma de l'ouvrage

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Preface / Préface

THEME LECTURES / CONFERENCES

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*Soil mechanics – Property characterization and analysis procedures
Mécanique des sols – Caractérisation des propriétés et procédures de calcul*

Session 2 / Séance 2

*New developments in field and laboratory testing of soils
Nouveaux développements en matière des tests de sols sur terrain et en laboratoire*

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*Geotechnical aspects of environmental control
Aspects géotechniques de la réglementation de l'environnement*

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*Piles and other deep foundations
Pieux et autres fondations profondes*

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*Geotechnical engineered construction
Construction employant le génie géotechnique*

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*Evaluating seismic risk in engineering practice
Evaluation du risque sismique en ingénierie pratique*

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*Stability of natural deposits during earthquakes
Stabilité sismique des dépôts naturels*

Session 8 / Séance 8

*Comparison of prediction and performance of earth structures
Comparaison de la prédiction et du comportement des structures en terre*

Session 9 / Séance 9

*Geological aspects of geotechnical engineering
Aspects géologiques de génie géotechnique*

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Preface Préface

This volume, along with Volume 1 which contains the theme lectures, Volumes 2, 3 and 4 which contain the technical papers presented at the conference, and the Golden Jubilee Volume which contains the special lectures on the history and development of soil mechanics and foundation engineering and the first Terzaghi Oration, makes up the entire set of conference proceedings.

Volume 5 of the proceedings of the XIth ICSMFE presented herewith corresponds to Volume 4 of Xth ICSMFE and Volume 3 of earlier proceedings of international conferences on soil mechanics and foundation engineering. Thus, it contains the Presidential address, summaries of the discussion sessions, a brief review of the conference itself, the minutes of the Executive Committee Meeting of the International Society of Soil Mechanics and Foundation Engineering held at the time of the conference, and other materials which by their nature could not be published prior to the conference.

As is the case of Volumes 1-4, all manuscripts for Volume 5 were provided by the authors, typed on special sheets in accordance with the instructions given in the Conference Bulletin No. 2.

Publications Committee, XIth ICSMFE

Le présent volume complète les comptes rendus du congrès de San Francisco. Le volume 1 contient les conférences. Les volumes 2, 3 et 4 contiennent les exposés techniques présentés au congrès et le Volume de Jubilé contient les conférences spéciales sur l'histoire et le développement de la mécanique des sols et des travaux de fondations et le premier hommage à Karl Terzaghi.

Le volume 5 des comptes rendus du XIème CIMSTF présenté ici correspond au volume 4 du Xème CIMSTF et au volume 3 des comptes rendus antérieurs des congrès internationaux de mécanique des sols et des travaux de fondations. Ainsi il contient le discours présidentiel, les résumés des séances de discussion, un rapport bref sur le congrès lui-même, le procès-verbal de la Réunion du Comité Exécutif de la Société Internationale de Mécanique des Sols et des Travaux de Fondations tenue pendant le congrès, et d'autres documents qui de par leur nature ne pouvaient être publiés antérieurement au congrès.

Comme pour les volumes 1 à 4, tous les manuscrits pour le volume 5 furent fournis par les auteurs, dactylographiés sur du papier spécial suivant les instructions données dans le Bulletin de Congrès No. 2.

Comité des Publications, XIème CIMSTF

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Association of Soil and Foundation Engineers (USA)
Geotechnical Engineering Division, American Society of Civil Engineers
US National Science Foundation
US Bureau of Reclamation
US Army Corps of Engineers

These organizations as well as many other individuals and engineers, too numerous to name, made enormous contributions to the success of the conference by willingly contributing financial support or enormous amounts of time to the planning and organization of the conference. To them all go the most grateful thanks of the Organizing Committee.

Ces organisations, ainsi qu'un nombre considérable de personnes et d'ingénieurs, ont fait des efforts énormes pour faire réussir ce congrès sur le plan financier ou sur le plan personnel, en donnant bénévolement leur temps pour concevoir et organiser le congrès. C'est à eux tous que le Comité d'Organisation présente ses remerciements les plus chaleureux.

Conference program

Programme du congrès

SATURDAY, AUGUST 10

1:00- Registration in the Gold Room of the
5:00 pm Fairmont Hotel

SUNDAY, AUGUST 11

10:00- Registration in the Gold Room of the
6:00 pm Fairmont Hotel

2:30- Get-Acquainted Picnic at the Charles
8:00 pm Krug Winery and Vineyards in the
Napa Valley, the heart of the
California Wine Country. Buses will
leave the Fairmont Hotel at 2:30 pm
and return about 8:00 pm.

