

Technische Universität München
Aufenstraße Pasing
Baumbachstraße 7
D-81245 München

IGS NEWS



NEWSLETTER OF THE INTERNATIONAL GEOSYNTHETICS SOCIETY

*Dedicated to the scientific and engineering development of geotextiles, geomembranes, related products,
and associated technologies*

VOLUME 12 NO. 2

JULY 1996

The IGS Welcomes the Romanian Chapter and How to Form an IGS Chapter *by Professor R.J. Bathurst, Vice President of the IGS*

The efforts of our many chapters are the most important activities of the IGS membership in meeting our collective mandate to advance the geosynthetics discipline at the local level.

One of my responsibilities as an Officer of the IGS is the development of new chapters. In my capacity as Chairman of the Chapters Committee, I am delighted to report to our members the formation of the Romanian Chapter of the IGS which became effective 1 January 1996. The new chapter is affiliated with the Romanian Association for Geotextiles and Geosynthetics (RAGG) and is chaired by Mr. Valentin Feodorov. A report on their recent activities can be found on page 2 of this newsletter. Mr. Feodorov and the 37 chapter members are to be congratulated for their work in launching the chapter over a very short period of time. The expeditious and enthusiastic efforts of this group are an example for other IGS members who may also wish to establish a new chapter. In fact, at the present time, South African IGS members are very close to forming a new chapter and I look forward to reporting the successful outcome of their efforts to our members in due course. Three other groups have made serious inquiries to the IGS and we are working closely with these individuals to see their efforts finalized.

A total of 13 IGS Chapters are now operating around the world. The officers of the IGS anticipate that we will continue to be contacted by individuals and groups asking for

information on the requirements and procedures to form an IGS Chapter. In view of this interest it is appropriate that I should advise the membership through our newsletter of the essential requirements to form a chapter and to describe the benefits that accrue from having a chapter.

The essential requirements to form a chapter of the IGS are: **1.** The chapter shall represent a single country or a well-defined geographical region; **2.** A minimum of 20 members who are currently, or are willing to become, members of the IGS; **3.** A set of chapter bylaws that are consistent with the bylaws of the IGS (an example set of bylaws can be obtained from the IGS Secretariat or by contacting any IGS Officer); and **4.** A President, Vice President, Treasurer and Secretary that are elected by the members.

The benefits of having a chapter are: **1.** A portion of the annual IGS membership dues that are paid by members directly to the IGS can be kept by the chapter to support local chapter activities. The IGS requires non-chapter members to pay US\$45 per year. As a chapter member, this annual fee is reduced to US\$30 which is collected by the chapter and remitted to the IGS. (Typically, a chapter charges its members US\$45 per year and retains US\$15 to support its activities.); **2.** Chapters are advantaged when the IGS decides on the venue for its international conferences that are held every four years; **3.** Chapters are advantaged when seeking the

IN THIS EDITION:

- Romanian Chapter Formed p2
- Asian Society for Environmental Geotechnology p4
- 6IGC Call for Papers p6

- Professor Training Course for Geosynthetics p8
- GeoFilters '96 Conference a Success p10
- International Symposium on MSB p13
- Calendar p14

Visit the IGS Web site at <http://igs.rmc.ca>

approval of the IGS to hold local conferences, symposia, workshops and related events under the auspices of the IGS, or with the support of the IGS.

Once the requirements outlined above are met, the bylaws of the chapter must be approved at a meeting of IGS Council. Once the bylaws are approved, the chapter becomes an official chapter of the IGS. Council meetings are held at

least once a year. A complete set of guidelines for the formation of an IGS Chapter and operating procedures are available from the IGS Secretariat at the address given on page 15 of this newsletter.

In closing, congratulations again to Mr. Feodorov and the new Romanian Chapter of the IGS.

Call for IGS Corporate Member Profiles on the IGS Web Site

As an additional benefit to Corporate Members of the IGS, the IGS now offers each Corporate Member the opportunity to publicize their company or organization on the IGS Web site (<http://igs.rmc.ca>).

Each Corporate Member will be allowed the equivalent of one hardcopy page of space roughly equal to the size of Corporate Profile articles that appear in issues of IGS News. A maximum of two photographs that illustrate products or projects will be permitted. Alternatively, IGS will provide a link to the Corporate Member Web site.

In order to take advantage of this offer each Corporate Member must submit an ASCII copy of their Corporate Profile on diskette or by email (bathurst@rmc.ca) to Professor Richard J. Bathurst, Vice President of the IGS. High quality

photographs or line drawings, preferably with captions, can be mailed to:

Professor Richard J. Bathurst
c/o Civil Engineering Department
Royal Military College of Canada
Kingston, Ontario K7K 5L0
CANADA

Any submitted articles will be edited to IGS News style as required. Alternatively, Corporate Members may advise the writer by email that they wish their most recent Corporate Profile that has appeared in IGS News to be used on the IGS Web site.

*contributed by R. J. Bathurst
Vice President of the IGS*

The Romanian Chapter of the IGS by Mr. Valentin Feodorov, Chapter President

The Romanian Association for Geotextiles and Geosynthetics (RAGG) was established in 1991.

The mandate of the association is to contribute to the promotion of geosynthetic materials and technical knowledge related to the manufacture and use of these products in construction works in Romania.

Effective 1 January 1996, the Romanian Association officially joined the IGS and now constitutes the Romanian Chapter of the Society.

Recent Activities

1. A short course of lectures on the use of geosynthetics in landfill applications was organized in March 1996 at the University of Timisoara, together with Ecoland- Tempus Project 08246-94.
2. A symposium was organized in April 1996 in Ramnicu-Valcea, together with Minet S.A. The topic of the symposium was the use of geotextiles in hydraulic works and road construction.
3. A seminar was organized in May 1996 in Bucharest, with the National Department for Land Reclamation. The seminar

focused on the use of geotextiles for bank protection works and dike repairs on the Danube River.

Publications

The first issue of the RAGG-Bulletin was published in April 1996.

Membership and Officers

The Romanian Chapter comprises thirty-three individual members and four student members.

Officers of the Romanian Chapter of the IGS, elected according to the bylaws of the RC-IGS, are as follows:

President: Mr. Valentin Feodorov, Iridex Group Ltd.

Vice Presidents: Mr. Stefan Constantinescu, Institute for Transport Designs; Prof. Cornel Mitoiu, Ministry of Waters, Forests, and Environment Protection

Secretary General: Mrs. Magdalena Bostenaru, Institute for Textile Research

Treasurer: Ms. Amedeea Tudor, Iridex Group, Ltd.

Policy on the Preparation of the IGS Directory

The 1996 IGS Directory has been published and has been distributed to members. The Directory contains detailed information about the society and its membership. Most important is the current addresses of the membership, both individual and corporate. This information is derived from a database that contains the membership record and address for each member. This file is created from information supplied to the IGS by the member or his/her chapter.

Additions, such as new members, as well as revisions and corrections of the database are essential to insure the Directory is accurate and includes all of the membership. The need for timely accuracy is lent great emphasis because the same database generates the mailing lists for the IGS News, postal ballots and any other direct communication between the society and its members.

The database is revised or corrected four times per year. After the publication of the Directory, information begins to be gathered and processed again. This process stops in mid-March with the preparation of the mailing list for the spring

issue of the IGS News. Corrections begin again immediately and stop with the June production of the mailing list for the summer issue of the IGS News. The program resumes and proceeds to the fall issue of the IGS News.

The final editing period closes on 1 November when preparations for printing the next Directory begin. New memberships or address changes received over the winter are included by the following March.

Accurate membership records and correct addresses and numbers are important to the membership. It is very important that the Directory be accurate so that the member receives the IGS News and correspondence in a timely fashion. Chapters, corporate and individual members can assist the IGS in maintaining accurate information by periodic review of their IGS records and prompt communication with the IGS Secretary when corrections and additions to the IGS database must be made.

*contributed by P.E. Stevenson
IGS Secretary*

Workshop on Testing of Geosynthetic Materials for Landfill Liners and Covers

by J.P. Giroud, Past President of the IGS

The International Landfill Symposium, held every other year in Sardinia, Italy, is the only international forum attended by specialists of all disciplines involved in the design, construction and operation of modern landfills. The attendees have a choice of sessions and workshops: sessions with typically hundreds of attendees, where papers are formally presented, followed by a short discussion; and workshops where the number of participants is limited to about 20-30 and where the emphasis is on a thorough discussion of a relatively limited topic. One of the workshops of the Fifth International Landfill Symposium held in October 1995 was on Testing of Geosynthetic Materials for Landfill Liners and Covers, and I was honored to moderate this workshop.

