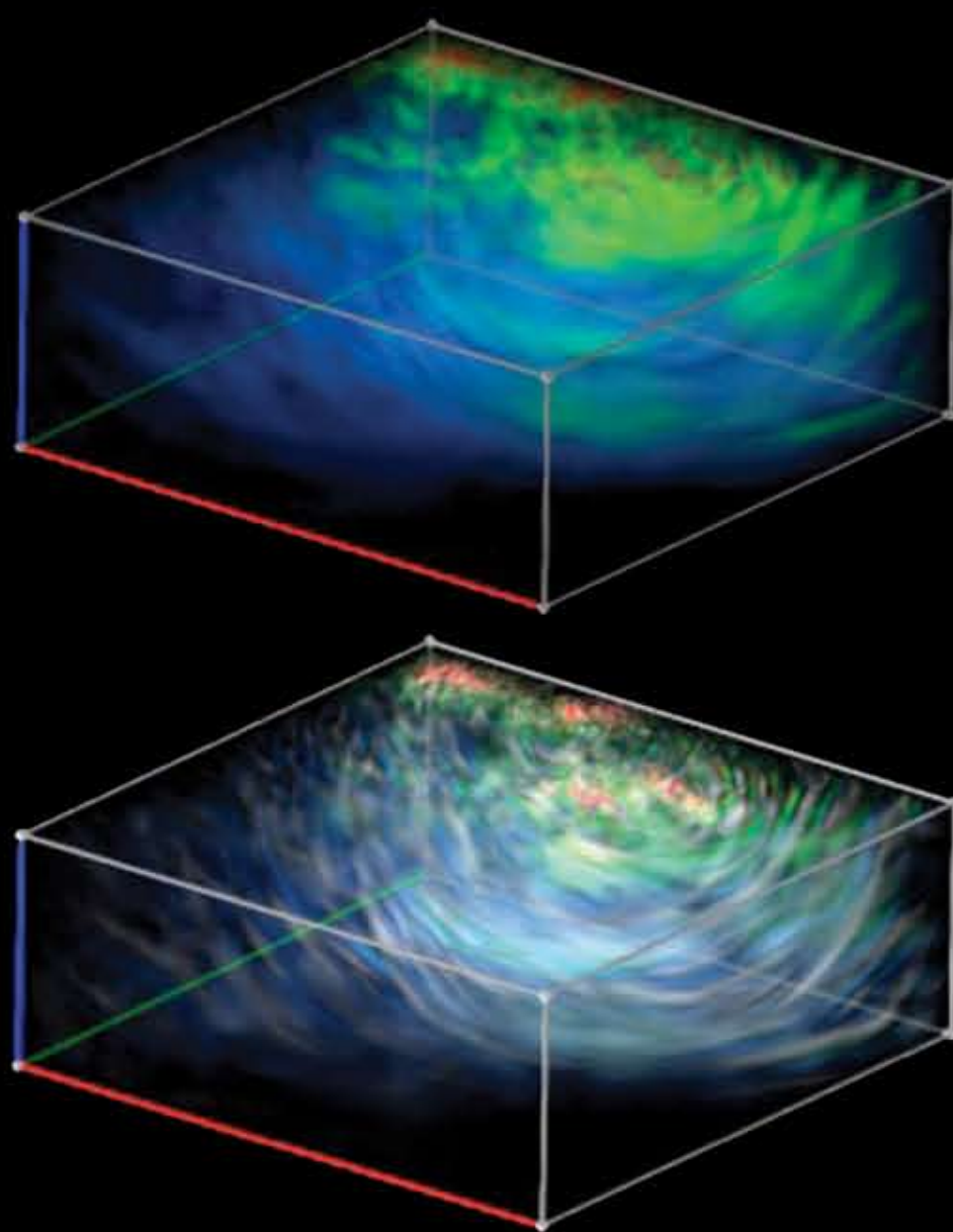
