1057-65-92 **Lili Ju*** (ju@math.sc.edu), Department of Mathematics, Unievrsity of South Carolina, Columbia, SC 29208, **Huai Zhang**, Department of Mathematics, Unievrsity of South Carolina, Columbia, SC 29208, **Max Gunzburger**, Department of Scientific Computing, Florida State University, Tallahassee, FL 32306, **Todd Ringler**, Fluid Dynamics Group, Los Alamos National Laboratory, Los Alamos, NM 87545, and **Stephen Price**, Fluid Dynamics and Solid Mechanics Group, Los Alamos National Laboratory, Los Alamos, NM 87545. *A Parallel Solver for Three Dimensional Full-Stokes Ice Sheet Modeling.*

The governing equations for modeling ice sheet evolution include a nonlinear Stokes system for momentum, an energy equation for temperature evolution, and a mass-conservation equation for ice thickness evolution. Desired solvers for the coupled system should be able to handle large-scale realistic data from land and space-based observatories and laboratory experiments and, more important, to take full advantages of the up-to-date high-performance computing power. Our work focuses on the development of an efficient parallel finite element package for 3D full-Stokes ice sheet modeling. Our implementation utilizes the high-quality nonuniform centroidal Voronoi Delaunay triangulation (CVDT) meshing technology and existing popular parallel linear system solvers. Some numerical results will be presented to demonstrate its efficiency and scalability. (Received January 27, 2010)