

HGS Bulletin

Volume 62, Number 4

Houston Geological Society

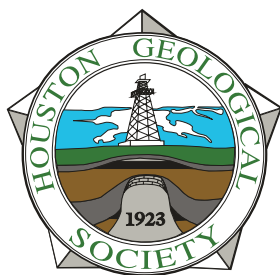
December 2019

**TEXAS A&M NIGHT
OUTCROP WINDOWS TO THE
UNCONVENTIONAL RESERVOIRS
AND STRATIGRAPHY OF WOLFCAMP
GROUP IN THE PERMIAN BASIN**
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Houston Geological Society

Volume 62, Number 4

December 2019

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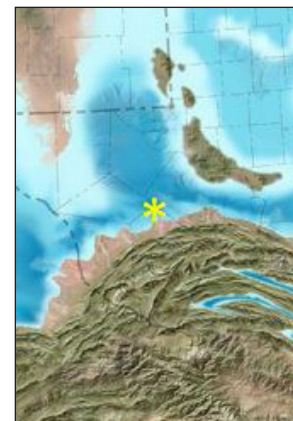
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About the Cover: Active travertine deposits at Crystal Geyser in Utah, which is a cold-water, CO₂-driven geyser. The photo is taken and provided by Dr. Xiaoli Liu from Occidental Petroleum.

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September 15-16, 2020
Norris Conference Centers | Houston, TX



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Abstract Deadline April 2020



Submit abstracts - Africa2020@hgs.org



Jon Blickwede
president@hgs.org

The Cactolith Discovered

Happy holidays fellow HGS members! Hope you have a wonderful time with family and friends during this season.

For my column this month, I thought I'd update a story which I recounted in the October 2015 issue of the HGS *Bulletin*, when I served as editor. It's not only a fun story worth repeating, but I followed up on it during 2017, while on a long road trip through western North America. And I think it's relevant to the theme of exploration, and an example of how one must expect that discoveries almost always turn out to be not quite the same as one imagined. We must always try to maintain an open mind throughout the exploration process.

Here's the excerpt from my October 2015 column: "A classic example which illustrates the situation where the proposal of new geological words has gone berserk relates to the term 'cactolith,' coined by Hunt et al. in their 1953 USGS Professional Paper 228 entitled *Geology and Geography of the Henry Mountains Region, Utah*: 'The feeder to the Trachyte Mesa laccolith has a distinctive form and some may wish it named. 'Cactolith' might be used, and defined as a quasi-horizontal chonolith composed of anastomosing ductoliths whose distal ends curl like a harpolith, thin like a sphenolith, or bulge discordantly like an akmolith or ethmolith.'

For years I thought this was a serious (albeit comic) attempt to add a useful term to the geological lexicon, though I did once hear that Hunt and colleagues wrote this as a mischievous experiment to see if the term would pass the USGS editorial process, which it obviously did. Thus surviving the USGS editors, 'cactolith' gained entry into the AGI Glossary, and some years later was even cited in the New Yorker magazine's *How's That Again?* column.

As it turns out, Hunt et al. did indeed intentionally propose the term in order to point out the plethora of geologic gobbledygook, at least in the field of igneous petrology. I recently discovered a 1988 publication by Hunt in which he clarified the origin of the name: 'It was intended to call attention satirically to the absurd nomenclature geologists were developing by applying new names to the infinite variety of shapes intrusions can form. The name cactolith and its definition started July 1939 at what may be called elegantly a luncheon seminar on an outcrop of that feeder to the Trachyte Mesa laccolith...'

I'm sorry to report that the cactolith, which appears in my copy of the 1974 AGI Glossary, has apparently been declared dead as it was unceremoniously dropped from the 2011 edition. Perhaps it should be revived, not as a widely-used term for describing the zillions of igneous intrusive bodies around the world that look like a particular kind of cactus – but rather for the message it was meant

to convey, about the importance of trying to keep our geological jargon as simple as possible. I suppose it could also be defended as having value as a candidate for crossword puzzles. In any case, the curious can visit Hunt et al.'s type locality about ¾ mile southwest of Trachyte Mesa, Garfield Co., Utah, just off State Route 276 about five or six miles south of the junction with State Route 95. I haven't been there yet, but I'd like to do so someday, to pay my respects."

