

The Influence of Subduction and Collision of Lithosphere Plates on the Territory of Vietnam

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Vietnam is situated on a special location, influenced by the subduction between Eurasia and Pacific plates and the collision between Eurasian and Indian-Australian plates.

1. The tectonic, and tectonophysics analysis, make it possible to divid tectonic development process of Vietnam in Cenozoic into two stages:

-The early stage is characterized by tectonic stress field with parallel - sub parallel direction of compression stress.

On the tectonic faulting plan, NW-SE faults represents left-lateral movement, the NE-SW ones represents right-lateral movement.

In this stage the Vietnam's territory might be influenced by the collision between Eurasia and Pacific plates.

-The later stage is characterized by meridian - sub meridian compression stress of tectonic stress field.

On the tectonic faulting plan with the faults having a cinematic features reversed to the early stage.

In the stage, Vietnam might be mainly influenced by the collision between Eurasia and Indian plates.

2. On the basis of earthquake data analysis of Southeast Asia region, it is confirmed that in the recent time, Vietnam is situated on the influenced region of the collision between Eurasia and Indian plate.

3. By analysis of accuracy geodesic data of 5 repeat measurements during pass 30 years, it is defined that Red River Fault - the great regional fault, is having right-lateral movement.

Its characteristic also confirms that the Vietnamese territory is being influenced by the Eurasia-Indian plates collision.

4. On the basis of trace and isotopic elements' analysis it is confirmed that the Cenozoic basalt volcanic activities had 2 major periods with different characteristics, but homogeneous in their origins.

Based on the characteristics of basalt fluids, their distributions in the structures of different ages and the thermos anomalies of mantle in the shallow crusts, it allows us to think that the motive force of basalt volcanic eruption of this region is influenced by the collision of Eurasia and Indian plates.

5. By analysis paleomagnetic data of Cenozoic basalt in the Vietnamese territory, it is showing that there is not any rotation of Indochina geoblock in comparison with Eurasia.

The geological development of Vietnam was temporally suffered different effects of the collision of Eurasia with Pacific and that with Indian-Australian plates. Their influences were not equal with various geological factors. The influenced levels were depended on the intensity and the direction of the collision between plates.