

# Computational Environments for Integration of Geophysics and Reservoir Simulation

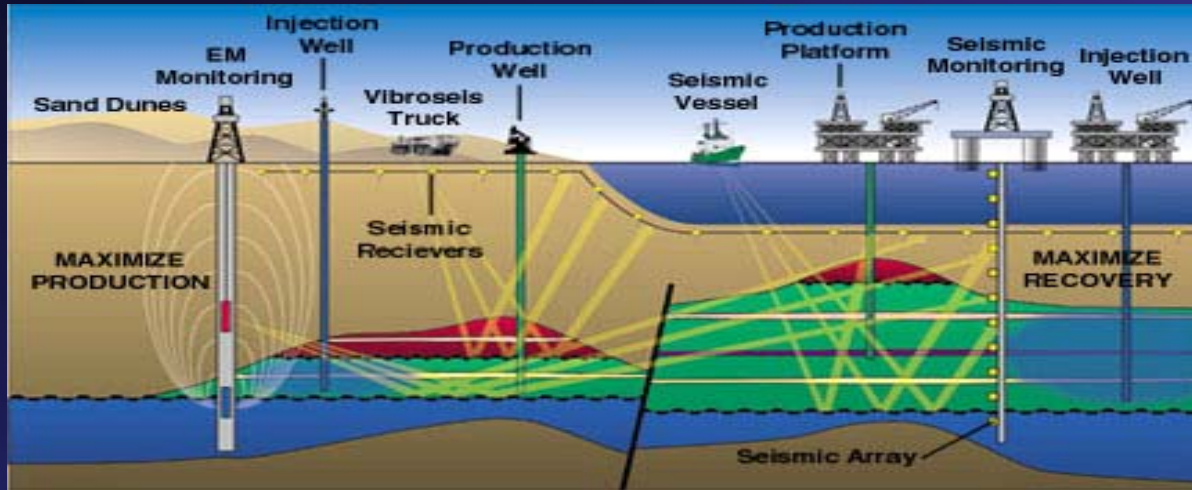


An overview of the NSF/ITR projects:

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



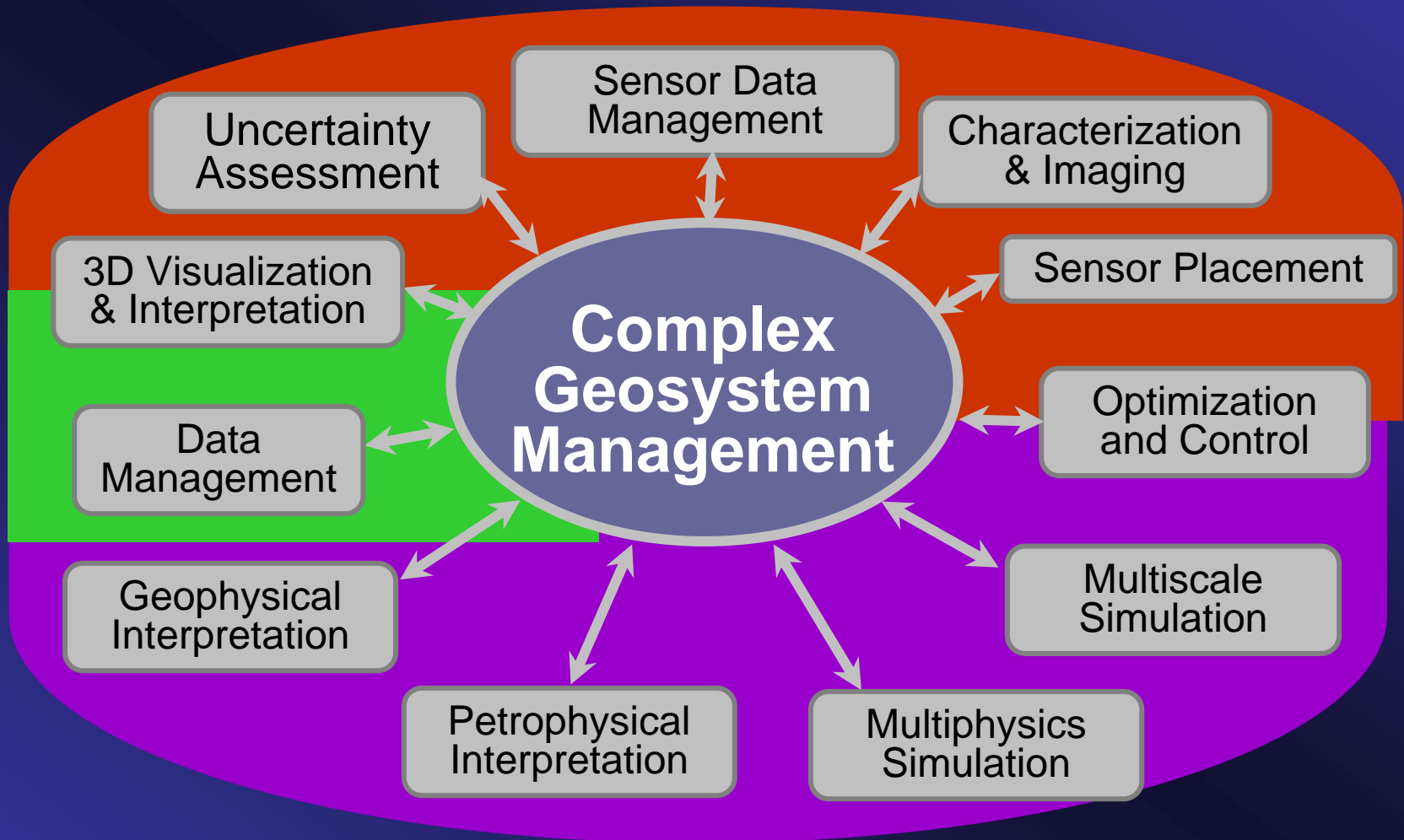
Assimilate data & reservoir properties into  
the evolving reservoir model

