



Characteristics of the Activity of Beijing Huangzhuang-Gaoliying Fault based on the Stratigraphic Data of Geothermal Drillings

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Abstract: Basing on the stratigraphic data of geothermal drillings, a geological profile is plotted and deep structural analysis was made across the Huangzhuang-Gaoliying fault zone. Analysis combining with the existing research results shows that there are at least 4 times of transformation of normal fault and reverse fault with a concussion feature. It is held that the cause of the fault is the fracture of the regional plate, and the later horizontal movement of the plates changed many times, resulting in the repeated transformation of tension and compression, and then the decline and thrusting motion of the upper plate constantly occurred, showing a feature of repetition and concussion. The formation age is about 106-140 million years ago, which belongs to the late Jurassic (J_3). The later rock activity produces local extrusion and uplift, which restricted the activities of the south and north ends of the upper plate, resulting in the phenomenon of uplift and tilt at one end. While the movement of the middle segment of the upper plate is relatively more free, and the average decrease rate of it is about 3mm per year. Basing on the analysis of the structural features and historical seismic results, it is held that the monitoring of its activity should pay more attention to the horizontal movement of two sides of the fault zone, and the vertical movement of the intrusive rock mass at both ends of the north and south also should be monitored emphasizedly.

Key words: data of geothermal drillings, analysis of the geological structure, positive and inverse transformation, formation age, earthquake monitoring

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