

# Status of Geologic Storage

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**Fundamental Understanding  
Supports Secure  
Long Term Storage**

**Industrial Scale CO<sub>2</sub> Storage  
Projects Demonstrate  
Feasibility**

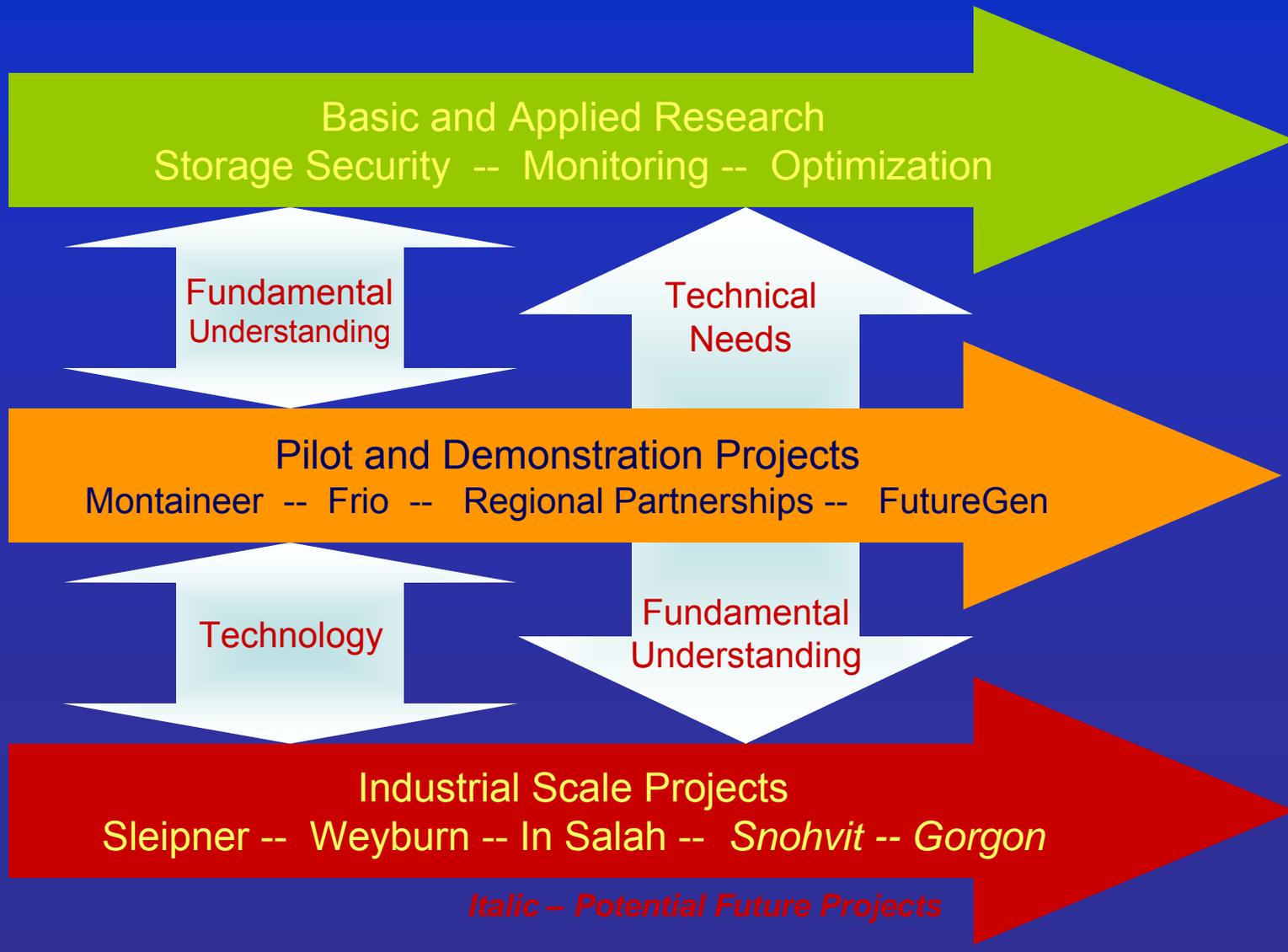
**Potentially Large  
Storage Capacity**

