

Quantitative Evaluation of Microcracks in Inada Granite by Stereology and Fabric Tensor

Takato Takemura [1], Masanobu Oda [2]

[1] Integrated Basic Sci., Nihon Univ., [2] Civil and Environmental Engineering, Saitama Univ.

Microcracks in rocks are recognized as segments of lines on the two-dimensional surface such as thin sections and rock surfaces. We need to grasp the three-dimensional distribution of microcracks to appreciate relationship between geometry of the microcracks and the physical properties such as permeability and strength and so on. In this study, we estimated the three-dimensional distribution of microcracks from the two-dimensional information by stereology. The distribution of microcracks is evaluated quantitatively by fabric tensor N_{ij} . We examined a reliability by comparing N_{ij} 's measured by universal-stage and by stereology, and also examined the anisotropy of distribution of microcracks in the three-dimensional spaces in the Inada granite.