

Administrative report: TC33 – Geotechnics of soil erosion

Compte rendu sur la CT-33

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ABSTRACT

Report on Technical Committee TC33 Activities: 2001-2005

RÉSUMÉ

Rapport des Activités du Comité Technique TC33 : 2001 – 2005



1.1 Title of Technical Committee:

Geotechnics of Soil Erosion

1.2 Membership

Chair: Prof. Jean-Louis BRIAUD, Texas A&M Univ., USA
 Secretary: Prof. Bruce MELVILLE, Univ. of Auckland, New-Zealand
 Core Members: Dr. Michael HEIBAUM, BAW, Germany
 Dr. Kaare HOEG, NGI, Norway
 Dr. David CARRIER, Argila Enterprises, USA
 Sub Com. Chairs: Dr. Yee-Meng CHIEW, Nanyang Tech. Univ., Singapore
 Dr. George ANNANDALE, Engrg & Hydrosystems, USA

Members:

Dr. George Annandale
 Professor Geoffrey Blight
 Giovanni Bosco
 Prof Jean-Louis Briaud (C)
 Dr D. Carrier III (CM)
 Professor Yee Meng Chiew
 Dr. Ing. Fernando Delgado Ramos
 Francesco Ferraiolo
 Dr. Yolanda Foote
 Mr J.J. Fry
 Dr. Heibaum (CM)
 Prof. K. Hoeg (CM)
 Dr irG.J.C.M. Hoffmans
 Per Magnus Johansen
 Dr. J. Józsa
 Professor B. Melville (S)
 Y. Muceku
 L. Rákóczi
 Pietro Rimoldi
 Dipl Ing. H. Schimpf
 Jaime Suarez Diaz
 Prof Dr Ing K.J. Witt

1 INTRODUCTORY INFORMATION

As shown in the above photos, the topic covered by the committee includes

- Scour of Foundations (for example scour at bridges or offshore platforms)
- Dam Erosion (for example internal piping and external erosion at spillways)
- Surface Erosion (for example embankment erosion and construction site erosion)

MEMBER SOCIETIES INVOLVED

Member Society Name(s)

Albania	Y. Muceku
Austria	Dipl Ing. H. Schimpf
Colombia	Jaime Suarez Diaz
France	Mr J.J. Fry
Germany	M. Heibaum, Prof Dr Ing K.J. Witt
Hungary	L. Rákóczi, Dr. J. Józsa
Italy	Pietro Rimoldi, Francesco Ferraiolo, Giovanni Bosco
Netherlands	dr ir G.J.C.M. Hoffmans
New Zealand	Professor Bruce Melville
Norway	Prof. K. Hoeg, Per Magnus Johansen
S. Africa	Professor Geoffrey Blight
Spain	Mr Fernando Delgado Ramos
UK	Dr. Yolanda Foote
USA	Prof Jean-Louis Briaud, Dr D. Carrier III

1.3 Terms of Reference

1. The erosion-advanced organizations (academia, government, private firms) in selected countries share their knowledge on Geotechnics of Soil Erosion including practice and applied engineering research with other countries interested in the topic.
Deliverable = regional workshops, web pages.
Schedule = yearly
2. Exchanges take place on the international research progress.
Deliverables = conferences and proceedings.
Schedule = every 2 to 3 years
3. Global guidelines are developed
Deliverables = reports, web based documents.
Schedule = about 3 years (Osaka)
4. A new web site is developed
Deliverables = a web site.
Schedule = as soon as the new members are identified

2 EXECUTIVE SUMMARY

The activities of our committee over the last four years has included the following

- **2001 Istanbul Workshop on Scour of Foundations at ICSMGE.** This took place at the ICSMGE in Istanbul. Dr. Michael Heibaum from Germany chaired that event. A summary volume is available. This contributes to term of reference no.1, 2, and 3.
- **2002 First International Conference on Scour of Foundations** at Texas A&M University, USA. Professor Jean-Louis BRIAUD chaired the conference. Three volume Proceedings are available for purchase on the web site. This contributes to term of reference no.1, 2, and 3.
- **Meeting of the committee at Texas A&M University** Minutes of this November 2002 meeting can be found on the web site. This contributes to all terms of reference.
- **2004 Second International Conference on Scour and Erosion** in Singapore. Professor Yee-Meng CHIEW of Singapore chaired the conference. Two volume proceedings are available for purchase on the web site. This contributes to term of reference no.1, 2, and 3.

