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Distant effects caused by Magnitude 8.7 Earthquake of the West Coast Of Northern Sumatra

DU FANG

Earthquake Administration of Sichuan Province, Chengdu 610041 China
Tel: +86-028-85450301; Fax: +86-028-85432192;
Email: Dufang@mail.sc.cninfo.net

Some of premonitory information, caused by or related to the M8.7 submarine earthquake on 26 December 2004 at the button of west coast of northern Sumatra, was observed immediately in the seismic stations in Sichuan Province. Sichuan province is situated in the middle parts of the north-south seismic belt in China. It is stated clearly that the M8.7 Earthquake exerted a great influence on the north-south seismic belt in China. As it slides beneath the Myanmar Plate, the front part of India Plate meets the Myanmar Plate and the resistance force in the plates is accumulated. The faults along the boundary between the India Plate and the Myanmar Plate are one of most active faults, which generate a great number of earthquakes. The earthquakes frequency in the regions between Sunda trench and the plate boundary is very high. With the tectonic movement of the India plate moved on the north-east at 5.5~5.8cm per year (DeMets ***et al***, 1990), the Sumatra fault and the Myanmar fault slide on right consistency. This moving situation exerts a direct influence on the south of Tibet and Yunnan provinces. So we think that the distant effects are caused by or relate to M8.7 Earthquake and the premonitory information on the north-south seismic belt in China are the results from an indirect action.

Strong earthquake activity in the north-south seismic belts of China is the major component of the continent seismic active in China. According to the history earthquakes occurred in the north-south seismic belts of China, we analyze the relationship between strong earthquakes in the north-south seismic belt of China and that in the Andaman tectonic seismic zones in this paper. Both the activity of the seismic faults and the frequency-intensity of strong earthquakes show the specific regional characteristics. It is clear that the seismic activities in both Andaman and Himalayan tectonic zones take an important control effects on the strong earthquakes occurred in the north-south seismic belt of China. The primary and secondary of two control effects are alternate each other in the course of history. The major active regions of strong earthquakes in the north-south seismic belt of China show the alternate characters. The north-south seismic belt in China is one of the major activity regions of strong earthquake if the control effect of Andaman tectonic zone plays leading role. It is very important that general earthquake situation of the north-south seismic belt of China is understood and distinguished.