The workshop was truly international: participants were from the Far East, North and South America, and many European countries. Four papers were briefly presented at the beginning of the workshop; they are listed at the end of this article. The four papers essentially deal with the following three topics: action of leachate on geomembranes; behavior of geosynthetic drainage materials; and mechanical damage of geomembranes. The discussion naturally focused on these three topics.

Action of Leachate on Geomembranes

This topic has already been treated in many publications and the discussion at the workshop focused on one point: the

combined effect of leachate and stresses.

Data presented at the workshop show an important result: no acceleration of leachate action on a PVC or an HDPE geomembrane has been observed when the geomembrane is subjected to a 7% uniaxial tensile strain and a concentrated compressive stress applied on the geomembrane by 20 mm stones subjected to a 300 kPa normal stress. However, these data were based on tests of relatively short duration and all participants agreed that, to draw definitive conclusions, more testing should be conducted on this important topic.

Behavior of Geosynthetic Drainage Materials

All participants agreed that it was very important to test geosynthetic drainage materials (such as geonets and geocomposites) under conditions that simulate the conditions to which the geosynthetic is subjected in a landfill. Based on the data presented at the workshop, participants agreed that the following conditions should be simulated: combined normal and shear loading (in the case of geosynthetics installed on slopes), temperature, and time (creep).

Procedures for conducting such tests were discussed and the participants agreed that procedures that had been developed by several researchers were satisfactory and that standardization of some of the procedures was desirable.

Mechanical Damage of Geomembranes

The discussion focused on the puncture resistance of geomembranes. The most intensive part of the discussion was on the definition of failure. For example, if a geomembrane has been irreversibly stretched and has become thinner in contact with a stone, its ability to withstand tensile stresses in the future is reduced. Therefore, if it is expected that a geomembrane in a landfill will be subjected to tensile stresses, the relevant puncture resistance of the considered geomembrane should not be evaluated by the force that actually punctures the geomembrane in the puncture test. Instead, the failure criterion in the test should be the following: the geomembrane should be considered to have failed in the test when it has been weakened to the point that it will break in the future when the expected tensile stresses are applied. However, it was pointed out that the use of such a failure criterion for test interpretation requires precise measurements. A remarkable example was given, which shows that the accuracy of strain measurements is highly dependent on the scanning grid used to perform the measurements: the measured strain in a geomembrane damaged, but not punctured, by stones in a puncture test was approximately 0.3% with a scanning grid of 5 mm and 3% with a scanning grid of 0.5 mm. In other words, accurate measurements showed that the strain was approximately 10 times greater than that assumed on the basis of inaccurate measurements. Therefore, specifications used, in some countries, where the allowable strain for HDPE geomembranes is 0.5% (i.e. a very small value), and where measurements are made with a scanning grid of 5 mm, are in reality equivalent to an allowable strain on the order of 5%, which is a logical allowable strain for an HDPE geomembrane.

Conclusion

As a result of the above discussion, it was concluded that a complete design should include two approaches: a first approach based on the ultimate capacity of the material, with a large factor of safety; and a second approach based on working stresses. In conclusion, the workshop was successful because researchers and designers worked together to develop practical recommendations.

REFERENCES OF PAPERS PRESENTED AT THE WORKSHOP

- Artieres, O. and Delmas, P., "Puncture Resistance of Geotextile-Geomembrane Lining Systems", Proceedings of the Fifth International Landfill Symposium, Sardinia, Italy, October 1995, Vol. 2, pp. 469-476.
- Cazzuffi, D., Corbet, S., Montanelli, F., and Rimoldi, P., "Compressive Creep Test and Inclined Plane Friction Test for Geosynthetics in Landfills", Proceedings of the Fifth International Landfill Symposium, Sardinia, Italy, October 1995, Vol. 2, pp. 477-491.
- Surmann, R., Pierson, P., and Cottour, P., "Geomembrane Liner Performance and Long Term Durability", Proceedings of the Fifth International Landfill Symposium, Sardinia, Italy, October 1995, Vol. 2, pp. 405-414.
- Werner, G. and Puhlinger, G., "Tests for Evaluation of Synthetic Liner Protection", Proceedings of the Fifth International Landfill Symposium, Sardinia, Italy, Oct 1995, Vol. 2, pp. 493-498.

The Formation of the Asian Society for Environmental Geotechnology

by Pietro Rimoldi, IGS Council Member

On 1 December 1995, a meeting was held in New Delhi, India, to form the Asian Society for Environmental Geotechnology (ASEG). The meeting was convened at the Central Board of Irrigation and Power (CBIP) in New Delhi.

Dr. G.V. Rao, Professor and Head, Dept. of Civil Engineering, IIT Delhi, accepted to chair the meeting. Other persons attending the meeting were : Mr. Pietro Rimoldi, Director of the Geosynthetics Division of Tenax SpA Italy, who was invited in his capacity as a Council Member of IGS and to provide international feedback; Mr. Som Sarkar, Som Sarkar and Associates, Consulting Engineer, New Delhi; Mr. Gurdip S. Khinda, Superintending Engineer (Roads), Ministry of Surface Transport of India; Mr. Narinder Sharma, Executive Engineer (R&B), Public Works Department, India; Dr. T. Kalyana Sundaram, General Manager (UTD), RITES, New Delhi, India; Mr. A.V.S.R. Murty, Deputy Director, Central Road Research Institute, India; Mr. Dharma Rao, Chief Engineer, Sreeramsagar Project, India; Mr. A. Azeem,

Geotechnical Research Engineer, Research Design and Standard Organization, Lucknow, India; Mr. A.R.G. Rao, Director, Central Board of Irrigation and Power, India.

This Steering Committee decided the following during their first meeting :

1. Name of Society: Asian Society for Environmental Geotechnology (ASEG)
2. Secretariat
Central Board of Irrigation & Power (CBIP)
Malcha Marg, Chanakyapuri
New Delhi-110021
Tel.: +91-11-3016567
Fax.: +91-11-3016347
email: cbip @ cbipdel. uunet. in

3. Objectives of the Society

- to collect and disseminate knowledge on all matters relevant to environmental geotechnology;
- to promote advancement of the state-of-the-art of environmental geotechnology;
- to improve communication and understanding regarding environmental geotechnology.

4. Executive Body

- President
- Four Vice Presidents
- Secretary General (the Secretary of the CBIP)
- Secretary-cum-Treasurer (the Director of the CBIP)
- Members: 11

Prof. G.V. Rao was unanimously elected as President.

Mr. A.R.G. Rao was elected Treasurer, while Mr. P. Rimoldi was nominated Vice President-International and Mr. S. Sarkar Vice President-India. The other two Vice Presidents will be nominated from amongst prominent Asian experts to represent regional entities (e.g. Far East, South East Asia, etc.)

5. Membership

5.1 The membership fee as decided on a calendar year basis is given below :

- Individual Member: Rs. 200
- Corporate Member: Rs. 5,000
- Student Member: Rs. 50

5.2 Any engineering professional/scientist can become a member of the society.

The ASEG plans to limit membership to persons from the Asian Region initially but expand later to cover other regions.

A group comprising members from countries such as Japan, Singapore, Nepal, Srilanka, Bangladesh, Malaysia, Thailand, Taiwan, will start to work soon.

The ASEG is requesting that engineers and scientists working with the IGS or ISRM, and persons in the fields of chemical engineering, environmental engineering, civil engineering, botany, biology, agronomy, social sciences consider becoming members of the society.

Technical committees could be formed under the society comprising experts connected with the above fields, to discuss a range of problems and develop guidelines taking into consideration the political, environmental and social aspects of environmental geotechnology, after identifying the problems, particularly as related to Asian countries.

Environmental protection is becoming a priority issue in Asia and this new society can be instrumental in guiding the correct application of products and technologies, including geosynthetics. Therefore, ASEG hopes a number of geosynthetics "experts" will join this new society.

