

# 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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## A Message from the New IGS President for 2002 to 2006

by Daniele Cazzuffi, IGS President

**I** am very honoured to have been elected President of the IGS, and I thank everyone for this personal recognition.

Over the next four years, new stimulating challenges will require a great deal of time, energy, and ideas on the part of Officers, Council Members, and all current or potential Members of the IGS, with particular reference to younger individuals.

As President, there are several goals I want the IGS to achieve that will maintain and enhance the overall excellence of the IGS.

### Communication

First, we have to improve communication with the present membership to consolidate the relationships among all current IGS Members and those new potential members.

This improvement in communication can be accomplished using the Society's existing methods of commu-

nication, primarily the new web site, but also through the newsletter *IGS News* and the dissemination of the IGS Directory. Communications can also be improved by reinforcing the links between the IGS and the two official IGS journals, namely *Geotextiles and Geomembranes* and *Geosynthetics International*.

### Education

Education must be continuously addressed. The "mini-lectures" program, finalised in the CD-Rom circulated this year to all our membership, was a very good example of the educational activities taking place.

Moreover, there are more opportunities to further our geosynthetics educational program. For example, in the United States, a successful program called "Educate the Educators" was launched. The IGS may consider developing such a program, but on a worldwide scale. This would not be an easy

task, particularly due to language barriers; however, this type of program is crucial for developing greater recognition of our profession in academic environments.

### Science versus Business

Or "academics versus manufacturers"? It is my impression, that the gap between these two groups, both fundamental for the development of our profession, has unfortunately increased. The IGS will have to address this specific problem and try to establish new fruitful dialogue between university



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Visit the IGS WWW site: <http://www.geosyntheticssociety.org>

and industry, creating mutual benefits for both.

### Links with Other International Associations

We now live in a “global society” where information and communication is only a “click” away. As an international society, the IGS can take greater advantage of this ease in communication and information sharing and develop more links with other international associations around the world.

Geosynthetics are used in geotechnical structures (reinforced walls and embankments), transportation engineering (roads and railways), environmental engineering (landfills and lagoons), hydraulic engineering (dams and canals), and erosion control systems. Practically each of these fields of

application is represented by a well-established international association. It is critical that the IGS develops and maintains more defined synergies with these associations and, in the meantime, maintain and refine our own traditions and reputation as a respected professional international organisation.

### Expansion (Chapters and Structure)

More than 90% of the present IGS membership is formed through local chapters; however, increased presence and the formation of new chapters, particularly in the following areas of the world is required: Eastern Europe, Africa, Middle East, and Central and South America.

Once this goal has been achieved, the structure of the IGS can change to suit the more specific needs of IGS

Members and Chapters in each continent as is done in many other international organisations.

### In Conclusion

All of the Society’s future activities will be focussed on promoting the correct and most efficient use of geosynthetics worldwide. This will contribute to “sustainable development” for us, our children, and future generations.

Having this in mind, I look forward to working with the new IGS Officers and Council Members and all current and potential members of the Society, over the next four years. My main goal is to do the best I can to serve the Society and to do this I require your continuous support. I thank you in advance for your continuing assistance, ideas, and friendship in the coming years.

## Reflecting on the Past Four Years of IGS Presidency by Professor Richard J. Bathurst, IGS Immediate Past-President

*Editors note: The following article is adapted from the address of the IGS President, Professor Richard J.*

*Bathurst, at the IGS Ordinary General Assembly held 25 September 2002 in Nice, France, in conjunction with the 7th International Conference on Geosynthetics (7ICG).*

**I**t is a pleasure for me to report on the activities of the International Geosynthetics Society over the four years since the last Ordinary General Assembly in Atlanta, Georgia, USA, in 1998. I hope this article convinces you that much has been accomplished in four years and that our Society is in good health.

Since 1998, individual membership has grown from 1,832 members to 2,053 members - a 12% increase. At the same time, annual IGS membership fees have remained unchanged. Very few international professional societies of our type can record both a growth in membership and a zero increase in fees. Our Society depends heavily on the contribution of our corporate members. I am delighted to report that corporate membership has grown from 78 to 93 members since 1998 - a 20% growth.

The combination of individual

members from academia, consulting, government, and manufacturing from around the world together with our corporate members is clear evidence that we are a professional society that is inclusive and representative of all who



have a stake in the success of geosynthetics and related technologies.

Simultaneous with the growth in individual and corporate membership, there has been the growth of IGS chapters. More than 90% of our membership are also members of national or regional chapters. It is at the chapter level that most of the work is done to promote the geosynthetics discipline and to educate both our Members and others on the use of geosynthetics in

civil and environmental applications.

I have counted 13 major conferences that were held during the last four years under the auspices of, or with the support of, the IGS. Countless other workshops and symposia organized by our members are recorded in *IGS News* over the same period. In the last four years, we have welcomed chapters from Australia/New Zealand, Belgium, Peru, Portugal, Spain, Thailand, and Turkey. This brings the number of IGS chapters to 23. At the time of this report, efforts are underway to form chapters in the Czech Republic, Slovak Republic, and the Nordic Region.

An important mandate of the IGS is education. The Education Committee under the leadership of Jim Paul has done an outstanding job making available to the IGS chapters and members collections of slides, technical documents, and videos. The most recent video is on “Geosynthetics in Reinforced Soil Structures”. In addition, there are now three CDs one of which includes a collection of 17 mini-lectures on geosynthetics definitions and applications. This last collection has been given to each IGS Member.

On a similar education theme, the

## The New IGS Officers and Council Members

The call for candidates for the IGS President, Vice-President, and Council for **2002 to 2006** appeared in the July and November 2001 issues of *IGS News*. Election of Council candidates was held by postal ballot in May 2002. The IGS President and Vice-President were elected and the new Council Members were announced at the Ordinary General Assembly (OGA) held at the *7ICG* in Nice, France, September 2002. The Secretary and Treasurer (IGS Officers) were elected by the new IGS Council from amongst its Members at the first IGS Council meeting that took place after the OGA.

President Daniele Cazzuffi  
Vice-President Fumio Tatsuoka  
Immediate Past-President Richard J. Bathurst  
Treasurer Philippe Delmas  
Secretary Peter Stevenson

### New Council Members

Gerhard Bräu (Germany)  
Steve Corbet (re-elected, United Kingdom)  
Philippe Delmas (re-elected, France)  
Michele Maugeri (Italy)  
Hiroshi Miki (Japan)  
Ennio Palmeira (Brazil)  
Peter Stevenson (re-elected, USA)  
Wim Voskamp (re-elected, The Netherlands)

### New Co-opted Council Members

Ernesto Alio (Venezuela)  
Cheng Gang Bao (China)  
Barry Christopher (USA)  
G. Venkatappa Rao (India)

**The above new IGS Council Members join the eight Council Members who were elected in 2000 for the period 2000 to 2004, together with the 2000 and 2002 Co-opted Members.**

society has initiated a Student Awards program that provides financial assistance to students nominated by their chapter to attend important regional and international conferences on geosynthetics. An example is the 13 students that attended the recent *7th International Conference on Geosynthetics* in Nice, France.

The Society continues with two peer-reviewed technical journals - *Geotextiles and Geomembranes* under the editorship of Professor R. Kerry Rowe and *Geosynthetics International* under the editorship of Dr. Terry S. Ingold (Editor), myself (Co-Editor), and Chair of the Editorial Board, Dr. Jean-Pierre Giroud. These two journals have performed an important service to disseminate case studies, theory, and experimental work in support of geosynthetics and related technologies.

