

Experiences in Japan Tsukuba and E-Defense

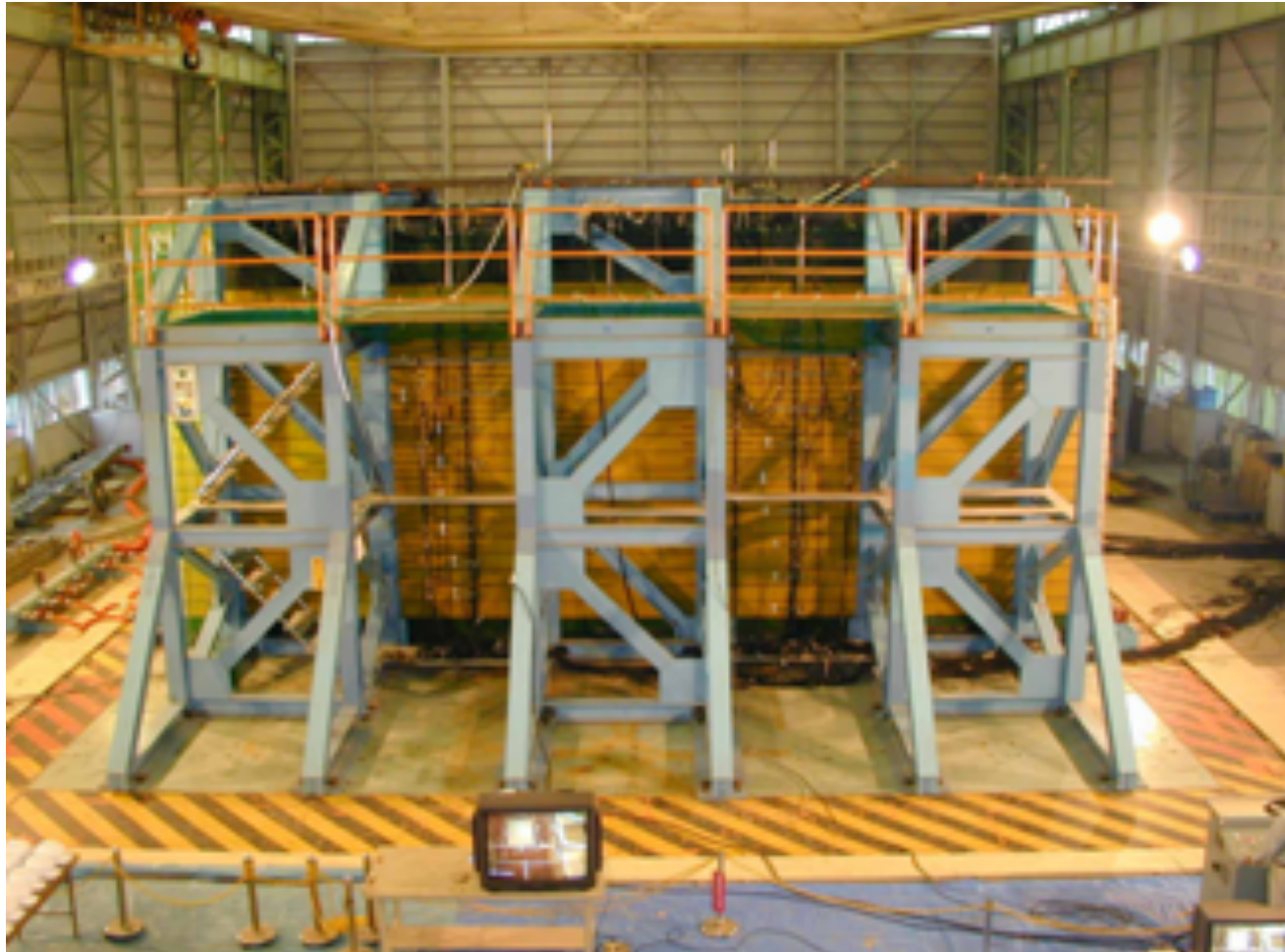
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Tsukuba Experiences

