

Computational Environments for Integration of Geophysics and Reservoir Simulation

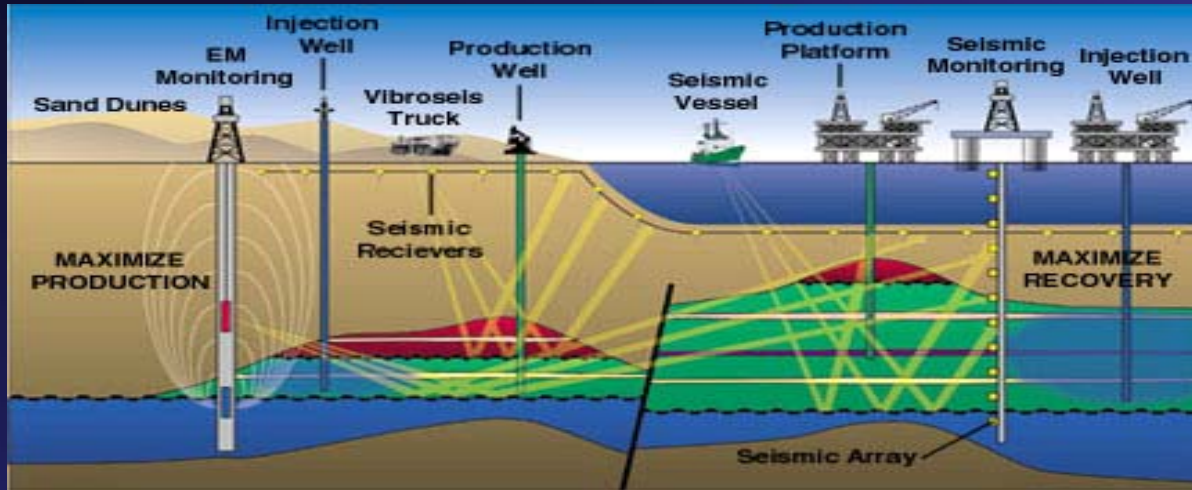


An overview of the NSF/ITR projects:

The Data Intense Challenge: The Instrumented Oil Field of the Future (2001-2005)

Data Driven Simulation of the Subsurface: Optimization and Uncertainty Estimation (2004-2007)

The Instrumented Oil Field



Model
Driven



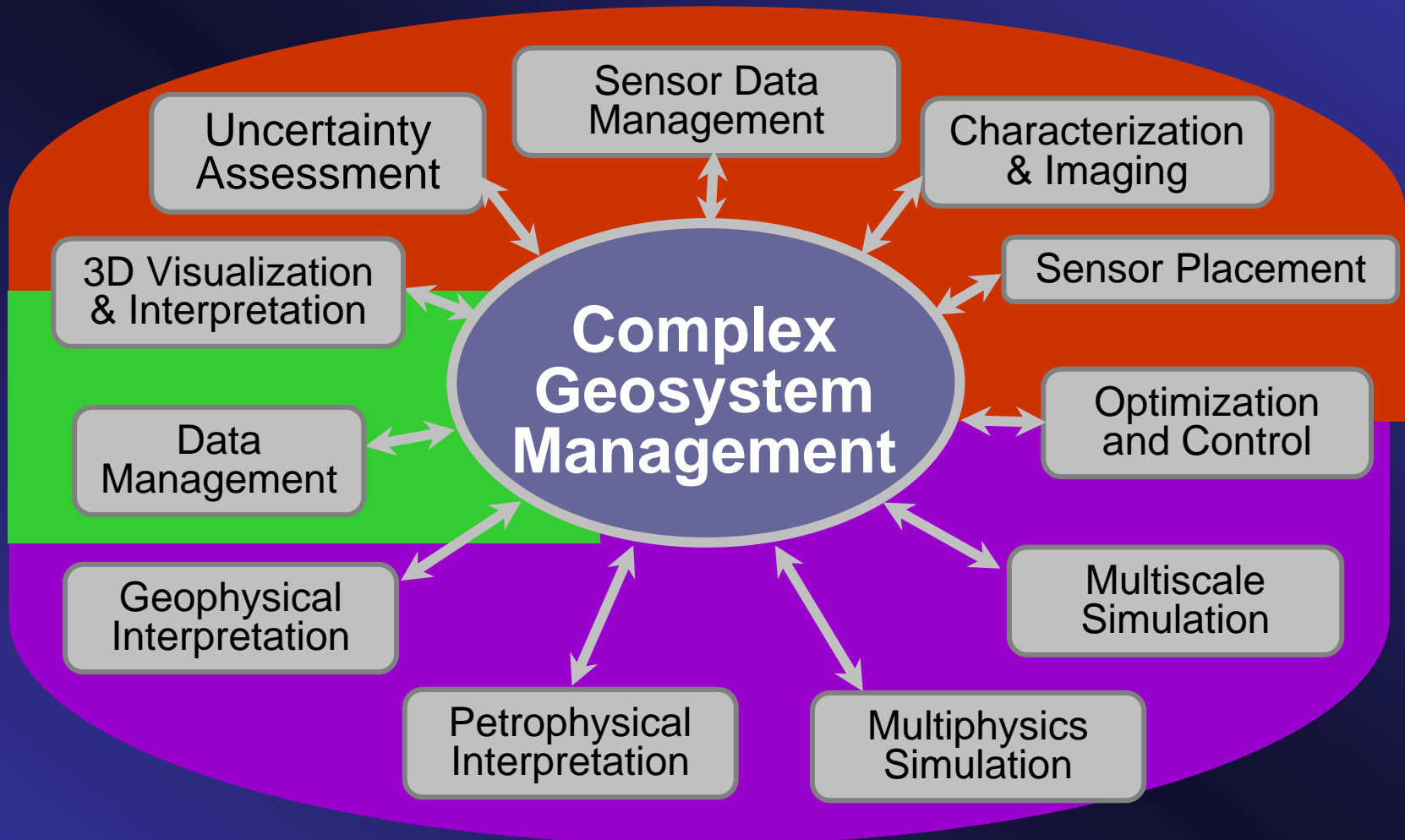
Assimilate data & reservoir properties into
the evolving reservoir model

