

# 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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# President's Corner



**Russell Jones**

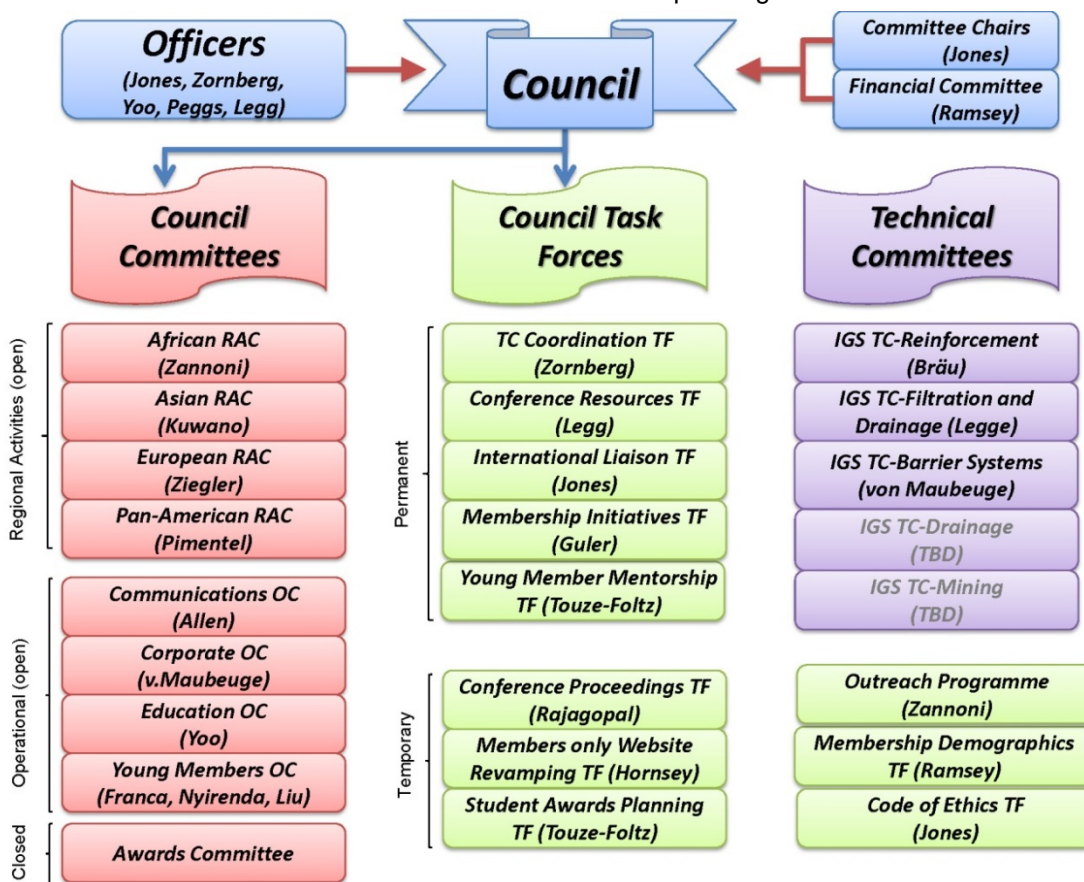
Dear members of the IGS,

First of all, I would like to thank all of you who voted in the IGS elections this year and for in particular for voting for me as President. I hope to be able to continue the sterling work of my predecessor, Prof. Jorge Zornberg.

This year saw a milestone in the history of geosynthetics – the 10<sup>th</sup> International Conference on Geosynthetics (10ICG), held in Berlin in September. The conference was extremely successful, as you will hear in other sections of this IGS News, and it shows that our discipline remains strong 37 years after the first international conference on “fabrics” in Paris in 1977. The conference also saw the convening of the 16<sup>th</sup>

Council of the IGS, which has members from 16 different countries spread throughout the world. The commitment of these volunteers in attending Council meetings, serving on committees and working behind the scenes on getting work items complete also demonstrates the strength of our society.

There has been a great change to the operating units of the IGS over the last four years. We have seen the establishment of new Council Committees, Task Forces and Technical Committees and the work carried out by the members of these units has been incredible. The current operating units are shown below:



These operating units form the backbone of the IGS, and it's great to see the number of on-line meetings and conference calls that occur to keep the momentum from face-to-face meetings going throughout the year.

At the first meeting of the 16<sup>th</sup> Council of the IGS in Berlin, the Core Purpose of the IGS – **to provide the understanding and promote the appropriate use of geosynthetic technology throughout the world** – was reaffirmed, and the first steps were taken to develop the next four year plan. Further details of this will be shared in the next IGS News once they have been finalised.

The long-term goal of the IGS – **that geosynthetics become indispensable to the point that they are regularly included in the engineering criteria and relevant design standards** – remains the target!

D. Russell V. Jones  
IGS President

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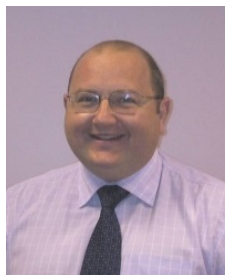
## General Information for IGS Members

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### Results of IGS Election – Term 2014 - 2018

The IGS Election held during 2014 resulted in an exceptional field of 21 candidates for 8 council positions. The election results were announced at the IGS General Assembly held during the 10th ICG in Berlin, Germany. The newly elected council members will stand for the term beginning with the Berlin General Assembly and concluding at the next General Assembly to be held in Seoul, Korea at the 11<sup>th</sup> ICG.

The election of the new IGS President and Vice President were uncontested. It is with great pleasure we welcome for the term 2014 – 2018:



**Russell Jones** (UK) as the IGS President



and **Chungsik Yoo** (Korea) as the IGS Vice President

Council members elected, or re-elected, in 2014 are: Eric Blond (Canada), Ian Fraser (UK), Chiwan Wayne Hsieh (Taiwan), Takeshi Katsumi (Japan), Peter Legg (South Africa), K. Rajagopal (India), Pietro Rimoldi (Italy), Nathalie Touze-Foltz (France).



**Eric Blond**



**Ian Fraser**



**Chiwan Wayne Hsieh**



**Takeshi Katsumi**



**Peter Legg**



**K. Rajagopal**



**Pietro Rimoldi**



**Nathalie Touze-Foltz**

The full current council listing may be found on the IGS website at:

<http://www.geosyntheticssociety.org/Directory.aspx?pg=Council>

The IGS would like to thank all the candidates who participated in this very close election.

*Reported by*

*Diana Davis, IGS Secretariat Manager*



## Report about IGS General Assembly



**Elizabeth Peggs**

Now in its 31<sup>st</sup> year, the IGS showed itself to be a strong society. The General Assembly, held 24 September 2014 in the middle of 10 ICG in Berlin, may likely have been the most well-attended General Assembly in the society's history. More than 250 attendees took part. It was a wonderful event that gave us an opportunity to learn about the extremely active business and achievements of the society that have taken place since the last assembly. Dr. Jorge Zornberg, who served as IGS President for the past four years, transitioned to his position as Immediate Past President. His farewell address summarized the exceptional growth and development of the IGS since 2010; and Dr. Russell Jones, now IGS President, followed with a preview of the next four years. Having met and exceeded some audacious goals, the society's agenda continues to be ambitious and energized.

Additionally, numerous meritorious members of our community were recognized. The IGS premiered its first movie, Geosynthetics and Sustainability.

The General Assembly concluded, for the first time, with a brief reception which enabled us to recognize our award winners personally and enjoy some camaraderie before heading off to an excellent conference dinner at the Hofbräuhaus, which provided a bit of Munich in the heart of Berlin.

This issue of the IGS News contains many detailed reports on the various aspects of the General Assembly. The Assembly's itinerary is republished here with notes on items with dedicated articles in this issue of IGS News. I encourage you to read and share those articles for more information on the IGS, its activities, and the exceptional meeting ground provided to us in Berlin at 10 ICG.

*Reported by  
Elizabeth Peggs, IGS Secretary*

## IGS Announces Honourary Member and Service Awards Presented in 2014



The **International Geosynthetics Society Awards** were presented during the General Assembly held on 24 September 2014 at 10ICG. IGS Awards are granted 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.

This year the IGS recognized several of its members for their commitment and dedication to the IGS and the greater good of the geosynthetics discipline.

### Honourary Members 2014



**Dr. Daniele Cazzuffi**

- Italian Chapter President
- IGS Council 1994 – 2002
- President 2002 – 2006
- Past President 2006 – 2010



**Professor Fumio Tatsuoka**

- IGS Council 1994 – 2002
- Vice President 2002 – 2006
- President 2006 – 2010
- Past President 2010 – 2014

The International Geosynthetics Society bestowed its highest honour to both **Dr. Daniele Cazzuffi** and **Professor Fumio Tatsuoka** for their long-term dedication to compelling progress in both the discipline of geosynthetics and the society through leadership and tireless effort. The IGS bestows this honour to those who have consistently contributed to the IGS and have made recognized achievements.

## The IGS Service Award



**Dr. J.P. Giroud**

Founder,  
*Geotextiles & Geomembranes*  
and *Geosynthetics International*



**Dr. R. Kerry Rowe**

Editor,  
*Geotextiles & Geomembranes*



**Dr. Richard Bathurst**

Editor,  
*Geosynthetics International*

The **IGS Service Award** was presented to **Dr. J.P. Giroud**, **Dr. R. Kerry Rowe** and **Dr. Richard Bathurst** in recognition of their long-term commitment as the founder and editors of the two official journals of the IGS. Both ***Geotextiles & Geomembranes*** and ***Geosynthetics International*** have made an extraordinary impact on our discipline as well as many affiliated disciplines. IGS Members benefit from both contributing to and learning from these journals, and the industry at large has been moved forward by the work published in these esteemed journals.

## The IGS Service Award



The **IGS Service Award** was presented to **Pierpaolo Fantini** for his significant commitment as a member of the IGS Council, the Chairman of the Corporate Committee and the Chairman of the IGS Finance Committee, as well as his work with the Italian Chapter of the IGS.

**Pierpaolo Fantini**

- IGS Council 2004 – 2012
- Finance Chair 2010 – 2014
- Corporate Committee Chair 2010 - 2012

## IGS Young Member Service Award



This award was presented in recognition of **Edoardo Zannoni's** ambitious efforts to further the IGS Mission through hard work and leadership in developing the Second African Geosynthetics Conference – particularly its technical program – as well as his rigorous efforts to support and expand the scope of the IGS throughout the African continent.

**Edoardo Zannoni**

- IGS Council 2012 – 2014
- Young Members Committee 2012 – 2014

## Report on the Young IGS Members Contest



**Nathalie  
Touze-  
Foltz**

The IGS Young Members contest session took place in Berlin during the 10<sup>th</sup> International Conference on Geosynthetics of IGS during the on September, 23, 2014, on the same day as the “Forum for young geotechnical engineers” of the German Geotechnical Conference.

More than 40 papers submitted to this contest by IGS members not older than 35 years at the date of the event were evaluated by an international review panel. Based on the marks obtained by each paper, and with the intention to ensure a good balance between candidates from the various regions where the IGS is present, the jury selected 10 papers and presenters.

The jury was composed by: Richard Bathurst (Canada), Georg Heerten (Germany), Fumio Tatsuoka (Japan), Edoardo Zannoni (South Africa), Gerhard Bräu (Germany, representing the 10 ICG organizing committee), Nathalie Touze-Foltz (France), leading the IGS young members task force

The best lecturer was selected based on the content of the paper, the style of the presentation and its delivery.



Participant of the Young IGS Members Contest

### The list of the 10 Participants of the contest is as follows

- Drainage behavior of a cover system consisting of granular soil over nonwoven geotextile layer under unsaturated conditions; Usama Al-Anbaki
- Water retention curves of GCLs at early stage of hydration using over saturated salt solutions; Hajer Bannour
- Flow rate quantification in multicomponent geosynthetic clay liners with the oedopermeameter method; Camille Barral
- Quantification of rut depth in geogrid reinforced asphalt overlays using accelerated pavement testing; Natalia Correia
- Soil-geogrid interaction in the inclined plane shear movement; Fernanda Ferreira
- Large-Scale Controlled Testing of Geotextile Puncture Resistance for Rock Impact; Preston Kendall
- Influence of orientation on ageing of a reinforced PVC geomembrane; Ana Noval
- The sustainable use of geosynthetics: Landfill drainage case study; Jamil Raja
- Measuring deformation performance of Geogrid Reinforced Structures using a terrestrial laser scanner; Ian Scotland
- 3D numerical analysis of basal reinforced piled embankments; Tara van der Peet



Final winner of the IGS Young Members Contest at 10ICG in Berlin 2014:  
Tara van der Peet (the Netherlands)



All 10 presentations were of very high quality and made a well-attended session during the 10 ICG. The winner of the contest was Tara van der Peet.

The organizers of the Young IGS members contest, Nathalie Touze-Foltz and Gerhard Bräu would like to thank the members of the international review panel: L. Batali, O. Detert, N. Dixon, F. Farcas, D. Fayoux, P. Fox, G. Heerten, C. Lake, W. Müller, E. Palmeira, K. Rowe, G. Stoltz, S. van Eekelen, L. van Schoors, P. Villard.

*Reported by*

*Nathalie Touze-Foltz (IGS Council Member and Chair of IGS Young Members Operational Committee) and Gerhard Bräu (IGS News Editor)*

## 2014 IGS Award Winners Report of the IGS Awards Committee - Awards Period 2010 - 2013



**Fumio  
Tatsuoka**

IGS Awards are granted 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. All members of IGS are eligible for IGS awards except the President of IGS and the members of the Awards Committee. All candidates must be members of the IGS. The Young IGS Member Achievement Awards are for IGS Members who are less than 36 years of age on 31st December 2013.

The 2010 - 2013 IGS Awards committee is composed of:

- Chairperson: Fumio Tatsuoka (Japan);
- Vice-chairperson: Neil Dixon (UK);
- Members: Fazli Erol Güler (Turkey);
- Jonathan R. Fannin (Canada); and
- Georg Heerten (Germany); and
- Secretary (IGS Secretary): Elizabeth Peggs (USA).

The applications received by the deadline (31<sup>th</sup> March 2014) were carefully reviewed and evaluated by the committee. After a constructive discussion, the IGS Awards were unanimously assigned as follows (in the alphabetical order):

### **Young IGS Member Achievement Awards:**

Two respectively to:

- Kuo-Hsin Yang (Taiwan); and
- Yan-feng Zhuang (P. R. China).

### **IGS Awards:**

Five respectively to:

- the team composed of Melissa Chappel (Canada), Kerry Rowe (Canada), Richard Brachman (Canada) and Andy Take (Canada);
- the team composed of John H. Greenwood (UK), Hartmut F. Schröder (Germany) and Wim Voskamp (the Netherlands);
- Jie Han (USA);
- Hoe I. Ling (USA); and
- the team composed of Suzanne van Eekelen (the Netherlands); Adam Bezuijen (the Netherlands); and Frits van Tol (the Netherlands).

These IGS Awards were presented in conjunction with the IGS General Assembly at the 10<sup>th</sup> ICG in Berlin in the following order with citations:

**Kuo-Hsin Yang**

Associate Professor, Department of Civil and Construction Engineering, National Taiwan University of Science and Technology (Taiwan).

This Young IGS Member Achievement Award was given to Kuo-Hsin Yang for his work on “Analysis, Design and Case study of GRS Structures Using both Numerical (Limit Equilibrium and Finite Element) and Physical (Centrifuge and Field Monitoring) Modeling”, performed by FE and centrifuge modeling of two-tier GRS walls, case study of three reinforced slope failures, large-scale plane strain tests of reinforced soil and organization of student small-scale GRS wall competitions.



**Yan-feng Zhuang**

Associate Professor, School of Civil Engineering, Wuhan University, Wuhan, P. R. China.

This Young IGS Member Achievement Award was given to Yan-feng Zhuang for his work on “*Electro-Kinetic Geosynthetics (EKG) and Electro-Osmosis Theory*”. The electro-osmosis theory was developed based on energy analysis model and electric charge accumulation theory and the EKG and related DC power source was developed novel geosynthetics product for efficient soft ground improvement using electro-osmosis; and the theory was applied to the field.



