

**COST Action TU1202****Impact of climate change on engineered slopes for infrastructure****WG3 workshop**

Ecole des Ponts ParisTech

Tuesday 25 March 2014



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**Attending:** Anh Minh Tang, Carlos Pereira, Céline Bourdeau, Cristina Jommi, Daisy Lucas, David Toll, Eugeniusz Koda, Federica Cotecchia, Fotini Kehagia, Francesco Gentile, Gábor Telekes, Gaetano Elia, Giovanna Grossi, Herbert ter Maat, Hjördis Löfroth, Javier Diez, Jean Vaunat, Jean-Michel Pereira, John van Esch, Keszeyné Say Emma, Chih-Wei Lu, Manuel Oliveira, Paul Hughes, Peter Helm, Phil Vardon, Piotr Osinski, Ross Stirling, Sahar Hemmati, Stanislav Lenart, Tom Dijkstra, Yu-Jun Cui.

**Apologies:** Sarah Springman, Sergio Lourenço

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**Meeting notes/minutes**

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The members of WG1 and WG3 have been all invited to attend the both WG1 and WG3 workshops in Tuesday 25 March 2014 at Ecole des Ponts ParisTech. The WG1 workshop took place from 9 am till 12 am while the WG3 workshop took place from 1 pm till 4 pm. The present minutes concerns only the WG3 workshop.

**STSMs:**

- Approval of the application for Piotr Osinski's Mission. The mission is going to be held in Durham University. The representative of the institution is David Toll. The aim of the visit is to conduct research devoted to evaluation of hydrological and geotechnical parameters changes in unsaturated soils. The tests will mainly involve Soil Water Retention Curve determination and triaxial test using double wall triaxial cells. The predicted time spent on the mission is 4 months: from 24th of April to 24th of August 2014.
- Cristina Jommi will shortly contact representative from ENPC to discuss details of the mission.
- The mission for Barbara Likar to ENPC (a PhD student of Stanislav Lenart) in progress. The mission will be spread into two visits.

**SOTA paper**

After discussion, the title and the layout was changed as follows (**changes highlighted**):  
*An overview of atmosphere – vegetation – soil interactions and impacts on engineered slopes.*

**Structure of SOTA paper**

1. Introduction (Anh Minh Tang, Fotini Kehagia)
2. Soil/atmosphere interactions (Manuel Oliveira)
  - a. Soil water infiltration, movement and deep infiltration (Manuel Oliveira)
  - b. *Soil water evaporation (John Gowing) to be completed*
  - c. Transpiration (Yu-Jun Cui)
  - d. Freeze/Thaw cycles (H.W. ter Maat, Stanislav Lenart)
  - e. *Weathering processes (Javier Diez)*
3. Impact of soil-water pressure (Sergio Lourenco)
  - a. Small-scale aspects on soil/water interaction (Sergio Lourenco)
  - b. *Retention and transport properties of soil water (Cristina Jommi)*
  - c. Suction effects on shear strength (David Toll, Emma Keszeyné Say)
  - d. Rainfall-induced slope instability (Amin Askarinejad, Piotr Osinski)
4. Mechanical impact of vegetation (Francesco Gentile)
  - a. Effects of roots on soil mechanical properties (Francesco Gentile)
  - b. Role vegetation on slope stability (Sarah Springman)
5. Surface and internal erosion (Piotr Osinski)
  - a. *Mechanisms of erosion (John Gowing)*
  - b. Slope instability induced by erosion (Piotr Osinski)
  - c. *Effects of internal erosion on slopes (Eugeniusz Koda)*
6. Desiccation cracks (Ross Stirling)
  - a. Development of desiccation cracks (Anh Minh Tang)
  - b. *Effect of soil tensile strength on cracking (Ross Stirling)*
  - c. *Modelling desiccation cracking (Ross Stirling)*
7. Climate change impact (Herbert W. ter Maat)
  - a. *Climate change scenarios (Giovana Grossi)*
  - b. *Climate change impacts on slopes stability (Herbert W. ter Maat)*
8. Conclusion (Anh Minh Tang)

- The actual total length of the paper will be extended to 10000 words.
- The journal for the publication will be QJEGH.
- According to the extension, the actual text limit for each sub-section is 500 word.
- Sub-sections should correspond to:
  - (1) one paragraph on the state-of-the-art about the subject (*with 5 to 10 most relevant and recent references*);
  - (2) one figure showing the results of the contributor,
  - (3) and one paragraph describing the figure.
- Coordinators of sections are expected to complete the introduction part for their sections.
- Other remarks:
  - Herbert ter Maat will discuss with Giovana Grossi and Javier Diez to prepare the section 7 (Climate change impact)
  - Francesco Gentile will discuss with Hjordis Löfroth to have some contributions about the bio-engineering methods for slope stabilization.

The following deadlines were proposed for to finalise SOTA paper:

- End of May: Contribution sent to Section Coordinators.
- End of June: Coordinators send the final text to Anh Minh Tang



- End of August: 2<sup>nd</sup> version of Full paper
- Oct 2014: final version of SOTA paper

### **Location and Date of the next workshop**

The next Workshop of the WG3 will be held in Lisbon –exact date to be confirmed.

**Updated list of members of WG3**

Participants	Affiliation	Country	Newcastle	Bucharest	Paris
ASKARINEJAD Amin	Swiss Federal Institute of Technology Zurich (ETH)	Switzerland	×	√	×
CUI Yu-Jun	Ecole des Ponts ParisTech	France	√	√	×
DIEZ GONZALEZ Jose Javier	Universidad Politécnica de Madrid	Spain	X	X	√
GENTILE Francesco	University of Bari	Italy	√	√	√
GOWING John	Newcastle University	United Kingdom	√	×	×
GROSSI Giovanna	University of Brescia	Italy	X	X	√
JOMMI Cristina	Delft Univ. of Technology	Netherlands	√	×	√
KEHAGIA Fotini	Aristotle University of Thessaloniki	Greece	√	√	√
KESZEYNE SAY Emma	Ybl Miklós Faculty of Architecture and Civil Engineering	Hungary	×	√	√
LENART Stanislav	Slovenian National Building and Civil Engineering Institute	Slovenia	×	√	√
LOURENCO Sergio	Cardiff University	United Kingdom	√	×	×
LUCAS Daisy	Swiss Federal Institute of Technology Zurich (ETH)	Switzerland	X	X	√
ter MAAT Herbert	ESS-CC (Earth System Science-Climate Change and Adaptive Land and Water Management)	The Netherlands	×	√	√
OLIVEIRA Manuel	National Laboratory for Civil Engineering	Portugal	√	√	√
OSINSKI Piotr	WULS, Dept. of Geotechnical Engineering.	Poland	×	√	√
SPRINGMAN Sarah	Swiss Federal Institute of Technology Zurich (ETH)	Switzerland	√	×	×

STIRLING Ross	Newcastle University	United Kingdom	√	√	√
TANG Anh Minh	Ecole des Ponts ParisTech	France	√	√	√
TOLL David	Durham University	United Kingdom	√	×	√
WU Po-Kai	National Yunlin University of Sci & Tech.	Taiwan	×	√	×