Detect and track changes in reservoir
changes during production

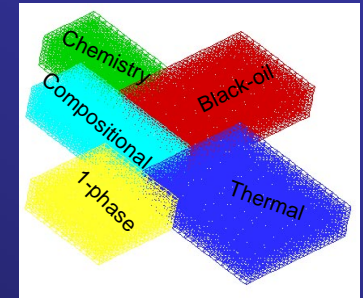
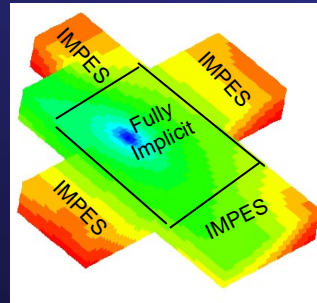
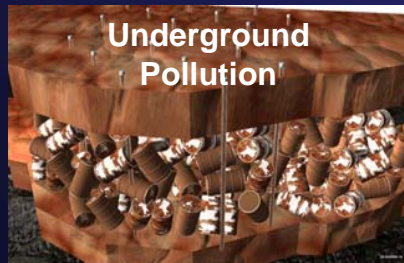


Data
Driven

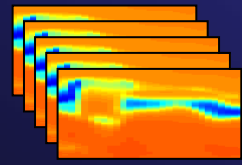
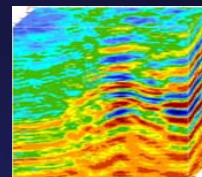
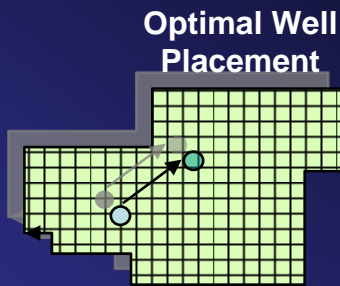
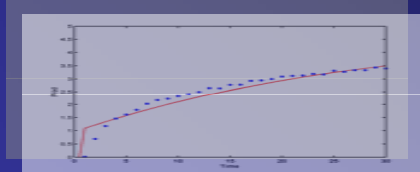
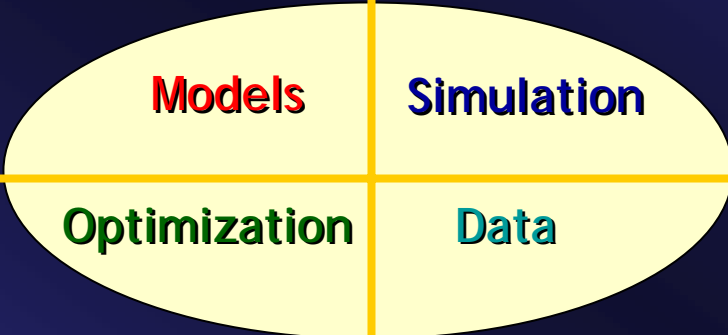
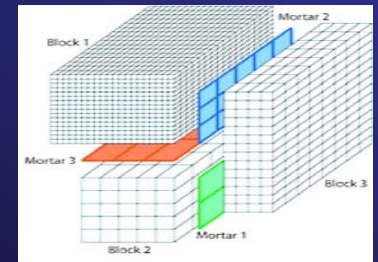
DYNAMIC DATA DRIVEN SUBSURFACE SYSTEMS



