

## Centrifugal test equipment for ultra-long time range

### Purpose:

In the near-field around the disposed high-level radioactive waste, the phenomena of deformation of buffer material and rock, heat generation from the radioactive waste and re-saturation of rock need to be evaluated over the ultra-long term. This equipment can simulate the phenomena of 1,000 years in a few months by accelerated tests, which satisfy the similarity rule adjusting the maximum centrifugal acceleration of 100G to a small model specimen of near-field by a rotating arm of 6.4m in diameter.

### Outline:

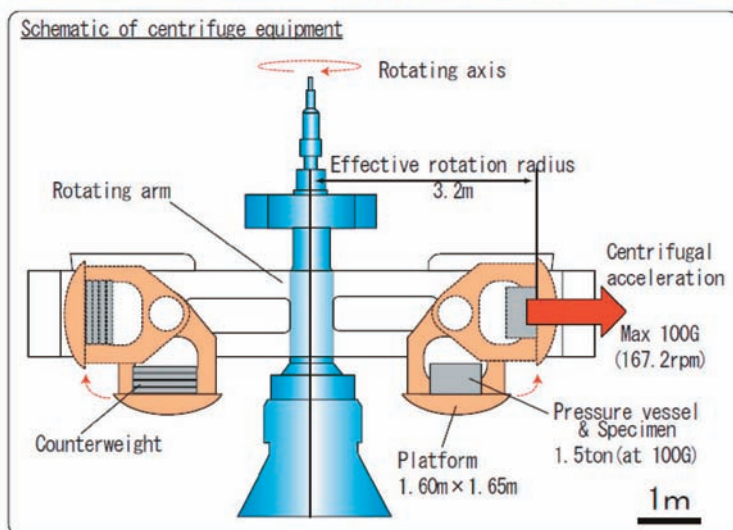
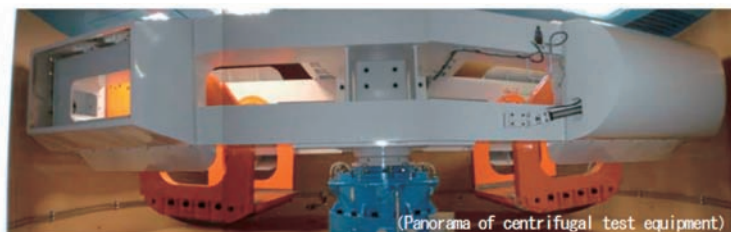
- 1) The mechanical phenomena on the near-field for ultra-long term are understood and evaluated by the centrifugal test controlling temperature, rock stress and pore water pressure.
- 2) This equipment may have applicability to engineering problems of electric power civil engineering structures as a versatile equipment.

### Specifications:

- 1) Maximum centrifugal acceleration: 100G (167.2rpm)
- 2) Platform size:  $1.6 \times 1.65\text{m}$
- 3) Maximum loading weight: 1.5ton (at 100G)
- 4) Temperature control in the centrifuge room by a large air conditioner
- 5) Long operation time of up to six month
- 6) Maximum confining pressure and temperature for model specimen: 20MPa and  $100^\circ\text{C}$
- 7) Maximum measurement channel on the platform: 80ch (Wireless LAN system)

### Location and Date of Installation:

Abiko Area, March 2009



(Upper left: Panoramic photograph of centrifugal test equipment)

(Lower left: Rotating arms rotate around the rotating axis and centrifugal acceleration is loaded on the raising platform)

(Upper right: Concrete pit for equipment)

(Middle right: Platform to put on the model specimen)

(Lower right: Control room of centrifugal test equipment)