shake table: 12m×12m, Laminar Box: 12mL×3.5mD×6mH

Max. acc. 500gal, vel: 75cm/s, Disp. 30cm





2 types of making sand bed

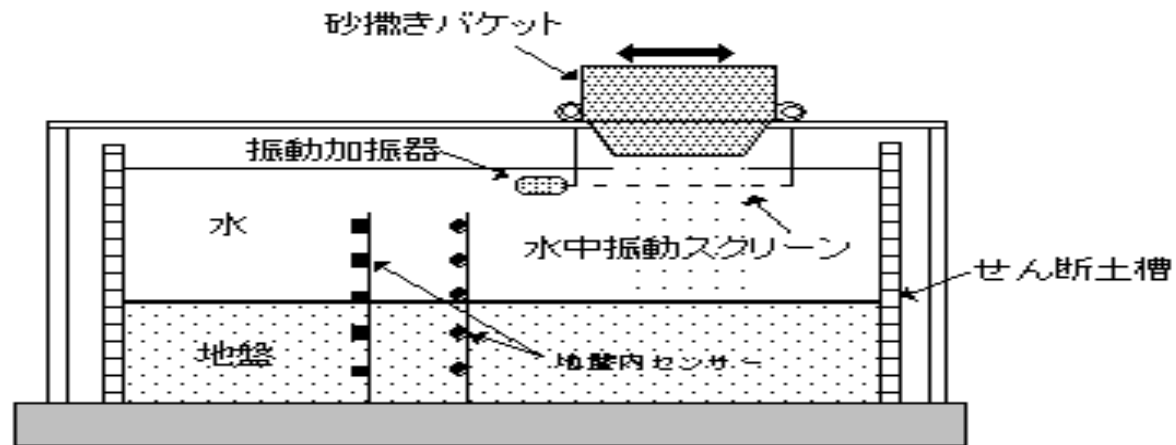


図-3.4 振動スクリーンを用いた地盤作成法の概念





Sensor setting



Sensor setting



Density measure



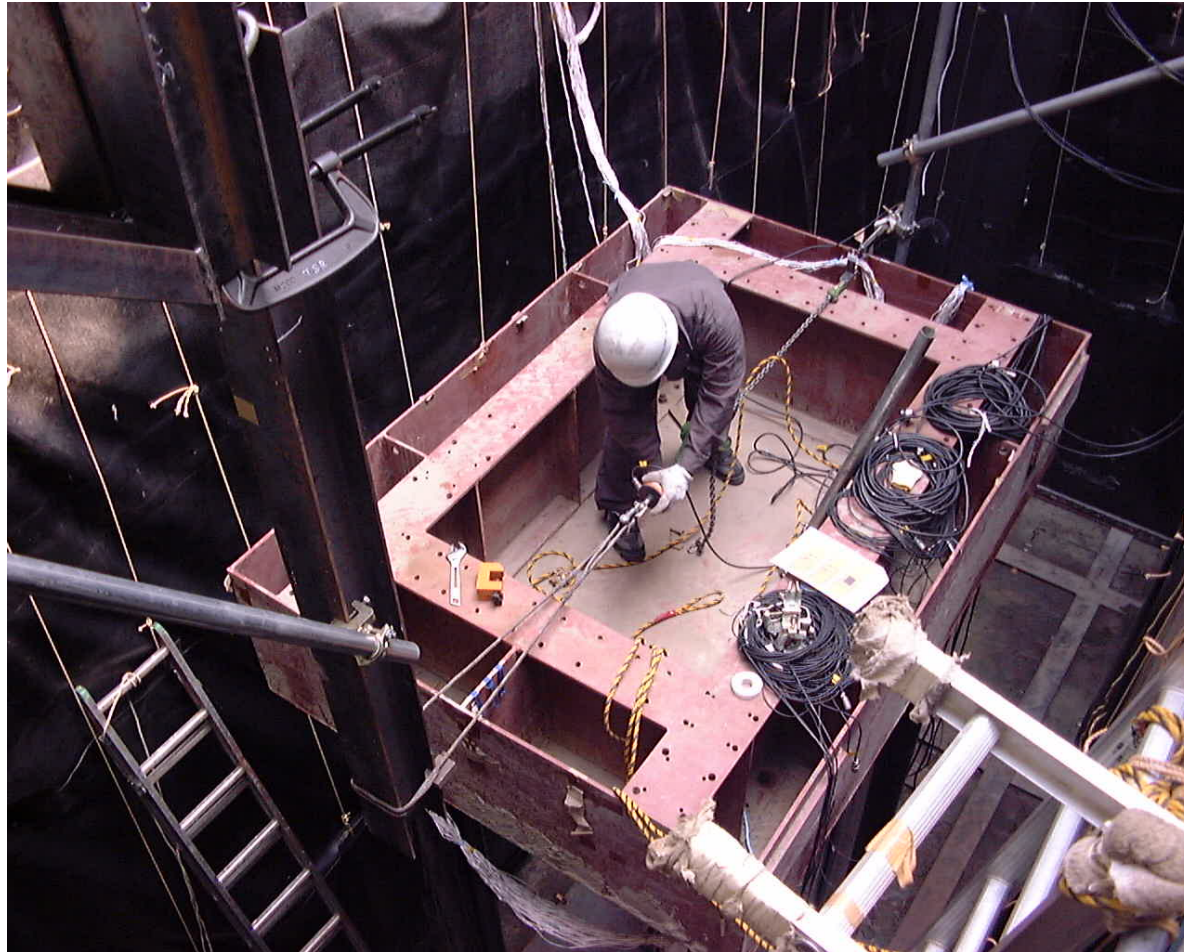
