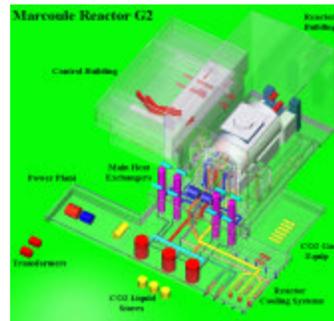
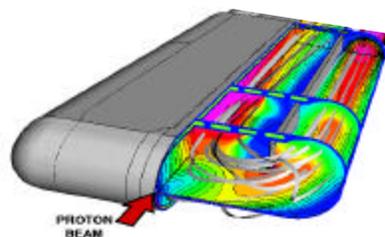


Scientific Computing Within the ORNL Modeling & Simulation Group

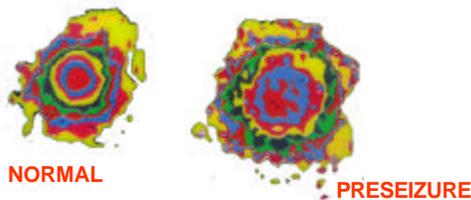
The ORNL Modeling and Simulation Group (MSG) develops sophisticated numerical solutions for a wide range of scientific, technical, and engineering applications. MSG specializes in computational sciences, that is integrating basic sciences and their appropriate numerical methods with individual problem physics. This fundamental focus permits an extremely wide problem-solving scope. Our modeling expertise includes:

- Physics-based modeling such as computational fluid dynamics, numerical fracture mechanics, and biomedical engineering; operational and engineering analysis of industrial processes and military technologies; as well as analysis of complex systems such as neurological processes and adaptive control systems.
- Consideration of technical, economic, deterministic, and optimized figures of merit in support of R&D, engineering design, operational, and manufacturing issues.
- Applications such as research reactors, global carbon sequestration, fusion energy, nuclear weapons manufacturing, advanced weapons systems, pollutant fate and transport, human brain seizures, and autonomous measurement and control systems.

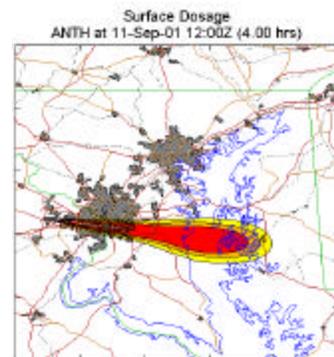
Physics-based CFD modeling of research reactor components



Engineering analysis of accident consequences at chemical, biological, & nuclear facilities



Nonlinear analysis of complex systems such as human brain seizures



Environmental modeling of atmospherically dispersed chemical, biological, & radiological agents

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