I did eventually visit the Henry Mountains, during 2017, and spent a day hunting for the cactolith on a hike southwest of Trachyte Mesa. Because Hunt et al. did not provide a photo or drawing of the cactolith in their 1953 report, I had imagined the cactolith to be an intrusive igneous body perhaps 5-50 meters in length, outcropping in a canyon along the arroyo where Hunt and his USGS colleagues had their picnic lunch in 1939. Hiking up and down the arroyo bed for a few hours, I found no such feature. I began to think I was in the wrong arroyo, so I climbed up to the top of the adjacent mesa to better get my bearings. When I reached the top of the mesa and started walking around, I noted that all the outcrops and float consisted of a dark-colored porphyry, perhaps the diorite that Hunt et al. had mapped as comprising the Trachyte Mesa laccolith and associated cactolith. In the evening, back at my motel room in Hanksville, I looked at the Google Earth imagery for the area I'd been hiking, and discovered that the entire mesa that I'd climbed up to the top of, measuring a few kilometers across, had a form reminiscent of a saguaro cactus lying on its side (see figure). It appears that Hunt et al. had described, with a bit of imagination (and maybe a lunchtime beer or two?) the large-scale, saguaro-type map pattern of a plutonic body. Not exactly what I expected...but I suppose that's true of most exploration discoveries. Never stop exploring! ■



Hunt, C.B., et al., 1953, *Geology and geography of the Henry Mountains Region, Utah*: USGS Professional Paper 228, U.S. Government Printing Office, Washington

Hunt, C.B., 1988, *Geology of the Henry Mountains, as recorded in the notebooks of G.K. Gilbert, 1875-76*: Geological Society of America Memoir 167



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Please submit an extended abstract of at least 600 words, including 1–2 representative figures, to the GCAGS Journal Editor, Bob Merrill, at rmerrill@catheart.com by December 16, 2019. Once topic is approved, a full manuscript must be submitted by April 2, 2020. GeoGulf (GCAGS) Convention presentations of Journal submissions are encouraged but not required. GeoGulf 2020 is scheduled for Lafayette, Louisiana, Sept. 30-Oct. 2, 2020.

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Fang Lin
editor@hgs.org

Making Geologic Work Fun

Fellow HGS members: It's hard to believe that we are approaching the end of another year. Time flies and appears to fly faster particularly when we have lots of things to do. The past month was eventful. Many events occurred which were either sponsored or co-sponsored by HGS, such as the Applied Geoscience Conference on Geomechanics, the annual Sheriff Lecture, the Latin America Conference, Earth Science Week (ESW) celebration at the Houston Museum of Natural Science (HMNS), and the ESW field trip. On the personal side, it was also a hectic month, as we reach the end of the year and try to wrap up projects at work, while simultaneously trying to take care of other things like family, health, friends etc.

Looking back through the month and the year, there were many stressful moments, to the extent that I almost accepted them as the way life is. However, sometimes things happen in my life that lead me to question if this is the only way life could be – is there any way that we could make work more fun and enjoyable? First of all, let me share with you how I felt after reading the Earth Science Week reports (the reports are on pages 14-16 in this issue). I felt the sense of joy from both volunteers and participants by just reading the words and looking at the pictures. After all, it's fun to look at rocks, fossils, geologic equipment and data and be able to discuss them with school children and the general public. It reminded me of the days when I fell in love with geology: the joy and excitement is real.

Second, I attended the Houston Gem and Mineral Show at Humble Civic Center last month. The visual feast of numerous

gem-quality minerals and rocks on display is another reminder that geology can be fun. For most of us, however, our day-to-day work doesn't allow us close and regular interaction with beautiful minerals and rocks, or being in the field enjoying nature and the public. Sitting in front of computer screens analyzing data alone or sitting in meetings discussing data on PowerPoint slides with

colleagues is more likely the norm. Are there opportunities for us to make these routine indoor activities more fun? I think there are. For example, there are meetings we enjoy more than the others, and days we go home happier than on other days. I think there is a human factor that we may not have fully explored – at least I haven't. So going forward I would like to think of anything I can do to contribute to a happier work place, either by being more supportive of my colleagues or by holding meetings in more creative formats. As they say, when work is fun, it doesn't feel like work anymore. I think that would be wonderful, wouldn't you agree? If you have ideas about

how to make office-bound geologic work more fun, I encourage you to share your thoughts. I can be reached at editor@hgs.org. Thanks in advance!

Last but not least, I hope you will save some time for yourself at the end of year. After another year of hard work, it is the time to celebrate and enjoy quality time with family and friends, as well as to relax and recharge yourself. Whatever your plan is for the remainder of the year, I wish you safe, healthy and happy throughout the holiday season! ■

*After another year of
hard work, it is the
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recharge yourself.*

Taking the HGS Scholarship Night to Greater Heights with Astronaut Jessica Watkins!

By Charles A. Sternbach and Jeff W. Lund



on the HGS.org webpage link. <https://www.hgs.org/civcrm/event/info?id=2120>

In recent years, our annual Scholarship Night has become a premier event for the HGS. This is a night where we take the time to honor outstanding students with promising futures. This year the HGS Scholarship Night committee asked; who can inform, uplift, and inspire the next generation scholarship winners? Our answer: Jessica Watkins. It is a time-honored tradition of the HGS to recognize astronauts who are also geoscientists and Jessica is among the next generation of astronaut leaders who will one day return to the moon or even walk on Mars.

Jessica Watkins has been selected by NASA to join the 2017 Astronaut Candidate Class. She reported for duty in August 2017. The Colorado native earned a Bachelor's degree in Geological and Environmental Sciences at Stanford University, and a Doctorate in Geology from the University of California, Los Angeles (UCLA). Watkins has worked at NASA's Ames Research Center and NASA's Jet Propulsion Laboratory, and was a collaborator on the Mars Science Laboratory rover, Curiosity.

