

## Intermittent underplating -Detection by LA-ICPMS U-Pb dating for zircons to the Shimanto accretionary complex, Japan-

# Tadahiro Shibata[1]; Yuji Orihashi[2]; Gaku Kimura[3]; Yoshitaka Hashimoto[4]

[1] Faculty of Science, Kochi Univ; [2] Earth and Planetary Sci., TIT; [3] Earth and Planetary Science . Inst., Univ. of Tokyo (Jamstec, IFREE); [4] Dep. of Nat. Env. Sci., Kochi Univ.

Episodicity of the underplating is a key to understanding the sediment subduction at accretion margins. Even where trench filling sediment supply and frontal off-scraping accretion keeps constant, the underplating or basal erosion could be controlled by other factors. Underplating could be triggered by decollement strengthening due to lithification an/or contrasting oceanic crust weakening due to decrease of effective strength. Basal erosion is progressed through collapse of upper plate due to normal stress increase caused by high topographic relief like a seamount and/or decrease in effective strengthss caused by high fluid pressure in some part of in upper plate.

We examined the episodicity of underplating for ancient accretionary complex in terms of dating underplated tectonic melange of the Shimanto Belt, Japan. The U-Pb dating method is rather new using Laser-Ablation Inductively-Coupled Plasma Mass Spectrometry (LA-ICPMS) for zircon grains from tuffs and fine sandstones in the complex.

The results are as follows;

1. Weighted average for  $^{238}\text{U}$ - $^{206}\text{Pb}$  age of acidic tuff in the top sequence (Hiwasa Formation) is  $71.93 \pm 0.53$  Ma (2sigma). Youngest age cluster ranges from  $68.0 \pm 4.0$  Ma and  $66.3 \pm 2.3$  Ma.

2. Weighted average for  $^{238}\text{U}$ - $^{206}\text{Pb}$  age of acidic tuffs from upper section of the underplated melange (Mugi Melange) shows  $70.81 \pm 0.37$  (2sigma) Ma and  $68.0 \pm 1.1$  Ma (2sigma). Youngest age cluster of sandstone represents  $70.3 \pm 3.3$  (2sigma) Ma.

3. Weighted average for  $^{238}\text{U}$ - $^{206}\text{Pb}$  age of acidic tuffs from lower section of the Mugi Melange represents  $59.67 \pm 0.77$  (2sigma) Ma and  $61.01 \pm 0.99$  (2sigma) Ma. The result indicates that the age of the lower section ranges from  $62.0$ - $58.9$  Ma.

There is no age difference between the Hiwasa formation and the upper section of the Mugi Melange whereas about 10 my difference is recognized between the upper and lower sections of the Mugi Melange.

The results suggest that melange underplating was not constant but intermittent with a few million years break. During the hiatus without underplating, underthrust sediments would have passed through 6-7 km depth and had been carried down to deeper subduction zone.