

IGS NEWS



NEWSLETTER OF THE INTERNATIONAL GEOSYNTHETICS SOCIETY

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

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Editorial

by IGS President Fumio Tatsuoka

The International Geosynthetic Society will celebrate its 25th Anniversary in 2008. Reflecting on its history over the last quarter of a century, we can see that the IGS as well as *Geosynthetic Engineering* has been growing at a rapid rate. I believe the main factor for this growth is that, in the domain of *Civil Engineering* practice, *Geosynthetic Engineering* solutions are usually cost-effective (i.e., greater functionality at a lower cost) because one is able to construct and maintain many different types of infrastructure and still maintain the natural environment.

Indeed, *Geosynthetic Engineering* meets the ultimate objective of *Civil Engineering*, that is, more useful infrastructure to society and the natural environment with greater functionality at a lower cost (see Figure on page 2).

Geosynthetic Engineering is also a sustainable construction practice. This is illustrated by the substantially lower amount of carbon dioxide emitted from the construction of a geosynthetic-reinforced soil retaining wall when compared to an equivalent conventional type steel-reinforced concrete soil retaining wall.

The IGS is unique in that it combines two engineering disciplines, *Material Engineering*, specific to polymer materials, and *Geotechnical Engineering*. The IGS is also unique in its organization, comprising members working in both practical and academic fields. That is, the IGS is one of the learned *Engineering societies*, comprising designers, contractors, manufacturers, suppliers, inspectors, regulators, researchers, instructors, consultants, laboratory experimentalists and so on. If we lose sight of these

two unique features of our Society, we lose the strength and foundation upon which our engineering discipline has been built. The following discussion reflects my previous statements and my personal experience in *Geosynthetic Engineering* over the past 30 years.

The importance of combining two engineering disciplines is obvious in soil-reinforcing technology. Polymer geosynthetic reinforcement is often called extensible reinforcement, while metal (usually steel) reinforcement is often called inextensible reinforcement. This definition may be relevant when comparing the stiffness of these two types of reinforcement alone (i.e., when they are extended in air). Unfortunately, it is also true that this definition often leaves the following impressions with civil engineers who do not specialize in *Geosynthetic Engineering*:

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- polymer geosynthetic reinforcement is inferior to metal reinforcement in the construction of earth structures (i.e., steep-sloped embankments and soil retaining walls) allowing only a limited amount of deformation; and
- creep rupture failure is one of the major causes for collapse of geosynthetic-reinforced soil structures.

However, we can easily conclude that these notions are not relevant, as they are misunderstandings resulting from not taking into account the following facts:

- polymer geosynthetic reinforcement is placed within the backfill when used to reinforce the backfill; and
- with typical geosynthetic-reinforced soil structures, residual deformation after having been completed and open to service is the actual engineering issue, while the instantaneous deformations during construction, unless excessively large, do not have practical implication.

It is true that the instantaneous deformation of a reinforced soil structure during construction increases with decreasing the tensile stiffness of reinforcement under otherwise identical conditions. We should note, however, that, since typical backfill soil has negligible tensile strength, we do not need very high tensile stiffness to sufficiently reinforce the tensile strength of the backfill if some amount of instantaneous deformation of the reinforced backfill is allowed. Moreover, the backfill soil may also exhibit large creep deformation, sometimes higher than polymer geosynthetic reinforcement when not well-compacted.

Therefore, the tensile load acting in the geosynthetic reinforcement members can decrease with time by a stress relaxation phenomenon and creep deformation of the back-

fill when arranged in the backfill of ordinary geosynthetic reinforced-soil structures having a sufficient safety factor under static working load conditions. As far as I know, there is no case in the technical literature of any permanent geosynthetic-reinforced soil structure that has collapsed due to creep rupture of the geosynthetic reinforcement reported in the literature.

Long-term residual deformation of soil structures with the backfill reinforced with either so-called extensible or inextensible reinforcement can be restrained usually much more effectively by better compacting (by a smaller lift with a higher compaction energy at the appropriate water content) using better backfill (i.e., more drainable and easily compactable) than by using stiffer reinforcement members.

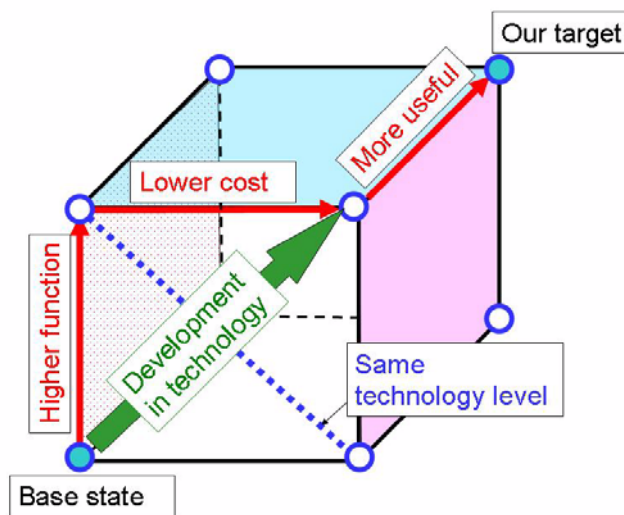
When using a backfill with fine particles, the use of geosynthetic reinforcement having dual functions of tensile-reinforcement and drainage can be efficient for better compaction and reinforcement. Furthermore, arrangement of a relevant drainage system designed so that high positive excess pore water pressure does not build up inside the reinforced backfill zone and in the adjacent zones is essential to keep the residual deformation of reinforced soil structures in many wet countries. I know of several cases resulting after heavy or sustained rainfall and earthquakes where reinforced soil retaining walls with the backfill reinforced with so-called inextensible reinforcement, having no relevant drainage system, failed.

I know that the

above is among many other similar examples showing the importance of combining two engineering disciplines, *Material Engineering* (specific to polymer materials), and *Geotechnical Engineering for Geosynthetics Engineering*.

From my experience with the last international IGS conference, the *8ICG* in Yokohama, Japan (2006), I also learned that a number of IGS members work both in practice and in academia. A typical example is that nearly 100 chapter papers on the subject of case histories were submitted and they attracted the strong interest of many participants. I understand that many practicing engineers and other members working in practice have a strong desire to understand the state of the art of *Geosynthetics Engineering* practice. It is also true that relevant and interesting *Geosynthetics Engineering* research topics for academic researchers can be found in case histories.

The IGS is growing. In particular, the number of IGS chapters is increasing worldwide and the IGS regional conferences have been established in Europe, Asia and the Americas. Regional efforts are also starting in Africa. However, more of our efforts need to be focused on increasing individual members. The



Three requirements in Civil Engineering practice.

IGS Officers and Council are taking action to increase the number of individual members with the help of the IGS chapters by: increased communication of the benefits to individ-

ual members through the *IGS News*, the IGS website, IGS booths at international and regional IGS conferences, IGS seminars and the two IGS journals (i.e., *Geotextiles and*

Geomembranes and Geosynthetics International); arranging more IGS training courses; and increased promotional activities and outreach.

