

# The Rock Record

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### Please contribute to the SGS Newsletter

The SGS Newsletter is produced by the SGS executive. Letters, announcements, notices, comments, photos, news and information about SGS members, etc. are always welcome. Call an executive member or write to us at:

**Saskatchewan  
Geological Society  
P.O. Box 234  
Regina, SK S4P 2Z6**

**SGS e-mail address:**  
[info@sgshome.ca](mailto:info@sgshome.ca)

**SGS Website:**  
[www.sgshome.ca](http://www.sgshome.ca)

All advertising inquiries should be directed to **Andre Costa**

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**Friday, January 28, 2005**

**Geologic Heterogeneity in Coalbed Methane Reservoirs  
of the Black Warrior Basin:  
Implications for Gas Production and CO<sub>2</sub> Sequestration**

**Jack C. Pashin**

University of Alabama  
AAPG Distinguished Lecturer

**Lancaster Room, Royal Canadian Legion**

Cash Bar: 11:30; Lunch: 11:50

Meeting: 12:15 – 13:00

Members \$7.00, Non-members \$11.00

Contact: Andre Costa 787-9104

By NOON, Wednesday, January 26, 2005

**Saturday, January 29, 2005**

**Saskatchewan Geological Society  
Annual General Meeting  
and Awards Banquet**

**Blue Lounge, Hotel Saskatchewan**

Cocktails 6:30pm

Dinner 7:30pm

\$20.00 per ticket

Contact: Andre Costa 787-9104 or Arden Marsh 272-2499

By NOON, Tuesday, January 25, 2005

# **Geologic Heterogeneity in Coalbed Methane Reservoirs of the Black Warrior Basin: Implications for Gas Production and CO<sub>2</sub> Sequestration**

**Jack C. Pashin**

University of Alabama  
AAPG Distinguished Lecturer

Coal is classified as a continuous-type unconventional gas reservoir, yet geologic heterogeneity has a profound effect on the performance of coalbed methane wells and the CO<sub>2</sub> sequestration potential of coal. Heterogeneity in Pennsylvanian-age coalbed methane reservoirs of the Black Warrior basin arises from an interplay among depositional, tectonic, hydrologic, and petrologic variables, and each of these variables poses different challenges for gas production and sequestration.

Reservoir coal beds in the Black Warrior basin of Alabama are distributed through 1,000 to 2,000 m of section and are thus ideally suited for multiple-seam well-completion techniques. Coal beds are within fluvial-deltaic allocycles of glacial-eustatic origin, and bed geometry and coal quality are variable. Although coal thickness is a fundamental control on resource distribution, it is a subordinate control on production performance. Thin-skinned folds and faults of extensional and compressional origin are abundant in the Black Warrior coalbed methane fields. Normal faults partition coalbed methane reservoirs, and productivity sweet spots exist along compressional fold hinges.

Hydrologic parameters affecting production and sequestration potential include water chemistry and pressure-temperature conditions. Meteoric recharge of coal beds exposed in fold limbs has resulted in freshwater plumes that extend deep into the basin. These plumes promote late-stage bacterial methanogenesis, and hence exceptionally high gas content in coal. The salinity of formation water influences how produced water can be disposed and is a legal constraint on where CO<sub>2</sub> can be injected.

Coal rank and ash content affect the capacity of coal to hold gas. The gas sorption capacity of coal, moreover, correlates negatively with temperature and positively with pressure. Virgin pressure is heterogeneous, indicating compartmentalization, and pressure has been depleted to less than 100 psi in mature reservoirs. Injection of CO<sub>2</sub> into pressure-depleted reservoirs has strong potential to not only reduce greenhouse gas emissions, but also to enhance coalbed methane recovery, thereby forming a basis for an 18% expansion of coalbed methane reserves in the Black Warrior basin.

# The Saskatchewan Geological Society Annual General Meeting and Awards Banquet

Saturday, January 29<sup>th</sup>  
Blue Lounge, Hotel Saskatchewan  
Cocktails 6:30pm, Dinner 7:30

The SGS annual general meeting is a nice evening out for all members and spouses. After cocktails and a nice dinner, there is a brief business meeting at which time awards are given out, the new executive is announced, and any new business from members is discussed.

This year, the post dinner talk will be given by outgoing SGS president Erik Nickel. The content of the talk will be varied, however much of the information will be from Erik's travels in Greece. The Greek people have long been tightly connected to the amazing geology of their country. This talk will explore and highlight some of these ties between the old world of ancient Greece, and the even older world of their geology. All that, and some baby pictures as well.

The cost is \$20.00 per person to attend which includes dinner, entertainment and wine. If you are interested in attending, please contact Andre Costa (787-9104) or email [info@sgshome.ca](mailto:info@sgshome.ca). We hope to see many SGS members and friends there to wrap up this very successful 2004 SGS season.

## 1<sup>st</sup> Annual SGS Funspiel

This new SGS social event will take place on the evening of February 26<sup>th</sup> at the Tartan Curling Club. Prior curling experience is not necessary!

There will be a fun, and informal curling "bonspiel" with short (3 or 4 end) games, followed by dinner and drinks. There may even be some prizes up for grabs!

Registration fee is \$10.00 per person for SGS members and \$12.00 for non-members. If you wish to enter a team, or just enter as an individual, contact Kate Maclachlan (787-9059) or Lynn Kelley (787-2646) for more details.

## New SGS Executive

After much arm-twisting, guilt-tripping, and flat-out ordering, the new SGS executive is in place and ready to roll!

President: **Mike Gunning**

Vice President: **Andre Costa**

Business Manager: **Jeff Coolican**

Secretary Treasurer: **Bob Troyer**

Program Chair: **Steve Whittaker**

Asst. Program Chair: **Kate Maclachlan**

Past President: **Erik Nickel**

This highly qualified new executive should give the SGS another successful year in 2005.

## **New Website**

Thanks to the new SGS webmaster extraordinaire, Andre Costa, the society now has a new and sharp-looking website with some really handy info. Send your browser to:

[www.sgshome.ca](http://www.sgshome.ca)

The site is still under some minor construction but there is currently lots of information on the history of the society, archived newsletters, awards info and history, and links to our corporate sponsors. Of course, the current and upcoming talks and abstracts are also available for download.

Happy Surfing!

## **SGS Renewal Notice**

It is that time of year again. Time once again to renew your SGS membership. Forms can be found on our website in .pdf form, or simply contact Vice President Andre Costa to confirm your renewal for 2005.

Forms will also be available at the AGM ticket counter.

## **Coming Events**

Tim Tokaryk of the Dinosaur Research Station in Eastend SK will be giving a luncheon talk in March about the latest findings with Scotty!

Steve Ruff of the Jet Propulsion Laboratory will be the public lecturer in the spring. He is a scientist with the Mars Lander program.

On April 27, in conjunction with the Williston Basin Petroleum Conference, the SGS is hosting a core workshop. This workshop will feature informal presentations of cores on various oil producing regions and horizons in the province. Registration for this conference is \$75, and a registration form can be found with the circulars for the conference.