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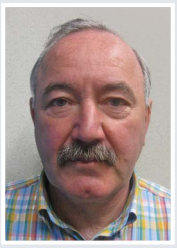
2015 August ISSUE

ASIA PACIFIC REGION PRESIDENT


Peter Grant

Dear Asia Pacific Member,

By the time you read this, the AAPG Annual Convention and Exhibition (ACE) in Denver has successfully concluded. This is the world's largest gathering of petroleum geologists and provides the opportunity and forum to showcase our industry, enter into technical debate and challenges and see new ideas and concepts. This was my first time as one of the AAPG officials and I was overwhelmed with the number of people who gave their time to contribute to this great industry body. The meeting had about 6,000 attendees and eight parallel technical sessions with additional poster presentations. The beauty of our science is that we understand more as time passes and when we have more and higher quality data to review. When I graduated from college in 1974 we weren't allowed to mention continental drift as it was considered then almost to be heretical. ACE also provides us with the chance to renew old acquaintances and forge new ones, which can only be for the betterment of us all.

At ACE, once again, our Region did well: University of Brawijaya, Indonesia walked away with the Best International Student Chapter award. Congratulations to them for raising the flag again for Indonesia.

Our Region also captured the top three spots for the Student Chapter YouTube video contest: University Pembangunan Nasional took first place, followed by Institute of Technology Bandung and then Brawijaya University – all three universities from Indonesia.

Congratulations to all.

The fact that our Region's universities are doing so well indicates the future strength of our Association. We just need to ensure that the students value becoming full-time members after their graduation.

Our Region's winning Imperial Barrel Award team from Curtin University offered a great presentation and did us proud.

I attended the first meeting of the student chapter at Curtin University here in Perth a few weeks ago and it was very reassuring that a large number of geoscientists attended. The message that came out of our discussions was: Keep the research moving along and look at new frontiers and new ideas in existing basins. New technologies need to be developed that are innovative and cost effective. I hope that our chapter leadership team can get around to visiting as many student chapters as we can over the next two years to pass on similar messages and provide encouragement to our students.

AAPG council was represented at the recent SEAPEX meeting in Singapore and it was good to see that these same two concepts have played a significant part in making new discoveries in the region, from the NWS shelf in Australia, offshore Myanmar, the pinnacle reefs in Malaysia and deepwater channel systems offshore China and Sabah. It also is encouraging to see activity increasing in New Zealand and Indonesia. Let it continue!

We have run very successful Geoscience Technology Workshops in Brisbane, New Zealand and Kota Kinabalu already this year and have a joint conference planned for Myanmar in mid-November. Details are contained further in this document. AAPG is also holding their International Conference and Exhibition (ICE) this year in our Region so I encourage you to attend if you can.

ICE this year is in Melbourne, Australia in September and while not as big as ACE, it is a great opportunity to listen and learn from some of the leading global geoscientists and the application of new technologies. If you can attend, it will prove invaluable and the registration fee is less than a standard technical course of a similar duration, so convince your managers that this is much more beneficial!

Geology is not static as we all know, and the recent devastating earthquake in Nepal and one just recently in Sabah, is testament to this. As a society our thoughts reach out to the people of Nepal and Sabah as they grieve for their losses and rebuild for the future. Our region sees significant tectonic movement and it is societies like ours and our institutions of learning that can look into better ways of predicting such events. We encourage them to continue to implement this research.

My best regards and I hope that our leadership team gets a chance to meet with you during my tenure as AAPG Asia Pacific Region president.

IN THIS ISSUE

EVENTS

First AAPG GTW in Wellington

By Adrienne Pereira

The beautiful city of Wellington was the venue for AAPG's first Geosciences Technology Workshop (GTW) in New Zealand. The Wharewaka convention center, adjacent to Wellington Bay, welcomed 66 industry delegates to the event. The workshop's theme, "Modern Depositional Systems as Analogues for Petroleum Reservoirs," was convened by Mac Beggs of New Zealand Oil & Gas, with a committee of six other experts.

Keynote speakers included: Charles K. Paull, Monterey Bay Aquarium Research Institute, Moss Landing, Calif.; Dale Leckie, Canadian Society of Petroleum Geologists, University of Calgary, Canada; M. Blum, University of Kansas, Lawrence, Kan.; John McPherson, SED&RQ Pty Ltd, Australia; and Bruce Ainsworth, Chevron Energy Technology Company, Australia. Sixteen other industry experts provided very interesting talks and there were static poster presentations from students, whose attendance was kindly sponsored by Chevron. Our appreciation goes to them, as well as to the other sponsors Schlumberger, New Zealand Oil & Gas, GNS Science and Excel Geophysical.