**Melissa Chappel, Kerry Rowe, Richard Brachman and Andy Take**

This IGS Award was given to the team of the GeoEngineering Centre, Queen’s University, Kingston, Canada, composed of Melissa Chappel (Canada), Kerry Rowe (Canada), Richard Brachman (Canada) and Andy Take (Canada) for their work on “*Field-scale Evaluation of Wrinkles in Exposed HDPE Geomembranes*”. They used aerial photography and performed digital image analysis to quantify wrinkle length and frequency at composite liner test sites at different times and to compare length of longest hydraulic wrinkles for eight cases. The summary and recommendations from their work are: 1) wrinkle formation and surface temperature is controlled by solar radiation (time of day and year); 2) the membranes are to be covered when the surface temperature < 30°C (base: before 08:00 and after 17:00; south facing slope: before 08:00, and late in the day; and west facing slope: before 12:00 and after sunset); and 3) the connections observed were limited by available area (a geomembrane area of 0.09 ha minimized connected length to 550 m).





**John H. Greenwood, Hartmut F. Schröder and Wim Voskamp**

This IGS Awards was given to the team composed of John H. Greenwood (Consultant to ERA Technology Ltd, UK), Hartmut F. Schröder (Consultant BPHS, Germany), and Wim Voskamp (Voskamp Business Consultancy, the Netherlands) for their work on "CUR 243 report: Durability of geosynthetics", performed under the supervision of the Dutch Central Research Organisation for Building and Infrastructure CUR, committee 187, and reviewed by a peer reviewing expert group. This 275 page book provides a state-of-the-art review of the life-limiting mechanisms of geosynthetics, the methods available to test and assess lifetime, and the means by which durability can be improved. It provides engineers with the information they need on the durability and lifetime, bridging the knowledge gap between them and polymer scientists.



**Jie Han**

Professor, Department of Civil, Environmental and Architectural Engineering, University of Kansas, USA.

This IGS Awards was given to Jie Han for his work on "Geosynthetic-Reinforced Unpaved and Paved Roads", by a comprehensive study conducted on geosynthetic-reinforced roads promoting sustainable use of geosynthetics with recycled material conducted. His research consisted of unit cell tests, large box tests, moving wheel tests, numerical analyses, simplified design method, mechanistic-empirical, design method and applications



**Hoe I. Ling**

Professor, Department of Civil Engineering and Engineering Mechanics, Columbia University, New York, USA.

This IGS Awards was given to Hoe I. Ling for his work on "Behavior of Geosynthetics and Geosynthetic-Reinforced Soil Retaining Walls through Model Testing and Advanced Numerical Analysis", conducted by 1) a series of full-scale shaking table tests of reinforced-soil retaining walls subjected to Kobe Earthquake motions; 2) constitutive modeling of geosynthetics and granular soils, including cyclic behavior, using advanced plasticity models; 3) implementation and validation of models for nonlinear dynamic finite element analysis; and 4) instrumentation of results acted as benchmark allowing for validation of numerical procedures and design.



## Suzanne van Eekelen, Adam Bezuijen and Frits van Tol

This IGS Awards was given to the team of Delft University of Technology, the Netherlands, composed of Suzanne van Eekelen (the Netherlands); Adam Bezuijen (the Netherlands); and Frits van Tol (the Netherlands) for their work on “Basal Reinforced Piled Embankments Research Programme”. In their work, the load distribution on the basal reinforcement was measured and explained, resulting in a new analytical model (comprising arching and load deflection) that generates consistent results; agrees well with measurements in the field and in laboratory experiments; and numerical calculations.



*Reported by*

*Fumio Tatsuoka, Chairperson of IGS Awards Committee and IGS Past President*

## IGS Students Awards: 2013 to 2016

The success of the IGS Student Award program will continue, now with its seventh award period of 2013 to 2016.

The Awards will be assigned in the year 2016-2017 and all successful candidates will be invited to attend one of the IGS regional conferences in 2016, i.e., GeoAmericas 2016, EuroGeo6 or Geosynthetics Asia2016, or GeoAfrica 2017.

The IGS student award was established to disseminate knowledge and to improve communication and understanding of geotextiles, geomembranes and associated technologies among young geotechnical and geoenvironmental student engineers around the world.

The IGS student award will consist of US\$1,000 to be used to cover travel expenses of each winner to attend a regional conference. The US\$1,000 will not be distributed without such attendance. If the student receives funding and subsequently does not attend the conference the Student's IGS Chapter will be responsible for the refund of the award. This award amount will be assigned to only one student per IGS Chapter. The selected student should have been an undergraduate, M.Sc. or Ph.D. student during the period 2013-2016.

The IGS is interested in encouraging the involvement of the students during the selection process. To ensure student representatives from each chapter participate in the program to the fullest extent possible, the chapters must accomplish the following:

- Chapters must organize a contest or conduct a nomination process to select the student candidate to represent the chapter. The process should include submission by the student candidates of abstracts and preparation of a technical paper for one of the IGS regional conferences in 2016 or 2017.
- While the IGS chapters are free to define the characteristics of the nomination/competition process, this process should be documented and provided to the IGS.
- Chapters must notify the IGS of the name of the student selected. Communication will be made by the IGS to all chapters as regards the deadlines for those two actions.
- The winner student should provide the IGS in parallel to the conference organizers with the abstract and paper submitted.

While this year's process requires careful documentation of the nomination process, the IGS Awards task force is available to help in the preparation of such process.

The IGS will transfer US\$1,000 to the student upon receipt of the draft paper. IGS Student Award winners will participate in dedicated sessions at their regional conference, where they will present their paper.

IGS Student Awards recipients will be required to submit a written report to the IGS on the regional conference and on the IGS-related conference activities. This report should also be provided by the Student Awards winners to their own chapter.

In recognition of the IGS Student Award winners and to maximize benefits to the students, the organizers of the regional conferences are required to hold a dedicated session in which the student papers will be presented. They must also provide the students with a copy of the proceedings and admission to the sessions and the exhibition. In addition, a comprehensive student program will be organized in each regional conference to maximize their exposure to geosynthetics and the IGS. This includes a recognition ceremony during the conference as well as their participation in corporate receptions, social functions, and activities specific to each conference.

Please feel free to contact the IGS Secretary, Elizabeth Peggs ([elizabeth@geoindex.com](mailto:elizabeth@geoindex.com)) or Nathalie Touze-Foltz ([nathalie.touze@irstea.fr](mailto:nathalie.touze@irstea.fr)) with questions about the IGS Student Award Program.

Reported by

Nathalie Touze-Foltz (Chair of the Awards Task Force)

## Young IGS members report back



Irene N.  
Nyirenda

### Structure of Young Members Committee (YMC)

Since the formation of the YMC post Eurogeo 5 in September 2012. The YMC was formed into three regions, Africa and Europe, Americas (North and South) and Asia- Pacific regions.

After the first YMC Africa region meeting in November 2013 at GeoAfrica, the young members decided to merge all the various YMC regions into one committee. This was done for the following reasons;

- As the formation of the YMC is fairly new we wanted to ensure that its growth is integrated evenly amongst all regions. This allows for active participation from all YMC regions based on the small numbers of members currently involved.
- Africa and Europe was deemed the active YMC, with a huge interest coming from the Honduras and Brazil young members after GeoAfrica meeting in November 2013, it was decided to bring them both on one YMC committee.
- The absence of North America and Asia-Pacific committee involvement to date, made it difficult to incorporate young members from these regions.

### 10ICG Berlin activities and report back

The YMC worked very hard at ensuring a successful young members conference at the 10ICG Berlin conference. The conference organisers worked with the YMC in organising a young members technical paper presentation were just over 40 young members submitted papers from across the globe, however only 10 papers could be selected and presented. The best paper award from the 10 papers presented went to Tara van der Peet from the Netherlands on her paper titled "**3D numerical analysis of basal reinforced piled embankments**"

The YM further arranged a lunch time meeting where their recent completed tasks and activities to date were reported back to other young members as well as their envisaged four year plan. The other objectives of the meeting were as follows;

- Discussion on the framework and constitution of the Young members
- Drawing up areas where YM need to work on in the next year in all regions. With emphasis on a technical agenda to work together with the IGS technical committees.
- Stimulate more interest of young members to be actively involved especially in North America and Asia Pacific region, with the aim of forming committees in these regions.
- Engage with IGS committee on areas where YM need support and assistance in.

The apparent achievement of the YMC after 10ICG Berlin meeting were the following;

- Identification of new young members to represent and coordinate Asia-Pacific region. Preston Kendall of Australia was selected as the champion of this region with the assistance of Charmaine Cheah.
- The Europe YM committee opted on Jamil Raja of UK, Ana Noval Arango of Spain and Usama Al Banki of Germany
- African YM committee opted on Talia da Silva of South Africa
- Formation of partnership with other young member associations such as ISSMGE YMPG. YMC are in communication with the ISSMGE YMPG for a possible joint conference in the near future.

Another notable success from Berlin YM gathering was the Young IGS members and Young Geotechnical Engineers social function that was arranged at Restaurant Nolle in Berlin. This was an informal meeting for the YM to network with other young members from both IGS and Geotechnical Engineers Association. The dinner was well attended by over 20 young members.

The YMC identified the following as their long term goal, to organise a Young IGS conference. This is earmarked for 2018 if in conjunction with a regional IGS conference as a start.

The YMC now have a social media presence, both in the form of a Facebook page and a twitter account. Please follow us at.

<https://www.facebook.com/YoungIGS> and [www.twitter.com/IgsYoung](http://www.twitter.com/IgsYoung) Please follow us on

Reported by

Irene N. Nyirenda, Chair of Young IGS Committee





Young Members with IGS past presidents and present president taken at the 10ICG Berlin.

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## Awarded Work of IGS Award Winners 2014

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It is good tradition and part of the IGS Awards procedure to have summaries of the awarded work of the winners published in IGS News. They will be placed starting with this issue and continued.

### Durability of Geosynthetics

**John H. Greenwood, Hartmut F. Schröder and Wim Voskamp**

This IGS Award was given to the team composed of John H. Greenwood (Consultant to ERA Technology Ltd, UK), Hartmut F. Schröder (Consultant BPHS, Germany), and Wim Voskamp (Voskamp Business Consultancy, the Netherlands) for their work on "CUR 243 report: Durability of geosynthetics", performed under the supervision of the Dutch Central Research Organisation for Building and Infrastructure CUR, committee 187, and reviewed by a peer reviewing expert group. This 275 page book provides a state-of-the-art review of the life-limiting mechanisms of geosynthetics, the methods available to test and assess lifetime, and the means by which durability can be improved. It provides engineers with the information they need on the durability and lifetime, bridging the knowledge gap between them and polymer scientists. The book is based on the courses given by Dr Schröder, Dr Greenwood and others in the UK, Germany and Dubai. It is available on the internet, while an updated, paper edition is to be published by Taylor and Francis early in 2015.

The durability of geosynthetics has generally been good. We now have experience of their use in many different applications for up to 60 years. Designers and their clients, however, require service lifetimes of 100 years or more, longer than polymers such as polyethylene and polyester have been in existence, let alone the additives which do so much to give them their long lifetimes.

In general industry the assurance of durability is often based on experience, whether in the craft of the manufacturer or in detailed statistics of lifetimes. This option is not open to us. Nor can we accelerate lifetime by increasing the frequency of use as is done in the automobile industry: while a domestic car may only be driven for a total of one year of its 15 year lifetime, geosynthetics are exposed to their environment 24 hours a day, 365 days a year. To assure their durability or, conversely, to predict their lifetime, we have to use accelerated tests using environments more severe than seen in service and use the results to define specifications for the product. These specifications generally include short-term tests intended to eliminate any product deemed insufficiently durable in the long term. The principal factors that can cause degradation are mechanical stress, weathering and chemicals, coupled in each case with temperature. Mechanical stress includes tensile forces, particularly in the case of geotextile reinforcements, the compression of the soil, which can limit the effectiveness of drainage materials, fatigue stress due to traffic and abrasion in coastal erosion. Weathering only applies during the storage and installation of the material, except for applications such as linings for reservoirs and canals where a geomembrane is exposed permanently or for a large fraction of its lifetime. In general these factors, or 'agents', can be handled individually.

The effects of static loads have been studied in detail: creep curves have been measured for many geotextiles and predictions made of the increase in strain at the predicted lifetime, while the relation between load and time to rupture has been used to extrapolate the load which, when applied to the reinforcement, is predicted to lead to rupture a century from now. Geomembranes are subject to creep-rupture, the premature fracture of a polymer under a middling load, exacerbated in some cases by fluids which in themselves are not regarded as chemically aggressive. The book describes in detail how to measure these parameters and derive reduction factors for design, in some cases providing numerical examples. Safety factors are then applied to allow for variability and uncertainty in the applied load and in the strength of the material itself. Similarly, creep tests can predict the rate of reduction in thickness of drainage materials, while further tests are needed to relate thickness to flow rate and thus to determine for how long the drainage material remains effective. The book emphasizes the need to establish the 'end-of-life' point for any application: the limit at which a geosynthetic ceases to fulfil its intended purpose. This is easy to define when the failure is rupture, but may be more difficult for, say, the compression of a lateral drain or the permeability of a filter.

The effect of mechanical damage is easier to measure, particularly as this mostly occurs during installation. Guidelines exist for the selection of a geosynthetic that will be 'robust' enough to withstand the stresses during installation, while for reinforcements simulated damage tests lead to a suitable reduction factor. Tests for fatigue and abrasion exist, but are less well supported by evidence and experience.

It is well known that weathering leads to degradation of polymers, and that this is caused by the ultraviolet component of sunlight where the energy of the individual photons is sufficient to break the bonds in the polymer that give it its strength. Sometimes forgotten is that the temperature is as important as the nature of the light; a typically black geosynthetic will heat up thanks not just to the ultraviolet but to the entire spectrum of sunlight including its very considerable proportion of invisible infrared radiation. The resistance of geosynthetics to weathering is well regulated by relatively short accelerated testing – tests that include some short periods of 'night' and 'rainfall' – but the situation is less clear for applications requiring long term exposure. Testing can only be accelerated by a factor of about four, so that simulating 40 years' exposure could require 10 years in a 'weatherometer'.

Chemical attack is undoubtedly the most complex form of degradation. Polyesters degrade by combination with water, a reaction that at normal ambient temperatures is very slow, in which polymers with high molecular weights and minimal branching retain their strength longest. Accelerated tests make use of Arrhenius' formula, based on thermodynamic principles, which relates the rate of reaction (or, conversely, time to failure) to temperature. Strongly alkaline environments lead to an additional reaction that strips away the fibre surface.

Polyethylene and polypropylene, on the other hand, degrade by oxidation, accelerated both by temperature and by transition metals which can be present in the soil or left over from catalysts in the original manufacture. Oxidation can be greatly retarded by a few percent of additives, such that the time to failure depends less on the rate of oxidation and more on the continued presence and effectiveness of the additives. This again can be assessed by means of accelerated testing using relatively high temperatures and, in some methods, high pressures of oxygen. Although index tests based on such testing have been defined, relating accelerated tests to real lifetime remains a controversial subject. The book also covers the behavior of materials such as polyamides and polyvinyl alcohol.

The first chapter of the book describes the current durability standards and European CE Marking, two of the authors having been active within European standard committee CEN TC189 and its international counterpart ISO TC221 for over 20 years.

The book also addresses a number of other questions. Does biological degradation present a significant risk? How do you handle a collection of 'safety' factors without ending up by being excessively cautious? How is one to assess information coming in from the field: many a marketing manager has delighted in the fact that no change was observed in his material after it has been extracted from the soil after fifteen years, but is this lack of change significant or not? What does the result mean for the product being marketed today that differs slightly from that installed fifteen years ago? Conversely, how is one to plan the instrumentation of a soil structure in which regular measurements are to be made of any changes? Looking to the future, when a geosynthetic has completed its intended lifetime of, say, 100 years, will it survive another 50 years, and can this be established without digging up the whole structure?

Finally, the book reflects on the certainties and uncertainties of whole process of durability assessment and life prediction.

The style of the book is deliberately non-technical, in that it avoids chemical formulas and makes widespread use of graphs and photographs. Summaries are provided for most sections. It shows how to predict the service life of geosynthetics based on state-of-the-art knowledge and in some cases provides numerical examples. Engineers can use it to decide what they should specify, scientists are shown how to perform extrapolations and derive reduction factors, and assessors are given a separate section indicating how they should treat the information presented to them. While directed primarily at geotextiles, a further chapter on geomembranes and landfills is to be included in the paper edition.

