

Relation between Stress Perturbation of the Virtual Fault Models of Intra-plate Eq. and the 1605 Keicho Eq.

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1.Introduction

We have developed and improved a three-dimensional earthquake cycle model on the basis of the rate- and state-dependent friction law. Hirose and Maeda (2011, JpGU, SSJ; 2012, JpGU) numerically simulated great earthquakes along the Nankai trough and produced some occurrence patterns applying heterogeneous frictional parameters and effective normal stress.

However, we could not simulate a pattern that a rupture occurred on only a shallow portion of the plate boundary like the 1605 Keicho earthquake (Furumura et al., 2010, SSJ) even after taking into consideration stress perturbations of inland earthquakes (Hirose & Maeda, 2012, SSJ).

2.Virtual fault models of intra-plate earthquakes

There is the Zenisu ridge with a strike of NE-SW south off Tokai district. We can observe background seismicity and some M6-class earthquakes around the area. In the same area, Kaizuka (1972, Kagaku) pointed out existence of the Nishi-shichitou fault with left-lateral and a strike of N-S. In addition, M7.1 and M7.4 intra-plate earthquakes occurred southeast off Kii peninsula in 2004. Such intra-plate earthquakes may become a trigger of the Keicho type earthquake.

In this study, we try to simulate the Keicho type earthquake taking into consideration stress perturbations of intra-plate earthquakes around the trough, using the method same as Hirose & Maeda (2012, SSJ). We will report our result in the session.

Keywords: Nankai trough, Keicho earthquake, Simulation, stress perturbation, intra-plate earthquakes