MISSISSIPPI GEOLOGICAL SOCIETY

eBULLETIN

Volume 63 No. 3 November 2014

MGS NOVEMBER SPEAKER
Carl Fiduk - Tectonics and Depositional Episodes of the GOM

Did you know the USGS is assessing Oil and Gas in MS?

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PRESIDENT'S LETTER

Ezat Heydari

Greetings:

A few weeks ago I ran into an old friend: Cragin Knox, the former head of Mississippi's Office of Geology. I had not seen him for over a decade. He had aged a little, but just as wonderful to speak with. It was a delight to see him again. Cragin is one of the most fascinating individuals I have met in my life.

Here is the story. When I came to Mississippi to work at the Office of Geology, Jack Moody (yes, our first Vice President) who was then the deputy to Cragin, took me to the Office of Geology on West Street and showed me my office, a small room in the northeast corner of the building next to the front door. Then, he gave me a tour of the core warehouse.

The value of these cores is clear: They can be considered a geological treasure for the State of Mississippi and its future generations. They are an asset to geological sciences, petroleum exploration, and the environmental well-being of the State. Who knows, some of the most important future scientific discoveries may be made on these same cores.

I felt like a fox in a hen house. I estimated at least 500 cores there. I made a quick calculation: If I write two papers per core that would come to about 1000 papers in my career….not a bad accomplishment. There was a little problem however, for the type of work I wanted to do, I needed some "stuff": long tables to view cores, a photographic set up, thin section capability, etc...

I mentioned these to Jack Moody. About a week or two later a pick-up truck full of lumber came to a screeching halt behind the core warehouse. I was really surprised. It was Cragin, a baseball hat on his head, a tool box in his hand, directing the unloading of the lumber. In one afternoon, Cragin built two wonderful tables which are still standing at the end of the core warehouse. You can go to the core warehouse on West Street and see them for yourself.

Within a few months, we had a photographic station, a rock impregnation unit, and a thin section lab. These would not have been possible without direct orders and allocation of funds from Cragin. I began my studies.

The best aspect of my stay at West Street was working with some of the most wonderful folks there: Robert Ervin, Michael Pippins, Trey Magee, Archie McKenzie, and John Marble. They are some of the most dedicated personnel that I have met. They do their best (and they still do) to make sure everything in the West Street core warehouse is working, sometimes putting themselves in danger in the process (and they still do).

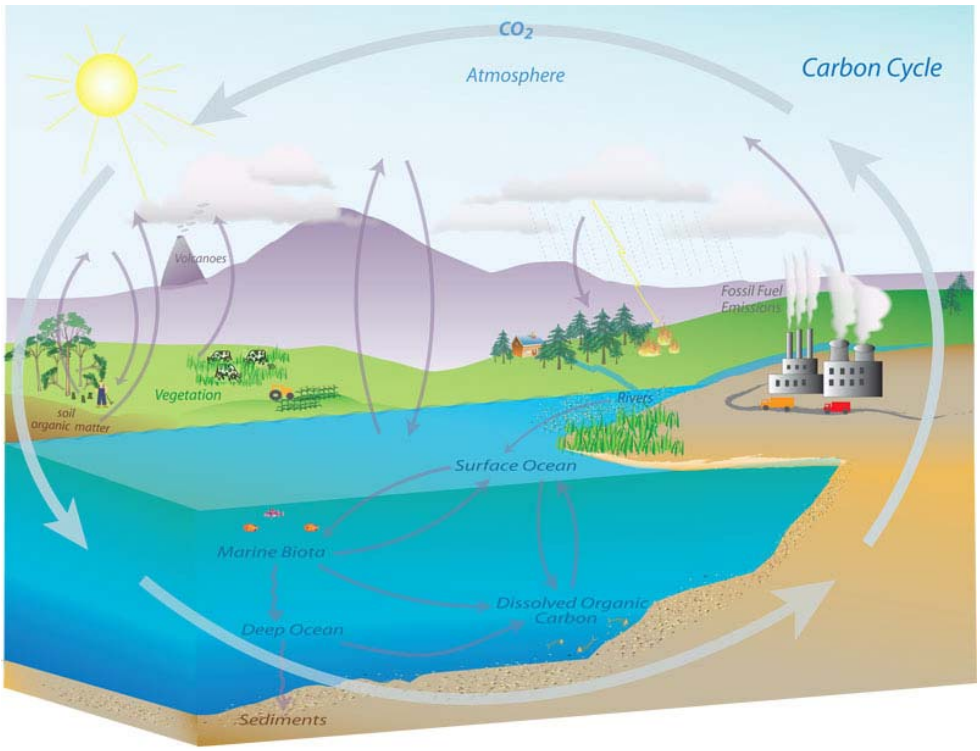
Faith had other plans, however. I moved to JSU and followed a different path. But I still miss my office in the northeast corner of the West Street core warehouse. Every time I pass through that general area, I ask this question: Should there be a problem at the West Street core warehouse, what would Cragin do? Of course, no major issues are expected. The Office of Geology and the core warehouse are under the Mississippi's Department of Environmental Quality after all.

Regards,

Ezat

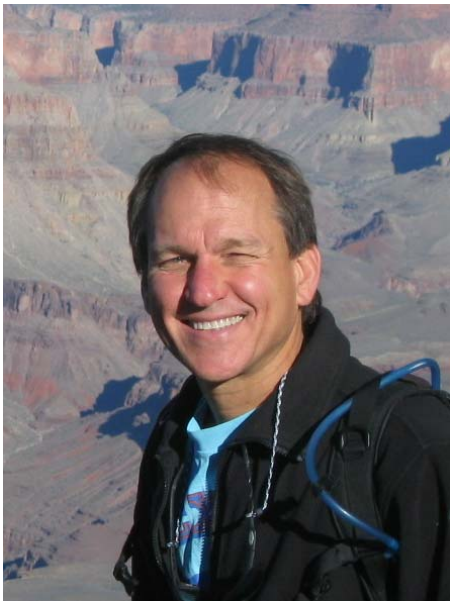
2013-2014 MGS MEETING SCHEDULE

When	What/Who	Where
September 11, 2014	Fall BBQ	Jackson Yacht Club-5:30pm
October 9, 2014	John Allen Tuscaloosa Marine Shale	River Hills – 11:30am
November 13, 2014	**Carl Fiduk** **Tectonics and Depositional Episodes of the GOM**	**River Hills – 11:30am**
TBD	MAPL Christmas Party and Dance	TBD
January 8, 2015	TBD	River Hills – 11:30am
February 12, 2015	TBD	River Hills – 11:30am
March 12, 2015	TBD	River Hills – 11:30am
April 9, 2015	Boland Scholarship Awards	River Hills – 11:30am
May 14, 2015	Spring Fling	Jackson Yacht Club– 5:30pm



OFFICERS MEETINGS
September 4, 2014
October 7, 2014
November 11, 2014
January 6, 2015
February 10, 2015
March 10, 2015
April 7, 2015
May 12, 2015

MGS OCTOBER SPEAKER



Joseph Carl Fiduk

I have a B.S. and M.S. degree in Geology from the University of Florida. I have an M.B.A degree from the University of Texas of the Permian Basin and a Ph.D. in Geology and Geophysics from the University of Texas at Austin. I have worked for the USGS, Gulf Oil, Discovery Logging, the Texas Bureau of Economic Geology, British Petroleum, Texas A&M University, the University of Texas, the University of Colorado, as a private consultant, and Chief Geologist for CGG and CGGVeritas. I am currently Chief Geologist for Schlumberger in Houston, TX.

