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Earth crust of Lesser Caucasus is a Marginal see or a Subdaction zone of Tethys?

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Lesser Caucasus is situated on the North-East of Anatolia-Caucasus-Iran region. Characteristic peculiarities of the region are the microplate tectonics, existence of deep faults and ophiolite belts. The territory of Armenia is situated mainly within the boards of Lesser Caucasus, where main geostructural elements of Earth crust are three microplates and two ophiolite belts. The distance of ophiolite belts are 70-90 km.

In the territory of Armenia there are blokes of the oceanic crust Tethys, which are connected with the ophiolit belts of Erzindjan-Sevan and Erzindjan-Vedy. During the last decades numerous geological and geophysical investigations has been carrying out in the territory of Lesser Caucasus. Different data for deep horizons of Earth crust and upper mantle are obtained:

- Established the heterogeneity of Earth crust; the presence of layers with high seismic waves (4-6 and 22-35 km) and low seismic waves (5-13 and 35-50 km).

- In the foot of the Earth crust (35-50 km) are established the presence of layer with high conductibility.

- In some places of the crust foot established gravitation minimum (35-50 km).

- Established the absence of surfaces seismic waves in the ophiolite belts.

- The Central flexure, it is placed between two ophiolite belts, are presented with calc-alkali volcanism.

- In the frames of Central flexure observe the gravitation minimum.

- In theframes of Central flexure of Armenia are established high thermal flow.

In the laboratory of Experimental seismotectonics of the State Engineering University of Armenia the seismic and density properties of all varieties of rocks of Lesser Caucasus were determined at high pressures and temperatures.

The obtained results have allowed to interpret more than 20 different geological and geophysical sections. Due to these interpretation the petrophysical section and the model of evolution of Earth crust of Lesser Caucasus are introduced. The presented data show that in the period of Earth crust formation, major importance is attributed to the serpentinous 3-th layer of oceanic crust of Tethys. During the closure of oceanic crust the serpentinous 3-th layer is “destroyed”. As a result protrusively intrusion of low density, high plasticity serpentinous masses take place in the fault zones. In this way the formation of ophiolite belts take place.

From which part of oceanic crust Tethys are formed the modern continental crust of Lesser Caucasus ?,the specialists have different opinions.

We offer on the basis of geological and geophysical data and the model of evolution of Earth crust of Lesser Caucasus presented by us, to discuss as well: 1. genesis of organic and inorganic hydrocarbons (combination genesis), 2. formation of magmatic centers in situ, 3. formation of some kinds of seismic centers, 4.the relation between deep composition , the structure of Earth crust and seismic zonation of the territory of Armenia.