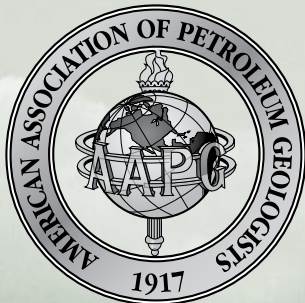




ROCKY MOUNTAIN **Energy Epicenter**

2008



Rocky Mountain Section

Rocky Mountain Geology & Energy Resources Conference

Presented by Rocky Mountain Section AAPG
Hosted by Rocky Mountain Association of Geologists



Held in conjunction with

Rocky Mountain Natural Gas Strategy Conference & Investment Forum

Presented by Colorado Oil & Gas Association

July 9 through 11, 2008 • Colorado Convention Center
Early Registration Discounts end May 23



2008 Rocky Mountain Section Meeting

ROCKY MOUNTAIN Energy Epicenter 2008



Welcome to the 57th annual meeting of the Rocky Mountain Section of American Association of Petroleum Geologists! For the third time since 2004, the Rocky Mountain geoscience community is combining with the Colorado Oil and Gas Association (COGA) to

present a joint energy summit: Energy Epicenter. The conference brings together gas and oil investors and marketers along with technologists responsible for exploration and exploitation. The conference highlights the fact that the Rocky Mountain region combines all critical aspects of unconventional oil and gas plays within a background of intense land-use and marketing issues that influence the economy of our nation.

While many issues are similar to those of four years ago, Energy Epicenter addresses new issues and twists on old issues. Increasingly, weather and climate play a large role in the economics and politics of energy in our region. While more gas pipelines exist and are under construction to the northeastern US, warm winters play a large role in gas demand and price. Climate change is much discussed and decreasingly debated. Surging oil prices have led to unconventional oil plays that strain the technology to improve productivity as much as tight gas sands and coalbed methane. Against all of this, population growth in the much of the Rocky Mountain region places additional pressure to increase recreation, home ownership and resource extraction, commonly on the same lands. These issues place the Rockies at an energy epicenter.

I want to thank the hardworking committee members who made this event unique and empowering. We give our special thanks to Fred Julander, Chairman, Jill McClure, Senior Vice President and Meg Collins, President, as COGA co-organizers of this event. We also thank the many companies who supported the meeting with sponsorships and those who are participating as exhibitors. This promises to be a unique and rewarding event for everyone. Thanks for attending, and enjoy Denver!

Donna S. Anderson
General Chairman, RMS-AAPG

Schedule at a Glance

All events will be held at the Colorado Convention Center unless otherwise noted. Check the Rocky Mountain Energy Epicenter website (www.epicenter2008.org) for the most current information.

Registration Hours

Tuesday, July 8	1:00 p.m. – 6:00 p.m.
Wednesday, July 9	7:00 a.m. – 6:00 p.m.
Thursday, July 10	7:00 a.m. – 6:00 p.m.
Friday, July 11	7:00 a.m. – 1:00 p.m.

Energy Epicenter Expo Hours

Wednesday, July 9	7:30 a.m. – 6:00 p.m.
Thursday, July 10	7:30 a.m. – 6:00 p.m.
Friday, July 11	7:30 a.m. – 1:00 p.m.

Tuesday, July 8

8:30 a.m. – 5:00 p.m.
4:00 p.m. – 5:30 p.m.

Short Course #1: USGS Core Research Center: Bakken Core Workshop
RMS-AAPG Foundation meeting, Comfort Inn, Denver

Wednesday, July 9

6:45 a.m. – 8:00 a.m.
7:30 a.m. – 5:00 p.m.
8:00 a.m. – 11:00 a.m.
9:00 a.m. – 2:00 p.m.
11:30 a.m. – 1:00 p.m.
10:00 a.m. – 6:00 p.m.
1:15 p.m. – 4:15 p.m.
4:00 p.m. – 6:00 p.m.

AAPG House of Delegates Breakfast Meeting
Speaker Rehearsal/Judges' Room
Technical Sessions (3)
Spouse/Guest Tour #1: Botanic Gardens, Lunch and City Highlights
Welcome Ceremony/Awards/AAPG Keynote Luncheon
Poster Sessions (up all three days)
Technical Sessions (2)
Ice Breaker (held at the Energy Epicenter Expo)

Thursday, July 10

6:30 a.m. – 8:30 a.m.
7:30 a.m. – 5:00 p.m.
8:15 a.m. – 10:00 a.m.
10:00 a.m. – 11:15 a.m.
11:15 a.m. – 11:45 a.m.
9:00 a.m. – 3:00 p.m.
8:00 a.m. – 6:00 p.m.
11:45 a.m. – 1:00 p.m.
1:15 p.m. – 4:15 p.m.
4:30 p.m. – 6:00 p.m.

RMS-AAPG Executive Committee Breakfast Meeting
Speaker Rehearsal/Judges' Room
AAPG/COGA Joint Mega Session I
AAPG/COGA Joint Mega Session II
Energy Epicenter Expo Networking Break
Spouse/Guest Tour #2: Tea and Wine Tasting
Poster Sessions (continued)
Joint Keynote luncheon (seating begins 11:45)
Technical Sessions (3)
COGA Chairman's reception (held at the Energy Epicenter Expo)

Friday, July 11

7:30 a.m. – 1:00 p.m.
8:00 a.m. – 12:00 p.m.
8:00 a.m. – 11:00 a.m.
8:30 a.m. – 1:00 p.m.
11:30 a.m. – 1:00 p.m.
1:00 p.m. – 5:00 p.m.