# Research on Basal Reinforced Piled Embankments, Arching and Load-Deflection Behaviour

S.J.M. van Eekelen, A. Bezuijen and A.F. van Tol

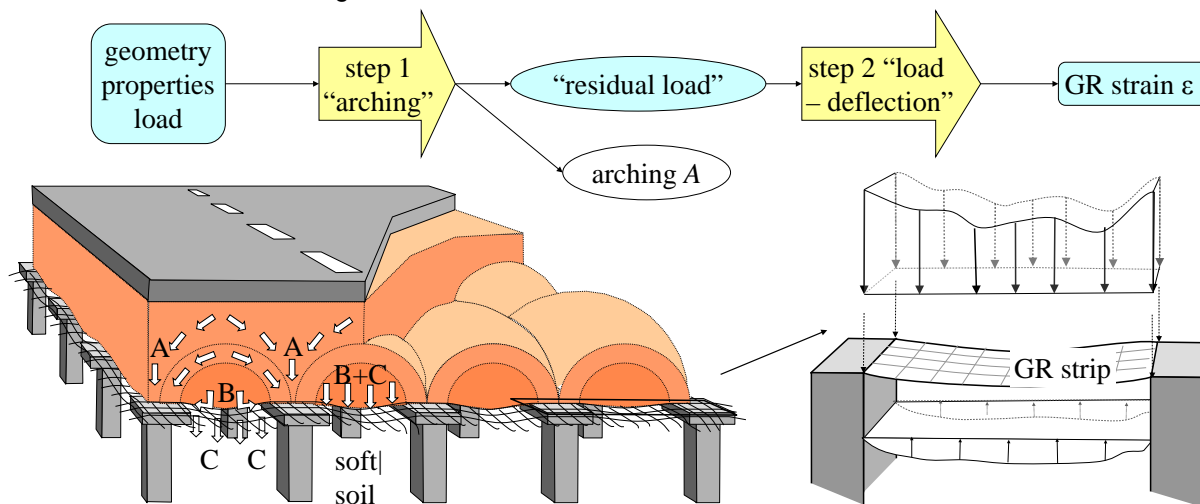
## Introduction

The first basal reinforced piled embankment was constructed in the Göta älv valley in South West Sweden in 1972. Britain followed in 1982 and the Netherlands' first was finished in 2002. Since then, hundreds of basal reinforced piled embankments were constructed in many countries, among them at least 50 in the Netherlands.

In the early years of this millennium it was still rather unclear how to design the geosynthetic basal reinforcement (GR). Several design models were available, but their designs differed much; a factor 10 difference in necessary tensile strength was not uncommon!

Several years ago, the Dutch compared the available design models with axial symmetric Plaxis calculations and measurements in two field cases and chose to adopt the calculation method of Zaeske (2001) of the German design guideline EBGeo (2010). After some adaptations and extensions they published the current Dutch guideline CUR 226 (2010).

In the meantime, *Deltares*, a Dutch institute for applied research cooperated with several partners in developing a new design model that describes reality better. A series of specialized scaled model experiments, field measurements and numerical analysis gave the necessary data. Suzanne van Eekelen will receive her PhD for this work in 2015. Together with her daily supervisor and promoter professor Adam Bezuijen and promoter professor Frits van Tol, she received an IGS award at the *IGC10 in Berlin* for this work, described in five journal papers that were published in *Geotextiles and Geomembranes* (Van Eekelen et al., 2011a, 2012a, b, 2013 and 2014). This paper summarizes the results of this research that focused on the determination of the necessary tensile strength to carry the embankment and traffic weight.



□ Figure 1. Calculating the geosynthetic reinforcement (GR) strain comprises two calculation steps.

## GR design in two steps

A basal reinforced piled embankment consists of a field of piles, with usually pile caps, with on top of that an embankment reinforced with a geosynthetic reinforcement (GR), as shown in Figure 1. Arching occurs within the embankment. This is the mechanism that load is attracted to stiffer elements, in this case the piles. It is due to this arching that the GR and the subsoil are not loaded heavily.

In some countries it is quite common to build piled embankments without GR. This is done in for example France, where the subsoil is relatively stiff. Without GR, the load between the piles is more or less uniformly distributed (Figure 2a). Measurements show that the application of a GR concentrates the load on the strips between each pair of adjacent piles, as shown in Figure 2b. Furthermore, the application of GR makes the arching is more efficient; more load is transferred to the piles directly. In the case that no or nearly no subsoil support is available, the load distribution on the GR strips is more or less 'inverse-triangular' (Van Eekelen et al. (2011b, 2012b, 2014). This is discussed more in detail later in this paper.

For the determination of the necessary GR strength, it is needed to determine the GR strain. This is determined in two steps, see Figure 1. The first calculation step divides the load into two parts. One part is transferred directly to the piles ("arching" A in Figure 1), the other part is the "residual load". Load part A is relatively large due to arching. For calculation step 2 only the GR strip between a pair of adjacent piles is considered. This strip is loaded with the residual load of step 1 and possibly also supported by the subsoil between the piles. The following section describes the calculation models for these two steps separately.



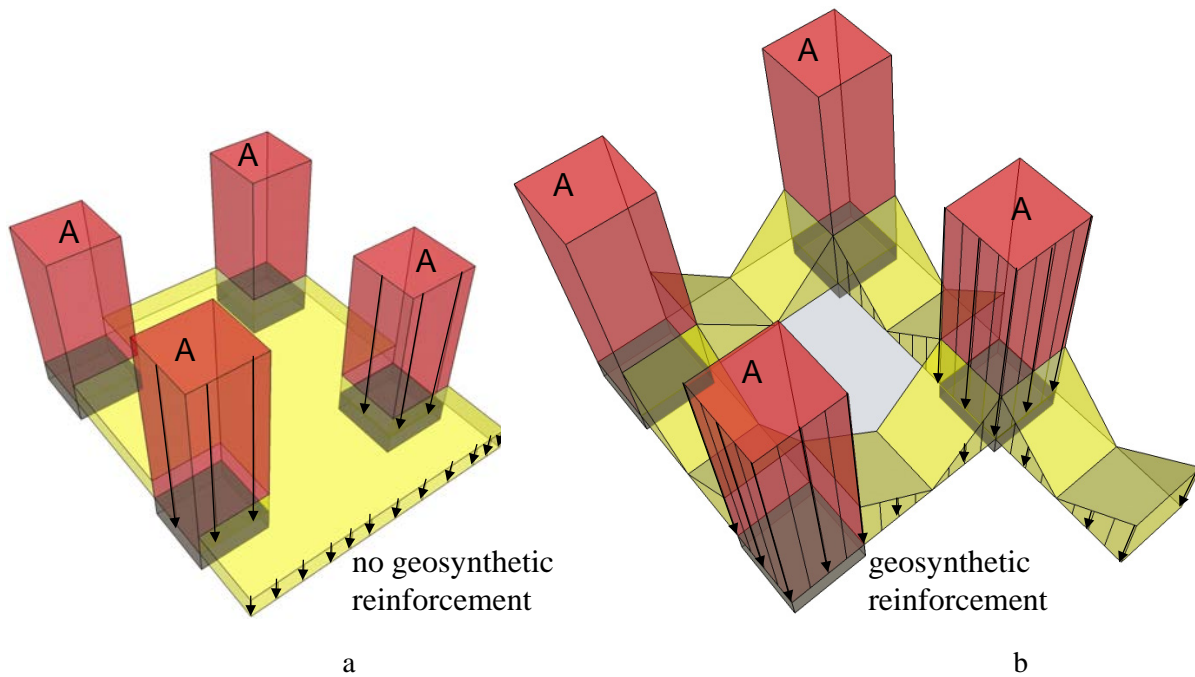


Figure 2. Schematized load distribution over subsoil and piles (a) just above the piles or pile caps in a piled embankment without GR and (b) just above the GR.

**Calculation step 1; the arching model**

The current CUR226 (2010) and EBGeo (2010) use the model of Zaeske (2001, Figure 3). The load is transported towards the piles along the scales. The vertical pressure in the point indicated in the figure is calculated. It is assumed that this pressure is representative for each location between the piles, resulting in a load distribution as given in Figure 2a. This does not match the load distribution of Figure 2b, which was approximately observed in several measurements and numerical calculations.

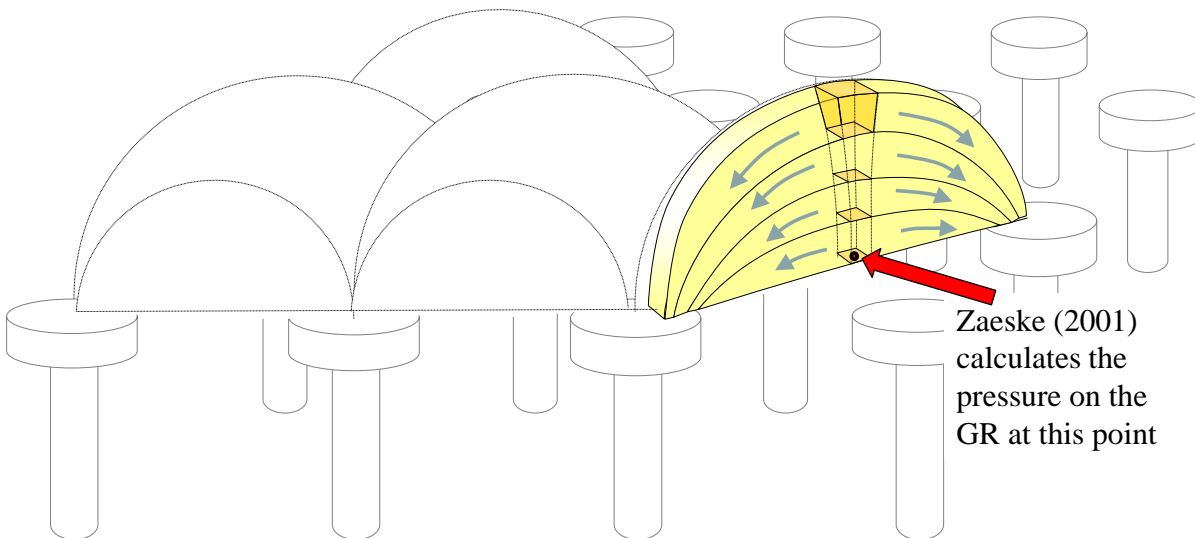


Figure 3. Arching model of Zaeske (2001) that was adopted in EBGeo (2010) and CUR 226 (2010).

Van Eekelen et al. (2013) present a new arching model that more or less gives the load distribution of Figure 2b. This model is called the Concentric Arches (CA) model, see Figure 4. Firstly, the load is transported along the 3D hemispheres (Figure 4a) towards the subsurface or in the direction of the 2D arches of Figure 4b. These 2D arches transport the further towards the subsurface or the piles. Van der Peet and Van Eekelen (2014) show that the results of the new CA model match 3D Plaxis calculations better than the Zaeske model. Tara van der Peet was honoured with the IGS Young Member Session Award for this paper, during the ICG10 conference in Berlin.

**Calculation step 2; load-deflection behaviour**

The GR strain is calculated by concentrating the residual load of step 1 on the GR strips between each pair of adjacent piles. It is an issue how this load is distributed on the GR strips. Figure 5 shows three options. The first, the triangular distribution is Zaeske’s step 2 (2001) and currently in use in EBGeo (2010) and CUR226 (2010). This is combined with support of the subsoil underneath the GR strip.

Measurements and numerical calculations show that if there is no or nearly no subsoil support, the load distribution

approaches the inverse-triangular load distribution of Figure 5c. In the case that the subsoil gives considerable support, the uniform load distribution of Figure 5b is a better approximation. Additionally, it is theoretically better to calculate with all subsoil underneath the GR, not only the subsoil underneath the GR strips. Lodder et al., 2012, elaborated these equations.

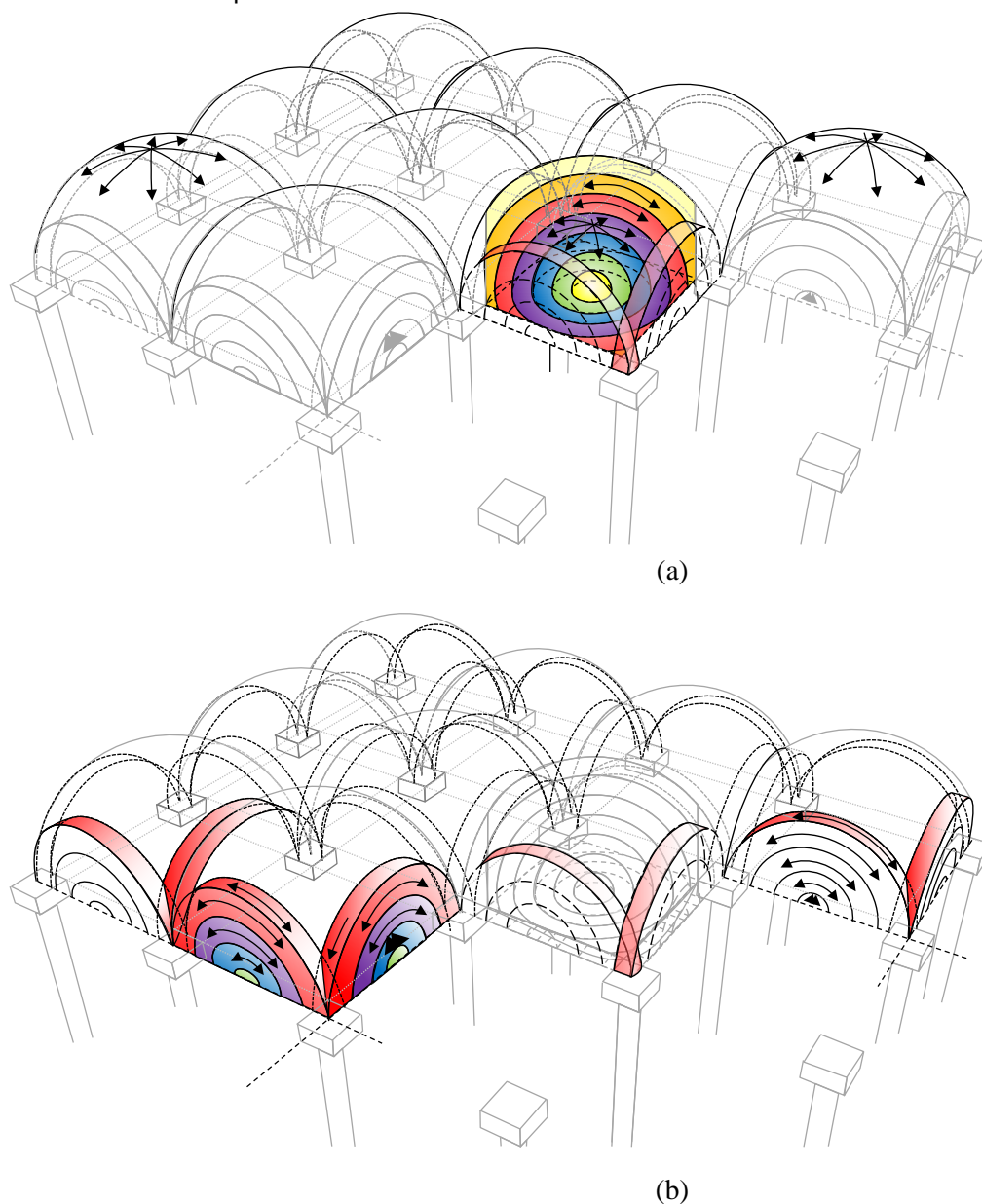


Figure 4. The Concentric Arching (CA) model of Van Eekelen et al. (2013); the load is transferred along (a) the 3D hemispheres, partly towards the GR underneath and partly towards the (b) 2D arches, who subsequently transport the load towards the GR underneath or the piles. The new CUR226 (2015) uses this CA model.

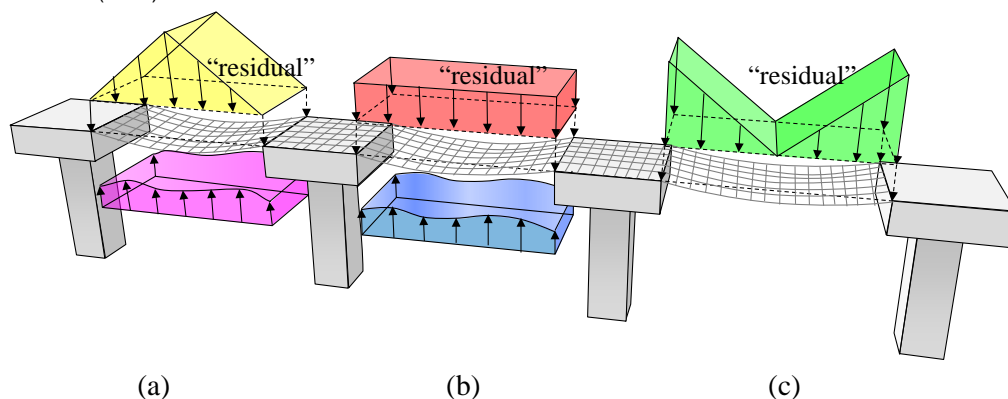


Figure 5, Calculation step 2 (a) current design method with triangular load distribution for the situation with or without subsoil support (b) new design method with uniform load distribution for the situation with subsoil support (c) new design method with inverse triangular load distribution for the situation without or nearly no subsoil support. The new CUR226 (2015) uses (b) and (c), as described in Van Eekelen et al., 2014.