Another important initiative is the hire of a professional provider to update and expand the IGS website and to post *IGS News* on the website ([www.geosyntheticssociety.org](http://www.geosyntheticssociety.org)). An objective of the new IGS website is to make more material available to our membership and others using this cost-effective medium.

Finally, the last four years have seen the introduction of an IGS Service Award to recognize those IGS Members who have made an outstanding contribution to the mission of the IGS through dedicated service.

Many of the accomplishments noted above are the result of the energy and dedication of IGS Council and Officers with whom it has been my pleasure to work with over the last four years. I would like to pay special tribute to Wim Voskamp who has carefully man-

aged the finances of the Society over many years as IGS Treasurer. I am also delighted to have the opportunity to remind the membership that the smooth running of the society is largely due to the excellent management of the day-to-day affairs of the society by Peter Stevenson (IGS Secretary) and Rosemary Stevenson (IGS Secretariat Manager). We have all been well served by their dedication and energy.

In closing, I have enjoyed the last four years as your IGS President. I am pleased to hand over to the next Council and IGS Officers a mature society: a Society with a clear mandate and a professional society that is financially sound. I wish the new Council, the new Officers (President, Daniele Cazzuffi and Vice-President, Fumio Tatsuoka) and all the membership the best of success over the next four years.

## IGS Council Meeting Minutes September 2002, Nice France

**T**he Officers and Council of the IGS participated in five meetings during the *7ICG*, 20 to 26 September 2002 in Nice, France. On 20 to 21 September, the outgoing Officers

and Council met for the final time. The principal issues addressed included the upcoming Ordinary General Assembly (OGA), the new IGS website, and the several award programs, in particular,

the student awards. Award rules will be reviewed and updated.

The Membership will be surveyed to determine interest in establishing the IGS Directory on the web.

After the OGA on 25 September, the new Officers and Council met twice. The first brief meeting resulted in the co-optation of Mr. Ernesto Alio (Venezuela), Prof. Cheng Gang Bao (China), Mr. Barry Christopher (USA), and Mr. G. Venkatappa Rao (India) to Council to represent important constituencies of the IGS. In addition, Philippe Delmas was elected IGS Treasurer and Peter Stevenson was elected IGS Secretary. The second meeting of the new Council focused on committee assignments.

#### **New IGS Committees: 2002 to 2006**

The new IGS committees and their respective Chairs are as follows:

- *Communication (including issues on publications)*: Wim Voskamp
- *Corporate*: Daniele Cazzuffi
- *Education (including issues on Standards)*: Ennio Palmeira
- *Financial*: There are no Chairs, instead, four members were selected (Paul Barker, Jürgen Kassner, Bernard Myles, and Wim Voskamp)
- *International Liaison*: Co-Chairs, Philippe Delmas and Peter Stevenson
- *Investment*: There are no Chairs, instead, two members were selected (Georg Heerten and Steve Warner)

- *Policy*: John Cowland
- *Technical*: Steve Corbet
- *Asian Activities*: Masashi Kamon
- *European Activities*: Jim Paul
- *North American Activities*: Barry Christopher
- *South American Activities*: Ennio Palmeira.

The regional committees are charged with the selection of regional conference sites and chapter formation.

The next Council Meeting will be held in Milan, Italy, March 2003.

*reported by Peter E. Stevenson  
IGS Secretary*

## **Minutes from Sixth Ordinary and Special General Assembly held at Seventh International Conference on Geosynthetics**

### **25 September 2002, Athene, The Acropolis, Nice, France**

- The Ordinary General Assembly (OGA) was called to order by IGS President, Richard J. Bathurst at 1710.
- No Quorum was present, thus, the OGA was closed at 1715.
- The IGS Awards were presented by the Awards Committee. The recipients were as follows:
  - Mr. Tony Allen (USA)
  - Imad Al-Qadi (USA)
  - J.Scott Thornton (USA)
  - Wim Voskamp and Colbond Geosynthetics (The Netherlands)
  - Barry Christopher, Jerry DiMaggio, and Victor Elias (USA)

Bernard Myles and Howard Murray presented the IGS Service Award to Mrs. Genevieve Renard, who accepted the award on behalf of her husband, Mr. Jean Renard.

- The special general assembly was called to order by President Richard J. Bathurst.
- The Secretary presented the general assembly procedures. Poll tellers were not appointed.
- The preceding special assembly minutes were approved.
- President Richard J. Bathurst delivered his address.
- The Secretary's report added the news that several chapters were in the process of being organized at the time of the *7ICG* (Portugal, Slovakia, and the Czech Republic with interest from Malaysia, Iran, and Scandinavia).
- The Treasurers report was presented.
- The Finance Committee report was presented.
- The Financial report was approved.
- The Society's activities were approved.
- Daniele Cazzuffi was elected IGS President by acclamation.
- Fumio Tatsuoka was elected IGS Vice-President by acclamation.
- Council Members elected in the 2002 postal ballot were announced: Gerhard Bräu, Steve Corbet, Philippe Delmas, Michele Maugeri, Hiroshi Miki, Ennio Palmeira, Peter Stevenson, Wim Voskamp.
- Bernard Myles, Jürgen Kassner, Paul Barker, and Wim Voskamp were appointed to the 2002 to 2006 Finance Committee.
- The date, 2010, was approved for the *Ninth International Conference on Geosynthetics*.
- The date of 2006, in conjunction with the *Eighth International Conference on Geosynthetics* in Yokohama, Japan, was approved for the next OGA.
- The meeting was closed at 1810.

*reported by Peter E. Stevenson  
IGS Secretary*

## **IGS Financial Report: 1998 to 2001**

The 1998 to 2001 IGS Financial Report was presented by the IGS Treasurer, Wim Voskamp at the Ordinary General Assembly at the *7ICG* in Nice, France.

Yearly audits of the financial records were performed by a Certified Public Accountant, Mr. Michael S. Upton, of Greenville, North Carolina, USA. The audits were carried out in

accordance with the "generally accepted auditing standards in the USA". The yearly financial statements and independent auditor's reports were reported to the IGS Council yearly.

## Revenue and Expenditure Highlights

Some of the revenue and expenditure highlights for 1998 to 2001 are as follows:

- Sixth International Geosynthetics Conference (+\$71,000)
- Increase in Corporate Members (+\$10,000)
- Moving the seat of the IGS from Switzerland to the USA to reduce taxes (+\$8,000)
- Geosynthetics Reinforcement video (\$0)
- Mini-Lectures (-\$25,000)
- Student Award Program (-\$20,000)
- Educator support (-\$10,000)

## Reserve Policy

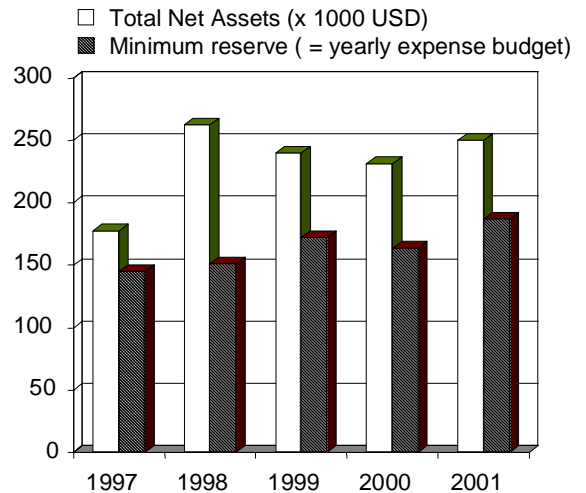
The minimum yearly reserve was set equal to the yearly expenses. The investment policy of investing in bonds

and money market accounts was established through procedures outlined by the Investment Advisory Committee. The interest earned from these investments was rolled into budget income. The average income from 2001 investments was \$10,000.

