

SPE WORKSHOP



Society of Petroleum Engineers

29–30 November 2017 | JW Marriott | Austin, TX, USA

Learning From Reservoir Response: History Matching and Data Analytics

Important insights into reservoir characterization and field development optimization can be derived from dynamic reservoir responses such as rate and pressure transients, single and inter-well tracer response, multiphase production history, fiber-optic in-well measurements, and time-lapse seismic data.

The bulk of current industry experience in the calibration of geologic models for performance prediction and reservoir optimization comes from conventional reservoirs. In contrast, classical reservoir analysis techniques and data-driven methods for production data are common practice for unconventional reservoirs.

The theme of this workshop is to look for synergies and opportunities in combining these seemingly disparate approaches and glean new insights into what can be learned from field data to optimize the development of both conventional and unconventional reservoirs.

THANK YOU TO OUR PLATINUM SPONSOR!



COMMITTEE MEMBERS

Chairpersons

Akhil Datta-Gupta
Texas A&M University

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Shell

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Jose Villa
Anadarko

Xian-Huan Wen
Chevron

Xiao-Hui Wu
ExxonMobil Upstream
Research Company

Learning From Reservoir Response: History Matching and Data Analytics

TECHNICAL AGENDA

WEDNESDAY, 29 NOVEMBER

All technical sessions are located in the Lone Star Ballroom G-H.

0700-0800 | Registration and Breakfast

Lonestar Ballroom Foyer

0800-0815 | Chairperson's Opening Remarks

0815-0945 | **Session 1: Learning from History Matching**

Session Chairs: **Akhil Datta-Gupta**, Texas A&M University
Jose Villa, Anadarko

- **Presentation 1:** Practical Examples of Applied History Matching and Model Maturation
Jim Jennings, Shell
- **Presentation 2:** Rapid Simulation and History Matching of Unconventional Reservoirs Using Fast Marching Method
Mohan Kelkar, University of Tulsa
- **Presentation 3:** Uncertainty Quantification Using Data Space Inversion
Lou Durlowsky, Stanford University

0945-1015 | Coffee Break

1015-1145 | **Session 2: History Matching: Workflows and New Technologies**

Session Chairs: **Xian-Huan Wen**, Chevron
Gaoming Li, ConocoPhillips

- **Presentation 1:** An Integrated Geomechanics-Reservoir Simulation Workflow for Unconventional Plays
Tzu-hao Yeh, Shell
- **Presentation 2:** Learnings from Field Applications of Assisted History Matching
Alvaro Grijalba, Oxy
- **Presentation 3:** Seismic Constraint for History Matching
Xiuri Huang, Sunrise Petroleum Solutions Technology

1145-1300 | Lunch

Lone Star Ballroom F

1300-1430 | **Session 3: Learning from Pilot Testing**

Session Chairs: **Tiffany Polak**, Marathon Oil
S.P. Singh, Oxy

- **Presentation 1:** Development of a Technology to Map Hydraulic Fractures During Stimulation by Monitoring and Analyzing Poroelastic Responses
Nico Roussel, ConocoPhillips

- **Presentation 2:** Pilot Testing for CO2 EOR Development in a Mature Oil Field
Yusuke Fujita, JX Nippon

- **Presentation 3:** Unconventional Completion Pilot Design Utilizing Simulation and Statistics
Peng Ye, Hess

1430-1500 | Coffee Break

1500-1630 | **Session 4: Machine Learning and Data Analytics in History Matching and Optimization**

Session Chairs: **Jose Villa**, Anadarko
Sabastien Matringe, Newfield Exploration

- **Presentation 1:** Machine Learning and Data-Driven Approaches for Unconventional and Conventional
Xiang Zhai, Quantum Reservoir Impact
- **Presentation 2:** Statistical Modeling of Well Stimulation
Damian Burch, ExxonMobil
- **Presentation 3:** Application of Data Analytics for Production Optimization in Unconventional Reservoirs: A Critical Review
Srikanta Mishra, Battelle Memorial Institute

1630-1800 | Networking Reception

Room 401

THURSDAY, 30 NOVEMBER

0700-0800 | Continental Breakfast

Lone Star Ballroom Foyer

0800-0930 | **Session 5: Data Driven Analysis of Production History**

Session Chairs: **Jose Villa**, Anadarko
Sabastien Matringe, Newfield Exploration

- **Presentation 3:** Pre-Drill and Early Indication Production Prediction Models
Jonathan Parker, Marathon Oil
- **Presentation 2:** Data-Driven Reservoir Diagnostics in Times of Extreme Efficiency
Hamed Darabi, QRI International
- **Presentation 1:** Production Analysis and Forecasting Via Ensemble Learning
Hector Klie, DeepCast.ai