Given the many benefits of using geosynthetics in environmental geotechnology, ASEG is looking to a strong liaison with the IGS. The two societies have many interests in common and it is important that a positive collaboration is established.

Recent Case Histories and Developments in the Design of Geosynthetic-Reinforced Soil Retaining Walls

Sponsored by the Japanese Chapter, IGS

This is a pre-symposium to IS Kyushu '96 on earth reinforcement, scheduled for the 12-14 November 1996 and a follow up to the symposium on "Recent Case Histories of Permanent Geosynthetic-Reinforced Soil Retaining Walls" held in 1992 at the Institute of Industrial Science (IIS), University of Tokyo. The proceedings were published by Balkema.

Date: 9 November 1996

Location: Conference room, Institute of Industrial Science, University of Tokyo, Tokyo (address: 7-22-1, Roppongi, Minato-ku, Tokyo, 106)

Speakers: Bathurst (Canada), Rowe (Canada), Gourc (France), Wichter (Germany), Cazzuffi (Italy), Voskamp (the Netherlands), Jones (UK), Holtz (USA), Leschinsky, Ling, Wu (USA), Tatsuoka (Japan), Huang (Taiwan), and others.

Fee for participation: about US\$50 for a preprint and the reception. Preregistration is not required. The symposium

will start at 9:30 and will end around 18:00. The detailed program will be sent on request.

Contact:

Prof. F. Tatsuoka
Dept. of Civil Engineering
University of Tokyo
7-3-1 Hongo, Bunkyo-ku
Tokyo 113
JAPAN

Tel.: 81-03-3812-2111
ext. 6120
Fax: 81-03-5689-7268

Dr. J. Koseki
IIS, University of Tokyo
7-22-1, Roppongi, Minato-ku
Tokyo 106
JAPAN

Tel.: 81-03-3479-0261
Fax: 81-03-3479-0261

*contributed by Prof. F. Tatsuoka
IGS Council Member*

6th Int'l Conference on Geosynthetics: Call For Papers

Abstracts Due 1 September 1996

The 6th International Conference on Geosynthetics will be held 25-29 March 1998 at the Inforum, Atlanta, Georgia, U.S.A. The conference is organized under the auspices of the International Geosynthetics Society by the North American Geosynthetics Society (NAGS) and the Industrial Fabrics Association International (IFAI).

The conference will feature four keynote lectures (including the Giroud Lecture) and approximately one hundred technical presentations on both state-of-the-practice and state-of-the-art with respect to the use of geosynthetics. Papers will be presented in three parallel sessions. A three-day exhibition of products and services will run in

conjunction with the conference which is expected to attract more than two thousand attendees. The official language of the conference will be English.

Original papers describing novel and innovative developments, practical applications, new technologies and research are invited for presentation at the conference. The contact for information on submission of abstracts is given on p14 (Calendar). Authors will be notified in January 1997 of acceptance or rejection based on the abstract review. Following acceptance of the abstract, the full text of the paper will be due for peer review not later than 1 May 1997.

EUROGEO 1

30 September- 2 October 1996

Since the publication of the preliminary program in Bulletin Two, no fundamental changes have been made. More than 140 technical papers have been received and are being grouped for publication in the proceedings.

The Final Program

note: most sessions are followed by a short course on the same subject.

Monday: Soil Engineering

Morning Keynote- Professor J.P. Gourc (Grenoble) Walls and Steep Slopes.

- Case studies of walls and slopes (Jones).
- German Chapter: "Stressing of geosynthetics during installation and construction on site" (W. Wilmers).
- Workshop on reinforcement with geosynthetics (Nimmegern).
- Discussion session on "Interaction between soil and geosynthetics" (McGown).
- Demonstration on sewing/bonding of geotextiles.

Afternoon Keynote- Professor S.F. Brown (Nottingham) (Rail)Roads and Embankments.

After tea, there will be these concurrent activities:

- Case studies on roads and embankments.
- UK Chapter: "Embankment construction over voids and piles" (Corbet).
- Workshop on numerical methods (Brinkgreve).
- Poster session.

Tuesday: Environmental Engineering

Morning Keynote: Dr. E. Gartung (Nurnberg) Landfill Liners and Covers.

- Case studies on landfills (Loxham).
- French Chapter: Modern landfills in southern Europe (case histories and environmental policy) (Gourc).
- Workshop on liner leak monitoring and location technologies; repairing liner leaks (Peggs).

- Discussion session on the durability of geosynthetics (Greenwood).
- Session on geomembranes (Gluck).
- Demonstration on the welding of geomembranes.

Afternoon Keynote- Professor R.M. Koerner (Drexel, GRI) Monitoring.

- Workshop "How to select geotextiles?" (Shishoo et al.).
- Monitoring and quality control (Matichard).
- Workshop on drainage systems in landfills (Saathoff).
- Workshop/Discussion on CE-marking (Foubert et al.).
- Session on geosynthetic clay liners (Ruppert).
- Demonstration of leak detection techniques.
- Poster session.

Wednesday

Morning: Mercer Lecture, Professor F. Tatsuoka (Tokyo) "Geosynthetic-reinforced soil retaining walls as important permanent structures".

- Presentation of IGS Awards (Gartung et al.).

Afternoon: Hydraulic Engineering

Keynote speaker: Professor K. d'Angremond (Delft) Bank and Shore Protection.

- Italian Chapter: Geomembranes in dams (Steffen).
- Case studies of hydraulic engineering projects.
- Dutch Chapter: New applications in dikes and banks.
- Workshop on geosystems in hydraulic engineering.

Registration forms can be obtained from:

Holland Organizing Centre

Parkstraat 29

NL-2514 JD The Hague

Tel.: 31 (70) 365-7850 Fax: 31 (70) 365-4846

email: eurogeo96@hoc.nl

*contributed by Mr. Gert den Hoedt
Honorary Member, IGS*

Annual Report of Japanese Chapter of the IGS (JCIGS)

Editor's note: *Chapter reports are submitted yearly, and published as space allows.*

On 12 February 1996, the JCIGS General Assembly was held in Tokyo. The following items were reported and approved by the membership:

- 1) Membership as of the end of December 1995:
 - Honorary members: 1
 - Individual members: 200
 - Student members: 14
 - Corporate members: 22
- 2) Publications in 1995:
 - JCIGS Membership Directory in February
 - JCIGS Newsletters in March, July and December
 - Notes for the JCIGS Geotextile seminar in March
 - Notes for the Second Geomembrane Seminar in April
 - "Introduction to Geomembrane Engineering" in October
 - Proceedings of the Tenth Geosynthetics Symposium in November
- 3) Programs sponsored by JCIGS in 1995:
 - JCIGS General Assembly, Tokyo, 19 January
 - Geotextile Seminar, Tokyo, 16 March: 60 participants
 - The Second Geomembrane Seminar, Tokyo, 6 April: 60 participants
 - Seminar for "Introduction to Geomembrane Engineering," Tokyo, 12 October: 80 participants
 - Tenth Geosynthetics Symposium, Tokyo, 30 November: 17 papers presented, 80 participants
 - Contributions to sessions on geosynthetics: the Annual Meeting of JSSMFE, Kanazawa, 11-13 July and the Annual Meeting of JSCE, Maysuyama, 19-21 Sep.
- 4) Activities of JCIGS committees
The dates of the committee meetings held are as follows:
 - Steering Committee: 25 April, 6 November
 - Planning Committee: 17 January
 - Programs Committee: 14 June, 15 November
 - Editorial Committee for JCIGS Newsletters: 10 January, 30 March, 12 August, 8 December
 - Geomembrane Technical Committee: 20 January, 14 February, 16 March, 17 May, 14 June, 4 July, 12 September, 6 November, 12 December
 - Auditing: 19 January
- 5) Contacts with IGS:
 - Council Meetings: Attended by Professors M. Fukuoka and T. Akagi, in Nashville on 19-20 February and at Beaune on 28 September 1995
 - IGS News: the Annual Report of JCIGS published in the July 1995 issue
 - List of JCIGS Members: Transmitted to IGS
- 6) Election of JCIGS Officers for 1996:
 - Chairman: Masami Fukuoka
 - Advisors: Shigeru Tanaka and Toyotoshi Yamanouchi
 - Secretary General: Komei Iwasaki
 - Board Members: Hiroshi Abe, Toshinobu Akagi, Hitoshi Arai, Fumihiko Hashizume, Takashi Horiguchi, Shigekazu Horiya, Masao Itoh, Kiyomaro Kasahara, Hirota Kawasaki, Yoji Kikuchi, Akikatsu Kobayashi, Norio Konishi, Koji Kumagai, Katsuhiko Makiuchi, Takayuki Masuo, Kazuo Matsumoto, Hiroshi Miki, Osamu Murata, Kazuyuki Nakamura, Tatsuaki Nishigata, Moriichi Nitta, Masahiko Sakaguchi, Sigeru Suzuki, Shin-ichi Takahashi, Masatoshi Tanaka, Fumio Tatsuoka, Hideki Tsukamoto, Tanehide Tsuruoka, Yoshiharu Watari, Tomomasa Yamada, Tsuneo Yamashita, Shin-ichi Yamato, and Susumu Yoshikawa
 - Treasurer: Kenkichi Maruyama
 - Auditors: Shigekazu Horiya and Tomomasa Yamada
 - Liaison Secretary: Toshinobu Akagi
 - Secretaries: Norio Yoshioka, Shiro Ohkura and Machiko Kumagai
- 7) Programs proposed for 1996
 - Publication of the JCIGS Membership Directory in March, JCIGS Newsletters to be issued in March, July, and November, Notes for Geosynthetics Seminar and Geomembranes Seminar, and proceedings of the Eleventh Geosynthetics Symposium to be held in December
 - Sponsorship of the Geosynthetics Seminar and the third Geomembrane Seminars
 - Sponsorship of Geosynthetics Seminars for student members
 - Sponsorship of the Eleventh Geosynthetics Symposium to be held in December
 - Committee activities by Steering Committee, Planning Committee, Programs Committee, Editorial Committee for JCIGS Newsletters and Technical Committees
 - Participation in the IGS Council: JCIGS will continue to be in close contact with the IGS and send the Japanese council members to the IGS Council meetings to be held in Maastricht on September 29
 - Promotion of IGS membership drive with a goal to increase five percent by the end of 1996
- 8) Treasurer's Report:

