

ORGANISATION

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Two new members from Italy have added to the list of members. They are professor Anna Mario Ferrero from the University of Parma, and Professor Claudio Scavia from the Politecnico di Torino. They work on problems connected with alpine permafrost degradation both in soil and in rock environment. Professor Ferrero is working on the mechanical characterization of frozen soil of glacial deposit for slope stability matters.

We have to have a meeting very soon in order to achieve some progress related to the agreed “terms of reference 2010-2013” (see below). I will make an effort to contact each member individually within the next 2-3 weeks and that report back to the group.

MY EMAIL DATED 30 JANUARY 2011

In my email dated 30 January 2011 I asked for response from the committee members on the following topics:

1. Technical issues that you find are the most critical or uncertain when dealing with frost on existing or future engineered structures
2. List of major publications on a given topic (your TC topic or sub topic). This list would be very precious to those who wish to know more about the topic. I am thinking about 20 to 30 main papers, state of the art report, and web sites
3. Workshop or meeting in 2011
4. Codes, standards or similar that you use in geotechnical design related to frost

I got response from 8 members presented below

Technical issues that the members find most critical or uncertain when dealing with frost

- Frost heave testing, standardization
- Frost susceptibility criteria
- Frost heave predictions and settlement during thaw
- Codes, standards, definitions and terminology
- Impact of climate change
- Transport limitations on minor roads during spring break-up, thaw weakening period
- Long-term performance of insulation materials
- Response of clay/bentonite liners in freeze-thaw, They are widely applied as hydroisolations in landfills, waste plants etc

These issues may be a basis for the focus of our committee work for next 2 years.

List of major publications

I have received the following suggestions:

- Chamberlain, Edwin J. (December, 1981). Frost Susceptibility of Soil, Review of Index Tests. Hanover, NH: Cold Regions Research and Engineering Laboratory. ADA111752. Contains 700-800 references, which one to recommend?
- Andersland, O.B. and Ladanyi, B. (2004). Frozen ground engineering. John Wiley & Sons Inc. Published in cooperation with American Society of Civil Engineers.
- Berggren, A.-L. (1983). Engineering creep models for frozen soil behavior. Dr.ing.-thesis, the Norwegian Institute of Technology, Division of Civil Engineering.
- The Royal Norwegian Council for Scientific and Industrial Research and the Public Roads Administration's Committee on Frost Action in Soils (1976). *Sikring mot teleskader (Frost damage protection)*. In Norwegian, parts translated to English by CRREL.
- Conference and symposium proceedings.

I think we have to have a closer look at this list. I will discuss it directly with Seppo Saarelainen and Mattias Vogler. I think we will compile a list and send it out for your comments.

Work shop or meeting in 2011

I believe that we have to organize a meeting in 2011. The most realistic meeting place will be in central Europe in the autumn. The following dates and suggestions have been made.

- **Barcelona, Spain, June 30 to July 2, 2011.**
Mathias Vogler is organizing together with the Spanish railway and the University of Catalonia UPC in Barcelona an International Conference with the title: Enhanced Infrastructure for high-speed railways and metro lines
- **Athens, Greece, September 12-15, 2011**
Several members of the committee may attend the 15th European Conference on Soil Mechanics and Geotechnical Engineering, which will take place in Athens, Greece, 12-15 September 2011. So far I got a confirmation from Seppo Saarelainen and Henry Gustavsson and maybe Takashi Ono.
- **Berlin, Germany, December 6-8, 2011**
Mathias Vogler also suggests the STUVA Conference on Tunnelling in Berlin date 06.-08.12.2011.
<http://www.stuva.de/en/tagung.html> The metroline U5 in Berlin is constructed using soil freezing and the freezing works may be ongoing at that date that we can organize a site visit.
- **Frankfurt or Darmstadt, Germany**
Mathias Vogler also suggests that he can organize a conference room at the Frankfurt airport conference centre or at Darmstadt University of Technology, which can be reached from Frankfurt airport within 40 min.
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- **Mont Blanc – area, Italy**
Professor Ferrero suggest that we could meet in the Mont Blanc – area where she is carrying out her research together with professor Scavia.
- **Skype -meeting**
I have had some technical problems but will now contact each TC-member individually. Maybe we can manage to organize a joint meeting via Skype in May 2011.

