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# Planet Model of Plate Tectonics: Based on Einstein′s Theory of Relativity

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The model proposed herein advocates that plate tectonics results from shearing among the main layers of Earth due to increasing rotation speeds of the Earth′s layers towards its center. This started with the Earth′s differentiation, due to Earth′s gravity, soon after its formation ca. 4.5 Ga ago. It assumes gravity according to the Theory of General Relativity, thus resulting from the warping of the spacetime framework due to the Earth′s mass. This provoked the denser elements migration towards the Earth′s center, which changed its whole pressure and mass-energy balance.
By assuming the principle of conservation of energy and of momentum, these changes induced an increase in the moment of inertia, the angular momentum and the rotation speeds of the inner layers of the Earth. In this way, any layer rotates quicker than its immediate neighbor outer layer. The inertia approach in this model is according the Theory of General Relativity, that is, as a field property of the spacetime, analogous to the electromagnetic field, the so-called inertial-gravitational field.
Plate tectonics would result from the net torque and shearing between the lower and the upper mantles that occurs at the 670 km discontinuity. The forces resulting from this deformation propagate upwards, break, and drive the plates. Because the upper mantle, including the oceanic and continental lithospheres, are inhomogeneous, they offer different resistances to the quicker lower mantle movement, which forces them to split in smaller blocks, which constitutes the tectonic plates. As a result, the continental and oceanic crusts travel together with the upper mantle, as riders, over the lower mantle.
The group of major layers of Earth behaves similarly to a planetary system, where each “planet” pursues its own spacetime framework. Because of this similarity, this plate tectonics model calls Planet Model. This model predicts no plumes or hot spots, and all plate tectonic features result from deformation by incommensurable forces derived from the mechanism shown above. Consequently, spreading centers are extensional fault systems, subduction zones are thrust fault systems, and transform faults are strike-slip fault systems.
In oceans surrounded by passive margins, like the Atlantic and Indian Oceans, Linear Volcanic Chains are major fractures that form by tensile stresses resulted from cooling of the oceanic crust and thinned continental lithospheres. Gravity-induced differential down warping of the denser lithosphere; the thermal subsidence, is an equally important factor, enhancing the tensile stresses. Linear Volcanic Chains nucleate at deflections of hinge lines of rifts that evolved to passive margin basins. In these basins, the top of the oceanic crust and thinned continental lithosphere may be up to 20 kilometers deep. Fracturing induces generation of magma by adiabatic decompression at the base of the lithosphere.
In oceans surrounded by active margins, like the Pacific Ocean, the top of the oceanic crust is shallower, reaching depths of ca. 7 kilometers. Cooling and differential down warping of the oceanic lithosphere coexist with the compressional stress field resulted from compression in the subduction zones. They thus distribute more randomly compared to the former ones.