Detect and track changes in reservoir  
changes during production

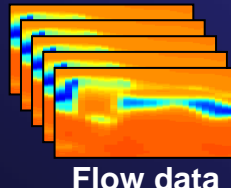
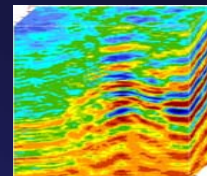
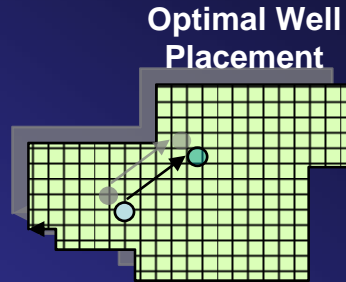
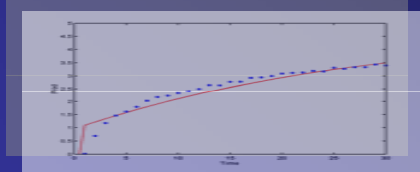
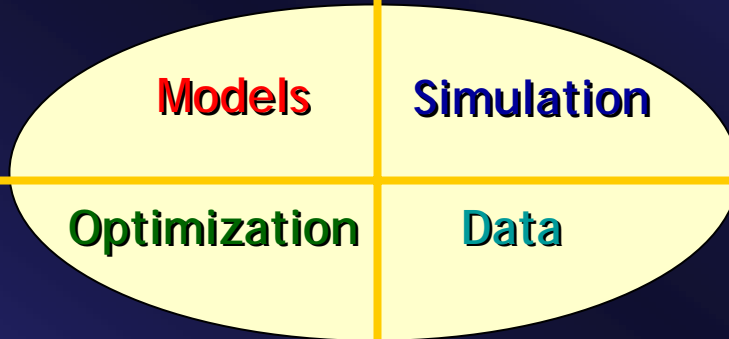
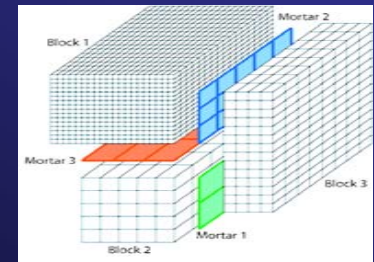
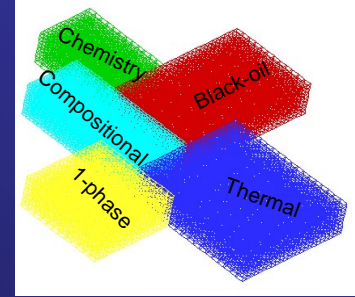
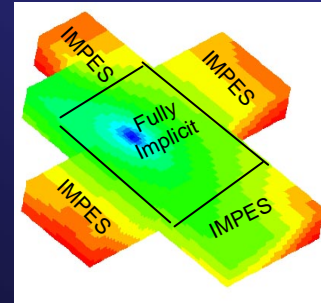