Wellington GTW Field Trip

By Cliff Atkins

The workshop included a one-day field trip to the broad alluvial plains of the Wairarapa Valley east of Wellington, New Sealand. The trip was led by Cliff Atkins, Victoria University of Wellington, with assistance from Greg Brown (GNS Science) and involved 20 GTW participants.

The group examined processes and sediments in several modern depositional settings including: braided gravel river, small river-dominated lacustrine delta and coastal lagoon/beach barrier complex. Larger-scale source to sink sediment flux in the Wairarapa and the effect of sea level change was discussed at the beach barrier site with the aid of high-resolution sea floor imagery of the offshore canyon system provided by Phil Barnes with National Institute Water and Atmospheric Research.

The modern depositional settings provided direct analogues for a traverse through a Pleistocene sequence of marginal marine and terrestrial (lacustrine and fluvial) rocks exposed in hills of the eastern side of the Wairarapa Valley. The field ended with a visit to one of the local vineyards.

Indonesian Universities Take Top Awards Again

At the recent AAPG Annual Convention and Exhibition in Denver, Indonesian schools again scooped top awards. Heartiest congratulations to:

- Outstanding International Chapter: Brawijaya University, Indonesia.
- Student Chapter YouTube video contest:
  - First place and $1,000: UPN (University of Pembangunan Nasional Veteran.
  - Second place and $300: Institute of Technology Bandung.
  - Third place and $100: Brawijaya University.

We are very proud of you all.

EVENTS

AAPG Kota Kinabalu GTW A Big Success!

By Adrienne Pereira, Asia Pacific Region Programs Manager

Left to right: Manuel Pubellier, Mazlan Madon, Robert Hall, Claude Rangin, Chris Morley, Duncan Witts (CGG UK) and Moyra Wilson (Curtin University, Perth)

There were 116 delegates who attended the Geosciences Technology Workshop (GTW) in Kota Kinabalu, Malaysia, to listen to technical talks under the theme "Tectonic Evolution and Sedimentation of the South China Sea." Keynote talks were given by Robert Hall, Royal Holloway University of London; Claude Rangin, Nice Sophia Antipolis University/Geotecto Consulting, France; Manuel Pubellier, CNRS and Ecole Normale Supérieure, France; Chris Morley, Chiang Mai University, Thailand; and Robert Morley, Palynova, UK.

Prior to technical papers being delivered by 19 presenters, welcome addresses were presented by Mazlan Madon of Petronas and Adichat Surinkum of CCOP. Twelve technical posters were also displayed and much interest was generated.

Co-convened by Herman Darman of Shell Malaysia and Ioannis Abatzis of GEUS Denmark with an advisory and technical committee comprising industry experts, this workshop was deemed as beneficial and very interesting by delegates.

Thank you to sponsors IHS Singapore, Shell and Petronas for supporting this event; and thank you to Herman, Ioannis, Allagu Balaguru and technical committee for your efforts in making this GTW a success.

Asia Pacific IBA 2015 Result

Curtin University, Perth, Australia, won the 2015 AAPG Asia Pacific Region IBA competition, which earned them a spot in the final competition held at the Annual Convention and Exhibition in Denver in May. Two Honorable Mentions were awarded to The University of Adelaide, Australia and China University of Petroleum, Beijing. Teams from 14 geoscience universities competed in the Asia Pacific Region competition and were evaluated on multiple aspects including integrated petroleum systems analysis, basic technical interpretations, regional context, teamwork, and more.

Our congratulations go to Curtin University and all participating schools. Judges for this event were: Leo Tjahjadi, BP Indonesia; Sudhakar Vijapurapu, Shell Miri and Geoff Freer, Mubadala Singapore. Asia Pacific Region President Peter Grant also joined the judging panel, providing him a first-hand experience at this exciting competition.

Curtin University, Perth, Australia 2015 IBA Team

The Australian School of Petroleum, University of Adelaide 2015 IBA Team

China University of Petroleum (East China) 2015 IBA Team

AAPG Asia Pacific Region

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- Abstracts invited by 30 August 2015 to apereira@aapg.org (500 words with 100 word CV with presenter's name underlined).
- Abstracts received are deemed to already have a corporate approval and affirmation that the presenting author will register to present at the event.
- Become a corporate sponsor to highlight your presence at this highly interesting event.

