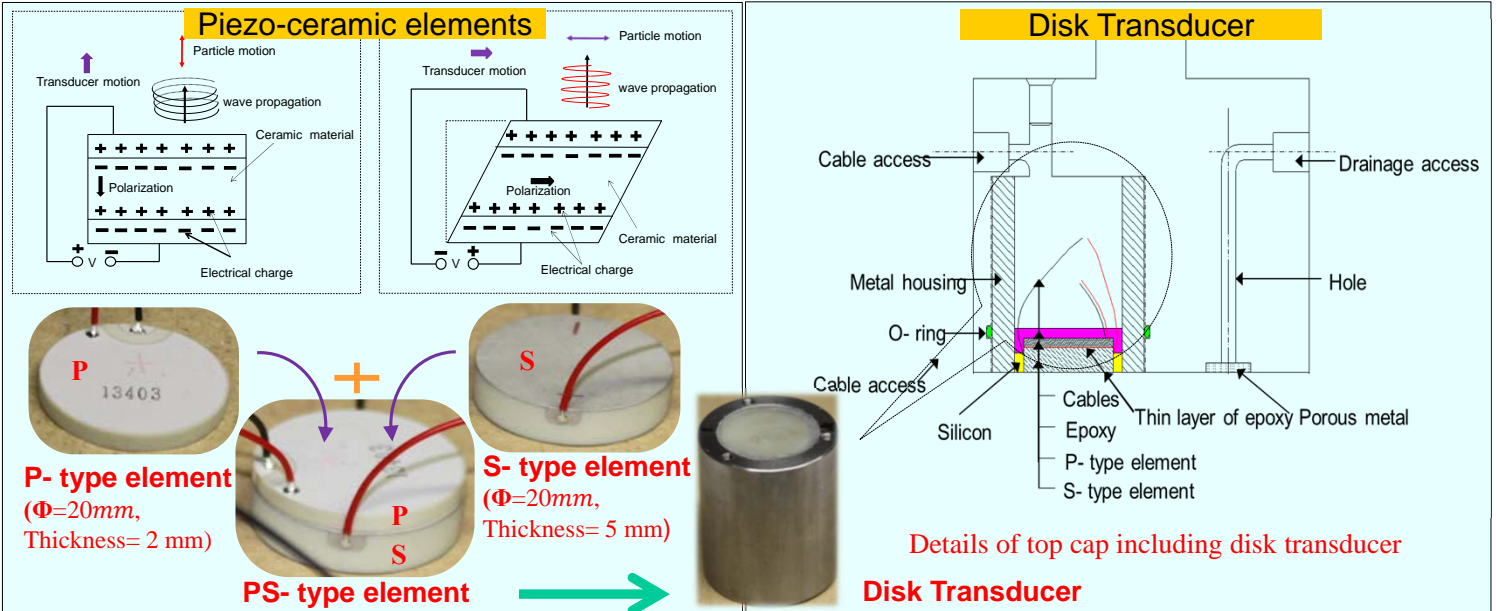
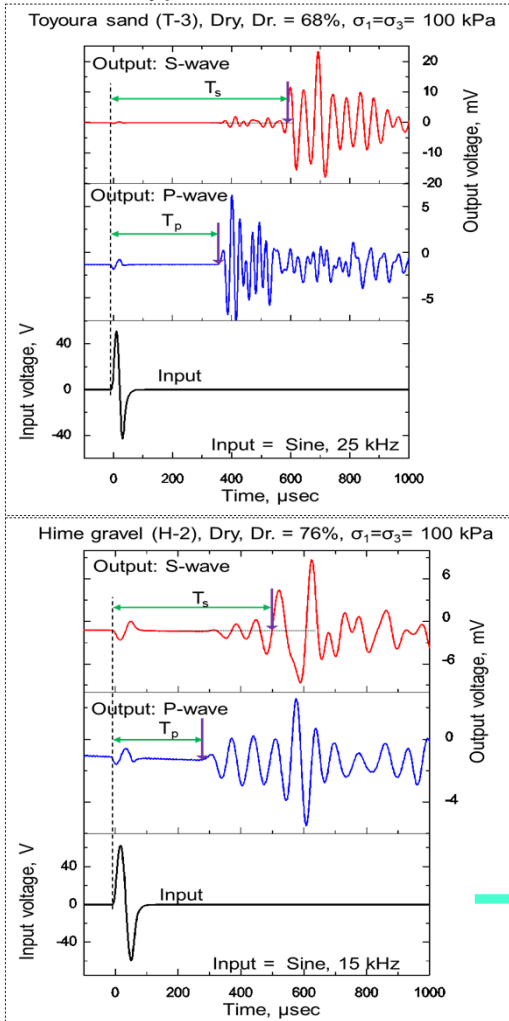