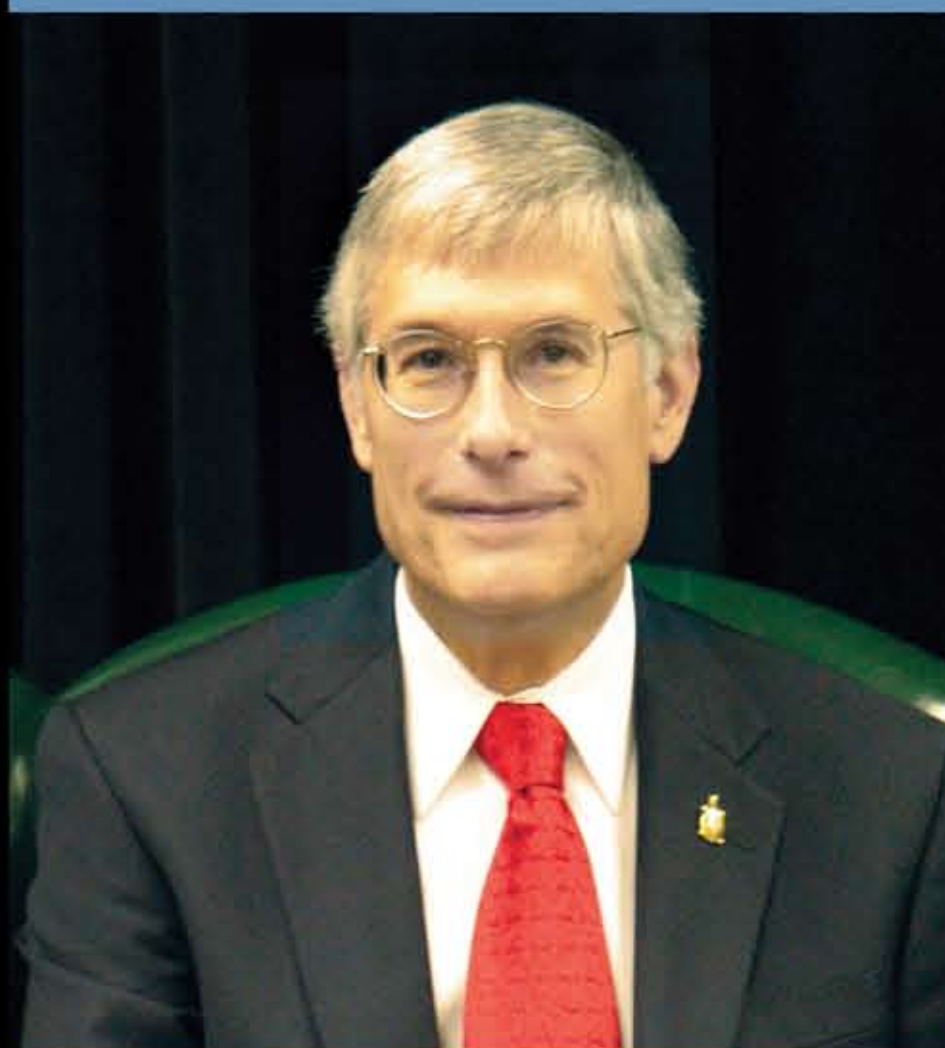