**CO<sub>2</sub> Capture with Geologic Storage  
is a Promising Option for  
Reducing CO<sub>2</sub> Emissions**

**Significant Investments  
In Research and Development  
Are Rapidly Expanding  
Knowledge and Experience**

**Existing Technology Available  
Site Characterization  
Risk Assessment  
and Monitoring**

# Technology Development and Deployment Pathways

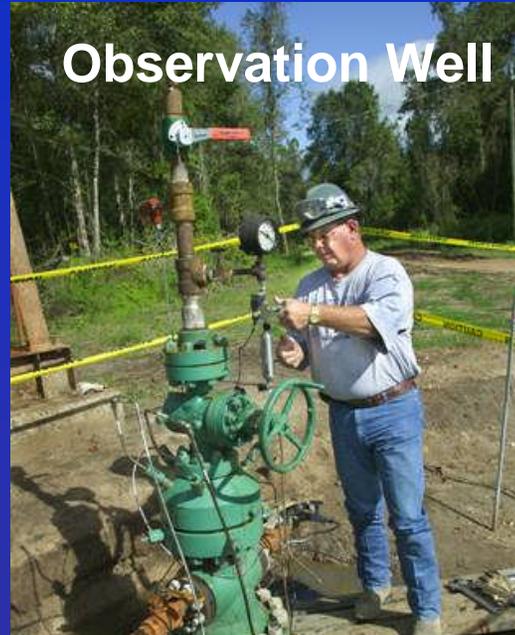


# Key Issues for Technology Development and Deployment

- Evaluating Abandoned Well Impacts On Storage Integrity
- Optimizing Sweep and Injectivity
- Demonstrating Long-Term Storage Integrity
- Developing Criteria for Site Selection
- Reconciling Top-Down and Bottom-Up Capacity Estimates
- Establishing Monitoring and Verification Protocols

# Fundamental and Applied Research: Understanding and Modeling Flow of CO<sub>2</sub> in Geologic Formations

- Understand migration processes and geochemical interactions
- Predict long term fate of CO<sub>2</sub>
- Demonstrate trapping mechanisms that increase storage security over time
- Build confidence in simulation models



