issue 1 | vol 4 | jan 2021

spwla today

petrophysics community newsletter

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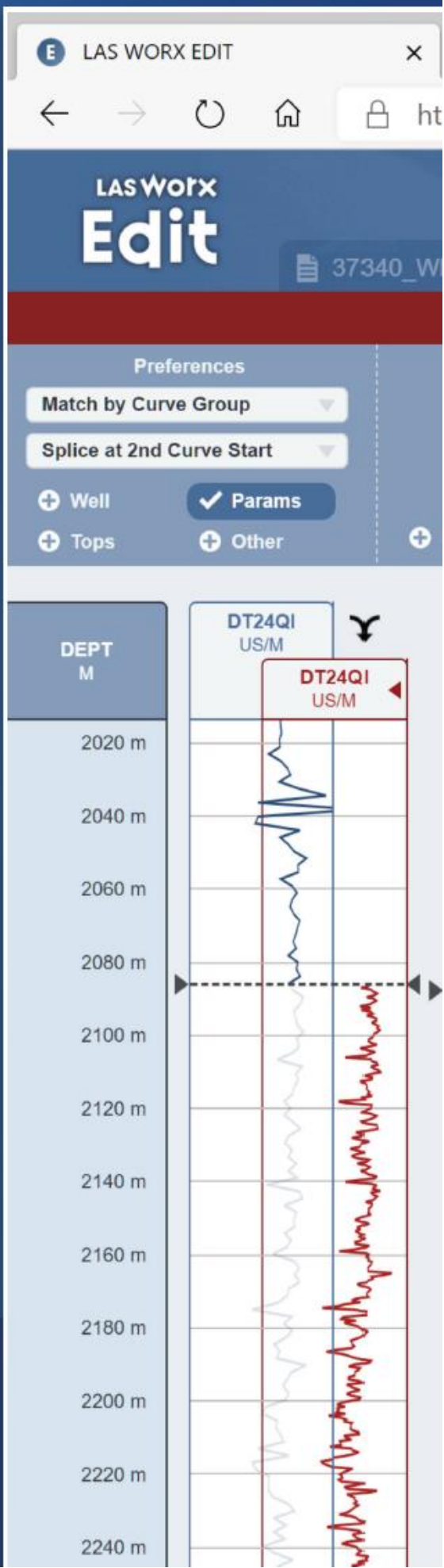

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Inside This Edition

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Calendar of Events

SPWLA Annual Awards Ceremony on January 13, 2021

SPWLA 62nd Annual Symposium 2021

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About the Cover

Everything Will Be Ok Message on the sidewalk during COVID-19 in year 2020.

From the Editor

Well, we made it. 2020 is over!

The magnitude of events that have transpired throughout the year are unlike any other. What we set out to do quickly changed when we were faced with COVID-19 and the impact it had on our industry. This has been an incredibly challenging, transformative, and life-changing year. While I'm sure many of you are ready to put this year behind us, before we do, I want to reflect on some of the extraordinary things we have accomplished despite it all.

- About nine months ago, our sense of normalcy was uprooted. We found new ways of leveraging digital technologies. We collaborated and discovered new things about our colleagues through virtual meetings and engagements. But most of all, we gave each other grace, every step of the way, while managing our personal and work commitments.
- SPWLA held its first virtual symposium spread out over a six-week period and had excellent participation. The virtual format delayed the selection process for the best of symposium papers. However, most of these papers have already made it through the peer-review process and will be in the February 2021 issue of the *Petrophysics* Journal.
- SPWLA launched a mobile app for android and iOS devices which has been downloaded by 500+ users in less than six months. SPWLA app features interactive quizzes, YouTube videos, petrophysics calculators, glossary of terms, and much more.
- *Petrophysics* Journal featured a special issue (December 2020) on pulsed neutron logging and we are currently working on a special issue on 3D printing and synthetic rocks (for August 2021).

We all know how historians will document the year 2020. We'll be told of lost lives, lost jobs, lost civility, lost decorum. But this year has underscored the importance of relationships and connectivity, of humanity and kindness, and of strength and resilience. On behalf of SPWLA, thanks for being a valuable member and please remember to renew your membership for 2021.

Best Regards,
Mayank Malik
SPWLA VP-Publications 2020–2022
VP-Publications@spwla.org

From the President

Well, 2020 will soon be behind us. Although it's a year none of us will soon forget, we hope things will be better in 2021. Two canceled symposiums in a row will have taken their toll on us and many other professional societies, but we are adapting well to the online formats.

I would like to welcome a new Regional Director for Latin America. Fernando Maia, Jr. has been promoted within his company and would like to stay active, but the new position makes it difficult to fulfill his role. Bruno Menchio will be taking his place and serving the remainder of his term, which ends in the summer of 2022. With support and advice from Fernando and Nadege Bize, who served in the role from 2018 to 2020, this should be a smooth transition.

Look for announcements regarding the technical program for the 2021 Virtual Symposium soon. We are very pleased to see the interest in presenting new material at the coming symposium.

After 40+ years in the oil industry, I know better than to try and predict the future. But watching oil prices creep up rather than crash should give us some hope. Please keep our colleagues in mind over the holidays. This will be a very difficult season for many people.

Best Regards,
James Hemingway
SPWLA President 2020–2021
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President@spwla.org

Dear Petrophysics Friends and Colleagues,

What a year 2020 has been!

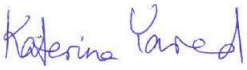
It has been a year of sorrow and grief in many aspects of our lives. Many of us lost our jobs, got sick, or just overwhelmed with work from home and homeschooling, and everything else 2020 threw at us. I, myself, a very social person, had to readjust and find peace in the new normal—meeting up with friends via Zoom, living one day at a time, and always be grateful for the blessings in my life. I enjoyed partaking in multiple virtual conferences, and I am looking forward to a great virtual International Student Paper Competition and our virtual 62nd Annual Logging Symposium. Our VP of IT and VP of Technology have been testing and checking out new virtual conference platforms that are amazing.

This pandemic only expedited the race for a more remote and virtual workspace, but one thing will always remain constant—the need for knowledge sharing and thirst for certification! I recently presented to the Board of Directors new skill set guidelines that the Petrophysics Training and Certification committee—with the guidance of our Education SIG and VP of Education—will hopefully bring to life in 2021 with more training offerings and certification capabilities!

Also, I am happy to have added two more SPWLA “Nuggets of Wisdom” to our list from our esteemed colleagues **Hani ElShahawi** and **Tom Bratton**. Check them out on our YouTube channel.

I know 2020 has certainly been a tough year; no one can really predict its impact. Emotionally, financially, and health-wise, we were faced with extraordinary challenges, but I hope wherever this newsletter finds you, you and your loved ones are doing well and staying healthy. My hope is that we can all reflect on 2020, see the silver linings, and hopefully make 2021 the year to remember, whatever that is for you! I think what 2020 taught me is that we are resilient people who can change on a dime and develop more innovative ways to transform ourselves and our industry for the better (ESG, anyone? 😊).

I hope you all have a happy and healthy New Year 2021 and keep thriving!



Katerina Yared
SPWLA President-Elect 2020–2021
President-Elect@spwla.org

Hello and welcome to my fourth column for the *SPWLA Today* newsletter. This piece will be much shorter than usual!

Abstract Submissions for SPWLA 2021 closed on 1 November 2020. On deadline day, we had received 251 abstracts. Shortly after, the 38 members of the Technical Committee began reviewing 100 abstracts each. We employed a ranking system similar to previous years, where the best abstract in the reviewer's opinion is awarded 100 points all the way down to one point for their least favorite. This ranking method alleviates any bias that might occur if individuals were to score abstracts instead. The results are then compiled, averaged, and finally discussed in order to select the best papers for the symposium. We are currently in the final stage of this process, and we hope to start notifying authors whether their papers have been accepted or rejected next week.

If you have submitted an abstract anytime in the past three years (i.e., using the WP Abstracts software), please consider completing this short survey to let us know what your experience was like. We are always looking to improve the system, and your constructive feedback would be welcome: https://www.spwlaworld.org/abstract-submission-survey/.

Meddyliau cynhesaf a dymuniadau gorau am wyliau rhyfeddol a Blwyddyn Newydd Dda. Warmest thoughts and best wishes for a wonderful Holiday and a Happy New Year.

Tegwyn J. Perkins
Vice-President Technology 2020–21
VP-Technology@spwla.org

Hello SPWLA Colleagues,

Let's welcome 2021 with hearts full of positivity and new hopes. May this year come with a jar full of health, prosperity, compassion, and success. Happy New Year!

Simply, I would like to say thank you for being with us during 2020. Thank you for faithfully attending our monthly webinars, our short course training, and all our programs.

To all Distinguished Speakers and Global Distinguished Speakers, thank you very much for all your support and commitment to sharing your expertise. To all speakers of The More You Know series, thank you for sharing your knowledge through SPWLA. To all Nuggets of Wisdom speakers, thank you for giving us your insights, especially to the younger generation. This is all possible with the help of our amazing team of SPWLA BOD, SPWLA Business Officers, VP of Edu Team, and all of you. Once again, BIG thanks!!

We welcome 2021 with a great rhythm of learning activity. Please mark your calendar for these upcoming SPWLA webinars:

1. 14 January–**Conclusive Proof of Weak Bedding Planes in the Marcellus Shale and Proposed Mitigation Strategies** // SPWLA-5050 by Julie Kowan (Baker Hughes).

2. 11 February–**Unlocking Data Analytics for the Automatic Evaluation of Cement Bond Scenarios** // SPWLA-5060 by Dario Reolon (Eni).

3. 11 March–**First LWD Fully Triaxial Co-Located Antenna Sensors for Real-Time Anisotropy and Dip Angle Determination, Yielding Better Look-Ahead Detection** // SPWLA 5078 by Hsu-Hsiang "Mark" Wu (Halliburton).

In the new year, we will have a new program: SPWLA Special Edition Webinar. For Q1, we have had an opportunity to invite Aria Abubakar, 2020 SEG-AAPG 3Q/4Q Distinguished Lecturer. He will join us on January 28, covering the topic, **Automating Wellbore Workflows Using AI/ML Algorithms**. Hope to see you there!!

We also have a great opportunity to host a **Practical Geomechanics Class** by Tim Bratton, which will be conducted on January 26–27. This class is intended for geoscientists and engineers who want to better understand geomechanics and offers some guidance on how to use geomechanical results to influence engineering decisions.

Mineralogy Class by Patricia Rodriquez is also back!! We will host this class twice every month, from February to April 2021. The earlier one will be on February 24.

To all SPWLA Student Chapters and SPWLA student members, the 2021 International Student Paper Contest is coming your way. The ISPC will be held online on **Sunday, May 16, 2021,** preceding the SPWLA 62nd Annual Symposium, May 17–20, 2021.

Students *at an accredited university or who have graduated within the 12 months preceding* the ***ISPC*** are qualified and invited to submit a paper in their relevant degree category: Undergraduate (BSc), Masters (MSc), or Doctorate (PhD).

Students affiliated with a local SPWLA Student Chapter must first submit their paper abstract and deliver their presentation to their Student Chapter as part of the SPWLA Internal Student Chapter Paper Contest (Internal SCPC). The Internal SCPC is run independently by each local Student Chapter (refer to the guide online).

The local Student Chapter will rank and nominate *up to three* students in each degree category from their Chapter to participate in the ***ISPC***. The Internal SCPC must be completed, and nominated Students must submit their paper abstracts to the ***ISPC*** online embedded link by **Wednesday, March 31, 2021**.

Students without a local SPWLA Student Chapter are invited to submit their paper abstracts in their relevant degree category directly to the ***ISPC*** online embedded link by **Wednesday, March 31, 2021**.

Students selected to present at the ***ISPC*** will be notified by **Friday, April 16, 2021**. Please read all the detailed information at spwlaworld.org or email me at vp-education@spwla.org for more information.

As always, please let me know of any input and suggestions you have for how I can serve you better.

Thank you for being a loyal member of SPWLA, and let's make the best out of 2021. Keep on learning!!

Kind Regards,

Fransiska Goenawan
VP-Education@spwla.org

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@Society of Petrophysicists and Well Log Analysts (Facebook)
@spwlaorg (Twitter)

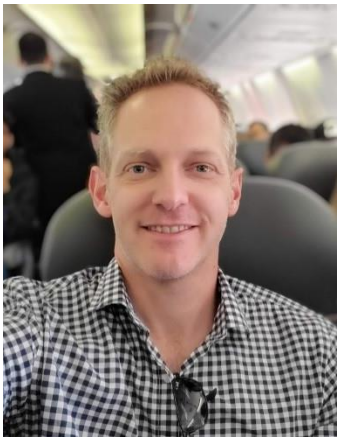
The switch to online events pending a return to social gatherings sometime in 2021(!) has resulted in more frequent "virtual" events in some European chapters since they are easier to organize, easier to attend, and lower cost. I suspect the future will be a "hybrid" reality with more online events and a return to a normal level of social events. Personally, I think it's a good thing as it brings more opportunities and accessibility. The downside is the number of potential events that are of interest—why is this a downside? Well, it's finding time! I often do not have time or forget to join the event. I probably need to be better organized!

I guess it's an age thing, but I have been quite apprehensive about getting involved with organizing "live" online events. However, it seems I'm not alone! Of the events I have "attended," nearly all have had "glitches" down to the platform and the organizers' inexperience of the format—but they were still a success! Nobody is trying to score points by being "best" at having the most seamless session—we are mostly all volunteers and aware that everyone is trying hard. Who would have thought a year ago this would be today's reality?

May 2020 saw the sad passing of one of the most well-known and influential titans of the petrophysical community—**Professor Paul Worthington**. The London Petrophysical Society paid tribute to Paul at an event in early December, "**Professor Paul F. Worthington: Commemorative Webinar**." The SPWLA kindly promoted this event—not something they would typically do for a Chapter level event, but Paul was an exceptional person, so an exception was made. I hope that some of you were able to attend and enjoyed the presentations.

The year 2020 has been a difficult year for many of us, both personally and professionally. It looks like science has come to the rescue with the rollout of vaccines against COVID-19 over the coming months. I'm confident 2021 will be a better year, and I wish you all well meantime.

Craig Lindsay
Europe Director
Director-Europe@spwla.org



How did we make it? It's December 2020, and somehow, we've almost reached the end of a very challenging year. Well done! I can remember days, weeks, and months when I wondered what the next surprise, change, or challenge would be and whether my industry, my family, and I could cope with anymore. So how *did* I make it?

I appreciate that privilege and good fortune played a large part. I was lucky to be able to work from home, maintain my employment, and establish a robust bubble. My children are older and in a school system that kept them occupied and advancing. My extended family managed to avoid the worst of the virus, and for that, I am deeply thankful. My reason for writing this article is to reflect on the positives achieved through survival in 2020, but I have not shared the suffering some people have endured this year. My hope is everyone can take something from my message.

One day in mid-March, I abandoned my home office with a sigh and went downstairs, struggling to think about what I would do next. I passed my 10-year-old daughter, headphones on, Zoom screen full of smiling school friends, and I was inspired. Their sense of purpose was unwavering. Some things just had to get done. They couldn't help making ventilators. They didn't have massive, complex organizations to resize, and they didn't need to be told that staying home was enough. They had a simple sense of purpose. Whether it was something intrinsic with the children or amazing leadership from their teachers, they were able to accept one thing at a time, adapt in the moment, and move on.

Maybe it's an overdose of Disney+, but the other concept that helped me through the summer of 2020 came from the *Frozen II* song, Do the Next Right Thing. Often, the big picture was unclear. The response to the virus was reactionary. The leadership of countries and organizations were changing and adapting to their challenges as fast as everything else. The outlook for the world, the industry, the company, and careers was impossible to predict, and an enormous amount of energy could be quickly consumed trying to navigate it all mentally. My team and I settled on taking care of the things we could influence and tried not to worry about everything else. We drew on our experience, discretion, and professionalism and just did the next right thing.

Empathy played an important role in getting through it all. The *Freakonomics* host Stephen Dubner signs off every episode with, “Take care of yourselves out there, and if you can, someone else.” Spending more time at home has been an opportunity to reconnect. This has been extended through Zoom meetings with old friends, online happy hours, and an outpouring of empathy. When we get it right, treating ourselves well starts a chain reaction to our families, friends, colleagues, and beyond. We’ve broken down barriers, become bolder, and less self-conscious about reaching out through new communication channels, confident of positive results.

With all these valuable lessons learned, the most important thing to remember is that it is not over yet. Last week, my eldest son came back with a positive COVID-19 test. His symptoms are very mild. We expect a quick recovery, and as a family, we are well prepared to deal with more lockdown and isolation. We understand how our bubble burst, but while it might be tempting to focus on what went wrong, I have used this as another reminder of what we did right for the previous 10 months. It has been shown that a team focusing on the positives, ensuring they repeat good behaviors, will improve faster than a team focusing on negatives and how to prevent them. So, if you get the chance to relax and reflect in the coming weeks, take a moment to remember what you did right in 2020. Keep it simple, do the next right thing, take care of yourself, and, if you can, someone else.

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Hello Petrophysical Community,

This is my first column for the *SPWLA Today* newsletter, and I'm so proud to represent Latin America on behalf of our professional society.

In the last few weeks, I had the opportunity to talk with the leaders of several chapters, including professionals from Argentina and Brazil and students from Brazil (UFRJ) and Colombia (UIS e USCO). It was extremely gratifying to note that despite the adversities we are experiencing, the Latin community has proved to be resilient and creative in dealing with all the changes of recent times. In addition, I spoke with members of the professional chapter of Colombia about the reopening of the CAFE chapter, opening a new professional (Bucaramanga) chapter, and with students from Peru (UNI) who want to start the first chapter of the SPWLA in the country. There is also interest in opening new student chapters in Argentina, Brazil, and Colombia.

The professional chapters from Argentina and Brazil are very active and present their monthly lectures with excellent attendance and with the presence of members from other countries. The capabilities of the virtual world have contributed to the greater integration of Latin America. It is very nice to see that the Argentines are preparing a group of students to be the leaders of a new student chapter.

Some very interesting initiatives are being promoted by student chapters from Brazil and Colombia. I would like to highlight the event that they call Portunhol: a time to talk about petrophysics and language teaching. Brazilians teach Portuguese to Colombians, and Colombians teach Spanish to Brazilians. This is an initiative that deserves recognition as a great opportunity to integrate the countries. Both chapters are active and promoting many activities.

I am very happy to see our students' excellent work, and I would like to stress they have also incorporated activities carried out related to soft skills and donations to charities. To be good professionals, we must also have behavioral skills and help those who need support.

There is a great effort to open the student chapter (USCO) in Colombia, but unfortunately, they do not have an advisor at the University. This led me to think that we must break some barriers

and maintain the motivation of these groups of students. With the use of virtual tools, I believe that there are some possibilities to support the official opening of this chapter.

Our continent is very large and has many petrophysicists, log analysts, and professors working in companies and universities. It is time to join forces and promote the expansion of scientific knowledge and to reinforce networking. I don't like predictions, but we have to think about the future and future professionals who will one day be in charge of acquisitions, interpretations, and teaching in the area of petrophysics.

Let's think about increasing Latin America's participation in the SPWLA. We need to guarantee the diffusion of petrophysical knowledge and promote the development of young professionals. If you have a group of enthusiasts interested in opening new professional and student chapters, please do not hesitate to contact me.

I would like to wish everyone a great new year.

Yours sincerely,
Bruno Menchio Faria
Latin America Regional Director
Director-LA@SPWLA.org

Job Seeking & Networking Advice by Stefano Mazzoni

Stefano Mazzoni is a Geoscientist currently based in Houston. He has spent over 18 years in the hydrocarbon exploration & production industry, working conventional & unconventional plays. For the last ~3 years, he has contracted for Sanchez and BHP through his consulting business Mazzoni Geoscience LLC. He is an active member of AAPG, has been involved in PSAAPG, SJGS, NCGS and is a lifetime member of AWG. He earned his BS and MS degrees in Earth Science from the University of California Santa Cruz. He is passionate about structural geology, solving technical problems through teamwork & innovation, organizing field trips & training programs, professional service & development, and most of all co-parenting an amazing 7-year-old daughter.

For those in my network who have lost their jobs this year, I'm very sorry. While 2020 has been extraordinarily difficult, losing employment can be a challenge at any time. I've created a list of hard truths & observations about job-hunting and networking I've learned over the years that I'd like to share with you, as well as with others still currently employed.

