AAPG Honorees, 2023

KITTY MILLIKEN

Sidney Powers Memorial Award

Citation—To Dr. Kitty Lou Milliken, for her observations at the scale of grains and pores, which have greatly advanced the science of predictive understanding of the evolution of sedimentary rock properties in the subsurface.

I was honored, and a bit surprised given the suite of options, when Dr. Kitty Milliken asked me to be her citationist for the Powers Medal. Although I have known Kitty for nearly 25 years, and by reputation longer than that, this provided an opportunity to look deeper into some of the motivations in the life of this world-class scientist.

When I asked Kitty what makes her tick she replied, thoughtfully, "a natural affinity for small things." She referred to a picture of herself on the beach around age four, laser-focused on the sand and reaching down to pick up something…small. She went on to share that in early elementary school, based on the study of her rock collection, she realized that details can be assembled into explanatory stories (apparently, her father was a master storyteller) that could lead to conclusions that contrast from those built on broad-brush surface-level views. Pretty heady stuff for a seven-year-old.

A true enjoyment of mechanical devices came later. Whether a spinning wheel, loom, gas-extraction line, or electron microprobe, Kitty enjoys understanding exactly how something works and how to interact with it to get to produce a desired outcome (yarn, fabric, images, or compositional data). Dr. Milliken derives satisfaction knowing that she is fulfilling, at least in a general sense, the intent of whoever built the device.

It appears that Dr. Milliken has always been compelled to understand the geological world by looking at its pieces, especially the smaller ones. She doesn't worry too much about whether some avenue of observation will be useful, confident that all understanding of nature, whether apparently relevant or not, is useful if you carefully digest and thoughtfully consider it. She never tires of looking at photomicrographs or the surface of the ocean. She shared that she has a deeply seeded sense that "nature is beautiful" and does not need outside motivation to think and feel this way. In fact, her walks are frequently interrupted to study an interesting pebble, or some odd component in the concrete.

Kitty grew up in Kentucky and enrolled in Vanderbilt University to study geology. Upon graduation in 1975, she headed to The University of Texas at Austin, where the legendary trio of Robert "Luigi" Folk, Earle McBride, and Lynton Land expanded her education in sedimentary petrology, diagenesis, and sedimentary geochemistry. Her master's thesis on silicified evaporites produced her first peer-reviewed manuscript and laid the groundwork of integrated petrographic and geochemical methods that was furthered in a Ph.D. investigating the diagenetic products of the Gulf of Mexico stratigraphic succession. It was during this time that she took her first foray into mudstones. Dr. Milliken's work includes peer-reviewed publications covering sandstone, mudrock, limestone, dolomite, chert, serpentinite, microscopy methods, and much more.

Although her primary home has been UT Austin, she also did stints at Exxon Production Research and Institut Français du Pétrole and sailed on five scientific expeditions of the ODP and IODP. Kitty has served the geological community through her editorial work with the *Journal of Sedimentary Research*, an SEPM presidency, and in AAPG's Distinguished Lecture program, twice as lecturer and also on the AAPG DL committee as

member and cochair. AAPG has previously awarded Kitty the Pratt Award and the Berg Award, and she became an Honorary Member of SEPM in 2021.

In my experience, there are very few actual "no-brainers" in life, but hiring Dr. Kitty Milliken at the Bureau of Economic Geology in 2008 was certainly one for me. It is at the Bureau that Kitty furthered her investigations of mudrock diagenesis, with a focus on subsurface compaction and cementation. Her seminal contributions to subsurface soft-rock systems highlight the timing and magnitudes of postdepositional chemical and mechanical changes that drive sandstone and mudrock properties in basins. Once timing and magnitude are understood, then many other things useful to prediction of subsurface rock properties can follow.

Kitty shared with me that her move to the Bureau was transformative for her career. While she had always had the best equipment, freedom to pursue important research, and incredible collaborators, at the Bureau of Economic Geology she gained substantial funding, which enabled her to obtain vital data quickly, as well as access to one of the great well core and cuttings libraries in the world. She went on to share that equally important was the freedom provided by "few meetings, limited reporting, and no micromanaging!"

About half of Kitty's extensive publication list came while at the Bureau, and a significant number of those include a student or postdoc as a coauthor. Kitty has enjoyed collaborating with many professional colleagues while at the Bureau. Notable among those, Dr. Tongwei Zhang, who arrived at the Bureau about the same time that she did, has coauthored nine papers with Dr. Milliken, and of her more than 10,000 citations, a third relate to papers coauthored with Tongwei, her "fine coworker and friend." Another Bureau collaborator, Dr. Rob Reed, also has a love of electron microbeam instrumentation and has coauthored nine papers with Kitty. She appreciates him "sharing the load in caring for instrumentation and generating imaging data."

On a personal note, I have always admired Kitty's humility. It seems to be an ever-rarer trait in society these days, and it is genuine in her. And I would be remiss not to mention my friend and Kitty's spouse of more than 40 years, Steve Seni, also a geologist and her most stalwart supporter and greatest admirer. Steve's first job out of grad school was at the Bureau. Kitty and Steve, you are a mighty team!

Since the Powers Medal was first awarded in 1945 to Wallace Pratt, never has a woman received it. Dr. Kitty Lou Milliken is, appropriately, the first to be so recognized and hopefully not the last.

Scott W. Tinker

Response

The privilege of a long career provides the opportunity to extend many thanks. I am grateful to Scott Tinker for writing the citation and short biography and gently prodding me to answer "what makes you tick?" Many thanks go to my nominators and to the AAPG Awards Committee for selecting me for the Sidney Powers Memorial Award. It is a huge honor for me and for my field of study. I am deeply cognizant of the many women in the past who surely deserved this award and would have received it had society's thinking about human equality been different in their time. In a way, I feel they share this award because some of their contributions were so foundational.

Because of the particular nature of sedimentary systems, one cannot approach an understanding of reservoir quality without direct porescale observation of the rocks. Thus, anyone who ever decided to take a core, preserve a core, or approve the sharing of core has my deep gratitude, most especially when it comes to shales. Today, inspection of subsurface samples requires far more than light microcopy, so I also want to mention the electron microbeam service engineers, in particular the JEOL service group in Austin, Texas, who kept the instruments in my lab running, taught me a lot, and shared their abiding enthusiasm for making complicated things work.

Scott mentions two of my BEG colleagues whose long and close collaborations with me are obvious from the record of publication and citation, but there are many many more teachers, colleagues, and friends who have also contributed to making my career a satisfying and fun ride. After being at UT Austin for nearly 50 years, and with around 200 co-authors, I fear to try listing very many individual names lest I forget to mention someone important to me out of absentmindedness. I've been most fortunate with mentors, of course, at both Vanderbilt and UT Austin. At Vanderbilt, Leonard Alberstadt established my great love of biological rock components, especially the

Paleozoic invertebrates. Arthur Reesman gave compelling lectures in mineralogy and introduced me to x-ray diffraction. Structural geologist Richard Sterns gave me my first summer job, working with a gravimeter across central Tennessee. Though my ultimate specialty is very far from geophysics, I learned important concepts about caring for delicate instruments, calibration, and data management. Tony Walton taught my first lessons in sedimentary petrology, introduced me to Bob Folk, and encouraged me to go to The University of Texas. At UT Austin, as mentioned by Scott, I was one of the fortunate students in the middle of the Folk-McBride-Land triumvirate, and many of their students from that time remain the core of my geological colleagues and friends in positions across the industry, government labs, and academia. Far from a narrow specialty, sedimentary petrology requires broad training, thus, it's essential to note that at UT I also absorbed great lessons, in classrooms and laboratories, in the field, and even working as a co-author, with Steve Claubaugh (metamorphic petrology), Dan Barker and Doug Smith (igneous petrology), Ed Jonas (clay mineralogy), Jack Sharp (hydrology), Bill Muhlberger (structure), Bill Galloway (stratigraphy), and Dennis Trombatore (geological librarian). Notably, all of the above are men. Indeed, I never had a female geology professor, but Dr. Charlotte Schreiber (University of Washington) was a role model and gave me wonderful encouragement.

Students, with their energy and curiosity, both the ones who worked and published with me, and others who simply took my classes, have helped to keep my enthusiasm high. Reservoir quality specialists are a small part of the geological profession but are outsized in their love of looking at rocks and sharing ideas with one another. Being part of this community has made my career an enjoyable one. Finally, I'd like to mention that petroleum engineers and petrophysicists have also provided some of my most valued and fun collaborations. It's challenging to work across disciplines, but if one manages to do it the results are immensely satisfying.

It's unlikely that I would be writing here at all had the revolution in unconventional exploration and production not occurred, transforming the tiny niche field of mudrock petrology into something of much broader interest. The earliest days of this revolution were concurrent with an equally momentous development for the UT Austin geosciences community, the gift from Mr. and Mrs. Jack Jackson to establish the Jackson School of Geosciences. In a remarkable convergence, the Jackson bequest included some royalty interests in the Barnett Shale. Geoscientists are practical-minded, so it seemed sensible that the Jackson School should turn some of its expertise and instrumentation to examining one of the sources of its new-found wealth. Inaugural Dean Bill Fisher kindly arranged support for a master's student to do a petrologic examination of the Barnett Shale and Devon Energy generously provided a beautiful core. Despite having already studied mudrocks for 20 years, after looking at just a few thin sections of the Barnett I realized that my shale knowledge was still scant and inadequate.

As the Jackson School developed, its scientists were soon offered opportunity to arrange mutually agreed-upon moves across units of the School, and I happily accepted an offer from Scott Tinker to move to the Bureau of Economic Geology so that I could devote full-time effort to understanding the complex and enigmatic mudrocks I had seen in the Barnett. It's a move that ranks, for me, with the long-ago fortunate decision to go to UT. At the BEG I found an environment that fostered productive collaborations with staff scientists and students and for the first time I was provided the technical means to see pores in mudrocks. To an astonishing degree, I was freed from the need to devote long hours to writing proposals because Director Scott Tinker worked tirelessly to bring major funding for unconventionals research to the BEG and directed a generous amount of it to me. I deeply appreciate the confidence he showed in allowing my unhindered pursuit of what must, at times, have seemed like esoterica.

It's a sort of tradition to mention family at the end of responses and here I also include some friends who have become like family. Golden career advice, ceaseless encouragement, and joie de vivre have been provided by Kathie Marsaglia, Leo Lynch (now deceased), and Sally Sutton. More women would have long and productive careers if they could find spouses like my husband Steve. Whenever I said something like, "I'm going to sea for two months", or "I'm going to France for a year", Steve, despite his own rather demanding career, would say something like "Wow, that's an honor!

I'll take care of everything here." Then, typically, at the end of my adventure, he'd be there to meet me, where the ship docked or in some exciting hiking locale. He brings me tea almost every morning before I get up. Our confident and independent-minded daughter Katy was a breeze to care for and a whole lot of fun and has now restarted the cycle by providing three delightful granddaughters. By the age of 3 one of them was quite handy with a wrench. Perhaps she'll soon show an affinity for small things? In any case, I hope she and her sisters find the same sorts of great friends and opportunities that I have had.

Kitty Milliken

NOSA OMORODION

Michel T. Halbouty Outstanding Leadership Award

Citation—To Dr. Nosa Omorodion for his long-term exemplary service, dedication, tireless contribution, outstanding leadership, technical knowledge, and sustained commitment to the growth of AAPG and geoscience.

Nosa has held numerous leadership positions within and outside the geoscience community including president AAPG Africa Region. He has served as an unofficial global ambassador promoting collaboration within the association and among sister organizations globally.

The journey that has prepared Nosa to the roles he plays today globally in the oil and gas industry and the exceptional leadership skills he exhibits is an interesting one. Growing through challenging roles has availed Nosa the opportunity to interact with geoscientists across the globe and has adequately mentored so many professionals that today are key players in the industry too.

His ability to get people on the same page and relate professionally with everyone has unequivocally led to the shower of encomiums you hear everywhere his name is being mentioned. Such high mentions and communications by mentees, colleagues, clients, and employers are clear indications that for him, recognition is not a matter of if, but when! His excellent leadership qualities have always distinguished him amongst peers and have given him a natural audience anywhere he speaks. Such distinctive qualities have opened numerous leadership positions within and outside the geoscience community for Nosa, including president AAPG Africa Region. He has served as an unofficial global ambassador promoting collaboration within the association and among sister organizations globally. Again, these significant roles he played did not just happen overnight. Prior to Nosa's ascension to the presidency of the AAPG Africa Region (AAPG AR), he had served as pioneer secretary/treasurer, 2002-2008 and on several AAPG committees. Nosa also served on the AAPG advisory council for two terms.

He was also president of Africa's largest geoscience association, the Nigerian Association of Petroleum Explorationists (NAPE) where he had also served as secretary 1996-2000, secretary, member Board of Trustees 1996-2000, publicity secretary NAPE 2000-2002, and a member of the Board Member Offshore West Africa from 2004-2010. Such an excellent experience gathered over the decades of Nosa's leadership growth has prepared him for the future he lives today.

As president of AAPG AR in 2010, he was the general co-chair Deepwater West Africa Conference (DOWAC) 2010 and was also the general co-chair AAPG Africa/Europe Joint Conference Marrakesh, Morocco 2011. The DOWAC conference jointly hosted by AAPG and NAPE brought together participants from several Africa countries with more than 1000 registration, at a maiden event.

Nosa's long and distinguished career in the oil industry across operations, national oil company, international operations and currently Schlumberger, has placed him in a special position where value addition has become his key words. In the blink of an eye, he can figure out where values lie globally and how easily they can be pulled. This is possible because of his chance to have worked and lived in Europe, Africa, and North America.

Nosa was instrumental in the setting up of the AAPG Africa Region office in Lagos, Nigeria, to not only cater to the needs of members but to grow the

association in the region. Working with other members of the region's leadership team, Nosa used his extensive network of contacts to form collaborative partnerships with the other affiliate regional societies and companies to form stronger membership base in respective countries as below. From a hub of Nigeria, Egypt and South Africa, AAPG's footprint has expanded to included countries from every part of the continent.

Nosa has helped raised millions of dollars in support and sponsorship for the region especially through his company, Schlumberger. Without Nosa and Schlumberger, the IBA competition in Africa would look very different. For many years the company provided not only the Petrel software for participating schools they also provided training and technical support.

During his outstanding career journey, Nosa has held global and regional managerial roles that have seen him travel to Asia, Middle East, South America, Europe and North America. Throughout his travels, he has been an active ambassador for AAPG. He is a champion of the profession in Africa and around the globe. Working with a leading service company like Schlumberger has afforded him the unique opportunity to interact with geoscientists across the globe and he has used this opportunity to not only promote AAPG but to advance the geoscience profession.

As aptly put by Abraham Lincoln, "The best way to predict your future is to create it," and as rightly said by Ray Blunt, "It takes leaders to grow other leaders." Among Nosa's natural leadership talents is his special ability to get people on the same page. He has built on strong "followership" by walking the talk. One of his distinctive strengths is the ability to translate talks into action and of developing leaders. Over the last decade, he has brought into the AAPG Africa Region many young men and women who have now grown to take leadership positions both in AAPG and their local geoscience associations. Young Professionals (YPs) and students have largely been among the greatest beneficiaries of Nosa's prowess and excellence in mentorship and leadership. Same can be said of his involvement with other professional associations he has been involved with. On several occasions, and in panels especially those held during conferences and exhibitions, Nosa has consistently emphasized the need to closely carry the YPs and students along in the beautiful journey of the industry. He strongly believes that the best way to successfully hand over the leadership of the industry and safely is to engage the future leaders in every discussion and decision.

Nosa can relate to people from all works of life. He is as comfortable conversing with a CEO as he is with a college student. He can adapt to very different situations and circumstances.

With more than 33 years of cognate upstream oil and gas experience in various technical, sales, marketing, business development and board positions, he has lived and worked on all major continents and has held significant global and regional P&L responsibility in the course. His inputs and opinions are well sought after within and outside Schlumberger and by peers. Nosa is an advisory voice in the conversation around repositioning and shaping oil and gas operations in Nigeria and West Africa for the challenges of tomorrow and a strong advocate for capacity building and professionalization of the oil and gas sector. He played a pivotal role in the emergence/midwifing of the first Financial Technical Service Agreement between Schlumberger, the Nigerian National Oil Company, and a leading Nigerian Independent operator. He has also been involved in other conversations that have sought to build on that success as a preferred alternative contractual vehicle for the upstream sector.

A tireless worker, Nosa is well known for his personal resources and contacts for this great association. One of his most popular phrases is "at no cost to AAPG," Nosa always seems to be able to find the resources both human and materials to get things done for the association. His extensive connections and contacts in the geoscience world are outstanding, all of which he is always eager to use to make his beloved association better.

Nosa is a steadfast supporter of students and young professionals and their activities and does actualize this through provision of scholarships, mentorship and career guidance. Many of his mentees today occupy leadership positions within AAPG, NAPE, and their places of work across the continent. Over the last decade Nosa has brought into the AAPG Africa Region many young men and women who have now grown to take leadership positions both NAPE and AAPG.

Nosa is recognized within Schlumberger, the geoscience

community as well as the industry as a leader. He has received on multiple occasions the Schlumberger President Club award for outstanding sales result and performance, Special recognition from Schlumberger Senior Executive Management for Strategic Business Closures and Development.

As North Sea operations manager based in Aberdeen and later as global business development/portfolio manager for Schlumberger based in Houston, Nosa grew the profitability of the Petro technical solution segments to new record heights.

He anchored and delivered the first ever Nigeria-Sao Tome Joint Development Zone licensing rounds and later the first ever online licensing rounds for Nigeria with Schlumberger. He served as secretary for government appointed committee on Review of Environmental Guidelines and Standards in Nigeria for upstream and deepwater operations.

Quoting Nosa from his 2020 VP Regions officer nomination form, "I cherish the inclusiveness and diversity which AAPG has worked very hard over the years to promote. During my tenure as AAPG Africa region president, we expanded the IBA program to all the regions of Africa, opened country chapter in Angola, affiliated with a few other countries and hosted a joint Africa/European AAPG Mediterranean conference in Morocco. Working with Schlumberger over the last two decades with people from practically all parts of the globe has enabled me to develop strong interpersonal skills and ability to relate with diverse people. I have lived and worked in Europe, Africa, and North America, held global and regional managerial responsibilities that has seen me travel to over 55 countries. I believe I do have the requisite technical and managerial experience to represent AAPG globally at the highest level. In today's challenging and difficult global economic time, a strong and focus representation at the region level where other sister societies are tapping into is vital for our sustainability. We need to keep our association engaged at the region level. I am also a strong advocate of young professionals and women in geoscience and have been very supportive of their activities."

Dr. Nosa Omorodion is currently director, National Directorates and Independents, Nigeria and West Africa at Schlumberger where he oversees the operations of the company in Nigeria and West Africa.