My research interests cover coastal and shelfal clastic deposition, salt structural deformation and evolution, basin analysis, shelf margin to deep marine depositional processes, marine sedimentology, petroleum systems analysis, and the use of three-dimensional seismic data in petroleum exploration. I am currently involved in salt-sediment interaction research in the Flinders Ranges, South Australia, fluvial deltaic deposition in the Cretaceous Seaway of NW Colorado, and deep marine stratigraphic analysis in the Gulf of Mexico. I teach internal training classes on seismic interpretation and salt tectonics for Schlumberger and external industry courses for Nautilus U.S.A. and local geologic societies. In my 30+ years as a working geologist I have published over 80 peer-reviewed abstracts and papers.

MGS OCTOBER SPEAKER

Joseph Carl Fiduk

Tectonics and Depositional Episodes of the Northern Gulf of Mexico: A Brief History and Petroleum Geology

The Gulf of Mexico (GOM) is the 9th largest body of water on earth, covering an area of approximately 1.6 million km^2 with water depths reaching 4,400 m (14,300ft). The basin formed as a result of crustal extension during the early Mesozoic breakup of Pangaea. Rifting occurred from the Late Triassic to early Middle Jurassic. Continued extension through the Middle Jurassic combined with counter-clockwise rotation of crustal blocks away from North America produced highly extended continental crust in the subsiding basin center. Subsidence eventually allowed oceanic water to enter from the west leading to thick, widespread, evaporite deposition. Seafloor spreading initiated in the Late Jurassic eventually splitting the evaporite deposits into northern (USA) and southern (Mexican) basins. Recent work suggests that this may have been accomplished by asymmetric extension, crustal delamination, and exposure of the lower crust or upper mantle rather than true sea floor spreading (or it could be some combination of the two). By 135 Ma almost all extension had ceased and the basic configuration of the GOM basin seen today was established. Near and far tectonic episodes have impacted the GOM since active extension ended in the Early Cretaceous. The Late Cretaceous-Early Cenozoic Laramide Orogeny was the last major tectonic event influencing the GOM, causing uplift and erosion across the basin's NW margin.

Sedimentation across the northern North American side of GOM can be divided into five megasequences: Upper Jurassic rifting, Lower Cretaceous carbonates, Upper Cretaceous clastic renewal, Paleogene volcanism, and Neogene climate change. The oldest sediments are clastics in the Upper Triassic known only from peripheral rift basins onshore. In the basin center evaporites of the Middle Jurassic Louann Formation are the oldest deposits encountered. Deformation and movement of the Louann salt affects almost all the overlying strata and plays a very important role in all aspects of the basin's petroleum systems. Above the salt, Upper Jurassic marine shales of Oxfordian and Tithonian age comprise two of the most important petroleum source beds. In the Lower Cretaceous megasequence the Aptian age Sligo and Albian age Stuart City carbonates established basin rimming reef margins that divided shelf from deep water. These reefs sit above the structural hinge between thick and thin continental crust. In the Upper Cretaceous megasequence the Cenomanian age Woodbine-Tuscaloosa system represent the first coarse clastics to advance beyond the Lower Cretaceous shelf margin. The megasequence is capped with tsunami deposits from the Chicxulub impact on the Yucatan peninsula. The Paleogene and Neogene megasequences are dominated by major clastic inputs of the lower Wilcox, upper Wilcox, Vicksburg, and Frio, lower Miocene, middle Miocene, upper Miocene, Pliocene, and Pleistocene. These progradational episodes not only advanced the shorelines and shelf margins significantly but also deposited thick sands (major reservoirs) in the deep GOM. The Neogene progradational episodes are strongly influenced by glacio-eustatic cycles of increasing frequency and amplitude.

GULF COAST ASSOCIATION OF GEOLOGICAL SOCIETIES

www.gcags.org

1. 65th Annual Convention and Exhibition hosted by the Houston Geological Society, Sept 20-22, 2015, George R. Brown Conv. Center, Houston, Texas
Paper themes:

- New Oil and Gas Discoveries
- Un-Conventional Plays
- Development Field Studies
- GOM Shelf and Onshore Plays
- Salt Tectonics and Traps
- Mexico and Caribbean Plays
- Gulf of Mexico Deepwater
- Environmental Geology
- Coastal Geology and Surface Impact
- Geology-Geophysics-Engineering
- Portfolio Management
- Geophysical Technology

Call for Papers deadline December 13, 2014 webpage: www.gcagshouston.com or contact Linda Sternbach, Technical Program Chair, at linda.sternbach@gmail.com.

2. Society Representative on the GCAGS Board of Directors: The Gulf Coast Association of Geological Societies (GCAGS) has 13 affiliated societies. The affiliated societies are the core of the GCAGS. The President of each affiliated society (or his or her representative) is a voting member of the GCAGS Board of Directors. As such, the societies have a strong voice in the decisions made by the GCAGS Board of Directors.

3. AAPG Advisory Council Representation: The Gulf Coast Section is the largest AAPG Section with close to 9000 members. Because of its size, the GCAGS has two Advisory Council Section Representatives while the other Sections have only one. "The AAPG Advisory Council serves in an advisory capacity to the AAPG Executive Committee. They report on matters involving ethics and discipline, long-range planning, constitutional review, nominations for officers and honors and awards and other special projects as requested by the Executive Committee."

4. GCAGS Student and Faculty Grants: Each year the GCAGS awards $20,000 in scholarship grant money to approximately 20 deserving graduate or PhD students in the Gulf Coast area. In addition, the GCAGS awards $10,000 to two faculty members to support their research on Gulf Coast geology.

5. GCAGS Scholarship Fund Matching Program: The GCAGS periodically initiates a Scholarship Fund-Matching Program for the societies. This is a great opportunity for the societies to double the value of donations going to their scholarship foundations, and in turn, help deserving geoscience students in their local areas. The total value of the donations from the GCAGS is $195,500.

6. Travel to Student Chapter Leadership Summit: Each year the GCAGS provides $1000 in support for student travel to the AAPG Student Chapter Leadership Summit. Summit attendees participate in training, interact with AAPG leadership, and establish mentoring relationships.

7. Advertising: Every year each GCAGS Affiliated Society receives a free ¼ page of advertising space (black & white) in the AAPG Explorer.

8. Sponsorship of Section Level Imperial Barrel Award Competition: If sufficient corporate funding is not raised, the GCAGS will donate $5000 (on an annual basis) to sponsor the Gulf Coast Section IBA competition. The GCAGS also volunteers to host the Gulf Coast Section university IBA teams and administer the entire event including one-day training for all participants. The IBA program is hugely popular with the students and industry support has grown immensely over the last few years. Two Gulf Coast Universities have won the Global IBA competition: The University of Texas, Austin (1 victory), and the University of Louisiana, Lafayette (2 victories).

9. Honors and Awards: Every year members of GCAGS' affiliated societies are nominated by their peers for awards for their service and accomplishments at the Society, Section and the National AAPG levels. Winners are recognized with an award plaque at the GCAGS Convention.

10. Teacher of the Year Award: In addition to an award plaque, the GCAGS gives the winner of the Owen R. Hopkins Outstanding Earth Science Teacher Award $2000 ($1500 for personal use and $500 for use by their school) and an expense paid trip to the Annual GCAGS Convention.

11. GCAGS *Transactions*: Professional registrants for the GCAGS Convention receive an electronic version (CD, flash drive) of the GCAGS *Transactions* with their registration fee.

12. *GCAGS Journal*: The *GCAGS Journal* is a peer-reviewed premier publication dedicated to Gulf Coast geoscience research and concepts, Contact Barry J. Katz BarryKatz@chevron.com

13. WWW.GCAGS.ORG: The GCAGS website is linked to local society websites. New material, comments, updates, etc. are welcome.