Some of these remarks may not be immediately applicable but I encourage you to think about them for the future. They include advice from mentors, tactics I've learned & applied myself, and some things I'm still learning today (and will apply in future jobs); I think they will make all of us more resilient in the face of future adversity.

1. Do not define your self-worth by your job but do ensure your family's security. A job is something you do, not who you are. Never use an annual ranking or performance review to define your "status" - rather, use them to seek out feedback for improvement in your current job and for your future career development. With the volatility of the oil and gas industry, prior generations who weathered the "boom & bust" cycles have shared sage advice with me - always keep 3-6 months of living budget available in liquid assets in the event of a downturn such as today's economy.

2. Every job is a continuous two-way interview. Any employer is always evaluating your performance and you should always question if you still feel comfortable working for them. Similarly, every job is a one-month contract, regardless of title or status. Most US-based full-time positions are with "at-will" employers, which means they can terminate you whenever they

choose. While “full-time” employment can offer critical benefits like group health insurance & company-matched stock, it does not guarantee long-term stability.

3. Keep your skills relevant and continuously improve them. This can be accomplished through formal or informal training. Make the time to take online classes & attend webinars. Obtain useful professional certification & licenses in your field – whether technical (PG/PE), managerial (PMP), technology (AWS), or software (GIS/Python) – while you're working. You may not need it for your current job, but you might for your next one. Some employers will pay for these courses, whereas they can be doubly expensive to pay for while unemployed. Learn to use your access to valuable resources (e.g. software licenses, database subscriptions) in your current job to expand your proficiencies. Utilize free (or low-cost) online training platforms such as Coursera, Udemy, government/university lecture series, and even YouTube (professional societies and service companies have informative content on their channels).

4. Broadly demonstrate your skills and share your expertise with others. Actively volunteer in professional organizations & community service. These activities provide professional networking & technical leadership opportunities and also serve as venues to build your soft skills such as time management, organizing events, conflict resolution, budgeting & forecasting, influencing others, etc. Always be available to mentor those around you. Even if you're early career, you have something to share through mentorship. Be a resource to those around you and don't selfishly hoard information – building up the skills of everyone around you is the best way to network. You may be the expert in some subject and stably employed at one point of your career and then unemployed and relying on your network at another point – wouldn’t you rather have a legion of your mentees out there who are willing to return your favors?

5. Always keep your resume (and LinkedIn profile) up to date and flexible for any use. You never know when you're going to need it and it is not easy to quickly cobble one together after 20 years of neglect during constant employment. Focus your resume on your skills and the measurable results or impacts you've have generated. Keep track of tangible metrics like money saved, resources added, people and budgets managed, etc. I’ve found it also helps to keep a long, CV-style resume with all your information – then use this to create other short, highly focused resumes tailored to the jobs you are applying for when they are needed.

6. Ask for (and GIVE) LinkedIn recommendations at the end of every job move. Do this whether you are making an external move to a new contract/new job or an internal move within your organization. You will get more useful feedback when it is fresh on the minds of your

colleagues & supervisors. And give, give, give recommendations to those you deem to deserve them, whether or not they reciprocate and write one for you.

7. Choose a strategy for your LinkedIn connections and curate them. Do you want a tight network of only people you've worked with previously in your industry? Do you want a broad network of people you've never met but expand your 2nd & 3rd degree connections in other industries or peripheral roles? Or do you want a mix of these two? My personal strategy is to keep >90% of my connections with people that I know personally (worked together, met through professional organizations, went to school/training together, etc.) and the remainder of my connections are with people whom I hope to meet in the future (and would be willing to sit down for a drink/meal & conversation).

8. Networking only works if YOU continuously put in the effort. Networking isn't reaching out to people who can help you – it is an active effort of reaching out to help other people. People aren't going to (only) network for you when you need a job. And put in the effort for networking constantly, not just when you're looking for a job. It takes continuous effort over time. When networking, you're building relationships for the future. Don't focus just on what you need in the moment. It might be a week away or six months away when the work you're putting in might help you or help someone else.

9. Always be looking for the next job(s) you want. Be aware of what opportunities are out there. If you find yourself laid off, you should immediately have an understanding of where to start looking and hopefully you have already established connections that will help you reach your new goal(s).

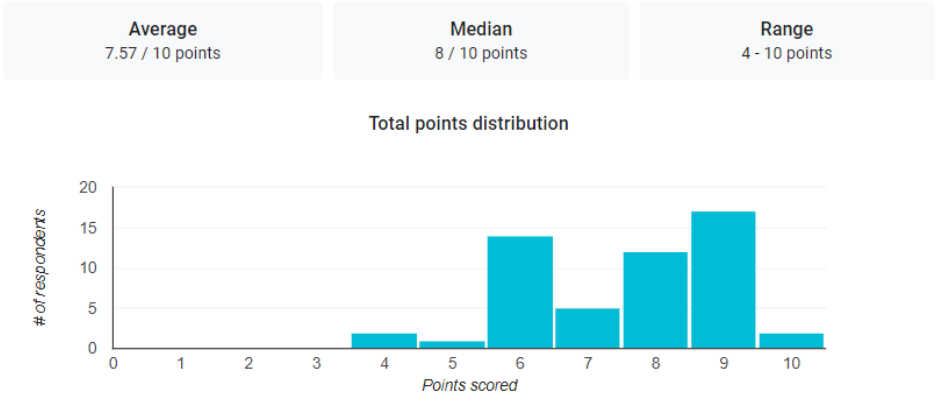
10. If you're looking for a job, also help other people find jobs. If you see something that can help someone, pass it along, even if it means sharing a position where you may be in direct competition. In the end, the employer will (hopefully) select the best candidate and even if you don't get the job, you've established stronger connections within your network that may help in the long-run (e.g., that connection you've helped may help you find your next 2 or 3 jobs).

I hope you find these recommendations useful. Please comment & discuss and share your own experiences or advice. Together, we can all help each other get through this tough time.

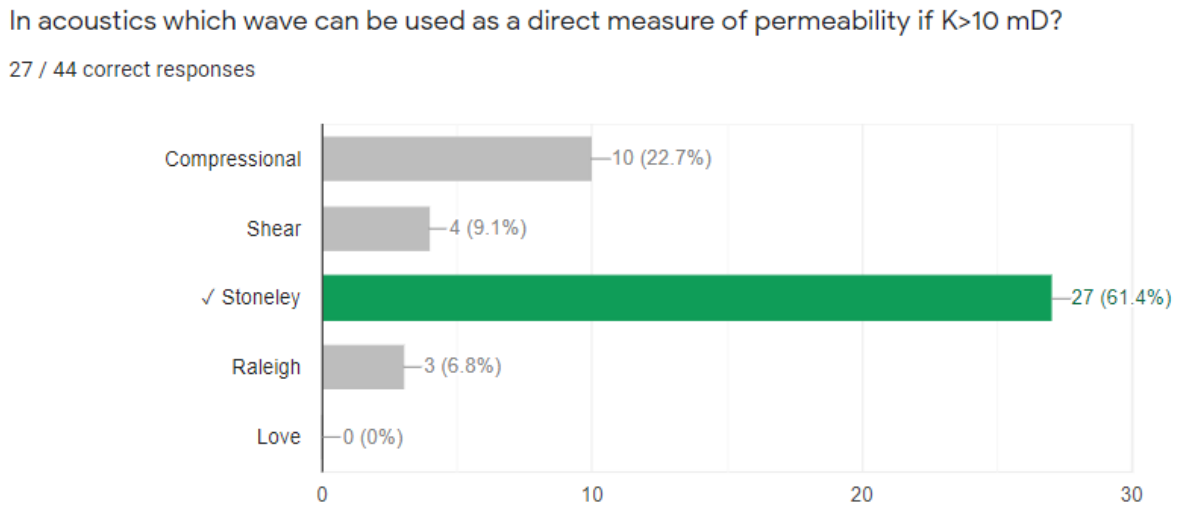
Hello all you intrepid SPWLA quiz takers out there.

In August, Mayank Malik (SPWLA VP-Publications 2020–22) launched the SPWLA app. The app can be downloaded for Android devices via the Google Play store and for iOS devices via Apple's App store. In the app, there is a fun quiz. It initially had five questions, which we then expanded to 40 questions. In November, we changed to an eight-question format, since I can't think up 50 good questions every month. I was worried some of these questions might be too easy, but based on the responses, I think they were about the right difficulty. Also, I was glad to see there were not any questions that got more wrong than right. This means that I worded them at least well enough to be understandable. You can see the results below. The median was 8/10 pts, and the average was close at 7.57/10, indicating low skew. For those two people that got 10/10, congrats. Know your knowledge is rarified among your peers. For those who failed to get all 10, try again next month.

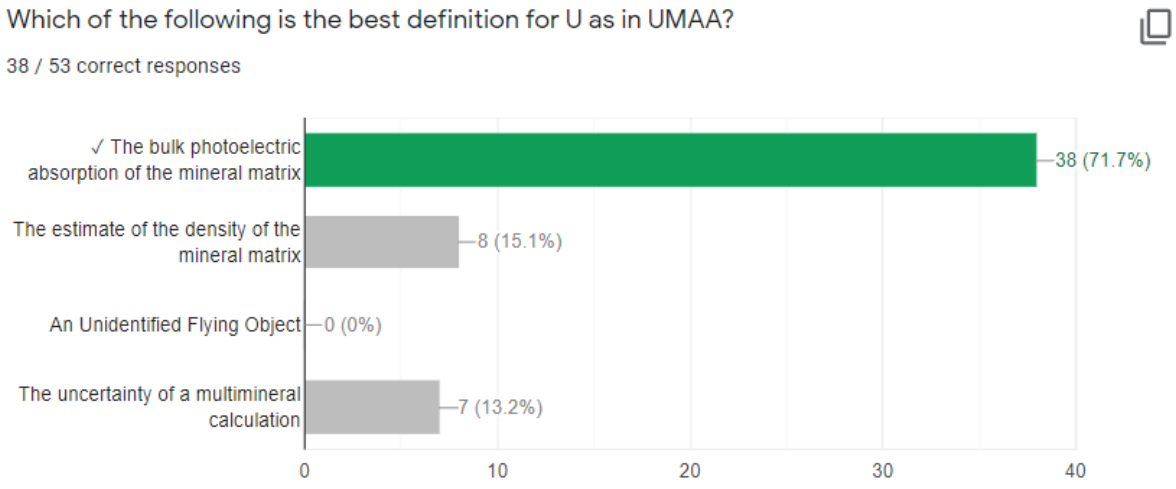
As per my previous column, we will be rolling out more questions for December. Some will even be holiday themed. So, open up your SPWLA app and take that new quiz. If you have any suggestions for questions you would like included in the next quiz, please reach out to me on Linkedin. (Also, if you hadn't noticed from the picture, I have a new baby so I going to shamelessly put him in my photo for this month.)



I thought this might be fun for those of us who don't get to do much conventional petrophysics. In rock with high perm, the acoustic waves can actually move the fluid! For those of us living in shales, this is astonishing I know but in fact true.



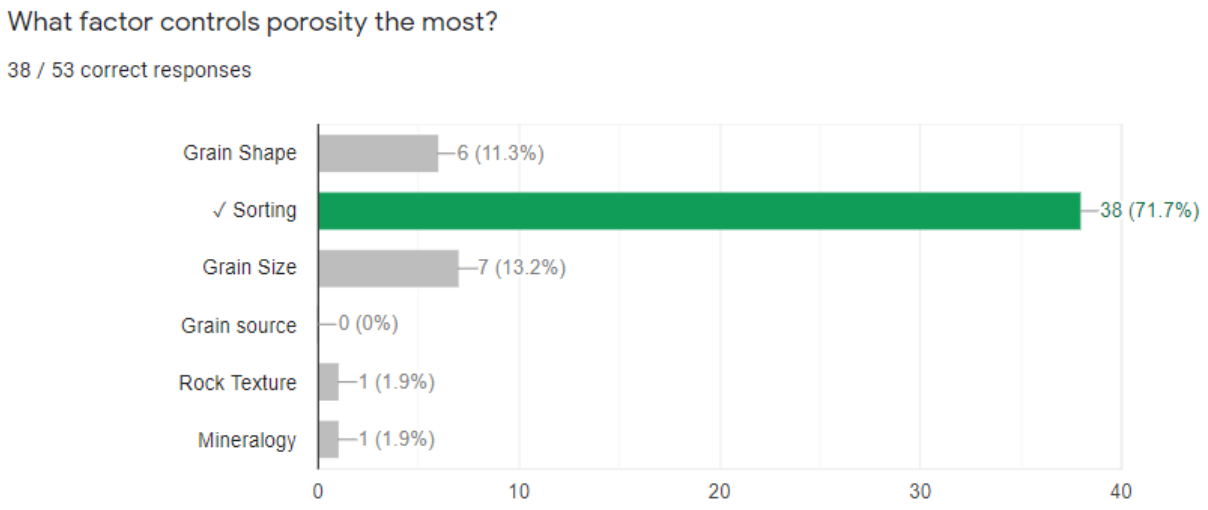
Alright now for the answers to this last month's quiz, U is defined as the bulk photoelectric adsorption of the mineral matrix. So, minerals like pyrite and barite have rather large U while minerals like quartz and coal have rather small U.



I thought this would be a fun one. This was discovered back in the 1580s by Sir Thomas Harriot a contemporary of Sir Walter Raleigh, the famous traitor. He discovered that for spheres of the

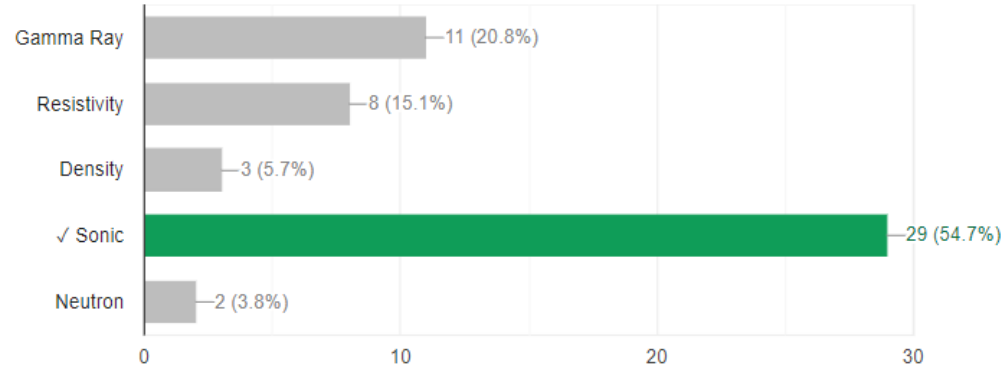
same size the smallest void space, or porosity, that you could have was ~26% if you use hexagonal close packing or cubic front face packing. Now, if you start adding in spheres of different sizes, the porosity can be reduced to nearly zero. Hence, sorting is the most important factor. In fact, this theorem was widely accepted in the day but not proven till the early 2000s, because there are many possible irregular stacking permutations that might yield lower porosity for a small volume, but not work at larger volumes. It came to be known as the Kepler conjecture.

In January 2003, Thomas Hales announced the start of a collaborative project to produce a complete formal proof of the Kepler conjecture. The aim was to remove any remaining uncertainty about the validity of the proof by creating a formal proof that can be verified by automated proof checking software such as HOL Light and Isabelle. This project is called Flyspeck – the F, P and K standing for Formal Proof of Kepler. Hales estimated that producing a complete formal proof would take around 20 years of work. Hales first published a "blueprint" for the formal proof in 2012 the project was announced completed on August 10, 2014. In January 2015, Hales and 21 collaborators submitted a paper titled "A formal proof of the Kepler conjecture," claiming to have proved the conjecture. In 2017, the formal proof was accepted into the *Forum of Mathematics* journal.



In a typical quad combo logging string, which tool has the least tensile strength and should be put below the nuclear sources for safety in case the string gets stuck?

29 / 53 correct responses



Sonic tools have little slits in them, making them one of the weakest logging tools in tension. Don't put them below nuclear sources if you want to keep your sources connected to your wireline.

I tried to disguise the company below to avoid commercialism, but I imagine most folks can figure it out from just the font! Note how the sonic tool has a tensile strength about 2/3 of the others.

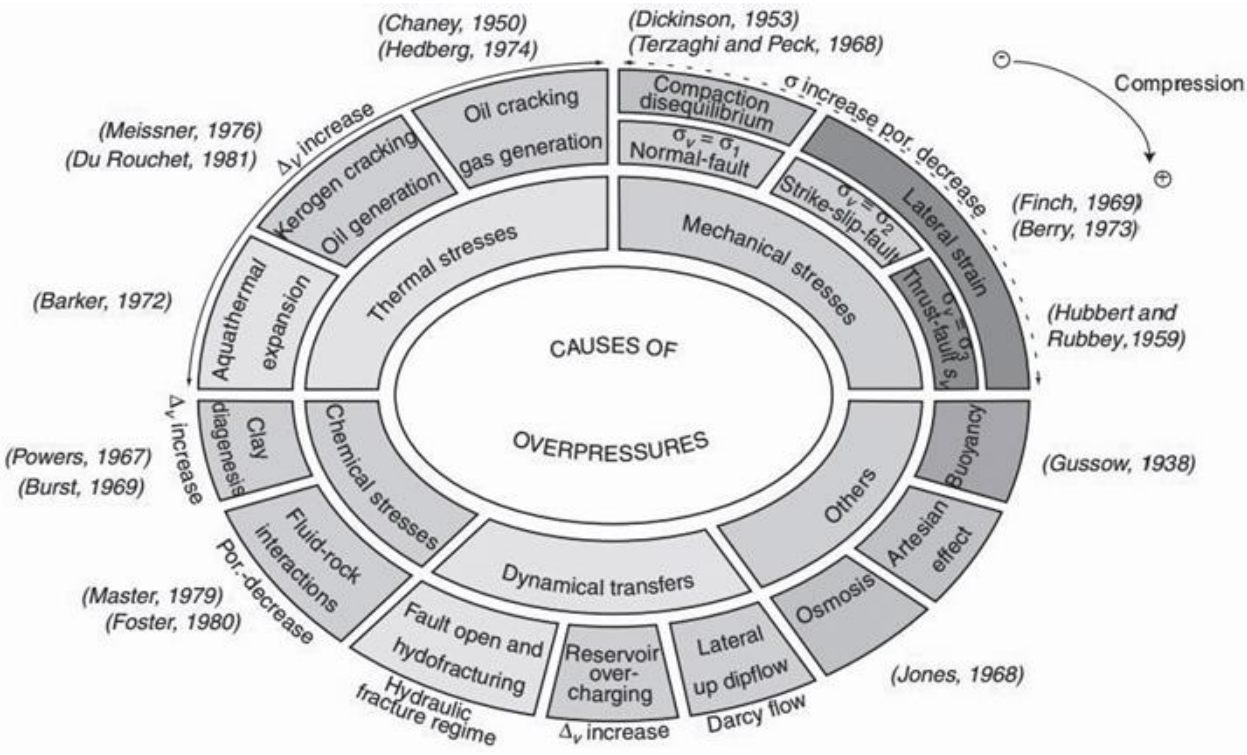
Openhole Scanner Services

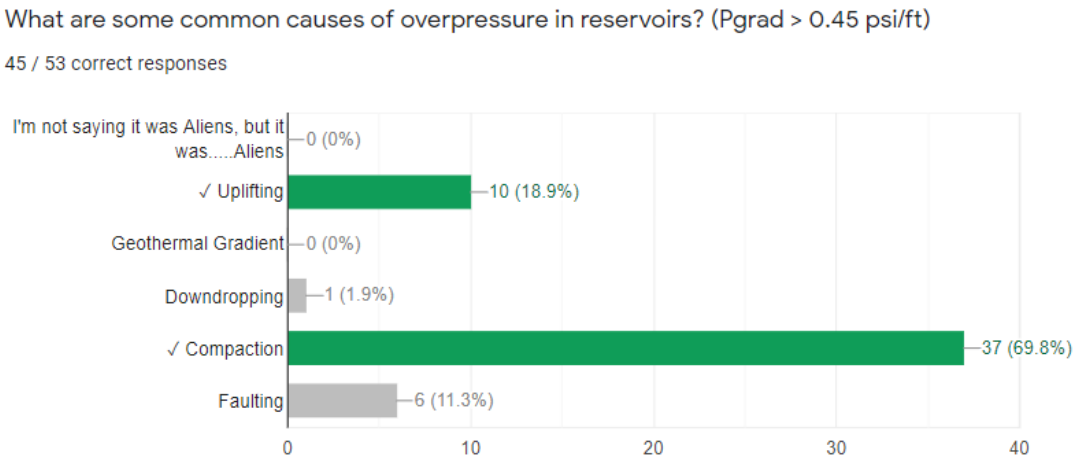
Mechanical Specifications

	Litho [redacted]	Dielectric [redacted]	Sonic [redacted]	MR [redacted]
Temperature rating	Version A: 284 degF [140 degC] Version C: 350 degF [177 degC]	350 degF [177 degC]	350 degF [177 degC]	302 degF [150 degC]
Pressure rating	20,000 psi [138 MPa]	25,000 psi [172 MPa]	20,000 psi [138 MPa]	20,000 psi [138 MPa]
Borehole size—min.	5.5 in [13.97 cm]	5.5 in [13.97 cm]	4.75 in [12.07 cm]	5.875 in [14.92 cm]
Borehole size—max.	24 in [60.96 cm]†	22 in [55.88 cm]	22 in [55.88 cm]	No limit
Outside diameter	4.5 in [11.4 cm]	4.77 in [12.12 cm]	3.625 in [9.21 cm]	Sonde: 5 in [12.70 cm] Cartridge: 4.75 in [12.07 cm]
Length	Version A: 14 ft [4.27 m] Version C: 9 ft [2.74 m]	11.27 ft [3.44 m]	41.28 ft [12.58 m] (including isolation joint) Basic toolstring (near monopoles only): 22 ft [6.71 m]	32.7 ft [9.97 m]
Weight	Version A: 366 lbm [166 kg] Version C: 290 lbm [132 kg]	262 lbm [119 kg]	844 lbm [383 kg] (including isolation joint) Basic toolstring: 413 lbm [187 kg]	1,200 lbm [544 kg]
Tension	55,000 lbf [244,652 N]	50,000 lbf [222,411 N]	35,000 lbf [155,690 N]	50,000 lbf [222,410 N]
Compression	22,500 lbf [100,085 N]	4,400 lbf [19,572 N]§	3,000 lbf [13,340 N]	7,900 lbf [35,140 N]