Born in 1967, he received his bachelor's (Honors) in applied geology from Federal University of Technology, Akure, Nigeria in 1990; a post graduate diploma, petroleum engineering, University of Benin, Nigeria; Master of Science, project management, University of Aberdeen, Scotland, United Kingdom in 2010; and Doctorate Ph.D. in energy management from Walden University in 2021. He has also taken several management courses from reputable institutions like Stanford University and INSEAD.

Femi Esan

Response

It was an incredible moment during a vacation in Chicago with my family on January 3, 2023, when a colleague broke the grand news to me. He forwarded me the email announcement of the 2023 recipients for AAPG honors and awards. Nosa Omorodion, a pioneering international trailblazer, had been chosen as the 2023 recipient of the Michel T. Halbouty Outstanding Leadership Award. I struggle to put into words the joy and excitement that filled me at that moment. It was overwhelming and a priceless privilege to have been able to share the news with my immediate family. The attendant strings of emotions by everyone around me that moment will always be one to cherish.

I am profoundly honored with the realization that I will also be conferred with the AAPG Honorary award on same day prior to receiving the Michel T. Halbouty and that this award will be making its way to Africa for the first time. To be so doubly accorded and recognized by the AAPG can only propel me to be of more dedicated service and continue with the efforts that have been so deemed fit by peers, colleagues, the AAPG Advisory Council, and Executive Committee to be worthy of this honor. Dreams do come true, and as rightly described by Lailah Gifty Akita, "The excitement of dreams coming true is beyond the description of words."

I must acknowledged that this feat couldn't have been possible without the giant shoulders of mentors, senior professional colleagues, friends, mentees, students, and peers I have had the privilege to encounter in the course of my journey. A special shout-out to AAPG Africa Region and the Nigerian Association of Petroleum Explorationists (NAPE), an affiliated society to the AAPG, for the platforms and opportunities to have been of service.

My nomination for this award however, I believe strongly is

because of the enormous work and contributions I have put towards the growth of geosciences, sustained services to AAPG, advancing the international growth of AAPG especially within Africa, mentorship of young professionals and students as the next generation of leaders within the oil and gas industry over the years.

My journey started beautifully when I was admitted into the then University of Lagos, Abeokuta Campus, Nigeria in 1984 as a student of geology and mineral science. I eventually completed my undergraduate studies from the Federal University of Technology, Akure Nigeria with a bachelor's (Honours) degree in applied geology. This did not happen accidentally. Prior to making a choice of study, I had some career discussion with an uncle of mine, who happened to be an experienced geologist heading the State Geological Survey Department. Therefore, even before I started the journey, I had the destination in mind.

With that burning passion to excel, I was involved in students' professional associations within the department, the faculty, and the university at large. As an undergraduate, I was the pioneer secretary for the students geoscience professional association. I bagged a bachelor's (Honors), applied geology, in 1990. I went further to acquire a post graduate diploma, petroleum engineering from University of Benin, Nigeria, Master of Science, project management, University of Aberdeen, Scotland, United Kingdom and a doctorate Ph.D. in energy management from Walden University.

My first field geological training experience was in 1987 at the Geological Survey of Nigeria Sokoto. I was privileged to have had another 6 months of internship with the Geological Survey of Nigeria, Makurdi, Benue State, Nigeria in 1988. I started my career in the oil and gas industry in 1990 immediately after my bachelor's degree, with Mobil Producing Nigeria Unlimited, Bookshop House Lagos. My first role was a trainee geologist (national service), which opened my gusto to learn more and deliver even more. I worked there and delivered a lot of projects in the team of other geologists and engineers alike. From there I joined Geotrex Systems E&P, a leading integrated E&P consulting outfit in 1992. It was while with Geotrex I formally joined AAPG. I was admitted as an associate member. It took a couple of years to eventually graduate into active membership due to difficulty in getting active members and remittance of dues. That immediately caught my attention as one of the changes that needed to be pursued if AAPG is to grow its membership internationally. I am proud that I played a part in the eventual abolition of that requirement by the House of Delegates. In 1997 I joined Esso Exploration and Production Company as a senior geologist at a time deepwater exploration was making inroads into the Niger Delta basin of Nigeria. Working in the company of petroleum engineers that sometimes I had to play some of those roles encouraged me to pursue a postgraduate diploma in petroleum engineering from the University of Benin. This undoubtedly added the requisite technical prowess that made my role easier and more interesting. In 2000, I left the employment of Esso Exploration and Production following the completion of the merger with Mobil and joined Energy Portfolio Managers, a pioneering indigenous oil, gas and energy service company providing advisory and strategic planning, consulting, regulatory guidance, project and geo-solution services to the oil and gas sector in sub-Sahara Africa.

I joined the service of Schlumberger in the year 2001 and have since then worked in at least four continents with diverse leadership, business development, technical and operations management roles that have opened up opportunities for me to travel to more than 55 countries. My broad industry experience spans Africa, Europe, South America, North America, Asia and the Middle East. Today I sit on the board of a couple of Schlumberger companies in Nigeria and West Africa.

I was operations manager with one SLB segment for North Sea GeoMarket (UK and the Scandinavian countries) and later portfolio manager with global responsibility and accountability for the PTCi division. In almost every location I have had to work with leaders, executives and national oil companies, mentees and colleagues from different nationalities and background. Leadership for me is responsibility and exemplary service towards a cause. It is about ability to influence, steer, and

doggedly motivate even in the face of supposedly difficult odds and situations. Be the voice that inspires and be a role model to the upcoming petroleum geoscientists.

AAPG has offered me opportunities to nurture and prove that tasks can be delivered, people can be raised, and a generation can be assisted with the right access and opportunities to better oneself scientifically and through networking.

I am grateful for great platforms to have worked actively alongside colleagues from AAPG all over the globe (served in various capacities either as general chair, co-chair, vice chair, technical committees etc.) to deliver a couple of AAPG International Conference and Exhibition (ICE); ICE 2008 Cape town, AAPG/NAPE DOWAC Abuja 2010, Africa Region and Europe Region Mediterranean conference 2011, ICE Istanbul 2015, ICE 2018 Cape Town, etc.

I played a pivotal role in closing project finance and M&A deals in Nigeria between the state oil company and a couple of leading Independent operators. This success stirred my involvement in other conversations that are targeted at adopting the FTSA model as a preferred alternative contractual vehicle for the upstream sector. Solid experience in project finance, exploration and production investment, and asset management.

While on this beautiful journey, I authored and chaired several technical and management sessions. I have delivered papers at conferences, to government parastatals and universities. I was the 2019 commencement speaker at Crawford University, Nigeria where the title of my paper was 'We are all explorationists: When all you need to discover is you." Between 2002 and 2008, I served AAPG as pioneer secretary/treasurer AAPG Africa Region. In 2010, I was elected as the president of the AAPG Africa Region. By 2013, I was nominated as a member of the Advisory Council, which lasted until 2019. Simultaneously, I was an Advisory Council member of Nigerian Association of Petroleum Explorationists, an affiliated society of AAPG between 2016 and 2020. I also served as president of NAPE and was conferred Fellowship of the association in 2011. I am also a member of Energy Mineral Division and served on several AAPG committees and member 2019-2020 HOD ad hoc committee.

Michel Halbouty award recognizes individuals who have accomplished outstanding achievements in the field of petroleum geology and have demonstrated exceptional leadership qualities throughout their career. To be nominated and be counted amongst past great recipients of this award is humbling. Nahum Schneiderman, Robbie Gries, Bayo Akinpelu, Kunle Adesida, and Richard Bishop were great influences in my decision to accept the pioneering leadership roles for AAPG Africa Region. That decision was a game changer as it opened doors to help plant AAPG seeds in many other African countries. I am grateful for the efforts of the past and present African regional leadership team in the advancement of AAPG within the region. I am grateful to my family for their unwavering support and encouragement. It has truly been an incredible journey, and I am honored to have been chosen for this esteemed award. As Roy T. Bennett rightly said, "Dreams don't work unless you take action. The surest way to make your dreams come true is to live them." I will continue to work tirelessly towards the growth of geosciences, mentorship of young professionals, and service to AAPG, ensuring that the next generation of leaders in the oil and gas industry are well-equipped to take on future challenges.

Nosa Omorodion

ROBERT D. HATCHER, JR. Honorary Member Award

Citation—A preeminent structural geologist, whose research, teaching, and mapping of the Appalachians has provided fundamental insights on orogens and their application in petroleum exploration.

Robert Dean Hatcher, Jr., University of Tennessee Distinguished Scientist and Professor of Geology, Emeritus, is known as a preeminent structural geologist and teacher, who has been involved in research and teaching of tectonics and structural geology, with a focus on the Appalachians, for more than 55 years. Bob, as he is known, was born on October 22, 1940, in Madison, Tennessee, and graduated from Northwestern High School, Springfield, Ohio in 1957. From there he entered Vanderbilt University, where he then earned a B.A. degree in 1961 and an M.S. degree in 1962 with majors in geology and chemistry, and a minor in mathematics. Finally, Bob earned a Ph.D. degree in structural geology with a minor in chemistry from The University of Tennessee at Knoxville in 1965.

Upon completing his Ph.D., he worked for one year in industry with the Humble Oil and Refining Company (ExxonMobil), and then began his long academic career at Clemson University in 1966. Bob moved to Florida State University in 1978 and then to the University of South Carolina where he stayed from 1980 to 1986. In 1986, he moved to the University of Tennessee, where he served on their faculty for more than 32 years, with a 14-year parallel affiliation with the Oak Ridge National Laboratory until 2000. Bob has advised 52 M.S. students and 18 Ph.D. students to completion. More than 21 of these students went onto to careers in the petroleum industry. While he retired in 2018, he still is active with students and conducting research.

Bob is widely known as a preeminent researcher on tectonics and structural geology, and has more than 200 publications in refereed journals, including 10 books, on stratigraphy, structural geology, petrology, geologic interpretation of geophysical data, and tectonics, with the focus of much of his research on the southern Appalachians. Two of the papers were published in AAPG memoirs. The first paper was published in AAPG Memoir 79, *Three-dimensional structure and kinematics of the Piedras-Girardot fold belt: Surface expression of transpressional deformation in the Northern Andes*. The second paper was published in AAPG Memoir 82, the *Properties of thrusts and the upper bounds for the size of thrusts sheets*. He also has published 10 books, more than 35 field trip guides, 12 technical reports, and more than 320 abstracts. Six of the abstracts were presented at AAPG meetings and published by AAPG. Bob and his students have published more than 140 geologic maps, mostly covering the southern Appalachians. Bob and his colleagues are currently working on digitizing and converting these geologic maps to GIS data sets for both publication and research. He was the first to apply plate tectonics concepts to the southern Appalachians in his classic 1972 Geological Survey of America (GSA) *Bulletin* paper, "Developmental model for the southern Appalachians." Other significant papers include being a coauthor on the COCORP study on thin-skinned tectonics in the southern Appalachians, lead author on the DNAG syntheses on the United States Appalachians and the tectonics synthesis of the United States Appalachians, and a co-author with Harold Williams on the first paper on suspect terranes and accretionary history of the Appalachian orogen. His work is not confined to the Appalachians. For example, he has published works on comparing the Appalachians to the Alberta-British Columbia Cordillera; he and his students have also worked in Alaska, Norway, and the Colombian Andes.

Bob assembled the leading geoscientists for the GSA Decade of North American Geology (DNAG) volume on the United States Appalachians and Ouachitas. This publication is one of the best and fundamental summaries of the geology of the Appalachians and Ouachitas. This DNAG volume also includes summaries of the petroleum geology of these two orogens, along with Bob's summary papers on the Alleghanian orogen and the tectonics of the Appalachians. He served on the Site Selection Advisory Committee for the COCORP seismic reflection project. Finally, Bob served on the Board of Directors of TENGASCO, a publicly held exploration and production company, which originally explored for oil and gas in the eastern overthrust area of the Appalachian Valley and Ridge in Tennessee.

Bob has given a lot of his time to service to the geological profession and has been recognized by several different professional societies. This service and recognition present an extremely favorable reflection on the geological profession and AAPG. Bob is a fellow of AAAS, the Geological Association of Canada, and GSA. He has served

as editor (with Bill Thomas) of the GSA *Bulletin* from 1982-1988, president of GSA in 1992-1993, the American Geosciences Institute (AGI) in 1995-1996, and chair of the GSA Foundation from 2005-2007. Because of the impact of his fundamental research in tectonics and structural geology he was awarded GSA's highest recognition, the Penrose Medal in 2006. The AGI also awarded him the Ian Campbell Medal in 2006, and the Marcus E. Milling Legendary Geoscientist Medal in 2014. The Eastern Section of AAPG has awarded Bob the Distinguished Educator Award in 2011 and its highest award of recognition, the John T. Galey Memorial Award in 2001, for his research in Appalachian geology, his publications and teaching, and for his service to geology.

His service to AAPG includes serving as vice chair and chair of the History of Petroleum Geology Committee (member, 1999-2008 and 2015-2018); vice chair: 2002-2004; chair: 2004-2007). Bob was awarded the AAPG Certificate of Merit for his service as chair of the History of Petroleum Geology Committee. He is a member of AAPG Petroleum Structure and Geomechanics Division (2016-2023), advisor to the University of Tennessee at Knoxville Student Chapter of AAPG (2012-2018) and was a charter member of the AAPG-DEG.

Bob is one of the giants in tectonics and structural geology. His emphasis on basic geologic mapping, research in structural geology and tectonics, the application of plate tectonics concepts to the Appalachians, and the teaching of students, has fundamentally affected and changed our knowledge of the earth sciences and the exploration for oil and gas. The research he has produced, the students he has taught, and his current research projects will continue to significantly affect the way we explore for energy throughout the world.

James McDonald

Response

When I received the call from Steve Goolsby informing me that I was to receive an AAPG Honorary Membership Award, I was shocked to hear that I had done anything worthy of any kind of recognition by the Association. I consider it an honor to have been able to give back something to the Association that has provided me with numerous benefits as a member since I joined in 1981. It was a special honor for me to serve on the History of Petroleum Geology Committee–more of a valuable learning experience than a direct contributor to the body of knowledge of petroleum geology history. An additional benefit was to get to know several of the stalwarts of modern petroleum geology who were serving on the committee or had recently retired from the committee, but continued to participate in its meetings. An ongoing accomplishment of my service on the committee was to continue the Sunday afternoon session at the ACE (now IMAGE) annual meetings on some aspect of petroleum geology history. Topics ranged from reviewing some aspect of a major problem in United States petroleum industry history and how it was solved, to history of geologic development of the vast petroleum reserves in the Middle East, to addressing the history of development of some key technology in the petroleum industry. Invited speakers are from the United States and overseas, depending on the theme of the session.

Humble Oil and Refining Company (today's ExxonMobil) hired me in 1965 and placed me into the Onshore Stratigraphy and Paleontology Group in New Orleans, part of their Exploration Department. Our charge was to examine more regional problems, so two other new Ph.D.s (one from Brown University and the other from Harvard, both trained in invertebrate paleontology/paleobiology of macrofaunas), and myself, were asked to evaluate the geologic controls of over-pressured shale (sometimes called abnormal pressure), a major safety and economic problem facing anyone to explores on modern continental margins. One of our products was producing a map that contoured the surface of the overpressured zone in the Louisiana onshore, along with a report outlining our ideas, supporting data, and conclusions. This was a useful exercise for me: to learn about an additional role of the buoyancy of water in overpressured shale, something new to me. Since that time, I have frequently discussed the nature, origins, and depth of overpressure in the Gulf Coast in structural geology and petroleum geology classes. Other things gained during this time was a new skill in

geophysical log interpretation and correlation, something I have gladly passed along in petroleum geology and to a lesser extend in structural geology classes. That experience also piqued my long-term interest in the regional geologic controls of abnormal pressure, so that even today I frequently listen to technical presentations on abnormal pressure at professional meetings.

Despite the relatively short time I spent in the oil industry, the experience of acquisition of new knowledge has been valued throughout my career, I have not hesitated to recommend until the present that young geologists consider careers in the oil industry, and appreciate the mentoring and new knowledge I received. Structural controls of hydrocarbons in orogenic belts remains a major research interest that has produced several publications in the *Oil and Gas Journal* and an AAPG Memoir. While today I support the orderly transformation to nonfossil fuel-based energy sources, but in reality carbon fuels-based machines and the need for petrochemicals will play major roles in in our lives for the next several decades.

Participation in AAPG through the years has many new friends and colleagues, a benefit available to any member of the Association. I am glad to have had the opportunity to repay some of these benefits to the Association, and to be able to maintain contacts with many oil company scientists for many years, along with my former graduate students.

Finally, while I am both humbled and deeply appreciative of this award, I also am indebted to Jim McDonald, who nominated me for the award, the committee that approved it, and to those who approved the award.

Thank you.

Bob Hatcher

CYNTHIA HUGGINS
Honorary Member Award

Citation—To Cynthia Huggins, for her dedicated service to the geoscience community, and especially for her focus on students and fostering their professional development.

It is easy to see why Cynthia is being honored by AAPG with Honorary Membership. She has a long history of stepping up to volunteer, serving in leadership roles, and bringing forward programs that benefit the entire geoscience community. Her efforts began nearly 30 years ago in the Pacific Section and San Joaquin Geological Society (SJGS), holding all elected positions, including president of both organizations. In fact, she was the first woman president of the SJGS in 2010. Cynthia has a gift for logistics, and is involved with Pacific Section conventions in many roles. She has received several awards, including AAPG Distinguished Service Award, 2017; Pacific Section Distinguished Service Award, 2014; and Pacific Section Honorary Membership, 2015. Her service to AAPG has been wide-ranging and significant. This includes active participation in the House of Delegates, Education Awards Committee, 2017-2020; Resolutions Committee, 2017-2019; Constitution and Bylaws Committee, 2018-2020; and Rules and Procedures Committee, 2019-2021.

These are laudable accomplishments, but Cynthia is most proud of her work with students. She focuses on the talented new generation of geoscientists, particularly those with petroleum industry aspirations. She started her IBA involvement by serving as a national judge for the 2008 competition. After seeing the learning opportunity, she became IBA coordinator for the Pacific Section, and has worked hard to keep the program funded and ensure that the participants have a memorable experience. She encouraged many of the participants to consider petroleum industry options, and many past participants are now industry employees.

Cynthia worked her way through school at California State University Bakersfield and knows the challenges students face. Through her tireless efforts, Pacific Section instituted a geology scholarship program for Pacific Section students. The scholarships match affiliated society funds. Cynthia leads the standing committee for scholarships. Beyond IBA and

scholarships, she has a long involvement with the West Coast Student Expo.

