



## **Numerical Simulation Research on Relationship between the Strong Earthquakes around the Bayan Har Block**

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Considering the difference of regional geological structure, active block division, the main active fault zone, irregular topography and layered lithosphere structure, the 3-D viscoelastic finite element model of the Tibetan Plateau including the Bayan Har block is constructed by introducing the latest deep inversion results. Using the observed values of GPS and direction of the maximum principal compressive stress as constrain condition, the present tectonic background stress field of the Tibetan Plateau is reconstructed. Based on it, the 14 strong earthquakes with  $M \geq 7$  around the Bayan Har block since 1900 are simulated successively. From the viewpoint of Coulomb failure stress, the effective stress and stress field evolution, the relationship between the strong earthquakes around Bayan Har block is discussed. The calculation result shows that considering both the influence of coseismic effect and secular tectonic stress loading, there are 11 earthquakes located in positive value region of total stress change; and while there are 8 earthquakes if only considering the influence of coseismic effect. Before the 2013 Lushan Ms7.0 earthquake, the southern part of Longmenshan fault zone is in a state of high stress. The coseismic Coulomb failure stress of the location of Lushan earthquake caused by Wenchuan earthquake is about 0.016MPa, which indicated that the Lushan earthquake is triggered by Wenchuan earthquake from the viewpoint of Coulomb failure stress. After the strong earthquake sequence since 1900, the stress has been released in most areas of Bayan Har block, and only small areas still in the state of high stress.