#### ASIA PACIFIC REGION PRESIDENT

Peter Baillie



# Departing On a High

This will be my last president's column: My three-year term is up and it is time to hand over to a new president who will lead a new council. Good luck and very best wishes to all concerned.

I am departing on a high – the recently held joint conference in Yangon, Myanmar, with our AAPG affiliate, the Myanmar Geosciences Society, was successful beyond our most optimistic dreams. A packed, excellent programme of oral and poster presentations was attended by 238 registrants. Sincere thanks to all involved!

Some other highlights of my term include: (in no particular order)

- The 2012 AAPG International Conference and Exhibition held in Singapore.
- Several GTWs and other conferences and co-hosted conferences held in the region.
- Indonesian student chapters swept the top three awards, including the top honor, Most Outstanding International Student Chapter, at the 2014 AAPG Annual Convention and Exhibition in Houston.
- Attending ACT 2012 in Islamabad, Pakistan, the first "official" AAPG presence at that conference.
- Initiation of a series of lunch and learn talks: Three events were held at Petronas in Kuala Lumpur and one in Brunei Darussalam.
- The Asia Pacific Region newsletter Discover was initiated and has thrived.

Future regional events are currently being planned for Malaysia, Australia, New Zealand and a return to Myanmar. In addition to these, the 2015 AAPG International Conference and Exhibition will be held in Melbourne, Australia, in September.

I have enjoyed meeting Students and Young Professionals and note with pleasure the higher profile our more active role "younger folks" are taking in the Association.

The 8th Annual SEAPEX Indonesian Student Leadership Conference, sponsored by the South East Asia Petroleum Exploration Society and AAPG Asia Pacific, was held in September 2013 in Medan and Lake Toba, North Sumatra, Indonesia. The event hosted representatives from each of the 13 Indonesian student chapters (39 participants) together with the local student committee (15).

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The event was fortuitously held at the same time as a presidential tour of the Region. AAPG President Lee Krystinik, Vice President-Regions John Kaldi and Executive Director David Curtiss were able to attend the event and share their collective and individual wisdom. Asia Pacific Vice President Agu Kantsler, Ahmad Yuniarto (chairman of Schlumberger Group Indonesia), Dharmawan Samsu (Steering Committee of Indonesian AAPG student chapters, country head of BP Indonesia) and I also attended and addressed the students.

It is clichéd, but also true: Tomorrow belongs to the young, not to my generation. It is therefore gratifying to know that the future is in good hands.

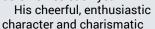
Finally, I would like to thank and pay tribute to all who have volunteered their time and effort to help AAPG in this vast and disparate Region – without their help, we could not exist. I also pay tribute to CGG, my employer, for their support of my activities.

PS: I extend a personal thank you to Adrienne and Mick.

#### **REGIONAL NEWS UPDATE**

### **Geovani Passes the Baton**

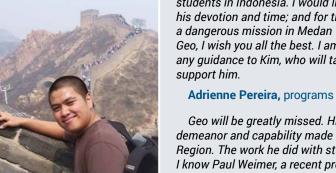
Geovani Christopher Kaeng (or Geo as we have come to know him) has passionately served AAPG Asia Pacific as student chapter coordinator since 2006. Between his tightworking schedules and busy international travel, he always devoted his time and attention to guide and motivate student chapters across the region. His dedication was reflected by the success of Asia Pacific student chapters to consistently shine in the spotlight at international AAPG Student Chapter awards' ceremonies each year.



leadership never ceased to inspire the students to grow, learn and contribute. Today, Geo has decided to pass the prestigious position to Ong Hock Kim (Sarawak Shell, Malaysia), who formerly worked with Geo as student chapter coordinator assistant. The AAPG Asia Pacific Region would like to express sincere gratitude for his outstanding performance and service over the last eight years.

Below are several testimonials from people who have had the honor of working with him. We sincerely hope that Geo will continue to inspire the student chapters of AAPG Asia Pacific. We also are very optimistic that Ong Hock Kim, with his vast experience in volunteering for the organization, is also going to shine as the new student chapter coordinator.