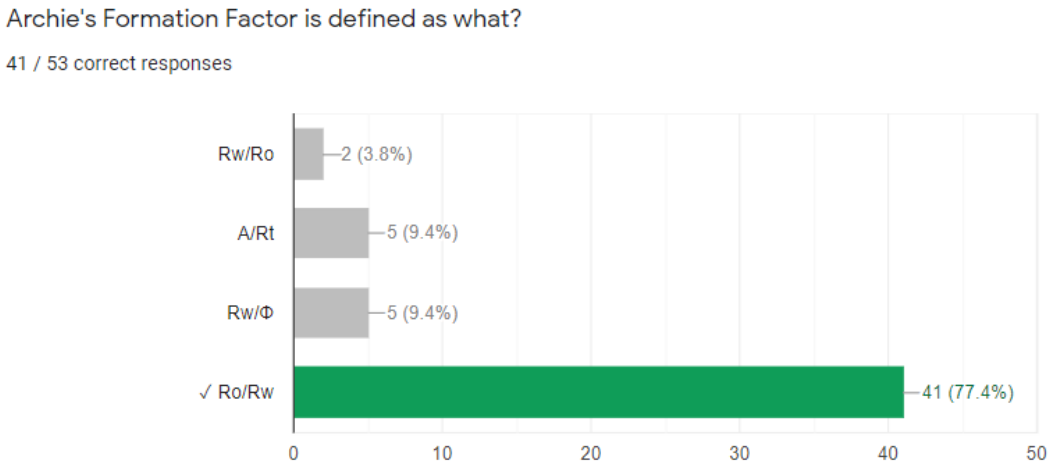
na = not available
† With bow spring

There are, of course, many causes of overpressure, which is why I put two correct answers in here! If you got both, kudos, but only 1 was required. (Image credit below to Vargas-Silva Diego Armando et al.) It is funny, as petrophysicists, we often hang our hats on disequlibrium compaction when using Eaton's equation to estimate pore pressure, But there are so many other possible causes.

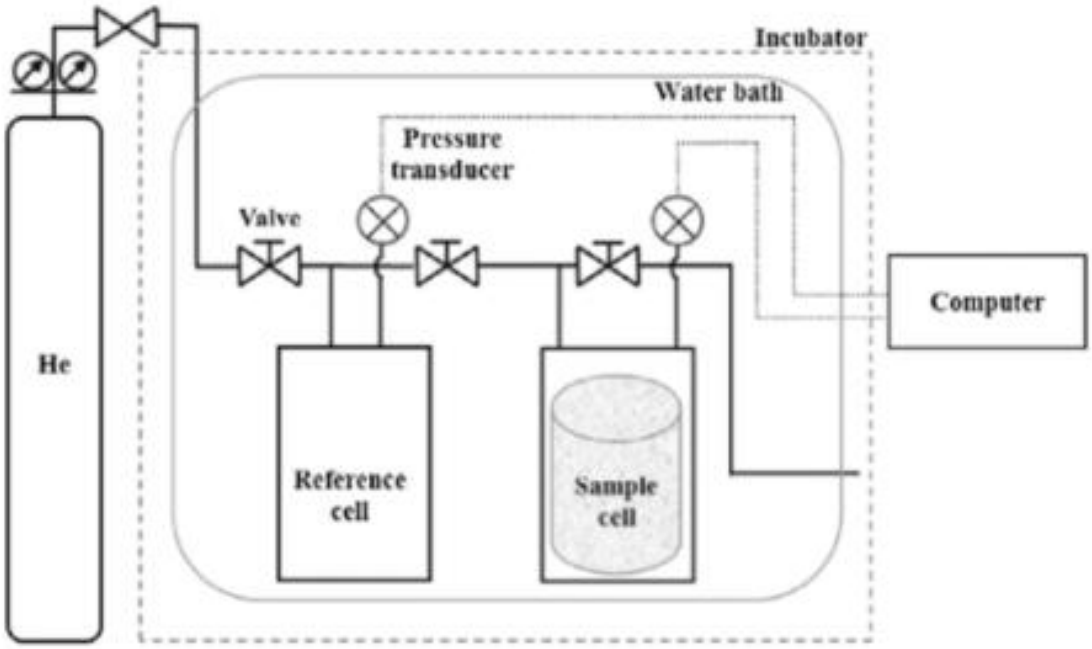




This was a repeat from the prior month because I liked it so much. The correct answer as most of you picked is, of course, Ro/Rw. Well done to those who paid attention in logging school or read Mr. Archie's paper. Fun fact, A was not introduced in Gus Archie's original paper and he also did not refer M as the cementation exponent. Both of those were later additions by other famous petrophysicists.

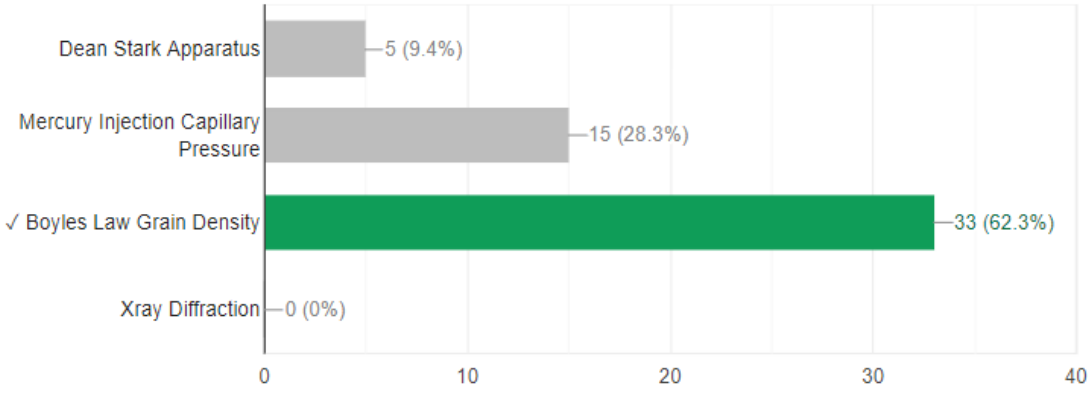


This question was more core related since a lot of the questions were logging heavy. Can you spot a grain density porosimeter? Most of you could.



What core test does the below diagram most closely resemble?

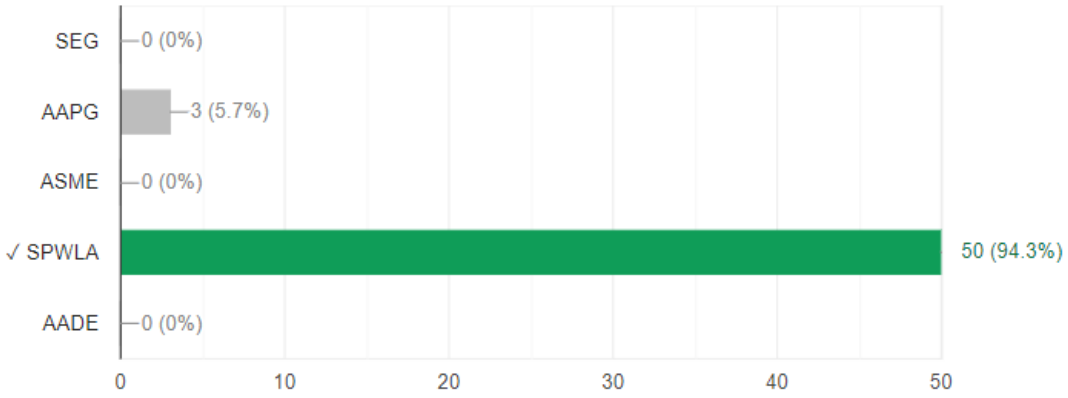
33 / 53 correct responses



Finally, everyone's favorite question…For those of you who picked AAPG, you are certainly entitled to your opinion, but I award you no points and may god have mercy on your soul.

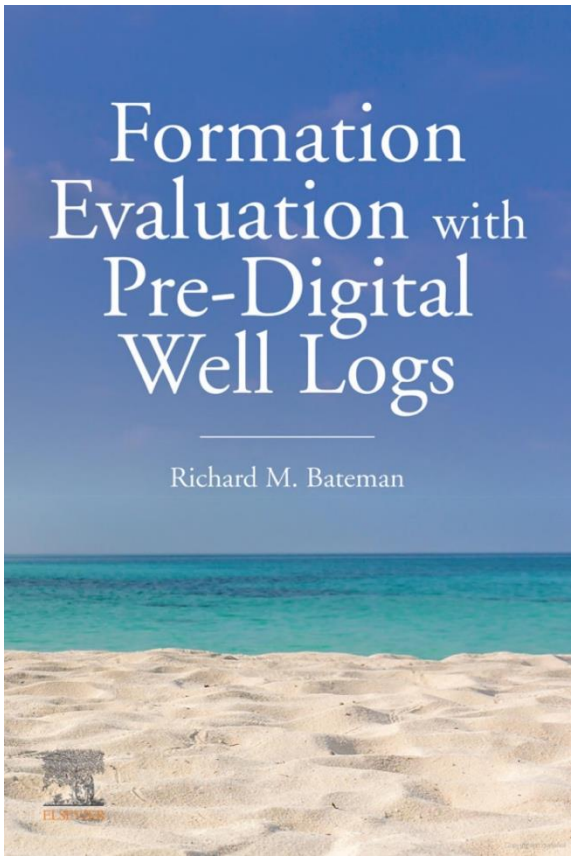
Which professional society gives you the most bang for your buck?

50 / 53 correct responses



For the AAPG answer 😊

Given the title of the article, you might think I'm going to talk about me and my tenure as SPWLA president now that I am a past president or perhaps that late 90s movies about a nuclear scientist and his family who locked themselves down in a nuclear bunker basement for 35 years. I'm sorry to disappoint you. The reason I'm back writing in our beloved newsletter is that I was given the opportunity to write a review about the book, *Formation Evaluation with Pre-Digital Well Logs*, by Professor Richard M. Bateman. Many of you know the long career that Richard had in the industry, spanning half a century in research, interpretation, and education. He has worked for logging companies, operators, consulting firms, and finished his career in academia, most recently as Associate Professor of Petroleum Engineering at Texas Tech University. Not long ago, he wrote for this magazine with his "Great Moments in Formation Evaluation" short series, which I really miss.



The name "pre-digital well logs" is a fancy and clever name for what we know as old electrical logs (e-logs). I'm referring to those long/short normal and lateral resistivity logs that are so hard to read and understand from raster images, which many of us often toss because we just call them low-quality logs or don't know now what to do with them. Finding Rt sounds like an impossible task. Imagine those nuclear logs in assorted units that don't look like the ones we currently use or sonic logs with cycle skipping all over the place. Sweat it no more! In his book, Professor Bateman provides an excellent overview of well-logging technology from the first electrical log in 1927 to the transition from analog to digital technology in the late 1970s. He talks about the tools, briefly touches on their physical principles, and guides you through various interpretation methods to estimate basic petrophysical properties from the old e-logs. The book is aimed at petrophysicists, log analysts, and other geoscientists that often struggle to make sense of those old e-logs they found in an archive or got from a data room. A working knowledge of log analysis and basic petrophysics is required to follow the book quickly, but it is an easy read. Sometimes it feels like listening to grandpa's stories. I say this because my late grandfather was a roughneck in Venezuela when he was a youngster and used to tell me stories from his days in the oil fields.

When I first read the table of contents, I thought the book was similar to D.W. Hilchie's *Old Electrical Logs Interpretation*[1]. However, after reading further down, I realized that it was more like a sequel. Hilchie's book deals with logs pre-1958, whereas this book adds close to two decades of technology development and interpretation methods. That additional time provides a unique review to the early nuclear (e.g., gamma-gamma density, sidewall, compensated neutron, etc.) and sonic tools that revolutionized formation evaluation during the boom of shaly sands and carbonates petrophysical interpretation.

[1]Hilchie, D.W., 2003, *AAP Methods 15 – Old Electrical Log Interpretation* (reprinted in 2003, original publication 1979).

Petrophysical calculations from old e-logs used to be made by hand and using nomograms. In the digital world we currently live in, you can convert almost any image to numbers. That being said, if we have the raster image of these old logs, we can certainly have the logs digitized. Notwithstanding, the interpreter needs to properly set the range, scale, and units for the logs to be valid. Proper digitization will allow you to seamlessly perform foot-by-foot calculations from e-logs using computer programs (e.g., using Python, Excel, etc.) written from the equations presented in this book. Maybe this time, you will find that bypassed hydrocarbon zone, recommend recompletions, and go home a hero.

After reading this book, I feel that I have all the equations I need for old e-log interpretations in one place without jumping from chart books to papers to more books. Furthermore, the book has increased my admiration for the ingenuity of early petrophysicists and log analysts who made marvels to deliver their best estimate of lithology, porosity, water saturation, and permeability with the limited data sets at their hands during yesteryear (as Richard would say). Happy reading!

Formation Evaluation with Pre-Digital Well Logs

by Richard M. Bateman

ISBN: 978-0-12-820232-6

DOI: https://doi.org/10.1016/C2018-0-03023-6

284 pages

Purchase at https://www.amazon.com/Formation-Evaluation-Pre-Digital-Well-Logs/dp/0128202327

Available on digital and paperback

Dr. Jesús M. Salazar is a senior petrophysicist with Marathon Oil and was the 2019–2020 SPWLA President, the 2016–2019 Executive Editor of *SPE Reservoir Evaluation and Engineering*, and currently serves as an Associate Editor for *SPE Journal*.

Society of Petrophysicists and Well Log Analysts
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2021 SPWLA Awards – Call for Nominations

Every year, the SPWLA awards individuals who have made impactful contributions to petrophysics, well logging, and general formation evaluation. We invite you to nominate your colleague, mentor, or mentee who has made strides to excel within the SPWLA as a technical expert or outstanding volunteer. Both SPWLA's members and former members are eligible for awards, except those serving on the international Board of Directors or the Awards Committee.

Nomination Procedures

In order to nominate an individual, please complete the online nomination form and include the following:

- Brief biographical sketch of the nominee
- List the top three technical or service achievements of the nominee (e.g., best publications, patents, books, etc.; volunteer efforts in the SPWLA, projects initiatives, extended service to the petrophysical community, etc.)
- A concise statement summarizing why the nominee should be selected for an award

Additional information to strengthen the support of your Award nomination can be enclosed (PDF preferred) as a separate file, including but not limited to:

- Extended biographical description or CV: education, work experience, society memberships, and service to professional societies
- List of technical publications and patents in, or contributions to, well logging, petrophysics, or other areas of formation evaluation
- List of service to the SPWLA, including offices held, committee assignments, meeting organization, or SPWLA programs (e.g., Distinguished Lecturer Program), etc.
- List of other relevant industry, academic, or public service activities in sister societies and the community
- Letters of support from peers and colleagues

Deadline

Please submit your nomination(s) on or before February 15, 2021 for recognition at the SPWLA 2021 Annual Symposium.

How to Submit Nominations

Nominations must be submitted online.

https://www.spwla.org/SPWLA/Membership/Award_Nomination_Forms.aspx

Please consider making a nomination to the Board of Directors by suggesting only those who have a record of service to our Society.

If you have any questions, contact the Membership Department at membership@spwla.org.

Selection Process

The SPWLA Awards Committee recommends the final nominees, and the Board of Directors confirms the winners. Awardees will be notified before the end of March 2021.

Jesús M. Salazar, PhD

2021 Awards Committee Chairman

SPWLA Past President

As the COVID-19 pandemic grinds on into its ninth month, we are all weary of self-quarantining and social distancing. Though recent vaccine developments are promising, we're not quite yet in the home stretch. The pandemic has altered life as we know it, distancing us not only from colleagues, family, and friends but also from the rest of the world. Those who enjoy traveling to different places and countries, and even those who prefer to be homebodies, have found themselves yearning for escape.

While we can't yet safely travel and explore the way we used to, there *are* still ways to experience the wonders of the world and different cultures without having to leave home or hop into a car, bus, train, or plane.

Use Your Imagination

The New York Times has a recent series called *Around the World at Home* that invites the reader to "channel the spirit of a new place." It offers recommendations on what to listen to, cook, read, watch, and even museums and other places that you can visit virtually so that you're immersed in the rich traditions of such places as Tokyo, Paris, and Dakar.

Book a Trip

Reading is an enriching and rewarding way to travel when you are unable to leave home. A truly good travel or fiction writer can immerse the reader in a place so that one can almost smell the soil or that local fish market. Here are a few top recommendations:

- Great Railway Bazaar–Paul Theroux
- Lands of Lost Borders–Kate Harris
- A Year in Provence–Peter Mayle
- She Explores: Stories of Life-Changing Adventures on the Road and in the Wild–Gale Straub
- World Walk–Steven Newman

(And, let's not forget about supporting our local indie bookstores during this pandemic. Visit bookshop.org when you want to buy a book and choose your favorite indie bookstore to receive the full profit off your purchase.)

Go on a Virtual Trek / Tour

Did you know that Google Maps offers "virtual treks" that allow you to climb to the Everest base camp or visit the pyramids of Giza? Check them out here:
https://www.google.com/maps/about/treks/#/grid

Google Arts & Culture also offers interactive experiences and immersive museum tours of such famous places as the MASP in São Paulo or The British Museum in London:
https://www.google.com/maps/about/treks/#/grid

Finally, Travel Zoo has gathered the best virtual visit resources to famous National Parks like the geological wonder that is Western Newfoundland's Gros Morne National Park and the Kenai Fjords National Park in Alaska: https://www.travelzoo.com/ca/blog/preview/69FC2CE6-1F63-48E2-B3DE-507755CB8011/

Discover New Cultural Experiences—Virtually

This year, Airbnb launched a plethora of virtual experiences—like meditation with a Japanese Buddhist Monk or an authentic Italian cooking class—that will help satisfy that craving for variety and unique experiences.

Support Your Favorite (or new-to-you) Singers/Musicians/Bands

Traveling to attend crowded concerts, standing shoulder to shoulder and swaying in unison with other enthusiasts and fans, may have to wait until late 2021… but in the meantime, be sure to continue supporting your favorite singers, musicians, and bands. Many musicians offer their talents through livestream concerts, from Andrea Bocelli and Carrie Underwood to Billie Eilish and Sam Smith. You can find these by following your favorite artist on social media or check out the continually updated list of upcoming livestream performances on Billboard.com. (One of my favorite artists, Ron Pope, has been hosting weekly "LIVE! and In Sweatpants" concerts almost since the beginning of the pandemic.)

Make a plan to "attend" a concert on Zoom with your friends, and sing and dance the night away in your living room!