## IGS Financial Outlook

The IGS Treasurer was happy to report that the budget is growing yearly, with a good balance between income from Individual Members, Corporate Members, and conferences.

The IGS can continue to support education and promotion of the Society, and there is *no need to increase individual and corporate membership fees.*



Overall, the IGS is in a financially healthy situation!

*reported by Wim Voskamp  
IGS Treasurer*

# Report of IGS Financial Committee to IGS General Assembly held at Seventh International Conference on Geosynthetics

## 25 September 2002, Nice, France

The Finance Committee Members, Jürgen Kassner, Paul Barker, and Bernard Myles presented their report for the period 1998 to 2002 to the Ordinary General Assembly (OGA).

The Committee received the independent auditors (Upton & Upton) reports for the years 1998, 1999, 2000, and 2001 together with the first two quarters of 2002.

The Committee has read the reports and can attest that the financial transactions and statement within the reports are correct and in accordance with good accounting practice.

After discussions within the Committee and in conjunction with the IGS Treasurer, the Committee would like to

make the following comments and recommendations.

- (a) The Financial Committee shall be informed as soon as possible of the IGS Council's budgets and financial commitments.
- (b) The Financial Committee shall receive half yearly statements of income and expenditure.
- (c) Under-utilised budgeted expenditures for tasks and topics shall be reallocated or immediate management action initiated to execute the expenditure.
- (d) The present guidance criteria for the financial reserve shall be reviewed and consideration given to changing the criteria from turnover to commitments and liability.

- (e) A plan shall be prepared to manage a reduction in the financial reserve in line with the United States Internal Revenue Service expectation of a non-profit society.
- (f) Consideration should be given to raising the yearly budgeted expenditure to better reflect the Society's income and resources.
- (g) The Society should discuss, with the Organizing Committee of future international conferences, funding strategies to achieve early financial stability for the conference in an attempt to reduce the registration fee.

*reported by Peter E. Stevenson  
IGS Secretary*

## IGS Directory on the Web - What is Your Opinion?

Reply to: [directory\\_permission@geosyntheticssociety.org](mailto:directory_permission@geosyntheticssociety.org)

**T**he IGS council is considering posting the IGS Directory on the IGS web site. There are two objectives behind this initiative.

First, each individual member would be able to access his or her record and *update the record* as necessary. This would ensure that the membership will

receive the IGS mailings for ballots, newsletters, and other benefits in a timely manner.

Currently, a significant percentage

of the e-mail addresses are outdated. In addition, many of the mailing addresses are out of date. For the IGS Directory to be an effective tool for all IGS Members, it is critical to ensure that all of the information is current and correct.

The second objective is to make the directory more *accessible* and have more utility to the Membership. There is one significant barrier to implementing this plan. Many countries, espe-

cially in Europe, prohibit the posting of an individuals' address on a website unless the individual gives explicit permission for the posting. The IGS is investigating the legal requirements and is also investigating the ability to limit access to the site thereby denying the Directory to commercial exploitation. We are confident that this can be achieved.

In conclusion, making the IGS

Directory accessible on the web would make efficient use of the IGS website and every Member's time.

If you agree to the plan of posting the Directory and your individual address on the IGS website, please e-mail your agreement to the e-mail address listed in the title of this article.

*reported by Peter E. Stevenson  
IGS Secretary*

## IGS Student Award Recipients (Nice, France)

**T**hirteen IGS Student Awards were granted for the period 2001 to 2002. This second IGS Student Award program took place at the *7ICG* in Nice, France, September 2002. The 2001 to 2002 award winners and their representative Chapter are as follows:

- Laurent Briançon (France),
- A.H. de Bondt (The Netherlands),
- Stefan Cantré (Germany),
- Ding Li (China),
- André R.S. Fahel (Brazil),
- Daiki Hirakawa (Japan),
- Maria Rossella Massimino (Italy),
- Javier Moreno (Spain),
- Ernest Olinic (Romania),
- John Pavlakis (South Africa),
- K. Ramu (India),
- Catriona Miller (UK), and

- Don Saunders (North America)

The IGS Student Award consists of a US\$1,000 cheque, which has to be used for conference participation costs.

Congratulations to you all and I wish you continued success in your future careers!

*reported by  
Karina Labinaz  
IGS News Editor*



**Several of the IGS Student Award recipients (2001 to 2002).  
Back, left to right: Laurent Briançon, André R.S. Fahel, John Pavlakis, Don Saunders, Ernest Olinic, Daiki Hirakawa  
Front, left to right: Ding Li, Stefan Cantré, Dr. Shobhia Bhatia (Co-Chair Student Session), Maria Rossella Massimino, Dr. Andre Rollin (Co-Chair Student Session).**

## Presenting the 1998 to 2001 IGS Award Recipients!

**T**he IGS Awards for the period 1998 to 2001 were presented at the *7ICG* in Nice, France, September 2002.

The IGS Awards are granted to individuals of 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 recognise the achievements completed and/or validity of which has been demonstrated during a

four-year period preceding the year of the Award.

The 1998 to 2001 IGS Award recipients and the respective award-winning project titles are as follows:

- *Wim Voskamp and Colbond Geosynthetics*  
“Residual Strength and Creep of PET Reinforcing Materials”
- *Imad Al-Qadi*  
“Application of Geosynthetics in Transportation Engineering”
- *Barry Christopher, Jerry DiMaggio, Victor Elias*

“Geosynthetics in Transportation Applications and Reinforcement Durability”

- *J. Scott Thornton*  
“Stepped Isothermal Method (SIM)”
- *Tony M. Allen* (see article, p. 7)  
“Determination of Long-Term Strength of Geosynthetics”

Congratulations to each of you for receiving this prestigious award!

*reported by Karina Labinaz  
IGS News Editor*



## The IGS Honourary Member Award

Dr. Jean-Pierre Giroud received the IGS honorary Member Award from IGS Awards Committee Chair Joseph Fluet at the 7ICG, Nice, France, in September 2002. Dr. Giroud was given a crystal bowl that is etched with the following citation: “Dr. Giroud is truly the Father of the IGS and the Geosynthetics Industry”. Without the efforts of Dr. Giroud, the IGS would not be half of what it is today.

Dr. Giroud is a Past-President of the IGS (1986 to 1990), was Vice-President (1983 to 1986), and was Vice-Chair of the Interim Committee that was established to prepare the foundation of the IGS in 1983. Of course these are only two examples of his many contributions to the IGS.

What better an award for the individual to whom we are indebted for coining the words “geotextiles” and “geomembranes” in 1977, Paris, France!

*Congratulations J.P., it is the Membership’s honour.*

## The IGS Plaque

The third IGS Plaque Award was presented to the following three individuals at the 7ICG in Nice, France, September 2002: Professor Liu Zong Yao, Professor Wang Zheng Hong, and Senior Engineer Wang Yu Ren all of China. The award represents their contribution to the development and use of geosynthetics in China and establishing the Chinese Chapter of the IGS.

The IGS Plaque award was inaugurated in 1990 and recognises the outstanding service of individuals to the IGS. The first IGS Plaque recipient was Guy Massenaux for his contribution to the formation of the IGS and his services as IGS Secretary (1983 to 1990). The second recipient was Dr. Terry Ingold (1994) in recognition of his contribution to the advancement of the geosynthetics discipline as Editor of the journal *Geotextiles and Geomembranes* from 1984 to 1994.