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Asia Pacific Representatives at GSCLS and ACE

By Kartikeya Singh Sangwan and Birgita Laksmi Novitasari

The Asia Pacific Region was represented by Birgita Laksmi of University of Pembangunan Nasional Veteran from Yogyakarta, Indonesia and Kartikeya Singh Sangwan of University of Delhi, India at the Global Student Chapter Leadership Summit (GSCLS) and the Annual Convention and Exhibition (ACE), both held in Denver in May. It was a great meeting of young professionals, students and academicians from the petroleum industry, and provided both of us with a great platform to get exposure to recent trends and demands of the industry and share them with other members in the Region.

GSCLS was an opportunity to inculcate good leadership skills in the various chapter leaders coming from different parts of the world. Young professionals from the petroleum industry, headed by Bryant Fulk, chair of the Student Chapters Committee, shared real life examples and discussed various aspects of leadership skills. The aim of the entire process was to establish qualities of effective management, control and growth of our chapter and dissemination of our experience with other chapters in the Region so as to ensure the overall growth of the Region.

Significant discussion was held to make us aware of the structure of AAPG. Functioning of any organization is best understood when all processes in each part of the hierarchy are known. This was significant because we as students came to know our position in the organization and what AAPG expects of us.

The most interesting part of the summit was the discussion on the Harvard Business School case study to provide us a model of management of human resources, a critical part of our operation as student leaders. The highly interactive session was a unique opportunity to explore the thought process behind effective and best possible decisions in interest of the people and the organization. Individual views and opinions from the student leaders provided for diversity in the possible solutions to the problem in case study.

It was also a great opportunity for us to introduce our chapter activities and achievements over the past year to other chapter leaders. More than that, it was an occasion of learning and gaining knowledge from what other chapters are doing, and we developed sister chapter relationships between other chapters across the world. This enabled us to pool our resources to meet our chapter challenges in the future. Last but not least, we had a

session to discuss dynamics of the petroleum industry, including how the recruitment procedure works in different companies.

We also had the opportunity to join the AAPG ACE 2015 held in Denver with three days of technical sessions, and more than 850 oral and poster presentations including discovery thinking.

AAPG ACE and GSCLS events were briliant and extraordinary learning exposures for us, and as participants we thank AAPG for this opportunity. Our experience and knowledge would go a long way in development of our chapters as well as those around us through the sharing of our experiences. We gathered with a lot of people, young professionals as well as students; there were so many advantages that we got from this event. We are very grateful to AAPG Asia Pacific Region for the support and nominations, and to AAPG headquarters in Tulsa for sponsoring our trip to Denver.

"Gratitude can transform common days into thanksgivings, turn routine jobs into joy and change ordinary opportunities into blessings." – William Arthur Ward

Petroleum Geo Skills Comp Held at UPC

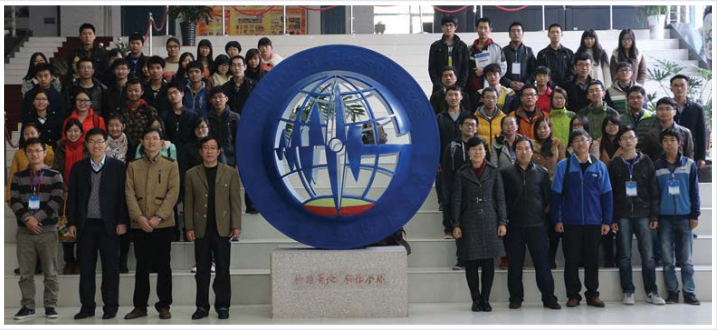
By Wang Lin

The second Qingdao Universities Petroleum Geological Skills Competition was held at China University of Petroleum (East China) and hosted by the China University of Petroleum Student Chapter, associated with the postgraduate association from the China University of Petroleum, School of Geosciences, the Ocean University of China (OUC) School of Geology, and the Shandong University of Science and Technology (SDUST) School of Earth Science and Engineering last November.

The competition, for the full-time students in the three universities, aimed to improve students' ability to be able to apply geological theories they've learned into the actual work, training their overall quality and comprehensive capabilities that can be applied to professional knowledge, and maintaining the communication bond between universities in Qingdao area.

The six-week event, which was attended by 67 students who were divided into 15 teams as participants, involved training, preparation and the formal competition. The formal competition stage consisted of two kinds of competition, the Oil and Gas Exploration Project Design and Basic Geological Skills Contest, which was divided into two kinds of competition: The Rock Ore Appraisal and The Comprehensive Geological Knowledge Competition.

