## Occurrence ratio of estimated fault displacement along active faults

## \*Takashi Azuma<sup>1</sup>

1. National Institute of Advanced Industrial Science and Technology

Evaluation of fault displacement along the active fault before the occurrence of large earthquake is very important to save the facilities from ground deformation. Although amount of fault displacement can be calculated from magnitude of earthquake or fault length, it is difficult to evaluate the amount of fault displacement at a specific site caused by earthquake in the future. There are two major reasons for this problem. One is variation of fault displacement from earthquakes with same size, another is variation of it along the fault trace.

Many of formulas showing a relationship between amount of fault displacement and magnitude of earthquake were proposed by many researchers, such as Wells and Coppersmith (1994) and Matsuda (1975). These formulas were based on data of many earthquakes, distributing with some range. Even though if this range is narrow, about half of fault displacement will be larger than estimated one by using the formula.

On the other hand, there were many records of slip distributions of the historical earthquakes accompanied by surface faults. They usually shows several peaks and section with similar amount of fault displacement. Locations where the amount of fault displacement exceed against the value estimated from the formula were limited. And another problem is recurrence model of slip distribution, such as uniform or not.

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