## The IGS Service Award

The third IGS Service Award recipient is Mr. Jean Renard. Mr. Renard is being recognised for his contribution to the geosynthetics industry and the French Chapter of the IGS. Due to severe illness, Mr. Renard was unable to attend the 7ICG; his spouse, Genevieve Renard, accepted the award on his behalf.

In July 2001, the first IGS Service Award was presented to Dr. David Elton, past *IGS News* Editor (1994 to 2001).

In November 2001, the second and third IGS Service Awards were given to Mr. Chris Lawson and Prof. Toshinobu Akagi for their service on the IGS Council. Both Mr. Lawson and Prof. Akagi were elected to Council in 1992 and served as such until 2000.

## “Determination of Long-Term Strength of Geosynthetics”

by Mr. Tony M. Allen, IGS Award Recipient

*Editor’s Note: Mr. Tony Allen received an IGS Award at the 7ICG in Nice, France, for the development of Washington State Department of Transportation Test Method 925 “Determination of Long-Term Strength of Geosynthetics”, published in 1998. The following article was contributed by Mr. Allen.*

Test Method 925 is a research implementation product, in which research conducted by T. Allen, as well as

research conducted by others (e.g., the Federal Highway Administration geosynthetic durability study, Elias et al. 1997) was pulled together into a coherent step-by-step evaluation procedure.

The Test Method is complete with specifics on what data and other information are needed for the evaluation, how to evaluate the data, and how to estimate the long-term strength of geosynthetics, including complete exam-

ples illustrating the protocol. Note, although it is termed a test method, it is in fact a collection of test methods and procedures organized into a coherent long-term strength assessment protocol.

The equation that governs reinforcement strength design is as follows:

$$T_{al} = \frac{T_{ult}}{RF_{ID} \times RF_{RC} \times RF_D}$$

where:  $T_{al}$  = nominal long-term reinforcement design strength (kN/m);  $T_{ult}$  = minimum average roll value (MARV) ultimate tensile strength (kN/m);  $RF$  = combined strength reduction factor to account for potential long-term degradation due to installation damage, creep, and chemical aging (dimensionless);  $RF_{ID}$  = strength reduction factor to account for installation damage to reinforcement (dimensionless);  $RF_{CR}$  = strength reduction factor to prevent long-term creep rupture of reinforcement (dimensionless); and  $RF_D$  = strength reduction factor to prevent rupture of reinforcement due to chemical and biological degradation (dimensionless).

Conceptually,  $T_{al}$ , reduced by a factor of safety for uncertainties,  $FS$ , must be greater than or equal to the tensile load applied to the geosynthetic,  $T_{max}$ . Therefore, this protocol for long-term strength is integral to the geosynthetic-reinforced structure design process.

The focus of the protocol is on the product line, enabling entire product lines to be characterized regarding their long-term strength based on test results from a few selected products in the line, thereby reducing the amount of testing required. The protocol provides simplified procedures (e.g., default reduction factors) for assessing the strength reduction factors if the environment where the reinforcement is to be used is defined as “nonaggressive”.

The protocol provides specific procedures for determining  $RF_{ID}$ ,  $RF_{CR}$ , and  $RF_D$ .  $RF_{ID}$  is determined from data obtained from full-scale installation damage tests, where a rather large section of geosynthetic is placed on a layer of backfill soil, and a layer of the same backfill soil is placed and compacted over the top of the geosynthetic. The geosynthetic is then carefully exhumed and its remaining tensile strength is determined.  $RF_{ID}$  is simply the ratio of the original, undamaged strength of the roll of geosynthetic used for the testing to the remaining strength after exhumation. The protocol provides procedures for tying the  $RF_{ID}$  determined in this way to the backfill soil characteristics and provides interpolation procedures between soil types.

The focus of the calculation of  $RF_{CR}$  in the protocol is the creep rupture limit for the specified design life. The protocol provides testing and extrapolation requirements for creep rupture data and provides guidance on how to account for extrapolation uncertainty.  $RF_{CR}$  is simply calculated as the ratio of the virgin strength of the roll of material used for the creep testing divided by the creep reduced strength at the desired design life as determined from the extrapolated creep rupture envelope. A simplified time-temperature superposition technique (typically called “the conventional approach”) is provided in the protocol. Guidelines for the use of stepped isothermal method (SIM) creep data are also provided.  $RF_D$  can be determined in the protocol through long-term immersion (e.g., hydrolysis, in the case of PET) or oven aging tests (e.g., oxidation, in the case of PP).

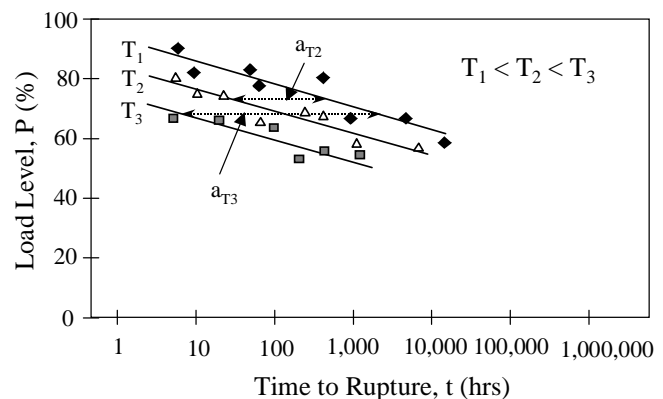
Since such tests can take several years to complete and can be quite costly, an option is provided in the protocol to use a default reduction factor in combination with index tests that are related to the polymer’s ability to resist chemical degradation in a nonaggressive environment. The protocol provides specific guidance on what data to submit and how to organize it, to make the data submission package consistent for all submissions, and to make it as easy as possible to review.

Test Method 925 is also integral to WSDOT’s evaluation of geosynthetic reinforcement products for its Qualified Products List (QPL). Since the protocol is very detailed and well defined, the use of the protocol helps to insure fair and equitable treatment of all geosynthetic reinforcement products in the product approval process.

Concurrently with the writing of Test Method 925, T. Allen also used the protocol as it developed to write por-

tions of the American Association of State Highway and Transportation Officials (AASHTO) Design Specifications for Highway Bridges (a national US design code that governs design of transportation works, including reinforced soil structures), and portions of the Federal Highway Administration (FHWA) reports (e.g., Elias et al. 2001; and Elias 2001) that the AASHTO design code references. Since T. Allen was involved in the writing of the FHWA and AASHTO documents, Test Method 925 is consistent with what has now become national US practice.

Test Method 925 is currently being used as the basis for a proposed ISO standard being considered by WG5 of the ISO TC221 committee on geosynthetics. Test Method 925 has already influenced both US and international practice regarding the determination of long-term geosynthetic reinforcement strength and the acceptance of rein-



Product creep rupture envelopes at three temperatures,  $T$ , for a single product, also showing shift factors  $a_T$  needed to produce extrapolated creep rupture envelope at design temperature  $T_1$

forcement products.

Elias, V., DiMaggio, J., and DiMillio, A., 1997, “FHWA Technical Note on the Degradation-Reduction Factors for Geosynthetics”, *Geotechnical Fabrics Report*, Vol. 15, No. 6, pp. 24-26.

Elias, V., 2001, “*Long-Term Durability of Geosynthetics Based on Exhumed Samples from Construction Projects*”, FHWA Report FHWA RD-00-157, 53 p.

Elias, V., Christopher, B.R., and Berg, R.R., 2001, “*Mechanically Stabilized Earth Walls and Reinforced Soil Slopes Design and Construction Guidelines*”, Federal Highway Administration, Report No. FHWA-NHI-00-043, 394 p.