Cynthia has provided a favorable reflection on the geologic profession and the Association: (1) Contributed to success of AAPG meetings: Worked on organizing committees for many meetings, including AAPG ACE, Los Angeles, 2012, where she chaired the Career Center; (2) Enhanced student AAPG involvement: Instrumental in starting the Pacific Section Scholarship in 2013, and currently chairs the scholarship committee; also, Pacific Section coordinator for the Imperial Barrel Award since 2014; and (3) Strengthens sustainability of petroleum geology profession: Invigorates the next generation of petroleum geologists and engineers by recruiting and mentoring interns and new hires.

Cynthia's distinguished technical career, focused primarily on the San Joaquin Valley, but with an exciting stint in Siberia! She began her career with Getty Oil in Bakersfield, California, and soon found herself working Kern River Field for Texaco. There she honed her development geology skills and built full three-dimensional (3-D) reservoir models that added tens of thousands of barrels per day of production. The Kern River Field was a big part of Texaco's California production, and was a testing and proving ground for many thermal heavy oil enhanced recovery technologies.

By way of another merger, she found herself employed by Chevron. Soon she moved to Occidental Petroleum to develop Monterey Formation shale reservoirs. Oxy focused on ramping up production, and her small team had numerous rigs running simultaneously. This is where she demonstrated quick adaptability to a unique reservoir and fast-paced operating environment. Cynthia was a key team member, often planning wells just ahead of a rig move and modifying completion programs on the fly. All this hard work was rewarded by an "opportunity" that Cynthia enthusiastically embraced to become the geologic supervisor of a joint venture in Nizhnevartovsk, Russia. Cynthia helped to bring new technologies to the drilling and evaluation efforts—and she can tell some great stories about trekking to the office in subzero weather, being a woman in a technical role in a Russian joint venture, and what "first-class" travel entails in Siberia.

All that fun had to end sometime, so in 2007 Cynthia returned to Bakersfield to thaw and develop smaller fields for Vintage, an Oxy subsidiary. Not long after her return she accepted a position with Aera Energy, where she continues to lead the way in many of Aera's developments of diatomite, fractured chert and clastic reservoirs. She is instrumental in building relationships with regulators as permitting has become a major part of the geologist's job description.

Cynthia has provided valuable service to petroleum geology: (1) Enhanced production of mature giant and super-giant oil fields: Worked in industry for more than 35 years to increase production and reserves in mature oil fields and "depleted" and "bypassed" reservoirs in California, including Kern River, Elk Hills, Midway Sunset, Lost Hills and South Belridge; (2) Published studies of reservoir characteristics and flow properties of major San Joaquin Basin reservoirs: co-authored AAPG, SEPM and Pacific Section-AAPG publications, including comprehensive field-wide geologic studies. Built comprehensive 3-D, multi-factor models. Co-author on Elk Hills paper evaluating Monterey reservoir; and (3) Brought innovative and more efficient oil recovery techniques to both California and Siberian oil fields: Built 3-D models of major reservoir properties for Kern River field. Implemented state of the art drilling techniques in Siberia. Engaged with Siberia staff on SEC compliant reserves reporting.

Cynthia's contributions to the science and profession of petroleum geology have been significant: (1) Revitalized depleted reservoirs: identified and tapped bypassed pay, implemented salvage perforation efforts, and executed successful multizone steam floods; (2) Multi-faceted support for next generation petroleum geologists and engineers: recruiter, mentor, scholarship program development and management, Imperial Barrel coordinator; and (3) Mentoring staff on QA-QC for reservoir models: Through detailed evaluation and utilization of standard mapping techniques, has mentored reservoir geologists building full field reservoir management and reserves development models.

AAPG has benefitted immensely from Cynthia's efforts, in the SJGS, PSAAPG, and AAPG. Cynthia is most deserving of AAPG Honorary

Membership, and we are honored to contribute to her citation.

Jon Schwalbach, Kay Pitts, and Dan Schwartz

LINDA PRICE

Norman H. Foster Outstanding Explorer Award

Citation—Linda is a data-led geologist and was a leader on the Liza Field discovery team. The Liza- 1 drillwell proved the largest discovery in the western hemisphere in 2015. Linda's recognition that the Liza prospect was a terrific business-opportunity came from critical analyses by many people and her global perspective.

With even cursory interactions with Linda Price, it is obvious that she is a driven, data-led, explorationist. She is deeply interested in the geology that underpins hydrocarbon systems and never lets a geological model stray too far from its data constraints. These behavioral attributes, coupled with her determination to ensure that models are tested rigorously, ensured that the Liza Project was followed to successful completion.

Her deep interest in geology was fostered early in her formative years by her grandfather, from Montana, who introduced her to the dynamic processes that shaped the Earth's surface through the magic of Yellowstone. These initial seeds were shaped further by her experiences on terrific field schools that she attended while an undergraduate at the University of Wisconsin at Oshkosh, and latterly at graduate school in Iowa under the mentorship of Jim Faulds. Field focused training piqued her interest in the interplay between tectonics, basin evolution, and Earth surface processes. This drive was molded further by a love of art and a great curiosity about the shape of landforms. Her innate curiosity was then honed by the recognition that models need to be data-constrained and then communicated in a relevant and timely fashion.

The importance and the interrelated nature of the geology of the studied area and the business context of an opportunity were drummed into her by her earlier mentors at ExxonMobil, including Phil Smith, Ron Kleist, Barbara Rassmann, and Ken Hood. Price often references her experiences working with Smith on the pre-Tupi, Santos Basin study. This experience was particularly important to her because she observed, at first hand, the difficulties that are caused in a hypothesis test where the geoscience model and the business context get out of phase. She found this experience deeply insightful as it demonstrated to her that exploration success only leads to economic success when explorationists have both business acumen and deep geological insights. Having one without the other is rarely sufficient in the modern exploration environment.

It was also clear to Price that successful exploration requires teams, that contain creative people with diverse skills, who work together with a common purpose. Such teams require people to be carefully nurtured and managed and rarely arise spontaneously. Price, over the years has contributed enormously to the business of managing such activities. She is self-effacing and determined to bring the best out of her teams. She uses her considerable experience to great effect. As a new hire she was deeply influenced by Rosanne Lindholm who taught her important lessons about the need to integrate different types of data to investigate a problem, and then how to communicate your newfound insights effectively. These skills were important to a young woman in what was then a male-dominated industry. Price in her new role within our company, which is to foster exploration capability explicitly, is in a good position to make a difference in this space as the company evolves as part of the energy transition. This role gives her room to guide the less-experienced people around her and ensures that they too can be successful in an energy-focused company. It also gives her satisfaction that she is repaying the intellectual debt to the mentors who impacted her so deeply earlier in her career.

The Liza discovery, offshore Guyana, was a joint effort by many people, over many years. Price's

main contribution was to develop the regional framework underpinning the chance that economic volumes of hydrocarbons were likely present in the deeper parts of the basin. Prior to the Liza test there were significant concerns, both in ExxonMobil and across industry, that seal adequacy was likely a significant risk factor in stratigraphic traps along the Equatorial Margin. This view was reinforced by the fact that up to this point, some 40 dry wells had been drilled in the basin. Geologists attributed these failures mostly to the presence of thin, porous sand streaks that were not discernible on seismic data, that were causing the seals to leak. By careful analyses of existing seismic data, and a subtle reappraisal of the regional depositional context of these hydrocarbon systems, Price and her regional team were able to argue that seal risk may have been overstated in some parts of the Guyana Basin. Parallel work by Scott Dyksterhuis and Randy Perkey in the Stabroek Block Team in collaboration with Price indicated that the most promising location to test this hydrocarbon system was the Liza lead. Subsequent drilling was consistent with their hypothesis and led to a major discovery. This find revitalized the economic activity on this margin which hitherto had a rather gloomy prognosis.

The presence of commercial oil fields on the South American shelf, likely sourced from Late Cretaceous source rocks, meant that there was no doubt that an active working hydrocarbon system was present. The Stabroek Block acreage had originally been acquired in 1999, by ExxonMobil and partners following work by Bob Stewart, Rod Limbert, and their respective teams, who had flagged the economic potential of the Guyana margin. After initial block capture the license area entered force majeure for 8 years. During this interregnum there were significant advances in technology, particularly seismic processing, and new models were available that dealt with the fundamental controls on sediment dispersal in deep water systems. When exploration activity was reestablished, the availability of both new data and stratigraphic models fundamentally changed the determinations of exploration risk in the block. With these developments in mind the team set about reevaluating existing data on the Guyana margin, acquiring new seismic data, refining models of the tectono-stratigraphic setting, and bringing new understandings of how sediments are delivered and sorted to deep basin fan systems. From these initial analyses, two plays Liza (Upper Cretaceous) and Sorubim (Paleogene) respectively were identified as being the most prospective. To distinguish between the two, additional three-dimensional seismic data were acquired locally. The new information enabled Scott Dyksterhuis to identify a unique AVO anomaly that displayed potential common down-dip amplitude terminations potentially produced by a change in fluid type within a subtle, stratigraphic trap. Importantly, in the Liza play the trap/seal geometries were subtly different to the systems that had failed previously. In addition, the teams incorporated new sedimentological insights from the ExxonMobil stratigraphy research group (URC) concerning sand distributions in deep sea fan systems that predicted that sand streaks in the up-dip channel facies may not be distributed ubiquitously in the feeder channels. Using the new seismic data and stratigraphic inferences about resulting seal properties the teams generated new risk estimates and recommended the Liza location as having the best chance of success.

With this data-rich revised estimate in-hand Price and Dyksterhuis, along with a few similarly minded calculated risk-takers in the company including Patty Walker and Rudy Dismuke, took the information up the decision chain arguing that the Liza lead was the best exploration opportunity for the company at that time. Having a compelling geological case alone is not always sufficient, however, for a particular outcome to be actioned within a large organization, where there are many competing options to consider. The teams' deep, data-led knowledge of the stratigraphy of this margin, Price's experience of previous exploration misses, and their effective communication skills, ultimately enabled them to run a successful farm-down of the block in collaboration with Brooke Harris from the commercial team. Given the risk of an untested idea, bringing other partners on board (Hess Corporation and CNOOC) enabled the company to test the Liza prospect with shared financial exposure. Once Liza was drilled, the rest of course is history, as the area became the locus of much

activity as operations shifted from discovery to development, and ultimately to production phases.

Joe Macquaker

THOMAS E. EWING

Robert R. Berg Outstanding Research Award

Citation—For merit on lifelong research across petroleum systems of southwestern United States to resolve regional tectonic, depositional, and stratigraphic problems.

Throughout his career, Thomas E. Ewing, Ph.D., has been a leading researcher on petroleum systems of the southwestern United States. He has authored or coauthored more than 180 published books, papers, abstracts, and field guides. In 2016, Tom compiled his highly popular book *Texas Through Time: Lone Star Geology, Landscapes and Resources*, for which the Texas Bureau of Economic Geology maintains a dedicated website. Some of his other significant works include *The Tectonic Map of Texas*, *Landscapes, Water and Man: Geology and History in the San Antonio Area of Texas*, and multiple papers on the Yegua Trend of the Texas Gulf Coast, Late Jurassic depositional systems of the Northern Gulf of Mexico Basin, the South Texas heavy oil province, tectonic factors in the formation of the Pearsall arch, San Marcos arch and Sabine uplift, the late Quaternary Rio Grande Delta system, Pliocene stratigraphy in southeastern Texas, and the peripheral graben system in Texas. Additional publications include research conducted on urban and environmental geology, Eocene rocks and tectonics of the Pacific northwest, tectonics, and stratigraphy in the Rocky Mountain region. His current focus is on regional tectonic studies across the Permian Basin of West Texas.

Tom's approach to analyses of the "big picture" helps geoscientists, from the individual researcher to large company exploration departments, understand the framework needed for prospect generation within the context of regional geologic settings. This has led to numerous professionals crediting Tom's published works for assisting their own research, utilizing his "all scales" approach that takes research from the well log scale to the regional map scale. The lens Tom has provided assists geoscientists at all levels of experience, from the novice to the seasoned professional. His expertise is grounded in multiple geoscience disciplines, including subsurface mapping, seismic interpretation, tectonic control, genetic stratigraphy, depositional systems, igneous geology, and geochemistry, which allows him to holistically construct geologic models.

Tom's encompassing approach has netted him multiple presentation awards, including AAPG's A.I. Levorsen Memorial Award three times at GCAGS and Southwest Section meetings, as well as numerous best paper awards. At meetings, he is well recognized for engaging other presenters with his insightful comments and takes the time to discuss, in depth, geologic questions posed to him by his associates during breaks.

Tom's continued engagement with AAPG and other professional organizations and active participation at meetings clearly demonstrate his dedicated service to the geologic community by generously sharing the results of his research. With access to Tom's wealth of expertise, numerous associates who have worked with him can attest to his wit and his ability to draw on necessary information to solve the problem or task at hand. This is clearly evident when one attends his oral presentations, seminars, short courses, or field trips.

Tom's dedication to his research has led him to many professional geoscience leadership positions. In recognition of that dedication, he was previously awarded AAPG's Distinguished Service Award and Honorary Membership, the GCAGS Distinguished Service Award, Honorary Membership, and the Don R. Boyd Medal, the EMD Distinguished Service Award and Honorary Membership, and DPA Life Membership. Importantly, his organizational and research skills have made him a very valuable consultant or employee for various oil and gas companies, including Venus Oil Company, Venus Exploration,

Inc., PYR Energy Corporation, and BlackBrush Oil & Gas, as well as government agencies, most notably the Texas Bureau of Economic Geology. Since 1991, Tom has been owner of Frontera Exploration Consultants, Inc., and since 2007, a partner in Yegua Energy Associates, LLC.

Tom is also engaged within his community through multiple civic activities and holds positions as a director of the San Antonio Liederkranz, director of the Beethoven Damenchor, and director of Kelly Singers, as well as participation in many other clubs, parks, and church groups. Thus, Tom continues to be not only a pillar in the geoscience community, but also an outstanding citizen.

The AAPG Robert R. Berg Outstanding Research Award is an honor bestowed on Thomas E. Ewing for his many valuable contributions to research, industry, and the advancement of geoscience through his "all scales" approach.

Nic Brissette

Response

I'm honored to receive the Berg award. Special thanks to Nic Brissette and for all who helped him with information for the biography and citation.

And a special set of thank-yous to all those friends, colleagues and clients that I've had the privilege of working with and learning from; particularly the Venus group (Gene Ames, Bonnie Weise, Grant Fergeson) and most especially Linda, whose family consulting enterprise I joined some 38 years ago.

Time and space are short, so here are a few principles that I've developed in doing geology. (1) Try to be meaningful. Often that means making money - but not always. We need to balance our commercial work with pro bono work in societies, schools and in research; and with our personal, social and faith communities. (2) Look for context. The profession is full of postage stamp projects, I've done them myself. But geology knows no borders, and what surrounds your project is often the key to success. (3) A good trend map is worth a lot, both in advancing your own knowledge and in helping and earning respect from your geological community. Make the map as useful as you can! (4) Realize (and try to make your client/employer realize) the great value of speaking and writing based on your trend and prospect experiences. Not to give away trade secrets or active prospects of course, but sharing of even general observations will give you more insights, initiate fruitful discussions and help you and your company to greater standing as a trend expert and active trend player. (5) In the long run, if you don't publish your professional work you didn't really do it. To get your observations to your colleagues present and future, they have to be presented and defended as best you can. Don't wait for perfection, particularly in ongoing, nonprofit projects that may never be truly completed. Think of how much good research has been done for theses or dissertations that remains unpublished and largely unused!

Again, many thanks for the award. I hope to keep contributing for several years to come!

Thomas E. Ewing

AMY FOX

Robert R. Berg Outstanding Research Award

The career path of Amy Fox would confound any possible answer to the hateful interview question: "Where do you see yourself five years from now?". This is a not the story of a planned career but it does reflect following your passion. Like many geologists Amy grew up surrounded by outcrops and couldn't help but notice rocks during her early school years. But, being in New Hampshire, these granitic and metamorphic specimens were more the precursors and/or successors to the sedimentary rocks typically studied by petroleum geologists.

Her initial post-secondary academic career is evidence of her proclivity towards intellectual curiosity. Initially declaring a major in advertising notwithstanding a parallel interest in archaeology, she saw the light when her brother mentioned how much he enjoyed an entry level geology course and suggested that she try one as an elective. That was a defining

moment in which the educational degrees of freedom began to narrow. She was hooked.

As a top student at the University of New Hampshire, her Geophysics professor, Frank Birch, suggested she should investigate graduate studies at "a top school like Stanford." Being amongst the first generation on either side of her family to go to university, and therefore new to the concept of graduate school ("If they've graduated…," she asked herself, "…why are they still here?"), she took the advice to heart and promptly looked up what and where "Stanford" was. Thinking it a bit out of reach, she nevertheless agreed to submit an application. A few months later, she was on her way to California.

With M.Sc. research focused on the archaeology-adjacent topic of the effect of Andean uplift in coastal Peru on groundwater and prehistoric societies, a future with paintbrushes, dental picks, and tweezers as tools of her trade seemed somewhat probable. But fate intervened in the form of a chat in the Geophysics Department mail room with Mark Zoback and, quickly thereafter, a job with a fledgling GeoMechanics International (GMI).

A growing appreciation for geomechanics teamed up with her always present intellectual curiosity to induce her to return to the Geophysics Department at Stanford to pursue her doctorate under the very same Zoback. In 2007 she submitted her thesis titled "Characterization and modeling of in situ stress heterogeneity" and entered the world as a newly minted Ph.D.

A benefit of studying at an institution such as Stanford is that it provides the opportunity to participate in some awesome research. As an example of this, Amy was involved in the EarthScope San Andreas Fault Observatory at Depth (SAFOD) project. What was SAFOD? SAFOD was conceived of to answer the question, among others, "What actually happens along an active, plate-bounding fault?" At Stanford you get to drill a well through the world's most famous fault to find out.

With her diploma in hand Amy was back at GMI until it was shortly thereafter acquired by Baker Hughes. This corporate change eventually gave her the chance to transfer to Calgary, Alberta, Canada and start professional life in this cold, uninhabited wasteland.

Amy wasted no time buying down jackets and acclimating to the Calgary oil and gas landscape. Intrigued by the abundant public data sets, she realized that (warts and all) they provided a vast untapped resource for geomechanical research. So far she hasn't looked back and continues to proselytize the importance of understanding the full stress state in order to investigate important subsurface concerns such as wellbore stability, induced seismicity, and reservoir containment among other geomechanical issues. Her work has focused primarily on oil and gas, but (like everyone else) she is seeing a growing demand in fields such as geothermal and CCUS, where, she believes, geomechanics could make or break entire industries.

Since 2015, Amy's banner has flown from her own consulting mast, Enlighten Geoscience Ltd., where she has been able to pursue her geomechanical goals under her own terms (technically, this of course means she has finally been in one place for more than 5 yr!). This continually evolving consulting firm is her home base from which to continue her research journey.