In the year 1995, the chapter revenue was 8,417,711 yen, while the expenditures were 7,759,241 yen, resulting in a nominal surplus of 658,470 yen. Without the considerable support provided by the Japanese Geotechnical Society (JGS), the balance would surely have been in the red. JCIGS has no office of its own nor full-time employees.

*reported by T. Akagi
Liaison Secretary*

Technical Visit of the Italian Chapter of IGS to ENEL Spa-CRIS

On 6 March 1996, the Italian Chapter of the IGS (AGI-IGS) organized a technical visit to ENEL SPA- Hydraulic and Structural Research Center (CRIS) in Milan. The host was the CRIS Special Materials Group, which has been working in the field of geosynthetics testing for more than fifteen years under the guidance of Ing. Daniele Cazzuffi.

The CRIS director Gabriella Giuseppetti welcomed thirty-five people from Italy and three from Switzerland. The visit was divided into two sessions: the morning session dedicated to geotextiles and geotextile-related products, the afternoon session dedicated to geomembranes and geosynthetic clay liners. Daniele Cazzuffi opened each session by introducing general characteristics, applications, and testing procedures of geotextiles and geomembranes, respectively. After each presentation the staff of the Research Group on Special Materials showed the visitors some of the main mechanical tests, physical tests, hydraulic tests, durability tests, and fin-

gerprinting procedures, which CRIS performs on geotextiles and geomembranes. Two cases of collaboration between CRIS and Italian universities were also discussed. In the morning Massimo Tondello, from the University of Padua, presented an original device for monitoring the behavior of geotextile filters under unsteady hydraulic flow conditions. In the afternoon, Salvatore Castaldo, from the University of Palermo, presented the preliminary results of experimental research on the chemical compatibility of geomembranes with synthetic landfill leachate.

Philippe Delmas, Technical Director of Bidim Geosynthetics S.A., as coordinator of CEN TC 189/WG 1, closed the visit by presenting the CEN TC 189 activities on geotextiles and related products, with particular reference to the CE mark.

*contributed by Salvatore Castaldo
University of Palermo*

1996 Professor Training Course for Geosynthetics a Success!

by D.J. Elton, Editor, IGS News

The Industrial Fabrics Association International (IFAI) recently conducted its third annual Professor Training Course For Geosynthetics at Auburn University. The five-day, expenses-paid course was attended by twenty-four invited North American university professors. The attendees received detailed training to assist in teaching designing with geosynthetics. The professors were able to take the teaching materials, generic samples, and the knowledge gained, back to their own classrooms.

The purpose of the course was to provide university professors with instructional materials that will assist them in teaching civil engineering students about geosynthetics. Geosynthetics have applications in many areas of geotechnical, environmental, and transportation engineering. The course notes were arranged topically so that each professor could build upon his existing class notes on a specific area.

The course was generously sponsored by the IFAI, the Geosynthetics Institute, the PVC Geomembrane Institute, the Erosion Control Technology Council and the North American Geosynthetics Society. Mr. Joe Luna, of Akzo-Nobel, chaired the IFAI Education committee, which oversaw the program.

Six instructors, highly knowledgeable in their fields, were invited from North America to address the attendees. Dr. Richard Bathurst, of the Royal Military College of Canada, lectured on applications, testing, and composition of geosynthetics. He was assisted by Dr. Sabit Adanur, of Auburn University, who lectured on geotextile manufactur-

ing. Dr. Robert Holtz, University of Washington, lectured on pavement applications and use of geosynthetics in embankments on soft foundations. Dr. John Bowders, University of Texas at Austin, lectured on filtration and drainage and Dr. David Elton, Auburn University, addressed erosion control applications. Dr. Barry Christopher, a geosynthetics consultant, presented a detailed explanation of designing steepened slopes and mechanically stabilized earth walls. On the last day of the course, Dr. Robert Koerner, Drexel University, addressed landfill applications. The instructors spoke to a very receptive audience resulting in an excellent exchange of information, ideas, and experiences.

A course highlight included demonstration of geotextile manufacture and testing, conducted in the Auburn University Textile Engineering building. Dr. Sabit Adanur and Mr. Paul Brady demonstrated several tests, weaving and nonwoven technology, as the participants watched several types of looms in operation. The participants were able to see several demonstration geotextile tests performed.

The course included a "Meet the Sponsors Reception", where representatives of several sponsoring agencies met with the professors. The meeting was sponsored by the IFAI. Professors were able to make contacts that will be useful in future educational efforts in geosynthetics, such as seminar speakers and field trips.

The attendees received many instructional and technical materials. The primary teaching material was the participant

notebook. Each instructor prepared an outline, notes, and references specifically designed for this course. These were compiled to form a comprehensive topical reference for the attendees to use directly in their courses. The notes contained many design examples.

The attendees also received many other course materials. These included several design manuals, generic product samples, over 150 slides, five videos, conference proceedings, Geosynthetics Case Histories Volume, and the ASTM geosynthetics test standards.

The technical instruction was complemented by a session by Dr. Elton on "Tips for Teaching Geosynthetics". The attendees discussed resources, technologies, and materials that make geosynthetics education effective. Many interesting

teaching methods and ideas were discussed. Because of the valuable week spent at Auburn University attending the IFAI Professor Training Course For Geosynthetics, each professor will be able to add to their existing courses or to develop new courses for geosynthetics.

Dr. David Elton was the Director of Instruction for the course. Dr. Elton organized the presentations, selected many of the many materials distributed to the attendees and actively pursued funding for the course. Ms. Belinda Reutter, of the Auburn University Engineering Extension Service, performed a myriad of tasks that made the course error-free and truly enjoyable for all participants. Ms. Reutter supervised all the mechanical details of housing, transportation, accounting and more with dispatch and efficiency.

Proceedings of *Soil Reinforcing in Europe* Available

Since the construction of the first reinforced soil wall in 1964, the technology of soil reinforcing has expanded at an almost exponential rate. Over the past three decades a wide spectrum of soil reinforcing techniques and materials have entered the marketplace, accompanied by an array of design methods. This book presents an accessible selection of papers, giving an appreciation of the materials, design considerations, applications and construction techniques currently employed in Europe.