14. Social Media, ability to send out updates on GCAGS events, contact Dianna Phu dianna.phu@intecsea.com

US GEOLOGICAL SURVEY

U.S. Geological Survey unconventional petroleum systems research in south Mississippi: observations on burial history and thermal maturity in the Cretaceous

Paul C. Hackley, Brett J. Valentine, Catherine B. Enomoto, James L. Coleman Jr.
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Introduction

Shale hydrocarbon 'resource' plays have revolutionized the United States energy mix over the last 5 years. These plays are diverse in lithology and age but share the common feature of occurring in 'tight' formations which require hydraulic (hydro-) fracturing for economic flow rates. In general, economic success requires an organic-rich reservoir with a quartz- or carbonate-rich mineralogy that responds to artificial stimulation by fracturing.

The U.S. Geological Survey (USGS) is tasked with estimating the quantity and quality of undiscovered hydrocarbons reservoired in shales. In support of that mission, we began an investigation of unconventional petroleum systems in the southern part of the Mississippi Salt Basin in 2012, building on earlier reconnaissance work that identified this area as potentially prospective for 'shale' gas (Enomoto et al., 2012). While our recent studies (Valentine et al., 2014a; Hackley et al., 2014) have suggested poor 'shale' gas prospectivity (due to low organic content, low porosity, high clay content, and significant depth), at least for the Aptian section, they also have generated a wealth of new information about thermal maturity in the Cretaceous of south Mississippi. In addition, our work to-date has set the stage for future USGS evaluation of unconventional hydrocarbons reservoired in the Upper Cretaceous Tuscaloosa Marine Shale (TMS). Here, we summarize recent USGS thermal maturity studies in the south Mississippi Salt Basin.

Study Area

USGS petroleum system investigations generally take a regional approach. Our study area is the southern half of the Mississippi Salt Basin southward to the Adams County High and Wiggins Uplift and basically includes the southernmost 3-4 tiers of Mississippi counties (Fig. 1), an area of approximately 20,000 square miles. Some rock samples from farther north in the salt basin and southward onto the Wiggins Uplift also were included.

Methodology

Approximately 135 samples were collected in 2012-2013 from the Jackson Core Repository of the Mississippi Department of Environmental Quality, Office of Geology, after identification from the online Energy Library (http://geology.deq.ms.gov/energy/) and correlation of relevant wells on electric log cross-sections. Organic petrography and bitumen reflectance analyses were done by the USGS whereas fluid inclusion microthermometry analyses were performed at a commercial laboratory (Fluid Inclusion Technologies, Inc.).

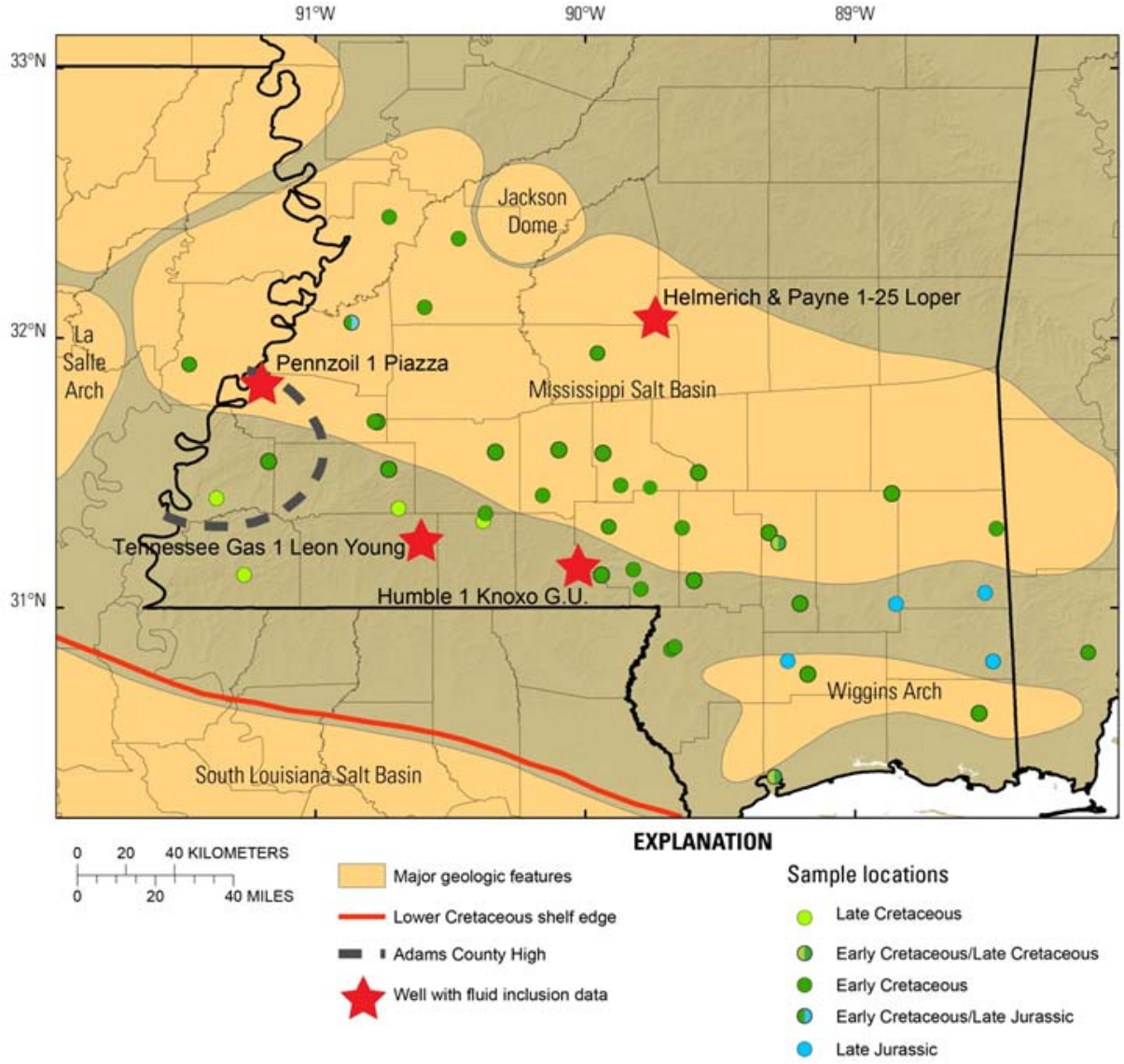

Figure 1. Map of study area showing sample locations by stratigraphic age, wells where we have fluid inclusion data, and outlines of major structural features of south Mississippi. Modified from Gazzier and Bograd (1988) and Ewing and Lopez (1991).

Results and Observations

The reflectance of organic materials such as vitrinite and bitumen in geologic samples increases with burial depth and reflectance measurement is generally considered the most robust estimation of thermal maturity for hydrocarbon exploration in sedimentary basins. Our results from bitumen reflectance revealed that present-day thermal maturity in the western end of the salt basin is higher than at equivalent depths to the east, at least for the Lower Cretaceous section. This is illustrated in Fig. 2, where bitumen reflectance is plotted as a function of depth (bitumen reflectance has been used as the primary optical thermal maturity parameter in our study because vitrinite is sparse or absent in most Lower Cretaceous

samples). As clear from the field labeled 'central and eastern MS Salt basin' on Fig. 2, bitumen reflectance gradually increases with depth (r^2=0.67) in the eastern and central parts of the basin. However, samples from the Adams County High (ACH) and elsewhere in the western end of the basin show higher levels of thermal maturity, even at shallower depths. We currently believe that this anomaly is best explained by greater heat flux in the geologic past, at least on and near the ACH, as suggested by higher present-day geothermal gradients in sampled wells. Previous studies also noted a higher present-day geothermal gradient at the western end of the salt basin (Koons et al., 1974; Lewan, 2002).

