

## Why low frequency tremors around Moho in the southwest Japan show belt-like distribution?

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In these several years, existence of Low frequency earthquakes (LFE) and tremors (LFT) around Moho boundary away from volcanoes in Japan has been revealed. Especially, LFT in the southwest Japan attracts the attention because of its belt-like distribution. The reason why the LFT shows narrow belt-like distribution was considered based on high pressure and temperature experiments and underground structure derived by seismic reflection profiling.

The LFT would be triggered by dehydration of chlorite in basalt in upper part of descending Philippine Sea Plate. The dehydration begins when the depth of the slab reach about 30km. This forms southern rim of the belt. On the other hand, northern rim of the belt is good match with edge of mantle wedge. At first, slab contacts with inland crust, and then with mantle wedge. At this point, ascending water from slab would be trapped by forming serpentine in mantle wedge. This causes northern rim of the belt.

There are some isolated LFE in back-arc side of the belt in the southwest Japan. Under the LFE, the Philippine Sea Plate would reach about 70km depth. Dehydration of amphibole and chlorite in lowest part of mantle wedge and partial melting of the lowest part of the mantle wedge and slab are estimated. These would become triggers of the LFE.