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震级离散下的震级频度关系

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The relationship of earthquake magnitude and frequency under the condition of discrete magnitude

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摘要

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摘要 运用最大熵原理,研究震级离散条件下震级频度关系,得到震级离散条件下震级概率分布函数,结果表明:(1)震级大于等于某一震级的地震次数应通过离散求和的方式得到,而不应通过积分的方式得到;(2)震级上限取为 ∞ 的情况下,古登堡意义和里克特意义两种震级频度关系式的 b 值相等;震级上限有限的情况下,里克特意义震级频度关系式可能不是直线.

关键词: 最大熵原理 震级频度关系 震级概率分布函数 震级离散条件

Abstract: The principle of maximum entropy is used to study the relationship of earthquake magnitude and frequency and obtain the probability distribution function for magnitude under the condition of discrete magnitude. The results show: (1) the number of events equal to or greater than M should be determined by discrete summation rather than integration method, (2) when unlimited upper bound to magnitude is given, the b value is equal for the Gutenberg relation and the Richter relation. When an upper bound M_k is assumed, the Richter relation may not be a linear relationship.

Keywords: Principle of maximum entropy Relationship of magnitude and frequency Frequency probability distribution function for magnitude Condition of discrete magnitude

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