Dezhao Wang (UPC) stressed the importance of this competition and is hopeful the three universities will take turns hosting the event in the future. Anlong Li and Xiugang Xu from OUC, Guo-qing Wang from SDUST, Yonghong Yuan from UPC research department, Qilong Sun from the UPC School of geosciences, Dean Yongjun Ren from resource department, Dean Longwei Qiu from geology department, and student representatives from each of the three universities attended the opening ceremony.



Eight teams from OUC and UPC explained the exploration plan of the study area from the aspect of regional geological survey, petroleum system analysis, technical interpretation, risk assessment. Team Wildcats from UPC won first place, Team Geophysical Prospecting from OUC and Team Rainbow Voyage from UPC won second place, and three other teams shared third place. The Geological Knowledge competition consisted of three stages: "Knockout," "Resurrection" and "Final." Team B from OUC won first place, Team C from UPC won second place, Team B from SDUST won third place and Team B from UPC took home Honorable Mention.

Deng Shaogui, associate dean of The Earth Institute at China University of Petroleum (East China) and one of the contest judges, expressed his congratulations to the winning teams and also expressed gratitude to the teachers and students who had worked hard for the event. Li Jingwen, Shandong University of Science and Technology, expressed her gratitude to the organizers and passed on best wishes to the students.

Unconventional Gas Conference to be Held in Sydney

Unconventional gas exploration and production in many regions of the world has produced benefits for many, but opposition from others. The Australian Academy of Technological Sciences and Engineering (ATSE) will hold a two-day international conference on unconventional gas in Sydney, Australia, 22-23 September 2015 to address the complex cross-disciplinary issues related to unconventional gas developments. This conference will involve leading scientists, engineers, social scientists, economists and the community from a range of national and international organizations. On the evening of day two, there will be a Community Forum with discussion and questions to follow. Following the conference, there will be a one-day workshop of international academies from Argentina, Australia, Canada, China, Germany, New Zealand, South Africa, Switzerland, United States and United Kingdom. Together, they and leading invited experts, will develop a set of findings relevant to the policy development and unconventional gas. The workshop will draw on national reports prepared by international academies, informed by discussions at the conference. To register for the conference, and for further details on the topic, speakers and program, go to www.atse.org.au/gas.

ISM Organized Annual Student Meet

By Mrinal Kanti Mukherjee, Associate Professor Coordinator, ISM

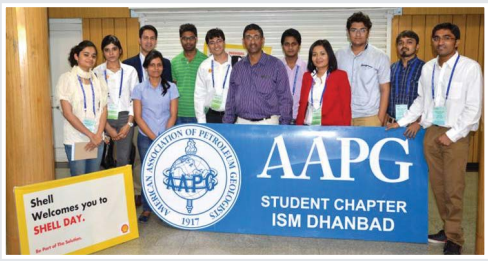
The Indian School of Mines, Dhanbad, AAPG student chapter organized the third annual Students Meet in March. The meet aimed at developing a strong platform for interaction and exchange of knowledge between industry and academia through keynote addresses, workshops, competitive events and interactive sessions with industrial professionals. The event began with an excellent keynote address by Narendra Kumar Verma titled, "Peak oil: Reality or Mirage?" He spoke on the effects of global oil price decline and its impact on exploration and production. It was followed by "Cairn Day" workshop, involving exercises and presentations on case studies for the participating students and was coordinated and evaluated by Cairn representatives.

More than 100 participants from different universities and colleges in India attended the meeting, which was supported by Cairn India Ltd., ONGC Videsh and Shell India. The inaugural ceremony was presided by professor D.C. Panigrahi, director, ISM, with Sujoy Mukherjee of Cairn India, as the guest of honor. Other dignitaries present were professor Atul K. Varma, head of the department of applied geology, ISM, Mrinal Kanti Mukherjee, ISM student chapter faculty adviser and Anant Jain, student president of ISM.

The day ended with a panel discussion with participants: Suhail Kak, Jyotimoni Gogoi, Abhinandan Kohli (from Shell India), Sujoy Mukherjee, V. Ravichandran, Deepika Batta (from Cairn India) and M.K. Mukherjee from ISM. Panel discussion participants shared their views and experiences related to academic research, career in hydrocarbon industry and productivity.

The Shell Day on 14 March was marked by competitive events including Shell case study, HSSE video and photography, Shell game

Panel participants, left to right: Deepika Batta, V. Ravichandran, Sujoy Mukherjee, M.K. Mukherjee, Suhail Kak, Abhinandan Kohli, Jyoti-Moni Gogoi.



