

The evolution model of the lithosphere of orogens.

Alekseev R.S.

The Schmidt Institute of Physics of the Earth of the Russian Academy of Sciences (IPE RAS), Moscow, Russia
e-mail: rs.alekseev@physics.msu.ru

The model of mountain formation of the Himalayan-Tibetan orogen and its environment. We use data on the stress state. After the tectonophysical reconstruction of the stress state, certain patterns were identified, which are included in the model. One of the important features is the block character of deformation of the crust orogen.

For the compilation of models were used data from various authors. Thus, the time of the beginning of the movement of the Indian continental plate (about 60-70 million years ago) according to [Besse and Courtillot, 1988]. In the first stage of our model (about 10 million years), the oceanic lithosphere, capable of moving along the continental Eurasian lithosphere. At the same time, the oceanic lithosphere contains large volumes of water, which gradually decrease, and the draining water is located in the upper part of the sub-crustal part. It is possible that it moves along the borders when a whole complex of metamorphic changes begins. As a result, resulted in a low, and then the upper part of the underlying lithosphere, which led to their separation into light (granites, basalts) and heavy fractions. As a result, volumes increase with practical mass conservation, which results in a small amount of about 1 km. At this stage, the power of the bark of Tibet is almost unchanged, since Migration of the melt from the mantle to the crust has just begun. Tibet remains fairly flat. The second stage of the movement is associated with the beginning of the disappearance of the oceanic lithosphere and its descent into the upper mantle, while simultaneously moving further north. The next stage of evolution (probably 10–15 million years ago) is associated with the destruction of the continuous oceanic lithosphere, which may be caused by a slowdown in the movement of the Indian plates (perhaps this will lead to the emergence of the continental lithosphere of the Indian plates and Eurasia) and more intensive subsidence of its slab.