Abstract

Advanced constitutive models incorporate void ratio as a state variable. Advantage of these models is the possibility to use a single set of material parameters for modelling of soils with different degrees of overconsolidation. Experiments and model predictions were compared to find the range of application of a single set of material parameters for soils with different degrees of overconsolidation. First model predictions were compared with a set of experiments on kaolin clay (Hattab a Hicher, 2004) and than with a set of experiments on tertiary clay performed in laboratory of soils mechanics at Charles University as a part of this thesis. The models were evaluated by comparison of stress-strain curves and by one skalar measure of the prediction error. It is demonstrated that at least two sets of material parameters are required for all three models. A Hypoplastic model for clays leads to better predictions than the elasto-plastic Three surface kinematic hardening model. The worst predictions gives the Modified Cam Clay model.