

Japan Geoscience Union Meeting 2011

(May 22-27 2011 at Makuhari, Chiba, Japan)

©2011. Japan Geoscience Union. All Rights Reserved.



SSS025-01

Room:302

Time:May 27 14:15-14:30

A model of seismogenic layer inferred from the number-magnitude distribution of earthquakes

harumi aoki^{1*}

¹TRIES

The number-magnitude distribution of earthquakes suggests an irregular structure of the crust. The model presented here supposes a layer made up of broken blocks in the crust, where size of earthquake depends on block size. In order to simulate such a structure, the original layer is divided into two blocks with arbitrary ratio. Next, each block is similarly divided into two. The k -th division makes 2^k blocks. We call it k -th division of basic process. The number-size distribution of basic process is obtained with the use of random function. At a point in time, however, the order of division is different from place to place. Such a block distribution is interpreted as a weighted sum of basic processes. It is found that the equal weight gives rise to a b value close to 1 and lower weight in higher order of division, less than 1, respectively. The constancy of b value is held for a wide range of magnitude.

Keywords: b value, magnitude, simulation, fault, seismogenic layer