- **2006 Third International Conference on Scour and Erosion** planned for Amsterdam. Dr. Gijs Hoffmans of Netherlands will chair the conference helped by Dr. Heibaum and Dr. Witte of Germany. The committee will meet in Amsterdam if TC33 is renewed by the new President. This will contribute to term of reference no.1, 2, and 3.
- **Update of the web site** at <http://www.civil.tamu.edu/Research/Scour-tc33>. The web site is constantly updated and improved. Professor Briaud is in charge of the web site. This contributes to term of reference no.4.
- **Establishment of an email list server** to facilitate the exchange of view points between committee members (and the friends of the committee). This list sever is maintained by Dr. Richard Whitehouse in the UK. This contributes to term of reference no.4.
- **Meeting of the committee in Singapore** Minutes of this November 2004 meeting can be found on the web site. This contributes to term of reference no.4.
- **Request** One of the big hurdles in the last four years has been the difficulty for experts on scour and erosion which are not geotechnical engineers to be part of our committee. TC33 needs a number of people from Hydraulics and Structures because of the very interdisciplinary nature of the topic. There is a need to revisit that issue under the next 4 year cycle to try to make that process possible because without it our committee cannot fully bloom. One of the steps which would help would be to have an agreement with IAHR (International Association of Hydraulic Engineering and Research) and allow TC33 to have members from both organizations.

3 MAIN REPORT

- 3.1 **2002 First International Conference on Scour of Foundations at Texas A&M University, USA (Professor Jean-Louis BRIAUD Chaired the conference).**



Three volume Proceedings are available for purchase on the website (http://tti.tamu.edu/conferences/scour/order_proceedings.stm). Approximately 27 different countries and 200 participants including nearly all the most well known names in the world of scour of foundations were present at that conference. Over 80 authors from 27 different countries contributed articles to the proceedings and gave lectures at the conference. There were 3 plenary sessions and 18 concurrent sessions. 9 invited lectures were delivered in the plenary sessions and an additional 18 special lectures were presented at the beginning of each concurrent session. The articles were collected in a three volume set of pro-

ceedings. The third volume was dedicated to a prediction event where participants were asked to send their prediction of the depth of the scour that would develop in a set of prescribed experiments. The predictions were collected and then the experiments were performed, all this before the conference.

At the conference, the results were presented and discussed. At the conclusion of the conference, recommendations were made to address the future needs in scour of foundations. The proceedings were published by Texas A&M University in bound paper form and in an addressable CD format. The CD won an award. At the end of the conference the participants were treated to an evening of fun and friendship at Professor Briaud's home. This event addressed the terms of reference no. 1, 2, and 3.

3.2 Meeting of the committee at Texas A&M University

Minutes of this November 2002 meeting can be found on the website (<http://www.civil.tamu.edu/Research/Scour-tc33/Geotechnics%20of%20Soil%20Erosion/index.htm>). At that meeting, the committee decided to award the next conference to Singapore and give Professor Chiew the responsibility of chairing the conference. The committee also decided to form three sub-committees because the topic of the committee had been broadened from Scour of Foundations (1997-2001) to Geotechnics of Soil Erosion (2001-2005). The three subcommittees would address

1. Scour of Foundations chaired by Dr. Chiew from Singapore
2. Dam Erosion chaired by Dr. Annandale from USA
3. Surface Erosion chaired by Dr. Blight from South Africa

3.3 2004 Second International Conference on Scour and Erosion in Singapore (Professor Yee-Meng CHIEW Chaired the conference).



