# MECHANICAL STRESSES IN THE LITHOSPHERE OF THE PACIFIC TECTONIC BELT (PTB): EXPANDING, ROTATING EARTH AND SUBDUCTING PLATES

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According to a number of characteristics - geophysical (gravity, magnetic, seismotomography), morphological, tectonic, geochemical, etc. - the PTB is a whole integral structure which activity has been governed by the processes of the global, planetary and cosmic scales. Subduction of the oceanic plates is a relatively local phenomenon and can not provide basis for explanation of regularities in the PTB activity as a whole structure. It is well known that the PTB is the area of a sharp change in density and thickness of the Earth's layers. Mathematical modeling showed that in the areas of a high gradient of a heavy layer thickness (or density) there exist narrow zones of a critical state of material dipping continentward as well oceanward. These zones can be regarded as deep faults and at the same time as seismofocal planes. Mathematical modeling showed also that the stress field produced by these faults determines the most peculiar features in the structure and geodynamics of the active margins. Migration of the volatiles from the fault vicinity to the Earth's surface consolidates the substance beneath the fault. This narrow area of consolidated material dipping continentward can be interpreted as the subducting plate. The proposed three staged model: a) concentration of stress and formation of a deep fault (seismofocal zone), b) generation of a stress field around the deep fault, and c) geological evolution of this system, is capable of an explanation for many essential features in the structure and geodynamics of PTB. Placing this model into expanding (pulsating) Earth, we will be able to explain plate's kinematics and a number of geographical homologies within the Pacific. Taking into account another element of the planetary life – its rotation and tidal interaction with the Moon – we gain the opportunity to explain regularities of the highest order, e.g. the East-West PTB dissymmetry. The actual role of convection and subduction playing in terrestrial geodynamics can be revealed only on the basis of the above new model.