MONDAY, AUGUST 12

8:00 am- Registration at the Fairmont Hotel
5:00 pm am: Gold Room; pm: Mezzanine Floor

9:30 First Plenary Session - Masonic
Auditorium
Chairman: H. Bolton Seed (U.S.A.)

9:30- Introductions
10:00 Welcoming Address
by Richard W. Karn, President of the
American Society of Civil Engineers

10:00- ISSMFE Presidential Address
11:00 by Victor F. B. de Mello (Brazil)

11:00- Break
11:30

11:30- Terzaghi Oration
12:30 on "Amuay Landslides"
by T. W. Lambe (U.S.A.)

12:00- Exhibition open in the Masonic
6:00 pm Auditorium Exhibition Hall

12:30- Lunch for all registrants in the
1:30 Grand Ballroom of the Fairmont Hotel

1:30 Second Plenary Session - Masonic
Auditorium
Chairman: E. E. de Beer (Belgium)

1:30- Theme Lecture on "Soil Mechanics --
2:30 Property Characterization and
Analysis Procedures"
by C. P. Wroth (U.K.)

2:30- Theme Lecture on "New Developments
3:30 in Field and Laboratory Testing of
Soils" by M. Jamiolkowski (Italy)

3:30- Break
3:45

3:45- Theme Lecture on "Geotechnical
4:45 Aspects of Environmental Control"
by N. R. Morgenstern (Canada)

4:45- Poster Session No. 1 in the Peacock
6:00 pm Court of the Mark Hopkins Hotel
(wine will be served)

6:30- Reception for all registrants at the
9:00 pm Fairmont Hotel, hosted by the U.S.
National Society

TUESDAY, AUGUST 13

8:00 am- Registration at the Fairmont Hotel--
5:00 pm Mezzanine Floor

9:30 Third Plenary Session - Masonic
Auditorium
Chairman: G. Gudehus (F.R.G.)

8:30- Theme Lecture on "Piles and Other
9:30 Deep Foundations"
by John A. Focht (U.S.A.)

9:30- Theme Lecture on "Geotechnical
10:30 Engineered Construction"
by F. Schlosser (France)

10:30 Break
11:00

11:00- Theme Lecture on "Evaluating Seismic
12:00 Risk in Engineering Practice"
by I. M. Idriss (U.S.A.)

10:00 am- Exhibition continues in the Masonic
6:00 pm Auditorium Exhibition Hall

12:15 pm- Lunch for all registrants in the
1:15 pm Grand Ballroom of the Fairmont Hotel

1:30 Fourth Plenary Session - Masonic
Auditorium
Chairman: E. Togrol (Turkey)

1:30- Theme Lecture on "Seismic Stability
2:30 of Natural Deposits"
by K. Ishihara (Japan)

TUESDAY, AUGUST 13 (Contd.)

- 2:30- Theme Lecture on "Comparison of Prediction and Performance of Earth Structures"
3:30 by E. W. Brand (S.E. Asia)
- 3:30- Break
3:45
- 3:45- Theme Lecture on "Geological Aspects of Geotechnical Engineering"
4:45 by G. Ter Stepanian (U.S.S.R.)
- 4:45- Poster Session No. 2 in the Peacock Court of the Mark Hopkins Hotel
6:00 (wine will be served)
- 6:30- Organ Recital at Grace Cathedral
7:30 pm This organ recital is being performed especially for participants in the XIth ICSMFE and accompanying family members. The site for the performance is Grace Cathedral, a majestic Gothic cathedral located atop Nob Hill, one block west of the Fairmont Hotel.
- 6:30- Home Hospitality for Overseas
12:00 pm Visitors