Pile with strain gage



Install pile



Loading test



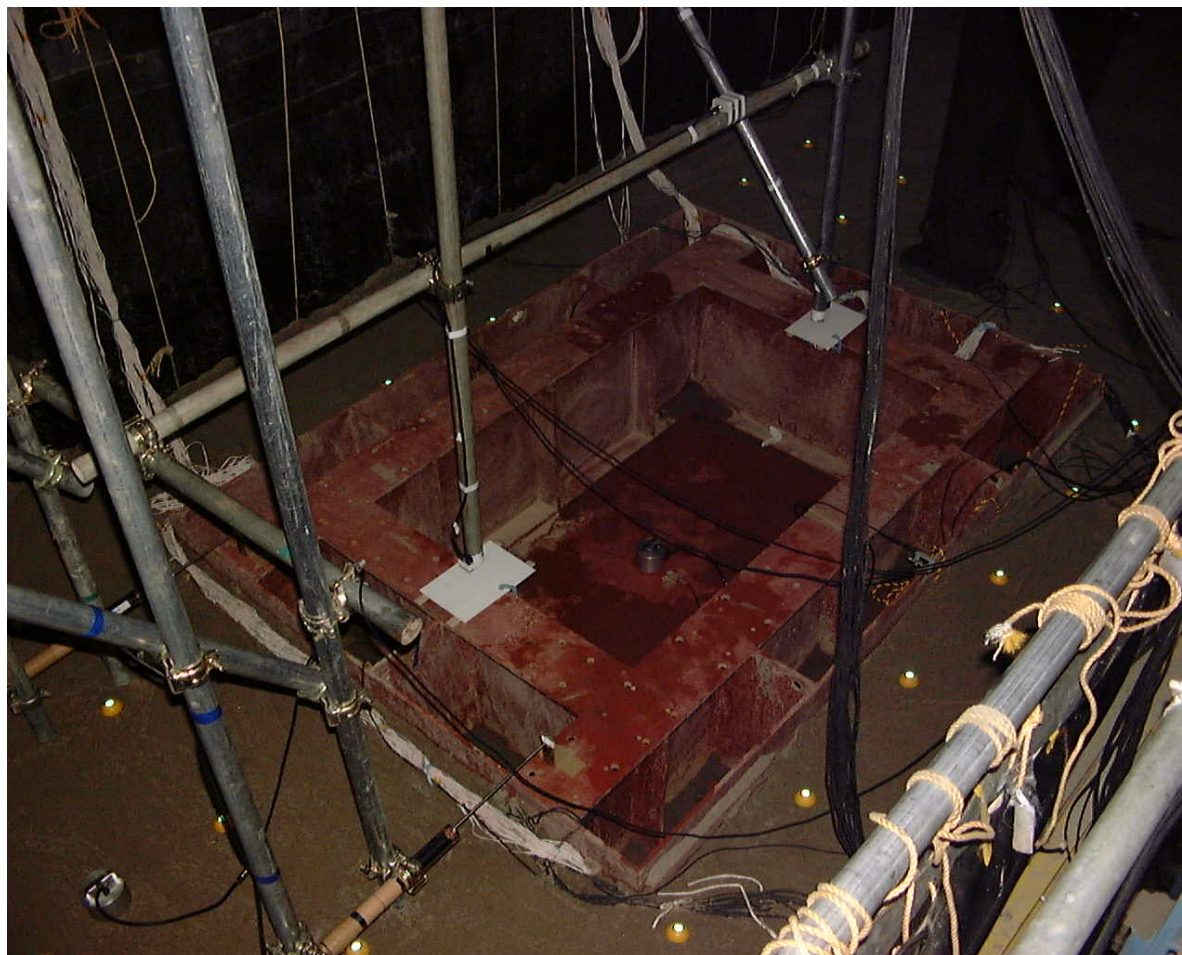
Cone test



S wave measure



Before shaking



After shaking



Remove sand

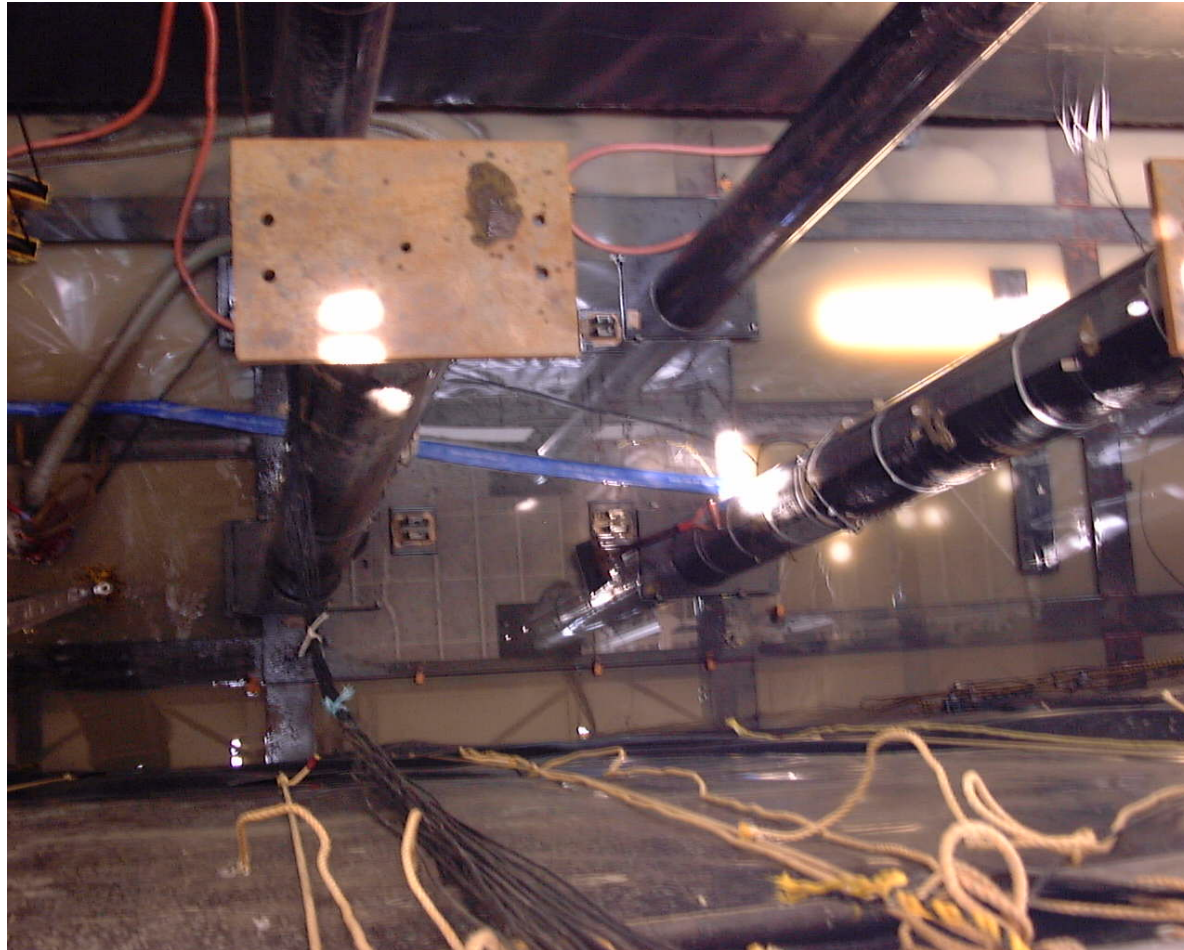


Remove sand





After remove sand



Sand bed making

Drop in water;