### Validation with eleven cases

Van Eekelen et al. (2014) describe seven field cases and four scaled model experiment series, mostly taken from literature. These cases were carried out in Rio de Janeiro, (Almeida et al., 2008), Woerden, the Netherlands (Van Eekelen et al., 2012c), Houten, the Netherlands (Van Duijnen et al., 2010), France (Briancon & Simon, 2012), Finland, (Huang et al., 2009), Krimpenerwaard, Netherlands (Haring et al., 2008), Hamburg, Germany (Weihrach et al., 2010), Bremerhaven, Germany, (Vollmert et al., 2008), Korea (Oh & Shin., 2007), Kassel Universiteit, Germany (Zaeske, 2001) and Deltares, Netherlands (Van Eekelen et al., 2012a).

### Comparison calculations and measurements

Figure 6 compares the measured and calculated GR strains. The results of two calculation models are shown. Figure 6a shows the results for the current models used in EBGEO (2010) and CUR226 (2010). This is the combination of the step 1 – model of Zaeske (2001, Figure 3) and the triangular load distribution of Figure 5a. Figure 6b shows the results of the new model, that has been adopted in the adapted CUR226 (2015). This is a combination of the Concentric Arches (CA) model and the uniform and inverse-triangular load distributions (Figures 5b and 5c).

The dotted lines in Figure 6 indicate the positions in the figures where the measured and calculated values match. The continuous lines give the trend lines through the data. The figure shows that the ‘old’ model gives GR strains that overestimate the measured strains with 146% on average. The new model overestimates the measurements with only 6% and therefore matches the measurements much better than the old model.

A design guideline should adopt a calculation model that describes reality as good as possible. Therefore, the new model has been adopted in the new CUR226 (2015). Additionally, a set of partial safety factors will be adopted that guarantees that the reliability required in the Eurocode will be satisfied.

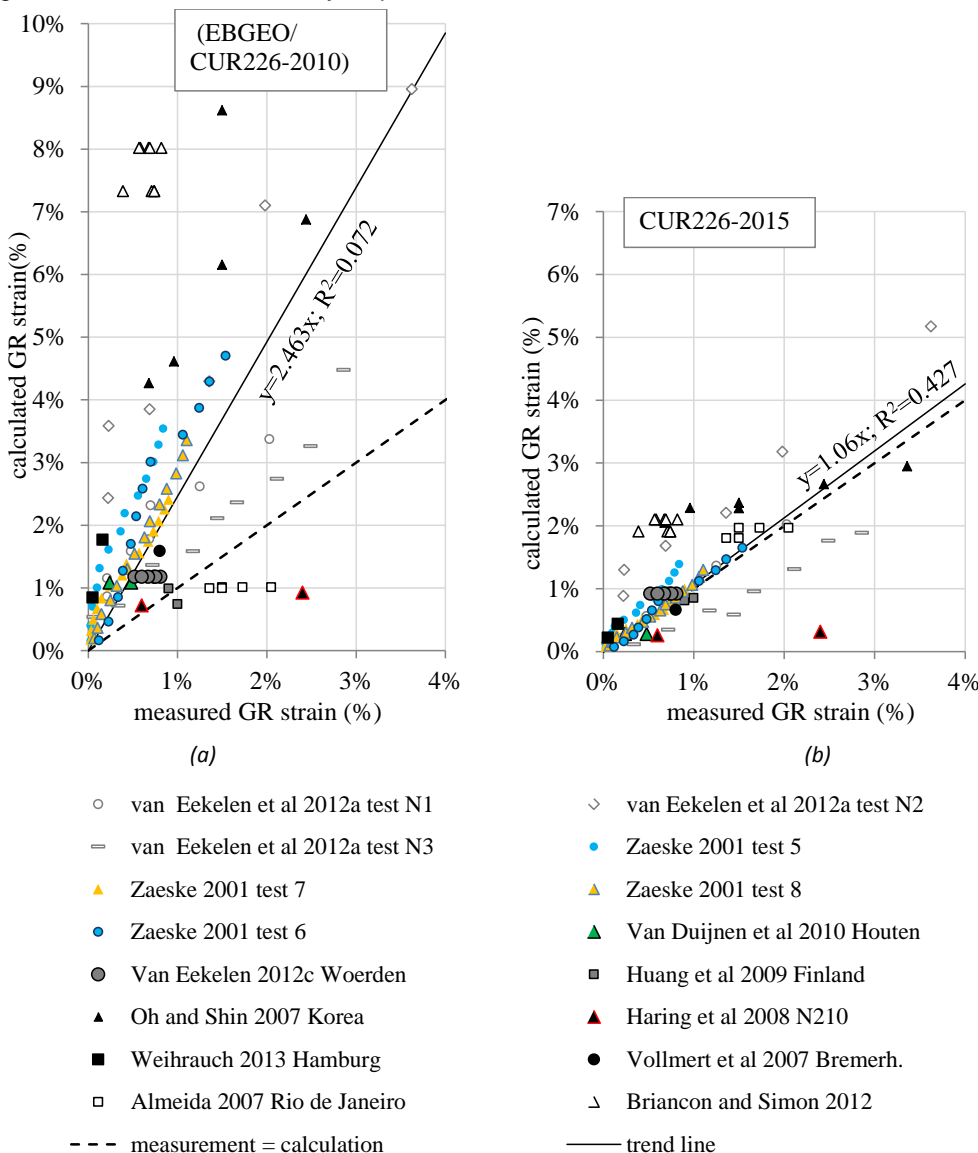


Figure 6. Comparison measured and calculated GR strains. Calculations with: (a) EBGEO (2010) and the old CUR226 (2010) with the arching model of Zaeske (2001, Figure 3), the triangular load distribution (Figure 5a) and subsoil support underneath the GR strips and (b) the new CUR226 (2015) with the Concentric Arches model of Van Eekelen et al. (2013), the uniform or inverse – triangular load distribution (Figure 5b and 5c) and taking into account all subsoil underneath the entire GR between the piles. The calculations were carried using expected values for the parameters.



## Acknowledgements

The PhD study of Suzanne van Eekelen is being financed by Deltares, Huesker, Naue and TenCate. The model test series in the Deltares laboratory was financed by Deltares, Delft Cluster, Huesker, Naue, TenCate en Tensar. The fruitful discussions with representatives of these producers and the other members of the Dutch CUR226-committee were of great value. The considered Dutch field tests were, apart from the mentioned partners, also financed by the Bataafse Alliantie, CFE, CRUX Engineering, Geolimpuls, KWS Infra, Mobilis, Movares, ProRail, Province Utrecht, the Dutch Ministry of Public Works and Funderingstechniek.

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## Conference Reports

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# 10<sup>th</sup> International Conference on Geosynthetics – 10ICG Berlin, Germany, 21 – 25 September 2014



When the German Chapter of the International Geosynthetics Society (IGS) proposed to host the 10<sup>th</sup> International Conference on Geosynthetics (10 ICG), it did so with an ambitious goal: co-locate with the German Soil Mechanics Society's (DGGT) biennial conference. The Baugrundtagung is one of the world's largest, national geotechnical conference.

This gathering of geosynthetic and affiliated geotechnical experts was without precedent. While the various specialists who support these societies and events often work side by side in the field, they rarely come together, let alone in the numbers that the 10 ICG proposal suggested they might.

IGS Germany's bid was approved, and over many years of development with the DGGT, it turned out to be not just an immensely successful idea but one which IGS Germany executed strongly.

From 21 – 25 September 2014, the 10 ICG was held at the Estrel Convention Center and Hotel in Berlin, Germany. From 23 – 26 September, the DGGT's conference was held at the same site, utilizing shared trade show halls, break areas, and lecture spaces. The result: a sold out trade show with a steady influx of new visitors, strongly attended lectures and technical sessions (including simultaneous translation), and a level of attendance and energy that may set a new bar for future ICGs.

The numbers tell an impressive tale:

- 1200 attendees at Baugrundtagung (includes about 280 combi tickets)
- 800 attendees at 10 ICG (includes combi tickets as well)
- 400 exhibit hall-only visitors
- 240+ speakers
- 140+ exhibitors and sponsors
- 7 Keynote and Special Lectures
- Up to 7 concurrent sessions at a time

### Highlights

The conference hotel was situated on the River Spree's lock system, giving multiple companies direct access to the hotel's boat launch. Subsequently, a number of attendees were treated to sponsored nighttime cruises along the river to enjoy Berlin's impressive buildings, which tell its history of development, war, division, reunion, and modernization.

Additionally, numerous off site venues were selected for special dinners and ceremonies, including for the IGS Corporate Reception, which was one of the most well-attended IGS Corporate Receptions in the society's 31-year history.

Participation, perhaps more than anything, characterized 10 ICG. In a shrewd move, the organizers shifted the IGS Awards and General Assembly into the middle of the conference. In previous ICGs, the Awards and General Assemblies have generally been held at the end of the conference, by which point many attendees were no longer on site or had shifted their attention away from additional meetings. In Berlin, instead of 30 or 40 attendees, hundreds showed and participated in voting on the Society's business and in recognizing individual achievements.

Among the highlights at the Awards Gala and General Assembly:

- Dr. Jorge Zornberg transitioned from his four-year role as IGS President to IGS Past President. In his remarks to the conference, Dr. Zornberg referred to the Big Audacious Goal (BAG) set forth by the IGS Council during his term. They met and surpassed some extremely ambitious targets for international chapter and individual and corporate member growth. The IGS is now on even stronger financial footing and its global activities continue to grow.
- It was revealed that of 268 geotechnical journals ranked by SCImago, the IGS Journals rank #2 (Geotextiles and Geomembranes) and #4 (Geosynthetics International).
- Dr. Russell Jones took the podium for the first time as IGS President and promised to continue the society's strong growth. Jones, who previously served as IGS Vice President, has published annual Chapter Activity Indexes in the IGS News, which have provided an excellent view of how the society has spurred event develop-

ment, professional networking, and educational activity around the world.

- Honorary Member Status—the highest individual honor bestowed by the IGS—was granted to IGS Past Presidents Fumio Tatsuoka and Daniele Cazzuffi.
- IGS Service Awards were presented to Dr. Richard Bathurst, Dr. JP Giroud, and Dr. Kerry Rowe.
- Pierpaolo Fantini was awarded an IGS Service Award for chairing multiple committees of the IGS over the years and his outstanding service to IGS Italy.
- The IGS Young Members program again brought in a strong international group of engineers who represent the future leaders of the society. Tara van der Peet's "3D numerical analysis of basal reinforced piled embankments" earned top honors among the 10 finalists for the IGS Young Members paper award.
- Dr. Kuo-Hsin Yang and Dr. Yan-feng Zhuang were each honored with IGS Young Member Achievement Awards.
- Queen's University's team of Melissa Chappel, Kerry Rowe, Richard Brachman, and Andy Take were honored for their work on "Field-scale evaluation of wrinkles in exposed HDPE geomembranes"
- John Greenwood, Hartmut F Schröder, and Wim Voskamp were recognized for their CUR 243 report: Durability of Geosynthetics.
- Dr. Jie Han received an award for his research on "Geosynthetic-reinforced Unpaved and Paved Roads."
- Hoe I. Ling received an award for "Behavior of Geosynthetics and Geosynthetic-Reinforced Soil Retaining Walls through Model Testing and Advanced Numerical Analysis"
- And for their team work on the "Basal Reinforced Piled Embankments Research Programme," Suzanne van Eekelen, Adam Bezuijen, and Frits von Tol received an IGS Award.
- A special film on Geosynthetics in Sustainability was debuted.
- IGS Vice President Professor Chungsik Yoo announced the dates for 11 ICG: 16 – 20 September 2018, Seoul, Korea at the Convention and Exhibition (COEX) Center.
- Professor Michele Maugeri, who delivered a technical lecture in Berlin, was recognized for his 20+ years of service to IGS Italy and the IGS at large. He received a standing ovation from the audience. Less than six weeks later, he passed away from the terminal illness few knew he had been battling. (See the "In Memoriam" column on page 27 of this issue.)

Additionally, the event's social networking opportunities were strongly supported. The Opening Reception, the Conference Dinner (at the Munich-inspired Hofbräu Berlin), and the quadrennial IGS football (soccer) match all provided levity and friendship to close out long days of technical exchange and business meetings.

As a sidenote: Professor Malek Bouazza (Monash University, Australia) made two exceptional saves on penalty kicks to seal a victory for his side on the football pitch.

### **Activity behind the scenes**

ICG events are remembered mostly for keynote lectures, attendance numbers, new product innovations, and other aspects that are commonly written up after an event. But it must be noted that one of the most significant things that occurs at an ICG is how it enables an enormous number of meetings.

Some of these meetings are open sessions, such as the IGS General Assembly. The majority of the meetings, however, are the behind-the-scenes. IGS Council members lock themselves away, review finances, debate future initiatives for the Society, introduce newly elected members to the Council's protocols, etc.

During 10 ICG, more than 20 hrs of meetings were held ahead of the conference; and another 20 hrs of meetings followed it. These discussions involved IGS Chapter Leaders, elected IGS Council Members, technical committees, special guests, and event organizers. They all deserve recognition for the many hours of service they have given to the Society. They carry the general membership's concerns and hopes to these meetings. They propose work items. They help arrange scholarships. They contribute to future event coordination.

We thank these members for their dedication.

We thank IGS Germany and the 10 ICG leadership team: Georg Heerten, Martin Ziegler, Gerhard Bräu, Kirsten Laackmann, and Jorge Zornberg; and organizing committee members D. Alexiew, M. Lersow, A. Lippert, K. v. Maubeuge, A. Remnitz, J. Retzlaff, F. Saathoff, K. Tarnowski, W. Voskamp, and H. Zanzinger.

BUT: We thank the general membership most of all. Without an active society, our elected council members, our committee leaders, and our national and regional chapter board members would not have so much to do!

*Reported by*

Chris Kelsey (Member of the IGS Communications Committee, [chris@geosynthetica.net](mailto:chris@geosynthetica.net))

PS: Please find the technical program and the photos from the conference at the conference webpage: [www.10icg-berlin.com](http://www.10icg-berlin.com)



# XXVII Italian Conference on Geosynthetics

Bologna, Italy, 22 October 2014

The XXVII Italian National Conference on Geosynthetics was held on 22 October 2014 in Bologna.

The Conference theme was "**New design concepts and innovative applications**" concerning the use of geosynthetics for civil, geotechnical and environmental engineering applications.

The Conference was organized by the Italian Chapter of the IGS (AGI-IGS), together with the Bologna Engineers section and BolognaFiere-SAIE 2014, under the auspices of the Consiglio Nazionale Ingegneri (National Engineers Council), of the Consiglio Nazionale Geologi (National Geologists Council) and of the Department DICAM of the Bologna University.

The Conference, held in the frame of the huge SAIE Exhibition, the main event in Italy of the constructions and civil engineering sector, was divided in two different sessions. The morning session was chaired by Daniele Cazzuffi (AGI-IGS President and IGS Past President) and one keynote lecture and five papers were presented.

The keynote, presented by Gerhard Braeu (Technical University, Munich, Germany), illustrated an overview of the experience with German regulations for geosynthetic reinforced fill structures (EBGEO).

The other five contributions of the morning session were devoted to some innovative concepts for the design of structures in which geosynthetics are used with reinforcement, drainage and filtration functions.

The afternoon session was chaired by Guido Gottardi (Bologna University) and was opened with the presentation of the AGI-IGS Award for the best thesis on geosynthetics engineering discussed in the last two years in an Italian University.



Armando Zambrano, Gianvito Graziano and Daniele Cazzuffi

The winner was Laura Carbone with a joint supervision Ph.D. thesis between the Mediterranea University of Reggio Calabria and the University of Grenoble on the "Interface behaviour of geosynthetics in landfill cover systems under static and seismic loading conditions".

After the award ceremony, six papers were presented.

The contributions focused on real case studies on applications to dams, glaciers, railways, landfills and river & coastal protection.

