



KANSAS GEOLOGICAL SOCIETY

# BULLETIN

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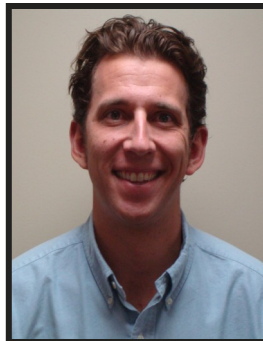


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*Svartifoss Waterfall in Iceland with mostly 4-sided  
Volcanic columns  
Photo Courtesy of Eric Guroff (husband of editor’s niece)*

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## CALL FOR PAPERS

The Kansas Geological Society Bulletin, which is published bimonthly both in hard-copy and electronic format, seeks short papers dealing with any aspect of Kansas geology, including petroleum geology, studies of producing oil or gas fields, and outcrop or conceptual studies. Maximum printed length of papers is 5 pages as they appear in the Bulletin, including text, references, figures and/or tables, and figure/table captions. Inquiries regarding manuscripts should be sent to [manager@kgslibrary.com](mailto:manager@kgslibrary.com) or mailed to 212 N. Market, Ste. 100, Wichita, KS 67202. Specific guidelines for manuscript submission appear in each issue of the Bulletin, which can also be accessed on-line at the Kansas Geological Society web site at <http://www.kgslibrary.com>



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01/24/2018      Field Studies - KU Petroleum Class Dr. Tony Walton

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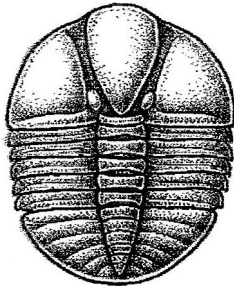
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### *Kansas Geological Society (KGS) Medallion for Scientific Distinction and Excellence*

The Kansas Geological Society (KGS) Medallion for Scientific Distinction and Excellence may be given annually for peer-recognized, sustained significant scientific contributions to all facets of applied Kansas geology, including work either in Kansas or in surrounding states if the latter contributions pertain directly and significantly to Kansas geology. No more than one award may be given each year, an award does not have to be given every year, and members of the KGS Awards Committee that handle nominations for this award cannot nominate themselves for this award. The candidates need not be active KGS members, and they must be living at the time of selection. The primary consideration in the selection of a candidate shall be his or her sustained, published, significant contributions to any facet of Kansas geology. Contributions may be varied in form such as development of geologic concepts, advancement in discovery thinking, and recognized leadership in exploration concepts. Oral and/or written publications in peer-reviewed geological venues is a requisite criterion for any candidate for this award. The name of a candidate shall be presented by the Awards Committee to the KGS Board of Directors for their approval. Once approved, the recipient shall be presented an appropriate award in the form of a medallion or plaque recommended by the Awards Committee and approved by the Board of Directors at the annual business meeting of the society. This is a new award given by the KGS for distinction and achievement in Geological research in Kansas.

In a unanimous vote, the committee, recommended that the first recipient of this award be **Dr. Lynn Watney**.

At the request of Paul Ramondetta, KGS President, the Awards Committee members are Sal Mazzullo, Mike Dealy and Alfred James.

# President's Letter

Dear KGS Members,

Happy New Year 2018! I hope each and every one of you had a wonderful Christmas and enjoyed the holidays. With the advent of a new year, there also comes a renewed vigor of setting various goals - whether personally, professionally or other. One of my primary goals is to continue leading the Kansas Geological Society to the best of my ability this upcoming year. This should be more than achievable with the 2018 KGS Board Members. We have a great representation of our membership. We elected a couple of young geologists with new ideas and energy, and there are some of us that are not so young, but have the experience and wisdom to carry us forward. My advisors are Tim Hellman and Debra Fitzgerald, each of whom has already served countless hours for our Society, but agreed to help me. I feel confident that we will all be able to meet any challenge that faces us in this new year.



The past few years have definitely had its' ups and downs, both in the oil industry and as well as decisions that had to be made with regard to the Society. We faced some turmoil early in 2017, but worked through it and resolved certain issues. The entire Library staff has continued to keep the KGS Library running smoothly and continues to scan and integrate the enormous amount of data that is received on a daily basis. This has been, and will continue to be, one of our primary goals. Our strength is the preservation of the historical data.

With regards to the Kansas Geological Library, Janice Bright is retiring the end of December, or by the time you read this, has retired. She worked for the Library for 34 years. She will be honored at the KGS Banquet, so please make an effort to attend and thank her. Rhonda has been training to take her position. Towards the end of the year, the 2017 Board started a search for a potential new manager for the Library. The discussion regarding the hiring of a manager, or other alternatives, will be priority for the 2018 Board, and we will continue to evaluate from both a 'need to have a manager' and from a financial position. Oil prices seemed to have somewhat stabilized, which of course helps our industry in all areas, including the Library and the Society's financial position.

While attending the Supplier's Party this year, I had several people offer their help in any way they can for the Society. I hope to put together a field trip and have a different type of 'picnic' this year. I encourage all of you to step up, serve on a committee, come up with a new idea, and help out. Our Society is strong, so please attend and support several of the functions that are offered to us. Do not hesitate at all to contact me, or any of the Board members, with ideas, concerns or questions. I sincerely look forward to serving as the 2018 KGS President. Respectfully,

Beth Isern  
President



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## Memorial for Gary Stuart Sandlin

Gary Stuart Sandlin, 83, of Longmont, Colorado passed away on January 5, 2017 at St. Anthony's North Hospital, Westminster, Colorado.

He was born June 10, 1933, in Palco, Kansas, to Edwin Sandlin and Mary Rachel (Dorman) Sandlin. He graduated from Hill City Memorial High School in 1951. He went on to earn a Bachelors and Masters degree in Geology from Kansas State University.

Gary worked as a geologist in Casper, Wyoming and Albuquerque, New Mexico, before becoming an independent geologist in Denver, Colorado. He was the owner and President of Sandlin Oil Corporation.

Gary enjoyed hunting, fishing, horseback riding, and playing his guitar. He loved his profession of geology and was an avid reader.

Gary is survived by his wife, Kathie Sandlin, daughter Laura Rodriguez Sandlin and her husband Paul Rodriguez, stepson Billy Kimbrough, sister Karen Summers, brother Steve Sandlin and his wife Cathy, many nieces and nephews, previous wife Betty Keiswetter Higbie and husband Lee.

Gary was preceded in death by his parents, son Jeff Sandlin, and brothers Arlen and Curtis Sandlin.

The Gary and Kathie Sandlin Geology Scholarship has been established with The Kansas State Foundation, 1800 Kimball Avenue, Suite 200, Manhattan, Kansas, 66502-3373.

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We, the members of the Kansas Geological Society,  
wish to extend our sincerest thanks to you, Janice,  
for all the work that you have done.

*Thank you*



**We wish to recognize Janice Bright for almost 34 years of loyal, dedicated and caring service to the Kansas Geological Society and its members.**

During this time, Janice has seen, and been involved with, the many changes, refinements and improvements that have developed and evolved in the KGS and Library. She implemented new accounting software which allowed the KGS to grow and operate in this digital age.

