

TC 3 workshop – Geotechnical aspects related to foundation layers of pavements and rail track

TC3 atelier – Aspect géotechniques concernant les couches de fondations de chaussées et de plateformes ferroviaires

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1 INTRODUCTION

This workshop was hosted by the Japanese members of TC3, Dr. Y. Momoya (core member) and Dr. N. Yoshida with the supervision of Professor F. Tatsuoka, which cooperates in several occasions with other members on the TC3 related activities. To cover the scientific and technical aspects related with the theme of this workshop "Geotechnics aspects related with foundation layers of pavements and rail tracks" TC3 members were invited to participate, as well as other international experts, as the chairmen of TC6 and TC8, Prof. E. Alonso and Dr. S. Saarelainen, respectively.

This workshop covered one of the terms of references of the TC3 "Geotechnics of Pavement" defined for the period 2001-2005. It was a very successful workshop with an attendance of around 60 participants, showing a great interest of soil mechanics and geotechnical engineering community in this area.

2 PROGRAM OF THE WORKSHOP

September 13, Tue., 13:30-15:00 Room 1009 (10F)

13:30 Opening Remarks

F. Tatsuoka, A. Gomes Correia

13:35 Pavement and rail track foundations

"Soil mechanics aspects in pavement and rail track foundations", by A. Gomes Correia, Department of Civil engineering, University of Minho, Guimarães, Portugal.

"The effect of relative humidity on the deformation and strength of granular aggregates", by E. E. Alonso, Department of Geotechnical Engineering and Geosciences, UPC, Barcelona, Spain.

Frost heave design of pavements, by S. Saarelainen, VTT Building and Transport, Finland.

"Frost design method for roads and railways. State of the art in France", by C. Masblat, Laboratoire Régional des Ponts et Chaussées, Nancy, France.

"SUPERTRACK: SUSTAINED PERFORMANCE OF RAILWAY TRACKS", by A. Modaressi, Ecole Centrale Paris, France (in behalf of A. Kaynia, Norwegian Geotechnical Institute, Norway, and D. Clouteau, Ecole Centrale Paris, France).

"Shakedown theory and its application to pavement analysis and design", by H. S. Yu, H. Li & S. Jespi, Nottingham Center for Geomechanics, University of Nottingham, UK.

"Influence of impact load on base course and subgrade by circulation", by Y. Shioi (Hachinohe Institute of Technology, Japan), T. Sakai (Applied Research Co, Ltd.)

14:20 Continuous compaction control

"Roller-integrated continuous compaction control (CCC)", by D. Adam, Institute for Soil Mechanics and Geotechnical Engineering, Technical University of Vienna, Austria

14:30 Reinforcement of pavement

"Reinforcement of pavements with steel meshes and geosynthetics - the COST 348 REIPAS action", by H. Rathmayer (VTT - Technical Research Centre of Finland; VTT - Building and Transport, Geoengineering, Finland)

14:40 Influence of considering principal stress rotation in modeling and how it affects pavement and rail track performance.

"Effects of continuous principal stress axis rotation on the deformation characteristics of sand under traffic loads", by Y. Momoya, K. Watanabe, E. Sekine, M. Tateyama (Railway Technical Research Institute, Tokyo, Japan), M. Shinoda (Integrated Geotechnology Institute Limited, Tokyo, Japan), F. Tatsuoka (Tokyo University of Science, Chiba, Japan)

"Development and performance evaluation of multi-ring shear apparatus", by T. Ishikawa and S. Miura (Hokkaido University, Sapporo, Japan) & E. Sekine (Railway Technical Research Institute, Tokyo, Japan)

"Development of rut depth prediction model considering deformation of asphalt layer and subgrade", by T. Koinai (Graduate School of Science and Engineering, Department of Civil Engineering, Chuo University, Tokyo, Japan), S. Higashi (Technical Research Institute, Kajima Road Co. Ltd., Tokyo, Japan), K. Matsui (Department of Civil and Environmental Engineering, Tokyo Denki University, Saitama pre., Japan), K. Himeno (Department of Civil Engineering, Chuo University, Tokyo, Japan).

Other contributions were also submitted to this workshop but not presented orally, such as:

"The effects of shear stress reversal on the accumulation of plastic strain in granular materials under cyclic loading", by S.F. Brown, Nottingham Centre for Pavement Engineering, University of Nottingham.

"Current state of the use of recycled materials in geotechnical works in Portugal", by E. Fortunato & F.P. Santayana, Laboratory of Civil Engineering-LNEC, Lisbon, Portugal

All of these previous contributions, and other relevant to TC3 2001-2005 activities will be published in Gomes Correia et al, 2006.