

Creep behavior of an over-consolidated clay in relation to the microstructure

D. Zhao^a, M. Hattab^{b*}, Z. Yin^c, P-Y Hicher^d

^a Zhejiang University of Water Resources and Electric Power, Hangzhou, China

^b LEM3, UMR CNRS 7239, Université de Lorraine, France

^c CEE, The Hong Kong Polytechnic University, Hong Kong, China

^d GeM, UMR CNRS 6183, Ecole Centrale de Nantes, France

* corresponding author: mahdia.hattab@univ-lorraine.fr

Abstract

The aim of this study is to analyze creep behavior of a typical clay from triaxial tests as well as to understand the microstructural mechanisms of this behavior ¹.

The obtained macroscopic results showed that both dilatancy and contractancy could occur during creep. At the microscopic scale, the results indicate that the microstructural evolution of the clay along mechanical loading depends on the stress history. The creep dilatancy at the macroscopic level is related to the expansion of micro pores and micro cracks within over consolidated samples.

¹ Zhao, D. et al. (2020). *Microstructural evolution of remolded clay related to creep*. Transportation Geotechnics 24.