WEDNESDAY, AUGUST 14

- 8:00 am- Registration area open on the
5:00 pm Mezzanine Floor of the Fairmont Hotel
- 8:30 Fifth Plenary Session - Masonic Auditorium
Chairman: S. Hansbo (Sweden)
- Reports on Recent Failures and Near Failures
- 8:30- "The Carsington Dam Slide"
8:55 --A. W. Skempton (U.K.)
- 8:55- "The San Luis Dam Drawdown Slide"
9:20 --L. Von Thun (U.S.A.)
- 9:20- "The Tablachaca Dam Slide Problem"
9:45 --P. Repetto (Peru)
- 9:45- "Soil Liquefaction Problems in Recent Japanese Earthquakes"
10:15 --Y. Yoshimi (Japan)
- 10:00 am- Exhibition continues in the Masonic Auditorium
6:00 pm Exhibition Hall
- 12:00 noon Films on Geotechnical Engineering in
-6:30 pm the Gold Room of the Fairmont Hotel.
Films to be shown include:
1. The Rissa Landslide
 2. The Safety of Dams
 3. The Tarbela Dam Project
 4. Design and Construction of Safe Dams
 5. A Debris Flow Slide in Japan
- 10:30 am- Local Technical Tours - Please note
7:00 pm that special reservations must be made for each tour at the Tour Desk

in the Registration Area. Tickets for specific tours will be issued in exchange for a voucher contained in the registration package. Since the number of people who can be accommodated on each tour is limited, tickets will be issued on a first-come, first-served basis.

Tour No. 1: U.C. Berkeley Soils Laboratory

Tour of the U.C. Berkeley Soil Mechanics Laboratory with a discussion of current research projects.

Maximum attendance: 180.
Round trip time: about 5 hours.

Tour No. 2: U.C. Davis Soil Mechanics and Centrifuge Testing Facilities

A visit to the proposed site of the National Geotechnical Centrifuge and demonstrations of the centrifuge modelling technique on three smaller centrifuges at the Center for Geotechnical Modelling at U.C. Davis. Some of the centrifuge model test packages shown will be for piezo-electric earthquake simulation, effects of fault movement beneath dams, pollutant transport in soil, foundation vibration simulation, and simulation of blast loading on structures. In addition unique testing equipment for automatic triaxial and torsion testing systems for cyclic and monotonic shear tests, dielectric and conductivity measurements for soil characterization and in-situ testing, and hydraulic erosion testing will be seen in the U.C. Davis soil mechanics laboratories.

Maximum attendance: 45.
Round trip time: about 6 hours.

Tour No. 3: The Geysers

The Geysers, owned and operated by the Pacific Gas & Electric Company, is the largest operating geothermal plant in the world. Located in Napa County, the Geysers area has a high incidence of landslides. This tour will visit the construction area and review the preventative design and construction measures for landslide control.

Maximum attendance: 90.
Round trip time: about 8 hours.

Tour No. 4: San Luis Canal Project

The San Luis Canal Project, currently under construction by the U.S. Bureau of Reclamation has been planned to supply about 216,000 acre-feet (266 million cubic meters) of water annually to the four counties immediately south of the San Francisco Bay Area. The conveyance facilities for the project include 59.2 miles (95.4 kilometers) of tunnels and conduits, 2 large pumping plants, and one

WEDNESDAY, AUGUST 14 (Contd.)

reservoir. This tour will include a slide presentation and visits to the Pacheco Tunnel Reach 2 and the Pacheco Pumping Plant sections of the projects.

Maximum attendance: 90.
Round trip time: about 6 hours.

Tour No. 5: Oroville Dam

The Oroville Dam, a 760-foot (230-meter) high earth fill dam owned and operated by the California Department of Water Resources, is the highest earthfill dam in the United States. This tour will include a slide presentation on the construction of the dam, and visits to the dam and powerhouse.

Maximum attendance: 45.
Round trip time: about 8 hours.

Tour No. 6: Stanford Linear Accelerator and Stanford University

The Stanford Linear Accelerator (SLAC), one of the most powerful accelerators in the world is located on the Stanford Campus about 40 miles south of San Francisco. Construction at the SLAC facility involves a 2-mile long steel-fiber reinforced shotcrete tunnel and a deep underground experimental hall that will use a permanent tie-back support system. This tour will visit the SLAC facility and current construction site, then continue with a brief tour of the Stanford University Campus.

Maximum attendance: 45.
Round trip time: about 5 hours.

Tour No. 7: San Andreas and Hayward Faults and U.S. Geological Survey

The San Andreas and Hayward faults are two major earthquake faults on opposite sides of the San Francisco Bay. Several major earthquakes have occurred on these faults in the past 200 years. The tour will begin with a slide presentation of the faulting history of the Bay Area, will visit two locations that offer excellent observation points of the faults, and will include a visit to the United States Geological Survey in Menlo Park for a discussion on current earthquake-related research.