Through the years, Janice moved from data entry to the full charge bookkeeping position. This gave her the perspective of understanding the entirety of the KGS business and allowed her to provide critical information and input to the annual KGS Boards and Library Managers. Her self-imposed high standards have resulted in a positive and professional relationship with the Society's outside CPAs and technicians. Her responsibilities have grown to include accounting for all of the legal entities of the Society and the Kansas Geological Foundation with difficult multi-tasking being made to look easy.

She has always earned the respect of her library colleagues. Our accounting system reflects the ever developing demands of the various accounts, general ledgers and numerous journal ledger entries. The Sage (MAS 90) accounting software that Janice uses is a sophisticated and robust software program that is an asset to all Society members.

Janice has demonstrated herself to be steady, reliable and accurate. Her 'penny perfect' attribute is a benefit to all Society members. She has always proven herself to be helpful to all members of the society and her fellow library colleagues. Her notary public registration has benefitted many KGS members over the years.

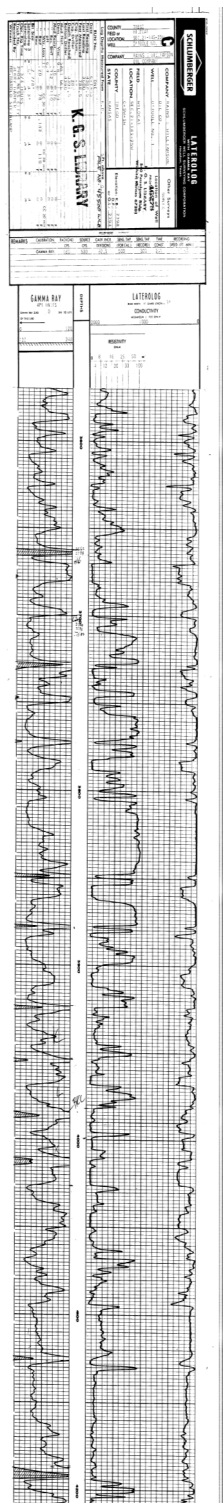
Janice has been instrumental in the accounting of all the KGS events. Whether it is the golf tournament, shooting or fishing activities, picnics and banquets; she was additionally involved with the acknowledgement of the events' sponsors or participants. Her ongoing efforts need to be recognized and appreciated. Janice has been involved with every annual balloting for the KGS Board and Foundation.

Janice is a long time resident of Valley Center, Kansas. She is a family oriented person who always had special care for her immediate and extended family. She is looking forward to an upcoming vacation with plans to attend all her great nieces' and great nephews' summer sporting events. Other plans are rumored to include a trip to the Hawaiian Islands and do some whale watching. Janice says she will miss her fellow Library colleagues and many of the KGS members. She had developed strong relationships with us throughout her long and distinguished career.

**The Kansas Geological Society and Library has been fortunate to have Janice Bright 'counting our pennies' as bookkeeper. Her experience and personality has benefited our Society. She has been a positive influence on us and her impact will continue into the future.**

**Best Wishes to Janice Bright from all the members of the Kansas Geological Society. You have made the Kansas Geological Society a better organization and we members are grateful and in debted to you for it.**

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Effective January 1, 2018, only ads for service companies and geologists offering their services will be permitted in the KGS Bulletin. Furthermore, only content of geologic interest or official KGS functions (technical talks, annual banquet, golf tourney, picnic etc.) will be permitted in this bulletin. This policy is in keeping with maintaining a professional standard for this publication. Any interpretation of this policy rests solely with the editor of this bulletin.