Written by practicing engineers, the twenty-two papers provide case histories which illustrate current applications in soil reinforcing. Topics covered include the development and use of polymeric reinforcement, basal reinforcement, the use of reinforced soil structures in landfills, and ballistic soil nailing. The practice of soil reinforcing in Europe (ISBN 0 7277 2083 X, 309pp) is essential reading for those

considering the design, specification and construction of soil reinforcing techniques.

Copies are available for £55.00 UK and Europe / £62.00 elsewhere by air. Order from:

Thomas Telford Services Ltd.
1 Heron Quay
London E14 4JD
UK

Tel.: 44 171 987-6999
Fax.: 44 171 537-3631

Contact Fiona Shepherd at Thomas Telford on 44 171-987-6999 ext 423, or the editor of the proceedings, Dr. T.S. Ingold at 44 1727 842433 for further information.

GeoFilters '96 Focuses on Filtration and Drainage by Professor Jean Lafleur, Ecole Polytechnique, Montreal

GeoFilters '96 was held 29-31 May 1996 in Montreal, Quebec, Canada. It was sponsored by the International Geosynthetics Society (IGS), the International Society for Soil Mechanics and Foundation Engineering (ISSMFE), the International Commission on Large Dams (ICOLD), the Industrial Fabrics Association International (IFAI) and the North American Geosynthetics Society.

Participants came from eighteen countries located on the five continents: 43% were academics, 43% consultants and 14% were from industry. During the conference, three sessions covered Design Criteria, while two sessions covered Applications and Long-Term Performance. Other sessions were devoted to Theoretical Developments, Geosynthetics Properties, Drainage and Compatibility Testing, totaling 55 presentations. A wealth of data was presented which will

surely contribute to an improved understanding of filtration mechanisms.

In his extensive keynote presentation, Dr. J.P. Giroud made a thorough analysis of the factors influencing the geometry of the filtering medium. Some concepts involved in their selection were detailed: constriction size, internal stability, bridging, indicative filtration diameter, clogging, and wettability. A general selection criterion was proposed for discussion. It is based on the ratio of geotextile thickness to fiber diameter, porosity and an indicative particle size, itself defined as a function of the coefficient of uniformity of the soil to be protected.

The conference contained a French and humorous flavor from this part of North America. The banquet took place in

the middle of a maple forest (sugar bush). During the "closing ceremony", J.P. Giroud was named "Chevalier de la Hache" (Knight of the Ax). To deserve such an honor, he had to split, with the ax, a wooden match (he believed!) with eyes blindfolded. In fact, his own socks quickly replaced the match on the block and when uncovered, Dr. Giroud realized, in front of an audience shaken with laughter, that this title was obtained at the cost of his Pierre Cardin socks.

Finally, to the delight of the French-speaking audience, Dr. Giroud started his keynote presentation by an introduction in French alexandrine verses, reproduced here:

Mesdames et messieurs, et vous mon cher Lafleur,
Qui venez de parler, avec tant de chaleur,
En ouvrant ce discours, vous permettrez que j'ose
Déclamer quelques vers, et non parler en prose,
Pour vous montrer combien je me sens rempli d'aise
Dans cette métropole de la culture française.
Et sachez combien douce est pour moi la pensée
De pouvoir dire ici quelques mots en français.
Et vous les francophones, venus du monde entier
Sachez que, de mon temps, je voudrais la moitié
Consacrée à parler notre langue maternelle,
Si douce pour l'oreille, et pour l'esprit si belle.
Hélas, je dois laisser ces vers alexandrins,
Pour vous parler de filtres, d'érosion et de drains.
Je dois utiliser la langue de Shakespeare,
Peut-être pour le meilleur, et peut-être pour le pire,
Car de parler français ne serait pas compris
Pour ceux qui n'ont pas eu la chance d'avoir appris.
Mais ne m'en voulez pas, plutôt réjouissez-vous
D'entendre ici la langue que vous parlez chez vous.
Même si cela ne dure qu'un trop petit instant,
Qu'il nous rappelle au moins le souvenir du temps

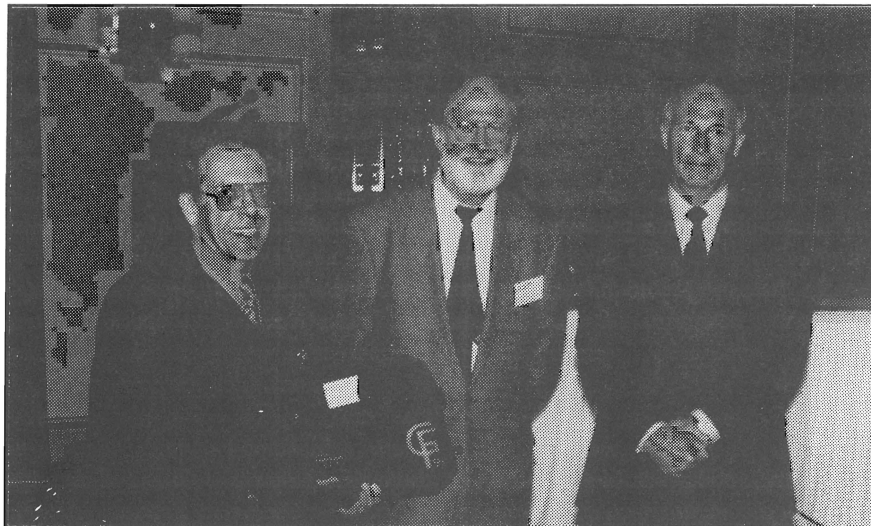
Óu l'on aimait parler le langage de la cour
Qui, de l'alexandrin, sut codifier le cours.
Sachez qu'à Montréal, je ne pense qu'en français,
Même si maintenant je dois parler anglais.
Et je terminerai ces vers d'introduction
En vous remerciant bien de toute votre attention.

The conference was a success, as it gave many researchers and practitioners the opportunity to network and to build friendships with workers in the field of geofilters throughout the world. For those who were unable to attend, copies of the proceedings can be ordered at any of the following addresses, at the cost of US\$80 (CAN\$100) plus mailing costs:

BUREAU DES CONGRES
Ecole Polytechnique
C.P. 6079, succ. Centre-Ville
Montréal, QC, Canada, H3A 3A7
Tel.: 1 514-340-3215
Fax: 1 514-340-4440

BITECH PUBLISHERS
173-11860 Hammersmith Way
Richmond, BC, Canada, V7A 5G1
Tel.: 1 604-277-4250
Fax: 1 604-277-8125

Industrial Fabrics Association International
345 Cedar St., Suite 800
St. Paul MN, USA, 55101-1088
Tel.: 1 612-222-2508
Fax: 1 612-222-8215



Dr. Andre Rollin, Dr. Jean Lafleur and Dr. J.P. Giroud share a moment before Dr. Giroud's address at GeoFilters '96.

CORPORATE PROFILES

The IGS Council has decided that in each issue of the IGS News, up to three Corporate Members will be allocated space to allow them to introduce their company or association and present their achievements. The criteria for selection of corporate profiles were described in IGS News, v4, no. 2, p7. Alternatively, you can get details by writing to the Editor. There is no charge for having a corporate profile published; it is a benefit of corporate membership.

Presto® Products Company **Appleton, Wisconsin, USA** *by Dan Senf, Manager Geosystems Division*

Product innovation has always been the key to success for Presto since the company's first involvement in developing cellular confinement technology back in the late 1970s. Working with the U.S. Army Corps of Engineers, Presto developed the Geoweb® cellular confinement system.

Cellular confinement technology is based on the principle of increased strength and resistance to movement of granular materials by confinement. The Geoweb system is an engineered, expandable, polyethylene, honeycomb-like cellular structure. The system is utilized for slope protection, channel protection, load support and earth retention. The system significantly improves the performance of infill materials including sand, topsoil/vegetation, aggregate and concrete.

Advanced Product Development

Engineering advancements are on-going at Presto Geosystems. Advancements include the introduction of both surface-textured and perforated Geoweb cells, and high-strength tendons. The Geoweb system is also available in a variety of colors for better blending with the surrounding environment in earth retention applications. Geoweb has a unique seam weld pattern. The Geoweb system meets and exceeds the rigorous seam strength tests established by Presto Products Co. and the U.S. Army Corps of Engineers.