Yes, 2020 has been challenging in many ways, but I like to think that these challenges have allowed us to find new and creative ways to remain connected to the world at large and the people around us. Staying home, right now, is staying safe, but you can still experience the excitement of new travel experiences from the comfort of your couch or back-porch hammock. May your armchair travels be rich and rewarding, and may 2021 be a healthier, brighter year for us all!

An Interview with Dr. Ashwani Dev: The Efficacy of Data-Driven Methods in Petrophysics and Geophysics

Dr. Ashwani Dev, Digital and Data Science Officer, Halliburton

Dr. Ashwani Dev is a technology-focused leader in the oil and gas sector with over 15 years of strong active research and development focus on products and solution strategies. Dr. Dev has worked on various upstream exploration technical problems ranging from conventional to unconventional. Ashwani Dev is actively working in the areas of Big Data, machine learning, and IIoT solution space. He actively scouts startups that are innovative and/or disruptive in the oil and gas space. As the Digital and Data Science Officer with Halliburton, he is responsible for advising and consulting E&P company executives and management on value-driven digital and machine-learning initiatives opportunity identification and execution in the US and Canada. In this role, he also focuses on developing IP to stay ahead of the competition and identify the prime use cases for the fast-paced emerging technology. He received a PhD degree from the University of Texas at Dallas and a master's degree in geophysics from the Indian Institute of Technology, Roorkee.

Share with us your background in data science, data analytics, and machine learning.
I am the Digital and Data Science Officer for Halliburton Landmark. My primary role is to oversee and lead the execution of the digital and data science strategy with a focus on business efficiencies and transformation. Before this role, as Big Data Strategy manager, I established and led the Big Data Center of Excellence (CoE) at Halliburton as part of the Halliburton Digital Solution strategy. Big Data Center of Excellence has been the foundation of big data and machine-learning practice at Halliburton. Now, Halliburton has a data-driven practice globally. Over the years, we have developed machine-learning expertise and solutions in all areas of the E&P life cycle.

Describe a few interesting use cases of data-driven methods in petrophysics, geophysics, or physics in general. What use cases clearly demonstrate the need and the efficacy of data-driven methods?
Facies classification, automated perforation depth determination, automated image-log-based facies interpretation. In geophysics, automated interpretation-while-processing, play-based seismic attribute calculations are some interesting use cases for data-driven methods. In drilling, automated drilling path trajectory optimization in subsalt areas.

Problem statements, which are data rich, are the most applicable candidates for data-driven methods, such as well-log interpretation, seismic interpretation, property modeling, history matching, and production forecasting. Also, applications in drilling, completions, and production with rich data history can significantly impact operational efficiencies and minimize the HSE risks.

What are a few limitations of data-driven methods that you have encountered? How to overcome these limitations? What problems cannot be solved using data-driven methods? I like to expand more on this point. We tend to think in a very polarized manner about data driven vs. physics-based. Historically, we model a behavior (anticlines, pinchouts, geological model, reservoir model, etc.), then we compare with the observations. This has been the primary source of our collective learning and scientific process. Now, we have been comparing our observations against a single model or a set of models, but observational data has been the same. In a way, we have been learning about nonlinear systems by linearizing them with some kind of approximation (like seismic inversion or any kind of inversion problem).

Now, the information that we have been collecting about different systems (well logs, drilling, production, etc.) has not been analyzed in large volumes collectively, either hardware limitations or software limitations or both. The important aspect to note is that systems have not changed (fields, reservoirs, artificial lifts, depositional settings, etc.), and the information collected about them has not fundamentally changed. Actually, we have been continuously collecting data and information about our fields, assets, and reservoirs. For example, the notion of seismic data or well-log data and derived interpretation has not changed. We are still using seismic crews and wireline or LWD tools to collect information. So, system and data collection methods are still the same or improved but essentially the same for data-driven and first principle methods. The main evolution has been about technology solutions that can store, handle, and mine a large amount of data, along with improved optimization algorithms at a scale that can solve a particular task with efficiency.

The data collection systems are causal; thus, the collected data needs to be rationalized during the analysis because humans need rationalization to make decisions. Any problem, whether related to well logs, drill bits, drilling operation, completions, production, or HSE, must be theoretically explainable and rationalized and but not necessarily ONLY through a previously known model. This is where we have a technical mental block. Large amounts of subsurface and operational data are used to discover meaningful patterns to improve a business process, operation, or innovate a certain technical workflow. First principle models are always part of the data-driven solution, but it is not the only model. This is the reason that terms like hybrid data-driven approaches are getting traction.

There have been two limitations of data-driven methods—1) data quality and 2) incomplete problem definition. As an industry, we talk a lot about data quality, but our data quality standards are inconsistent and subpar. There are no data quality standards but domain rules; even those are not well established or adopted. Universities have been

teaching petroleum engineering and geosciences curriculum for decades. Still, we do not have a data quality course, though they all publish papers with industry-provided data and complain about data quality. The second challenge with data-driven methods is incomplete problem definition. In many cases, a project starts in isolation without stakeholder involvement or incomplete problem definition.

The main aspect to consider like any scientific exercise—what is the problem definition, why it requires a data-driven approach, what kind of impact solution will create (business or scientific or strategic), and do we have the needed data? In our experience, when basic questions are not answered, the probability of failure is very high.

When is a physics-based approach more effective and efficient than a data-driven approach? How does domain knowledge influence data science? Share some examples with us.

When a problem is known, obvious, and the sample size is small, then there is no need for a data-driven approach. Domain knowledge plays a big role because it is very important to have context about the data. For example, if someone is working on a natural language processing problem like nonproductive time estimates from the drilling reports, then the domain expert becomes an important link between the data scientist and the problem definition. The drilling language is not a proper English language; thus, it requires a domain person to explain and decipher the context.

How can domain experts and technical personnel incorporate data-driven methods in their day-to-day work? Should data-driven implementations be done by data scientists and data engineers, or can such implementations be accomplished by domain experts without the need of data scientists/engineers?

At present, applications are increasingly embedding machine learning to improve the petrophysical and other domain workflows. Thus, domain experts are going to interact with smart systems more closely. It is happening organically, like in the past moving pen and paper interpretation to digital workstations, so they require upskill training to understand these systems. There is a role to be played by everyone—domain expert, data engineers, data scientist, and software engineers. Let's be honest, a person hired as a geologist is expected to perform as a geologist, and the same goes for other domains. Data engineering, data scientist skills can have some overlap, but job responsibilities are different in general. My ideal team is a combination of skillsets together—domain expert/business user, data scientist, data engineer, and cloud application architect/developer. For scaling the solution, you will need a bigger and diverse team.

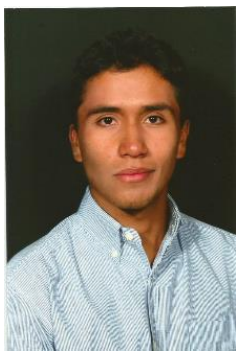
It is easy to create a proof-of-concept, data-driven method. Please share with us some challenges when scaling up these methods for real-world deployment.

When going from POC to a production solution, it requires full software development and deployment knowledge in an enterprise environment. When scaling up, the software implementation model, data pipeline, model management, and continuous improvement needs consideration. The user and user experience become the core strength of the application. All the principles of a design-thinking approach are used during the scaling process. Thus, scaling a POC for an enterprise consumption requires different organizational skills and team efforts. It is a 24/7 environment, and users have different levels of expectations.

SPWLA YP group would like to introduce the new members on our team. Our wish was always to include a wider variety of backgrounds and regions in our group, and we are delighted to introduce our new members who represent this goal and bring an ample set of skills that we are sure will help us to improve our deliverables to you:

Ishank Gupta is currently working as a reservoir engineer/data scientist at Pioneer Natural Resources in Irving, Texas. He holds a BS degree in petroleum engineering from the University of Petroleum and Energy Studies based in India. Ishank also earned his MS and PhD degrees in petroleum engineering from the University of Oklahoma. His research interests include rock physics, petrophysics, reservoir engineering, and machine learning. His thesis and dissertation work focused on unconventional shales: understanding source rock potential, improving hydraulic fracture efficiency, and understanding/developing frac hit mitigation strategies. His research work resulted in 20 journal publications, and he also presented his work at 11 conferences. Ishank has also served as a peer reviewer for more than 20 international journals. He is currently serving as an assistant editor for the *Interpretation Journal* of the Society of Exploration Geophysicists (SEG).

Mostafa Haggag Amin is a freelance petrophysics consultant and instructor. He has worked for the Gulf of Suez Petroleum Company (GUPCO) from 1982 to 1997 as a wellsite geologist and senior petrophysicist. Thereafter, Mostafa worked as a petrophysicist for ADCO (UAE) from 1997 to 2017, where he was appointed as Petrophysics subject matter expert (SME) and Career Ladder committee chairman for many years. He also served as a coach and mentor to junior geoscientists and petrophysicists. Mostafa is an SPE Certified Petroleum Professional (SPEC) and has co-authored several SPE and SPWLA publications. While in Abu Dhabi, he was part of the team that established the local SPWLA Chapter and volunteered as their technical program coordinator for 15 years. He earned an MBA degree from Chifley Business School of Australia and is a certified life coach from Transformation Academy, USA.



Luis Navarro is a senior petroleum engineering student (UNAM, Mexico City) with knowledge in data science and machine learning (ML). He is currently working on his thesis on ML applications in petroleum engineering topics and MWD. His motivation for joining the organization is to learn from the most experienced professionals within the SPWLA.

SPWLA SECOND BOARD OF DIRECTORS MEETING

REMOTE (DUE TO COVID IN-PERSON CANCELLATION)

OCTOBER 20, 2020

President James “Jim” Hemingway called the meeting to order at 8:02 a.m. In attendance, President-Elect, Katerina Yared, Vice President Finance, Secretary and Admin, Doug Patterson, Vice President Technology, Tegwyn Perkins, Vice President Education, Fransiska Goenawan, Vice President Information Technology, Lin Liang, Regional Director N. America 1, Robin Slocombe, Regional Director Asia/Australia, Jennifer Market, Regional Director Middle East/ Africa, Nelson Suarez, Regional Director N. America 1, Kelly Skuce, and Executive Director, Sharon Johnson. Absent: Vice President Publications, Mayank Malik, Regional Director Latin America, Fernando Maia, Jr., and Regional Director Europe, Craig Lindsay

Action Item: All regional directors reach out to the chapters to offer wider exposure of their local events to the entire international membership.

Action Item: Doug Patterson to research the expenses of the *Petrophysics* printed copy project and report back to the board with his opinion on continuing to offer printed copies to the membership.

Action Item: Jennifer Market to put a survey to the Students “What SPWLA Can Do to Improve Services for Students”

Action Item: Kelly Skuce to get pricing for PheedLoop conference software.

Meeting adjourned: 11:39 a.m.

Respectively Submitted by
Sharon Johnson
Executive Director

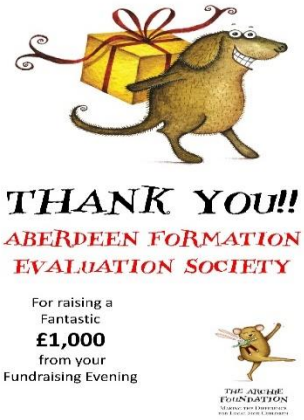
Next BOD meeting: December 15, 2020, SPWLA Business Office Houston.

ABERDEEN CHAPTER
(Aberdeen Formation Evaluation Society, AFES)

General News

Recent Events

11 November—Technical Talk: Nixan Saxena & Matthias Appel, Shell (SPWLA Distinguished Speaker): *Digital Rock Technology For Accelerated Core Analysis: Application Envelope And Required Corrections.* During the introduction to this talk, AFES was delighted to donate £1000 to the Archie Foundation Sick Children's charity (www.archie.org), which was received by Katie Kyle on behalf of the charity.



18 November 2020—Technical Talk: Beverley Heeley & Tim Farrar, Read Cased Hole: *Deploying the World's Most Compact Ultrasonic Evaluation Tool To Evaluate Casing And Cement Integrity In Slimhole Conditions.*

2 December 2020—Technical Talk: Dr. Christophe Germay, Epslog: *Early Trans-Disciplinary High-Resolution Core Logs to Steer the Core Analysis Workflow.*

9 December 2020—Technical Talk: Vassilios Kelessidis (SPE Distinguished Lecturer): *Drilling Optimization Revisited–How Close Are We to Drilling Optimization While Drilling (Dowd)?*

AFES would like to express its gratitude to all speakers for 2020. We (the AFES Committee and Membership) have really enjoyed hosting and listening to the depth and variety of speakers over 2020, despite the current issues. Details (slide pack and video links) of recent presentations are available for download via the "archives" section of the AFES website (www.afes.org.uk).

Note that all recent talks have been web-based. This has actually offered significant advantages over real events as it enables a much broader audience to attend. Additionally, sourcing speakers is also much easier due to the lack of any geographical constraints. However, obviously, the downside to this is the lack of any face-to-face interaction and that all-important networking. Currently, our hands are, of course, tied, but we do hope to resume to some format of web and physical technical talks into 2021.

Unfortunately, because of current circumstances, AFES will not be hosting the much-loved Christmas Pub Quiz. We'll look to bring something similar during spring 2021, so watch this space!

Upcoming Events

AFES is looking forwards to 2021 when hopefully we'll be able to resume somewhat normally with physical events. We have a lot to catch up on, such as field trips, social gatherings, workshop tours, plus

the Christmas Pub Quiz. In the meantime, AFES's calendar is filling up with quality Technical Talks. Let's hope 2021 brings something approaching normal.

Our initial offerings for 2021 are:
13 January 2021—Technical Talk: Paul Craddock, Slb (Spwla Distinguished Speaker)
10 February 2021—Technical Talk: Alberto Ortiz, Ypf S.A. Argentina (Spwla Distinguished Speaker)

Please check our website (www.afes.org.uk) or contact Greg Blower @ President@afes.org.uk for details. We are also available on Facebook and LinkedIn.

Seminar—AFES plans to hold a Full-Day Seminar in April 2021. The exact layout of the seminar is still to be decided (web-based or part physical, part web-based?), but the call for abstracts is out. The theme of Porosity/Permeability is purposefully broad, aimed at capturing talks from across the various disciplines. Please contact Stephen Morris (seminars@afes.org.uk) for abstracts submission and more details.

Devex 2021—Devex is a two-day conference focusing on UKCS exploration and production, produced jointly by SPE, PESGB, and AFES. The Devex 2021 call for abstracts is now out. More details and how to submit an abstract are available at www.devex-conference.org.

Finally, AFES would like to extend thanks to our sustaining annual sponsors:





ARGENTINA CHAPTER

General News

The new board for the Argentina Chapter was updated on 1 June 2020, and it is shown in the following table:

FUNCTION	NAME	COMPANY	EMAIL
President	Marta D'Angiola	Weatherford Arg.	marta.dangiola@weatherford.com
Past-President	Angel Lopez	Baker Hughes	angel.lopez@bakerhughes.com
Secretary	M. Lorena Caviglia	Pan American Energy	mcaviglia@pan-energy.com
Technology	Paula Bedini Claudio Naides Pablo Pateti Pablo Saldungaray	YPF-Tecnología Pampa Energía Wintershall DEA Schlumberger	paula.c.bedini@ypftecnologia.com claudio.naides@pampaenergia.com pablo.pateti@wintershalldea.com PSaldungaray1@slb.com
Events	Luz Rodriguez	Total Austral	luz.rodriguez@total.com
C. Rivadavia Delegation	Eduardo Breda	Consultant	bredaedu@hotmail.com
Neuquen Delegation	Nicolas Carrizo	YPF S.A.	nicolas.carrizopaez@ypf.com
Mendoza Delegation	Ariel Buchini	YPF S.A.	ariel.r.buchini@ypf.com
Buenos Aires Delegation	Guillermo López Peze	Pan American Energy	GLopezPeze@pan-energy.com
Web page:	Pablo Uzzo	GIFlow Consultant	uzzito@hotmail.com

New board for Argentine Chapter since 1 June 2020.

The **Technology/Innovation Team** will have the responsibility of promoting and keeping our community informed of new technological advances and innovation. These high-level senior professionals work daily in this area. For this reason, they will contribute novel themes and ideas to be developed and disseminated through the different proposed activities.

Our **regional delegates** will be responsible for improving the visibility of our chapter in the different bases of the interior of the country and for achieving a close relationship with the educational communities and universities. They will receive and transmit the concerns, uncertainties, ideas, and proposals of these professionals from all over the country, and we will work on addressing the findings.

The importance of the **support team**, including the secretary, events agent, and web page and diffusion agents, is immense. They will be responsible for all the activities and technical events that arise in the chapter and make sure that they are organized successfully.

Due to the global pandemic, we are developing different formats for our activities. We must be creative and take this situation as a great opportunity for professional and personal growth.
https://www.linkedin.com/in/spwla-cap%C3%ADtulo-argentina-1994211bb/

Recent Events

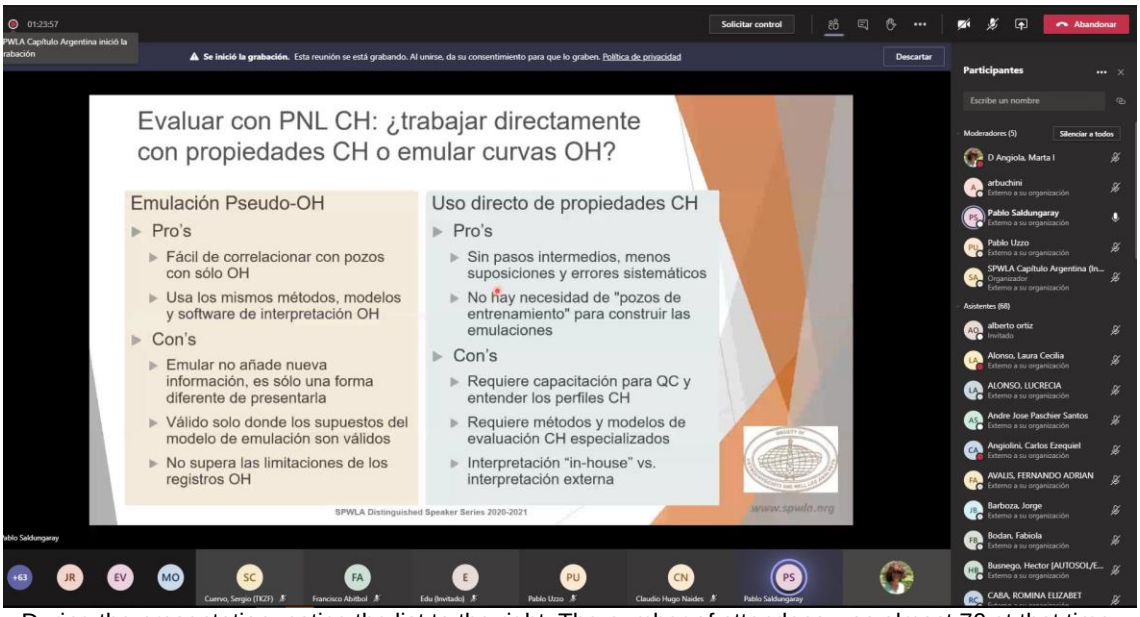
18 December 2020—We met for a 2020 Balance Meeting to show and evaluate the progress and activities achieved during this period. We began mapping out our goals for 2021 and gave our best "virtual wishes" of MERRY CHRISTMAS AND HAPPY NEW YEAR!

November and December 2020—Open Talks Cycle. In this context of open talks, we offered two different talks. At the beginning of November 2020, we invited Pablo Saldungaray (Schlumberger) to present this talk. Pablo is our new Global Distinguish Speaker for 2020–2021, and he is a very active collaborator with the Argentina Chapter.

Global Distinguished Speaker Pablo Saldungaray.

Marta D'Angiola, our Chapter President, opened the event with a few words to remember Carolina Budic, YPF petrophysicist, who died exactly one year ago. Pablo Uzzo, an active member and part of the board of the Argentina Chapter, was the moderator of the talk, managing the question and answer section. Unfortunately, due to the pandemic, these are the only pictures we can share. Carolina studied at La Plata University, and we can see her in the next picture (second line, on the left).

Screenshot of the moment to remember Carolina Budic, when she studied at La Plata University.