- High saturation condition
- Cannot control density

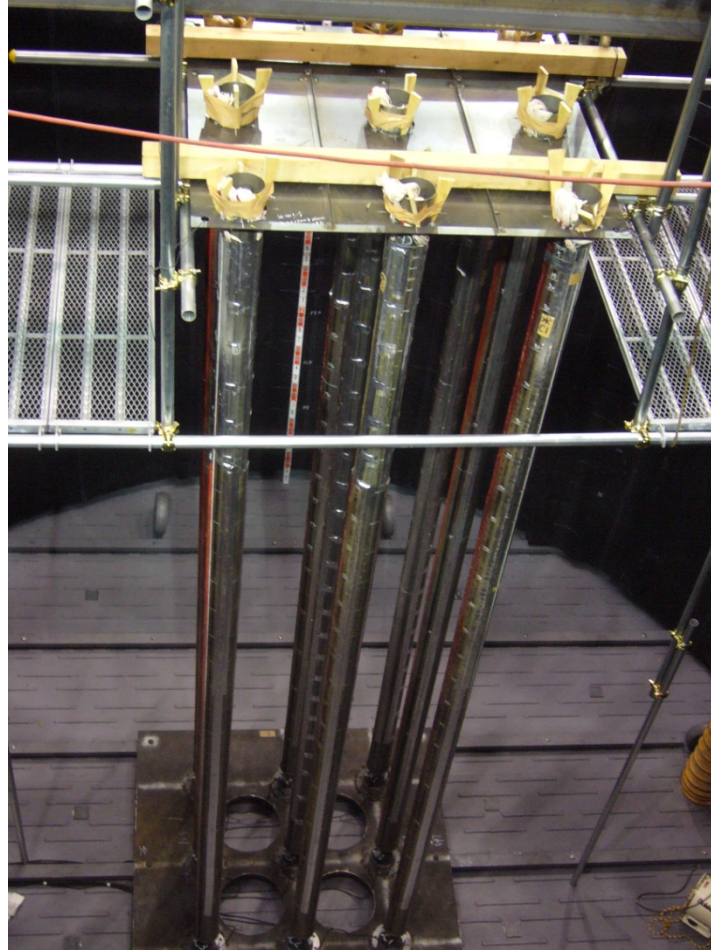
Dry compaction

- Control density
- Low saturation condition

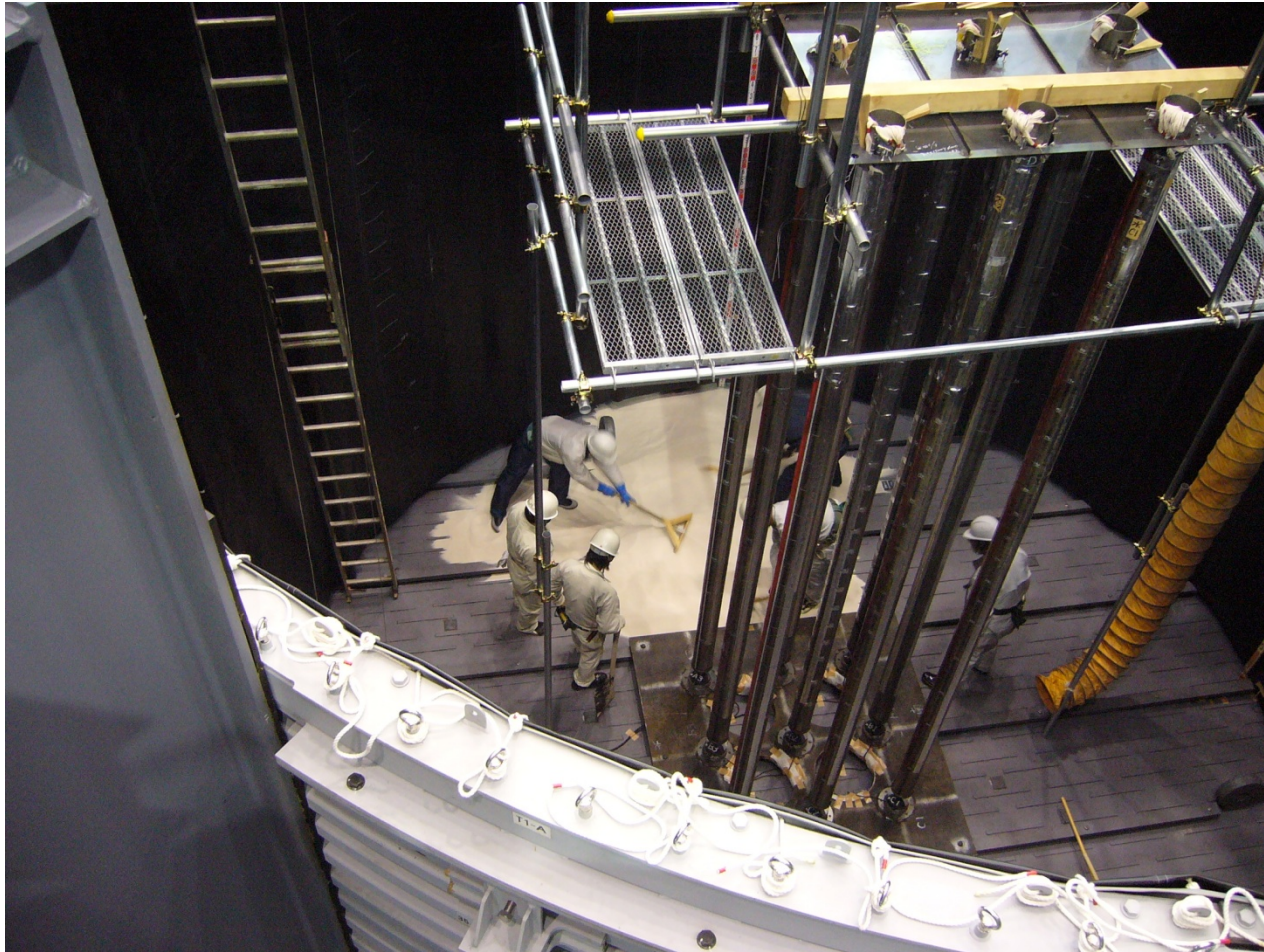