Neil Watson

Response

When I picked up the call from AAPG President Steven Goolsby last fall, I did so with a "let's get this over with" attitude. Thinking it was a telemarketer, I'd already screened it a few times because of the unfamiliar incoming number. When instead I was informed that I was being awarded the Robert R. Berg Award, I think I was in a state of shock. I still am.

I am keenly aware that I am a nontraditional recipient of this award. Having acquainted myself with the previous awardees, I am deeply humbled. In my response, I can't list my many publications or keynote lectures. I guess I like to think of myself as an under-the-radar researcher. I can only claim to have spent my career thus far trying to do sound geomechanics work in whatever projects I've had the good fortune to be involved with. I am both delighted and extremely thankful that my colleagues have recognized this effort and bestowed this honor on me. I am particularly grateful to Susan Howes, who nominated me, and my colleagues who wrote letters of support.

Without a long list of public accomplishments to fill this response, I thought I'd focus on a few career highlights, going all the way back to the beginning. My biographer, Neil Watson (thanks, Neil!)

describes the meandering path that got me here. It was even meandrous than it sounds, but many moments stand out. Finding that Syracuse University (where I spent undergrad semester #1 before transferring to UNH) had its own geology library was like finding a cave full of treasure. I spent hours in there reading stuff that made no sense to me, but I loved it. I went to my first Geological Society of America regional meeting that same semester and again was baffled yet transfixed.

I don't think I actually saw a sedimentary rock in the wild until my second or third year in college. Studying geology in New England, a career in the petroleum industry was unlikely to say the least. With my move across the country to the mysterious Stanford University, that all changed. Suddenly everything was about oil and earthquakes. A lot didn't make sense to me in this new world, but geomechanics did. Mark Zoback is well known for his many achievements, but one of the most important ones, in my opinion, is that he is a great teacher. A great advisor, too, but if he hadn't taught me geomechanics so well when I wasn't even in his research group, I wouldn't be enjoying the career I have today. And if he and the rest of the people in the early days of GeoMechanics International (GMI) hadn't instilled in me the integrity to do good geomechanics work, I wouldn't be receiving this award. My sincerest thanks go out to Mark, Colleen Barton, Dan Moos and many more.

Both Stanford and GMI opened many doors for me, and I will always be grateful for that. I don't think I really hit my stride, however, until I moved to Canada in 2011. I felt immediately welcome and flourished in the tight-knit atmosphere of the Calgary oil and gas scene. From my years here so far I am particularly proud of conceptualizing the 2014 Duvernay regional geomechanics study, a first of its kind I believe, even if very few people saw it because it was proprietary. The core team that worked on that project was second-to-none and deserve to be mentioned by name: Mehrdad Soltanzadeh, Dave Hume, Leydy Garcia, Sarah Hawkes, and Ching Zhu. More recently, the series of projects that my company, Enlighten Geoscience Ltd., has completed regarding induced seismicity in the British Columbia Montney play is something I'm also very proud of. However, I must point out that this was another team effort and wouldn't have been possible without Neil Watson, David Cronkwright, Karen Matheson and, again, Leydy and Ching.

The perceived importance of geomechanics has varied over the years I've been involved. For some reason I've never been able to put my finger on, geomechanics in the petroleum industry - even after all these years and contributions - is still considered a nice-to-have rather than a need-to-have. Perhaps this will change with the changing energy landscape. If you ask me, geomechanics will be absolutely essential to the success of technologies like geothermal and CCUS. Regardless, I look forward to continuing on my path, never quite sure what's around the next turn but knowing, without a doubt, it will be interesting.

Amy Fox

REBECCA CALDWELL
Distinguished Service Award

Citation—To Dr. Rebecca L. Caldwell in recognition of her tremendous contributions to AAPG. Through tireless leadership, service, and passion for geosciences, she has blazed a path to empower others within AAPG.

Dr. Rebecca L. Caldwell is a 2023 recipient of AAPG's Distinguished Service Award in recognition of the countless hours of service, leadership, and mentorship she has dedicated to AAPG and to the advancement of petroleum geologists of all backgrounds.

Rebecca's first contributions to AAPG came early in her student career when she held the position of student chapter president at Indiana University from 2014 -2016. She was also awarded the prestigious AAPG Richard W. Beardsley Named Student Research Grant and helped her student chapter receive the L. Austin Weeks Grant during that same period.

Since joining Chevron in 2017, Dr. Caldwell has made even more contributions to AAPG in both technical and professional capacities. She has served as the AAPG Women's Network (AAPGWN) Technical Program Director since 2020 and was a foundational member of the AAPGWN's success during the rebranding of the network. She has spearheaded many popular series such as the AAPGWN Technical Webinar Series, the "Geology of…" Education Networking Series, as well as many other webinars which are germane to the ever-changing landscape of the petroleum geosciences.

Additionally, within AAPGWN, Dr. Caldwell served as co-chair of the AAPGWN Mentoring Program in 2020 -2021, which paired young women geoscientists with experienced mentors during the incredibly challenging time of the COVID-19 pandemic. This effort is especially in line with Rebecca's passion to empower others to have a career in the geosciences. She quickly recognized the need for young geologists to have support during this critical time and worked tirelessly with the AAPGWN team to implement a solution that impacted hundreds of AAPG members.

Besides her roles in AAPGWN, Rebecca has also served as a leader for the SEG/AAPG IMAGE conferences in 2021, 2022, and 2023. Her roles have included AAPGWN IMAGE Coordinator (2021), Shallow Marine Sedimentary Systems sub-theme and session chair (2021), Siliciclastic theme chair (2021), and Diversity and Inclusion chair (2022-2023). Her work was also featured in an AAPG Special Session on Deepwater Systems at IMAGE 2022.

As a contributor to the geoscience community, Dr. Caldwell has published numerous scientific publications, presented myriad of invited talks, lectures, and presentations, as well as served as a journal peer reviewer and conference session chair.

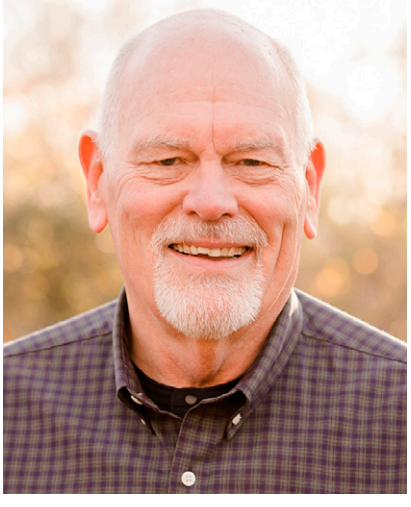
Her commitment to service extends to her other roles as a Board of Directors member for the American Geosciences Institute, Board of Trustees Member and On To the Future Mentor for the Geological Society of America; American Geophysical Union Awards Committee Member, OSPA Coordinator, Expert Judge, and Past Student EPSP Executive Committee Member; recent Society for Sedimentary Geology Nominating Committee member and Student/Early Career Conference Coordinator; and Chevron Corporation Houston Women's Employee Network Leadership Team, Exploration Geology Network Technical Seminar Chair, and College Student Mentoring Program Mentor and Planning Committee Member.

Dr. Rebecca L. Caldwell is an exploration geologist in the Gulf of Mexico Business Unit at the Chevron Corporation in Houston, Texas. Prior to her current position at Chevron, Dr. Caldwell was employed as a Research Geoscientist and Basin Analyst in the Chevron Technical Center. She was also previously a research assistant, associate instructor, and a teaching assistant at both the Department of Earth and Atmospheric Sciences at Indiana University and at the Department of Earth and Environmental Sciences at Boston College. She received a Ph. D. from Indiana University (2017), an M.S. from Boston College (2013), and a B.A. from University of Pennsylvania (2010).

Rebecca's passion for the field of geoscience and her dedication to empowering others through her service, mentoring, and leadership has positively impacted AAPG and the lives of countless AAPG members. She is an inspiration to her fellow geoscientists and her impact is testament to her commitment to the ideals of service to others. Her endless enthusiasm, combined with her scientific curiosity and her desire to elevate others has and will continue to draw others into further engagement with AAPG, as well as the larger geoscience community.

Dr. Rebecca Caldwell is honored to be selected for an AAPG Distinguished Service Award for 2023.

Terra George



JOSEPH R. DAVIS Distinguished Service Award

Citation—To Joe Davis, for his outstanding service to AAPG through his work on the Advisory Council,

the Sustainable Development Committee, and the AAPG Foundation.

Joe Davis is the consummate geoscience professional, with a distinguished career spanning over 40 yr in the oil and gas industry. He has had significant success generating, evaluating, negotiating and developing new oil and gas ventures globally, while finding time for considerable volunteer work with AAPG and the Dallas Geological Society.

Joe was born in Chicago, Illinois, in 1950 but moved to Leonard, Texas, with his family in 1952, where he grew up. After high school, he attended Dartmouth College in New Hampshire, where he earned a bachelor's degree in earth sciences in 1972. His interest in geoscience as a career was sparked by a geology field trip around campus his junior year, after which he declared geology his major. As a senior, he did an internship with Woods Hole Oceanographic Institute, onboard ship in the Indian Ocean. After Dartmouth, he returned to Texas to earn an M.S. in geology in 1975 at Southern Methodist University. While at SMU, he met Rondi Hillstrom, his wife of 45 years, with whom he subsequently raised two daughters. Joe began his professional career working on lithium exploration with the US Geological Survey (USGS), which led to his 1981 Ph.D. dissertation from The University of Texas at Austin on the lithium deposit in Clayton Valley, Nevada. Exploring for lithium in Nevada and in Bolivia in the 1970s was the highlight of his time with the USGS.

Joe began his career in oil and gas in 1980 in R&D with Arco Oil and Gas in Dallas, Texas, where he was the first interpreter on Arco's in-house three-dimensional (3-D) workstation among other projects. He interpreted the first 3-D seismic that Arco shot, which was in support of the Prudhoe Bay, Alaska, waterflood in 1985. He could only use the software at night, when he had the whole mainframe to himself. After 7 yr at Arco, he spent 2 yr in the late 1980s as vice president with Strategic Petroleum, a domestic startup, where he developed an exploration program focused on the Permian Basin and Kansas. In 1990, he joined Maxus Energy Corporation in Dallas as a senior staff advisor. Here he was responsible for evaluating new plays and bid rounds in Indonesia, Bulgaria, and the Gulf of Mexico.

In 1992 Joe left Maxus to start an independent consultancy, Davis Exploration Consulting, where he ran a diverse consulting practice focused on exploration play development and new ventures evaluations. As a consultant, he was team leader for the first deepwater discovery in West Africa, Zafiro Field in Equatorial Guinea. He provided technical advice and analysis for exploration projects in Namibia and multiple projects in Asia, South America, the Middle East, and domestically in the Permian Basin and the onshore and deepwater Gulf of Mexico. He then joined Hyperion Resources as vice president exploration in 2006, where he led negotiations with the Iraq Ministry of Oil (while having to wear a flak jacket over his suit and tie) and supervised field development studies, as well as risk and resources assessment. In 2009, Joe resumed working as an exploration consultant. He advised clients on technical and new venture operations in Iraq, Namibia, Democratic Republic of Congo, Mexico, India, onshore United States, and global unconventional plays.

In 2015, he was a founding partner of Kalnin Ventures, which later incorporated as BKV Corporation, focused on domestic natural gas production in Pennsylvania and Texas, power generation, and carbon capture. At BKV, he served as vice president of geoscience and later as chief operating officer until his retirement in 2020. Joe continues to serve as a member of the Board of Directors of BKV Corporation, and he is also a director of Reconnaissance Africa, which is focused on Namibian oil exploration.

Joe joined AAPG in 1978 and became a Certified Petroleum Geologist in the Division of Professional Affairs in 1981. His first service to AAPG was in the House of Delegates, where he served as a delegate or alternate from the Dallas Geological Society for 15 yr starting in 1993, including several years as group chairman. As president of the Dallas Geological Society in 2013 -2014, he facilitated the first Young Professionals group in Dallas. He served on the AAPG Advisory Council in 2017 -2020 as the representative from the Southwest Section, where he helped with the long-range planning effort and chaired the AAPG Honors and Awards committee. He is currently

a member of AAPG's Sustainable Development Committee. In addition, Joe is a Trustee Associate of the AAPG Foundation, where he served as secretary in 2022 and vice chair in 2023.

Robert E. Webster

Response

I am honored to receive this award and would like to thank everyone who aided and encouraged my AAPG participation, especially Jim Gibbs, Pat Gratton, Denise Cox, and Bob Webster. I would also like to thank the members of the Dallas Geological Society for their support through the years, going back to 1975, when I received a scholarship as a graduate student. Supporting your local society and AAPG is part of the package when you call yourself a geologist, and I've tried to pass that sentiment along to the next generation whenever I've had the chance.

During my career, the industry evolved from two-dimensional seismic to three-dimensional, from the shelf to deepwater and from conventional exploration to unconventional. At each transition, AAPG was able to adapt and in doing so, became a truly global organization. Meanwhile, there were *Bulletin* articles, conferences, and exhibitions to help me, and other members stay relevant in a changing world. Our newest challenge is finding and producing energy to meet the world's development demands, while recognizing the need to do so in the most sustainable fashion possible. As CCUS begins to create new career opportunities for geologists, it is exciting to see AAPG ready to provide training and support to the membership in this new sector of our business.

Joe Davis

RAFFAELE DI CUIA

Distinguished Service Award

Citation—To Raffaele Di Cuia, a truly "intercontinental" geoscientist and an industry pathfinder for his commitment, loyalty and dedication to the Association through his high-level contributions to many conferences organized by AAPG.

Raffaele was born in Ferrara, a medieval town in northern Italy that flourished with arts and architecture during the Renaissance time under the government of the Este Family. The town is also known for its very old university that was founded back in the 1200s and where Copernicus studied.

Raffaele completed his B.Sc. studies at University of Ferrara at the time when the head of the Geological Science department was Professor Bosellini, one of the founders of modern carbonate sedimentology. After graduation and serving 1 yr in the National Fire Brigade he moved to Royal Holloway College (University of London, United Kingdom) where he completed a M.Sc. in basin evolution and analysis with a thesis supervised by Ken McClay on the evolution of the Celtic Sea.

Right after finishing the M.Sc. course, he was offered a Ph.D. project at the University of Portsmouth, but he preferred to join the O&G industry accepting a job with Arco British Limited in Guilford (United Kingdom) where he started to work in the North Africa team. After this first experience in the industry, he moved back to Italy (Milan) to join Fina, the Belgian E&P Company, as an asset geologist. He was initially involved in all the G&G work related to the Italian gas assets and later moved to the technical projects related to the appraisal of the large Tempa Rossa oil field.

After the merger between Total and Fina he moved to France and joined the Carbonate Specialist Team in the Research and Scientific Center located in Pau (France). During this period at Total he was involved in integrated projects related to assets with carbonate reservoir assets worldwide and, in particular, in Europe, Middle East, Russia, North and West Africa.

Raffaele left Total in 2003 and helped to form GEPlan Consulting based in Italy where he has continued to work on projects around the world related to the complex carbonate and fractured reservoirs and to thrust belt settings. At the same time, he has helped companies to select and acquire assets in Europe. In addition, he has run more than 60 training courses for

professional associations, IOCs and NOCs since 2003. He is also author or co-author of 14 papers on international peer reviewed journals and special publications. He has presented more than 80 talks at international conferences in four continents and is the co-editor of the *Fold and Thrust Belts: Structural Style, Evolution and Exploration* Special Publications (No. 490) of the Geological Society of London.

Raffaele has always believed that to become a good geoscientist people need to share ideas and knowledge, integrate concepts and data from different sources and various tools. It is a must to understand nature, to have the possibility to see geology "alive" by understanding cultures, the history of knowledge and sources of data. For these reasons he has always considered a priority attending international and local meetings, going to conferences, spending time in the field with others. This is a key aspect for people working as a volunteer in a professional association such as AAPG that aims to offer learning opportunities to its members.

Raffaele has served as volunteer at various AAPG events/initiatives such as chair of the Annual European Regional Conferences in 2023, 2022 and 2017; chair of the GTW events on Carbonate Reservoirs in 2022 and 2018 (Italy), on Thrust Belts in 2022 (Spain) Siliciclastic and Carbonate Reservoirs of the Eastern and central Mediterranean in 2018 (Israel), on "fractured carbonates sequences" in 2016 (Italy), on "Mesozoic and Cenozoic carbonates of the Neo-Tethys" in 2014 (Italy); conference chair and session chair at various AAPG APPEX events (United Kingdom, Turkey); session chair at ICE 2014; field Trip leader of the AAPG Field Seminar "Complex carbonate reservoirs: the relationship between facies and fracturing" (2005-2016); and Visiting Geoscientist (AAPG VGP) since 2015.

Beside his professional activities and volunteer services Raffaele is also working with various universities to support research projects by tutoring and supervising Ph.D. and M.Sc. students.

Personally, I am very glad to see Rafaelle receiving this award, it is extremely well deserved!

Gabor C. Tari

AKINWANDE OLUSEYE EKUN
Distinguished Service Award

Citation—For his meritorious, long-term and unwavering dedication to the AAPG Africa Region especially with the IBA program and mentoring of young geoscientists.

Akinwande Oluseye Ekun is a graduate of geology of the University of Ibadan where he obtained his B.Sc. geology degree in 1995. He received a Master of Business Administration degree from Lagos State University in 2005 He is a highly experienced and consummate oil and gas professional with cognate experience spanning over 27 yr in exploration, appraisal, development, geological and geophysical operations, well planning, etc. and technical leadership roles.

He started his career as a trainee geoscientist with Texaco Overseas Nigeria Unlimited where he was instrumental to the discovery of North Chioma field in the JV field, Akuku gas field, and Middleton field appraisal. He was seconded to Star Deep Petroleum as a pioneer Nigerian geoscientist in Niger Delta Deepwater. Seye was involved in the discovery of Agbami field (a world class oil field) in 1998, appraisal, and subsequent development of the field. Seye was also involved and instrumental in the discovery and appraisal of many other deepwater fields in the Niger Delta Deepwater basin such as: Ikija, Ekoli, Aparo, Nsiko, Nsiko North, etc.

He joined Chevron in 2002 following the merger between Texaco and Chevron. Since joining Chevron, he has held various technical and managerial positions of increasing responsibilities. As supervisor, lab services, he was responsible for geochemistry, biostratigraphy, core analysis and special studies, he deployed applied geochemistry to solving various complex subsurface cross fault communication challenges and production related issues and creating workflow for conducting and evaluating

production induced shallow drilling hazard analysis (SSDHA) in Brown field. As manager in charge of subsurface operations and analysis–responsible for formation evaluation, well planning, wellsite services, and lab services–he led his team to develop workflow for modeling and implementing PPFG and WBS that resulted in reducing the geologic non-productive time (GNPT) from 20% to 25% to less than 3% and achieving 0% GNPT in 2 consecutive yr (2016 and 2017). During this period, Seye was responsible for the successful delivery of Agbami several infill drilling as well as other major field development projects.

