

**Treatment of fault source in joint domain for multi-voxel finite element method**

# Hiroyuki Fujiwara[1]; Yutaka NAKAMA[2]

[1] NIED; [2] MHIR

<http://www.j-shis.bosai.go.jp>

Quantitative and deterministic evaluation of seismic wave field is essential for strong ground motion evaluation. Modeling wave fields using numerical techniques such as the finite difference method (FDM) and the finite element method (FEM) is important. To reduce computational complexities, discontinuous grid finite difference method and multi-voxel finite element method are proposed. In this study, we develop a code for the Multi-Voxel Finite Element Method (MVFEM) for 3-D elastodynamic analysis. Because conventional finite element method requires much larger size of memory than that of the MVFEM, it is difficult to solve large size problems by using the conventional finite element method. The MVFEM is numerically economical version of the conventional finite element method. In a practical computation, one problem arises. The problem is how to treat fault source, or double couple source in joint domain. We study treatment of fault source, or double couple force in joint domain for multi voxel domain decomposition technique and propose new treatment of fault source in the joint domain.