During the last 110 million years within the northeast flank of the Pacific – Eurasia transitional zone two zones of different kinematics and style of structure and deformations exist: zone of the block deformation in the northwest and zone of folding and related to it thrust and underthrust in the southeast. During the time there was a moving of these areas and of their borders to the southeast. The difference in style of deformation and structure formation has been caused by distinction of fragile and plastic properties of both lithosphere regions and distinction of their kinematics. In the history of evolution of the transitional zone there are three stages, which reflect conditions of geological complexes formation and based on the chemical, facial and structural attributes which differ between the neighboring adjacent geological complexes. The first one lasted for 40-45 m.y. covers Albian-Senoman-Turon, Cognac-Santon-Campagne and Maastricht-Danish stages. The second stage extended approximately 40 m.y. covers Palaeocene-Early Eocene and Late Eocene-Oligocene stages. The third stage extended 26 m.y. is continued in Holocene and covers Late Oligocene-Early Miocene, Middle and Late Miocene, Pliocene-Early Pleistocene and modern stages. Thus Palaeocene-Early Eocene and Late Oligocene-Early Miocene stages had transitive characteristics. There were continental and oceanic areas at the first stage; the boundary between them made by the continental step dividing shelf and abyssal facies. The continental step, obviously, was the area of the Benioff palaeozone output. At the following stages the shelf zone has been lifted and has turned to a coastal ridge and the lagoon located behind it. The deformations of this area were of the block character in conditions of stretching. In the ocean area a plastic accretion was dominated in condition of oceanic lithosphere underthrusting northwestward under the continent. Besides the underthrusting in the Benioff palaeozone, Vatyna and Enmovaja m thrusts were formed in oceanic area. The cordillera, which started to form in connection with Vatyna thrust at the final stage, separated from oceanic area adjoining to continent flisch basin. The morphostructure formation and their deformations can be explained by two-contour convection in an astenospheric layer. On each stage deep-located allochtones, which delivered to a surface a mantle and/or lower crust xenoliths (presented by mafic and ultramafic bodies) are connected to the most active underthrusting or thrusting zones. At the second stage the oceanic area with typical accretion of sediments, caused by plastic underthrusting of the oceanic lithosphere northwestward, gradually recedes southeastward and completely inverted during transitive stage, formed the Olyutorka zone of the Palaeogene folding. The northern border of this zone is the Vatyna Thrust systems which were active during the all stage. To the northwest from this area the complex system of grabens was founded and then formed with extension to the northeast. Their formation occurred in conditions of subcontinental lithosphere stretching in a northwest – southeast direction. The scenario explaining such lithosphere kinematics is four-contour convection in astenosphere layer. During the third stage continental lithosphere, including the Olyutorka Zone, was deformed in a fragile destruction mode, thus in southeast near-ocean areas the mode of squeezing and small blocks lithosphere destruction was dominate. In the northwest area the mode of stretching dominated and formation of complex system of grabens oriented generally northeastward occurred. Both vectors of compression and stretching have a northwest direction. Counting an echeloned position of peninsulas of southeast area, it is possible to explain a kinematics of lithosphere by rotation of five convecting bodies in astenosphere. The consecutive changing of lithosphere properties - loss of plasticity, replaced by fragility - in a southeast direction can be explained not only by the increase in its thickness in relation with crust accretion, but also by the change of reological properties, caused by the reduction of heat flow. The last circumstance is consequence of the heat loss of convecting astenosphere bodies.