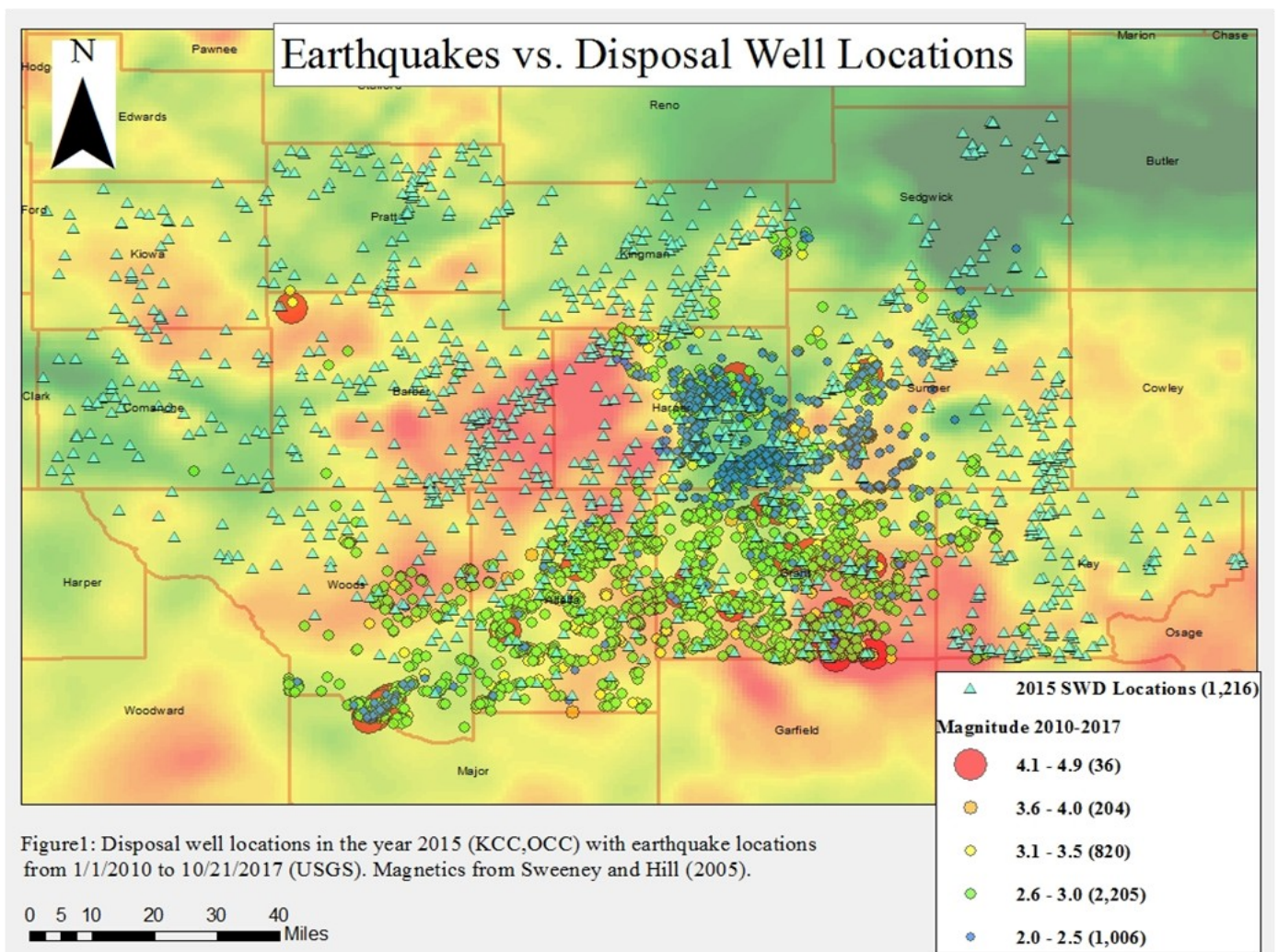


## Seismicity in South Central Kansas and Northern Oklahoma

### Tyler Selves, Wichita State University

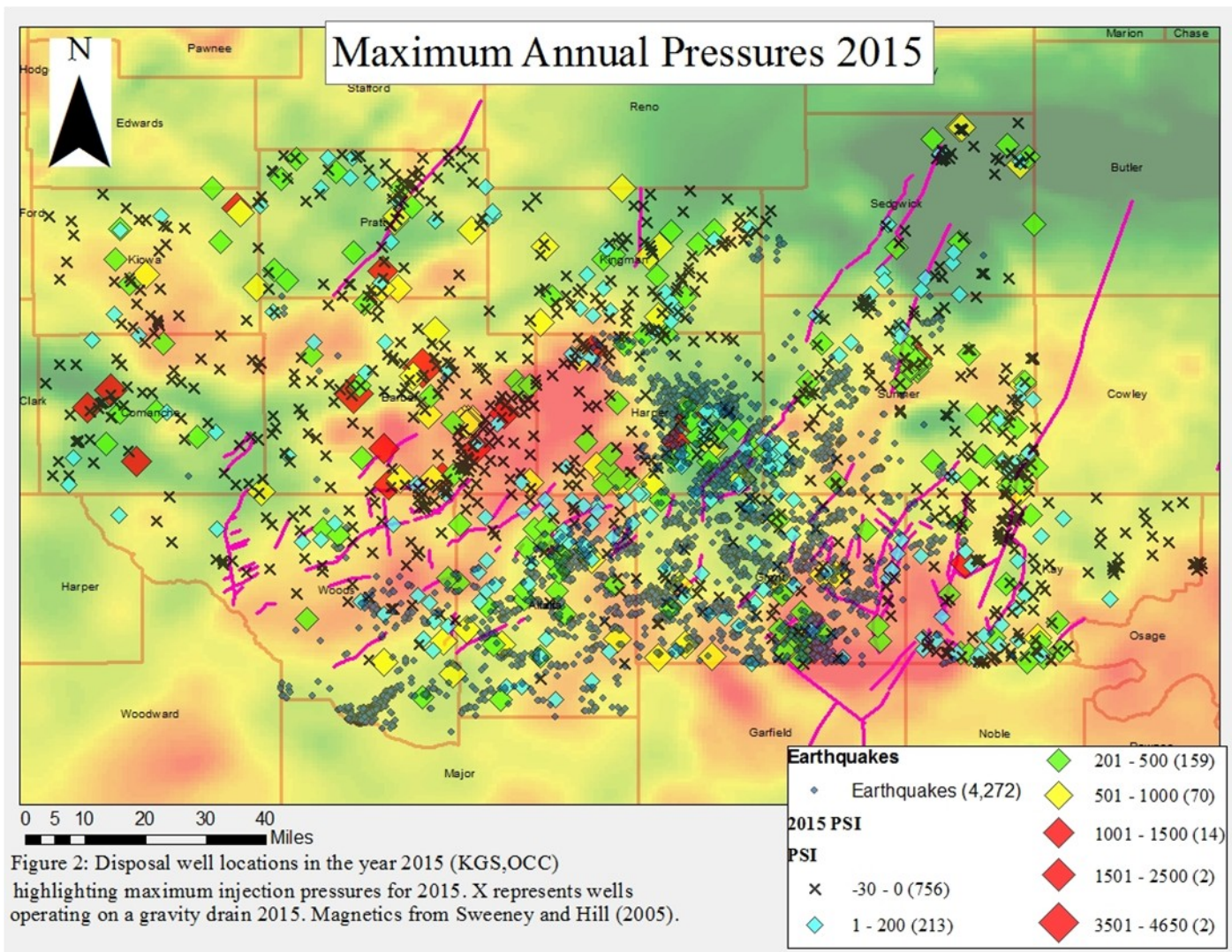
This study is a synopsis of my thesis titled *Factors Influencing Seismicity in South-Central Kansas and Northern Oklahoma*. Here, an examination of seismicity and injection well practices in Kansas and Oklahoma are compared, an explanation of larger magnitude earthquakes is attempted, and how the Proterozoic history of the midcontinent could be related to seismic events.

The study area is located in south-central Kansas and northern Oklahoma as a twelve county area shown in Figure 1. Seismic activity increased in 2009, reaching peak activity in 2014. Activity has been on the decline since 2015 through October 2017 since the KCC and OCC have implemented separate action plans to reduce the volume and rate of injected fluid. Previously, 2014 had the highest injection volume with 849.7 MMBBL being injected in the study area. Now, 935.9 MMBBL have been injected in 2016 (KGS and OCC, accessed November, 2017). Along with the method and volume of injection by individual or groups of SWD



wells, factors that could be affecting the seismic activity include the fractured nature of the Precambrian basements fault block pattern (described by Parker Gay, Jr.), the heterogeneity of the reservoirs used for injection across the study area, and the other earthquakes. Induced earthquakes can be generated by direct connection of fault to injection reservoir, or by an increase in pore pressure within the injection reservoir. As effective normal stress is reduced (via fluid injection and increased reservoir pressure), the shear stress overcomes the effective normal stress resulting in an earthquake (Warpinski, 2012) (Ellsworth, 2013).

