The study area is considered as an active convergence margin between the oceanic and continental lithospheric plates. Complex interaction between the Philippine plate and the Asian continent is reflected in the increased seismicity and specific behavior of geophysical fields. Density and geodynamic modeling have been conducted along the three deep sections: meridional and submeridional, crossing the Rjukju trench-arc system west and east of the Gagua ridge (123°E), and the latitudinal one, crossing the Luzon trench-island arc system. Based on the modeling carried out (Podgorny, Gilmanova, 2002, 2003) the differentiation of lithosphere in the near Taiwan zone of the juncture area of the Philippine plate and the Asian continental margin has been established. Three types of the lithospheric blocks have been distinguished based upon average density differences: oceanic, trench-arc and back-arc. Such differentiation is kept despite changes in the density structure inside each of the specified sections. The trench-arc block is characterized by the highest density differentiation in the earth's crust. Transition from the trench-arc block to the back-arc block is characterized by a zone of decreased density when compared to the average values.

Differences in the density structure of the lithosphere and geodynamic regime of two deep sections west and east of the Gagua ridge in the juncture area of the Philippine plate and the Asian continent have been established.

The density models developed are based upon the geodynamic state of the study area. Calculations of the stress fields and movements have shown that the density and topographical heterogeneities of the earth's crust and the upper mantle contribute significantly to the pattern of modern geodynamics of the region. In particular, relaxation of the mantle bulge of the West Philippine Basin and evening (flattening) of density borders in the gravity field are important processes responsible for the structure formation observed in the transition zone.

It is shown, that the areas of maximum gradient layer thickness correspond to those of the maximum tangential stresses. These areas correspond to the crustal fault systems and are characterized by increased seismicity. The qualitative analysis of the geodynamic state of the earth's crust and upper mantle of the Kamchatka-Pacific active area has been made based upon the results obtained for the northwest part of the Philippine Sea. We conclude that in addition to the density and topographical heterogeneities of deep sections, it is necessary to consider the boundary influence of the adjacent blocks of the lithosphere.