Watkins was born in Gaithersburg, Maryland, but considers Lafayette, Colorado her hometown. Her parents, Michael and Carolyn Watkins, still live there. In college, she was a member of Stanford Women's Rugby as well as the USA Rugby Women's Sevens National Team. During her postdoc, she served as a volunteer assistant coach for the Caltech Women's Basketball team. She also enjoys soccer, rock climbing, skiing and creative writing. She graduated from Fairview High School in Boulder, Colorado. Earned a Bachelor's degree in Geological and Environmental Sciences from Stanford University in Stanford, California. Earned a Doctorate in Geology from the University of California, Los Angeles.

For her PhD research, Watkins studied the emplacement mechanisms of large landslides on Mars and Earth through orbital data analysis and field work. While at UCLA, she was a teaching assistant for various courses in earth and planetary science. At the time of her selection in June 2017, Watkins was a postdoctoral fellow in the Division of Geological and Planetary Sciences at the California Institute of Technology, where she collaborated on the Mars Science Laboratory rover, Curiosity, participating in daily planning of rover activities and investigating the geologic history of Gale Crater, Mars.

During undergraduate internships at NASA's Ames Research Center, Watkins conducted research supporting the Phoenix Mars Lander mission and prototype Mars drill testing. She also served as chief geologist for NASA Spaceward Bound Crew 86 at the Mars Desert Research Station in 2009. As a graduate student, Watkins participated in several internships at NASA's Jet Propulsion Laboratory (JPL), including analysis of near-earth asteroids discovered by the NEOWISE mission in 2011, tactical and strategic planning for the Curiosity mission in 2013, and system design testing for the upcoming Mars 2020 and Mars Sample Return missions the following year. In addition, she served as a science operations team member for a Desert Research and Technology Studies (Desert RATS) analog mission at NASA's Johnson Space Center in 2011 and participated in the NASA Planetary Science Summer School at JPL in 2016. Watkins reported for duty in August 2017 to begin two years of training as an Astronaut Candidate. Upon completion, she will be assigned technical duties in the Astronaut Office while she awaits a flight assignment.

Jeff Lund, our Calvert Memorial Scholarship Fund Chairman reports that the Warren L. and Florence W. Calvert Memorial Scholarship came from a generous donation from former HGS member Warren Calvert in the late 1970's. Thanks to the generosity of HGS Members and various corporate sponsors we have been able to continue supporting promising future geoscientists in their studies. The Calvert Memorial Fund Scholarships are given to graduate students studying geosciences. The Calvert Memorial Scholarship Fund program consists of a passionate, five-person Board of HGS Members, listed below, dedicated to supporting students and the future of the geoscience field.

In 2019, the Board awarded scholarships to fifteen individual geoscience graduate students, twelve of whom were first time recipients. The awardees included four PhD candidates and eleven M.S. candidates from eight universities. In 2019, we were fortunate enough to not only give more scholarships to students as well as largest monetary amounts in the history of the program. The Calvert Board is very excited to have Astronaut Jessica Watkins as our 2020 Scholarship Night speaker. We believe she is an outstanding member of the geoscience profession and a tremendous role model for all of the students.

Evelyn Medvin, our Foundation Chair, reports that the HGS Foundation Fund will award scholarships to top undergraduate geoscience students from 7 Texas Universities. Because of the generosity of our sponsor companies, we are able to provide \$3500 scholarships to 6 of the students and \$4500 to our Mabe Scholar, the top scholar of the group. Please come and meet your future employee!

The HGS scholarship Night committee would like to recognize John Tubb for his past chairmanship of this committee. John's vision built a solid foundation upon which the committee continues to reach for greater heights. ■

HGS Scholarship Night & Dinner Meeting

HGS Foundation Scholarship & Calvert Memorial Fund

February 10, 2020

Speakers: Jessica Watkins, NASA Astronaut Candidate

Location: The Norris Center, City Center, 816 Town and Country Blvd. #210

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If you are an Active or Associate Member who is unemployed and would like to attend this meeting, please call the HGS office for a discounted registration cost. We are also seeking members to volunteer at the registration desk for this and other events.

HGS General Dinner Meeting

*Donovan, A.D., M.C. Pope,
J.C. Laya, J. Sleight, M.A. Gutierrez,
B. Richards, E. Sims, and E. Peavey
Department of Geology and
Geophysics, Texas A&M University*

Texas A&M Night: Outcrop Windows to the Unconventional Reservoirs and Stratigraphy of Wolfcamp Group in the Permian Basin

The type locality for both the Wolfcampian and Leonardian North American Stages occur within the Glass Mountains of Brewster County, Texas. These outcrops, which are located along the south flank of the Delaware Basin (Figure 1), provide unique opportunities to examine the unconventional reservoirs within both the Wolfcamp and Leonard (Bone Springs) Groups. Interestingly, these outcrops were studied by P.B. King (1930) for his classic dissertation research at Yale almost a hundred years ago, however they have received scant attention since, because their mudstone-prone facies were different from the carbonate shelf-margin reservoirs, which were the traditional conventional play in the Permian Basin throughout most of the 20th Century. However, with 21st-Century interest in unconventional mudstone-prone basinal plays in the Wolfcamp and Leonard Groups in the subsurface of the Permian Basin, these long ignored outcrops have become both timely and relevant for renewed research.

