1. 3D Simulation of Flow Past a Cylinder at *Re*=300

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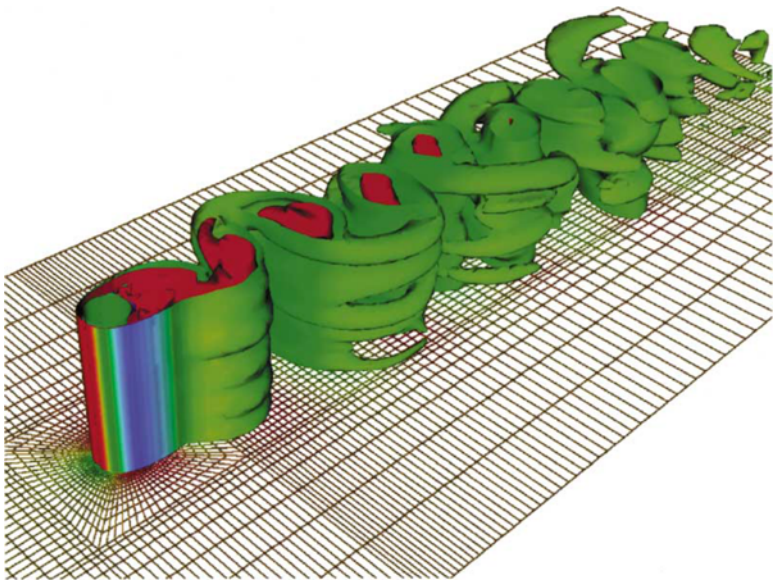

The isosurfaces show the columnar vortices which generate strain fields which interact with neighboring vortices. This causes the vortices to distort and exhibit strong 3D behavior. The outer isosurfaces are color-coded with fluid pressure while the inner ones are just painted red. At each time step, over 760,000 coupled, nonlinear equations are solved. The computation was performed on a 512-node CM-5, using the flow solver developed by the Team for Advanced Flow Simulation and Modeling at the Army HPC Research Center.

2. 3D Simulation of the Plane Impinging Jet

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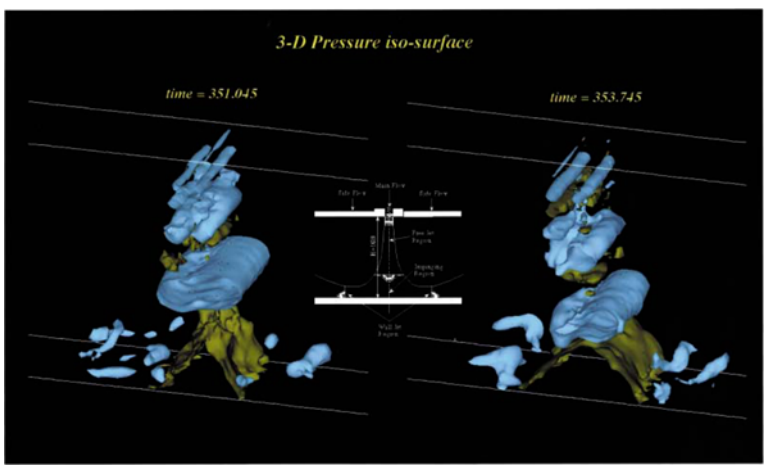

This figure indicates pressure iso-surface of the plane impinging jet at two instants which is numerically simulated by Large Eddy Simulation(LES). Reynolds number normalized by nozzle width and inlet velocity is 6,000. It is shown that pressure field is almost two dimensional just near the nozzle exit region. But after the impinging, fully three dimensional structure is observed. LES is suitable to investigate such organized structures because this method simulates flow field instantaneously at 3D region.