Accomplishments

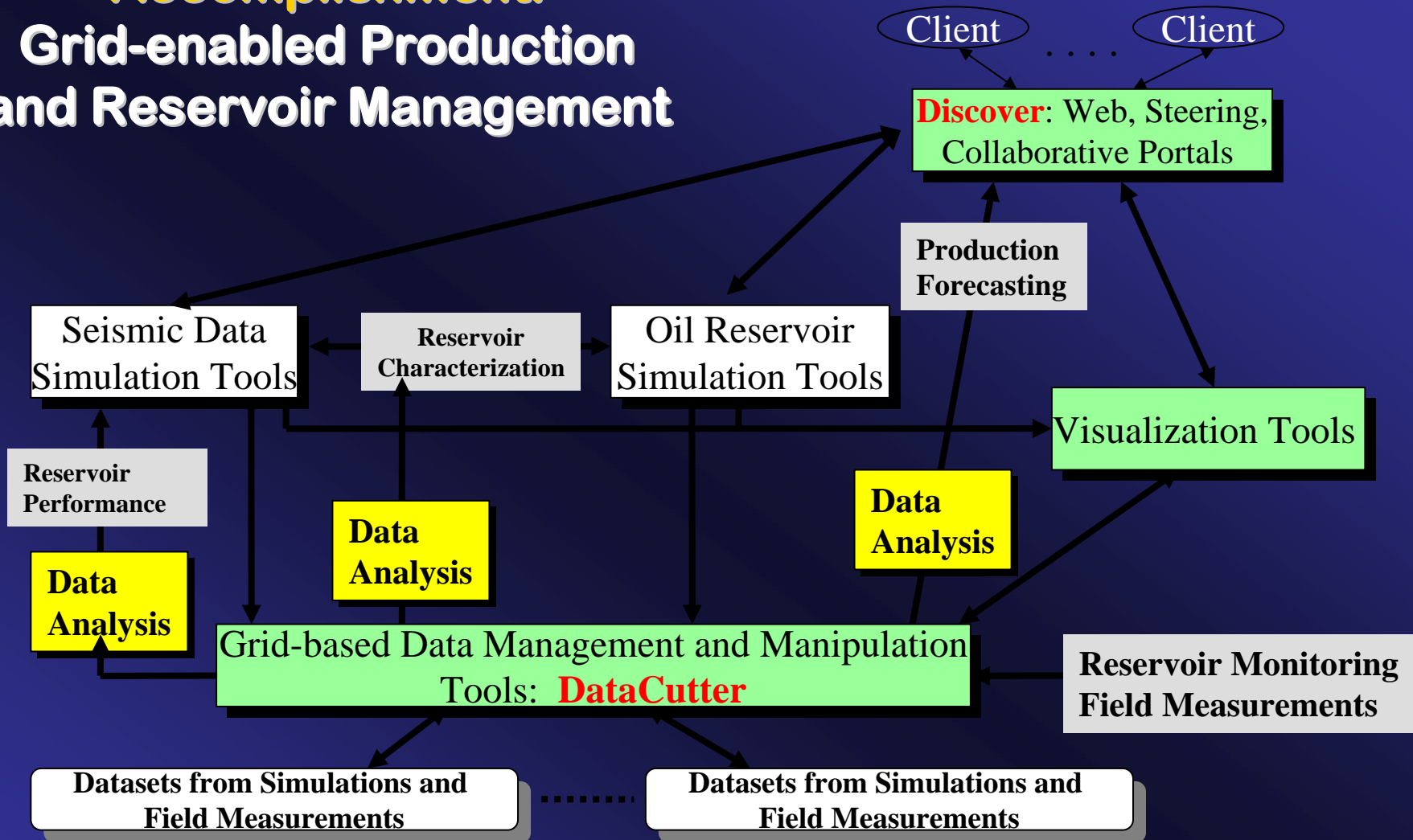


Multialgorithmic