A Change in Editorship for *IGS News*

Upon publication of this, her 25th issue as Editor of the *IGS News*, **Karina McInnis** will be formally retired from her position with the IGS newsletter. The IGS Council and Officers, and in particular the IGS Communication Committee members, wish a fond farewell to Karina. We would like to thank her for her years of service, her time, her patience and persistence over these eight years. Karina leaves us as a result of her accelerating career at Queens University; although we are sad to see her go we are very pleased for her success.

Karina was first enlisted as a result of her good work and association with Richard Bathurst - Karina was in fact the Production Editor for the IGS Journal *Geosynthetics International* prior to becoming the *IGS News* Editor and continued in this position until 2003. Karina has

played a key role in expanding and evolving the *IGS News* following the IGS increasing visibility and reputation in the last eight years.

In preparation for this farewell note, we spoke with Karina and discussed her tenure, the challenges and rewards. Not surprisingly, a big challenge was working with the busy volunteers from the geosynthetics industry and encouraging them to get their contributions to her on time. We should note that even this farewell article is at least a few minutes late! Karina also noted a great respect and appreciation for all of our members who wrote in English, despite it not being their native language, and for the dedication to all who contributed articles to the "News". Working with international members of the IGS and developing and editing the newsletter contact was something Karina

found rewarding and challenging.

With that we would also like to welcome the new Editor of the *IGS News*, Council Member **Gerhard Bräu**. Gerhard takes this position as the IGS itself enters its 25th Anniversary. The IGS Council and Officers are very pleased with his acceptance of this position and we eagerly await the impact Gerhard will have on the Newsletter – we are confident that it will be very positive! Please, IGS Members, communicate with Gerhard by participating in the generation of interesting information for the Newsletter and your colleagues.

Finally, thanks again to Karina and good luck to Gerhard!

reported by Daniele Cazzuffi and Elizabeth Peggs, Chair and Secretary of the IGS Communication Committee

Farewell to the *IGS News* Readership by *IGS News* Editor, Karina McInnis

This November 2007 issue of *IGS News* is my last issue of the newsletter as Editor. I started as Editor with the November 1999 issue, thus, it seems fitting to end with this issue.

The IGS has grown substantially during this time and it has been such a pleasure to be a part of this growth. There has been a 13% increase in members, a 28% increase in corporate sponsors, and 11 new chapters. This growth is a testament to the "globalization" of geosynthetics and the IGS, and the commitment of many to foster this growth.

Perhaps most rewarding has

been the opportunity to interact with individuals from all over the world, who have generously given their time and effort to the Society. I am very grateful to the many who have written articles for the newsletter (... and to their receptiveness in receiving the dreaded "reminder emails" from me requesting synopses of conferences, chapter reports, etc....). I take this moment to thank you all – I appreciate how much time it takes out of very busy lives to produce this material.

I have also had the distinct pleasure of working with three IGS Presidents (Richard Bathurst, Daniele

Cazzuffi and Fumio Tatsuoka), Pete and Rosemary Stevenson, many IGS Council members, IGS correspondents, and many others. Working productively with such dedicated individuals have been tremendously fulfilling and enjoyable, with the added dimension of being a great learning experience.

A special thanks to Richard Bathurst for hiring me (in 1993) to work in his research group and introducing me to the world of geosynthetics. During my interview for the job, I had the fortune to mention that I had worked with "geo-web" during a summer undergraduate

student job without knowing that Richard's research passion is geosynthetics. As the saying goes, the rest is history!

I am "passing the torch" into the very capable hands of IGS Council Member, Gerhard Bräu. Gerhard is

one the individuals included in my thanks above – his consistent and quality contributions to the newsletter over the years have been so appreciated. I look forward to seeing a "new" *IGS News* and the creative contribution that Gerhard will

undoubtedly bring to the newsletter.

The success of the IGS has only been made possible by dedication and hard work. My very sincere best wishes to you all and to the next 25 years of growth and achievement of the IGS.

Call for Candidates for IGS Council: Term 2008 to 2012

Nominations due 31 January 2008

The IGS bylaws prescribe that up to half of the Council be elected every two years. IGS Members will have the opportunity to elect eight Members to the IGS Council for a four-year term, starting in 2008.

The IGS Council Members, whose term of office expires in 2008, are:

- A. Bouazza (Australia)
- P. Fantini (Italy)
- M. Kamon (Japan)
- B. Myles (UK)
- M. Sadlier (Australia)

The IGS bylaws stipulate that a Council Member may be elected to two consecutive terms; hence, A. Bouazza, P. Fantini, and M. Sadlier are eligible for re-election and all announced their intention to stand for re-election. They will have completed one, four-year term as Council Members by 2008.

The IGS encourages any IGS Member, who is able to attend all IGS Council meetings, to consider

standing for one of the Council positions. It is important that all geographical regions are represented on the Council and that its Members reflect the scope of the geosynthetics discipline.

Information/Instructions for All Candidates

Under the bylaws of the IGS, only IGS Members are eligible for these positions. Candidates must be able to travel to and attend the IGS Council meetings, which are held once a year. Meetings of the IGS Council are generally held in conjunction with international and regional conferences.

A signed letter of application together with a biographical note (not exceeding 12 lines) and a photograph should reach the IGS Secretary no later than **31 January 2008**. Candidates must strictly adhere to the 12 line limit to ensure equal presentation space for all candidates. In their letter to the IGS Secretary, candidates must clearly

identify their country of residence and position for which they are seeking election.

Biographical notes and photos will be published in the March 2008 issue of *IGS News*.

The newly formed IGS Council will meet at least four times (typically in Asia, the Americas, or Europe) and, when possible, in conjunction with a major geosynthetics event. At least three additional meetings will be held for those Members whose terms expire in 2010.

One ballot for the election of the eight Council Members will be posted electronically on 1 April 2008 and closed on 31 May 2008 allowing results to be published in June 2008 in Shanghai at the *Geosynthetics Asia 2008* conference.

Should you need further information, please contact the IGS Secretary Peter Stevenson (see contact information on p. 20).

reported by Karina McInnis
IGS News Editor

IGS Awards: Call for Nominations 2004 to 2007

Nominations due 31 January 2008

IGS Awards will be granted in 2008 to individuals or groups of individuals who have made an outstanding contribution to the development and use of geotextiles, geomembranes, related products, or associated technologies

through their scientific and technological achievements.

The Awards recognize the achievements completed and/or the validity of which has been demonstrated during a four-year period preceding the year of the Award (i.e., 2004 through 2007 inclusive).

The winning entries will be publicized in *IGS News*, in a special press release on the IGS web site, and in other publications.

Timeline and Deadlines

Nominations must be received by the IGS Secretary no later than **31 January 2008**.

