## Research regarding support load assessment corresponding to ground characteristics

## [ Point ]

Using ground stability in a positive manner, and making the support the most effective corresponding to the behaviour, is the basic idea of NATM, for economic support design, assessment of load on the support, and designing support structures corresponding to size of load, are recommended. In this research, we aimed to propose load setting method working on the supports corresponding to ground characteristics, then performed the numerical analysis objecting the results of field measurement data analysis, performed numerical analysis objecting trap door model test, and the model test results, examined the load working on ground behaviour associated with tunnel excavation under various ground conditions and the supports.

As a result, by the field measuring data, we clarified that it is possible to sort tendency of the behaviour under excavation of each kind of rock consisting ground, to 4 groups. And also, we performed trap door model test, which simulated sandy ground consisted with granular and the ground appearing effect of cracks, we grasped that in the first case, generally, load volume is constant with or without earth covering, and the other one. Generally, load volume is constant with or without earth covering or crack shears, except the case of cracks excelling one way. In the numerical analysis result, we clarified regarding the first one, by elastic-plastic finite difference method, regarding the other one, by distinct element method, possible to repeat the test result, and each analysis method contributes the support load setting.

Keyword : tunnel, support construction, field measuring, trap door model test, limit equilibrium method ( LEM ), distinct element method ( DEM )