Speaker Rehearsal/Judges' Room
Poster Sessions (continued)
Technical Sessions (3)
Spouse/Guest Tour #3: Downtown Attractions
Energy Epicenter Expo Party
Short Course #2: USGS Core Research Center Niobrara Core Workshop

Saturday, July 12

8:00 a.m. – 7:00 p.m.
8:00 a.m. – 7:00 p.m.
8:30 a.m. – 5:00 p.m.

Field Trip #1: Departs Denver: Niobrara of Front Range
Field Trip #2: Departs Denver: Lewis Shale, Green River Basin
Short Course #3: Colorado School of Mines: Completions and Stimulation for Geologists

COGA Golf Tournament Bear Dance Golf Club

Monday, July 7	7:30 a.m. Morning Shotgun Start 1:15 p.m. Afternoon Shotgun Start
Tuesday, July 8	7:30 a.m. Morning Shotgun Start 1:15 p.m. Afternoon Shotgun Start



2008 Rocky Mountain Section Meeting

General Information

Downtown Denver

Located at the base of the Rocky Mountains, Denver is one of America's most beautiful cities. Home to three new sports stadiums; over 300 restaurants; a historic downtown district with bars, pubs, jazz clubs and restaurants; a collection of museums; a variety of galleries and shopping; the second largest performing arts center in the nation; and a unique downtown amusement park, Elitch Gardens.

Transportation

Denver has an excellent public transportation department offering safe, clean and reliable Light Rail and Bus Routes. Visit www.rtd-denver.com for more information (fares are \$1.75). Downtown Denver also has a FREE Shuttle along the 16th Street Mall between Broadway to Wynkoop, stopping at each intersection along the way.

Opening Night Party

The Opening Night Party is open to all conference attendees at a unique Denver venue. It will be held on Wednesday, July 9 from 6:30 p.m. until 10:30 p.m. Location to be announced. Check the web site for more information. Tickets available for purchase.

Lodging

Rocky Mountain Energy Epicenter attendees can take advantage of discounted, reserved hotel rooms at the Grand Hyatt Denver

located at 1750 Welton Street. The hotel is within easy walking distance of the Colorado Convention Center, light rail station and 16th Street Mall Shuttle. Tel: 303.295.1234; Group Code: COG1

Group rates apply while rooms are still available or until June 19, 2008.

Name Badges

Name badges will be provided at registration and are required for entrance to all conference events. Badges are issued to each registrant only. Badges are not transferable to others. I.D. will be required upon check-in and throughout conference events.

Registration List

Email transmittals of the registration list will be available after the conference. The list will not include email addresses and are only made available to conference registrants. The cost for the registration lists is \$25.

Students

Student registration is available at a discounted rate of \$85, online registration only. To qualify for the student rate, one must be a full-time registered student along with a valid Student I.D. The Student Eligibility Form is available at www.epicenter2008.org. Student I.D. and a signed Student Eligibility Form will be required at check-in.

Opening Session/Keynote Speaker/Luncheon — Wednesday



In the Opening Session General Chairman Donna Anderson, will highlight the meeting's theme of "Energy Epicenter 2008," a showcase for the nation on how to develop new fields in environmentally sensitive areas. In this joint meeting, geoscientists with the ideas for finding new oil and gas fields join with top business leaders to share ideas and plan strategies for the future.

The session kicks off with comments from the head table, including AAPG and Rocky Mountain Section leaders along with COGA General Chairman Fred Julander. Ceremonies will also include presentation of the 2007 A.I. Levorsen Memorial Award, the Steve Champlin Memorial Award and the Runge Award for outstanding presentations at the 2007 meeting in Snowbird, Utah.

The keynote luncheon speaker will be **Scott W. Tinker, Ph.D.**, Director of the Bureau of Economic Geology and State Geologist of Texas, Professor at the Jackson School of Geosciences at The University of Texas at Austin, and AAPG President. The keynote address is: "**Global Energy: Myths, Realities and Paradoxes.**" Scott will discuss several energy myths and outline the realities and paradoxes of global energy supply and demand, suggesting how we can bridge from today's energy realities to tomorrow's energy future. Addressing the waltz of the three E's (energy, economy and environment) will require a coordinated, balanced effort between industry, government and academia set on a broader pallet of public awareness.



2008 Rocky Mountain Section Meeting

2008 Technical Program

Wednesday Morning Oral Sessions

Petroleum Systems Session in Honor of Fred Meissner – Co-Chairs: E. Coalson and S. Goolsby

- 8:00 Introductory Remarks
- 8:10 S. Sonnenberg, A. Pramudito: Meissner Keys to the Bakken Petroleum System, Williston Basin
- 8:30 E. Coalson, H. DuChene: Ismay-Hovenweep Petroleum System, Blanding Basin, Utah
- 8:50 L. Rasmussen, D. Rasmussen: Pennsylvanian Petroleum System of the Deep Paradox Basin Fold and Fault Belt, Colorado and Utah
- 9:10 Break
- 9:20 P. Lillis, M. Lewan, D. Selby: Application of Rhenium-Osmium Geochronology to Phosphoria Oils, Wyoming
- 9:40 J. Forster: The Mowry-Muddy Hydrocarbon System of the Powder River Basin – A Developing Resource Play
- 10:00 I. Pasternack: Lewis Shale Petroleum System, Eastern Greater Green River Basin, Wyoming and Colorado
- 10:20 S. Goolsby, E. Coalson: Basin-Centered Gas Accumulations – Fact or Fiction?

