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Administrative report of TC2 – Centrifuge and physical model testing

Compte rendu technique de la No. CT 2 – Les essais en centrifugeuse et modèles physiques

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1 TERMS OF REFERENCE

In mid 1999 with approval of the ISSMGE president, TC2 expanded its mandate and changed its name from "Centrifuge Testing" to "Centrifuge and Physical Model Testing" with the following new terms of reference.

- 1) To promote exchange of information and co-operation between the experimentalists and the users about the use of geotechnical physical modelling (including centrifuge testing) in simulating boundary value problems in geotechnical engineering.
- 2) To act as contact persons for the profession for reliable sources of information on geotechnical physical modelling.
- 3) To monitor the effectiveness of information dissemination in reaching practising engineers and researchers through established journals and conferences; if needed to suggest improvements; and to encourage publication of technical articles in widely available journals and conferences.
- 4) To develop with other TCs, including TC12, TC14 & TC28, a mutual understanding of the role of physical modelling in addressing their geotechnical challenges.
- 5) To co-operate with other national and international groups interested in geotechnical physical modelling including TRB technical committee A2K05 - Modelling techniques in geotechnics and ASTM task group D18.09 - Centrifuge Modelling.
- 6) To promote the organisation of the next TC2 international conference on Geotechnical Physical Modelling to be held in Canada in 2002.
- 7) To support and encourage the organisation of international, national and regional events on geotechnical physical modelling, including the European NECER workshop in 2000.
- 8) To encourage presentation of papers on geotechnical physical modelling applications to general sessions of the next Istanbul XV ICSMGE conference in 2001.

2 MEMBERS

At present, TC2 has 22 members from 18 countries as indicated in the following Table:

Country	Name	Affiliation
Australia	D Stewart	University of Western Australia
Brazil	S Niyama	IPT/DEC-Cidade Universitaria
Canada	R Phillips (Chairman)	C-CORE, Memorial University
China	Jialiu Pu	Tsinghua University
Colombia	B Calcedo	University of Los Andes
Denmark	G Bagge	Technical Univ. of Denmark
France	J Garnier	LCPC Centre de Nantes
Germany	D Koenig	Ruhr-Universitat Bochum
India	VS Chandrasekaran	Indian Institute of Technology Bombay

Japan	O Kusakabe	Tokyo Institute of Technology
Japan	J Takemura	Tokyo Institute of Technology
Mexico	VM Taboada-Urtuzuastegui	Instituto de Ingenieria, UNAM
Netherlands	H Allersma	Delft University of Technology
Norway	K Andersen	Norwegian Geotechnical Institute
Russia	V V Vinogradov	Moscow State University of Railway Communication
Russia	T G Yakovleva	Moscow State University of Railway Communication
S.E. Asia	C F Leung (Secretary)	National University of Singapore
Switzerland	S Springman	Swiss Federal Institute of Technology Zurich
U.K.	M Davies	University of Dundee
U.S.A.	P J Culligan	Massachusetts Institute of Technology
U.S.A.	D Goodings	University of Maryland
U.S.A.	B L Kutter	University of California, Davis

3 ACTIVITES COMPLETED

- (a) A major international conference CENTRIFUGE 98 held in Tokyo in September 1998 was highly successful. It attracted over 250 participants from 16 different countries. The 2 volume conference proceedings are available from AA Balkema Publishers. Volume 2 includes all the keynote and special lectures presented at CENTRIFUGE 98.
- (b) An international co-operative test program on preparation of sand for centrifuge modelling involving 18 centrifuge laboratories worldwide is completed. The final report was published together with the Manual of Basic Centrifuge Model Tests in the Proceedings of CENTRIFUGE 98 Volume 2.
- (c) A virtual geotechnical centrifuge library has been developed to acquire knowledge on centrifuge principles and technology courtesy of the Japanese Geotechnical Society.
- (d) The Japanese Geotechnical Society passed the chairmanship of TC2 to the Canadian Geotechnical Society at the end of September 1998.
- (e) A web site has been created to provide information on TC2 activities, conferences and sponsored events, with links to other conferences, journals and organisations. In addition, the users can view an international geotechnical centrifuge user and facilities database, and link to (c). The web site is <http://www.engr.mun.ca/~ccore/cgs/tc2/index.html>.
- (f) Two listserves have been established to contact TC2 members and people involved in physical model testing. These addresses are tc2-s@geo.citg.tudelft.nl and tc2-l@geo.citg.tudelft.nl respectively.
- (g) TC2 has established links to other TCs, including TC12, TC14 and TC28. For each link, a committee member is assigned to be the liaison person to work out possible joint programs with the other TC on a mutual benefit basis. In addition, TC2 has also established contacts with a number of technical committees from other societies, including NECER

(in which the current TC2 Chair is on its advisory panel), US National Academy of Sciences Transportation Research Board Committee A2K05 Modeling Techniques in Geomechanics, and ASTM D18.09.

