

Abstract

This thesis builds on the work of Dr. Radek Suchomel (2011), which dealt with the use of probabilistic methods in geomechanics and discusses the issues associated with inaccuracies in laboratory experiments.

For this purpose it was necessary to design and prepare a set of laboratory experiments so as to obtain sufficient data for evaluation, calibrated, hypoplastic constitutive model, which is defined parameters φ_c , h_s , n , e_{c0} , e_{i0} , e_{d0} , α and β . On the basis of these parameters, the data was compared. For this purpose it was appropriate to 40 measuring the angle of repose, 40 triaxial tests and 40 oedometric tests on coarse-grained soil that was sand with missed fraction < 0.063 mm fraction and without fraction > 3 mm, which was classified as the same grain soil, poorly sorted.

On this soil is managed successfully to evaluate fully the parameters for 38 samples. Two samples failed to calibrate only the parameters α and β . Test results and subsequent calibration of parameters hypoplastic constitutive model intended that observed variability affects the resulting values of eight parameters hypoplastic constitutive model, which is largely discussed, where there is a comparison with data of Suchomel (2011).

With the help of coefficients of variation and standard deviations are concluded that some of the parameters are more sensitive to grain size and type of soil, while the other parameters are prone to the method of carrying out laboratory tests and thus also to the inaccuracies resulting from the test measurements. It is also concluded that the spatially variable samples show a larger standard deviation and are more variable than the collection in one place.