Successful Operations in Sensitive Areas – Co-Chairs: T. Beaubouef and M. FitzMaurice

- 8:00 Introductory Remarks
- 8:10 T. Beaubouef: LiDAR: A Multidisciplinary Dataset for Integrated Solutions in Onshore E & P
- 8:30 M. Wagaman, M. FitzMaurice: Seismic Operations in Sensitive Areas
- 8:50 P. Dickinson: Design Considerations for Successful Low Environmental Impact Natural Gas Compression Facilities in Sensitive Areas
- 9:10 Break
- 9:20 J. Drewes, K. Benko*, T. Cath, D. Xu: Development of Produced Water Management and Treatment Strategies
- 9:40 R. Brown: Monte Pallano Gas Field, Abruzzo Region, Italy Terrain Subsidence Monitoring Requirements
- 10:00 S. Schamel: Utah Bituminous Sandstone Deposits: The Good, the Bad and the Ugly
- 10:20 B. Sumner: Due Diligence in Sensitive Areas: How to Facilitate Project Authorization and Minimize Litigation Risks
- 10:40 D. Zavadil: A Case History of Exploration and Development of Natural Gas Resources in an Environmentally Sensitive Area—West Tavaputs Plateau, Utah

Redevelopment: New Technology in Old Fields – Co-Chairs: M. Hendricks and B. Watts

- 8:00 Introductory Remarks
- 8:10 T. Anderson: Technology in a Teapot: Overview of New Methods for Finding and Extracting Oil in an Old Stripper Field at Teapot Dome, Wyoming
- 8:30 G. Carlson: High Pressure Air Injection on the Cedar Creek Anticline
- 8:50 R. Grundy, H. Harvey: Use of 3D Seismic to Land Horizontal Wellbores in Thin Beds: Potash Solution Mining near Moab, Utah
- 9:10 Break
- 9:20 R. Balch, A. Iduri: Data Mining Well Completion Data for the Dakota Formation, San Juan Basin, New Mexico
- 9:40 J. Arbogast: Gee Whiz Geophysics...But What about the Log Data? Normalizing, Editing, and Supplementing Log, Core and Production Data from 1935 to the Present
- 10:00 J. Deardorff, J. McCray, G. Young: The Carbon Sequestration Potential of Oil and Gas fields in the Denver-Julesburg Basin of Colorado
- 10:20 R. Broadhead: Remaining Oil Resources of New Mexico: the Hubbert Curve Denied

Wednesday Afternoon Oral Sessions

The Bakken Play: Current Incarnation – Co-Chairs: D. Eby and J. LeFevre

- 1:15 Introductory Remarks
- 1:25 D. Jarvie, M. Johnson: Maturity and Organofacies Assessment of Bakken Shale: Implications for New Areas for Exploration and Production
- 1:45 E. Roller, A. Pepper, G. Sulysto, D. Schmidt: Integrated Burial and Thermal Reconstruction of the Bakken Shale in the Canadian and US Williston Basin
- 2:05 A. Pramudito, S. Sonnenberg: Reservoir Characterization of the Bakken Formation, Elm Coulee Field, Williston Basin, Montana
- 2:25 L. Canter, O. Skinner, M. Sonnenfeld: Facies and Mechanical Stratigraphy of the Middle Bakken, Mountrail County, North Dakota
- 2:45 Break
- 2:55 M. Mullen, R. Meijs, M. Tunstall, B. Miller, J. Paneitz: The Successful Application of a Compartmental Completion Technique used to Isolate Multiple Hydraulic Fracture Treatments in Horizontal Bakken Shale Wells in North Dakota

Business Value of 3D Seismic – Co-Chairs: R. R. Ray and R. Roux

- 1:15 Introductory Remarks
- 1:25 V. Rigatti, J. Bates, M. Schutt: Rockies 3D: Business Drivers and the Multiple Benefits of the Full 3D Seismic and Associated Data-Sets
- 1:45 N. Lange, R. Pritchett: The 3D Path to Successful Decisions in O&G Expenditures
- 2:05 J. Huck: The Stone Cabin 3D Leads the Deep Exploration and Development of the West Tavaputs Plateau
- 2:25 S. Zinke, S. Shearer: Using 3D Seismic to Forecast Development on the Pinedale Anticline, Wyoming
- 2:45 Break



2008 Technical Program

- 2:55 K. Parsons: Risk Management and the Economic Redemption of Seismic Data in the Sacramento Basin, California
3:15 D. Scolman: The Profitable Use of 3D Seismic in Hydrocarbon Discovery and Development
3:35 R. Trevino, M. Bertness: Non-Exclusive 3D Geophysical Data Projects in the Western US
3:55 N. House: Tradeoffs in 3D Seismic Acquisition between Shallow and Deep Objectives OR Value of 3D High Density (infill) Seismic Survey to Improve Economic Results of CBM Wells at Cow Creek Unit

Wednesday-Friday Poster Session

General Poster Session

Redevelopment: New Technology in Old Fields (authors at posters Wed. 3:15-4:45 pm)

- J. Fausnaugh: Combined Electromagnetic Induction and Magnetic Susceptibility Surveys for the Detection of Near Surface Geochemical Anomalies

The Bakken Play—Current Incarnation (authors at posters Wed. 3:15-4:45 pm)

- R. Pollastro, L. Roberts, T. Cook, M. Lewan: Assessment of Undiscovered Technically Recoverable Oil and Gas Resources of the Bakken Formation, Williston basin, Montana and North Dakota, 2008

Global Climate Issues (authors at posters Wed. 3:15-4:45 pm)

- B. Reynolds: Climate Change through Geologic Time
- National Center for Atmospheric Research: Series of Posters and Video Features from NCAR, Boulder
- P. Trost, F. Varani: Capture and Beneficial use of Fugitive Production Tank Vapors
- J. Deardorff, D. Nummedal, J. McCray, G. Young: A Methodology for Assessing the Carbon Sequestration Potential of Deep Saline Aquifers beneath an Industrial CO₂ Source.

