

Earthquake cycle simulation using a spring-mass model -consideration of the frictional characters of fault segments-

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Large earthquakes at the subduction zone along the Nankai trough occur repeatedly and bring about serious damage. Based on the rate and state friction law, we simulate the features of earthquake cycle on five segments A-E from the west to the east along the Nankai trough using a block-spring model to investigate the mechanism of the earthquake cycle. Considering the actual fault parameters for five segments, we physically calculate the model parameters for the corresponding blocks in the simulation. The features the observed earthquake cycle are reproduced with the parameters (1) The stick-slip periods are 150 yr for the blocks without interaction between the blocks, (2) The different pairs of a - b and D_c are used, (3) The interactions between all segments are large, (4) The convergence rate of the Philippine Sea plate at the segment E is about the half of that of the other segments.