# 20 Years - Unleashing the Power of HPC

# SC2004

**2004 Chair**  
**Jeffery Huskamp**  
 Pittsburgh, PA



Visualizations of Earthquake simulation at time step 200. Top: unenhanced. Bottom: enhanced to bring out the wave propagation.

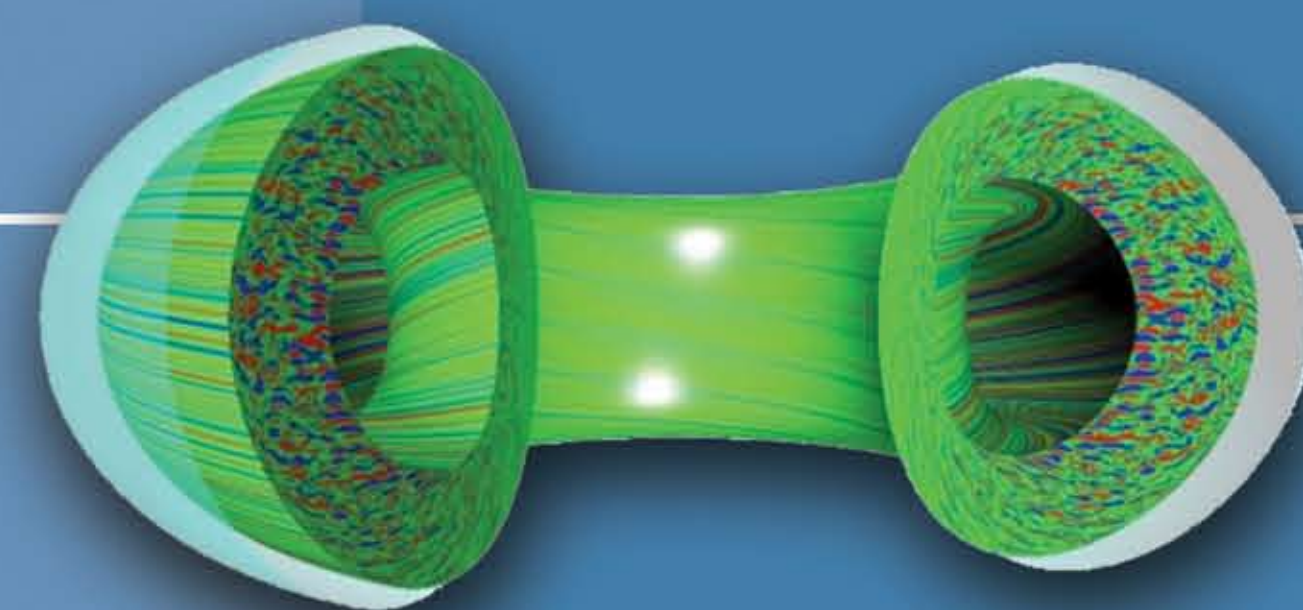
## 2004

Notable Systems first mentioned this year in the proceedings:

- SGI Altix
- IBM Power4

Notable Processors:

- AMD Athlon MP2000+
- AMD Athlon XP1800+
- AMD Opteron
- Sun SPARC64V
- IBM PowerPC 440



5 dimensional gyrokinetic tokamak simulation

Not Mentioned in the proceedings after this year:

- Sun UltraSPARC 5

Noteworthy Architecture Topics:

- Concurrency via coordination languages
- Virtualization
- Comparing vector and superscalar architectures
- Graphical Processing Units for high performance applications
- Enterprise desktop grids and cycle stealing

Notable Operating Systems:

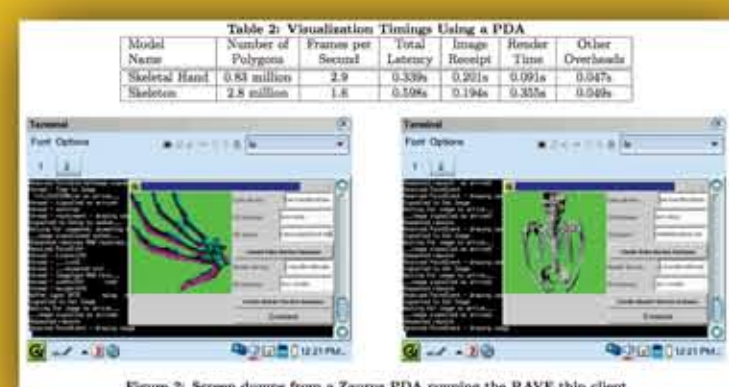
- Microsoft Windows Advanced Server 2000
- Microsoft Windows XP

Notable Programming Languages:

