

# Deformation structure and emplacement mechanism of plutonic and metamorphic blocks(knockers) in Mineoka Belt

# Ryota Mori[1]; Yujiro Ogawa[2]; Toshiaki Tsunogae[3]

[1] Earthscience Sci, Tsukuba Univ; [2] Earth Evolution Sciences, Univ. Tsukuba; [3] Univ. Tsukuba

[http://www.geo.tsukuba.ac.jp/press\\_HP/index.html](http://www.geo.tsukuba.ac.jp/press_HP/index.html)

In Boso Peninsula, there is a fault zone called the Mineoka Belt, which is surrounded by two, north and south, faults. It has many various rocks such as ophiolitic rocks, sedimentary rocks formed near continental margin, metamorphic and plutonic rocks formed under deep place in island arc setting. The ages of these rocks are different each other, and among all the Mineoka ophiolitic rocks are the oldest. We study the emplacement mechanism of the metamorphic and plutonic rocks, particularly by means of deformation structures. These exist as stick-out rocks because they are harder than surrounded rocks like serpentinite and sedimentary rocks, and consequently remain without being eroded to be knockers. Some knockers are in fault contact with sheared serpentinite. These tell us that these knockers mixed into a fault zone tectonically.

Now we study metamorphic rocks at Kamogawa harbor and Hegurinaka, and plutonic blocks at Shingan-ji, Kawashiro, Yamada, Kobata. Metamorphic rocks are mainly hornblende schist and we calculate metamorphic temperature of garnet-hornblende schist at Hegurinaka (527-594C by Grt-Hbl, by method of Graham and Powell (1984)) and hornblende schist at Byoubu-jima at Kamogawa harbor (565-595C by Pl-Hbl by method of Holland and Blundy (1994)). These metamorphic grades are consistent with amphibolite facies. These rocks have original strong schistosity although they were deformed and brecciated by later microfolding and faulting, and were retrogressively metamorphosed. Moreover the hornblende schist at Byobu-jima involves siliceous and psammitic schists whose original rocks are thought to be chert and sandstone. They are in fault contact each other. Plutonic rocks are mainly diorite and hornblende-gabbro. Diorite blocks at Yamada have three deformation stages; first mylonitization, second faulting of some sub-stages with slickensides, to be eventually brecciated. We can see boundaries between these blocks and sheared serpentinite at Hegurinaka and Yamada. They are in fault contact with serpentinite which is distributed widely in the Mineoka Belt, and the serpentinite only at the boundaries are strongly sheared and foliated.

To decide the direction of the boundary fault movement, we observed fish-structure and porphyroclast of mylonites in thin section. Moreover we can see slickenside microstructures on the fault surface by SEM. At a result we judged these faults are dextral strike-slip faults which are contrary to the roughness-smoothness principle, and we understood the strike-slip faults are formed under transpressional stress field. These dextral faults are consistent with the present movement of active fault at Mineoka Belt.