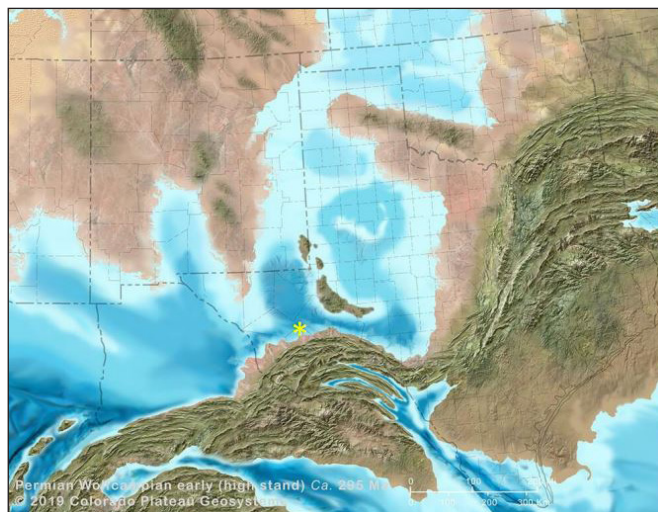


Figure 1: Paleogeography of the Early Wolfcampian across the Greater Permian Basin. Please note the location of the Wolf Camp Hills, the Type Wolfcamp Locality (*) along the south flank of the Delaware sub-basin. Paleogeographic map from Blakey (2019), courtesy of Deep Time Maps.

The type locality of the Wolfcamp Group is located in the Wolf Camp Hills, a topographic outlier along the Glass Mountains (Figure 2). At this locality, various researchers (King, 1930 & 1937; Ross, 1963) have placed the base of the Wolfcamp Group at different stratigraphic positions within this succession (Figure 3).

In our research, the base of the Wolfcamp Group, as defined by King (1937), coincides with a regional angular unconformity that truncates underlying Pennsylvanian strata (Figure 4). However, based on recent revisions of the geologic time scale (Gradstein and others, 2012), this angular unconformity would be placed within the uppermost Pennsylvanian (Gzhelian) Stage, or at the base of the recently proposed Bursumian Stage (Davydov, 2001), which encompasses Uppermost Pennsylvanian strata, that for most of the 20th Century was interpreted as Lowermost Permian (Figure 5).

In outcrop, besides the angular unconformity at the base of the Wolfcamp Group, major angular unconformities also were identified within the Wolfcamp Group, as well as at the base of the Leonard (Bone Springs) Group (Figures 3 and 5). Within the Wolfcamp Group, other unconformable surfaces defined by onlap and/or conglomerate beds also were identified. All told, four unconformity-bounded depositional sequences are presently defined within the 893 ft (272 m) Wolfcampian succession, which



Figure 2: Google Earth Image of the Wolf Camp Hills (foreground) and Glass Mountains (background) in Brewster County, Texas

spans approximately twenty-one million-years of the earth's history (Figure 5). Our outcrop research to date also suggests that the mudstones within the Wolfcamp Group are compositionally different from the underlying Cisco Group, and that the various mudstone-prone sequences defined within the Wolfcamp Group also have distinct chemostratigraphic signatures. ■

References

- Blakey, R., 2019, Paleogeography of the Greater Permian Basin Series, Deep Time Maps, Colorado Plateau Geosystems Inc., 22 plates.
- Davydov, V., 2001, The terminal stage of the Carboniferous: Orenburgian versus Bursumian. Newsletter on Carboniferous Stratigraphy. 19. 58-64.
- Gradstein, F.M, J.G. Ogg, M. Schmitz, and G. Ogg (eds.), 2012 The Geologic Time Scale 2012, 1144p.
- King, P.B., 1930, The geology of the Glass Mountains, Texas: Part

1, Descriptive Geology: University of Texas Bulletin 3038, p.167.

King, P.B., 1937, Geology of the Marathon Region, Texas, USGS Professional Paper 187, 147p.

Ross, C.A., 1963, Standard Wolfcampian Series (Permian), Glass Mountains, Texas: Geological Society of America Memoir 88, 205p.

