

EVOLUTION OF THE WEST PHILIPPINE BASIN

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The West Philippine Basin is a backarc structure occupying part of the Philippine Sea to western of the Kyushu-Palau Ridge. Based on bathymetric and dredge data, obtained in 1984-1990 during several cruises of Russian research vessels in the area near the Kyushu-Palau Ridge juncture with the Central Basin Fault (12°N-17°N), we propose a model of Late Cretaceous-Cenozoic evolution of the Basin.

Morphostructure of the Basin was formed consistently in several stages. The first one (Late Mesozoic) is related to the origination of the structural barrier separating West-Philippine plate from the ocean. It is characterized by formation under conditions extension of the shield (Hawaiian-type) volcanoes of the Sofugan Fracture Zone (Kyushu-Palau Ridge northern of 14°N). The second one (Eocene) is related to the consistent crushing of the West-Philippine plate from northern and southern peripheral zones to Central Basin Zone and characterized by origination fault-block morphostructure. The next stage is related to the Late Eocene–Oligocene tectonomagmatic activity of the region. It is characterized by southeast displacement south part West-Philippine plate and formation under conditions of contraction of the island arc type stratovolcanoes of the South and Central Kyushu-Palau Ridge. It is related to the accomplishment of the Eocene reconstructions of the oceanic crust in the West-Philippine Basin. The immediate Late Oligocene–Early Miocene period is characterized by origination isolated volcanoes composed by of the rocks of the alkali-basaltic assemblage. The last one reflects on the destruction stage of the West-Philippine region and is attended in time by the Parece-Vela Basin formation.