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Formation of Oceanic Crust Geostructurs and Relation Between Submarine landslides and Tsunamis

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Numerous geological and geophysical data proved the presence of oceanic crust relicts of Tethys in the territory of Lesser Caucasus. To discover the deep structure, composition and evolution of the modern Earth crust, the elastic and density properties of basites, ultrabasites and serpentinites of lesser Caucasus at high pressures and temperatures were investigated. On the basis of this data, and numerous geological-geophysical factual data concerning Mid ridges, Transform faults, Subdaction zones, Island arcs and Marginal seas are presented as a possible mechanism of their formations and relation between submarine landslides and tsunamis. The numerous volcanic and seismic centers, serpentinized protrusions and also hydrothermal sources are dated in the rang of Mid ridges and Transform faults. The formation of serpentinized ultrabasites 3-rd layer affects an infiltration of oceanic waters on ultrabasites of the upper mantle. At the same time, on an axial part of the ridge, the horizontally cramping forces, on the 5-6 depth, are established, which step-by-step pass on expanding in the top of the ridge.
Analyzing the data about composition and properties of oceanic crust, we suspect that during the formation of Mid ridges, the main role belongs to serpentinized rocks of the 3-rd oceanic layer. Owing to high plasticity and low density, the serpentinized masses, by tectonic faults, in the central zone of Mid ridges, from both parties, float up and by means of protrusions implanted in the oceanic crust, then the serpentinized masses are grasp by basalts lavas. Accumulation in the axial zone of Mid ridges large masses of basalts and serpentinits, under influence of gravitation forces make slides to downwards on the serpentinized layer to the foot of ridge and low-powered sedimentary layers between these masses are saved.
In the proposed model we attempted to interpret the above mentioned phenomena in the following sense.
1. Because of serpentinization of ultrabasits, the horizontal stress growth is more than 40- 50%. Spreading of oceanic floor can be partially conditioned by these forces. At impossibility to distensible in the lateral direction, the serpentinized masses increase vertically, both in the axial part of the ridge and in transform faults. Serpentinized blocks of the 3-rd layer from the axial part of ridge, are involved in basalt lava and under gravitation forces slide downwards. The data of drilling has shown the availability of serpentinized blocks in the second volcanogenic layer.
2 .On formation transform faults a definite role is played the processes of basalt masse slides, which naturally takes place permanently, owing to which one between blocks the faults are reshaped. In the transform faults the serpentinized protrusions and hydrotherms are also dated.
3. The chemical composition of basalts of Island arcs and Mid ridges basically coincide, which give us the basis to suppose that they are source commune. We suppose that in definite depth of subdaction zone there exist connection with astenosphere. In the upper mantle molten substrate is enriched by rare elements and erupted in the rift zones of Mid ridges.
4. Marginal seas extension speed is 5-7cm/year. Esteeming the proposed model, it is possible to mark that spreading of Marginal seas takes place owing to eruption of magmatic masses as directly from in the region of Island arcs, as well as from astenosphere in the Mid oceanic ridges.
5. The studies of catastrophic tsunami origin in 2004 has resulted in judgment, that the formation of 9-m surges took place because the sliding process in the bottom of ocean and even catastrophic earthquake at the bottom can't provoke a tsunami with such force. According a to the proposed model, in Mid ridges, and in other parts of ocean, as well sliding process took place, which could provoke a high–power tsunami. The volume of sliding structures, between transform faults can reach several million of km3. The sliding masses at the bottom of the ocean should invoke a movement of oceanic water and provoke the surges on the surface of the ocean.