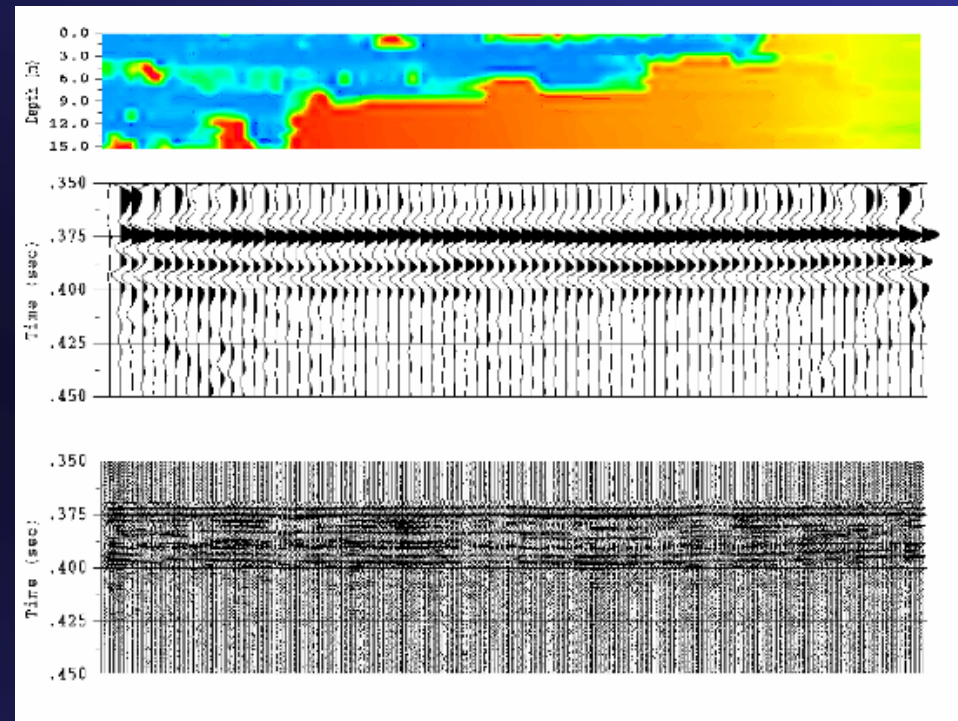
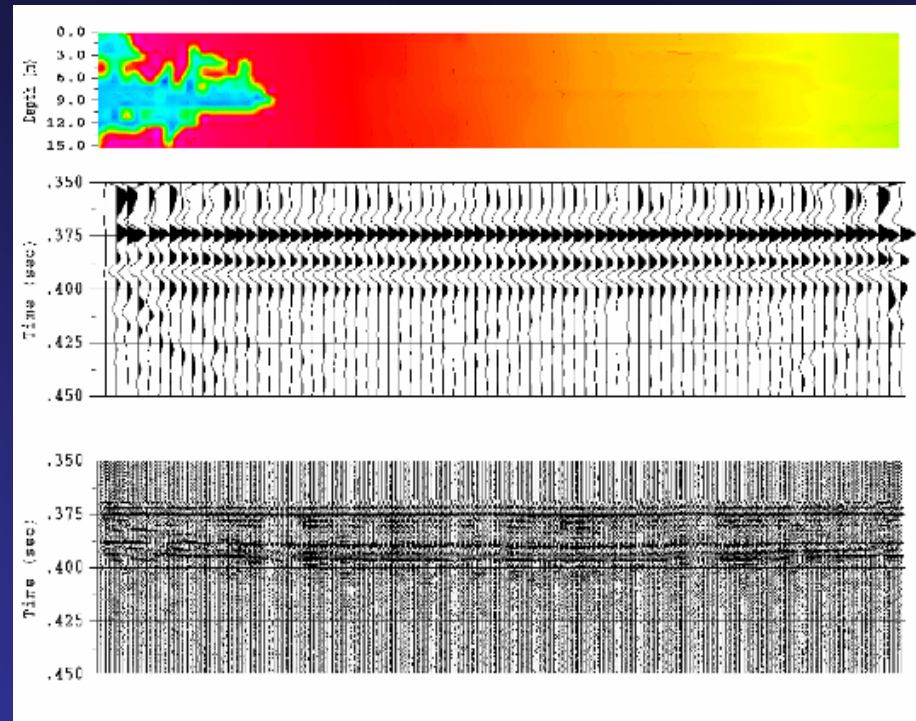