The homogenization temperatures of aqueous fluid inclusions in sandstone and carbonate also can be used to estimate thermal maturity from determination of the maximum temperatures reached during burial. Based on fluid inclusions, our preliminary data from the ACH suggests that the rocks currently are at their maximum burial depth (Fig. 3A).

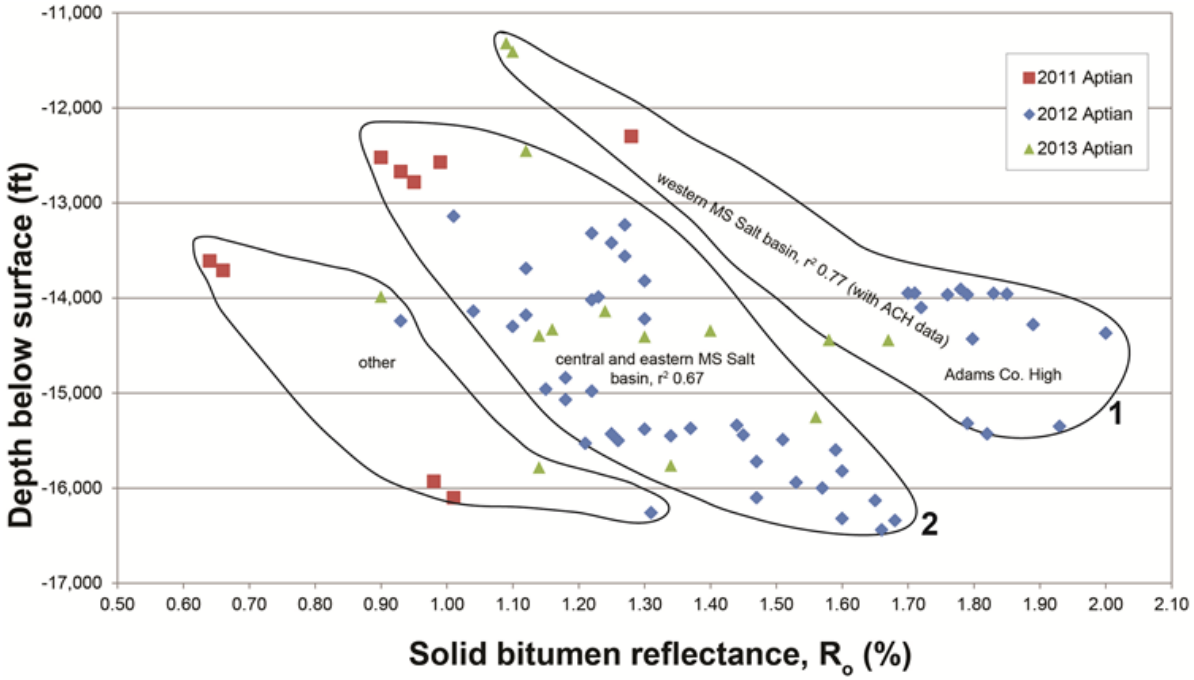

Figure 2. Bitumen reflectance values from the Lower Cretaceous (Aptian) in the south Mississippi Salt Basin. The data are separated spatially into two broad trends: 1) Adams Co. High (ACH) and other western MS Salt Basin samples, r^2 of 0.77 with depth, and 2) samples from the central and eastern MS Salt Basin, r^2 0.67 with depth. The "Other" field includes analyses with a low number of measurements (poor data control), anomalously low values wherein several other measurements from the same well were significantly higher, and/or cases where the petrographer noted the presence of 'migrated' fluorescent bitumens which could potentially bias the mean towards lower values. ACH, Adams Co. High. Samples are symbolized by year of collection: 2011 (data in Enomoto et al., 2012), 2012 (data in Valentine et al., 2014a), and 2013 (data in Valentine et al. 2014b).

Elsewhere in the study area, data from fluid inclusions suggest that the rocks were at one time buried more deeply than at present, implying that there has been uplift and erosion of the overlying strata. This is because the fluid inclusions (and, in some cases, the bitumen reflectance data as well) record higher temperatures than the present-day temperature at the sample collection depth.

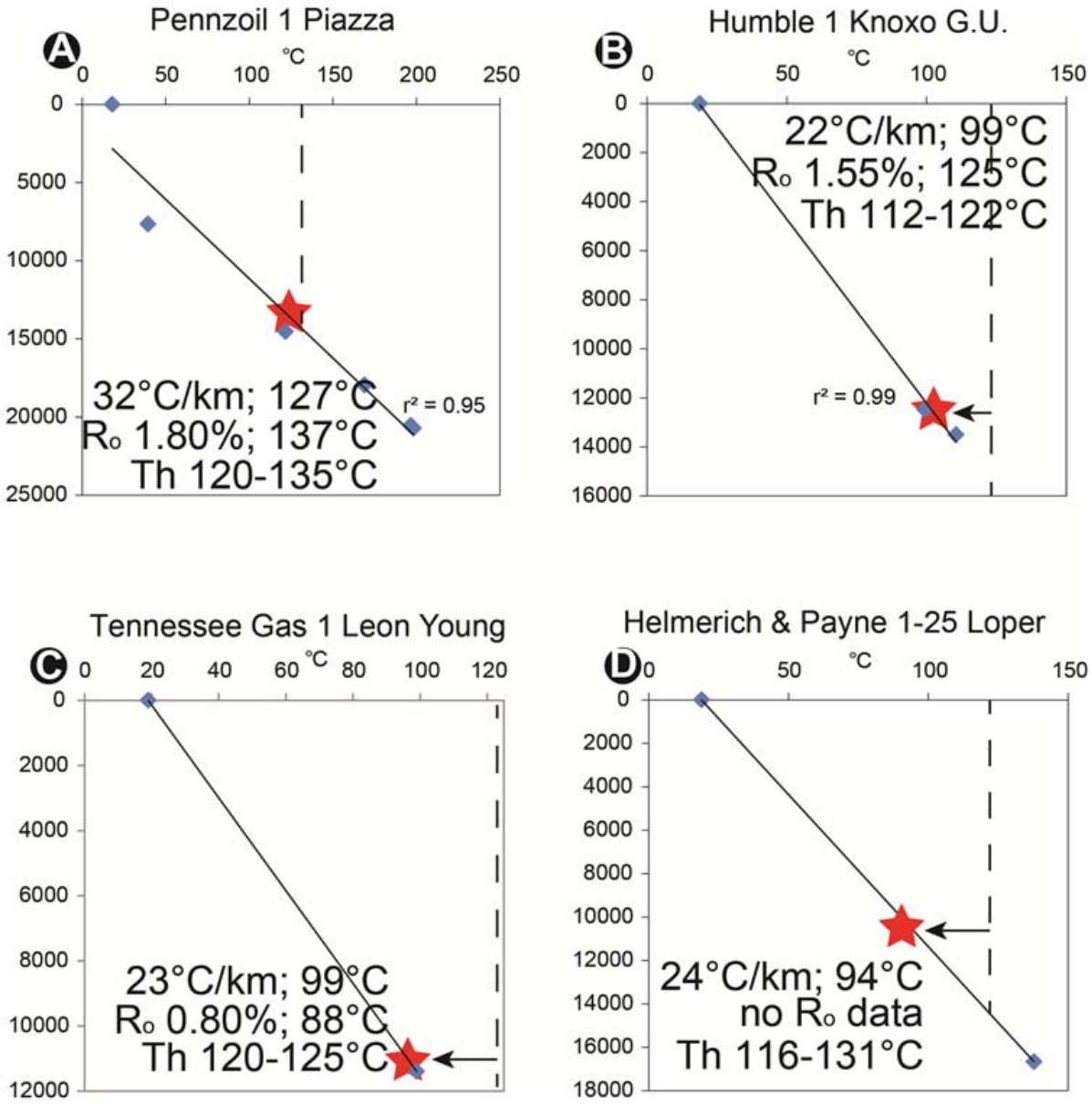

Figure 3. Present-day thermal gradients (from average surface temperature and uncorrected bottom-hole temperatures on wireline log headers, shown by blue diamonds), temperature at sample depth, average bitumen reflectance (R_o), maximum temperature calculated from bitumen reflectance (from Barker and Bone, 1995), and aqueous fluid inclusion homogenization temperatures (Th). Dashed line shows approximate maximum temperature and arrow shows cooling to present-day conditions. Axes have different scales on each plot. Locations shown on Figure 1.