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

The volume of the proceedings was edited by Daniele Cazzuffi and Claudio Soccodato: the volume, containing almost 100 pages, is available at a cost by contacting Patron Editore at the following email: [advertising@patroneditore.com](mailto:advertising@patroneditore.com)

The next XXVIII Italian National Conference on Geosynthetics will be probably devoted to the use of geosynthetics in airports and in other transportation infrastructures.

Reported by

Daniele Cazzuffi (AGI-IGS President and IGS Past President) and Domenico Giofrè (IGS Member)

## Geosynthetics India 2014

New Delhi, India, 15 -17 October 2014

After successful organizations of "Geosynthetics India 2008" and "Geosynthetics India 2011", the Indian Chapter of International Geosynthetics Society (IGS-India) and Central Board of Irrigation and Power (CBIP) jointly organized "Geosynthetics India 2014" at CBIP Conference Hall, New Delhi, during 15-17 October 2014.

The event also included a Workshop on "Design of Geosynthetics Barriers", on 15 October 2014. The workshop was organized as a follow-up of the Seminar on "Geosynthetic Barriers", organized as part of Silver Jubilee Celebrations of establishment of the Indian Chapter in October 2013.



(from left to right) Mr. V.K. Kanjlia, Mr. M. Venkataraman, Dr. G.V. Rao, Mr. S.N. Das and Mr. A.C. Gupta, during the Inaugural Session of the seminar on 16 October 2014

The event was sponsored by Megaplast Packaging Pvt. Ltd. and co-sponsored by Garware-Wall Ropes Ltd. & Maccaferri Environmental Solutions Pvt. Ltd.

More than 75 delegates, including from Bhutan, Malaysia, Switzerland and Thailand, participated in the event. The participants included the representatives from 35 organisations, including the academicians, consultants, manufacturers & suppliers, and end users.

The Workshop on Design of Geosynthetics Barriers was inaugurated by Mr. Murari Ratnam, Director, Central Soil and Materials Research Station. In his inaugural address, Mr. Murari Ratnam, stressed the need to overcome the barriers in applications of Geosynthetics and take full advantage of environment friendly material in all the possible civil engineering applications. Mr. M. Venkataraman, Vice President, IGS (India), in his presidential address made an appeal to take the applications of Geosynthetics as a technology and not just as material in forced circumstances. Mr. A.C. Gupta, Director, CBIP, and Treasurer, IGS (India) thanked all for their support in the initiatives of IGS (India) in promotion of applications of Geosynthetics in the country. During the Workshop, Dr. G.V. Rao, Former Professor (Civil Engineering), IIT Delhi; Mr. M. Venkataraman; Mr. Ashish Gharpure, Director, Maccaferri Environmental Solutions Pvt. Ltd. and Mr. Ranjit Dash, General Manager; Garware-Wall Ropes Ltd., made the excellent presentations on the subject, which led to very lively discussions.

The Seminar “Geosynthetics India 2014” was inaugurated by Mr. S.N. Das, Director General (Road Development), Ministry of Road Transport and Highways, Government of India. Mr. Das in his inaugural address highlighted the role of Ministry of Road Transport and Highways in promotion of Geosynthetics for road construction. Mr. V.K. Kanjlia, Secretary, CBIP and Member Secretary, IGS (India), thanked all for the support in organizing the event.



Mr. S.N. Das delivering the Inaugural address during the seminar on 16th October 2014



Mr. Murari Ratnam delivering the Inaugural address during the workshop on 15th October 2014

During the two days' Seminar, the presentations on the various applications of Geosynthetics were made by Dr. G.V. Rao, Mr. M. Venkataraman, and the representatives from Carpi Tech; Switzerland, Central Road Research Institute, Central Soil and Materials Research Station, ESSEN Multipack Ltd., Garware-Wall Ropes Ltd., GSE Lining Technology Co., Ltd; Thailand, Landmark Material Testing and Research Laboratory Pvt. Ltd., Laviosa Trimex Industries Pvt Ltd., LBS Institute of Technology for Women; Thiruvananthapuram, Ministry of Water Resources; Government of India, National Institute of Disaster Management and Z-Tech (India) Pvt. Ltd.



Dr. G.V. Rao addressing the participants during the inaugural session of the seminar on 16th October 2014



Mr. M. Venkataraman delivering the welcome address during the inaugural session of the seminar on 16th October 2014



Mr. V.K. Kanjlia proposing vote of thanks during the inaugural session of the seminar on 16th October 2014



Mr. A.C. Gupta delivering the welcome address during the inaugural session of the workshop on 15th October 2014

The event concluded with a Special Session on “Sustainable Solution for Slope Stabilization in Hill Roads-Design of Flexible Gabion Retaining Walls and Reinforced Soil Structures”, with focus on Hill Road Slope Stability issues and Sustainable Solutions, Introduction to Concepts of Gabion Retaining walls and Composite Soil Reinforcement system.

*Reported by  
A.C. Gupta, Indian Chapter of IGS*

## Announcements of Regional Conferences of IGS

### GeoAmericas 2016 3<sup>rd</sup> Pan-American Congress on Geosynthetics Miami Beach, USA, 11 – 14 April 2016



The 3<sup>rd</sup> Pan-American conference will continue the GeoAmericas tradition of excellence, providing a forum for engineers, practitioners and academe from the Americas to explore current and future potential applications for geosynthetics. It also offers an active marketplace for the promotion of geosynthetic products and technologies to users throughout the Americas.

GeoAmericas 2016, the 3<sup>rd</sup> Pan-American Conference on Geosynthetics, will be held at the Lowes Hotel on South Beach in Miami, Florida. The 3<sup>rd</sup> Pan-American conference will continue the GeoAmericas tradition of excellence,

providing a forum for engineers, practitioners and academe from the Americas to explore current and future potential applications for geosynthetics. It also offers an active marketplace for the promotion of geosynthetic products and technologies to users throughout the Americas.

GeoAmericas 2016 is developing a program to advance the knowledge and understanding of geosynthetics at every level, from novice to expert. All will be provided with an opportunity to gain and share knowledge. Considering the diverse range of interests and applications, the conference has chosen not to isolate a theme; rather, the event will facilitate learning and dialogue on the key issues faced by geosynthetic communities throughout the Pan-American region. We welcome transportation, mining, infrastructure, waste, water, and other relevant discussions with a focus on improving the quality and durability of our works through the application of geosynthetics. GeoAmericas 2016 will be hosted by NAGS managed by Minerva-Technology and held under the auspices of IGS.

#### Important Dates

- **06 Jan 2015:** Call for Abstracts OPENS
- **30 Mar 2015:** call for Abstracts Closes
- **01 Aug 2015:** First draft of papers due
- **15 Sep 2015:** Reviews complete
- **30 Nov 2015:** Final papers due
- **15 Jan 2016:** Authors must be registered, papers to proceedings

#### For more information please contact

GeoAmericas 2016, Phone: +1.561.768.9487

Email: [BSlaybaugh@MinervaTRI.com](mailto:BSlaybaugh@MinervaTRI.com)

Website: [GeoAmericas2016.org](http://GeoAmericas2016.org)

### EuroGeo6 6<sup>th</sup> European Regional Conference on Geosynthetics Istanbul, Turkey, 25 – 28 September 2016



The Turkish Chapter of IGS joyfully announces that the 6<sup>th</sup> EuroGeo Conference will be held on 25 - 28 September 2016, under the auspices of the IGS, in the unique city of Istanbul. After Maastricht (1996), Bologna (2000), Munich (2004), Edinburgh (2008) and Valencia (2012), the profession will convene in Istanbul.

Congress Venue will be the Istanbul Convention Center, located in a central region, which is called by the name of Congress Valley in Harbiye. Istanbul is situated in a location that international airlines may easily reach - Atatürk Airport (recommended) on the European Side and Sabiha Gökçen Airport on the Anatolian Side. Local transport to ICC is easy with mass transportation vehicles such as metro, tram, bus and metrobus.

Naturally, the main excitement of the Conference will be in its technical contributions. Undoubtedly, the time period between now and 2016 will bring new materials and reforms to the geosynthetics industry; all of these developments will be well reflected in the scientific program of the EuroGeo6 Conference.

We are looking forward to seeing academicians, manufacturers, practitioners and designers in the geosynthetics field at EuroGeo6. We want to extend a special invitation to engineers in general contracting firms, who will widely benefit from the Conference by learning more about the extraordinary financial and technical advantages geosyn-



thetics provide. In an environment where the number of “Design-Build” and “Build-Operate-Transfer” types of contracts all around the world is multiplying, passing on such information to general contractors becomes of great importance

As the months leading up to the Conference unfold, you will be provided with more information. We can guarantee that the EuroGeo6 Conference in 2016 will be an opportunity for all who attend to experience a valuable technical program, a magnificent city, and warm Turkish hospitality.

#### Important dates

- 30 May 2015:** Abstract submission begins  
**30 Oct. 2015:** Deadline for submission of abstracts  
**01 Nov. 2015:** Early Bird registration opens  
**15 Dec. 2015:** Notification of provisional acceptance, based on abstract  
**31 March 2016:** Deadline for paper submission  
**15 June 2016:** Notification of paper acceptance, review comments provided  
**15 July 2016:** Early registration closes  
Deadline for revised paper submission  
Deadline for registration of at least one of the authors for paper to be published  
**25 Sep. 2016:** Conference opens

#### Proposed Sessions

Geosynthetics in

- Roads, Railroads and Other Transportation Applications
- Hydraulic Applications
- Mining
- Landfills
- Reinforced Walls and Slopes
- Direct and Life-cycle Cost Savings
- Environmental Benefits
- Sustainability
- Durability
- Innovations and New Developments
- Drainage and Filtration
- Polymeric and Clay Geosynthetic Barriers
- Properties and Testing
- Physical and Numerical Models
- Monitoring
- Quality Control and Quality Assurance
- Wastewater and Fresh Water Storage
- Embankments on Soft Soils
- Seismic Applications
- Coastal Protection
- Pavements
- Unpaved Roads
- Light-Weight Construction
- Agricultural Applications
- Geosynthetics as Formwork

#### For more information

Please consult the conference website, <http://www.eurogeo6.org/en/> for the latest announcements.

Contact [info@eurogeo6.org](mailto:info@eurogeo6.org) with questions.

## GeoAsia6 6<sup>th</sup> Asian Regional Conference on Geosynthetics New Delhi, India, 8 – 11 November 2016



India is a fast developing economy requiring large scale infrastructures. Liberalization of economy has further facilitated planning and execution of many large scale infrastructure, including roads, railways, power and water resources, which will further promote applications of Geosynthetics for infrastructural works. Spending in XII Plan (2012 - 17) in infrastructure is estimated to be USD 01 Trillion, which is expected to grow for infrastructure

activities for the XIII Plan (2017 - 2022).

6<sup>th</sup> Asian Regional Conference would be a step towards providing opportunity for exchange of experiences, practices and collaborations to facilitate flow of appropriate technology to enable successful implementation of infrastructure projects. It will be organized by the Indian IGS Chapter under the auspices of the IGS.

#### Main Theme of the Conference

## Geosynthetics for Infrastructure Development

### Sub-Themes

- Roads and Railways
- Hydraulic Applications
- Ground Improvement and Slope Stability
- Erosion Control
- Environmental Applications
- Natural Fibre Geotextiles
- Geosynthetic Testing

### Call for papers

All concerned wishing to present paper(s) on sub-themes/allied sub-themes of the Conference are requested to send the synopsis(es) of their proposed paper(s) in English to the Conference Secretariat.

Only original contributions that have not been published, or presented at other events, need to be submitted.

### Important Dates

|   |                   |
|---|-------------------|
| Submission of abstracts                   | 31 July 2015      |
| Acceptance of abstracts                   | 15 September 2015 |
| Submission of full-length papers          | 15 February 2016  |
| Submission of revised papers after review | 15 July 2016      |

### Workshops/Short Courses

IGS Training Courses and Workshops on the relevant issues of interest are planned for the days of the meetings of IGS Council, IGS Committees Meetings preceding the conference.

### Keynote and Theme Lectures

Internationally renowned experts will be invited to deliver keynote and theme lectures.

### Exhibition

It is proposed to organise an Exhibition, concurrent to the Technical Sessions. Corporate Members of IGS will be given preference and allowed discount of 25% on the normal tariff.

### Technical Visits

They will be planned to major Geosynthetics/Geotechnical Projects

### For more information see

[www.seags.ait.asia/news-announcements/11704/](http://www.seags.ait.asia/news-announcements/11704/)

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## Announcements of Conferences under the Auspices of IGS

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### Geosynthetics 2015

Portland, Oregon, USA, 15 – 18 February 2015

The biennial geosynthetics conference organized by the Industrial Fabrics Association International (IFAI) will be held 15 - 18 February 2015 in Portland, Oregon at the Oregon Convention Center and will be co-locating with International Erosion Control Association's (IECA) annual Environmental Connection conference. The biennial Geosynthetics conference is a must-attend event for the geotechnical, civil and geo-environmental communities. The conference is complete with full educational components - featuring informative technical sessions, thought provoking plenary speakers and detailed short courses. At Geosynthetics 2015 industry experts from across the globe will gather to network, attend top-notch education and take in the shared show floor filled with exhibitors from both conferences. Geosynthetics 2015 is organized by IFAI and the Geosynthetics Materials Association (GMA), a division of IFAI. The conference is supported by the North American Geosynthetics Society (NAGS) and is conducted under the auspices of the International Geosynthetics Society (IGS).

Geosynthetics 2015, the largest geosynthetics trade event in North America, puts you face-to-face with qualified buyers and decision makers from geotechnical companies, agencies and contracting organizations.

Align yourself with the industry's top manufacturers and service providers showcasing the latest products, services and equipment, and presenting geotechnical solutions, technologies and innovations.

### **Topics of the Short Courses**

- Design of Bottom Liners and Final Cover Systems for Containment Facilities
- Design of Geosynthetic-Reinforced Unpaved and Paved Roads
- Designing and Specifying Planar Drainage Geocomposites
- Geomembranes for Potable Water Applications
- Geosynthetic Reinforced Soil
- Geosynthetic Test Procedures and Material Specifications
- Nanotechnologies for Geosynthetics: Opportunities and challenges
- Static and Seismic Slope Stability for Lining and Cover Systems

### **Topics of the tentative Technical Sessions**

- Application of Geosynthetics in Environmental Remediation
- Beneficial Reuse Opportunities for Geotextile Tubes in Environmental Dredging
- Containment Applications for Mining and Waste
- Dams and Levees
- Electro-Kinetic Geosynthetics and Electro-osmosis
- Emerging Vistas in Geosynthetics
- Excellence in Lining System Design
- Geomembranes for Oil and Gas Applications
- Geomembranes for Potable Water Applications
- Geomembranes in extreme temperature applications
- Geosynthetics in Drainage Applications
- Geosynthetics in Extreme/Critical Environments
- Geosynthetics in Landfill Cover and Liner Systems
- Geosynthetics Properties
- Innovative New Hard Armor Solutions for Erosion Control applications
- Long-Term Field Performance of "Permanent" Rolled Erosion Control Products
- MSE Retaining Walls
- New Research on GCLs
- New Technologies for Road Construction
- Novel test methods replacing traditional test methods
- Performance Monitoring Geosynthetic Stabilized Pavements for Model Calibration and Prediction Relevance
- Reinforced Slopes and Embankments
- Role of Numerical Methods in Design of Geosynthetic Reinforced Structures
- The Possibility of Zero Leaks
- Towards a Better Understanding of Geosynthetic Reinforcement in Unbound Geomaterials
- Use of Geosynthetics for Foundations and Ground Improvement
- Use of Polymeric Fibers in Enhancing the Performance of Geotechnical Infrastructure

### **Introduction Series**

Geosynthetics 2015 features the launch of the Introduction Series. Designed for beginners, this free series of short, targeted presentations will teach you what geosynthetics are and how they fit into various projects.

Current Topics include

- Introduction to: Geomembranes and GCLs
- Introduction to: Reinforcement Geosynthetics
- Introduction to: Drainage Composites
- Introduction to: Geotextiles
- Introduction to: Erosion Control Products

Featured Topic

- Geosynthetics 101, David Elton, PhD, P.E. This complimentary two hour session will be offered twice during the conference.