Faculty adviser M.K. Mukherjee (center) and student president Anant Jain (third from right) with Shell delegates and organizing committee members.

changing ideas and many others. The final day was packed with several competitive poster and photography presentations, Geoconfab, Geohunt, Geomodelling, Quizzes and Geo-Olympiad. The events were judged by M.K. Mukherjee, A.K. Bhaumik, K. Sarkar, Subha Pal and R. Anand. Winners of the events were felicitated by certificate of merit. The event benefited from the tireless efforts of the student members of the organizing committee including, Parv Mehta, Keval Ladani, Amit Kumar, Piyush Kumar, Moumita Banerjee, Debtanu Banerjee, Reuben Fernandes, Ayoti Banerjee, Abhinav Kumar, Riti Saikia, Geetika Veerwani, Varun Asthana and many others.

Veteran Geologist Attends AAPG GTW in Brisbane

Long-time AAPG member John Casey, 88, hailing from Sydney, attended our Region's first-ever GTW in Brisbane titled, "Opportunities and Advancements in Coal Bed Methane in the Asia Pacific," held in February. John is a classic example of how someone in his senior years is still interested in learning.

When asked how procedures, objectives, techniques and even motivations have changed over the years, he quipped that it was a bit like talking about a horse and buggy race to Formula One drivers. It was our pleasure to welcome John and we hope to see him at more of our events.

AAPG Asia Pacific Presents First GTW in Thailand

The Asia Pacific Region is one of the most dynamic and exciting petroleum regions in the world. It is host to a wide variety of geologic settings and reservoir types. This workshop will bring together experts from around the Asia region and the world to discuss timely topics of interest related to "Characterization of Asian Hydrocarbon Reservoirs" including these themes:

- Low Permeability Reservoirs
- Clastic Reservoirs
- Non-Clastic Reservoirs
- Enhanced Recovery

Submit Your Abstract

You are invited to submit an abstract, 500 words maximum, with oral presenter's / poster author's name underlined, and with a 100-word CV of the presenter / poster author, in a single Word document. Abstracts will be reviewed by the Technical Committee and notification will be sent to all authors. Abstracts received are deemed to already have corporate approval and the affirmation that the presenter / poster author will participate in the Workshop. Note that AAPG does not provide financial aid for speaker / poster author travel. Speakers and poster authors must register and pay for their attendance.

Abstract submission deadline:
1 November 2015 - Submit abstracts to Adrienne Pereira, Programs Manager, AAPG Asia Pacific.

A possible (optional) field trip may take place – watch for more details.

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RESEARCH, DISCOVERY AND DEVELOPMENT

The Lusi Mud Volcano Disaster Indonesia: Lessons for Safe Drilling and Pore Pressure Prediction

By Mark Tingay, Adjunct Associate Professor, University of Adelaide, Australia

On 29 May 2006, hot mud began erupting from the earth in Sidoarjo, Indonesia. At flow rates of up to one million barrels per day, mud quickly flooded the city (Mazzini et al., 2007). Nine years later and 'Lusi' (a conjunction of Lumpur Sidoarjo, or Sidoarjo mud) is still erupting, having expelled over 90 million m3 of mud. The mudflow has now covered over 6.5 km2 of the city, inundating 11,241 buildings, displacing 39,700 people and costing over US$2.7 billion in damages and management (figure 1).

Lusi is the first recorded instance of a destructive mud volcano in an urban area, and has been surrounded by controversy regarding the cause of the disaster. Some scientists argue that the eruption was triggered by the devastating 27 May 2006 Yogyakarta earthquake (250 km away; Mazzini et al., 2007; Lupi et al., 2013). However, other researchers point out that numerous larger and nearer earthquakes did not trigger any previous mudflow, and present data indicating that Lusi resulted from a blowout in the nearby Banjar Panji-1 (BJP-1) exploration well (Manga, 2007; Tingay et al., 2008; Davies et al., 2008; Tingay et al., in press). This article summarizes a new paper (Tingay, 2015), published in the AAPG/SEG Interpretation journal, which undertakes the first detailed examination of pore pressures, drilling activities and petrophysical data from the BJP-1 borehole. This new study provides further evidence that drilling triggered this unique disaster, and highlights valuable lessons for pore pressure prediction and safe drilling practices.

