Seismic fault slip distribution of the 1703 Genroku Earthquake from marine terrace data using an earthquake cycle model- II

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1. Introduction

South Kanto district has suffered repeatedly from large earthquakes such as the 1923 Kanto Earthquake (Taisyo type) and the 1703 Genroku Earthquake (Genroku type). Sato et al. (2006) developed a new method that can divide the coseismic, interseismic and permanent displacements from marine terrace data using our earthquake cycle model, and Higuchi et al. (2006) estimated slip distribution of the 1703 Genroku earthquake. The estimated slip distribution showed more than 20m slip beneath the south end of Boso Peninsula. This presentation shows the effects of the configuration of plate boundary and the relation between the Genroku type and the Taisyo type events.

2. Method

Our earthquake cycle model can estimate the permanent displacements if we have two or more marine terrace data whose ages are different, and can divide the coseismic, interseismic and permanent displacements (Sato et al. 2006). We estimate slip distribution of the 1703 Genroku Earthquake with a constraint of smooth slip distribution using ABIC inversion method. In this calculation, we use a plate boundary configuration proposed by Komada et al. (2006) and Sano et al. (2006). They showed a subducted sea mount at the off Boso Peninsula. We also estimate the slip distribution in a case that the Taisyo type event occurred simultaneously at the 1703 Genroku earthquake.

The data on marine terraces in south Boso region are from Shishikura (2001).

3. Results

The estimated slip distribution of the 1703 Genroku earthquake changes if we use the boundary with the subducted sea mount. Simultaneous occurrence of the Taisyo type at the 1703 Genroku earthquake may explain better the observed data around the Sagami Bay.