Versatile Cell Wall Options

The Presto Geoweb Cellular Confinement System is available in smooth surface, textured surface and perforated.



Anchored steep slope erosion control, before filling with earth.

wall types. The textured Geoweb cell surface features an engineered pattern of indentations that increase friction between the cell wall and infill material.

The perforated cell wall provides increased frictional interlock with a broad range of infill materials, including gravels, crushed rock and concrete.

Integral Polymeric Tendons

Polymeric tendons incorporated into the Geoweb system through pre-drilled holes can be used to anchor Geoweb sections to embankments and slopes.

Tendons are particularly useful when a geomembrane underlayer or naturally hard soil/rock prevents anchoring the Geoweb with stakes. In this case, tendons are secured at the top of the slope. Standard tendons are manufactured from knitted multi-filament high-strength polyester. The tendons are available in ultimate tensile strengths, from 1,330 to 7,120N, to meet specific requirements. Polyethylene-coated tendons are available to enhance overall durability. For more information, contact:

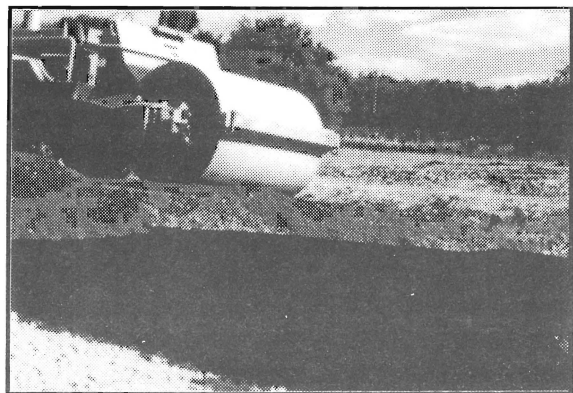
PRESTO PRODUCTS COMPANY

Geosystems® Products

P O Box 2399, Appleton, WI, USA 54913-2399

Tel.: 1 800 548 3424 or 1 414 738 1118 Fax: 1 414 738 1418

Presto Products Company has been a Corporate Member of the IGS since 1996.



Compaction of soil over Geoweb with high loads.

Geotextiles & Geomembranes

an Official Journal of the IGS

The journal has a publication frequency of twelve issues per year. The full subscription price for 1996 is UK£330 or US\$510. Members of the IGS may subscribe at an 80% discount, i.e. UK£66 or US\$102. Corporate members of the IGS may subscribe at a 50% discount, i.e. UK£165 or US\$255.

Reduced subscriptions are available directly from the publisher and may be paid for by cheque or credit card.

Please write to:

Subscriptions Department
Elsevier Science Ltd.
The Boulevard, Langford Lane, Kidlington
Oxford OX5 1GB UK
Fax: 44(0) 865 843911

Members are reminded that to take advantage of this discount they must inform Elsevier Science Ltd. that they are a member of the IGS. IGS members are encouraged to use *Geotextiles & Geomembranes* as an outlet for their technical papers and thus contribute toward the continuing success of this high quality publication which now has subscribers in over 40 countries worldwide. Papers should contain work not published in full elsewhere and should be sent to:

Dr. Nigel W.M. John
Department of Civil Engineering
Queen Mary & Westfield College
University of London
Mile End Road London, E1 4NS UK

Instructions to authors are available from Dr. Nigel John

Geosynthetics International

an Official Journal of the IGS

Geosynthetics International is an official journal of the IGS. Consequently, each issue of *Geosynthetics International* is published with the IGS logo on the cover.

In recognition of the adoption of Geosynthetics International by the IGS, the Industrial Fabrics Association International, publisher of *Geosynthetics International*, has introduced a special reduced subscription rate for individual IGS members. For individual IGS Members the rate is now US\$99 per six issues with the standard rate of US\$225 applying to non-IGS Members, IGS Corporate Members and other corporations or institutions. IGS members are encouraged to use *Geosynthetics International* as an outlet for their technical papers and thus contribute toward the continuing success of this high quality publication. Papers should be work not published in full elsewhere and should be sent to any of the following:

Editor, Dr. T.S. Ingold, Mulberry Lodge, St. Peters Close, St. Albans, AL1 3ES, UK
Tel.: 44-1727-842433 Fax 44-1727-845266

Co-Editor, Dr. Richard J. Bathurst
Civil Engineering Department
Royal Military College of Canada
Kingston, Ontario K7K 5L0
CANADA

Tel.: 1 (613) 541-6000, ext. 6479 Fax: 1 (613) 541-6599

Chairman of the Editorial Board,
Dr. J.P. Giroud

GeoSyntec Consultants, 621 N.W. 53rd Street, Suite 650,
Boca Raton, FL 33487
USA

Tel.: 1 (407) 995-0900 Fax: 1 (407) 995-0925

For subscriptions, contact:

Ms. Susan Palmer
Industrial Fabrics Association International
345 Cedar Street, Suite 800
St. Paul, MN 55101 USA
Tel.: 1 (612) 222-2508 Fax: 1 (612) 222-8215

Geosynthetics International

Contents of Recent Issues

List of Recent Technical Papers and Technical Notes in *Geosynthetics International*.

Vol. 3 No. 2 1996

Geotextile Characterization and Pore-Size Distribution: Part II. A Review of Test Methods and Results, S.K. Bhatia and J.L. Smith

Strain-Softening Behavior of Waste Containment System Interfaces, R.B. Gilbert and R.J. Byrne

Influence of Strain Rate, Specimen Length and Confinement on Measured Geotextile Properties, S.R. Boyle, M. Gallagher and R.D. Holtz

Bibliothek
LEHRSTUHL UND PRÜFAMIT FÜR GRUNDBAU,
BODENMECHANIK UND FELSMCHANIK
Technische Universität München
Außenstelle Pasing
Baumbachstraße 7

Geomembrane Microtopography by Atomic Force Microscopy, J.E. Dove, J.D. Frost, and P.M. Dove

Interface Shear Behavior of Landfill Composite Liner Systems: A Finite Element Analysis, K.R. Reddy, S. Kosgi and E.S. Motan

Out-of-Plane Tensile Behavior of Geosynthetic Clay Liners, R.M. Koerner, G.R. Koerner and M.A. Eberle

Vol. 3 No. 1 1996

Walls Reinforced with Fiber Reinforced Plastic Geogrids in Japan, K. Miyata

A Study of the Seismic Behavior of Geosynthetic Reinforced Walls in Japan, M. Sakaguchi

Soil Reinforcement Practice for Fills Over Soft Ground in Japan, H. Ochiai, Y. Watari & Y. Tsukamoto

Design and Construction of Geotextile Reinforced Soil Structures for Road Earthworks in Japan, S. Naemura & H. Miki

Filtration Criteria for Prefabricated Vertical Drain Geotextile Filter Jackets in Soft Bangkok Clay, D.T. Bergado, R. Manivannan & A.S. Balasubramaniam

Geotextile Characterization and Pore-Size Distribution: Part I, A Review of Manufacturing Processes, S.K. Bhatia & J.L. Smith

A Performance Test for Assessment of Long-Term Creep Behavior of Soil-Geosynthetic Composites, J.T.H. Wu & S.M.B. Helwany

Application of Geotextile/Geomembrane Composite Liner for Filtration Prevention in Xiaolingtuo Rock-Fill Dam, T. Tao, J. Yan, X. Tao, F. Fu & H. Zhou

Closure: Modelling of Geosynthetic-Reinforced Engineered Granular Fill on Soft Soil

Vol. 2 No. 6 1995, Special Issue on Design of Geomembrane Applications

Uplift of Geomembranes by Wind, J.P. Giroud, T. Pelte & R.J. Bathurst

Comparison of Geomembrane Subjected to Differential Settlement, J.P. Giroud & K.L. Soderman

Evaluation of PVC Geomembrane Shrinkage Due to Plasticizer Loss, J.P. Giroud

Design Method to Prevent Tank Failure in Corners, J.P. Giroud, K.L. Soderman, T. Pelte & J.F. Beech

Theoretical Analysis of Geomembrane Puncture, J.P. Giroud, K. Badu-Tweneboah & K.L. Soderman

Analysis of Strain Concentrations Next to Geomembrane Seams, J.P. Giroud, B. Tisseau, K.L. Soderman & J.F. Beech