Pore Pressures Under the Lusi Mud Volcano

The compilation of pore pressure and drilling data from BJP-1 and nearby wells reveals that high pore pressures (overpressures) commence at shallow depths of only 350 m (1,150') throughout the region, and reach very high magnitudes of 17.2 MPa/km (14.6 ppg; 0.76 psi/ft) at ~1,200 m (3,900') depth (figure 2). Comparison of pressure data with newly updated geological information shows that overpressures under the Lusi mud volcano occur in three distinct formations: (1) shales of the Pleistocene Pucangan and Upper Kalibeng formations (~350-1,870 m depth; source of Lusi erupted clays); (2) Pliocene to early Pleistocene volcanic and volcaniclastic sequences (from 1,870- ~2,830 m depth), and; (3) Middle Miocene reefal carbonates, most likely of the Tuban formation (>~2,830 m depth; primary source of Lusi erupted water). Pressures in the rapidly deposited (~1,100 m/Ma) Pleistocene shales are 'textbook' examples of overpressure generated by common disequilibrium compaction processes, exhibiting large porosity anomalies (undercompaction) and lithostatic-parallel pore pressure increases (figure 2). However, the high magnitude overpressures observed in volcanic and volcaniclastic rocks under Lusi are quite unusual, as high pore pressures are not typically encountered in non-clastic rocks, and little is known about how overpressures are generated in these lithologies.

The first quality checked petrophysical dataset for the Lusi area is used to examine pore pressure prediction methods in each of the three overpressured formations. Pore pressure prediction methods, commonly used throughout the petroleum industry for well planning, assume that overpressures:

- Are generated by disequilibrium compaction.
- Display an associated porosity anomaly ('undercompaction').
- Are designed to only be used in shales.

The disequilibrium compaction overpressures observed in Pleistocene shales under Lusi are easily and accurately predicted from a range of petrophysical measurements (e.g. compressional and shear sonic, resistivity; figure 2). However, the overpressures observed in volcanic and carbonate sequences, whilst having similar high magnitudes to those in the overlying shales, do not exhibit any observable porosity anomaly, nor show any petrophysical response that can be used for pore pressure prediction (figure 2).

Lessons Learned from Lusi

The unexpected occurrence of high magnitude overpressures in volcanic and carbonate rocks, and the difficulties in predicting these pore pressures, had critical implications for the planning and drilling of the BJP-1 well, and triggering of the Lusi disaster. Pore pressures in the carbonates were predicted, pre-drill, to be only slightly above normal hydrostatic pressure, as encountered in Oligocene carbonates in the offshore East Java Basin over 100 km away (Sawolo et al., 2009). However, these predictions ignored observations of extremely high pore pressures inside the adjacent, and stratigraphically identical, reefal carbonates penetrated in the Porong-1 well, just 7 km away (figure 2; Sawolo et al., 2009; Tingay, 2015). The Porong-1 well experienced significant well control issues upon drilling into the carbonates, suffering both major kicks and total losses, but was successfully drilled because casing was set immediately above the carbonates. Yet, in the BJP-1 well, the expectation of normal pore pressures in the Miocene carbonate target reservoir resulted in the decision to deepen the well beyond the planned 9-5/8" casing point at ~2,630 m (8,630'), and instead penetrate the reservoir before setting casing (Sawolo et al., 2009; Tingay, 2015). Combined with the setting of the 13-3/8" casing 280 m shallower than planned (due to shallow overpressure influxes), and the decision to not run a 11-3/4" contingency liner, the BJP-1 well was uncased for 1,742 m (5,715') of its total 2,833 m (9,294') length when the carbonates are believed to have been penetrated, and when total losses and a major (360 barrels prior to shut-in) kick occurred (figure 2; Tingay et al., 2008; Sawolo et al., 2009; Tingay, 2015). Pressures observed during the kick are calculated to have greatly exceeded the fracture gradient at the 13-3/8" casing shoe, and Lusi commenced erupting 150 m away from BJP-1 less than 24 hours after kicks occurred (Davies et al., 2008; Tingay et al., 2008). Had the 9-5/8" casing been set just above the carbonates, or at its originally planned depth, it is considered likely that the Lusi disaster could have been avoided (Davies et al., 2008; Sawolo et al., 2009; Tingay, 2015).

