

## Kinetic anisotropy of the Miocene Kimachi sandstone and sheeting joints

# Yasuhiro Kai[1], Shuichiro Yokota[1]

[1] Geoscience, Shimane Univ.

Kimachi sandstone is medium-grained tuffaceous sandstones of the Miocene Omori Formation, and is homogeneous and isotropic in its lithofacies. Andesite fragments with zeolite composing Kimachi sandstone characterize its kinetic properties. Rapid weathering with color change generates sheeting joints in homogeneous sandstones. Appearance of such sheeting joints just below gentle top slopes is one of potential causes for rock fall. Direction of sheeting joints is also parallel or sub-parallel to the bedding planes of sandstone layers. Then, we have measured the degree of the kinetic anisotropy using ultrasonic velocity and tensile strength in laboratory test.

As the results of many measurements for many specimens, ultra sonic velocity takes the largest value in the direction normal to bedding plane within even homogeneous and isotropic sandstones. And tensile strength is the lowest in the same direction. At least 10% anisotropy in ultra sonic velocity and 20 to 30% anisotropy in tensile strength were recognized in this type of sandstones. These anisotropy may closely depend on their rock textures, which show slightly linear alignments of andesite fragments. Although we have no information on such anisotropy in weathered condition at this step, the results indicate that tensile stress just below gentle top slopes may possible to generate sheeting joints in the direction sub parallel to bedding planes. This may become important potential cause for rock fall in this area.