

Neotectonics in and around the Kinki Triangle as viewed from the geometry of the subducted Philippine Sea plate

Takayuki Miyoshi[1]; Katsuhiko Ishibashi[2]

[1] NIED; [2] none

The Philippine Sea (PHS) plate is being subducted beneath southwest Japan at the Suruga and Nankai troughs. It is important to know the geometry of the PHS slab to understand various tectonic activities in southwest Japan. Recently, the study of the geometry of the PHS slab has remarkably developed owing to the establishment of the dense seismic observation network and improvement of analysis methods. One of the most important results in recent studies is that the shallow and gently-dipping slab is subducting beneath the region from Ise Bay to Lake Biwa [Miyoshi and Ishibashi (2004)]. In this study, we focus on this shallow slab and discuss its correlation with neotectonics in and around the Kinki Triangle.

Beneath the west coast of Lake Biwa, the offset of island-arc Moho discontinuity has been inferred by explosion seismological survey, gravity survey and travel-time analyses. On the other hand, Miyoshi and Ishibashi (2004) pointed out very low-angle subduction of the PHS plate and existence of shallow slab (hereinafter, IKS; Isewan-Kohoku slab) beneath the region from Ise Bay to Lake Biwa based on seismicity and focal mechanisms. We consider that there is not island-arc Moho but oceanic-plate Moho beneath Lake Biwa due to buoyant subduction.

This shallow slab is inferred to produce strong contact between the overriding island-arc crust and the slab. We interpret that the subduction of this slab has made the sedimentary basin of Kobiwako group to move northward and that Lake Biwa has also been moving northward due to this subduction. The southwest Japan lithosphere, which is presumably moving eastward (Ishibashi, 1984, 1995), is inferred to be colliding against this shallow slab, which brings about NS-running and westward-tilting blocks and reverse-faulting earthquakes with an E-W compression in the Kinki Triangle.

Acknowledgements: We used JMA's hypocenter database and GSI's digital map of 250m grid (elevation). We are grateful to the persons concerned.