Kamchatka peninsula is a part of the Pacific Ocean and Asian continent transition zone. Its northern part located in the area of Kurile-Kamchatkan and Aleutian arcs junction and in close proximity to the Imperial volcanic zone and Imperial fault. Results of regional velocity structure modeling of the Kamchatka crust and upper mantle and density structure modeling of the upper mantle are presented in this work as well as correlation between computed and observed gravimetric data. Seismic tomography method was used for velocity structure reconstruction up to 200 km depth. According to the obtained results, it is stated that there is vertical and lateral inhomogeneity of the upper mantle that can be described by fault tectonics. Characteristic features of the crust structure and thickness correspond to velocity anomalies distribution within 80-140 km depth where asthenosphere "bodies" are found. It is shown that the areas of thinner crust are related to the relative uplift of the asthenosphere which could be a development of the upwelling processes. Specific seismicity and velocity anomalies distribution shows possible existence of the detachments at 60-70 km and 90-100 km depth where the crust blocks shift in the direction of the deep sea trench. Mentioned depth levels split seismic focal zone into two parts: focal zone itself and crust seismic zone which is clearly seen at the Klyuchevskoy volcano group latitude in the arcs junction area.