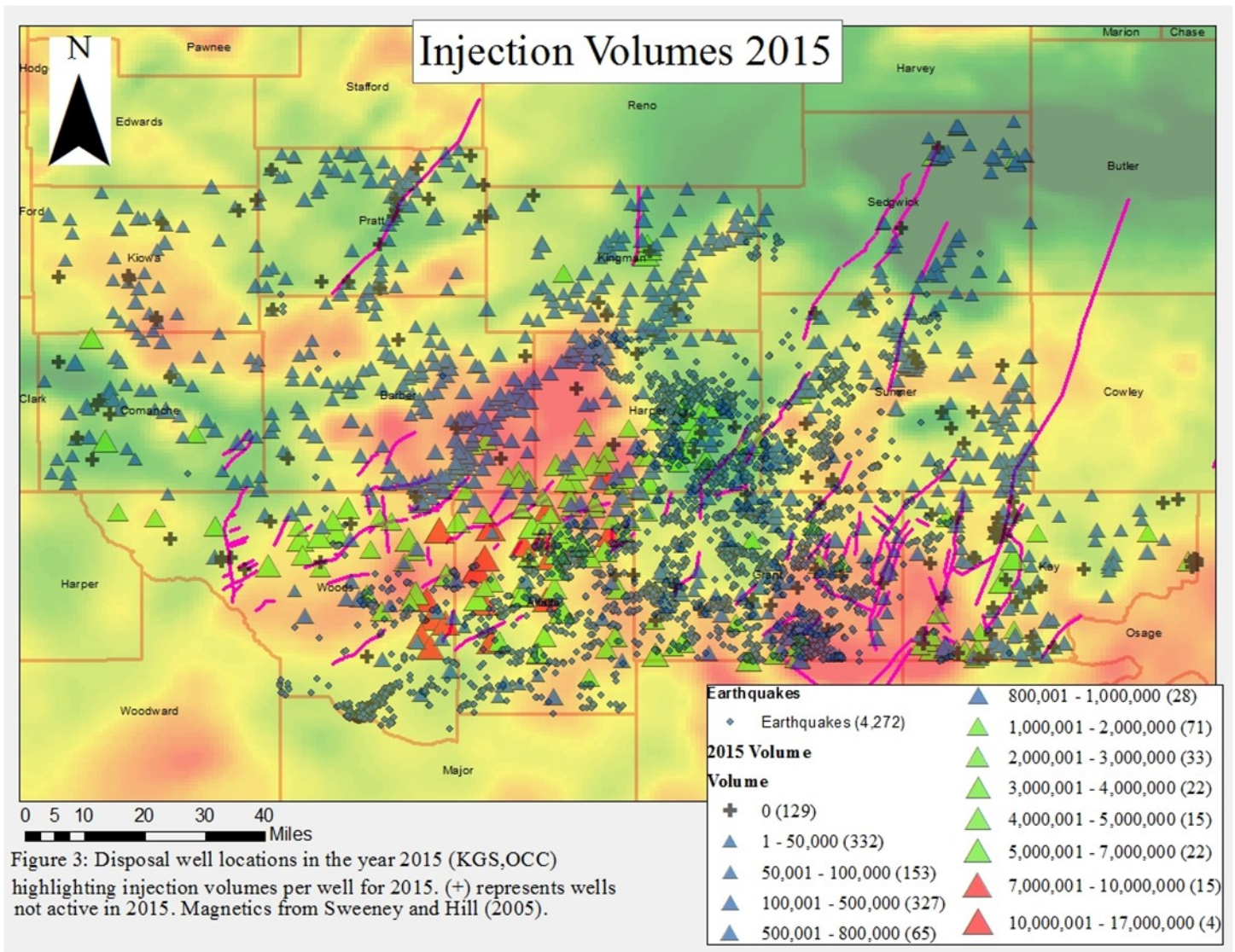




The correlation between the increased numbers of SWD well locations, the volume of injected material, and pressures used to inject in relation to the seismic activity is seen in Figures 2 and 3. Areas with the highest increase in seismic activity are found in Alfalfa, Grant, Barber, and Harper Counties. The study area has increased its injection well count from 975 in 2010 to 1,374 in 2015. Along with the increase in wells, an increased volume of injected material was seen. A total of ~33.7 billion barrels has been injected in the area from 2005 to 2015 with ~21.5 billion barrels (64%) from 2013-2015. The year 2016 is not included in the thesis research. The usual reservoir targeted for injection is within the Arbuckle Group. In 2015, injection wells used maximum annual pressures between -30 to 4650 PSI, with an average of 80 PSI derived from 5203 measurements from 2010 to 2015. There are a total of 357 SWD wells using 100-4650 PSI in the study area, and 72 wells with PSI readings of 200-1500 were found in the most seismically active areas of Harper and Sumner counties. It is very difficult to tie a specific well(s) to a seismic event(s) because the wells could take months to induce seismic activity and these events could happen tens of miles away from the wells. Even with this difficulty, there is a correlation between spatial relationship and timing of the increased injection activity and seismicity in the area as a whole.

Keeping in mind the detection of seismic activity is only as good as the network of seismic stations, the KGS, OGS, and the USGS have deployed a greater number of monitoring stations since 2013. These stations allow us to calculate magnitude, depth, and moment tensors with increased accuracy. From 1980 to December 2012, 18 earthquakes (>2.0M) occurred within the study area, while 4,253 events (>2.0M) span January 2013 to October 2017 in the 12 county study area (USGS earthquake catalog, accessed October 21, 2017). The epicenters are mapped in relation to SWD wells in 2015 (Figure 1). The mean magnitudes were calculated at ~2.7M





and the mean depths at ~5.4 km. The top of the Precambrian basement is about 2 km in most of the study area and a majority of the seismic events are below 2.0 km, with some events reaching as far as 7 -15 km.

Natural seismicity is not unheard of in Kansas and Oklahoma. Kansas historic earthquakes alongside recent earthquake locations are shown in Figure 4. Historic earthquakes in Kansas mainly lie along the Nemaha/Humboldt Fault and the Central Kansas Uplift but also are found all over the state. There has not been any report to my knowledge that the current seismicity in the northern parts of Kansas are induced earthquakes. With the spatial coincidence of historic events and more recent events, the earthquakes could be natural adjustments to the stress changes occurring to the south.

Figure 4: From the Kansas Geological Survey.

A noteworthy attribute of the seismic activity is the largest measured earthquakes (4.5M-5.8M) occur along the outer margins of the seismically active area. As the number of smaller events increase within the seismically active area, by either injection or natural/induced adjustments to previous earthquakes, the shear stresses generated by smaller magnitude earthquakes build up on faults along the outer margin. When the shear stress is sufficient enough to overcome the normal stress, an earthquake occurs. If the normal stress on the outer margins of the seismically active area have not been reduced to the extent of the inner portions, more shear stress is needed to overcome the normal stress holding the faults in place, resulting in larger magnitude earthquakes. This hypothesis could explain why we see larger earthquakes on the margins of the most active areas and could help explain earthquakes to the north along the Nemaha and Central Kansas Uplift.

Beneath the Arbuckle Group and Reagan Sandstone lies the Precambrian aged Southern Granite-Rhyolite Province. This is a host of granite and felsic volcanic rock, with U-Pb ages of 1.34-1.4 Ga, lies buried