In my opinion, the most realistic alternatives for 2011 are Skype-meetings, Athens in September or Berlin in December (a visit to the metroline in Berlin in December sounds very interesting). I will discuss this directly with each of you.

Codes, standards or similar used in geotechnical design related to frost

I have received the following responses from members:

- **EUROPEAN UNION:** CEN-TC 227/WG4, Task Group 5, Frost susceptibility. Seppo Saarelainen participates in this work.
- **GERMANY:** RStO 01 Richtlinien für die Standardisierung des Oberbaues von Verkehrsflächen (2001). In German.
- **NORWAY:** NTN F Sikring mot teleskader (1976). In Norwegian.
- **POLAND:** Polish code PN-81/B-03020. Tomasz Kozłowski reports that the Polish code is not taking the correct physical properties into consideration when estimating for example frost depth.
- **USA:** ASTM D5918 - 06 Standard Test Methods for Frost Heave and Thaw Weakening Susceptibility of Soils

I suppose that European Union code will apply to all members of the European Union including Norway. We still have to collect information from countries outside the European Union: USA, Canada, Russia, Kazakhstan, Japan, Korea, China.

Please find below the terms of reference 2010-2013 and my comments on the progress of the work. I think we will agree on that we have to have closer communication in order to achieve the goals.

TERMS OF REFERENCE 2010-2013

Objective 1 Disseminate knowledge and practice

1. Organization of conferences, symposium and workshops.

TC216 will participate in the organization of a specialty conference during the period.

We will investigate if it is possible to re-vitalize the Ground Freezing Symposiums.

We will also look into organization of workshops in connection with well-established conferences such as the ASCE Cold Regions Engineering Conference (no date set for the period 2010-2013), ICECORD and regional conferences.

In 2012 the International Permafrost Association is organizing the 10th international conference on permafrost in Tyumen, Russia. We will organize a work shop during this conference.

2. Key-note lectures, state-of-the-art lectures

Members will be encouraged to initiate lectures related to frost topics.

3. Participation of ISSMGE individual members

The TC will carry out a survey among previous participants in conferences and projects related to frost geotechnics. We will also contact member societies to access new potential (young) participants within the field.

4. Generate a list of major publications on frost geotechnics (suggestion by Jean-Louis Briaud).

STATUS OBJECTIVE 1

We have to aim at organizing a frost geotechnics conference, symposium or workshop in 2013. During our committee-meeting in 2011 we have to decide on an organizing committee and location for this conference.

Objective 2 Guidelines and technical recommendations

1. Collection of available standards.

2. Overview of standards, codes and guidelines will be established during the period.

3. Evaluation of similarities and differences will be carried out during the period.

4. Based on the previous items 1-3, guidelines and recommendations for practice will be discussed.

STATUS OBJECTIVE 2

We have made some progress here. Still need more input from countries outside Europe..

Objective 3 Assist with technical programs of international and regional conferences organized by ISSMGE

STATUS OBJECTIVE 3

Several members of the TC216 is on the international advisory committee of the 2nd International Conference on Transportation Geotechnics (ICTG), see <http://congress.coop.hokudai.ac.jp/tc3conference/>

I need some feed-back from you on other ISSMGE-conferences that we should get involved in.

Objective 4 Interact with industry and overlapping organizations

1. Cooperate with International Permafrost Associations Work Group for Permafrost Engineering. Several of the TCs members are also member of this group.

2. Re-establish cooperation with organizations working on artificial ground freezing.

STATUS OBJECTIVE 4

We have good co-operation with IPA, but we have to get involved with organizations working on artificial ground freezing.