The deadline for receipt of award candidate presentation packages is 31 March 2008. Presentations will be forwarded by the Secretariat to the Award Committee by 15 April 2008, and the Committee will meet in Shanghai, China, in June 2008 to finalize their decisions, draft citations, and report by 30 June 2008. Awards will be presented in Edinburgh, Scotland, UK, in September 2008 at *EuroGeo4*.

The Two IGS Awards

The Young IGS Member Award

This Award is for IGS Members who are less than 36 years of age on 31 December 2007.

The IGS Award

A maximum of five IGS Awards will be granted. Each award will consist of a specially commissioned medal and a diploma.

Candidates

Each entry is restricted to a maximum of four persons, at least one of whom, must be an IGS Member. All IGS Members are eligible with the exception of the IGS President and Members of the Awards Committee.

In the case of a group submission to the Young IGS Member Award, all members of the group must satisfy the age requirement. Any individual or group that is a candidate for the Young IGS Member Award is automatically consid-

ered for both award categories (unless requested otherwise by the candidate). However, a candidate may only receive one award for the 2004 to 2007 period.

Nominations

Candidate nominations must be typed in English on plain paper (i.e., not letterhead paper) and submitted to the IGS Secretariat (see address on page 20). The nomination should include:

- a clear statement of the considered candidate's contribution (e.g., if the contribution is a product, provide a clear definition of the product; if it is a paper(s), book, and/or report, provide a full reference for each; if it is a construction method, provide a clear description of the method and any references, etc.) and;
- a statement indicating the originality and significance of the candidate's contribution to the discipline (i.e., in the field of geotextiles, geomembranes, related products and/or associated technologies).

Nominations may be made by any IGS Member except for Awards Committee Members. Under the IGS Awards rules, any IGS Member can nominate himself/herself for any award. The Communications Committee, Education Committee, Corporate Members Committee, and IGS Chapters are invited to

make nominations.

Nominated candidates will be contacted by the IGS Secretary and asked to agree to stand for an award and will be required to submit materials as directed by the Awards Committee. All correspondence and activity related to nominations and award entries will be carried out in the strictest confidence by the IGS Secretary and the Awards Committee.

IGS Awards Committee

The Awards Committee was formed in October 2007 at the IGS Council meeting, which was held in conjunction with the *Sardinia 2007* conference.

The Awards Committee comprises five IGS Members; one of whom serves as Chair. The Committee is appointed by the Council. The Members are selected so as to represent a broad cross section of geosynthetic-related technologies and experience. The IGS Secretary will attend all meetings of the Awards Committee as an observer and coordinator.

Additional Information

The full text of the IGS Awards rules can be obtained from the IGS Secretary, Peter Stevenson.

reported by Karina McInnis
IGS News Editor

IGS Student Awards: 2007 to 2008

Nominations due 31 January 2008

The IGS Student Awards will continue its success with the sixth award period of 2007 to 2008. The Awards will be assigned in the year 2008, and all successful candidates will attend one of the IGS regional conferences in 2008, i.e., *GeoAmericas 2008*, *Geosynthetics Asia 2008*, and *EuroGeo4*. The winner of the IGS Student Award from Australia will

attend *Geosynthetics Asia 2008* and the winner from South Africa will attend *EuroGeo4*.

The IGS Student Award was established to disseminate knowledge and to improve communication and understanding of geotextiles, geomembranes, related products, and associated technologies among young geotechnical

and geoenvironmental student engineers around the world.

An IGS Student Award will consist of a cheque of US\$1,000 for each winner. This award amount must be used to cover conference participation costs.

An IGS Student Award will be assigned to only one student per Chapter; the selected student could

be an undergraduate, M.Sc., or Ph.D. student. Students must be no older than 35 in the year the award is granted.

To ensure student representatives from each chapter participate in the program to the fullest extent possible, the chapters must accomplish the following:

- Chapters must hold a contest or conduct a nomination process to select the student candidate to represent them.
- Chapters must notify the IGS of the name of the student selected by **31 January 2008**.

The IGS will transfer US\$750 to the student immediately upon receipt of chapter notification. IGS Student Awards recipients will be asked to submit a written report to the IGS on the regional conference and on the IGS-related conference activities. Upon receipt of the report, which is due 30 days after the conference, the remaining US\$250 will be transferred to the student.

In recognition of the IGS Student Award winners and to ensure the maximum benefit to the students, the organizers of the regional conferences are required to hold a rec-

ognition ceremony as part of the Conference program; must provide the student with a copy of the proceedings and admission to the sessions; must provide award winners with access to the technical sessions, the exhibition, and to some social events; and assist the students in locating affordable lodging near the Conference venue.

Please address questions about the Student Award Program to the IGS Secretary, Peter Stevenson.

*reported by Karina McLinnis
IGS News Editor*

Recognition of Service for Council Members

Upon the occasion of its 25th Anniversary, the IGS will recognize past council members for their service. Past council members are encouraged to contact the IGS Secretary (see page 18 for contact information).

IGS Achievement Awards Nominations due 31 January 2008

The IGS Achievement recognition program was a great success at its inaugural event in Yokohama, Japan at the 8th International Conference on Geosynthetics. The IGS will continue this program in 2008 at the three regional conferences: GeoAmericas 2008 in Cancun, Geosynthetics Asia 2008 in Shanghai, and EuroGeo 4 in Edinburgh.

Each chapter is invited to nominate an individual from the chapter whose efforts and contribution have

been of great significance to the chapter. Each nominee will be recognized at the appropriate event in a ceremony arranged by the conference organizers.

The submission of a chapter nomination must be accompanied by a brief paragraph outlining the nominee's contribution to the chapter's success.

The chapters are urged to advise the Secretary of their nominee by 31 January 2008. The Sec-

retary will prepare an appropriate certificate of recognition for the nominee's achievement, advise the nominee of the award, and invite the nominee to attend the appropriate regional conference.

To submit a nomination, or for additional information, contact the IGS Secretary at:
IGSPete@aol.com
Tel: 1 864 855 0504
Fax: 1 864 859 1698

ICG - International Conference on Geosynthetics IGS Chapters Sought as Conference Organizers

The IGS invites Chapters and interested organizations to express their interest in organizing and hosting the 10th International Conference on Geosynthetics (10 ICG), which will be held in 2014. The following is the history of the International Confer-

ences on Geosynthetics (ICGs):

- First ICG, Paris, France, 1977
- Second ICG, Las Vegas, USA, 1982
- Third ICG, Vienna, Austria, 1986

- Deadline for declaration of interest: December 31 2007
- Deadline for application: July 2008
- Council review: 2009
- Announcement of successful candidate at 9th ICG: September 2010

- Fourth ICG, The Hague, The Netherlands, 1990
- Fifth ICG, Singapore, 1994
- Sixth ICG, Atlanta, USA, 1998
- Seventh ICG, Nice, France, 2002

- Eighth ICG, Yokohama, Japan, 2006
- Ninth ICG, Brazil, 2010

The IGS Secretary will provide prospective hosts with a detailed information package that informs

and instructs interested parties on the proper procedure to prepare a bid to host the Conference. Interested Chapters should contact the IGS Secretary.