Successful Operations in Sensitive Areas (authors at posters Wed. 3:15-4:45 pm)

- R. Garland: iMapIT™ Interactive Resource Map

Petrophysics of Shales and Tight Gas Sands: Converting Resource to Reserves (authors at posters Wed. 3:15-4:45 pm)

- A. Fisher: Detecting Free Water above Jonah Pay using Pickett Plots and Core Analysis
- Y. Zhang: Integrated petrophysical study of the fractured tuff in Junggar Basin
- Y. Zhang: Experiment study of mud filtrate salinity effect on NMR T₂ data in tight clay
- J. Gegg: Cased Hole Solutions: Predicting Open Hole Logs Using Artificial Neural Networks
- W. Salas, P. Porto, M. Mullen, J. Melrose: Analysis of Completion Design, Log Parameters, and Production Results to Gain a Better Understanding of Effective Production Enhancement Methods in the Piceance Basin.
- T. Stroker, N. Harris: K-Ar Dating of Authigenic Illites: Integrating Diagenetic History of the Mesa Verde Group, Piceance Basin, NW Colorado

Fractures and Microfractures—Impact on Resource Play Sweet Spots (authors at posters Wed. 3:15-4:45 pm)

- P. Yin: Fracture Diagenesis and its Effects on Reservoir Permeability in Tensleep Sandstones, Wyoming
- L. Anna, T. Cook: Assessment of the Mowry Shale and Niobrara Formation as Unconventional Hydrocarbon Systems, Powder River Basin, Montana and Wyoming
- C. Knight, J. Miskimins: Relationship of Faults, Fractures, and Critical Stress to Mesaverde Reservoir Performance, North La Barge Field, Sublette County, Wyoming
- M. Mullen, M. Enderlin: Is that Frac Job Really Breaking New Rock?

Shale Gas—From Geochemistry to Completions (authors at posters Thursday: 11:00-11:30 am; 4:00-4:45pm)

- M. Laine, T. Chidsey, C. Morgan: Potential Shale Gas Resources in Utah
- R. Koepsell: Comparison of Natural Fractures Based Upon Image Logs- Shale Gas Plays of the Western US
- S. Brown, J Zumbirge, H. Illich, M. Dolan: ArcGIS Integrated Petroleum System Evaluation of the Greater Green River Basin
- C. Nelson: Biogenic Gas Resource Potential of the Upper Cretaceous Pierre Shale in the Denver-Julesburg (DJ) Basin
- P. Lillis, G. Ellis, M. Dempsey, S. Cumella: Origin of Gas in the Mamm Creek Field, Piceance Basin, Colorado
- M. Dolan, D. Majewski, K. Ferworn, S. Brown: Maturity Determinations in the Vermillion Basin-Baxter Shale: Fluid Maturity Parameters help Interpret Charge and Migration.

Relevance of Sedimentology and Stratigraphy to Hydrocarbon Plays (authors at posters Thursday: 11:00-11:30 am; 4:00-4:45pm)

- D. Eby, T. Chidsey, C. Morgan: The Use of Epifluorescence Techniques to Determine Potential Oil-Prone Areas in the Mississippian Leadville Limestone, Northern Paradox Basin, Utah
- D. Pyles, R. Slatt: Integrating Outcrop and Subsurface data to Define Regional and Reservoir-Scale Patterns in the Lewis Shale and Fox Hills Sandstone of the Great Divide and Washakie Basins, Wyoming
- J. Melick, M. Gardner: Region-Based Basin Modeling: Correlating Depositional Environment to Connected Pore Volume, Powder River Basin (PRB), Wyoming and Montana
- J. Ochoa, M. Gardner, J. Schmitt: Multiple Origins of Thin-Bedded Deepwater Slope Sandstones: El Rosario Formation (Upper Cretaceous – Paleocene) Baja California, Mexico
- M. Milliken, D. Foster: New Facility Offers Public Access to Rocky Mountain Core and Data



2008 Technical Program

Relevance of Structural Geology to Hydrocarbon Plays (authors at posters Thursday: 11:00-11:30 am; 4:00-4:45pm)

- B. Hennessy, K. Giles: Characterization of Syn-Depositional Faulting of a Composite Type B Halokinetic Sequence along the La Popa Salt Weld, La Popa Basin, Nuevo Leon, Mexico
- J. Jackson, B. Trudgill: Fracture Modeling and Fault Zone Characteristics Applied to Reservoir Characterization of the Rulison Gas Field, Garfield County, Colorado
- S. Larson, E. Gustason: Timing, Mechanisms and Modes of Cenozoic Fracturing and Deformation in the Southern Raton Basin, Northern New Mexico
- S. Smaltz, E. Erslev: Structural Controls on Detachment Folds Associated with Foreland Arches: Beaver Creek Anticline, Wyoming
- D. Stone: The Wyoming Transect: What, Where, How, and Why

Thursday Afternoon Oral Sessions

Perception vs. Reality: Resource vs. Reserves – Co-Chairs: J. Tilden, V. Kuuskra, K. Shanley

- 1:15 Introductory Remarks
- 1:25 R. Nehring: Growing and Indispensable: The Contributions of Rocky Mountain Unconventional Gas Resources and Production to U.S. Gas Reserves and Production
- 1:45 S. Reeves: Unconventional Gas Resources to Reserves – A Predictive Approach
- 2:05 P. Stark: Transforming Rockies Gas Resources to Supplies: Implications of Gas Production Performance Factors
- 2:25 B. Richter, D. Simpson, S. Kleinsteiber: Measuring the Currently Unmeasured in a Resource Play: Model of Rulison Nuclear Re-entry Well Shows Higher Than Expected Gas-in-Place
- 2:45 Break
- 2:55 L. O'Connor, J. Seidle: Contingent Resources: Definitions and Real World Examples
- 3:15 R. Barg: Evaluating Reserves in Resource Plays: Strategies and Pitfalls