Geo has been wonderful to work with. The Oversight Committee takes good care of their student chapters and their students. I had the pleasure of witnessing the esteem in which Geo is held by the



students in Indonesia. I would like to say thank you to Geo for all his devotion and time; and for the fun times we have had, going on a dangerous mission in Medan — riding a bechak just to eat durian. Geo, I wish you all the best. I am sure you will be there to provide any guidance to Kim, who will take over. We also welcome and will support him.

#### Adrienne Pereira, programs manager, AAPG Asia Pacific Region.

Geo will be greatly missed. His readiness to assist, his cheerful demeanor and capability made life easier for many of us in the Region. The work he did with student chapters is highly appreciated. I know Paul Weimer, a recent president, was particularly impressed when Geo personally helped him during his presidential tour.

Thanks Geo.

#### Peter Baillie, Asia Pacific Region President 2011-14

I first met Geovani C. Kaeng eight years ago when I was still a university student. He came to our university and gave us a short talk and sharing session. It was an unforgettable moment for me to meet with one of the "mentors of my life." I see him as a brother and part of my family instead of just friends from a professional association. As a student chapter liaison for the AAPG Asia Pacific Region, an ex-AAPG student member, and also representing Indonesian Student Chapter Oversight Committee and Young Professionals in Indonesia, I would like to thank Geovani for everything he has done. Thanks for all the devotion, assistance, discussions, mentorship and brotherhood. Thanks for always showing us that nothing great was ever achieved without enthusiasm.

I hope you'll continue to keep the success you've had. Keep learning! Keep hoping! Keep inspiring!

**Dwandari Ralanarko**, AAPG Asia Pacific Student Chapter Liaison, Young Professional, and Geovani's "student" and close friend



### Opportunities and Advancement in Coalbed Methane in the Asia Pacific

Brisbane, Australia 12-13 February 2015 Convenor. Andrew Garnett, University of Queensland, Australia

# Modern Depositional Systems as Analogues for Petroleum Reservoirs

Wellington, New Zealand 21-23 April 2015 Convenor. Mac Beggs, New Zealand Oil & Gas Ltd.

### Tectonics and Sedimentation of South China Sea Region

Kota Kinabalu, Sabah, Malaysia 26-28 May 2015 Convenors: Ioannis Abatsiz, CCOP Denmark and Herman Darman, Shell, Malaysia

For more information, contact Adrienne Pereira (apereira@aapq.org) or visit www.aapq.org/events/event-listings



Peter Baillie, president of the AAPG Asia Pacific Region, signing the memorandum of understanding. He is flanked on his right by Gerard Wieggerink, director Asia Pacific, EAGE, on his immediate left is U Soe Myint, president of Myanmar Geosciences Society and to his extreme left, Adrienne Pereira, programs manager, AAPG Asia Pacific Region.

### AAPG, EAGE, MGS to Present Geosciences Conference in Myanmar

Following the success of the inaugural Myanmar conference in August, AAPG and MGS have welcomed sister society EAGE to offer the first geosciences conference in Yangon in November 2015.

AAPG Asia Pacific Region President Peter Baillie said, "Both AAPG and EAGE saw a need for a quality, focused geoscience event in this country where the industry and academic world could come together and discuss. And with the addition of the Myanmar Geosciences Society, we have found our logical local partner to work with, thus enabling us and EAGE to give back to the local community as per our society's mission."

# AAPG, MGS Hold Inaugural Myanmar Conference

# The Tectonic Evolution of Myanmar and its Basin Development with Special References to its Petroleum Occurrences

AAPG held its first conference in Myanmar in August. It delivered a highly successful technical program that involved many outstanding presentations from across the globe.

The technical program, titled "Tectonic Evolution of Myanmar and its Basin Development with Special References to its Petroleum Occurrences," was attended by 238 local and international delegates from 16 countries.