Wardlaw, B.R. and V.I. Davydov, 2000, Preliminary Placement of the International Lower Permian Working Standard to the Glass Mountains, Texas, Permophiles: Newsletter of the Sub-commission on Permian Stratigraphy, Number 36, p.11-13

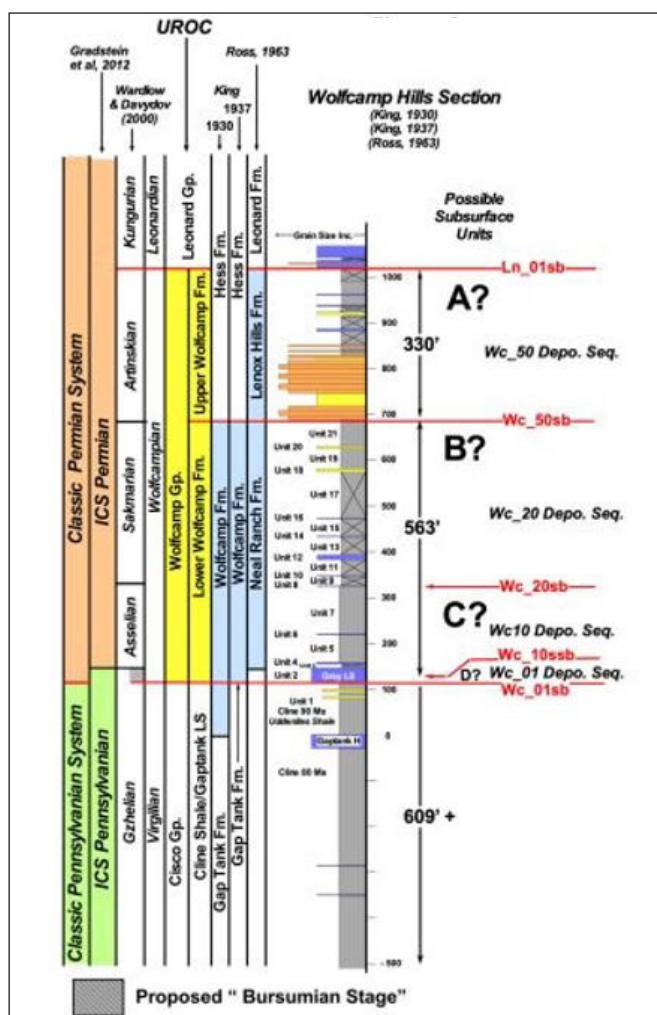


Figure 3: Composite stratigraphic section of the Wolfcamp Group in the Glass Mountains of Brewster County, Texas. Please note: 1) Base Wolfcamp pick by King (1930), King (1937), and Ross (1963); 2) Relative placement difference between the classic Base Permian and recent ICS Base Permian (Gradstein and others, 2012); 3) interpreted position of the International Stage Boundaries based on the work of Wardlaw and Davydov (2002), and 4) position of the W01 angular unconformity, which was interpreted as the base of the Wolfcamp Group in this study.

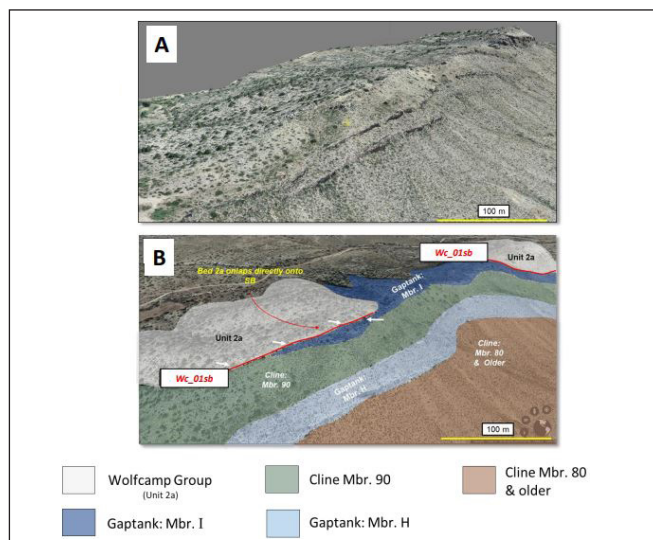


Figure 4: A) Uninterpreted, and B) Interpreted Seismic-scale Drone photo-imagery of the eastern Wolfcamp Hills illustrating the stratal terminations associated with the interpreted Base Wolfcamp (Wc_01) Sequence Boundary.