Seye has been an active and consistent financial member of AAPG since 2000. He is a member of the Divisional Professional Affairs and a Certified Petroleum Geologist. He has played and continues to play active roles in various capacities such as: Conference Planning Committee for Deep water offshore west Africa conference (DOWAC) 3rd edition in 2010; panelist AAPG/Society of Exploration Geophysicists session at NAPE International Conference and Exhibition (ICE) 2018 and 2019,; and chair/co-chair/judge at Imperial Barrel Award Program for several years.

He also served as a key member of AAPG Africa Region first Geosciences Technology Workshop in Lagos, Nigeria in 2018. Seye served as the chairman/coordinator of AAPG/IBA Program (2010 -2013) with significant positive impact in the training of undergraduate, postgraduate and faculty members. This program has been instrumental in developing petroleum geology students across the African Region continent. He has served as industry mentor to AAPG/IBA Africa region participating teams in 2009 -2010 and several undergraduate and postgraduate students for the IBA programs and their respective research dissertations and thesis.

Seye has authored/co-authored several geosciences technical papers presented at NAPE ICE, Society of Petroleum Engineers, and Society of Wireline Log Analysts. He has received several awards for both poster and oral presentations.

Seye was very instrumental to the establishment and funding of joint industry university project in Chevron. The project aimed at providing opportunities for postgraduate and undergraduate students of Nigerian universities to work on real life industry challenges for their thesis and researches in a collaborative manner. Since inception, NNPC-JV/Chevron have spent more than $700,000 on the project. The program has benefited more than 150 students, and faculty members.

Seye has contributed and continues to contribute to the development and teaching of geoscience education in Nigeria through participating in several fundraisers and donations of teaching materials to universities. Examples include donation of a subsurface evaluation lab including hardware and software as part of the University of Ibadan alumni in Chevron, donation of 18 microscopes and setting up of a mineralogy lab, and donation of books and *AAPG Bulletins* to the Library of the Department of Geology, University of Ibadan.

Seye continues to serve AAPG in various capacity contributing his wealth of experience to the development of the association, geosciences education, and body of knowledge in general. He is currently serving as a member of the AAPG Africa Region executive leadership team as a treasurer.

Femi Esan

Response

I would like to thank the Advisory Council of AAPG for the conferment on me of this year's Distinguished Service Award (DSA). It is an honor and privilege to be considered for the award of the DSA by one of the world's foremost and prestigious geosciences associations. I am humbled by the fact that I was judged worthy of the conferment of this eminent award. I count myself extremely fortunate to be among the very few recipients of this year's DSA.

I feel a great sense of joy and accomplishment to be counted worthy to stand before the distinguished men and women of the global geosciences community and to be among recipients of the 2023 DSA.

AAPG's Distinguished Service Award is presented to individuals who have distinguished themselves by exceptionally meritorious services and contributions to the Association. I am elated that I am being presented this award in recognition of my services, efforts, and contributions to the body of knowledge, advancement of geoscience education, and mentoring of younger geoscientists.

This award could not have come at a better time than now. In my career spanning over two and half

decades, I have had opportunities to be involved and participated in high profile projects and led many very important projects as well. I would with a deep sense of humility, like to say that I have accomplished a lot for my organization, and I believe I am having a fulfilling and rewarding career.

According to Abraham Maslow's hierarchy of needs, which I also loved to describe as the theory of motivation, at every stage of human development our needs are different–thus the motivating factor(s) are different as well.

There comes a time in our lives and careers when we feel we have seen it all, and we have accomplished all and the only outstanding thing to make us whole is the need for self-actualization, self-fulfillment or recognition by our peers. In this regard, I remain eternally grateful to the individuals in our great association who nominated me for the DSA. Ladies and gentlemen, you are all part of my success story.

I would like to appreciate my family, most importantly my wife and children for their sacrifices and continued support without which there won't be this award today. Also equally important, my appreciation goes to all my friends, colleagues, and AAPG Africa Region Leadership for the opportunity given to me to serve.

I would also like to extend my congratulations to my fellow awardees, you all are a credit to our great Association and are deserving of your various awards. To my colleagues and friends felicitating with me today, I urge you to keep doing what you are doing, your day of recognition will surely come.

Once again, I want to express my gratitude and appreciation to the Board of Trustees and the Awards Committee for the excellence they bring to bear on the work they do and for the honor of the DSA Award conferred on me. I pledge to continue to serve our esteemed association at all times with even more commitment to advancing the study and practice of the geosciences and the development of the next generation of geoscientists.

This award is dedicated to the glory of Almighty God for His faithfulness!

Akinwande Oluseye Ekun

MIMONITU OPUWARI
Distinguished Service Award

Citation—A dedicated, compassionate, hard-working, out-of-the-box thinker. He is innovative and ready to help geoscientist, teacher and mentor always smiling with his characteristic humbleness.

Mimonitu Opuwari received his Ph.D. in applied geology from the University of the Western Cape, South Africa, in 2010. Paul Carey, Jeff Aldrich, and Florangel Poquioma supervised Opuwari's Ph.D. dissertation on the petrophysical evaluation of the Albian age gas-bearing sandstone reservoirs of a gas field, Orange Basin, South Africa.

Professor Mimonitu Opuwari is the head of the Petroleum Geoscience Group at the University of the Western Cape, South Africa. He is currently the coordinator of the visiting geoscience program of the AAPG Africa region. He served as the secretary of the Africa Region AAPG from 2016-2020 and is a member of the House of Delegates of AAPG from 2019 to present, HoD membership committee member from 2020-2022, and HoD constitution and bylaws committee member, 2020-2022. Opuwari was instrumental in establishing the first AAPG student chapter in South Africa and helped organize the first AAPG GTW workshop in Windhoek, Namibia, in 2022. Opuwari also served as a member of the AAPG ICE 2018 committee and student activities co-chair of GTW Cape Town 2017.

Professor Opuwari is a rated researcher of the National Research Foundation of South Africa and has approximately 15 yr of research experience in the offshore basins of South Africa. He has successfully supervised 6 Ph.D. and 38 M.Sc. students to completion and has published more than 30 articles in peer-reviewed academic journals.

Opuwari is a visiting scientist at Charney School of Marine Geoscience, University of Haifa, Israel. He currently has research partnerships with universities in the United Kingdom, United

States, Namibia, and Malaysia. He is a member of professional associations such as AAPG, European Geoscience Union, Geological Society of South Africa, Nigerian Association of Petroleum Explorationists, SEPM, Society of Petroleum Engineers, and South African Geophysical Association.

It is my honour to document Opuwari's contribution to AAPG.

KB Trivedi

Response

I thank the anonymous individuals who nominated me and sent it to the AAPG Award Committee and the Award Committee members who so kindly recommended my nomination to the Executive Committee, who approved my nomination. This prestigious AAPG Distinguished Service Award truly humbles me as a geoscientist. It has been a great privilege to serve the society. It is a great honor, and I appreciate it. It was a total surprise to me. I am incredibly grateful to Mr KB Trivedi for his citation and for acting as my biographer for this award, colleagues in the Africa Region, and many others worldwide for their tremendous support. I hope to make lasting contributions and leave the society more vibrant, active, and involved. I have worked with many wonderful, dedicated people who share my love and passion for humanity, particularly in the membership committee, GTW committees, and Africa Region leadership. I want to thank them for their hard work, dedication, and friendship.

Having been mentored by an array of petroleum geologists over the years, it was second nature to me to mentor as many geoscientists as possible that I interacted with, and volunteer to serve as a way of giving back to the community. I did so through the Africa Region AAPG, where I found it more effective and far-reaching to accomplish by taking up an executive position. So naturally, I began supporting the AAPG by hosting events, coordinating and participating in many workshops, conferences, short courses and the Visiting Geoscientist Programs. Spurred on by colleagues from AAPG, we established the first AAPG student chapter in South Africa at the University of the Western Cape. I was on the organizing committee of the first GTW event in Namibia, among others.

Like many people, my involvement in service to AAPG began with serving as a student volunteer during the AAPG ICE 2008 in Cape Town. It evolved as a faculty advisor, Africa Region leadership as the secretary, and then serving on the House of Delegates, member of GTW committees, and Visiting Geoscience Program. I have devoted a tremendous amount of time and effort over the years to AAPG because scientific societies are extremely valuable to advancing science. For me, service to scientific communities is professionally rewarding because it provides the opportunity to have strong friendships, network, broadening of one's perspective, personal growth and new skills, and exposure to new fields of science. I would, therefore, strongly encourage members, particularly young members and students, to become actively involved in your professional organization like the AAPG. Receiving this award has also inspired many colleagues in Southern Africa to do the extraordinary for the development of geosciences. This award is the first recognition at this level that a staff of a previously disadvantaged institution in South Africa has received from AAPG. It means a lot to us at the University of the Western Cape, South Africa.

I thank you again for this honor.

Mimonitu Opuwari

DOUGLAS VALLEAU
Distinguished Service Award

Citation—Doug Valleau for his decades of professional societal and public efforts to build demonstrable excellence in the search and development of global hydrocarbon conventional and unconventional resources.

Doug's rather relentless commitment toward navigating opportunity and self-made success allowed him to navigate the era of rampant M&A within the upstream industry. Doug took advantage of the growth and mergers within our

industry to open doors of opportunity to himself and those that worked with him. As he migrated from conventional to unconventional resources, he took with him the best of previous experience and was among the successful geoscientists that quickly made the transition for understanding shale and its ability to both host and give up hydrocarbon resources. The hallmark of this journey was Doug's development of a collaborative sharing style that characterizes his work with others to this day.

Doug's hydrocarbon education included early exposure to overseas plays and contracts as well as domestic targets that included onshore and offshore opportunities. Experience in the deepwater Gulf of Mexico conditioned him to regard every new play as merely another puzzle asking for a solution. The varied experience of host structures and stratigraphy from deepwater Gulf to the onshore of the United States was a development ground for his subsurface tools. His early exploration and development within more than 200 fields ranging in age from Miocene to Devonian was an intense short course about petroleum systems variability that he has carried through his career.

Quite simply for Doug, it is the variability of the petroleum habitats that fuels his passion to solve the next discovery and development puzzle. As Doug moved from the corporate environment to consulting and advisory roles he carried this blessing of the experienced strategist and problem solver to the new positions. In addition, he upped his commitment to "giving back" to include editorial, university advisory and extensive engagements with the younger people of our industry. It is by no means an exaggeration to suggest that he always left behind a workplace with expectations of excellence and attention to quality that was better than he found it.

It is this commitment to technical excellence and passion for evolving the best strategy for cost effective development that helped Doug make the crossover to unconventional. As Doug moved into his new role from Burlington to ConocoPhillips and assumed a leadership role over the unconventional business, he struggled with the same shortage of wisdom that we all did. Of course, the nonbelievers soon became believers in these projects. Nevertheless, the learning curve was steep and, in some cases, still present. From working closely on URTeC projects with Doug, I am certain that the same passion for the "right answer" was a very obvious aspect of this team's workflow. An obvious feature of working any problem with Doug is total transparency and sharing. Having worked with Doug on numerous seemingly unsolvable challenges during the last decade, I must say that he is the most inclusive and sharing coworker with whom I have collaborated. He is effortless in his tendency to share success and complimentary when it is brought to him by others. As you would expect, the conclusion of any project by Doug is a really transparent play book left behind.

I opened this essay of Doug's contribution with a mention of societal engagement. This portion of Doug's contribution to geoscience is a highlight. He is an active member of four societies (AAPG, Society of Exploration Geophysics, Society of Petroleum Engineers, and Houston Geologic Society). Doug is a Certified Petroleum Geologist in the State of Texas. His publication history includes papers on geomechanical drilling risks, development with complex multipay fields, use of geopressure to predict hydrocarbon migration, and microsesimic as a tool to illustrate reservoir depletion. Besides the publication record he is a co-developer of an analytical tool for shale-gas analysis for which there is a United States Patent. Additionally, he has worked tirelessly with me on the URTeC Technical Committee helping to assemble most of the last 10 years plenary panels that set the theme for the meeting. As well, he is a member of that conference's Advisory Board and still has time to be chairman of the Editorial Board for *World Oil* magazine as well as serving on the board of The University of Florida Geology Department.

Response

Let me take this opportunity to express my most sincere thanks for honoring me with a Distinguished Service Award. Thank you and AAPG so much for recognizing my service, and I am humbled that you selected me for this award.

I've been a member of AAPG since 1976, having joined while I was completing my M.Sc. from the University of Florida Geology Department. Since then, I've enjoyed 45 yr in the petroleum

industry and have served in multiple capacities. My proudest accomplishment within AAPG has been URTeC, which I joined in its founding year of 2013 and continue serving to this day. I appreciate the opportunities AAPG offers its members and I look forward to future involvement.

Thank you so much.

Douglas Valleau

VIRGINIA SISSON

Grover Murray Memorial Distinguished Educator Award

Citation—Distinguished teaching of field geology at the Yellowstone-Bighorn Research Association and virtual field trips with University of Houston.

Virginia Sisson is a compassionate and dedicated educator to aspiring geologists and to students of all types. She began her studies at Bryn Mawr College, earning her A.B. in 1979. There she began her ongoing work on the British Columbian and Alaskan margin, using fluid inclusions and petrology of metamorphic rocks to reconstruct tectonic histories. She went on to earn an M.A. and then a Ph.D., in 1985, at Princeton University studying the Coast Plutonic Complex, Canada. She later expanded her study areas to include many convergent margins and has recently completed significant field work in Guatemala. Jinny held various positions at Rice University from 1986-2004. During that time, she also had appointments with the US Geological Survey and the American Museum of Natural History and served as a consultant on fluid inclusion studies to a range of major oil companies. In 2008 she joined the University of Houston, where she currently serves as co-director of the Geoscience Learning Center, as the director of Summer Field Geology, and as instructional professor of geology.

Jinny is recognized in particular for her dedication to field teaching, a critical piece of geologic education. In addition to organizing and teaching a portion of the summer field program for University of Houston students, which is based at the Yellowstone Bighorn Research Association (YBRA) in Red Lodge, Montana, she also serves on the YBRA leadership team, impacting students from many universities. She has been active in promoting field safety training, making it an integral component of all field planning; as part of promoting a safety culture she co-authored the 1992 book, *Planning for Field Safety*. In addition to these field courses, she has worked to create virtual field courses for students who cannot go to the field themselves, either due to physical limitations or simply due to family or employment commitments. This dedication to bringing field studies to as many students as possible is one of Jinny's most noticeable accomplishments and a reason for this award. In addition to her work with students in earth science majors, Jinny also teaches large introductory courses. Her classes emphasize the importance of citizen science, teaching hundreds of students about the environment and natural hazards in the areas they might live and work and encouraging them to engage in their communities in knowledgeable ways. For all of these reasons, including her work with students at a range of levels and from many different universities, Jinny is an ideal recipient for the Grover Murray Memorial Distinguished Educator Award.

Julia Smith Wellner

ROBERT C. TRENTHAM

Grover Murray Memorial Distinguished Educator Award

Citation—For his excellence in teaching at the University of Texas at the Permian Basin (UTPB).

Robert "Bob" C. Trentham was born and raised in New York City

and surrounding areas. Bob first became interested in geology when he was 10 years old during the International Geophysical Year (IGY 1957-1958). He attended Brooklyn Technical High School where his interest in science and engineering was nurtured.

In college Bob attended City College of New York, graduating with a B.S. in geology in 1970 and a MA in geology in 1976. Along the way he served his country as an officer (2nd Lieutenant) in the 101 Armored Calvary, 42nd Infantry Division, NYARNG.

In 1969 Bob attended the University of Arizona field camp and fell in love with the geology of the western United States.

Later his dream came true of living in the western part of the United States, when he was invited by one of his former professors to work on a doctorate at the University of Texas at El Paso (UTEP). So here he was in far west Texas studying "mobility of uranium in felsic volcanics." Halfway through UTEP, the Three Mile Island disaster occurred and all hopes of a hard rock job in the uranium industry melted away. Bob graduated with his doctorate in 1981.

Bob interviewed with the petroleum industry as someone who understood "movement of fluids through rocks." Gulf Oil hired Bob in 1980 to work in the Permian Basin in Midland, Texas. Bob worked in both exploration and production geology and has lived in Midland for the last 43 years. Bob's first boss was Robert "Bob" F. Ward, who served as a great mentor over the years. Imparting all of his knowledge about the Permian Basin to Bob for years and years.

In 1985 Gulf and Chevron merged and Bob began working for Chevron, still studying the Permian Basin and still based out of Midland. Through his career Bob made two significant discoveries. One was an exploration discovery in 1987 named Wolf Flat field, a karstified reservoir with an active water drive in the southern part of the Palo Duro Basin. Bob went on to make a new pool discovery in an existing field in North Ward-Estes in 1991. The discovery opened the H.S.A. (Holt) Field. Who says you can't find oil in existing fields. At the time of the new pool discovery North Ward-Estes was 75 years old. Many fields still have untapped potential and the first place to look for additional oil, in additional reservoirs, and make discoveries is in existing fields by looking uphole and downhole.

In 1992 Bob left Chevron and started consulting. His company was Muskoka Consulting, consulting for Conoco, Phillips, and smaller companies. With Laguna Petroleum he began reservoir characterization of Grayburg/San Andres reservoirs in Foster and South Cowden fields. This work was sponsored by the Department of Energy (DOE) Class 2-Shallow Shelf Carbonate Reservoirs, which resulted in a significant increase in production over the next decade.

In 2000 Bob and three co-leaders and co-editors put together a 75-year anniversary field trip and field guidebook for the West Texas Geological Society, titled "Classic Permian geology of west Texas and southeastern New Mexico." That same year Bob started to teach a number of courses at the University of Texas at the Permian Basin (UTPB) as an adjunct faculty member and in 2001 became the director of the Center for Energy and Economic Diversification (CEED).

At UTPB Dr. Bob, as he is known to his students, started to develop various petroleum geology courses and add new courses to help make the geoscience department a high quality academic and practical educational opportunity for undergraduate and graduate students. This included acquiring more than 350 cores from various Permian Basin reservoirs. These cores are stored at UTPB and are utilized to teach various courses and for students to utilize for master's theses. Not very many schools can boast of having such a great collection of cores.

At the same time Bob worked year after year on CO_2 conferences with Steve Meltzer, disseminating CO_2 Enhanced Oil Recovery case studies, field trips to facilities, and helped develop concepts on residual oil zones (ROZ). This was followed up with ROZ studies through a series of DOE and Research Partnership to Secure Energy for America grants, working with various operators in the Permian Basin. Bob is also working on the Carbon Utilization and Storage Partnership for 13 western states, interfacing with academia, government agencies, national laboratories, and industry. During the past decade, Bob has also worked with other industry professionals to lead the PBS-SEPM Young Professionals and Intern field trip.