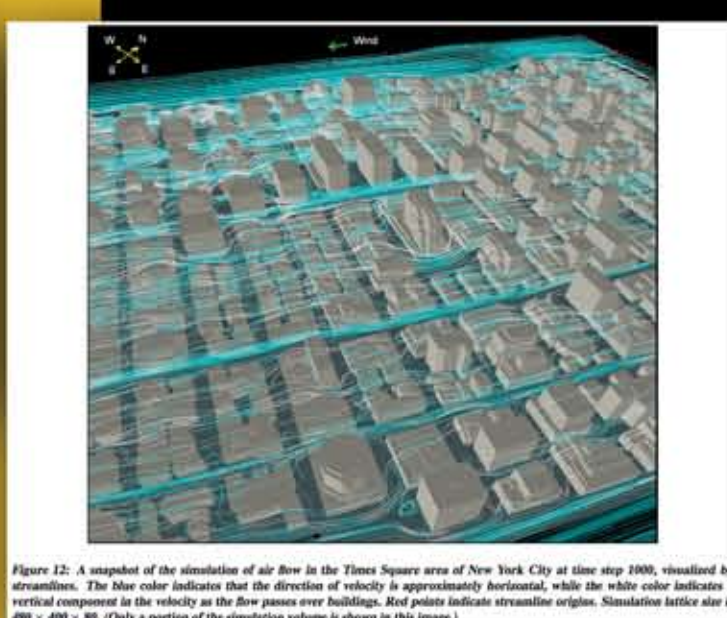
- XPFortran
- Manifold

Research Machines:

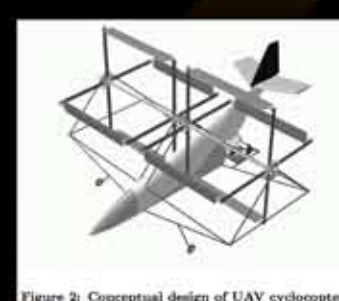
- Merrimac
- QCDOC



Visualization of Distributed Rendering on a PDA



Simulated airflow over buildings in NYC



The Cyclocopter VTOL aircraft

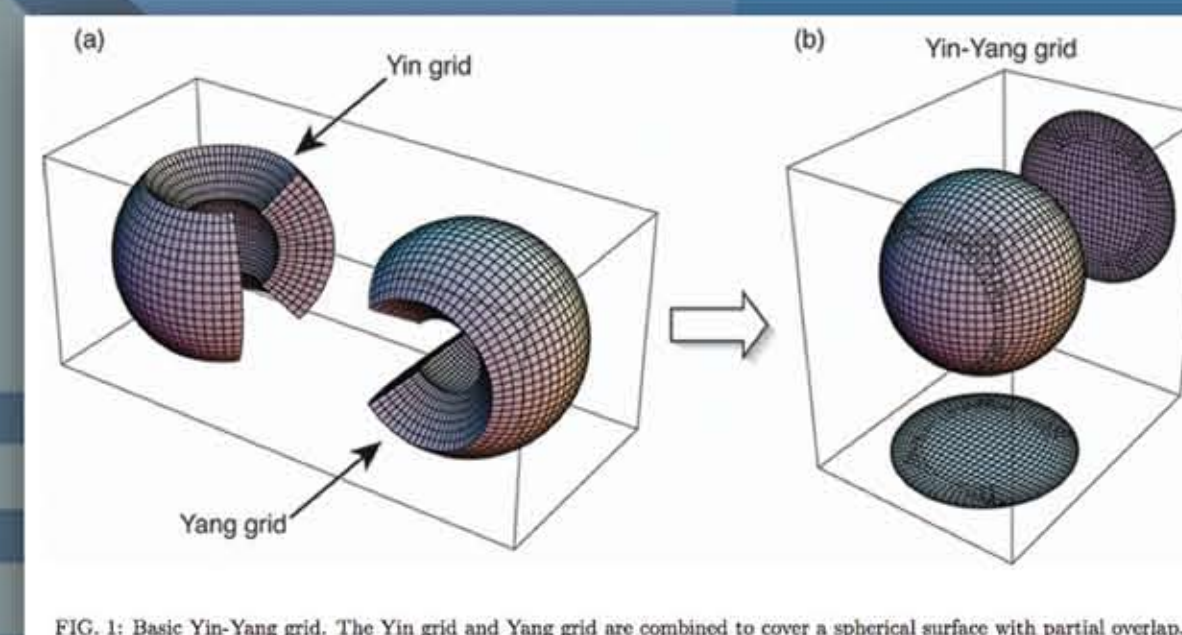


FIG. 1: Basic Yin-Yang grid. The Yin grid and Yang grid are combined to cover a spherical surface with partial overlap.

Geodynamo Yin-Yang Grid