# North American Geosynthetics Society Conference in conjunction with 56th CGS and IAH Conferences

28 September to 1 October 2003 in Winnipeg, Manitoba, Canada

The North American Geosynthetics Society (NAGS) is pleased to announce that their 2003 conference will be held in Winnipeg, Manitoba, Canada in conjunction with the 56th national conference of the Canadian Geotechnical Society (CGS) and the fourth national conference of the International Association of Hydrogeologists (IAH) from 28 September to 1 October 2003.

The Conference theme is, "Two Rivers", reflecting the history of the founding of the City of Winnipeg at the forks of the Assiniboine and Red Rivers, and reflecting the collaboration between the CGS, the IAH, and NAGS in coming together to provide this Conference.

The Chair of the NAGS-sponsored portion of the Conference is Dr. Barry Christopher (USA). The Conference program will include traditional elements such as technical sessions, an exhibitor's fair, student competitions, a keynote lecture (i.e., the Mercer Lecture by Prof. Richard J. Bathurst), and a business meeting.

## Joint Conference Topics

The Organising Committee invites abstracts from industry, government, and academia regarding original contributions to any facets of geotechnical engineering, geosynthetics, and hydrogeology, including:

- soil mechanics and foundations,
- physical hydrogeology,
- hydrogeochemistry,
- contaminant hydrogeology,

- geoenvironmental engineering,
- engineering geology,
- cold regions geotechnology, and
- rock mechanics.

Geosynthetics papers dealing with the following topics are especially sought:

- bio-engineering,
- erosion control,
- scour protection,
- drainage and filtration, and
- silt fences.

Case studies and case histories as well as papers discussing recent research and future trends are encouraged. Preference toward a presentation or poster session should be noted on the submission and whether the authors are willing to participate in a poster session if presentation time is full. *All papers will be peer-reviewed.*

## NAGS Component of Conference

This is indeed a new opportunity for NAGS to hold a conference in conjunction with other professional societies and thereby introduce other engineering professionals to geosynthetics and their applications. It is anticipated that the combined attendance of CGS and IAH Members will be a tremendous success and this partnership model can be used for future NAGS conferences in North America with other engineering societies.

Authors of high-quality submitted papers will be invited to submit

extended versions of their papers to the journal *Geosynthetics International*.



A Technical Review Committee will review all abstracts for clarity, technical merit, and relevance to the Conference. The authors of accepted abstracts will be expected to submit a paper prior to the Conference and present it during the Conference. The paper will appear in the published proceedings of the Conference.

## Submission of Abstracts

One page abstracts, a maximum of 400 words in length must be submitted in either English or French. The abstract must contain the title, authors' names, and affiliations, along with fax/telephone and e-mail address of each author. Electronic submission of the abstract using Microsoft Word (version 6 or higher) is strongly encouraged.

For NAGS contributions, please submit abstracts to:

Dr. James Blatz  
University of Manitoba  
Civil Engineering Department  
342 Engineering Bldg.  
Winnipeg, Manitoba, Canada R3T 5V6  
E-mail: blatzja@cc.umanitoba.ca

## Official Languages

The official languages of the Conference are English and French.

## Social and Guest Program

The social program for both delegates and guests is designed to highlight the historical growth and development of Winnipeg around the junction of the "Two Rivers". Highlights will include

## Critical Conference Dates for Your Calendar

- *Abstract submittal: 15 January 2003*
- *Abstract approval to authors: 15 January 2003*
- *Final manuscript submission to Technical Chair: 15 May 2003*
- *Final manuscript review returned to authors: 15 June 2003*
- *Final manuscript submission: 15 July 2003*

the Local Colour Night Evening on Monday and traditional Conference Banquet on Tuesday Evening. An accompanying persons program will be available and will showcase the highlights of Winnipeg.

#### Conference Sponsorship

There is still room available for company sponsors. Four different sponsorship levels have been created: Platinum, Gold, Silver, and Bronze. In

addition, there are several other sponsorship opportunities, such as lunch-break sponsors, field trip sponsors, etc. For more information, please visit the Conference website given below.

#### Exhibitors

Room for approximately 25 exhibitors will be provided. Further information for exhibitors will be available on the Conference website shortly.

#### Contact Information

For more detailed requirements for abstract submission, contact Kelly Rojas, Managing Director, North American Geosynthetics Society by telephone at 1/705 434 0180 or e-mail at [kellyrojas@nagsigs.org](mailto:kellyrojas@nagsigs.org). Please also visit the Conference's web page at <http://home.cc.umanitoba.ca/~cgsman/cgs2003/>

## Third European Geosynthetics Conference, EuroGeo3

1 to 4 March 2004 in Munich, Germany

The *Third European Geosynthetics Conference, EuroGeo3*, will be held on 1 to 4 March 2004 in Munich, Germany under the auspices of the IGS. It will be organised by the German Society for Geotechnics with its national IGS Chapter (Chair: Prof. Rudolf Floss) in co-operation with European and national geosynthetics producers, and scientific and engineering organisations. The Conference Chair is IGS Council Member Gerhard Bräu from the Technical University in Munich.

Building on the experience gained from the previous conferences, *EuroGeo1* and *EuroGeo2*, the focus of *EuroGeo3* is to provide a platform for scientific exchange as well as to attract end users from companies, engineering offices, administrative bodies, and authorities. To achieve this, the nature of the event will be slightly changed from previous conferences.

#### Program

To emphasise the informative and educational aspects and reduce costs for participants, the Conference will be held at the Technical University in Munich. A special series of lectures featuring applied and practical issues will be offered each day. Nevertheless, lectures and workshops encouraging scientific exchange will be the main pillar of the Conference. In addition, the Conference will feature participants, such as geosynthetics producers, laboratories, and developers of design

programs, who will have an opportunity to promote their products and services not only during the planned technical exhibition but also in presentations or displays.



Geosynthetics Conference  
March 01-04, 2004 Munich, Germany

#### Planned Conference Topics

The following main topics are planned:

- case studies (preferably with measurement instrumentation),
- design approaches and calculation methods,
- quality management/control during production and on-site,
- economic benefits of using geosynthetics, and
- long-term experience using geosynthetic products and types of construction.

Everyone is warmly invited to send suggestions for presentations under the above headings. Further information is available on the Conference website or by request (see Contact Information).

#### Deadlines

The deadline for receipt of abstracts is the **28 February 2003**. Paper selection

will be completed in May 2003 to ensure sufficient time to prepare the papers and the presentations.

#### Technical Exhibition

The technical exhibition will be run directly outside of the lecture theatres providing an excellent opportunity for exchange between scientists, producers and users. The number and size of booths for companies participating in the exhibition is limited.

#### Social Programme

The social programme will be oriented toward showcasing the Bavarian lifestyle including visits to famous castles, the beautiful countryside, outstanding museums, the lovely city of Munich, and drinking and eating in Bavarian style!

Technical excursions will be organised for the period immediately following the Conference.

#### Contact Information

For information regarding abstracts and pre-registration for the exhibition and the Conference, please contact:

*EuroGeo3* – Munich 2004

Technische Universität München  
Lehrstuhl und Prüfamt für Grundbau,  
Bodenmechanik und Felsmechanik  
Baumbachstrasse 7, 81245 München  
Germany

Tel: 49/89 289 27139

Fax: 49/89 289 27189

E-mail: [eurogeo3@bv.tum.de](mailto:eurogeo3@bv.tum.de)

<http://www.gb.bv.tum.de/eurogeo3>

## News from the IGS China Chapter

**T**he Chinese Chapter of the IGS, which has over 50 members, is very active and holds at least one geosynthetics conference per year. Last year, a seminar on barrier, filtration, and drainage functions of geosynthetics was held in Wuhan, Hubei Province. This was followed by the publication of a book of selected papers on "Research and Practice of Techniques in Waterproofing, Filtration and Drainage with Geosynthetic Products".