Petrophysics of Shales and Tight Gas Sands: Impact on Converting Resource to Reserves – Co-Chairs: R. Godfrey and R. Merkel

- 1:15 Introductory Remarks
- 1:25 P. Devine: Experimental Quantification of “Good Log Characteristics” for Mesaverde Reservoirs of the Piceance Basin, Colorado: Toward a Reconnaissance Method for Evaluating Movable Water in Tight, Shaly Sandstones
- 1:45 R. Cluff, A. Byrnes: Evidence for a Variable Archie Porosity Exponent “m” and Impact on Saturation Calculations for Mesaverde Tight Gas Sandstones; Piceance, Uinta, Green River, Wind River, and Powder River Basins
- 2:05 J. Webb, R. Cluff, D. Krygowski, S. Whittaker, A. Byrnes: Lithofacies and Petrophysical properties of Mesaverde Tight-Gas Sandstones in Western U.S. Basins
- 2:25 C. Smith, J. Bray, S. Ramakrishna: Utilization of Magnetic Resonance Bin Distribution to Determine Specific Permeability
- 2:45 Break
- 2:55 A. Byrnes, D. Osborn, A. Knoderer, O. Metheny, T. Hommertzheim, J. Byrnes, R. Cluff, J. Webb: Capillary Pressure Properties of Mesaverde Group Low-Permeability Sandstones in Six Basins, Western U.S
- 3:15 D. Amendt: Identifying Critically Stressed Fractures Using Borehole GeoMechanics: A Case Study in the Nikanassin
- 3:35 D. Hoyer, R. Young: Seismic Petrophysics in Tight Gas Sands – A Piceance Basin, Mesaverde Example
- 3:55 W. Salas, C. Tamayo, E. Menendez, M. Mullen, J. Shepard, J. Kinser, F. LeGrand, D. Spencer: Analysis of Production Logs and Calculated Reservoir Properties to Gain a Better Understanding of True Reservoir Quality in an Effort to Eliminate Non-Productive Zones and Enhance Completion Efficiencies in Future Field Development

Fractures & Microfractures: Impact on Resource Play Sweet-Spots – Co-Chairs: J. Lorenz and C. Zahm

- 1:15 Introductory Remarks
- 1:25 K. Lewallen, G. Chen, X. Wu, P. Todd: Seismic Characterization of Fractured Tight Gas Reservoirs, Piceance Basin, Colorado
- 1:45 E. LaBarre: Shear-Wave Splitting Analysis for Natural Fracture Zone Identification, Rulison Field, Piceance Basin, Colorado
- 2:05 J. Lorenz: Fracture Characteristics in Core from Tensleep Reservoirs across Wyoming
- 2:25 D. Meloy: A Lower Smackover Unconventional Resource Play in Louisiana
- 2:45 Break
- 2:55 D. Keating, M. Fischer: Fracture and Small Fault Networks in Basement-Involved, Fault-Related Folds above Oblique-Slip Faults: Insights from Physical Models
- 3:15 J. Johnson, D. Dubois, S. Malone, N. Warpinski, C. Wright, L. Weijers: An Overview of Hydraulic Fracture Mapping in the Jonah Field and its Implications for Field Development and Completions
- 3:35 C. Zahm: Fracture Development within Partially-Decoupled Basement-Involved Folds
- 3:55 P. Hennings, J. McLennan, T. Allwardt: Building Better Fracture Models by Combining Structural analysis and Bayesian Updating to Quantify the Relationship between Multiple Fracture Causing Agents



2008 Rocky Mountain Section Meeting

2008 Technical Program

Friday Morning Oral Sessions

Shale Gas Plays: From Geochemistry to Completions – Co-Chairs: M. Brittenham and R. Newhart

- 8:00 Introductory Remarks
- 8:10 J. Curtis, D. Hill: Realities of Shale Gas Resources: Yesterday, Today and Tomorrow
- 8:30 R. Hartman: Recent Advances in the Analytical Methods Used for Shale Gas Reservoir Gas-In-Place Assessment
- 8:50 M. Dolan, A. Grau, K. Ferworn, S. Brown: Calibrating Stable Carbon Isotopes of Reservoir Fluids as a Thermal Maturity Indicator
- 9:10 Break
- 9:20 M. Tobey, D. Schmude, R. Newhart: Trace Gas in Archived Tight Shale Cores as a Tool for Maturation Assessment
- 9:40 E. Gustason, M. Tobey: Development Shale Gas Potential of Fine-Grained Cretaceous Source Rocks, Raton Basin, South-Central Colorado and Northeastern New Mexico
- 10:00 S. Schamel: Shale Gas Potential of the Paradox Basin, Colorado and Utah
- 10:20 M. Mullen, M. Blauch, R. Rickman, B. Grieser, E. Petre: A Practical Use of Shale Petrophysics for Stimulation Design Optimization
- 10:40 R. Suarez-Rivera: Effect of Layered Heterogeneity on Fracture Initiation and Containment in Tight Gas Shales

Relevance of Sedimentology and Stratigraphy to Hydrocarbon Plays – Chair: M. Sonnenfeld

- 8:00 Introductory Remarks
- 8:10 L. Banfield, W. Hill, J. Vaiti: The Wamsutter Tight Gas Reservoir – The Role of Stratigraphy and Sedimentology in a Tight Gas Field Study
- 8:30 R. Cole, M. Pranter: Stratigraphic Variability of Sandstone-Body Dimensions in the Williams Fork Formation: Outcrop Data from the Southwest Piceance Basin, Colorado
- 8:50 N. Sommer, M. Pranter, R. Cole: Sandstone-Body Connectivity in a Meandering-Fluvial System: an Example from the Williams Fork Formation, Piceance Basin, Colorado
- 9:10 Break
- 9:20 D. Tabet, J. Quick, B. Hucka: Distribution, Amount, and Maturity of Coal Resources in the Seigo Coalfield, Grand County, Utah
- 9:40 E. Gustason: Sequence Stratigraphy and Reservoir Architecture of the Lower Cretaceous J Sandstone, Wattenberg Field, DJ Basin, Colorado
- 10:00 M. Maslyn: Late-Mississippian Paleokarst Features and Related Porosity Creation and Destruction in the Aspen, Colorado Area

