ABSTRACT AND KEYWORDS

1. ABSTRACT

A good knowledge soil behavior under cyclic loading is necessary to solve several geotechnical engineering problems associated with earthquakes. We describe in this study, a laboratory investigation carried out to study the behavior of Plaisanciens Marl taken from Algiers under cyclic loading, using cyclic triaxial tests, double specimen direct simple shear tests, torsional shear tests and resonant column tests. The behavior of soils under cyclic loading is controled/governed by the dynamic properties of soils, commonly represented by variation of normalized equivalent shear modulus and damping ratio with cyclic shear strain curves. These properties are, in this study, measured, presented and discussed. We also discuss the difference between the properties obtained with different tests, procedures and interpretation criteria. The comparison between measured properties and predictive relationships, widely used today, highlights a number of limitations that are also presented and discussed.

2. KEYWORDS

Shear modulus ; Damping ratio ; Clay ; Cyclic triaxial test ; Cyclic double specimen direct simple shear test ; Cyclique torsional shear test ; Dynamic resonant column test ; Predictive relations.