The inaugural conference consisted of 25 oral presentations and nine poster presentations with several keynote addresses from prominent speakers such as U Myo Myint Oo, managing director of Myanma Oil & Gas Enterprises; Ian Metcalfe, University of New England; Win Swe, Myanmar Geosciences Society; Chris Morley, Chiang Mai University, Thailand and Claude Rangin, Nice University, France.

With recent geopolitical changes leading to international interest and investment, Myanmar has come into the spotlight for its potential for new plays and redevelopment of existing fields. The focus of the conference, hosted by the AAPG Asia Pacific Region and the Myanmar Geosciences Society, was for a broader and deeper understanding of the geology of Myanmar and its impact on the distribution of hydrocarbons.

The conference also was sponsored by prominent names in the industry. Petronas, Shell, Chevron, Total, Woodside, Dolphin Geophysical, Geokinetics, Terrex Group, ION, Daewoo, Schlumberger, Myanmar Development Co., and the European Association of Geoscientists and Engineers.

AAPG would like to thank all the sponsors for contributing to the success of the event.





Peter Baillie, AAPG Asia Pacific Region president



U Soe Myint, Myanmar Geosciences Society president



U Myo Myint Oo, Myanma Oil & Gas Enterprise managing director

### **STUDENT ACTIVITY**

# New AAPG Student Chapter: University of Delhi



Opening speech by C.S. Dubey, head of geology department, University of Delhi

AAPG Asia Pacific welcomes the University of Delhi Student Chapter to the AAPG student chapter family. The new student chapter was founded in October 2013 in the department of geology at the University of Delhi. The new chapter officially kicked-off with an inauguration event and website launching in December 2013. The event was attended by C.S. Dubey, head of the geology department at University of Delhi, Siddarth Singh, president of the student chapter, and fellow professors and student members.

After the successful inauguration event and website launching, AAPG University of Delhi Student Chapter marched forward with participating in the 2014 Imperial Barrel Award for the first time. In the future, they are looking to host a national level workshop and conference and also Visiting Geoscientist Program. With their great start, the chapter has received a lot of positive response from faculty members and students.

## Indonesian Universities Sweep Most Outstanding Student Chapter Awards at AAPG 2014 ACE. Houston

We are proud to announce that the top award was taken by University of Pembangunan Nasional "Veteran." Honorable mentions were given to Gajah Mada University and Diponegoro University. Please accept our congratulations.







University of Pembangunan Nasional "Veteran"

Gajah Mada University

Diponegoro University

# **UPES Newsletter**

In its first formative year, the University of Petroleum and Energy Studies (UPES) Student Chapter has been involved in organizing field trips, guest lectures and recently launched a website and



a comprehensive newsletter titled "Geocache."

Under the guidance of Uday Bhan, an assistant professor of the department of petroleum engineering and earth sciences at UPES, and a committee of 35 students, the chapter has managed to achieve its goals and grow its presence at the university to 300 members. Recently the chapter was among the finalists of the AAPG L. Austin Weeks Grants – highlighting the efforts of the chapter and its hardworking students.

The chapter was formed with the goal of promoting networking opportunities and furthering education in the field of petroleum geology at UPES. The explicit objectives of the chapter are:

- To educate the members about important issues affecting the petroleum industry.
- To provide relevant opportunities for the development of chapter members.
- To support and encourage research work in petroleum and mineral exploration and production in the most economical manner.
- To develop expertise in petroleum industry for the reduction of environmental issues.
- To establish a common platform with other chapters to achieve a singular goal of excellence.

With numerous university staff members praising the progress of the chapter, it appears the UPES Student Chapter is well positioned to achieve its objectives, and to continue its successful journey.







# **Indian School of Mines University**

The AAPG Indian School of Mines University (ISMU), Dhanbad Student Chapter held its second student Annual Meet in February 2014. The event, aimed at developing a strong platform for interaction and exchange of knowledge between industry and academia, attracted more than 100 participants from various universities and colleges in India.

ISMU student chapter general manager and head of the geology group with Oil and Natural Gas Corporation of India, M. Shanmukhappa, began the meet with his talk about biostratigraphic correlation of hydrocarbon basins.