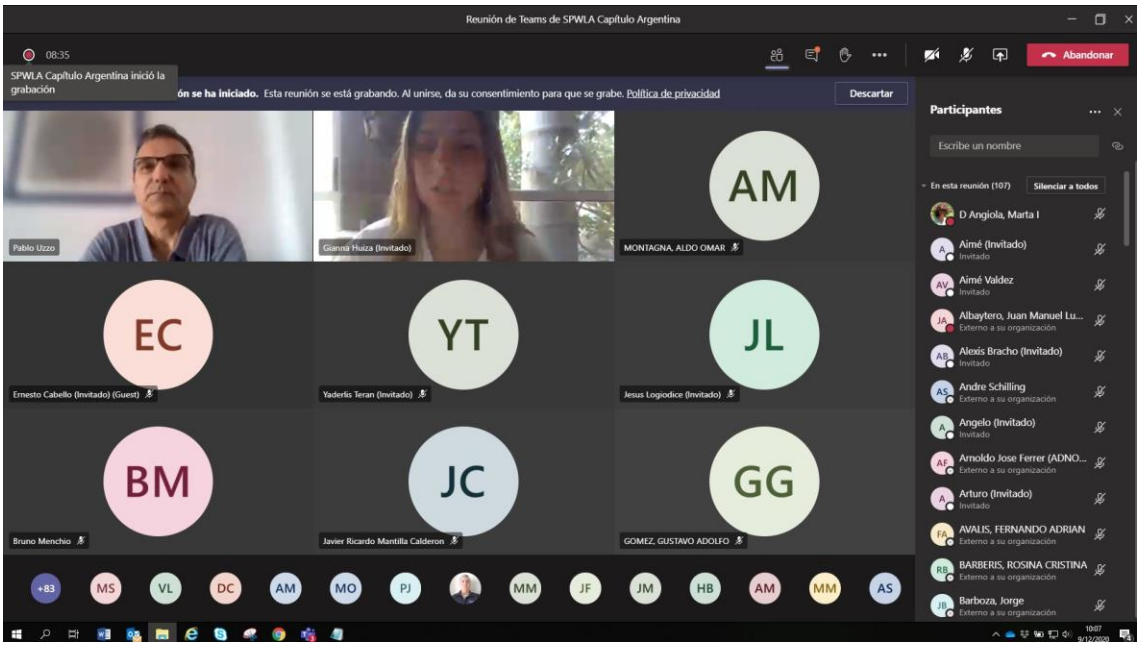
During the presentation, notice the list to the right. The number of attendees was almost 70 at that time.

The video of the event was uploaded to a private Youtube Channel and shared with our members through the following link: https://youtu.be/YLdbJT1bJRM.

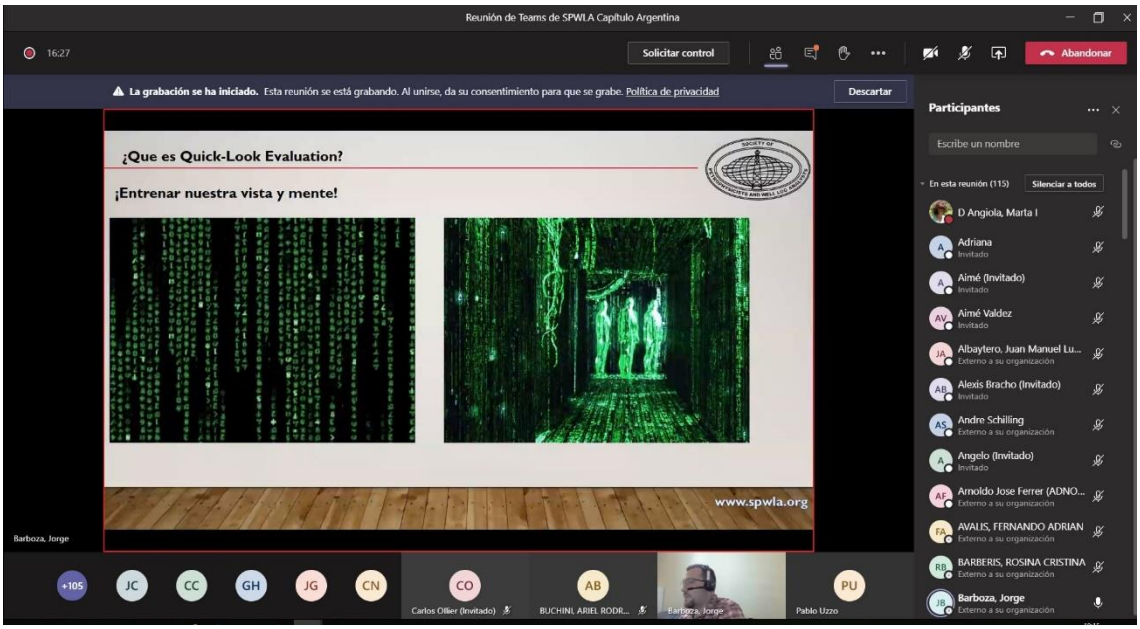
In December 2020, we performed the last talk of the cycle. It was focused on students, new petrophysicists, and other non-petrophysicists who needs to use proper and correct curves from logs based on quick-look evaluation.

Flyer of the last talk of the cycle, performed by Jorge Barboza (Emerson).

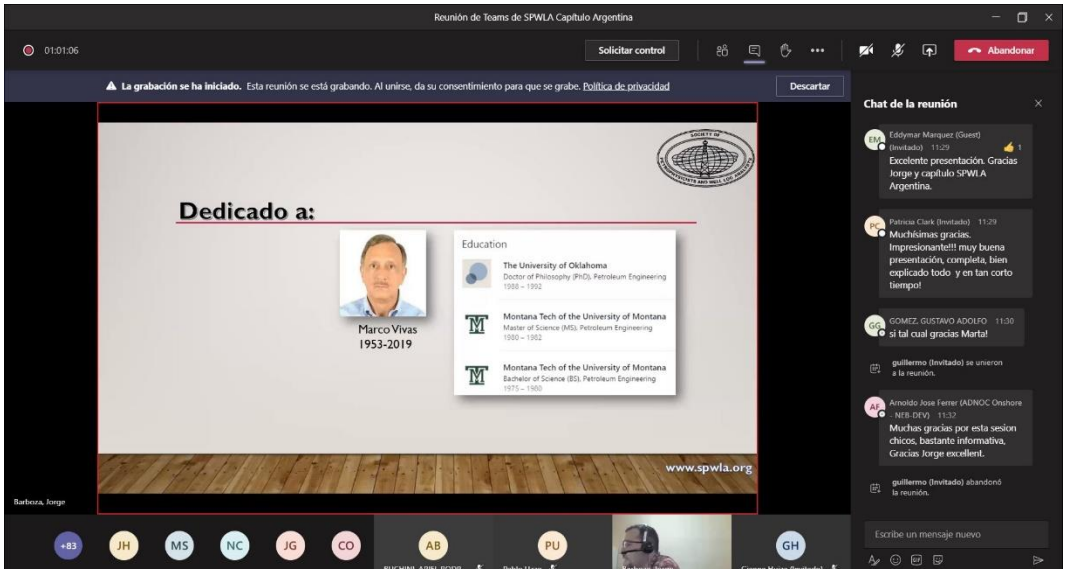
We had almost 160 attendees at the meeting, and several questions were asked. Jorge answered them with professionalism. Most attendees were from Argentina, Brazil, Colombia, Mexico, and Venezuela, but we had some from the USA, UK, and Belarus.



Presenters Pablo Uzzo (active Chapter member) and Gianna Huiza (student U.N.L.P.) introducing the talk.

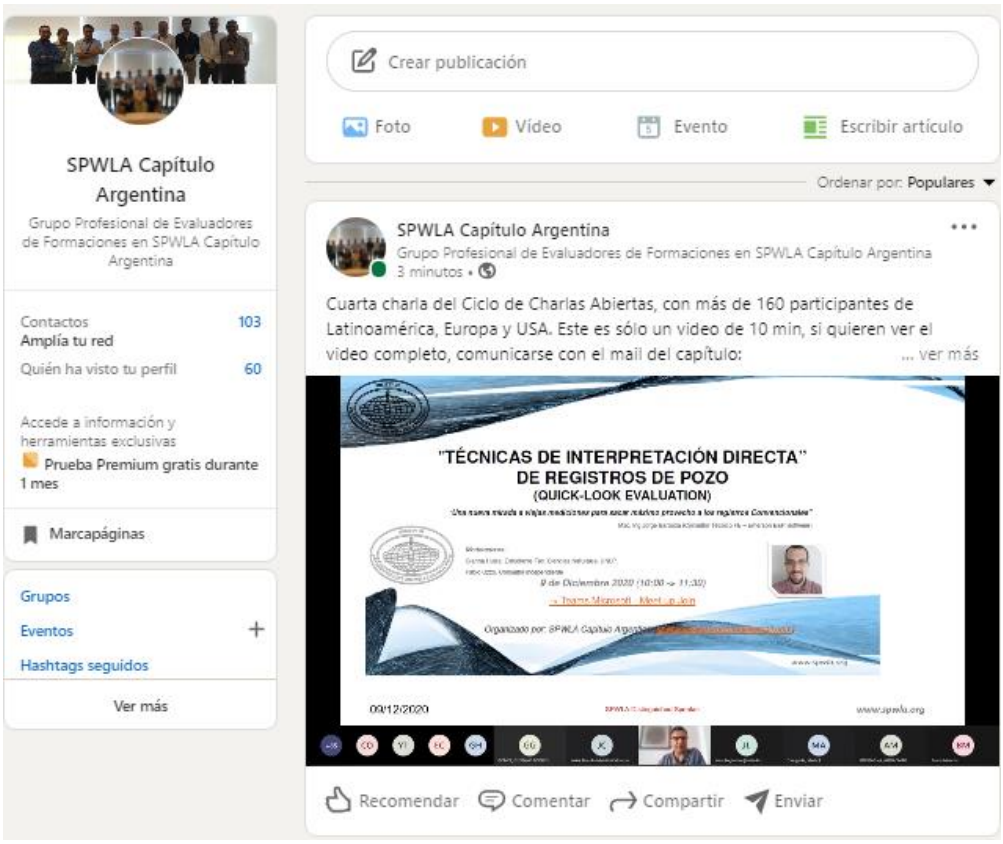


Excellent analogy described by Jorge on Matrix vs. Quick-Look Evaluation.



Jorge Barboza's tribute to his teacher Marco Vivas.

A video of this event was uploaded to a private Youtube Channel and shared with our members through the following link: https://youtu.be/X3vwe5iPIYo.



Follow the Argentina Chapter on LinkedIn:
(https://www.linkedin.com/in/spwla-cap%C3%ADtulo-argentina-1994211bb/)

Some Useful Statistics and Membership Campaign for Argentina Chapter

In the first three talks held during 2020, almost 75% of the attendees belonged to oil companies, 22% to service and consulting companies, and only 3% student participation. This fact made us reflect that although we have a good flow of students in our database, we did not get their attention. So, the chapter realized that the activities we offer are not of interest to the student segment.

For this reason, we decided to provide a training activity that will capture the interest of students. In order to be more efficient in our call, we reached out to university contacts to replicate the call. Our goal was to achieve 10% student participation.

We started a campaign in order to normalize Argentina Chapter memberships. We encouraged professionals who were interested in our activities to enroll in one of the categories SPWLA offers. The results were amazing, and today, we have 72 Argentina Chapter Affiliate Members.

We will go on “recovering” members!

Upcoming Events

HAPPY HOLIDAYS TO ALL! We will meet again next February 2021 after a well-deserved summer vacation.

BANGKOK CHAPTER

General News
Thailand is holding live meetings. Please visit: https://www.spwla.org/SPWLA/Chapters_SIGs/Chapters/Asia/Bangkok/Bangkok.aspx for information on upcoming meetings. Email: bangkok.chapter@spwla.org.

2020 Chapter Committee Members

President	Andrew Cox
Technical Coordinator	Numan Phettongkam
Treasurer	Sirinya Maykho
Web Coordinator	Alexander Beviss
Secretary	Ronald Ford
Sponsorship	Ryan Lafferty
Student Liaison	Kruawun Jankaew
Member at Large	Greg Heath

Recent Events
November 2020—Live Meeting & Webinar
Special Interest Sponsored Event: Wireline Logging Conveyance–Insights and Advances in Technology. We had two presentations with good attendance at our first live meeting since the outbreak of COVID-19. Both presentations were simultaneously broadcast as a live webinar.

- Wireline Express, the Wireline Logging Tools Conveyance Optimization Service, presented by Regis Vincent (Petromac Ltd.)
- Advances in Wireline Logging Conveyance Technologies, presented by Ronald Ford (Gaia Earth Group)

December 2020—No meeting was held during the holiday season.

Ronald Ford

Regis Vincent

Upcoming Events
January 2021—Live Meeting: Topic TBD
February 2021—Live Meeting: Topic TBD

Please check the local website for updates on our upcoming meetings: https://www.spwla.org/SPWLA/Chapters_SIGs/Chapters/Asia/Bangkok/Bangkok.aspx.

SPWLA Bangkok Asia Pacific Regional Conference 2020: The SPWLA Regional Conference AP-2020 has been canceled, with plans to reschedule after international travel can safely be made. All registration fees are being refunded. Please contact us at ap2020@spwla.org if you have any questions. We thank all of the sponsors and delegates for their patience and understanding as we work through these difficult times.

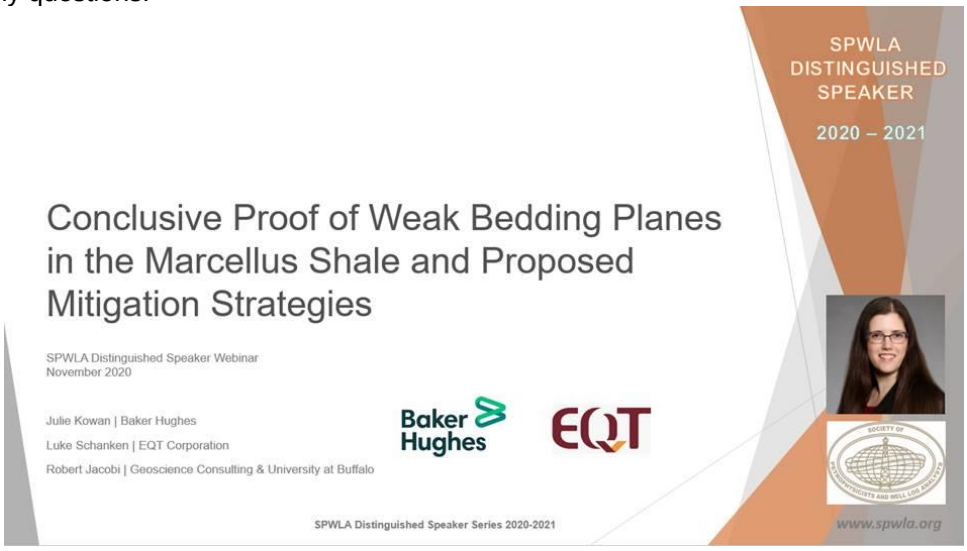
BOSTON CHAPTER

General News

We continue to prepare for the 62nd SPWLA Annual Symposium to be hosted by Boston in 2021. As recently announced, the symposium will again be held in an online format. The Boston Chapter and the symposium organizing committees are in frequent contact, despite the disruptions from the COVID-19 pandemic, and we are laying the groundwork for the big event. The most up-to-date details on the symposium will be posted at https://www.spwlaworld.org/welcome-to-boston2021/.

Recent Events

13 November 2020—The Boston Chapter hosted **Julie Kowan** (Baker Hughes) for an online presentation of her Distinguished Speaker lecture, *Conclusive Proof of Weak Bedding Planes in the Marcellus Shale and Proposed Mitigation Strategies*. The talk was engaging, well attended, and provoked many questions.



Julie Kowan (Baker Hughes) presented her lecture in a webinar for the Boston Chapter on Nov. 13, 2020.

Several members of the Boston Chapter are in the midst of Distinguished Speaker tours, with recent presentations by **Paul Craddock**, **Julie Kowan**, and **Jeffrey Miles** to various chapters across the international SPWLA community.

Additionally, the latest issue of *Petrophysics* journal has a paper by Boston member Jeff Miles and co-authors L. Mossé and J. Grau: *Formation Chlorine Measurement from Spectroscopy Enables Water Salinity Interpretation: Theory, Modeling, and Applications*, *Petrophysics* **61**(6) (Dec 2020).

Upcoming Events

15 January 2021—**Iulian Hulea** (Shell) will present his lecture, *From Homogeneous to Heterogeneous Rocks–Understanding Fundamental Controls of Hydrocarbon Saturation: Perching Effects*. To register, please go to: https://register.gotowebinar.com/register/7920372004586638352.

SPWLA general members and Boston-affiliate members are invited to browse our chapter website http://boston.spwla.org for up-to-date information on our mission and events, including event details and registration.

BRAZIL CHAPTER

General News

The online format of our monthly meeting, since August, has been a success. The number of participants has increased substantially, and questions are encouraged to be done orally, resulting in a very good interaction despite the physical distance. The monthly meeting occurs every third Tuesday of the month, at 4 pm (Brazil), in online format (Teams platform). Anyone wishing to participate is welcome. We also post chapter updates and meeting links on our Facebook page (fb.me/SPWLABrazil) and on our LinkedIn page (SPWLA Brazil Chapter)—check us out. For further information about the chapter, please contact our secretary, Jesus Salazar (Jesus.Salazar3@bakerhughes.com).

Recent Events

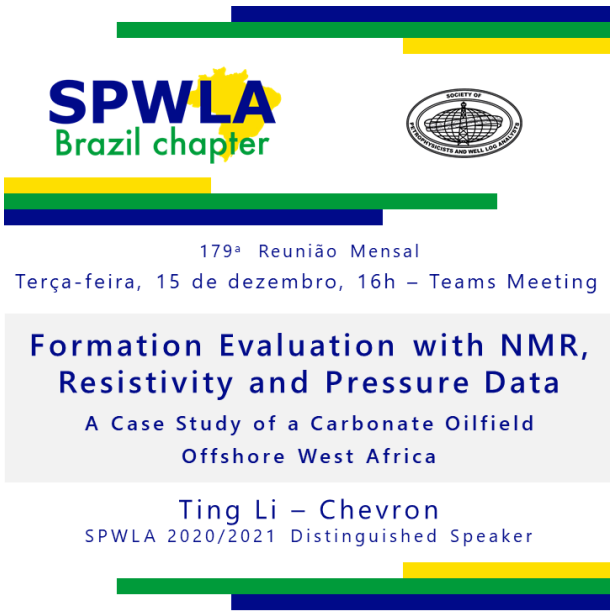
20 October 2020—We had Pablo Ariel Aiza, senior petrophysicist (Baker Hughes), speak about "Integrated Petrophysical Analysis Using Advanced Wireline Technology, Accurately Established Key Formation and Fluid Properties, Leading to Confident Planning of an Appraisal Field."

Invitation to our October monthly meeting of SPWLA Brazil Chapter.

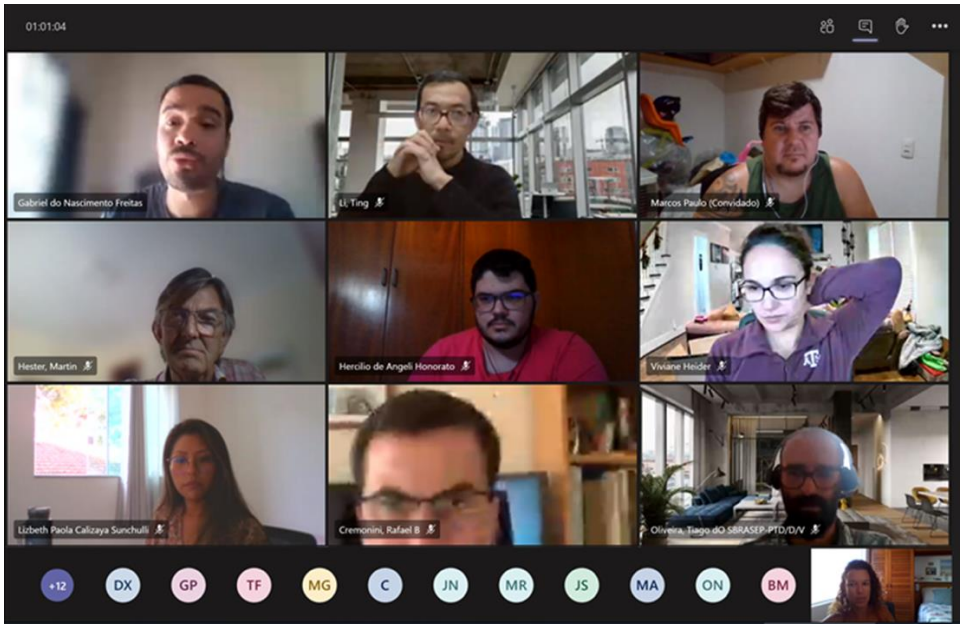
17 November 2020—Wael Soliman, formation evaluation and reservoir solutions regional advisor in the Middle East, North Africa, and Asia Pacific (Halliburton), talked about “Formation Sampling in Ultra-Low Mobility Reservoirs With the Aid of Targeted Stimulation.”

