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・ 博士後期課程社会インフラシステム科学専攻 (Major in Society's Infrastructure Systems Science)

● 研究テーマ (Research theme)

① 土構造物の地震時挙動の解明と合理的な耐震補強法の開発

(Investigation of seismic behaviour of earth structures and their rational reinforcement methods)

② 地盤の液状化後の力学的特性と再液状化に関する研究

(A study on post-liquefaction behaviour and reliquefaction properties)

③ 地盤材料の粘性に起因する力学的挙動の解明

(Investigation of soil mechanical behaviour associated with its viscous properties)

① 盛土や擁壁等の土構造物を対象とした模型実験 (図-1) を行うことで、耐震補強の有無による地震時挙動の相違や土構造物の地震時被害に及ぼす諸要因の影響等について研究を行っています。また、土構造物の合理的な耐震設計法についても研究を行っています。

A series of model tests using shaking tables (Fig. 1) has been conducted to investigate seismic behaviour of embankments

and soil retaining walls, respectively, with and without reinforcements, and also to clarify some factors affecting their seismic performance. The development of rational seismic design methods for earth structures has also been focused in the present study. The seismic design codes employed in the engineering practice have been modified based on these results.

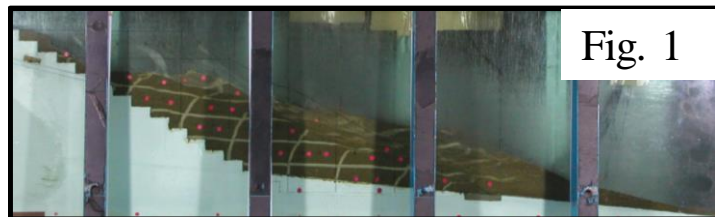
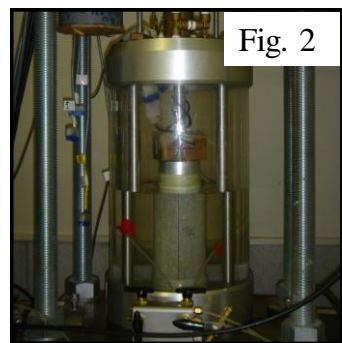


Fig. 1



② 三軸液状化試験 (図-2) を行うことで、砂の液状化後における強度変形特性や再液状化挙動に及ぼす細粒分含有率の影響等について研究を行っています。本研究では、実地盤から乱さず採取した不攪乱試料を試験に用いることもあります。The effects of fines content on the strength and deformation characteristics after liquefaction and re-liquefaction behaviour of sands have been studied by performing undrained cyclic triaxial tests (Fig. 2). In this study, undisturbed samples retrieved from natural ground and embankments have often been tested for this purpose. The small strain properties of specimens have also been evaluated by the static and dynamic measurements.

③ 粘性に起因する地盤のクリープ変形は構造物の長期残留沈下を引き起こします。このような残留沈下量を正確に予測するため、本研究では、地盤の粘性特性 (図-3)、すなわち、地盤材料の強度変形特性の载荷速度依存性やクリープ変形の大きさに及ぼす諸要因の影響について、三軸圧縮試験により研究を行っています。

The long-term residual settlement of large-scale structures can often occur due to the inherent viscous behaviour of ground. To accurately predict the residual displacement, the viscous properties of geomaterials (i.e., rate-dependent behaviour and creep deformation shown in Fig. 3) have been investigated through triaxial compression tests in the present study.

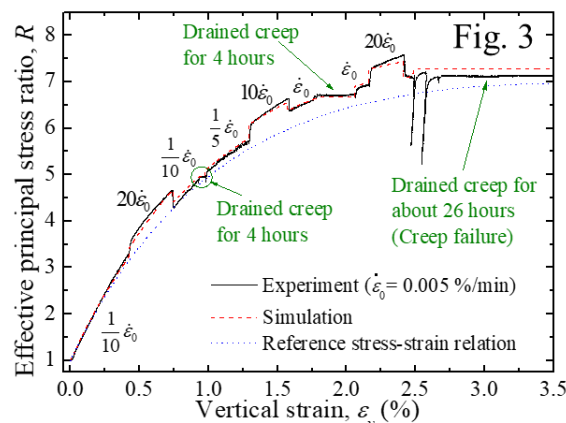


Fig. 3

キーワード (Keyword)

専門分野 (Specialized Field)

共同研究可能技術 (Possible Technology of Cooperative research)

関連論文・特許情報 website

(Related articles / patent information)

研究設備 (Research Facilities)

研究室URL (Lab. URL)

E-mail

土構造物 (Earth structures) 地震時挙動 (Seismic behaviour)

液状化 (Liquefaction) 粘性特性 (Viscous properties)

地盤工学 (Geotechnical Engineering)

室内土質試験及び原位置試験による地盤の力学的特性の解明

(Investigation of soil behaviour by laboratory and in-situ tests)

<https://info.ibaraki.ac.jp/Profiles/103/0010208/profile.html>

三軸試験機 (Triaxial apparatus) 振動台 (Shaking table)

<http://wwwgeo.civil.ibaraki.ac.jp/>

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