**Observation Well**

*Photographs from the Frio Brine Formation Pilot Test led Susan Hovorka, UT*

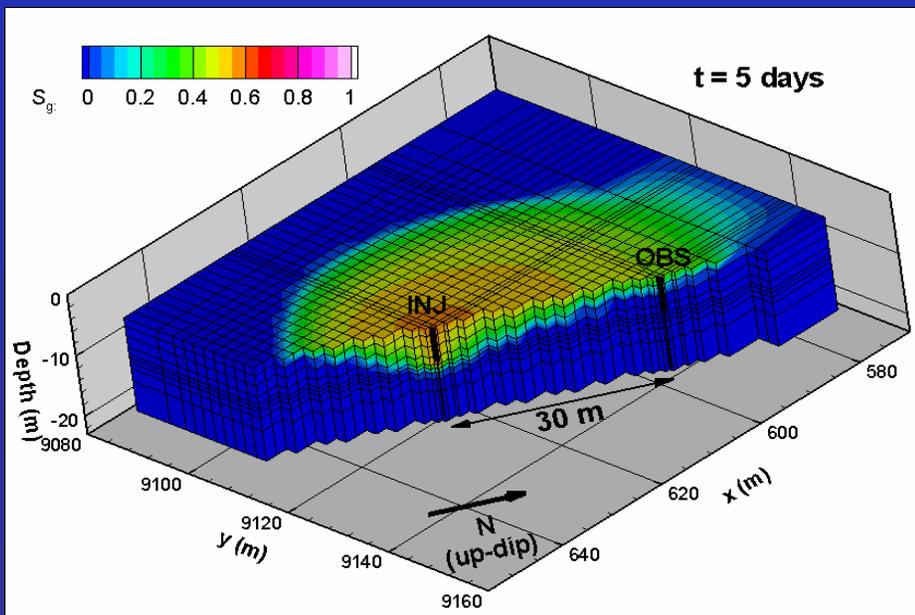


**CO<sub>2</sub> Injection Tankers**

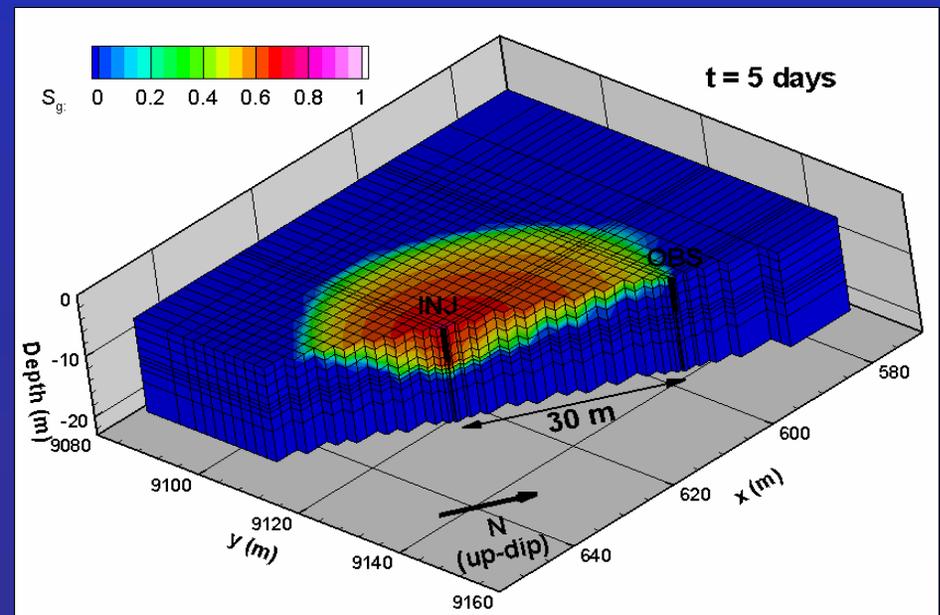