Invitation to our November monthly meeting of SPWLA Brazil Chapter.

15 December 2020—Our monthly meeting guest was Ting Li, senior petrophysicist (Chevron) and SPWLA Distinguished Speaker (2020–2021), with the presentation entitled “Formation Evaluation with NMR, Resistivity and Pressure Data–A Case Study of a Carbonate Oilfield Offshore West Africa.”



Invitation to our December monthly meeting of SPWLA Brazil Chapter.



Screenshot showing some participants of December monthly meeting.

Besides the monthly meetings, we had our colleague and SPWLA Brazil Chapter member, Ronaldo Herlinger Jr., who was nominated SPWLA Distinguished Speaker (2020–2021), present the work "Petrological and Petrophysical Implications of Magnesian Clays in Brazilian Pre-Salt Deposits" at an SPWLA Distinguished Speaker Webinar–December 2020, held on December 3 in two sessions. Together with Ronaldo, the co-author and SPWLA Brazil Chapter President, Gabriel do Nascimento Freitas, also participated in the Q&A session.

SPWLA December Webinar screenshot with Ronaldo Herlinger Jr (left) and Gabriel Freitas (right), hosted by Fransiska Goenawan (center).

Upcoming Events

19 January 2021—Different from previous years, in 2021, the SPWLA Brazil Chapter will not have a break in monthly meetings. We expect to host Lucas Abreu Blanes de Oliveira, senior petrophysicist (Petrobras), and currently Students and Young Professionals Director of our chapter, presenting the work "Synthetic Geochemical Well Logs Generation Using Ensemble Machine-Learning Techniques for the Brazilian Presalt Reservoirs."

DENVER WELL LOGGING SOCIETY

General News

Lunch meetings are continuing to be virtual for the time being at no cost to attend; however, you must register prior to attending. Typically, the lunches are every third Tuesday of the month; however, please check the calendar at http://dwls.spwla.org. We are working on adding the webinar reservation link to our website. Please continue to check the website for registration and upcoming talks. In the meantime, the DWLS monthly newsletters will include the webinar reservation link. If you are currently not receiving the monthly newsletter, please email vp_membership@dwls.spwla.org to get added to the monthly newsletter email distribution.

Recent Events

November Talk

17 November 2020—SPWLA Distinguished Speaker Julie Kowan (Baker Hughes) presented "Conclusive Proof of Weak Bedding Planes in the Marcellus Shale and Proposed Mitigation Strategies." The talk was well attended.

Julia Kowan (Baker Hughes)

DWLS Winter Social

8 December 2020—DWLS had its annual Winter Social. The event was virtual this year to be safe with the pandemic.

December Talk

15 December 2020—Tom Bratton (Tom Bratton, LLC) presented "How to Use Dipole Sonic Velocities in Quantitative Petrophysics: Moving Beyond the Wyllie and Raymer-Hunt-Gardner Equations." The talk was well attended.

Upcoming Events

January Talk

19 January 2021—SPWLA Distinguished Speaker Nikita Seleznev (Schlumberger) will present "Determining Water-Filled Porosity of Tight Oil Reservoirs With a New Interpretation Method for Dielectric Dispersion Measurements." In order to attend the talk, you must register prior, which you can do at the link: https://attendee.gotowebinar.com/register/1598991583486169360. The DWLS monthly newsletters also include the webinar reservation link. If you are currently not receiving the monthly newsletter, please email vp_membership@dwls.spwla.org to get added to

the monthly newsletter email distribution. We are working on adding the webinar reservation link to our website. Please continue to check the website for registration and upcoming talks http://dwls.spwla.org.

Nikita Seleznev (Schlumberger)

February Talk

16 February 2021—SPWLA Distinguished Speaker Luis Quintero (Halliburton) will present "Reservoir Pressure in Tight Gas Formations From a Pressurized Core System." In order to attend the talk, you must register prior to the event, which you can do at this link: https://attendee.gotowebinar.com/register/4834879592798702096. The DWLS monthly newsletters will include the webinar reservation link. If you are currently not receiving the monthly newsletter, please email vp_membership@dwls.spwla.org to get added to the monthly newsletter email distribution. We are working on adding the webinar reservation link to our website. Please continue to check the website for registration and upcoming talks http://dwls.spwla.org.

April Workshop

The DWLS Spring Workshop will be held online this April 2021. We are recycling our last year's topic, which was canceled due to the pandemic: "Horizontal Petrophysics: Applications and Interpretation Techniques in Reservoir Characterization." We are working on getting the registration link online. Please continue to check our website for registration details: http://dwls.spwla.org.

DUTCH PETROPHYSICAL SOCIETY–NETHERLANDS

Recent Events

3 December 2020—The Dutch Petrophysical Society had its last virtual seminar of 2020. The theme of the seminar was focused on "Petrophysical Applications of NMR."

The first presentation, entitled Delineating the Geothermal Structure and Flow Properties in a Sub-Horizontal Well With the Use of NMR With Sonic and Image Logs in a Multiphysics Approach, was presented by Chiara Cavalleri and Erik Wielemaker (Schlumberger) and featured a logging application in a geothermal injection well drilled in the Paris Basin. NMR transverse relaxation measurements (T2) were deployed to characterize the carbonate pore architecture for injectivity and used in conjunction with sonic measurements to assess bed continuity. The well was unusual in being highly deviated and had the longest injection zone of any geothermal well drilled to date.

In the first case, though the pore space architecture was complex, only a single fluid (water) was present, while the second talk, by Harry Xie (Corelab), entitled "Investigation of Physical Properties of Hydrocarbons in Unconventional Mudstones Using Two-Dimensional NMR Relaxometry," focused on laboratory NMR measurements of cores from unconventional plays, for which water, heavy hydrocarbons at various stages of maturity, and gas all contributed. The T2 measurement yields an indication of the size of the pores, while the longitudinal NMR relaxation measurement

T1 depends on the mobility of the fluids. Both were used to produce T1-T2 maps of the samples. In this way, water in micropores could be distinguished from hydrocarbons, and an assessment of the producibility of the play could be made based on hydrocarbon maturity. The measurements were also used to examine the effect of flushing the core with oil on shifting any moveable hydrocarbons.

Both talks had previously been presented as part of the SPWLA Distinguished Speaker Series, the first for 2020–2021 and the second for 2019–2020.

HOUSTON CHAPTER

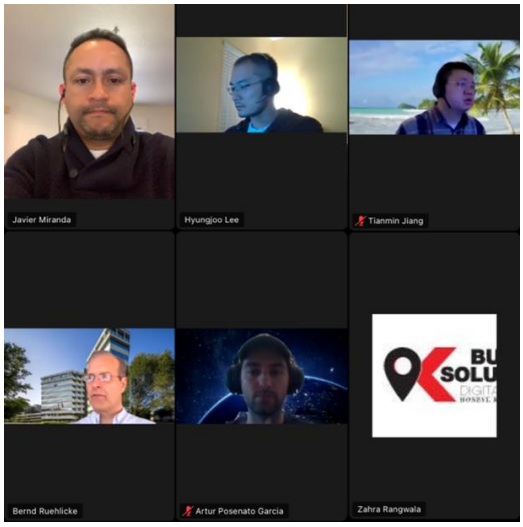
The SPWLA Houston Chapter Board of Directors recently gathered to organize upcoming activities, review the ongoing website renewal, and discuss other matters. This was a virtual meeting, as you could expect from these days, as shown in the screenshot. We exchanged ideas to bring new initiatives to Houston metro area members.

Our chapter had elections in October, and our new board is as follows:

- President — Javier Miranda (DeGolyer and MacNaughton)
- Vice President North Side — Jeff Crawford (Halliburton Energy Services)
- Vice President Downtown — Hyungjoo Lee (BHP)
- Vice President Westside — Bernd Ruehlicke (Eriksfiord, Inc.)
- Treasurer — Ronke Olutola (BHP)
- Secretary — Hans Wong (Halliburton Energy Services)
- Editor — Artur Posenato Garcia (Chevron ETC)
- Webmaster — Tianmin Jiang (ConocoPhillips)

SPWLA Houston also would like to take a moment to thank and honor our outgoing board members. You have made a difference through your dedication and continued support of SPWLA Houston activities:

- VP Northside: Fransiska Goenawan (Halliburton Energy Services)
- Treasurer: Tianmin Jiang (ConocoPhillips)
- Editor: Christopher Jones (Halliburton Energy Services)
- Webmaster: Amir Rangwala



SPWLA Houston Chapter Board of Directors Meeting.

We started working for our members on several fronts with a very dynamic team that is poised to do our best to bring valuable activities to SPWLA members in the Houston area. We also acknowledge those who voted for their participation in the election, as well as those volunteering to serve in our chapter. We encourage those who were not elected to participate in other activities.

COVID-19 has challenged our industry in many ways, but at the same time, it has triggered several opportunities and new forms to interact and reach out to you as a society. One example is now we can reach more members with our local chapters and offer abundant free learning opportunities as a professional society. Our virtual seminars have been well attended. Our most recent webinar was in October about “Reservoir Integrity and Understanding Flow Beyond the Wellbore” by Andrey Yurchenko. Thanks to Andrey and his team at TGT for volunteering to make this possible. We also acknowledge Fransiska Goenawan, SPWLA VP of Education, for her help in setting up this event and other webinars we have organized this year.

Andrey Yurchenko, senior well log analyst (TGT Diagnostics)
and our most recent speaker.

Finally, we want to announce our website has been completely revamped. It will go live in January, and we hope you like the changes and new features included that will make it easier and quicker to modify or announce activities. In general, it will allow us to have a better interaction with our members and manage the chapter. Please stay tuned and check it out!

LONDON CHAPTER
London Petrophysical Society (LPS)

General News
The LPS held its AGM on 17 November 2020 when the following committee was voted into place for 2021:

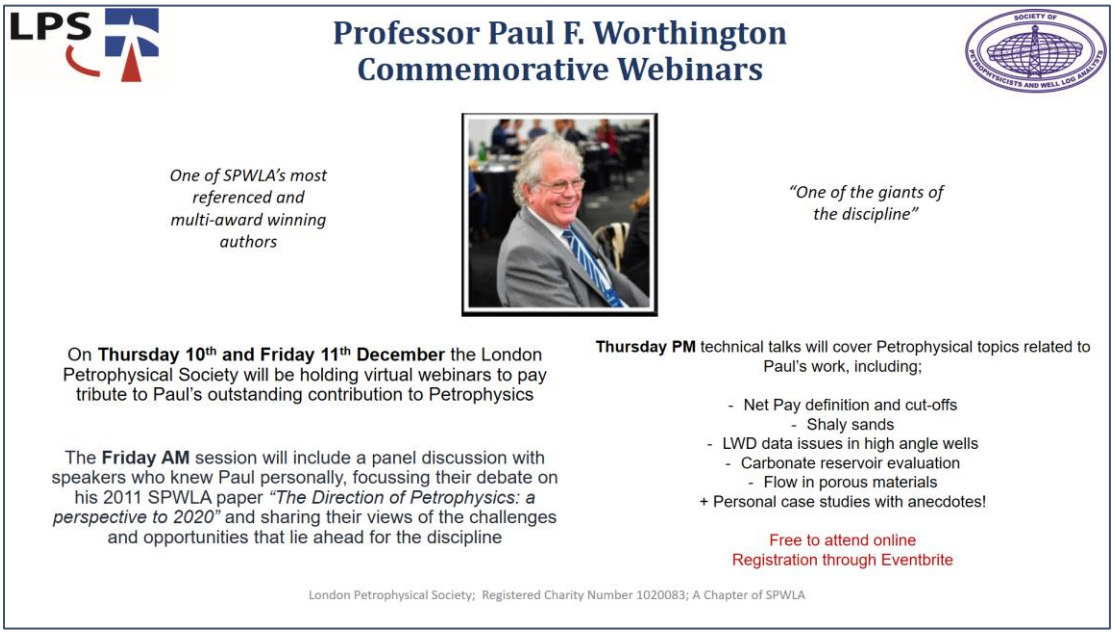
President	Ian Draper
Vice President Technology	Rebecca Holyer
Treasurer	Henry Mortley
Secretary	Matt Jameson
Past President	Dawn Houliston
Vice President Publications & Website	Rubi Rodriguez
Vice President Arrangements	David Baldwin
Vice President Data Protection and Membership	Rebecca Lee
Vice President External Liaison	Rob Leveridge
Vice President Sponsorship	Jack Willis
Newsletter editor	Ruza Gagnon
Technical editor	Kanad Kulkarni

Departing the 2020 committee was Mike Millar, who has served in many positions on the committee over more than 10 years. Mike also contributed to the hugely successful 2018 SPWLA Symposium, which was held in London.

Recent Events

Following the AGM was a talk by Pale Blue Dot, which enlightened the audience on Carbon Capture and Storage with a CO2 Primer and the Acorn Project Overview.

10 and 11 December 2020—The LPS hosted a Commemorative Webinar covering the petrophysics work of Professor Paul F. Worthington. The webinar was very widely attended by a global audience. The first day was a discussion of papers related to his work. The second was a panel discussion ably chaired by Brian Moss covering the direction of petrophysics. The LPS would like to thank all those who contributed to making this a successful event.



Slide used to advertise Professor Paul F. Worthington.

Upcoming Events

21 January 2021—The LPS will again host an annual New Technology Day. This is again offering free entry for those interested in listening to presentations on the latest relevant technology.

MALAYSIA CHAPTER
Formation Evaluation Society of Malaysia (FESM)

General News

FESM, a local chapter of Formation Evaluation Society of Malaysia, is based in Kuala Lumpur. Technical meetings are held on the fourth week of each month. For meeting information, please visit our chapter website at www.fesmkl.com.

Recent Events

26 November 2020—Ryan Lafferty, independent senior consultant petrophysicist, delivered a virtual technical talk with the topic of "An Integrated Petrophysical Evaluation to Address Low-Contrast Pay in the Gulf of Thailand." The very similar resistivity characteristic of the reservoir in Bualuang field where low-contrast resistivity intervals occur in water-bearing sands, oil pay, and even shales. This is particularly challenging when targeting thin 2.5 mTVT, oil-bearing sandstones in a

fluvial/deltaic system. Ryan illustrated the workflow used to assess the potential causes of unexpected resistivity profiles in the Bualuang field. This included the use of both conventional petrophysical models and more advanced resistivity-inversion modeling and the implications for field volumetric evaluation and completion optimization.

NMR SIG

General News
The NMR SIG had a virtual board meeting on October 9, 2020 and decided to make changes to the executive committee because some board members are no longer working in the petroleum exploration industry. The board has also agreed to hold an election for new executive members in spring 2021 and to hold a SIG conference in 2021. All SPWLA members are welcome to volunteers to serve the SIG board and to organize the SIG conference.

The current executive committee of the NMR SIG is as follows:

President:	Harry Xie (Core Lab)
Vice President & Secretary:	Ron Bonnie (ConocoPhillips)
Treasurer:	Tianmin Jiang (ConocoPhillips)

At Large Members:
Jinhong Chen (Aramco)
Paul Connolly (University of Western Australia)
Abraham Simanjuntak (Pertamina EP)

PERMIAN BASIN CHAPTER

General News
We will start back up with our monthly meetings scheduled for the fourth Tuesday of the month in January 2021. Our meetings will continue to be virtual through the GoToMeeting platform until we are able to offer in-person events again.

Recent Events
27 October 2020—Our last talk of 2020 was given by Linda Abbassi (Openfield Technology). The title of the talk was "Flow Regime Diagnostic in Producers and Injectors using Ultrasonic Doppler Sensors."

Upcoming Events
Monthly Meetings:

Date	Speaker	Title
January 26, 2021	Luis Quintero	Reservoir Pressure in Tight Gas Formations from a Pressurized Core System
February 23, 2021	Jeffrey Miles	Formation Chlorine Measurement from Spectroscopy Enables Water Salinity Interpretation: Theory, Modeling, and Applications
March 23, 2021	Ali Tinni	Electrical Properties of Shales
April 27, 2021	Alberto Ortiz	Petrophysical Evaluation of the Vaca Muerta Formation in the Last 5 Years of Unconventional Shale Play Development (YPF)
May 25, 2021	Mayank Malik	Maximizing Value from Mudlogs: Integrated Approach to Determine Net Pay

SAUDI ARABIA CHAPTER

Recent Event:

27 October 2020—SPWLA Saudi Chapter conducted its monthly technical event virtually on the subject of "Formation Sampling in Ultra-Low Mobility Reservoirs With the Aid of Targeted Stimulation." The presenter was Mustapha Berkane, formation testing and sampling SME (Saudi Aramco). By working together with service providers, Mustapha presented an innovative method to address the sampling difficulties in thin and low-permeability carbonate reservoirs by using targeted acid stimulation with a wireline formation tester tool. He demonstrated how collaboration and repurposing existing technologies delivered an innovative and cost-effective solution, which is especially important in the current low oil price environment. This event was well attended with more than 100 participants.

Upcoming event:

Additional interesting events are in the planning stages, including a workshop series on Coring and Core Analysis to be held in Q1 2021. Please stay tuned to our chapter website for details (spwla-saudi.org) and event announcements. Happy New Year!

SOUTHWEST CHINA CHAPTER

Recent Events

18–21 October 2020—Chapter members attended the 2020 Annual Meeting of the Chinese Geoscience Union, and several awards are granted to the chapter members. The 2020 Annual Meeting of the Chinese Geoscience Union (CGU) was held in Chongqing. The conference attracted nearly 4,000 geoscience workers and more than 80 exhibitors. More than 20 members of the chapter attended the event. Professors Hua Wang and Yaojun Wang were invited to give talks in the Borehole Geophysics session and Artificial Intelligence in Geosciences sessions.

Group picture of the chapter members during the 2020 CGU.

Professor Hua Wang from the University of Electronic Science and Technology of China, the Chapter President, was awarded the prestigious "Fu Chengyi Youth Science and Technology Award" by the

Chinese Geophysical Society. The award was established in 1997 to recognize young Chinese geophysicists who have made outstanding achievements in the field of geophysics in the past five years. It is the highest award granted to young scholars by the Chinese Geophysical Society.

Fu Chengyi Youth Science and Technology Award Presentation Ceremony. Professor Wang Hua is the third from the right.

“Chen Zongqi Excellent Papers” Ceremony. Professor Jianping Yan is second from the right.

Professor Jianping Yan from the Southwest Petroleum University, a member of the executive committee of the Southwest China Chapter, was awarded the “Chen Zongqi Excellent Papers” award. Professor Yan’s paper on “Nuclear Magnetic Resonance T2 Spectrum Multifractal Characteristics and Pore Structure Evaluation,” published in *Applied Geophysics* in 2017, was selected as one of the best papers in the past five years published in both the *Chinese Journal of Geophysics* and *Applied Geophysics*.

13 November 2020—Professor Xuan Feng of Jilin University was invited by the Southwest Chapter of SPWLA for a talk on “Data Analysis for the Fully Polarimetric GPR.” The talk was given on the campus of the University of Electronic Science and Technology of China.

30 November 2020—Professor Xinyao Yin of China University of Petroleum (East China) was invited by the Southwest Chapter of SPWLA for a talk on “Demand for Oil and Gas Resources and Development Direction of Exploration Geophysics.” The talk was given on the campus of the University of Electronic Science and Technology of China.

1 November 2020—The Chapter co-hosted academic events for the ceremony of the 62nd anniversary of Southwest Petroleum University. The Southwest China Chapter co-hosted series of academic events with the State key laboratory of oil and gas reservoir geology and exploitation and SPE Chengdu section for the ceremony of the 62nd anniversary of Southwest Petroleum University.