E-Defense Experiments



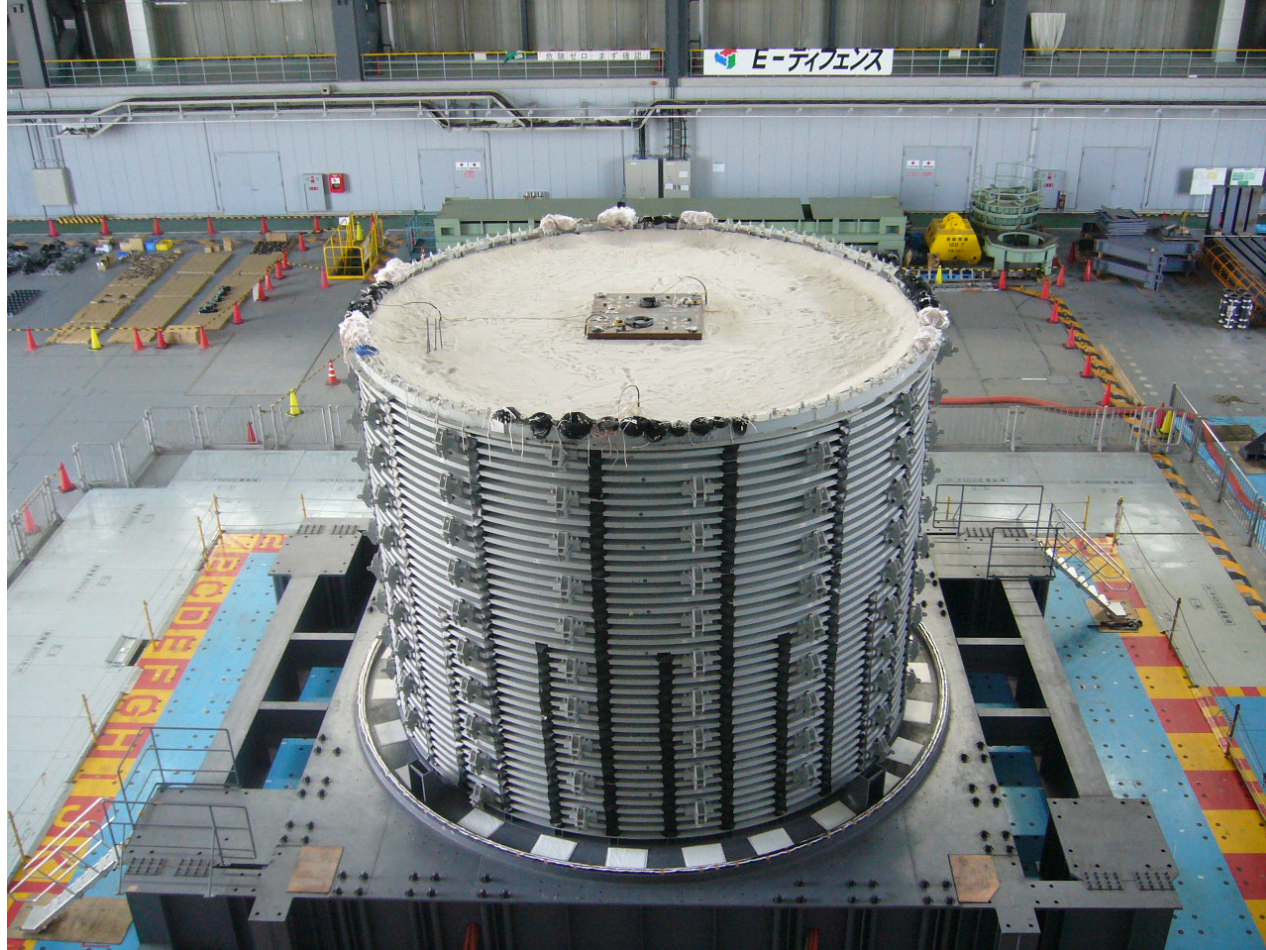
Set piles



Making sand bed



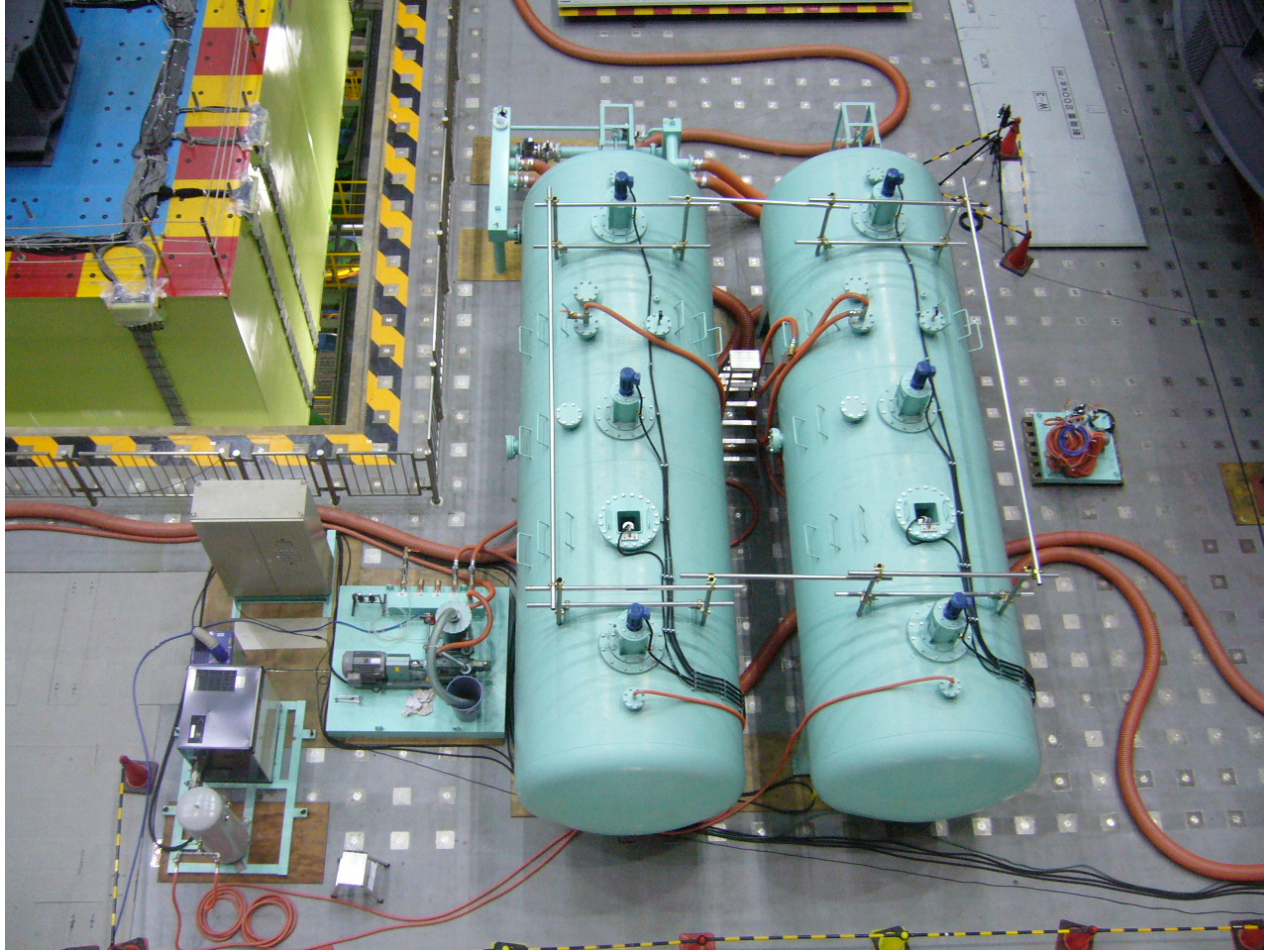
Laminar box with sand bed



Vacum chamber



Water tank