An intensive workshop followed involving exercises on case studies and presentations coordinated by Sujoy Mukherjee, V. Ravichandran, Somnath Bose, Sanjeet Singh and Saphalata Samal from Cairn India.

The event was sponsored by Cairn India and Shell India. The meeting chair and director of ISMU, D.C. Panigrahi, gave a stimulating and encouraging speech on innovative ideas to encounter challenges faced by the petroleum industry.

Other members who contributed to the meet were Sujoy Mukherjee with DGM subsurface of Cairn India; Atul K. Varma, department head of applied geology at ISMU; Mrinal Kanti Mukherjee, faculty adviser of AAPG Student Chapter and convenor of the students Annual Meet 2014 and Sachit Saumya, student president of AAPG Student Chapter.

Second day events conducted by Shell India included numerous competitive events including a Shell case study and HSSE video and photography contest. Also, Shell India conducted a panel discussion between Paul Taylor, Kirk Hansen, Abhinandan Kohli, Rituraj Singh and Anshul Kapoor from Shell and M.K. Mukherjee (ISMU).

Several competitive events such as poster presentations, paper presentations, geomodeling, quizzes and geological Olympiad were held

Members from AAPG University of Delhi Student Chapter, led by President Siddarth Singh, attended this meeting in order to gain some valuable experience by interacting with industrial experts who attended this event. Making the long trek to Dhanbad paid off for them — many of them won awards, including:

- First place in the geological Olympiad.
- First place in the guiz competition.
- Second place in the photography contest.
- Tied for third place in the case study contest.

The closing keynote address was given by Goutam Ghosh about exploration strategies of hydrocarbons, alternative energy resources and changing market scenarios.

Judges for the event included M.K. Mukherjee, R. Anand, S. Sarangi, Sahendra Singh, Goutam Ghosh, Saphalata Samal and Sanjeet Singh. Winners of the events were awarded by certificate of merit.

Congratulations to all, especially to the hard-working committee from the student chapter in Dhanbad.



### RESEARCH, DISCOVERY AND DEVELOPMENT

### Some Insights Into Overpressure From Indonesia

Agus M. Ramdhan (Department of Geology and Department of Groundwater Engineering, Institut Teknologi Bandung Indonesia)
Neil Goulty (Department of Earth Sciences, Durham University, UK)

#### **Generation of overpressure**

Our understanding of overpressure in sedimentary basins has been dominated by concepts developed from observations in two distinct areas: the Gulf of Mexico and the North Sea. Two main classes of mechanism have been proposed for the generation of overpressure: loading mechanisms leading to compaction disequilibrium and unloading mechanisms that reduce the effective stress.

Loading refers to an increase in confining stresses, either by burial or tectonic compression, which would lead to normal mechanical compaction of sediments where the pore pressure remains hydrostatic. Where water expulsion is inhibited by thick, low permeability overburden, the pore water cannot achieve hydrostatic equilibrium. The U.S. Gulf Coast area with its high sedimentation rate has commonly been cited as the prime example of this over-pressuring mechanism (Pennebaker, 1968; Reynolds, 1970).

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Unloading refers to a decrease in effective stress, which may result from a decrease in confining stress, as occurs during exhumation, but also to mechanisms that increase pore pressure without the need for an accompanying increase in confining stress. Among the geological processes that are capable of decreasing effective stress by increasing pore pressure are clay diagenesis and hydrocarbon generation. Haltenbanken and the Northern North Sea areas offshore Norway (Hermanrud et al., 1998; Teige et al., 1999, 2007) and the Eugene Island area of the Gulf of Mexico (Bowers, 2001) are places where unloading mechanisms have clearly generated overpressure.

In this article, we discuss the results from investigating overpressure in the Shelfal area of the Lower Kutai Basin,

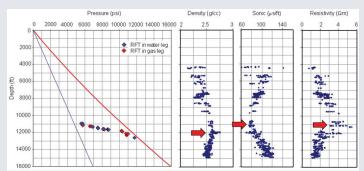


Figure 1. Overpressure approaching the lithostatic stress in a well located in the shelfal area, Lower Kutai Basin (Goulty et al., 2012).