**For more details please visit**

<http://geosyntheticsconference.com>



# 15<sup>th</sup> Asian Regional Conference on Soil Mechanics and Geotechnical Engineering (15ARC)

Fukuoka, Japan, 9 - 13 November 2015



## Call for abstracts for Special Session on Geosynthetics Engineering at 15ARC, Fukuoka, Japan

The 15<sup>th</sup> Asian Regional Conference on Soil Mechanics and Geotechnical Engineering (15ARC) will be held at Fukuoka, Japan, 9 -13 November 2015 under the auspices of the JGS (Japanese Geotechnical Society).

A special session on Geosynthetics Engineering will be organized in collaboration with IGS. The call for abstracts for this special session is now open. The IGS members are invited to submit paper abstracts by 30 September 2014 to [15tharc@kumamoto-u.ac.jp](mailto:15tharc@kumamoto-u.ac.jp).

Please check the conference official website (<http://www.15arc.org/index.html>) for more details about the format of the paper abstracts.

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## News from the IGS Chapters and the Membership

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### Hellenic Geosynthetics Society (HGS) Activity Report

The 7<sup>th</sup> National Conference on Geotechnical Engineering was very successfully held in Athens, 5 - 7 November 2014 with the participation of 511 persons, including a very large percentage of students (207 in total). Among the 16 different sessions, two were directly associated to “Geosynthetics in geotechnical and geo-environmental applications” and “Reinforced Embankments” with the following oral presentations:

- Investigation of fine-grained soil – Geosynthetic Interface Resistance by direct shear testing (I.N. Markou, M.A. Papadopoulou, E.S. Chalvatzopoulou)
- Investigation of the causes and restoration of operational problems of external floors-pavements with the use of geosynthetic materials (K. Leontaridis, N. Tsatsos, T. Papanastasiou).
- Design and Pilot Scale Application of a new type geocomposite for environmental applications (V. Zotiadis, A. Kelepertzis, A. Kollios)
- Seismic response of geogrid –reinforced retaining walls and comparison with a conventional reinforced – concrete wall (F. Gelagoti, P. Kourkoulis, S. Kontoe, G. Gazetas)
- Traffic surcharge loads effect on the displacements of reinforced soil walls (I.E. Zevgolis, G. Doulis)
- Widely used testing methods of geosynthetics (F. Marinidis, K. Kokkinidis-Samaras)
- The use of reinforced earth in landfill final closure – The case of Syros Landfill (A. Platis, K. Malliou, D. Platis)

Three key-note lectures were performed by Prof. Roger Frank, Prof Trevor Orr and Prof. Antonio Gens.

*Reported by*

*A. Kollios, Greece IGS News Chapter Correspondent*

### In Memoriam: Professor Michele Maugeri



On 1 November 2014, after a long battle with illness, Professor Michele Maugeri passed away. Prof. Maugeri was a long-time member of the Italian Chapter of the International Geosynthetics Society (IGS). Despite his declining health, Prof. Maugeri continued working and even traveled to Berlin in late September to attend technical sessions at the 10<sup>th</sup> International Conference on Geosynthetics (10 ICG).

He was recognized during the IGS Awards in Germany for his dedication and service to the Italian Chapter of IGS and the IGS at large, and he was greeted with a standing ovation from an audience that was almost entirely unaware of his illness.

From 1992 onward, Prof. Maugeri delivered keynote and special lectures in international conferences and workshops of different disciplines, helping extend the IGS mission beyond the core industry.

In particular, he was a scientific "ambassador" of geosynthetic engineering at events organized by other learned societies. He often focused on engineering issues dear to Italy, and with which the Italian design community has maintained a strong and beneficial dialogue with the world: seismic geotechnics, mitigation of natural hazards, and geoenvironmental issues.



Michele Maugeri surrounded with former IGS Presidents Jorge Zornberg (left) and Daniele Cazzuffi at the 10ICG in Berlin

He served on the IGS Council for eight years (2002 – 2010) and worked to promote the appropriate use of geosynthetics in different fields throughout the world.

Prof. Maugeri was also very active in the preparation of national and international guidelines and standards that dealt with innovative, geosynthetic applications.

He died at his home in Sicily. Burial services were held on November 3 at the cathedral in his home town of Acireale.

We extend our thoughts and sympathies to his family and friends. Those wishing to send a

personal message to Prof. Maugeri's family may contact his son Alessandro, [alemaugeri@alice.it](mailto:alemaugeri@alice.it), who many may recall from the 8<sup>th</sup> International Conference on Geosynthetics (September 2006, Yokohama), which Alessandro attended with his father.

*Reported by*

*Dr. Ing Daniele Cazzuffi (AGI-IGS President and Former IGS President) and Chris Kelsey (Editor, Geosynthetica.net)*

## In Memoriam: Dr. Joseph Scott Thornton, Jr.



Dr. Joseph Scott Thornton, Jr.  
6 February 1936 – 23 November 2014.

One of the behind-the-scenes luminaries of geosynthetics has passed. **Dr. Joseph Scott Thornton, Jr.** died peacefully at his home on 23 November 2014 in Austin, Texas at the age of 78. Scott, as he preferred simply to be known even in professional endeavors, is survived by sons Joseph Scott Thornton III, Christopher Pearson Thornton, and Chris' wife Tiffany, as well as by two beloved grandchildren, Elizabeth and Jacob.

Scott graduated in 1968 from the University of Texas at Austin with a Doctorate in Mechanical Engineering. Soon after, he began a long career of developing unique engineering solutions and enhancements for the US Navy, other government agencies, and various private companies around the world. In 1975 he co-founded Texas Research Institute (TRI), which later became known as Texas Research International. He engendered this employee-owned company with a culture of scientific excellence, encouragement, and trust. The company flourished over the years, branching out into several stand-alone companies, including TRI Environmental—one of the world's largest geosynthetics testing services providers—and Minerva TRI, publisher of Geosynthetica.net, Geosynthetica.net.br, and Geosindex.com.

Through the provision of technical, scientific, testing,

materials engineering, and consulting expertise, TRI's international footprint has extended into Asia, South America, and Australia. Scott Thornton has been TRI's only president during this long period of growth.

Notably for the geosynthetics field, Scott pioneered the Stepped Isothermal Method (SIM), a predictive testing program that radically reduced the amount of time needed to conduct essential time-dependent creep and creep-rupture testing. A broad spectrum of geosynthetics and polymeric pipes were brought into the marketplace faster, creating a project and data record that have been essential to developing the strong trust in polymeric materials in modern construction and engineering.

Scott insisted that the SIM innovation would be freely shared and applied. Accordingly, it was standardized by ASTM International and the testing protocol is now used throughout several materials industries worldwide. At the 7th International Conference on Geosynthetics (7ICG) in Nice, France (2002), he received an IGS Award for his technical contribution and the generosity of his openness on SIM.

Beyond his geosynthetics work, Scott's vision for dedicated materials science and problem-solving centered largely on reliability studies, failure analyses, and cost-benefit engineering. He developed and co-developed solutions for longer service lives for SONAR transducers, hydrophones, a non-conductive coating to prevent rubber-to-metal debonding from cathodic delamination, specialized adhesive and elastomer formulations, and nondestructive acoustic test monitoring systems for stress cracking.

Key to all these efforts was the continual development of efficient and robust testing and measurement systems. Scott delighted in applying existing materials theory to new and imaginative testing protocols to achieve a desired goal, and that approach was instrumental in the development of accelerated life testing (protocols) not just for geosynthetics but also deep seawater monitoring systems.

As he began to slowly step away from daily management obligations with TRI, Scott shifted his focus to the challenge of alcohol addiction which had impacted his life. He founded Volunteers at the Creek in January 2004.

This non-profit organization provided volunteer, peer-supported recovery programs and services for people suffering from alcoholism, substance use, and those who have both substance use and a co-occurring mental health condition (dual diagnosis). The organization's motto, "Volunteers Give To Keep," encompassed Scott's vision. His creative energy and spirit of innovation continued through this new outlet with the use of patient "cross-talk" scripts, aggressive early use of recovering addict mentors, and measurement of treatment metrics to track and document "real" success. In 2008, the organization was renamed Communities for Recovery (CforR) and a community center was opened on the campus of Austin State Hospital (ASH).

Through his leadership and energy, the organization expanded its programming and services throughout the Austin area. Scott was deeply involved in developing curriculum, volunteering countless hours, working directly with those in recovery, and spearheading the accreditation by the Joint Commission. CforR received Joint Commission (TJC) Accreditation for Peer Recovery Support Programs in 2014, becoming the first Peer Recovery Community Organization in the United States to receive this accreditation.

Scott's achievements were heralded on state and national levels. His contributions to the recovery community have impacted the lives of many.

He was a generous, witty, and dedicated individual who believed in nurturing others, celebrating their accomplishments, and making people feel part of a collective, accepting, and encouraging family. Scott has left behind a growing and robust international company (TRI) and an award-winning, deeply dedicated service organization (CforR), but his greatest legacy is the generosity, dedication, and happiness that can be seen in his family, employees, colleagues, and friends. He will be greatly missed.

*A memorial service is scheduled for Friday, December 12, 3:00 p.m. at 9225 Bee Cave Road, Building A, 3rd Floor with a reception to follow. All are welcome to attend and celebrate the life of Dr. Joseph Scott Thornton, Jr. In lieu of flowers, please send donations to Communities for Recovery ([www.cforr.org](http://www.cforr.org)), 4110 Guadalupe St, Bldg. 635, Austin, Texas 78751. His family would like to thank everyone who called, visited and held him within their hearts.*

**\*\* Special thanks to the family of Scott, TRI Vice President Scott Strehli, and TRI Environmental Vice President Sam Allen for their contributions to this obituary.**

## 1<sup>st</sup> National Symposium of Vietnam Chapter of IGS (VCIGS) on "Geosynthetics Technology and Application"

Hanoi, Vietnam, 5 December 5, 2014



Geosynthetics are now being increasingly used the world over for every conceivable application in civil engineering, namely, construction of dam, embankments, canals, approach roads, runways, railway embankments, retaining walls, slope protection works, drainage works, river training works, seepage control, etc. due to their inherent



qualities. This is due to limited awareness of the utilities of this material and development taking place in its use.

To be abreast with the latest development in the field of Geosynthetics, the 1<sup>st</sup> National Symposium on “Geosynthetics Technology and Application” is being organized by Vietnam Chapter of International Geosynthetics Society (VCIGS) and National University of Civil Engineering (NUCE).

The event will be held at the National University of Civil Engineering in Hanoi on 5 December 2014.

### Topics

The following topics will be discussed during the seminar:

- Geosynthetics Materials;
- Testing & Evaluation, Specifications and Standardization;
- Reinforced Soil Structures;
- Soil Slopes Stabilization and Landslide Mitigation;
- Filtration and Drainage;
- Roads and Railways;
- Hydraulic Structures;
- Hazardous Waste Management - Landfills & Ash Ponds;
- Erosion Control;
- Ground Improvement;
- Natural Fiber Geotextiles;
- Hill Area Development.

### Short Courses

In combination with this 1<sup>st</sup> National Symposium two Short Courses will be held, one in Ho Chi Minh City on 4 December 2014, the other in Hanoi on 5 December 2014.

### Official Language

Vietnamese and English will be used as official languages of the seminar.

### Important Date

Submission of paper: 25 November 2014.

### For more information

please contact:

Ms. Nguyen Thi Huong, National University of Civil Engineering

E-mail: [huongnt1@nuce.edu.vn](mailto:huongnt1@nuce.edu.vn)

## GeosPeru – 3<sup>rd</sup> National Geosynthetics Congress

### Lima, Peru, 04 - 06 March 2015



Following the International Geosynthetics Society (IGS) Peru Chapter hosting of the Pan-American Conference on Geosynthetics (2012), the chapter was encouraged to hold another geosynthetics event. Geos Peru 2015 will be held 4 – 6 March 2015 in Lima in Hotel Los Delfines.

Key speakers will be:

- Dr. Braja M. Das
- Dr. Jorge Zornberg
- Dr. George Koerner
- M. Sc. Torrealva
- M. Sc. Alfredo Mansen

For further information visit: <http://www.geosperu.com/index.html>

## IGS Chile informs: “Obras y Proyectos” plans themed issue on Geosynthetics

“Obras y Proyectos” with its editor Dr. Ricardo Moffat (President of IGS Chile) is planning a themed issue for the beginning of 2015 dedicated to Geosynthetics.

Nowadays the widespread use of Geosynthetics materials is practically unavoidable in construction works, mainly in roads and mining for drainage and reinforcement, among many other applications. This special issue of Obras y Proyectos will allow sharing knowledge and advances which are being developed in research and in practical applications. It will address design methods and tools, aimed to solve problems related to Civil Engineering.

The main topics are Road applications, railroads, mining, rivers, harbours, soil reinforcement, walls, slopes, foundations, environmental applications, landfills, wastewater treatment, drainage, filtration, liners, geosynthetics properties, durability and construction.

Authors are invited to submit manuscripts (deadline is 31 March 2015) or to request information by email at: [oyp@ucsc.cl](mailto:oyp@ucsc.cl)

Visit [www.oyp.ucsc.cl](http://www.oyp.ucsc.cl), [www.scielo.cl/oyp](http://www.scielo.cl/oyp)

## Seminar on Geosynthetics Applications for Mitigation of Natural Disasters and Environmental Protection

**Bhubaneswar (Odisha), India, 27 - 28 February 2015**

The catastrophic flood in Jammu & Kashmir, the northern state of India and cyclone in Andhra Pradesh and Odisha, in the south and eastern part of India, are the worst recent disasters which have shaken the confidence of the nation in pursuing the infrastructure developmental models. In addition, the massive devastation which occurred in June, 2013 due to heavy rain and cloud burst followed by landslides, in Uttarakhand in the Himalyan Region, has created a situation in the state which needs urgent attention.

Geosynthetics are now being increasingly used the world over for every conceivable application in civil engineering, namely, construction of dam, embankments, canals, approach roads, runways, railway embankments, retaining walls, slope protection works, drainage works, river training works, seepage control, etc. due to their inherent qualities. The role of Geosynthetics in engineering solution to the natural hazards, such as landslides, floods, earthquakes, cyclones, etc., needs to be stressed.

In the above context, Central Board of Irrigation and Power (CBIP) and Indian Chapter of IGS are jointly organizing a Non Residential Seminar on "Geosynthetics Applications for Mitigation of Natural Disasters and Environmental Protection" at Bhubaneswar in the Odisha state of India, during 5-6 February 2015, to emphasize the importance of geosynthetic for playing an import role, before and after such natural hazards.

The proposed Seminar will focus on versatile applications of Geosynthetics for the mitigation of floods, landslides, rockfalls debris flow and avalanches. The Seminar will also offer an opportunity for scientists, companies and agencies to meet and improve together the current state of infrastructure development. For this purpose keynote lectures and papers will be presented by both academic representatives and professional operators.

CBIP, the Secretariat of the Indian Chapter of IGS, is also celebrating **the three decades of its services to the Indian engineering fraternity in the field of Geosynthetics** during 2015. To mark the occasion, a Commemorative Volume on the prevention and rehabilitation of structures after disaster (Mitigation).is proposed to be brought out with contributions from academia, practicing engineers, consultants, contractors and manufacturers.

