

SPHERES OF INFLUENCE

A QUARTERLY NEWSLETTER FOR DEG – 2013 ISSUE 2

2nd Quarter Issue of the *Spheres of Influence*

By Tom J. Temples, DEG President 2012-2013

The leadership of DEG hopes you find this issue of *Spheres of Influence* informative and interesting. This quarter, we include the biography of our incoming President, Doug Wyatt, and focus our “good, bad, and ugly” segment on geologic hazards, based on recent happenings here in the U.S. We also include a note of interest on a technical rebuttal led by our own Kristin Carter on Tom Myer’s paper on fracking and groundwater, which again highlights the importance of objective science in our work to combat the spread of misinformation.

The ACE meeting in Pittsburgh will be here in a matter of days. I think that DEG has prepared an excellent technical program, so I would encourage all of you to

attend the sessions. This is also the 20th anniversary of the founding of our division. We would like to have as many of the charter members as possible attend the ACE. Please stop by the booth and say hello. In addition, please take note of the reception for DEG’s 20th anniversary on Tuesday May 21, 2013 at the Westin Hotel, Allegheny Room 1.

Finally, please encourage your fellow AAPG members to join DEG. We believe that being a member can enhance your career and make you more aware of the environmental issues impacting our industry, either directly or indirectly. Thank you.



From the Editor-In-Chief’s Desk

Kristin M. Carter, P.G.

The June issue of Environmental Geosciences will be hitting your desks soon. This issue includes two technical papers and DEG abstracts from the ACE to be held in Pittsburgh this month.

Ahamefula U. Utom, and others, utilize remote sensing techniques to assess fracture orientation and porosity of an important groundwater-bearing formation in Nigeria. The wetlands and stream mitigation paper by Dave Goerman, and others, present a useful tool for conserving these resources in Pennsylvania where shale gas development is particularly active.

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.

Featured Biography: DEG President-Elect Douglas E. Wyatt, Jr., PhD., P.G.

Doug Wyatt is the Director of Science Research for the URS Corporation, Research and Engineering Services contract, at the US Department of Energy (DOE) National Energy Technology Laboratory (NETL). Wyatt co-manages a joint commercial-academic research program responsible for creating, organizing and coordinating a multidisciplinary team of about 100 national and international staff scientists, who work in 21 programmatic research areas involving 48 research projects, with a supporting portfolio of 211 directed university research activities and utilizing a current multi-year budget of approximately \$200M supporting the NETL federal research effort.

His current programmatic research areas include: unconventional oil and gas development (shale gas, EOR, geothermal and natural gas hydrates); engineered natural systems evaluation and risk, including environmental, ultra-deepwater, and carbon storage; geothermal systems; fractured media fluid flow and advanced modeling-imaging; and near-surface and environmental impacts of oil and gas production.

Wyatt advises DOE, URS, university partners and other governmental organizations on research programs and priorities and participates in policy and technology development and review activities on national and international research programs.

Wyatt received two B.A.s from the University of Tennessee in 1980, one in Zoology and one in Physical Geography, his MS in Geology and Geophysics from Vanderbilt University in 1985, and his Ph.D. in Geological Science from the University of South Carolina in 1995. In his early oil and gas work as a production and exploration geologist, he worked in the Appalachian, Illinois, Black Warrior, Powder River, Denver-Julesberg, and Permian basins and onshore-shallow water Gulf of Mexico.

Wyatt has participated in numerous panels and review groups including the DOE Quadrennial Technology Review (QTR), the Environmental Policy Institute, "Conquering Climate Change, New Opportunities, New Economies", as a Forum Panelist, Alternative Energy Research & Development at the James E. Clyburn Transportation Center at South Carolina State University, the AAPG/SEG/SPE Hedberg Conference, and the US EPA & Howard University "Environmental Justice, Climate Change and Clean Coal" at the State of Environmental Justice in America Conference, Howard University School of Law. In 2011, Wyatt won the DOE Secretary of Energy Honor Achievement Award for his work with the BP Macondo event.

Wyatt is a Registered Professional Geologist in Tennessee, Texas and North Carolina and an AAPG Certified Petroleum Geophysicist. He is an Adjunct Professor in the Department of Biology and Geology at the University of South Carolina-Aiken, where he teaches upper division courses in Depositional and Diagenetic Systems and Global Energy and Environment. His academic expertise is in geophysics and high-resolution mapping of coastal depositional systems. Wyatt is also an Adjunct Associate Professor at Clemson University.

His current research interests include evaluating coastal plain depositional effects and formation of "soft zones" via x-ray fluorescence elemental analyses and CAT scanning for depositional fabric, evaluating historic ice-core derived global temperature data with recent federal site temperature data and potential depositional responses, and evaluating the potential impact of ultra-low electromagnetic frequency monitoring of subsurface interactions.

Wyatt has authored approximately 140 papers, presentations, and articles.



Beauty in Geology

Exploring Alabama Hills in Owens Valley, California

The site of many old western films, Alabama Hills is situated in Owens Valley along the eastern edge of the Mesozoic-age Sierra Nevada Mountain Range. The tan-colored rocks in the foreground are composed of metamorphic volcanic rock and granite. Sunlight is just hitting the snow-capped Sierra Nevada in the background. Students on this field trip noted the rounded appearance of these intrusive rocks and loved exploring the naturally formed arches.



Photographed by
Kris Carter,
March 2013.

The Good, The Bad, and The Ugly

This month's "The Good, The Bad, and The Ugly" focuses on geologic hazards. The topic of geologic hazards for this month's issue stems from the recent Kennecott landslide in Utah. Awareness of geologic hazards is increasingly important, not only for safety, but to gain a greater appreciation for the power of nature.