For instance, in Walthall (Fig. 3B) and Amite (Fig. 3C) Counties, southeast of the ACH, fluid inclusion microthermometry suggests that present-day temperatures are about 10-25°C cooler than they were in the geologic past, implying uplift (and cooling) has occurred since the rocks were buried to their maximum depths. Far updip in the salt basin, even more uplift has occurred in Rankin County (Fig. 3D), where

present-day temperatures are 20-35°C cooler than at maximum burial. Assuming an average thermal gradient of about 25°C/km, these data could indicate that about 0.5 km of erosion has occurred in the southern counties, and that about 1 km of erosion has occurred in the northern part of the study area. These observations are consistent with the extent of the regional mid-Cenomanian unconformity, which is presumed to have eroded a greater thickness of sediment towards the northern margin of the Gulf of Mexico basin (Rohl et al., 1991).

This discussion is based on observations of a work in progress. We expect that our ideas will evolve as more data are generated from this project in the future.

The next step for USGS research in south Mississippi would be a study to estimate the quantity and quality of unconventional hydrocarbon resources reservoired in the Tuscaloosa Marine Shale (TMS). This work would build on the database of thermal maturity information generated to-date.

Summary

The USGS is studying unconventional petroleum systems in south Mississippi. A thermal anomaly manifested by higher bitumen reflectance values on the Adams County High is currently thought to be related to increased present-day and paleoheat flux in this area and not due to deeper burial or proximity to salt or igneous intrusions.

Acknowledgments

This work would not be possible without the support and encouragement of David Dockery at the Mississippi Office of Geology, and the assistance of Robert Ervin and Michael Pippins at the Jackson Core Repository. Others at USGS also have contributed to this study including Alana Bove, Celeste Lohr, Frank Dulong, and Krystina Scott. Any use of trade, product, or firm names herein is for descriptive purposes only and does not imply endorsement by the U.S. Government.

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US GEOLOGICAL SURVEY

Figure 1. Catherine Enomoto (upper left) and Celeste Lohr (right) examine cuttings at MDEQ's Office of Geology core and sample library at North West Street in Jackosn. Picture was taken on August 1, 2012.

Figure 2. Brett Valentine (left), Paul Hackley (center), and Alana Bove (right) examining core and cuttings at MDEQ's Office of Geology core and sample library on North West Street in Jackson. A portion of their 15-well cross section though southern Mississippi can be seen at the upper right. Picture was taken on July 22, 2013.

JOB OPPORTUNITIES

Environmental Scientist / Geologist

We are EnSafe Inc., an employee-owned, global professional services firm. We strive to provide cutting-edge, creative solutions for our clients. We are currently accepting applications for a staff level geologist, with an environmental focus to support several clients out of our Jackson, MS.

Responsibilities include but are not limited to: performing site investigation activities, remedial system design and operation, subcontractor oversight; preparation of work plans; management of field health and safety, drilling, and scheduling; writing technical reports; and making technical recommendations for site assessment and remediation activities. Experience managing project schedules, staffing, and budgets is a plus, as is experience conducting Phase I Environmental Site Assessments (ESAs). We require a minimum of a BS in Geology with two to five years of experience. HAZWOPER training and certification is required.

Our employees are outgoing, self-motivated, and thrive in a fast-paced consulting environment. Communication, written and verbal, is also critical to success. Overnight and air travel will be required.

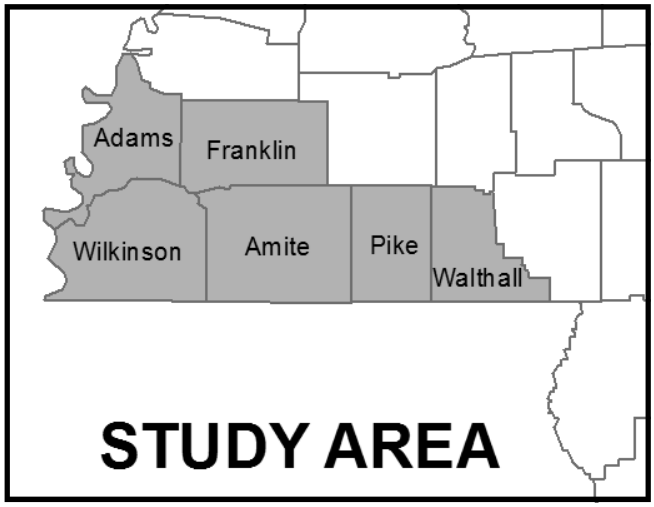
We offer a competitive salary and benefits, an outstanding work environment, and the opportunity to work on some really cool projects. For consideration, submit your cover letter, salary expectations, and resume to: resume@ensafe.com

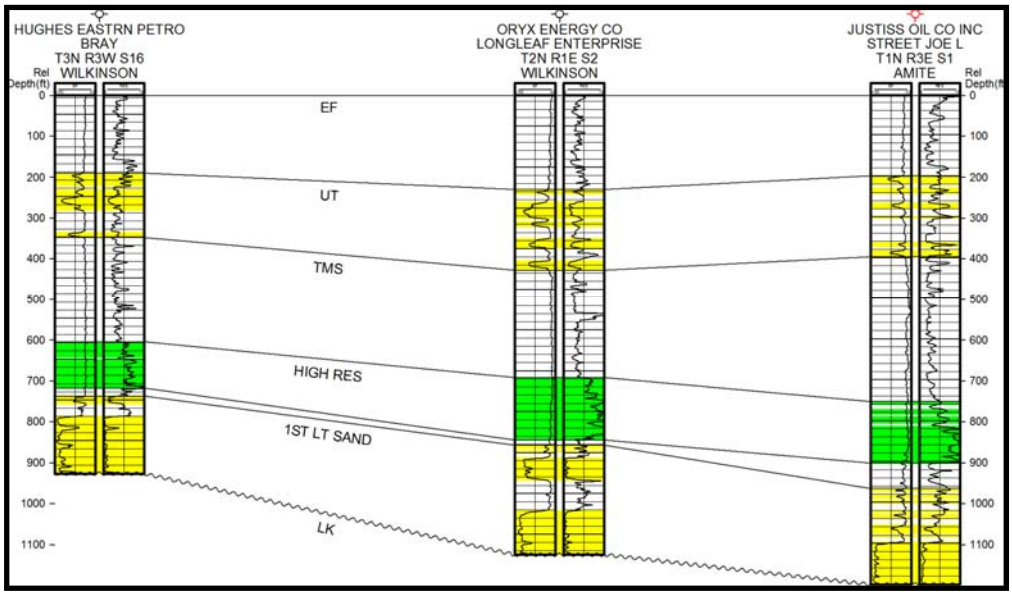
Check us out on the web at: www.ensafe.com
EEO/AA