IGS Officer and Council Meeting Minutes

Held on 29 September - 1 October 2007, Forte Village, Sardinia

The following is a synopsis of three days of meetings involving the IGS Officers, IGS Council Members, and the IGS Secretariat Manager, which were held on 29 September to October 1 prior to the *Sardinia 2007* conference.

In attendance were President F. Tatsuoka, Vice President J. Zornberg, Past President D. Cazzuffi, Treasurer J. Cowland, Secretary P. Stevenson, Secretariat Manager R. Stevenson, Council members S. Allen, M. Bouazza, G. Bräu, N. Dixon, P. Fantini, J. Ferreyros, N. Freitag, P. Legg, M. Maugeri, J. Otani, E. Palmeira, E. Peggs, M. Sadlier, and E.C. Shin. M. Sadlier was appointed timekeeper and N. Dixon was appointed facilitator.

The minutes and action items from the Yokohama Council meeting and the Washington DC Officers meeting were approved. Minutes of the several committee meetings were addressed in the separate committee meetings. The following Committees met on 30 September: Asian Activities and African Activities Committees, Technical and Communication Committees, Education and European Activities Committees, North and South American Activities Committees, Corporate Committee, and Strategy/Membership Committee.

Under Matters Arising, a policy governing the concept of an IGS book review and subsequent endorsement in the *IGS News* was adopted. A guidance document will

be included in the IGS Handbook published on the IGS website.

2008 Awards Committee

The Secretary's report reviewed several items under membership including chapter, individual and corporate membership status. A 2008 Awards Committee was formed, which will meet in Shanghai after evaluating the several candidates. The membership is reminded that the clock is ticking and ***nominations are due now***. Announcements have been published in *IGS News* in accordance with the awards calendar.

The Secretary will draft a letter from the President to the corporate membership, chapter officers, and various key persons in industry drawing attention to the award program, the calendar and urging the nomination of candidates.

IGS Achievement Awards

The Council confirmed the continuation of the IGS Achievement Awards wherein the chapters nominate individuals who have given exemplary service to the chapter. These awards will be presented at each regional conference in 2008: candidates from the Americas in Cancún, candidates from Asia (and Australia) in Shanghai, and candidates from Europe (and South



Africa) in Edinburgh. The Secretary will write to the chapters inviting the nomination of recipients of IGS Achievement Awards.

2008 Elections

The 2008 election is upon us and the Council decided to amend the election calendar in 2008. It was decided that the electronic ballot would be posted on 1 April 2008 and closed on 31 May 2008 allowing results to be published in June 2008 in Shanghai at the *Geosynthetic Asia 2008* conference.

There are eight council seats eligible in the 2008 election. Three current council members announced their intention to stand for re-election: M. Bouazza, P. Fantini and M. Sadlier. ***Interested parties are urged to submit their candidacy as soon as possible.***

IGS Website

The IGS website continues to be a high traffic resource with the journals, *IGS News*, corporate member's pages and other pages seeing many visits. Major portions of the

IGS Handbook are published on the IGS website. These documents include bylaws and information and guidance on how to organize a chapter or hold a conference.

IGS Committee Updates

The following are highlights of the 30 September committee meetings.

Conferences both immediate and in the future: *GeoAmericas 2008* (Cancún in March 2008), *Geosynthetics Asia 2008* (Shanghai in June 2008), *EuroGeo 4* (Edinburgh in September 2008) and *GeoAfrica* (to be held in South Africa in 2009). A proposal was submitted to council (and approved) for *GeoAmericas 2012* for Peru. The AAC is reviewing proposals for *Geosynthetics Asia 2012* from Taiwan and Thailand while the EAC is soliciting proposals for *EuroGeo 5* from Turkey, Romania, Czech Republic, Portugal and Spain.

Communications Committee: reviewed website utilization; reviewed and recommended the new Thomas Telford contract for *G/*; and recommended that *Gerhard Bräu* be installed as the IGS

News Editor starting with the March 2008 issue.

Education Committee: The expansion of the leaflets project by the addition of new leaflets and the translation of the leaflets into various languages was announced. At present, the leaflets are in English, Spanish and Portuguese. As a result of the Sardinia meetings, a commitment is in hand to translate the leaflets into Japanese, Korean, French and possibly Chinese. The intent is to have the complete set (seven languages) available in Cancún, Shanghai and Edinburgh. In the future, additional translations will be solicited where the IGS membership can benefit from access to native language documents: for example, Germany, Poland, other eastern European countries and other Asian countries. The key issue in undertaking translation is the existence of recognized experts to author the translation and additional expert individuals to review/approve the translations.

Strategy Committee and Corporate Committee: met jointly and discussed plans and actions necessary to grow the membership.

Technical Committee: reviewed the program to upgrade the IGS Symbols document and assigned various tasks to members to accomplish the early revision and publication of this document.

Other Updates

The IGS will prepare displays and have a booth at Cancún, Shanghai and Edinburgh. The displays, prepared in the same style as used in Yokohama, will be prepared once and used at all three venues.

The IGS will also hold a **member appreciation social event** at each of the three venues in 2008. President Tatsuoka will introduce the **Mercer Lecture by Ennio Palmeira** in Kolkata (ISSMGE) in December 2007 and in Edinburgh (*EuroGeo4*) in September 2008.

Next Officer and Council Meetings

The next meetings of the IGS will be in March 2008 in Cancún: Officers on 29 February, Committees on 1 March, and Council on 2 March.

reported by Pete Stevenson
IGS Secretary

Brazilian Chapter News

Course on Geosynthetics

In June and November 2007, IGS Brazil promoted an eight-hour basic course on the use of geosynthetics ("CBG") in Salvador and Recife (June), two cities located in the Northeast of Brazil, and in São Paulo (November). This itinerant course is planned to be offered at least six times per year in different Brazilian cities.

The main purpose of CBG is to spread geosynthetics knowledge, stimulate the use of geosynthetics solutions, and promote the growth of the geosynthetic product customer base.

Fifth Brazilian Geosynthetic Symposium

The *Fifth Brazilian Geosynthetic Symposium* was held in Recife from 18 to 21 June, with 300 attendees. Practicing and consulting engineers, researchers, students, geosynthetic manufacturers, owners and construction managers, contractors, and equipment suppliers, had the opportunity to exchange experiences in engineering works related to geosynthetics. The presentations and articles submitted to the event demonstrated the high standard of practice and research on geosynthetics in Brazil that is in accordance with the world's progress in this area.

ICG 2010

The next International Conference on Geosynthetics will be held in Brazil in 2010, at Jequitimar Hotel, Guarujá, which is close to São Paulo city. Organization of the event is on-going and on schedule.

GeoAmericas 2008

Several members of IGS Brazil have been working on the organization and advertising of the *First Pan American Conference on Geosynthetics (GeoAmericas 2008)* that will take place in Cancún (Mexico) in March 2008. This event is being co-organized by all the IGS American Chapters.