In 2002, there will be no less than three geosynthetic conferences in November alone. First, a reinforced earth seminar will be held in Zhenjiang, Jiangsu Province, on 11 to 15 November. A seminar on the utilization of geosynthetics in geo-environmental engineering will be held in Huangzhou, Zhejiang province, on 17 to 19 Novem-

ber. This will be followed by the 2<sup>nd</sup> *China Geosynthetics Exhibition and Conference*, which will be held in Shanghai on 20 to 22 November.

Numerous discussion meetings are held throughout China each year to discuss the applications of geosynthetic products. Up to now, more than 130 national technical communications have been issued, in which research, experimental works, manufacturing, the use of geosynthetics in engineering projects, and issues from *IGS News* are reported.

The Chapter is currently revising the "Code for Test and Measurement of Geosynthetics" and the "Standard for Applications of Geosynthetics in Hydraulic and Hydro-Power Engineering", which were published approxi-

mately four years ago.

Following the disastrous flooding of the Yangtse River in 1998, Members of the Chapter convinced the Chinese Prime Minister, Zhu Rong Yi, of the benefits of using geosynthetics in flood protection works. This was followed by a document issued by Prime Minister Zhu in which he encouraged Engineers to use geosynthetic products in their work. In the last year, 250 million square metres of geosynthetics have been used in China. With the recent expansion of solid waste landfill construction, this figure is expected to increase significantly. Undoubtedly, members of the Chinese Chapter of the IGS will be kept busy!

*Reported by Wang Zheng Hong  
CCIGS Secretary*

### Highlights from the *Seventh International Conference on Geosynthetics (7ICG)*, September 2002, Nice, France More to Come in March 2003

This was a conference truly to be remembered for its outstanding innovativeness, organisation, and interdisciplinarity! Congratulations to the many individuals involved in making it a success. Here are photos from some of the social activities that took place. It appears that fun was had by all!

A more detailed synopsis of the 7ICG will be published in the March 2003 issue of *IGS News*, but for now I leave you with the following snap-shots ...



# **Geosynthetics International**

## **An Official Journal of the IGS**

**G**eosynthetics International 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 dedicated to the mission of the IGS, which is to promote the scientific and engineering development of geotextiles, geomembranes, related products, and associated technologies. *Geosynthetics International* offers a reduced subscription rate to Individual IGS Members. Individual IGS Members can subscribe for US\$150 per 6 issues. *Geosynthetics International* is offered to university and college libraries at US\$180 per 6

issues. The standard rate of US\$272 applies to all others.

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

Dr. T.S. Ingold, Editor  
*Geosynthetics International*  
Mulberry Lodge, St. Peters Close  
St. Albans, AL1 3ES  
United Kingdom  
Tel: 44/1727-842433  
Fax: 44/1727-845266

Professor R.J. Bathurst, Co-Editor  
*Geosynthetics International*  
Department of Civil Engineering  
Royal Military College of Canada  
P.O. Box 17000, STN Forces  
Kingston, Ontario K7K 7B4  
CANADA  
Tel: 1/613 541 6000, Ext. 6479  
Fax: 1/613 541 6218

Dr. J.P. Giroud, Chair

*Geosynthetics International*  
J.P. Giroud, INC.  
5837 North Ocean Boulevard  
Ocean Ridge, Florida 33435, USA  
Tel: 1/561-737-1642  
Fax: 1/561-733-2809  
E-mail: bathurst-r@rmc.ca

For the publishers (IFAI) contact:

Ms. Susan Smeed, IFAI  
*Geosynthetics International*  
Assistant Circulation Manager  
1801 County Road B West  
Roseville, MN 55113, USA  
Tel: 1/612 222-2508  
Fax: 1/612 631-9334

## **Geotextiles and Geomembranes**

### **An Official Journal of the IGS**

**G**eotextiles and Geomembranes provides a forum for the dissemination of information on geosynthetics amongst research workers, designers, users, and manufacturers. The Journal increases general awareness, prompts further research, and assists in the establishment of international codes and regulations.

The following are welcome contributions: refereed technical papers covering research, design, construction, applications, and case studies; technical notes, book reviews, reports of conferences, and meetings; and letters to the Editor. All technical papers are open to written discussion. No limit to length is set and short notes are accept-

able. Review articles may also be published at intervals, but the subject and contents of these should be discussed first with the Editor.

The Editorial Board Members and reviewers have worked very hard over the past year to provide detailed, constructive reviews in a very timely manner. The average review period is less than three months. Papers come from a wide range of countries with approximately one third of the papers coming from the Americas, Europe, and the rest of the world. The rejection rate is 59%. The Journal's Editor and Board Members are extremely appreciative of the authors' hard work in addressing the reviewers' comments and the quick

return of revised papers.

All technical contributions and inquiries should be directed to:

Professor R. Kerry Rowe, Editor  
*Geotextiles and Geomembranes*  
Department of Civil Engineering  
Ellis Hall, Queen's University  
Kingston, Ontario, K7L 3N6  
Canada  
Fax: 1/613 533 2128  
E-mail: kerry@civil.queensu.ca

Authors should submit four copies of their paper, which will subsequently be reviewed by at least two individuals. No original figures should initially be included.

### **IGS Trivia: Do you know ...**

**Who was the first IGS News Editor?**

Please e-mail your response to Karina Labnaz at labnaz-k@rmc.ca. The name of the individual who provides the first correct response will be published in the March 2003 issue of *IGS News*. This individual must be an IGS Member, cannot be a past Editor of *IGS News*, and cannot be a current or past IGS Officer or Council Member (but you can help others provide the answer!).



*16<sup>th</sup> Annual Conference on Geosynthetics  
Philadelphia, Pennsylvania, USA  
16-17 December 2002*

Contact: Ms. Marilyn Ashley  
Tel: 1/610 522 8440  
Fax: 1/610 522 8441  
E-mail: marilyn.ashley@coe.drexel.edu  
<http://www.geosynthetic-institute.org>

*Indian Geotechnical Conference 2002  
Allahabad, India  
20-22 December 2002*

Contact: Dr. R.P.Tiwari, Secretary  
Tel: 0532/445103/04/05/06, Ext: 1118  
Fax: 0532/642693/417500/646285  
E-mail: igc\_02@yahoo.co.in  
<http://www.geocities.com/igc2002allahabad>

*Geosynthetics 2003 - Educating for  
Engineering Solutions  
Atlanta, Georgia, USA  
11-14 February 2003*

Contact: Danette Fettig, Secretary  
E-mail: drfettig@ifai.com  
<http://www.ifai.com>

*Grouting and Ground Treatment 2003  
New Orleans, Louisiana, USA  
23-28 February 2003*

Contact: Michael Byle  
E-mail: mbyle@gfnet.com

***Fast Slope Movements - Prediction and  
Prevention for Risk Mitigation***

*Sorrento, Italy  
11-13 May 2003*

Contact: Dr. Giuseppe Sorbino, Secretary  
Tel: 39/089 964329  
Fax: 39/089 964045  
E-mail: fsm2003@unisa.it  
<http://www.unina2.it/fsm2003>

***Occurrence and Mechanisms of Flows in  
Natural Slopes and Earthfills  
(IW-Flows2003) - Workshop***

*Sorrento, Italy  
14-16 May 2003*

Contact: Dr. Lucio Olivares, Secretary  
Tel: 39/081 5010214  
Fax: 39/081 5037370  
E-mail: lucio.olivares@unina2.itAGI  
<http://www.unina2.it/flows2003>