### Seminar Secretariat

Central Board of Irrigation & Power, Malcha Marg, Chanakyapuri, New Delhi 110 021, India

### Contact Persons:

Mr. V.K. Kanjlia, Secretary/ Mr. A.C. Gupta, Director (WR), E-mail: [uday@cbip.org](mailto:uday@cbip.org); [cbip@cbip.org](mailto:cbip@cbip.org)

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## List of IGS Chapters

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|------------------------------|---|--|--|
| Argentina                    | Argentinean Chapter<br>2009               | Dr. Marcos Montoro<br><a href="mailto:marcos_montoro@yahoo.com.ar">marcos_montoro@yahoo.com.ar</a>   |  |
| Australia and<br>New Zealand | Australasian Chapter<br>2002              | Dr. A. Malek Bouazza<br><a href="mailto:acigss@gmail.com">acigss@gmail.com</a>                       | <a href="mailto:malek.bouazza@monash.edu">malek.bouazza@monash.edu</a> |
| Belgium                      | Belgian Chapter<br>2001                   | Prof. Jan Maertens<br><a href="mailto:jan.maertens.bvba@skynet.be">jan.maertens.bvba@skynet.be</a>   |  |
| Brazil                       | Brazilian Chapter<br>1997                 | Eng. Lavoisier Machado<br><a href="mailto:igsbrasil@igsbrasil.org.br">igsbrasil@igsbrasil.org.br</a> | <a href="http://www.igsbrasil.org.br">www.igsbrasil.org.br</a>         |
| Chile                        | Chilean Chapter                           | Dr. Ricardo Moffat   |  |

| Country                | Name of IGS Chapter<br>Year of Foundation                         | IGS Chapter President   | webpage<br>further email address   |
|------------------------|---|---|--|
|                        | 2006  | <a href="mailto:rmoffatc@ing.uchile.cl">rmoffatc@ing.uchile.cl</a>  |  |
| <b>China</b>           | Chinese Chapter<br>1990   | Prof. Li, Guangxin<br><a href="mailto:postmaster@ccigs.com.cn">postmaster@ccigs.com.cn</a>                    | <a href="mailto:ligx@tsinghua.edu.cn">ligx@tsinghua.edu.cn</a>   |
| <b>Colombia</b>        | Colombian Chapter<br>2013   | Prof. Bernardo Caicedo Hormaza<br><a href="mailto:bcaicedo@uniandes.edu.co">bcaicedo@uniandes.edu.co</a>      |  |
| <b>Czech Republic</b>  | Czech Chapter<br>2003   | Eng. Petr Hubik<br><a href="mailto:igs@igs.cz">igs@igs.cz</a>   | <a href="http://www.igs.cz">www.igs.cz</a>   |
| <b>Finland</b>         | Finish Chapter<br>2011  | Minna Leppänen<br><a href="mailto:igsfin.secretary@gmail.com">igsfin.secretary@gmail.com</a>                  | <a href="mailto:minna.leppanen@tut.fi">minna.leppanen@tut.fi</a>   |
| <b>France</b>          | French Chapter<br>1993  | Jean-Pierre Magnan<br><a href="mailto:francois.caquel@orange.fr">francois.caquel@orange.fr</a>                |  |
| <b>Germany</b>         | German Chapter<br>1993  | Dr.-Ing. Martin Ziegler<br><a href="mailto:service@dggt.de">service@dggt.de</a>                               | <a href="http://www.gb.bv.tum.de/fachsektion/fs-kgeo.htm">www.gb.bv.tum.de/fachsektion/fs-kgeo.htm</a><br><a href="mailto:ziegler@geotechnik.rwth-aachen.de">ziegler@geotechnik.rwth-aachen.de</a> |
| <b>Ghana</b>           | Ghana Chapter<br>2012   | Prof. Samuel I.K. Ampadu<br><a href="mailto:skampadu.coe@knust.edu.gh">skampadu.coe@knust.edu.gh</a>          | <a href="mailto:jkkemeh@hotmail.com">jkkemeh@hotmail.com</a>   |
| <b>Greece</b>          | HGS, Greek Chapter<br>2005  | Prof. Dimitrios K. Atmatzidis<br><a href="mailto:dka@upatras.gr">dka@upatras.gr</a>                           | under complete reconstruction!   |
| <b>Honduras</b>        | Honduran Chapter – Honduran Society of Geosynthetics<br>2013      | MSc. Ing. Danilo Sierra D.<br><a href="mailto:sierradiscua@yahoo.com">sierradiscua@yahoo.com</a>              |  |
| <b>India</b>           | Indian Chapter<br>1988  | Dr. G.V. S. Suryanarayana Raju<br><a href="mailto:cbip@cbip.org">cbip@cbip.org</a>                            | <a href="mailto:dr.gvsraju@gmail.com">dr.gvsraju@gmail.com</a>   |
| <b>Indonesia</b>       | INA-IGS, the Indonesian Chapter<br>1992                           | Gouw Tjie Liong<br><a href="mailto:amelia.ina.igs@gmail.com">amelia.ina.igs@gmail.com</a>                     | <a href="mailto:ameliamakmur@gmail.com">ameliamakmur@gmail.com</a>   |
| <b>Iran</b>            | Iranian Chapter<br>2013   | Dr. Kazem Fakharian<br><a href="mailto:kfakhari@yahoo.com">kfakhari@yahoo.com</a>                             | <a href="mailto:hoseingh@yahoo.com">hoseingh@yahoo.com</a>   |
| <b>Italy</b>           | AGI-IGS, the Italian Chapter<br>1992                              | Dr. Ing. Daniele Cazzuffi<br><a href="mailto:agi@associazionegeotecnica.it">agi@associazionegeotecnica.it</a> | <a href="http://www.associazionegeotecnica.it/~agi/cazzuffi@cesi.it">www.associazionegeotecnica.it/~agi/cazzuffi@cesi.it</a>   |
| <b>Japan</b>           | Japanese Chapter<br>1985  | Dr. Hiroshi Miki<br><a href="mailto:miki-egri@nifty.com">miki-egri@nifty.com</a>                              | <a href="http://www.soc.nii.ac.jp/jcigs/">www.soc.nii.ac.jp/jcigs/</a>   |
| <b>Kazakhstan</b>      | Kazakhstanian Chapter<br>2012                                     | Zhusupbekov Askar Zhagparovich<br><a href="mailto:astana-geostroi@mail.ru">astana-geostroi@mail.ru</a>        |  |
| <b>Korea</b>           | KC-IGS, The Korean Chapter<br>1993                                | Dr. Youseong Kim<br><a href="mailto:yusung@jbnu.ac.kr">yusung@jbnu.ac.kr</a>                                  |  |
| <b>Malaysia</b>        | Malaysian Chapter – Pertubuhan IGS Malaysia (MylGS)<br>2013       | Dr. Fauziah Ahmad<br><a href="mailto:cefahmad@yahoo.com">cefahmad@yahoo.com</a>                               |  |
| <b>Morocco</b>         | Moroccan Chapter<br>2014  | Houssine Ejjaouani<br><a href="mailto:ejjaouani@lpee.ma">ejjaouani@lpee.ma</a>                                |  |
| <b>Mexico</b>          | Mexican Chapter<br>2006   | Eng. Ignacio Narezo L.<br><a href="mailto:ignacioexp@gmail.com">ignacioexp@gmail.com</a>                      | <a href="http://www.igsmexico.org">www.igsmexico.org</a><br><a href="mailto:anaferraez@gmail.com">anaferraez@gmail.com</a>   |
| <b>The Netherlands</b> | Netherlands Chapter<br>1992                                       | Dr. Ir. A. H. de Bondt<br><a href="mailto:mail@ngo.nl">mail@ngo.nl</a>  | <a href="http://www.ngo.nl">www.ngo.nl</a><br><a href="mailto:adebondt@ooms.nl">adebondt@ooms.nl</a>   |
| <b>North America</b>   | North American Geosynthetics Society (NAGS) (Canada, USA)<br>1986 | Robert Mackey, P.E<br><a href="mailto:NagsDirector05@aol.com">NagsDirector05@aol.com</a>                      | <a href="http://www.nags-igs.org">www.nags-igs.org</a><br><a href="mailto:bmackey@s2li.com">bmackey@s2li.com</a>   |
| <b>Norway</b>          | Norwegian Chapter of IGS<br>2008                                  | Dr. Jan Vaslestad<br><a href="mailto:jan.vaslestad@vegvesen.no">jan.vaslestad@vegvesen.no</a>                 |  |
| <b>Pakistan</b>        | Pakistanian Chapter of IGS<br>2011                                | Tariq Ikram<br><a href="mailto:mr.tariq.ikram@gmail.com">mr.tariq.ikram@gmail.com</a>                         |  |
| <b>Panama</b>          | Panama Chapter<br>2014  | Alexis Vergara (Vice President)<br><a href="mailto:avergara@maccaferri.co.cr">avergara@maccaferri.co.cr</a>   |  |
| <b>Peru</b>            | Peruvian Chapter  | Eng. Augusto V. Alza  | <a href="http://www.igsperu.org">www.igsperu.org</a>   |

| Country                       | Name of IGS Chapter<br>Year of Foundation  | IGS Chapter President  | webpage<br>further email address   |
|-------------------------------|--|--|--|
|                               | 2001   | <a href="mailto:administracion@igsperu.org">administracion@igsperu.org</a>                                   | <a href="mailto:aalza@tdm.com.pe">aalza@tdm.com.pe</a>   |
| Philippines                   | Philippine Chapter<br>2007   | Mr. Mark Morales<br><a href="mailto:mark.k.morales@gmail.com">mark.k.morales@gmail.com</a>                   | <a href="mailto:paul_navarro_javier@yahoo.com">paul_navarro_javier@yahoo.com</a>   |
| Poland                        | Polish Chapter<br>2008   | Dr. Jacek Kawalec<br><a href="mailto:jacek.kawalec@vp.pl">jacek.kawalec@vp.pl</a>                            |  |
| Portugal                      | Portuguese Chapter<br>2003   | Jose Luis Machado do Vale<br><a href="mailto:jose.vale@carpitech.com">jose.vale@carpitech.com</a>            |  |
| Romania                       | Romanian Chapter<br>1996   | Christina Feodorov<br><a href="mailto:cristina.feodorov@iridexgroup.ro">cristina.feodorov@iridexgroup.ro</a> | <a href="mailto:adiol@utcb.ro">adiol@utcb.ro</a>   |
| Russia                        | Russian Chapter of IGS<br>(RCIGS)<br>2008  | Dr. Andrey Ponomaryov<br><a href="mailto:ofrikhter@mail.ru">ofrikhter@mail.ru</a>                            | <a href="mailto:andreyfab@mail.ru">andreyfab@mail.ru</a>   |
| Slovakia                      | Slovakian Chapter of IGS<br>2011   | Dr. Radovan Baslik<br><a href="mailto:radobaslik@gmail.com">radobaslik@gmail.com</a>                         |  |
| South Africa                  | South African Chapter<br>1995  | Riva Nortje<br><a href="mailto:Nortje@jaws.co.za">Nortje@jaws.co.za</a>                                      | <a href="http://www.gigsa.org">www.gigsa.org</a><br><a href="mailto:joannes@englining.co.za">joannes@englining.co.za</a>       |
| Spain                         | Spanish Chapter<br>1999  | Angel Leiro López<br><a href="mailto:pabad@cetco.es">pabad@cetco.es</a>                                      | <a href="http://www.igs-espana.com">www.igs-espana.com</a><br><a href="mailto:aleiro@cedex.es">aleiro@cedex.es</a>             |
| Thailand                      | Thai Chapter<br>2002   | Prof. Suksun Horpibulsuk<br><a href="mailto:suksun@g.sut.ac.th">suksun@g.sut.ac.th</a>                       | <a href="http://www.set.ait.ac.th/acsig/igs-thailand">www.set.ait.ac.th/acsig/igs-thailand</a>                                 |
| Turkey                        | Turkish Chapter<br>2001  | Dr. Fazli Erol Guler<br><a href="mailto:eguler@boun.edu.tr">eguler@boun.edu.tr</a>                           | <a href="http://www.geosentetiklerdernegi.org">www.geosentetiklerdernegi.org</a>   |
| United Kingdom                | U.K. Chapter<br>1987   | Peter Assinder<br><a href="mailto:david@abgLtd.com">david@abgLtd.com</a>                                     | <a href="http://www.igs-uk.org">www.igs-uk.org</a><br><a href="mailto:assinder@HUESKER.com">assinder@HUESKER.com</a>           |
| Vietnam                       | Vietnamese Chapter –<br>International Geosynthetics Society – Vietnam<br>Chapter (VCIGS)<br>2013 | Dr. Nguyen Hoang Giang<br><a href="mailto:giangnh@nuce.edu.vn">giangnh@nuce.edu.vn</a>                       |  |
| West Pacific Regional Chapter | West Pacific Regional<br>Chapter<br>1997   | Dr. Liang, Yueh<br><a href="mailto:fang8506@gmail.com">fang8506@gmail.com</a>                                | <a href="http://www.cgawebsite.org.tw">www.cgawebsite.org.tw</a><br><a href="mailto:jasonwu@chu.edu.tw">jasonwu@chu.edu.tw</a> |

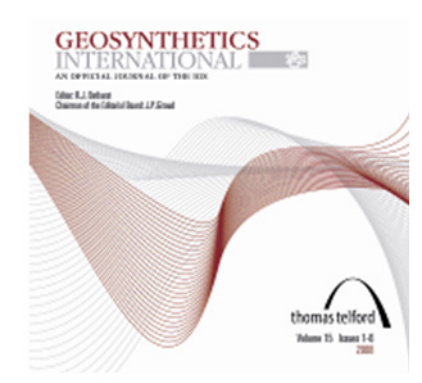
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Geosynthetics International is an official journal of the IGS and has established itself as a premier peer-reviewed journal on geosynthetics. The Journal publishes technical papers, technical notes, discussions, and book reviews on all topics relating 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 ICE Publishing (Thomas Telford) and is free to IGS Members. All others, e.g., corporations, companies, and university libraries, can subscribe at a rate of £590 / US\$ 960.

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## Geosynthetics International Volumes 1 - 9, 1994 - 2002 now available online

The International Geosynthetics Society (IGS) and ICE Publishers recently reached an agreement to mount the first nine volumes of the journal *Geosynthetics International* on the ICE website. *Geosynthetics International* is an official journal of the IGS. These early volumes were originally published by the Industrial Fabrics Association International in hardcopy only, with copyright of these volumes passed to the IGS when the journal was taken over by ICE Publishing in 2003. Since that time these volumes have been accessible only through the IGS website and only to IGS members. Thus knowledge of these valuable papers was limited to this audience. These earlier papers now appear on the *Geosynthetics International* website ([www.icevirtuallibrary.com/content/serial/gein](http://www.icevirtuallibrary.com/content/serial/gein)) with all other volumes and are free to download by all IGS members by going through the IGS website. Importantly, these papers now appear in searches using Google Scholar. We invite IGS members to visit the journal website either directly, using the URL above, or through the IGS website. There are more than 200 peer reviewed papers in Volumes 1 – 9 which cover a wide range of topics and whose contents are as valuable today as they were when first published.

*Reported by*  
R.J. Bathurst Editor, *Geosynthetics International*

## Geosynthetics International: Best Papers in 2013

*Geosynthetics International* is an official journal of the International Geosynthetics Society and serves the mandate of the society to disseminate important technical developments to its members.

We are delighted to announce the best paper in Volume 20 (2013) based on votes cast by the Editorial Board Members. In this annual competition the Editor and Editorial Board Chairman are not eligible for this award and do not vote.

The "Best *Geosynthetics International* Paper for 2013" award goes to:

- Rowe, R.K., Abdelaal, F.B. & Brachman, R.W.I. (2013). Antioxidant depletion of HDPE geomembrane with sandprotection layer. *Geosynthetics International*, 20, No. 2, 73–89.

The following paper was voted runner-up and thus receives honourable mention as "one of the best papers published in *Geosynthetics International* in 2013":

- Tanyu, B.F., Aydilek, A.H., Lau, A.W., Edil, T.B. & Benson, C.H. (2013). Laboratory evaluation of geocell-reinforced gravel subbase over poor subgrades. *Geosynthetics International*, 20, No. 2, 47–61.

We thank the members of the Editorial Board for participating in the best paper selection process and congratulate the authors of these excellent papers. Each paper reflects the high standards of the Journal and is an important contribution to our geosynthetics discipline. All IGS members have free access to these papers.

*Reported by*  
R.J. Bathurst, Editor  
J.P. Giroud, Chairman of the Editorial Board

## Content of Volume: 21, Issue: 4 (2014)

- [Simulation of geosynthetic load–strain–time behaviour by the non-linear three-component model](#), W. Kongkitkul; T. Chantachot; F. Tatsuoka
- [Performance of two geosynthetic reinforced walls with recycled construction waste backfill and constructed on collapsible ground](#), E.C.G. Santos; E.M. Palmeira; R.J. Bathurst
- [Field performance of retaining walls reinforced with woven and nonwoven geotextiles](#), F.H.M. Portelinha; J.G. Zornberg; V. Pimentel
- [Tensile and hydraulic properties of geosynthetics after mechanical damage and abrasion laboratory tests](#), A. Ro-sete; P. Mendonça Lopes; M. Pinho-Lopes; M.L. Lopes

Please find the download of the articles at:

<http://www.icevirtuallibrary.com/content/issue/gein/21/4>

For the IGS members to have FREE access to the papers they MUST log in through the IGS website.

## Content of Volume: 21, Issue: 5 (2014)

- [Lateral displacement of PVD-improved deposit under embankment loading](#), F. Xu; J.-C. Chai
- [Performance of transesterified jute rolled erosion-control products](#), V.K. Midha; S. Suresh Kumar; A. Sharma
- [Dewatering of sludge from a water treatment plant in geotextile closed systems](#), M.G.A. Guimarães; D.C. Urashima; D.M. Vidal
- [Benefits of geosynthetic reinforcement in widening of embankments subjected to foundation differential settlement](#), L. Miao; F. Wang; J. Han; W. Lv

Please find the download of the articles at:

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## Geotextiles & Geomembranes



*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.

