

Permeability structure of the Ashigara Group:an attempt to estimate the permeability at depths through laboratory experiments

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Permeability of Ashigara Group and associated fault rocks are measured with the oscillation method using nitrogen as pore fluid at effective pressure to 180 MPa. Porosity was estimated from permeability. The effect of burial and subsequent uplifting on surface samples are evaluated by effective pressure cycling tests, and we propose a method to estimate permeability at depths. Estimated porosity-depth relationships are in general agreement with the borehole logging data, but results from different horizons are systematically shifted suggesting the involvement of other effects such as chemical cementation and time-dependent compaction. Fault rocks have lower permeability than host sedimentary rocks by one or two orders of magnitude, and fault zones should act as barriers to fluid flow.