Fundamental Characteristics of Particle Motion of Seismic Ground Motion Near the Fault

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We examine the factors which affect the rotation of particle motion of seismic ground motion near the fault in this study. Rotation of particle motion is caused by the shift of phase between 2 horizontal components of ground motion. The analyses using homogeneous and horizontally layered medium are performed to simulate seismic ground motion near the fault. We conclude that the near-field term and intermediate-field term of Green's function, the rupture propagation and the geological structures affect the characteristics of particle motion of seismic ground motion near the fault. The distribution of rotational directions of the tombstones during 1987 East Off Chiba Prefecture earthquake can be simulated to some extent. The characteristics of particle motion gives the information about phase shift on the two horizontal components of design input motion for structures.