MGS SEPTEMBER SPEAKER

John Allen

Thanks again to last month's speaker John Allen for a great talk on the Tuscaloosa Marine Shale. Below are some figures from John's presentation. If you would like more information please send me an email. MGS Editor





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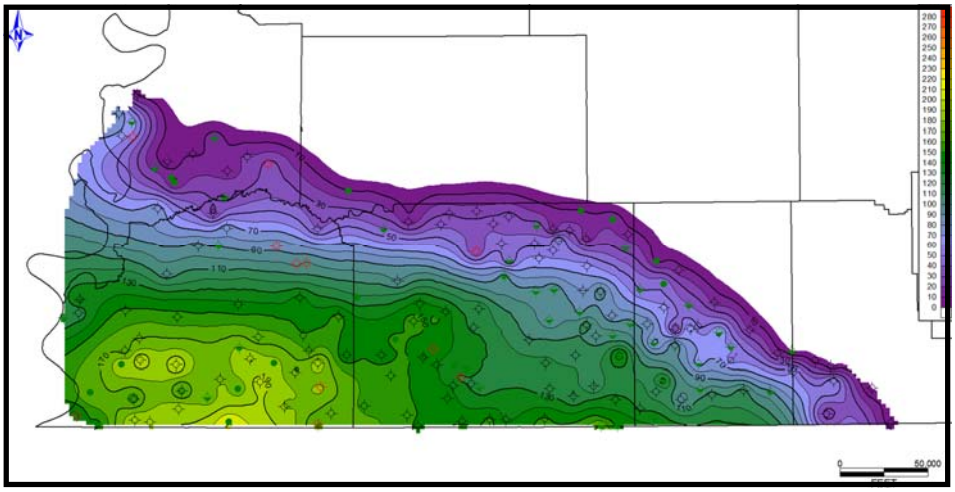

MGS MONTHY COLUMN

David T. Dockery III, RPG

U.N. CLIMATE CHANGE SYNTHESIS REPORT RELEASED ON NOVEMBER 2, 2014, AT A TIME THAT 130,000 CUSTOMERS IN MAINE WERE WITHOUT POWER DUE TO A RECORD -EARLY DOUBLE-DIGIT SNOWSTORM

David T. Dockery III, RPG

The U.N.'s synthesis report released Sunday November 2, 2014, claimed the globe is heading toward "severe, pervasive, and irreversible" climate change impact if left "unchecked." According to the U.N. Intergovernmental Panel on Climate Change, "The report expresses with greater certainty than in previous assessments the fact that emissions of greenhouse gases and other anthropogenic drivers have been the dominant cause of observed warming since the mid-20th century." Defense Secretary Chuck Hagel stated at the Washington Ideas Forum on Wednesday, October 29, 2014, that "climate change presents security issues." Meanwhile back home, according to The Weather Channel, "a record-early double-digit snowfall blanketed parts of Maine from a storm systems that earlier brought an unprecedented early-season snow to parts of South Carolina on the first day of November. Some 130,000 customers in Maine were without power as of Sunday evening, November 2, 2014. Figure 1 shows the September North American snow cover in millions of square kilometers from 1967-2014. There is certainly no downward trend in this record. Snow coverage in Alaska and Canada on September 6, 2014, is shown in figures 2 and 3, respectively.

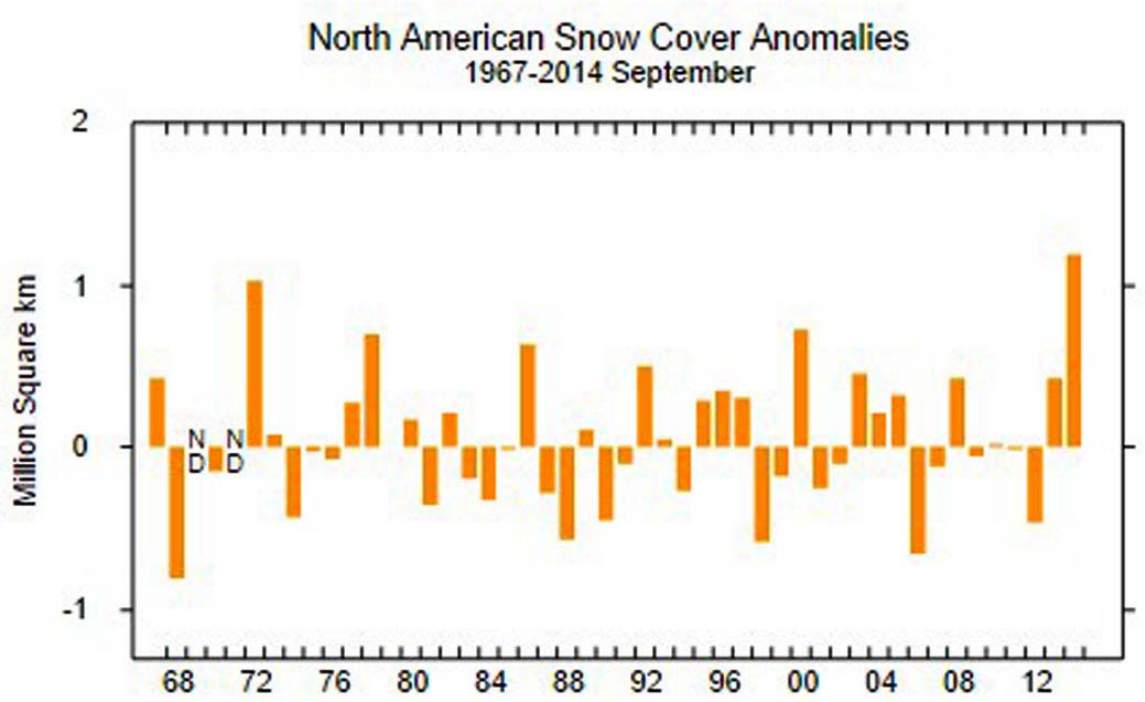

Figure 1. The September North American snow cover in millions of square kilometers from 1967-2014.