Data  
Driven

# DYNAMIC DATA DRIVEN SUBSURFACE SYSTEMS

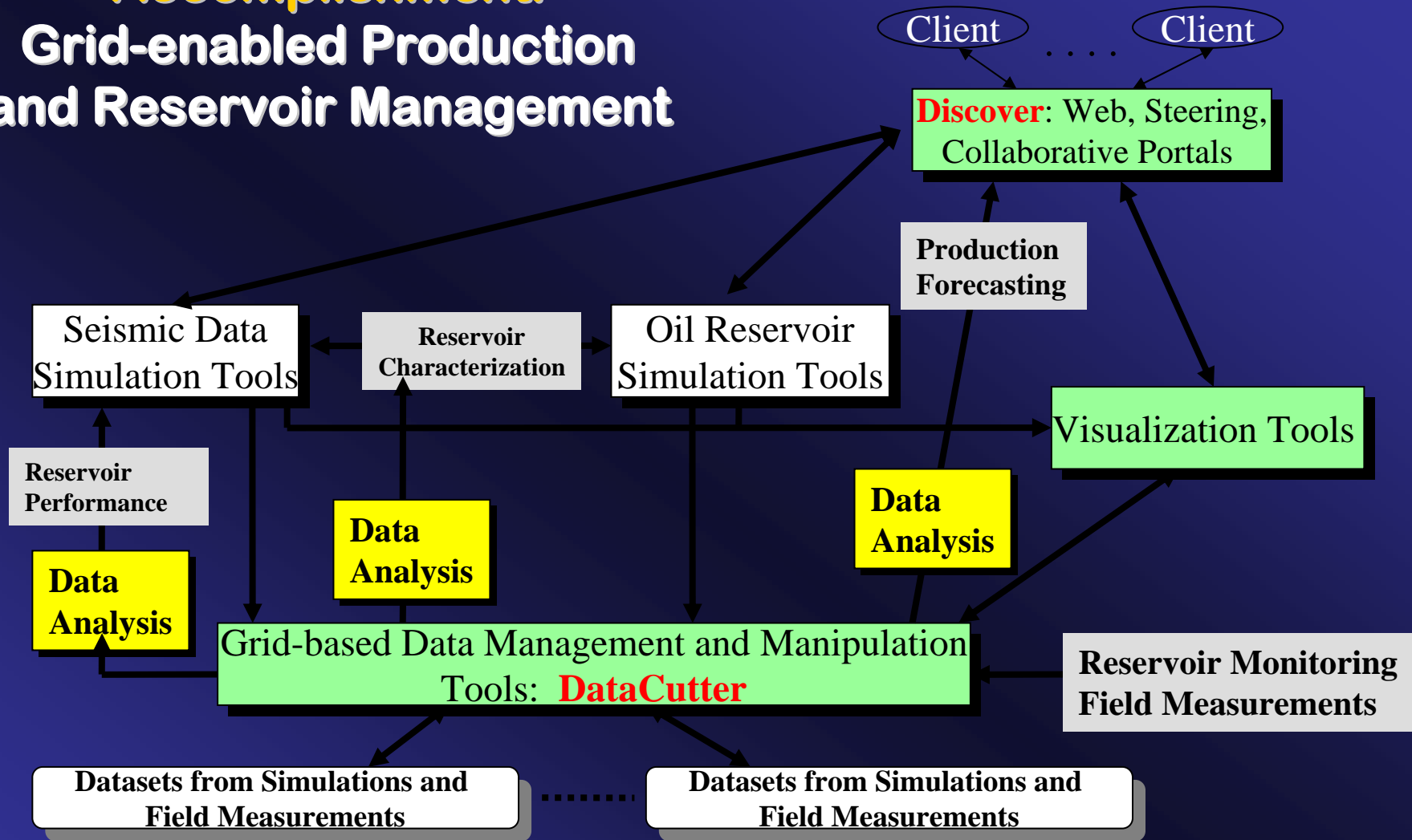