New Board of Directors for the IGS Brazil Chapter (2007-2009)

The new executive members of the IGS Brazil Chapter (2007-2009) were elected during the *Fifth Brazilian Geosynthetic Symposium* held in Recife:

- *President:* Prof. Mauricio Ehrlich, Federal University of Rio de Janeiro
- *Vice-president:* Lavoisier Machado, Maccaferri do Brasil
- *Vice-president:* Paulo Roberto Aguiar, Multigeo Engineering

- *Secretary:* Indiara Giugni Vidal, Engepol Geossintéticos
- *Treasurer:* André Estevão Silva, Huesker

*reported by Indiara Giugni Vidal
IGS Brazil Chapter Secretary*

Australasian IGS Chapter Activity Update

The “Common Ground”, 10th *Australia New Zealand Australian Geomechanics* conference was held in Brisbane in October 2007. Following the three-day conference, two workshops were held, one of which was organized by the Australasian Chapter of the IGS (ACIGS).

ACIGS has identified that workshops associated with conferences are well attended educational activities, particularly when linked to aspects of design methodology (rather than a purely introductory workshop).

The “How to Use Geosynthetics – Applications & Design Examples” workshop was attended by over 30 people. The attendees were from

across Australia and New Zealand, and included private consultants, government authorities, as well as geosynthetic entities that used the seminar as an education resource for their staff. The majority of the attendees had been involved in the *ANZGEO2007* conference.

The speakers were all local industry experts, who spoke to topics including:

- Soil reinforcement design
- Separation design
- Erosion control
- Test methods and specifications

A short round table discussion concluded the full-day program. Samples were available for inspection during the presentations, along

with copies of the papers and appropriate references to design standards.

With a focus on civil and geotechnical engineers, the workshop was a success, and will enhance the geosynthetic understanding of the local engineering community. A calendar of conferences being held by larger industry bodies has been compiled, with similar workshops to be proposed to the organizing committees. Continued education of the local engineering through sharing of specialist knowledge benefits the engineering industry.

*reported by Brendan Swifte
Australasian IGS Chapter Treasurer*

XX Italian National Conference on Geosynthetics

Held on 24 October 2007, Bologna, Italy

The XX *Italian National Conference on Geosynthetics* was held on 24th October 2007 in Bologna. The Conference theme was *Embankment and Retaining Structures*. The Conference was organized jointly by the Italian Chapter of the IGS (AGI-IGS) and the Bologna Engineers and Architects Association (ASSIABO) on behalf of ANIAI (Italian Engineers and Architects Association) with the participation of AIPIN (Italian Association for Bio-Engineering) and of ANIDIS (Italian National Association of Seismic Engineering) under the auspices of the Italian Environmental Ministry, the Italian Infrastructures Ministry, and Bologna University.

More than 180 participants attended the Conference, which was divided in two different sessions. The *first session* was chaired by Daniele Cazzuffi (AGI-IGS President and IGS Immediate Past President) and focused on *Innovative Solutions and Technologies*. One keynote lecture and five papers were presented.

The keynote, presented by Nicola Moraci (University of Reggio Calabria), emphasized the use of



geosynthetics in the construction of reinforced embankment on soft soils. In particular, the different applications of geosynthetics in reinforced embankments and the

related appropriate design methods were analysed.

The five papers presented covered the topics of geosynthetic-reinforced shallow foundations, cohesive soils, sand columns, lime stabilized soils and compensated light embankments.

The second session was chaired by Claudio di Prisco (Politecnico of Milano) and focused on the *Earth Reinforced Structures in Seismic*

Conditions. One keynote lecture and four papers were presented.

The keynote, presented by Michele Maugeri (AGI-IGS Vice-President), addressed analysis of the behaviour of earth reinforced structures in seismic conditions based on physical and numerical modelling.

The four papers focused on design methods and Italian case histories in which a wide variety of

geosynthetics were used.

At the end of each session, a fruitful and interesting discussion on the different topics took place.

The next Italian National Conference on Geosynthetics will be organised in October 2008.

*reported by Nicola Moraci
Italian IGS Chapter Secretary*

Synopsis of the XIV ECSMGE Held on 24-27 September 2007, Madrid, Spain

The Spanish Society of the Soil Mechanics and Geotechnical Engineering organized the *14th European Conference on Soil Mechanics and Geotechnical Engineering* under the auspices of the ISSMGE. The Conference was held in Madrid, Spain from 24 to 27 September 2007 under the theme "Geotechnical Engineering in Urban Environments".

By 2010, there will be 33 cities worldwide with between 5 and 10 million inhabitants. In keeping with this fact, one of the main objectives of the Conference was to demonstrate how geotechnical engineering contributes to the useful, harmonious and sustainable development of large cities. Accordingly, the program included six main sessions, eighteen discussion sessions, nine workshops, a discussion forum between practitioners and academics, and two poster sessions.

Through these Conference activities, the key role of geotechnical engineers in sustainable development of large cities became evident: not only designing and building foundations, deep excavations and underground works, but also rehabilitating existing buildings



and infrastructures by improving and reinforcing the ground.

The event was attended by a total of 820 registered delegates from 34 European countries and 65 accompanying persons. Also present were individuals from 41 different countries in Africa, the Americas, Asia and Australia. Fifty-eight exhibitors from 10 different countries displayed their products and illustrated their achievements, and 123 posters were displayed by the authors of papers.

The Spanish IGS Chapter and some IGS Corporate members had Conference booths illustrating the use of geosynthetics for reinforcing foundations and earthworks in urban areas. The adequacy of geosynthetic-reinforced walls and geosynthetic-reinforced slopes in the Trans European Motorway crossing the Bosphorus Straight in Istanbul was discussed by E. Güler (Turkey) in the Practitioner/Aca-

demic Forum coordinated by Professor William Van Impe (Belgium).

In the workshop organized by ISSMGE Technical Committee 17, C. Jenner (UK) and J. Sankey (USA), members of Working Group F "Earth Reinforcement in Fill," discussed the design and construction of a steepened embankment at Gerald's International Airport, Montserrat, and tall mechanically stabilized earth walls at the Seattle Tacoma Airport 3rd Runway project, respectively.

Finally, 34 papers were presented in Session 5.3 on soil reinforcement in urban areas. Approximately 20% were focused on geogrid-reinforced earth structures, 12% were dedicated to the theme of geosynthetic-reinforced shallow foundations, and 15% on geogrid-reinforced piled embankments on soft soils.

The Conference proceedings (edited by Millpress) comprise 4 volumes incorporating 318 papers in 2189 pages. A post-conference volume with the contributions to the discussion sessions will be available soon.