The failure to predict, anticipate and plan for overpressures in non-clastic rocks in the design and drilling of BJP-1 is considered to be a key factor in the triggering of the Lusi disaster, and thus such overpressures represent a major drilling concern for the petroleum industry. Overpressures in non-clastic rocks are often not detectable

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from pre-drill seismic velocities. Furthermore, volcanic and carbonate rocks typically do not compact solely in response to vertical effective stress. Thus, pore pressure magnitude cannot be quantified in non-clastic rocks using existing petroleum industry pore pressure prediction methods, which all rely on estimating pressure by departure from a normal compaction trend. Indeed, the industry does not currently have any proven techniques for accurately predicting pore pressures in non-clastic rocks. Thus, the ongoing destruction of lives and property caused by the Lusi mud volcano represents a hard lesson and reminder of the significant challenges facing the petroleum and geothermal industries as we increasingly target highly overpressured non-clastic reservoirs, such as high pressure carbonate oil fields in Indonesia, Iran and Iraq; overpressured sub-salt carbonate-hosted oil fields offshore Brazil and overpressured fractured igneous rocks in Australia.

Note: Mark Tingay is adjunct associate professor at Australian School of Petroleum, University of Adelaide, Australia. Contact him at mark.tingay@adelaide.edu.au.

Figure 1: The Lusi mud flow disaster has covered 6.5 km2 of the city of Sidoarjo, Indonesia, in mud up to 40 m deep. Over 11,000 homes have been inundated and almost 40,000 people have been displaced. This photo was taken in May 2007, and these buildings are now completely buried (photo: Mark Tingay).

