Homogenization scale of fluid conduit and its effect for the conduit formation: Yokonami melange, the Cretaceous Shimanto Belt

Yoshitaka Hashimoto[1]; Toshio Yoshimitsu[2]; Taketo Kikuchi[3]; Noriko Furuya[4]; mie takagi[4]; Sousuke Yokota[5]

[1] Dep. of Nat. Env. Sci., Kochi Univ.; [2] Natural Environmental Sci., Kochi Univ.; [3] Environmental Studies.,Tohoku Univ; [4] Natural and Environmental Sci., Kochi Univ.; [5] Natural Enviromental Sci,Kochi Univ

One of the key to understand the mechanism of seismisity along subduction interface is the distribution of fluid conduit and the effect of fluid on rock properties in the fault-fluid system along subduction zones. The purposes of this study are to examine the distribution of mineral veins and differential stress within the on-land accretionary complex and to understand the role of the fluid in the fault-fluid system. Study area is the Yokonami melange, the Cretaceous Shimanto Belt, Shikoku, SW Japan extending along NS striling coast line about 600m in wide.

At first, the 1 dimensional distribution of mineral veins was examined. Mineral veins are truncated in some area along micro fault. The mineral vein length rate to fault length is about 50%. Therefore, the 1 dimensional distibution of mineral veins is inhomogenous basically. However, the number of mineral veins in 10m interval is so silimlar between parallel measument lines. This result means that the 1 dimensional distibution of mineral veins is homogenized in 10m interval. Therefore, we can use generally the 10m interval distibution to discuss the vein density. From the 10m interval vein density, the high density zone is repeated about in 100 m interval within the about 600m wide outcrops.

To understand the relationship between the vein density and distribution of differential stress, calcite twin density was used. Calcite twin density can be converted into differential stress with 43 MPa erroe. The differetial stress ranges from about 220MPa to 340 MPa and mean value is about 280 MPa. The distribution of differential stress represents no relathin with the distirbution of mineral veins. This result may indicate that the location of vein formation does not relate with stress concentration and may shows that the fluid concentration does not affect to the formation of fluid conduit physically.