Mary F. Wheeler
Computational Environments for Integration of
Geophysics and Reservoir Simulation

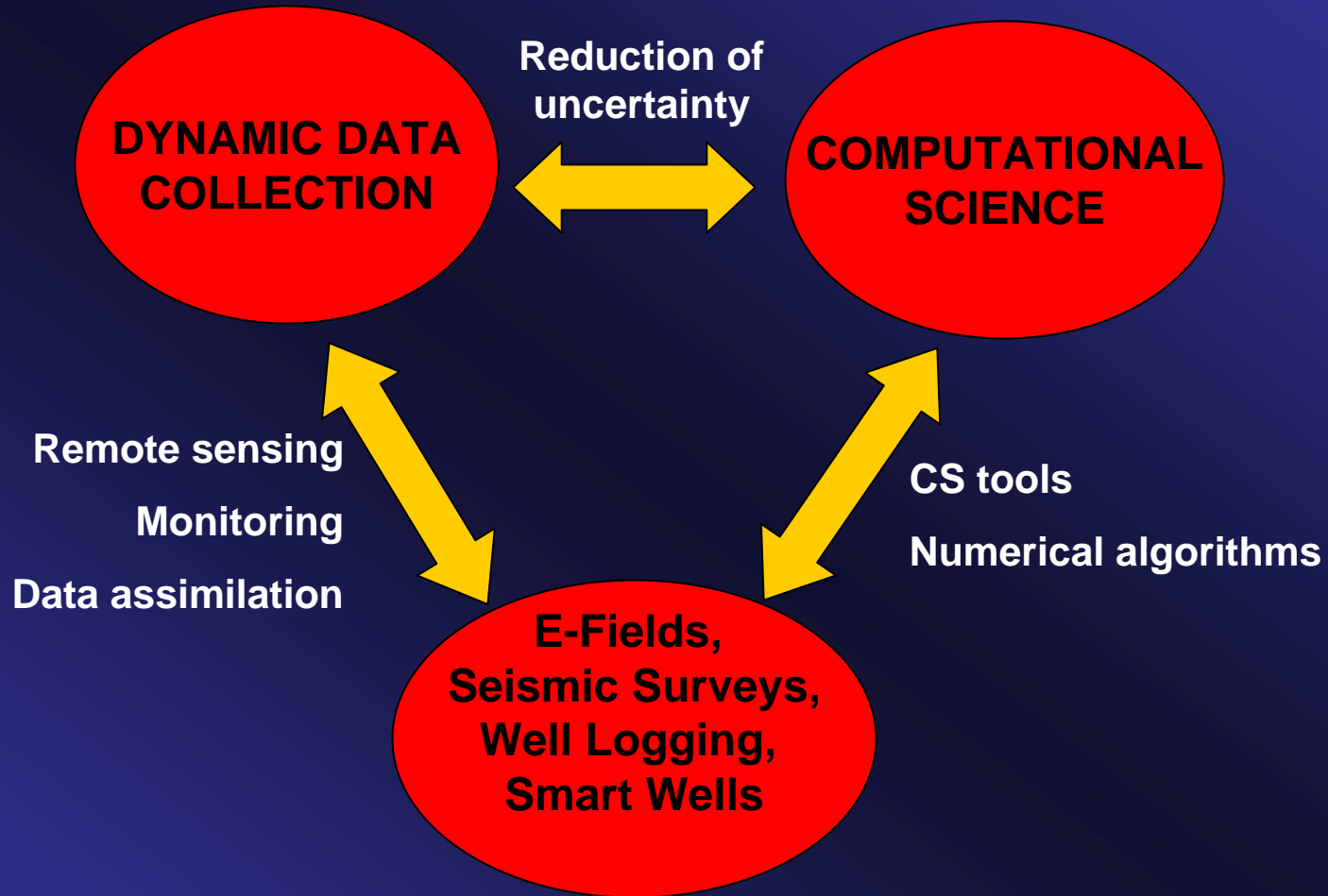
Accomplishment: Grid-enabled Production and Reservoir Management



Accomplishment: Sensitivity Analysis of Flow and Simulation



DDDAS: Integration of Data, Models, and IT



➤ **Publications and Invited Presentations:**

➤ **SEG, SPE, AGU, EAGE, SIAM, IEEE, ACM,
Supercomputing**

➤ **Workshops at**

➤ **DARPA, NASA, DOE, DOD, NSF**

➤ **Academic, Industrial and Governmental colloquia
and meetings**