Maximum attendance: 90.
Round trip time: about 5 hours.

Tour No. 8: Corps of Engineers Bay Model and Soil Laboratory

This tour will include a visit to the U.S. Army Corps of Engineers Bay Model and Geotechnical Laboratory located in Sausalito. The Bay Model,

which is at a scale of 1:1,000 and covers an area of 85,000 square feet (7,900 square meters), is used for most hydraulic studies involving construction in or around San Francisco Bay. The Corps' Geotechnical Laboratory is the principal laboratory for the Corps of Engineers in the north-west United States. The lab has a full suite of testing facilities, including large diameter triaxial cells and permeameters, and dynamic testing capabilities.

Maximum attendance: 90.
Round trip time: about 4 hours.

Tour No. 9: San Francisco Bay Bridges

This tour will include a visit to several of the bridges that span the San Francisco Bay Area. Movies will be presented showing the construction of the Golden Gate and the San Francisco-Oakland bay bridges. A talk will be given on the foundation conditions for these bridges, plus the investigation, design, and post-construction observations of the recently completed Dumbarton Bridge, one of the longest highway bridges in the United States, which crosses the bay about 20 miles south of San Francisco. Participants should assemble in the French Room of the Fairmont Hotel at 11:00 am.

Maximum attendance: 180.
Round trip time: about 4 hours.

Tour No. 10: Remedial Construction for Earth Dams

This tour will visit two dams located in the East Bay, a short drive from San Francisco, which were recently renovated to improve their seismic stability. These dams, one with a hydraulic filled core, were built more than 50 years ago, and were recently re-evaluated for seismic stability. A brief slide presentation will be given to explain the methods of seismic analysis used and the types of improvements constructed at the dams.

Maximum attendance: 90
Round trip time: about 6 hours.

Tour No. 11: Local Foundation Practice

This tour will feature a slide presentation of underpinning and tie-back techniques used on a number of high-rise buildings in downtown San Francisco. A talk will also be given on types of foundations used on some of San Francisco's most famous highrise buildings. The tour will visit one or more construction sites. Participants should assemble in the California Room of the Fairmont Hotel at 11:00 am.

Maximum attendance: 90.
Round trip time: about 3 hours.

WEDNESDAY, AUGUST 14 (Contd.)

Tour No. 12: San Luis Dam and the California Aqueduct

The California Aqueduct, which was completed in 1972, delivers 1.5 to 2 million acre-feet (2 billion cubic meters) of water per year to the agricultural areas of the Central Valley and the greater metropolitan area of Los Angeles. The design of the aqueduct was complicated by the presence of collapsible deposits along much of the alignment in the San Joaquin valley. This tour will visit a reach of the California Aqueduct, and will include a slide presentation of the design, construction, and post-construction observations of the aqueduct. In addition, the tour will visit the San Luis Dam, which is a major off-stream storage reservoir for the system. A major slide occurred in the upstream shell of the dam in 1981. A presentation will be given covering the investigation and repair of the dam after the slide.

Maximum attendance: 45.
Round trip time: about 8 hours.

THURSDAY, AUGUST 15

8:00 am- Registration area open in the
5:00 pm Mezzanine Floor of the Fairmont Hotel

9:00 am- Discussion Sessions as follows:
12:00 noon

Session 1A: "Constitutive Relationships for Soil Behavior" - Gold Room, Fairmont Hotel
Chairman: S. Murayama (Japan)
Discussion organized by ISSMFE Committee on Constitutive Relationships
Topic: Recent Advances

Session 2A: "In-Situ Testing Techniques - Terrace Room, Fairmont Hotel
Chairman: W. R. MacKechnie (Zimbabwe)
Discussion Leader: M. C. Ervin (Australia)
Topic: Practical Determination of In-Situ Stress and Deformation Parameters

Session 3A: "Motion of Landslides and Debris Flows" - Venetian Room Fairmont Hotel
Chairman: P. LaRochelle (Canada)
Discussion organized by ISSMFE Committee on Landslides
Topic: Engineering for Flows and Avalanches: Instrumentation, Warning Systems, Predictions, Control Measures

Session 4A: "Pile Foundation Design Methods" - Peacock Court, Mark Hopkins Hotel
Chairman: N. Janbu (Norway)
Discussion Leader: A. F. Van Weele (Netherlands)
Topics: Piles in Silts; Static vs. Impact Capacity