Indonesia, where we have found that the overpressuring is quite unique in terms of generating mechanism because loading mechanisms are not involved (Ramdhan and Goulty, 2010, 2011, 2014; Goulty et al., 2012).

#### **Observations from Indonesia**

Figure 1 shows data from a well with extreme overpressure from the Lower Kutai Basin, Indonesia. It is an extraordinary well in terms of overpressure magnitude, and in how the drillers handled such a very tight drilling margin (the difference between pore pressure and fracture gradient) without having a significant drilling incident.

Previous researchers had interpreted the cause of overpressure in the shelfal area to compaction disequilibrium. This interpretation was the conventional wisdom, based on the knowledge that the Lower Kutai Basin contains thick Upper Miocene reservoirs at 3-4 km depth, and there has been moderately rapid recent burial of  $\sim\!300$  m/Ma. However, we found that the mudrock properties in the overpressured section do not fit the compaction disequilibrium hypothesis.

In Figure 1, the top of overpressure is located at ~11,000 ft. depth, and increases sharply to within 1000 psi of the lithostatic stress at ~12,000 ft. depth. Sonic and resistivity log responses start to reverse in trend towards higher sonic transit time and lower resistivity at the top of overpressure, but the density continues to increase down to ~12,000 ft. The classic wireline log response to overpressure generated by disequilibrium compaction is log trends that are constant with depth, representing constant porosity where expulsion of pore water has been inhibited. Reversals in sonic and resistivity trends where density continues to increase with depth are a strong

indication that overpressure has been generated by unloading.

Consideration of the geothermal regime confirms the unloading interpretation. At the top of overpressure, the temperature is ~1,300 C, where smectite has generally been converted to mixed-layer I/S with around 80 percent illite layers. At such high temperatures, mudstones are in the chemical compaction regime, and would not yield by mechanical compaction even if the pore pressure was reduced below hydrostatic pressure. The top of overpressure coincides with vitrinite reflectance values that correspond to the onset of gas generation in this prolific basin, so gas generation is implicated as the primary mechanism of overpressure generation, with clay diagenesis playing a subsidiary role.

An interesting phenomenon in this well is the reversal in density log toward lower density with increasing depth, starting at  $\sim\!12,\!000$  ft. The onset of density reversal occurs where the pore pressure has almost reached the lithostatic stress (see red arrow on density log in Figure 1). Our first interpretation of the cause of density reversals was micro-cracking where the pore pressure had reached the minimum horizontal stress, but we retracted that interpretation when we realized that the sonic log character is too consistent for rocks whose porosity has been reduced by several percent through fracturing.

#### **Conclusions**

The observations from the Lower Kutai Basin give additional insights into overpressure science. To our knowledge, there is no other basin in the world where the sediments are relatively young (Neogene) and being deposited at a moderately rapid burial rate, yet it has been possible to discount compaction disequilibrium as an overpressure generating mechanism. Key factors are the lateral reservoir drainage through the multiple, stacked, mouthbar sands in the Upper Miocene succession, which means the top of overpressure is deep, and the relatively high geothermal gradient.

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### **EVENTS**

# Offshore Technology Conference Asia 2014

AAPG student chapters from three universities – Universiti Teknologi PETRONAS, Universiti of Malay and Universiti Kebangsaan Malaysia – were sponsored by Talisman Energy to volunteer themselves as student helpers in the Offshore Technology Conference (OTC) Asia 2014 in March.

OTC has been held annually in Houston for the past 46 years and for the first time this year, OTC introduced their most recent event OTC Asia. The fourday event, with the theme "Meeting the Challenges for Asia's Growth," was held in Kuala Lumpur Convention Centre and organized collaboratively by 13 of the energy industry's leading professional associations.

OTC Asia represents the value chain of offshore oil and gas exploration and production. Student volunteers had the opportunity to meet with peers and industry professionals to learn about the





current oil and gas technologies. They also gained a lot of experience from this event namely the pre-event management for volunteering and exercising a good corporate and professional communication with corporate members and the public.