<https://geohazards.usgs.gov/>

The USGS Geologic Hazards Science Center is located on the Colorado School of Mines campus. Their website shows the variety of research projects taking place at the science center, from wildfire-related debris flows to seismic hazards in India.

<http://www.sltrib.com/sltrib/money/56254837-79/kennecott-mine-operating-operations.html.csp>

In this article by the Salt Lake City Tribune, the aftermath of the Kennecott landslide is discussed. The article states that not only will mine production take a 50% decrease, but upwards of 2,000 employees may be laid off. This kind of disaster shows the far-reaching effects that a geologic hazard can have on the economy.

<http://www.swfwmd.state.fl.us/hydrology/sinkholes/>

This article, by the Southwest Florida Water Management District discusses another type of geologic hazard common in areas underlain by carbonates – sinkholes. The article gives a brief background on the origin of a sinkhole and contact numbers for residents who have been affected by them.

<http://www.fema.gov/earthquake/earthquake-hazard-maps>

The Federal Emergency Management Agency has published a series of earth quake hazard maps for the United States. The maps indicate risk area by color and list potential effects of shaking.

<http://geology.com/volcanoes/volcanic-hazards/>

Geology.com covers numerous hazards associated with volcanoes from lava flows to deadly gases. The page also lists other volcanic hazard resources and new clips.

<http://www.nature.nps.gov/geology/hazards/>

Like the USGS, the National Park Service also has a web page that specifically covers geologic hazards. The page overviews types of hazards, safety recommendations for each, as well as other recommended links on the subject.

Fracing in the News: PA DCNR and PCPG Complete Technical Rebuttal to Article Claiming a Link between Hydraulic Fracturing and Groundwater Contamination


On behalf of the Pennsylvania Geological Survey (PAGS) and in collaboration with the Pennsylvania Council of Professional Geologists (PCPG), our own Kristin Carter, Environmental Geosciences Editor-in-Chief, worked with fellow authors – Neven Kresic, Peter Muller, and Louis Vittorio – to prepare a detailed technical rebuttal to Potential Contaminant Pathways from Hydraulically Fractured Shale to Aquifers (Ground Water Vol. 50, Issue 6, Nov-Dec 2012). Carter and her fellow authors prepared this response due to the lack of objectivity and hard data in this paper by Tom Myers, as well as the concern that the article's conclusions would be used to further advance misinformation regarding the shale gas industry. In their rebuttal, Carter et al. provide information from scientifically vetted studies and cite peer-reviewed papers that directly respond to the article's reported findings.

The joint PAGS / PCPG rebuttal can be downloaded from PCPG's shale gas page: <http://www.pcp.org/ShaleGas>

ACE 2013 Update

Don't miss the DEG 20th Anniversary Reception on Tuesday, May 21 from 5pm – 7pm at the Westin Hotel!

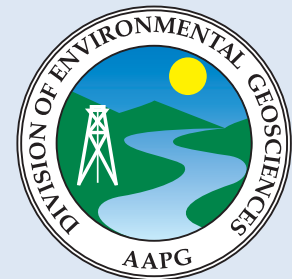
Enjoy a cocktail, some hors d'oeuvres, and hear from Mr. Walt Hufford, US Director of Government and Regulatory Affairs at Talisman Energy and member of EPA's Science Advisory Board Panel for Fracing. Please RSVP to Kristin Carter (krccarter@pa.gov) no later than May 18.



The poster features a header with the text 'DIVISION OF ENVIRONMENTAL GEOSCIENCES 1993-2013' and '20th ANNIVERSARY' in large green letters. Below this is the text 'AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS'. The main title is '20th Anniversary Reception'. The body text reads: 'The AAPG Division of Environmental Geosciences cordially invites you to attend an evening with friends and colleagues to celebrate our 20th Anniversary during the Annual Convention and Exhibition in Pittsburgh, PA.' A circular graphic contains the event details: 'Tuesday, May 21, 2013 5:00 - 7:00 pm Westin Hotel, Allegheny I'. Below this is the text 'A sampling of hors d'oeuvres with a cash bar'. To the right, it says 'Our corporate sponsors will offer poster presentations highlighting their groundwater protection operations in the Appalachian basin. We'll also have a special address from keynote speaker, Mr. Walt Hufford, US Director of Government and Regulatory Affairs at Talisman Energy USA and member of EPA's science advisory board panel for fracing.' A grey box at the bottom left says 'Please RSVP to [Kristin Carter](#) no later than May 18. Attendance is limited to the first 200 respondents.' Below that, it says 'Event Co-sponsored by Talisman Energy USA Inc. and Shell-Appalachia' with logos for Talisman Energy and Shell. At the very bottom, it says 'Copyright American Association of Petroleum Geologists, P.O.Box 979, Tulsa, OK, 74101-0979, USA.'

The DEG program proves to be an exciting one, with a joint DEG/PGS field trip Rifts, Diabase and the Topography "Fishhook": Terrain and Military Geology of the Battle of Gettysburg July 1-3, 1863

We also want to remind everyone not to miss the DEG luncheon on Wednesday, 22 May, from 11:30 am – 1 pm. Dr. Bill Harbert, Professor of Geophysics at the University of Pittsburgh, will be speaking on Geophysical Techniques Relevant to Hydrofracturing: Seismic Imaging, Microseismic Monitoring and Petrophysics.



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*We welcome
your articles, comments and
feedback for this quarterly Newsletter publication.*

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Submissions deadline for 3rd Quarter Issue: August 15, 2013
Submit to ddeemer@talismanusa.com