Before test

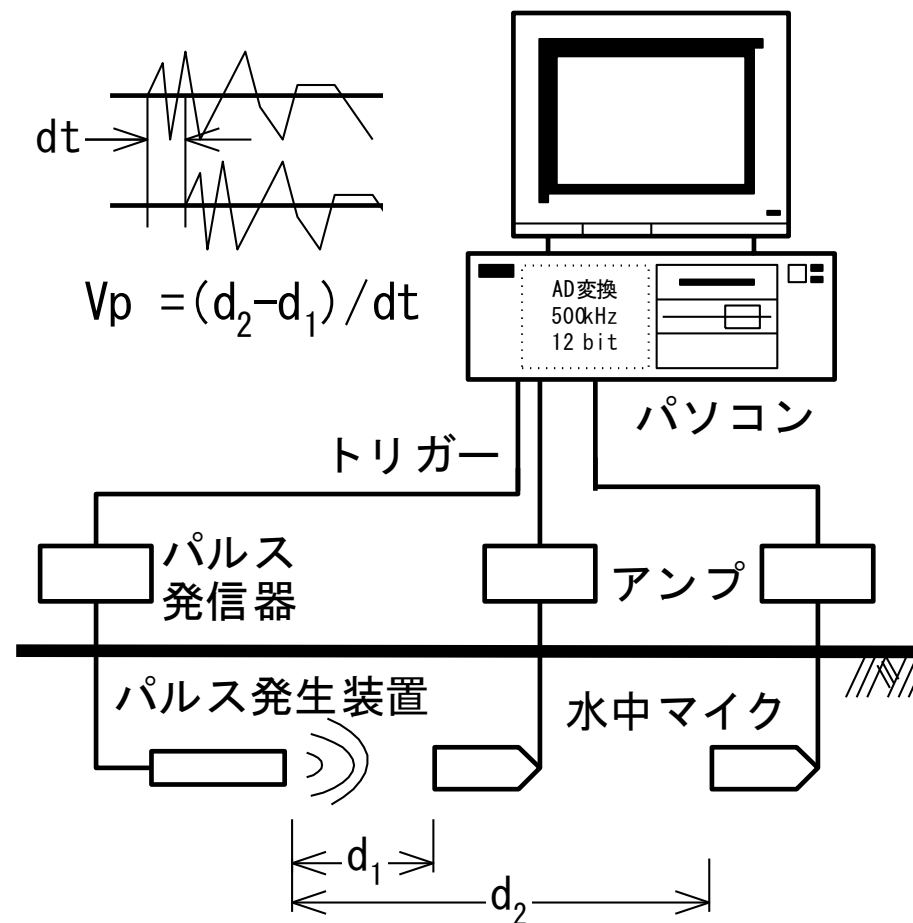


Some of development

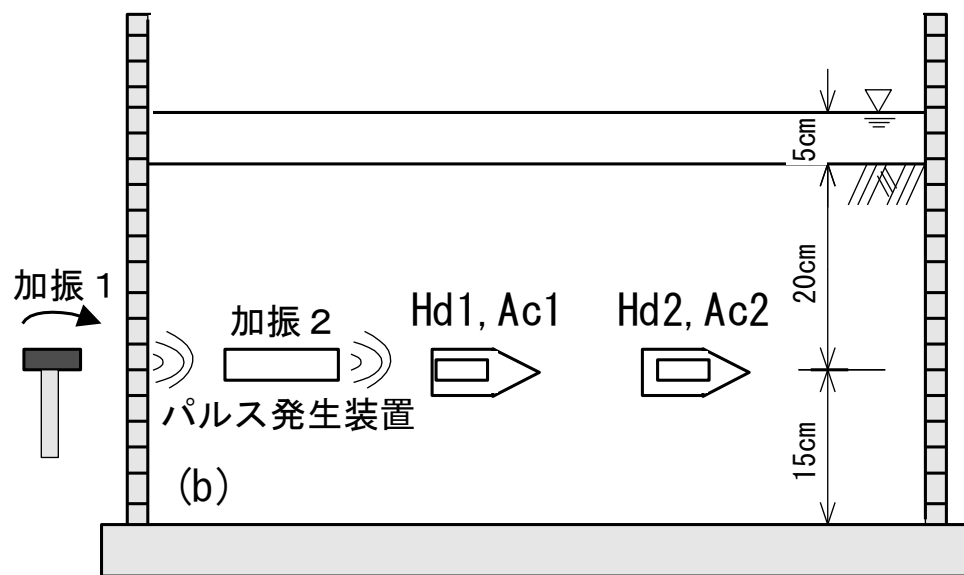
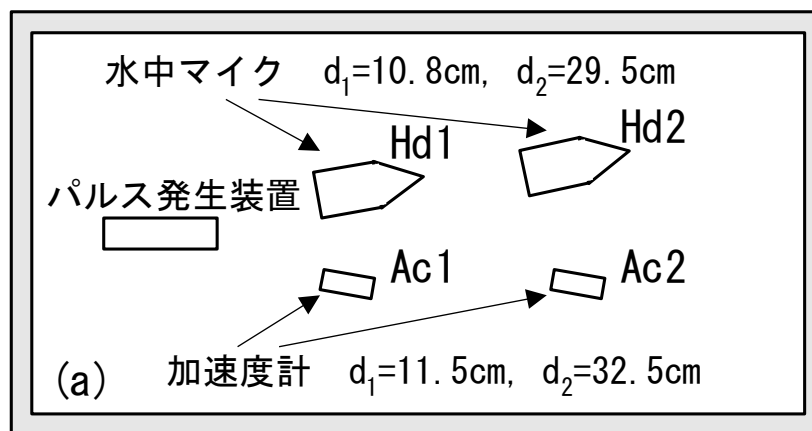
Saturation evaluation; P wave measurement