# Frio Brine Pilot Test Answers

## Key Question

Frio Brine  
Formation  
Pilot Test



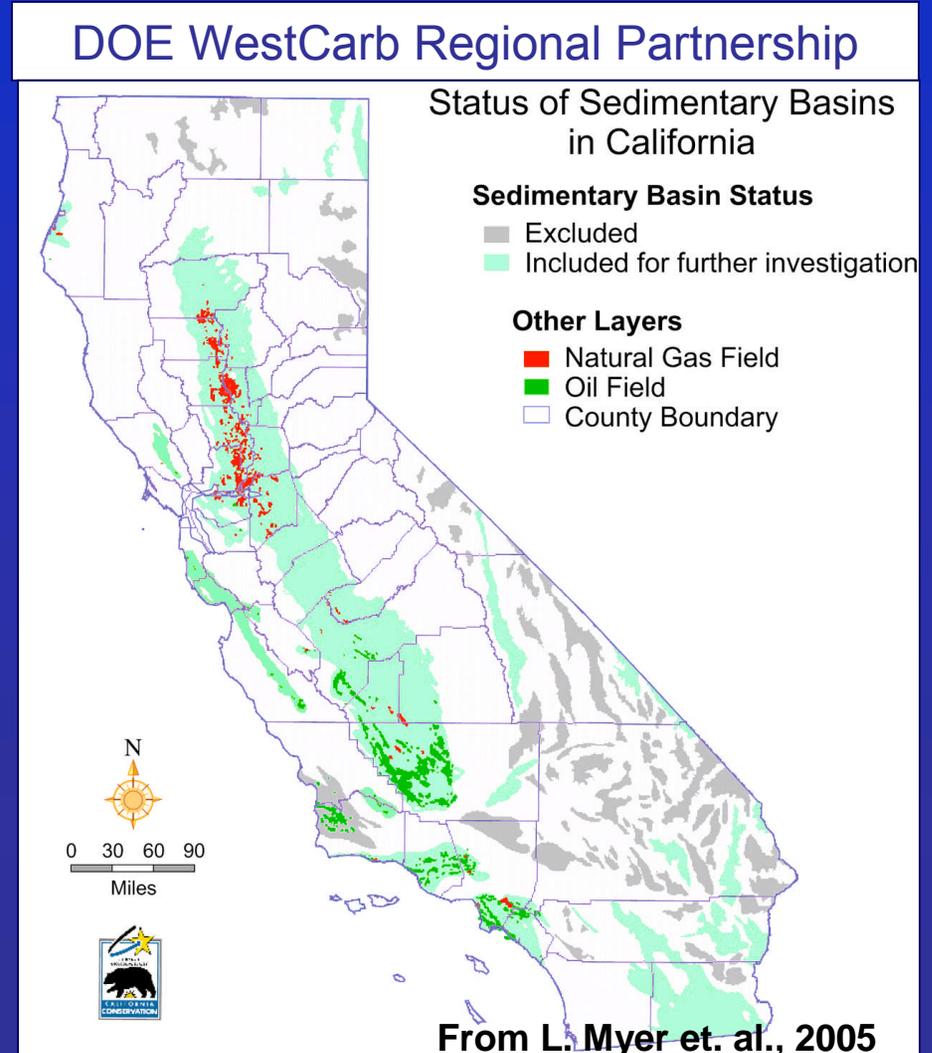
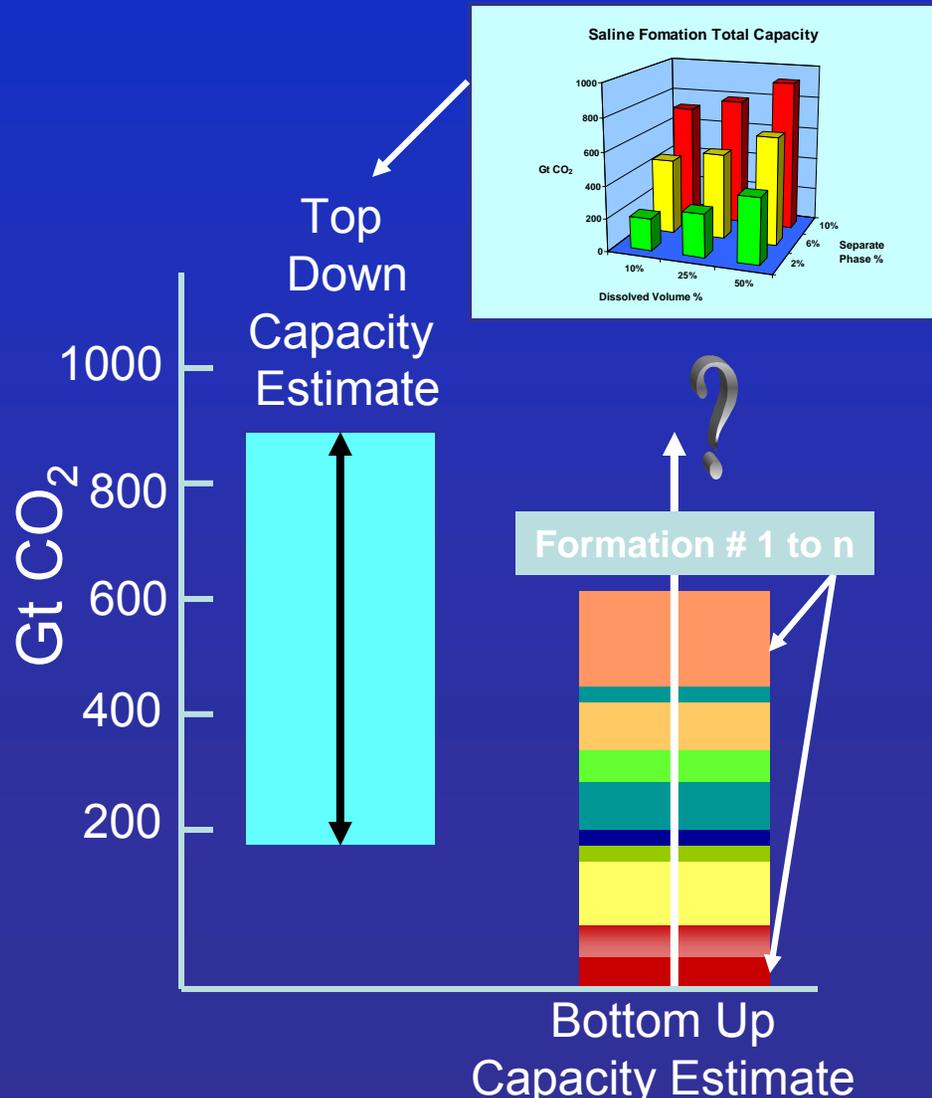
Low Residual CO<sub>2</sub> Saturation



