

WELCOME, NEW DEG OFFICERS!

We are pleased to introduce the members of our 2014-15 DEG Executive Committee:

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Jeffrey G. Paine,
*Bureau of Economic
Geology, The
University of Texas*

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Douglas E. Wyatt,
Halliburton

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Kristin M. Carter,
*Pennsylvania
Geological Survey*

Over the next few issues, *Spheres of Influence* will acquaint you with our new officers. In this issue, we present the biography of our president, Jeffrey Paine.

MEET OUR NEW PRESIDENT



Jeffrey G. Paine

Jeffrey is a senior research scientist at the Bureau of Economic Geology, The University of Texas at Austin, where he coordinates the applied research activities of the Bureau's Near Surface Observatory and conducts near-surface geophysical and geological studies.

He received a bachelor's (1980) and doctorate (1991) in geological sciences from The University of Texas at Austin and a master's in geological sciences from the University of Washington.

His principal research interest, geophysical applications in the shallow subsurface, combines an academic background in geophysics and extensive professional experience in near-surface, coastal and Quaternary strata. He specializes in applying borehole, surface and airborne geophysical methods to help solve environmental, geological, hydrological and engineering problems. At the Bureau, Paine has served as principal investigator in more than 45 studies funded by state, federal and regional agencies and has published more than 135 articles, reports and abstracts.

In addition to his research activities at UT, he periodically co-teaches a graduate class on hydrogeophysics and has led 15 geologic field excursions to the Pacific Northwest as an instructor for the GeoFORCE 11th grade Academy.

His DEG activities include service as vice president, former chair of DEG's Environmental Geophysics committee, co-chair of a popular DEG-sponsored Hydraulic Fracturing 101 workshop at SAGEEP and editor of a special issue of *Environmental Geosciences* on Environmental Geophysics in the Oilfield.

Paine has also served as president of the Environmental and Engineering Geophysical Society (EEGS) and editor of FastTIMES magazine. He was the 2010 recipient of EEGS' Gold Award.



FROM THE EDITOR-IN-CHIEF'S DESK

Kristin M. Carter, P.G.

Readers of *Environmental Geosciences* are certainly in for a treat when they see our September issue! Researchers from the great state of Indiana are sharing the results of their work on the Eau Claire Formation as a potential seal for the Cambrian Mount Simon Sandstone, a prospective geologic sequestration reservoir in the Illinois basin. Lahan, Rupp and Medina investigated the Eau Claire using petrophysics, core studies and laboratory-derived pressure data to predict its sealing potential.

Our second offering is from Dusseault and Jackson, who provide a unique and detailed assessment regarding potential natural gas migration pathways at various stages of an oil/gas well's lifespan – during hydraulic fracturing, in production and after well abandonment.

These authors also have contributed the cover image for our September issue. Happy reading!

DIVISION OF ENVIRONMENTAL GEOSCIENCES

Mission Statement and Purpose

- **EDUCATING** the membership of AAPG and the general public about important issues that affect petroleum energy minerals exploration and production.
- **COMMUNICATING** to the general public and government agencies the Association's commitment to protect the environment while developing the world's natural resources in a responsible manner.
- **APPLYING** the expertise developed in the petroleum/energy minerals industries and hydrogeology to resolve environmental problems.
- **PROMOTING** environmental self-regulation within the petroleum/energy minerals industries.
- **PROVIDING** relevant educational opportunities and services for professional development of the AAPG membership through seminars and conferences in environmental geosciences, hydrogeology and related fields.

THE GOOD, THE BAD AND THE UGLY: COALBED METHANE

It is no secret that the United States' shale gas industry has stolen media and public attention. However, while the limelight is focused on hydraulic fracturing, coalbed methane (CBM) is a practice that has silently been working in the background. The cousin of natural gas, CBM requires very different extraction methods although the uses of the end product are essentially the same. Here we explore some informative links on this lesser known practice and highlight some controversy surrounding this facet of the natural resource extraction industry.

www.epa.gov/cmop

The Environmental Protection Agency's (EPA) Coalbed Methane Outreach Program (CMOP) is a comprehensive site to introduce the public to basic CBM information, the accomplishments of the industry and CMOP, and track activities and meetings surrounding CBM.

pubs.usgs.gov/fs/fs123-00/fs123-00.pdf

This publication by the United States Geological Survey (USGS) explains some differences between CBM and natural gas drilling techniques. Unlike the natural gas extraction process, water must be drawn off of the coalbed to adequately lower pressure and allow for methane to be produced.

frack-off.org.uk/coal-bed-methane-the-evil-twin-of-shale-gas

Like other forms of energy, there always will be opposition to natural resource extraction. This blog, titled "Frack Off," accosts CBM as the "evil twin of shale gas."

www2.nature.nps.gov/geology/adjacent_minerals/EnergySummit/Methane/Coalbed%20Methane%20Factsheet.pdf

The largest concentration of CBM in the United States is located in the Rocky Mountains. Since the practice of CBM drilling and protected lands often overlap, the National Park Service has issued its own fact sheet on CBM covering history, methods, impacts and more.

water.montana.edu/pdfs/coalbedmethanemsu.pdf

Montana State University and the Montana Bureau of Mines and Geology investigate the potential of CBM resources in this Rocky Mountain state. The fact sheet also addresses a common public concern of CBM and natural gas drilling, the potential impacts on drinking water.



BEAUTY IN GEOLOGY – GLACIERS OF ALASKA



Margerie Glacier in Glacier Bay, Alaska, is a favorite destination of tour groups. It gives visitors the opportunity to witness an actively calving glacier and listen for the 'white thunder' as ice breaks away. Margerie is still advancing because the accumulation of snow at the higher elevation where it originates outpaces melting (June 28, 2014).

Most of Alaska's thousands of glaciers are retreating. As this occurs, the distinct U-shaped valley is exposed. Eroded material from the grinding ice is visible, especially along the flanks of the glacier (June 28, 2014).



PETROLEUM FIRSTS ...

Ever wonder who was responsible for discovering a particular technology, field application or invention currently in use by petroleum geologists? I often ponder this when I look at a particular poster that hangs on my office wall – a copy of the world's first wireline well log, run on Sept. 5, 1927 in the Pechelbronn oilfield by Marcel and Conrad Schlumberger. A few more are listed below, based on Hyne, N.J., 2001, Nontechnical guide to petroleum geology, exploration, drilling, and production, second edition: Tulsa, Oklahoma, PennWell Corporation, page 598:

First use of drilling mud

1900, Spindletop, Texas

First subsea well

1947, Lake Erie, United States

First hydraulic fracture job

1947, Hugoton field, Oklahoma

If you have any petroleum firsts you'd like to share for future issues of *Spheres of Influence*, please email Kristin Carter [krcarter@pa.gov] with a description of the "bragging rights."

We welcome your articles, comments and feedback for the quarterly newsletter publication.

4th Quarter submissions deadline is November 1, 2014
Please submit to Kristin Carter: krcarter@pa.gov