Two volume proceedings are available for purchase on the web site (<http://www.icse2004.org/>). Approximately 100 participants attended the conference including nearly all the most well known names in the world of scour and erosion. The distribution was 39% from Asia and Oceania, 31% from Europe, 17% from America, and 13% from other regions. 7 invited keynote lectures were presented as well as 75 papers collected in a two volume set of proceedings. Both hard copy volumes and a CD were distributed to the participants at the conference. The proceedings were published by Nanyang Technological University and edited by Chiew, Lim, and Cheng. During the entire event and its preparation, Dr. Chiew did a remarkable job and received a plaque from the TC33 Chair Professor Briaud (signed by Professor Van Impe) as a token of appreciation from the TC33 Committee for all his work. This event addressed the terms of reference no. 1, 2, and 3.

3.4 Meeting of the committee in Singapore

Minutes of this November 2004 meeting can be found on the website (<http://www.civil.tamu.edu/Research/Scour-tc33/Geotechnics%20of%20Soil%20Erosion/index.htm>). At that meeting, the committee discussed the results of ICSE-2 and noted that the participation was relatively well distributed. The committee also reviewed proposals for ICSE-3, decided to award the next conference to The Netherlands and give Dr. Gijs Hoffmans the responsibility of chairing the conference. The committee also decided to form an email listserver and associated address so that the members of the committee can discuss easily all appropriate concerns. A single email address will reach all members of TC33 and enhance our communication. The system is under preparation by Dr. Richard Whitehouse.

3.5 2006 Third International Conference on Scour and Erosion planned for Amsterdam

This conference will likely take place during the Fall of 2006. Dr. Gijs Hoffmans of The Netherlands will Chair the conference helped by Dr. Heibaum of Germany and Dr. Witte of Germany). This event will address the terms of reference no. 1, 2, and 3.

3.6 Update of the web site at <http://www.civil.tamu.edu/Research/Scour-tc33>

In 2001, the name of the committee changed from "Scour of Foundations" to "Geotechnics of Soil Erosion". Since we did not want our previous work to be lost we decided to keep the same address but have two headings on the web site: one that would identify our work from 1997 to 2001 and one new one which would focus on our work from 2001 to 2005. We created the second web site and kept the same format with buttons for "Home", "Members", "Objectives", "Minutes", "Conferences", "References", "Images". The new web site plays an important role because it takes care of constant advertisement for our conferences, allows members to have each others addresses for contact, is a permanent record of our meeting minutes, and is also a good place to house the results of special projects.

3.7 Establishment of an email list server

To facilitate the exchange of view points between committee members (and the friends of the committee). This list server is maintained by Dr. Richard Whitehouse in the UK. The initial list is derived from the membership and the participants to ICSF-1 and ICSE-2. Any one can elect to be kept out of the email list if they do not wish to receive such emails. This will be a very convenient way to communicate in the future.

3.8 Overall Conclusion

Overall, our committee is doing extremely well considering that our topic exists at the boundary between several disciplines (Geotech, Hydraulic, Structure). Our web site is a solid foundation for our activities; it has not reached its full potential as we can continue to have major references and the results of special projects listed on the site. Our series of ICSE conferences every two years represents a very good incentive for us to meet regularly; they also document the latest in the scour and erosion world for many countries which may not be fortunate enough to be able to attend the conferences. Indeed they can obtain the proceedings (paper or electronic form) after the conference.

3.9 *Future Work*

We have started a tradition with the series of ICSE conferences and we feel that there is a need for such conferences to continue for a good while to come as the world of scour and erosion is both still in its infancy and very devastating worldwide.

We wish to continue to develop our web site to become a more complete resource for all ISSMGE members worldwide including posting a design, repair, and monitoring manuals with proper permission.

One of the big hurdles in the last four years has been the difficulty for experts on scour and erosion which are not geotechnical engineers to be part of our committee. TC33 needs a number of people from Hydraulics and Structures because of the very interdisciplinary nature of the topic. There is a need to revisit that issue under the next 4 year cycle to try to make that process possible because without it our committee cannot fully bloom. One of the steps which would help would be to have an agreement with IAHR (International Association of Hydraulic Engineering and Research) and allow TC33 to have members from both organizations.