

## THE PROBLEM OF EVALUATING SITE BY EARTH TREMOR

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### Abstract

In this paper, it is found that power spectrum of earth tremor corresponds to acceleration peak value and response spectrum of ground motion using comparison analyses between the practical data on the seismic microzoning of Xining City, where the basic intensity is 7 degrees, and profiles of borehole is well. Therefore, in this context, the earth tremor can indicate the engineering-geology properties of Quaternary overburden layer under a certain site condition more directly, and the method of evaluating site by earth tremor may be regarded as a simple, convenient, and economic one of evaluating engineering site, used with other methods together.

## 孤立型中强震和临近大震前震源系统中发 生的中强震的前兆场的区分

郭增建和本文作者按组合模式求得震源前兆场和震级的关系式为

$$R = 10^{0.6M-1.4}$$

式中R为以震中为原点的前兆半径。根据此式我们可求得M=5.5时, R=22 km; M=6.0时, R=40 km; M=6.5时, R=71 km。显然对于中等地震其前兆范围是不大的。然而中强地震的前兆也有两种类型, 一种类型是前兆很少, 前兆范围很小。另一种类型是前兆较多, 且前兆范围很大。我们认为前一种属孤立型中强震前兆, 后一种可能属大震震源系统的中强震前兆。这是因为大震震源系统的应力水平高, 当中强地震发生在该系统中时, 两者的应力场相迭加, 导致异常范围增大。或者该中强地震是大震系统进程中的一个关键部分, 则该中强地震发生前后是反应整个震源系统应力场变化的一种后果。这样这类中强震的发生前后都会导致较大范围的前兆异常。根据上述中强地震的类型, 我们认为, 可以利用中强地震前后前兆异常范围来预测中强地震后是否有更大地震或者没有。

(国家地震局兰州地震研究所 秦保燕)