

Development of Solid Earth Simulator GeoFEM (Large Scale Structural Analysis)

Kazuteru Garatani [1]

[1] RIST

<http://geofem.tokyo.rist.or.jp/>

GeoFEM is a parallel FEM code to analyze solid earth. This report describes large-scaled structural analysis features of the code. One of the purposes for GeoFEM/Tiger version consists in 100 million degree of freedoms analysis by parallelized FEM. Here, we discuss the method to enable such a large-scaled structural analysis and its visibility. GeoFEM adopts domain decomposition method (DDM), assuming distributed memory type parallel computers and it solves all degrees of freedom by iterative method such as conjugate gradient. At this stage, the largest linear elastic problem solved by GeoFEM is more than 100M (100,000,000) degree of freedoms with reasonable scalability on 1,000 PEs Hitachi SR2201 at University of Tokyo.