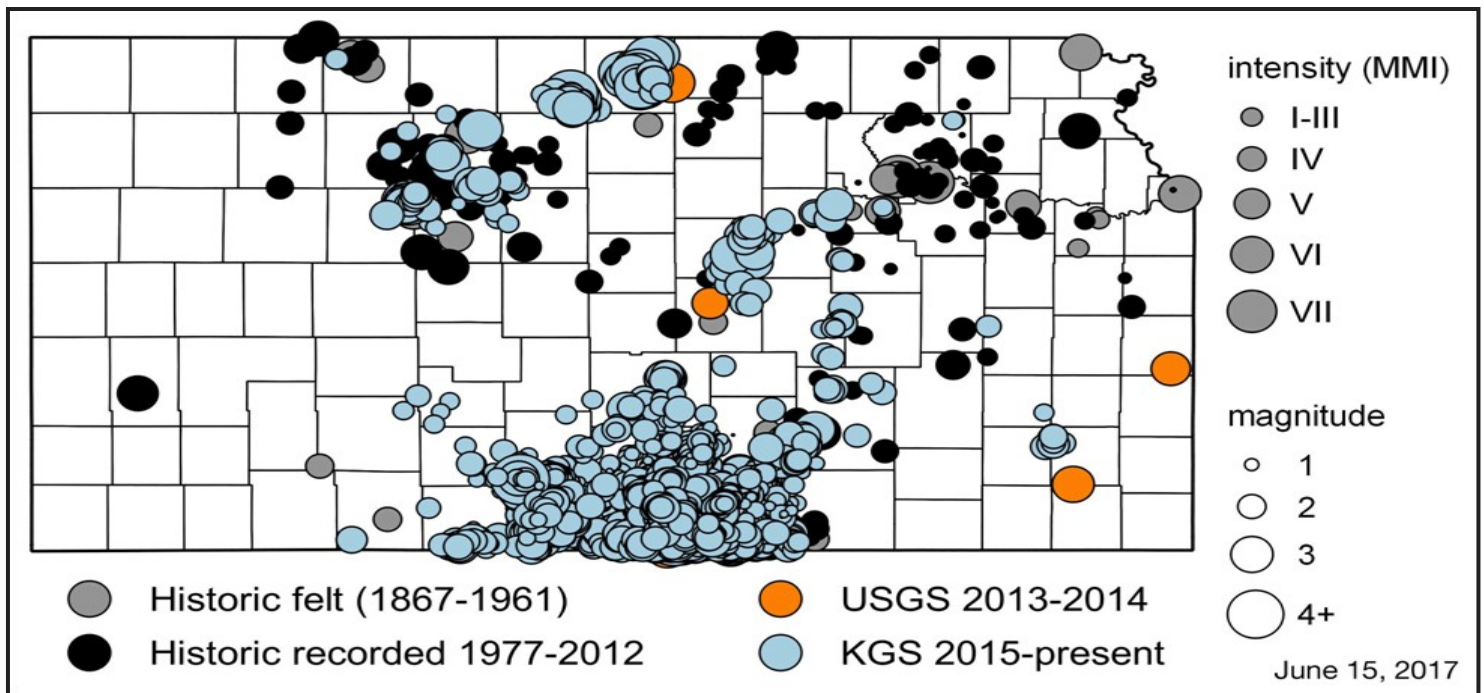


Figure 4: From the Kansas Geological Survey

beneath southwest Missouri, southern Kansas, Oklahoma, and the Texas Panhandle (Van Schmus and others, 1987). Several wells have drilled into felsic volcanic rocks to depths of 1.1 km in the Texas Panhandle (Denson, 1966); 1.4 km in southwestern Oklahoma (Ham and others, 1964); 1 km in the Ozark Uplift (Snyder, 1968); and 3 km have been mapped in the St. Francois Mountains (Sides and others, 1981). Using a standard heat flow equation of 33mW/m<sup>2</sup> for the eastern United States and assuming typical values of heat generation in the SGR province, an estimated thickness of 4 to 7 km is assigned to the province (Roy and others, 1968); (Sass, 1981). The 4 to 7 km thickness range of the SGR province is similar to the average depths of the earthquakes. This could point to the reasoning behind the shallow depth and could warrant to further investigation in determining a boundary between the SGR province and older continental Proterozoic rocks, such as ones that make up the Southern Central Plains Orogen.

With the implementation of action plans to reduce the amount of injected water, a reduction of seismic activity has resulted but we have seen an overall increase in disposed volumes in 2016. Assuming seismicity does not increase, the decline curve indicates a continuation of activity for several more years. As the midcontinent adjusts to the new stresses and strains within the sedimentary column and through the fractured fault block pattern of the Precambrian crust, we should expect to continue to see prolonged spurts of seismic activity for several more years, if not more.

As a continuation of my thesis work, I am attempting to interpret, quantify, and map the rupture styles of earthquakes that have calculated focal mechanisms (moment tensors). I find the increased tectonic activity in our normally quiet realm to be fascinating and an excellent opportunity to peer into the tectonics of the midcontinent.

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## **2018 KGS Annual Banquet and Awards Ceremony**

**January 26, 2018**

**5:30- 10:00 PM**

**Wichita Petroleum Club**

**Honoring Dr. Lynn Watney  
For Distinguished Geological Achievement**

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For 34 years of service to the KGS**

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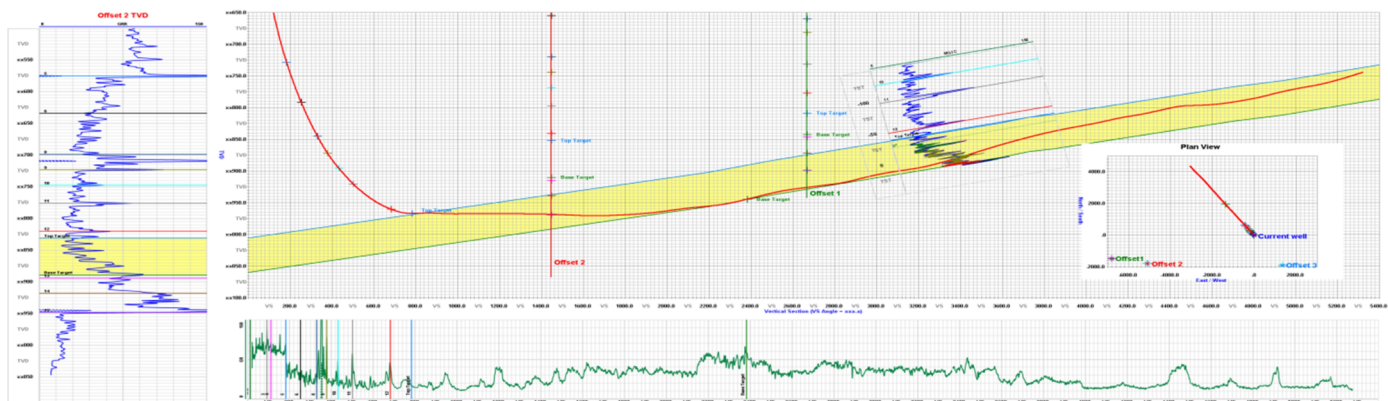
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## NOTICE!!!!

### WSU GEOLOGY CLUB & Papa John's Pizza

Papa John's offered WSU student organizations an opportunity to raise monies for their organizations.

The **WSU Geology Club** is participating  
And **YOU** can help them!

When ordering pizza from Papa John's,  
Use this code: **WSU004**  
(those are zero's, not letter O)

With this code, the customer will receive 40% off their entire online order and WSU's AAPG Student Chapter will receive 10% of the money spent on the order.

**Eating pizza tonight?**  
**Let's help WSU Geology Club!**

Monies raised will be used towards gas money to travel to local schools when they promote the geosciences to grade schools, registration costs for workshops, seminars and AAPG Student Expos, and social and academic events like an upcoming "Lunch and Learn" series next fall.

# We Invite You To join

## Kansas Geological Foundation

*\$50.00 membership is  
tax deductible*

*Call 316-265-8676*

*Or send checks to:  
Kansas Geological Foundation  
212 N. Market, Ste. 100  
Wichita, KS 67202*

## The Following Are For Sale

*Kansas Completion Cards:  
Several sets (call for more information)*

*Oklahoma Completion Cards*

*New Mexico Completion Cards*

*North Dakota Completion Cards*

*Utah Completion Cards*

*Microfiche Electric Logs*

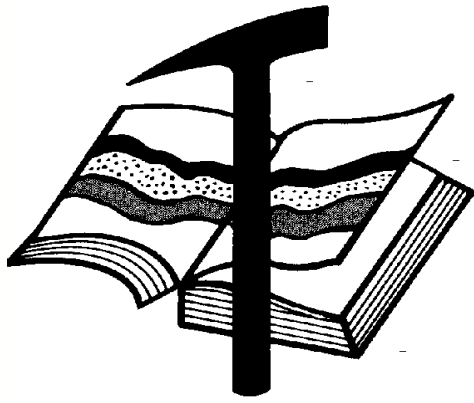
*Kansas  
Oklahoma  
Texas*

## **Geological Office Furniture:**

- 8-drawer completion card cabinets
- 7-drawer cabinets
- Map cabinets—metal—2 available
- Map racks—different sizes

**Call: 316-265-8676**  
**Ask for Ted**





# Kansas Geological Foundation

Web Site: [www.kgfoundation.org](http://www.kgfoundation.org)

**212 North Market  
Wichita, Kansas 67202**

A not-for-profit educational and scientific corporation

## **GOALS:**

- promote geology and earth science
- preserve geological records
- establish memorials and endowments
- support field trips and seminars
- financial aid and grants to students

**PLEASE HELP SUPPORT THE FOUNDATION**

## **Kansas Geological Foundation Services**

The Kansas Geological Foundation provides the following services as a part of the organization's commitment to educate the public regarding earth science.