The truly fun part of Bob's career at UTPB was teaching undergraduate and graduate students'

various courses, which included chairing 35 master's theses and serving on an additional 20+ thesis committees. Two-thirds of those master's theses were core-based. So, students get to see reservoir rock and what makes a petroleum reservoir tick. Students taking Bob's courses at UTPB don't know how lucky they are to have a Permian Basin expert teaching them their various courses. Many UTPB graduates now work in the petroleum industry because they were so well trained by Bob. Bob says, "the students keep me young."

Bob routinely shares his knowledge and has made more than 75 presentations at local, regional, and national society meetings and conferences. In 2013, Bob was awarded the Southwest Section AAPG Distinguished Educator Award. In 2019 Bob, along with Steve Melzer, was awarded the Pioneering Engineering Technology award by the Permian Basin Petroleum Pioneers.

For Bob Trentham's enormous contributions to education, he is being awarded AAPG's Grover E. Murray Memorial Distinguished Educator Award for 2023. Well done, Bob!

Robert Lindsay

Response

I am truly humbled by the prestigious AAPG Grover E. Murray medal celebrating my career as a geologist and as a geologic educator. It came as a total surprise to me, and I thought initially it was a scam. Once I determined it wasn't, I realized what a great honor it is and I am hugely flattered. I am extremely grateful to Bob Lindsay for his citation and acting as my biographer for this award. In addition I am thankful for my many mentors in the petroleum industry, most notably Mr. Robert F. Ward, whose breath of knowledge and willingness to share both energized me and "set me on the path" to want to pass knowledge on to the next generation, and for Dr. Dan Womochel, who brought me to the University of Texas Permian Basin to help broaden the petroleum geology curriculum. I'd also like to thank my many students, many of whom work in the petroleum industry in the Permian Basin and elsewhere, for "keeping me young" with their questioning nature, their enthusiasm, and their energy.

I first became interested in geoscience in grade school during the International Geophysical Year (IGY) 1957-1958, when I became fascinated with the earth. Although I was going to school in Manhattan, during the summers I has access to a tidal marshland and undeveloped beach on Staten Island where I learned to appreciate the scope and ever changing nature of the edge of the sea.

I am a firm believer that there are times in your life when either you choose your path or your path is chosen for you. A decision point came when an announcement was made in 8th grade asking who wanted to take the test to attend Brooklyn Technical High School. My friend John raised his and since he did, so did I. My technical education at Brooklyn Tech provided me with the foundational skills I have used throughout my career. I attended City College of New York (CCNY), in part because the tuition for the first year was only $28.00, another decision point. I thought I was going to be an engineer as my two older cousins were, but differential equations convinced me to choose geology instead, another decision point. Rather than spend more time in the black fly infested Catskill Mountains for field camp, I, along with three of my classmates, took the University of Arizona field camp in the Chiricahua Mountains of southeastern Arizona. There I fell in love with the "other half of geology", the Paleozoic sedimentary section. I vowed to return to the extraordinary geology of the southwest. As I was preparing to complete my B.S. in geology and thinking about moving west, the first Vietnam War draft lottery occurred, and I didn't have to wait long to hear my birthday called fifth. Fortune smiled on me and I was sworn into the National Guard 9 days before my draft noticed arrived, another decision point. That kept me in New York and I completed my masters at CCNY.

As I was completing my master's and approaching the end of my National Guard commitment, Dr. Phil Goodell at University of Texas El Paso (UTEP), who I'd taken classes from at CCNY, contacted me about coming to UTEP for my doctorate. I jumped at the chance to return to the southwest, another decision point. My doctorate topic was "The leaching of uranium from felsic volcanic and volcanoclastic rocks" and I envisioned going into uranium exploration. Then Three Mile Island nuclear power plant attempted to melt down and the United States uranium industry went up in that puff

of smoke. Another decision point. I then convinced Gulf Oil that I was familiar with moving fluids through rocks and moved to Midland, Texas, in February 1980 to begin my career in the petroleum industry. Another decision point. I continued working for Chevron after the merger, with both new field and new pool discoveries in the Permian, Palo Duro, and Tucumcari Basins.

In 1992, I left Chevron, and opened Muskoka Consultants in Midland. Just before I left I met my wonderful wife-to-be, Martha, in the elevator at Chevron. Two more decision points. I consulted for a number of major and smaller companies over the next decade. I realized, that I was not completely happy consulting chasing the almighty dollar and really not enjoying geology! When Dan Womochel suggested in 2001 I apply for the position as the director of the Center for Energy and Economic Diversification and Senior Lecturer in Geology at University of Texas Permian Basin, I jumped at the chance, another decision point. The opportunity to work with the students was exactly what I needed. Most of our graduate students and many of our undergraduate students work in the oil industry and want to move up in their companies with additional education. Being able to utilize what I learned in the petroleum industry to provide our students with foundational understanding of reservoirs was exactly where I saw myself going.

Over the past 20+ years, I have continued to work on sponsored projects with industry on CCUS and ROZs, and had the opportunity to including many students in that research, folding much of the knowledge gained during the research into my classes. Working with Dr Emily Stoudt, "retired" from Texaco, we added a variety of petroleum related classes to our curriculum and graduated 200 M.S. students, mentoring students who have gone on to highly successful careers. Again, it is the students who have "kept my young" and who drive me every day. I am eternally grateful to them.

Finally, let me again express my sincere appreciation to AAPG for honoring me with the Grover E. Murray Memorial Distinguished Educator Award, to those who nominated me, and to my family, in particular my wife Martha for her patience and support over our three decades together.

A lot of decisions that have brought me here today. Some I made, some not. But the outcome proves them all correct.

Robert Trentham

KIRSTEN SIEBACH
Harrison Schmitt Award

Citation—In recognition of sharing her extensive knowledge of Martian sedimentary systems and her unsurpassed skills in conveying the excitement of recent discoveries on Mars far beyond the planetary science community.

Born and raised in Virginia, Kirsten Siebach has long been intrigued by scientific puzzles, and wanted to apply her puzzle solving skills to fundamental scientific questions. She found the perfect opportunity as an undergraduate at Washington University in St. Louis, working with planetary scientist Ray Arvidson. As a Pathfinder Program Scholar, Kirsten was invited to work on data returning from several Mars missions at the time, including the Phoenix Lander in the Martian arctic, and the Spirit and Opportunity Rovers exploring Mars surface and geology. During this time, she was exposed to rover operations, as well as real-time observations. Sometimes she was practically immersed into the Martian system, living on "Mars time" (each Mars day is 39 minutes longer than an Earth day). Kirsten's interests in the Martian surface continued to grow with every insight, inspiring her to pursue a career studying planetary sedimentary systems.

Kirsten graduated summa cum laude from Washington University in St. Louis in 2011 with a B.A. in earth and planetary science and chemistry. She then began graduate study at Caltech with Professor John Grotzinger, earning her Ph.D. in 2016 with a dissertation titled "Formation and diagenesis of sedimentary rocks in Gale Crater, Mars." After a postdoctoral position studying the geochemistry of Martian sediments with Professor Scott McLennan at Stony Brook

University, in 2018 Kirsten joined the Department of Earth, Environmental, and Planetary Sciences at Rice University, where she is currently an assistant professor.

The big puzzle that guides Kirsten's research is how sedimentary systems work on different planets and what controls their behavior. Earth and Mars define two distinctly different sets of conditions, and rich data sets exist for both systems, ever increasing with new NASA missions. A fundamental question that Martian observations can potentially answer is how things worked on early Earth, for example, when most sedimentary systems evolved from mafic protoliths. Examples of pristine mafic systems are limited on Earth (e.g., Iceland), but they abound on Mars. However, the biggest contrast between the Martian and Earth systems is how life or its absence influences surface processes. Mars holds many keys to that question, and Kirsten is poised to find the answers and to share her conclusions with the world.

As a planetary geologist studying Martian surface processes, and a member of two current NASA missions, Curiosity and Perseverance rover expeditions, she is right where the action is, helping guide the discovery process and interpreting the remarkable findings revealed along the way. She is also a member of the Science and Operations Teams for the Mars 2020 rover Perseverance and the Mars Science Laboratory rover Curiosity, and regularly contributes to the longer-term Mars Sample Return project. All of these roles contribute to Kirsten's research, which broadly investigates sedimentary processes from "source-to-sink" on both Mars and early Earth, to interpret the history of water and surface environments early in our solar system.

In the meantime, Kirsten has established herself as a spokesperson for the amazing scientific discoveries that have come from these missions. She describes herself as "a planetary geologist and outreach enthusiast," however this description is incomplete. Kirsten is also an Ambassador for Mars. She excels at sharing her wealth of knowledge about the history of Martian discoveries and our growing understanding of the surface of that far away planet. She has an incredible talent for engaging her audiences, regardless of their age or experience. She is an enthusiastic presenter, while also technically accurate and well informed. In her brief career so far, Kirsten has given nearly 50 academic presentations on Martian geology and her research, and participated in at least that many outreach events and activities at schools, clubs, science engagement events, and more. During the most recent Mars rover mission, in 2020 and 2021 Kirsten virtually hosted a Perseverance Launch Party and Perseverance Landing Party, both of which provided welcome relief to a world still under covid restrictions. She has been tapped to contribute to several documentaries about Mars, including the History Channel's The UnXplained season 3 episode 7 "Mysteries of Mars" (2021) and the National Geographic Documentary "Mars: One Day on the Red Planet" (2020).

Also an active AAPG member, Kirsten has been an invited keynote speaker at major AAPG events, including ICE in London in 2017 and AAPG IMAGE in 2021. In that role, she has effectively bridged a knowledge gap between academic planetary science and oil and gas exploration, demonstrating in the most obvious ways the connections between the two applications. Kirsten is a very popular lecturer and advisor at Rice, both in the department and through her offerings at the Rice Glasscock School of Continuing Education. Through her outreach efforts, she seeks to inspire the next generation of space explorationists, encouraging them to ask the hard questions, figure out what tools they need to study them, and then to go find the answers. By sharing her passion and enthusiasm for planetary science and exploration, Kirsten is a role model and mentor for the next generation of scientists around the world. She is well situated to train the next generation of scientists, preparing them to explore the entire solar system!

Julia Morgan

Response

I am deeply honored to be given an award named after Harrison Schmitt, the only planetary geologist thus far who was brave, adventurous, and lucky enough to personally visit an extraterrestrial field site. Although I have not visited my favorite field sites, I am

incredibly fortunate to work with teams of scientists and engineers to operate rovers on the surface of Mars that send images and data back to Earth every day. This opportunity to explore the landscapes and rock records of our neighboring planet through the eyes of robots makes us ask new questions about our own planet, pushing us to reevaluate geological inferences and better understand the influence of life and the multitude of ways that Earth is unique. I am grateful to AAPG for allowing me opportunities to share the images from the rovers and the stories we've learned about Mars' past with geologists around the world.

Every image from Mars represents the work of thousands of scientists and engineers who contribute to every Mars mission, and hundreds who work to operate the spacecraft every day on the surface. I am thrilled and grateful to work with these teams and frequently astounded by the international, interdisciplinary, and interpersonal collaboration that the science and operations teams demonstrate every day and through the years. I am so grateful to get to play a small role in these efforts that I believe represent some of the best values of humanity: unity, curiosity, exploration, and innovation.

On a personal level, I am deeply grateful for my academic mentors Ray Arvidson, John Grotzinger, and Scott McLennan for providing me opportunities to engage with Mars missions and ongoing support, guidance, and encouragement. Numerous teachers, colleagues, and friends throughout my academic career have created supportive and intellectually engaging environments as we have puzzled through the challenges of interpreting images and datasets returned from Mars in classrooms, restaurants, offices, walks around campus, and hikes in field areas from California to Australia. Thanks to my nominators Jeff Lund and Charles Sternbach, along with Juli Morgan, and dozens of AAPG and community leaders for providing opportunities for me to share our stories and then asking challenging and creative questions that inspire me and drive that research forward. I am grateful to my Rice University colleagues and students for their trust and the opportunity to perpetually learn through teaching and mentoring. Finally, I am grateful to my husband, family, and friends for their incredible support. Onward and upward! We have more to explore.

Kirsten Siebach

NEAL AND INDA IMMEGA Public Service Award

Citation—For long and dedicated public outreach (with Inda) to the AAPG, HGS, Houston Gem and Mineral Society, and the Houston Museum of Natural Science.

When Neal Immega was about 6 years old, he found his father's rock collection in the basement of their home in St. Louis, Missouri. The specimens were from west Texas near Big Bend National Park. Neal says that he was fascinated and believed every one of those rocks had a story to tell. His interest in fossils grew so that while in high school, he spent hours in the recovery of fossils, primarily blastoids, a sea lily, near Millstadt, Illinois. He found he could earn spending money if he sold some of his collections to Ward's Natural Science in Chicago, a large supplier of scientific material to schools and universities. Neal met his wife Inda when both were undergrads at Texas A&M University and went on to Indiana University for their doctorates. They both went on to geology careers at Shell. After a few years in exploration, Neal moved to the Shell Bellaire Research Center, where he worked in geochemistry and facilitated the early delivery of interpretive computer applications in exploration.

Neal has been a member of AAPG since 1985. He has been a member of several AAPG committees: Computer Applications and Internet Committee 2000-2005 and the Geological Computing and Website Committee 1988-2000.

Neal has participated as a field trip leader in the Houston Geological Society (HGS) Earth Science Week events since 1998. Early ESW field trips, organized and led by Neal Immega, to Galveston Island, High Island, and Whiskey Bridge near College Station attracted scores of children and their parents, as well

as college students and K-12 teachers. Volunteers were stationed along the exposures to assist with the large numbers of neophyte participants so that individuals and small groups could be accommodated. The trips took on the aspect of a museum tour rather than a "follow the leader" style. He has led field trips about downtown building stones multiple times and gave an HGS trip to the Brazos River in 2005. Neal has helped the Educational Outreach Committee with field trips for HISD magnet students of the Petroleum Academies, including the Whiskey Bridge fossil dig field trip, the High Island Beach learning trip, and the visits to the Ocean Star Museum. He has also led trips for Houston AAPG and GCAGS conventions. Neal helped start the Bones in School project in 2012 and has contributed articles on the importance of field trips and outreach to the HGS Bulletin. Neal has won several HGS awards: 2015 Outstanding Board, 2017 Distinguished Service, and 2019 Honorary Life Membership.

As an active volunteer at the Houston Museum of Natural Science, Neal helps with multiple HMNS events, including tours, scout events, etc. He has assisted at HGS Guest Nights at the museum. A visitor on one of Neal's museum paleontology tours benefits from his enthusiasm for the subject. Along with his wife, Inda, Neal Immega designs and conducts field trips for the Houston Museum of Natural Science. These efforts include dinosaur trips to Wyoming and Montana and trips for teachers to the Lubbock, Texas, area to research Late Triassic fossils since 1998. Neal has dedicated 9,549 hours as a volunteer at HMNS. His experience spans the gamut. Neal is a master docent and has dedicated nearly 300 hours as a trainer. He has dedicated 2000 hours to Paleo tours, more than 447 in the Energy hall, and more than 311 in Gems and Minerals. He has also dedicated hundreds to thousands of hours in various special exhibits and more than 1000 hours providing behind-the-scenes to various departments, including for special events.

Neal has been very active for years in the effort to provide rock/mineral/fossil kits to schools for the Houston Gem and Mineral Society (HGMS). He frequently speaks at these schools, where the most popular topic is the rock cycle. As the Paleo Section chairman, he arranges a monthly program for 11 months a year. One of his current projects is reviewing and updating the HGMS libraries. Neal teaches classes on lapidary and silversmithing (jewelry-making) and promotes interest in geology. Neal has been involved in Science Olympiad training for junior high and high school students on rocks and minerals and coached two United States Champion teams. Neal's Paleo Section has provided many scholarships for students. The HGMS gave Neal an award for 25 years dedicated to teaching and mentoring HGMS members while maintaining the shops and libraries to do it.

Janet Combes

Response

We are surprised and very pleased to accept this award from our peers at AAPG. Much of the kind of work we do goes on behind the scenes. There is a quote attributed to Harry Truman, "It is amazing what you can accomplish if you do not care who gets the credit." We have recently passed the timepoint where we have spent more time as volunteers, trying to pass on our passion for science, than we spent in our energy industry jobs.

Volunteering comes in all styles and flavors. We prefer activities that have to do with geology –but that does cover huge range. One year, Neal consulted on a West University Place drainage committee. The city put a 25-inch storm sewer down one of the streets to replace a 12-inch pipe. That paid off handsomely during Hurricane Harvey because this area did not flood. Most projects, though, are without such a specific payout.

The usual projects we do involve children and the payout is in the form of "paying it forward." Both of us have been given substantial help while we were growing up by parents and teachers who made sure we were given time to explore practical science. Neal's parents took him on simple family outings to a park where we would look at plants, bugs, and rocks. Inda had a grandmother who loved nothing more than scrambling around in the Eocene looking for rock treasures. When Neal showed interest in rocks, he was encouraged to use the wonderful resources of museums, youth groups, and academic

programs to see them in detail and in nature. When he reached the age to do Scouting, the leaders would take us to amazing places. While some kids climbed on rocks, we would try to decode their histories. Neal learned chemistry by doing identification tests as outlined in the Peterson's field guide to rocks and minerals. In hindsight, we wonder why his parents tolerated the exotic stinks he made in the basement.

Inda is the eldest of 10 siblings who grew up in a small town in southeastern Texas that had a lot fewer-easily identified resources. She, too, found mentors early along the road. She was "appointed" as the only employee of the local public library so that she had more time for reading and study. A high school science teacher made sure she had access to math and science classes not usually offered and "recommended" that she enroll in a National Science Foundation summer program at Texas A&M. There she met Neal's mentor, Professor Smith, who became her guide.

All the way through graduate school, people guided our activities as best they could and now we are in the same position. We've done Scout geology merit badge counseling, helped with Science Olympiad, given talks to local schools and, of course, tours and talks at the local science museum. Possibly one of the more effective activities has been to take people of all ages on field trips in Texas to show off the fabulous fossil localities. Now post-COVID, we are getting activities reattached.

What it boils down to is that, in our second career, we reach out by modeling the kind of help we were given.

What do we get out of it? Inda says that one of her great joys is running into children, who are now in graduate school or entering scientific professions, who she first met across a table full of rocks.

Neal and Inda Immega

WILLIAM AMBROSE Pioneer Award

The AAPG Pioneer Award seeks to recognize outstanding geoscientists that have made meaningful and significant contributions to the science of geology, and in that respect few could be more deserving than William (Bill) A. Ambrose. A man who prefers to stay out of the limelight, Bill nevertheless has gained acclaim in multiple branches of the geosciences as a stellar researcher with acute insight, novel ideas, encyclopedic knowledge, and complete dedication to his work.