- (h) A key event in 2000 was the International Symposium on Physical Modelling and Testing in Environmental Geotechnics, (<http://lpweb.lcpc.fr/~necer/symp2000.htm>) held in La Baule France in May 2000, as TC2 is an official supporting body for the symposium. Six TC2 members were directly involved in the Symposium organisation. The Symposium included presentations of the preliminary results of a European research programme involving eleven research teams, all equipped with geotechnical centrifuges, which focused on the application of physical modelling to the study of transport of pollutants in soil.
 - (i) After several years of rigorous preparation, the International Journal on Physical Modelling in Geotechnics was officially launched in early 2000. Prof. T Kimura, immediate past chairman of TC2 and his students donated 2 million Japanese yen as the seed money for the journal. TC2 member Prof Osamu Kusakabe of Tokyo Institute of Technology is the Editor-in-Chief for the new journal and many TC2 members sit on the Editorial Board. Many flyers and e-mails were sent to interested researchers to invite them to submit papers and subscribe to the journal. The responses for call for papers have been good as there was no problem getting quality papers for the inaugural issue of the journal in March 2001. The journal will be published four times a year. All the submitted papers go through a rigorous review process by 2 assessors and one editorial board member. Six technical papers and one technical note with authors coming from UK, Switzerland, Japan and Australia have been accepted for the inaugural issue after the review process. In addition, several other papers have been accepted for publications for future issues and many others are in the process of review. It is worthy to note that several papers have already been rejected through the rigorous review process. This would enable the journal to achieve its goal of reaching high technical standard within a relatively short time frame. The response to journal subscription has been very good in Japan.
 - (j) Nine present and past TC2 members including past TC2 Chairmen Profs A N Schofield and T Kimura attended an International Workshop on Centrifuge Modeling held at the National University of Singapore in November 1999. The workshop focused on new centrifuge technology, equipment, data acquisition systems, actuators and other robotics for in-flight tests, in-flight site-investigation, soil placement methods and instrumentation and image processing. The workshop has provided an opportunity for a small group of active centrifuge users to explore ways to improve the technology used in centrifuge testing and also cross-check the technique and methodology used in centrifuge testing.
- preparation for physical modelling as a series of articles in the journal as prelude to the standards for soil preparation. TC2 members are currently increasing the publicity to interested engineers and researchers worldwide in order to encourage more journal subscribers from outside Japan. Journal subscriptions are expected to increase gradually once the journal has firmly established itself in the geotechnical physical-modelling field.
- (c) The preparation for the next TC2 International Conference on Physical Modelling in Geotechnics to be held in St. John's Canada in July 2002 is progressing well. The first bulletin and call for papers was distributed by post and e-mails to a large mailing list in late 2000. A web site, www.c-core.ca/icpmg, is also established to facilitate a rapid communication link. This will be a busy year for the conference as the abstracts and subsequent full papers will be reviewed so as to maintain the same high technical standards as for the previous international centrifuge processes. In addition, it is hoped that other physical modelling researchers will submit a good number of abstracts for the conference.
 - (d) Besides the regular enhancement of the TC2 web pages, an on-line database (proposed name is Centrifuge Literature On Physical Modelling – Technical and Theoretical References CLEOPATRE) is expected to go full swing on-line by mid-2001. Interested persons can download relevant information from the interactive database and relevant software in geotechnical physical modelling for research purposes. As of late 2000, about 1400 references have been included in the computerised database and all references include several keywords drawn from a list of 93 keywords that cover many aspects of physical modelling.
 - (e) To promote the awareness of geotechnical physical modelling, TC2 will organise a 1.5-hr workshop within the International ISSMGE Conference in Istanbul in August 2001. TC2 Secretary Dr C F Leung of the National University of Singapore will be the Chairman of the Workshop. As the current TC2 activities are mainly associated with centrifuge modelling, it is planned that researchers on other physical modelling such as pressure chamber, shaking table etc will be invited to take part in the workshop. If appropriate, other TC members will also be invited to facilitate further collaborations among various geotechnical research areas.
 - (f) TC2 continues to maintain close links with other technical committees of ISSMGE and other learned societies as well as several national technical committees.

4 ACTIVITIES INITIATED & PLANNED

- (a) TC2 is continuing to look for new members, especially those involved in geotechnical physical modelling, to fulfil its aim stated in its expanded terms of reference on physical modelling other than centrifuge modelling.
- (b) TC2 will continue to actively promote the new journal. So far the journal has received good responses for paper submission and journal subscription. As the initial years of publishing a journal are often the critical time, the Editorial Board (of whom many are TC2 members) will work to achieve its goal of high technical standard for its published papers. The Board will also work to get the journal into Science Citation Index (or similar) as soon as possible such that it can become a first class international journal within a short time frame. In addition, it is planned to publish suggested guidelines for soil

5 SUMMARY

With the launching of the new journal and the call for papers for the 2002 International Conference on Physical Modelling in Geotechnics as well as many other activities, TC2 is pleased that it has achieved its objective of promoting physical modelling activities reasonably well. With another fruitful year has passed. TC2 will not rest on its laurel and continues to actively organise its activities and achieve the targets set for its future activities presented in this report. It plans to attract more non-centrifuge physical modelling researchers to take part in its activities and set high technical standard for its new journal such that the journal could become a first class international journal as soon as possible.