Displacement measure; rotation meter

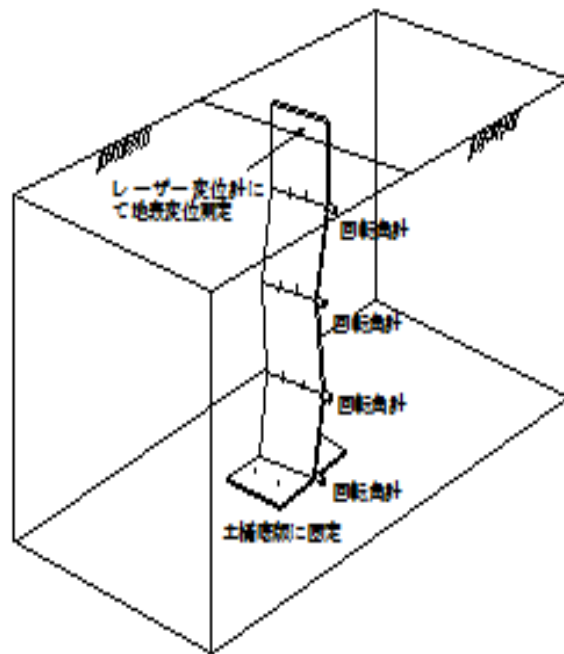
Shear Modulus; Microtremor measure



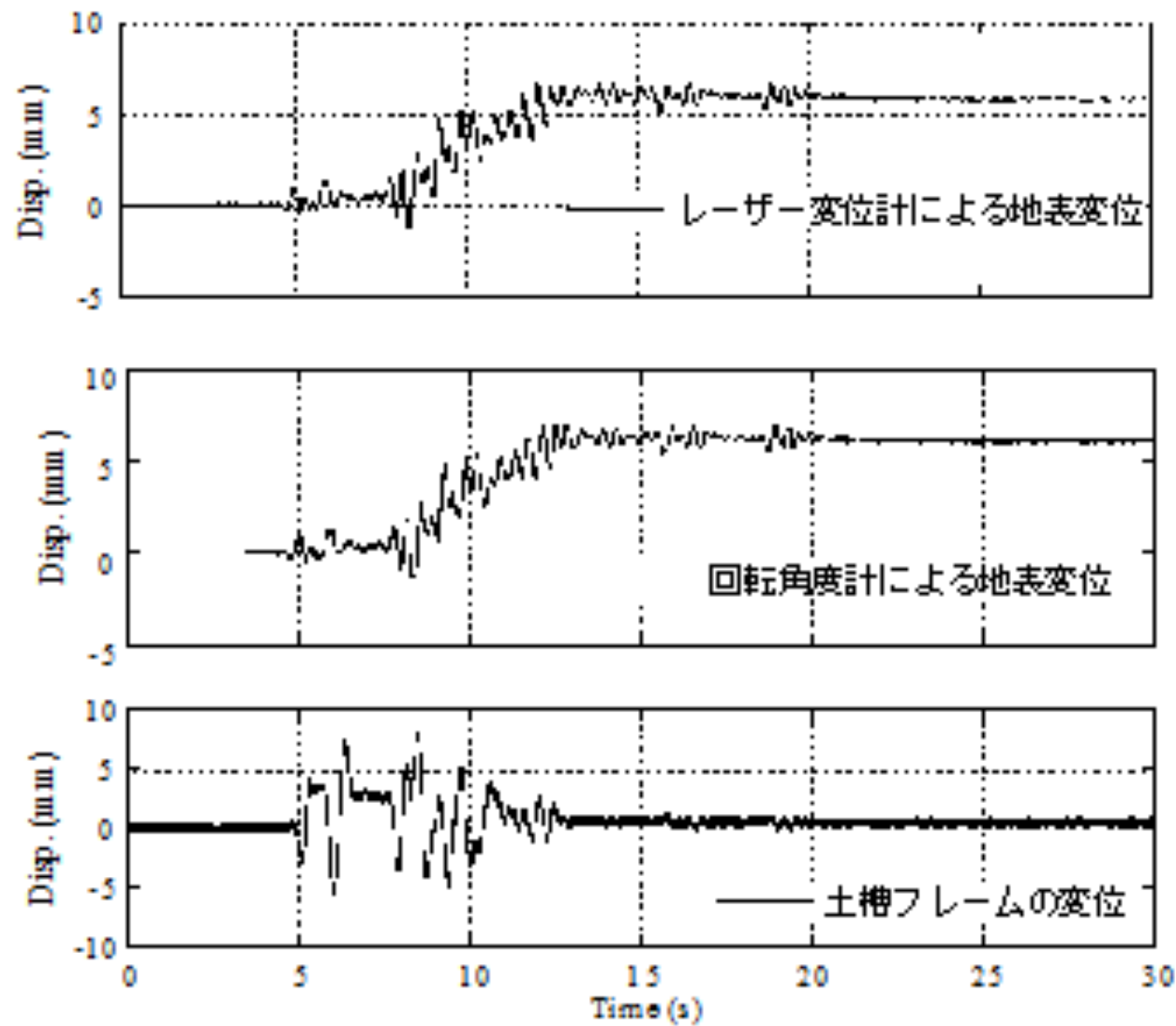
図ー 1 音波を用いたP波速度計測システムの概略



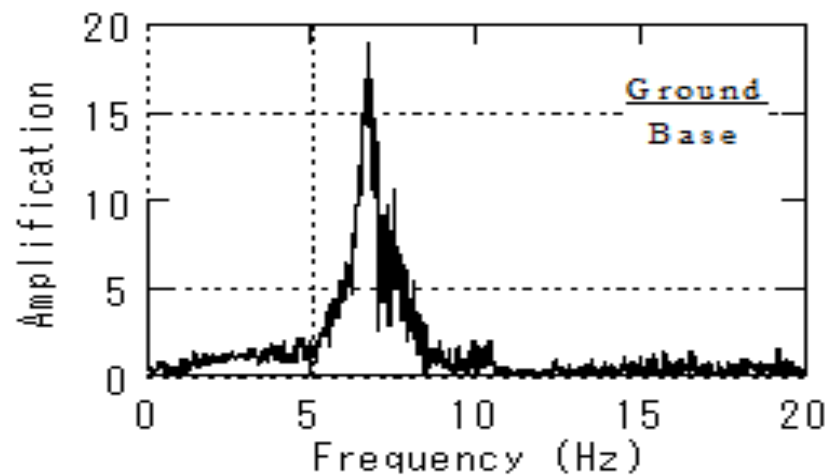
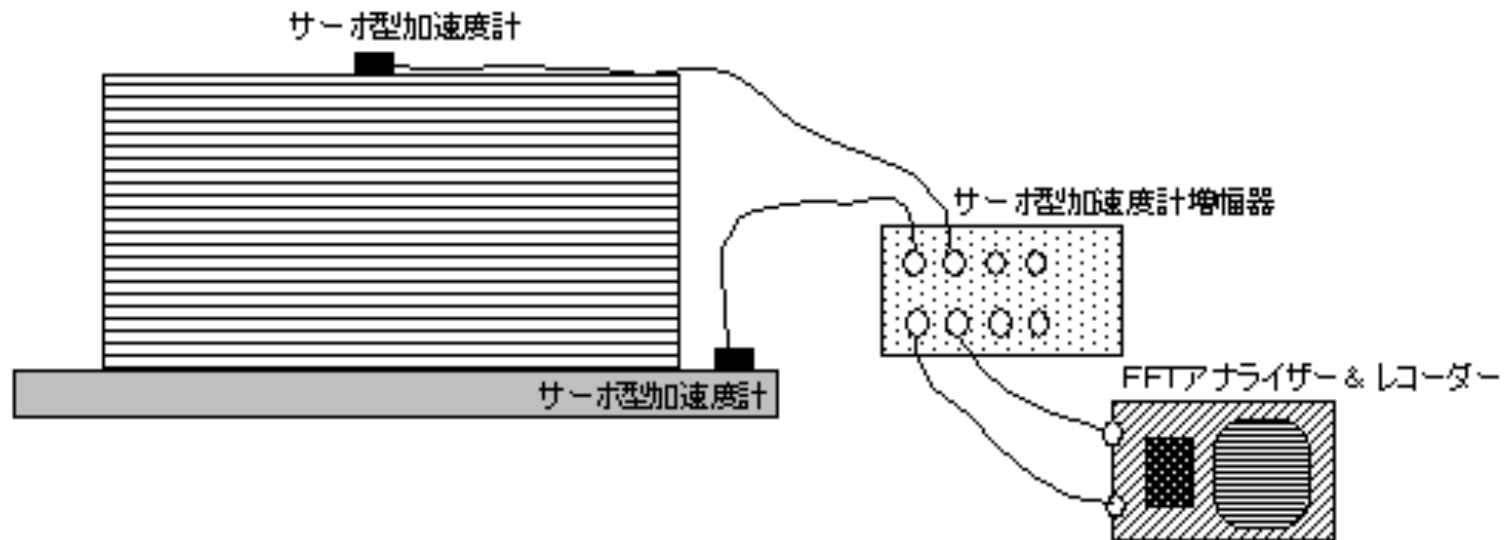
Displacement measure



displacement



Microtremor measurement



My feeling

- In Tsukuba, the one-dimensional shaking table test was conducted and many results were got.
- On E-defense, the two-dimensional and three-dimensional shaking table test was conducted.
- In the two-dimensional and three-dimensional experiment, the action of the foundation and a structure is complicated and analysis reached to an extreme of difficulty. Although 20 or more papers are announced in the experiment in Tsukuba, only several papers are announced in the experiment of E-defense.
- Since a real large experiment of the foundation and a structure is seldom carried out even if it sees it globally, it is considered that it can raise many results with first of all simplifying an experimental condition if possible.

Thank you!