### **Speaker's Bureau**

A list of speakers available to talk about various aspects of geology may be obtained by contacting Janice Bright at the KGS Library, 265-8676. This service is free to the public.

### **DVD/Videotape Library**

The KGF maintains a DVD & videotape library focused primarily on the various fields of earth science. These tapes may be checked out without charge by the public. To obtain a list of tapes, please contact the KGS Library, 212 N. Market, Ste. 100, Wichita, KS 67202, or call Janice Bright at 265-8676.

The Kansas Geological Foundation was founded in March, 1989 as a not-for-profit corporation under the guidelines of section 501(c)(3) of the tax code to provide individuals and corporations the opportunity to further the science of geology. It is dedicated to providing charitable, scientific, literary and educational opportunities in the field of geology for the professional geologist as well as the general public.

KGF can receive in-kind donations through which the donor may receive a tax deduction. Of equal importance, the KGF provides the financial resources to sort, process and file this data at the KGS library. If you have a donation to make, please contact the KGF at 265-8676.

Your tax-deductible membership donation helps to defray the cost of processing donations and to support public education programs about the science of geology. Annual membership begins at \$50.00 per year. Donations of \$100.00 or more are encouraged through the following clubs:

<b>Century Club</b>	\$ 100 to \$ 499
<b>\$500 Club</b>	\$ 500 to \$ 999
<b>Millennium Club</b>	\$1000 to \$5000
<b>President's Club</b>	\$5000 and over

# *Kansas Geological Foundation*

## *Cornerstone*

### *Kansas Geological Foundation News*

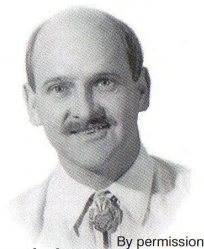
#### **Spring 2018 Scholarship Recipients**

Ryan Keast	Kansas State University	(Knighton Family Scholarship)	\$500
Nin Atae	Kansas State University	(Bob Cowdery Scholarship)	\$500
Mikaela Rader	Kansas State University	(Bob Cowdery Scholarship)	\$500
Trevor Spencer	Kansas State University	KGF Scholarship	\$500
William Swanson	Wichita State University	KGF Scholarship	\$500
Andrew Banks	University of Kansas	KGF Scholarship	\$500
Chantelle Davis	University of Kansas	KGF Scholarship	\$500
Jeffery Jennings	University of Kansas	KGF Scholarship	\$500
Mathew Kramer	University of Kansas	KGF Scholarship	\$500
Ajay Pradhan	University of Kansas	KGF Scholarship	\$500

#### **Grant Request Recipients**

Andrew Swindle - " <i>Ninnescah Field Station Hydrogeologic Assessment</i> "	\$727.25
Rogers Clark Caldwell Buntin - " <i>Evaluating the Ichnofossil Teredolites as an indicator of Salinity and Paleoenvironment in the geologic record. Examples from Cretaceous strata: Kansas, Colorado and Utah.</i> "	\$500.00
Christina Richardson - " <i>Effect of Local Soil on Microbial Communities on Aquifer Microbial Communities and Geochemical Environments</i> "	\$500.00

### **The Kansas Geological Foundation Needs You!**



The KGF provides the financial resources to sort, process and file, in-kind donations of geological data at the KGS library. Due in large part to the KGF this unique and rare well of information is being made available to all. Please consider telling your company management and colleagues about the benefits of a library that continues expanding in part because of the KGF.

**We very much value and need your financial support.**

#### **KGF Officers and Board Members**

**President- Larry Richardson**  
**Vice President - Dennis Hedke**  
**Treasurer - Bryce Bidleman**  
**Secretary - Larry Friend**

#### **Board Members**

**Ernie Morrison**  
**Marc Summerville (Grants)**  
**Brian Fisher (Membership)**  
**Ken Leblanc**  
**Ken Wallace**

---

**Scholarships - Maurice Korphage**  
**Publicity - Wes Hansen**

# *Kansas Geological Foundation News*

Students: The KGF awards scholarships each December and May. Check with your department chairs for applications. You must submit complete applications by the deadline.

**Scholarship Applications for the Fall semester will be due by May 1, 2018.**

Grants to help with research on Kansas related geology are also considered for aid.

---

Currently, the Foundation has four students working on well log integration: Kyle Lawson, Helen Cruz, Shuyao Li (a.k.a. Emily) and David Bruce. They work between ten and thirty hours per week. More than a dozen other part-time integrators have worked on the project since 2010.

Between 2011 and 2016, the integration project compared 131,811 well logs to holdings on Walters Digital Library (WDL). Of these, 45,814 (34.8%) were not in WDL and were subsequently added to the library holdings. Additionally, 1,173 of the donated logs were re-scanned to replace poor images on WDL.

Thus far in 2017, over 13,000 donated logs were compared to WDL. Nearly 3,000 (23%) new logs were added to the WDL, with 263 rescans. Funding donated to the Foundation by the Society for increasing integrators' hours has greatly increased production. Thank you!"

## **Kansas Geological Foundation Video / DVD Collection**

The KGF has an extensive collection of videos available for check-out at no charge.

Only pay for shipping back.

These are ideal for classroom or general public viewing.

See the web for titles & descriptions  
[www.kgfoundation.org](http://www.kgfoundation.org)

Call 316-265-8676  
Ask for Janice to check out videos

## **AAPG Section Meeting Updates**

Southwest April 7-10 El Paso, TX  
Pacific April 22-25 Bakersfield, CA  
Rocky Mountain May 20-22 Salt Lake City, UT  
Gulf Coast Sept. 30-Oct. 2 Shreveport, LA  
Eastern Oct. 7-11 Pittsburg, PA

## **AAPG ACE 2018 Salt Lake City, Utah**

**May 20-23, 2018**

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**AAPG Needs You!**  
**Professional geoscientists, share your world!**

