Observations on structure of Vein structure in term of X-ray CT and deformation pattern of unconsolidated mudstone

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Vein structure is a blackish vein and is able to observe at the siltstone parts in the alternated sandstone and siltstone layers. The width of vein is a millimeter unit, the height is generally a few centimeters, and the each veins are arranged in parallel and at the regular interval (about a few mm interval).It had reported that the vein structure could be observed mainly the subduction around the oceanic plate margin (e.g. Brother et al., 1996)., and the formation mechanism of vein structure has been discussed from various viewpoints. For example, Brother et al. (1996) reported that the vein structure was formed by the deformation due to down slope creep or the shear wave from earthquake since the vein structure was formed by the deformation due to down slope creep or the shear wave from earthquake since the features of vein structure in the outcrop sample to the vein structure generated by the shaking experiment using powder. In addition, Ogawa et al. (2006) suggested that the vein structure was created when the consolidation and cementation progresses in the silt layer. The degree of saturation, consolidation and cementation are important to elucidate the formation mechanism of the vein structure. Although the vein structure observed outcrops and the surface of the samples, in this study, we analyzed the three-dimensional structure using the X - ray CT images of the samples, and try to discuss the formation mechanism. Furthermore, we made samples reproducing the degree of silt rock cementation. The silt sample was mixed with cement at various ratios and was consolidated before the cement solidified. The sample was sheared and the inner structure after deformation was observed.

Keywords: silt stone, shear test, Vein structure