

Abstract

Next Generation Reservoir Simulation—New Capabilities For New Challenges

Author: Bret L. Beckner

ExxonMobil Upstream Research Co.

Reservoir simulation capabilities have grown significantly over the past decade, coinciding with the development of several next-generation reservoir simulators. The most distinguishing next-generation reservoir simulation technologies recently developed are the use of unstructured grids, the expansion of the modeling domain to include integration of surface facilities and multiple fields, and the use of parallel and grid computing to reduce turnaround times. This new class of next-generation reservoir simulation technologies is available to the reservoir engineer and presents many benefits. Unstructured grids can more accurately model complex geologic features and boundaries than is possible with rectilinear grids making fidelity with geologic modeling features (sloped faults, pinch outs, sinuous boundaries) a reality.

Abstract

Next Generation Reservoir Simulation—New Capabilities For New Challenges

Author: Bret L. Beckner

ExxonMobil Upstream Research Co.

Extension of the modeling domain to include surface facilities and other fields linked by common facilities allows simulations to model the dynamic interaction driven by reservoir management strategies for fields with common surface facilities. Recent advances in parallel simulation algorithms, coupled with parallel computers on the desktop, make parallel execution easily attainable for the reservoir engineer. With compelling illustrative examples of these new distinguishing technologies, this lecture will raise technology awareness and spur reservoir engineers to begin to apply these technologies to their own modeling problems.