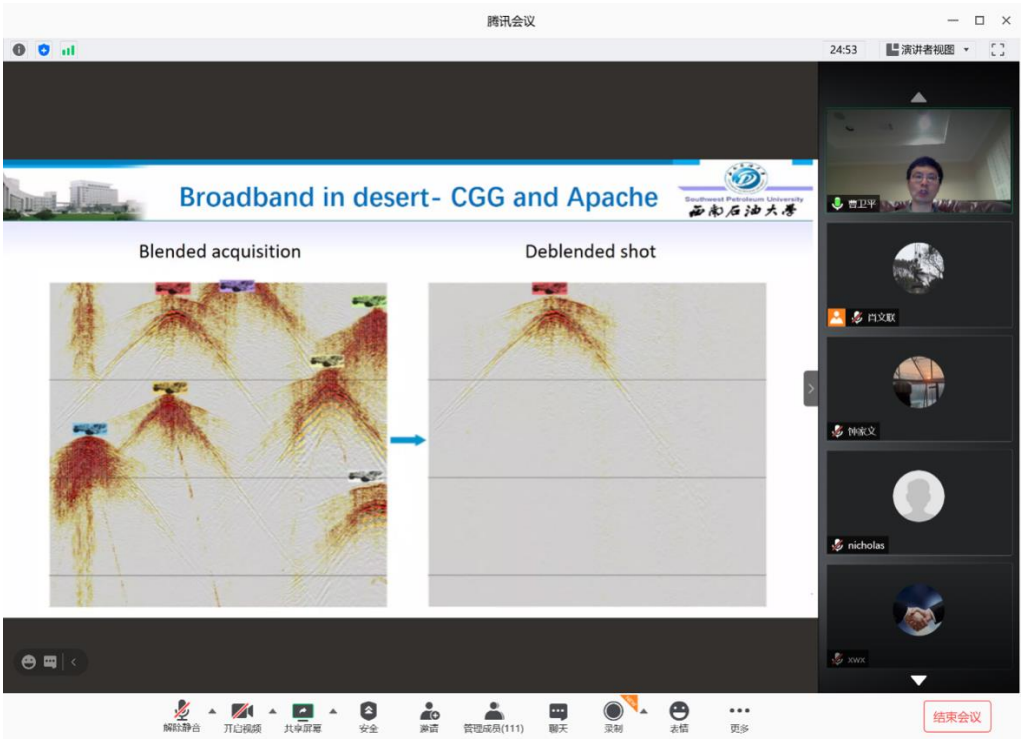
Several scientists were invited for talks through online conference software. Speakers included Professor Hongbo Zeng from the University of Alberta, Professors Guorong Wang, Weiping Cao, Huang Liu, and Dr. Ruihan Zhang from Southwest Petroleum University, Dr. Anqing Fu from China Petroleum Pipe Engineering Technology Research Institute, and Dr. Tianhao Wu from Rice University.

Professor Hongbo Zeng gave a talk on “Interactive Interactions and Interactive Science With Applications in Petroleum.” In the talk, Professor Zeng introduced the history and current situation of colloidal interface science, the origin and development trend of nanotechnology and nanomechanics, and also the measurement technology and instrument principle of intermolecular and surface interface nanomechanics. Based on the case studies by his research team, such as emulsion interaction and surface wettability in petroleum and chemical engineering, Professor Zeng pointed out that there are extensive intermolecular and interfacial interactions in many engineering processes, and therefore, the related research in this field is of great significance for guiding practical engineering problems and designing molecular controllable materials.

Professor Guorong Wang’s talk was called “Hydrate Solid-State Fluidization Mining Technology Based on Double-Layer Coiled Tubing.” He introduced that there are lots of challenges during the large-scale exploitation of nondiagenetic hydrate in shallow seabeds, such as collapsing, collapse, and disorderly decomposition, and no experimental equipment and mature development equipment. His research group proposed a new type of downhole crushing recovery separation backfill for shallow nondiagenetic gas hydrate in seabeds.

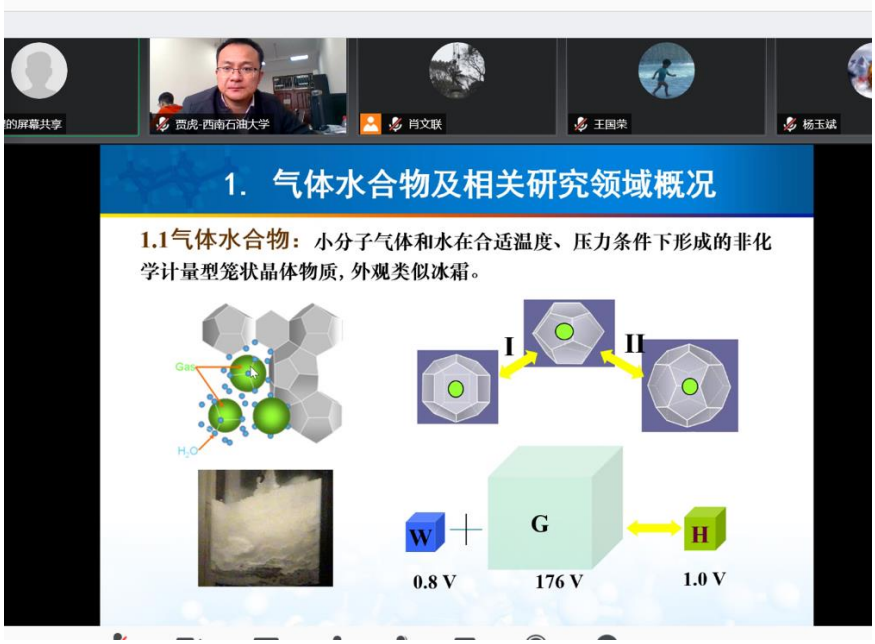
Professor Guorong Wang’s talk on “Hydrate Solid-State Fluidization Mining Technology Based on Double-Layer Coiled Tubing.”

Professor Weiping Cao gave a talk on “Recent Advances in Seismic Acquisition: New Tools for New Challenges.” He pointed out that technique demand on seismic data acquisition becomes higher and higher due to the increasing difficulty of oil and gas exploration and low oil prices. He introduced the new technologies that have made remarkable achievements in the international petroleum industry in recent years from two aspects of instrument equipment and theoretical algorithm, including a new nodal geophone system, onshore broadband acquisition technology, compressed sensing acquisition technology, distributed acoustic sensing technology (DAS), etc.



Professor Weiping Cao’s talk on “Recent Advances in Seismic Acquisition: New Tools for New Challenges.”

Dr. Anqing Fu gave a speech entitled “Corrosion Protection Status and Engineering Research Progress of Oil and Gas Fields and Long-Distance Pipelines in China.” He introduced the evaluation system of casing material selection based on the whole life cycle of oil and gas wells and shared the application of the evaluation system in the West-East National Gas Transmission Project where the case studies included high-grade long-distance pipeline engineering, and typical cases of high-voltage AC and DC stray current corrosion of long-distance pipeline are given.



Associate Professor Huang Liu's talk on "Gas Hydrate and Related Fields."

Dr. Ruihan Zhang, a postdoctoral scholar at the Southwest Petroleum University, gave a speech on "Research on the Simulation Method of Complex Fracture Network Fracturing Wells in Shale Gas Reservoir." He introduced the research status of shale gas reservoir development, the outstanding difficulties, and technical challenges. He also presented the latest research results from his group, which covers the theory of multiscale (micro nanopore, macropore, small-scale natural fracture, artificial large fracture), strong nonlinear seepage theory, the establishment of comprehensive seepage model, the characterization of complex fracture pattern of multistage fractured horizontal wells in shale gas reservoir, and the integrated simulation technology of fracturing dynamic coupling. At the same time, based on the current research progress, he envisaged the next key research points on shale gas reservoir seepage and development performance numerical simulation.

Dr. Zhang Ruihan's speech on "Research on the Simulation Method of Complex Fracture Network Fracturing Wells in Shale Gas Reservoir."

Upcoming Events

15 January 2021—The 2020 Annual meeting of the Southwest China Chapter will be held at the Southwest Petroleum University in Chengdu. Four invited talks will be given, and the 2021 plan of the chapter will be discussed.

TULSA CHAPTER

General News

Tulsa Chapter continues to hold virtual meetings during the pandemic on the regular monthly schedule.

Recent Events

12 November 2020—Dr. Yulun Wang, Oklahoma State University, gave an online presentation of the "Characterization of the Caney Shale, Southern Oklahoma," an introduction to the early stages of a DOE-NETL-sponsored project led by OSU researchers on the geology and geomechanical properties of the Caney shale. The talk emphasized the geological facies aspects of the Caney and set the stage for a subsequent presentation on the results of a recently acquired wireline log suite in the test well. Evidence of continued interest in the smaller mid-continent shale reservoirs was indicated by the number of the virtual seminar attendees from other chapters.

Upcoming Events

20 January 2021—Dr. Ali Tinni, University of Oklahoma, will present "Electrical Properties of Shales" as part of the chapter's virtual seminar series that this year focuses on regional shale reservoirs and their petrophysical properties. The presentation is based on a large laboratory data set collected at OU's Unconventional Shale consortium on the Woodford and Wolfcamp reservoirs. Dr. Tinni is on the faculty of the Petroleum Engineering department at OU.

UFRJ SPWLA STUDENT CHAPTER

General News

UFRJ SPWLA Student Chapter has officially changed its leadership. Now, Rodrigo Azambuja has been named as president and Amanda Mendes Bezerra as vice president. We have also created a new role to better organize better communication services. At the moment, we have 14 active members supporting the development of the chapter.

Student Chapter Members:

- **Marketing Team:** Caio Guedes, Iago da Costa, Lucas Nogueira, and Shirlene Barros.
- **Logistic and Events Team:** Gabriel Ferraz, Isabelle Freitas, and Vinicius Jorge.
- **Comunication:** Sarah Aleixo

Board Members:

- President: Rodrigo Azambuja
- Vice President: Amanda Mendes Bezerra
- Treasurer: Sofia D'Orsi, Bruno Valle (assistant) and Teresa Mourão (assistant)
- Secretary: Maria Eduarda Verbicário

Recent news

Recently, we had a meeting with the New Latin American Regional Director, Bruno Menchio. We had a great conversation and updated him on our activities, observations, and necessities. It was a pleasure to be in direct contact and to receive some advice from an experienced professional. Besides that, new and old members of the chapter have had the opportunity to develop their knowledge with some software, such as Excel (including VBA) and Power BI, in a partnership with Motim Quebre o Giz again. This partnership has been very beneficial for our team. Along with this, the chapter has been active on social media for the

last two months, focusing on Instagram posts about important information related to petrophysics methods and presalt.

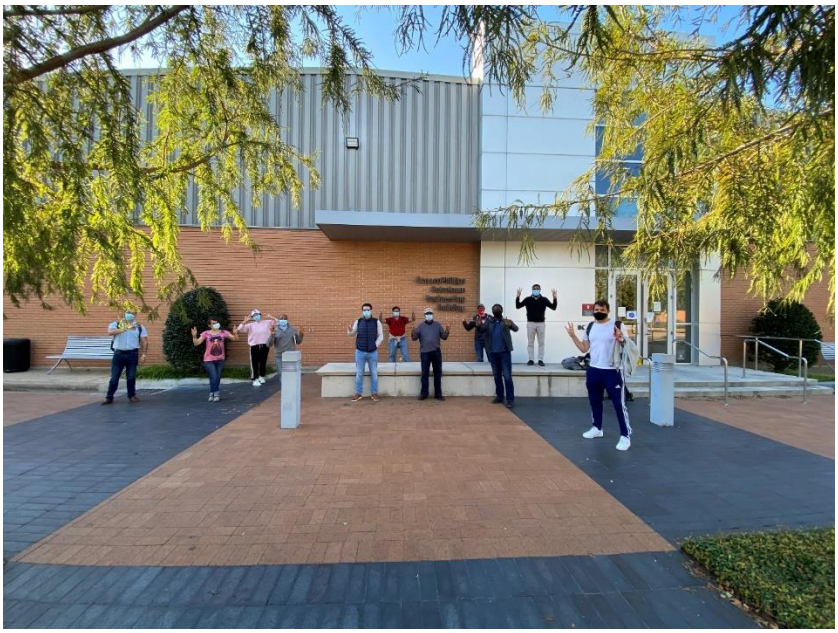
Upcoming Events

Our next event is with Mr. Wesley Miquelino from Integration Consulting to discuss job application processes and job interviews. Also coming up is a weeklong event with three other chapters from the UFRJ to talk about environmental subjects. Besides that, members of UFRJ SPWLA have been extremely interested in increasing and acquiring knowledge about petrophysics subjects and skills. Thereby, we intend to bring professionals to develop and improve this knowledge among the members of our team. In addition, our goal for next year is to keep an active social media page and continue the partnership with Motim Quebre o Giz while also remaining in contact with the SPWLA UIS Student Chapter.

UH STUDENT CHAPTER

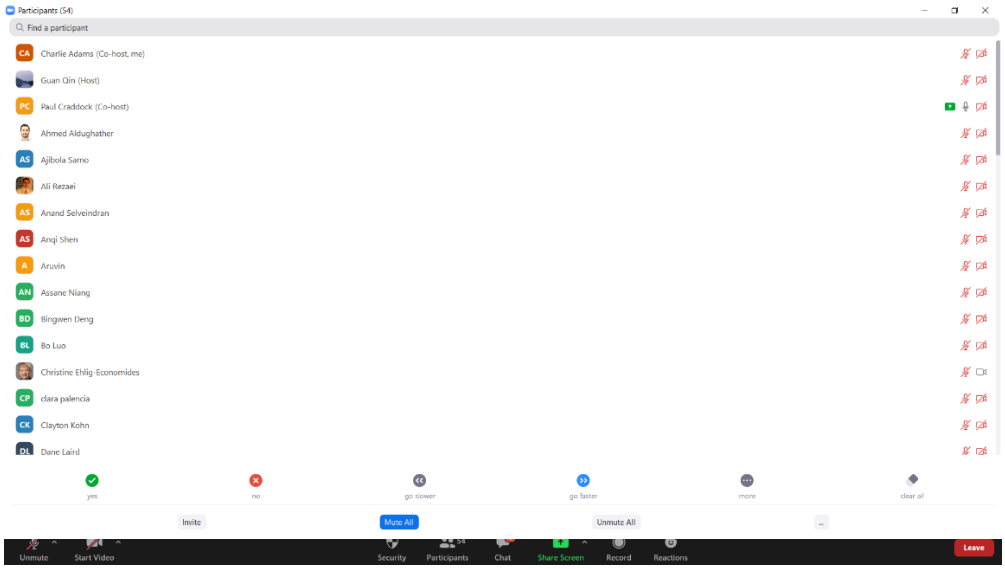
Recent Events

31 October and 14 November 2020—**Techlog Fundamentals/Geomechanics full-day training lectures.** The UH SPWLA sponsored a Techlog Workshop using the ERP PC Lab, along with a simultaneous remote learning Zoom session (23 students total). The first day's lecturing went over the following Techlog fundamentals: Techlog windows, main dock windows, data import/export, and log view. The second day's lecture involved a petrophysics module exercise with provided well-log data and covered the following: precomputations, flags, Pickett plot, lithology determination, petrophysics evaluation, and workflows.



29 October–20 November 2020—**Houston Food Bank Food Drive.** Between 29 October and 20 November, the UH SPWLA and SPE co-sponsored a Thanksgiving food drive for our local Houston Food Bank. Food Bank boxes were placed in the two main engineering buildings, and a third was put at the UH ERP. In all, approximately 150 lb of food were collected and $80 donated to the PayPal/Venmo accounts.

13 November 2020—**Distinguished Lecturer** Mr. Paul Craddock conducted a remote lecture for the UH graduate students' Friday seminar series on the following topic: *Thermal Maturity-Adjusted Log Interpretation (TMALI) in Organic Shales*. Approximately 52 students/faculty attended.



10–11 December 2020—Help Sessions for Petrophysics and Well Logging Final Exams (respectively). Help sessions were conducted for Professor Myers' Petrophysics and Professor Hathon's Well Logging classes covering the following subjects: Pore Combination Modeling (dual porosity systems), Pickett Plots, Saturation from Capillary Pressure Data, Thomas-Stieber Plot, Hingle Plots, Waxman-Smitts, Archie's Equation, Gas Properties, and Electrical Resistivity of Reservoir Rocks.

UNIVERISTY OF OKLAHOMA STUDENT CHAPTER

General News

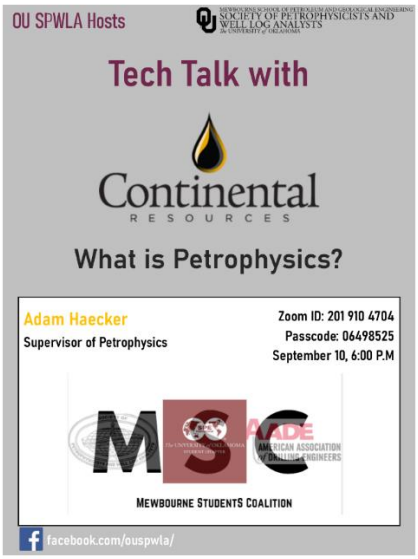
Due to complexities generated by the ongoing COVID-19 situation, all OU student societies events were moved online. To enhance the connection with students in this new atmosphere, a temporary coalition was formed connecting SPWLA, SPE, and AADE into a larger group named MSC (Mewbourne Students Coalition). All petroleum-related events at OU in 2020 are being and will be held through the MSC.

New OU Mewbourne Students Coalition (MSC) connects SPWLA, SPE, and AADE into a larger group as a strategy to overcome the difficulties associated with online events.

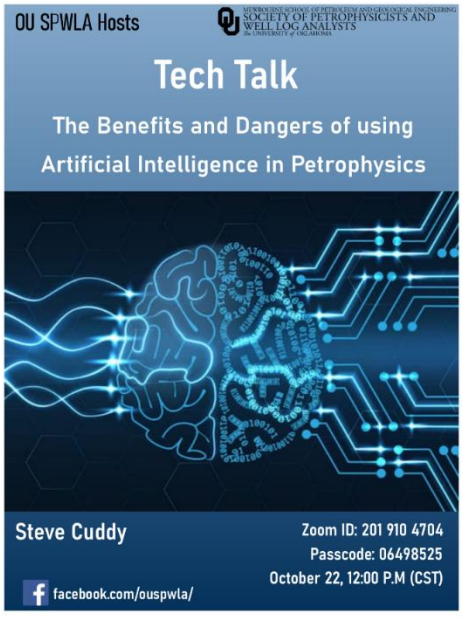
Recent Events

During the fall semester, the OU SPWLA Student Chapter promoted an interesting online Tech Talk presented by Adam Haecker, senior petrophysicist and supervisor of Petrophysics (Continental Resources) in Oklahoma City, OK. In this talk, various aspects of petrophysical science were discussed, including formation evaluation, core analysis, what we actually measure, and applications. As our first online event, it had a significant attendance of 35 attendees.

Our second Tech Talk was presented by Dr. Steve Cuddy, a consultant petrophysicist with 45 years of industry experience in petrophysics. In this talk, the benefits and dangers of using artificial intelligence in petrophysics were discussed. Using case studies, this presentation described several successful applications; however, it also showed their potentially grave dangers. This event also had great attendance and confirmed the possibility of organizing more learning online events as well.



Banner of the tech talk presented on September 10 by
Guest speaker Adam Haecker, senior petrophysicist (Continental Resources).



Banner of the tech talk presented on October 22
by guest speaker Dr. Steve Cuddy, consultant petrophysicist
with 45 years of industry experience in petrophysics.

LIST OF CONTACTS

Felipe Cruz (President):	felipecruz@ou.edu
Judah Odiachi (Vice President):	jodiachi@ou.edu
Francisco Sebastian (Secretary):	fsebastian@ou.edu
Tobenna Anyaezu (Treasurer):	tobennaanyaezu@ou.edu

THE UNIVERSITY OF TEXAS STUDENT CHAPTER

General News

The Student Chapter of SPWLA at UT Austin hopes everyone in our community stays safe and healthy during these challenging times. The fall semester is almost over. During this time, we held two technical seminars. Due to the current situation and online format of our seminars, we are struggling with lower attendance compared to in-person events held in previous years. We are working on solutions on how to attract more people to attend our webinars. Despite the obstacles, we continue planning events for the academic year 2020–2021. So far, we have confirmed three speakers for the spring semester, and we plan to add at least one more.

Recent Events

22 October 2020—We hosted our first technical seminar of the year by Alberto Ortiz (2019–2020/2020–2021 SPWLA Global Distinguished Speaker from YPF) entitled “What We Have Learned From the Petrophysical Evaluation of the Vaca Muerta Formation in the Last 5 Years of Unconventional Shale Play Development.” We would like to thank Alberto and YPF for the presentation.

