

Initiation and propagation of subduction of Philippine Sea Plate along its western margin

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Two plates are subducting under the Philippine archipelago; the Philippine Sea Plate from east, and the Eurasia Plate from west.

The Philippine trench is considered to have extended from north to south (Cardwell et al., 1980). It is estimated that subduction along the Philippine trench started at around 4 Ma under Leyte, from the rate of convergence along the Philippine trench and the length of the subducted slab (Aurelio, 1992).

In this study, we collected samples from eleven mountains in Bicol peninsula, and carried out K-Ar dating to determine youngest limit of start of subduction along the trench.

Two plates are subducting under the Philippine archipelago; The Philippine Sea Plate from east, and the Eurasia Plate from west.

Among trenches around the Philippine archipelago, the Philippine trench and the Manila trench have active seismicity and fast rate of convergence, and have active volcanic arcs. There is the Sulu-Negros trench system south of Manila trench, and has also volcanic arc. There is the East Luzon trench north of the Philippine trench, but there is no volcanism or deep seismicity, so it is probably a very young subduction zone (Lewis and Hayes, 1983).

There is a volcanic arc formed by westward subduction along Philippine trench (Philippine Volcanic Arc, PVA) along, from north to south, Bicol peninsula of Luzon, Leyte, and northernmost part of Mindanao. Because there is no volcanism in southern part, the southern part of Philippine trench is considered to be younger than northern part, and to have extended from north to south. It is estimated that subduction along the Philippine trench started at around 4 Ma under Leyte, from the rate of convergence along the Philippine trench and the length of the subducted slab.

Revealing temporal and spatial distribution and chemistry of PVA will give further information about when and where the subduction started, and how the trench and arc volcanism developed.

We collected samples from eleven mountains in Bicol peninsula, and carried out K-Ar dating. We will present the result of K-Ar date of volcanoes in Bicol peninsula.

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