*3rd Canadian Conference on  
Geotechnique and Natural Hazards  
Edmonton, Alberta, Canada  
8-10 June 2003*

Contact: Corey Froese  
Tel: 1/780 436 2152  
Fax: 1/780 435 8425

E-mail: corey.froese@amec.com  
<http://www.geohazards2003.eba.ca>

*21st Congress of the International  
Commission on Large Dams (ICOLD)  
Montreal, Quebec, Canada  
16-20 June 2003*

Contact: Christine Martin  
Tel: 1/514 289 2289  
E-mail: martin.christine@hydro.gc.ca  
<http://www.cigb-icold.org>

*12th Panamerican Conference on Soil  
Mechanics and Geotechnical  
Engineering*

*Cambridge, Massachusetts, USA  
22-26 June 2003*  
Contact: Professor Herbert Einstein  
Tel: 1/617 253 3598  
Fax: 1/617 253 6044  
E-mail: einstein@mit.edu  
<http://soilrock.mit.edu>

*12th Asian Regional Conference on Soil  
Mechanics & Geotechnical Engineering  
Singapore*

*4-8 August 2003*  
Contact: Dr. C.F. Leung  
Tel: 65/8742281  
Fax: 65/7791635  
E-mail: 12ARC@nus.edu.sg  
<http://www.eng.nus.edu.sg/civil/conf/12ARC>

*13th European Conference on Soil  
Mechanics & Geotechnical Eng.  
Prague, The Czech Republic  
25-28 August 2003*

Contact: Prof. Ivan Vanicek  
Tel: 42/2 24354540  
Fax: 42/2 3114206  
E-mail: vaniceki@fsv.cvut.cz  
<http://www.ecsmge2003.cz>

***North American Geosynthetics Society  
(NAGS) Conference  
Winnipeg, Manitoba, Canada  
28 September-1 October 2003***

Contact: Dr. James Blatz  
E-mail: blatzj@cc.umanitoba.ca  
<http://home.cc.umanitoba.ca/~cgsman/cgs2003>

*Sardinia 2003*

*S. Margherita di Pula, Cagliari, Italy  
6-10 October 2003*

Contact: Eurowaste srl  
via Beato Pellegrino, 23  
I-35135 Padova, Italy  
Tel: 39/049 8726986  
Fax: 39/049 8726987

E-mail: eurowaste@tin.it  
<http://www.sardiniasymposium.it>

*13th African Regional Conference  
Marrakech, Morocco  
8-11 December 2003*

Contact: Professor R. Khalid  
Tel: 1/212 2 248 87 50  
Fax: 1/212 2 223 41 88  
E-mail: diremi@emi.ac.ma

*9th ANZ Regional Conference  
Auckland, New Zealand  
9-11 February 2004*

Contact: Stephen Crawford  
Tel: 64/9 355 6054  
Fax: 64/9 307 0265  
E-mail: scrawford@tonkin.co.nz

***EuroGeo3  
Munich, Germany  
1-4 March 2004***

Contact: Technische Universitaet  
Muenchen  
Tel: 49/89 289 27139  
Fax: 49/89 289 27189  
E-mail: eurogeo3@bv.tum.de  
<http://www.gb.bv.tum.de/eurogeo3>

***GeoAsia 2004  
Seoul, Korea  
21-23 June 2004***

Contact: Prof. Chungsik Yoo  
Tel: 82/31 290 7518  
Fax: 82/31 290 7549  
E-mail: asyoo@yurim.skku.sc.kr

*9th International Symposium on  
Landslides*

*Rio de Janeiro, Brazil  
28 June -2 July 2004*  
Contact: Secretariat 9 ISL - Rio 2004  
Tel: 55/21 562 7200  
Fax: 55/21 280 9545 or 55/21 290 6626  
E-mail: 9isl@geotec.coppe.ufrj.br  
<http://www.quattri.com.br/isl/>

*16<sup>th</sup> International Conference on Soil  
Mechanics and Geotechnical Engineering  
Osaka, Japan*

*12-16 September 2005*  
Contact: Prof. Masashi Kamon  
Tel: 81/3 3251 7661  
Fax: 81/3 3251 6688  
E-mail: 16ICSMGE@jiban.or.jp  
<http://www.jiban.or.jp/>

***Note: Items in bold print are organised  
under the auspices of the IGS or with the  
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*Austria (1996)*
- Alpe Adria Textil** *Italy (2002)*
- Amoco Fabrics and Fibers Co.**  
*USA (1987)*
- Araigumi Co., Ltd.** *Japan (1999)*
- Asahi Kasei Corporation**  
*Japan (1984)*
- Association of RRR Construction System, The** *Japan (1998)*
- Atarfil, S.L.** *Spain (1999)*
- Belton Industries Inc.** *USA (1989)*
- Bettor MBT, S.A.** *Spain (2000)*
- Bidim Geosynthetics S.A.**  
*France (1984)*
- Bidim Inde E Com Ltd. BBA Nonwovens** *Brazil (1994)*
- Bonar Technical Fabrics N.V.**  
*Belgium (1985)*
- Cetco** *USA (1992)*
- Colas Group, The** *France (1996)*
- Colbond Geosynthetics**  
*The Netherlands (1986)*
- Composan Construcción, S.A.**  
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- Creative Polymer Industries Pte Ltd.** *Singapore (1997)*
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- Du Pont De Nemours Int. (Luxembourg) S.A.**  
*Luxembourg (1984)*
- E & S Engineering Co., Ltd.**  
*Korea (1997)*
- Earthshine Enterprise Co., Ltd.**  
*Taiwan, R.O.C. (2000)*
- Edilfloor SpA** *Italy (2002)*
- Emas Kiara Sdn Bhd**  
*Malaysia (1999)*
- Engepol Ltda** *Brazil (2001)*
- Engtex AB** *Sweden (1995)*
- Fibertex A/S** *Denmark (1984)*
- Field Lining Services**  
*Panama (1998)*
- Fiti Testing and Research Institute** *Korea (1997)*
- Fritz Landolt Ag**  
*Switzerland (1985)*
- Geofabrics Ltd.** *UK (1995)*
- Geofelt GmbH** *Austria (1996)*
- Geosistemas Pavco S.A.**  
*Colombia (1991)*
- Geosynthetic Materials Association** *USA (1985)*
- Geosystem Co., Ltd.** *Japan (2000)*
- Geotechnics Holland B.V.**  
*The Netherlands (1991)*
- GSE Lining Technology, Inc.**  
*USA (1988)*
- Hojun Yoko Co., Ltd.** *Japan (2000)*
- Honeywell Performance Fibers**  
*USA (2001)*
- Hong Leong Plastics Pte Ltd.**  
*Singapore (1994)*
- Huesker Synthetic GmbH & Co.**  
*Germany (1987)*
- Hui Kwang Chemical Co., Ltd.**  
*Taiwan, R.O.C. (2000)*
- Integrated Geotechnology Institute Limited** *Japan (1998)*
- Ipetex, S.A.** *Portugal (1999)*
- Japan Spunbond Toray Industries**  
*Japan (1984)*
- Juta a.s.** *Czech Republic (1998)*
- Kajima Technical Research Institute** *Japan (1985)*
- Kuraray Co., Ltd.** *Japan (1989)*
- Laviosa Chimica Mineraria**  
*Italy (2002)*
- Lys Fabrics S.A.** *Belgium (1998)*
- Maccaferri do Brasil Ltda.**  
*Brazil (1998)*
- Maeda Corporation** *Japan (1988)*
- Maeda Kosen Co., Ltd.**  
*Japan (1992)*
- Mecaroute S.A.** *France (1996)*
- Menard-Terre Armeé**  
*France (2002)*
- Mitsubishi Chemical Functional Products, Inc.** *Japan (1992)*
- Mitsui Chemicals Industrial**  
*Japan (1992)*
- Naue Fasertechnik GmbH & Co. KG** *Germany (1987)*
- Nittoc Construction Co., Ltd.**  
*Japan (1994)*
- Obayashi Corporation**  
*Japan (1988)*
- Officine Maccaferri S.P.A.**  
*Italy (1997)*
- Okasan Livic Co., Ltd.**  
*Japan (1984)*
- Polyfelt Ges.m.b.H** *Austria (1984)*
- Poly-Flex, Inc.** *USA (1996)*
- Presto Products Company - Geosystems Division** *USA (1996)*
- Punzonados Sabadell, S.A.**  
*Spain (2000)*
- Reinforced Earth Co., The**  
*USA (1989)*
- Reliance Industries, Ltd.**  
*India (1998)*
- Serrot International, Inc.**  
*USA (1992)*
- Sewon Geosyntech Co., Ltd.**  
*Korea (1997)*
- Shenzhen Sheng Yi Environmental Co., Ltd.** *China (2002)*
- Shimizu Corporation** *Japan (1990)*
- SI Corporation** *USA (1991)*
- Solmax International, Inc.**  
*Canada (1997)*
- Steel Dragon Enterprise Co., Ltd.**  
*Taiwan, R.O.C. (1996)*
- SVG (Swiss Association of Geotextile Professionals)**  
*Switzerland (1984)*
- Taiyo Kogyo Co., Ltd. (Ocean)**  
*Japan (1996)*
- Taiyo Kogyo Corporation (Sun)**  
*Japan (1991)*
- Tanaka Co., Ltd.** *Japan (1993)*
- TC Mirafi** *USA (1998)*
- Tele Textiles AS** *Norway (1995)*
- Tenax S.p.A.** *Italy (1991)*
- Ten Cate Nicolon B.V.**  
*The Netherlands (1984)*
- Tenox Corporation** *Japan (1998)*
- Tensar Corporation, The**  
*USA (1989)*
- Tensar International** *UK (1989)*
- Terram Ltd.** *UK (1988)*
- Terratest Tecnicas Especiales, S.A.** *Spain (2000)*
- Thai Nam Plastic Public Co., Ltd.**  
*Thailand (1994)*
- Tokyu Construction Co., Ltd.**  
*Japan (1984)*
- Werkos** *Croatia (1999)*
- Xtex, Inc.** *USA (2002)*
- Zeon Environmental Materials Co., Ltd.** *Japan (1992)*