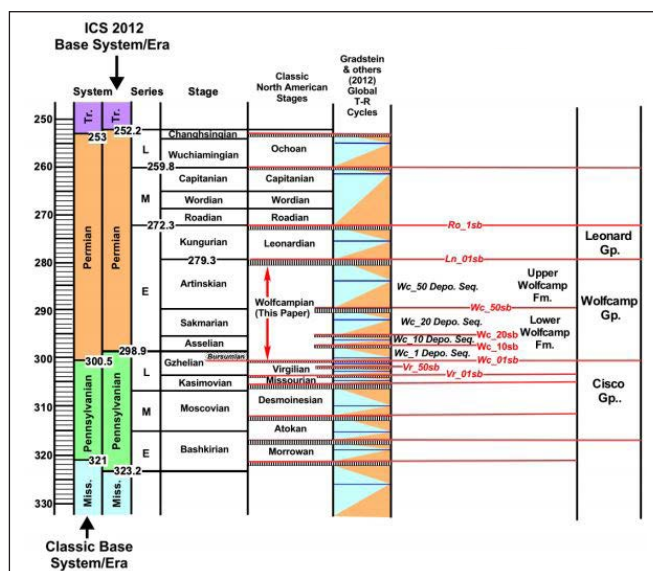


Figure 5: Chronostratigraphic Chart of the Wolfcamp Group in the Glass Mountains of Brewster County, Texas. Please note: 1) interpreted ages of the four depositional sequence presently interpreted within the Wolfcamp Group in the Glass Mountains; 2) absolute age differences between the classic 20th Century global base Permian and the recent placement of the base Permian by the ICS (Gradstein and others, 2012), which corresponds to the recently proposed Bursumian Stage (Davydov, 2001); and 3) approximate 21 million year duration of the Wolfcamp Group in the Wolfcamp Hills in Brewster County, Texas.

December 2019

Sunday

Monday

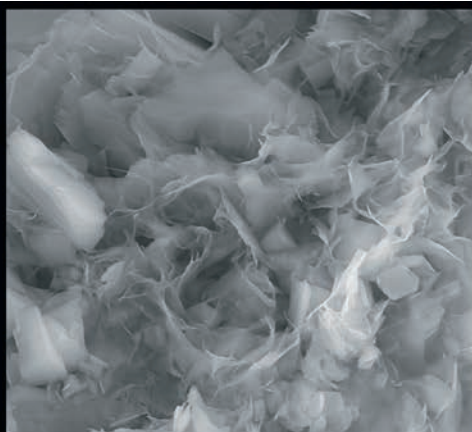
Tuesday

Wednesday



1	2	3	4
8	9 HGS General Dinner Meeting Texas A&M Night <i>"Outcrop Windows to the Unconventional Reservoirs and Stratigraphy of Wolfcamp Group in the Permian Basin,"</i> Donovan, A.D., Page 8	10	11 HGS Environmental & Engineering Dinner Meeting <i>Farewell to the Black Lab Pub</i> Holiday Party
15	16 HGS Office Closed for Winter Holiday	17	18
22	23 HGS Office Closed for Winter Holiday	24	25
29	30 HGS Office Closed for Winter Holiday	31	

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GEOEVENTS

Thursday

Friday

Saturday



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AAPG Global Super Basins
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March 9 – 13, 2020
CERAWeek
Houston, Texas, USA

May 4 – 7, 2020
Offshore Technology Conference
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June 7 – 10, 2020
AAPG 2020 Annual Convention
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June 8 – 11, 2020
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Exhibition
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12	13	14
19	20	21
26	27	28
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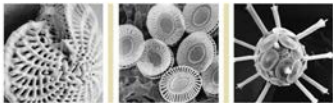
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Serving the Houston Geoscience Geomechanics Community Since 2013

The Houston Geological Society's Applied Geoscience Geomechanics Workshop has evolved significantly since its inception in 2013, alternating with the HGS Mudrocks conference that occurs in even-numbered years. The conference is organized by a committee of industry experts, and provides high value by presenting the insights of invited subject matter experts from a variety of operating and service companies. A portion of the success of these conferences is due to Houston being a hub for many oil & gas companies, with a large number of companies having their headquarters located in the region. The invited subject matter experts, scientists, and researchers are frequently able to attend the workshop without making travel and lodging arrangements.

The title of this year's conference and the three prior conferences:

- **1st HGS AGC 2013.** Interdisciplinary Micro to Macroscale Geomechanics.
- **2nd HGS AGC 2015.** Geomechanics in Unconventionals
- **3rd HGS AGC 2017.** Reservoir Characterization, Engineering Applications, Surveillance, Diagnostics, and Case studies
- **4th HGS AGC 2019.** Applied Geomechanics: Through the Life Cycle of the Field

These conferences have covered several core subjects in which geomechanics is one of the keys for successful exploration drilling, reservoir modeling for both stresses and hydrocarbon rock properties, completion by massive hydraulic fracturing, improved production, and abandoning the well by complying with applicable regulations.

The topics of this year's conference cover wide aspects of geomechanics which ultimately lower the risks of drilling, completions, and production, and minimizes uncertainties inherent in these operations. Altogether, four sessions, sixteen oral presentations, and twelve poster sessions were scheduled. Additionally, four alternate speakers have been reserved in case of presenter cancellations, who are available to present at any 'lunch and learn' activities planned by HGS. The two keynote speakers, Robert Zimmermann (Imperial College London) and Tony Settari (CGG Canada), need no introduction for professionals in the geoscience and geomechanics communities. The November 6-7, 2019 conference venue was Southwestern Energy's Conference Center in Spring, Texas.

Twelve university students representing seven universities presented their work in the student poster session. They came from

as far away as University of Calgary, Purdue and Georgia Tech as well as universities in Texas and Oklahoma.