High Residual CO<sub>2</sub> Saturation

From Doughty et al., 2005

# Pilot and Demonstration Projects: Reconciling Top-Down and Bottom-Up Storage Capacity Estimates



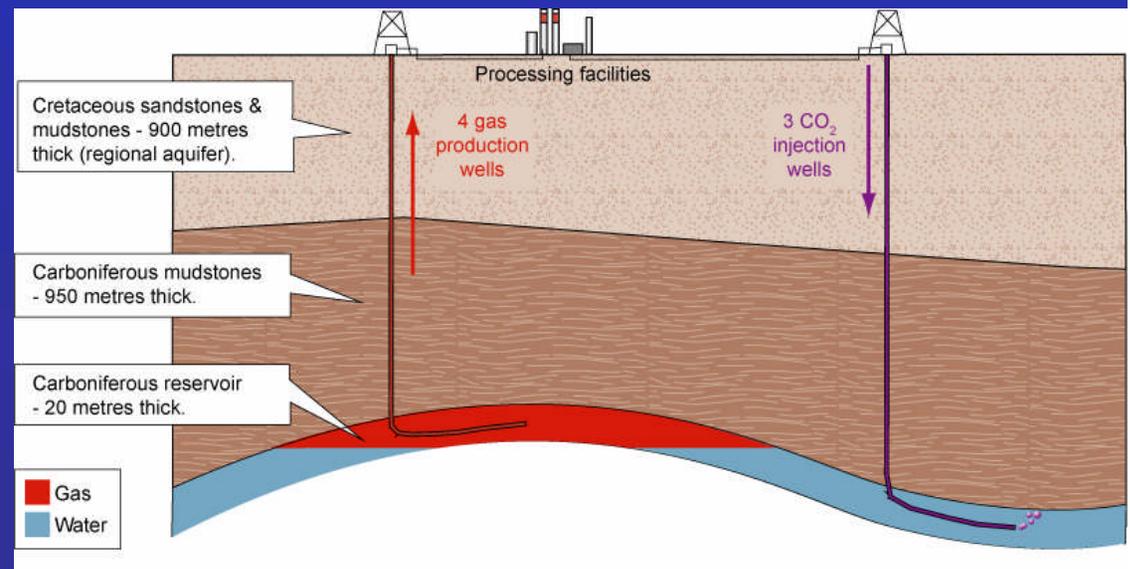
# Industrial Scale Projects: Optimizing Sweep Efficiency and Injectivity