Session 5A: "Influence of Earthwork Constructions on Structures" - Room of the Dons, Mark Hopkins Hotel
Chairman: A.J.C. Mineiro (Portugal)
Discussion Leader: D. Resendiz (Mexico)
Topic: Predicting Displacements and Their Effect on Adjacent Structures

Session 6A: "Seismic Geology and Risk Analysis" - California Room, Fairmont Hotel
Chairman: V. A. Illyichev (U.S.S.R.)
Discussion Leader: F. Muzzi (Italy)
Topic: Earthquake Recurrence Deduction from Historical Seismicity and Geologic Slip Rate

Session 7A: "Soil Liquefaction During Earthquakes" - Hunt Room Fairmont Hotel
Chairman: T. Iwasaki (Japan)
Discussion Leader: W.D.L Finn (Canada)
Topics: Liquefaction of Soils Other Than Clean Sands; Dynamic Effective Stress Analysis

Session 8A: "Prediction and Performance of Earth and Rockfill Dams" - Crystal Room, Fairmont Hotel
Chairman: E. Souto (Brazil)
Discussion Leader: P. Anagnosti (Yugoslavia)
Topics: Critical Factors for Prediction of Stresses, Displacements and Pore Pressures; Relationship between Performance, Predictions and Instrumentation Layout

Session 9A: "Geologic Aspects of Slope Stability Problems" - French Room, Fairmont Hotel
Chairman: T. L. Brekke (U.S.A.)
Discussion Leader: S. Cavounidis (Greece)
Topic: Three-Dimensional Effects; Progressive Failure; Effects of Oriented Discontinuities

10:00 am- Exhibition continues at the Masonic
2:30 pm Auditorium Exhibition Hall

12:15 am- Lunch for all registrants in the
1:15 Grand Ballroom of the Fairmont Hotel

1:30 pm- Discussion Sessions as follows:
4:30 pm

Session 1B: "Numerical Methods" - Gold Room, Fairmont Hotel
Chairman: W. Wolski (Poland)
Discussion Leader: M. Pender (New Zealand)
Topic: Engineering Analysis of Non-Linear Deformation Due to Yield, Failure, Strain Softening, and Repeated Loading

Session 2B: "Laboratory Testing - New Procedures and Data Acquisition Techniques" - Terrace Room, Fairmont Hotel
Chairman: E. Jarvio (Finland)
Discussion Leader: A. F. Tinoco (Venezuela)
Topics: Measurement of Anisotropy and Cyclic Loading Properties; Testing Special Soils

THURSDAY, AUGUST 15 (Contd.)

FRIDAY, AUGUST 16

Session 3B: "Seepage Control in Environmental Geotechnical Engineering" - Venetian Room, Fairmont Hotel
Chairman: J. Narain (India)
Discussion Leader: J. Hurtado (France)
Topic: Retained Fluid Effects on Permeability and Choice of Seepage Barrier

Session 4B: "Pier Foundations" - Peacock Court, Mark Hopkins Hotel
Chairman: Z. Bazant (Czechoslovakia)
Discussion Leader: M. Stocker (F.R.G.)
Topics: Bored Pile Capacity Predictions From In-Situ Tests; Group Capacity

Session 5B: "Earth Strengthening" - Room of the Dons, Mark Hopkins Hotel
Chairman: H. Brandl (Austria)
Discussion Leader: D. Evstatiev (Bulgaria)
Topic: Design of Earth Reinforcement

Session 6B: "Seismic Safety of Earth Structures" - Hunt Room, Fairmont Hotel
Chairman: G. Noguera (Chile)
Discussion Leader: W. F. Marcuson (U.S.A.)
Topic: Permanent Deformations: Allowable, Predicted and Measured

Session 7B: "Seismic Stability of Natural Slopes" - French Room, Fairmont Hotel
Chairman: Z.-Q. Wong (China)
Discussion Leader: S. Prakash (India)
Topic: Strength Evaluation for Stability Analysis

Session 8B: "Prediction and Performance of Excavation Support" - Crystal Room, Fairmont Hotel
Chairman: V. Escario (Spain)
Discussion Leader: J. Studer (Switzerland)
Topic: Simplified Methods for Working Load and Deformation Predictions

Session 9B: "Geological Aspects of Earth Dam Engineering" - California Room, Fairmont Hotel
Chairman: A. Van Schalkwyk (S. Africa)
Discussion Leader: K. Schetelig (F.R.G.)
Topics: Foundation Erosion under High Gradients; Suitability of Soils and Rocks with Changeable Properties as Embankment Dam Materials

8:00 pm- Evening Pops Concert in the Masonic Auditorium featuring the Oakland Symphony Orchestra.