Relevance of Structural Geology to Hydrocarbon Plays – Co-Chairs: N. Sterne and D. Stone

- 8:00 Introductory Remarks
- 8:10 D. Stone: The Wyoming Transect: What, Where, How, and Why
- 8:30 C. Kluth, J. Lilligraven, A. Snoke, E. Sterne: Triangle Zones in Front of Basement-Cored Uplifts in the Rocky Mountain Region
- 8:50 G. Dodson: A Tectonic Context for Basement Linears in Northeast Wyoming
- 9:10 Break
- 9:20 M. Caldwell: Gravity Fault Controlled Structural Traps, North-Central Montana
- 9:40 B. Davis, H. Harper, D. Nelson, J. Kmeck, C. Pollock: The Use of Modern 3D Seismic for Interpretation of a Structural and Stratigraphic Framework in the Main Canyon Area of the Northern Uncompahgre Uplift, Uintah County, Utah
- 10:00 J. Scheevel, M. McCaskey, J. Byl: Modern 3D Interpretation of a Mature, Structurally-Complex Oil Field, Los Angeles Basin, California.
- 10:20 D. Richards, T. Murray, M. Kleven, G. Christie: Probabilistic Analysis of Fault Seal Capacity in Compressional Settings: Risking Prospects and Fields in Exploration and Production
- 10:40 D. Bate, J. Barraud, M. Davies, P. Versnel: Covenant Field BlueQube Interpretation Results: Central Utah Hinge Line Exploration Strategy

Colorado Oil & Gas Association's 22nd Annual Golf Tournament

Join us for the 22nd Annual Golf Tournament held July 7 & 8 at the nationally recognized Bear Dance Golf Club in Larkspur, Colorado. With a four-person scramble format and FOUR flights over two days, prizes include Grand Prize Trip, Irons Set, 1st, 2nd, 3rd, 19th, 20th & 21st places, Longest Drive, Closest to the Pin, Raffle Prizes and Gift Certificates. Golf sponsorship packages are available now. Individual and foursome registration will open in late April if space allows. Please visit www.epicenter2008.org for information.

BEAR DANCE





Short Courses

Short Course #1: Bakken Core Workshop, Williston Basin

Date: Tuesday, July 8, 2008, 8:00–5:00pm
Instructor: Julie LeFever (North Dakota Geological Survey), Steve Nordeng (North Dakota Geological Survey)
Location: United States Geological Survey, Core Facility
Fee: \$150 (includes lunch, refreshments, and course notes)
Limit: 40 persons
Sponsors: PTTC Rocky Mountain Region

The Bakken Formation has been a continual source of interest and amazement to the petroleum industry since oil was first produced from the formation in 1953. The workshop will examine an interesting transect of cores from the central portion of the Williston Basin to the “hot” Parshall area and will focus on the entire Bakken Formation with special emphasis on the middle member. Regional geology, middle member lithofacies, fractures, and geochemistry will be some of the topics covered in this workshop. The purpose of this workshop to generate an active discussion and share ideas about this complex mixed siliciclastic-carbonate sequence. An introductory overview will set the stage for the core work. Poster presentations and discussion will help illustrate concepts presented.

Short Course #2: Sedimentology, stratigraphy and resource potential of tight gas sandstone and shale: A Core Workshop on the Greenhorn Formation, Codell Sandstone and Niobrara Formation, Wattenberg Gas Field, Denver Basin, Colorado

Date: Friday, July 11, 2008, 1:00–5:00pm
Instructor: Gus Gustason (El Paso Exploration and Production Company); Marshall Deacon, EnCana Oil & Gas (USA)
Location: United States Geological Survey, Core Facility
Fee: \$50 (includes snacks and course notes)
Limit: 30 persons
Sponsors: Rocky Mountain Association of Geologists

The Wattenberg Gas Field, in northeastern Colorado, has produced more than 2 TCF and 100 MMBO from the Lower Cretaceous (Albian) J Sandstone and Upper Cretaceous (Turonian) Codell Sandstone. Although the J Sandstone has been the primary target in Wattenberg Field, the Codell Sandstone and the underlying and overlying fine-grained source rocks are an attractive secondary objective. The Codell Sandstone, an overpressured, tight gas sandstone, continues to yield oil and gas after multiple fracs because it is sandwiched between 700 feet of organic-rich, fine-grained, source rocks that are currently generating hydrocarbons. In ascending order, these “shales” include the Graneros Shale, Greenhorn Formation, Niobrara Formation, and Sharon Springs Member of the Pierre Shale. The shales are marine, have relatively high total organic carbon content (2-10% TOC and predominantly type II kerogen). Thermal maturity (> 0.8 Ro), gas saturation, anomalously high pressure gradients and EURs are related to the Wattenberg “hot spot.” Participants will have an opportunity to examine core of the Greenhorn Formation, Codell Sandstone and Niobrara Formation. We will use core analysis, log analysis, fall-off injection tests, and production tests in several new wells to evaluate the remaining gas resource potential in Wattenberg Gas Field.