Gas Processing and CO<sub>2</sub> Separation Facility

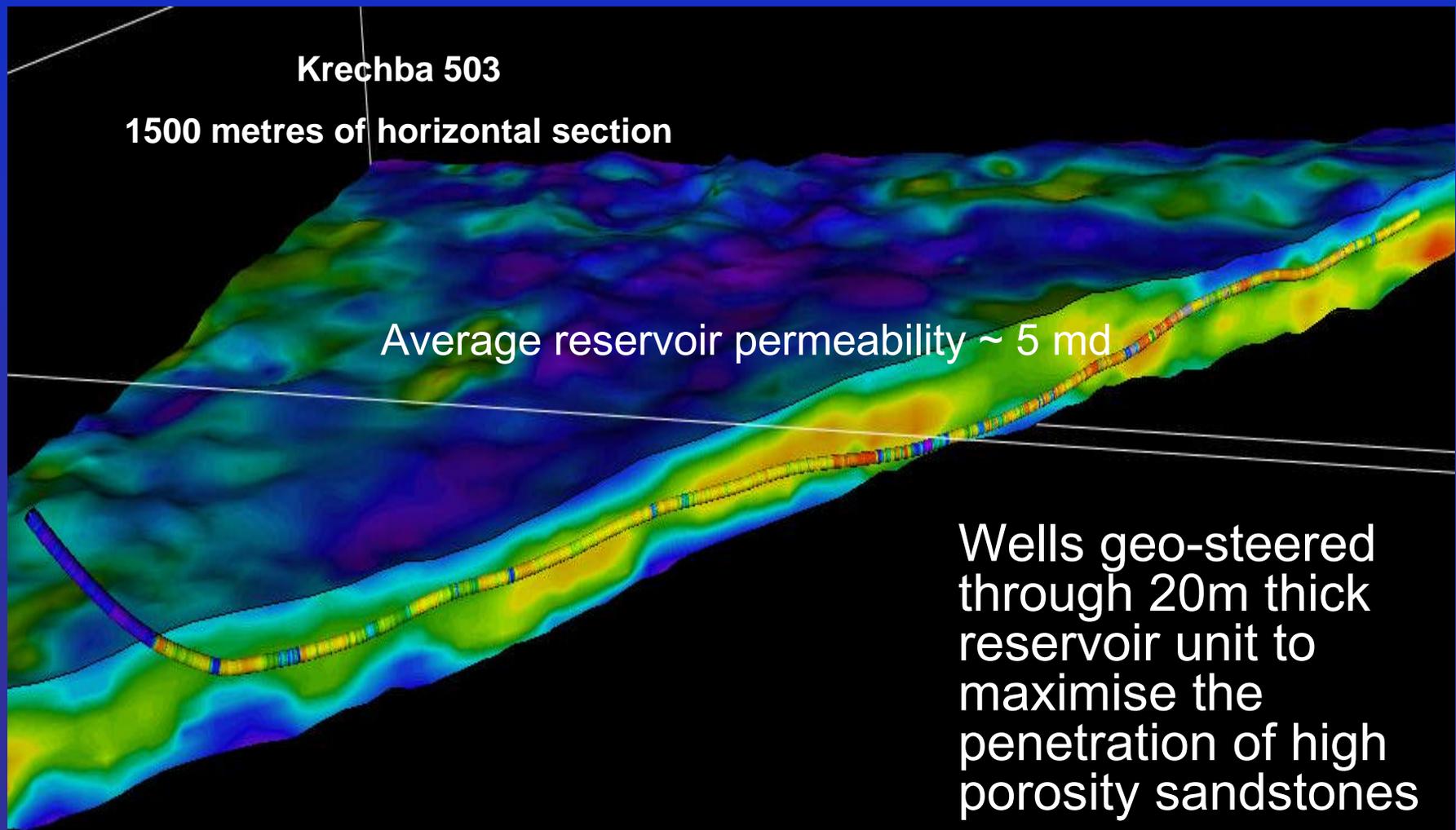


Courtesy of BP

In Salah Gas Project  
- Krechba, Algeria  
Gas Purification  
- Amine Extraction  
1 Mt/year CO<sub>2</sub> Injection  
Operations Commence  
- June, 2004



# Optimizing Sweep Efficiency and Injectivity with Long Reach Horizontal Wells



Courtesy of BP

# Cooperation and Knowledge Sharing will Greatly Accelerate Learning and Successful Deployment