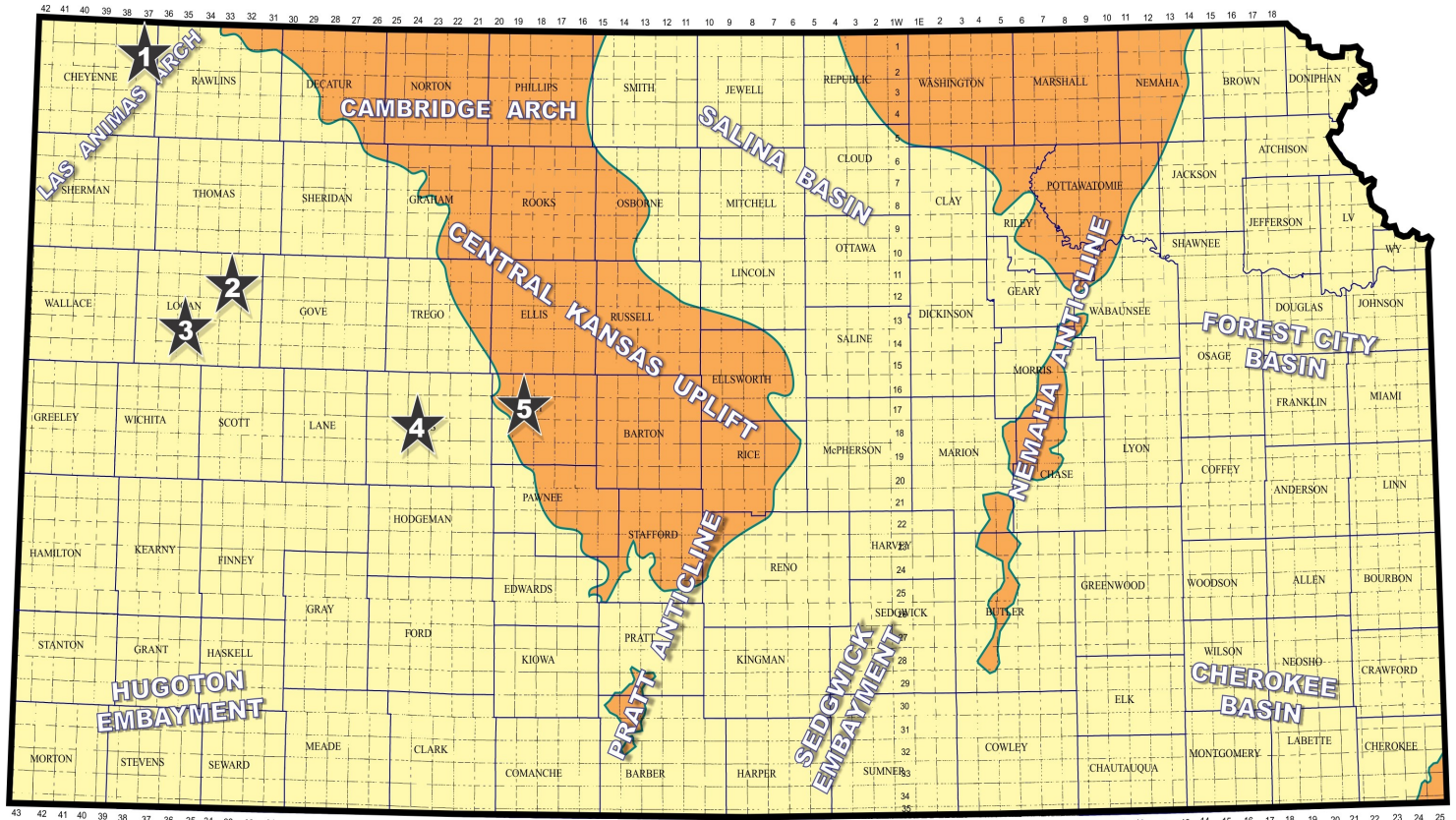
The Mid Continent Section has **17 AAPG Student Chapters**, but only **3 Visiting Geoscientists**...which makes it almost impossible to have a professional geoscientist visit to each school at least once a year or even once every two years. The aim of AAPG's program is to give students a flavor of a professional life in energy resources. It also hopes to encourage dialog between industry and academia.

To be a Visiting Geoscientist bearing the AAPG flag, you are asked to have at least 5 years of experience and make at least one visit per year to a university. It can be a school with an AAPG Student Chapter, or a college/university without one. Your choice.

The Mid Continent schools with Student Chapters are: Missouri University, Fort Hays State University, Iowa State University, Kansas State University, Missouri State University, University of Nebraska, Northwest Missouri State University, Oklahoma State University, University of Oklahoma, University of Arkansas, University of Iowa, University of Kansas, University of Missouri, Columbia University of Tulsa and Wichita State University.

Contact Robbie Gries, co-Chair VGP committee, Denver, if you are interested in learning more. rrgries@aol.com





Map courtesy of Marc Summerville

1.) Murfin Drilling Company, Wichita (KS), has discovered new deposits of oil at their 1-11 Mears B (API 15-023-21468) in Cheyenne County, northwest Kansas. The Canyon Creek new pool opener is producing an undisclosed amount of crude oil from perforations in the Lansing - Kansas City and Marmaton (Fort Scott) formations. Company drilling tools bottomed the wildcat well at a total depth of 4900 ft. Wellsite is located in the SE/4 of section 11- T2s- R37W, about nine miles north and five miles east of Bird City, KS. The new production lies just over one mile west of another Murfin discovery made in January of his year. The 1-12 McClurg found oil in the Shawnee (Oread) formation in the SE/4 of section 12, which established the Brumm West

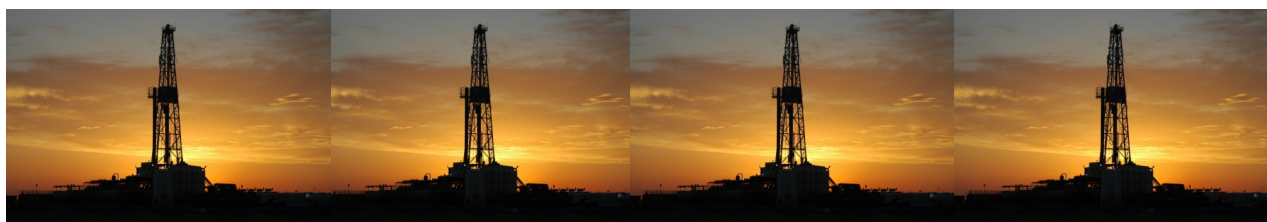
2.) Stratakan Exploration LLC, Plainville (KS), has a new Cherokee (Johnson Zone) oil discovery on the eastern fringes of the Hubert Southwest Field in Logan County. The 5-1 Gaskill Range - Bertrand Unit (API 15-109-21524) is pumping an unknown amount of oil from a depth between 4600 to 4700 ft in the SW/4 of section 5- T12s- R33W. Total depth is 4790 ft. The "infield" wildcat discovery" lies over one-half mile from four abandoned producing wells in the field that were drilled in 1977 and 1978 and produced about 59,000 bbl oil until the field

plugged out in 1989. Stratakan's latest find revives production in the field which is located about five miles south of Monument, KS.

3.) American Warrior, Inc., Garden City (KS), is producing an unknown amount of oil from the Shawnee (Toronto) formation at the 1-22 Dirks (API 15-109-21526) in Logan County. The 4790 ft deep well was drilled with Discovery Drilling tools in the SW/4 of section 22-T14s- R35W, about six miles south and one mile west of the town of Russell Springs. The new reserves were found nearly one and one-half miles southeast of three oil producers in the Antelope Springs Field (2015), which have produced oil from the Lansing - Kansas City, Marmaton and Cherokee zones. The new field has been named the Antelope Springs Southeast Field.

4.) Stewart Producers, Inc., MT. Vernon (IL), has established the new Laird Northeast Field in Ness County with the successful completion of its 1 Cunningham (API 15-135-25974). The wildcat well found new oil reserves in the Mississippian formation in the SW/4 of section 19- T18s- R24W, about two miles north and 2 miles east of the town of Laird. L. D. Drilling tools were used to cut the well to a total depth of 4424 ft. Wellsite is located over one mile southeast of known oil production in the Laird North Field (1977) where the Mississippian is the only productive zone.