Born in Swindon, England, in 1954, Bill enjoyed a cosmopolitan childhood thanks to his father's position with the United States Air Force, which kept the family migratory with many moves between Europe and the United States. Despite his family's seminomadic ways, Bill found his passion for geology early in life –thanks to his seventh-grade science teacher, Alan Coston –and stuck to it. Bill had no doubts about what he was going to do with his life: he was going to be a geologist.

Bill graduated twice from The University of Texas at Austin with a B.S. in geology in 1979 and a M.A. in geology in 1983. He immediately leapt into the workforce, landing a position as a researcher at the Research Planning Institute of Texas, where he performed comprehensive subsurface analysis of major Gulf Coast formations (including the Vicksburg, Yegua, and Wilcox). Bill's expertise in siliciclastic depositional systems, paired with his keen interest in energy resources and utilization, made him an ideal fit for this role.

In 1987, Bill found an even better fit, taking a position at The University of Texas at Austin's Bureau of Economic Geology as a research geologist. He remained there until his retirement in 2021, becoming an essential cornerstone of the Bureau as a steadfast leader and exceptional researcher. He headed up many projects from the early 90s to the early 2000s, and then served as the principal investigator of the State of Texas Advanced Resource Recovery (STARR) group from 2009 until his retirement in 2021.

During his 36-year tenure at the Bureau, Bill served under three different directors and witnessed an evolution from a primarily DOE-funded domestic energy institution

to a well-rounded research powerhouse at the forefront of energy resources and the energy transition. Bill's career evolved accordingly, always seeking to improve efficiency in the energy sphere through rigorous stratigraphic characterization.

When it comes to "landmark moments" in his career, Bill has not one but several spread across multiple fields. Most notable is his work on the East Texas field, the largest oil and gas field in the lower 48 states. Bill and his colleagues were the first to demonstrate that upper and lower reservoirs in East Texas field have completely different sequence-stratigraphic and depositional origins. The study documented numerous areas in the field with additional potential for oil production where shallow wells had failed to penetrate the lower, deltaic reservoir section, thereby extending the life of this mature field. Their study, published in the *AAPG Bulletin*, was awarded the 2011 Wallace E. Pratt Memorial award.

On the exploration front, Bill was involved in multiple reservoir-characterization and play studies of Tertiary oil and gas basins in the Maracaibo Basin in Venezuela and the southern Gulf of Mexico from 1992 to 2005. These studies documented geologic controls on hydrocarbon resources and led identifying frontier areas with the potential for recovery of additional oil and gas resources in the Maracaibo, Macuspana, Veracruz, and Burgos Basins. These were the first studies to document basin-wide structure and stratigraphy, as well as the distribution of numerous oil and gas plays in these important productive areas in the Gulf of Mexico.

Bill also contributed to the field of coalbed methane production, most notably in his work in the Fruitland Formation in the San Juan Basin. Working under Walt Ayers and William Kaiser, Bill helped to unravel the formation's complex stratigraphy, where there are more than 50 trillion cubic feet of coalbed methane resources. This study was the first to demonstrate first-order, stratigraphic and structural controls on these resources across the entire basin. Their 2007 publication more accurately depicted the geometry and continuity of coal seams, thereby serving as a more reliable model for coalbed methane exploration and development.

As if all of the above was not enough for one man's career, Bill is also active in the field of planetary geology. It could be said that Bill "moonlights" (pun intended) as a lunar geologist, which is less a hobby and more a second career. His research in lunar stratigraphy focuses on mapping large-scale secondary craters associated with lunar basins, with the goal of refining relative ages of lunar craters on basin margins. He has had various professional roles in this realm, serving as the chair and vice-chair of the AAPG Astrogeology Committee from 2007 to the present, co-editing AAPG Memoir 101, Energy resources for human settlement in the solar system and Earth's future in space, and co-editing GSA Special Paper 477, "Recent advances in lunar stratigraphy."

Bill has been a prolific author, publishing more than 100 articles over the span of 40 yr. In particular, he is known for his exceptional contributions to conference proceedings through special papers and extended abstracts. He has also authored 15 Bureau of Economic Geology Reports of Investigations, each of which represents a major advancement; they remain the most-requested documents available from the Bureau, a testament to their utility to the geologic community.

Despite his strong dedication to his research, Bill has always believed in the importance of service to the geologic community. Since the very beginning of his career, he has been active as a member of the Energy Minerals Division of AAPG, and served as the EMD president from 2006-2007 and as a chair on the EMD Coal Committee from 2008 to 2021. Outside of AAPG, Bill has also been a key contributor to the Gulf Coast Association of Geological Societies and numerous local geological societies in Texas and Louisiana, always being willing to chair sessions, judge presentations, or give talks whenever requested.

These days, Bill is "retired," although he still maintains an office at the Bureau and is still active in research and the geologic community (some would argue that he hasn't retired at all). He and his wife, Carol, still live in Austin, and are looking forward to other pursuits that include church service, gardening, and backyard astronomy.

We in the geological community have been very privileged to have such a brilliant and dedicated geoscientist among us—Bill is a true pioneer.

Kelly E. Hattori

Response

I am honored to receive the 2023 AAPG Pioneer Award. Of all the contributions that one might offer humanity, I have always considered that exploration and discovery, as well as advances in knowledge of our world and beyond to be the most important of all. This does not include just discovering and characterizing new energy resources, but understanding the processes of nature, principles of science, and how the universe is structured. I have found in my 40-year career that exploration and discovery can operate on many levels, either through reexamining well-trodden ground or reaching out beyond the Earth to new frontiers on other worlds.

An example of reexamining old material is the case of East Texas field, discovered 93 years ago. I was fortunate to have been part of a research team at the Bureau of Economic Geology that delved deeply into East Texas field, the largest oil and gas field in the lower 48 states in terms of original oil-in-place. East Texas field was long thought by many in the oil and gas industry to have been past its prime and unworthy of additional study. However, by examining more than 30 whole cores from the 1940s and 1950s, many of which had never been described, the research team were the first to construct a comprehensive picture of the reservoir anatomy and to demonstrate that upper and lower reservoirs in the field have completely different sequence-stratigraphic and depositional origins. The study documented numerous areas in the field with additional potential for oil production where shallow wells had failed to penetrate the lower, deltaic reservoir section, thereby extending the life of this mature field.

On a totally different level, my research has taken me beyond the Earth, to our nearest neighbor in space, the Moon. Although the Moon's history and the processes that sculpted its surface have differed greatly than those of Earth, many of the same principles of exploration geology on Earth are pertinent to resource discovery and characterization on the Moon. This includes remote-sensing and field techniques that will yield secrets about resources on the Moon's surface and shallow interior, whether these resources are water ice, helium-3, or volcanically hosted metallic ore bodies. Through the auspices of the AAPG Astrogeology Committee, I have been part of a pioneering effort to make AAPG not just an international organization, but one that extends to the planetary domain.

William A. Ambrose

DAN J. HARTMANN Pioneer Award

Dan Hartmann is known to many AAPG members through his years of managing and training geologists and through his worldwide consulting efforts for major companies and independents. His interest has long been the successful application of geological and related engineering skills to exploration and exploitation work.

From 1960-1963 Dan earned his B.S. degree in geology from the New Mexico Institute of Mining and Technology (Socorro, New Mexico). In 1963, Amoco Production Company (then Pan American Petroleum) hired him in Houston, Texas, as an exploration geologist and eventually as a supervisor of exploration and exploitation for the western United States and Alaska.

Early in his career with Amoco Dan had the experience of calling for an (unauthorized) drill-stem test in a company well in Texas based on his insight into the reservoir rocks. Under his microscope, the carbonate rocks showed pore geometry that indicated the possibility of being subtle pay that needed testing. The success of the test and of the well earned him a reputation at Amoco of having special insight into reservoir-rock analysis and the general area of "petrophysics," i.e., the integration of geological and engineering insights into understanding and exploiting difficult petroleum reservoirs.

Amoco exploited Dan's skills and insight by making him the co-founder (with a reservoir engineer) of Amoco's in-house, year-long "petrophysics" course, taught in Amoco's research center in Tulsa, Oklahoma. Dan helped train

multiple Amoco geologists in the art of combining geological data with engineering data in the effort to recognize and exploit oil and gas pay.

By 1978, Dan had transferred from the Research Center to Amoco's Denver office as a geological manager, where he continued spreading the art of petrophysics, as well as encouraging and building up multiple geologists professionally.

In 1985, Dan formed DJH Energy Consulting (Fredricksburg, Texas), and has offered petrophysics training and consulting for numerous companies, including Amoco, BP, and many others. Dan's experience has become worldwide.

Throughout his professional career Dan's goal has been to help in optimizing the performance of oil and gas reservoirs using reservoir characterization and identification of bypassed pay using geological, engineering and petrophysical tools. Dan has led and co-taught courses both privately and through AAPG. AAPG members have benefited from his co-authored 1999 contribution to AAPG's *Treatise on petroleum geology* (Chapter 9, "Predicting reservoir system quality and performance"). Dan freely offers advice and insights to any who ask for his help. He is much admired and appreciated by AAPG (and SPE) members who have benefited from his wisdom and support.

Ed Coalson

PHILIP AJAEBILI

Young Professionals Exemplary Service Award

Born in Lagos slightly more than three decades ago, Philip attended both primary and secondary schools in Lagos state, Nigeria, where he emerged as the Overall Best Student. He then proceeded to the Federal University of Technology Owerri where he came out with a First (1st) Class degree in geophysics winning several awards like Best Student Technical Paper in 2010 Nigerian Mining and Geosciences Society Conference, National Champion Society of Exploration Geophysicists Challenge Bowl in 2010, Overall Best Student Shell Geosciences Summer School to mention a few.

He joined Shell in 2012 where he enrolled in the global Shell Geoscience Graduate Program with graduate training exposures in Nigeria, United States, and Europe and then subsequently exited with Best-in-Class performance in 2015. He started work as a geophysicist with the Seismic Processing team where he participated in several challenging high-end processing projects to support Exploration and Development activities with highlights of working as the lead processor of a project where enhanced deep imaging results supported the biggest exploration discovery in Shell Group in 2018. He subsequently worked as a geophysicist in the Seismic Acquisition team supervising safe delivery of onshore and offshore three-dimensional seismic operations. He was an operations geophysicist involved in the safe planning and execution of the largest ever OBN seismic in Shell. He currently works as a reservoir geophysicist since 2020 supporting day-to-day well drilling operations as well as subsurface studies using QI Geophysics techniques.

Philip has been a member of AAPG since 2009 as a student member and has been strongly involved in building the Young Professionals arm of Nigerian Association of Petroleum Explorationists (NAPE) an AAPG-affiliated society in Nigeria as well as in AAPG YP Africa Region where he recently served as the YP Coordinator of the Region. Some of his contributions to as YP leader in NAPE and AAPG African Region are as follows:

- Successful delivery of 2022 AAPG South Atlantic Conjugate Margins Technical Symposium as part of the organizing committee.
- Organizing pioneer AAPG YP event in Namibia in 2022 during the GTW.

- Active contributions in 2022 AAPG SC and YP LACR Leadership Summit in Cartagena.
- Resuscitated YP arm of AAPG Africa Region after a hiatus with virtual AAPG AR YP programs at the heights of 2020 COVID-19 lockdown.
- Pioneered Python for Geoscience physical bootcamps in 3 cities in Nigeria in 2019.
- Championed YP Community service projects as a way of YPs giving back to the society.
- Delivery of multiple monthly YP Technical Series to enhance knowledge transfer among young professionals in the industry.
- Planning and execution of multiple YP technical workshops in Africa with more than 500 participants in attendance physically.
- Made multiple visits to several Geoscience departments of Nigerian universities to speak on exciting geoscience career as well as made technical presentations.
- Planning and Execution of Basin Evaluation Competitions, Intervarsity Quiz Competitions and supporting AAPG IBA programs.

Philip enjoys traveling, playing chess and football.

Response

I wish to express with big appreciation to AAPG for this prestigious award. I have been an active member of AAPG in the Africa Region and Nigerian affiliated association NAPE where I have had the opportunity to develop my technical and leadership skills. AAPG has been active in developing geoscience communities around the globe and in Africa Region where I come from. It has been a privilege to have been given the opportunity to serve the AAPG YP community in the Africa Region after a brief hiatus with lots of wonderful memories. One memory that will forever remain ingrained in me will be the 2022 AAPG YP Leadership Summit in Cartagena where I got the opportunity to connect with other YP leaders from across the globe. I would like to thank all our AAPG YP and student sponsors for grooming future AAPG leaders.

I thank Shell for their support and encouragement of my service with AAPG.

Philip Ajaebili

ANDREA LOPEZ VEGA

Young Professionals Exemplary Service Award

Andrea Lopez Vega was born in Santa Cruz, Bolivia, at the base of the Subandean fold-thrust belt. From a young age, she showed a keen interest in natural science and was drawn to the field through her visits to her grandparents in the countryside. Throughout her professional life, organization and discipline have been her strengths.

After finishing high school, she moved to Mexico City to study geological engineering at Instituto Politécnico Nacional, where she graduated with honors in 2010. This experience was valuable, as it marked the first step in her international and multicultural career.

Andrea returned to Bolivia to work for SLB as a geologist technical support for almost 3 yr. She then traveled to Montpellier, France, to continue expanding her knowledge, earning a master's degree in reservoir geology from Montpellier University in 2015.

Upon her return to Bolivia, she joined TotalEnergies as a geologist of the Incahuasi field, where she was involved in structural geology, seismic interpretation, and modeling studies. In 2020, she was assigned to Luanda, Angola, as a reservoir geologist, responsible for modeling, well preparation and followup, and technical studies of the Mostarda field, Block 32.

Andrea's enthusiasm for giving back to the geoscientist community led her to begin volunteering for AAPG in 2017, actively supporting their activities at the local, regional, and global levels. Her outstanding trajectory in the association has positioned her as one of the young professional leaders in the region.

As the Young Professional Bolivia chapter president, she contributed to Geosciences Technology Workshops, the Ready To Work Program, the establishment of student chapters in Bolivia, and raising AAPG awareness throughout the country.

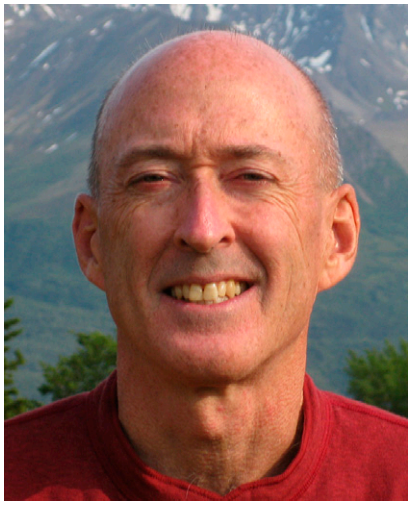
Andrea's most significant contribution to the Latin America and Caribbean Region has been her successful leadership of the YP and

Student Chapters Leadership Summit, one of the region's highest-impact initiatives. She assumed the position in 2019 and has since organized three in-person events in Argentina, Colombia, and Mexico, as well as two virtual ones.

In AAPG global, Andrea served as the treasurer of the Women's Network Special Interest Group, helping to develop a mentoring program that has helped dozens of mentees navigate their careers.

Her contributions to leadership, development, and education for students and Young Professionals, as well as her commitment to making AAPG a truly global and diverse organization, make her more than deserving of the Young Professionals Exemplary Service Award.

Ana Maria Goncalves



WILLIAM BOSWORTH

Vlastimila (Vlasta) Dvořáková International Ambassador Service Award

It gives us great pleasure to honor our friend and colleague Dr. William Bosworth, exploration manager, Apache Egypt Companies, for the AAPG Vlastimila (Vlasta) Dvořáková International Ambassador Service Award.

This award recognizes Bill's sterling efforts in promoting increased awareness of AAPG across the Africa region, and indeed all regions, while creating opportunities for the Association through membership growth and collaboration within the oil and gas industry.

Bill personifies what the award represents. He is truly an international geologist who has spent most of his career working and promoting data-driven good science, collaborating with geoscientists globally, and giving of his time to mentor and educate students. His tireless efforts to promote and elevate AAPG across the continent of Africa and beyond are well-known. Bill has been an active member of AAPG since 2002. For more than 25 years he has been based in Cairo, Egypt, where he used his extensive personal and professional network for the benefit of the Africa Region.

Dr. Bosworth is a model expatriate, with unwavering commitment to the development of geoscience in his work location. Bill started his work on Africa with Marathon International Oil Company in 1984 and then joined Apache Egypt in 2005. He has been instrumental in the expansion and growth of the Association in the region where he has helped establish many thriving student chapters not only in Egypt, but in the entire North Africa region, sometimes serving as co-faculty advisor when one was needed.

Bill has been involved and continues to be an active participant in the Young Professional activities in North Africa offering them opportunities to meet professional colleagues and network. He helped identify, groom, and mentor young professionals in the region to become leaders. Several of his mentees are past winners of the AAPG Young Professional Exemplary Awards. His contribution to the success of the IBA Competition in Africa cannot be over emphasized. Not only was he able to raise funds and student awareness of the event, but his office was always available for the competition and the regional finals were held on multiple occasions in his office conference rooms.

Perhaps part of Bill's affinity for mentoring and working with students is rooted in the fact that, after receiving his Ph.D. from the State University of New York at Albany, he taught at Colgate University for 4 yr. After Colgate he joined Marathon as a geologist working principally in Egypt and East African concessions. As a structural geologist Bill was particularly intrigued by the East Africa and Red Sea rift system and participated in numerous field surveys to map the rift sequences for clues to the geometry of faults and the mechanics of rift development. In these rift valleys is where Bill's connection with Africa began.

Bill has been a driving force in the leadership of the AAPG Africa Region since 2008 and became the region's president in 2016-2018. He has contributed to the success of AAPG not only in Africa but other regions as well. He has represented Africa at the House of Delegates since 2008, as alternate

delegate and delegate. He served for 3 yr as co-chair of the House of Delegates Membership Committee and is presently a member of the Constitution and Bylaws Committee. Bill continues to engage and encourage the region's leadership on how to retain existing members and attract new members to the Association.

Bill has held various roles as session co-chair and acted as a committee member for numerous AAPG local and international events. A trailblazer, Bill was the technical co-chair of AAPG's inaugural Geoscience Technology Workshop (GTW), the Mesozoic Western Desert, Egypt, which was held in Cairo in 2009. He has chaired or co-chaired multiple other GTWs for the region and was technical committee co-chair of the Region's African Energy and Technology Conference held in Nairobi in 2016. He is passionate about the development of the next generation of Earth scientists, and this is demonstrated by him receiving the AAPG Hartman Service to Students Award in 2015.