*reported by Vicente Cuellar
Past President of the
IGS Spanish Chapter*

IS Kyushu 2007

Fifth International Symposium on Earth Reinforcement

Held on 14-16 November 2007, Fukuoka, Japan

The Fifth International Symposium on Earth Reinforcement (IS Kyushu 2007), "New Horizons in Earth Reinforcement," was held in Fukuoka, Japan from 14 to 16 November 2007. The Symposium was organized by the Japanese Geotechnical Society, under the auspices of the IGS and the International Society for Soil Mechanics and Geotechnical Engineering (ISSMGE), and was supported by the Japan Society for Civil Engineers (JSCE).

The IS Kyushu symposia have played a key role in disseminating developments in earth reinforcement starting in 1988 and continuing in 1992, 1996, and 2001.

In total, there were 300 participants from 26 countries, and 124 full papers were accepted for publication in the conference proceedings and for presentation. The main purpose of the Symposium was to provide a forum for the exchange of technical information on current earth reinforcement techniques and design procedures around the world, introduce new reinforcement material, and present new and emerging applications with special emphasis on disaster mitigation and geo-environmental issues. The new generation of engineers and researchers were also encouraged to attend this important technical event.

The Symposium opened with a Special Lecture reviewing the history of IS Kyushu titled "Earth reinforcement technique as a role of new geotechnical solutions", by Prof. H. Ochiai, who served as Chair of IS Kyushu in 1992, 1996 and 2001. IGS Vice-president, Prof.

J. Zornberg, also gave a Special Lecture titled "New horizons in rein-

Kuwano, Vice President of the Japan IGS Chapter.



forced soil technology".

There were four keynote lectures:

- Materials and testing: "Newly standardized procedures for assessing the reduction factors for high strength geosynthetic reinforcements" by Mr. S. Allen (USA)
- Modeling tests and its evaluation: "Model testing to evaluate the performance of soil nailed structures" by Prof. M. Davies (New Zealand)
- Current innovation on earth reinforcement technique: "Combined technology with other techniques" by Prof. D. Bergado (Thailand)
- Disaster prevention: "New direction of earth reinforcement" by Dr. Y. Mohri (Japan)

Other Symposium features included:

- An IGS session titled "Design and Measurement on full-scale behavior of reinforced structures," which was chaired by Mr. J. Cowland (China/Hong Kong) and Prof.

- TC17/ISSMGE organized session.
- 5 technical sessions.
- 2 poster sessions.
- "Discussion Session" on the "New design philosophy of reinforced soil walls", chaired by Prof. E. Palmeira (Brazil). In this session, four panelists spoke about the following subjects and discussions ensued: Prof. J. Koseki of Japan (New seismic design); Mr. P. Segrestin of France (New European design standard); Prof. C.J.F.P. Jones of U.K. (Limit state design); and Prof. R.J. Bathurst of Canada (New working design method).

Prizes were given to the following individuals who have attended all IS Kyushu symposia (1988, 1992, 1996, 2001 and 2007): C.J.F.P. Jones, Prof. F. Tatsuoka, Prof. J.P. Gourc, Prof. H. Ohta, Prof. K. Kumagai, Dr. Y. Watari, Prof. CC.Huang, and Mr. Segrestin.

Seven oral presenters and four poster presenters were awarded as the "best presentations":

- **Oral:** Dr. H. Zanzinger, Mr. A. Diambra, Prof. Y. Nabeshima, Prof. S.R. Lo, Dr. M. Shinoda, Mr. J. E. Sankey and Prof. C. Yoo
- **Poster:** Mr. P.K. Choudhury, Mr. N. Iwasa, Mr. H. Ito, Mr. S. Nakajima

The Symposium proceedings were published by Taylor and Fran-

cis/Balkema, P.O. Box 447, 2300 AK Leiden, The Netherlands. And all of the lectures, panelist papers and 124 technical papers are included in the proceedings.

Finally, there were many IGS members who played an important role in *IS Kyushu 2007*. Without their enormous effort, the success of the

Symposium would not have been realized. As Chair of *IS Kyushu 2007*, I would like to say "thank you" to the IGS for their support.

*reported by Prof. Jun Otani
Chair of IS Kyushu2007 and
IGS Council Member*

GeoAmericas 2008 Early-Bird Registration Open until December 15 2-5 March 2008, Cancún, Mexico

GeoAmericas 2008 will be the first regional conference organized by the IGS and the Industrial Fabrics Association -- **don't miss this event!**

A forum for geosynthetics engineers, practitioners and academia to explore current and potential applications for geosynthetics. An active marketplace for the specification and trade of geosynthetic products and technology to users throughout the Americas.

Extensive training, educational programs and technical sessions will provide every attendee from beginner to expert with an opportunity to gather resources specific to their needs. Keynote lectures, workshops, panel discussions, short courses, and technical papers will cover research, design, and manufacturing advancements.

Geosynthetics Applications

- Landfill and hazardous waste
- Containment facilities
- Remediation technologies
- Pavement systems
- Unpaved roads

- Railways
- Reinforced soil walls and slopes
- Embankments on soft soils
- Mining applications
- Heap leaching systems
- Hydraulic systems
- Pipelines
- Coastal restoration
- Drainage applications
- Erosion control
- Geosynthetics in agriculture and aquaculture

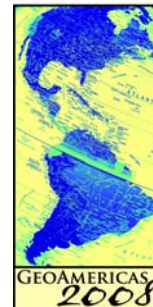
GeoAmericas Education and Training Mission

To provide extensive training, educational programs and technical sessions so that every attendee from beginner to expert will have an opportunity to gather resources specific to their needs.

Technical Program includes

- 40+ Technical Sessions
- Short Courses (both in English and Spanish)
- 12 Spanish and 12 English Training Lectures

- Invited paper sessions including Life's Work sessions and Journal sessions (best papers from *GI, G&G, ASCE, CGJ*)
- GRI-21: Hot topics in Geosynthetics, including "Geosynthetics in Agriculture" and "Geosynthetics in Aquaculture"



Keynote Lecturers

- Dr. J.P. Giroud (USA): impact of geosynthetics and the future challenges for our industry
- Dr. Bob Koerner (USA): world water crisis and how the geosynthetics industry can respond to this growing crisis
- Mark Smith (Peru) and Leandro de Moura Costa Filho (Brazil): timely response of the geosynthetics industry to growing needs facing the mining industry

For More Information

Visit the Conference web site:
www.geoamericas.info

Geosynthetics Asia 2008 17-20 June 2008, Shanghai, China

The 4th Asian Regional Conference on Geosynthetics (*Geosynthetics Asia 2008*) will be held from 17 to 20 June 2008

at the Shanghai Exhibition Center, Shanghai, China. The Conference theme is *Geosynthetics in Civil and Environmental Engineering*.

Final Papers due 31 January 2008

The Conference is being organized under the auspices of the IGS by the Chinese IGS Chapter, the Chinese Technical Association on Geosynthetics, the Chinese Hydraulic Engineering Society, and is supported by the Shanghai Investigation Design & Research Institute and Zhejiang University.