Short Course #3: Completions and Stimulation for Geologists

Date: Saturday, July 12, 2008, 8:30 am– 5:00 pm
Instructor: Jennifer Miskimins
Location: Berthoud Hall room 243, Colorado School of Mines
Fee: \$150 (includes lunch, refreshments, and course notes)
Limit: 70 persons
Sponsors: PTTC Rocky Mountain Region

This one-day short course provides a basic understanding of completion and stimulation techniques for geoscientists. The design of wells, from casing schematics through initial stimulation, is covered including the following topics:

- Single completions
- Multiple completions
- Tubing sizes and designs
- Packers and other downhole equipment
- Perforating techniques
- Formation damage
- Acidizing
- Hydraulic fracturing
- Other stimulation techniques

The course approaches these topics from a multidisciplinary viewpoint to facilitate the input of geological and petrophysical components into completion and stimulation operations. Data and information that should be considered and shared by all disciplines will be discussed.

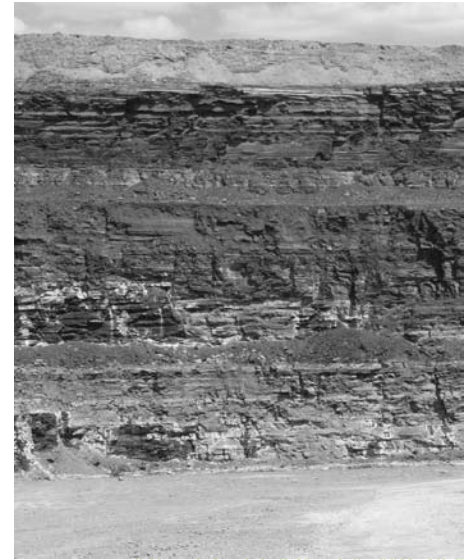


Field Trips

Field Trip #1: Niobrara Formation, northern Colorado Front Range: An outcrop analog for shale gas resource plays throughout the US

Date: Saturday, July 12, 2008
Instructors: Edmund R. "Gus" Gustason, El Paso E&P
 Marshall Deacon, EnCana Oil & Gas, USA
Departure/Return: Depart 8:00 a.m. Denver and return to Denver at 7:00 p.m.
Fee: \$125 (includes transportation, lunches, and field guidebook)
Limit: 28 persons
Sponsors: Rocky Mountain Association of Geologists

The Niobrara Formation is a world-class fine-grained source rock in the Denver-Julesburg Basin and other Rocky Mountain basins. The Niobrara also produces biogenic gas in northeastern Colorado, thermogenic gas from Wattenberg Gas Field, and oil and gas from fractures in Loveland, Berthoud and Silo Fields. The Niobrara is emerging as a significant shale gas resource play in Wattenberg Gas Field. This field trip will visit two excellent exposures of the Niobrara Formation, at Six Mile Fold and the Portland Cement Quarry, where participants can observe many of the key parameters necessary for a successful shale gas resource play.

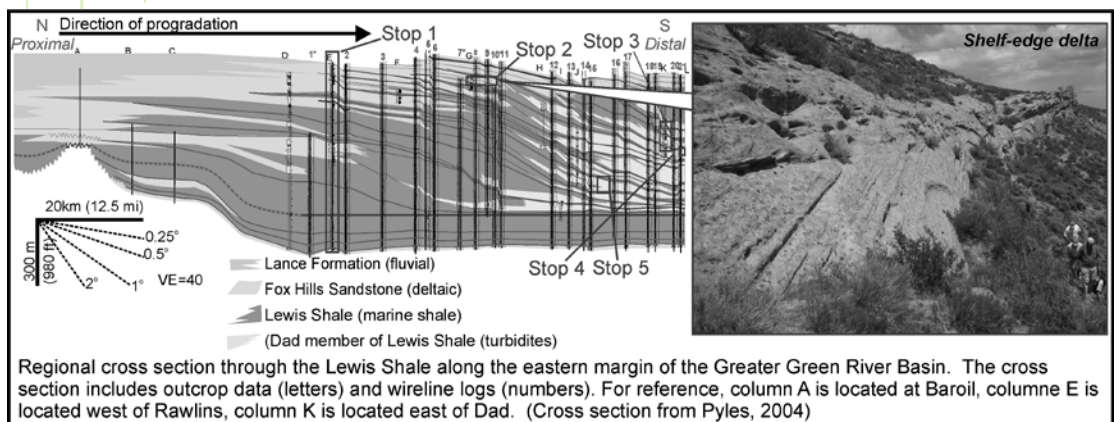


Field Trip #2: Shelf to basin changes in stratigraphic architecture of the Lewis Shale and Fox Hills Sandstone, eastern margin of the Greater Green River Basin, Wyoming

Date: Saturday, July 12, 2008 thru Tuesday, July 15, 2008
Instructor: David Pyles (Colorado School of Mines)
Coordinator: Charlie Rourke (Colorado School of Mines)
Departure/Return: Depart 8:00 a.m. Denver and return to Denver at 7:00pm
Fee: \$550 (includes transportation, lunches, lodging, and field guidebook)
Limit: 18 persons
Sponsors: Rocky Mountain Section SEPM

The Upper Cretaceous Lewis Shale, Fox Hills Sandstone, and Lance Formations are an important gas resource in the Greater Green River Basin, southern Wyoming. These formations are unique to many other Cretaceous formations as they record the southward progradation of a linked shelf-slope-basin depositional system. The field school has two goals. The first goal is to get a grasp on regional correlation and sequence stratigraphy of the system. The second goal is to learn how depositional processes, stratigraphic architecture, reservoir styles, source rocks, and seals change from the proximal fluvial systems to the distal turbidite system. This goal will be accomplished by visiting five exposures of coeval stratigraphy from various parts of the physiographic profile:

- (1) river systems on the shelf,
 - (2) deltas at the shelf edge, (3) turbidite channels on the slope,
 - (4) turbidite channels and fans at the base-of-slope, and (5) turbidite fans on the basin floor.
- We invite participants to bring subsurface examples of deltas and deepwater reservoirs (from the Lewis Shale and other areas) to facilitate the learning process. This trip will be of interest for geologists and engineers of all experience levels.





