

Accretion initiation process at Nankai Trough off Muroto inferred from physical properties of surface and ODP core samples

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Physical properties, especially porosity and grain density, are important to indicate surface deformation process and origin of sediment. We made systematic measurement of surface physical properties across the deformation front in the western Nankai Trough region off Muroto, by taking piston core samples. Four research cruises, NGH99, KT00-07, NT01-00, and Bo-00, were carried out to make heat flow measurements and to take piston core samples. Physical properties measurements were carried out using two methods; by taking cube samples and by non-destructive scan.

Bulk density, grain density and porosity were determined by measuring mass and weight for cube samples, using a precise balance and Penta-pycnometer. Multi-Sensor Core Logger (MSCL) is a non-destructive scanner to measure bulk density, P-wave velocity, magnetic susceptibility and electric conductivity. It can also take surface digital images. Measured results for these methods show generally good coincidence each other.

Grain density values are basically uniform around 2.6 g/cm^3 across the deformation front. On the other hand, porosity decreases by around 10%. This indicates that surface sediment is largely affected by the initiation of accretionary process. We plan to compare these results with ODP results cored in the nearby sites (site 1173, 1174 and 808).