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Papers should be submitted electronically as a Microsoft Word or pdf file to: [kerry@civil.queensu.ca](mailto: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.

*Geotextiles and Geomembranes* is now available free in electronic format to IGS Members. To activate free access and to create your personal account, you will need your IGS Membership Number. If you do not know your Membership Number, please contact the IGS Secretariat at [IGSSec@geosyntheticssociety.org](mailto:IGSSec@geosyntheticssociety.org)

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For editorial enquiries contact:

Dr. R. Kerry Rowe, Editor *Geotextiles and Geomembranes*  
c/- GeoEngineering Centre at Queen's-RMC  
Department of Civil Engineering  
Queen's University

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For direct connection to the home page of the journal with the possibility to download PDF-files of the full papers (IGS members and abonents only) please follow the link at the end of the following content listing.

## Geotextiles and Geomembranes: Best papers in 2013

The high flow of excellent papers being submitted to *Geotextiles and Geomembrane* continues and G&G was a leader in terms of the number of papers published in the past 3 years amongst journals in Geotechnical Engineering with an impact factor of 3.203. In the SJR ranking G&G ranked second with 3.690 while in the Thomson Reuters rankings our impact factor increased to 2.376 with a five-year impact factor of 2.704.

Following the Editorial Board meeting held in Yokohama in September 2006 it was decided that it would be desirable to recognise some of the best papers published in *Geotextiles and Geomembranes*. We started with Volume 23 and have selected the Best paper in each subsequent year. This year the Editorial Board was charged with selecting what they considered to be the "Best Paper" published in *Geotextiles and Geomembranes* in 2013. Papers were considered for their contribution to the discipline in terms of providing significant new insights and/or of being of high potential impact on the discipline. All Technical Articles, except those co-authored by the Editor, were eligible. The selection of winning papers was decided based on a vote of the Editorial Board members (excluding the Editor).

Following a rigorous review of the papers I am pleased announce that the winner for the Best Paper for 2013 was:

- A data base, statistics and recommendations regarding 171 failed geosynthetic reinforced mechanically stabilized earth (MSE) walls by Robert M. Koerner and George R. Koerner, *Geotextiles and Geomembranes*, 40: 20-27.

Two papers were selected for Honourable Mention

- Thermal conductivity of geosynthetics by Rao Martand Singh & Abdelmalek Bouazza, *Geotextiles and Geomembranes*, 39: 1-8.

and

- Behaviour of a geogrid reinforced wall built with recycled construction and demolition waste backfill on a collapsible foundation by Eder C.G. Santos, Ennio M. Palmeira, Richard J. Bathurst, *Geotextiles and Geomembranes*, 39: 9-19.

as runners-up and hence being judged to be amongst the three best papers published in *Geotextiles and Geomembranes* in 2013. Congratulations to all of the authors for their very significant contribution to the geosynthetics discipline.

*Reported by*

*R. Kerry Rowe Editor*

## Content of Volume 42, issue 5 (October 2014)

[A simplified method for design of geosynthetic tubes](#), Wei Guo, Jian Chu, Wen Nie, Shuwang Yan

[Organic acid transport through a partially saturated liner system beneath a landfill](#), Tingfa Liu, Liming Hu

[Consolidation analysis of clayey deposits under vacuum pressure with horizontal drains](#), Jinchun Chai, Suksun Horpibulsuk, Shuilong Shen, John P. Carter

[Factors affecting the down-slope erosion of bentonite in a GCL](#), R. Kerry Rowe, Lauren.E. Ashe, W. Andy Take, R.W.I. Brachman

[Back-analyses of flow parameters of PVD improved soft Bangkok clay with and without vacuum preloading from settlement data and numerical simulations](#), P. Voottipruex, D.T. Bergado, L.G. Lam, T. Hino

[Laboratory evaluation of governing mechanism of frictionally connected MSEW face and implications on design](#), Moustafa I. Awad, Burak F. Tanyu

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| West Pacific    | Chung Lu Yuan          | <a href="mailto:yuancl@mail.sinotech.com.tw">yuancl@mail.sinotech.com.tw</a>  |



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## IGS Council

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### Elected in 2014

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Ian Fraser (UK)  
Chiwan Wayne Hsieh (Taiwan)  
Takeshi Katsumi (Japan)  
K. Rajagopal (India)  
Pietro Rimoldi (Italy)  
Nathalie Touze-Foltz (France)

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Jacek Kawalec (Poland)  
Flavio Montez (Brazil)  
Elizabeth Peggs (USA)

### Co-opted in 2012

M. Ziegler (Germany)

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Edoardo Zannoni (South Africa)

### Elected in 2012

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Jiro Kuwano (Japan)  
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Victor Pimentel (Brazil)  
Boyd Ramsey (USA)  
Kent von Maubeuge (Germany)

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## Visit the IGS Website:

[www.geosyntheticssociety.org](http://www.geosyntheticssociety.org)

**IGS MEMBERSHIP REQUIRES ELECTRONIC COMMUNICATION –  
PLEASE ENSURE WE HAVE YOUR CURRENT E-MAIL ADDRESS!**



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.

#### Second, to enjoy the benefits.

The following benefits are now available to all IGS Members:

- the online IGS Membership Directory, updated in real time;
- the newsletter, IGS News, published three times per year;
- free electronic issues of Geosynthetics International and Geotextiles & Geomembranes;
- 19 IGS Mini Lecture Series are available online;
- 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
- the possibility of being granted an IGS award.

Please check whether there is a local IGS Chapter in your country (list at page 31)!  
Otherwise please use the online form at <http://www.geosyntheticssociety.org>  
or the following

## IGS Membership Application

Membership of the Society is open to Individuals or Corporations "...engaged in, or associated with, the research, development, teaching, design, manufacture or use of geotextiles, geomembranes and related products or systems and their applications, or otherwise interested in such matters." The annual fee for membership is (US) \$45 for Individual Members and (US) \$1000 for Corporate Members. Individuals or Corporations who voluntarily contribute a minimum of (US) \$200 annually to the Society, in excess of

their membership dues, will be mentioned in the IGS Membership Directory in a separate list as benefactors.

Send this completed form to:

The International Geosynthetics Society, 1934 Commerce Lane,  
Suite #4, Jupiter, FL 33458, USA  
TEL: +1.561.768.9489 FAX: +1.561.828.7618  
Email: [IGSsec@geosyntheticssociety.org](mailto:IGSsec@geosyntheticssociety.org)

Attach your business card or fill in your address (print or type if possible), as you wish it to appear in the next IGS Membership Directory.

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

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_

Company, Division, Function (if applicable): \_\_\_\_\_

Position/Title: \_\_\_\_\_

Address (Street or Postal Box): \_\_\_\_\_

City: \_\_\_\_\_ Province/State: \_\_\_\_\_

Postal Code: \_\_\_\_\_ Country: \_\_\_\_\_

Telephone: \_\_\_\_\_ Fax: \_\_\_\_\_

Email: \_\_\_\_\_

Eligibility (connection with geotextiles, geomembranes, related products or associated technologies): \_\_\_\_\_

Keyword (up to 25): \_\_\_\_\_

Membership fee: Individual (US) \$ 45,  
Corporate (US) \$1000,  
Benefactor (minimum (US) \$ 200

## Calendar of Events

| Event   | Location                            | Date                      | E-Mail, Website  |
|---|-------------------------------------|---------------------------|--|
| 7 <sup>th</sup> International Conference on Scour and Erosion (ICSE-7)  | Perth, Western Australia            | 02 – 04 Dec 2014          | <a href="mailto:iang.cheng@uwa.edu.au">iang.cheng@uwa.edu.au</a><br><a href="http://www.2014icse.com/index.html">www.2014icse.com/index.html</a>   |
| <b>1st National Symposium of VCIQS on "Geosynthetics Technology and Application"</b>  | <b>Hanoi, Vietnam</b>               | <b>5. Dec 2014</b>        | <a href="mailto:giangnh@nuce.edu.vn">giangnh@nuce.edu.vn</a>   |
| <b>1st National Symposium of VCIQS on "Geosynthetics Technology and Application" – Short Course</b>                                       | <b>Ho Chi Minh City, Vietnam</b>    | <b>4. Dec 2014</b>        | <a href="mailto:giangnh@nuce.edu.vn">giangnh@nuce.edu.vn</a>   |
| <b>1st National Symposium of VCIQS on "Geosynthetics Technology and Application" – Short Course</b>                                       | <b>Hanoi, Vietnam</b>               | <b>5. Dec 2014</b>        | <a href="mailto:giangnh@nuce.edu.vn">giangnh@nuce.edu.vn</a>   |
| 6IGS Chennai 2015: Sixth International Geotechnical Symposium on Disaster Mitigation  | Madras, Chennai, India              | 21 - 23 Jan 2015          | <a href="mailto:robinson@iitm.ac.in">robinson@iitm.ac.in</a><br><a href="http://www.igschennai.in/6igschennai2015">www.igschennai.in/6igschennai2015</a>   |
| <b>2015 Geosynthetics Conference - Co-locating with IECA's Environmental Connection 2015</b>  | <b>Portland, OR, USA</b>            | <b>15 – 18 Feb 2015</b>   | <a href="http://geosyntheticsconference.com">http://geosyntheticsconference.com</a>  |
| 12 <sup>th</sup> Australia and New Zealand Conference on Geomechanics–The Changing Face of the Earth: Geo-Processes & Human Accelerations | Wellington, New Zealand             | 22 - 25 Feb 2015          | <a href="mailto:secretary@nzgs.org">secretary@nzgs.org</a>   |
| Seminar "Geosynthetics Applications for Mitigation of Natural Disasters and Environmental Protection"                                     | Bhubaneswar (Odisha), India         | 27 - 28 Feb 2015          | <a href="mailto:uday@cbip.org">uday@cbip.org</a> ; <a href="mailto:cbip@cbip.o">cbip@cbip.o</a>  |
| <b>GeosPeru<br/>3<sup>rd</sup> National Geosynthetics Congress</b>  | <b>Lima, Peru</b>                   | <b>04 - 06 Mar 2015</b>   | <a href="mailto:difusion@geosperu.com">difusion@geosperu.com</a><br><a href="http://www.geosperu.com">www.geosperu.com</a>   |
| <b>10<sup>th</sup> Rencontres Géosynthétiques</b>   | <b>La Rochelle, France</b>          | <b>24 - 26 March 2015</b> | <a href="http://www.rencontresgeosynthetiques.org">www.rencontresgeosynthetiques.org</a>   |
| <b>FS-KGEO 2015</b>   | <b>Munich, Germany</b>              | <b>26 March 2015</b>      | <a href="mailto:g.braeu@bv.tum.de">g.braeu@bv.tum.de</a><br><a href="http://www.gb.bv.tum.de/fskgeo">www.gb.bv.tum.de/fskgeo</a>   |
| XVI African Regional Conference on Soil Mechanics and Geotechnical Engineering- Innovative Geotechnics for Africa                         | Hammamet, Tunisia                   | 27 - 30 April 2015        | <a href="mailto:organisation@cramsg2015.org">organisation@cramsg2015.org</a><br><a href="http://www.16cramsg.org">www.16cramsg.org</a>   |
| ISP7 - PRESSIO 2015   | Hammamet, Tunisia                   | 01 - 02 May 2015          | <a href="mailto:isp7_organisation@cramsg2015.org">isp7_organisation@cramsg2015.org</a><br><a href="http://www.cramsg2015.org/isp7-pressio2015/?lang=en">www.cramsg2015.org/isp7-pressio2015/?lang=en</a> |
| ISFOG 2015  | Oslo, Norway                        | 10 - 12 Jun 2015          | <a href="mailto:isfog2015@ngi.no">isfog2015@ngi.no</a><br><a href="http://www.isfog2015.no">www.isfog2015.no</a>   |
| 3 <sup>rd</sup> International Conference on the Flat Dilatometer DMT'15   | Rome, Italy                         | 14 - 16 Jun 2015          | <a href="mailto:simona@marchetti-dmt.it">simona@marchetti-dmt.it</a><br><a href="http://www.dmt15.com">www.dmt15.com</a>   |
| XVI European Conference on Soil Mechanics and Geotechnical Engineering  | Edinburgh, Scotland, United Kingdom | 13 - 17 Sep 2015          | <a href="mailto:derek_smith@coffey.com">derek_smith@coffey.com</a><br><a href="http://www.xvi-ecsmge-2015.org.uk">www.xvi-ecsmge-2015.org.uk</a>   |
| Workshop on Volcanic Rocks & Soils  | Isle of Ischia, Italy               | 24 - 25 Sep 2015          | <a href="mailto:agi@associazionegeotecnica.it">agi@associazionegeotecnica.it</a><br><a href="http://www.wvrs-ischia2015.it/">http://www.wvrs-ischia2015.it/</a>  |
| Geosintec 2 2 <sup>nd</sup> Spanish Conference on Geosynthetics   | Madrid, Spain                       | 7 - 8 Oct 2015            | <a href="mailto:Pedro.abad@igs-espana.com">Pedro.abad@igs-espana.com</a><br><a href="mailto:Beatriz.Mateo@igs-espana.com">Beatriz.Mateo@igs-espana.com</a>   |
| 6 <sup>th</sup> International Conference on Earthquake Geotechnical Engineering   | Christchurch, New Zealand           | 02 - 04 Nov 2015          | <a href="mailto:6icege@tcc.co.nz">6icege@tcc.co.nz</a><br><a href="http://www.6ICEGE.com">www.6ICEGE.com</a>   |
| <b>The 15<sup>th</sup> Asian Regional Conference on Soil Mechanics and Geotechnical Engineering - New Innovations and Sustainability</b>  | <b>Fukuoka, Kyushu, Japan</b>       | <b>09 - 13 Nov 2015</b>   | <a href="mailto:15tharc@kumamoto-u.a.c.jp">15tharc@kumamoto-u.a.c.jp</a><br><a href="http://www.igskyushu.net/uploads/15ARC/">www.igskyushu.net/uploads/15ARC/</a>                                       |
| Sixth International Symposium on Deformation - Characteristics of Geomaterials  | Buenos Aires, Argentina             | 15 - 18 Nov 2015          | <a href="http://saig.org.ar/ISDCG2015">http://saig.org.ar/ISDCG2015</a>  |
| 15 <sup>th</sup> Pan-American Conference on Soil Mechanics and Geotechnical Engineering   | Buenos Aires, Argentina             | 15 - 18 Nov 2015          | <a href="mailto:presidente@saig.org.ar">presidente@saig.org.ar</a><br><a href="http://www.panam2015.com.ar">www.panam2015.com.ar</a>   |
| NGM 2016, The Nordic Geotechnical Meeting   | Reykjavik, Iceland                  | 25 - 28 May 2016          | <a href="mailto:has@vegagerdin.is">has@vegagerdin.is</a><br><a href="http://www.ngm2016.com">www.ngm2016.com</a>   |
| Geo-Environment and Construction European Conference  | Tirana, Albania                     | 26 -28 Nov. 2015          | <a href="mailto:erion.bukaci@gmail.com">erion.bukaci@gmail.com</a><br><a href="mailto:erdi.myftaraga@hotmail.com">erdi.myftaraga@hotmail.com</a>   |

| Event   | Location               | Date             | E-Mail, Website                                   |
|---|------------------------|------------------|---|
|   |                        |                  | lulibozo@gmail.com                                |
| 3 <sup>rd</sup> PanAmerican Regional Conference on Geosynthetics            | Miami South Beach, USA | 11 - 14 Apr 2016 | NAGSDirector05@gmail.com<br>epeggs@minervatri.com |
| 3 <sup>rd</sup> ICTG International Conference on Transportation Geotechnics | Guimaraes, Portugal    | 04 - 07 Sep 2016 | agc@civil.uminho.pt<br>www.webforum.com/tc3       |
| EuroGeo 6 – European Regional Conference on Geosynthetics                   | Istanbul, Turkey       | 25 – 29 Sep 2016 | eguler@boun.edu.tr                                |
| 6 <sup>th</sup> Asian Regional Conference on Geosynthetics                  | New Delhi, India       | 28 - 11 Nov 2016 | uday@cbip.org                                     |
| 11 <sup>th</sup> International Conference on Geosynthetics (11ICG)          | Seoul South Korea      | 16 - 20 Sep 2018 | csyoo@skku.edu                                    |

Note:

The conference announcements are shown with different graphics due to their priority for IGS:

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