2008 Rocky Mountain Section Meeting

Spouse/Guest Tours

Tour 1: Botanic Gardens, Lunch & City Highlights Tour

Date: Wednesday, July 9, 2008
Time: 9:00am – 2:00pm
Location: Pick Up @ Convention Center
Fee: \$48 (includes transportation, entrance fees, lunch, tour guide, snacks & water)
Max: 45 persons

Join us for an exceptional day discovering why Denverites love their city! Our day begins with a professionally guided walking tour of the Denver Botanic Gardens, followed by a box lunch. After lunch we will tour the city by bus, making several stops as time permits.

Tour 2: Tea and Wine Tasting Tour

Date: Thursday, July 10, 2008
Time: 9:00am – 3:00pm
Location: Pick Up @ Convention Center
Fee: \$75 (Includes transportation, tour guide, all tastings, lunch, snacks & water)
Max: 25 persons (Must be 21 years or older to participate)

The day begins with a private tour and tasting at the Heavenly Tea Center at the Celestial Seasonings plant near Boulder, CO. Afterward we will visit two local wineries guided by our private sommelier. The day ends with a gourmet lunch at a winery in the heart of Denver. We will return to the Convention Center in plenty of time to refresh before the evening events.

Tour 3: Discover Denver

Date: Friday, July 11, 2008
Time: 9:00am – 1:00pm
Location: Pick Up @ Convention Center
Fee: \$40 (Includes tour guide, lunch, snacks & water)
Max: 25 persons (Must be 21 years or older to participate)

This fun excursion begins with a private walking tour of downtown landmarks. We'll stop for lunch at one of Denver's hot lunch spots. By the end of this tour you will no longer be a stranger to the Mile High City!

2008 RMS-AAPG Coordinating Committee

General Chair	Donna Anderson
General Co-Chair	John W. Robinson
Technical Program	Mark Sonnenfeld
Poster Session	Mark Sonnenfeld
Finance	Charles E. (Elmo) Brown
Sponsors	Jim Emme
Exhibits	Brian E. Richter
Publicity	Ronald W. Pritchett
Short Courses and Field Trips	Mary Carr
Golf Tournament	Jay Leaver
RMS-AAPG Website	Jeff Ware
RMS-AAPG liason	Tom Anderson
COGA liason	John Robinson
	Fred Julander

Convention Management

Jill McClure
 Senior Vice President, COGA

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Conference Registration

STEP ONE: CONTACT INFORMATION

Name _____

First Name for Badge _____ Title _____

Company _____

Mailing Address _____

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Phone _____ Fax _____

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Full conference registration includes access to all Energy Epicenter sessions and Expo, continental breakfasts, refreshment breaks, luncheons (subject to seating availability), and the Expo receptions.

STEP TWO: REGISTRATION

Thru 5/23 5/24-6/23 Onsite

		Thru 5/23	5/24-6/23	Onsite	
Full Conference Registration		\$365	\$395	\$435	\$
Special Event	Opening Night Party	\$40	\$40	\$40	\$
Short Courses	#1 Bakken Core Workshop	\$150	\$150	N/A	\$
	#2 Niobrara Core Workshop	\$50	\$50	N/A	\$
	#3 Completions Core Workshop	\$150	\$150	N/A	\$
Field Trips	#1 Niobrara Field Trip	\$125	\$125	N/A	\$
	#2 Lewis Field Trip	\$550	\$550	N/A	\$
Spouse/Guest Tours	#1 Botanic Gardens	\$48	\$48	N/A	\$
	#2 Tea & Wine Tasting	\$75	\$75	N/A	\$
	#3 Discover Denver	\$40	\$40	N/A	\$
Rocky Mountain Capital Markets Seminar					
	Epicenter Conference Attendees	\$100	\$125	\$195	\$
	Non-conference Attendees	\$150	\$175	\$195	\$
Other (delivered after conference; available to registrants only)					
	Registration List	\$25	\$25	\$25	\$
	CD of Speaker Presentations (COGA-only)	\$25	\$25	\$25	\$
Total Amount Due for Registration					\$

STEP THREE: PAYMENT INFORMATION

Check VISA MasterCard AMEX Discover

Total Amount Due \$

Credit Card Number _____ Expiration Date _____

Name on Card _____ Signature _____

Three Ways to Register:

1

Online registration is now available on our secure web site!

www.epicenter2008.org

2

Mail completed registration form to:

1660 Lincoln Street
Suite 2710
Denver, CO 80264

If paying by check please make check to COGA Conference.

3

By fax:

Please complete the credit card information below and fax form to 303-861-0373

Cancellations must be submitted through the online registration system at www.epicenter2008.org or in writing. Prior to June 23, cancellations are subject to a \$35 processing fee. No refunds after June 23. (Substitutions may be made at any time via the online registration system or by mail.)

Special Needs?

- Wheelchair Rental
- Wheelchair Accessible
- Vegetarian
- Other Dietary Needs (specify) _____

For more information visit www.epicenter2008.org



2008 Rocky Mountain Section Meeting

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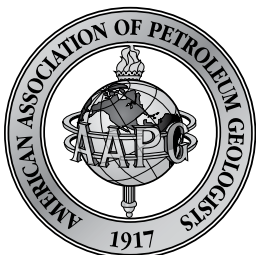
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Rocky Mountain Section AAPG
c/o Rocky Mountain Association of Geologists
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Denver, CO 80202



Rocky Mountain Section

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