The student volunteers also had a special privilege to attend a technical talk at Talisman Energy booth. Lai Chee Yong, senior geophysicist, from Talisman Energy delivered a very informative lecture regarding geophysical operations. The short lecture was very helpful for the student volunteers to understand how geophysical data is acquired from the field and how interpretation of data works. Members of these three student chapters also have met with AAPG members from Trisakti University, Indonesia. Three representatives from Trisakti University were glad to share their ideas and thoughts. A short meeting between Universiti Teknologi Petronas and Trisakti University was conducted.

Overall, the conference has been good exposure for students to discover the

### SPE/AAPG Workshop In Ho Chi Minh City

SPE and AAPG successfully convened a joint workshop in Ho Chi Minh City, Vietnam in May. The topic was "Optimising Marginal Fields by Understanding Data and Cost Implications: Reservoir Quality, Architecture and Economics," and was the first collaboration in the Asia Pacific.



current technologies in the industry. Students grabbed this golden opportunity to ask for more details from industry professionals and send their CVs in to get an internship. Talks and technical paper sessions were helpful in gaining extra knowledge on upstream and downstream technologies. This grand event has definitely brought students a lot of benefits.

## **Indonesian Petroleum Association Convention**

The 14 AAPG Indonesian student chapters and some of AAPGs Young Professionals (YPs) enthusiastically livened up the AAPG booth at the Indonesian Petroleum Association Convention and Exhibition 2014 in May.

It opened with a TESEP (Teacher Earth Science Education Program) meeting with Robert Shoup.

TESEP is a program of geoscience guest lectures from Australian universities, which will be adopted in Indonesia as AP-GEP (Asia Pacific-Geoscience Education Program). The meeting discussed the preparation of AP-GEP implementation in Indonesia. The preliminary meeting was attended by Robert Shoup as the initiator of the program, Dwandari Ralanarko with CNOOC SES and coordinator of Indonesian student chapters and Putu Ayu Saraswati with Ikon Science as the representatives of AAPG Indonesia.

Each Indonesian student chapter had 30 minutes to present their activities in the campus by using poster media that highlighted their latest projects. The students also gathered for



a student chapter sharing session that was held twice over two days for exchanging experiences about managing the chapters. The YPs also had the opportunity to meet and network with each other during three YP talks on each day of the convention. The talks were delivered by Bagus Priyanto (Statoil Hydro), Dwandari Ralanarko (CNOOC SES Ltd.) and M. Amin Ahlun Nazar

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(Pertamina EP) and revolved around speakers' experiences and advice on leadership, organization, student chapter operation, and technical knowledge on geology and geophysics.

A lively career talk was delivered by Herman Darman (Shell Netherlands), followed by a panel discussion by John Kaldi (University of Adelaide), Peter Baillie (president, AAPG Asia Pacific Region), Herman Darman, Robert Shoup (independent subsurface consultant) and Robert Morley (stratigrapher).

The highlight of the AAPG booth was the congratulatory award session for three student chapters that swept all three top awards for the "AAPG Outstanding International Student Chapter," namely Outstanding Award for Universitas Pembangunan Nasional "Veteran" Student Chapter and Honorable Mentions for Universitas Padjajaran and Universitas Gadjah Mada Student Chapter. Universitas Padjajaran Student Chapter also won the second prize in the AAPG Student Chapter Video Contest. The awards were presented by Peter Baillie, AAPG Asia Pacific president, and received by the respective presidents of the student chapters.



- Association of Petroleum Geologists India
- Pakistan Association of Petroleum Geoscientists
- · Indian Association of Petroleum Geoscientists
- Japanese Association for Petroleum Technology
- · New Zealand Association of Petroleum Geologists
- · Balochistan Geoscientists Association
- · Petroleum Exploration Society of Australia







- Southeast Asia Petroleum Exploration Society
- · Geological Society of Brunei
- · Geological Society of India
- · Geological Society of Malaysia
- · Geological Society of Thailand
- · Myanmar Geosciences Society