19 November 2020—We hosted our second technical seminar by Mathew Blyth (2020–2021 SPWLA Distinguished Speaker) entitled “Revealing Hidden Information; High-Resolution Logging-While-Drilling Slowness Measurements and Imaging Using Advanced Dual Ultrasonic Technology.” We would like to thank Mathew and Schlumberger for the presentation.

Upcoming events

We plan to hold a minimum of three seminars for the 2021 spring semester. The idea is to schedule the first seminar as soon as the semester starts. However, we have not confirmed the date and time yet. As soon as the start of the next semester gets closer, we will start to confirm the date and time with the speakers.

Welcome to SPWLA and Join us today!

Benefits

- ✓ Monthly free webinars
- ✓ Petrophysics Journal
- ✓ Registration Savings on Conferences
- ✓ Access to On-line Educational Resources (SPWLA Nuggets of Wisdom)
- ✓ Free access to knowledge
- ✓ Petrophysics focused information
- ✓ SPWLA Foundation Scholarship Program
- ✓ Sponsored Student Membership...
- ✓ And MUCH more!

Activities

- ✓ 35 International Chapters (10 US based)
- ✓ 18 Student Chapters
- ✓ 9 Chapters-at-large (SIGs and Society of Core Analysts – SCA)
- ✓ Annual Symposium Held Alternatively in the US and Overseas
- ✓ Annual Distinguished Speaker Program and Global Distinguished Speakers
- ✓ Topical Conferences
- ✓ Many Local Chapter Activities

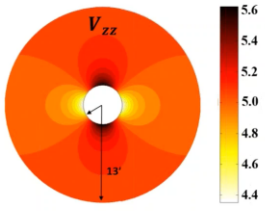
SPWLA DISTINGUISHED SPEAKER 2020 – 2021

SPWLA-5077 Revealing Hidden Information; High Resolution Logging-While-Drilling Slowness Measurements and Imaging Using Advanced Dual Ultrasonic Technology

Matthew Blyth, Naoki Sakiyama, Hiroshi Hori, Hiroaki Yamamoto, Hiroshi Nakajima, Syed Muhammad Fahim Ud Din (Schlumberger), Adam Haecker (Continental Resources), Mark G. Kittridge (Occidental)

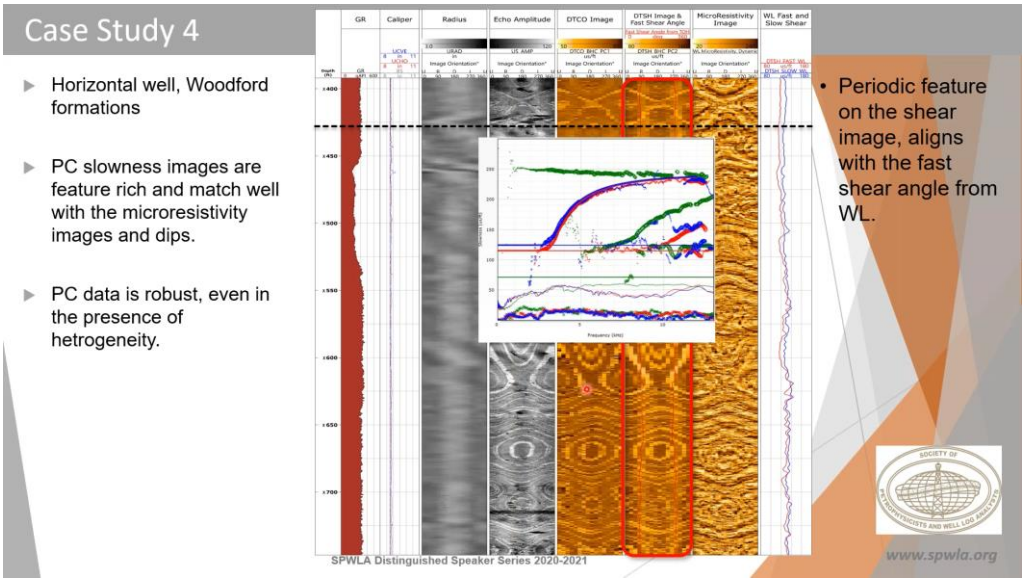
Why go to Ultrasonic Frequencies?

- Ultrasonic wavelengths:
  - Shallow depth-of-investigation (DOI)
  - Suitable wavelength for imaging
  - Better vertical resolution
- Stress-induced anisotropy:
  - Acoustic velocities vary both in radius and azimuth around the wellbore
  - Variation prominent in the near-wellbore area



Syresin et al (JFES, 2017)

	Sonic (10 kHz)	Ultrasonic (250 kHz)
DOI (~λ) (V_p = 5.8 km/s)	508 mm	20.3 mm



UIS STUDENT CHAPTER–COLOMBIA

General Events

UIS SPWLA Student Chapter continues to hold virtual meetings during the pandemic and training new members “Rookies.”

Contact us:

- **President:** Dana Marcela Ramirez — Email: presidencia.spwlauis@gmail.com
- **Vice President:** Luis Alberto Chinomes — Email: vicepresidencia.spwlauis@gmail.com
- **Fiscal:** Angela Stefany Tarazona — Email: fiscal.spwlauis@gmail.com

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Maíka Karen Gambús Ordáz — Email: mkgambus@uis.edu.co

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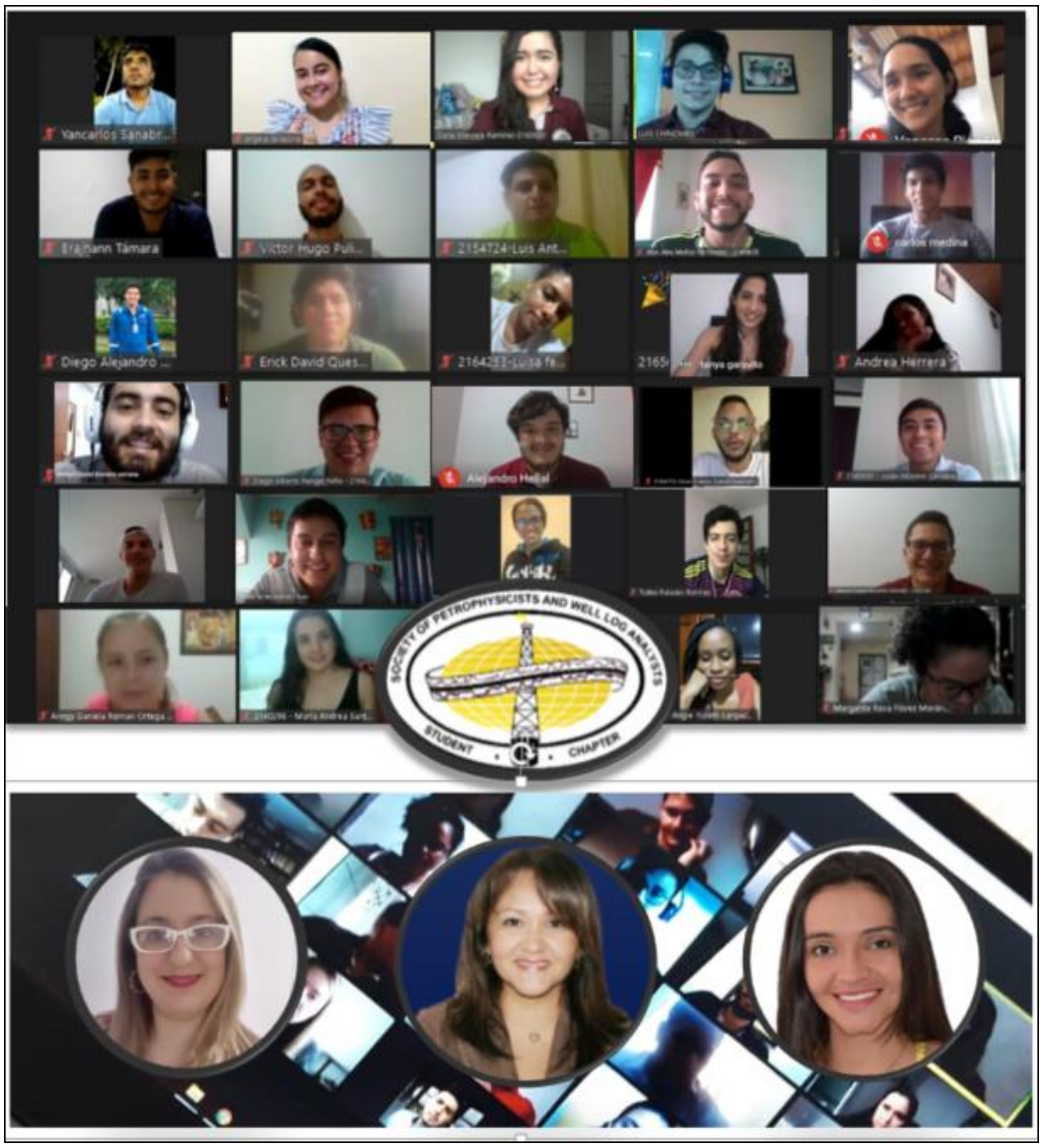
Maria Isabel Sandoval Martinez — Email: maria.sandoval@correo.uis.edu.co



Recent Events
"SPWLA TALKS" live transmissions on the SPWLA UIS YouTube channel:
https://www.youtube.com/c/SPWLAUIS

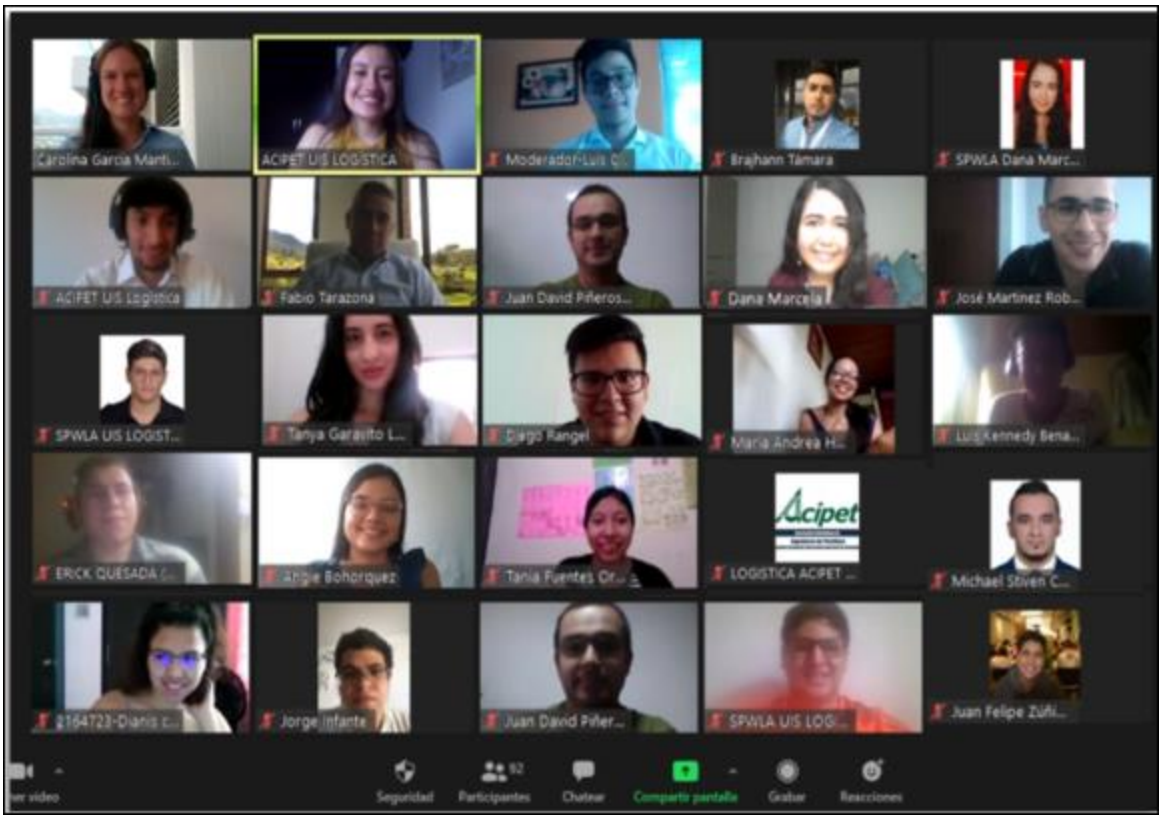
18 September 2020—**SPWLA TALKS** Conference: "Lithotype Modeling Using Well Information" by Wilmar Andrés De la Hoz, geologist-petrophysical (Omega Energy International S.A.).

9 November 2020—**SPWLA TALKS** Conference: “Operational Charts Used to Detect Formation Tops” by Edgar Chacín, geologist.

13 November 2020—**SPWLA TALKS** Conference: “Microthermometry of Fluids Inclusions as a Tool to Characterize a Reservoir Rock in Caballos Formation–Colombia” by Dr. Ingrid Muñoz (Universidad Surcolombiana).

19 November 2020—**SPWLA TALKS** Conference: “Accurate Calculation of Porosity” by petrophysicist César Aguilar (PDVSA).

23 November 2020—The student chapters SPWLA UIS and ACIPET UIS joined together to organize a Webinar called: “Soft Skills: A Weapon for Professional Success” by Pilar Marulanda, vice president of human talent (Cenit), Carolina García, leader in selection area (Cenit), and Fabio Tarazona, project manager (Equion).



A recent webinar had 92 participants online.

3–4 December 2020—SPWLA UIS and SPE UIS hosted a Webinar called: “Unconventional Reservoirs: An Approach From Petrophysics and Well Logs” by Darling Criollo, petrophysicist consultant (Landmark Halliburton) and Aymará Gómez, geophysical interpreter.

9–18 December 2020—SPWLA UIS, in conjunction with the student chapters of our university (SPE, ACIPET, and ACEIP), organized a joint campaign called: “PETROXMAS: United Donating Smiles” to raise funds to provide toys and supplies to low-income children and senior citizens from the Albeiro Vargas and Angeles Custodios Foundations. The fundraiser was organized with the acquisition of a cyber voucher or the purchase of a chocolate cake from the Chocogifts pastry shop.

Link to donate: http://bit.ly/cyberbono

Promotional video for the joint campaign:
https://www.instagram.com/tv/CIykbGTA3K2/?igshid=1xclg2pf95kv4

11 December 2020—Meeting between SPWLA Colombia Chapters and SPWLA Latin America Regional Director Bruno Menchio, with the intention of initiating preparations for the reactivation of the SPWLA Colombia CAFE Professional Board and undertaking new projects together.

SPWLA UIS/ Social Networks

LinkedIn:
https://www.linkedin.com/company/spwla-uis-student-chapter/

Instagram:
https://www.instagram.com/spwlauis/?hl=es-la

YouTube:
https://www.youtube.com/c/SPWLAUIS

Facebook:
https://es-la.facebook.com/SPWLAUIS/

Principal Petrophysicist

Abu Dhabi National Oil Company (ADNOC) United Arab Emirates is searching for a Principal Petrophysicist. Candidates require a broad range of carbonate reservoir focused petrophysical skills (OH and CH) and must be able to drive change in ADNOC's organization.

Purpose

Provide technical oversight and assurance for all petrophysical activities in ADNOC and its Group Operating Companies in close coordination with Petrophysics Specialists. Advocate and leverage advanced petrophysics technologies and best practices to improve efficiency, profitability, and performance across ADNOC and its Group Companies. Establish, manage, and drive petrophysics discipline network in ADNOC and its Group Companies to maximize corporate value.

Please send your resume to Suhas Thorat (suhast@adnoc.ae)

Obituary–Professor Kexie Wang (1938–2020)

A well-known professor in acoustics and pioneer researcher on acoustic logging theory, Professor Kexie Wang, College of Physics, Jilin University, passed away due to illness in Beijing at 09:05 am on November 18, 2020, at the age of 83.

Kexie Wang was born on January 7, 1938, in Tongliao City, China. He was admitted to the Department of Physics of Northeast Renmin University (now Jilin University) in 1957 and graduated with a major in theoretical physics in 1962. He worked at the same university for over a half-century.

Professor Wang served as the director of the Department of Physics of Jilin University from 1990 to 1994. He had made tremendous contributions to the development of the Department of Physics. He was the founder of the Department of Acoustics and Microwave Physics of Jilin University. He always adhered to a combination of teaching and research, and cultivated a large number of students with excellent academic performance, who have also made remarkable achievements in research.

In the early 1970s, Professor Wang pioneered the research direction of Borehole Acoustics Theory and Porous Media Acoustics at Jilin University. Together with his colleagues, he compiled the “Fundamentals of Acoustic Logging,” which was used in the 1976 “Theory and Fundamentals of Acoustic Logging” workshop for selected engineers and researchers from the petroleum enterprises in China. Shortly after that, the full waveforms of acoustic tool responses in a borehole were computed for the first time in China by a small team led by Professor Wang and published in the *Journal of Jilin University* in 1979. A number of fundamental research was done in the early years, which laid the foundation for the later development of the Acoustic Research group at Jilin University.

In the last four decades, Professor Wang has extended his research area. His interests included multipole acoustic logging, logging in intrinsic and stress-induced anisotropic formation, logging in elastic and porous elastic media, and applications of sonic logs. He published “Sonic Logging Theory, Method and Application: Selected Works of Kexie Wang.” He had completed eight projects funded by the National Natural Science Foundation of China and more than 40 industry-sponsored projects. He won multiple scientific and technological awards. At the 2019 National Nondestructive Testing Acoustics and the 10th National Reservoir Acoustics and Deep Drilling Technology Frontier Joint Conference, Professor Wang was awarded the “Outstanding Contribution Award.”

Professor Wang taught undergraduate physics courses for more than three decades and was the author of “Classical Mechanics.” He supervised 46 graduate students (master’s and PhDs) who have become experts in various fields. In 1997, he was selected as an advanced fellow for teaching and educating people in colleges and universities in Jilin Province. In 2004, he won the first-class award of Teaching Achievement in Jilin Province. Professor Wang was very passionate about science. He was kind, open-minded, cooperative, and inspiring. He was an excellent teacher and friend. We miss Professor Kexie Wang very much and will always remember him.

Department of Acoustics and Microwave Physics, College of Physics, Jilin University November 18, 2020.

Welcome New Members: October 16, 2020–December 14, 2020

Adebisi, Yaya, B.G. Technical, Port Harcourt, Rivers, Nigeria
Azmi, Siddeequah, University of Leeds, Dewsbury, West Yorkshire, United Kingdom
Choi, Gloria, Schlumberger Doll Research Center, Cambridge, MA, United States
Climent, Helene, Baker Hughes, Sugar Land, TX, United States
El Shazly, Ahmed, Texas Tech University, Lubbock, TX, United States
Fedor, Ferenc, GEOCHEM Ltd., Kozarmisleny, Hungary
Flores Lalo, Paulina, PEMEX, Paraiso, Mexico
Garcia, Ashly, University of Houston, Houston, TX, United States
Gonzales, Sergio, Matrix Petroleum, Houston, TX, United States
Graca, Luis, University of Houston, Houston, TX, United States
Haynes, Evelyn, University College London, London, United Kingdom
Hussain, Athar, Texas Tech University, Lubbock, TX, United States
Kabwe, Patrick, Tanzania Petroleum Development Corporation, Dar Es Salaam, Tanzania
Kadiri, Solomon, Gaia Earth Group, Lagos, Nigeria
Kivera, Erick, Tanzania Petroleum Development Corporation, Dar Es Salaam, Tasmania
Lopez, Diego, Texas Tech University, Socorro, TX, United States
Mereddi, Manas, University of Houston, Frisco, TX, United States
Niang, Assane, University of Houston, Houston, TX, United States
Odunlami, Kazeem, University of Aberdeen, Aberdeen, United Kingdom,
Padoves, Henrique, Eneva, Guarulhos, Sao Paulo, Brazil
Pakula, Jacob, University of Houston, New Lenox, IL, United States
Quintero, Nerio, Saudi Aramco, Dhahran, Eastern, Saudi Arabia
Sarhan, Mohamad Elsayed, University of Houston, Houston, TX, United States
Snow, Cameron, Danomics, Houston, TX, United States
Villao Medina, José Fabrizzio, Escuela Superior Politecnica Del Litoral, Guayaquil, Ecuador
Wawire, Joan, University of Houston, Houston, TX, United States
Wijaya, Nur, Texas Tech University, Lubbock, TX, United States
Wu, Daniel, Univ of Houston, Katy, TX, United States
Zuniga, Ricardo, University of Houston, Pasadena, TX, United States