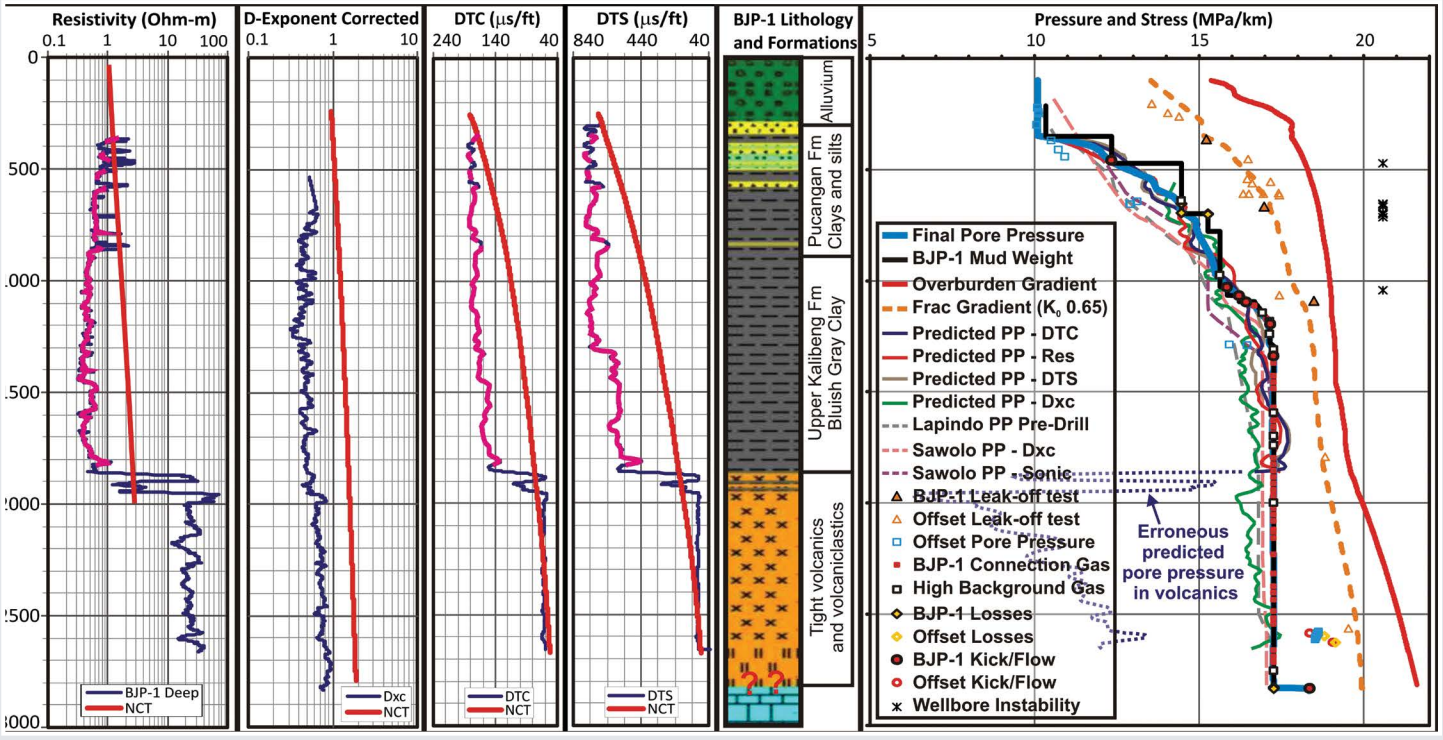

Figure 2: Final estimated pore pressure under the Lusi mud volcano (thick light blue line) based on all available pore pressure measurements and data, as well as predicted pore pressures using petrophysical data, as well as the final estimated pore pressure for BJP-1 utilizing all available data. Note that pore pressures can be accurately predicted from petrophysical data in Pleistocene shales. However, pore pressure prediction methods using petrophysical data fail to predict pore pressures in the volcanic sequences, and significantly underestimate pore pressure (dark blue dotted line). This highlights the inability of existing petroleum industry methods to predict pore pressure in overpressured non-clastic rocks.

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If you are interested in contributing your technical article, contact Adrienne Pereira at apereira@aapg.org.

STUDENT AND YP ACTIVITY

UGMSC Wins First Place at Inaugural AAPG Wiki Write-Off

By Favian Alkindy

AAPG Universitas Gadjah Mada Student Chapter won first place in the inaugural AAPG Wiki Write-Off in 2014 for their article, "Well Log Analysis for Reservoir Characterization."

The AAPG Wiki Write-Off competition is open to all AAPG Student Chapters who wish to write and post five original Wiki articles to the AAPG Wiki page.

UGMSC submitted five articles to the competition:

- "Well Log Analysis' Application for Reservoir Characterization," written by Radhi Muammar from Geophysics 2012.
- "Depositional Environments as the Main Focus of Sedimentology," written by Nurul Yulanda Septianty, Clorinda Donella and Angela Prita Ratiwi from Geological Engineering 2013.
- "Growth Fault," written by Eka Dhamayanti from Geological Engineering 2013.
- "Sandstone," written by Bagaskara Widi Nugroho, Eka Dhamayanti and Aldo Febriansyah Putra from Geological Engineering 2013.
- "Subduction Zone," written by Aldo Febriansyah Putra from Geological Engineering 2013.

Four university student chapters had qualified articles: University of Ilorin, Louisiana State University, Universitas Gadjah Mada and Makerere University Kampala.

Louisiana State University took second place for their article, "Geodynamics of Terrestrial Exoplanets," and third place went to Louisiana State University and Markerere University Kampala for their articles, "Ti-in-zircon Geothermometer" and "Sandstone Sedimentology and Stratigraphy," respectively.

Thank you to AAPG for organizing this competition.

UNHAS Student Chapter Hosts One-Day Lecture

By Anjelita Salassa

AAPG Hasanuddin University (UNHAS) student chapter presented a one-day lecture in November with international speakers, Peter Baillie and Sato Tokiyuki. Baillie, president of SEAPEX, is AAPG Asia Pacific Region past president and Tokiyuki is professor at Akita University, Japan. The activity began with a welcome speech from head of the geological engineering department, Asri Jaya, and was attended by 99 participants from four universities around Makassar City.

Tokiyuki presented first with his lecture, "Oceanography Based on Analysis of Nannofossils." In Baillie's lecture, "The Indonesian Tectonics Laboratory: A Personal Odyssey," he explained huge differences between the west and east part of Indonesia regional tectonic settings, indicating one way to study the tectonic assemble by using multibeam backscatter.

After the Q&A session, Baillie and some committee members visited Bantimurung Bulusaraung National Park in Maros to see the karst tower of Tonasa Formation. It was a very interesting and unforgettable moment for our chapter.

Training Held for Geo Students in Indonesia

By Adrienne Pereira

Six west Indonesian AAPG Student Chapters gathered at Universitas Pakuan at Bogor for the fourth annual Geoscience Students Leadership Development Training, namely: Trisakti SC, Institute Technology of Bandung SC, Universitas Pakuan SC, Universitas Padjajaran SC, Universitas Lampung SC, and Universitas Indonesia SC. The event was conducted in April 2015 for speakers from the oil and gas industry. A talk about geothermal potential in Indonesia was presented by M. Husni Thamrin, Pertamina Hulu Energi and Shinta Damayanti, SKK Migas, who also shared the challenges in strategy and regulation of oil and gas business. After lunch, M. Syaiful (ETTI) gave insights about future challenges for a geoscientist. AAPG Asia Pacific former student chapter coordinator, Geovani Kaeng, Halliburton delivered leadership training and followed by sharing session. Participants discussed model leadership and the current industry situation with the speakers. In order to strengthen the bond between chapters, the event was wrapped up with a rafting trip in Kalibaru.

Indonesian AAPG Student Chapters Gather at IPA 2015