MGS MONTHY COLUMN

David T. Dockery III, RPG

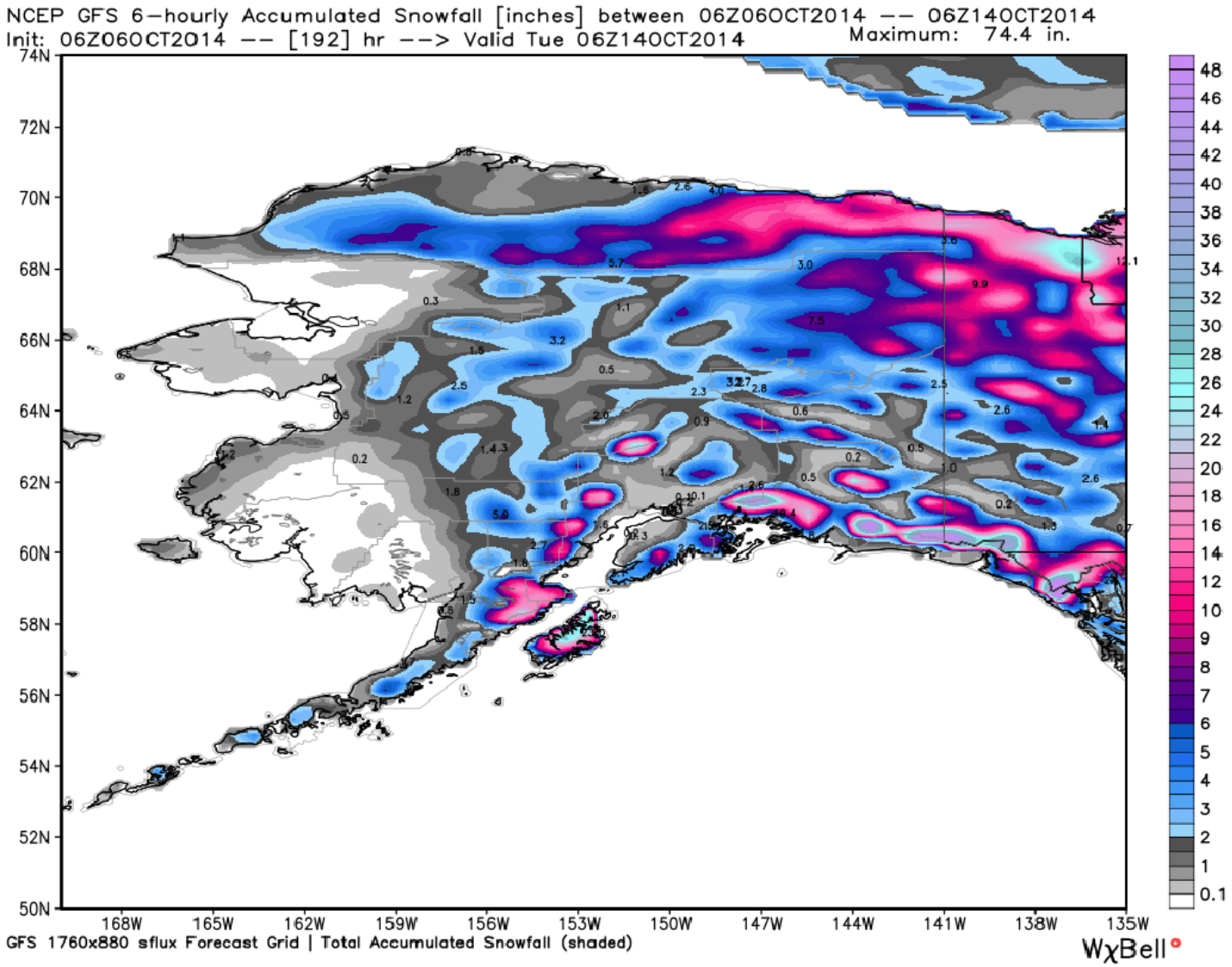

Figure 2. Winter arrives early in Alaska and Canada with snow for all Canadian Provinces, October 6, 2014.

MGS MONTHY COLUMN

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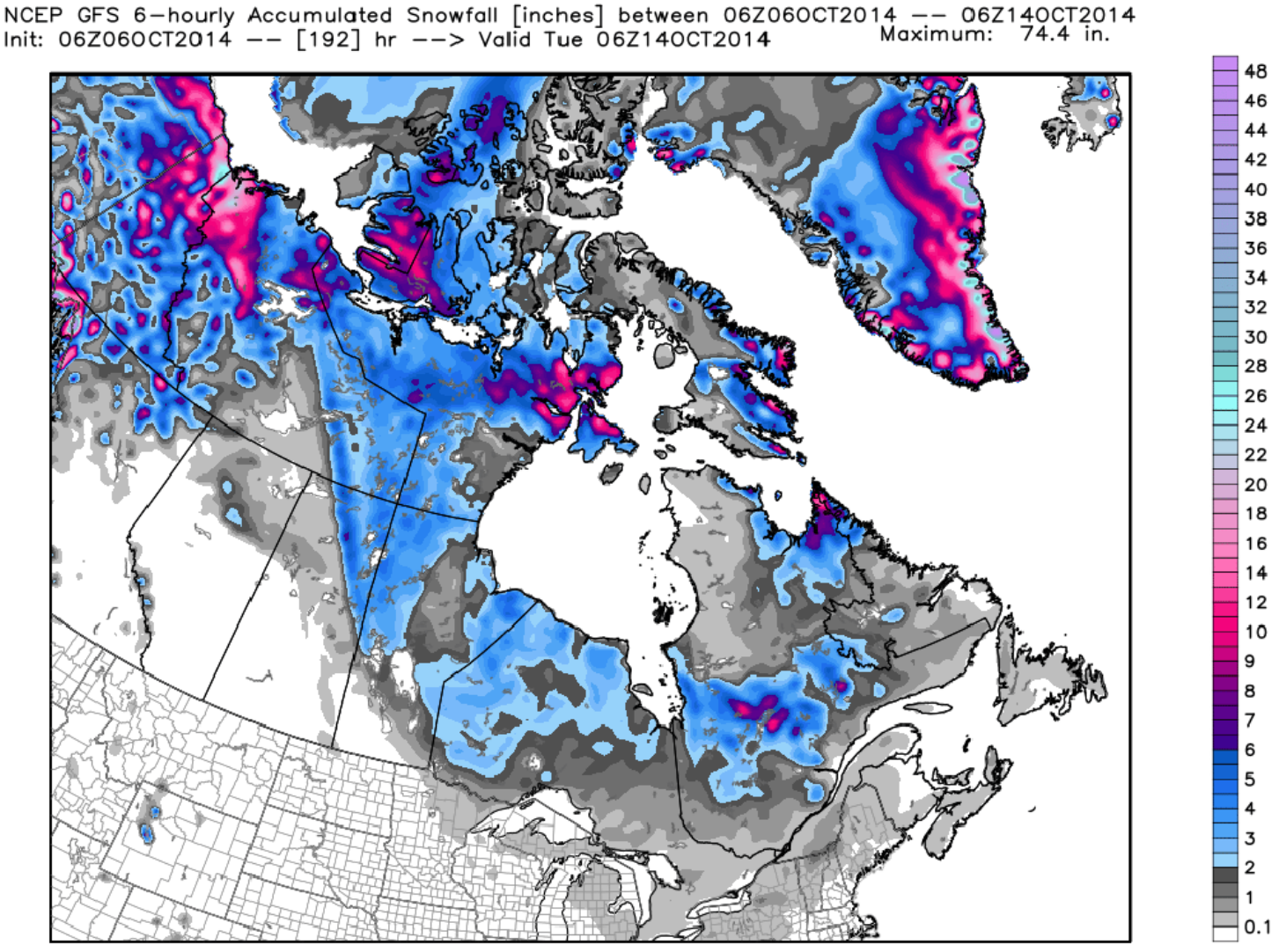

Figure 3

IN MEMORIAM

Dr. Richard Lee Bowen

Dr. Richard Lee Bowen

Hattiesburg, MS

Dr. Richard Lee Bowen, 85, passed away on the 6th October, in Hattiesburg, Ms. after a lengthy illness.

He attended Mars Hill College, North Carolina, then The University of North Carolina at Chapel Hill, finishing with a B.A in Geology, Phi Beta Kappa, then Indiana University at Bloomington, with a M.A. in Geology. During 1952-1954 he worked at Standard Oil of California. In late 1954 he attended the University of Melbourne, Australia, on a Fullbright Scholarship, where he obtained his Ph.D. in Geology with an emphasis in Glacial Geomorphology.

In 1957, he married Yvonne Bowman, from Brisbane, Australia. They were married 57 years. From 1959-1963, he worked for Gulf Oil as Geological Field Chief in Angola, Spanish Guinea, Spanish Sahara, and Mauritania. From 1963-1964, he was Professor of Geology at the University of Rio Grande do Sul, in Porto Alegre, Brazil, working under U.S Geological Survey contract to U.S.AID for International Development. He joined USM in 1964 as a professor and served a number of years in the seventies as the Dept. Chairman. He retired in 1997. Many of his students will remember him for his rigorous field trips! He is recognized for having constructed the maps of the Richton Salt Dome for the potential storage of Nuclear Waste for the U.S. Atomic Energy Commission. He loved a game of Duplicate Bridge, his Rotary Club, and in particular, he is remembered for his mental prowess on the WDAM Civic Quiz.