## 室内土供試体のP波・S波測定用センサの開発

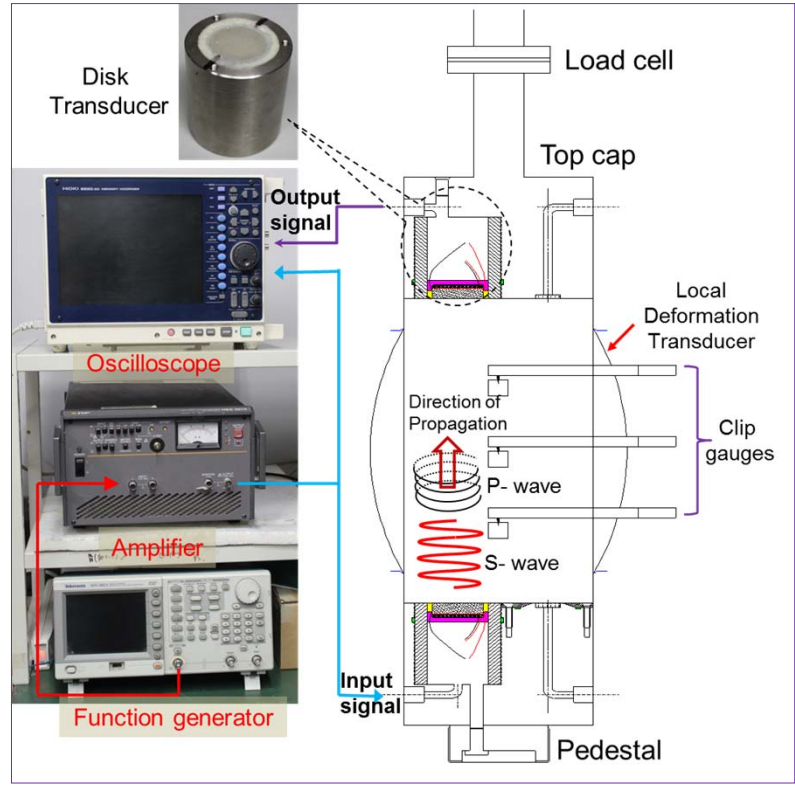
A flat disk shaped transducer was developed to measure elastic waves propagating in a laboratory soil specimen. It is capable of measuring both compressional and shear (P and S) waves in an identical specimen. The typical wave forms obtained on granular materials by this method are presented.



### Typical waveforms



### Experimental set up and data acquisition process



#### Velocity of signals

$$V_p = \frac{h}{T_p}$$

$$V_s = \frac{h}{T_s}$$

h is height of specimen

Material's properties are evaluated in terms of wave velocity.

#### Material's properties

$$M = \rho * V_p^2$$

$$G = \rho * V_s^2$$

$$E = \frac{M(1-2\nu)(1+\nu)}{(1-\nu)}$$

$$\nu = \frac{(0.5V_p^2 - V_s^2)}{V_p^2 - V_s^2}$$

$$G = \frac{E}{2(1+\nu)}$$