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

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The objective of present study is to develop a parallel finite element analysis system for nonlinear structural analysis intended for large-scale solid earth simulation. Solid earth has very complex dynamics, which are material nonliniarity, geometrical nonliniarity, and contact nonliniarity. At this stage, a parallel finite element analysis system, which involves that nonliniarity, is researched and developed. This paper shows faults simulation method and fault zone analysis example that includes contact, material nonlinear and gravity.