5.) Downing - Nelson Oil Company, Inc., Hays (KS), has discovered Arbuckle oil deposits over one and one-quarter miles southwest of the Schwindt South Field (1979) in Rush County. The 1-25 Gloria (API 15 165-22150), spotted in the SE/4 of section 25- T17s- R19W. The well was drilled to a total depth of 3855 ft and was placed on pump in November with the productive zone being held confidential at this time. The well has been recognized as the Journey Field opener located about three miles west of La Crosse, KS.



# Kansas Geological Foundation Memorials

KGS Member	Date Deceased	Memorial Est.	KGS Member	Date Deceased	Memorial Est.
Dan Bowles	09/89	1990	Claud Sheats	02/02	2002
John Brewer	10/89	1990	Merle Britting	2002	2002
George Bruce	08/89	1990	Harold Trapp	11/02	2002
Robert Gebhart	01/90	1990	Donald M. Brown	11/02	2003
Ray Anderson, Jr.	11/90	1990	Elwyn Nagel	03/03	2003
Harold McNeil	03/91	1991	Robert Noll	09/03	2003
Millard W. Smith	08/91	1991	Benny Singleton	09/03	2003
Clinton Engstrand	09/91	1991	Jay Dirks	2003	2003
M.F. "Ted" Bear	10/91	1991	J. Mark Richardson	02/04	2004
James & Kathryn Gould	11/91	1991	John "Jack" Barwick	02/01	2004
E. Gail Carpenter	06/91	1993	Richard Roby	03/04	2004
Benton Brooks	09/92	1992	Ruth Bell Steinberg	2004	2004
Robert C. Armstrong	01/93	1993	Gordon Keen	03/04	2004
Nancy Lorenz	02/93	1993	Lloyd Tarrant	05/04	2004
Norman R. Stewart	07/93	1993	Robert J. "Rob" Dietterich	08/96	2004
Robert W. Watchous	12/93	1993	Mervyn Mace	12/04	2004
J. George Klein	07/94	1994	Donald Hoy Smith	04/05	2005
Harold C.J. Terhune	01/95	1995	Richard M. Foley	06/05	2005
Carl Todd	01/95	1995	Wayne Brinegar	06/05	2005
Don R. Pate	03/95	1995	Charles B. Moore	09/96	2005
R. James Gear	05/95	1995	Jack Heathman	05/06	2006
Vernon Hess	06/95	1995	Charles Kaiser	09/06	2006
E. K. Edmiston	06/95	1995	Rod Sweetman	08/06	2006
Jack Rine	07/95	1995	Karl Becker	10/06	2006
Lee Cornell	08/95	1995	Frank Hamlin	10/06	2006
John Graves	10/95	1995	Marvin Douglas	12/06	2006
Wilson Rains	10/95	1995	Robert W. Hammond	04/07	2007
Heber Beardmore, Jr.	09/96	1996	Eldon Frazey	04/07	2007
Elmer "Lucky" Opfer	12/96	1996	Pete Amstutz	05/07	2007
Raymond M. Goodin	01/97	1997	Charles Spradlin	05/07	2007
Donald F. Moore	10/92	1997	Donald R. "Bob" Douglass	09/07	2007
Gerald J. Kathol	03/97	1997	Vincent Hiebsch	11/07	2007
James D. Davies	08/88	1997	Glen C. Thrasher	03/08	2008
R. Kenneth Smith	04/97	1997	Peg Walters	06/08	2008
Robert L. Dilts	05/97	1997	Theodore "Ted" Sandberg	07/08	2008
Delmer L. Powers	06/72	1997	James Ralstin	11/08	2008
Gene Falkowski	11/97	1997	Earl Brandt	04/09	2009
Arthur (Bill) Jacques	01/98	1998	Walter DeLozier	05/09	2009
Bus Woods	01/98	1998	Don D. Strong	01/10	2010
Frank M. Brooks	03/98	1998	John Stone	02/10	2010
Robert F. Walters	04/98	1998	Craig Caulk	03/10	2010
Stephen Powell	04/98	1998	Joseph E. Moreland, Jr.	03/10	2010
Deane Jirrels	05/98	1998	Gene Garmon	03/10	2010
William G. Iversen	07/98	1998	James F. Dilts	05/10	2010
Ann E. Watchous	08/98	1998	Jerry Pike	05/10	2010
W.R. "Bill" Murfin	09/98	1998	Donald Hollar	06/10	2010
Donald L. Hellar	11/98	1998	Delbert Costa	08/10	2010
Joseph E. Rakaskas	01/99	1999	John Tanner	08/10	2010
Charles W. Steincamp	02/99	1999	William (Bill) Owen	09/10	2010
Robert and Betty Glover	10/96	1998	Harold (Hal) Brown	10/10	2010
Howard E. Schwerdtfeger	11/98	1999	Edmund G. Lorenz	11/10	2010
W. W. "Brick" Wakefield	03/99	1999	Thomas E. Black	05/11	2011
V. Richard Hoover	01/00	2000	Wayne E. Walcher	07/11	2011
Warren E. Tomlinson	01/00	2000	Henry F. Filson	07/11	2011
James A. Morris	01/00	2000	Thomas Ray	07/11	2011
Eric H. Jager	03/00	2000	Edgar E. Smith	09/11	2012
Kenneth W. Johnson	03/00	2000	Marilyn Messenger	06/13	2013
Dean C. Schaake	03/00	2000	Micheal Mitchell	09/13	2013
Fred S. Lillibridge	05/00	2000	Orvie Howell	11/13	2013
Jerry A. Langrehr	07/00	2000	James Thompson	11/13	2013
Clark A. Roach	07/00	2000	Dick Rowland	09/13	2014
Floyd W. "Bud" Mallonee	10/00	2000	Robbie Thompson	12/13	2014
Ralph W. Ruuwe	09/00	2000	Kris Kennedy	04/14	2015
Robert L. Slamal	02/01	2001	Annette Hedke	02/15	2015
Jerold E. Jespersen	06/01	2001	James Devlin	04/15	2015
William A. Sladek	06/01	2001	Robert Gensch	09/15	2015
Harlan B. Dixon	06/01	2001	Jerald Rains	05/16	2016
Edward B. Donnelly	08/01	2001	Max Houston	05/16	2016
Richard P. Nixon	02/02	2002	Robert "Gus" Messenger	01/17	2017
Robert W. Frensley	12/01	2002	Jimmy Wayne Gowens	04/17	2017
Gerald W. Zorger	01/02	2002			
Don L. Calvin	03/02	2002			



**CHANGE SERVICE REQUESTED**

KGS BULLETIN  
 January-February 2018

# January 2018

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1 New Year's Day	2	3	4	5	6
7	8	9 KGS Board	10	11	12	13
14	15	16 Tech Meeting	17 KGF Board	18	19	20
21	22	23	24 Tech Meeting	25	26 Annual Banquet and Awards	27
28	29	30	31			

# February 2018

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13 KGS Board	14	15	16	17
18	19	20	21 KGF Board	22	23	24
25	26	27	28			