He is survived by his wife, Yvonne, daughters Cynthia and Fiona, and son, Chris and wife Lisa.

The family would like to remember the wonderful care given by Dr. Charles Griffith, Forrest General Hospital Wound Care, Forrest General Hospital Hospice, and the loving care of Denise Donalson and Tiffany Smith. We would also like to acknowledge the wonderful help given by Dr. Maurice Meylan in helping Richard dispose of his massive library.

In lieu of flowers, the family has asked that any donations be made to the USM Foundation, Geology Department, in the memory of Dr. Richard Bowen.

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GEOLOGY POST

ARTICLES, PAPERS or NEWS?

ATTENTION!!!!! Industry, Professors and Students:

I am adding a dedicated section that includes more content from the industry and our schools.

Submissions can include anything from professional papers, thesis abstracts, job opportunities to pictures. Anything!!!!

If you have any information or news you would like to share with the Society **PLEASE** email them to the MGS Editor at:

mcaton@tellusoperating.com

Thanks & Regards,

Matt Caton
Editor

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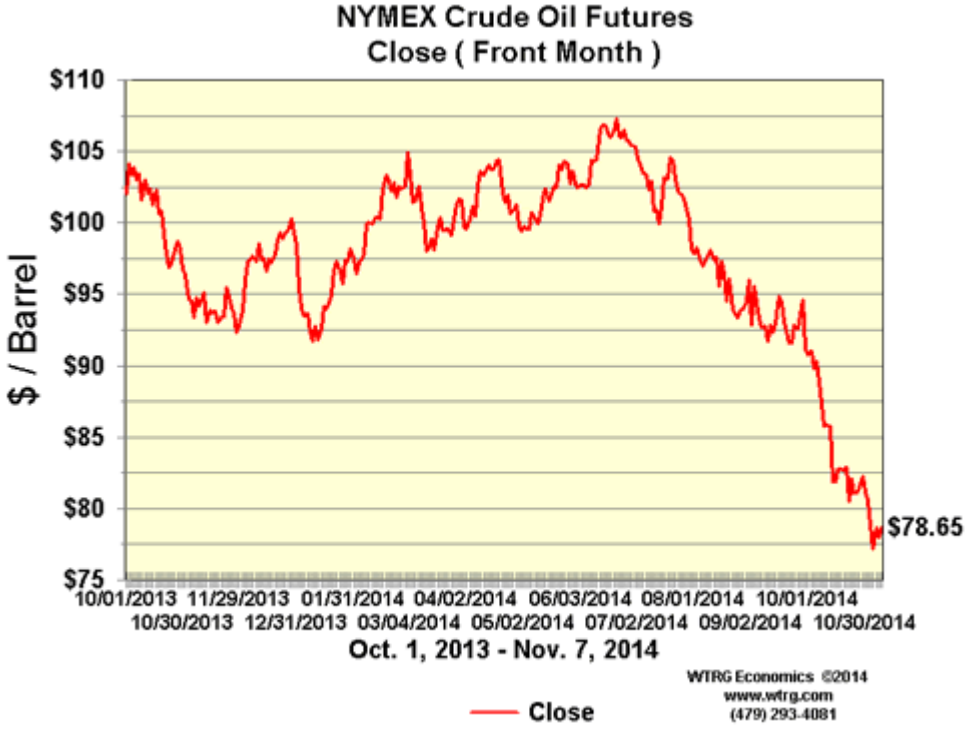

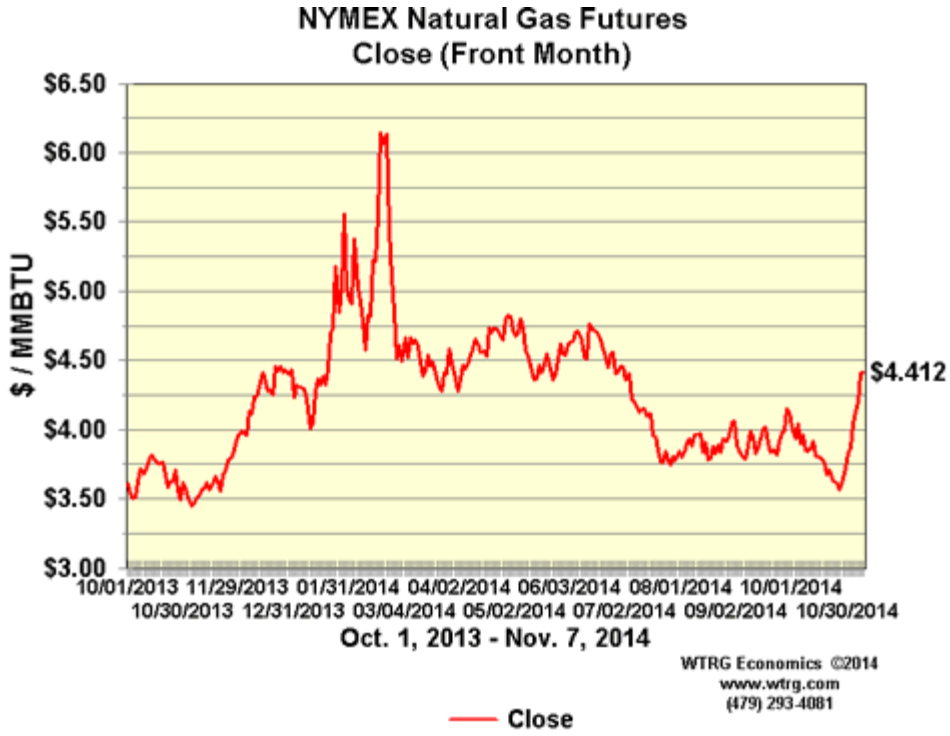

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BOLAND SCHOLARSHIP WATCH

Faculty & Students,

This is a new year and the Mississippi Geological Society along with the Boland Scholarship Fund would like to remind you that we want to honor the most out-standing overall students for the 2014-2015 year.

Each year, the Boland Scholarship awards 1 student from each institution a check that rewards students for their hard work and dedication to the Geosciences and their community.

We look forward to a great year and hope to see you at our monthly meetings.

Best Regards,

Matt Caton
Editor

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Thank you to the following sponsors for their generous donations to the Boland Scholarship Fund!

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* This list is updated on a monthy basis.
Please contact Bill Bagnall if you have any questions.

GEO LINK POST

USGS TAPESTRY OF TIME AND TERRAIN http://tapestry.usgs.gov The CCGS is donating to all of the 5th and 6th grade schools in the Coastal Bend. Check it out—it is a spectacular map. You might want a framed one for your own office. The one in my office has glass and a metal frame, and it cost $400 and it does not look as good as the ones we are giving to the schools. Call Owen 510-6224 if you want one for your office for $150. Duncan, Mike, Chris, Dave, Bob Randy, Seb., Kevin, Ken, Craig, Patrick, Robert.

FREE TEXAS TOPO'S http://www.tnris.state.tx.us/digital.htm these are TIFF files from your state government that can be downloaded and printed. You can add them to SMT by converting them first in Globalmapper. Other digital data as well.

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www.geo.org Don't forget we have our own web page.

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http://asterweb.jpl.nasa.gov/galery/default.htm Great satellite images of volcanoes

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www.ermapper.com They have a great free downloadable viewer for TIFF and other graphic files called ER Viewer.

www.drillinginfo.com This is an incredible (subscription) well and completion data service for independents. Can be demo'ed for free.

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http://www.fs.fed.us/gpnf/volcanocams/msh/ This is a live cam of Mt. St. Helens refreshed every 5 minutes. At the bottom are old videos of past eruptions in this cycle. It is worth a watch especially now.

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