Student Poster Winners

The "Best Poster award went to Abdullah Bilal from the University of Houston, the "First Runner Up" was Juan Acosta from the University of Oklahoma and the "Second Runner Up" was Jingyao Meng from Oklahoma State University.

A large number of committee members have assisted in organizing this conference, led by HGS President **Jon Blickwede**, Event Director **Andrea Peoples**, General Chair **Umesh Prasad**, eight Session Chairs, and ten other committee members. Conference attendees received the transactions volume which included extended abstracts and speaker biographies for all of the talks. Efforts are on the way to archive the released version of the power points presented during the conference at the HGS website. The transactions are also available for purchase through the HGS office. The two keynote speakers and the oral program speakers received HGS speaker awards through the efforts of the HGS Speaker Award Committee. Some of the salient features of 2019 HGS AGC:

- The session chairs, and the committee members were well chosen, they were influential in attracting large number of quality presenters ranging from wide variety of topics such as drilling, drilling fluids, reservoir modeling, underground gas storage, hydraulic fracturing, and sub-surface monitoring including fiber-optics seismic monitoring.
- The two keynote speakers, Robert Zimmerman and Tony Settari were well received as their presentations attracted large number of attendees.
- The 16 oral presentations were from both academics and industry which covered subjects from laboratory and field testing to modeling, simulation, surveillance and DAS/DTS monitoring all along the life of the well.
- The time frame for each presentations were enough to cover the topic followed by question and answer sessions.
- The panel-discussion after each sessions were highly engaged and interactive.
- The twelve poster session were very effective, it kept attendees engaged and informed with latest work going in the industry. Abdullah Bilal's poster was adjudged the best for the topic "Predicting Static Data Using Dynamic Properties and Quantitative Sample Characterization" from University of Houston. ■

Earth Science Celebration at HMNS on October 12, 2019

The Houston Museum of Natural Science (HMNS) and the Houston Geological Society (HGS) kicked off Earth Science Week by hosting the Earth Science Celebration at the HMNS on October 12, 2019. Our passport themed event celebrated “Geoscience is for Everyone” this year. Passport participants (425) of all ages enthusiastically explored a wide range of engaging STEM activities located in the Glassell Hall, Morian Paleontology Hall Lobby and Wiess Energy Hall. Geoscientists from the University of Houston SEG Wavelets, GCSSEPM/NAMS, GHS/SEG, HGMS, HGS and HMNS staffed eight passport stations. Stations explained the rock cycle, microfossils, how wood becomes petrified, trilobite morphology, seismic wave behavior with large springs, GPS/LiDAR equipment and seismic lines. In addition, the HMNS Energy Exchange volunteers shared their energy expertise at eight touch carts in the Wiess Energy Hall. New this year was an HGS Career station.

Upon completion of their passports, participants received a gift bag featuring a Dig Into Rocks booklet together with labeled rock, fossil and salt specimen at the HGS Headquarter table. Additionally, fifteen teachers received an AGI Toolkit for their classrooms.

HGS/HMNS volunteers **Sharon Choens** and **Inda Immega** served as event Chairs. HGS/HMNS volunteers **Lynn Travis** and **Janet Combes** served as Co-Chairs. Many thanks to the HMNS staff for their support and to the more than 38 volunteers who assisted with the event. A special thanks to the above participating groups who organized and staffed “passport stations” and to HGS volunteers **Brent Boyd, Amy Boyd, Philip O’Brien, Dora Devery** and **Neal Immega**. ■





Earth Science Celebration at HMNS



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Earth Science Week Field Trip on Sunday, October 20, 2019

In keeping with the theme “Earth Science is for everyone”, the closing event of Earth Science Week in Houston is a free, family-friendly public field trip. HGS makes a special effort to invite students from earth science classes in local junior colleges, who might have limited opportunities for field experience, but the trips are held in public places and walk-ups are welcome.

High Island was site for this year and the weather cooperated beautifully. We set up interactive stations along the beach to talk about the geology of this salt dome “island”, to dig a trench to look

at sedimentary structures, to pan for heavy minerals, to see and photograph Pleistocene fossils washed up from the Beaumont Clay, and to see local fauna. About 30 people registered for the event. We also had many people who were on the beach and stopped by. One group stopped several times to ask questions as they explored up and down the beach.

HGS volunteers for this event are **Neal Immega** (field trip leader), **Steve Johansen**, **Letha Slagle**, **Eric Beam**, **Mary Johns**, **Annie Walker**, **Dan Phillips**, **Inda Immega**, and **Sage Betts**. ■



High Island is a great field trip spot because you can get in close to the different beach environments on one side and see the geometry of the dome top on the other.



Quick paleo lesson – three kinds of sloths.



There's a lot you can say with a core and a cross section.



People in bright vests are HGS volunteers.