Stability of Geosynthetic-Soil Layered Systems on Slopes, J.P. Giroud, N.D. Williams, T. Pelte & J.F. Beech

Influence of Water on the Stability of Geosynthetic-Soil Layered Systems on Slopes, J.P. Giroud, R.C. Bachus & R. Bonaparte

Call for Papers: International Symposium on Mechanically Stabilized Backfill (MSB) Abstracts due 1 September 1996

The International MSB Symposium will be held in Denver, Colorado, from 6-8 February 1997. The purpose of the Symposium is to provide a forum where researchers and practitioners interested in MSB structures can exchange ideas and opinions, especially regarding implementation of research findings and measured behavior of MSB systems. Original technical papers not previously published are invited. Topics appropriate for paper submittal include:

- Case histories (both successful and unsuccessful cases) of MSB structures
- Behavior of MSB systems subject to earthquake loading
- Design/analysis methods of MSB structures
- Construction of MSB structures
- Long-term performance of MSB structures
- Numerical analysis of MSB structures
- In-situ reinforcement of slopes and excavations
- New techniques and applications

Abstract Submission

Abstracts should not be more than 500 words, and should be typewritten in English. The names, affiliations, addresses,

and telephone/fax numbers of all authors should be provided. Abstracts should represent the content of the proposed paper.

The authors are encouraged to include sample results of the paper. Three copies of each abstract should be mailed to reach the Symposium Technical Committee by 1 September 1996.

Time Schedule

Authors will be notified by 20 September 1996 of their abstract acceptance or rejection. Instructions for preparation of the final papers will be sent to authors with the acceptance notification. Camera-ready final papers must be received by 20 January 1997.

Send abstracts and all correspondence to: Professor Jonathan T. H. Wu, Department of Civil Engineering, CU-Denver, Denver, CO USA 80204. Tel.: 1 303 556-8585; Fax: 1 303 556-2368.

*submitted by Prof. Jonathan T. H. Wu
University of Colorado, Denver, USA*

Calendar of Events



Environmental Geotechnology with Geosynthetics, Vigyan Bhavan, New Delhi, India, 31 July- 3 August 1996
Contact: Organizing Secretary; INTSEMEGG; Dept. of Civil Engineering; Indian Institute of Technology, Delhi; Hauz Khas, New Delhi - 110 016; INDIA
Tel.: 91 (11) 685-7754 or 91 (11) 621-5104
Fax: 91 (11) 621-5083 or 91 (11) 686-2037
email: gvrao@civil.iitd.ernet.in

First European Conference on Geosynthetics (EuroGeo1) Maastricht, The Netherlands, 30 Sep-2 Oct 1996
Contact: EuroGeo1, c/o Holland Organizing Centre, Parkstraat29, 2514 JD The Hague, THE NETHERLANDS
Fax: 31 (70) 3614846

Third International Conference on Reflective Cracking in Pavements Maastricht, The Netherlands, 2-4 Oct 1996
Contact: Foundation C.R.O.W., P.O. Box 37, NL-6710 BA EDE, THE NETHERLANDS
Tel.: 31 (8380) 20410 Fax: 31 (8380) 21112

EPS Tokyo '96 Tokyo, Japan, 29-30 Oct 1996
Contact: Mr. Kouzaburo Ohgi, No. 8 Matsuda Bldg. 2-1-9 Okubo, Shinjuku-ku, Tokyo, 169 JAPAN
Tel.: 81 (3) 3205-7911 Fax: 81 (3) 3205-7963

IS-Osaka '96 Second International Congress on Environmental Geotechnics Osaka, Japan, 5-8 Nov 1996
Contact: Secretariat IS- Osaka '96, Geomechanics Section, Disaster Prevention Research Institute, Kyoto University, Gokacho, Uji. Kyoto 611, JAPAN
Tel.: 81 (774) 33-3521 Fax: 81 (774) 33-4115

IS- Kyushu '96 Third International Symposium on Earth Reinforcement Fukuoka, Kyushu, Japan, 12-14 Nov 1996,
Contact: Prof. Ochiai, Dept. of Civil Engineering, Kyushu University, 6-10-1 Hakozaki, Hagashi-ku, Fukuoka 812, JAPAN
Tel.: 81 (92) 641-1101
Fax: 81 (92) 641-5195

Geosynthetics '97 Long Beach, California, USA
11-13 Mar 1997
Contact: Danette Fettig, IFAI, 345 Cedar St., Suite 800 St. Paul, MN 55101-1088 USA
Tel.: 1 (612) 222-2508 Fax: 1 (612) 222-8215
email: ifaidan@aol.com

Sardinia '97 Sixth International Landfill Symposium, Cagliari, Italy 13-17 Oct 1997
Contact: Anne Farmer, CISA-Environmental Sanitary Engineering Centre, Via Marengo 34-09123 Cagliari, Italy
Tel.: 39/70-271652 Fax: 39/70-271371

Ninth International Conference of the International Association for Computer Methods and Advances in Geomechanics, Wuhan, China, 2-7 Nov 1997.
Contact: Prof. Jian- Xin Yuan, Inst. of Rock and Soil Mechanics, The Chinese Academy of Sciences, Wuhan 43007 1 China
Tel.: 86/27-788-1776 Fax: 86/27-786-2413
email jxyuan@dell.whrsm.ac.cn

Geosynthetics Asia '97 - Asian Regional Conference, Bangalore, India 26-29 Nov 1997
Abstracts due 31 Aug 1996
Contact: C.V.J. Varma, c/o Central Board of Irrigation and Power, Plot No. 4, Industrial Area Malcha Marg, Chanakya-puri, New Delhi, INDIA 110021
Tel.: 91 11 3015984/3016567 Fax: 91 11 3016347
email: cbip@cbipdel.uunet.in

Sixth International Conference on Geosynthetics Atlanta, Georgia, USA
25-29 Mar 1998
Contact: Danette Fettig, IFAI, 345 Cedar St., Suite 800, St. Paul, MN 55101-1088 USA
Tel.: 1 (612) 222-2508 Fax: 1 (612) 222-8215
email: ifaidan@aol.com

Note: Items in **bold** print are organized under the auspices of the IGS or with the support of the IGS.

IGS News Editors

Dr. D.J. Elton, **Editor**
Civil Engineering Department
Auburn University, AL, 36849 USA
Tel.: 1 (334) 844 6285
Fax: 1 (334) 844 6290
email: elton@eng.auburn.edu

Dr. T. Akagi, **Associate Editor (Asia)**
Toyo University
Department of Civil Engineering
2100 Kujirai Nakanodai
KAWAGOE-SHI, SAITAMA 350, JAPAN
Tel.: 81 (492) 311211 Fax: 81 (492) 311722

Dr. J.-P. Gourc, **Associate Editor (Europe)**
Grenoble University
IRIGM-Lgm
B.P. 538041 Grenoble Cedex 9
FRANCE
Tel.: 33 76 51 49 46 Fax: 33 76 51 49 00

The IGS News is published thrice yearly. Material for publication should be submitted to the Editor or one of the Associate Editors by 16 Feb, 16 Jun, 16 Oct for the Mar, Jul and Nov issues respectively. Short articles are always welcome.

Visit the IGS Web site <http://igs.rmc.ca>

The IGS Council

Elected in 1992: T. Akagi (Japan); B.R. Christopher (USA); R.A. Jewell (Belgium); C. Lawson (Malaysia). Elected in 1994: D. Cazzuffi (Italy); J. Collin (USA); J-P. Gourc (France); R. Holtz (USA); G. Heerten (Germany); P. Rimoldi (Italy); F. Tatsuoka (Japan); W. Voskamp (The Netherlands). Co-opted in 1992: M. Fukuoka (Japan). Co-opted in 1994: G.P. Karunaratne (Australia); P.E. Stevenson (USA). The IGS Council includes the 5 IGS Officers serving for the period 1994-98.

