

4D Reservoir Management

0.8 CEUs (Continuing Education Units) awarded for this 1-day course.

Instructor

John Waggoner, WesternGeco

Intended Audience

Petroleum engineers, geologists, geophysicists, petrophysicists, managers, government officials, and others wanting to know what time-lapse seismic is and how it can help reservoir management. There are no prerequisite degrees or courses required to gain insight from this course.

Description

Time-lapse (or 4D) seismic is well on its way to becoming an integral part of reservoir management in several large oil companies, particularly in the North Sea. Successful published case studies have demonstrated that the geophysical, engineering, and economic challenges facing 4D seismic can, and have, been overcome, largely through better understanding of 4D seismic fundamentals and utilization of fit-for-purpose seismic acquisition and processing. Many of these studies also describe how reservoir management has benefited from 4D seismic. The author brings his reservoir engineering perspective and 4D seismic experience together to present 4D fundamentals, business drivers, challenges, case studies, workflows, and economics, along with ample time for questions and discussion.

Topics Covered

- ◆ Define terms and fundamentals of 4D
- ◆ Discuss the business drivers for 4D, focusing on reservoir management impact
- ◆ Explore the economics of 4D seismic
- ◆ Review selected 4D case histories (a 4D bibliography will be in handout)
- ◆ Describe the 4D workflow from feasibility through integration of results
- ◆ Illustrate different levels of 4D feasibility used to determine whether 4D will work
- ◆ Describe the integration of 4D results with reservoir simulation

About the Instructor

Dr. John Waggoner is Senior Reservoir Engineer and 4D Product Champion at WesternGeco/Reservoir Services in Houston. He holds BS, MS, and PhD degrees in Petroleum Engineering from The University of Texas at Austin, and worked 7 years at Sandia National Laboratories in the Geophysical Technology Department before joining Western Geophysical (later WesternGeco) in 1997. In addition to 4D seismic, his work experience includes reservoir characterization, artificial lift, and borehole telemetry. During the 2000 – 2001 season, John served as a SPE Distinguished Lecturer on the topic “*Integrating Time-Lapse (4D) Seismic Data with Reservoir Simulation*”. His current work focuses on integrating time-lapse (4D) seismic data with reservoir simulation, and on the use of 3D seismic data for improved reservoir characterization.