# Accomplishments

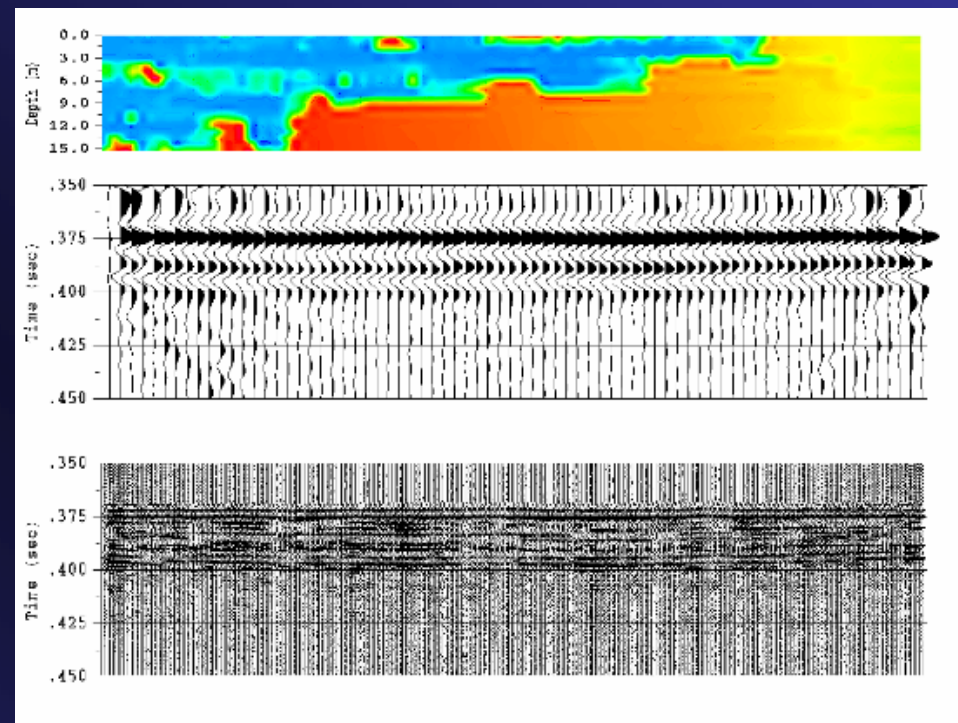
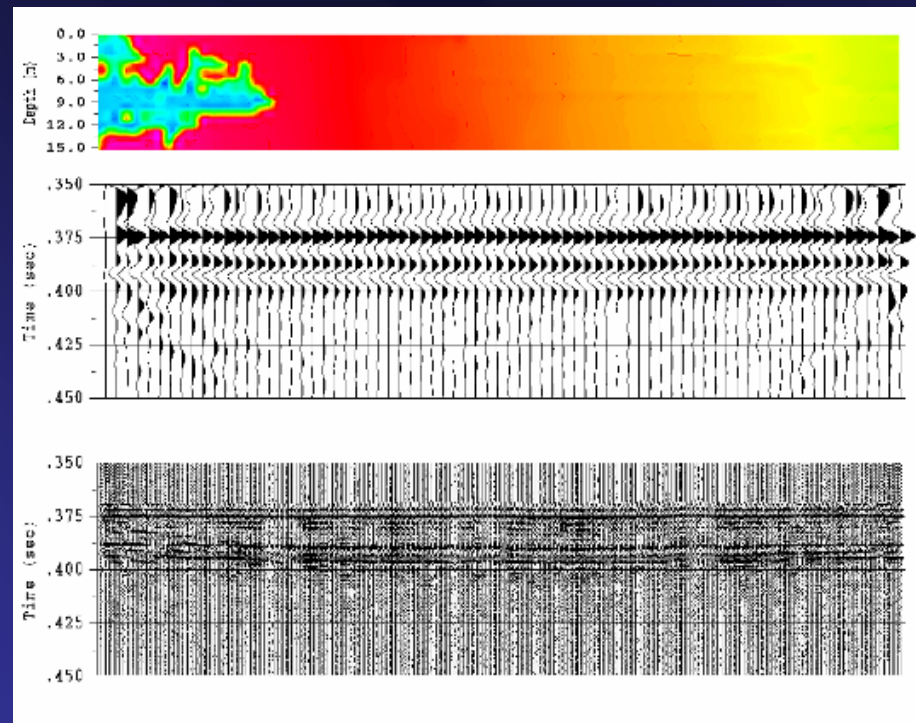