Six Students Recognized for Research and Presentation Excellence at Sheriff Lecture



EAS student awardees from left: Paige Given (undergrad), Amanda Pascali (undergrad), Elizabeth Davis (PhD candidate), Sean Romito (PhD candidate), Dr. Tom Lapen (EAS department chair), Carlos Andrade (PhD candidate), and Joshua Flores (PhD candidate).
Photo Courtesy of Dr. Regina Capuano.

Student Poster Session Part of Annual Event

Six Department of Earth & Atmospheric Sciences students were recognized for research and presentation excellence by a panel of volunteer judges from EAS and the Houston oil and environmental industry. The poster session was part of the annual EAS-Houston Geological Society Robert E. Sheriff Lecture, held at the Norris Conference Center.

The student poster session featured 44 student poster presentations at the undergraduate, M.S. and Ph.D. levels. It preceded the annual Sheriff lecture that featured Dr. Julia Wellner, associate professor in EAS. Wellner presented a one-hour lecture on “The Sedimentary Record of Antarctica’s Contribution to Sea-Level Changes.”

During the event, Dr. Patricia Persaud, a UH geophysics undergraduate in 1998 and now an assistant professor in geophysics at Louisiana State University, was recognized as the 2019 Outstanding EAS Alumna.

The Sheriff Lecture was fully subscribed with 100 registered attendees. ■

Results of Student Poster Competition

Advanced PhD Category

First Place (Prize: \$650) *Carlos Andrade*

Paragenesis of Silicified Corals – Evidence from Petrography and Silicon Isotopic Analyses

Second Place (Prize: \$350) *Joshua Flores*

Is a New Microplate with a Forearc Spreading Center Forming at the Southern Termination of the Mariana Arc?

Second-Year MS/Early PhD Category

First Place (Prize: \$500) *Elizabeth Davis*

Effects of Contemporaneous Orogenesis on Sedimentation in the Late Cretaceous Western Interior Basin, Northern Utah and Southwestern Wyoming

Second Place (Prize: \$250) *Sean Romito*

Caribbean Basement Terranes: Boundaries, Depth, and Flexural Effects on Hydrocarbons

Undergraduate/First-Year MS Category

First Place (Prize: \$350) *Paige Given*

Strong Correlation between the Trace and the CLVD Component of the Deep Earthquake Moment Tensors in Tonga

Second Place (Prize: \$150) *Amanda Pascali*

The Importance of XRF Core Scanning in Reconstructing the History of the West Antarctic Ice Sheet



HGS Welcomes New Members

New Members Effective November 2019

ACTIVE MEMBERS

Robert Beham	David Prescott
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Greg Hammond	Ryan Stepler
David Katz	Neal Turluck
James Kearley	Amanda Ulincy
Lee Lehtonen	Parker Valora
Chi Ly	Willie Vera
Jagadish Maddiboyina	Ashwani Zutshi
Albert Maende	
Tracy Marmande	
Kilian Motis Rovira	
Cian O'Reilly	

STUDENT MEMBERS

Junaid Khan
Morteza Mostafanejad

Welcome New Members

Remembrance

CHUCK HADLEY

CHUCK HADLEY an HGS member since 1977, passed away lately. Memorial service for Chuck was held on November 9th at 11am at 8440 Easton Commons Drive, Houston Texas 77095.



HGS Bulletin Instructions to Authors

All materials are due by the 15th of the month, 6 weeks before issue publication. Abstracts should be 500 words or less; extended abstracts up to 1000 words; articles can be any length but brevity is preferred as we have a physical page limit within our current publishing contract. All submissions are subject to editorial review and revision.

Text should be submitted by email as an attached text or Word file or on a clearly labeled CD in Word format with a hard copy printout to the Editor.

Figures, maps, diagrams, etc., should be digital files using Adobe Illustrator or Adobe Photoshop. Files should be saved and submitted in .ai, .eps, .tif or .jpg format. Send them as separate attachments via email or CD if they are larger than 5 MEGs each, accompanied by figure captions that include the file name of the desired image. DO NOT EMBED them into your text document; they must be sent as separate files from the text. DO NOT USE POWERPOINT, CLIP ART or Internet images (72-DPI resolution) as these do not have adequate resolution for the printed page and cannot be accepted. All digital files must have 300-DPI resolution or greater at the approximate size the figure will be printed.

Photographs may be digital or hard copy. Hard copies must be printed on glossy paper with the author's name, photo or figure number and caption on the back. Digital files must be submitted in .tif, .jpg or .eps format with 300-DPI or greater resolution at the printing size and be accompanied by figure captions that are linked by the file name of the image. The images should be submitted as individual email attachments (if less than 5 MB) or on CD or DVD.

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The *Bulletin* is printed digitally using InDesign. Call the HGS office for availability of ad space and for digital guidelines and necessary forms or email ads@hgs.org. Advertising is accepted on a space-available basis. **Deadline for submitting material is 6 weeks prior to the first of the month in which the ad appears.**

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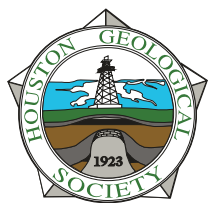


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