Conference Subjects

Geosynthetics have been broadly used in civil and environmental engineering for decades. *Geosynthetics Asia 2008* will appeal to all participants and will cover the following topics:

- Fundamental Principles and Properties of Geosynthetics
- Testing and Standards
- Reinforcement and Soil Improvement



- Filtration, Drainage and Erosion Control
- Landfill and other Environmental Engineering applications
- Engineering Measures for Natural Disasters
- Geosystems (Geotubes, Geotextiles, etc.)
- Transport (highways, railways, tunnels, harbors, airports, etc.)
- Hydraulic structures (dams, canals, reservoirs, etc.)
- Special Case Histories and others (including unsuccessful applications)

Technical Events

- Special lecture (Dr. J.P. Giroud)
- Keynote lectures
- Invited reports on important projects
- Forum: Geosynthetics in environmental engineering
- Paper Presentations
- Exhibition
- Technical visits
- Training Course (organized by the IGS, free of charge)

Conference Language

The conference language is English. There will be simultaneous translation of special and keynote lectures into Chinese.

For More Information

E-mail: ccigs@4acg-2008sh.com

Web site: www.4acg-2008sh.com

EuroGeo4

7-10 September 2008, Edinburgh, Scotland, United Kingdom

The 4th European Geosynthetics Conference, *EuroGeo4*, will be held at the Edinburgh Conference Centre, Heriot-Watt University, Scotland, UK, from 7 to 10 September 2008. The Conference is being organized by the UK IGS Chapter under the auspices of the IGS and is supported by the British Geotechnical Association, Scottish Geotechnical Group, Ground Forum and the Engineering Group of the Geological Society.

Conference Scope and Theme

The Conference will debate the subject of *Geosynthetics in Civil Engineering Applications* within a three-day event comprising keynote lectures, paper presentations, discussions and poster sessions.

The use of geosynthetics in civil engineering applications has long been undertaken and provides cost



Full Papers due: 30 April 2008

effective solutions to many very technically challenging problems. The Conference will highlight the hot topics in geosynthetics.

Mercer Lecture

The Mercer lecturer is Ennio Marques Palmeira from the University of Brasilia, Brazil, on the topic of "Soil-geosynthetics interaction: modelling and analysis".

Keynote Lecturers

- Colin JFP Jones (UK)

- Nathalie Touze-Foltz (France)
- Grace Hsuan (USA)

Conference Format

- *Technical Sessions*: There will be three themed keynote lectures, with three parallel sessions held over 3 days, together with a prestige lecture on geosynthetics. Poster sessions will be held during the conference where authors will be available to answer questions and discuss particular issues related to their papers.
- *Training Course*: A separate training course will be held in parallel with the conference to provide education on the use of and design with geosynthetics in civil engineering applications.
- *Exhibition*

For More Information

Web site: www.eurogeo4.org

Geosynthetics International

An Official Journal of the IGS: Electronic Journal Free to IGS Members

Geosynthetics International is an official journal of the IGS and has established itself as a premier peer-reviewed journal on geosynthetics. The Journal publishes technical papers, technical notes, discussions, and book reviews on all topics relating to geosynthetic materials (including natural fiber products), research, behaviour, performance analysis, testing, design, construction methods, case histories, and field experience.

Geosynthetics International is only published electronically starting Volume 10 (2003) by Thomas Telford and is free to IGS Members. All others, e.g., corporations, companies, and university libraries, can subscribe at a rate of £421/US\$870. An individual rate for those non-members whose organization subscribes, but would like an additional personal subscription (including the update CD)

will be available for £60/US\$108.

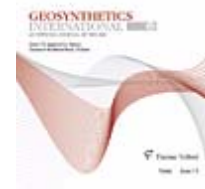
The update CD is issued annually as part of the subscription for non-IGS Members and includes all papers published in that year. IGS Members can opt to buy the CD for US\$100.

Visit the Journal's web site given below for subscription information and instructions for accessing the latest issues.

Papers should be work not published in full elsewhere and should be sent to one of the following individuals:

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Geotextiles & Geomembranes

An Official Journal of the IGS: Electronic Journal Free to IGS Members

Geotextiles and Geomembranes is dedicated to the mission of the IGS, which is to promote the scientific and engineering development of geotextiles, geomembranes, related products, and associated technologies.

The Journal publishes technical papers, technical notes, discussions, and book reviews on all topics relating to geosynthetics, research, behaviour, performance analysis, testing, design, construction methods, case histories, and field experience.

Papers should be submitted electronically as a Microsoft Word or pdf file to: kerry@civil.queensu.ca. Please ensure the text is double spaced, there is an abstract with keywords included, and tables and figures are at the end following the text. Please check the Journal's instructions for authors for additional information regarding submissions. The

Journal strives to provide the authors with quick, constructive reviews, and we appreciate the author's hard work in addressing these comments and quick return of revised papers.

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may subscribe at an 84% discount: US\$170 for six issues. IGS Corporate Members may subscribe at a 64% discount: US\$396 for six issues. Please indicate that you are an IGS Member when requesting the special price.



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CORPORATE PROFILE

IGS Corporate Members are encouraged to publish a Corporate Profile in IGS News. A maximum of three profiles can be published in each issue of IGS News. The criteria for the preparation and submission of Corporate Profiles are available from the Editor. There is no charge for having a Corporate Profile published; it is a benefit of corporate membership.

TeMa Technologies and Materials

TeMa, Technologies and Materials, has been a leading manufacturer of studded membranes for the protection of waterproofing sheaths for over 10 years.

TeMa manufactures and sells products in over 50 countries and is committed to innovating and expanding the range of products and solutions for its customers.

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- Vittorio Veneto, Italy (company headquarters)
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Technologies and Materials for Environmental Engineering

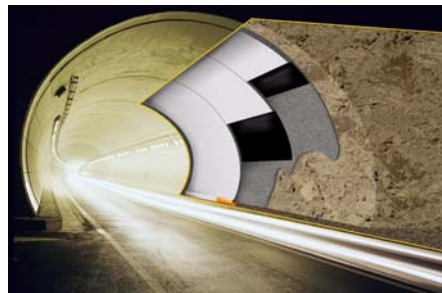
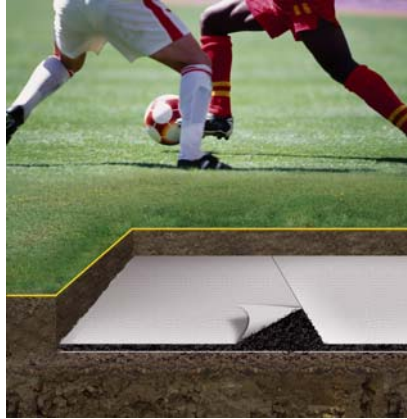
The *Environmental Division of TeMa* manufactures and sells drainage geocomposites obtained from monothreads as well as from studded sheaths and erosion-resistant three-dimension geomats of different types.