Officers of the IGS

President: Prof. Colin J.F.P. Jones
Department of Civil Engineering
The University of Newcastle upon Tyne NE1 7RU
Newcastle upon Tyne
United Kingdom
Tel.: (091) 222-7117 Fax: (091) 222-6613
email: c.j.f.p.jones@newcastle.ac.uk

Treasurer: Mr. Wim Voskamp
P.O. Box 2233
3440 DE Woerden
The Netherlands
Fax: (31) 348 430961
email: voskamp@worldaccess.nl

Immediate Past President: Prof. R. Kerry Rowe
Geotechnical Research Centre
Faculty of Engineering Science

University of Western Ontario
London, Ontario, Canada N6A 5B9
Tel: 1 (519) 661-2126 Fax: 1 (519) 661-3942
email: kerry@engga.uwo.ca

Vice President: Dr. Richard J. Bathurst
Civil Engineering Department
Royal Military College of Canada
Kingston, Ontario, Canada K7K 5L0
Tel.: 1 (613) 541-6000 ext. 6479, Fax: 1 (613) 541-6599
email: bathurst@rmc.ca

Secretary: Mr. Peter E. Stevenson
P.O. Box 347
Easley, South Carolina 29641-0347, USA
Tel.: 1 (864) 855-0504 Fax: 1 (864) 859-1698
email: igspete@aol.com

Corporate Members of the IGS

Akzo-Nobel Geosynthetics B.V. - Netherlands (1986)
Amoco Fabrics and Fibers Co. - USA (1987)
Asahi Chemical Industry Co. Ltd. - Japan (1984)
Associate Suisse Des Professionnels De Geotextiles-Suisse
(Aspg/Svg) - Switzerland (1984)
B&B Ground Treatment Inc. - Singapore (1994)
Belton Industries Inc. - USA (1989)
Bidim Geosynthetics - France (1984)
C.I. Kasei Co., Ltd. - Japan (1992)
Cetco - USA (1992)
Dae Han Industrial Materials Co., Ltd. - South Korea (1994)
Daito Kogyo Co., Ltd. - Japan (1992)
Devold Tele A.S. - Norway (1995)
Don & Low Ltd. - UK (1984)
Du Pont De Nemours Int. S.A. - Switzerland (1984)
Engtex AB - Sweden (1995)
Fibertex A/S - Denmark (1984)
Fritz Landolt Ag - Switzerland (1985)
Geofabrics Ltd. - UK (1995)
Geotextiles (M) Sdn Berhad - Malaysia (1991)
Geotechnics Holland BV - Netherlands (1991)
Geosintex S.r.l. - Italy (1993)
Geotop Corporation - Japan (1994)
GSE Lining Technology, Inc. - USA (1988)
Hoechst Celanese Corporation - USA (1984)
Hong Kong Geosynthetics - Hong Kong (1996)
HL-Weinerberger Manufacturing (S) Pte Ltd. - Singapore
(1994)
Huesker Synthetic GmbH & Co. - Germany (1987)
Industrial Fabrics Association International (IFAI) - USA
(1985)
Japan Spunbond - Japan (1984)
Kajima Corporation - Japan (1985)
Kumagai Gumi Co., Ltd. - Japan (1987)

Kuraray Co., Ltd. - Japan (1989)
Maeda Corporation - Japan (1988)
Maeda Kosen Co., Ltd. - Japan (1992)
Mitsubishi Kagaku Sanshi Corporation - Japan (1992)
Mitsui Petrochemical Industrial Products Ltd. - Japan (1992)
Naue Fasertechnik GmbH & Co. KG - Germany (1987)
National Seal Company - USA (1992)
Netlon Ltd. - UK (1989)
Nicolon B.V. - Netherlands (1984)
Nippon Zeon Co., Ltd. - Japan (1992)
Nittoc Construction Co., Ltd. - Japan (1994)
Ohbayashi Corporation - Japan (1988)
Okasan Kogyo Co., Ltd. - Japan (1984)
Pavco S.A. - Colombia (1991)
Polyfelt GmbH - Austria (1984)
Presto Products - USA (1996)
Rhodia-ster Fibras Ltda - Brazil (1994)
Shimizu Corporation - Japan (1990)
Steel Dragon Enterprise Co. Ltd. - Taiwan (1996)
Synthetic Industries Inc. - USA (1991)
SVUG - Czech Republic (1993)
Taisei Corporation - Japan (1992)
Taiyo Kogyo Corporation - Japan (1992)
Tanaka Co., Ltd. - Japan (1993)
Tenax SpA - Italy (1991)
Terram Ltd. - UK (1988)
Thai Nam Plastic Public Co., Ltd. - Thailand (1994)
The Tensor Corporation - USA (1989)
The Reinforced Earth Co. - USA (1989)
The Zenitaka Corporation - Japan (1992)
Tokyu Construction Co., Ltd. - Japan (1984)
UCO Technical Fabrics N.V. - Belgium (1985)

note: date indicates earliest year of continuous membership

Bibliothek
LEHRSTUHL UND PRÜFAMT FÜR GRUNDBAU,
BODENMECHANIK UND FELSMCHANIK
Technische Universität München
Außenstelle Pasing
Baumbachstraße 7
D 81245 München

IGS MEMBERSHIP APPLICATION



OBJECTIVES OF THE IGS

The International Geosynthetics Society was formed with the following objectives:

- to collect, evaluate and disseminate knowledge on all matter relevant to geotextiles, geomembranes, related products and associated technologies;
- to improve communication and understanding regarding geotextiles, geomembranes, related products, and associated technologies as well as their applications;
- to promote advancement of the state of the art of geotextiles, geomembranes, related products, and associated technologies;
- to encourage through its members the harmonization of test methods, equipment and criteria for geotextiles, geomembranes, related products and associated technologies.

WHY BECOME A MEMBER OF THE IGS?

First, to contribute to the development of our profession.

By becoming a member of the International Geosynthetics Society you can:

- help support the aims of the IGS, especially the development of geotextiles, geomembranes, related products and associated technologies.
- contribute to the advancement of the art and science of geotextiles, geomembranes and related products, and associated technologies.
- participate in a forum for designers, manufacturers, and users, where new ideas can be exchanged and contacts improved.

Second, to enjoy the benefits.

The following benefits are available now to all IGS members:

- A directory of members, the IGS DIRECTORY, published every year, with addresses, telephone, email and fax numbers.
- Newsletter, IGS NEWS, published three times a year.
- Reduced purchase price on all documents published by the IGS.
- Reduced registration fee and preferential treatment at all conferences organized under the auspices of the IGS.
- Reduced subscription fee for IGS endorsed journals
- A central system for ordering selected publications.
- Possibility of earning an IGS award.

MEMBERSHIP APPLICATION

Membership of the society is open to individuals or corporations "...engaged in, or associated with, the research, development, teaching, design, manufacture or use of geotextiles, geomembranes, and related products or systems and their applications, or otherwise interested in such matters." The annual fee for membership is US\$45 for individuals and US\$1000 for corporate members. Individuals of corporations who voluntarily contribute a minimum of US\$200 annually to the Society, in excess of their membership dues, will be mentioned in the IGS Directory in a separate list as benefactors.

Attach card or fill in your address as you wish it to appear in the next IGS Directory

Title (circle one): Mr. Ms. Dr. Prof. Other _____

First Name _____ LAST NAME _____

Company _____

Address _____

City _____ Province/State _____

Postal Code/ZIP _____ Country _____

Telephone _____

Fax _____

Telex _____ email _____

Send this completed form to:

IGS Secretariat
P.O. Box 347
Easley, SC 29641-0347
USA

email: IGSSEC@AOL.COM
Tel.: 1 (864) 855-0504
Fax: 1 (864) 859-1698

Eligibility (i.e. connection with geosynthetics, related products or associated technologies):

PAYMENT

Membership fee schedule: Individual US\$45 Corporate US\$1000 Benefactors contribution (at least US\$200)

Mode of Payment:

Check enclosed

Credit Card (circle one) MasterCard/Visa American Express

Draft sent to: Credit Suisse
8021 ZH-Werdmeuhleplatz
Zurich, Switzerland
Account no. 110525-02 USD

Account no.: _____

Expiration date: _____

Signature: _____

Name on card: _____

Date: _____

Authorized signature: _____

IGS News is published by the International Geosynthetics Society

Editorial enquiries: Dr. David J. Elton, Civil Engineering Department
Auburn University, AL, USA, 36849

Tel.: 1 334 844 6285; Fax: 1 334 844 6290; email: ELTON@ENG.AUBURN.EDU