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汶川地震后沿龙门山断裂带原地应力测量初步结果 [点此下载全文](#)

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摘要:

2008年5月12日在中国四川省西部汶川发生Ms8.0地震,震中位于青藏东缘龙门山断裂带。地震发生后的4个月,开展了地应力原地测量,获得了3个浅钻孔的应力大小和方向。结果显示,位于震中区映秀测点,水平最大主应力 19° E;宝兴测点位于震中区西南的龙门山断裂带南段,汶川地震没有导致该段地表破裂,该点获得的水平最大主应力方向为 $N51^{\circ}$ W;位于龙门山断裂带最西南端的康定测点,水平最大主应力值为2.6MPa,最大主应力方向为 $N39^{\circ}$ E。在400m深度进行了应力测量,获得了应力随深度变化趋势和应力状态。与震前其它应力测量结果和中国其它地区龙门山断裂带西南段处于相对高应力水平,震中区仍处于中等应力水平。这项研究成果将为评价龙门山断裂带余震和物理参数。

关键词: [汶川Ms8.0地震](#), [原地应力测量](#) [应力解除](#) [水压致裂](#) [龙门山断裂带](#)

Preliminary results of in-situ stress measurements along the Longmenshan fault belt earthquake [Download Fulltext](#)

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Abstract:

Four months after the Wenchuan Ms 8 earthquake in west Sichuan (China), in situ stress measurements were conducted along the Longmenshan fault zone, with the purpose of obtaining stress parameters for earthquake stresses were measured in three boreholes by using overcoring of the piezomagnetic stress gauges; hydraulic fracturing for deeper depth. The results show that the maximum horizontal stress at shaft depth is 4.3 MPa, oriented $N19^{\circ}$ E, in the epicenter area at Yingxiu Township, and about 9.7 MPa, oriented $N19^{\circ}$ E, in the SW Longmenshan, and about 2.6 MPa, oriented $N39^{\circ}$ E, near Kangding, at the southernmost area of the Longmenshan fault zone. Hydraulic fracturing was conducted at depths from 100 to 400 m and the results show tendency towards depth. Compared with the results measured before the Wenchuan earthquake along the Longmenshan fault zone, it is concluded that stress level remains relatively high in the southwestern segment of the Longmenshan fault zone and is still medium in the epicenter zone. These results provide key appraisal for future assessment of the Longmenshan fault zone and aftershock occurrences.

Keywords: [Wenchuan Ms8.0 earthquake](#) [In-situ stress measurement](#) [overcoring](#) [hydraulic fracturing](#)

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