

Experimental Study on Dynamic Shear Modulus of Cohesive Soil in Beijing Plain

*Yi Fang, Guoxing Chen, Yanju Peng, Yuejun Lyu

As an important parameter of soil dynamic characteristics, the dynamic shear modulus can better reflect the nonlinearity of the soil, but it is affected by the combination of factors such as the genesis, age, burial depth. A class needs specific analysis to determine its dynamic shear modulus characteristics. The seismic environment of the Beijing Plain area is complex, and the site soil is mainly cohesive soil. There is no systematic study on the dynamic shear modulus of cohesive soil. In this paper, 17 undisturbed soil samples from Beijing area were collected for laboratory test used resonance column and field shear wave velocity tests, the results show that: (1) The results of G_{max} by filed test are greater than G_{max} of laboratory tests, both of which have a linear relationship with depth, and also show good linear correlation between them; (2) There are many reasons which lead to the difference between the field test with the laboratory test, such as the mechanism of the tests, the conditions of tests ; (3) G/G_{max} of regional clay soil is significantly affected by the groundwater level. Non-linearity of the soil above the groundwater level decreases with depth, and non-linearity of the soil below the groundwater level increases with depth. (4) The non-linearity of cohesive soils in Beijing Plain is significantly stronger than Fuzhou and other places within 0-20m, but slightly weaker than Suzhou, which is closely related to the genesis and sedimentary environment of each place.

Keywords: Dynamic Shear Modulus, Cohesive, Beijing Plain