*Note: date is earliest year of continuous membership*

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*The IGS Council includes five IGS Officers serving for the period 2002 to 2006.*

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CESI SpA  
Via Rubattino, 54  
I - 20134 Milano  
ITALY  
Tel: 39/02 2125 5375  
Fax: 39/02 2125 5503  
E-mail: cazzuffi@cesi.it

### Vice-President

Prof. Fumio Tatsuoka  
University of Tokyo  
Dept. of Civil Engineering  
7-3-1 Hongo, Bunkyo-ku  
Tokyo 113-8656  
JAPAN  
Tel: 81/3 5841 6120  
Fax: 81/3 5841 8504  
E-mail: tatsuoka@geot.t.u-tokyo.ac.jp

### Immediate Past-President

Prof. Richard J. Bathurst  
Department of Civil Engineering  
Royal Military College of Canada  
P.O. Box 17000, STN Forces  
Kingston, Ontario K7K 7B4  
CANADA  
Tel: 1/613 541 6000, Ext. 6479  
Fax: 1/613 541 6218  
E-mail: bathurst-r@rmc.ca

### Treasurer

Dr. Philippe Delmas  
Bidim Geosynthetics S.A.  
9, rue Marcel Paul - BP 80  
95873 Bezons Cedex  
FRANCE  
Tel: 33/1 34 23 53 95  
Fax: 33/1 34 23 53 64  
E-mail: philippe.delmas@bidim.com

### Secretary

Mr. Peter E. Stevenson  
226 Sitton Rd.  
Easley, SC 29642-8393 USA  
Tel: 1/864 855 0504  
Fax: 1/864 859 1698  
E-mail: igspete@aol.com

## IGS News Editors

Ms. Karina Labinaz

### Editor

*IGS News*  
Queen's University  
Mackintosh-Corry Hall Room B411  
Kingston, Ontario K7L 3N6 CANADA  
Tel: 1/613 533 3108  
Fax: 1/613 533 6909  
E-mail: labinaz-k@rmc.ca

Dr. J.-P. Gourc

### Associate Editor (Europe)

*IGS News*  
Grenoble University, IRIGM-Lgm  
B.P. 538041 Grenoble Cedex 9  
FRANCE  
Tel: 33/76 51 49 46  
Fax: 33/76 51 49 00  
E-mail: gourc@ujf-grenoble.fr

## IGS News Chapter Correspondents

Mr. Fred Foubert, Belgium, [fred.foubert@centexbel.be](mailto:fred.foubert@centexbel.be)  
Mr. Gerhard Braeu, Germany, [g.braeu@bv.tum.de](mailto:g.braeu@bv.tum.de)  
Dr. G.V. Rao, India, [gvrao@civil.iitd.ernet.in](mailto:gvrao@civil.iitd.ernet.in)  
Dr. Giovanni Bosco, Italy, [giovanni.bosco@ing.unitn.it](mailto:giovanni.bosco@ing.unitn.it)

Prof. Katsuhiko Makiuchi, Japan, [makiuchi@trpt.cst.nihon-u.ac.jp](mailto:makiuchi@trpt.cst.nihon-u.ac.jp)  
Ms. Loretta Batali, Romania, [loretta@hidro.utcb.ro](mailto:loretta@hidro.utcb.ro)  
Mr. Peter Davies, South Africa, [ktechpld@kaymac.co.za](mailto:ktechpld@kaymac.co.za)  
Prof. San-Shyan Lin, Taiwan, [sslin@ntou66.ntou.edu.tw](mailto:sslin@ntou66.ntou.edu.tw)

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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 associated technologies; and
- 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 now available to all IGS Members:

- a directory of Members, the IGS Directory, published every year, with addresses, telephone, e-mail, and fax numbers;
- the newsletter, *IGS News*, published three times a year;
- a reduced purchase price on all documents published by the IGS;
- a reduced registration fee and preferential treatment at all conferences organized under the auspices of the IGS;
- a reduced subscription fee for IGS-endorsed journals; and
- the possibility of being granted an IGS award.

## IGS MEMBERSHIP APPLICATION

Membership of the International Geosynthetics Society (IGS) 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, or not of, corporations who voluntarily contribute a minimum of US\$200 annually to the IGS, in excess of their membership dues, will be mentioned in the IGS Directory in a separate list as benefactors.

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Membership fee schedule:     Individual US\$45.00         Corporate US\$1,000.00         Benefactor's contribution (at least US\$200.00)

**Send this completed form to:**

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**Easley, SC 29641-0347**

**USA**

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**Fax: 1/864 859 1698**

**E-mail: igssec@aol.com**

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**For editorial enquiries contact:** Karina Labinaz  
Queen's University, Mackintosh-Corry Hall Room B411  
Kingston, Ontario, CANADA K7L 3N6  
Tel: 1/613 533 3108, Fax: 1/613 533 6909, labinaz-k@rmc.ca