Mary F. Wheeler  
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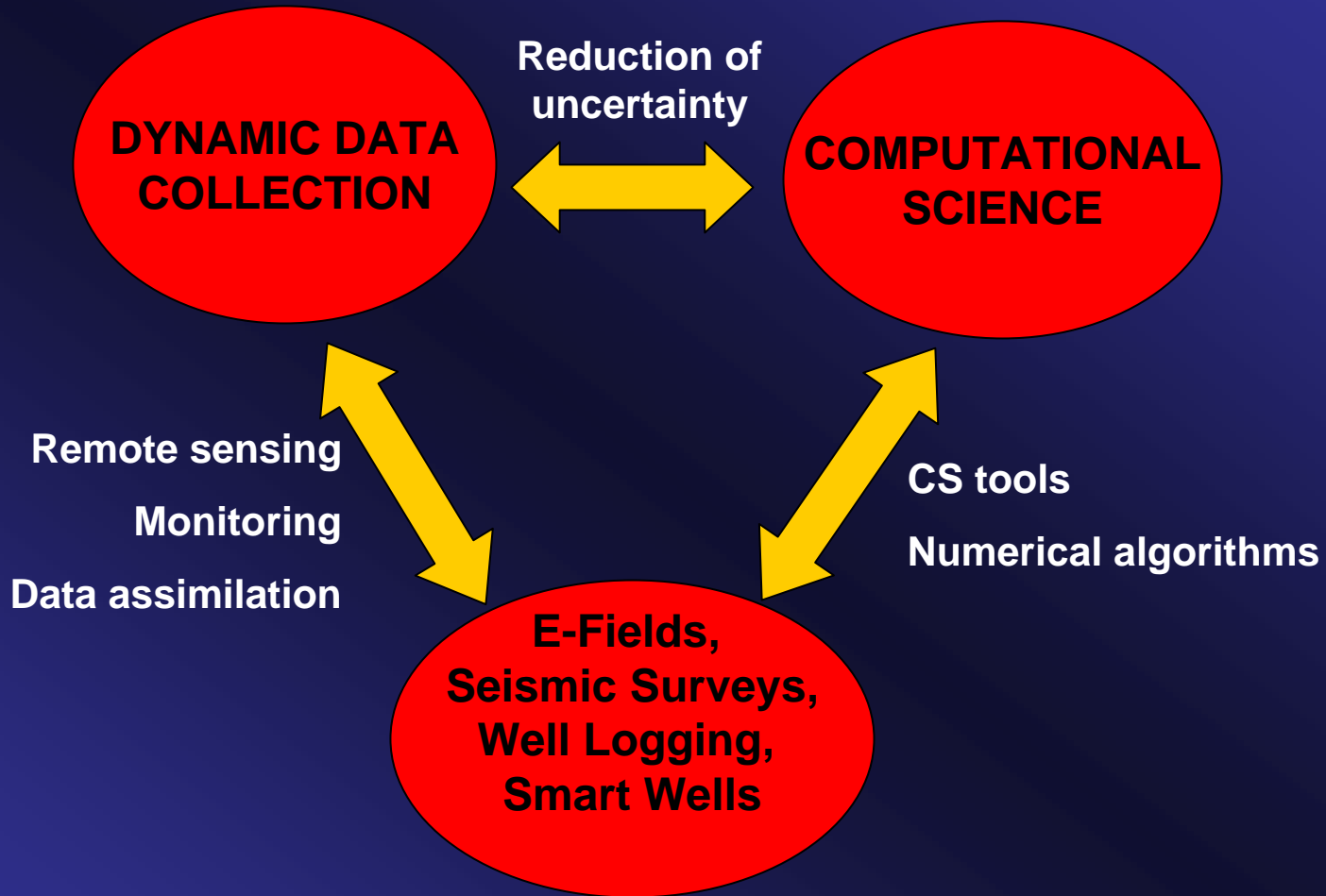
# Accomplishment: Grid-enabled Production and Reservoir Management



# 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**