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KMAT for erosion control

- Three-dimensional erosion prevention geomat obtained from extruded synthetic monothreads tangled and welded at the contact points
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- Typical extruded products are 4 metres wide – the widest available on the market
- Main applications: escarpments (e.g. steep road and railway



TeMa has been a Corporate Member of the IGS since 2006.

embankments), canals and ditches, and special applications (e.g. landfill cover, tunnel entrance)

QDRAIN for drainage control

- Drainage geo-composite comprising a core distinguished by a high void ratio and obtained from extruded synthetic monofilaments tangled and welded where they cross, heat bonded on the entire surface to one or two geosynthetics, usually a nonwoven geotextile
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Mumbai, India
14-16 January 2008
E-mail: skirtania@servintonline.com
www.servintonline.com

EC08, Your Environmental Connection
Orlando, Florida, USA
18-21 February 2008
E-mail: kate@ieca.org
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Cancun, Mexico
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E-mail: jmrutledge@ifai.com
www.geoamericas.info

23rd International Conference on Solid Waste Technology and Management
Philadelphia, USA
30 March - 2 April 2008
E-mail: solid.waste@widener.edu
www.widener.edu

3rd International Conference on Site Characterization
Taipei, Taiwan
1-4 April 2008
E-mail: abhuang@mail.nctu.edu.tw
www.elitepco.com.tw/ISC3

2nd International Conference on Geotechnical Engineering for Disaster Mitigation and Rehabilitation
Nanjing, China
30 May-2 June 2008
E-mail: gedmar08@hhu.edu.cn
www.GeoHohai.com/GEDMAR08

1st International Conference on Education and Training in Geo-Engineering Sciences
Constantza, Romania
2-4 June 2008
E-mail: nicoleta@utcb.ro
www.ppm.ro/srgf/

Sixth RILEM International Conference on Cracking in Pavements
Chicago, USA
16-18 June 2008
E-mail: RILEMcracking@gmail.com
www.ict.uiuc.edu/rilem/default.asp

Geosynthetics Asia 2008
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17-20 June 2008
E-mail: ccigs@4acg-2008sh.com
www.4acg-2008sh.com

Debris Flow 2008
The New Forest, UK
18-20 June 2008
E-mail: swinburn@wessex.ac.uk
www.wessex.ac.uk

10th International Symposium on Landslides and Engineered Slopes
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30 June-4 July 2008
E-mail: wangyj@iwhr.com
www.landslide.iwhr.com

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11-16 August 2008
E-mail: prakash@umr.edu
www.6icchge2008.org

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www.nottingham.ac.uk/ncg

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E-mail: rita.ugianskis@penton.com
www.wastesymposium.com

EuroGeo4
The Fourth European Geosynthetics Conference
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7-10 September 2008
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www.eurogeo4.org/

4th International Symposium on Deformation Characteristics of Geomaterials
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22-24 September 2008
E-mail: webmaster@isatlanta2008.org
www.isatlanta2008.org

First International Conference on Hazardous Waste Management
Chania-Crete, Greece
1-3 October 2008
E-mail: hwm1.conference@enveng.tuc.gr
www.hwm1.tuc.gr

12th International Conference of the IACMAG
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1-6 October 2008
E-mail: dns@civil.iitb.ac.in
www.civil.iitb.ac.in/~dns

NUCGE'08
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27-29 October 2008
E-mail: larmacs@univ-skikda.dz
www.univ-skikda.dz

IV International Conference on Scour and Erosion 2008, ICSE-4
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5-7 November 2008
E-mail: sekiguch@ujigawa.mbox.media.kyoto-u.ac.jp
icse-4.kz.tsukuba.ac.jp

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E-mail: ytsoil@rs.noda.tus.ac.jp
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Okasan Livic Co., Ltd. *Japan (1984)*
OJSC "494 UNR" *Russia (2003)*
Permathene Ltd. *New Zealand (2003)*
Plastisul Artefatos Plasticos Ltda.
Brazil (2006)
Poly-Flex, Inc. *USA (1996)*
Propex Inc. *USA (1991)*
PRS Mediterranean Ltd.
Israel (2003)
Punzonados Sabadell, S.A.
Spain (2000)
Reinforced Earth Co., The *USA (1989)*
Reliance Industries, Ltd. *India (1998)*
Samyang Corporation *Korea (2003)*
Seven States Enterprise Co., Ltd.
Taiwan, R.O.C. (2005)
Shenzhen Sheng Yi Environmental Co., Ltd. *China (PR) (2002)*
Shimizu Corporation *Japan (1990)*
Solmax International, Inc.
Canada (1997)
Supertex Inc. *USA (2007)*
Swiss Association for Geosynthetics SVG *Switzerland (1984)*
Taiyo Kogyo Co., Ltd. (Ocean)
Japan (1996)
Taiyo Kogyo Corporation (Sun)
Japan (1991)
Tanaka Co., Ltd. *Japan (1993)*
Tele Textiles AS *Norway (1995)*
TeMa Technologies & Materials s.r.l.
Italy (2006)
Tenax S.p.A. *Italy (1991)*
TenCate Geosynthetics Europe
Austria (1984) (formerly Polyfelt)
TenCate Geosynthetics North America *USA (1998) (formerly Mirafi)*
Tensar Geosynthetics (Wuhan) Co. Ltd
China (People's Republic) (2004)
Tenox Corporation *Japan (1998)*
Tensar International *UK (1989)*
Tensar International Corporation
USA (1989)
Tension Technology s.r.l.-TTM
Italy (2004)
Texinov *France (2007)*
Terram Ltd. *UK (1988)*
Terre Armee International *France (2002)*
Thai Nam Plastic Public Co., Ltd.
Thailand (1994)
Tingeo, S.L. *Spain (2003)*
TMA, S.L. *Spain (2000)*
Tokyo Printing Ink Mfg. Co., Ltd.
Japan (2005)
Tokyu Construction Co., Ltd.
Japan (1984)
Vigano Pavitex *Italy (2006)*
Werkos *Croatia (1999)*

Note: date is earliest year of continuous membership

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The International Geosynthetics Society



OBJECTIVES OF THE IGS

The International Geosynthetics Society was formed with the following objectives:

- to collect, evaluate, and disseminate knowledge on all matters 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; and
- to encourage, through its Members, the harmonization of test methods, and 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 an IGS Member 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, related products, and their applications;
- provide a forum for designers, manufacturers, and users, where new ideas can be exchanged and contacts improved; and
- become increasingly informed, involved, and influential in the field of geotextiles, geomembranes, related products, and associated technologies.

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The following benefits are now available to all IGS Members:

- the IGS Membership Directory, published yearly;
- the newsletter, *IGS News*, published three times per year;
- free electronic issues of *Geosynthetics International* and *Geotextiles & Geomembranes*;
- a CD containing the 19 IGS Mini Lecture Series;
- a DVD containing the three IGS Videos;
- information on test methods and standards;
- discount rates on the purchase of any future documents published by the IGS and on the registration cost of all international, regional, or national conferences organized by or under IGS auspices;
- preferential treatment at conferences organized by or under the auspices of the IGS; and
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