Bill has endeavored to form collaborative partnerships with other AAPG affiliated regional societies, local and international oil companies, and government organizations to form a stronger AAPG membership base. Under his leadership the relationship with geoscience associations across the continent was expanded and strengthened. He has been a representative of the Association giving talks across the continent.

As a testament to the confidence reposed in him by the leadership of AAPG, the continent was awarded the hosting of the 2018 International Conference and Exhibition (ICE) in Cape Town, South Africa in 2018. Leveraging on the foundation laid by Bill, the region co-hosted the Mediterranean and North Africa Conference and Exhibition in September 2022 in Tunisia, in collaboration with the EAGE.

Femi Esan and David Blanchard

Response

Earlier this year President Steven Goolsby called me in Egypt and wanted to know if I could spare a moment of my time. I immediately thought, wow, this is a real honor. It's not often that a person as well-known as Steven takes time to make a phone call to me, especially from seven or eight time zones away. Then he proffered that I was going to receive this year's Vlastimila (Vlasta) Dvořáková International Ambassador Service Award at IMAGE in the fall. Now I was really flabbergasted, and pretty much speechless. The intent and spirit of this award are in and of themselves incredibly touching. The fact that the award is named after Vlasta Dvořáková makes the significance of receiving this honor immeasurably greater. Vlasta was an amazing leader and inspiration to us all, particularly in the AAPG international community. I sincerely thank AAPG for this great honor, and truly appreciate the support and kindness of the Africa Region Members who submitted my nomination for this award.

William Bosworth

BARRY KATZ

Wallace E. Pratt Memorial Award

FANG LIN

Wallace E. Pratt Memorial Award

The Wallace E. Pratt Memorial Award for the best paper published in the *AAPG Bulletin* is presented to Barry Katz and Fang Lin for "Consideration of the limitations of thermal maturity with respect to vitrinite reflectance, T_{max},

and other proxies" (*AAPG Bulletin*, v. 105, no. 4, p. 695–720).

Many of those assessing geochemical data have taken a "cookbook" approach to interpretation. Such an approach generally does not take into consideration the limitations of the different data sets. Among these data sets are those associated with thermal maturity, which guides the interpretation of the extent of generation and hydrocarbon phase.

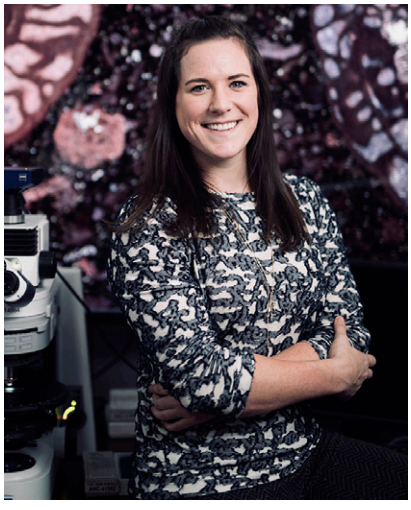
The temperature of peak pyrolysis generation (T_{max}) is commonly used to map thermal maturity directly or through a conversion to vitrinite reflectance equivalent values. Such efforts do not take into consideration analytical uncertainties or natural variability within a stratigraphic unit at any given locality. Furthermore, when presented as vitrinite reflectance equivalents, the associated error in the conversion is not considered, yet the values are presented as "absolutes."

When examining vitrinite reflectance, there are also several issues that should be considered. Individual mean values are commonly considered out of context. All thermal maturity indicators, including vitrinite reflectance, need to be placed into a geologic framework, and trends rather than discrete values should be considered. The nature of the studied samples is also significant. Whole-rock and isolated kerogen analyses yield different results, commonly because of the lack of a statistically meaningful number of individual measurements because of either low organic carbon or low concentrations of vitrinite when examining whole-rock samples. Such differences are not trivial, with final interpretation of hydrocarbon phase boundaries potentially being shifted.

Bitumen reflectance shares some of the same issues as vitrinite reflectance measurement, including misidentification, the presence of multiple populations and insufficient measurements, and the possibility that environmental factors may influence the observed reflectance. Conversion issues of bitumen to vitrinite reflectance are similar to those identified for the T_{max} conversion.

Barry Jay Katz received his B.S. in geology from Brooklyn College in 1974 and his Ph.D. from the University of Miami in marine geology and geophysics. He joined Texaco's Bellaire Research Center in 1979. He has been a member of Chevron Energy Technology Company since the merger. He currently serves as a team leader and was named a fellow in 1998. His work focuses on the applications of geochemistry to petroleum exploration and development. He is engaged in both research and technical support. He is a Licensed Professional Geologist in Texas and a Certified Petroleum Geologist. He is an honorary member of AAPG.

Fang Lin is a midcareer earth scientist working for Chevron Corporation in Houston, Texas. She earned her B.Sc. in geology and M.Sc. in ore deposit geology, both from Chengdu University of Technology in China. She obtained a Ph.D. in geosciences, specializing in geochemistry, from Virginia Tech University in the United States. Since joining the industry, Fang has primarily worked as a petroleum geochemist in exploration business, covering both onshore and offshore, conventional and unconventional source rock, and oil and gas geochemistry work. In the past 5 years, Fang has focused on integrating geological, geochemical, and geophysical data for source rock delineation and prediction.



MELISSA J. MEYER
J. C. "Cam" Sproule Memorial Award

The J. C. "Cam" Sproule Memorial Award, presented to the author(s), age 35 or younger at the time of submittal, in recognition of the best paper published by the Association or any affiliated society, division, or section, is awarded to Melissa J. Meyer for "Depositional environment and source rock quality of the Woodbine and

Eagle Ford groups, southern East Texas (Brazos) Basin: An integrated geochemical, sequence stratigraphic, and petrographic approach" (*AAPG Bulletin*, v. 105, no. 4, p. 809–843).

X-ray fluorescence chemostratigraphy of the Cenomanian–Turonian Woodbine and Eagle Ford Groups in the southern parts of the East Texas Basin highlights significant mudstone chemical heterogeneities that commonly are difficult to observe or quantify at the macroscale. Several key elements, namely, Ca, Si, Mo, Mn, and Ni, were correlated to depositional conditions and used in a hierarchical cluster analysis to characterize five chemical facies (i.e., "chemofacies") across 10 cored intervals of the Woodbine and Eagle Ford Groups: (1) argillaceous, organic-matter poor; (2) transitional, organic-matter poor; (3) transitional, organic-matter moderate; (4) calcareous, organic-matter rich; and (5) calcareous, organic-matter moderate. Characterizations of organic matter richness, mineralogy, and environmental conditions of deposition were established by correlating between key element abundances, total organic carbon measurements, x-ray diffraction measurements, and petrographic observations of lithologic composition, bioturbation, and sedimentary textures. Combined analysis of elemental geochemistry, stratigraphy, and petrographically observed sedimentary textures indicates that all chemofacies were deposited in an intrashelf basin above storm wave base. The most organic-rich chemofacies was deposited on a dominantly dysoxic distal shelf. Mudstone organic matter enrichment is driven dominantly by the minimization of siliciclastic dilution and secondarily enhanced by oxygen restriction.

Regional correlations of chemofacies within a sequence stratigraphic framework developed from previous outcrop and subsurface work indicate a clear relationship between interpreted stratigraphy and chemofacies deposition. Generally, the highstand sequence sets of the Woodbine Group and upper Eagle Ford formation are dominated by mineralogically clay-rich, organic matter–lean, siliciclastic sedimentation and contain poor-quality source rock. Conversely, the transgressive sequence set of the lower Eagle Ford formation is dominated by organic matter–rich pelagic carbonate accumulation and contains excellent-quality source rock.

The co-authors of this paper are Arthur D. Donocan and Michael C. Pope.

Melissa J. Meyer received her M.S. degree in geology from Texas A&M University (TAMU) in 2018 and B.S. degree in geological engineering from the University of Wisconsin–Madison in 2015. She worked as a geologist for Apache Corporation from 2015 to 2019 where she applied sequence stratigraphic, geochemical, and petrographic analytical techniques to sedimentary basins in order to assess hydrocarbon resource potential. Since 2019, Melissa has been pursuing a Ph.D. in planetary science at Brown University.

GEERT DE BRUIN
SEG/AAPG Best Paper in *Interpretation* Journal Award

JOHAN TEN VEEN
SEG/AAPG Best Paper in *Interpretation* Journal Award

MARTIN WILPSHAAR
SEG/AAPG Best Paper in *Interpretation* Journal Award

NOORTJE VERSTEIJLEN
SEG/AAPG Best Paper in *Interpretation* Journal Award

KEES GEEL
SEG/AAPG Best Paper in *Interpretation* Journal Award

HANNEKE VERWEIJ
SEG/AAPG Best Paper in *Interpretation* Journal Award

STEFAN CARPENTIER
SEG/AAPG Best Paper in *Interpretation* Journal Award

Geert de Bruin, Johan ten Veen, Martin Wilpshaar, Noortje Versteijlen, Kees Geel, Hanneke Verweij, and Stefan Carpentier have been recognized for their authorship of the best paper published in the SEG/AAPG *Interpretation* journal titled "Origin of shallow gas in the Dutch North Sea – Seismic versus geochemical

evidence" (*Interpretation*, v. 10, no. 1, p. SB63–SB76).

In the Dutch offshore, we have observed numerous acoustic anomalies, usually bright spots, in seismic data of Cenozoic deltaic deposits. When associated with shallow gas, these bright spots are good indicators of resource potential, drilling hazard, or seabed methane emissions. We apply a combined seismic and petrophysical assessment to qualify the bright spots as direct hydrocarbon indicators (DHIs) for shallow gas and to exclude alternative sources of seismic anomalies. In some cases, we use other DHIs such as flat spots, velocity push-downs, transmission, and attenuation effects as estimators for gas saturation. A long-standing discussion concerns the sourcing and migration of shallow gas. Although vertical seismic noise trails (chimneys) tend to be seen as proof that shallow gas originates from the migration of deeper sourced thermogenic gas, the geochemical and isotope analyses almost exclusively indicate that the gas is of microbial origin and generated in situ in the Cenozoic strata. We conclude that the observed "chimneys" are most likely transmission effects, that is, artifacts that do not represent migration pathways of gas. Hence, we believe that for the Dutch offshore, the presence of shallow biogenic gas is not indicative of leakage of deeper thermogenic petroleum plays and cannot be used as an exploration tool for these deeper targets.

Editor's Note: Photographs and biographical information were not available for the recipients.

M. RAY THOMASSEN

L. Austin Weeks Memorial Medal

The L. Austin Weeks Memorial Medal is given in recognition of extraordinary philanthropy and service to advance the mission of the AAPG Foundation. The premier Foundation award honors the late L. Austin Weeks, whose philanthropic legacy set an exemplary standard. The award was established in 2008 and is the Foundation's highest award. Funding for the original award was provided through the AAPG Foundation Awards Fund. The 2023 recipient is M. Ray Thomasson.

Ray Thomasson, long before becoming a Foundation trustee, had already proved himself as one of the profession's most effective leaders and successful geoscientists.

Hailed as one of AAPG's GeoLegends in the centennial celebration, Thomasson has been called "a multitalented explorationist, researcher, leader and visionary."

He began his career with Shell, where he managed the offshore exploration division and its pioneering use of "bright spot" technology in the early 1970s; later headed strategic planning for Royal Dutch Shell in London and finished with Shell as chief geologist. He became president and CEO for two independent companies before founding Denver-based Thomasson Partner Associates in 1991.

But even with all of that activity, he found time to be an extraordinarily active AAPG volunteer, serving on dozens of committees and ultimately being elected AAPG president (1999-2000).

"It all goes back to my first introduction to the AAPG in 1956 as a student in the Ph.D. program at the University of Wisconsin," Thomasson said, "but I didn't become truly active until I went to work in Midland, Texas, where I found myself as president of the Southwest Section of AAPG. That threw me into the 'fray,' and I have never looked back.

"My love for and commitment to the AAPG simply has grown over the years as I got more and more involved," he said. "I love how the AAPG helped young geologists find their way and created an atmosphere of camaraderie and support. I moved 12 times in 17 years, and the contacts and friendships that I made through AAPG with each of those moves added enormously to my personal and business life."

On receiving the Weeks Medal, Thomasson said he "was totally surprised and humbled when I think about the august and marvelous individuals who proceed me in this award."

Working hard to promote AAPG and the Foundation's outreach was a natural step for him.

"As president of AAPG I had the opportunity to travel internationally and was very excited and heartened to see how much membership in the AAPG meant to our international community," he noted. "On one occasion (in Tunisia) I had come with new membership pins, which I put on each new member, who enthusiastically lined up to receive their pins. It was a very wonderful and heart-warming experience.

"I also have been especially proud of our Grants-in Aid program and our military aid program (Deana and Paul Strunk Military Veterans Scholarship Program)," he said, "which has helped many up-and-coming geologists."

Thomasson also received AAPG's Distinguished Service Award in 1995, the A.I. Levorsen Award in 1997, the DPA Heritage Award in 2008 and the Michel T. Halbouty Outstanding Leadership Award in 2009.

LARRY J. JONES
Chairman's Award

The Chairman's Award is the first award established by the Foundation and is given to extraordinary contributions (either monetary or service) to the AAPG Foundation and also to call attention to the role and value of the Foundation. The Chairman's Award is given to remarkable people for their extraordinary support of the AAPG Foundation and its programs. The 2023 award is presented to Larry J. Jones.

Larry L. Jones, who received AAPG honorary membership in 2019, provided decades of service, energy and leadership in a variety of roles for both the Foundation and the Association.

He retired as vice chair of the AAPG Board of Trustees in December 2022. He had served in that capacity since 2019, although his role with the Foundation – as a Trustee, a Member of the Corporation, a Trustee Associate and passionate supporter – spans more than a generation of accomplishments.

A partial list of his leadership roles includes

- A longtime member of the House of Delegates, he served as HoD chair in 2006-07, making him part of the AAPG Executive Committee and a member of numerous committees
- A member of the DPA leadership council
- Named a Member of the Corporation in 2013
- Secretary-Treasurer for the Trustee Associates in 2013-15, then vice chair for the TAs in 2015-16
- Trustees vice chair for 2019-23
- Also an Honorary Member of the House of Delegates, plus recipient of AAPG's Distinguished Service Award.

"Larry's wisdom and perspective have been extremely valuable to me in my role with the Foundation," McGhay said when Jones retired.

Jones, in a pre-pandemic video promoting the AAPG Foundation, was celebrated for his passionate love of the geosciences and his support for the Foundation.

SHANNON CHATWIN
Teacher of the Year Award

The Teacher of the Year award is given for excellence in the teaching of natural resources in Earth sciences, K-12.

The AAPG Foundation has named Shannon Chatwin as the recipient of the 2023 Teacher of the Year award.

Whatever you thought it meant to be a "hands-on teacher," get ready for a new standard.

Shannon Chatwin, this year's AAPG Foundation Teacher of the Year, raises the bar when it comes to giving her high school students a geoscience experience that isn't just fun, nor just creative, but lasting.

"As Benjamin Franklin said, 'Tell me, and I forget,'" Chatwin likes to say. "Teach me, and I may remember. "Involve me, and I learn."

Chatwin recently completed her 16th year as a science teacher at Owasso High School, located just north of Tulsa, where she leads three science courses along with three after-school STEM clubs.

"My philosophy is to get my kids outside and to experience the world firsthand," she said, "and get them to learn to see outside their box."

Those activities may be night hikes to nearby parks or treks to far off places like Costa Rica and China to "study the different biomes and explore the culture and natural ecosystems," where her students "noticed the extreme differences in the local flora and fauna as well as the geology of volcanoes and hot spring areas.

"These experiences get kids to want to learn about the environment around them," Chatwin said. "I believe that inquiry labs, research, hands-on activities and field trips instill greater ownership of the world around them."

And Chatwin's experience suggests measurable success in using her involvement-engagement approach.

"I have observed more learning happening with student-centered exploring and data collecting versus a touring or lecturing style only," she said. "Also, I'm lucky to have a supportive staff at Owasso Public Schools."

Incidentally, Chatwin also is licensed to drive a bus. Often, she literally transports her students to where they need to be for a learning experience.

"Many teachers are afraid to do this because it is controlled chaos at times," she said. "People often tell me it is too risky to leave the school grounds, but I feel very strongly about getting them to go on several field trips and do several labs each semester.

"If I don't do it with them," she asks, "who will?"

Chatwin is a native of Grand Junction, Colorado, and a graudate of the University of Northern Colorado.

DAVIDE OPPO

Inspirational Geoscience Educator Award

Davide Oppo, the Pioneer Production endowed professor of geology and faculty adviser at the University of Louisiana at Lafayette, has been named the recipient of this year's AAPG Foundation Inspirational Geoscience Educator Award.

Oppo, who was named an assistant professor at ULL in 2018, arrived there via a global path.

A native of Ivrea, Italy, Oppo received his bachelor's degree in marine environmental sciences from the University of Sassari, Italy, and both his master's degree in environmental sciences-marine geology and doctorate in Earth sciences from the University of Bologna, Italy.

His teaching career started in 2016 as a faculty member/geology lecturer at the University of Aberdeen, Scotland, while also teaching in the petroleum geology program at the University of Dar es Salaam, Tanzania.

At UL Lafayette he teaches undergraduate and graduate level courses of basin analysis, sedimentology and stratigraphy, scientific writing, evolution of coasts and continental margins, geology field camp and petroleum geology practicum.

Among his students are2 doctoral and 12 masters, plus he's mentored 24 other students during their research projects.

Add to that slate his role as faculty adviser for ULL's AAPG Imperial Barrel Award team, which recently won the international competition's Selley Cup for the second consecutive year.

"My former students now work for various industries in the broad energy sector (including Fugro and Shell), the U.S. federal government or continue in academia as Ph.D. students," he said.

"Over the years, my academic career brought me to teach across three continents to students from different cultures and backgrounds," Oppo added. "Because of this, I built a significant experience that ultimately shaped my personality as an educator and instructor."

"I am ecstatic to receive the AAPG Foundation's IGEA," Oppo

said when told of his honor. "Knowing that my colleagues and the students I worked with nominated me for this award touches me profoundly. It's my personal reminder that I am making a difference for some, and it's a boost to keep dedicating myself to this profession.

"Since my early days in academia, I have believed that the educator's job is not always easy and doesn't start and stop in the classroom but requires a well-rounded approach and dedication to the student's success," he said.

"Every day I aspire to positively impact the students," he added, "both during their studies and after when they are in their professional life."

For him, that's a calling that was itself stimulated by educators.

Oppo recalled the "many mentors and friends" who helped inspire him to pursue a career in geosciences, with particular mention of Rosella Capozzi (University of Bologna, Italy) and Andrew Moore (Earlham College, Richmond, Indiana).

"They showed me what a great educator is," Oppo said. "As my mentors have inspired me, I strive to inspire my students to love geosciences and be eager to push their knowledge boundaries further every day."