10:00 pm- Post-Concert Party with light refreshments in the Grand Ballroom of the Fairmont Hotel.

Post-Concert Dance in the Terrace Room of the Fairmont Hotel.
All registrants and family members are invited as guests of the U.S. National Society and the U.S. Association of Soil and Foundation Engineers.

9:00 am- Discussion Sessions as follows:
12:00 noon

Session 1C: "Factor of Safety and Risk Analysis" - Gold Room, Fairmont Hotel
Chairman: F. Baguelin (France)
Discussion Leader: R. J. Mair (U.K.)
Topic: Influences of Analysis Method, Parameter Assessment, and Failure Consequences

Session 2C: "Centrifuge Testing and Its Application" - Crystal Room, Fairmont Hotel
Chairman: A. Schofield (U.K.)
Discussion organized by ISSMFE Committee on Centrifuge Testing
Topic: State-of-the-Art of Centrifuge Modeling

Session 2D: "Field Instrumentation and Field Measurements" - Terrace Room, Fairmont Hotel
Chairman: A. S. Rico (Mexico)
Discussion Leader: J.E.B. Hartlen (Sweden)
Topics: Evaluation of Piezometers and Pressure Cells; Automated Data Acquisition Systems

Session 3C: "Tailings Dams and Other Waste Impoundment Systems" - Hunt Room, Fairmont Hotel
Chairman: O. Mejia (Colombia)
Discussion Leader: J. A. Caldwell (S. Africa)
Topic: Placement Methods and Geotechnical Performance

Session 4C: "Foundations for Off-Shore Structures, Peacock Court, Mark Hopkins Hotel
Chairman: J. A. Jimenez-Salas (Spain)
Discussion Leader: K. Hoeg (Norway)
Topic: Frictional Capacity of Piles in Calcareous Sands and Very Dense Sands

Session 5C: "Applications of Geotextiles" - Room of the Dons, Mark Hopkins Hotel
Chairman: J. P. Giroud (U.S.A.)
Discussion organized by ISSMFE Committee on Geotextiles
Topics: Design; Applications; Research

Session 8C: "Prediction and Performance of Foundations" - Venetian Room, Fairmont Hotel
Chairman: O. Varde (Argentina)
Discussion Leader: J. S. Steenfelt (Denmark)
Topic: Relevance and Implementation of New Developments in Analysis and Theory in Design Practice

Session 8D: "Professional Practice of Geotechnical Engineering" - California Room, Fairmont Hotel
Chairman: G. Calabresi (Italy)
Discussion Leader: D.V. Roberts (U.S.A.)
Topic: Professional Liability in Geotechnical Engineering

FRIDAY, AUGUST 16 (Contd.)

Session 9C: "Problems in Areas with Special Geologic Conditions" - French Room, Fairmont Hotel
Chairman: G. Petrasovits (Hungary)
Discussion Leader: A. Komornik (Israel)
Topic: Foundation Problems in Arid Zones

12:15- Lunch for all registrants in the
1:15 pm Grand Ballroom of the Fairmont Hotel

1:30- Sixth Plenary Session - Masonic
4:30 Auditorium
Chairman: M. Fukuoka (Japan)

Special lectures on the History and Development of Geotechnical Engineering by the Past Presidents of the International Society.

Introductions by Masami Fukuoka (Japan)

"The History of Geotechnical Engineering Until 1700" by Jean Kerisel (France)

"A History of Soil Properties 1717-1927" by A. W. Skempton (U.K.)

"The Last Sixty Years"
by Ralph B. Peck (U.S.A.)

4:45- Closing Ceremonies - Masonic
5:15 Auditorium

7:15- Reception for Banquet in the Terrace
8:00 Room of the Fairmont Hotel

8:00- Banquet with light entertainment in
10:00 the Grand Ballroom of the Fairmont Hotel

Photographic report of preconference and conference events
Rapport photographique des événements qui ont eu lieu avant et pendant le congrès