



THEBES: KYT project investigating bentonite

## 2<sup>nd</sup> THEBES workshop

16<sup>th</sup> December 2016

9:00 – 15:00

VTT Centre for Nuclear Safety (CNS), Kivimiehentie 3, Otaniemi,  
Espoo.

T126 Einstein

**Attendance is free of charge!**

*To ensure the right quantities of coffee & cakes as well as your quick  
entrance to VTT, please confirm your attendance via email to*

[Veli-Matti.Pulkkanen@vtt.fi](mailto:Veli-Matti.Pulkkanen@vtt.fi)



THEBES is a research consortium financed by KYT2018 Finnish government project. It investigates behaviour of the swelling clay barriers taking into account thermal, hydraulic, chemical and mechanical aspects of their behaviour.

More information on THEBES can be found at:

[http://civil.aalto.fi/en/research/geoengineering/soil/numerical/thebes\\_project/](http://civil.aalto.fi/en/research/geoengineering/soil/numerical/thebes_project/)

### Program highlights:

9:35 **Dr María Victoria Villar** (CIEMAT, SPAIN)

Dr Villar, a researcher with more than 20 years of experience in bentonite research and research related to geological repositories for nuclear waste materials will hold a keynote lecture at the workshop. In her talk she will share his insights on materials used in engineering barriers. In particular she will focus on compacted bentonites used as buffer in nuclear waste repositories.



**Workshop program:**

9:00 Welcome coffee

9:30 Welcome & short introduction to THEBES network (*W.T. Sołowski, Aalto University*)

9:35 **Keynote Lecture (Dr María Victoria Villar, CIEMAT)**

11:15 Lunch

12:15 Technical Session 1 (*chair: Dr Ayman Abed*)

Water retention behaviour of MX80 bentonite when partially saturated with saline solutions, *X.J. Yang, Northwest Agriculture and Forestry University, China, W.T. Sołowski, Aalto University*

Experiments on the mechanical behaviour of bentonite in THEBES, *V.-M. Pulkkanen, VTT Technical Research Centre Of Finland Ltd.*

Atomic force microscopy of clay layers, *M. Matuszewicz, VTT Technical Research Centre Of Finland Ltd.*

Ion selective electrodes and squeezing techniques to study bentonite chemistry, *J. Järvinen, VTT Technical Research Centre Of Finland Ltd.*

13:15 Coffee Break

13:45 Technical Session 2 (*chair: to be confirmed*)

Measurement of Hydromechanical Behaviour of Bentonite Using X-ray Imaging. Results: One-dimensional Free Swelling of MX80, *T. Harjupatana, Jyväskylä University*

Hydromechanical Simulations of Bentonite Using a Phenomenological Model, *Dr M. Laitinen, Numerola Oy*

Validation of a fully coupled thermo-hydro-mechanical Finite Element code, *Dr A. Abed, Aalto University*

14:30 Closure